



**Agenda
City of Cocoa
Planning & Zoning Board / Local Planning
Agency Regular Meeting**

**March 5, 2025
6:00 PM
65 Stone Street, Cocoa, FL 32922**

I. Opening Matters:

1. Call to Order
2. Invocation
3. Pledge of Allegiance
4. Roll Call

II. Approval of Agenda and Minutes:

1. Agenda: Regular Meeting of March 5, 2025.
2. Minutes: Regular Meeting of November 6, 2024.
3. Minutes: Regular Meeting of December 4, 2024.

III. Old Business:

IV. New Business:

1. Annual Election of Chairperson and Vice Chairperson.
2. PZ 25-02800001 Michael C. Blake Subdivision – Lennar Homes Development Agreement for Affordable Housing
3. PZ-20-00100004 London Cove Large Scale Site Plan

V. Tree Board:

VI. Other Business:

VII. Next Meeting Date: Wednesday, April 2, 2025

VIII. Adjournment:

General Notice Information:

This is a public meeting. Interested parties are hereby advised that they may appear at said meeting and be heard. The facility wherein this public meeting will be held is accessible to the physically handicapped. In accordance with the Americans With Disabilities Act, persons needing assistance to participate in any of these proceedings should contact the City Clerk of the City of Cocoa, listed below, at least 48 hours prior to the meeting: Monica Arsenault, City Clerk, 65 Stone Street, Cocoa, by telephone at (321) 433-8488 or via email at marsenault@cocoafl.gov.

Pursuant to Section 286.0105, Florida Statutes, the City hereby advises the public that if a person decides to appeal any decision made by the BOA, P&Z Board/LPA or City Council with respect to any matter considered at its meeting or hearing, that person will need a record of the proceedings and for such purpose, affected persons may need to assure that a verbatim record of the proceedings is made, and such record shall include the testimony and evidence upon which the appeal is to be based. This notice does not constitute consent by the City for the introduction or admission into evidence of otherwise inadmissible or irrelevant evidence, nor does it authorize challenges or appeals otherwise not allowed by law.

The BOA or PZ Board/LPA meeting may include the attendance of one (1) or more members of the Cocoa City Council who may or may not participate in the Board discussions held at this public hearing. The BOA, PZ Board/LPA and City Council reserve the right to continue or postpone hearings to a date certain without re-advertising.

Public Participation Information:

Members of the public may view the meeting agenda, ordinances, project applications, supporting documents, and staff reports on the City's website at the following link prior to attending or commenting:

- City of Cocoa meeting calendar at <https://cocoa.legistar.com/Calendar.aspx> Documents pertaining to the above may also be inspected at the Planning & Zoning Department, between 8:00 a.m. and 5:00 p.m., Monday through Friday, or by phoning (321) 433-8535.

Interested persons may submit their written comments or questions prior to the meeting through Email at meetings@cocoafl.org, or via E-comments through the online agenda at the link above. Any electronic comments submitted will be made part of the meeting record.

PLANNING & ZONING AGENDA ITEM

Memo Date: 02/12/2025
Agenda Date: 3/5/2025
Prepared By: Lori Chabot, Recording Secretary
Through: Jennifer Webster, Senior Planner
Requested Action: Request Board Approval of the Agenda from the March 5, 2025, Planning & Zoning Regular Meeting, either as is, or with amendments.

BACKGROUND:

Board Members approve the agenda at the beginning of the meeting.

PRIORITY AREA CONNECTION:

Community Outreach and Engagement

BUDGETARY IMPACT:

None

PREVIOUS ACTION:

N/A

RECOMMENDED MOTION:

Request Board Approval of the Agenda from the March 5, 2025, Planning & Zoning Regular Meeting, either as is, or with amendments.



**Agenda
City of Cocoa
Planning & Zoning Board / Local Planning
Agency Regular Meeting**

**March 5, 2025
6:00 PM
65 Stone Street, Cocoa, FL 32922**

I. Opening Matters:

1. Call to Order
2. Invocation
3. Pledge of Allegiance
4. Roll Call

II. Approval of Agenda and Minutes:

1. Agenda: Regular Meeting of March 5, 2025.
2. Minutes: Regular Meeting of November 6, 2024.
3. Minutes: Regular Meeting of December 4, 2024.

III. Old Business:

IV. New Business:

1. Annual Election of Chairperson and Vice Chairperson.
2. PZ 25-02800001 Michael C. Blake Subdivision – Lennar Homes Development Agreement for Affordable Housing
3. PZ-20-00100004 London Cove Large Scale Site Plan

V. Tree Board:

VI. Other Business:

VII. Next Meeting Date: Wednesday, April 2, 2025

VIII. Adjournment:

General Notice Information:

This is a public meeting. Interested parties are hereby advised that they may appear at said meeting and be heard. The facility wherein this public meeting will be held is accessible to the physically handicapped. In accordance with the Americans With Disabilities Act, persons needing assistance to participate in any of these proceedings should contact the City Clerk of the City of Cocoa, listed below, at least 48 hours prior to the meeting: Monica Arsenault, City Clerk, 65 Stone Street, Cocoa, by telephone at (321) 433-8488 or via email at marsenault@cocoafl.gov.

Pursuant to Section 286.0105, Florida Statutes, the City hereby advises the public that if a person decides to appeal any decision made by the BOA, P&Z Board/LPA or City Council with respect to any matter considered at its meeting or hearing, that person will need a record of the proceedings and for such purpose, affected persons may need to assure that a verbatim record of the proceedings is made, and such record shall include the testimony and evidence upon which the appeal is to be based. This notice does not constitute consent by the City for the introduction or admission into evidence of otherwise inadmissible or irrelevant evidence, nor does it authorize challenges or appeals otherwise not allowed by law.

The BOA or PZ Board/LPA meeting may include the attendance of one (1) or more members of the Cocoa City Council who may or may not participate in the Board discussions held at this public hearing. The BOA, PZ Board/LPA and City Council reserve the right to continue or postpone hearings to a date certain without re-advertising.

Public Participation Information:

Members of the public may view the meeting agenda, ordinances, project applications, supporting documents, and staff reports on the City's website at the following link prior to attending or commenting:

- City of Cocoa meeting calendar at <https://cocoa.legistar.com/Calendar.aspx> Documents pertaining to the above may also be inspected at the Planning & Zoning Department, between 8:00 a.m. and 5:00 p.m., Monday through Friday, or by phoning (321) 433-8535.

Interested persons may submit their written comments or questions prior to the meeting through Email at meetings@cocoafl.org, or via E-comments through the online agenda at the link above. Any electronic comments submitted will be made part of the meeting record.

PLANNING & ZONING AGENDA ITEM

Memo Date: 02/12/2025
Agenda Date: 3/5/2025
Prepared By: Lori Chabot, Recording Secretary
Through: Jennifer Webster, Senior Planner
Requested Action: Request Board Approval of the November 6, 2024 Planning & Zoning Meeting minutes either as written or with amendments.

BACKGROUND:

N/A

PRIORITY AREA CONNECTION:

BUDGETARY IMPACT:

None

PREVIOUS ACTION:

N/A

RECOMMENDED MOTION:

Request Board Approval of the November 6, 2024 Planning & Zoning Meeting minutes either as written or with amendments.

**MINUTES
CITY OF COCOA
PLANNING & ZONING BOARD/ LOCAL PLANNING AGENCY
REGULAR MEETING
November 6, 2024**

A Regular meeting of the Planning & Zoning Board Local Planning Agency was held on November 6, 2024, at City Hall, 65 Stone Street, Cocoa, FL, as publicly noted.

I. CALL TO ORDER:

Chairperson Park called the meeting to order at 6:00 PM.

ROLL CALL:

Wesley Park	Chairperson
Ron Chabot	Board Member
Aleck Greenwood	Board Member
Tamisha Findlay	Board Member
Marcus Wheeler	Board Member
Frank Manfredi	Board Member
Tamisha Findlay	Board Member
Marybeth Burgess	Board Member
Katherine Stewart	Alternate Member
Kristin Eick	City Attorney

PRESENT:

Wesley Park	Chairperson
Marcus Wheeler	Board Member
Ron Chabot	Board Member
Tamisha Findlay	Board Member
Frank Manfredi	Board Member
Katherine Stewart	Alternate Member

ABSENT:

Marybeth Burgess	Board Member
Todd Anderson	Vice Chairperson
Aleck Greenwood	Board Member

STAFF PRESENT:

Abbey Bass, Assistant City Clerk; Jennifer Webster, City Planner; Luci Ribeiro, City Planner; Alexis Cresto, Vice-President of Planning, RVI, Consultants.

Chairperson Park led the assembly in the Pledge of Allegiance.

II. APPROVAL OF AGENDA AND MINUTES:

1. AGENDA: Meeting of November 6, 2024.

- * **MOTION BY BOARD MEMBER CHABOT; SECONDED BY BOARD MEMBER MANFREDI TO APPROVE THE NOVEMBER 6, 2024, REGULAR MEETING AGENDA AS WRITTEN.**

AYES: PARK, CHABOT, WHEELER, MANFREDI, STEWART, FINDLAY

MOTION PASSED UNANIMOUSLY (6-0)

2. MINUTES: Regular Meeting of October 2, 2024.

- * **MOTION BY BOARD MEMBER MANFREDI; SECONDED BY BOARD MEMBER WHEELER TO APPROVE THE OCTOBER 2, 2024, REGULAR MEETING MINUTES AS WRITTEN.**

AYES: PARK, CHABOT, WHEELER, MANFREDI, STEWART, FINDLAY

MOTION PASSED UNANIMOUSLY (6-0)

III. OLD BUSINESS:

None.

IV. NEW BUSINESS:

A. PZ 24-00500002 COMPREHENSIVE PLAN TEXT AMENDMENT| ORD 14-2024

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF COCOA, BREVARD COUNTY, FLORIDA, adopting a large scale Comprehensive Plan text amendment; amending a policy in the Future Land Use Element related to the mixed-use future land use category, establishing the authorized uses permitted on the ground floor of a mixed use building, such mixed-use buildings being eligible for residential density bonuses generally of an additional five (5) dwelling units per acre for vertical mixed-use buildings and up to 125 dwelling units per acre for vertical mixed-use projects in the very limited geographical area identified in policy 1.1.2.6 of the Comprehensive Plan and requiring a Development Agreement by the City Council under certain terms and conditions deemed necessary and acceptable to the City Council; for the repeal of prior inconsistent ordinances and resolutions, incorporation into the comprehensive plan, severability, and an effective date, and legal status of the plan amendment.

Alexis Cresto with RVI presented the item via powerpoint.¹ She explained that this was a large-scale test amendment to the mixed-use future land use category to allow greater flexibility of ground floor uses. Currently, the policy requires ground floor of vertically integrated mixed-use building to consist of entirely of retail sales, offices and services and restaurants. This amendment seeks flexibility to use 51% of the total building length of the ground floor street frontage for commercial uses and remaining 49% available to residential use. She added, this amendment is designed to encourage redevelopment in key areas, for example, Cocoa Village CRA, Cocoa Waterfront and CV Subdistrict.

Board Member Manfredi asked if there was a new comp plan available. City Manager Whitten advised it will be in place October of 2025.

Board Member Chabot asked if there is business and residential on the same floor and would there be restrictions on what the residential units can have outdoors. Ms. Cresto shared that a plan will have to be presented for each business for approval in advance. Mr. Manfredi asked about the types/height of buildings for the sites discussed. City Manager Whitten replied, it could be a high rise with 7+ stories, but that will depend on the developer agreement. Mr. Manfredi asked if that many people would put a strain on the sewer system and could Cocoa handle it. City Manager replied that is one of the assessments that would be done prior to build.

CLOSED TO THE BOARD, OPEN TO THE PUBLIC. BACK OPEN TO THE BOARD.

Chairperson Park asked for corrections to some of the grammatical errors on the ordinances.

* **MOTION BY BOARD MEMBER CHABOT; SECONDED BY BOARD MEMBER STEWART TO RECOMMEND APPROVAL TO THE CITY COUNCIL OF ORDINANCE 08-2024, A CITY-INITIATED REQUEST OF A FUTURE LAND USE MAP AMENDMENT CONSISTENT WITH FLORIDA STATUTE CHAPTER 163 TO CHANGE THE FUTURE LAND USE MAP DESIGNATION OF (20) PARCELS OF REAL PROPERTY TOTALING APPROXIMATELY 3.36 ACRES FROM “COMMERCIAL” TO “NEIGHBORHOOD COMMERCIAL” with the clerical changes requested by Chairman Park**

AYES: PARK, CHABOT, WHEELER, MANFREDI, STEWART, FINDLAY

MOTION PASSED UNANIMOUSLY (6-0)

B. PZ 24-02100004 ZONING MAP AMENDMENT PINE GROVE PARK | ORD 15-

¹ RVI Powerpoint - Mixed Use Future Land Use Category Comprehensive Plan Amendment (Text Amendment)

2024

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF COCOA, BREVARD COUNTY, FLORIDA; amending the official zoning map designation of sixteen (16) parcels of real property, totaling 8.36 acres, more or less, and generally located adjacent to State Road 520 near the intersections with Virginia Avenue, Ruth Street, and Aurora Street, in Cocoa, Florida, more particularly depicted and described on exhibit “A” attached hereto, from Brevard County Single-Family Residential (RU-1-9), General Retail Commercial (BU-1), and Retail, Warehousing & Wholesale Commercial (BU-2) to City of Cocoa General Commercial (C-G); providing for the repeal of prior inconsistent ordinances and resolutions, severability, and an effective date. **This item was postponed to the December 4, 2024 meeting.**

- * **MOTION BY BOARD MEMBER PARK; SECONDED BY BOARD MEMBER STEWART TO POSTPONE THE ITEM TO THE DECEMBER 4TH PLANNING AND ZONING MEETING.**

AYES: PARK, CHABOT, WHEELER, MANFREDI, STEWART, FINDLAY

MOTION PASSED UNANIMOUSLY (6-0)

C. PZ 24-02000005 ZONING TEXT AMENDMENT – TREE PROTECTION | ORD 18-2024

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF COCOA, BREVARD COUNTY, FLORIDA, amending the zoning ordinance of the city of cocoa regarding tree protection and preservation; amending procedures related to waivers of tree protection and preservation requirements; providing for the repeal of prior inconsistent ordinances and resolutions, incorporation into the code, severability, and an effective date.

Ms. Ribeiro present the item via powerpoint². She stated staff is requesting that the Tree/Board/Planning and Zoning Board review a proposed amendment to the Land Development Code. The purpose of this ordinance is to update tree preservation and replacement requirements, with specific guidelines for palm trees and to clarify that waiver decisions will be overseen by the appropriate boards and Council. Thorough tree assessment, staff hopes to find a fair balance between preserving trees and promoting beneficial development. A summary of the changes are to define tree expansion, introduce specific provisions for palm trees and create a clear waiver process for developers. Board Member Wheeler had a question with regard to the Tree Board and what goes to Council v. Planning & Zoning. Ms. Ribeiro

²1 Powerpoint – Ordinance 18-2024; Landscaping, Land Clearing, and Tree Protection and Replacement Standards

replied and explained that process. Attorney Eick shared that if a palm tree is removed that's less than 12 inches it does not have to be replaced but if it's over 12 inches, it would have to be replaced with another tree, not necessarily another palm tree but any tree.

CLOSED TO THE BOARD, OPENED TO THE PUBLIC. BACK OPEN TO THE BOARD.

Councilwoman Koss spoke and advised the board that palm trees are not considered trees; but they have ecosystem benefits, and it helps attract different types of birds and bees and she doesn't believe 12 inches is enough. She said the palm trees on Indian River Drive help break the storm and help provide more benefits than most know of.

Ms. Ribeiro wanted to make the board aware that with every project and site plan there is an environmental report submitted to staff.

Ms. Stewart stated she understand this as adding a Palm Tree to the ability to provide waivers and supports the change. City Manager Whitten added this is really doing a few things. It speaks to the replacement for Palms, and the area that can be donated for credits was changed from ½ acre to 1 acre and the appeal process.

Chairman Park identified errors in the Ordinance and requested change.

* **MOTION BY BOARD MEMBER WHEELER; SECONDED BY ALTERNATE MEMBER STEWART TO RECOMMEND APPROVAL OF ORDINANCE 18-2024, with the corrections to the ordinance requested by Chair Park.**

AYES: PARK, CHABOT, WHEELER, MANFREDI, STEWART, FINDLAY

MOTION PASSED UNANIMOUSLY (6-0)

D. PZ 24-02000006: City-Initiated Zoning Text Amendment – Transportation Terminal Definition | Ordinance 19-2024

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF COCOA, BREVARD COUNTY, FLORIDA, amending the zoning ordinance of the city of cocoa to define transportation terminals; providing for the repeal of prior inconsistent ordinances and resolutions, incorporation into the code, severability, and an effective date.

Ms. Ribeiro presented the item via powerpoint³. Staff is requesting the Board to consider a Land Development Code Text Amendment to provide a definition for the Transportation Terminal use that would distinguish it from Truck Parking Facilities. This change would be applicable to M-1 cumulative zoning and special in the C-G and PUDs.

Subsequently, staff recommends the definition of a Transportation Terminal Facility read as follows: A Transportation terminal includes both passenger transportation terminals and freight terminals. Transportation terminals are facilities where passengers or freight are assembled and dispersed during transportation and must include facilities, buildings, and equipment used for the transport of people or goods. Passenger transportation facilities allow passengers to access modes of transportation such as buses, ferries, or trains for example and include ancillary services such as ticketing, food and security services. Freight transportation terminals shall include facilities such as berths, loading bays, freight yards, storage facilities, and warehouses to move and disperse goods.

Assistant City Attorney Eick stated a final sentence was added to the definition and is as follows: Facilities used primarily for short term or long-term parking of vehicles shall not be considered as Transportation Terminals. This corrects a problem they have had with the term transportation terminal in the code without it being defined.

CLOSED TO BOARD, OPEN TO PUBLIC-NO SPEAKERS, BACK OPEN TO THE BOARD.

* **MOTION BY ALTERNATE STEWART; SECONDED BY BOARD MEMBER MANFREDI TO RECOMMEND APPROVAL OF ORDINANCE 19-2024.**

AYES: PARK, CHABOT, WHEELER, MANFREDI, STEWART, FINDLAY

MOTION PASSED UNANIMOUSLY (6-0)

V. **TREE BOARD:** None

VI. **OTHER BUSINESS:** Board Member Chabot asked what the difference between the P&Z and the BOA. Assistant City Attorney Eick replied stating that the City

³Presentation – Ordinance 19-2024; City Initiated Zoning Text Amendment – Transportation Terminal Definition

has created two boards to hear different types of land use approvals. The P&Z usually site plan approvals, zoning, comprehensive plan, and your tasked with reviewing the comp plan but for variances, most waivers, special exceptions and administrative interpretation would be heard by the BOA. They have different responsibilities according to the City Code.

VII. NEXT MEETING DATE:

The next scheduled meeting for the Planning and Zoning Board will be held on Wednesday, December 4, 2024, at 6 pm in Cocoa City Hall, 65 Stone St, Cocoa, FL 32922.

VIII. ADJOURNMENT:

* **MOTION BY CHAIRPERSON PARK; SECONDED BY BOARD MEMBER FINDLAY TO ADJOURN THE MEETING.**

AYES: PARK, CHABOT, WHEELER, MANFREDI, STEWART, FINDLAY

MOTION PASSED UNANIMOUSLY (6-0)

MEETING ADJOURNED AT 6:55PM.

Wesley Park, Chairperson

Respectfully Submitted By:

Abigail Bass, Assistant City Clerk

PLANNING & ZONING AGENDA ITEM

Memo Date: 02/12/2025
Agenda Date: 3/5/2025
Prepared By: Lori Chabot, Recording Secretary
Through: Jennifer Webster, Senior Planner
Requested Action: Request Board Approval of the Minutes from the Planning & Zoning, December 4, 2024, Regular Meeting, either as written or with amendments.

BACKGROUND:

N/A

PRIORITY AREA CONNECTION:

BUDGETARY IMPACT:

None

PREVIOUS ACTION:

N/A

RECOMMENDED MOTION:

Request Board Approval of the Minutes from the Planning & Zoning, December 4, 2024, Regular Meeting, either as written or with amendments.

**MINUTES
CITY OF COCOA
PLANNING & ZONING BOARD/ LOCAL PLANNING AGENCY
REGULAR MEETING
December 4, 2024**

A Regular meeting of the Planning & Zoning Board Local Planning Agency was held on December 4, 2024, at City Hall, 65 Stone Street, Cocoa, FL, as publicly noted.

I. CALL TO ORDER:

Chairperson Park called the meeting to order at 6:00 PM.

ROLL CALL:

Wesley Park	Chairperson
Todd Anderson	Vice Chairperson
Ron Chabot	Board Member
Aleck Greenwood	Board Member
Tamisha Findlay	Board Member
Marybeth Burgess	Board Member
Katherine Stewart	Board Member
Victoria Jones	Board Member
Kristin Eick	City Attorney
Frank Manfredi	1 st Alternate

PRESENT:

Wesley Park	Chairperson
Todd Anderson	Vice Chairperson
Ron Chabot	Board Member
Aleck Greenwood	Board Member
Tamisha Findlay	Board Member
Marybeth Burgess	Board Member
Katherine Stewart	Board Member
Victoria Jones	Board Member
Frank Manfredi	1 st Alternate
Amelia Ulmer	City Attorney

ABSENT:

Marcus Wheeler	Board Member
Joseph Bachand	2nd Alternate

STAFF PRESENT:

Lori Chabot, Recording Secretary; Jennifer Webster, City Planner.

Chairperson Park led the assembly in the Pledge of Allegiance.

II. APPROVAL OF AGENDA AND MINUTES:

1. AGENDA: Meeting of December 4, 2024

- * **MOTION BY BOARD MEMBER CHABOT; SECONDED BY VICE CHAIR ANDERSON TO APPROVE THE DECEMBER 4, 2024, REGULAR MEETING AGENDA AS WRITTEN.**

AYES: PARK, ANDERSON, GREENWOOD, CHABOT, BURGESS, WHEELER, FINDLAY, JONES, STEWART

MOTION PASSED UNANIMOUSLY (9-0)

2. MINUTES: Regular Meeting of November 6, 2024.

- * **MOTION BY CHAIR PARK; SECONDED BY BOARD MEMBER FINDLAY TO APPROVE THE NOVEMBER 6, 2024, REGULAR MEETING MINUTES AND BRING BACK TO THE NEXT MEETING.**

AYES: PARK, ANDERSON, GREENWOOD, CHABOT, BURGESS, WHEELER, FINDLAY, JONES, STEWART

MOTION PASSED UNANIMOUSLY (9-0)

III. OLD BUSINESS:

None.

IV. NEW BUSINESS:

A. PZ 24-02100004 ZONING MAP AMENDMENT PINE GROVE PARK | ORD 15-2024

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF COCOA, BREVARD COUNTY, FLORIDA; amending the official zoning map designation of sixteen (16) parcels of real property, totaling 8.36 acres, more or less, and generally located adjacent to State Road 520 near the intersections with Virginia Avenue, Ruth Street, and Aurora Street, in Cocoa, Florida, more particularly depicted and described on exhibit "A" attached hereto, from Brevard County Single-Family Residential (RU-1-9), General Retail Commercial (BU-1), and

*Retail, Warehousing & Wholesale Commercial (BU-2) to City of Cocoa General Commercial (C-G); providing for the repeal of prior inconsistent ordinances and resolutions, severability, and an effective date. **This item was postponed from the November meeting.***

City Planner Jennifer Webster presented the item via a powerpoint ¹. Staff is requesting Consideration of Ordinance 15-2024 Pine Grove Park Commercial Zoning Map Amendment and is a city-initiated ordinance amending the official Zoning Map designation of sixteen parcels of real property, totaling roughly 8.36 acres from Brevard County Single Family Residential, General Retail Commercial and Retail, Warehousing & Wholesale Commercial to City of Cocoa General Commercial. She continued through the presentation providing greater details and explanation.

Board member Greenwood asked to explain "City Initiated". Ms. Webster stated that there is not a specific project on this but did have representation from area residents and their inquiries initiated this request. Board member Greenwood asked if there were many calls. Ms. Webster said they had received some inquiries. Vice Chair Anderson mentioned previous FLU not matching up with zoning. Vice Chair Anderson said at that time City staff were looking at all similar situations. He continued and asked if staff had spoken with one specific owner in a similar circumstance and Ms. Webster replied that was one that inquired. Single family residential is not permitted under new zoning and that owner wanted to market the property as commercial. Board Member Chabot asked about prior years and if things were in limbo and Ms. Webster confirmed adding the businesses have worked it to assist their ability to develop. Ms. Webster stated most properties are in conformance to the requested zoning uses however, there are two that are not in the list of uses, but they may continue as they are. If the property was abandoned, that would change things. Chair Anderson explained annexations normal practice is to "grandfather in" property. Vice Chair Anderson provided some history about properties annexed to the City over the years and the normal protocol. Board Member Greenwood expanded on the discussion and changes from the City.

CHAIR CLOSED TO THE BOARD, OPENED TO THE PUBLIC. NO SPEAKERS- REOPENED TO THE BOARD.

*

MOTION BY BOARD MEMBER GREENWOOD; SECONDED BY ALTERNATE STEWART TO APPROVE THE ZONING MAP AMENDMENT PINE GROVE PARK I ORD 15-2024; *amending the official zoning map designation of sixteen (16) parcels of real property, totaling 8.36 acres, more or less, and generally located adjacent to State Road 520 near the intersections with Virginia Avenue, Ruth*

¹~~Presentation-Ordinance 15-2024 Pine Grove Park Commercial Zoning Map Amendment~~

Street, and Aurora Street, in Cocoa, Florida, more particularly depicted and described on exhibit "A" attached to the Agenda, from Brevard County Single-Family Residential (RU-1-9), General Retail Commercial (BU-1), and Retail, Warehousing & Wholesale Commercial (BU-2) to City of Cocoa General Commercial (C-G); providing for the repeal of prior inconsistent ordinances and resolutions, severability, and an effective date.

AYES: PARK, ANDERSON, GREENWOOD, CHABOT, BURGESS, WHEELER, FINDLAY, JONES, STEWART

MOTION PASSED UNANIMOUSLY (9-0)

- V. **TREE BOARD:** Board Member Greenwood recalled a question from Vice Chair Anderson and asked about tree removed off Range Road and is curious if staff knows why the trees were removed. Did staff have time to look at that. Ms. Webster replied she did not have further information, but Chair Anderson stated he received an email from City Manager that he had reached out, it was school the board. Chair Anderson added replied it was in right of way and through school board was not in charge of right of way. It is not a huge deal, but the School Board didn't run it by P&Z Board. He would not want that to happen in the future. Board Member Greenwood stated he is proud of P&Z Board for trees USA and discussed how the Tree Board came about and provided some history. The board has saved trees and replanted.
- VI. **OTHER BUSINESS:** Board Member Manfredi provided a report for the board outlining his thoughts, experiences and observations and suggestions for the future based on his professional experience. Board Member Greenwood replied and complimented the staff, City Manager and City Attorney.
- VII. **NEXT MEETING DATE:**

The next scheduled meeting for the Planning and Zoning Board will be held on Wednesday, January 8, 2025, at 6 pm in Cocoa City Hall, 65 Stone St, Cocoa, FL 32922. **PLEASE NOTE, THIS IS A DATE CHANGE FROM THE REGULAR MEETING ON JANUARY 1, 2025.**

VIII. **ADJOURNMENT:**

*

MOTION BY VICE CHAIRPERSON ANDERSON; SECONDED BY BOARD MEMBER FINDLAY TO ADJOURN THE MEETING.

**AYES: PARK, ANDERSON, GREENWOOD, CHABOT, BURGESS,
WHEELER, FINDLAY, JONES, STEWART**

MOTION PASSED UNANIMOUSLY (9-0)

MEETING ADJOURNED AT 6:41 PM.

Wesley Park, Chairperson

Respectfully Submitted By:

Lori Chabot, Recording Secretary

PLANNING & ZONING AGENDA ITEM

Memo Date: 02/12/2025
Agenda Date: 3/5/2025
Prepared By: Lori Chabot, Recording Secretary
Through: Jennifer Webster, Senior Planner
Requested Action: Request Board nominate and elect a Chairperson and Vice Chairperson for the Planning & Zoning Board.

BACKGROUND:

Each year the board nominates and elects a new Chairperson and Vice Chairperson.

PRIORITY AREA CONNECTION:

Community Outreach and Engagement

BUDGETARY IMPACT:

None

PREVIOUS ACTION:

N/A

RECOMMENDED MOTION:

Request Board nominate and elect a Chairperson and Vice Chairperson for the Planning & Zoning Board.

Planning & Zoning Board		Meets First Wednesday Every Month @ 6pm		Expirations in November	
MEMBER	ADDRESS	PHONE	APPOINTED	EXPIRES	
Tamisha Findlay	315 Stone St. Cocoa, FL 32922 tamishafindlay@gmail.com	321-412-2948	09/24 Appointed	2027	
Wesley Park Fulfilling Al Washington's term	1112 Abington St., Cocoa, FL 32922 Wesley.11.12ark@gmail.com	321-298-4943	01/23 Appointed	2026	
Katherine Stewart	5261 Talbot Blvd. Cocoa, FL 32926 Katherineann s@yahoo.com	267-226-2284	11/24 Appointed	2027	
Ron Chabot	2114 Clairemont Dr. Cocoa, FL 32922 Ron982(almsn.com)	321-403-3861	01/23 Appointed	2027	
<u>MerryBeth Burgess</u> VACANT	<u>19 Parkway Street</u> <u>Cocoa, FL 32922</u> merrybethburgess@reclcetmail.com	<u>404 683 0560</u>	<u>01/23/2022</u> as <u>Regular</u>		
			<u>member</u>		
			<u>01/12/2022</u>		
			<u>Alternate member</u>		
Aleck Greenwood	PO Box 1077 Cocoa, FL 32923 Agreenwood2@cfl.JT.com	321-917-3770	12/22 Reappointed 08/2022 Appointed as Regular member (fulfilling term of J. Blanco) 01/2019 Appointed	2025	
Marcus Wheeler	709 Ixora Ave. Cocoa, FL 32922 lushorn(a)gmail.com	321-271-9871	01/23 Appointed	2026	
Victoria Jones	3070 Cirrus Drive Cocoa, FL 32926 vickeymitch(a)gmail.com	321-795-9849	11/24 Appointed	2027	
Todd Anderson (1/3 non- resident)	6570 Pleasant Ave., Cocoa, FL 32927 toddpanderson@yahoo.com	403-7595 (cell)	01/23 Reappointed 02/2020 Appointed 11/16 Reappointed 1/28/14 appointed (to fill vacancy left by Stephenson)	2025	

PLANNING & ZONING AGENDA ITEM

Memo Date: 02/20/2025
Agenda Date: 3/5/2025
Prepared By: Jennifer Webster, Senior Planner
Through: Stockton Whitten, City Manager
Requested Action: Consideration of a Development Agreement for affordable housing in the Michael C. Blake Subdivision in Cocoa, Florida, situated in the Diamond Square Community Redevelopment area, affecting approximately 2.83 acres of city-owned property, located generally on Mango Avenue, Valencia Avenue, and Blake Avenue between Barbara Jenkins Street and Stone Street, for the development of seventeen (17) existing parcels of real property into thirty-two (32) affordable, single-family homes with lots not less than thirty-seven (37) feet in width and ninety-five (95) feet in depth. The agreement establishes building elevations and floor plans for the future homes and describes development schedules and future permitting requirements.(POSTPONE TO APRIL 02, 2025)

BACKGROUND:

The applicant has requested to continue the matter to the next Planning and Zoning Board meeting on April 2, 2025.

PRIORITY AREA CONNECTION:

Economic and Community Development

BUDGETARY IMPACT:

N/A

PREVIOUS ACTION:

N/A

RECOMMENDED MOTION:

Consideration of a Development Agreement for affordable housing in the Michael C. Blake Subdivision in Cocoa, Florida, situated in the Diamond Square Community Redevelopment area, affecting approximately 2.83 acres of city-owned property, located generally on Mango Avenue, Valencia Avenue, and Blake Avenue between Barbara Jenkins Street and Stone Street, for the development of seventeen (17) existing parcels of real property into thirty-two (32) affordable, single-family homes with lots not less than thirty-seven (37) feet in width and ninety-five (95) feet in depth. The agreement establishes building elevations and floor plans for the future homes and describes development schedules and future permitting requirements.(POSTPONE TO APRIL 02, 2025)

AFFIDAVIT OF PUBLICATION

Jennifer Webster, Planning & Zoning Dept.
Monica Arsenault
Cocoa City Hall
65 Stone Street
Cocoa FL 32922

STATE OF WISCONSIN, COUNTY OF BROWN

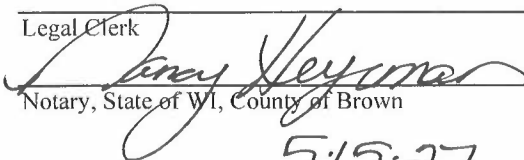
Before the undersigned authority personally appeared, who on oath says that he or she is the Legal Advertising Representative of the Florida Today, a daily newspaper published in Brevard County, Florida; that the attached copy of advertisement, being a Legal Ad in the matter of Public Notices, was published on the publicly accessible website of Brevard County, Florida, or in a newspaper by print in the issues of, on:

02/26/2025

Affiant further says that the website or newspaper complies with all legal requirements for publication in chapter 50, Florida Statutes.

Subscribed and sworn to before me, by the legal clerk, who is personally known to me, on 02/26/2025

Legal Clerk


Notary, State of WI, County of Brown

5.15.27

My commission expires

Publication Cost: \$285.59

Tax Amount: \$0.00

Payment Cost: \$285.59

Order No: 11069006

of Copies:

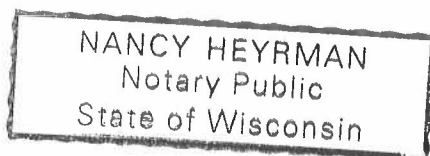
Customer No: 1127247

1

PO #:

THIS IS NOT AN INVOICE!

Please do not use this form for payment remittance.



Ad#11069006 2/26/2025
 CITY OF COCOA
 NOTICE OF PUBLIC HEARING
 NOTICE IS HEREBY GIVEN
 THAT
 THE PLANNING & ZONING
 BOARD/LOCAL PLANNING
 AGENCY
 AND THE COCOA CITY COUNCIL
 PROPOSE TO CONSIDER THE
 FOLLOWING:
 PZ 25-02800001 MICHAEL C.
 BLAKE SUBDIVISION - LENNAR
 HOMES DEVELOPMENT
 AGREEMENT FOR
 AFFORDABLE HOUSING
 CONSIDERATION OF A
 DEVELOPMENT AGREEMENT
 FOR AFFORDABLE HOUSING IN
 THE MICHAEL C. BLAKE
 SUBDIVISION IN COCOA,
 FLORIDA, SITUATED IN THE
 DIAMOND SQUARE COMMUNITY
 REDEVELOPMENT AREA,
 AFFECTING APPROXIMATELY
 2.83 ACRES OF CITY-OWNED
 PROPERTY, LOCATED
 GENERALLY ON MANGO
 AVENUE, VALENCIA AVENUE,
 AND BLAKE AVENUE
 BETWEEN BARBARA JENKINS
 STREET AND STONE STREET.
 THE AGREEMENT CALLS FOR
 THE DEVELOPMENT OF
 SEVENTEEN (17) EXISTING
 PARCELS OF REAL PROPERTY
 INTO THIRTY-TWO (32)
 AFFORDABLE, SINGLE-FAMILY
 HOMES WITH LOTS NOT LESS
 THAN THIRTY-SEVEN (37) FEET
 IN WIDTH AND NINETY-FIVE
 (95) FEET IN DEPTH. THE
 AGREEMENT ESTABLISHES
 BUILDING ELEVATIONS AND
 FLOOR PLANS FOR THE
 FUTURE HOMES AND
 DESCRIBES DEVELOPMENT
 SCHEDULES AND FUTURE
 PERMITTING REQUIREMENTS.
 CONSISTING OF THE
 FOLLOWING TAX ID NUMBERS:
 24-36-32-07*-5, 24-36-32-07*-6, 24-36-32-07*-9, 24-36-32-07*-10, 24-36-32-07*-4, 24-36-32-07*-11, 24-36-32-07*-3, 24-36-32-07*-12, 24-36-32-07*-2, 24-36-32-07*-13, 24-36-32-07*-1, 24-36-32-07*-14, 24-36-32-CC-13-7, 24-36-32-CC-13-14, 24-36-32-07*-15, 24-36-32-07*-16, 24-36-32-07*-17.

PLANNING & ZONING BOARD/
 LOCAL PLANNING AGENCY
 PUBLIC HEARING WILL BE
 HELD ON
 March 5, 2025
 CITY COUNCIL PUBLIC
 HEARING WILL BE HELD ON
 March 18, 2025
 ALL HEARINGS WILL TAKE
 PLACE AT 6:00 P.M. OR SOON
 THEREAFTER IN THE
 COCOA CITY HALL COUNCIL
 CHAMBERS LOCATED AT
 65 STONE STREET, COCOA, FL

General Notice Information:
 This is a public meeting. Interested parties are hereby advised that they may appear at said meeting and be heard. The facility wherein this public meeting will be held is accessible to the physically handicapped. In accordance with the Americans With Disabilities Act, persons needing assistance to participate in any of these proceedings should contact the City Clerk, Monica Arsenault, at least 48 hours prior to the meeting by telephone at (321) 433-8484 or via email at marsenault@cocoafl.org. The City hereby advises the public that if a person decides to appeal any decision made by the BOA, P&Z Board/LPA or City Council with respect to any matter considered at its meeting or hearing, that person will need a record of the proceedings and, for such purpose, affected persons may need to assure that a verbatim record of the proceedings is made, and such record shall include the testimony and evidence upon which the appeal is to be based. This notice does not constitute consent by the City for the introduction or admission into evidence of otherwise inadmissible or irrelevant evidence, nor does it authorize challenges or appeals otherwise not allowed by law. The BOA, PZ Board/LPA and City Council reserve the right to continue or postpone hearings to a date certain without re-advertising.

Public Participation Information:
 The public may inspect the agenda items, ordinances, and supporting documents at the Community Services Department, between 8:00 a.m. and 5:00 p.m., Monday through Friday, or by phoning (321) 433-8451, or on the City's website at the following link prior to the meeting: <https://www.cocoafl.gov/291/20338/City-Meetings>. Interested persons may submit their written comments or questions prior to the meeting through Email at meetings@cocoafl.org. Viewing In Real Time. Interested persons may view and listen to the hearings live at the following internet address: <https://www.cocoafl.gov/291/20338/City-Meetings>. The City is not responsible for technical difficulties that may occur while viewing or listening online.

PLANNING & ZONING AGENDA ITEM

Memo Date: 02/20/2025
Agenda Date: 3/5/2025
Prepared By: Patrick Murray, Planning Consultant, RVI
Through: Stockton Whitten, City Manager
Requested Action: Staff requests that the Planning & Zoning Board recommend APPROVAL to City Council of a Large-Scale Site Plan, pursuant to Appendix A, Zoning, Article XIII, Sec. 1(D) of the Cocoa City Code, for the development of a new six (6) lot commercial subdivision on a single parcel of real property, totaling 11.5+ acres. The property is located along SR 524, west of the Cocoa Commons Shopping Center and approximately ¼ mile south of SR 528. Tax Parcel ID number: 24-36-18-00-502 and 24-36-18-00-500.1.

BACKGROUND:

The subject property is generally located south State Road 524, west of Cocoa Commons Shopping Center and due south of London Blvd. in Cocoa, Florida. The property is further described by the Property Appraiser as a portion of Tax Parcel ID Number: 24-36-18-00-502 and 24-36-18-00-500.1.

This parcel features two (2) zoning categories: the northern portion of this parcel is designated as C-N (Neighborhood Commercial) and covers about 7 acres, while the remainder is zoned RU-2-15 (Multiple Family Dwelling).

In terms of Future Land Use, the larger parcel is designated within the Neighborhood Commercial and Medium Density Residential categories, while the smaller 4-acre parcel is designated solely as Medium Density Residential.

The applicant initially submitted both a Site Plan Application and a Plat Application. After further review and discussions between the staff and the applicant, the applicant elected to proceed with the Site Plan, while postponing the Plat review to a later date.

It is important to note, the Large-Scale Site Plan is an “infrastructure only” site plan and does not authorize vertical construction of buildings or specific improvements, such as parking or landscape buffers. Rather, the Site Plan, if approved, authorizes site clearing, earthwork, and the construction of the internal roadways, utilities and stormwater management system only.

The Site Plan features six (6) proposed commercial parcels, a roadway serving the parcels, utilities and stormwater management areas in the southern portions of the site. The remaining lands in the south are not proposed for any construction activities other than stormwater management.

Relating to the internal roadway design, the site plan also indicates required rights-of-way, street terminations, sidewalks, and general location of stormwater location areas.

In order to obtain building permits for vertical construction of the commercial parcels and any future development in the southern portions of the site, additional Site Plan approvals by the City will be required.

PROJECT INFORMATION:

The Applicant formally submitted the London Cove Large Scale Site Plan Application in June 2024. The Applicant intends to subdivide Parcel 24-36-18-00-502 into six (6) commercial lots, while retaining the remainder of the site as a residential lot.

The six (6) commercial parcels range from 1.0± acres to 1.98 acres. These lots are accessed via an internal road, London Blvd.

Future Land Use Designation: Neighborhood Commercial (NCOMM) & Medium Density Residential (MDR)

Zoning District: Neighborhood Commercial (C-N) & Multiple Family Dwelling (RU-2-15)

Existing Land Use: Vacant

Council District: District 3 – Councilmember Patricia Weeks

Legal Ad Date: February 25, 2025

Overview of Surrounding Area			
	Future Land Use	Zoning	Land Use
North	MDR / COMM	PUD / C-N	Residential
South	LDR	RU-2-15	Municipal
East	NCOMM	C-N	Office Commercial
West	NCOMM	C-N	Municipal (Fire Station)

Large-Scale Site Plan Analysis

“Consistent with Appendix A, Article XIII, Section 1(D), “All site plans shall be required to meet all current applicable code requirements.”

Consistency with Code of the City of Cocoa

The Development Review Committee, consisting of the Building Official, the Code Enforcement Manager, the Environmental Control Coordinators, the Fire Department Chief and/or Inspector, the Planning & Zoning Manager and/or staff, the Public Works Director, and the Utilities Director, have reviewed the site plan and determined that it generally meets the minimum requirements of all applicable City Code requirements. In addition, the site plan meets the requirements of a Large Scale Site Plan review. As noted above,

further site plan review will be required prior to vertical construction of any commercial or residential uses on the property. The proposed site plan authorizes construction of infrastructure only.

Site Plan Data

The site plan includes six (6) designated tracts (Tract A – F). Each tract serves a specific purpose within the site, including areas for stormwater treatment, recreation, common open space, wetland conservation, the access road, an internal private road, and water conservation. The "Tract Data Table" below outlines the allocated area and intended use for each named tract.

Tract Data Table

Site Tract Designation Areas		
Tract	Use	Area
A	Future Development	6.13
B	STORMWATER TREATMENT/RECREATION/COMMON OPEN SPACE (WATER BODY)	1.41
C	STORMWATER TREATMENT/RECREATION/COMMON OPEN SPACE (WATER BODY)	1.90
D	WETLAND CONSERVATION	0.82
E	ACCESS ROAD (PRIVATE ROADWAY) & LONDON BOULEVARD (PRIVATE ROADWAY)	1.79
F	WETLAND CONSERVATION	1.18

Proposed Buildings

The site plan does not indicate any building locations. In order to construct buildings on the property, a site plan depicting building locations and other required data will be required.

Parking

The Site Plan depicts no parking spaces/parking lot locations. In order to construct parking spaces/lots on the property, a site plan depicting building locations and other required data will be required.

Environmental Considerations

The Applicant has obtained a permit from the St. John River Water Management District to allow for construction of the proposed improvements and associated impacts. The Environmental Report submitted with the initial application denotes one (1) gopher tortoise on the property. The Applicant intends to relocate the tortoise in accordance with the Florida Fish and Wildlife Commission (FWC) requirements. A condition relating to the required relocation permit is included in Staff's recommendation.

Landscaping and Open Space

As noted throughout this report, no specific vertical development is proposed. Therefore, open space calculations, landscape requirements, buffers and screening will be depicted on forthcoming Site Plan submissions and analyzed by staff at that time. The Landscape Plans submitted with this Site Plan application indicate removal of 640 trees to allow for construction of the proposed improvements with on-site mitigation/tree replanting of canopy and palm trees in accordance with Article XIII of the Zoning Ordinance. It is noted 35% of the required tree plantings can be met through palm tree specimens.

Concurrency Management/Adequate Public Facilities

Wastewater, Potable Water & Reclaim Water

The site will connect to the City of Cocoa utility services. As shown on the utility plan, there are twelve (12) stub-out connections located within the private interior portion of the site. The interior water main will be serviced by an 8-inch PVC pipe, while the reclaimed water main will utilize a 4-inch PVC pipe, both of which will be situated along London Boulevard and London Cove Lane. Additionally, more stub-out connection points will be provided for future development in the southern portion of the site.

All sanitary sewer, potable water and reclaimed water mains, along with their appurtenances, must be installed in accordance with the Technical Provisions for the Construction of Water Distribution Systems provided by the City of Cocoa Utilities Department. The utility design has been reviewed and approved by the City's Utilities Department. Wastewater and potable water demands for future development, along with available capacity at City facilities, will be evaluated through future site plans requesting vertical development.

Stormwater Management

As noted above, the site includes several tracts dedicated to stormwater management.

The Level of Service (LOS) for Stormwater Management is as follows:

Design Storm Event"	25-year frequency/24-hour duration event
On-site Stormwater Management:	Retention of the first one inch of rainfall for areas of more than one acre.
Stormwater Quantity:	Post development Stormwater runoff flow rates, quantities, peaks, and velocities shall be equal to or less than levels that existed prior to development.
Stormwater Quality:	No significant degradation of water quality in receiving water bodies.

The project, as designed, does meet the LOS requirements of the Comprehensive Plan per Public Works review of the proposed plans and stormwater report.

Solid Waste

The site plan does not authorize any vertical development. However, review of individual site plans for vertical construction will be required to assess solid waste demands prior to issuance of building permits. At that time, each proposed development would need to comply with the Level of Service (LOS) requirements specified in the City's Comprehensive Plan.

Roadways (Transportation)

As outlined in the Traffic Impact Analysis (TIA) dated April 2023 and submitted as an exhibit with the application material, the surrounding roadway network operates at an acceptable level of service. The TIA also provides evidence that surrounding intersections are also operating at an acceptable level of service, besides the intersection of State Road 524 and Cox Rd at peak hour conditions.

The TIA recommends improvements should the property be built out as a mixed-use development at a later date. This includes constructing a 250-foot eastbound right turn lane at the intersection of SR 524 and London Blvd (project entrance). Constructing a 375' westbound left turn lane at the intersection of SR 524 and London Blvd (project entrance). Lastly, it is recommended to restripe the westbound left turn lane at SR 524 and the nearest eastern intersection.

As shown on the provided site plan, the ingress / egress would align with the existing London Blvd across State Road 524. This intersection is currently operated with a traffic signal. Leading into the site, an 86-foot right-of-way will be maintained privately. The entrance road extends to an intersection with a proposed internal roadway to the east (London Cove Ln) and two street terminations to the west and south.

A cross-access easement was provided confirming cross-access to the Cocoa Commons Shopping Center to the east. This furthers the intent of the Comprehensive Plan and Zoning Ordinance to mitigate local trips onto the arterial roadway network, when possible.

Lastly, the City Council recently adopted Ordinance No 14-2023, which repealed the LOS standards of SR 524 as the City has no control over the schedule and construction of improvements on SR 524 due to its status as a State road. The City was able to do this as HB 7207, adopted in 2011, allowed local governments to render transportation concurrency optional. The City is going to continue to coordinate with developers, the State, and the Space Coast Transportation Planning Organization (SCTPO) to ensure that improvements occur to SR 524 promptly given that the corridor continues to attract more development.

Consistency with Comprehensive Plan Policies and Objectives

Policy 1.1.2.8: Neighborhood commercial areas are intended to be low-impact in nature and serve the needs of the immediate residential area.

The proposed commercial site plan is intended to provide neighborhood service commercial uses in accordance with the underlying future land use and zoning districts.

Objective 1.1.9: Sustainability/Energy Efficiency. The City shall aim at achieving a sustainable/energy-efficient environment by minimizing the emission of greenhouse gases and reducing the vehicle miles traveled.

As noted above and illustrated on the site plan, interconnectivity is provided to adjacent properties. Additionally, the construction of sidewalks located on both sides of London Blvd. and London Cove Lane encourage walkability and street safety for pedestrians.

Policy 12.1.6.10: The City shall promote the use of native vegetation as specified in its ordinance for all development.

The proposed site plan application includes landscape plans provide compensatory tree plantings in accordance with the Zoning Ordinance.

RECOMMENDED CONDITIONS:

Staff recommends APPROVAL of the Large-Scale Site Plan for London Cove with the following conditions:

1. This Site Plan approval does not authorize vertical construction of buildings or improvements other than those depicted on the site plan. Site Plan approval is required prior to vertical construction of buildings.
2. Prior to commencement of construction activities, the Applicant must provide the City with the gopher tortoise relocation permit from the Florida Fish and Wildlife Commission.
3. Prior to commencement of construction activities, the Applicant must provide the City with required permits from the Florida Department of Transportation relating to connection to the SR 524 right-of-way, and other associated project impacts.
4. 640 trees must be planted in accordance with the approved Landscape Plans prepared by Borrelli + Partners. No more than 35% of the replanted trees (224 trees) may be palm specimens.

PRIORITY AREA CONNECTION:

Economic and Community Development

BUDGETARY IMPACT:

N/A

PREVIOUS ACTION:

N/A

RECOMMENDED MOTION:

Staff requests that the Planning & Zoning Board recommend APPROVAL to City Council of a Large-Scale Site Plan, pursuant to Appendix A, Zoning, Article XIII, Sec. 1(D) of the Cocoa City Code, for the development of a new six (6) lot commercial subdivision on a single parcel of real property, totaling 11.5+ acres. The property is located along SR 524, west of the Cocoa Commons Shopping Center and approximately ¼ mile south of SR 528. Tax Parcel ID number: 24-36-18-00-502 and 24-36-18-00-500.1.



111 N. Magnolia Avenue
Suite 1350
Orlando, FL 32801
Tel: 407.680.0650
www.rviplanning.com

LONDON COVE • AERIAL MAP

📍 City of Cocoa, FL
📅 Date: 2/27/2025
23001867
🏠 London Cove

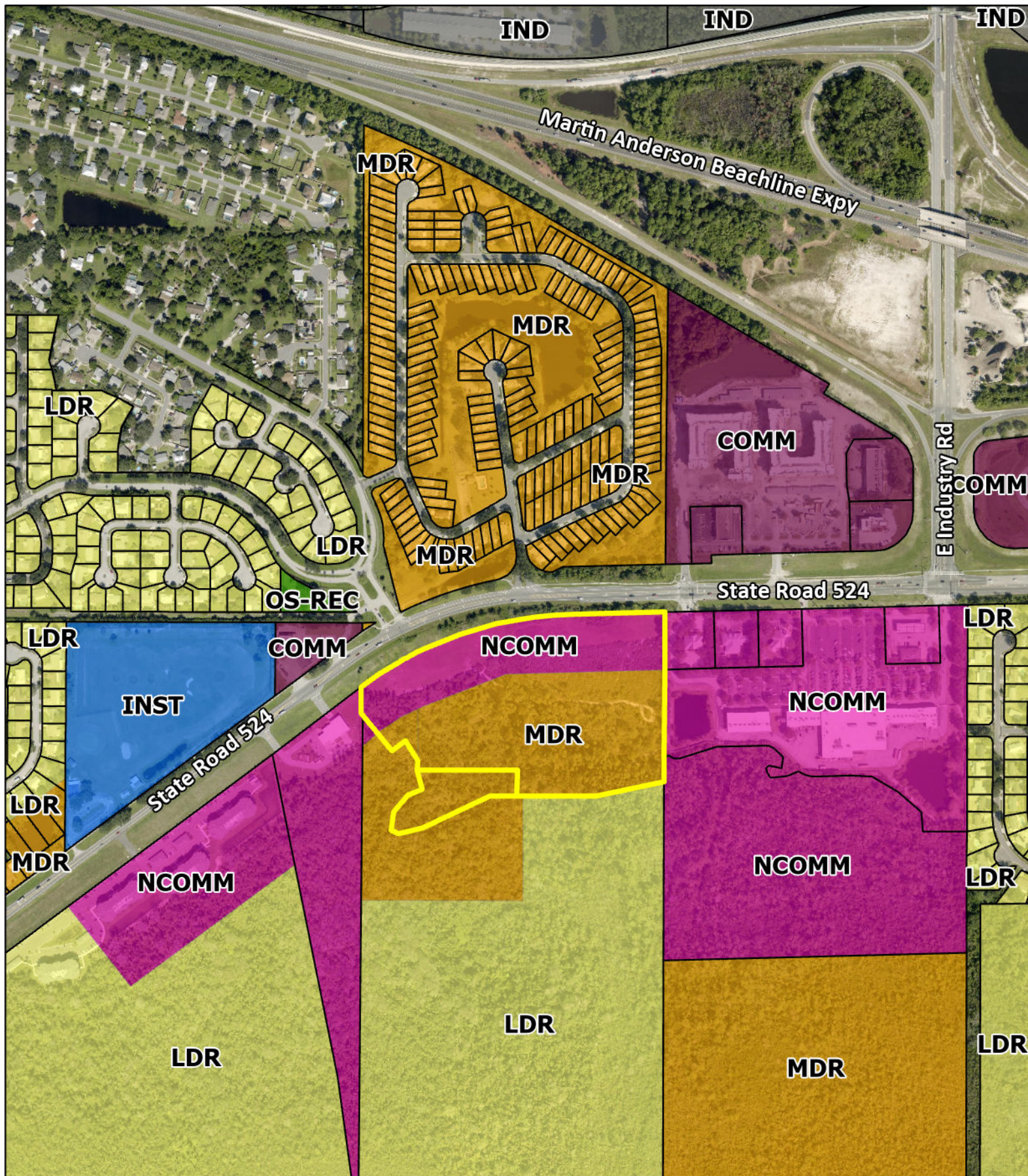
 Subject Parcels
 County Parcels



0 180 360 720
US Feet

Information furnished regarding this property is from sources deemed reliable. RVI has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.

Default Folder: L:\2023\23001867 - City of Cocoa Planning and Zoning Services\05 APPLICATIONS\W018 - SR520 and US1 Visioning\Cocoa Visioning GIS Data



111 N. Magnolia Avenue
Suite 1350
Orlando, FL 32801
Tel: 407.680.0650
www.rviplanning.com

LONDON COVE • FUTURE LAND USE MAP

City of Cocoa, FL

Date: 2/27/2025

23001867

London Cove

Subject Parcels
County Parcels

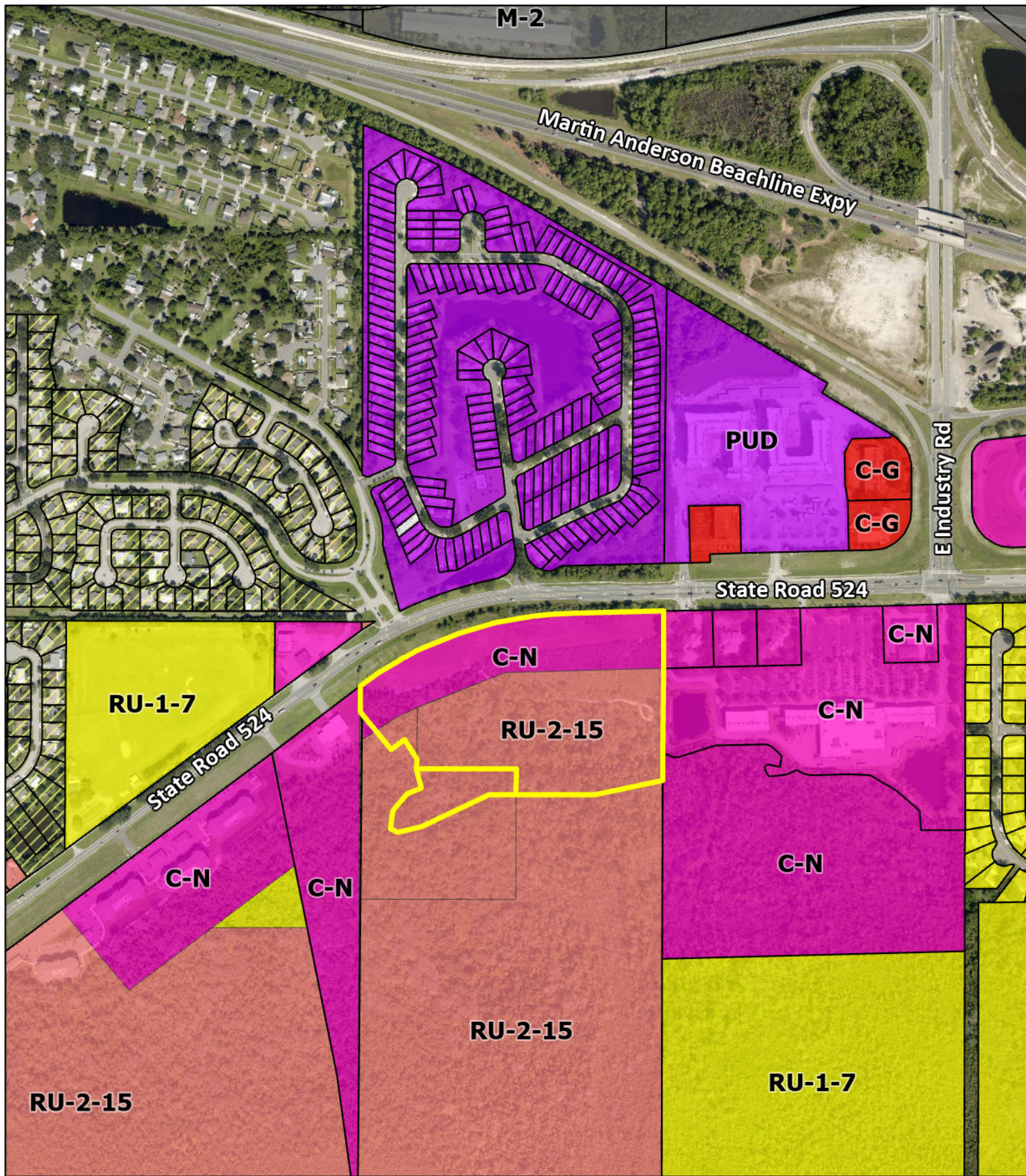
Low Density Residential
Medium Density Residential
Neighborhood Commercial
Commercial
Industrial
Institutional
Recreation/Open Space



0 180 360 720
US Feet

Information furnished regarding this property is from sources deemed reliable. RVI has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.

Default Folder: L:\2023\23001867 - City of Cocoa Planning and Zoning Services\05 APPLICATIONS\W018 - SP520 and U51 Visioning\Cocoa Visioning GIS Data



111 N. Magnolia Avenue
Suite 1350
Orlando, FL 32801
Tel: 407.680.0650
www.rviplanning.com

LONDON COVE • ZONING MAP

City of Cocoa, FL

Date: 2/27/2025

23001867

London Cove

- Subject Parcels
- County Parcels

- RU-1-7
- RU-1-7a
- RU-2-15
- C-N
- C-G
- PUD
- M-2



0 180 360 720
US Feet

Information furnished regarding this property is from sources deemed reliable. RVI has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.

F:\DB3\Final\Final Rev 36\DB3 01 COVER SHEET.dwg, 2/14/2025 2:23:36 PM

FINAL INFRASTRUCTURE CONSTRUCTION PLANS LONDON COVE

CITY OF COCOA

FUTURE DEVELOPMENT LEGAL DESCRIPTION:

A PORTION THE WEST ½ OF THE SOUTHWEST ¼ OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY OF RELOCATED STATE ROAD No. 524. BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST ½ OF THE SOUTHWEST ¼ OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD No. 524; THENCE S00°14'26"W, ALONG SAID EAST LINE A DISTANCE OF 300.13 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE S00°14'26"W, ALONG SAID EAST LINE A DISTANCE OF 432.45 FEET; THENCE S78°22'53"W A DISTANCE OF 300.78 FEET; THENCE WEST A DISTANCE OF 456.25 FEET; THENCE S64°32'24"W A DISTANCE OF 320.49 FEET; THENCE S75°20'40"W A DISTANCE OF 106.54 FEET; THENCE N63°26'03"W A DISTANCE OF 37.10 FEET; THENCE N07°10'52"E A DISTANCE OF 78.58 FEET; THENCE N40°22'20"E A DISTANCE OF 92.99 FEET; THENCE N66°36'34"E A DISTANCE OF 68.06 FEET; THENCE N15°16'11"W A DISTANCE OF 87.27 FEET; THENCE N06°42'05"E A DISTANCE OF 39.66 FEET; THENCE N32°34'42"W A DISTANCE OF 102.57 FEET, TO A POINT ON A CIRCULAR CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S35°55'11"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°28'29", AN ARC DISTANCE OF 777.74 FEET; THENCE N88°33'18"E, TANGENT TO SAID CURVE, A DISTANCE OF 393.79 FEET TO THE POINT OF BEGINNING. CONTAINING 11.50 ACRES OF LAND MORE OR LESS.

LONDON COVE COMMERCIAL CENTER LEGAL DESCRIPTION:

THE NORTH 300 FEET OF THE FOLLOWING DESCRIBED LAND:
THE WEST ½ OF THE SOUTHWEST ¼ OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY OF RELOCATED STATE ROAD No. 524. BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGIN AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST ½ OF THE SOUTHWEST ¼ OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD No. 524; THENCE S88°33'18"W, ALONG SAID SOUTH RIGHT OF WAY A DISTANCE OF 402.62 FEET TO THE BEGINNING OF A TANGENT CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1592.58 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°48'00" AN ARC DISTANCE OF 967.29 FEET TO A POINT ON THE WEST LINE OF SAID SECTION 18, THENCE S00°14'23"E, ALONG SAID WEST LINE, A DISTANCE OF 130.15 FEET; THENCE S39°11'23"E A DISTANCE OF 196.68 FEET, TO A POINT ON A CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S39°11'23"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 37°44'41", AN ARC DISTANCE OF 851.51 FEET; THENCE N88°33'18"E A DISTANCE OF 393.79 FEET, TO SAID EAST LINE OF SAID WEST ½ OF SAID SOUTHWEST ¼ OF SAID SECTION 18; THENCE N00°14'26"E, ALONG SAID EAST LINE A DISTANCE OF 300.13 FEET TO THE POINT OF BEGINNING. CONTAINING 9.19 ACRES OF LAND MORE OR LESS.

DEVELOPER/OWNER:

DEMETREE BUILDERS
941 W. MORSE BLVD SUITE 315
WINTER PARK, FL 32789
PHONE: 407-422-8191
CONTACT: MARY DEMETREE
EMAIL: MDEMETREE@DEMETREEBUILDERS.COM

ENGINEER/PLANNER:

DAVE SCHMITT ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD SUITE 241
ORLANDO, FL 32828
PHONE: 407-207-9088
FAX: 407-207-9089
CONTACT: DAVE SCHMITT
EMAIL: DAVE.SCHMITT@DSEORL.COM

ENVIRONMENTAL ENGINEER:

MORGAN ENVIRONMENTAL CONSULTANTS, INC.
740 FLORIDA CENTRAL PARKWAY SUITE 2004
LONGWOOD, FL 32750
PHONE: 407-260-0448
FAX: 407-260-0446
CONTACT: JIM MORGAN
EMAIL: MECENVIRONMENTAL@AOL.COM

SURVEYOR:

CARNAHAN PROCTOR AND CROSS, INC.
604 COURTLAND STREET, SUITE 101
ORLANDO, FL 32804
PHONE: 321-279-0124
CONTACT: JIM QUARTEL
EMAIL: JQUARTEL@CPC-ENG.COM

01-16-25	DM	REVISIONS PER FDEP COMMENTS
10-21-24	DM	REVISIONS PER CITY COMMENTS
10-08-24	DM	REVISIONS PER CITY COMMENTS
09-19-24	JT	REVISIONS PER CITY COMMENTS
08-16-24	MF	REVISIONS PER CITY COMMENTS
04-24-23	JT	REVISIONS PER CITY COMMENTS
11-29-22	HM	REVISIONS PER CITY COMMENTS
06-08-22	BC	REVISIONS PER CITY COMMENTS
12-06-21	MGM	REVISIONS PER CITY COMMENTS
08-29-21	MGM	REVISIONS PER FDOT COMMENTS
04-09-21	MGM	REVISIONS PER FDOT / CITY COMMENTS
02-10-21	MGM	REVISIONS PER SJRWMD COMMENTS
02-08-21	MGM	REVISIONS PER FDOT COMMENTS
01-25-21	MGM	REVISIONS PER FDOT / CITY COMMENTS
01-12-21	MGM	REVISIONS PER FDOT COMMENTS
12-09-20	MGM	REVISIONS PER FDOT COMMENTS
11-17-20	MGM	REVISIONS PER FDOT COMMENTS
11-06-20	MGM	REVISIONS PER SJRWMD COMMENTS
10-16-20	MGM	REVISIONS PER FDOT COMMENTS
09-04-20	MGM	REVISIONS PER CLIENT COMMENTS
07-01-20	SAM	REVISIONS PER FDOT COMMENTS
05-26-20	SAM	REVISIONS PER FDOT COMMENTS
05-05-20	SAM	REVISIONS PER FDOT COMMENTS
02-18-20	DLS	REVISIONS PER FDOT COMMENTS

02-14-25 BC REVISIONS PER CITY COMMENTS

PARCEL ID: 24-36-18-00-501.1.

WATER / SEWER SERVICE:
CITY OF COCOA
UTILITIES DEPARTMENT
351 SHEARER BLVD.
COCOA, FL 32922

ELECTRIC SERVICE:
FLORIDA POWER & LIGHT
1318 W. AVENUE
BELLE GLADE, FL 33430
PHONE: 561 742-2023

GAS SERVICE:
FLORIDA CITY GAS
4180 US HIGHWAY 1
ROCKLEDGE, FL 32955
PHONE: 321 638-3424

TELEPHONE AND CABLE SERVICE:
COMCAST
940 12TH STREET
VERO BEACH, FL 32960
PHONE: 800 266-2278

NOTE:
EOR UNDERSTANDS THAT THEY WILL BE FULLY RESPONSIBLE TO UPDATE / ADD / REMOVE ANY SIGNS AND PAVEMENT MARKINGS THAT NEED TO BE UPDATED / ADDED / REMOVED IN THE FIELD WITH THE PROPOSED CHANGES, EVEN IF THE FDOT COMMENTS ARE NOT COMPREHENSIVE AND DO NOT COVER EVERY ONE OF THE CHANGES REQUIRED.

PREPARED FOR:
DEMETREE BUILDERS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
02-06-20	DLS	REVISIONS PER FDOT COMMENTS	01-30-19	MGM	REVISIONS PER CITY COMMENTS
10-18-19	JIF	REVISIONS PER FDOT COMMENTS	01-07-19	MGM	REVISIONS PER CITY COMMENTS
05-20-19	MGM	REVISIONS PER FDOT / CITY COMMENTS	12-11-18	MGM	REVISIONS PER FDOT / CITY COMMENTS
03-04-19	MGM	REVISIONS PER CITY COMMENTS	11-12-18	MGM	REVISIONS PER CITY COMMENTS
02-25-19	MGM	REVISIONS PER CITY COMMENTS	10-17-18	MGM	REVISIONS PER FDOT / CITY COMMENTS

TABLE OF CONTENTS

01	COVER SHEET
02	GENERAL NOTES
03	TECHNICAL NOTES
04	UTILITY NOTES
05	EROSION CONTROL PLAN
06	EROSION CONTROL SWPPP
07	EROSION CONTROL REPORT
08	ENVIRONMENTAL CONSIDERATIONS PLAN
09	PARENT TRACT PRESERVATION PLAN
10	OVERALL SITE PLAN
11	GEOMETRY PLAN
12	GRADING PLAN
13	POND DETAILS
14	UTILITY PLAN
14A	OFFSITE UTILITY PLANS (SHEETS REMOVED)
14B	FIRE TRUCK ROUTING PLAN
14C	SITE LIGHTING PLAN
15	PLAN & PROFILE - LONDON BLVD
16	PLAN & PROFILE - ACCESS ROAD
17-20	INTERSECTION IMPROVEMENTS 1, 2, 3 AND 4
21	TURN LANE CROSS SECTIONS
22	MAINTENANCE OF TRAFFIC
23-24	MAINTENANCE OF TRAFFIC (SHEETS REMOVED)
25-26	PAVING GRADING & DRAINAGE DETAILS 1 AND 2
27-28	UTILITY DETAILS 1 AND 2
29-30	LIFT STATION DETAILS 1 AND 2 (SHEETS REMOVED)

PLANS BY OTHERS

TREE MITIGATION PLANS
LANDSCAPE PLANS
IRRIGATION PLANS

HARDSCAPE PLANS
BOUNDARY, TOPOGRAPHICAL SURVEY,
TREE SURVEY



SITE LOCATION



DAVE SCHMITT
ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

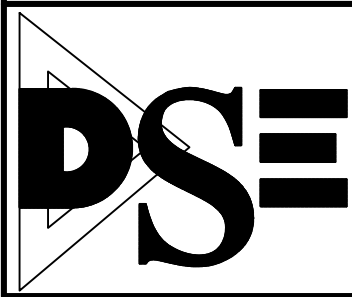
Digitally signed by Dave Schmitt
Date: 2025.02.28 14:28:15 -05'00'
SHEET: 1 OF 30

DATE: AUGUST 2018

JOB NO.: DB-3



F:\DB3\Final\DB3 02 GENERAL NOTES.dwg,4/25/2023 8:36:24 AM



DAVE SCHMITT
ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			04-09-21	MGM	REVISION PER FDOT / CITY COMMENTS
			01-25-21	MGM	REVISION PER FDOT / CITY COMMENTS
			12-11-18	MGM	REVISION PER FDOT / CITY COMMENTS
			10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

GENERAL NOTES
LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: NONE
SHEET: 02 OF 30

GENERAL NOTES

1. ALL CONSTRUCTION IN THE FDOT RIGHT OF WAY SHALL CONFIRM TO THE LATEST EDITIONS OF THE FDOT DESIGN STANDARD (INDEXES), THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE FDOT UTILITY ACCOMMODATION MANUAL.
2. THE CONTRACTOR SHALL COORDINATE ALL WORK WITHIN EXISTING ROAD RIGHTS-OF-WAY WITH THE FDOT FOR STATE RIGHTS-OF-WAY.
3. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ALL REQUIRED PERMITS ARE OBTAINED AND IN-HAND BEFORE BEGINNING CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL INSPECTION CRITERIA AND SCHEDULES, AND FOR SIGNING SAID INSPECTIONS.
5. ALL EXISTING UTILITIES HAVE BEEN FIELD VERIFIED AT ALL POINTS OF CONNECTION TO AND AT ALL AREAS OF CONFLICT WITH CITY OF COCOA MAINS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND FOR NOTIFYING THE VARIOUS UTILITY PROVIDERS TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATION, TEMPORARY DISRUPTION OF SERVICE, OR CLARIFICATION OF ACTIVITY REGARDING SAID UTILITY. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THESE PLANS OR FIELD LOCATED. ALL UTILITIES WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED BY THE RESPECTIVE UTILITY PROVIDERS AND THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY PROVIDER DURING RELOCATION OPERATIONS. ANY DELAY OR INCONVENIENCE BY THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT AND NO EXTRA COMPENSATION WILL BE ALLOWED.
7. THE LOCATION OF ALL EXISTING UTILITIES, STORM DRAINAGE SYSTEMS AND TOPOGRAPHIC FEATURES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. SHOULD A DISCREPANCY ARISE BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS, WHICH WOULD APPRECIABLY AFFECT THE EXECUTION OF THESE PLANS, THE CONTRACTOR WILL HALT ALL CONSTRUCTION AND NOTIFY THE ENGINEER IMMEDIATELY.
8. THE LOCAL TELEPHONE COMPANY WILL INSTALL, REGULATE AND MAINTAIN THE PROPOSED COMMUNICATION DISTRIBUTION SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH SAID PROVIDER TO INSURE PROPER CONSTRUCTION PHASING, ELIMINATE CONFLICTS AND AVOID UNNECESSARY DELAYS.
9. ALL WORK AND MATERIALS FURNISHED SHALL BE IN REASONABLE CONFORMITY WITH THE LINES, GRADES, GRADING SECTIONS, CROSS SECTIONS, DIMENSIONS, MATERIAL REQUIREMENTS, AND TESTING REQUIREMENTS THAT ARE SPECIFIED IN THE CONTRACT, PLANS OR SPECIFICATIONS.
10. THE CONTRACTOR SHALL CONTROL HIS OPERATIONS AND THOSE OF HIS SUBCONTRACTORS, AND ALL SUPPLIERS TO ASSURE THE LEAST INCONVENIENCE TO THE TRAVELING PUBLIC. THE CONTRACTOR SHALL MAINTAIN FREE AND UNOBSTRUCTED MOVEMENT OF VEHICULAR TRAFFIC AND SHALL LIMIT HIS OPERATIONS FOR THE SAFETY AND CONVENIENCE OF THE TRAVELING PUBLIC. UNDER ALL CIRCUMSTANCES, SAFETY SHALL BE THE MOST IMPORTANT CONSIDERATION. LANE CLOSURE RESTRICTION TIMES: 7AM-9AM / 3PM-7PM
11. PRIOR TO COMMENCING WORK THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN ALL BARRICADES, WARNING SIGNS, AND MARKINGS FOR HAZARDS AND THE CONTROL OF TRAFFIC, IN SPECIFIC CONFORMITY WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS OR AS DIRECTED BY THE FDOT TRAFFIC ENGINEER, SUCH AS TO EFFECTIVELY PREVENT ACCIDENTS IN ALL PLACES WHERE THE WORK CAUSES OBSTRUCTIONS TO THE NORMAL TRAFFIC OR CONSTITUTES IN ANY WAY A HAZARD TO THE PUBLIC.
12. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS CONTROLLING POLLUTION OF THE ENVIRONMENT.
13. THE CONTRACTOR SHALL COMPLY WITH ALL LOAD RESTRICTIONS IN THE HAULING OF MATERIALS IN PUBLIC ROADS BEYOND THE LIMITS OF THE WORK. A SPECIAL PERMIT WILL NOT RELIEVE THE CONTRACTOR OF LIABILITY FOR THE DAMAGE WHICH MAY RESULT FROM THE MOVING OF MATERIAL AND EQUIPMENT.
14. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE POLICIES AND GUIDELINES ESTABLISHED BY CITY OF COCOA FOR THE PRESERVATION OF ALL PUBLIC AND PRIVATE PROPERTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE OR INJURY TO PROPERTY OF ANY CHARACTER, DURING THE EXECUTION OF THE WORK, RESULTING FROM ANY OMISSION, NEGLIGENCE, OR MISCONDUCT IN HIS MANNER OR METHOD OF EXECUTING THE WORK, OR AT ANYTIME DUE TO DEFECTIVE WORK OR MATERIALS.
15. THE CONTRACTOR SHALL INSURE THAT PROPER SOIL DENSITIES ARE ACHIEVED FOR PLACEMENT OF ALL HEADWALL/ENDWALL FOOTINGS, RETAINING WALLS, AND IN GENERAL, ANY FOOTING SUPPORT DESCRIBED ON THESE PLANS. IT WILL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT SUFFICIENT SOILS TESTING HAS BEEN PERFORMED PRIOR TO CONSTRUCTION.
16. THE CONTRACTOR SHALL COMPLY WITH CITY OF COCOA STANDARDS AND SPECIFICATIONS FOR STRIPPING, CLEARING, GRUBBING, GRADING, BACKFILLING, AND EMBANKMENT PREPARATION WITHIN ALL DESIGNED ROADWAY RIGHT-OF-WAY SECTIONS.
17. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN A COPY OF THE GEOTECHNICAL ENGINEER'S REPORT FOR THIS PROJECT FROM DAVE SCHMITT ENGINEERING, INC. AND MEET THE GEOTECHNICAL ENGINEER'S REQUIREMENTS FOR SOIL PREPARATION ON THE SITE.
18. AFTER THE ROADWAY HAS BEEN CONSTRUCTED TO SUBGRADE, IT SHALL BE PROOF-ROLLED TO ASSURE THAT PROPER COMPACTION HAS BEEN ATTAINED. THE PROOF-ROLLING AND COMPACTION OPERATIONS SHALL BE INSPECTED AND TESTED BY A FLORIDA LICENSED GEOTECHNICAL ENGINEER TO ASSURE THAT THE SPECIFIED COMPACTION IS MAINTAINED AND THAT ALL DELETERIOUS MATERIALS HAVE BEEN REMOVED.
19. COMPACT THE TOP 24 INCHES OF UTILITY TRENCHES WITHIN ROADWAYS TO 98% OF THE MODIFIED PROCTOR DENSITY; WITHIN OTHER AREAS TO 95%.
20. IN OTHER AREAS WHICH REQUIRE FILL MATERIAL THE CONTRACTOR WILL STRIP OR OTHERWISE REMOVE ALL VEGETATION SUCH AS BRUSH, HEAVY SODS, HEAVY GROWTH OF GRASS, DECAYED VEGETABLE MATTER, RUBBISH AND ANY OTHER DELETERIOUS MATERIAL BEFORE EMBANKMENT IS STARTED. IMMEDIATELY PRIOR TO THE PLACEMENT OF FILL MATERIALS, THE ENTIRE AREA UPON WHICH FILL IS TO BE PLACED, SHALL BE SCARIFIED IN A DIRECTION APPROXIMATELY PARALLEL TO THE AXIS OF FILL. THE GEOTECHNICAL ENGINEER SHALL APPROVE THE AREA PRIOR TO THE PLACEMENT OF FILL.
21. DURING CONSTRUCTION, NO DIRECT DISCHARGE OF WATER TO DOWNSTREAM RECEIVING WATERS WILL BE ALLOWED. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING WATER QUALITY, AND SHALL ROUTE DISCHARGE WATER IN SUCH A MANNER TO ADEQUATELY REMOVE SILT PRIOR TO RUNOFF FROM SITE.
22. RECORD DRAWINGS: AT THE END OF CONSTRUCTION, THE CONTRACTOR WILL PROVIDE ONE SET OF DRAWINGS SHOWING ALL CHANGES MARKED IN WATERPROOF RED WITH THE FOLLOWING CONTRACTOR CERTIFICATION EXECUTED ON EACH SHEET. THE CONTRACTOR: HEREBY CERTIFIES TO THE OWNER THAT IMPROVEMENTS COVERED BY THIS DRAWING AND ALL RELATED DETAILS HAVE BEEN CONSTRUCTED AS INDICATED OR AS MODIFIED BY THE NOTES AND GRAPHICS SHOWN. ABSENT A NOTE OR GRAPHIC TO THE CONTRARY, THE IMPROVEMENTS HAVE BEEN CONSTRUCTED MEETING INDUSTRY STANDARD TOLERANCES.
- SIGNED: _____ DATE: _____
AUTHORIZED CONTRACTOR'S REPRESENTATIVE
23. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
24. ALL SIDEWALKS, RAMPS, AND CROSSWALKS WILL BE BUILT AND INSPECTED TO MEET CURRENT ADA REQUIREMENTS.

MISCELLANEOUS ENGINEER NOTIFICATIONS

- A. THE CONTRACTOR SHALL PROVIDE THE ENGINEER ONE (1) BUSINESS DAY ADVANCE NOTIFICATION FOR THE FOLLOWING CONSTRUCTION AND OBSERVATION ACTIVITIES.
- a. SANITARY SEWER VIDEO INSPECTION.
- b. CONNECTIONS TO EXISTING SYSTEMS
- c. THRUST BLOCK POURS AND RESTRAINT CONNECTIONS
- d. STORM DRAINAGE LAMPING
- e. INLET TOP POURS (REINFORCING STEEL CHECK)
- f. WATER & FORCE MAIN PRESSURE TESTS
- g. BACTERIOLOGICAL SAMPLING
- h. BASE OBSERVATION & SOUNDING
- i. ASPHALT PLACEMENT
- j. PRE-FINAL INSPECTION
- k. FINAL INSPECTION
- B. THE CONTRACTOR SHALL KEEP DAILY "AS-BUILT" DRAWINGS AND MAKE THEM READILY ACCESSIBLE.
- C. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER A PROJECT CONSTRUCTION SCHEDULE (BAR GRAPH) AND UPDATE SAID SCHEDULE ON A MONTHLY BASIS.
- D. ALL FUEL STORAGE AREAS SHALL HAVE THE PROPERTY OWNER'S PRIOR APPROVAL AND APPROPRIATE MEASURES SHALL BE TAKEN TO INSURE PROTECTION OF GROUNDWATER AND SOIL RESOURCES.
- E. THE CONTRACTOR SHALL COORDINATE ALL BACKFILL OPERATIONS WITH THE PROJECT GEOTECHNICAL ENGINEER AND SUBMIT TEST REPORTS TO THE ENGINEER PRIOR TO BEGINNING WORK ON THE NEXT ITEM OF WORK, I.E. SUBGRADE PRIOR TO CURB.
- F. THE ENGINEER RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO UNCOVER, RETEST AND OR PERFORM ANY ACTION NECESSARY TO ENSURE THAT THE IMPROVEMENTS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
- G. THE ENGINEER OF RECORD TO PROVIDE A FINAL COPY OF THE AS-BUILTS / RECORD DRAWINGS TO THE CITY OF COCOA.

WATER

UTILITY SEPARATION-VERTICAL CLEARANCE

- A. WHERE WATER MAINS CROSS A GRAVITY SANITARY SEWER OR STORM SEWER MAIN, A VERTICAL SEPARATION (OUTSIDE TO OUTSIDE) OF AT LEAST SIX INCHES, AND PREFERABLY TWELVE INCHES, ABOVE OR AT LEAST TWELVE INCHES BELOW MUST BE MAINTAINED. WHEREVER POSSIBLE, THE WATER MAIN SHALL BE LAID ABOVE THE OTHER PIPE.
- B. WHERE WATER MAINS CROSS A SANITARY FORCE MAIN OR RECLAIMED WATER MAIN, A VERTICAL SEPARATION (OUTSIDE TO OUTSIDE) OF AT LEAST 12 INCHES MUST BE MAINTAINED. WHEREVER POSSIBLE, THE WATER MAIN SHALL BE LAID ABOVE THE OTHER PIPE.
- C. ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ON THE OTHER PIPELINE SO THAT THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE JOINTS OF THE OTHER PIPE.

UTILITY SEPARATION-HORIZONTAL SEPARATION

- D. WHEN WATER MAINS PARALLEL A GRAVITY SEWER MAIN, SANITARY FORCE MAIN, OR RECLAIMED WATER MAIN NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. A SEPARATION (MEASURED OUTSIDE TO OUTSIDE) OF AT LEAST SIX FEET, AND PREFERABLY TEN FEET, MUST BE MAINTAINED. THE MINIMUM SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY SANITARY SEWERS SHALL BE THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SANITARY SEWER PIPE.
- E. WHERE WATER MAINS PARALLEL A STORM SEWER PIPE OR RECLAIMED WATER MAIN REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. A MINIMUM OF 3 FEET HORIZONTAL SEPARATION (MEASURED OUTSIDE TO OUTSIDE) MUST BE MAINTAINED.
- F. NO WATER MAIN SHALL PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A SANITARY MANHOLE OR STORM SEWER INLET OR MANHOLE.
- G. FIRE HYDRANTS WITH UNDERGROUND DRAINS SHALL BE LOCATED SO THAT THE DRAINS ARE AT LEAST THREE FEET FROM THE A STORM SEWER OR RECLAIMED WATER MAIN REGULATED BY PART III OF CHAPTER 62-610, FAC, AND AT LEAST THREE FEET, AND PREFERABLY TEN FEET, FROM A GRAVITY SANITARY SEWER, SANITARY FORCE MAIN OR RECLAIMED WATER MAIN NOT REGULATED BY PART III OF CHAPTER 62-610, FAC
- H. THE WATER MAIN PIPE SHALL BE LAID SUCH THAT THE JOINTS ARE STAGGERED AS FAR AS POSSIBLE FROM THE JOINTS OF THE OTHER PIPE.

25. ALL FIRE HYDRANTS SHALL BE POSITIONED NO MORE THAN 5 FEET FROM THE CURB.
26. PRESSURE PIPE LENGTHS DO NOT INCLUDE BENDS, AIR RELEASE VALVES OR FIRE HYDRANT ASSEMBLIES.

SEWER

27. THE FOLLOWING UTILITY PROVIDER IS LISTED FOR THE CONVENIENCE TO THE CONTRACTOR.

SEWER:

CITY OF COCOA UTILITIES DEPARTMENT
351 SHEARER BLVD
COCOA, FLORIDA 32922

28. UNDERGROUND GRAVITY SEWER PIPING WHICH IS NOT MANUFACTURED OF METAL OR CONCRETE PIPE SHALL BE COLOR CODED GREEN USING LIGHT STABLE COLORANTS. UNDERGROUND METAL PIPE SHALL BE COLOR CODED OR MARKED USING GREEN AS A PREDOMINANT COLOR.
29. ALL PROPOSED SANITARY LINES (EITHER GRAVITY OR PRESSURES SYSTEMS), FITTINGS, VALVES, RESTRAINTS, COUPLINGS, PIPES, AND IN GENERAL, THOSE MATERIALS REQUIRED FOR INSTALLING THE WASTEWATER DISPOSAL SYSTEM SHALL CONFORM TO CITY OF COCOA UTILITIES WATER AND WASTEWATER DIVISION.
30. ALL GRAVITY SEWER LINES SHALL BE A MINIMUM OF 2' FROM THE CURB AT ALL LOCATIONS.
31. RECLAIMED WATER LINES, IF PROPOSED ON THESE PLANS, MAY BE EITHER PVC C900 DR25 OR DUCTILE IRON CLASS 200.
32. UNDERGROUND RECLAIMED WATER PIPING WHICH IS NOT MANUFACTURED OF METAL OR CONCRETE PIPE SHALL BE COLOR CODED PANTONE PURPLE 522C USING LIGHT STABLE COLORANTS. UNDERGROUND METAL AND CONCRETE PIPE SHALL BE COLOR CODED OR MARKED USING PURPLE AS A PREDOMINANT COLOR.
33. ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE MINIMUM CLASS III.
34. ALL PRECAST DRAINAGE STRUCTURES TO HAVE STEEL ANGLE IRON FRAMES. ALL STRUCTURES IN PAVED AREAS TO HAVE STEEL RECTILINEAR GRATES WITH H-20 LOADING.
35. ALL JOINTS OF STORM DRAIN PIPES ARE TO BE WRAPPED PER STANDARD FDOT INDEX 430-001.
36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL RETENTION AND DETENTION FACILITIES AND ALL LANDSCAPE BUFFERS, THROUGH THE DURATION OF THE PROJECT, AND UNTIL THE WORK IS ACCEPTED BY THE OWNER. ALL DISRUPTED AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
37. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN TO CITY OF COCOA AND FDOT AND OBTAIN PLAN APPROVAL PRIOR TO CONSTRUCTION.
38. AIR RELEASE VALVES SHALL BE REQUIRED AT ALL HIGH POINTS ON PROPOSED FORCEMAINS, RECLAIMED WATER MAINS AND POTABLE WATER MAINS.
39. CITY OF COCOA UTILITIES EMERGENCY WASTEWATER SPILL AND WATER MAIN BREAK PROCEDURES.

A. TELEPHONE NOTIFICATION

THE CITY OF COCOA DISPATCH OPERATOR SHALL BE NOTIFIED IMMEDIATELY IN THE EVENT OF A FORCEMAIN, GRAVITY SEWER OR WATERMAIN BREAK OR DAMAGE AT 321-433-8400.

B. REPAIR IMMEDIATELY

ALL DAMAGE TO CITY OF COCOA'S MAINS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. IF THE REPAIR IS NOT MADE IN A TIMELY MANNER, AS DETERMINED BY THE CITY OF COCOA UTILITIES INSPECTOR, CITY OF COCOA MAY PERFORM REPAIRS AND THE CONTRACTOR WILL BE CHARGED FOR THOSE REPAIRS.

C. ADVANCE NOTIFICATION OF CONSTRUCTION

WATER DIVISION 321-690-3241

D. ADVANCE NOTIFICATION OF PENDING CONNECTION

THE CITY OF COCOA UTILITIES DEPARTMENT (321-433-8799) SHALL BE NOTIFIED AT LEAST 7 DAYS PRIOR TO ANY CONSTRUCTION ACTIVITIES.

THE CITY OF COCOA WATER DIVISION (321-690-3241) AND THE CITY OF COCOA WASTEWATER DIVISION (321-433-8799) SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS PRIOR TO SCHEDULED MAIN TIE-INS AND VALVE OPERATIONS TO CITY OF COCOA UTILITIES SYSTEMS.

E. OPERATION OF CITY OF COCOA VALVES

WATER, WASTEWATER, AND REUSE VALVES ARE TO BE OPERATED ONLY BY A CITY OF COCOA UTILITIES INSPECTOR (321-433-8400). ALL VALVES BEING INSTALLED ARE TO REMAIN CLOSED DURING CONSTRUCTION.

F. OPERATION OF CITY OF COCOA PUMP STATIONS

THE CONTRACTOR SHALL COORDINATE ALL PUMP STATION OPERATIONS AND SHUT DOWN CONTROLS WITH A CITY OF COCOA UTILITIES INSPECTOR (321-433-8400).

38. THE CONTRACTOR SHALL NOTIFY THE CITY OF COCOA UTILITIES CONSTRUCTION DEPARTMENT 48 HOURS PRIOR TO AND UTILITIES CONSTRUCTION. TELEPHONE (321-433-8400).

39. THE CONTRACTOR IS RESPONSIBLE FOR MEETING THE REQUIREMENTS OF EPA AND FDEP AS IT RELATES TO THE NPDES NOTES INCLUDING THE POLLUTION DISCHARGE CONTROL.

40. AN EROSION CONTROL PLAN WILL BE APPROVED BY THE CITY ENGINEER PRIOR TO THE PRE-CONSTRUCTION CONFERENCE.

FDOT

1. ALL WORK PERFORMED WITHIN THE FDOT RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE FDOT STANDARDS PLANS FOR ROAD AND BRIDGE CONSTRUCTION, 2020 SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE 2017 UTILITY ACCOMMODATION MANUAL.
2. ALL PAVEMENT MARKINGS PERTAINING TO FDOT PROPOSED DRIVEWAY CONNECTION SHALL BE THERMOPLASTIC.
3. ALL RAISED PAVEMENT MARKERS(RPM) INSTALLED WITHIN THE FDOT RIGHT-OF-WAY AND PROPOSED DRIVEWAY CONNECTION SHALL BE IN ACCORDANCE WITH FDOT STANDARD PLANS INDEX #706-001.
4. ALL EXCAVATIONS WITHIN TEN(10) FEET OF THE TRAVEL LANES AND GREATER THAN THREE(3) INCHES DEEP MUST BE FILLED IN OR HAVE A SHOULDER TREATMENT PLACED AT THE DROP-OFF PER INDEX #102-600 OF FDOT 2019/20 STANDARDS PLANS INDEXES AT THE END OF THE WORK DAY.
5. CONTRACTOR SHALL CONTACT FDOT TWO WEEKS IN ADVANCE AND SET UP A PRE-CONSTRUCTION MEETING PRIOR TO STARTING ANY WORK IN FDOT RIGHT OF WAY.
6. ALL TRAFFIC CONTROL DEVICES MUST BE IN PLACE BEFORE WORK CAN START.
7. MAINTENANCE OF TRAFFIC TO BE SUPERVISED BY A FDOT CERTIFIED WORK TRAFFIC SUPERVISOR.
8. ENGINEER'S CERTIFICATIONS TOGETHER WITH AS-BUILT PLANS ARE REQUIRED TO BE SUBMITTED WITHIN 30 DAYS OF COMPLETION WORK WITHIN FDOT RIGHT-OF-WAY.
9. IT WILL BE THE RESPONSIBILITY OF THE PERMITTEE TO REPAIR ANY DAMAGE TO FDOT FACILITIES CAUSED BY CONSTRUCTION OF THE PROJECT.
10. PERMITTEE SHALL NOT BEGIN THE WORK WITHIN THE FDOT RIGHT-OF-WAY UNTIL A FDOT INSPECTOR IS PRESENT AT THE JOB SITE AND AGREES THAT PROPER PREPARATIONS HAVE BEEN MADE.
11. SOD ALL UNPAVED AREAS WITHIN FDOT RIGHT OF WAY THAT ARE DISTURBED BY CONSTRUCTION PER FDOT STANDARDS PLANS INDEX #570-010.
12. ALL SIDEWALK TO BE REMOVED AND REPLACED FROM JOINT TO JOINT AND HAVE '1' EXPANSION JOINTS (PREFORMED JOINT FILLER) PLACED BETWEEN OLD AND NEW SIDEWALK.
13. ALL AFFECTED SIDEWALKS, RAMPS, AND CROSSWALKS, WILL BE BUILT AND INSPECTED TO MEET CURRENT ADA REQUIREMENTS.
14. FDOT ROW GRADE SHALL NOT BE CHANGED.
15. PERMITTEE SHALL NOT COMMENCE USE OF CONNECTION PRIOR TO FINAL INSPECTION AND FINAL ACCEPTANCE BY DEPARTMENT. FAILURE TO COMPLY WITH PERMIT CONDITION MAY RESULT IN REVOCATION OF THE PERMIT AND CLOSURE OF DRIVEWAY PER FL RULE CHAPTER 14-06.

WASTEWATER

SECTION I. SCOPE OF WORK

- 1.1 GENERAL
REFER TO WATER - POTABLE & RECLAIMED, SECTION 1.1 - SCOPE OF WORK IN THESE TECHNICAL PROVISIONS.

SECTION II. MATERIAL SPECIFICATIONS

- 2.1 **GENERAL**
THE CONTRACTOR WILL FURNISH ALL NEW MATERIALS OF THE SIZE AND KIND SHOWN ON THE DRAWINGS WHICH WILL MEET THE FOLLOWING SPECIFICATIONS OR REQUIREMENTS. IF THE TYPE OF MATERIAL IS NOT SPECIFIED ON THE DRAWINGS, THE CONTRACTOR MAY USE ANY OF THE TYPES LISTED IN THIS SPECIFICATION. THE USE OF CONCRETE ON GRAVITY SEWER PIPING AND LATERAL TIE-INS IS NOT PERMITTED.
- 2.2 **CONCRETE STRUCTURES**
- 2.2.1 **PRECAST MANHOLES**. PRECAST MANHOLES MUST BE CONSTRUCTED IN ACCORDANCE WITH AMERICAN SOCIETY OF TESTING AND MANUFACTURING (ASTM) SPECIFICATION C476. CONCRETE WILL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. CEMENT WILL BE TYPE II SULFIDE RESISTANT. STEEL WILL BE MINIMUM GRADE 40 AND PLACED AS SHOWN ON THE DRAWINGS. SHOP DRAWINGS OF MANHOLES AND LIFT STATION WET WELLS WILL BE SUBMITTED TO THE ENGINEERING DIVISION MANAGER FOR APPROVAL PRIOR TO CASTING. CHAIRS FOR SUPPORTING REINFORCING STEEL WILL BE NON-CORROSIVE PLASTIC OR STAINLESS STEEL. STANDARD MANHOLES WILL BE 4 FEET IN DIAMETER WITH A WALL THICKNESS OF 5" FOR MANHOLES OF 6 FEET IN DEPTH OR LESS AND 8" FOR MANHOLES DEEPER THAN 6 FEET.
- 2.2.2 **FIBERGLASS MANHOLES**. PREFABRICATED FIBERGLASS MANHOLES MANUFACTURED IN ACCORDANCE WITH ASTM SPECIFICATION D3753 MAY BE ALLOWED IF APPROVED IN ADVANCE.
- 2.3 **PIPE**
- 2.3.1 **PVC PIPE AND FITTINGS, DR 35**. PVC PIPE AND FITTINGS (DR 35) WILL BE MANUFACTURED IN ACCORDANCE WITH ASTM SPECIFICATION C3034. DR 35 PIPE IS ACCEPTABLE ON GRAVITY INSTALLATIONS WITH A DEPTH OF 12.0 FEET OR LESS. PIPE WILL BE OF THE ELASTOMERIC GASKET JOINT TYPE SUPPLIED IN LENGTHS OF 12.5 FEET. SOLID WALL RIBBED PVC PIPE WITH A STIFFNESS OF 60 PSI OR GREATER WILL BE CONSIDERED ON A CASE-BY-CASE BASIS AT THE DISCRETION OF THE ENGINEERING DIVISION MANAGER. CRITICAL INSTALLATIONS, AS DETERMINED BY THE ENGINEERING DIVISION MANAGER, WILL REQUIRE USE OF POLY-LINED DUCTILE IRON PIPE.
- 2.3.2 **PVC PIPE, DR-18**. PVC PIPE (DR-18) WILL BE MANUFACTURED IN ACCORDANCE WITH AWWA SPECIFICATION C900. DR-18 PIPE IS REQUIRED FOR PRESSURE FORCE MAIN INSTALLATION. PIPE WILL BE OF THE LASTOMERIC GASKET JOINT TYPE. COLOR-CODED IDENTIFICATION TAPE WILL BE INSTALLED ON ALL FORCE MAINS.
- 2.3.3 **DUCTILE IRON**. DUCTILE IRON PIPE WILL BE CEMENT-LINED PRESSURE CLASS 350 MINIMUM THICKNESS CONFORMING TO AWWA SPECIFICATION C151 FOR FORCE MAIN INSTALLATION. DUCTILE IRON GRAVITY SEWER WILL BE PRESSURE CLASS 350 POLY-LINED PIPE. EXPOSED PIPING IN WET WELLS AND VALVE PITS WILL BE PRESSURE CLASS 350 WITH COAL TAR EPOXY EXTERIOR COATING AND INTERIOR CEMENT LINING. BURIED DUCTILE IRON PIPE WILL BE WRAPPED IN A COLOR CODED POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH ANSI/AWWA C105-T1.
- 2.4 **MANHOLE ACCESS COVERS**
- 2.4.1 **CAST IRON**. CAST IRON MANHOLE COVERS AND RINGS MUST BE TRAFFIC LOAD BEARING SIMILAR TO USF NO. 225-AS-ORS HAVING AN O-RING SEAL. BEARING SURFACES WILL BE MACHINED TO PRODUCE A TIGHT, EVEN SEATING SURFACE WITHOUT ROUGHENING. MINIMUM CLEAR OPENING WILL BE 24" THE WORDS "SEWER" OR "STATION" MUST BE CAST INTO THE MANHOLE COVERS. MANHOLES INSTALLED IN HIGH WATER AREAS WILL BE SEALED BY A METHOD APPROVED BY THE ENGINEERING DIVISION.
- 2.4.2 **ALUMINUM**. ALUMINUM ACCESS COVERS WILL BE DESIGNED FOR 150 PSF LIVE LOAD AND WILL BE EQUIPPED WITH STAINLESS STEEL HINGES, AUTOMATIC LOCK MECHANISM IN THE OPEN POSITION, CLOSED POSITION LOCK HASP, AND RETRACTABLE GRIP FOR OPENING.
- 2.5 **COATINGS**
- 2.5.1 **EPOXY**. INTERIOR SURFACES OF MANHOLES WILL BE COATED WITH A THREE-COAT EPOXY SYSTEM. EACH COAT WILL BE OF CONTRASTING COLORS WITH THE FINAL COAT TO BE APPLIED IN THE FIELD TO ALL SURFACES.
- 2.5.2 **HDPE SHEET LINING**. T-LOK LINER, WHERE A T-LOK HDPE LINER IS SPECIFIED, THE ENTIRE WALL SURFACE OF THE MANHOLE WILL BE PROTECTED WITH A POLYVINYL CHLORIDE HIGH DENSITY POLYETHYLENE LINER CAST INTO THE CONCRETE. THIS LINER MUST BE MANUFACTURED BY AMERON, INC. AGRI SURE GRIP AS MANUFACTURED BY ALOIS GRUBER, OR APPROVED EQUAL. ALL JOINTS WILL BE HEAT FUSION WELDED TO CREATE A WATER-TIGHT LINING. SUCH LINING MUST BE WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF FIVE YEARS FROM DATE OF INSTALLATION.
- 2.5.3 **EXPOSED PIPING**. EXPOSED PIPING, PUMPS, AND EQUIPMENT EXPOSED TO RAW SEWAGE IN MANHOLES, VALVE PITS AND WET WELLS WILL BE COATED WITH A TWO-COAT COAL TAR EPOXY EXTERIOR COATING SYSTEM WITH A MINIMUM DFT OF 12-15 MILS. COAL TAR EPOXY WILL BE RUSTOLEUM 9578 OR APPROVED EQUAL. EQUIPMENT AND PUMP INFORMATION TAGS WILL NOT BE PAINTED. PUMP DISCHARGE PIPING IN LIFT STATION WET WELLS WILL BE STAINLESS STEEL. REFER TO SECTION 9.3.2.
- 2.6 **MISCELLANEOUS MATERIALS**
- 2.6.1 **MANHOLE STEPS**. MANHOLE STEPS ARE NOT PERMITTED. REQUIRED EXCEPT WHERE SPECIFIED ON THE PLANS. IF USED, MANHOLE STEPS MUST BE FIBERGLASS AND CAST INTO THE MANHOLE WALL. STEPS MUST BE 18" WIDE AND CAPABLE OF SUPPORTING A 350-POUND LOAD CONCENTRATED AT THE CENTER.
- 2.6.2 **HARDWARE**. ALL NUTS, BOLTS, WASHERS, ANCHORS AND BRACKETS INSIDE THE WET WELL OR MANHOLE MUST BE MANUFACTURED FROM GRADE 416 STAINLESS STEEL. BOLTS FOR FASTENING FLANGED FITTINGS INSIDE THE VALVE PIT MAY BE STEEL, COATED WITH THE SPECIFIED PIPING COATING SYSTEM.
- SECTION III. CONSTRUCTION
- 3.1 **LOCATION AND GRADE OF SEWERS**
THE LINE AND THE GRADE OF THE SEWER, AS WELL AS THE LOCATION OF MANHOLES, SERVICES AND ALL OTHER APPURTENANCES, WILL BE AS SHOWN ON THE DRAWINGS. THE GRADE LINE AS GIVEN ON THE DRAWINGS INDICATES THE GRADE OF THE INVERT OF THE SEWER PIPE.
- 3.2 **MATERIAL HANDLING**
- 3.2.1 **PRECAUTIONS**. EVERY PRECAUTION WILL BE TAKEN TO PREVENT INJURY TO PIPE AND PIPING MATERIALS DURING TRANSPORTATION AND DELIVERY TO THE WORK SITE. UNDER NO CONDITION WILL PIPE BE DROPPED, BUMPED, OR DRAGGED.
- 3.2.2 **DAMAGED MATERIALS**. IF IN THE PROCESS OF TRANSPORTATION, UNLOADING OR HANDLING, ANY PIPE OR FITTING IS DAMAGED, IT WILL BE REJECTED AND REMOVED FROM THE SITE.
- 3.2.3 **STORAGE**. PIPE FITTINGS AND SPECIALS WILL BE STORED IN A MANNER WHICH WILL ASSURE THE PROTECTION OF THE MATERIAL FROM DAMAGE AND WHICH WILL KEEP IT CLEAN.
- 3.3 **TRENCH EXCAVATION, SHORING, AND SHEETING**
- 3.3.1 **TRENCHES**. SEWER TRENCHES WILL NOT BE OPENED IN ADVANCE OF THE PLACING OF THE SEWER PIPE FOR A DISTANCE GREATER THAN THAT REQUIRED TO INSTALL THE SEWER PIPE. IN NO CASE WILL THE OPEN TRENCH AHEAD OF THE SEWER PIPE EXCEED 25 FEET. BACKFILL IN THE PIPE ZONE WILL BE ACCOMPLISHED IMMEDIATELY AFTER JOINTING THE NEXT SEGMENT.
- 3.3.2 **SHORING, SHEETING, AND BRACING OF EXCAVATIONS**. THE EXCAVATION MUST BE SHEETED AND BRACED WHEN NECESSARY TO PREVENT CAVE-IN DURING EXCAVATION IN UNSTABLE MATERIAL OR TO PROTECT ADJACENT STRUCTURE, PROPERTY, WORKERS, AND THE PUBLIC. THE SHEETING WILL BE MAINTAINED IN PLACE UNTIL THE PIPE OR STRUCTURE HAS BEEN PLACED AND BACKFILLED. SHORING AND SHEETING WILL BE REMOVED, AS THE BACKFILLING IS DONE, IN A MANNER THAT WILL NOT DAMAGE THE PIPE OR STRUCTURE OR PERMIT VOIDS IN THE BACKFILL. ALL SHEETING, SHORING, AND BRACING OF EXCAVATIONS WILL CONFORM TO THE SAFETY REQUIREMENTS OF THE FEDERAL, STATE, OR LOCAL PUBLIC AGENCY HAVING JURISDICTION. THE MOST STRINGENT OF THESE REQUIREMENTS WILL APPLY.
- 3.4 **CONTROL OF WATER**
- 3.4.1 **EQUIPMENT**. THE CONTRACTOR WILL FURNISH, INSTALL, AND OPERATE ALL NECESSARY MACHINERY, APPLIANCES AND EQUIPMENT TO KEEP THE EXCAVATIONS REASONABLY FREE FROM WATER DURING CONSTRUCTION. THE CONTRACTOR WILL DE-WATER AND DISPOSE OF THE WATER SO AS NOT TO CAUSE INJURY TO PUBLIC OR PRIVATE PROPERTY OR TO CAUSE A NUISANCE OR A MENACE TO THE PUBLIC. THE CONTRACTOR WILL AT ALL TIMES HAVE ON HAND SUFFICIENT PUMPING EQUIPMENT AND MACHINERY IN GOOD WORKING CONDITION FOR ALL ORDINARY EMERGENCIES AND WILL HAVE AVAILABLE AT ALL TIMES COMPETENT HUMAN RESOURCES FOR THE OPERATION OF THE PUMPING EQUIPMENT. THE DE-WATERING SYSTEM WILL NOT BE SHUT DOWN BETWEEN SHIFTS, ON HOLIDAYS OR ON WEEKENDS, OR DURING WORK STOPPAGES.
- 3.4.2 **GROUND WATER**. THE CONTROL OF GROUND WATER MUST BE SUCH THAT SOFTENING OF THE BOTTOM OF EXCAVATIONS OR FORMATION OF "QUICK" CONDITIONS OR "BOILS" WILL BE PREVENTED. DE-WATERING SYSTEMS WILL BE DESIGNED AND OPERATED SO AS TO PREVENT THE REMOVAL OF THE NATURAL SOILS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING DE-WATERING PERMITS.
- 3.4.3 **STATIC WATER**. THE STATIC WATER LEVEL WILL BE DRAWN DOWN BELOW THE BOTTOM OF THE EXCAVATION SO AS TO MAINTAIN THE UNDISTURBED STATE OF THE NATURAL SOILS. THE PLACEMENT OF BACKFILL TO THE REQUIRED DENSITY. THE DE-WATERING SYSTEM WILL BE INSTALLED AND OPERATED SO THAT THE GROUND WATER LEVEL OUTSIDE THE EXCAVATION IS NOT REDUCED TO THE EXTENT THAT WOULD DAMAGE OR ENDANGER ADJACENT STRUCTURES OR PROPERTY.

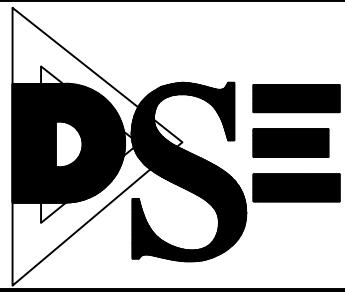
3.5 PIPE PLACEMENT AND JOINTING

- PIPE PLACEMENT WILL PROCEED UPGRADE WITH THE SPIGOT ENDS OF THE PIPE POINTING IN THE DIRECTION OF FLOW. EACH PIPE WILL BE PLACED TRUE TO LINE AND GRADE WITH A LASER BEAM SYSTEM. ALL PIPE WILL BE JOINTED IN A PROFESSIONAL MANNER AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- PIPE ENDS WILL BE CAREFULLY CLEANED PRIOR TO JOINTING. PIPE WILL BE PLACED EITHER ON A PREPARED BED OF UNDISTURBED EARTH IN THE BOTTOM OF THE TRENCH SHAPED AS REQUIRED TO FIT THE PIPE OR UPON A LAYER OF PROPERLY PLACED BEDDING MATERIAL.
- 3.6 **MATERIAL FOR BEDDING AND BACKFILLING**
- 3.6.1 **UNSUITABLE MATERIAL**. WHEREVER EXCAVATIONS OF THE TRENCH EXPOSE UNSUITABLE MATERIALS SUCH AS PEAT, SOFT CLAY, QUICKSAND, ROCK, BOULDERS, STONES, OR UNSTABLE MATERIAL IN THE BOTTOM OF THE TRENCH TWICHH, IN THE OPINION OF THE INSPECTOR, IS UNSUITABLE FOUNDATION UPON WHICH TO LAY OR SUPPORT THE PIPE. BACKFILL AND EXPECTED SUPERIMPOSED LOADS, SUCH UNSUITABLE MATERIALS WILL BE REMOVED TO A DEPTH NECESSARY TO REACH MATERIAL HAVING ADEQUATE BEARING CAPACITY AND AT A WIDTH OF TRENCH AT LEAST EQUAL TO THE MINIMUM TRENCH WIDTH AS SPECIFIED. THE SPACE CREATED BY REMOVAL OF THIS UNSUITABLE MATERIAL WILL BE BACKFILLED USING SUITABLE BACKFILL OR BEDDING MATERIAL, AS SPECIFIED.
- 3.6.2 **SUITABLE MATERIAL**. SUITABLE MATERIAL FOR BEDDING AND BACKFILLING WILL BE DRY, CLEAN, NATURAL SAND OR GRAVEL. THE MATERIAL WILL BE PLACED IN 6" LAYERS AND COMPACTED, USING MECHANICAL COMPACTING EQUIPMENT, TO A DRY DENSITY EQUAL TO 98 PERCENT (98%) OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST ASTM SPECIFICATION D698. EACH LAYER BEING COMPACTED TO THE REQUIRED DENSITY PRIOR TO PLACING THE NEXT LAYER. THE UTILITIES DEPARTMENT MAY REQUIRE THE DENSITY TO BE CHECKED BY A LICENSED LABORATORY AT EACH MANHOLE AND AT TWO POINTS BETWEEN MANHOLES AS SELECTED BY THE INSPECTOR, AT NO COST TO THE CITY.
- 3.7 **MANHOLE INSTALLATION**
- 3.7.1 **BASE UNIT**. THE BASE UNIT FOR MANHOLES AND WET WELLS WILL BE REINFORCED CONCRETE WITH A MONOLITHICALLY POURED BASE AND BOTTOM RISER SECTION. THE BASE UNIT WILL BE PLACED BEFORE THE SEWER PIPE IS PLACED TO OR AWAY FROM THE MANHOLE. THE BASE UNIT WILL BE PLACED IN A DRY HOLE. IN WET CONDITIONS THE BED WILL CONSIST OF 3/4" TO 1" ROCK.
- 3.7.2 **MANHOLE CHANNEL**. INVERT CHANNELS WILL BE CONSTRUCTED, SMOOTH AND SEMICIRCULAR IN SHAPE, CONFORMING TO THE INSIDE OF THE ADJACENT SEWER SECTION. CHANGES IN DIRECTION OF FLOW WILL BE MADE IN A SMOOTH CURVE OF AS LARGE A RADIUS AS POSSIBLE. CHANGE IN SIZE AND GRADE OF CHANNELS WILL BE MADE GRADUALLY AND EVENLY. INVERT CHANNELS WILL BE FORMED BY ONE OF THE FOLLOWING METHODS: FORMED DIRECTLY INTO POURED CONCRETE; MANHOLE BASE, BUILT UP WITH BRICK AND MORTAR; HALF THE SET IN CONCRETE, OR FULL SECTION OF SEWER PIPE INSTALLED THROUGH THE MANHOLE WITH THE TOP HALF CUT OUT; THE MANHOLE FLOOR OUTSIDE OF CHANNELS WILL BE MADE SMOOTH AND WILL BE SLOPED TOWARD CHANNELS. FREE DROP IN MANHOLES FROM INLET INVERT TO TOP OF FLOOR OUTSIDE THE CHANNELS WILL NOT EXCEED TWO FEET. STANDARD DROP MANHOLES WILL BE CONSTRUCTED WHEREVER FREE DROP EXCEEDS TWO FEET.
- 3.7.3 **JOINTS**. PRECAST MANHOLE JOINTS MUST BE WATER TIGHT AND SEALED WITH PLASTIC PRE-FORMED JOINT FILLER SIMILAR TO RAM-NEK. ALL JOINT AREAS WILL BE FACTORY PRIMED. MANHOLE TO PIPE CONNECTIONS WILL BE BY FACTORY-SUPPLIED FLEXIBLE BOOTS.
- 3.7.4 **NON-SHRINK GROUT**. THE ANNULAR SPACE BETWEEN THE SEWER PIPE AND THE OPENING IN THE MANHOLE WILL BE GROUTED WITH NON-SHRINK GROUT TO INSURE A WATER-TIGHT JOINT.
- SECTION IV. WATER MAIN CROSSINGS
- 4.1 **GENERAL**
IN ALL CASES WHERE SEWER MAINS CROSS WATER MAINS WITH A MINIMUM CLEAR DISTANCE BETWEEN THE TOP OF THE SEWER AND THE BOTTOM OF THE WATER MAIN LESS THAN 12", THE SEWER MAIN WILL BE CONSTRUCTED OF DUCTILE IRON PIPE FOR A DISTANCE OF 10 FEET ON EITHER SIDE OF THE POINT OF CROSSING. FDEP APPROVAL IS REQUIRED FOR ANY PROPOSED MITIGATION TO REDUCE SEPARATION.
- SECTION V. SERVICE CONNECTIONS
- 5.1 **GENERAL**
THE CONTRACTOR MUST INSTALL COMMERCIALLY MANUFACTURED WYE BRANCHES COMPATIBLE WITH THE MATERIAL USED IN THE SEWER MAIN. WHERE THE SERVICE LINE PIPING IS OF A DIFFERENT MATERIAL THAN THE SEWER MAIN, THE FITTINGS AND TRANSITION PIECES WILL BE SPECIALLY DESIGNED FOR THE CONNECTION OF THE DIFFERENT MATERIALS AND MUST BE APPROVED BY THE UTILITIES DEPARTMENT.
- 5.1.1 **CONNECTING TO MANHOLES**
- 5.1.1.1 **SERVICE CONNECTIONS** MADE DIRECTLY TO A MANHOLE SHALL BE CORE DRILLED AND FITTED WITH A FERNCO COUPLING TO PROVIDE SEAL AROUND PIPE. PIPE WILL BE A MINIMUM OF 6 INCHES IN DIAMETER AND SHALL INCLUDE A WYE AND CLEAN-OUT LOCATED ON THE CUSTOMER SIDE OF THE RIGHT-OF-WAY OR EASEMENT. CONNECTIONS REQUIRING A DROP WILL BE PIPED TO THE BOTTOM OF THE MANHOLE. PRIVATE LIFT STATIONS REQUIRING A DROP WILL BE PIPED TO THE BOTTOM AND FITTED WITH A 45 DEGREE BEND DIRECTED TOWARD THE INVERT OF THE GRAVITY MAIN TO REDUCE SPLASHING.
- SECTION VI. FIELD TESTING OF SEWERS
- 6.1 **GENERAL**
ALL SEWER LINES WILL BE SUBJECT TO A LEAKAGE TEST AT THE DISCRETION OF THE CITY. THE TEST MAY BE EITHER AN INFILTRATION, EXFILTRATION, OR AIR PRESSURE TEST AS DETERMINED BY THE CITY. THE TEST WILL BE CONDUCTED BY AND AT THE EXPENSE OF THE CONTRACTOR. IF A CITY INSPECTOR IS PRESENT, A MAXIMUM ALLOWABLE LEAKAGE IS 100 GALLONS PER DAY PER INCH DIAMETER OF PIPE PER MILE OF PIPE. IF THE AMOUNT OF MAXIMUM LEAKAGE IS EXCEEDED, THE CONTRACTOR WILL MAKE THE NECESSARY REPAIRS AND SCHEDULE A RE-TEST. ACCEPTABLE METHODS OF REPAIRING LEAKS ARE BY EXCAVATION OR BY PRESSURE GROUTING BY AN EXPERIENCED CONTRACTOR.
- ALL DR 35 PVC SEWER LINES WILL ALSO BE SUBJECT TO DEFLECTION TESTING. DEFLECTION TESTING WILL BE PERFORMED A MINIMUM OF 30 DAYS AFTER BACKFILLING AND COMPACTION IS COMPLETED. PRIOR TO PLACING BASE MATERIAL, THE CITY WILL SUPPLY TO THE CONTRACTOR A MANDEL ALLOWING A MAXIMUM DEFLECTION OF 7.5%. THE CONTRACTOR MUST SUPPLY ROPE AND WILL PASS THE MANDEL THROUGH ALL SECTIONS OF PIPE IN THE PRESENCE OF A CITY INSPECTOR. IF THE MANDEL DOES NOT PASS THROUGH A SECTION OF PIPE, DEFLECTION WILL BE CORRECTED AND THE LINE WILL BE RE-TESTED AFTER BACKFILLING AND COMPACTION. THE MANDEL WILL BE RETURNED TO THE UTILITIES DEPARTMENT UPON COMPLETION OF DEFLECTION TESTING.
- 6.1.1 **VISIBLE LEAKS**. ALL VISIBLE LEAKS IN STRUCTURES WILL BE ELIMINATED REGARDLESS OF THE AMOUNT OF FLOW.
- 6.1.2 **TELEVIEWED INSPECTION**. TELEVISION INSPECTION MUST BE PROVIDED BY THE CONTRACTOR, AND WILL BE PERFORMED AFTER FINAL COMPACTION OF THE JOB SITE OR ROADWAY. A VHS VIDEO CASSETTE DIGITAL VIDEO DISC (DVD) RECORD OF THE INSPECTION WITH AN AUDIBLE DESCRIPTION OF THE RUN, INCLUDING ITS DIRECTION AND LOCATION, THE LOCATION AND DESCRIPTION OF ANY SERVICE LATERALS, AND A DESCRIPTION OF ANY DEFECT OR ABNORMALITY MUST BE INCLUDED. A LEAKAGE TEST WILL NOT BE REQUIRED ON RUNS WHICH HAVE BEEN FIELD TESTED AND SHOW NO DEFECTS.
- 6.1.3 **PRESSURE TESTING**. FORCE MAINS AND RECLAIMED WATER MAINS WILL BE HYDROSTATICALLY TESTED AT A PRESSURE OF 150 PSI FOR ONE HOUR. THE CONTRACTOR WILL INSTALL AIR RELIEFS AS NECESSARY FOR RELIEVING AIR PRIOR TO TESTING. THE MAXIMUM ALLOWABLE LEAKAGE OF WATER PER THOUSAND FEET OF PIPE IS AS INDICATED ON THE FOLLOWING TABLE:
- | SIZE | ALLOWABLE LEAKAGE |
|------|-------------------|
| 4" | 0.37 GALLONS/HOUR |
| 6" | 0.55 GALLONS/HOUR |
| 8" | 0.74 GALLONS/HOUR |
| 10" | 0.92 GALLONS/HOUR |
| 12" | 1.10 GALLONS/HOUR |
| 20" | 1.84 GALLONS/HOUR |
- SECTION VII. AS-BUILT DRAWINGS
- 7.1 **GENERAL**
AS-BUILT DRAWINGS ARE REQUIRED FOR ALL SYSTEMS TO BE ACCEPTED BY THE CITY. THE ENGINEER WILL PROVIDE ONE REPRODUCIBLE PRINT OR COMPUTER DISKETTE AND THREE SIGNED AND SEALED BLUE-LINE PRINTS TO THE UTILITIES DEPARTMENT. THE AS-BUILTS MUST INCLUDE THE LOCATION OF THE WYE BRANCH, THE END OF THE SEWER SERVICE REFERENCED TO THE NEXT DOWNSTREAM MANHOLE OF EACH RUN, THE OFFSET OF THE END OF THE SERVICE REFERENCED FROM THE CENTERLINE OF THE MAIN SEWAGE PIPE, AND THE DEPTH AT THE END OF THE SERVICE. ELEVATIONS OF THE TOP (RIM) AND PIPE INVERTS AT EACH MANHOLE AND THE LENGTH AND SCOPE OF EACH RUN OF PIPE ARE REQUIRED ON THE AS-BUILTS.

SECTION VII. AS-BUILT DRAWINGS

- 7.1 **GENERAL CONTINUED**
CERTIFICATION MUST BE MADE BY THE FLORIDA-REGISTERED SURVEYOR OR ENGINEER ACCEPTING RESPONSIBILITY FOR ACCURACY OF INFORMATION SUPPLIED ON THE AS-BUILT DRAWINGS ALONG WITH A STATEMENT ON F.D.E.P. FORM 17-604.900(2) CERTIFYING THAT THE SYSTEM DEPICTED ON THE AS-BUILT DRAWING WAS CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH APPROVED PLANS AND WILL FUNCTION AS INTENDED.
- AS-BUILTS WILL BE DRAWN AT A SCALE OF NOT LESS THAN 1" INCH = 100 FEET. AREAS REQUIRING ADDITIONAL DETAIL MAY BE ENLARGED AS NECESSARY. RIGHTS-OF-WAY, EASEMENTS, AND LOT LINES WILL BE ACCURATELY SHOWN. LOTS, BLOCK NUMBERS, AND STREET NAMES WILL BE INCLUDED.
- SECTION VIII. FORCE MAIN VALVES
- 8.1 **GENERAL**
VALVES FOR USE IN FORCE MAINS MUST BE EPOXY COATED RESILIENT SEAT GATE VALVES. THE RESILIENT SEATING SURFACE WILL BE BONDED TO THE GATE AND WILL SEAL UNDER COMPRESSION WITHOUT WEDGING OR SLIDING. AIR RELEASE VALVES WILL BE MODEL NO. 2-SAR-3 AS MANUFACTURED BY EMPIRE SPECIALTY COMPANY OR APPROVED EQUAL. AIR RELEASE VALVES WILL BE INSTALLED IN A CONCRETE PIT AT HIGH POINTS IN THE MAIN. REQUIREMENTS STATED IN POTABLE & RECLAIMED WATER SECTION 2.2. VALVES AND VALVE BOXES (SUBSECTIONS 2.2.1 AND 2.2.4) AND SECTION 5.5 - VALVES AND FITTINGS SHALL ALSO BE MET FOR FORCE MAIN VALVES.
- SECTION IX. LIFT STATIONS
- 9.1 **PRECAST WET WELLS**
PRECAST WET WELLS MUST BE CONSTRUCTED IN ACCORDANCE WITH AMERICAN SOCIETY OF TESTING AND MANUFACTURING (ASTM) SPECIFICATION C478. CONCRETE WILL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. CEMENT WILL BE TYPE I SULFIDE RESISTANT. STEEL WILL BE MINIMUM GRADE 40 AND PLACED AS SHOWN ON THE DRAWINGS. SHOP DRAWINGS OF MANHOLES AND LIFT STATION WET WELLS WILL BE SUBMITTED TO THE ENGINEERING DIVISION MANAGER FOR APPROVAL PRIOR TO CASTING. CHAIRS FOR SUPPORTING REINFORCING STEEL WILL BE NON-CORROSIVE PLASTIC OR 416 STAINLESS STEEL.
- 9.2 **WET WELL ACCESS COVERS**
ALUMINUM ACCESS COVERS WILL BE DESIGNED FOR 300 PSF LIVE LOAD WITH A SAFETY FACTOR TIMES 3. THE SINGLE SWING COCK-UP COVER WILL BE EQUIPPED WITH 416 STAINLESS STEEL HINGES AND A STAINLESS STEEL TAMPER-PROOF FASTENER. CLOSED POSITION LOCK HASP AND RETRACTABLE GRIP FOR OPENING. THE COVER WILL OPEN TO 90 DEGREES AND LOCK AUTOMATICALLY IN THE OPEN POSITION WITH A STAINLESS STEEL POSITIVE LOCKING ARM. THE RELEASE WILL BE MADE BY A STAINLESS STEEL RELEASE HANDLE. THE COVER WILL BE FLUSH WITH THE TOP OF THE FRAME AND REST ON A 3/4"-WIDE LAP AROUND THE INSIDE OF THE FRAME. THE HATCH WILL BE A BILCO OR HALLIDAY PRODUCT. THE HATCH SIZE OF THE COVER WILL BE DETERMINED BY THE WET WELL SIZE AND PUMP SIZE OF THE PROJECT. TO PROVIDE AT LEAST 12 INCHES OF CLEARANCE ON ALL SIDES OF THE PUMP WITH A MINIMUM HATCH DIMENSION OF 36 X 48 INCHES.
- 9.3 **COATINGS**
- 9.3.1 **HDPE SHEET LINING**. THE ENTIRE INTERIOR WALL AND TOP SURFACE OF THE WET WELL WILL BE PROTECTED WITH A HIGH DENSITY POLYETHYLENE (HDPE) LINER DESIGNED TO PROTECT CONCRETE FROM CORROSION IN A COLLECTION SYSTEM PUMP WET WELL. THE LINER SHALL BE A MINIMUM THICKNESS OF 0.079 INCHES. ANCHORING STUDS SHALL BE THE SAME MATERIAL AND SHALL BE INTEGRALLY EXTRUDED WITH THE SHEET AND SHALL HAVE A MINIMUM HEIGHT OF 0.39 INCHES AND A LENGTH OF 0.55 INCHES. THE HDPE SHEETING WILL BE CAST INTO THE CONCRETE. THIS LINER WILL BE MANUFACTURED BY AGRI SURE GRIP AS MANUFACTURED BY ALOIS GRUBER OR APPROVED EQUAL. FLAT LINER USED FOR OVERLAPPING JOINTS SHALL HAVE A MINIMUM THICKNESS OF 0.018 INCHES. ALL JOINTS WILL BE HEAT FUSION WELDED TO CREATE A WATER-TIGHT LINING.
- T-LOK LINER**. THE ENTIRE INTERIOR WALL AND TOP SURFACE OF THE WET WELL WILL BE PROTECTED WITH A POLYVINYL CHLORIDE LINER CAST INTO THE CONCRETE. THIS LINER MUST BE MANUFACTURED BY AMERON, INC. OR APPROVED EQUAL. ALL JOINTS WILL BE HEAT FUSION WELDED TO CREATE A WATER-TIGHT LINING. SUCH LINING SHALL BE WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF FIVE YEARS FROM DATE OF INSTALLATION.
- 9.3.2 **EXPOSED PIPING**. PUMP DISCHARGE RISER PIPES AND FITTINGS INSIDE THE WET WELL WILL BE 316 10S STAINLESS STEEL WITH FLANGED FITTINGS. EXPOSED PIPING, PUMPS, AND EQUIPMENT EXPOSED TO RAW SEWAGE IN VALVE PITS AND WET WELLS WILL BE COATED WITH A TWO-COAT COAL TAR EPOXY EXTERIOR COATING SYSTEM WITH A MINIMUM DFT OF 12-15 MILS. COAL TAR EPOXY WILL BE RUSTOLEUM 9578 OR APPROVED EQUAL. EQUIPMENT AND PUMP INFORMATION TAGS WILL NOT BE PAINTED.
- 9.4 **SUBMERSIBLE LIFT PUMPS**
LIFT STATION SUBMERSIBLE PUMPS WILL BE HYDROMATIC ABS, OR FLYGHT WITH THREE-PHASE POWER WITH 3" MINIMUM SOLIDS HANDLING CAPACITY. PUMP VOLUTE, SEAL HOUSING, AND MOTOR HOUSING WILL BE CAST IRON. PUMP IMPELLER SHALL BE CAST IRON. THE IMPELLER PIECE CAST IRON CONSTRUCTION SHALL BE ONE PIECE 416 STAINLESS STEEL, EQUIPPED WITH TANDEM SEALS WITH SEPARATE CHAMBERS FOR EACH SEAL. SEALS WILL HAVE TUNGSTEN CARBIDE FACES WITH 416 STAINLESS STEEL HARDWARE. SEAL CHAMBERS WILL BE EQUIPPED WITH PROBES TO DETECT WATER INTRUSION. MOTORS WILL BE OIL-FILLED WITH AUTOMATIC RESET OVER-TEMPERATURE SENSORS EMBEDDED IN THE MOTOR WINDINGS. PUMPS WILL BE EQUIPPED WITH A STAINLESS STEEL SLIDE RAIL SYSTEM, DUAL RAIL TYPE. THE PUMP DISCHARGE COUPLING WILL BE FLANGED CEMENT-LINED DUCTILE IRON, 4" MINIMUM DIAMETER, BOLTED TO THE WET WELL FLOOR BY 416 STAINLESS STEEL FASTENERS. FLANGES WILL BE MACHINE THREADED. (COMPRESSION-TYPE FLANGES WILL NOT BE ALLOWED). FLANGE BOLTS, WASHERS, AND NUTS WILL BE 416 STAINLESS STEEL. ALL RISERS ENTERING OR EXITING THE WET WELL WILL BE SEALED IN A MANNER THAT WILL PREVENT WATER LEAKS AROUND PIPES.
- 9.5 **VALVE PIT**
A SEPARATE VALVE PIT SHALL BE CONSTRUCTED ADJACENT THE WET WELL TO HOUSE A CHECK VALVE FOR EACH PUMP. A GATE VALVE FOR EACH PUMP, AND ONE GATE VALVE FOR EMERGENCY PUMP-OUT. THE VALVE PIT SHALL BE CONFIGURED TO ALLOW A MINIMUM OF 8 INCHES BETWEEN THE BOTTOM OF PIPE FLANGES AND THE FLOOR OR WALL. THE EMERGENCY PUMP OUTLET WILL INCLUDE A BRASS 4" MALE QUICK-DISCONNECT COMPLETE WITH COVER. THE VALVE BOX IS TO BE MADE OF PRECAST OR CAST-IN-PLACE CONCRETE WITH A CAST CONCRETE COVER EQUIPPED WITH AN ALUMINUM ACCESS HATCH COVER CAST IN THE CONCRETE. THE DUAL SWING ACCESS HATCH WILL BE A BILCO OR HALLIDAY PRODUCT. HATCH SIZE WILL BE DETERMINED BY THE INSTALLATION WITH A MINIMUM DIMENSION OF 36 X 48 INCHES. A 0-100 PSI GLYCERIN FILLED PRESSURE GAUGE WILL BE INSTALLED IN TAPPED CROSS BOSS WITH A BRASS GATE VALVE.
- 9.6 **CHECK VALVES**
CHECK VALVES WILL BE FLANGED, WITH OUTSIDE WEIGHT AND LEVER, CAST IRON HOUSING, 416 STAINLESS STEEL SEAT RING, CLAPPER WITH NEOPRENE SEALING SURFACE, O-RING-SEALED STUFFING BOX (MINIMUM SIZE 4"). BOLTS, WASHERS, AND NUTS WILL BE 416 STAINLESS STEEL. CHECK VALVES SHALL MEET AWWA SPECIFICATION C508. FLANGED END DIMENSIONS WILL BE DRILLED TO ANSI STANDARD B16.1 CLASS 125.
- 9.7 **GATE VALVES**
GATE VALVES WILL BE RESILIENT SEATED, 4" MINIMUM DIAMETER, WITH FLANGED ENDS, HAND WHEEL OPERATED, NON-RISING STEEL, EPOXY COATED, EQUIPPED WITH DOUBLE RING-SEALED STUFFING BOX AND 416 STAINLESS STEEL FASTENERS. GATE VALVES WILL MEET AWWA SPECIFICATION C509. FLANGED END DIMENSIONS WILL BE DRILLED TO ANSI STANDARD B16.1 CLASS 125.
- 9.8 **CONTROL PANEL**
THE CONTROL PANEL WILL BE ISOLATED WITH A 200 AMP NON-FUSEABLE DISCONNECT HOUSED IN A NEMA 4X STAINLESS STEEL LOCKABLE CABINET.
- THE CONTROL PANEL ENCLOSURE WILL BE 316 STAINLESS STEEL, NEMA 4X RATED WITH A HEAT REFLECTING HOOD. THE MINIMUM INSIDE DIMENSIONS WILL BE 30 3/8" WIDE X 36 4/8" HIGH X 8 1/2" DEEP. THE TOP OF THE ELECTRICAL CONTROL PANEL SHALL NOT EXCEED 60 FEET ABOVE THE SURROUNDING GRADE LEVEL. THE DOOR WILL BE EQUIPPED WITH A THREE-POINT LATCHING SYSTEM WITH HASP AND STAPLE FOR LOCKING. CONTROL VOLTAGE WILL BE 120 VAC. CONTROL VOLTAGE TRANSFORMER WILL BE SIZED TO SUPPORT A 20 AMP CIRCUIT. CONTROL WIRING WILL BE 14 AWG STRANDED. THE ENCLOSURE WILL BE EQUIPPED WITH AN ALUMINUM DEAD FRONT INVERTED SWITCH CUTOUTS FOR ALL CIRCUIT BREAKERS. ELAPSED TIME METER (NON-RESET, HOUR AND ONE-TENTH HOUR, FIVE DIGITS); ONE EACH DUPLEX 120 VAC CONVENIENCE OUTLET (GFI PROTECTED); A TOP MOUNTED FLUORESCENT WORK LIGHT MINIMUM 18 INCHES IN LENGTH; HAND-OFF-AUTOMATIC (HOA) SWITCH FOR EACH PUMP; RUN LIGHT FOR EACH PUMP (RED); ONE TRIP LIGHT FOR EACH PUMP (AMBER).

- THE INTERFACE BETWEEN THE CONTROL CABINET AND THE SEPARATE SCADA CABINET WILL BE THROUGH PHOENIX CONTACT TERMINALS AND COMPONENT PLUGS AND ALLEN-BRADLEY 24 VDC RELAYS CATALOG NUMBER 700-HK36324 AND RELAY BASES CATALOG NUMBER 700-HR121. AN ISOLATED 20 AMP CIRCUIT WILL BE PROVIDED TO POWER SCADA EQUIPMENT. PUMPS WILL BE CONTROLLED BY FLOATS VIA BY SCADA RTU. FLOATS WILL BE USED TO PROVIDE LEVEL CONTROL. THERE WILL BE ONE FLOAT FOR PUMP SHUT-OFF, ONE FOR LEAD PUMP TURN-ON, ONE FOR LAG PUMP TURN-ON, AND ONE FOR HIGH LEVEL ALARM. CONTROL VOLTAGE WILL BE 120VAC. FLOATS WILL BE UL-APPROVED ROTO-FLOAT TYPE-S AS MANUFACTURED BY ANCHOR SCIENTIFIC WITH ALL WEIGHTS AND SWITCHES ENCAPSULATED. FLOATS WILL OPERATE ON NORMAL 24 VDC FROM SCADA RTU.
- MOTOR STARTERS WILL BE NEMA-RATED WITH THREE-LEG PROTECTION, AS MANUFACTURED BY ALLEN-BRADLEY, GENERAL ELECTRIC, OR SQUARE-D, OR FURNAS ELECTRIC. ALTERNATOR FOR LEAD/LAG PUMP CONTROLS WILL BE FURNAS ELECTRIC MODEL NO. 47AB10AF. CIRCUIT B. REAKERS WILL BE MOLDED CASE AS MANUFACTURED BY GENERAL ELECTRIC. SQUARE-D, OR WESTINGHOUSE CUTLER-HAMMER. ALL PILOT DEVICES (SWITCHES, RELAYS, LIGHTS) WILL BE MANUFACTURED BY GENERAL ELECTRIC, SQUARE-D, FURNAS ELECTRIC, OR WESTINGHOUSE OR ALLEN-BRADLEY. THE CONTROL PANEL WILL BE EQUIPPED WITH A RUSSEL STOLL MODEL JRS 104FR 100 AMP EMERGENCY GENERATOR RECEPTACLE AND EMERGENCY MAIN CIRCUIT BREAKER WITH LOCK-OUT FROM THE NORMAL MAIN BREAKER. TYPE, SIZE, AND VOLTAGE RATING WILL BE DETERMINED BY CITY PERSONNEL WHEN SHOP DRAWINGS ARE SUBMITTED FOR REVIEW.
- PANEL WILL BE EQUIPPED WITH GROUND AND NEUTRAL TERMINAL BARS. A POWER DISTRIBUTION BLOCK WILL BE INSTALLED AFTER THE MAIN BREAKER. A 60-FOOT COPPER-CLAD GROUND ROD WILL BE DRIVEN INTO THE GROUND ADJACENT TO THE CONTROL PANEL AND MUST TEST LESS THAN 25 OHMS RESISTANCE. TO GROUND THE ELECTRICAL SYSTEM. GROUNDING WIRE WILL BE CAD WELDED TO THE GROUND ROD. THE WIRING SYSTEM WILL BE CONFIGURED TO ALLOW THE PUMPS TO OPERATE ON FLOATS IF THE SCADA SYSTEM IS BY-PASSED. A SEPARATE BY-PASS SWITCH WILL BE INSTALLED. A DIVERSIFIED ELECTRONICS PHASE SEQUENCE AND LOSS RELAY WITH FAULT LIGHT WILL BE INSTALLED FOR EACH PUMP. LINE VOLTAGE WILL BE MONITORED WITH A WILKERSON INSTRUMENT MODEL NO. 4805. THE CONTROL PANEL PART NUMBER DR 5305. THE CONTROL PANEL WILL BE MOUNTED ON STAINLESS STEEL UNISTRUT AND HARDWARE SUPPORTED BY A MINIMUM OF TWO 4-INCH SQUARE CONCRETE POSTS. THE POST WILL BE A MINIMUM OF 10 FOOT IN LENGTH AND LOCATED ADJACENT TO THE WET WELL.
- A NEMA-4X STAINLESS STEEL JUNCTION BOX WITH BACK PLATE, A TERMINAL STRIP, A POWER DISTRIBUTION BLOCK FOR EACH PUMP, AND A GROUND BAR WILL BE INSTALLED BELOW THE MAIN CONTROL PANEL. THE BOX WILL BE CONNECTED TO THE CONTROL PANEL WITH A 3/4 INCH DIAMETER CONDUIT FOR FLOAT WIRING AND A 2 INCH DIAMETER CONDUIT FOR EACH PUMP. THE CONDUITS WILL BE EQUIPPED WITH SEAL-OFFS TO PROTECT ELECTRICAL EQUIPMENT FROM CORROSIVE ATMOSPHERE IN THE WETWELL.
- AN AS-BUILT ELECTRICAL WIRING DIAGRAM WILL BE SECURELY ATTACHED TO THE INSIDE OF THE CONTROL PANEL DOOR. A SEPARATE COPY OF THE AS-BUILT WIRING DIAGRAM WILL BE PROVIDED TO THE CITY. AN INFORMATION PLATE WILL ALSO BE LOCATED INSIDE PANEL DOOR AND WILL INCLUDE COCOA'S STATION NUMBER, PUMP INFORMATION, STATION VOLTAGE, FLORIDA POWER & LIGHT ACCOUNT NUMBER, IF A HIGH LEG IS PRESENT AND IF SO IDENTIFY THE LEG.
- A VARIABLE FREQUENCY DRIVE CONTROL (VFD) IS REQUIRED FOR EACH LIFT STATION WITH PUMPS OF 25 HP OR GREATER. VFDs WILL BE PULSED WIDTH MODULATED (PWM) TYPE WITH THE FOLLOWING BASIC FEATURES: CONSTANT TORQUE, 400V PRIMARY, 400V SECONDARY, THREE-PHASE OUTPUT (3-PHSE), BUILT-IN SELF-DIAGNOSTICS, 4 TO 20 MAOCD SPEED CONTROL; ALPHANUMERIC DISPLAY STATUS INDICATORS FOR POWER, RUN, OVER-CURRENT, OVER-VOLTAGE, OVER-TEMPERATURE; AND AUTOMATIC RE-START. THE VARIABLE FREQUENCY DRIVE MUST BE MANUFACTURED IN THE U.S.A.
- EACH LIFT STATION WILL BE EQUIPPED WITH THE FOLLOWING: PHASE LOSS RELAY; OVER-VOLTAGE RELAY; UNDER-VOLTAGE RELAY. EACH RELAY WILL HAVE ITS OWN FAULT INDICATOR LIGHT.
- 9.8.1 **SCADA**
SCADA EQUIPMENT WILL BE HOUSED IN A SEPARATE EUROBOX MODEL NUMBER 5412 ESSPCH, LOCKABLE, NEMA 4X CABINET MOUNTING AND A SEPARATE INVERTER PANEL. ON THE DOOR FOR MOUNTING RADIO. LIFT STATION OPERATION AND MONITORING WILL BE ACCOMPLISHED VIA SCADA, UTILIZING MOTOROLA MOSCAD-L REMOTE TERMINAL UNIT (RTU) CONSISTING OF ONE 15X15 CHASSIS-PART # FHN6028, FRAME-PART # FHN6890, 3 I/O MOTHERBOARD-PART # FRN 5809, A 117 VAC TRANSFORMER-PART # FRN554, POWER SUPPLY MODULE -PART # FRN555, CENTRAL PROCESSING UNIT (CPU) -PART # FR636, EXTERNAL RADIO INTERFACE BOARD-PART # FRN 5907, THREE MIXED I/O MODULES PART # FRN 5819, BATTERY BRACKET-PART # FRN 6058, BATTERY-PART # FRN 9059, UHF RADIO 438-470 MHZ -PART # FUE 1067, RADIO INSTALL KIT-PART# FRN 3268, ONE ANTENNA CABLE-PART# FRN 4473, TCP/IP INTERFACE TO PORT 1-PART # V527, AND ALL ASSOCIATED CABLES.
- THE ANTENNA SHALL BE A GOLD ANODIZED FULLY WELDED UHF DIRECTIONAL YAGIS MODEL Y4503 AS MANUFACTURED BY ANTENEX. THE ANTENNA SHALL BE MOUNTED ON A MINIMUM 20 FOOT TALL GALVANIZED MAST. THE MAST SHALL BE RIGID PIPE, TWO AND ONE HALF INCHES IN DIAMETER AT THE BASE. THE UPPER FEET OF MAST WILL BE RIGID PIPE, ONE AND ONE QUARTER INCHES IN DIAMETER. THE BOTTOM OF THE MAST WILL BE SET 3 FOOT BELOW GROUND LEVEL AND ENCASED IN A COLUMN OF CONCRETE A MINIMUM OF 12 INCHES IN DIAMETER AND 3 FOOT DEEP. ANTENNA CABLE SHALL BE THREE MICROWAVE SECTIONS 3/8 INCH DIAMETER FLEXIBLE LOW LOSS COAXIAL CABLE PART NUMBER LMR-400-08 AND SHALL BE FED INTO THE ANTENNA MAST THROUGH A 1/2 INCH DIA. CHASE NIPPLE AT THE TOP AND EXIT THE BOTTOM THROUGH A 1/2 INCH DIA. TITE FLEXIBLE CONDUIT TO THE RTU CABINET. THE MAST SHALL BE GROUNDING TO SEPARATE GROUND ROD. COORDINATION OF SCADA PROGRAMMING WILL BE PROVIDED BY ROCHA CONTROLS INC.
- 9.8.2 **SURGE PROTECTION**
A SURGE PROTECTION UNIT, DITEK MODEL-KX-(APPLIED VOLTAGE) SHALL BE INSTALLED IN A SEPARATE CABINET.
- 9.8.3 **VARIABLE FREQUENCY DRIVE**
VARIABLE FREQUENCY DRIVE (VFD) MAY BE REQUIRED FOR SOME PUMPING STATIONS AND WILL BE DETERMINED BY THE CITY AT THE TIME OF PLAN REVIEW. REVIEW BASED ON PUMP HORSEPOWER, FORCE MAIN PRESSURE, AND PUMPING DISTANCE. VFD'S WILL BE MANUFACTURED BY ABB, SQUARE-D, OR TOSHIBA. VFDs AND WILL BE HOUSED IN A SEPARATE NEMA 4X STAINLESS STEEL CABINET WITH HEAT REFLECTING HOOD AND VENTILATION SYSTEM TO ENSURE INTERNAL TEMPERATURE DOES NOT EXCEED VFD DESIGN REQUIREMENTS. A SUBMERSIBLE PRESSURE TRANSMITTER MANUFACTURED BY BLUE RIBBON INDUSTRIES WILL BE INSTALLED TO PROVIDE A 4-20MA SIGNAL FOR PUMP-SPEED CONTROL. SCADA PROGRAMMING WILL BE REQUIRED.
- 9.9 **EMERGENCY GENERATOR**
STAND-ALONE EMERGENCY ELECTRICAL GENERATORS MAY BE REQUIRED FOR SOME PUMPING STATIONS AND WILL BE DETERMINED BY THE CITY AT THE TIME OF PLAN REVIEW. GENERATORS SHALL BE MANUFACTURED BY BALDOR OR KOHLER AND EQUIPPED WITH JOHN DEERE DIESEL ENGINES. GENERATOR WILL BE EQUIPPED WITH A FUEL TANK SIZED TO PROVIDE A MINIMUM OF 30 HOURS OPERATION UNDER FULL LOAD CONDITIONS. AUTOMATIC TRANSFER SWITCH (ATS) WILL BE INSTALLED IN A SEPARATE NEMA 4X ENCLOSURE.
- 9.910 **CONDUIT**
EXPOSED ELECTRICAL CONDUIT WILL BE GALVANIZED RIGID WITH PROTECTIVE COATING WHERE IT PENETRATES CONCRETE. BURIED CONDUIT WILL BE SCHEDULE 40 PVC. CONDUITS WILL BE SIZED IN ACCORDANCE WITH NEC OR LARGER WITH A MINIMUM DIAMETER OF 2 INCHES. PVC CONDUITS FOR PUMP AND FLOAT WIRING WILL BE INSTALLED THROUGH THE SIDE OF THE WET WELL, BELOW THE LID, AND ABOVE THE HIGH WATER LEVEL.
- EACH PUMP POWER CABLE WILL BE INSTALLED THROUGH A SEPARATE CONDUIT FROM THE WET WELL TO THE CONTROL PANEL JUNCTION BOX. SEAL FAILURE AND OVER-TEMPERATURE WIRING FOR THE PUMP WILL BE INSTALLED IN THE SAME CONDUIT. ONEAN ADDITIONAL CONDUIT WILL BE PROVIDED TO ACCOMMODATE FLOAT WIRING SEPARATE FROM PUMP WIRING. CONDUITS FOR POWER AND FLOAT WIRING WILL BE INSTALLED IN CLOSE PROXIMITY AND LOCATED TO PROVIDE THE STRAIGHTEST POSSIBLE RUN TO THE JUNCTION BOX. WIRING FROM THE WET WELL WILL BE TERMINATED IN THE JUNCTION BOX. CONTINUOUS WIRING THROUGH THE BOX WILL NOT BE PERMITTED.
- A SEPARATE 2 INCH DIAMETER PVC CONDUIT WILL BE INSTALLED THROUGH THE SIDE OF THE WET WELL WITH THE ENDS CAPPED FOR FUTURE USE. THIS CONDUIT WILL BE LOCATED AT 90, 180, OR 270 DEGREES FROM THE OTHERS. THE CITY WILL DETERMINE THE EXACT LOCATION DURING PLAN REVIEW.



DAVE SCHMITT
ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

TECHNICAL NOTES
LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: NONE
SHEET: 03 OF 30



**DAVE SCHMITT
ENGINEERING, INC.**
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

REVISIONS				
DATE	BY	DESCRIPTION	DATE	BY

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

UTILITY NOTES
LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: NONE
SHEET: 04 OF 30

WATER – POTABLE & RECLAIMED

SECTION I. SCOPE OF WORK

1.1 GENERAL

All potable water, reclaimed water, and sewer mains and appurtenances must be installed in accordance with the City of Cocoa Utilities Department's Technical Provisions for the Construction of the Water Distribution System, the Water Reclamation System, and the Wastewater Collection System, the City of Cocoa Utilities Department Utilities Handbook, the approved plans, and the Standard Detail Sheet. Contractor requirements include:

- Furnishing all labor, materials, tools and equipment necessary or incidental to the construction.
- Obtaining and paying for all permits, inspections, and other official fees in connection with the work.
- Arranging a pre-construction conference with the Engineering Division. It is recommended that the pre-construction meeting be scheduled prior to ordering materials.
- Scheduling materials inspection, open ditch inspection, pressure/leakage test, and final inspection.

Any deviation from these requirements must be approved in writing by the Engineering Division Manager prior to commencement of construction.

Fees charged by the City are set by City Council by resolution and are listed on the appendix "Water Service Rates and Charges" made a part of the Utilities Handbook. Fees are subject to change without notice. The most current fees will be charged.

The Utilities Department and Engineering Division are located at 600 School Street, Cocoa, Florida, 32922. The Dispatch telephone number is (407) 639-7571; facsimile number is (407) 639-7653.

1.2 DEFINITIONS

The term "approved equal" is used to mean a part or item that has been approved in writing by the Engineering Division Manager, the Transmission/Distribution Superintendent, or the Utilities Director. A written request must be made in order to have an item accepted as an approved equal. Written specifications on the part or item must be furnished with the request.

Whenever a specification from a specific source is cited, the most current revision of that specification will be used.

Unless otherwise specified, "City" means City of Cocoa; "Utilities Department" means City of Cocoa Utilities Department; "Engineering Division" means City of Cocoa Utilities Department, Engineering Division.

SECTION II. MATERIAL SPECIFICATIONS

2.1 PIPE (see also Section 5.3 – Wire for locator wire specifications)
2.1.1 Polyvinyl Chloride Pressure Pipe, 4"-12", Polyvinyl chloride (PVC) pressure pipe (size 2") will be Class 200 (R18) and will be blue or white in color. Pipe will be supplied in standard 20-foot lengths. All joints will be of the elastomeric-gasket type with thickened, integral solid-wall bell or coupling with the same DR as the barrel. No solvent-cement joints will be accepted. All PVC pipe and couplings will bear the U.L. label and NSF approval for potable water.

2.1.2 Polyvinyl Chloride Pressure Pipe, 4"-12", Polyvinyl chloride pressure pipe (sizes 4 through 12") will be cast iron pipe equivalent outside diameter Class 150 (R18) conforming to the American Water Works Association's (AWWA) specification C900 and will be blue or white in color. Pipe will be in standard 20-foot lengths. All joints will be of the elastomeric-gasket type with thickened, integral solid-wall bell or coupling with the same DR as the barrel. All PVC pipe and couplings will bear the U.L. label and NSF approval for potable water.

2.1.3 Polyvinyl Chloride Pressure Pipe, 16", Polyvinyl chloride pressure pipe (size 16") will be cast iron pipe equivalent outside diameter Class 350 (R18) conforming to AWWA specification C900 and will be blue or white in color. All joints will be of the elastomeric-gasket type with thickened, integral solid-wall bell or coupling with the same DR as the barrel. All PVC pipe and couplings will bear the U.L. label and NSF approval for potable water.

2.1.4 Ductile Iron, Ductile iron pipe will be cement lined pressure Class 350 conforming to AWWA specification C155 and will be purple in color. All PVC or ductile iron pipe will be installed with a 5"-wide purple elastomer identification tape affixed to the top of the pipe. Serial in 1-1/2" block lettering will identify the pipe as "REUSE MAIN". Ductile iron pipe installed in the reclaimed water system will be pressure Class 350 for 12" and smaller and pressure Class 250 for 14" and larger, provided 3 feet of cover can be maintained. Where cover is less than 3 feet, pressure Class 350 is required. Ductile iron pipe installed in the wastewater collection system will be installed with horizontal separation of less than 5 feet or vertical separation of less than 18" from potable water mains or sewer mains exists.

2.1.5 Reclaimed Water, PVC pipe installed in reclaimed water systems will be Class 150 (R18) conforming to AWWA specification C900 and will be purple in color. All PVC or ductile iron pipe will be installed with a 5"-wide purple elastomer identification tape affixed to the top of the pipe. Serial in 1-1/2" block lettering will identify the pipe as "REUSE MAIN". Ductile iron pipe installed in the reclaimed water system will be pressure Class 350 for 12" and smaller and pressure Class 250 for 14" and larger, provided 3 feet of cover can be maintained. Where cover is less than 3 feet, pressure Class 350 is required. Ductile iron pipe installed in the wastewater collection system will be installed with horizontal separation of less than 5 feet or vertical separation of less than 18" from potable water mains or sewer mains exists.

2.2 VALVES AND VALVE BOXES
2.2.1 Resilient Seat Gate Valves, 4"-16", Resilient seat gate valves will have mechanical joint ends as manufactured by American Flow Control, Model AFC-2500; U.S. Pipe, Metrolene, Cast Gate Valves, or an approved equal. The resilient seat gate valves must conform to AWWA specification C509 and be manufactured in the U.S.A. Resilient seats will be of natural or synthetic rubber and be rated at a working pressure of 200 psi. The interior and exterior of the valve body will be fusion bonded epoxy coated in accordance with AWWA specification C550 in order to provide a corrosion-resistant seal. The coating must be applied in a manner to withstand the action of line fluids and operation of the seating gate under long-term service. Valve seats must seal by compression only. Weeping or sliding of the resilient seat is not acceptable. Valves and registers of direction of flow. Opening the valve will be in the counter-clockwise direction. If the depth of the valve nut is greater than 48" below grade, or 30" below grade and under the water table, a valve extension stem will be required. The extension will have a centering collar and be mechanically attached to the valve operating nut, such as extensions manufactured by the General Engineering Company, Model #4840-2001-3, or an approved equal to be determined by the Transmission/Distribution Superintendent or his designee. See Exhibit 1.

2.2.2 Butterfly Valves, 12" and larger, Butterfly valves with mechanical joint ends will be rubber seated, 90° tight closing type, short body. The interior and exterior will be fusion bonded epoxy coated in accordance with AWWA specification C550. The valve shall be of 18-lb type 304 stainless steel or type 316 stainless steel. Body dimensions and minimum shuttling diameter will be in accordance with Tables 3 and 4 of AWWA specification C504. The valve seat will be of molded natural or synthetic rubber, will be mechanically secured to the disc or to the valve body, and will mate against a stainless steel seat surface. Buried valves will be for submerged service and will be equipped with totally enclosed gear operators, permanently lubricated and equipped with adjustable stops for open and closed positions. The gear ratio will be such as to require not more than 50 foot pounds of input torque to operate the valve against the worst case of a water flow velocity of 10 feet per second at a pressure of 100 psi differential. A torque-limiting device will be supplied if the allowable operator input is less than 450 foot pounds. Each buried valve will have a standard 2"-square operating nut. The valve will open when the operator nut is turned counter-clockwise. If the depth of the valve nut is greater than 48" below grade, or 30" below grade and under the water table, a valve extension stem will be required. The extension will have a centering collar and be mechanically attached to the valve operating nut, such as extensions manufactured by the General Engineering Company, Model #4840-2001-3, or an approved equal to be determined by the Transmission/Distribution Superintendent or his designee. See Exhibit 1.

2.2.3 Butterfly Valves, 12" and larger, Butterfly valves with mechanical joint ends will be rubber seated, 90° tight closing type, short body. The interior and exterior will be fusion bonded epoxy coated in accordance with AWWA specification C550. The valve shall be of 18-lb type 304 stainless steel or type 316 stainless steel. Body dimensions and minimum shuttling diameter will be in accordance with Tables 3 and 4 of AWWA specification C504. The valve seat will be of molded natural or synthetic rubber, will be mechanically secured to the disc or to the valve body, and will mate against a stainless steel seat surface. Buried valves will be for submerged service and will be equipped with totally enclosed gear operators, permanently lubricated and equipped with adjustable stops for open and closed positions. The gear ratio will be such as to require not more than 50 foot pounds of input torque to operate the valve against the worst case of a water flow velocity of 10 feet per second at a pressure of 100 psi differential. A torque-limiting device will be supplied if the allowable operator input is less than 450 foot pounds. Each buried valve will have a standard 2"-square operating nut. The valve will open when the operator nut is turned counter-clockwise. If the depth of the valve nut is greater than 48" below grade, or 30" below grade and under the water table, a valve extension stem will be required. The extension will have a centering collar and be mechanically attached to the valve operating nut, such as extensions manufactured by the General Engineering Company, Model #4840-2001-3, or an approved equal to be determined by the Transmission/Distribution Superintendent or his designee. See Exhibit 1.

2.2.4 Valve Boxes, Valve boxes and lids must be manufactured in the U.S.A. Boxes and lids must be structurally equal to those produced by Trumbull or Tyler and must have an 1/4" minimum inside diameter. Cast iron valve boxes will consist of a circular cast iron top and bottom section. The depth must be determined and the appropriate valve box must be installed. No PVC or ductile iron valve boxes will be accepted. Valve boxes must be set flush with finished ground surface in such a manner as to permit easy use of a valve wrench and to prevent surface loads from being transmitted to the valve or pipe. Box sections must be telescopic and adjustable. Valve box lids should have the word "WATER" or "SEWER" or "REUSE", as appropriate, cast on the top. A concrete pad (24" x 24" x 4" or 6") will be poured around all boxes at finished grade level unless the valve is located in a power roadway or parking lot.

2.2.5 Valves, 2", Two-inch valves for use with 2" PVC distribution mains will be of the ball valve design, as manufactured by Ford Meter Box Company, Inc., Model #011-777, or an approved equal. They will be equipped with a 2"-square operator, as manufactured by Ford Meter Box Company, Inc., Model #01675, or an approved equal, for buried use. Ball valves will be adapted to other pipe line materials by use of brass nipples or PVC gasketed ball adapters. The 2" blowoff gate valve will be rated at 125 SWP or 200 WOG. The 2" gate valve must meet all E.P.A. and F.D.E.P. requirements regarding lead and zinc contents. Galvanized fittings and 2" brass wheel valves are acceptable only on blowoffs and will not be accepted at other locations. All valves must be manufactured in the U.S.A.

2.2.6 Valve Boxes, Valve boxes and lids must be manufactured in the U.S.A. Boxes and lids must be structurally equal to those produced by Trumbull or Tyler and must have an 1/4" minimum inside diameter. Cast iron valve boxes will consist of a circular cast iron top and bottom section. The depth must be determined and the appropriate valve box must be installed. No PVC or ductile iron valve boxes will be accepted. Valve boxes must be set flush with finished ground surface in such a manner as to permit easy use of a valve wrench and to prevent surface loads from being transmitted to the valve or pipe. Box sections must be telescopic and adjustable. Valve box lids should have the word "WATER" or "SEWER" or "REUSE", as appropriate, cast on the top. A concrete pad (24" x 24" x 4" or 6") will be poured around all boxes at finished grade level unless the valve is located in a power roadway or parking lot.

2.2.7 Check Valves, Check valves for fireline systems will be the double detector check valve as manufactured by Fabco, Model No. B660DC; Watts, Model No. 7090DC; Ames, Silver Bullet, Model No. 8000DC; or an approved equal. The double detector check valve must be installed in accordance with the section on "Cross-Connection Control and Backflow Prevention" in the Utilities Handbook. Check valves must be installed horizontally above ground in a grassed area and pointed with Rust-O-None No. 9420-1611 Red. Red pipe will be installed with 12" minimum and 24" maximum clearance from finished grade. The Utilities Department will inspect the interior of the double detector check valve prior to installation.

2.3 FITTINGS

All fittings must be of the mechanical joint type with an approved joint restraint, or push-on joint with a gasket joint field restraint system, such as "Field Lok" as manufactured by U.S. Pipe or an approved equal. All fittings must be manufactured in the U.S.A.

2.3.1 Cast Iron, Cast iron fittings will be AWWA specification C110, Class 250, cement lined with inside seal coating. The fittings will be bluish-black coated on the outside and be wrapped with 6 mil polyethylene (sealed with tape).

2.3.2 Ductile Iron, 4"-16", Ductile iron compact fittings (sizes 4" through 16") must conform to AWWA specification C153. Ductile iron compact fittings will be mechanical joint with an interior cement lining with seal coating and an exterior bluish-black coating. All fittings will be wrapped with 6 mil polyethylene (sealed with tape).

2.3.3 Bolts, All mechanical joint bolts must be CORTEN Steel.

2.3.4 Tapping Saddles, Tapping saddles on mains 4" to 12" in diameter will be cast iron body mechanical joint type. Saddles on mains 16" to 48" in diameter will be fabricated steel with O-ring seal, fusion bonded, epoxy coated with stainless steel nuts and bolts. The tapping valve must be centered ring and conform to Section 2.2.1 – Resilient Seat Gate Valves in these Technical Provisions.

2.3.5 PVC Fittings for 2" PVC pipe will be PVC with rubber gasketed slip joints. No solvent weld joints will be accepted.

2.4 FIRE HYDRANTS

Fire hydrants must be manufactured in accordance with AWWA specification C503. Hydrants must have bronze low-leak test seat threads and valves. They will be traffic type with drain holes plugged at the factory. Hydrant valve must be one of the following models:

- Model Mark 31 with bronze drain ring, American Darling Valve and Manufacturing Company
- Model No. A-421, Super Centurion 200, Mueller Company
- Model #K-B1A, ITT Kennedy
- Cline Medallion, Cline Valve Company
- U.S. Metropolitan, U.S. Pipe

Hydrants will have one 4-1/2" valve opening, one 4-1/2" pump nozzle, and two 2-1/2" hose nozzles. Stem couplings and 2" for hydrant shall be coated inside with fusion bonded epoxy, 6 mil minimum. All hydrants will be painted at the factory with Rustolene high performance epoxy R103 stainless, non-leak, dry film thickness 5 to 6 mils, color #9143 Yellow. City crews will apply finish paint to each new fire hydrant after the contractor has paid for the hydrant.

Finish grade is to be established and the proper length hydrant installed by the contractor prior to acceptance by the City. All nozzles will be a minimum of 18" and a maximum of 24" above finished grade. A 6" mechanical joint yoke connector will be provided using a hydrant valve anchoring eye with integrally cast standard mechanical joint girth on 6" plain and branch. The contractor will not install repairs or make repairs to hydrants. Adjustments or repairs to be made to the hydrant after installation will be done by the City. The contractor or developer will be charged the cost of labor and materials for the hydrant. The hydrant will be installed in accordance with AWWA specification C503. If it is determined that a fire hydrant has been modified, the hydrant will be removed. Either the proper length hydrant will be installed by the City, at the contractor's expense, or the contractor may purchase a proper length hydrant and install it under the direction of the Utilities Department personnel.

2.5 SERVICE CONNECTIONS, 3/4"–2"

All service connections will be integral connections. Services that are 3/4" and 1" are to be type K finished temper soft copper. All connections are to be of the flare type. The 2" service connection will be installed by the City, at the contractor's expense, or the contractor may purchase a proper length hydrant and install it under the direction of the Utilities Department personnel.

2.5.1 Saddles, Saddles must be used for all connections to PVC pipe. Saddles must be bronze as manufactured by Mueller Company, Ford Meter Box Company, or Smith-Blair Company. The pipe sizes for these manufacturers are noted below:

MUELLER: For pipe sizes 4" to 12", for 3/4" and 1" services, the single strap design must be used. For 1-1/2" and 2" services, the double strap design must be used. Both designs are for the H-16000 series.

FORD: For pipe sizes 4" to 12", for 3/4" and 1" services, the style 1018 single strap design must be used. For 1-1/2" and 2" services, the style 1018 double strap design must be used. For pipe sizes 16" and larger, for 3/4", 1", 1-1/2", and 2" services, the style 202B double strap design must be used.

SMITH-BLAIR: For pipe sizes 4" to 12", for 3/4" and 1" services, the 321 series, single strap design must be used. For pipe sizes 16" and larger, for 3/4", 1", 1-1/2", and 2" services, the 323 series double strap design must be used.

An approved equal may be used in lieu of any of the above-listed designs/models.

2.5.2 Curb Stops, 3/4" and 1", Curb stops 3/4" and 1" in size will be Mueller Mark II Orised, Model No. H-14352 or No. B-24-352R ball valve, as manufactured by Mueller Company, Model No. B-33-323R can be used for 3/4" curb stops and Model B-23-444W for 1" curb stops, as manufactured by Ford Meter Box Company, Model No. 4317, as manufactured by Hayes Manufacturing Company, or an approved equal. It is also acceptable. Curb stops must have locking wings and a valve meter nut. Curb stops that are 1-1/2" or 2" will be flare-by-charge with locking wing. Model No. B923-665W for 1-1/2", Model No. B923-777W for 2", as manufactured by Ford Meter Box Company, Model No. 4316, as manufactured by Hayes Manufacturing Company, or an approved equal.

2.5.3 Corporation Stops, 3/4" and 1", Corporation stops 3/4" and 1" will be of brass and equal to Model No. H-15500, manufactured by Mueller Company, Model No. H-600, or manufactured by Ford Meter Box Company, Model No. 5200, as manufactured by Hayes Manufacturing Company, or an approved equal. Corporation stops 1-1/2" and 2" will be brass and equal to Mueller Orised, as manufactured by Mueller Company, Model No. FB 600, as manufactured by Ford Meter Box Company, Model No. 4400, as manufactured by Hayes Manufacturing Company, or an approved equal.

2.5.4 Location, Service lines will be located at alternating lot lines outside the sidewalk within two feet of the right-of-way line as shown on approved plans or in a grassed area behind the curb if located in other than a subdivision. Curb stops will be installed to finished grade in a plastic meter box with an iron flapper lid with a full pin hinge, such as Model No. DX141B-12CR, as manufactured by David Plastics, or a steel pin hinge with a blue "W" for potable water or a purple "X" for reuse. Reuse services will be located at the opposite lot corner from water services where practical or with five feet minimum separation.

2.5.5 Reclaimed Water, Reclaimed water service will be installed to finished grade in a plastic meter box with a purple plastic top and iron flapper lid with a full pin hinge, such as Model No. DX141B-12CR, as manufactured by David Plastics, or an approved equal. A 3" x 5" permanent plastic cap, secured to the stop with a nylon tie wrap, will be supplied. Taps will be installed "REUSE WATER DO NOT DRINK".

2.6 INSPECTION OF MATERIALS

Materials delivered to the job site will be subject to inspection by the City prior to installation. All materials found to be defective or not meeting specifications during inspection or during the progress of the work will be rejected and removed from the job site without delay. All materials delivered to the job site will be in accordance with the materials specifications. Materials not inspected by the City prior to installation will be uncovered by the contractor at his/her expense to verify compliance with these specifications. The contractor will furnish copies of the packing list(s) for materials upon demand.

SECTION III. PROTECTION OF PROPERTY AND OBSTRUCTIONS

3.1 PROTECTION, Temporary supports and surface structures encountered in the progress of the work. Structures that have been disturbed will be restored to a condition equal to their original state upon completion of the work.

3.2 OBSTRUCTIONS, All utility owners must be notified prior to beginning construction. Any known obstructions will be shown on the plans. The utmost caution will be taken in all operations to avoid damage to existing obstructions whether or not shown on the plans.

SECTION IV. TRENCH PREPARATION

4.1 EXCAVATION, A trench will be opened so that the pipe can be installed to the alignment and depth required. It will be excavated only so far in advance of pipe placement as necessary. The trench will be excavated to the depth required so as to provide a uniform and continuous bearing support for the pipe or undisturbed ground. Bell holes will be provided at each joint to permit jacking to be made and inspected properly.

During excavation, if ashes, cinders, muck or other organic material considered unstable is uncovered at the bottom of the trench at sub-grade, it will be removed and backfilled with approved material. This material will be compacted in layers to provide a uniform and continuous bearing characteristic of that area's soil condition. Where the bottom of the trench at sub-grade consists of unstable material to such a degree that it cannot be removed and replaced with an approved material to support the pipe properly, a suitable foundation must be constructed. Excavated material will be piled at such a manner that it will not endanger work or obstruct natural water courses, sidewalks or driveways. Fire hydrants under pressure, valve boxes, or other utility controls will be left undisturbed and accessible at all times. Cutters will be kept clear of other satisfactory provisions will be made for street drainage.

4.2 SHEETING AND BRACING, Open cut trenches must be sheeted and braced as required by any governing State law, municipal ordinances, OSHA Standards, and any may be necessary to protect life, property, or the work. Trench bracing may be removed after backfilling has been completed or has been brought up to such an elevation to permit its safe removal. The use of a trenching box may be used in place of sheeting and bracing where appropriate.

4.3 DE-WATERING, Excess water must not be allowed in the trench at any time. An adequate supply of well points, hand-operated pumps, all in first-class operating condition, may be used to remove the water. The use of gravel and pumps will also be an acceptable means of removing the water. The trench will be excavated no more than the available pumping facilities are capable of de-watering. Discharge from pumps will be accommodated in accordance with the St. Johns River Water Management District's requirements. The City is not responsible for obtaining de-watering permits.

SECTION V. PIPE LINE CONSTRUCTION

5.1 GENERAL

All water mains, service lines and appurtenances must be installed as specified on the water plans and in accordance with the Standard Detail Sheet. Installation will conform to AWWA specification C600 except as modified herein.

5.2 PIPE PLACEMENT, The bottom of the trench will not be excavated below the specified grade. If undercutting occurs, the bottom of the trench will be brought up to the original grade with approved material and thoroughly compacted, as directed by the Engineering Division personnel. Before placing pipe into the trench, the outside of the spigot and the inside of the bell will be wiped clean, dry, and free from oil and grease. Every precaution will be taken to prevent foreign material from entering the pipe. During placement operation, no debris, tools, clothing or other material will be placed in the pipe.

All mechanical joints will be made up in strict accordance with the manufacturer's instructions. Gaskets will be removed under the pipe entering mechanical joint. The bell will be carefully cleaned before the gasket is inserted. Gaskets must be evenly seated along the gasket in position with the bolts, and evenly tightened. All gaskets will be replaced with new gaskets. The pipe will be made up in strict accordance with the manufacturer's specifications.

After placing a length of pipe in the trench, the spigot will be centered in the bell, the pipe forced into place, brought to correct alignment, and covered with an approved pipe. The pipe will be made up in strict accordance with the manufacturer's specifications and compacted to ninety-five percent (95%) of standard Proctor – 99.

Pipe will be installed with 30" minimum cover. Maximum cover of 42" will be accepted. Cover depth will be determined from proposed final grade as indicated on the plans. At times when pipe placement is not in progress, the open end of pipe must be closed by the contractor with a plug. The plug will be installed by the City, at the contractor's expense, or the contractor may purchase a proper length hydrant and install it under the direction of the Utilities Department personnel.

5.3 WIRE, A UPFLA locator wire will be installed on all potable water, reclaimed water, and sewer mains. The wire must be placed on the top of the pipe with at least one wrap around each section of pipe. A run of wire must run from the main to each hydrant. Each hydrant must have one wrap of the wire around the bore located at final grade.

A run of wire will also be brought up in each valve box. The wire will have 4 feet of excess length. Wire is to be connected together using a yellow wire nut.

5.4 BACKFILLING, All backfilling material will be free from cinders, ashes, refuse, vegetable or organic material, boulders, rocks, stones, or other material which is considered unsuitable. When backfill material is not specified on the plans, backfilling with the excavated material may be acceptable provided the material is suitable for backfilling. Pipe should be backfilled in some possible to minimize the length of open trench. Valves, fittings, and thrust blocks will be left uncovered until inspection by the Utilities Department has been completed.

5.5 VALVES AND FITTINGS, All valves and fittings will be set and joined to the pipe in the proper location as shown on the plans. Valves should be installed outside the pavement wherever practical. A roadway valve pit will be provided for every valve. The valve box must not transmit shock or stress to the valve and will be centered and plumb over the wrench nut of the valve. The valve box will be to be flush with the surface of the finished pavement or grade unless so specified on the plans. A 24"-square concrete pad 4" in thickness will be poured around the valve box when it is located outside of pavement. A bronze or stainless steel disc will be cast in the pad for all valves 12" and larger. Valve nomenclature to be stamped into the disc will include the valve size, size, manufacturer's initials, number of turns, and direction to open the valve. (Example: 12" G.V. U.S.P. 20 c.w.).

5.6 FIRE HYDRANTS, All fire hydrants will be located as shown on the plans and marked on the pavement with a fire reflector. On unpaved streets, a fire reflector will be affixed to a post and placed as close to the edge of the road as feasible so as to be easily visible. The hydrants will be located in such a manner as to provide complete accessibility and in a manner so that the possibility of damage from vehicles or injury to pedestrians will be minimized. All hydrants must stand plumb with the pump nozzle facing towards the curb and the bury line of the hydrant at the finished grade. Fire hydrants installed in State highway right-of-way will be placed in accordance with any F.D.O.T. requirements. All fire hydrants will be connected to the main in the manner shown on the Standard Detail Sheet.

5.7 THRUST BLOCKS, Thrust blocks will be installed at all bends, fire hydrants, and as specified on the plans, in accordance with the Standard Detail Sheet. Metal harnesses, tie rods, or clamps of adequate strength to prevent movement may be installed at locations where thrust blocks are not practical. Rods and clamps will be stainless steel. A 20-foot length of mechanical joint ductile iron pipe will be installed at 10 feet from the end of the joint. The pipe will be poured around the pipe at a distance of 10 feet from the end of the joint.

5.8 PIPE INSTALLED IN CASINGS, Pipe to be installed under pavement where open trenching is not permitted will be installed through a steel casing which has been jacked and bored. Casing size will be as indicated below:

PIPE SIZE	MINIMUM CASING SIZE
12"	14"
16"	18"
20"	22"
24"	26"
30"	34"
36"	42"

Water mains must be pushed or pulled through the casing on pressure-treated wood skids attached to the pipe with stainless steel straps. Stainless steel casing spacers with polyethylene skirts will be accepted in lieu of wood skids and are required on mains 12" in diameter and larger. The stainless steel casing spacers with polyethylene skirts will be placed in accordance with manufacturer's recommendations. Casing spacers must be manufactured by Cascode or an approved equal. Restrained joints are required on mains installed inside casing.

5.9 BLOWOFFS, Flushing blowoffs are to be installed and constructed as shown on the Standard Detail Sheet. Blowoff materials include 2" galvanized pipe, threaded fittings, 2" brass wheel valve, and plastic meter box (purple for reuse). The plastic meter box is to be installed at grade over the wheel valve. The wheel valve will be within six inches of finished grade and will be plugged with a brass plug. Blowoffs will be required on both potable water and reclaimed water mains 12" and larger and must be constructed as shown on the Standard Detail Sheet. A reuse tag will be installed on reuse main blowoffs in or reuse meter box.

SECTION VI. TIE-INS TO EXISTING SYSTEMS

6.1 GENERAL

The contractor is not to operate any valve or remove any thrust block from City-owned mains except under direct supervision of a representative of the Utilities Department. All contractors must follow the procedures listed below for connecting new mains to existing water systems.

6.1.1 Mains 10" and smaller, Tie-in valves will be operated and pressure tested to verify water tightness prior to the tie-in. Valves that are not water tight must be replaced or a new valve must be installed immediately adjacent to the valve; otherwise, the tie-in is not to be made until the system has been approved for service by F.D.E.P. The contractor will provide a 2" tap on the new main and a 2" tap on the existing main at the tie-in valve. A 2" jumper equipped with a backflow preventer (double check) will be installed. The backflow preventer will be utilized for filling the main, flushing the main, providing water for bacteriological sampling, and maintaining pressure in the main after a successful bacteriological test. The tie-in valve is not to be operated and the jumper is not to be removed until clearance has been obtained from F.D.E.P. and the City. The project engineer will be required to provide an executed F.D.E.P. certificate of completion prior to clearance. After clearance, the tie-in valve will be opened, the jumper removed, and the main thoroughly flushed under the supervision of the Engineering Division.

6.1.2 Mains 10" and larger, The same procedure as noted for mains 8" and smaller will be used for mains 10" and larger except that a backflow preventer will be utilized for filling the main, providing water for bacteriological sampling, and maintaining pressure in the main after a successful bacteriological test. The tie-in valve can be opened for flushing and during chlorination only under the supervision of the Engineering Division. The tie-in valve is not to be operated and the jumper is not to be removed until clearance has been obtained from F.D.E.P. and the City. After clearance, the tie-in valve will be opened, the jumper removed, and the main thoroughly flushed under the supervision of the Engineering Division.

6.2 TESTING

7.1 GENERAL, All newly installed pipe that has been backfilled must be tested at a gauge pressure of 150 psi in accordance with AWWA specification C600.

7.2 FLUSHING, The City will provide an adequate volume of water for the filling, flushing, and testing of mains. The contractor will notify the Engineering Division prior to flushing or filling mains. The pressure in the City's system will be monitored during the flushing at no time around the pressure in the City's system be allowed to drop below 40 psi. Water used during wasteful or unapproved flushing will be billed to the contractor.

7.3 HYDROSTATIC TEST, A blowoff or fire hydrant will be installed at the end of the pipeline under test. The testing tested will be slow and steady water to the specified test pressure. Before exposing the specified test pressure, all air will be equalized between samples. The contractor will be charged a fee by the City for each blow-off or fire hydrant not available at high elevations, taps at points of highest elevation will be made to facilitate air removal and testing. When testing is complete, the service lines installed for air removal must be removed.

The line must hold the 150 psi test pressure for a two-hour test period. The first hour is to be witnessed by the contractor; the second hour must be witnessed by the Engineering Division personnel. During the test, the contractor will be required to inspect. If the line fails to meet the test, it will be repaired and re-tested until the test requirements are satisfied. Line pressure will be maintained to within 5 psi of the test pressure at all times.

7.4 LEAKAGE TEST, A leakage test at 150 psi will be performed on all newly installed sections of pipe after installation of all service connections. Any leakage observed must be less than the following per thousand and per mile of the City's specifications:

SIZE	ALLOWABLE LEAKAGE
4"	0.33 Gallons/Hour
6"	0.50 Gallons/Hour
8"	0.67 Gallons/Hour
10"	0.83 Gallons/Hour
12"	1.00 Gallons/Hour
14"	1.16 Gallons/Hour
16"	1.33 Gallons/Hour

SECTION VII. DISINFECTION & BACTERIOLOGICAL TESTING

8.1 GENERAL

The contractor must flush mains and orange for complete disinfection by chlorination under the direction of the Utilities Department. Work will conform to applicable provisions of AWWA specification C601, "Disinfecting Water Mains." Water with a chlorine content of 100 ppm will be evenly distributed throughout the pipe system and allowed to remain in the pipe for twelve-four hours before it is flushed out. After flushing, the water must be tested before testing can be discontinued in accordance with AWWA specification C601. Samples will be taken by Utilities Department personnel. Water mains must not be flushed between samples. The contractor will be charged a fee by the City for each bacteriological test. The contractor must have proof of payment for bacteriological testing. The contractor will be charged a fee by the City for each bacteriological test. The contractor must have proof of payment for bacteriological testing. The contractor will be charged a fee by the City for each bacteriological test. The contractor must have proof of



DAVE SCHMITT
ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

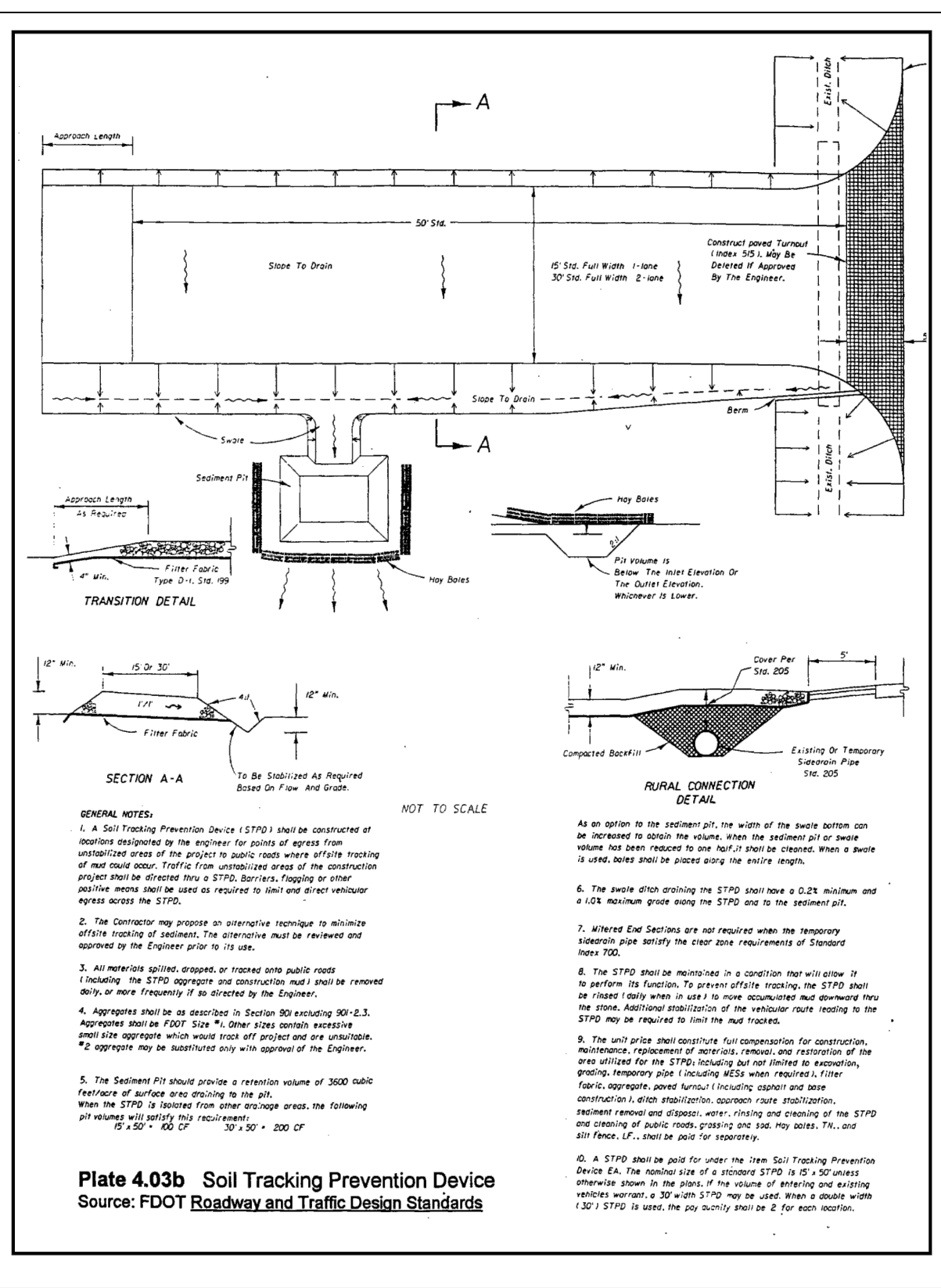
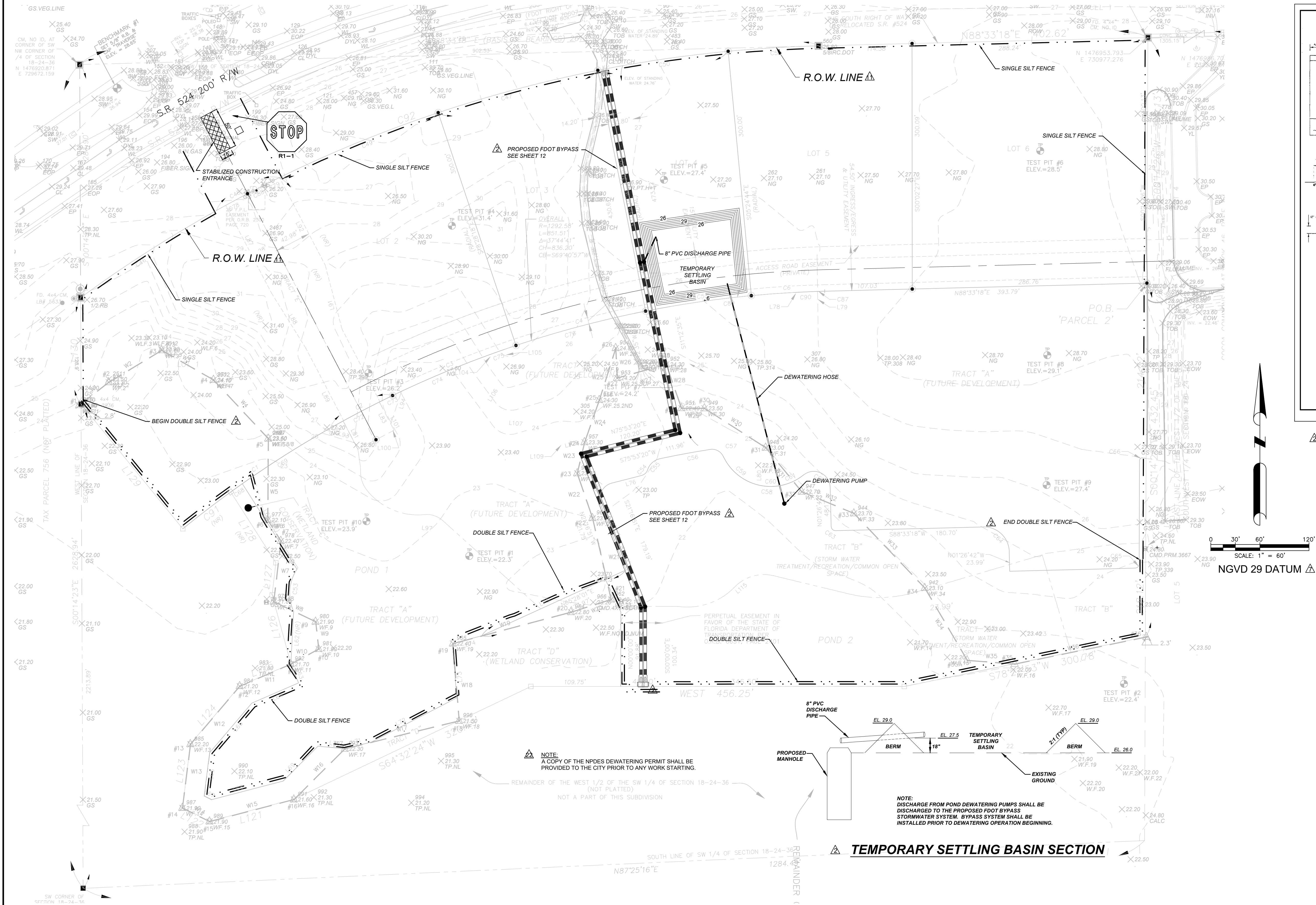
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			01-25-21	MGM	REVISION PER FDOT / CITY COMMENTS
			02-06-20	DLS	REVISION PER FDOT COMMENTS
			02-25-19	MGM	REVISION PER CITY COMMENTS
			10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

EROSION CONTROL PLAN

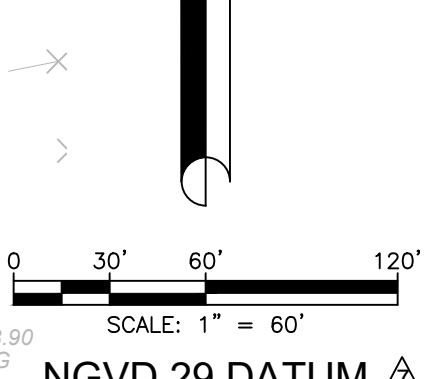
LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 60'
SHEET: 05 OF 30



SOIL TRACKING PREVENTION DEVICE

N.T.S.

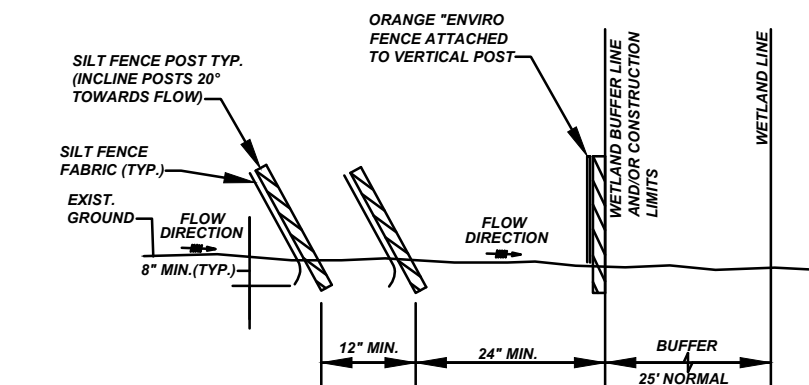


FOOT APPROVED TEMPORARY SILT FENCE PRE-ASSEMBLED IN 100' ROLLS
UTILIZING 2\"/>

NOTES:
CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AS FOLLOWS:
1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH
RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR
TO THE END OF ITS USE, IT SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT.
4. ANY SEDIMENT DEPOSITS LEFT IN PLACE AFTER THE SILT FENCE
IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE
FINISHED GRADE, PREPARED AND SEED.

TYPICAL SINGLE SILT FENCE DETAIL

N.T.S.



FOOT APPROVED TEMPORARY SILT FENCE PRE-ASSEMBLED IN 100' ROLLS
UTILIZING 2\"/>

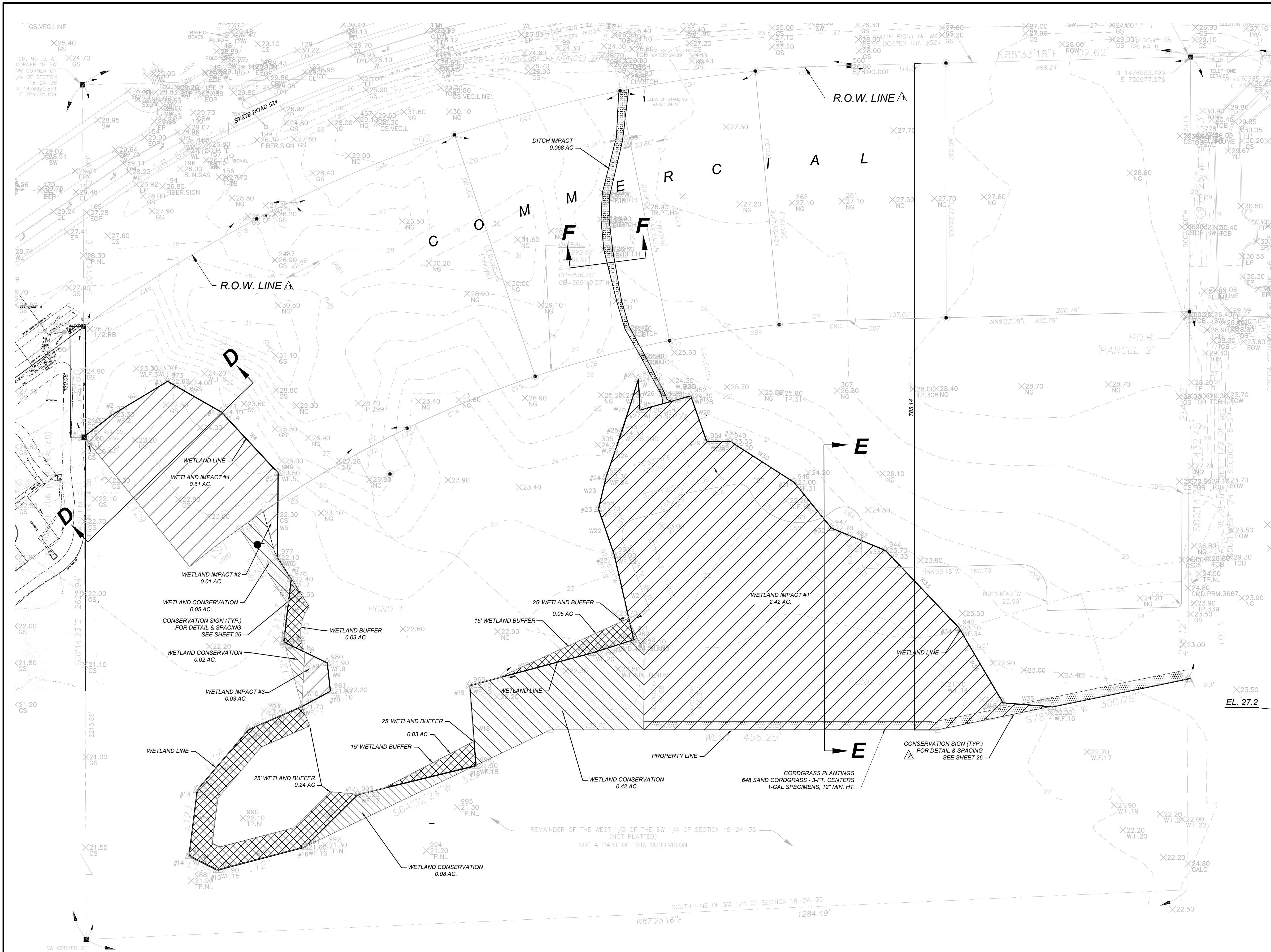
NOTES:
CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AS FOLLOWS:
1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH
RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR
TO THE END OF ITS USE, IT SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT.
4. ANY SEDIMENT DEPOSITS LEFT IN PLACE AFTER THE SILT FENCE
IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE
FINISHED GRADE, PREPARED AND SEED.

TYPICAL DOUBLE SILT FENCE DETAIL

N.T.S.

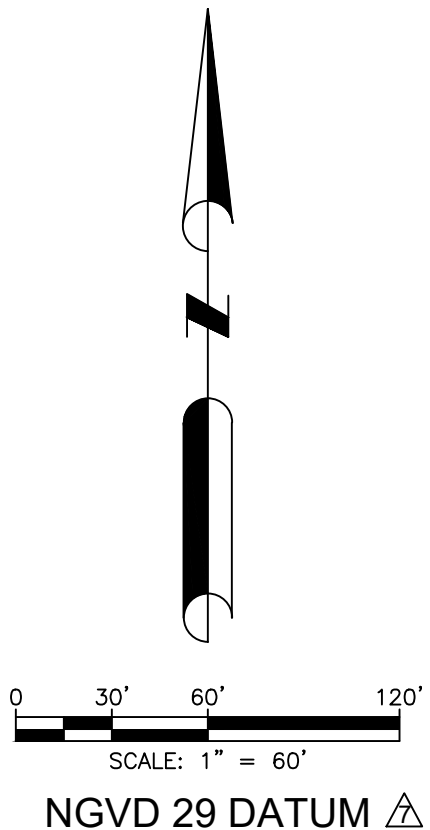
 DAVE SCHMITT ENGINEERING, INC. 12301 LAKE UNDERHILL ROAD SUITE 241 ORLANDO, FL 32828 407-207-9088 FAX 407-207-9089 Certification of Authorization #27471					REVISIONS		DAVE M. SCHMITT FLORIDA REG. NUMBER 48274	EROSION CONTROL SWPPP LONDON COVE CITY OF COCOA	DATE: AUGUST 2018
	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			PROJECT NO.: DB-3
									DRAWN BY: MGM
									CHECKED BY: DMS
				09-04-20	MGM	REVISION PER CLIENT COMMENTS			SCALE: NONE
				10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS			SHEET: 06 OF 30

F:\DB3\Final\DB3 08 ENVIRONMENTAL CONSIDERATIONS PLAN.dwg,4/28/2023 3:12:29 PM

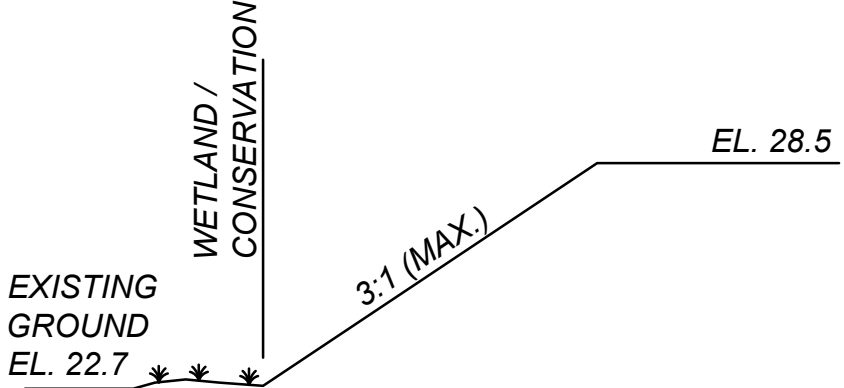


LEGEND

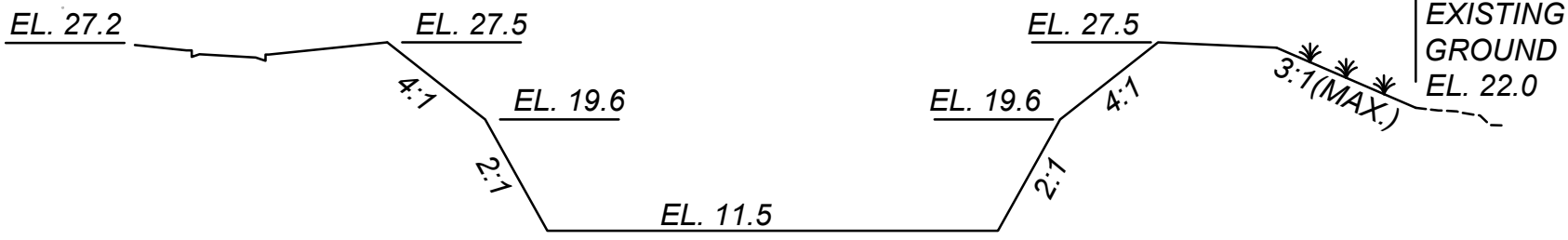
- WETLAND IMPACT AREA
3.07 AC
- DITCH IMPACT AREA
0.068 AC
- WETLAND UPLAND BUFFER AREA
0.35 AC
- WETLAND CONSERVATION AREA
0.57 AC
- CONSERVATION EASEMENT
FORMERLY ON-SITE, NOW
OWNED BY CITY OF COCOA
55.54 AC
- ON-SITE CONSERVATION EASEMENT
0.92 AC



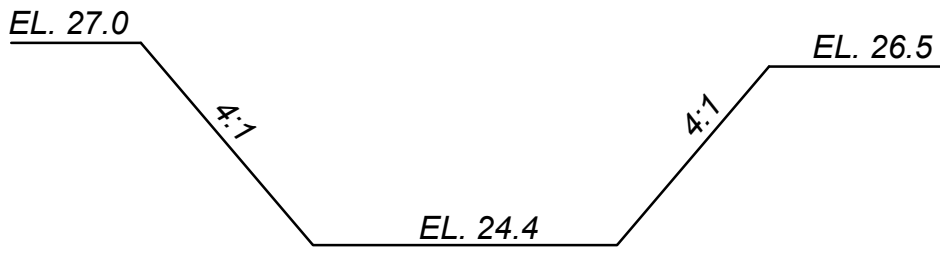
SECTION D-D
N.T.S.



SECTION E-E
N.T.S.



SECTION F-F
N.T.S.



DAVE SCHMITT
ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
02-10-21	MGM	REVISION PER SJRWMD COMMENTS			
02-06-20	DLS	REVISION PER FDOT COMMENTS			
02-25-19	MGM	REVISION PER CITY COMMENTS			
10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS			

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

ENVIRONMENTAL CONSIDERATIONS PLAN

LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 60'
SHEET: 08 OF 30



DAVE SCHMITT
ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

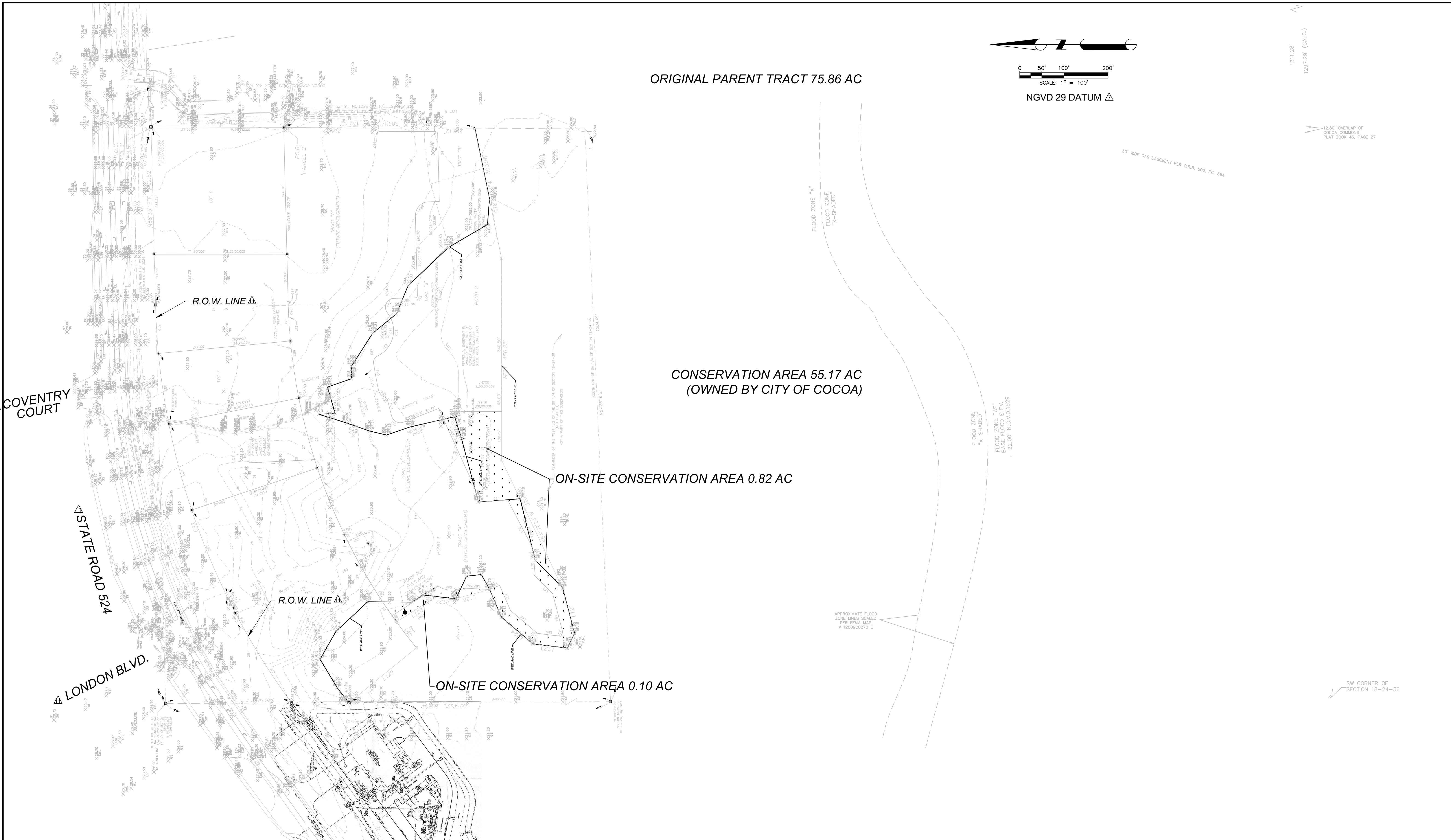
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			02-06-20	DLS	REVISION PER FDOT COMMENTS
			02-25-19	MGM	REVISION PER CITY COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

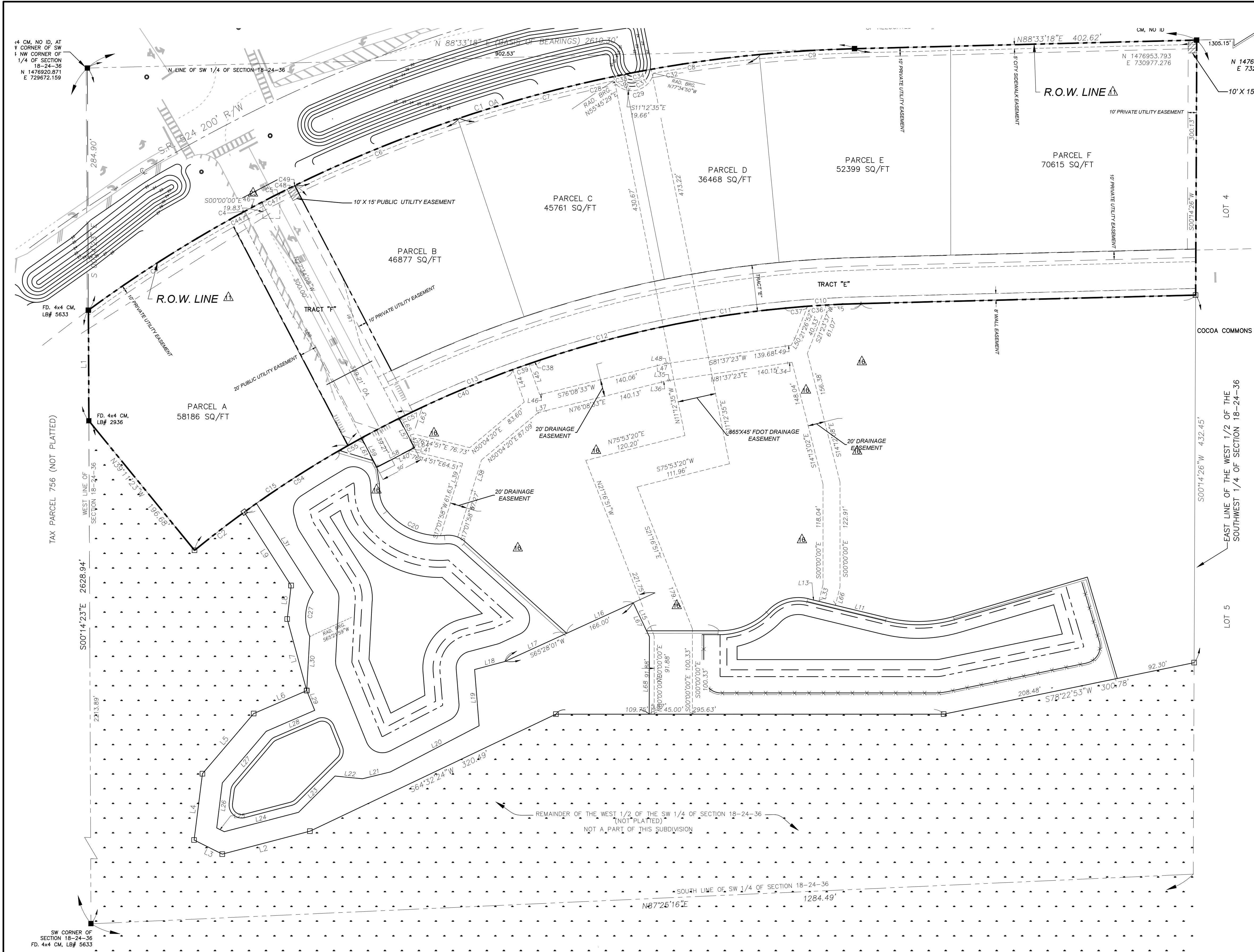
PARENT TRACT PRESERVATION PLAN

LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 100'
SHEET: 09 OF 30



F:\DB3\Final\DB3 11 GEOMETRY PLAN.dwg,10/11/2024 3:32:34 PM



LINE TABLE		
LINE	BEARING	LENGTH
L1	N00°14'23"W	130.15'
L2	S75°20'50"W	106.54'
L3	N63°26'03"W	37.10'
L4	N07°10'52"E	78.58'
L5	N40°22'20"E	92.99'
L6	N66°36'34"E	68.06'
L7	N15°16'11"W	87.27'
L8	N06°42'05"E	39.66'
L9	N32°34'42"W	102.57'
L10	S76°24'25"E	95.25'
L11	N76°24'25"W	62.28'
L12	N76°24'25"W	20.00'
L13	N76°24'25"W	12.96'
L14	N89°58'46"E	85.68'
L15	N25°24'55"W	36.40'
L16	S65°28'01"W	86.08'
L17	S65°28'01"W	79.92'
L18	N75°05'31"E	36.97'
L19	S04°33'50"E	66.43'
L20	N62°31'30"E	117.63'
L21	N76°15'48"E	33.75'
L22	S84°27'52"E	32.47'
L23	N45°09'39"E	60.46'
L24	N75°20'40"E	90.36'
L25	S63°26'03"E	9.99'
L26	S07°10'52"W	53.40'
L27	S40°22'20"W	79.68'
L28	S66°36'34"W	62.21'
L29	S22°01'54"E	25.04'
L30	S03°07'08"W	63.69'
L31	S32°34'42"E	123.93'
L32	S08°28'13"E	16.78'
L60	S27°34'08"E	8.84'
L62	S73°21'02"E	41.86'
L67	S25°24'50"E	44.30'
L68	S00°12'11"W	90.92'
L88	N31°53'50"W	79.50'
L91	S14°46'31"E	81.29'

CURVE TABLE					
CURVE	LENGTH	RADIUS	CENTRAL ANGLE	CHORD BEARING	CHORD DISTANCE
C1	967.29'	1592.58'	34°48'00"	S71°09'18"W	952.49'
C2	73.77'	1292.58'	3°16'12"	S52°26'43"W	73.76'
C3	197.39'	1592.58'	7°06'05"	S57°18'21"W	197.26'
C4	42.99'	1592.58'	1°32'47"	S61°37'47"W	42.98'
C5	42.99'	1592.58'	1°32'48"	S63°10'35"W	42.99'
C6	210.43'	1592.58'	7°34'15"	S67°44'06"W	210.28'
C7	201.96'	1592.58'	7°15'57"	S75°09'11"W	201.82'
C8	160.97'	1592.58'	5°47'28"	S81°40'54"W	160.90'
C9	110.57'	1592.58'	3°58'40"	S86°33'58"W	110.55'
C10	89.80'	1292.58'	3°58'49"	S86°33'53"W	89.78'
C11	130.61'	1292.58'	5°47'22"	S81°40'48"W	130.55'
C12	163.93'	1292.58'	7°16'00"	S75°09'06"W	163.83'
C13	162.80'	1292.58'	7°12'59"	S67°54'37"W	162.69'
C15	218.39'	1292.58'	9°40'50"	S55°39'02"W	218.13'
C16	51.17'	49.50'	59°13'34"	S73°58'48"W	48.92'
C17	64.09'	80.50'	45°36'45"	N67°10'24"E	62.41'
C18	11.00'	69.00'	9°08'09"	N03°54'08"W	10.99'
C19	24.60'	36.00'	39°09'14"	S18°54'41"E	24.13'
C20	73.03'	79.50'	52°38'09"	S64°48'23"E	70.49'
C21	6.39'	79.50'	4°36'19"	N86°34'23"E	6.39'
C22	79.42'	79.50'	57°14'28"	S67°06'32"E	76.16'
C23	14.32'	29.00'	28°17'30"	N81°35'01"W	14.17'
C24	9.83'	29.00'	19°25'50"	N57°43'21"W	9.79'
C25	24.15'	29.00'	47°43'21"	N71°52'06"W	23.46'
C27	54.66'	53.98'	58°01'16"	S04°22'37"W	52.36'
C41	777.74'	1292.58'	34°28'29"	S71°19'03"W	766.06'
C54	133.39'	1292.58'	5°54'45"	S57°00'12"W	133.33'



DAVE SCHMITT
ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

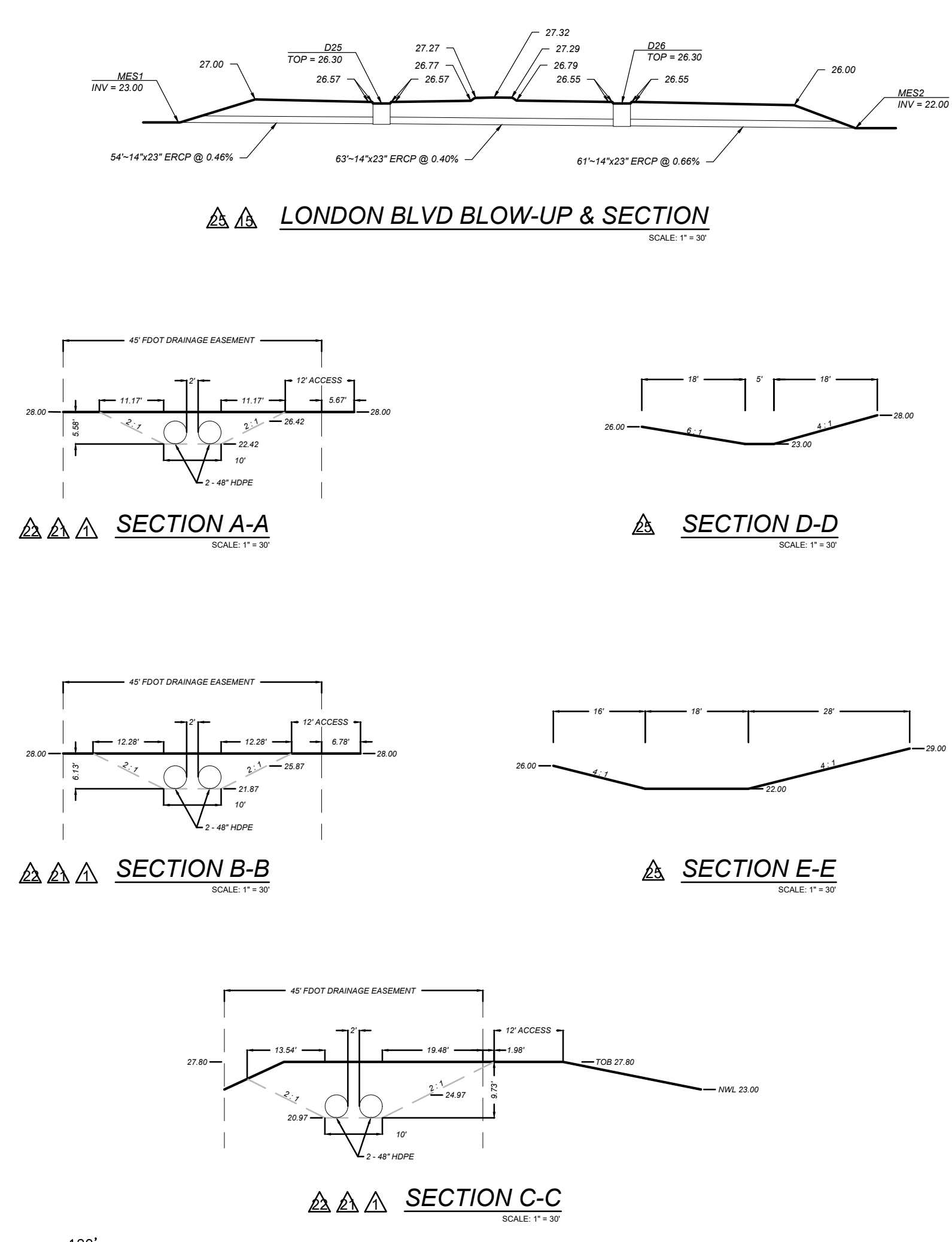
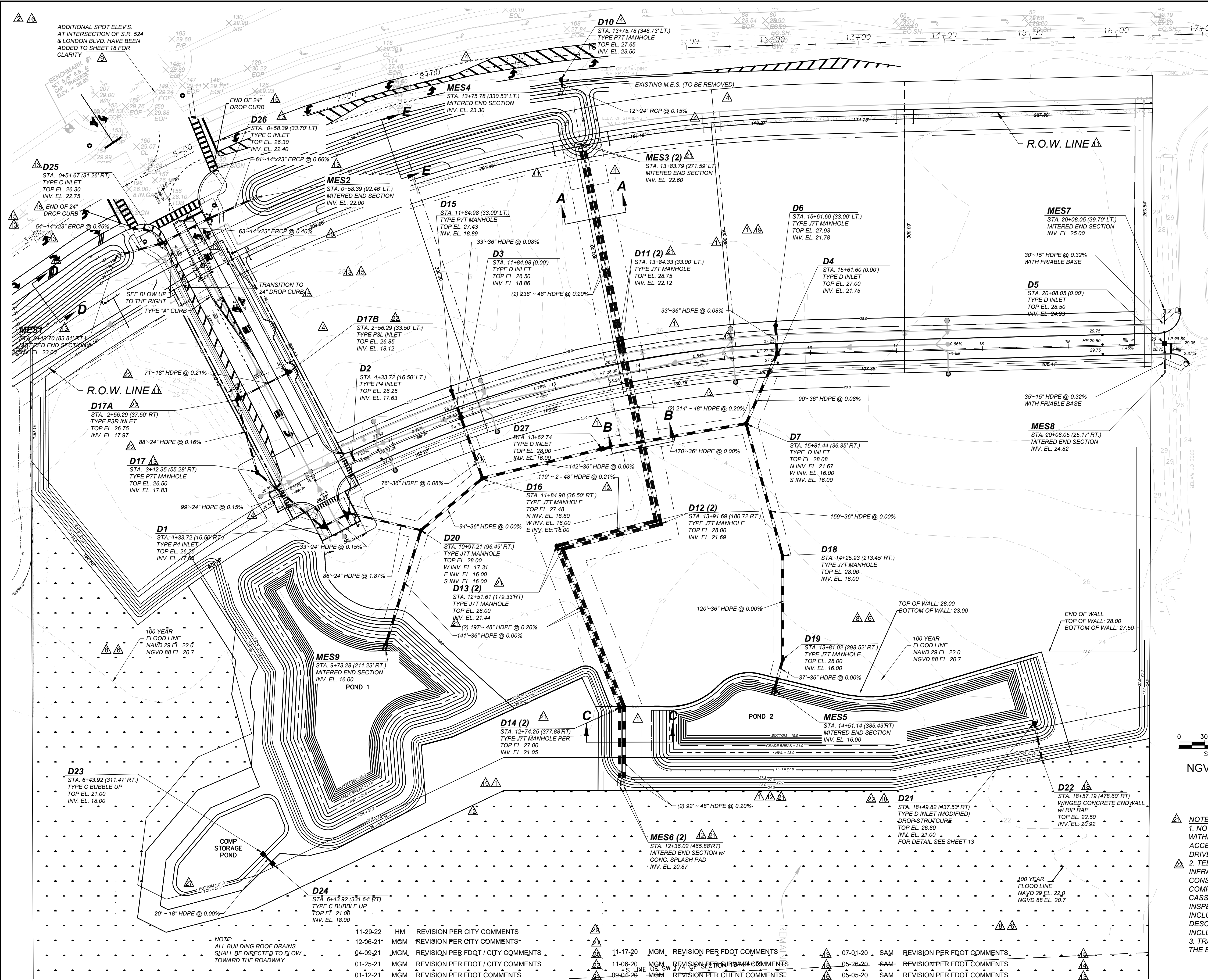
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
11-29-22	HM	REVISION PER CITY COMMENTS	02-06-20	DLS	REVISION PER CLIENT COMMENTS
06-08-22	BG	REVISION PER CITY COMMENTS	02-25-19	MGM	REVISION PER CITY COMMENTS
12-06-21	MGM	REVISION PER CITY COMMENTS	01-30-19	MGM	REVISION PER CITY COMMENTS
02-08-21	MGM	REVISION PER FDOT COMMENTS	10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

GEOMETRY PLAN
LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 60'
SHEET: 11 OF 30

F:\DB3\Final\DB3 12 GRADING PLAN.dwg,5/1/2023 9:40:11 AM



NGVD 29 DATUM

LEGEND

DESCRIPTION	EXISTING	PROPOSED
STORM SEWER SYSTEM		
CURB INLET		
DRAINAGE INLET		
STORM MANHOLE		
MITERED END SECTION		
CONTOUR		
DIRECTION OF SURFACE FLOW		

- NOTES:**
1. NO VERTICAL STRUCTURE IS TO BE CONSTRUCTED WITHIN 12' OF THE FDOT EASEMENT. FDOT WILL HAVE ACCESS TO THE BYPASS PIPES FROM ALL PARKING LOTS / DRIVES / ETC.
 2. TELEVISION INSPECTION OF ON SITE STORMWATER INFRASTRUCTURE MUST BE PROVIDED BY THE CONSTRUCTOR AND WILL BE PERFORMED AFTER FINAL COMPACTION OF THE JOB SITE OR ROADWORK. A VIDEO CASSETTE (VHS) AND A VIDEO DISC (DVD) OF THE INSPECTION WITH AN AUDIBLE DESCRIPTION OF THE RUN, INCLUDING ITS DIRECTION AND LOCATION, AND A DESCRIPTION OF ANY DEFECT OR ABNORMALITY MUST BE INCLUDED.
 3. TRACT B SHALL HAVE A DRAINAGE EASEMENT OVER THE ENTIRE TRACT.



**DAVE SCHMITT
ENGINEERING, INC.**
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
02-18-20	DLS	REVISION PER FDOT COMMENTS	02-25-19	MGM	REVISION PER CITY COMMENTS
02-06-20	DLS	REVISION PER FDOT COMMENTS	01-30-19	MGM	REVISION PER CITY COMMENTS
10-18-19	JIF	REVISION PER FDOT COMMENTS	12-11-18	MGM	REVISION PER FDOT / CITY COMMENTS
05-20-19	JIF	REVISION PER FDOT COMMENTS	10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS
03-04-19	MGM	REVISION PER CITY COMMENTS	09-17-18	MGM	REVISION PER FDOT COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

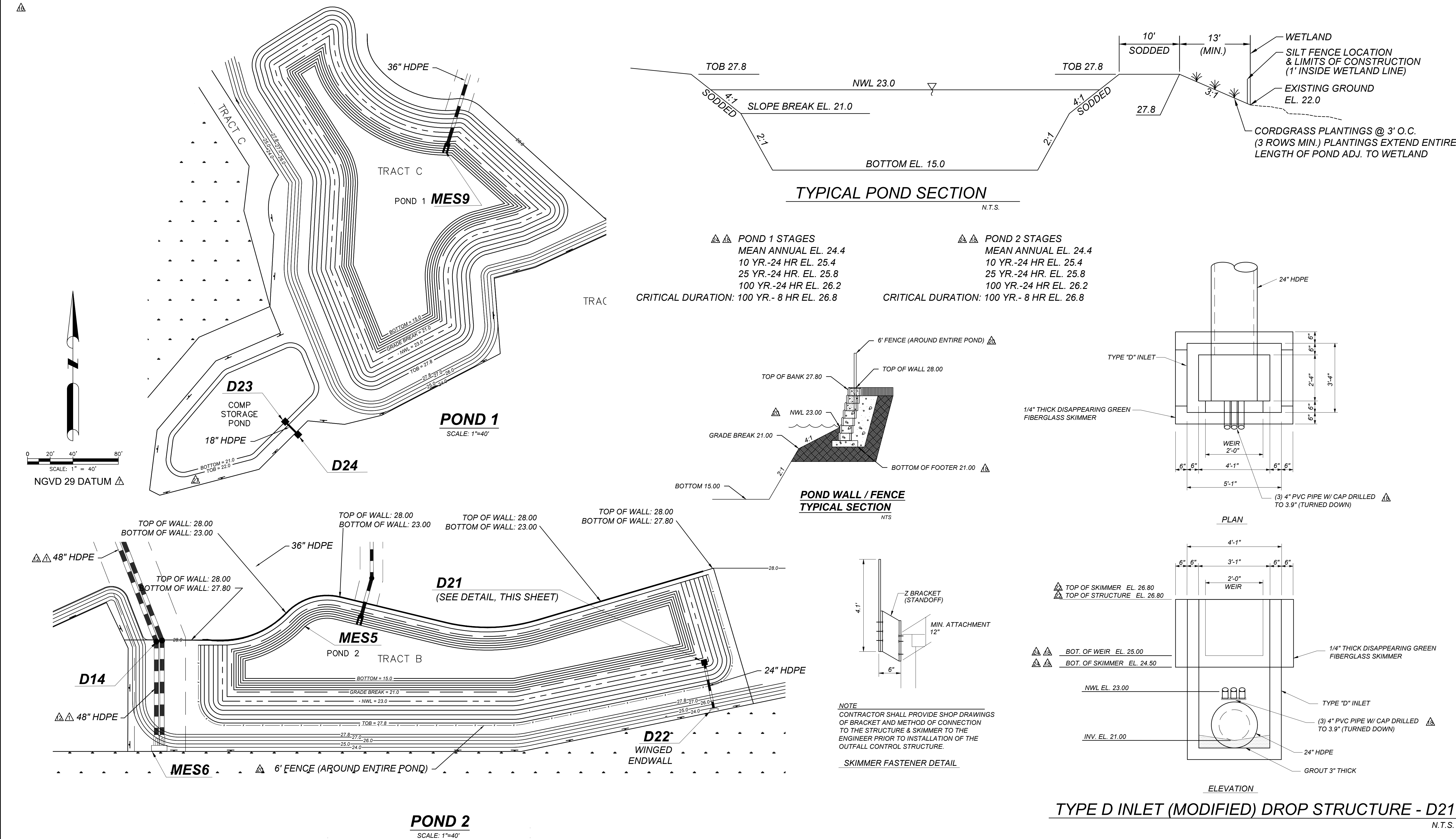
GRADING PLAN

LONDON COVE

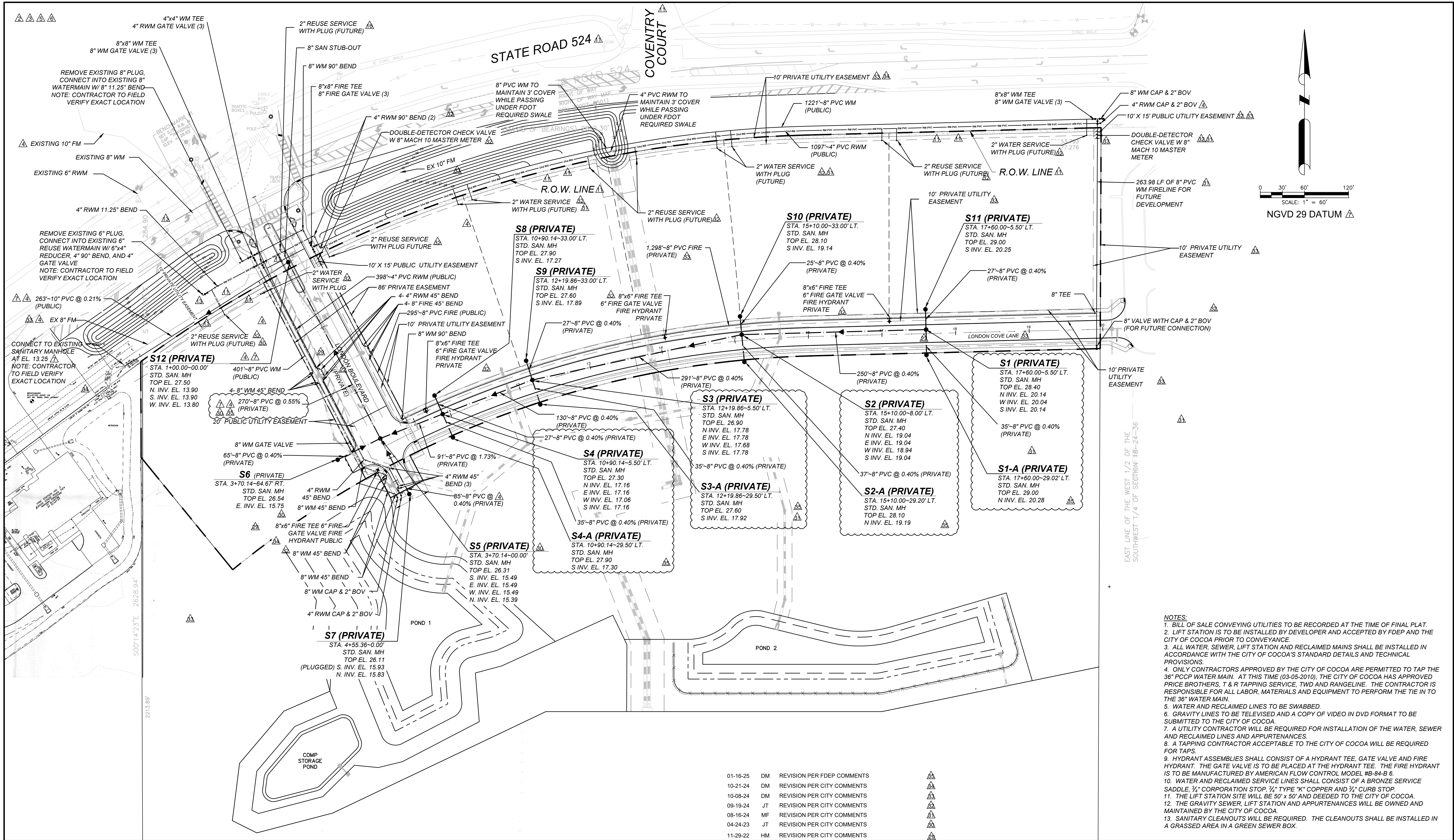
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 60'
SHEET: 12 OF 30

F:\DB3\Final\DB3 13 POND DETAILS.dwg, 4/28/2023 3:12:44 PM



F:\DB3\Final\DB3 14 UTILITY PLAN.dwg, 1/17/2025 9:28:28 AM





DAVE SCHMITT ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

REVISIONS	
DATE	DESCRIPTION
01-25-21	REVISION PER FDOT / CITY COMMENTS
09-04-20	REVISION PER CLIENT COMMENTS
05-05-20	REVISION PER FDOT COMMENTS
02-06-20	REVISION PER FDOT COMMENTS
02-25-19	REVISION PER CITY COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER 48274

UTILITY PLAN
LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 60'
SHEET: 14 OF 30

- FRONT VIEW:** Labels include LED LAMP LIGHTS, 18" BOOF, 20" ROOF, 12" LITTLE GIANT HOOK STORAGE, 10" FOLDING, 24" 2-SEC, 18" BOOF, 24" 2-SEC, WHELEN M5 TAIL LIGHTS, WHELEN M5 AMBER LIGHTS, WHELEN M5 RED LIGHTS, PINK POOL STORAGE, 2" RECEIVER, WHELEN PP12 120V RECESSED LIGHT, 2" WHELEN PP12 120V LED TAIL LIGHTS, BRIGHT MANNER LIGHTS, PARAPET LIGHTS, WHELEN M5 RED LED, STOKES ARMS, 2" WHELEN PP12 120V LED BROW LIGHTS, DEFROST FANS, LAND MIRRORS, HANDRAILS, LED HEADLIGHTS W/ALT. FLASHER, ROUND AIR HORNS, FEDERAL OGB.

SIDE VIEW: Labels include LED BOOM TRACKING LIGHTS, 2" (800/91) AIR BOTTLES, WHELEN PP12 120V LED TAIL LIGHTS, WHELEN M5 RED LIGHTS, BREWER WHELEN M5 RED LIGHTS, CORD REEL, BARRIER DOORS, HARRISON 100W GENERATOR, 600 GALLON WATER TANK, 500" OF 3", WHELEN PP12 120V RECESSED LIGHT (UNDER PLATFORM), LED PARKING LIGHTS, 2" RECEIVER, 11" MAX. CAB, 13", 11" MAX. CAB.

TOP VIEW: Labels include EMS, AIR CONDITIONING, 200" 2-1/2" CROSSSLAB, (1) 200" OF 1 1/2" CROSSSLAB, (1) 200" OF 1 1/2" CROSSSLAB, WHELEN PP12 120V RECESSED LIGHT (UNDER PLATFORM), 2" RECEIVER, 11" MAX. CAB, 13", 11" MAX. CAB.

Dimensions: 62", 62", 226", 65", 46-7", 241", 11", 13", 11" MAX. CAB, 13", 11" MAX. CAB.

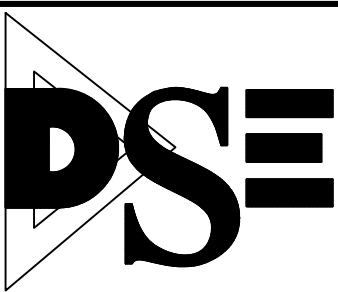
COMPONENTS: LED LAMP LIGHTS, 18" BOOF, 20" ROOF, 12" LITTLE GIANT HOOK STORAGE, 10" FOLDING, 24" 2-SEC, 18" BOOF, 24" 2-SEC, WHELEN M5 TAIL LIGHTS, WHELEN M5 AMBER LIGHTS, WHELEN M5 RED LIGHTS, PINK POOL STORAGE, 2" RECEIVER, WHELEN PP12 120V RECESSED LIGHT, 2" WHELEN PP12 120V LED TAIL LIGHTS, BRIGHT MANNER LIGHTS, PARAPET LIGHTS, WHELEN M5 RED LED, STOKES ARMS, 2" WHELEN PP12 120V LED BROW LIGHTS, DEFROST FANS, LAND MIRRORS, HANDRAILS, LED HEADLIGHTS W/ALT. FLASHER, ROUND AIR HORNS, FEDERAL OGB, LED BOOM TRACKING LIGHTS, 2" (800/91) AIR BOTTLES, WHELEN PP12 120V LED TAIL LIGHTS, WHELEN M5 RED LIGHTS, BREWER WHELEN M5 RED LIGHTS, CORD REEL, BARRIER DOORS, HARRISON 100W GENERATOR, 600 GALLON WATER TANK, 500" OF 3", WHELEN PP12 120V RECESSED LIGHT (UNDER PLATFORM), LED PARKING LIGHTS, 2" RECEIVER, 11" MAX. CAB, 13", 11" MAX. CAB.

DOOR OPENINGS:

COMP. #	DOOR #	WIDTH	HEIGHT	DEPTH
L1	11-12	13-12	26-10	26-10
L2	21	26-10	41-10	26-10
L3	31	26-10	41-10	26-10
L4	41	26-10	41-10	26-10
L5	51	26-10	41-10	26-10
L6	61	26-10	41-10	26-10
L7	71	26-10	41-10	26-10
L8	81	26-10	41-10	26-10
L9	91	26-10	41-10	26-10
L10	101	26-10	41-10	26-10
L11	111	26-10	41-10	26-10
L12	121	26-10	41-10	26-10
L13	131	26-10	41-10	26-10
L14	141	26-10	41-10	26-10
L15	151	26-10	41-10	26-10
L16	161	26-10	41-10	26-10
L17	171	26-10	41-10	26-10
L18	181	26-10	41-10	26-10
L19	191	26-10	41-10	26-10
L20	201	26-10	41-10	26-10
L21	211	26-10	41-10	26-10
L22	221	26-10	41-10	26-10
L23	231	26-10	41-10	26-10
L24	241	26-10	41-10	26-10
L25	251	26-10	41-10	26-10
L26	261	26-10	41-10	26-10
L27	271	26-10	41-10	26-10
L28	281	26-10	41-10	26-10
L29	291	26-10	41-10	26-10
L30	301	26-10	41-10	26-10
L31	311	26-10	41-10	26-10
L32	321	26-10	41-10	26-10
L33	331	26-10	41-10	26-10
L34	341	26-10	41-10	26-10
L35	351	26-10	41-10	26-10
L36	361	26-10	41-10	26-10
L37	371	26-10	41-10	26-10
L38	381	26-10	41-10	26-10
L39	391	26-10	41-10	26-10
L40	401	26-10	41-10	26-10
L41	411	26-10	41-10	26-10
L42	421	26-10	41-10	26-10
L43	431	26-10	41-10	26-10
L44	441	26-10	41-10	26-10
L45	451	26-10	41-10	26-10
L46	461	26-10	41-10	26-10
L47	471	26-10	41-10	26-10
L48	481	26-10	41-10	26-10
L49	491	26-10	41-10	26-10
L50	501	26-10	41-10	26-10
L51	511	26-10	41-10	26-10
L52	521	26-10	41-10	26-10
L53	531	26-10		

Rev A 6/1/1

F:\DB3\Final\DB3 14C SITE LIGHTING PLAN.dwg, 4/28/2023 3:13:03 PM



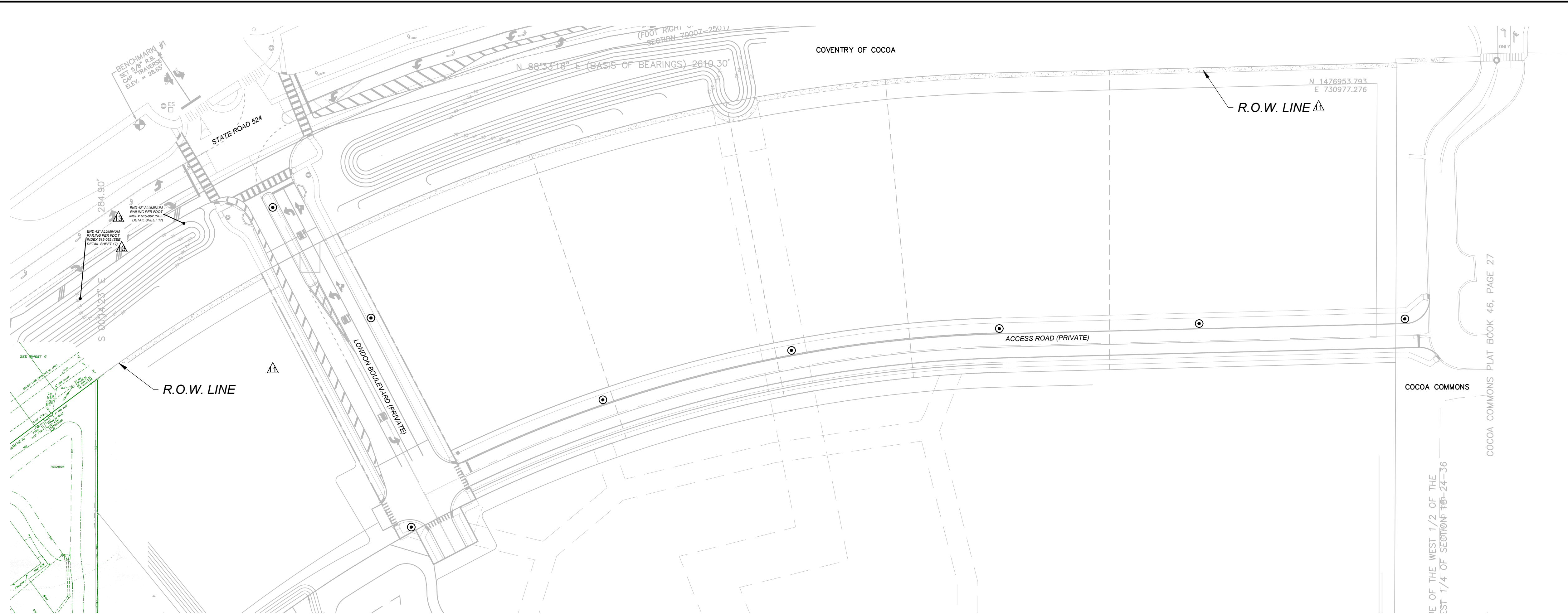
**DAVE SCHMITT
ENGINEERING, INC.**
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
05-05-20	SAM	REVISION PER FDOT COMMENTS			
02-06-20	DLS	REVISION PER FDOT COMMENTS			
01-30-19	MGM	REVISION PER CITY COMMENTS			

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

SITE LIGHTING PLAN
LONDON COVE
CITY OF COCOA

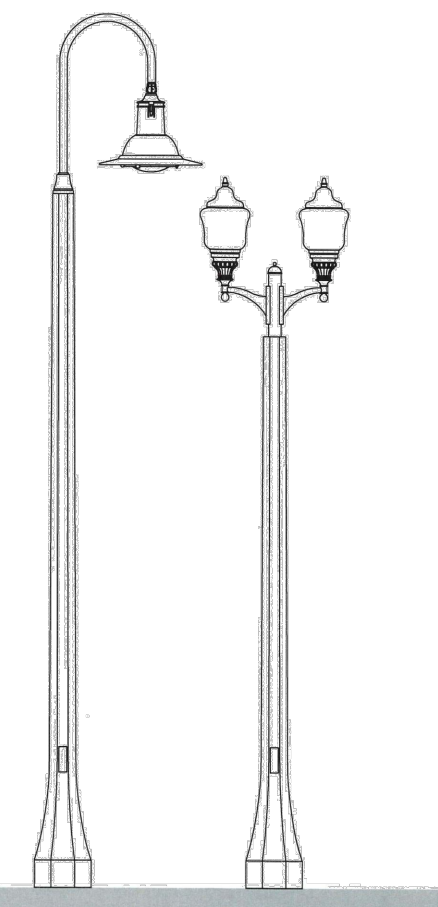
DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 60'
SHEET: 14C OF 30



LUMINAIRE SCHEDULE
SYMBOL QTY
8



The Americana Series
THE LORRAINE
The Lorraine has similar lines as our Memphis family, but with a smoother flowing profile. This Octagonal tapered pole with an 18" stepped base is available in all of our decor colors and finishes in heights up to 30', making it an ideal choice for outdoor street-lighting specifics.



DESCRIPTION
The ACN/ARC/CLB Generation Series LED is a marriage of traditional shapes and contemporary styling. Its superior photometrics offer excellent distribution and uniformity for many of today's applications. Its styling blends well in many settings - historic districts, downtown areas, parks, residential neighborhoods, as well as city parks and institutional campuses. The Generation Series LED sets a new standard for decorative post-top luminaires.

CONSTRUCTION
The Lorraine has similar lines as our Memphis family, but with a smoother flowing profile. This Octagonal tapered pole with an 18" stepped base is available in all of our decor colors and finishes in heights up to 30', making it an ideal choice for outdoor street-lighting specifics.

FINISHES
The Lorraine is available in a variety of finishes, including: Aluminum, Bronze, Black, White, and Custom. The finish is applied to the entire luminaire, including the pole, arm, and luminaire housing.

OPTIONS
The Lorraine is available with a variety of options, including: 18" Stepped Base, 24" Stepped Base, 30" Stepped Base, 36" Stepped Base, 42" Stepped Base, 48" Stepped Base, 54" Stepped Base, 60" Stepped Base, 66" Stepped Base, 72" Stepped Base, 78" Stepped Base, 84" Stepped Base, 90" Stepped Base, 96" Stepped Base, 102" Stepped Base, 108" Stepped Base, 114" Stepped Base, 120" Stepped Base, 126" Stepped Base, 132" Stepped Base, 138" Stepped Base, 144" Stepped Base, 150" Stepped Base, 156" Stepped Base, 162" Stepped Base, 168" Stepped Base, 174" Stepped Base, 180" Stepped Base, 186" Stepped Base, 192" Stepped Base, 198" Stepped Base, 204" Stepped Base, 210" Stepped Base, 216" Stepped Base, 222" Stepped Base, 228" Stepped Base, 234" Stepped Base, 240" Stepped Base, 246" Stepped Base, 252" Stepped Base, 258" Stepped Base, 264" Stepped Base, 270" Stepped Base, 276" Stepped Base, 282" Stepped Base, 288" Stepped Base, 294" Stepped Base, 300" Stepped Base.

ACN/ARC/CLB GENERATION SERIES LED
LED
DECORATIVE POST TOP
LUMINAIRE

SHIPPING DATA
Gross Weight: 150 lbs.
Net Weight: 120 lbs.
Dimensions: 18" x 18" x 30"

Specifications Details

Location	Category	Height	Arm Length	Arm Angle	Arm Weight	Pole Weight	Pole Height
Lorraine	KL10	10'	10'	7.5°	4' 0" x 3.5"	1400 lbs	1150 lbs
Lorraine	KL15	15'	15'	7.5°	4' 0" x 3.5"	1700 lbs	1400 lbs
Lorraine	KL20	20'	20'	7.5°	4' 0" x 3.5"	1900 lbs	1600 lbs
Lorraine	KL25	25'	25'	7.5°	4' 0" x 3.5"	2100 lbs	1800 lbs
Lorraine	KL30	30'	30'	7.5°	4' 0" x 3.5"	2300 lbs	2000 lbs

How to Catalog for Lorraine Concrete Pole

Footings Details

ACN/ARC/CLB GENERATION SERIES LED
LED
DECORATIVE POST TOP
LUMINAIRE

CONFIGURATIONS

LUMEN TABLE

Configuration	Color Temperature	Beam Angle	Light Output (lm)
Standard	3000K	120°	11,000
Standard	4000K	120°	11,000
Standard	5000K	120°	11,000
Standard	6000K	120°	11,000
Standard	7000K	120°	11,000
Standard	8000K	120°	11,000
Standard	9000K	120°	11,000
Standard	10000K	120°	11,000

ORDERING INFORMATION

Notes

1. Luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

2. The luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

3. The luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

4. The luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

5. The luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

6. The luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

7. The luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

8. The luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

9. The luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

10. The luminaire is designed for use in conjunction with a compatible mounting system. For more information, please refer to the mounting system specifications.

**DAVE SCHMITT
ENGINEERING, INC.**
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

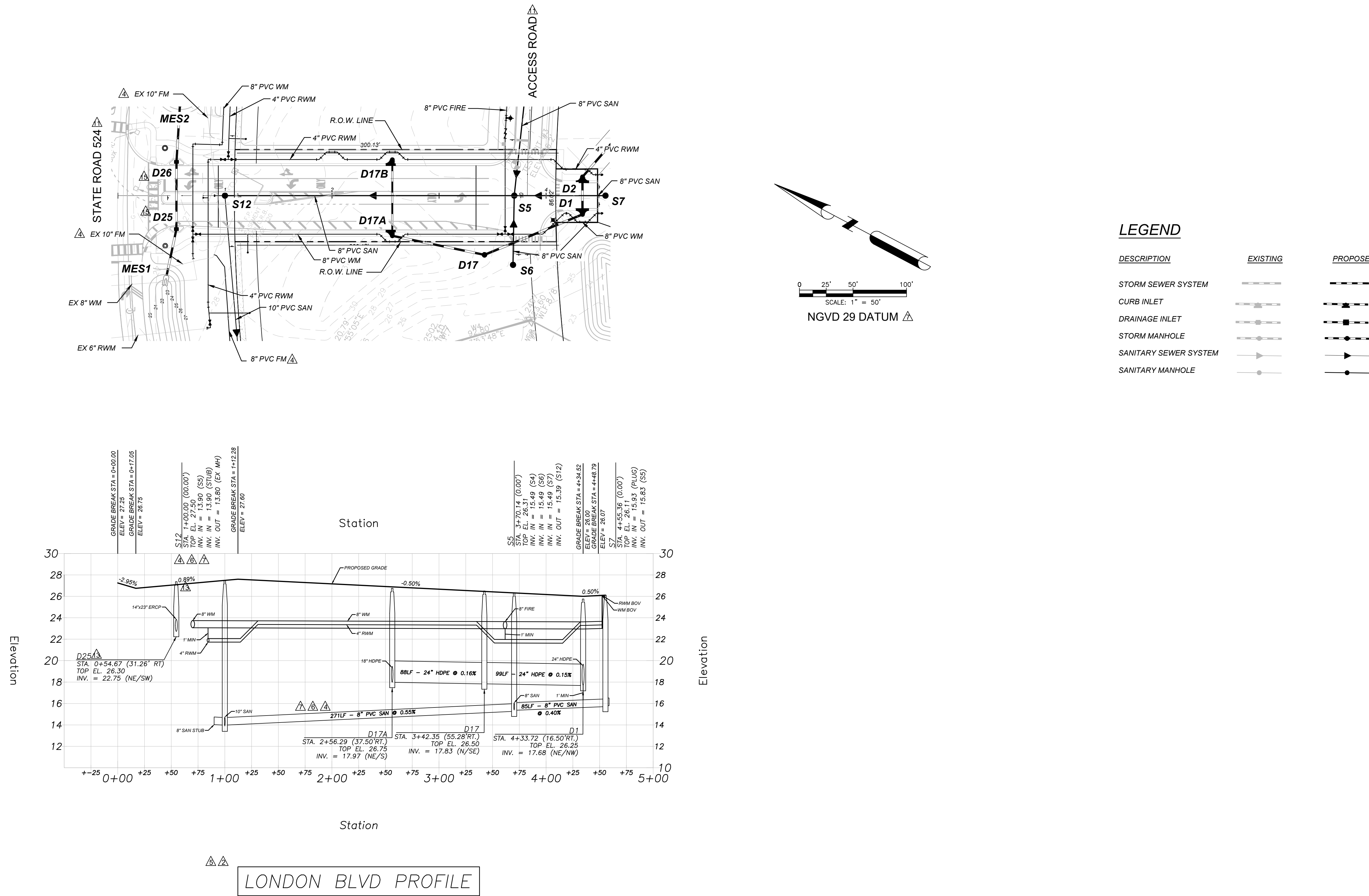
REVISIONS						
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	
			02-25-19	MGM	REVISION PER CITY COMMENTS	/
			01-30-19	MGM	REVISION PER CITY COMMENTS	/
07-01-20	SAM	REVISION PER FDOT COMMENTS	01-07-19	MGM	REVISION PER CITY COMMENTS	/
05-05-20	SAM	REVISION PER FDOT COMMENTS	12-11-18	MGM	REVISION PER FDOT / CITY COMMENTS	/
02-06-20	DLS	REVISION PER FDOT COMMENTS	10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS	/

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

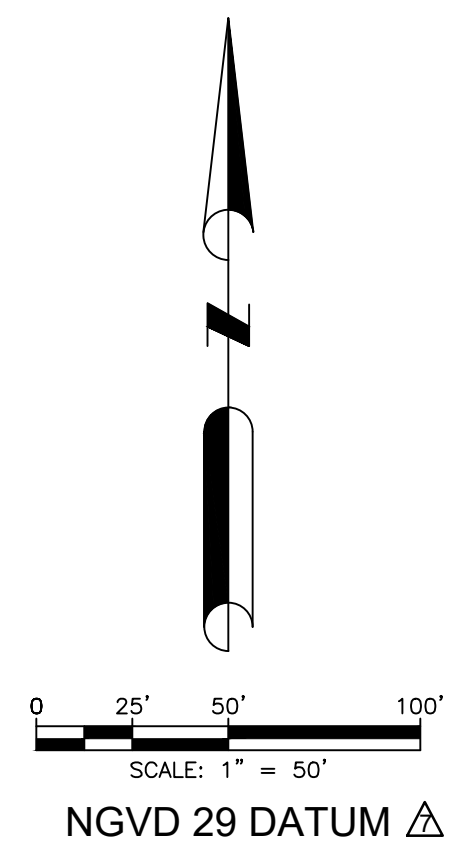
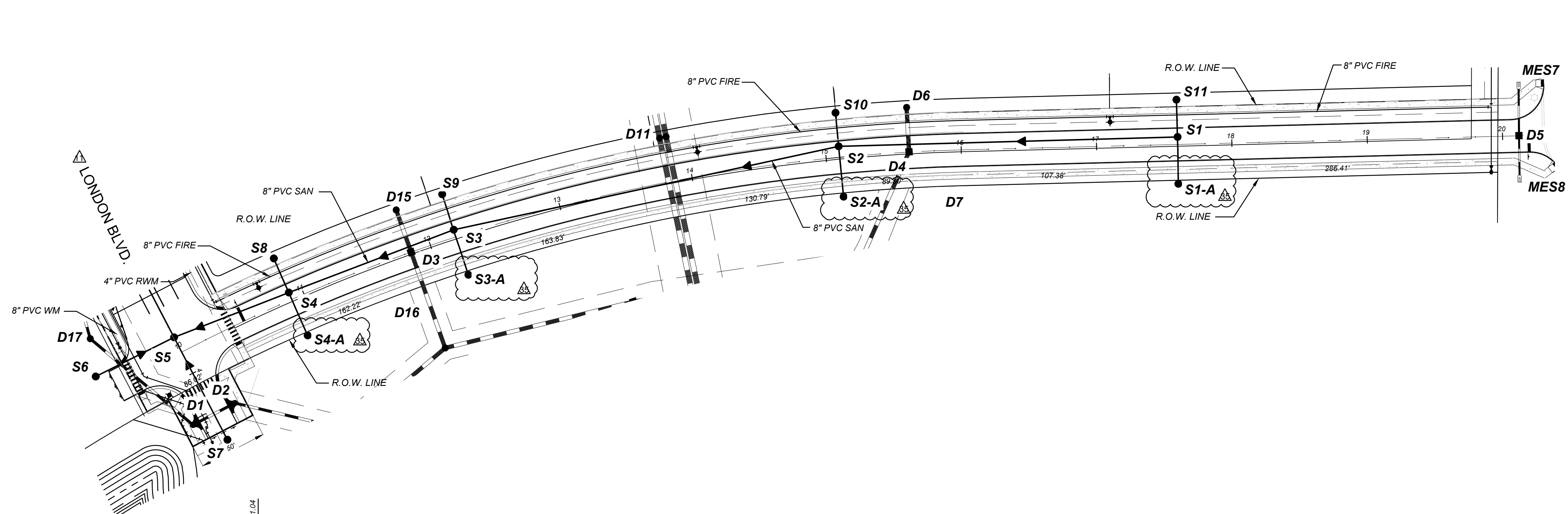
PLAN & PROFILE - LONDON BLVD

LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 50'
SHEET: 15 OF 30

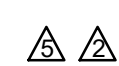
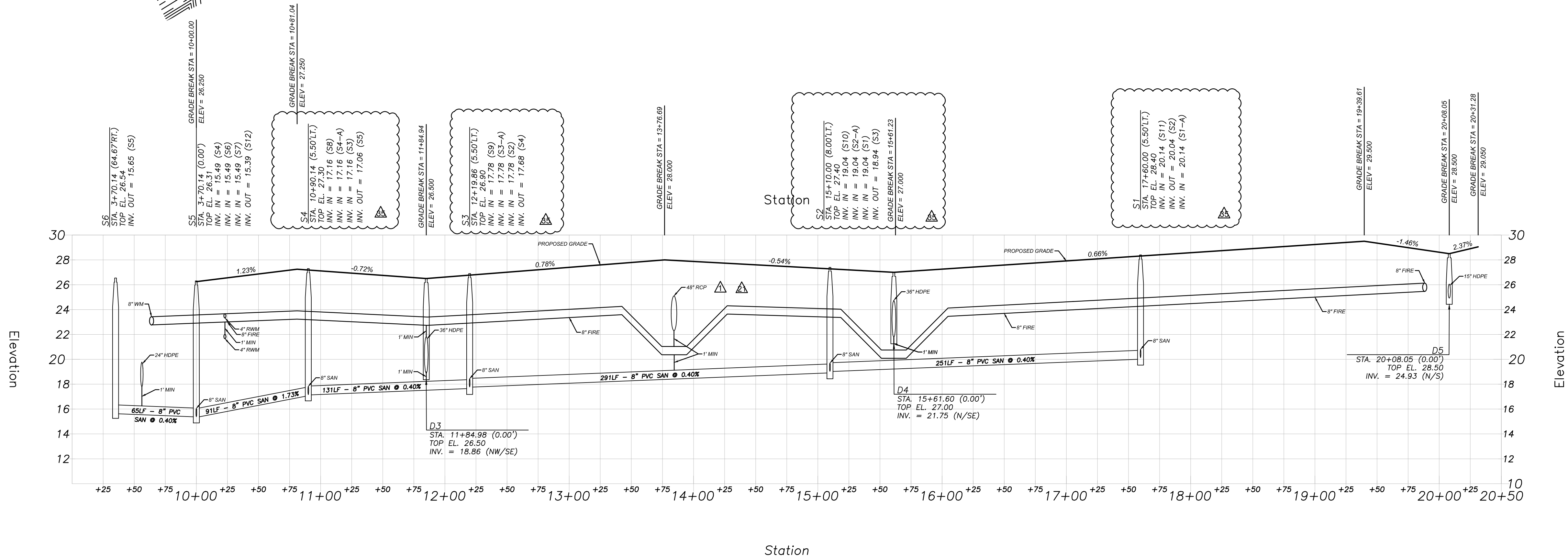


F:\DB3\Final\DB3 16 PLAN & PROFILE STREET B.dwg,1/17/2025 9:46:56 AM

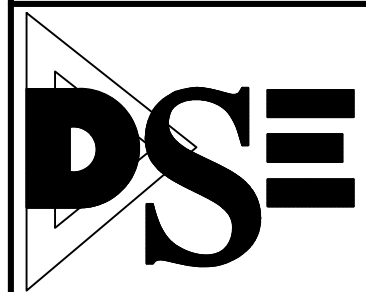


LEGEND

DESCRIPTION	EXISTING	PROPOSED
STORM SEWER SYSTEM		
CURB INLET		
DRAINAGE INLET		
STORM MANHOLE		
SANITARY SEWER SYSTEM		
SANITARY MANHOLE		



ACCESS ROAD PROFILE



DAVE SCHMITT
ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

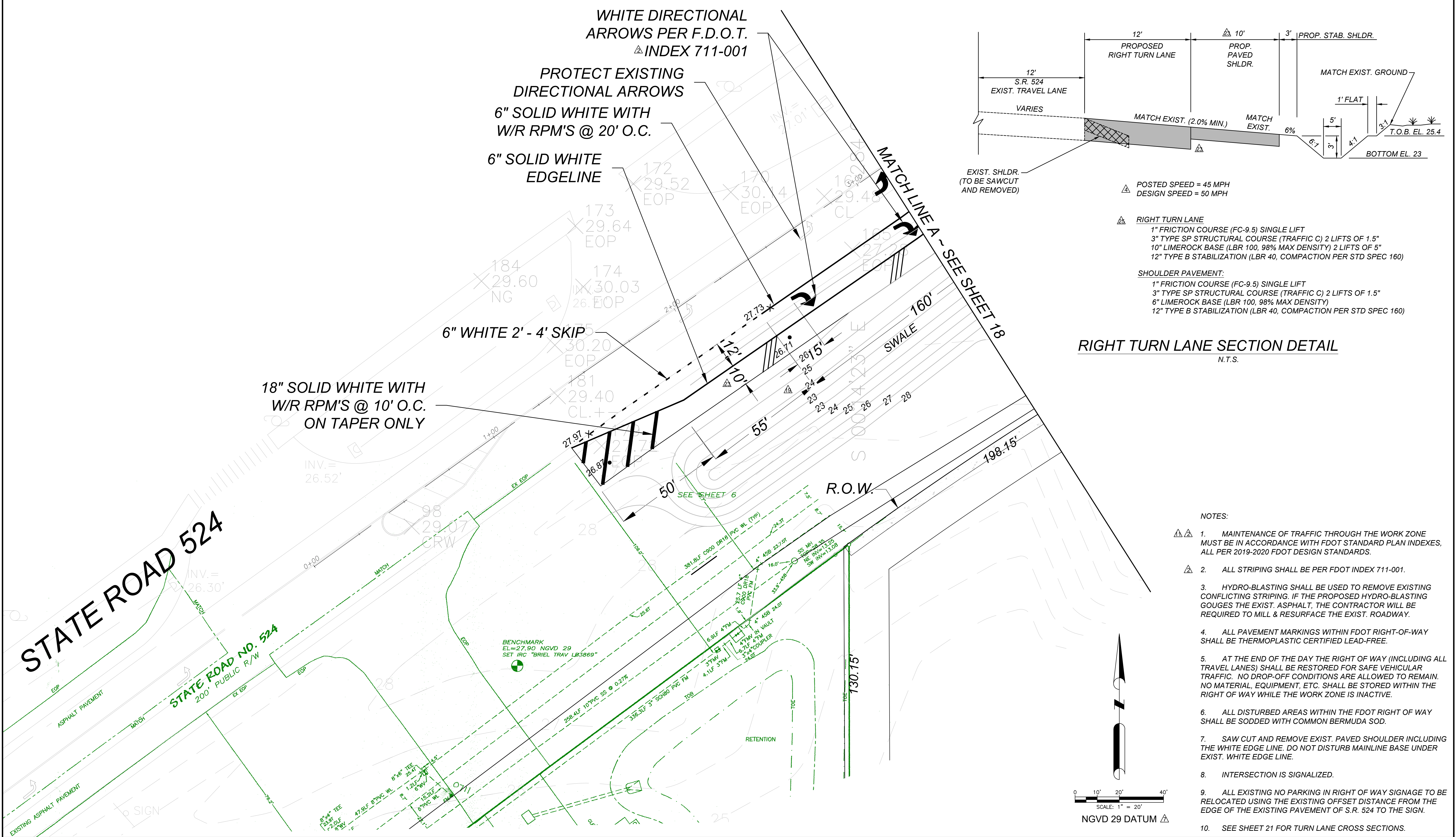
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			02-06-20	DLS	REVISION PER FDOT COMMENTS
			02-25-19	MGM	REVISION PER CITY COMMENTS
			01-07-19	MGM	REVISION PER CITY COMMENTS
01-16-25	DM	REVISION PER FDEP COMMENTS	10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS
01-12-21	MGM	REVISION PER FDOT COMMENTS	09-17-18	MGM	REVISION PER FDOT COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

PLAN & PROFILE - ACCESS ROAD

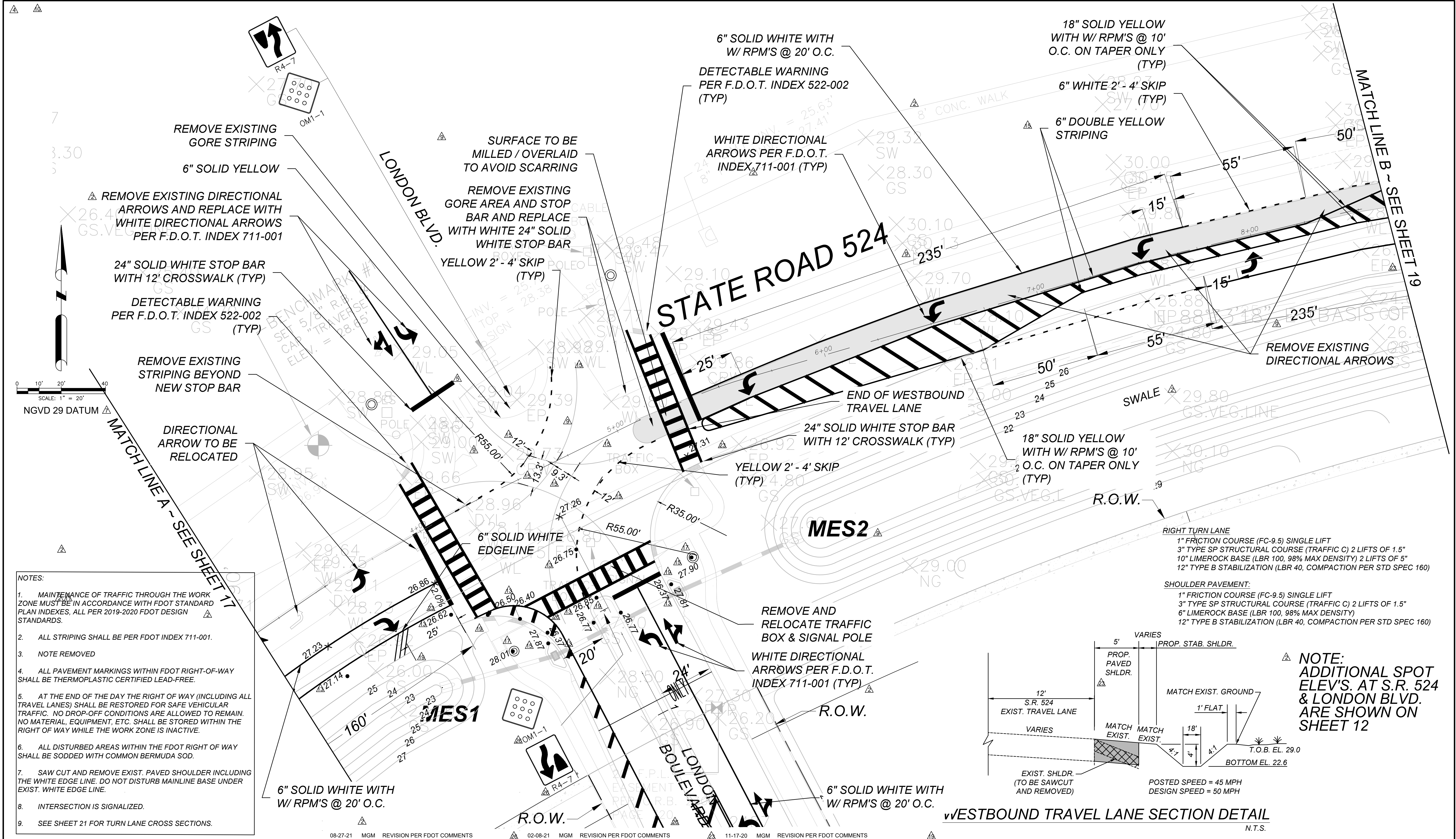
LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 50'
SHEET: 16 OF 30



 DAVE SCHMITT ENGINEERING, INC. 12301 LAKE UNDERHILL ROAD SUITE 241 ORLANDO, FL 32828 407-207-9088 FAX 407-207-9089 Certification of Authorization #27471	REVISIONS				DAVE M. SCHMITT FLORIDA REG. NUMBER 48274		INTERSECTION IMPROVEMENTS - 1 LONDON COVE CITY OF COCOA	DATE: AUGUST 2018
	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		PROJECT NO.: DB-3
	04-09-21	MGM	REVISION PER FDOT COMMENTS	10-18-19	JIF	REVISION PER FDOT COMMENTS		DRAWN BY: MGM
	02-08-21	MGM	REVISION PER FDOT COMMENTS	05-20-19	MGM	REVISION PER FDOT / CITY COMMENTS		CHECKED BY: DMS
	11-17-20	MGM	REVISION PER FDOT COMMENTS	02-25-19	MGM	REVISION PER CITY COMMENTS		SCALE: 1" = 20'
	05-05-20	SAM	REVISION PER FDOT COMMENTS	12-11-18	MGM	REVISION PER FDOT / CITY COMMENTS		SHEET: 17 OF 30
	02-06-20	DLS	REVISION PER FDOT COMMENTS	10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS		

F:\DB3\Final\DB3 18 INTERSECTION IMPROVEMENTS.dwg, 4/28/2023 3:13:11 PM



- NOTES:
1. MAINTENANCE OF TRAFFIC THROUGH THE WORK ZONE MUST BE IN ACCORDANCE WITH FDOT STANDARD PLAN INDEXES. ALL PER 2019-2020 FDOT DESIGN STANDARDS.
 2. ALL STRIPING SHALL BE PER FDOT INDEX 711-001.
 3. NOTE REMOVED
 4. ALL PAVEMENT MARKINGS WITHIN FDOT RIGHT-OF-WAY SHALL BE THERMOPLASTIC CERTIFIED LEAD-FREE.
 5. AT THE END OF THE DAY THE RIGHT OF WAY (INCLUDING ALL TRAVEL LANES) SHALL BE RESTORED FOR SAFE VEHICULAR TRAFFIC. NO DROP-OFF CONDITIONS ARE ALLOWED TO REMAIN. NO MATERIAL, EQUIPMENT, ETC. SHALL BE STORED WITHIN THE RIGHT OF WAY WHILE THE WORK ZONE IS INACTIVE.
 6. ALL DISTURBED AREAS WITHIN THE FDOT RIGHT OF WAY SHALL BE SODDED WITH COMMON BERMUDA SOD.
 7. SAW CUT AND REMOVE EXIST. PAVED SHOULDER INCLUDING THE WHITE EDGE LINE. DO NOT DISTURB MAINLINE BASE UNDER EXIST. WHITE EDGE LINE.
 8. INTERSECTION IS SIGNALIZED.
 9. SEE SHEET 21 FOR TURN LANE CROSS SECTIONS.

	DAVE SCHMITT ENGINEERING, INC. 12301 LAKE UNDERHILL ROAD SUITE 241 ORLANDO, FL 32828 407-207-9088 FAX 407-207-9089 Certification of Authorization #27471	REVISIONS				DAVE M. SCHMITT FLORIDA REG. NUMBER 48274	INTERSECTION IMPROVEMENTS - 2 LONDON COVE CITY OF COCOA	DATE: AUGUST 2018 PROJECT NO.: DB-3 DRAWN BY: MGM CHECKED BY: DMS SCALE: 1" = 20' SHEET: 18 OF 30
		DATE	BY	DESCRIPTION	DATE			
10-16-20	MGM	REVISION PER FDOT COMMENTS	05-20-19	MGM	REVISION PER FDOT / CITY COMMENTS			
07-01-20	SAM	REVISION PER FDOT COMMENTS	02-25-19	MGM	REVISION PER CITY COMMENTS			
05-05-20	SAM	REVISION PER FDOT COMMENTS	01-07-19	MGM	REVISION PER FDOT / CITY COMMENTS			
02-06-20	DLS	REVISION PER FDOT COMMENTS	12-11-18	MGM	REVISION PER FDOT / CITY COMMENTS			
10-18-19	JIF	REVISION PER FDOT COMMENTS	10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS			

F:\DB3\Final\DB3 19 INTERSECTION IMPORVEMENTS.dwg, 4/28/2023 3:13:15 PM



DAVE SCHMITT
ENGINEERING, INC.
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

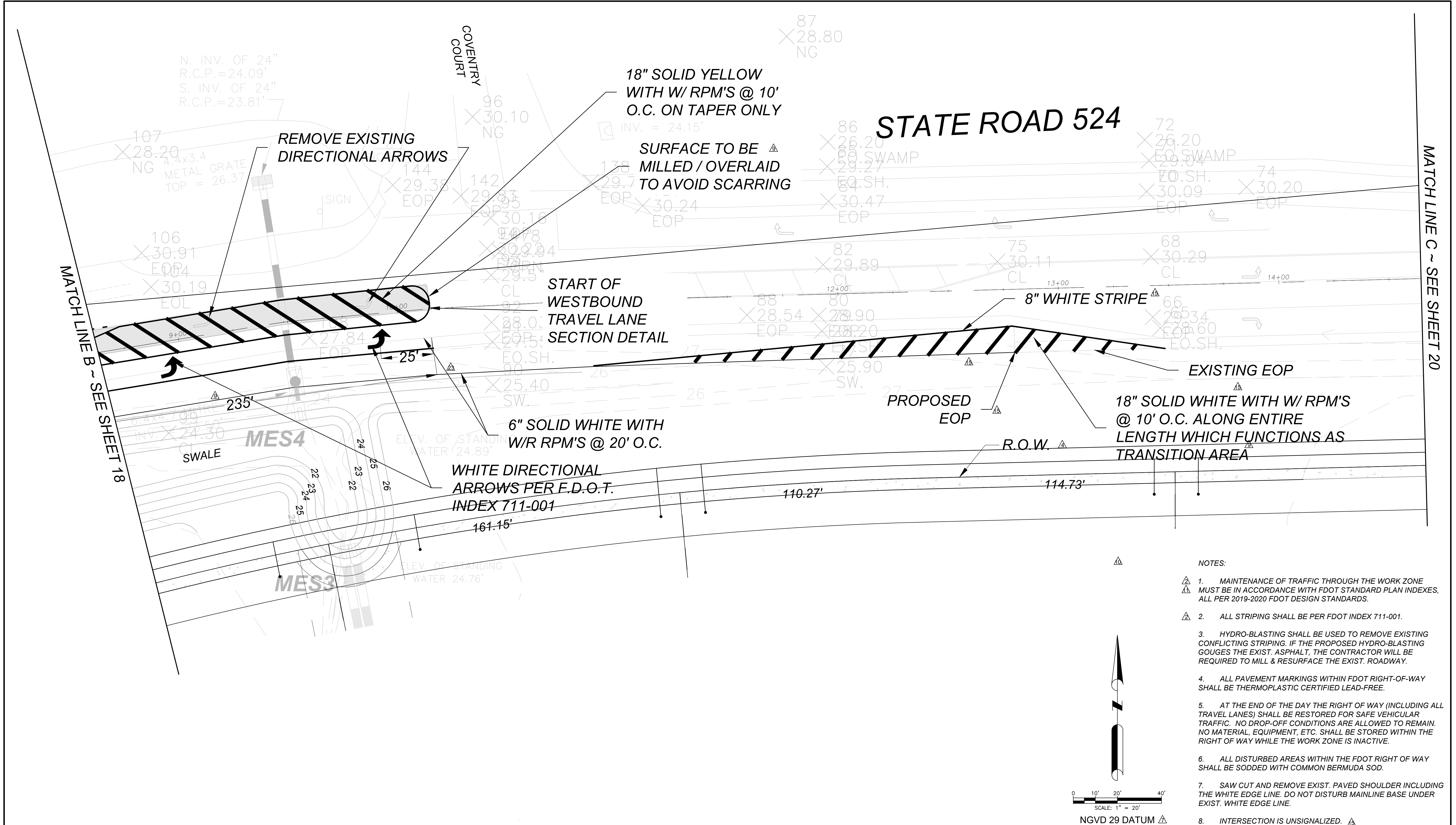
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			10-18-19	JIF	REVISION PER FDOT COMMENTS
			05-20-19	MGM	REVISION PER FDOT / CITY COMMENTS
02-08-21	MGM	REVISION PER FDOT COMMENTS	02-25-19	MGM	REVISION PER CITY COMMENTS
07-01-20	SAM	REVISION PER FDOT COMMENTS	12-11-18	MGM	REVISION PER FDOT / CITY COMMENTS
02-06-20	DLS	REVISION PER FDOT COMMENTS	10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

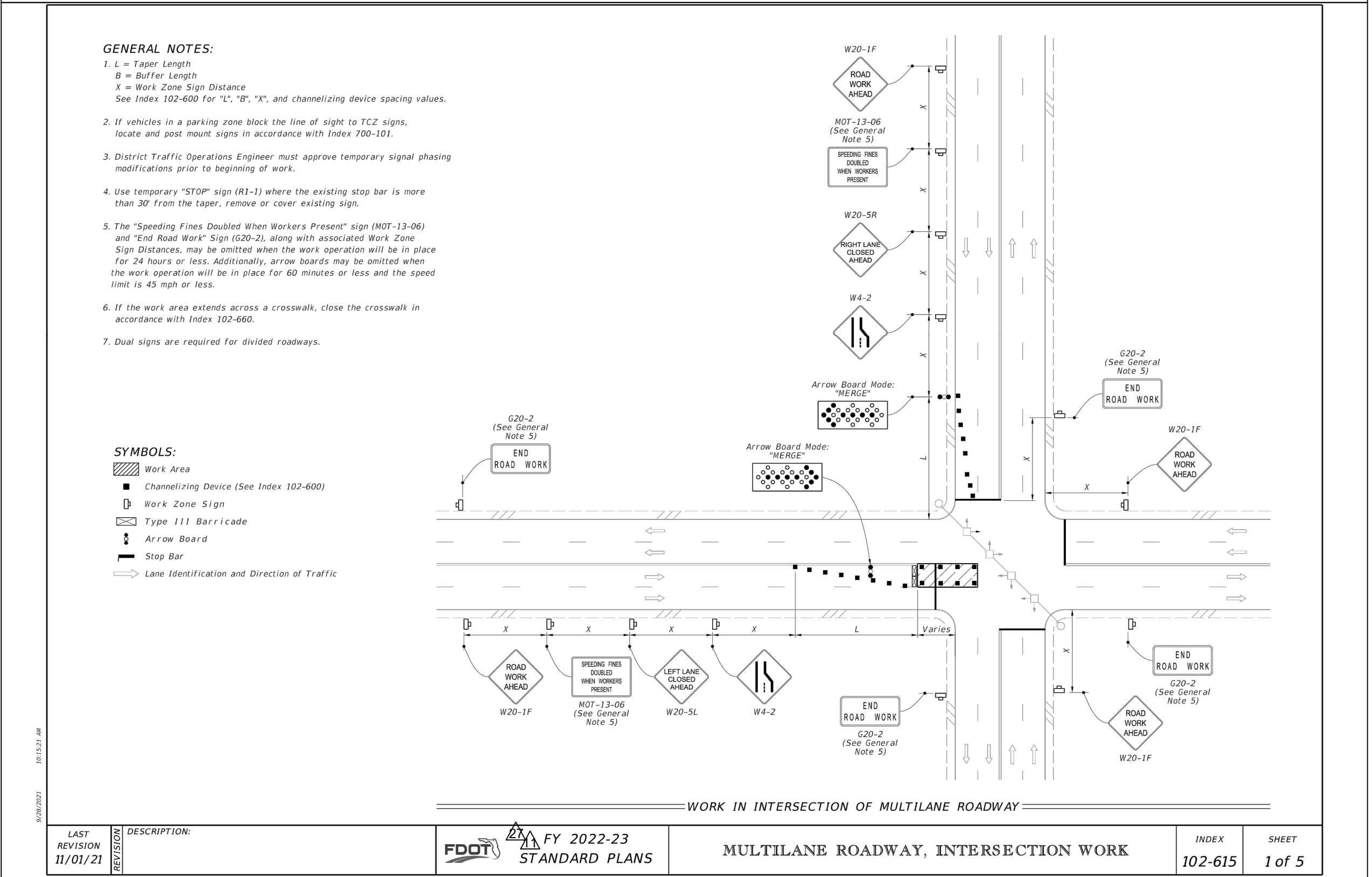
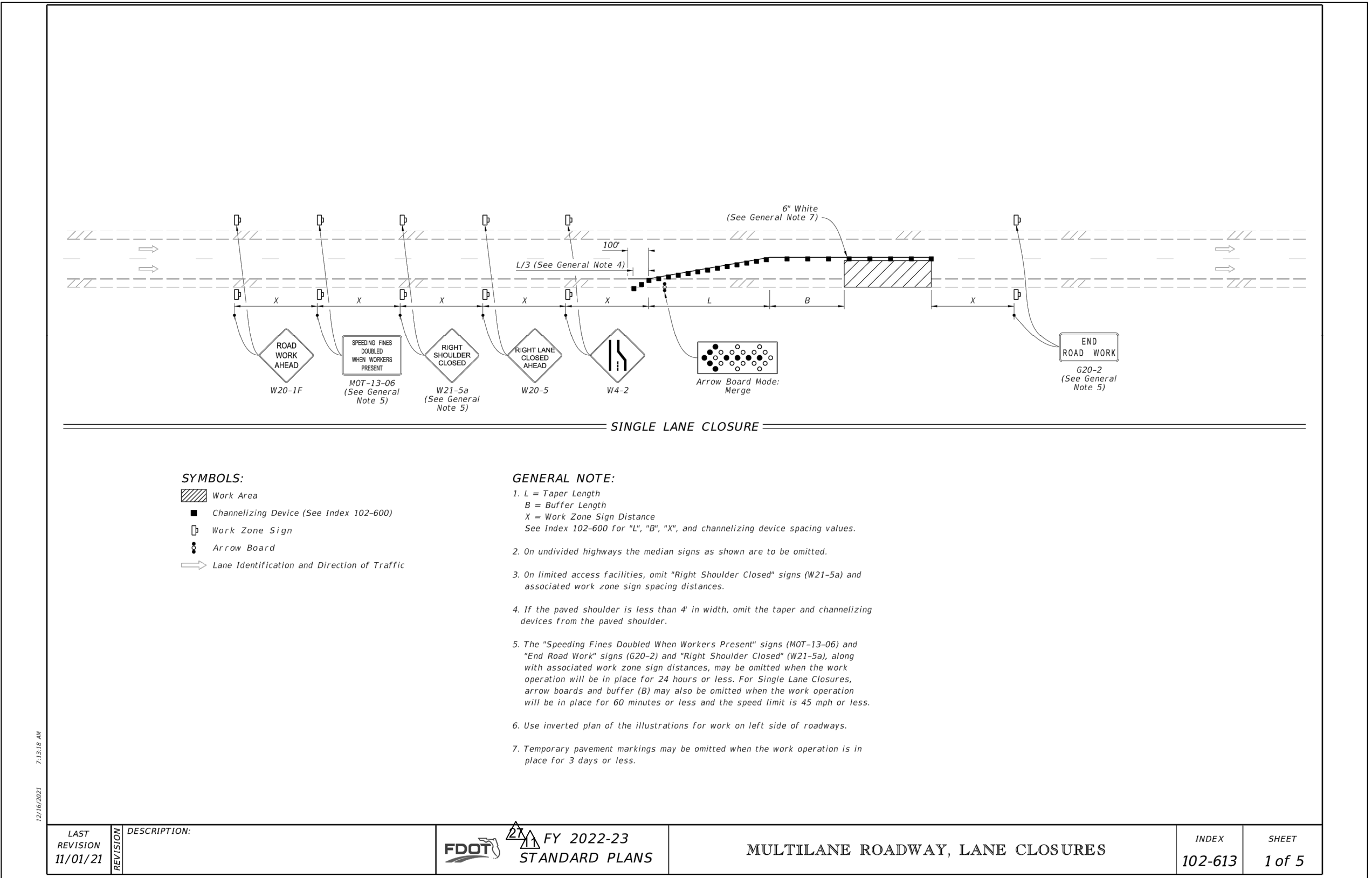
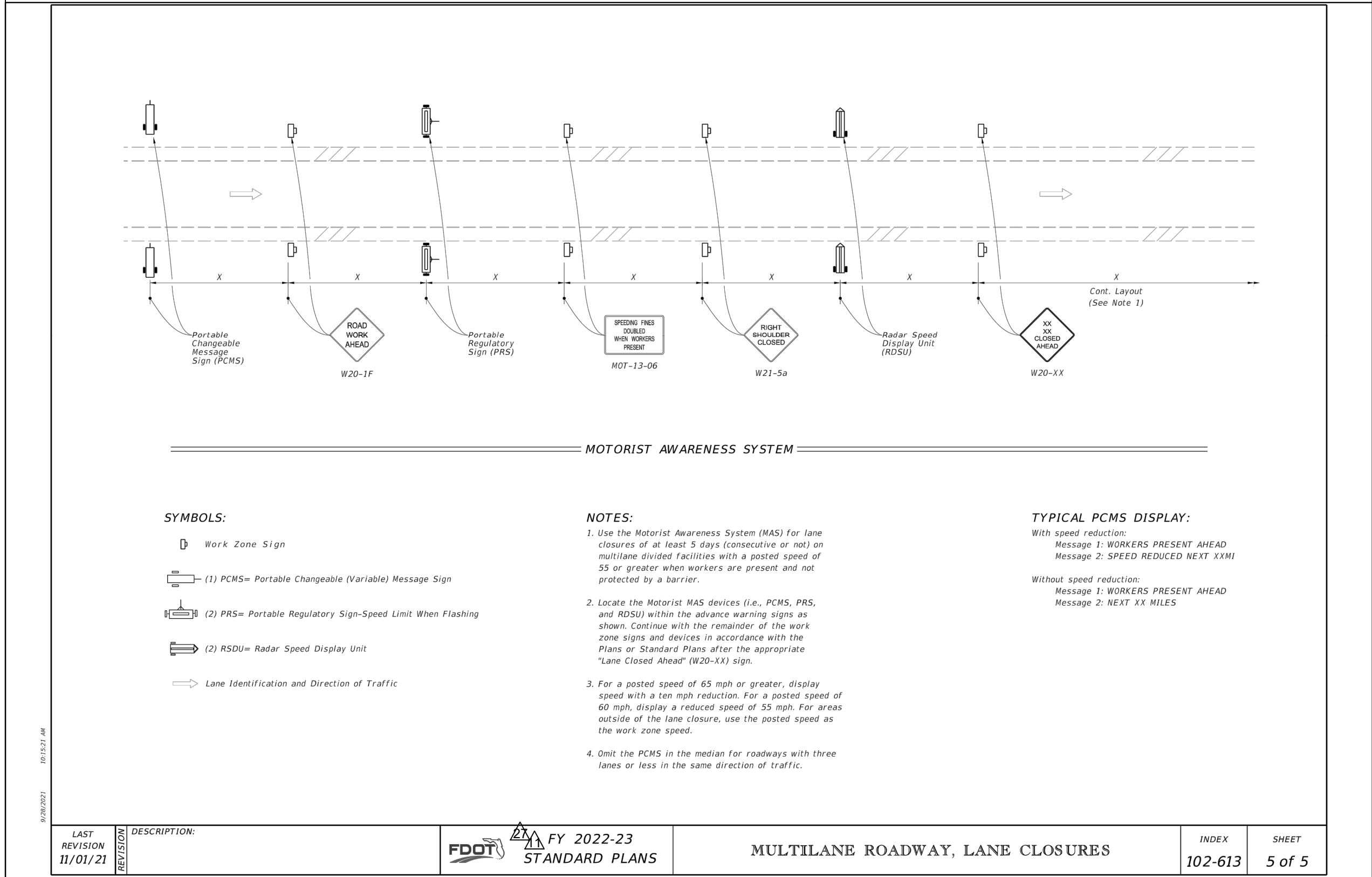
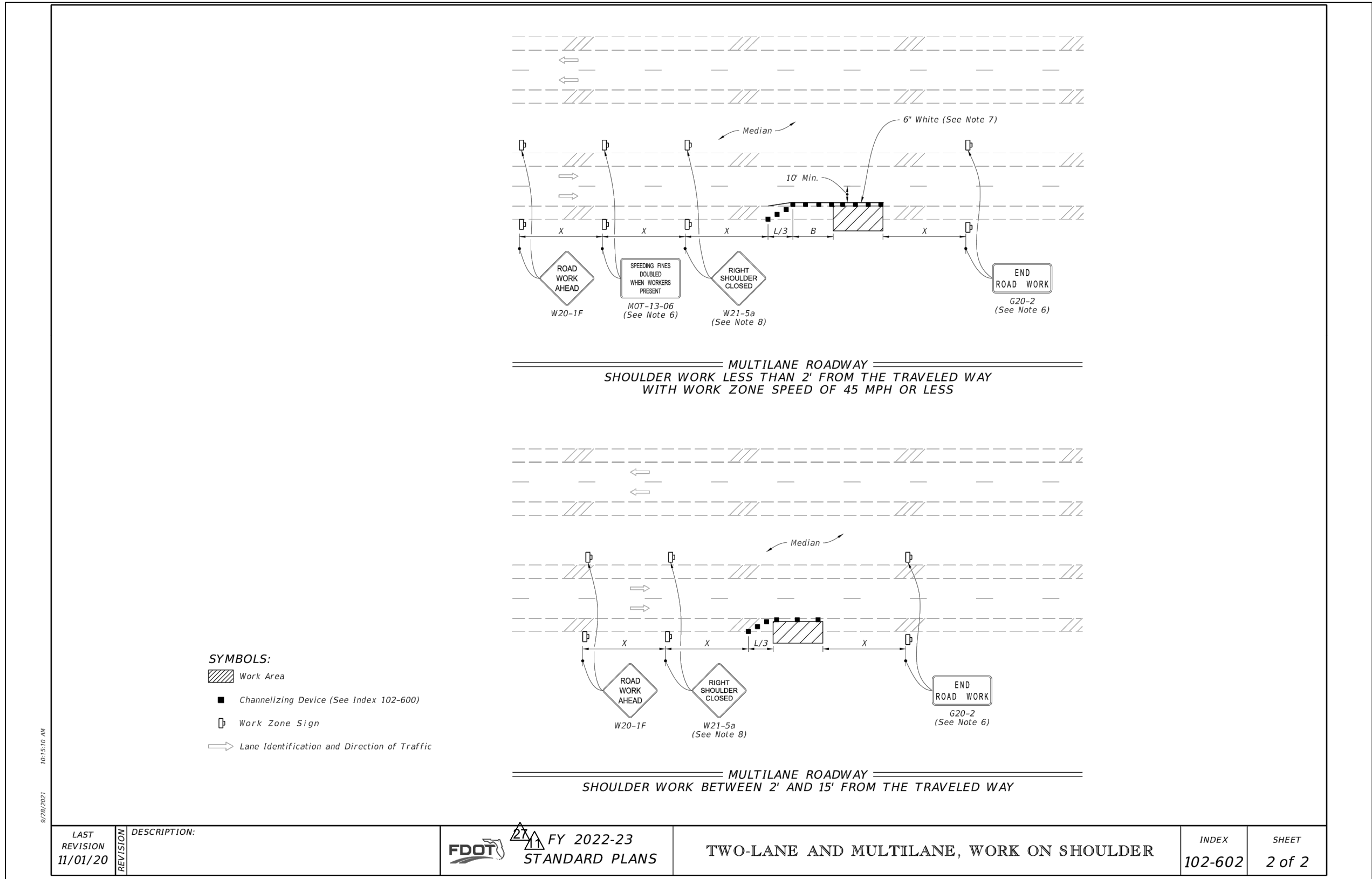
INTERSECTION IMPROVEMENTS - 3

LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: 1" = 20'
SHEET: 19 OF 30



F:\DB3\Final\DB3 22 MAINTENANCE OF TRAFFIC.dwg,4/28/2023 3:13:28 PM



NOTE:
NO LANE CLOSURES WILL BE ALLOWED FROM
7:00 AM TO 9:00 AM AND 3:00 PM TO 7:00 PM.



**DAVE SCHMITT
ENGINEERING, INC.**
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			12-06-21	MGM	REVISION PER CITY COMMENTS
			02-06-20	DLS	REVISION PER FDOT COMMENTS
			12-11-18	MGM	REVISION PER FDOT / CITY COMMENTS
			10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

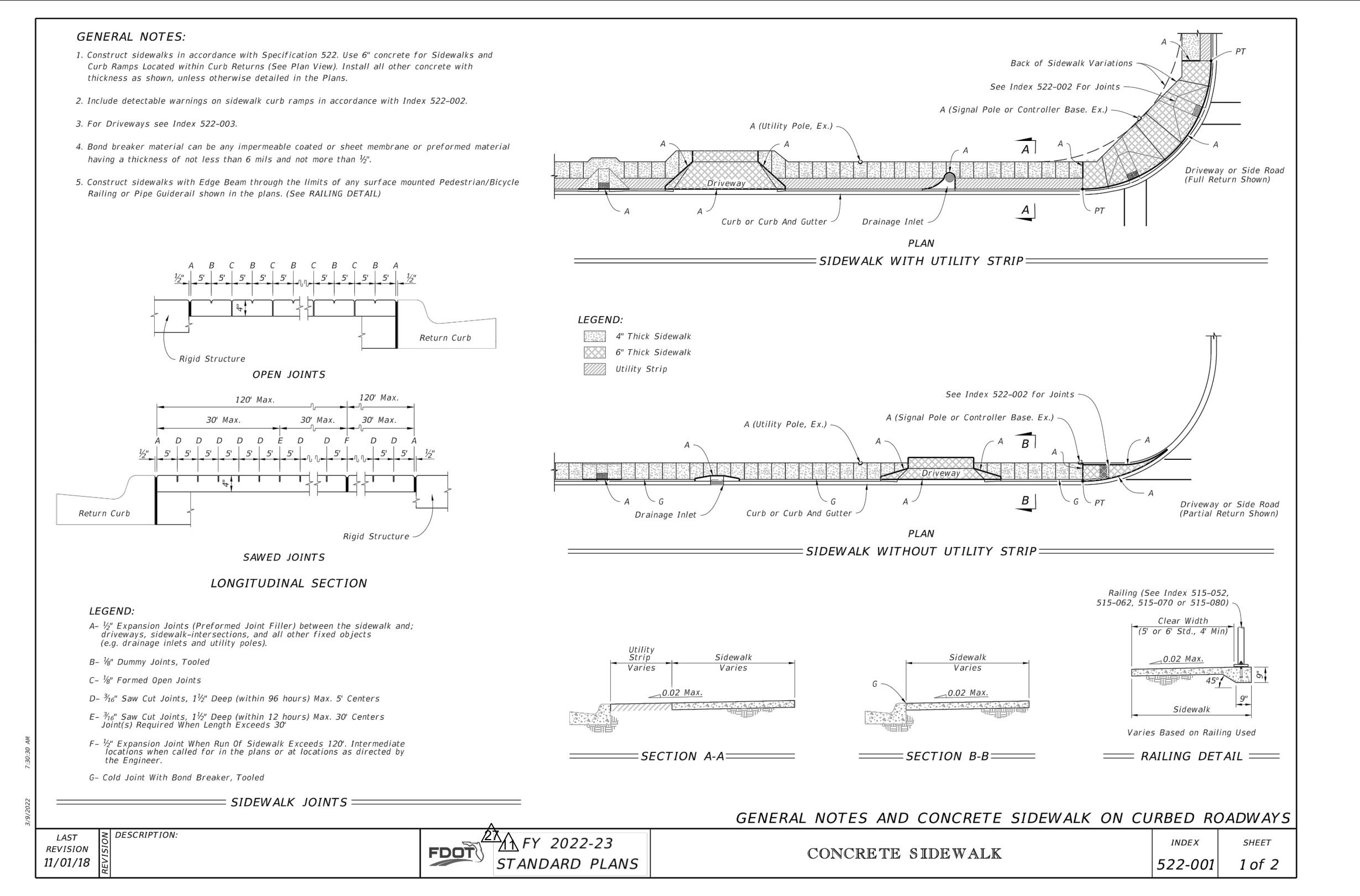
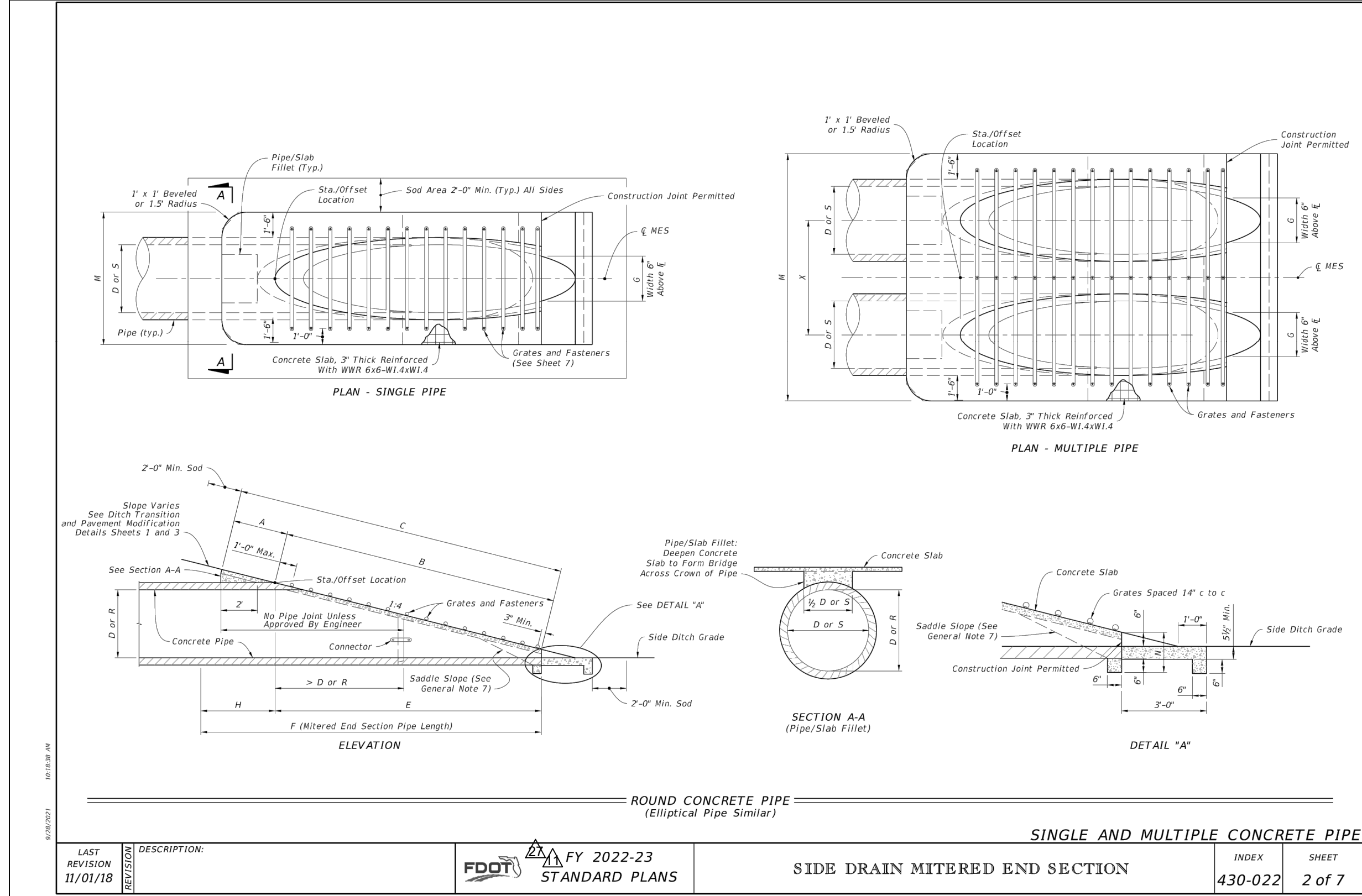
MAINTENANCE OF TRAFFIC

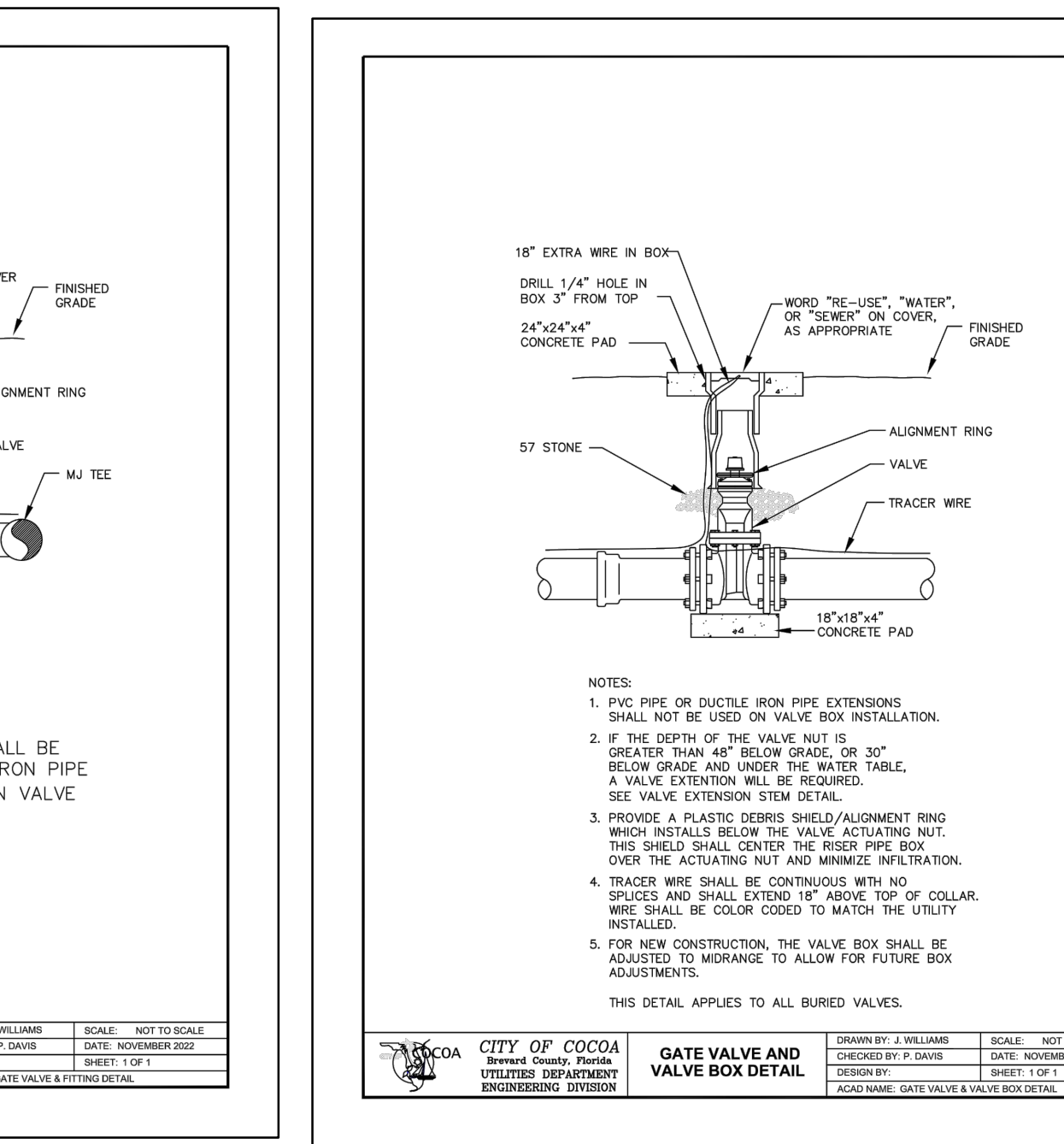
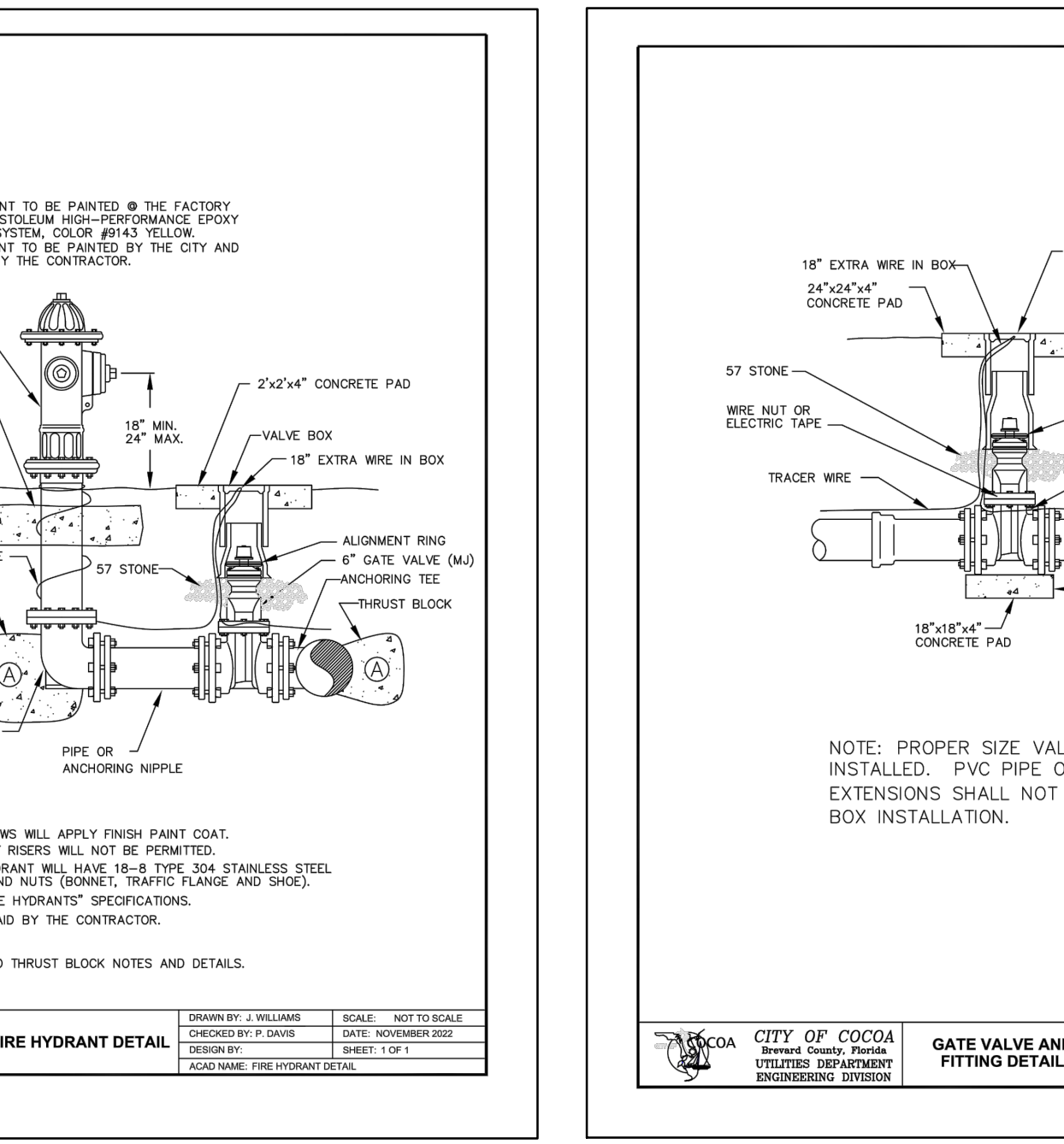
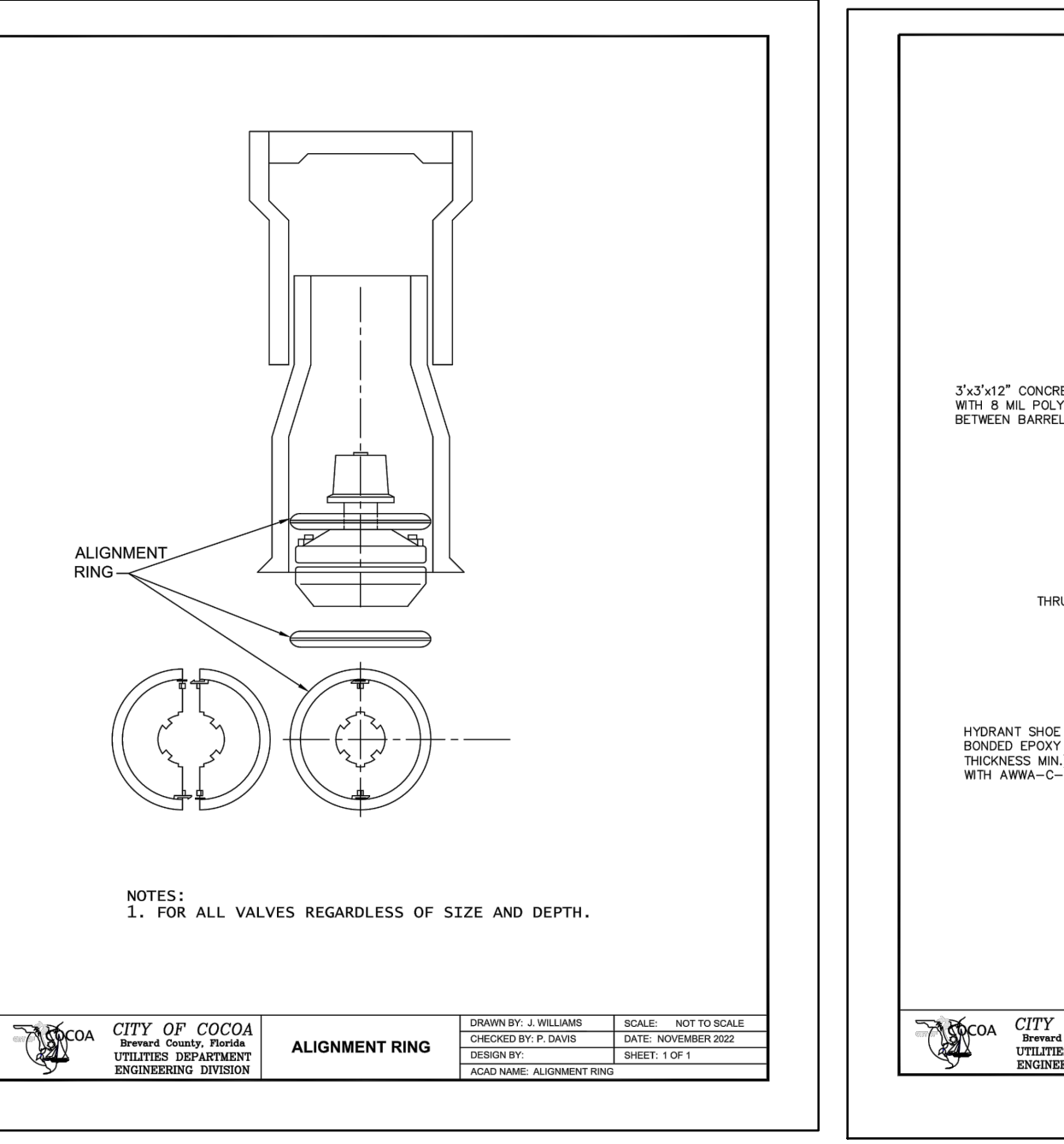
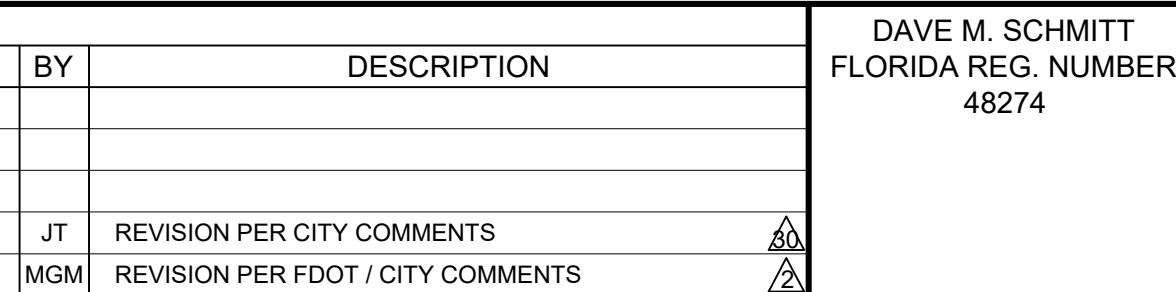
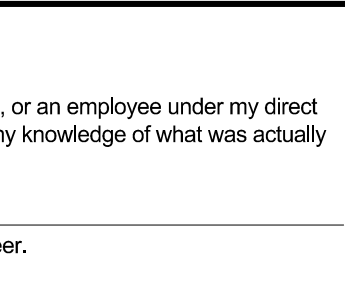
LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: NONE
SHEET: 22 OF 30

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: NONE
SHEET: 25 OF 30



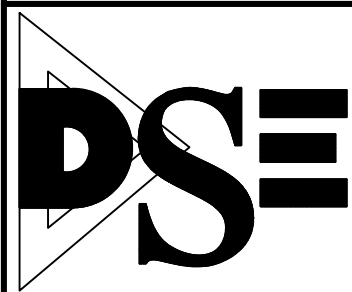


REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			04-24-23	JT	REVISION PER CITY COMMENTS
			10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS

UTILITY DETAILS - 1
LONDON COVE
CITY OF COCOA

DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: NONE
SHEET: 27 OF 30

F:\DB3\Final\DB3 28 UTILITY DETAILS.dwg,4/24/2023 7:30:18 PM



**DAVE SCHMITT
ENGINEERING, INC.**
12301 LAKE UNDERHILL ROAD
SUITE 241
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

CONTRACTOR "AS-BUILTS"

I hereby state that these "As-BUILTS" were furnished to me by the contractor listed below, I, or an employee under my direct supervision have reviewed these "As-BUILTS" and believe them to be in compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction.

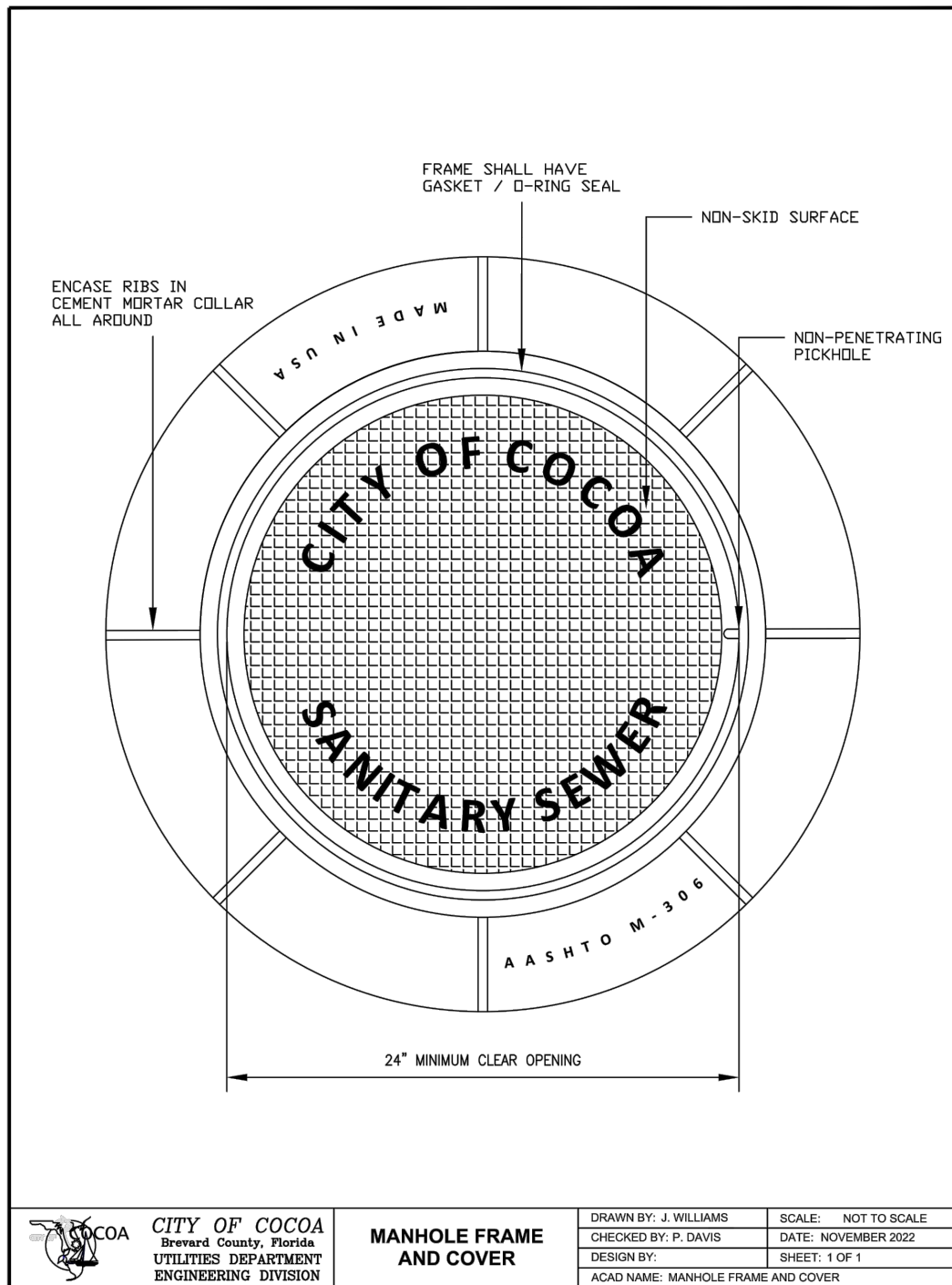
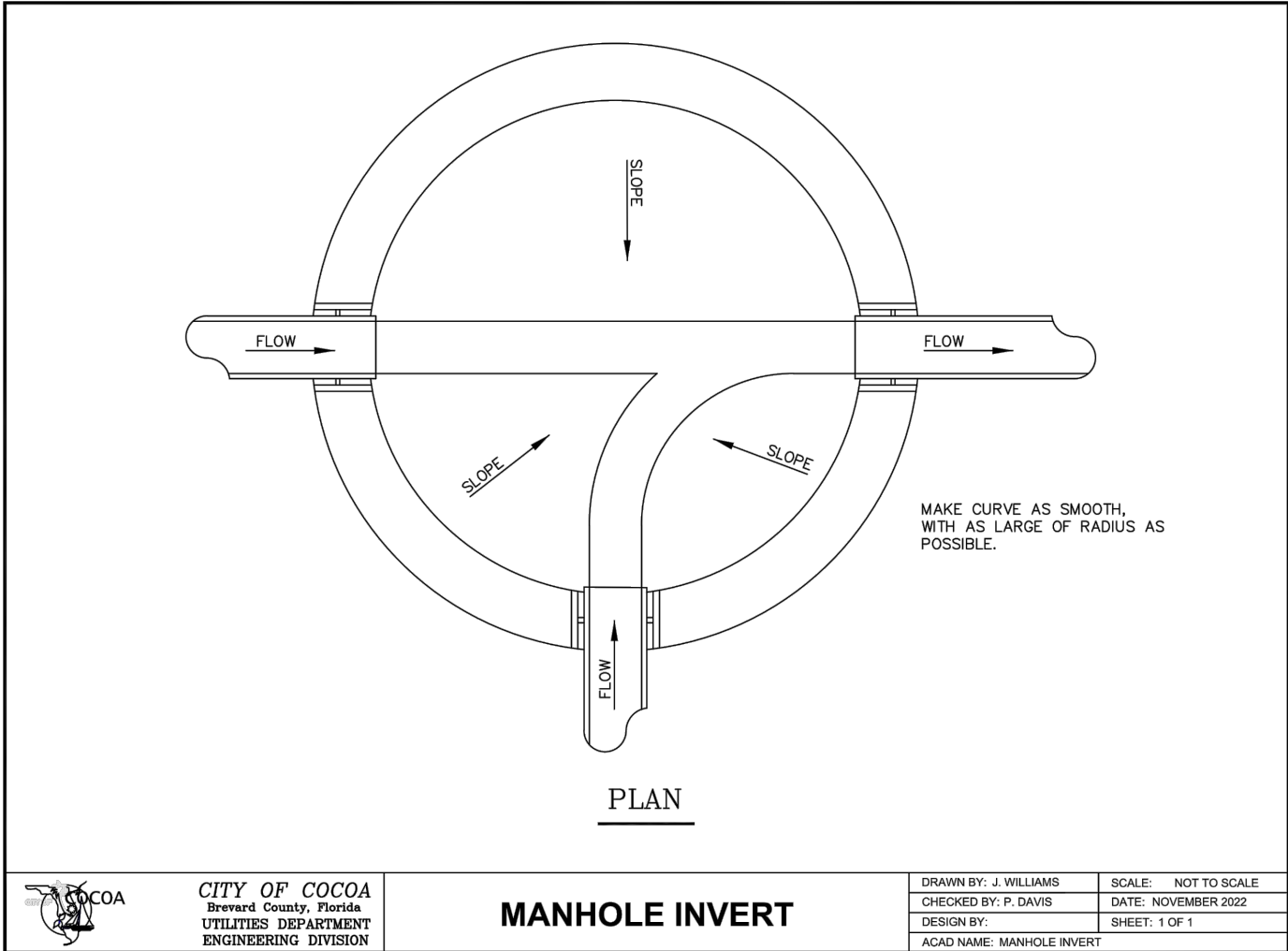
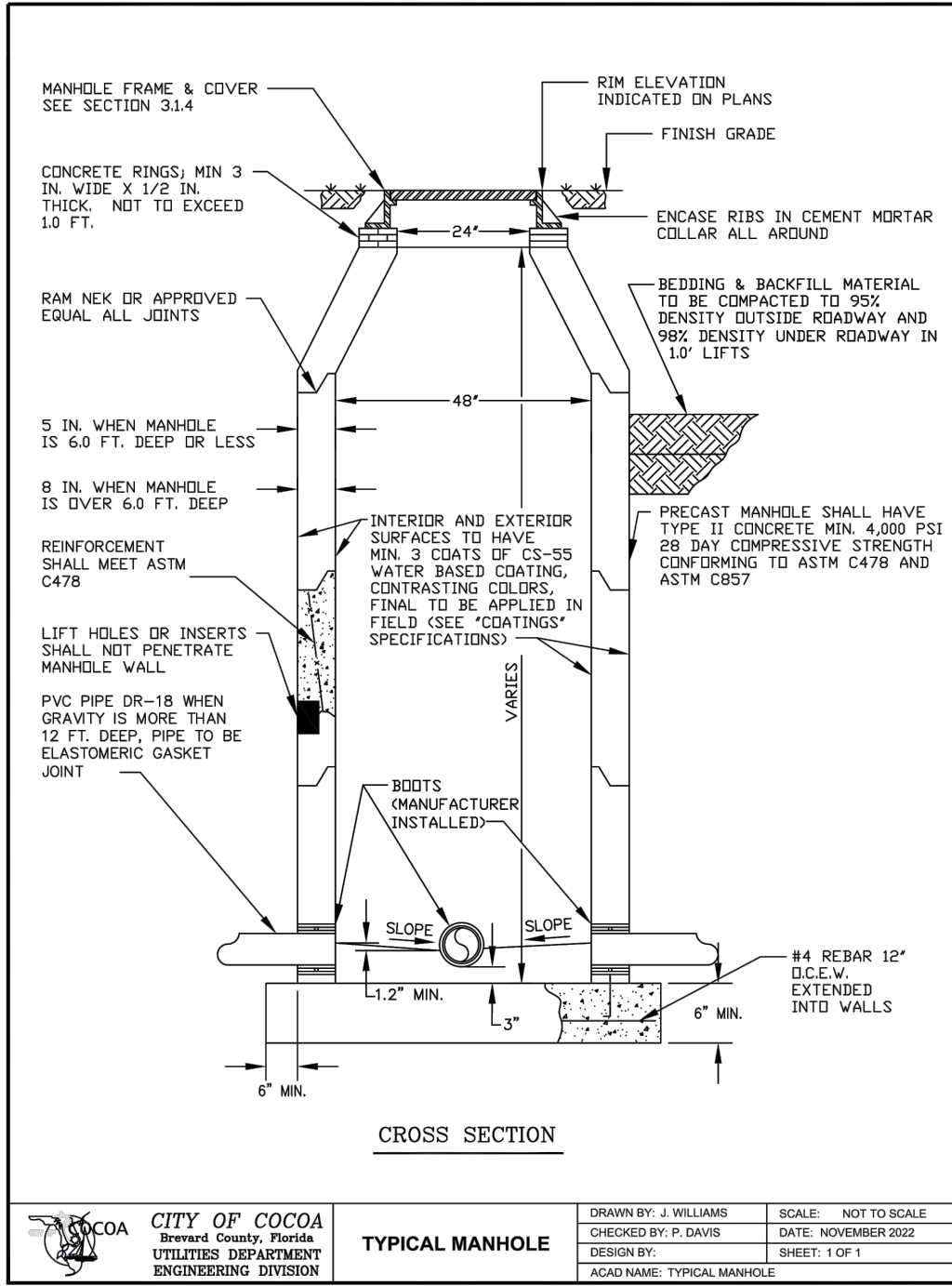
Contractor _____ Engineer _____
Not valid without the signature and the original raised seal of a Florida Registered Engineer.

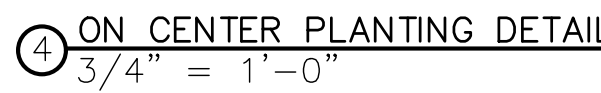
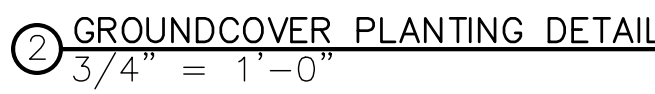
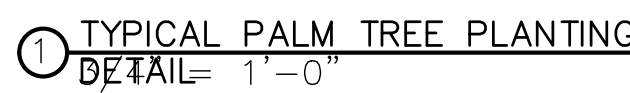
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
04-24-23	JT	REVISION PER CITY COMMENTS			
10-17-18	MGM	REVISION PER FDOT / CITY COMMENTS			

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

UTILITY DETAILS - 2
LONDON COVE
CITY OF COCOA

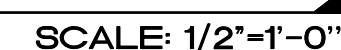
DATE: AUGUST 2018
PROJECT NO.: DB-3
DRAWN BY: MGM
CHECKED BY: DMS
SCALE: NONE
SHEET: 28 OF 30





- ## NOTES

- B** 6' HIGH SCREEN WALL



LANDSCAPE PLANTING AND CONTRACTOR NOTES:

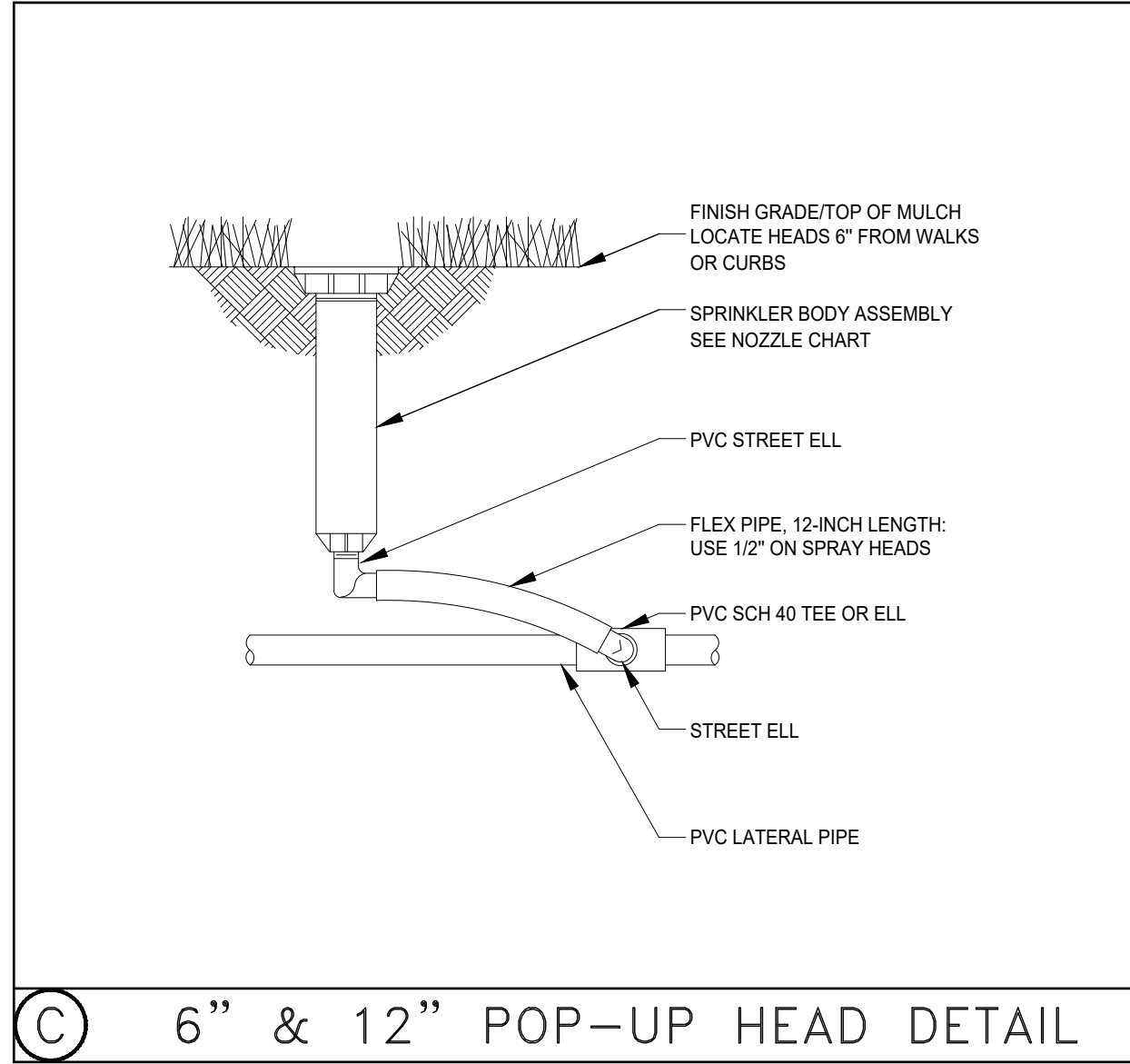
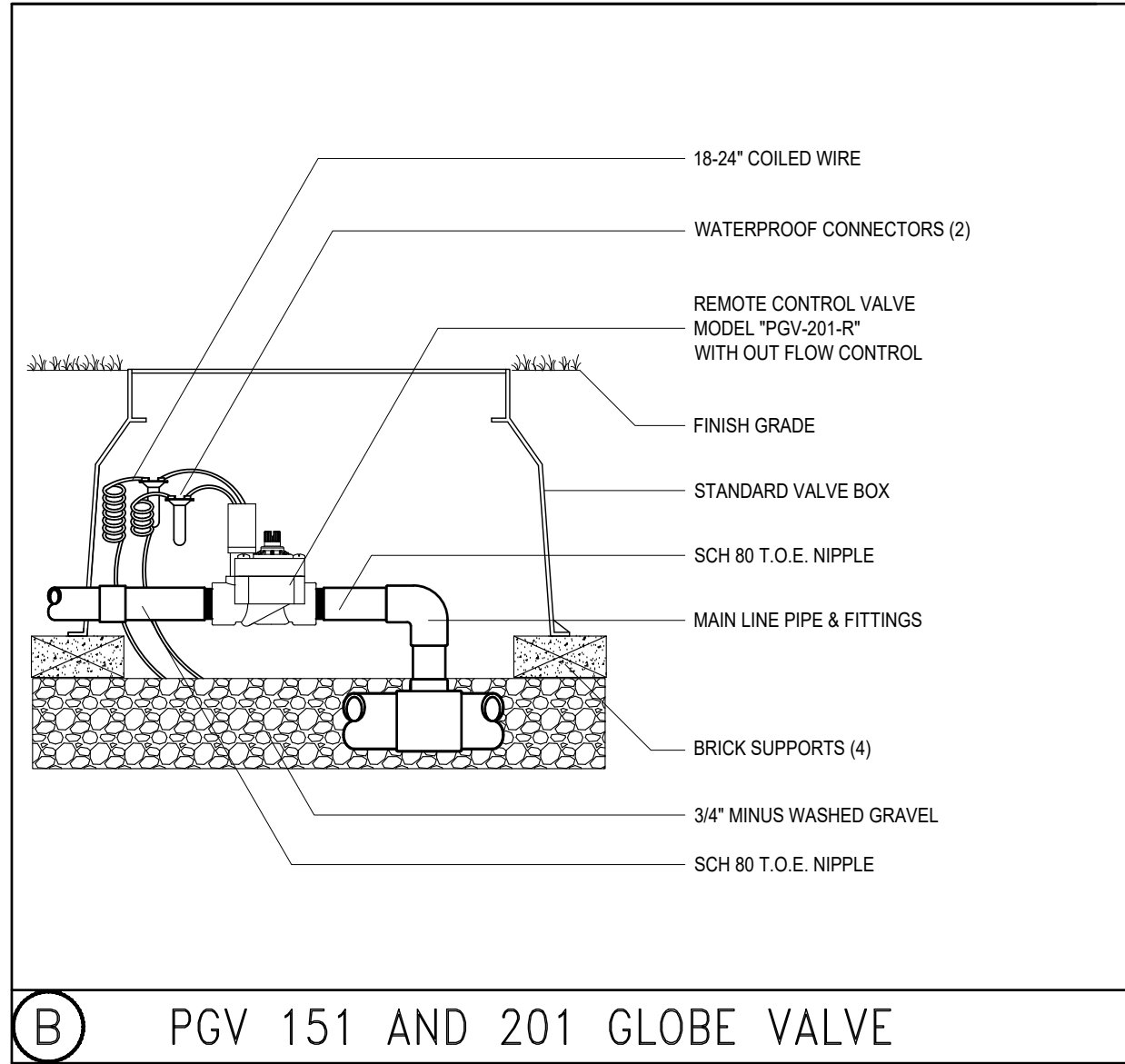
1. ALL PLANTS MUST BE HEALTHY, VIGOROUS MATERIAL. FREE OF PESTS AND DISEASES.
2. ALL PLANTS SHALL BE FLORIDA NO. 1 OR BETTER, AS GRADED IN FLORIDA GRADES AND STANDARDS FOR NURSERY PLANTS.
3. ALL PLANTS ARE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT AND OWNER BEFORE, DURING, AND AFTER INSTALLATION.
4. ALL SINGLE-TRUNKED TREES SHALL BE STRAIGHT TRUNKED WITH ONE CENTRAL LEADER AND HAVE A FULL, DENSE CROWN.
5. ALL TREES SHALL BE STAKED AND GUYED AS SHOWN IN PLANTING DETAILS.
6. ALL MULCH PLANTING AREAS SHALL BE A MINIMUM OF 3" IN DEPTH.
7. ALL PLANTING AREAS SHALL HAVE A MINIMUM OF 3" TOPSOIL.
8. ALL TREES SHALL BE FREE OF OPEN WOUNDS AND WOUND SCARS IN THE CLEAR TRUNK AREA.
9. ANY SYNTHETIC BURLAP AND/OR WIRE BASKETS MUST BE TOTALLY REMOVED PRIOR TO INSTALLATION OF PLANT MATERIAL. IF NATURAL BURLAP IS USED, IT MAY BE TURNED DOWN 1/3 OF THE ROOTBALL.
10. TREES SHALL NOT BE PLACED WITHIN 7' OF ANY FIRE PROTECTION EQUIPMENT AND NOT WITHIN 5' OF ANY UTILITIES.
11. TREES SHALL NOT BE PLACED WHERE THEY WILL OBSCURE ANY VIEWS TO TRAFFIC, PEDESTRIANS OR SIGNAGE. CONTRACTOR TO FIELD ADJUST TREE LOCATIONS TO AVOID CONFLICTS. IF PLANTING IS QUESTIONABLE; CONTRACTOR TO CONTACT LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE TO DISCUSS RELOCATION.
12. CONTRACTOR SHALL TAKE CARE TO PROTECT ALL TREES AND LANDSCAPING MATERIAL WITHIN PROJECT LIMITS AS WELL AS EXISTING TREES IMMEDIATELY ADJACENT TO PROJECT LIMITS. IF THE EXISTING LANDSCAPE, TREES OR OTHER RELATED MATERIALS ARE IMPACTED DURING LANDSCAPE INSTALLATION THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPLACEMENTS, AS WELL AS, ALL OTHER ASPECTS OF REMEDIATION INCLUDING BUT NOT LIMITED TO: TREES, SHRUBS, GROUNDCOVERS, SOD, AND ANY OTHER MATERIALS IMPACTED BY CONSTRUCTION.
13. SOIL CONDITIONS MAY VARY THROUGHOUT THE SITE AND CONTRACTOR TO SHALL PROVIDE PROPER EQUIPMENT FOR PROPER EXCAVATION.
14. CONTRACTOR SHALL INCLUDE THE COSTS OF EXCAVATION, DISPOSAL OF EXCESS MATERIALS, BACKFILL, SOIL AMENDMENTS, SPECIAL BED PREPERATION, MULCH, TREE STAKING AND GUYING, FERTILIZER, WATERING FOR PLANT ESTABLISHMENT, SITE CLEAN-UP AND MAINTENANCE WITHIN BID NUMBER.
15. CONTRACTOR SHALL SOD ALL DAMAGED GRASS AREAS DISTURBED DURING CONSTRUCTION. SEE LANDSCAPE SPECIFICATIONS FOR SOD INSTALLATION.
16. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING, IN FULL, ALL LANDSCAPE PLANTING AREAS, UNTIL THE JOB IS ACCEPTED IN FULL BY THE OWNER. "IN FULL" MEANS WATERING, PEST CONTROL, MULCHING, MOWING, FERTILIZING AND RESETING TREES THAT ARE OUT OF PLUMB.
17. THE LANDSCAPE CONTRACTOR SHALL COMPLETELY GUARANTEE ALL INSTALLED PLANT MATERIAL FOR A PERIOD OF ONE CALENDAR YEAR BEGINNING ON THE DATE OF 100% COMPLETION. ANY AND ALL REQUIRED PLANT REPLACEMENTS SHALL BE MADE PROMPTLY AND AT NO ADDITIONAL COST TO THE OWNER.
18. THE LANDSCAPE CONTRACTOR SHALL STAKE THE LOCATIONS OF ALL PLANT MATERIAL AND PLANTING BED LINES FOR REVIEW BY THE LANDSCAPE ARCHITECT AND OWNER.
19. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL WRITTEN PLANT QUANTITIES PRIOR TO INITIATION OF THE WORK. IN THE EVENT THAT THE PLANS CONTRADICT THE PLANT LIST, THE PLANS SHALL RULE.
20. THE LANDSCAPE CONTRACTOR SHALL BE FAMILIAR WITH AND ACCEPT THE EXISTING SITE CONDITIONS PRIOR TO INITIATION OF THE WORK. ANY VARIATION FROM THE SPECIFIED WORK SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
21. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES, DRAINAGE STRUCTURES, CURBS, SIDEWALKS, AND ANY OTHER OBJECTS WHICH MIGHT BE DAMAGED DURING THE WORK.
22. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE ANY AND ALL NECESSARY REPAIRS TO DAMAGE CAUSED BY HIS WORK AT NO ADDITIONAL COST TO THE OWNER OR LANDSCAPE ARCHITECT.
23. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, AND FOLLOWING ALL APPLICABLE LOCAL CODES PERTAINING TO THE PROJECT DURING THE COURSE OF THEIR WORK.

Diagram illustrating the installation of the PCC-12 wall mount controller. The controller is shown mounted on an exterior wall. The diagram includes the following labels and instructions:

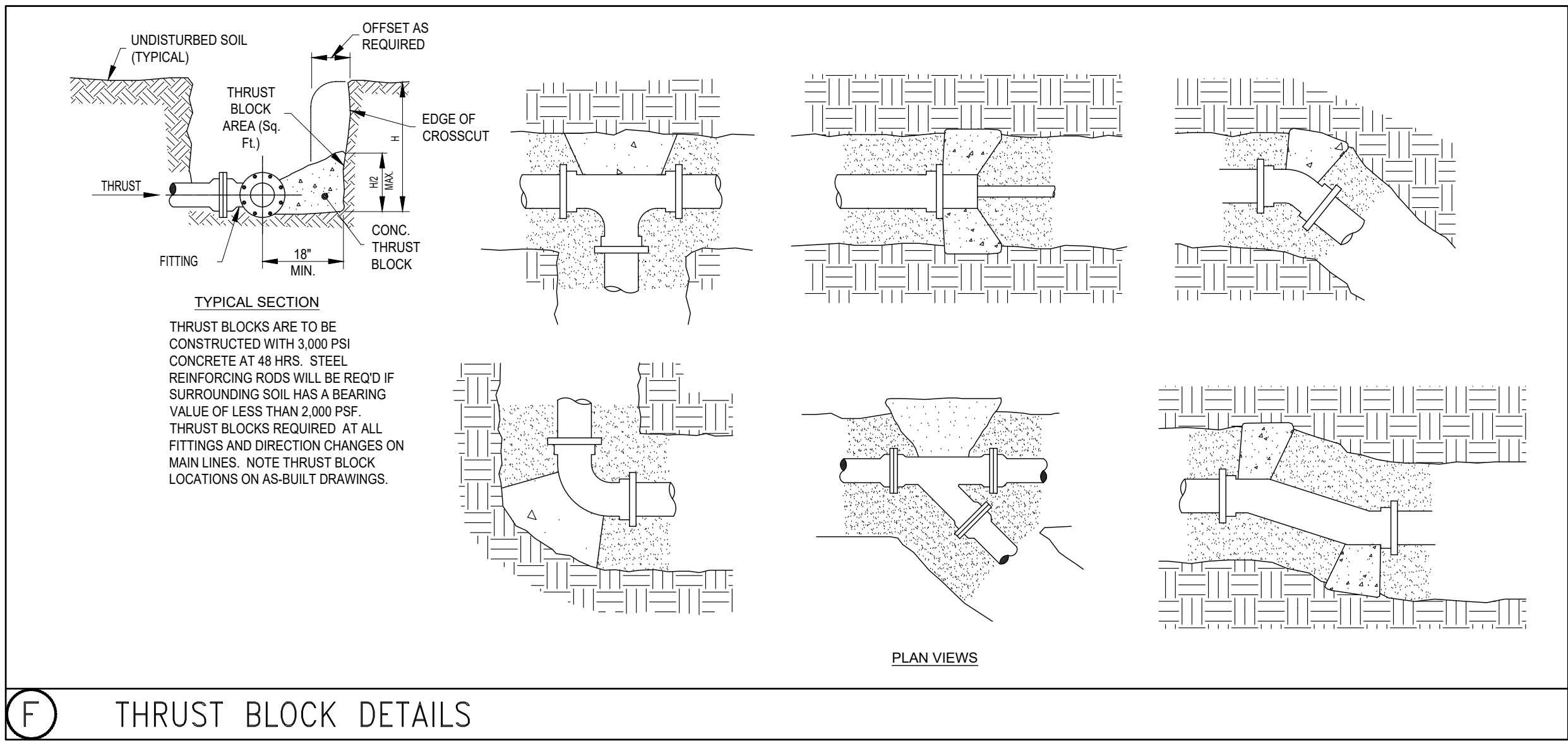
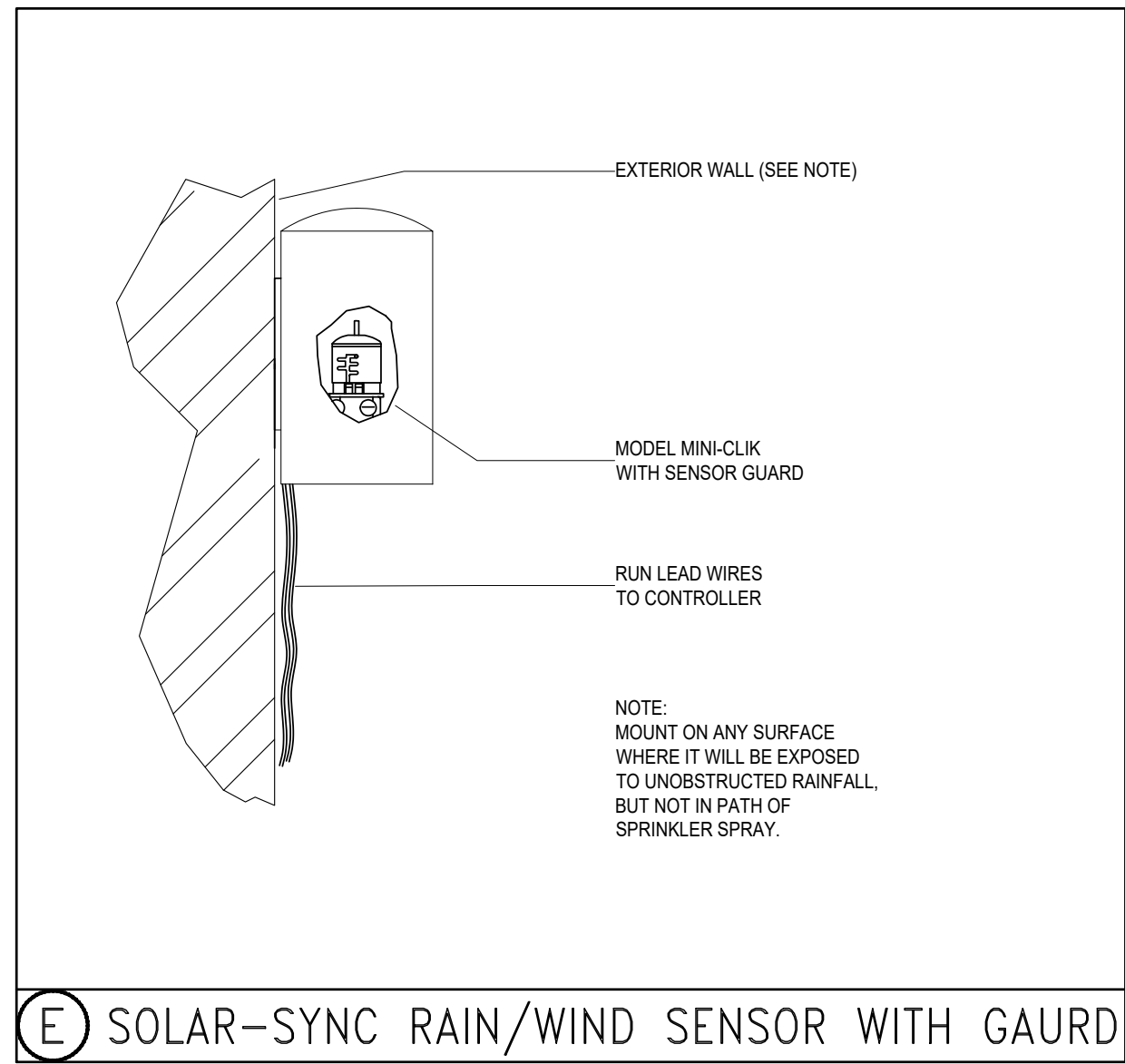
- EXTERIOR WALL**: Indicated by a bracket above the mounting location.
- MINIMUM CLEARANCE FOR DOOR OPENING**: Indicated by a bracket above the controller, showing the required space for a door to open.
- MODEL: 'PCC-12'**: Labeled next to the controller unit.
- CONTROL WIRE IN ELECTRICAL CONDUIT. SIZE AND TYPE PER LOCAL CODE**: Indicated by a line pointing to the conduit connected to the controller.
- ELECTRICAL SUPPLY CONDUIT. CONNECT TO POWER SOURCE. J BOX INSIDE CONTROLLER.**: Indicated by a line pointing to the conduit connected to the controller.

NOTE
 SPECIFY 4, 7, 10, 13, 16 STATION MODEL CONTROLLER.
 MOUNT CONTROLLER WITH LCD SCREEN AT EYE LEVEL.
 CONTROLLER SHALL BE HARD-WIRED TO GROUND 110 VAC SOURCE.

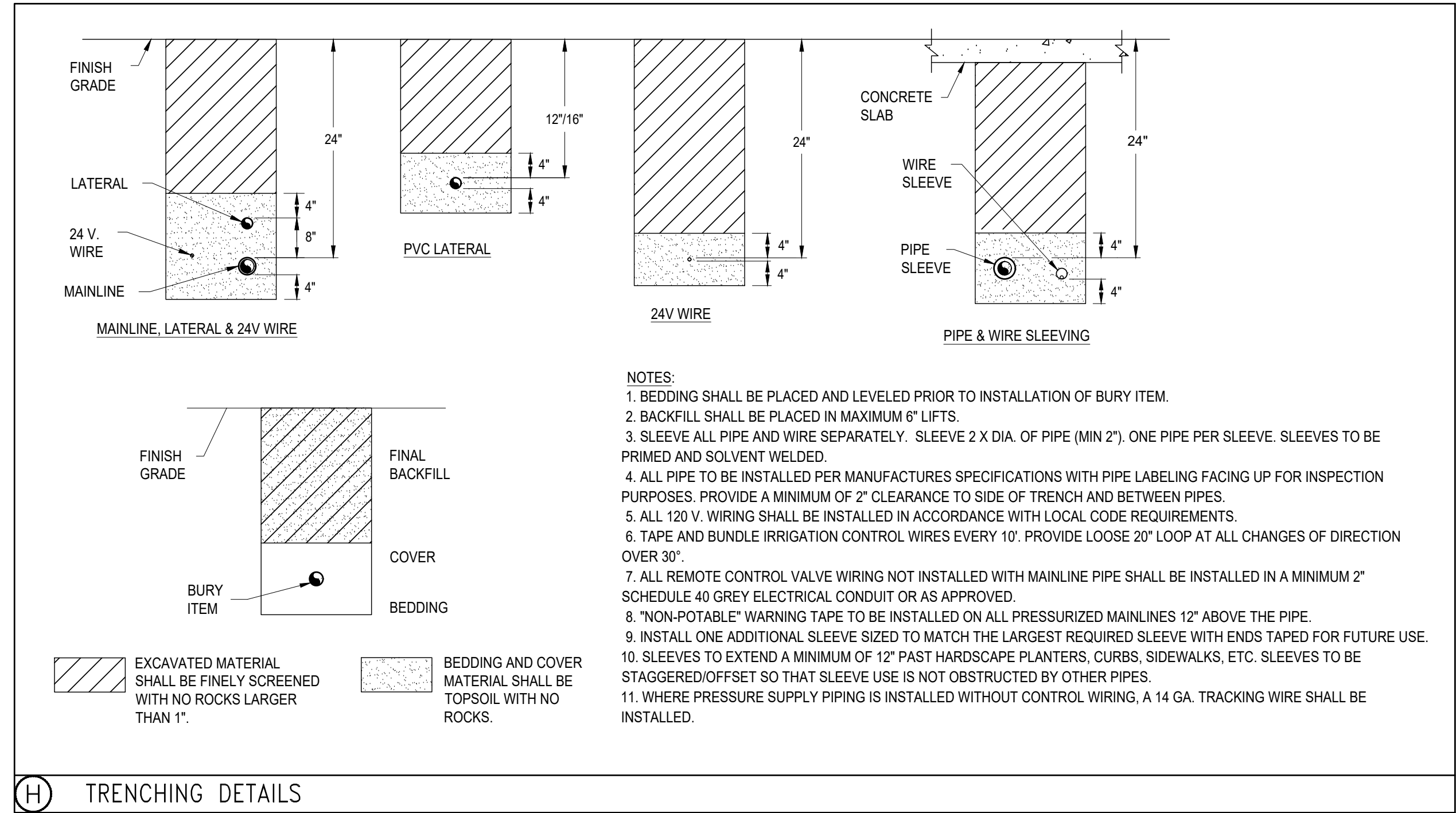
PRO-C WALL MOUNT CONTROLLER



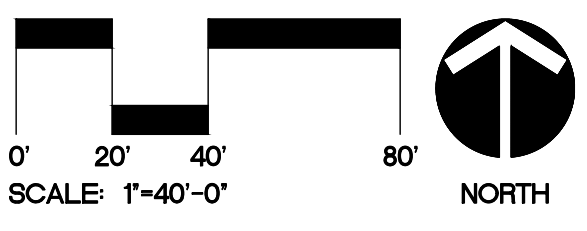
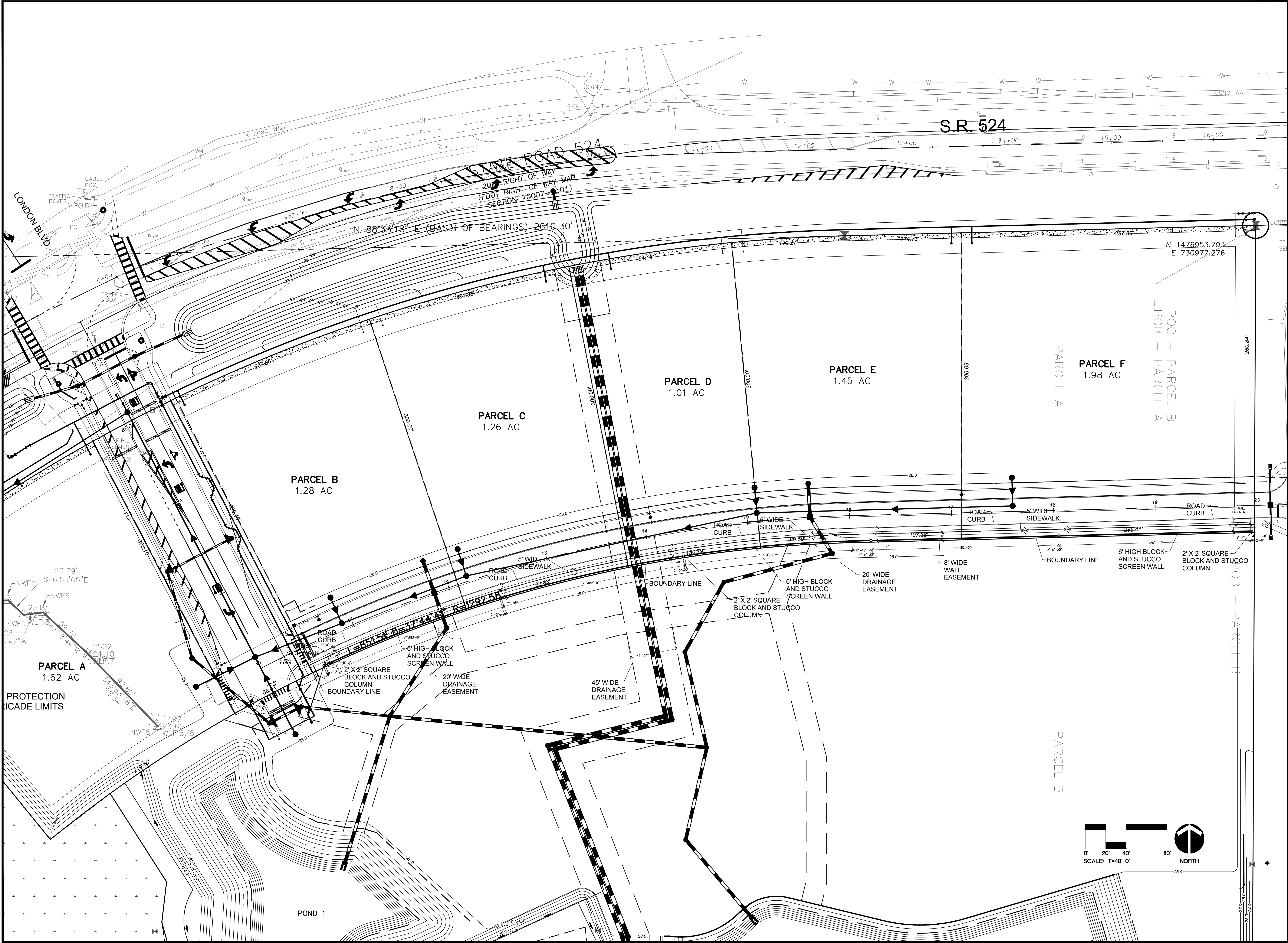
<u>SYMBOL</u>	<u>DESCRIPTION</u>	<u>QUANTITIES</u>
	TREE BUBBLER - HUNTER IND. 'PCN NOZZLE ON FLEX PIPE	524
	6" POP-UP SPRAY - HUNTER IND. 'PROS-06-PRS40" BODY W/MP 1000 NOZZLES	277
	12" POP-UP SPRAY - HUNTER IND. 'PROS-12-PRS40" BODY W/MP 800 NOZZLES	25
	HUNTER 'ICV-FS-AS-40" SERIES ELECTRIC VALVE WITH ACCU-SET PRESSURE REGULATOR <u>1-1/2" + 2"</u>	7
	HUNTER 'PCC-12" 12 STATION WALL MOUNT CONTROLLER INSTALL WITH A SOLAR-SYNC SENSOR AND BY-PASS BOX. GROUND WITH AN 8" COPPER CLAD ROD.	1
	HUNTER SOLAR-SYNC SENSOR	1
	2" IRRIGATION RECLAIMED WATER METER TO PROVIDE 80 GPM AT 50 PSI	1 (BY OWNER)
	2" IRRIGATION GATE VALVE	1
	LATERAL LINE - CLASS 200 PVC - SIZE PER PLAN (ALL 1/2" PIPE TO BE SCH-40)	SEE PLAN
	2" MAINLINE - CLASS 315 PVC	SEE PLAN
	SLEEVING - SCH. 40 PVC MIN. DEPTH OF 24"	SEE PLAN



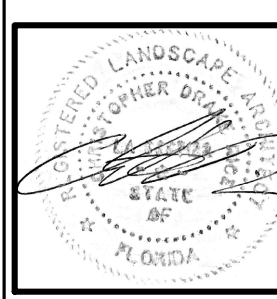
TYPE	SYM	NOZZLE	NOZZLE PATTERN	GPM
MP1000 8'-15' radius	A	MARON	90° ADJUSTABLE ARC	.21
	B	MARON	180° ADJUSTABLE ARC	.42
	C	LT. BLUE	210° ADJUSTABLE ARC	.49
	D	LT. BLUE	270° ADJUSTABLE ARC	.63
	E	OLIVE	360° ARC	.84
	F	BLACK	90° ADJUSTABLE ARC	.43
MP2000 13'-21' radius	G	BLACK	180° ADJUSTABLE ARC	.77
	H	GREEN	210° ADJUSTABLE ARC	.86
	I	GREEN	270° ADJUSTABLE ARC	1.10
	J	RED	360° ARC	1.48
MP3000 22'-30' radius	K	BLUE	90° ADJUSTABLE ARC	.86
	L	BLUE	180° ADJUSTABLE ARC	1.82
	M	YELLOW	210° ADJUSTABLE ARC	2.12
	N	YELLOW	270° ADJUSTABLE ARC	2.73
	O	GRAY	360° ARC	3.64
STRIPS & CORNERS	P	TURQUOISE	45°-105° ADJUSTABLE ARC	.45
	Q	IVORY	5x15 LEFT STRIP	.22
	R	COPPER	5x15 RIGHT STRIP	.22
	S	BROWN	5x30 SIDE STRIP	.44
BUBBLERS AND MICRO-SPRAYS	T	PCN10	1.00 GPM FLOOD BUBBLER	1.00
	U	PCN50	0.50 GPM FLOOD BUBBLER	.50
	V	SR-4Q	90° 4 RADIUS	.22
	W	SR-4H	180° 4 RADIUS	.44
MP800 6'-12' radius	AA	ORANGE	90° ADJUSTABLE ARC	.23
	BB	ORANGE	180° ADJUSTABLE ARC	.42
	CC	ORANGE	210° ADJUSTABLE ARC	.43
	DD	GREEN	360° ARC	.78



- 1) REFER TO THE LANDSCAPE PLANS WHEN TRENCHING TO AVOID TREES AND SHRUBS.
- 2) ALL MAINLINE PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 18" OF COVER. ALL LATERAL PIPING SHALL BE BURIED TO A MINIMUM DEPTH OF 12" OF COVER.
- 3) ALL POP-UP ROTORS AND SPRAY HEADS SHALL BE INSTALLED USING AN 18" P.V.C. FLEX PIPE CONNECTION. DO NOT USE FUNNY PIPE.
- 4) ADJUST ALL NOZZLES TO REDUCE WATER WASTE ON HARD SURFACES AND BUILDING WALLS.
- 5) THROTTLE ALL VALVES ON SHRUB LINES AS REQUIRED TO PREVENT FOGGING.
- 6) ABSOLUTELY NO RISERS SHALL BE USED ON THIS PROJECT.
- 7) ALL CONTROL WIRE SPLICES SHALL BE MADE IN VALVE BOXES USING SNAP-TITE CONNECTORS AND SEALANT.
- 8) THE CONTRACTOR SHALL PREPARE AN AS-BUILT DRAWING ON A REPRODUCIBLE PAPER (SEPIA OR MYLAR) SHOWING ALL INSTALLED IRRIGATION. A MYLAR OR SEPIA OF THE ORIGINAL PLAN MAY BE OBTAINED FROM THE LANDSCAPE ARCHITECT FOR A FEE. THE DRAWING SHALL LOCATE ALL MAINLINE AND VALVES BY SHOWING EXACT MEASUREMENTS FROM HARD SURFACES.
- 9) ALL VALVES, GATE VALVES AND QUICK COUPLERS SHALL BE INSTALLED IN VALVE BOXES.
- 10) ANY PIPING SHOWN OUTSIDE THE PROPERTY LINE OR RUNNING OUTSIDE A LANDSCAPE AREA IS SHOWN THERE FOR CLARITY ONLY. ALL LINES SHALL BE INSTALLED ON THE PROPERTY AND INSIDE THE LANDSCAPE AREAS.
- 11) THE EXACT HEIGHT OF ANY 12" POP-UP THAT IS SHOWN IN A SHRUB BED SHALL BE DETERMINED BY THE LANDSCAPE ARCHITECT IN THE FIELD.
- 12) THE CONTRACTOR SHALL EXERCISE CARE SO AS NOT TO DAMAGE ANY EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REPAIRS AND COST OF ANY DAMAGE CAUSED BY HIS WORK.
- 13) ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE AGAINST ALL DEFECTS IN EQUIPMENT AND WORKMANSHIP.
- 14) CONTRACTOR TO USE MIN. OF 12 GAUGE WIRE FOR ALL COMMON WIRES AND 14 GAUGE WIRE FOR ALL CONTROL WIRES. CONTRACTOR ALSO TO PROVIDE 3 SPARE CONTROL WIRES FOR ANY FUTURE USE.
- 15) CONCRETE THRUST BLOCKS ARE TO BE UTILIZED AT ALL MAINLINE DIRECTION CHANGES.
- 16) ALL IRRIGATION SHOWN ON PLANS IS SCHEMATIC AND DOES NOT REFLECT ALL FITTINGS AND APPURTENANCES WHICH SHALL BE INCLUDED TO PROVIDE A FULLY FUNCTIONAL IRRIGATION SYSTEM CAPABLE OF PROVIDING 100 PERCENT COVERAGE WITH A 50 PERCENT OVERLAP.

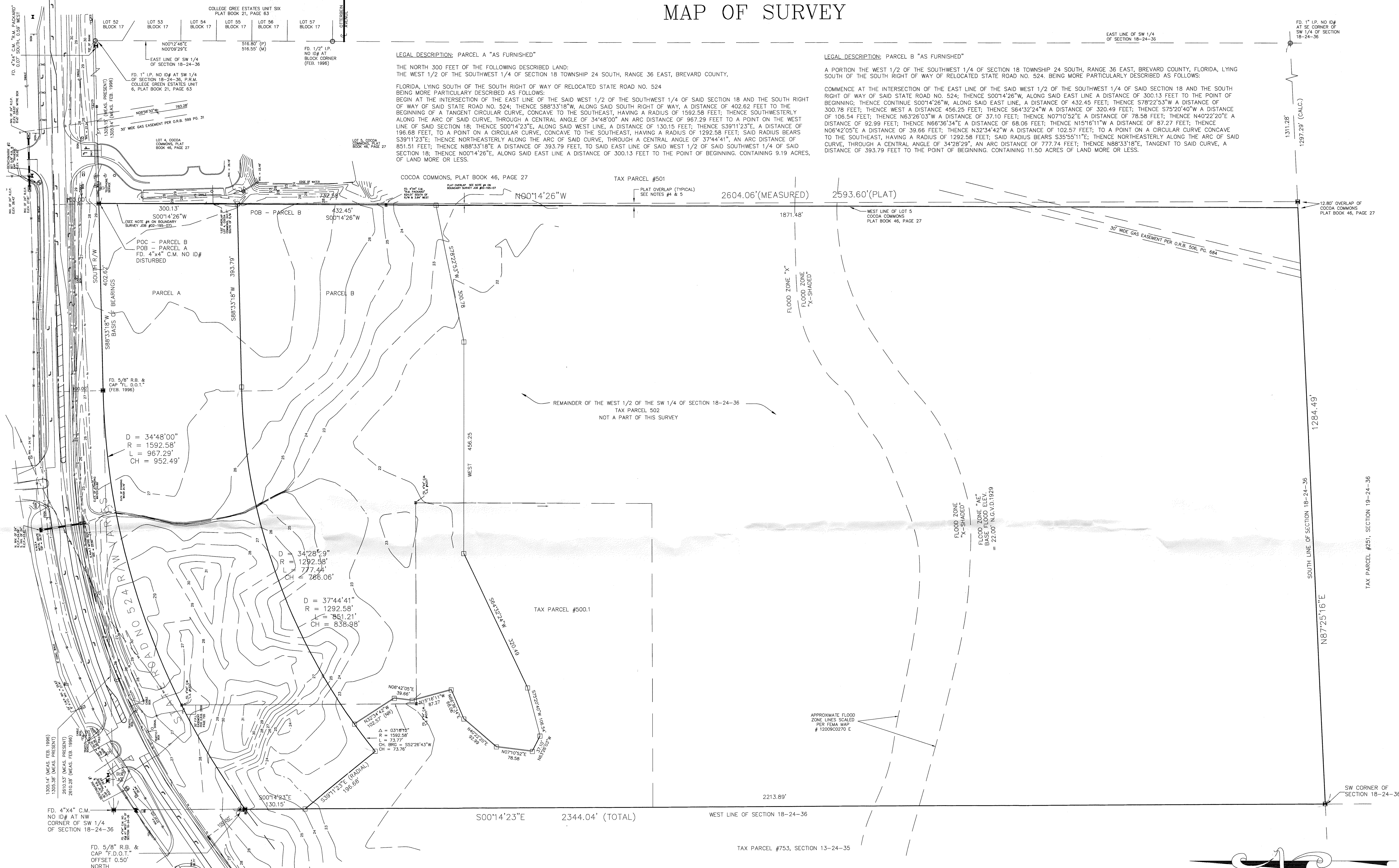


LONDON COVE

 BORRELLI + PARTNERS ARCHITECTURE PLANNING LANDSCAPE INTERIOR ORLANDO, FL 32804 (407) 418-1338 CONVENTIONAL LANS. DRAWINGS ARE THE PROPERTY OF BORRELLI + PARTNERS. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN FEET AND INCHES. NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF BORRELLI + PARTNERS.		SIGNATURE AND DATED SEAL	
		 CHRISTOPHER D. RICCI A6667122	
CONSULTANTS		DRAWING TITLE	
HARDSCAPE WALL LAYOUT PLAN		PROJECT ADDRESS	
REV. DESCRIPTION DATE		OWNER NAME AND ADDRESS	
19-008	1. CONSTRUCTION DOCUMENTS	CITY OF COCOA, FLORIDA	
2.	CITY COMMENTS 01/16/23	CITY COMMENTS 01/16/23	
3.	CITY COMMENTS 06/15/23	CITY COMMENTS 06/15/23	
4.	UP-SIZE TREES 12/04/23	UP-SIZE TREES 12/04/23	
5.	CR	CR	
6.	CR	CR	
7.	CR	CR	
8.	02/01/19	02/01/19	

H-100

MAP OF SURVEY



GENERAL NOTES:

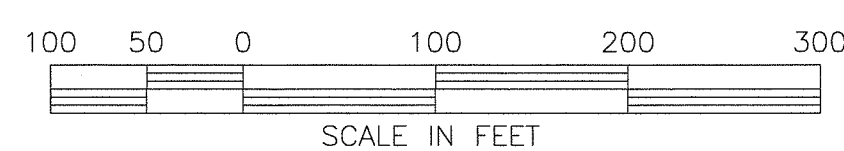
1. THE INTENDED PURPOSE OF THIS SURVEY IS FOR BOUNDARY INFORMATION AND IMPROVEMENTS ONLY, AS SHOWN HEREON.
2. THE UNDERSIGNED SURVEYOR HAS NOT BEEN PROVIDED A CURRENT TITLE OPINION OR ABSTRACT OF MATTERS AFFECTING TITLE OR BOUNDARY TO THE SUBJECT PROPERTY. IT IS POSSIBLE THAT THERE ARE DOCUMENTS OF RECORD UNRECORDED DEEDS, EASEMENTS OR OTHER INSTRUMENTS THAT COULD AFFECT THE BOUNDARIES TO THE SUBJECT PROPERTY.
3. THIS SURVEY DOES NOT REFLECT OR DETERMINE OWNERSHIP.
4. THIS SURVEY MEETS OR EXCEEDS THE MINIMAL HORIZONTAL CONTROL ACCURACY OF 1:10000 FOR A HIGH RISK SURVEY.
5. MEASUREMENTS SHOWN HEREON ARE EXPRESSED IN FEET AND DECIMAL PARTS THEREOF.
6. DIMENSIONS SHOWN ARE TAKEN AT THE EXPOSED AREAS OF IMPROVEMENTS, UNDERGROUND FOOTERS, FOUNDATIONS, UTILITIES OR OTHER SUBSURFACE STRUCTURES ARE NOT LOCATED FOR THE PURPOSE OF THIS SURVEY.
7. SUBJECT PROPERTY LIES WITHIN FLOOD ZONE "X", AREA IS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN, ZONE "X-SHADED" AREAS OF 500-YEAR FLOOD; AREAS OF 100-YEAR FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100-YEAR FLOOD, ZONE "AE" HAVING THE BASE FLOOD ELEVATION OF 22.00 FEET N.G.V.D. 1929, AS PER FIRM MAP NUMBER 12009C0270 E, DATED 04/03/1989. THIS LOCATION IS BASED UPON MAPS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY. FINAL LOCATION AND FLOOD DETERMINATION REST WITH SAID AGENCY. THIS SURVEYOR ASSUMES NO RESPONSIBILITY FOR SAID LOCATION AND DETERMINATION.
8. BEARINGS ARE REFERENCED TO N.001°14'23"E, ALONG THE WEST RIGHT OF WAY LINE OF FISKE BOULEVARD (PER DEED).
9. THE ELEVATIONS AS SHOWN HEREON ARE REFERENCED TO A BREVARD COUNTY BENCH MARK STAMPED GPS 5012 HAVING A PUBLISHED ELEVATION OF 22.00 FEET N.A.V.D. 1988, 23.50 FEET N.G.V.D. 1929.
10. CARNAHAN, PROCTOR AND CROSS, INC. RESERVES THE RIGHT TO UTILIZE ANY AND ALL INFORMATION OBTAINED IN THE PREPARATION OF THIS SURVEY INCLUDING THIS MAP OF LAND SURVEY, FOR ANY OTHER PURPOSES.
11. THIS SURVEY MAY NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE PERMISSION OF CARNAHAN, PROCTOR AND CROSS, INC.
12. THE BOUNDARY & TOPOGRAPHIC INFORMATION SHOWN HERE WAS PROVIDED BY ISLAND SURVEYING AND MAPPING, INC., SURVEY JOB # 02-195-07b DATED 08-19-02 AS PROVIDED BY THE CLIENT.

EXPLANATION OF ABBREVIATIONS:

PRM	PERMANENT REFERENCE MONUMENT	POC	POINT OF COMMENCEMENT
PCP	PERMANENT CONTROL POINT	OHV	OVERHEAD WIRES
CM	CONCRETE MONUMENT	FH	FIRE HYDRANT
PC	POINT OF CURVE	S/W	SIDEWALK
PT	POINT OF TANGENCY	C&G	CURB AND GUTTER
POB	POINT OF BEGINNING	WM	EDGE OF PAVEMENT
PRC	POINT OF REVERSE CURVATURE	WM	WATER METER
PCC	POINT OF COMPOUND CURVATURE	POL	POINT ON LINE
PI	POINT OF INTERSECTION	(M)	MEASURED DISTANCE
RAO, R	RADIUS	(P)	MEASUREMENT ON PLAT
DEL, Δ	DELTA OR CENTRAL ANGLE	(D)	MEASUREMENT FROM DEED
ARC, L	LENGTH OF CURVE	ELEV	ELEVATION
BRG	BEARING	FIN	FINISH FLOOR ELEVATION (TYP. 4" SLAB)
FD	FOUND	FPR	FIXED POINT OF REFERENCE
CH, LEN	CHORD LENGTH	NGVD	NATIONAL GEODETIC VERTICAL DATUM
FD	FOUND	BM	BENCH MARK
R/W	RIGHT OF WAY	BP	BUILDING PERMIT
P/L	PROPERTY LINE	M.H.	MANHOLE
CBS	CONCRETE BLOCK STRUCTURE	P.B.	PLAT BOOK
CONC	CONCRETE	B.F.	BASE FLOOD ELEVATION
A/C	AIR CONDITIONER	LS	LICENSED BUSINESS
WP	WOOD POWER POLE	LS OR PLS	PROFESSIONAL LAND SURVEYOR
CP	CONCRETE POWER POLE	L.I.M.	FLOOD INSURANCE RATE MAP
DG	DOWN GUY	RWM	RECLAIM WATER METER
C.L.F.	CHAIN LINK FENCE	RWW	RECLAIM WATER VALVE
W.F.	WOOD FENCE		

LEGEND:

- Set 5/8" iron rebar with cap marked: LB 2936
- Found iron rebar, size and cap # are shown
- Set 4"x 4" concrete monument with disk marked: LB 2936
- Found concrete monument, size and identification #
- △ Set nail and disk marked: LB 2936
- ▲ Found nail and disk, identification as shown



I hereby certify that the survey shown hereon is true and correct based on actual measurements taken in the field. This survey meets Minimum Technical Standards as set forth by the Florida Board of Professional Land Surveyors in Chapter 61, § 17-6, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

UNLESS IT BEARS THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER THIS DRAWING, SKETCH, PLAT OR MAP IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.

ROGER D. KISER
Professional Surveyor No. 6104
State of Florida

LEGAL DESCRIPTION: PARCEL A "AS FURNISHED"

THE NORTH 300 FEET OF THE FOLLOWING DESCRIBED LAND:
THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY,

FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY OF RELOCATED STATE ROAD NO. 524 BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGIN AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD NO. 524; THENCE S88°33'18"W, ALONG SAID SOUTH RIGHT OF WAY, A DISTANCE OF 402.62 FEET TO THE BEGINNING OF A TANGENT CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1592.58 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°48'00" AN ARC DISTANCE OF 967.29 FEET TO A POINT ON THE WEST LINE OF SAID SECTION 18; THENCE S00°14'23"E, ALONG SAID WEST LINE, A DISTANCE OF 130.15 FEET; THENCE S39°11'23"E, A DISTANCE OF 196.68 FEET, TO A POINT ON A CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S39°11'23"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 37°44'41", AN ARC DISTANCE OF 851.51 FEET; THENCE N88°33'18"E, A DISTANCE OF 393.79 FEET, TO SAID EAST LINE OF SAID WEST 1/2 OF SAID SOUTHWEST 1/4 OF SAID SECTION 18; THENCE N00°14'26"E, ALONG SAID EAST LINE A DISTANCE OF 300.13 FEET TO THE POINT OF BEGINNING, CONTAINING 9.19 ACRES, OF LAND MORE OR LESS.

LEGAL DESCRIPTION: PARCEL B "AS FURNISHED"

A PORTION THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY OF RELOCATED STATE ROAD NO. 524, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD NO. 524; THENCE S00°14'26"W, ALONG SAID EAST LINE, A DISTANCE OF 432.45 FEET; THENCE S78°22'53"W A DISTANCE OF 300.78 FEET; THENCE WEST A DISTANCE 456.25 FEET; THENCE S64°32'24"W A DISTANCE OF 320.49 FEET; THENCE S75°20'40"W A DISTANCE OF 106.54 FEET; THENCE N63°26'03"W A DISTANCE OF 37.10 FEET; THENCE N07°10'52"E A DISTANCE OF 78.58 FEET; THENCE N40°22'20"E A DISTANCE OF 92.99 FEET; THENCE N66°36'34"E A DISTANCE OF 68.06 FEET; THENCE N15°16'11"W A DISTANCE OF 87.27 FEET; THENCE N06°42'05"E A DISTANCE OF 39.66 FEET; THENCE N32°34'42"W A DISTANCE OF 102.57 FEET, TO A POINT ON A CIRCULAR CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S35°55'11"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°28'29", AN ARC DISTANCE OF 777.74 FEET; THENCE N88°33'18"E, TANGENT TO SAID CURVE, A DISTANCE OF 393.79 FEET TO THE POINT OF BEGINNING, CONTAINING 11.50 ACRES OF LAND MORE OR LESS.

SECTION 18, TOWNSHIP 24 SOUTH, RANGE 36 EAST

BOUNDARY SURVEY

CERTIFIED TO:

LONDON COVE TOWNHOMES

Campbell
SURVEYING, PLANNING
& ENGINEERING

a division of
Carnahan • Proctor • Cross
3525 N. COURTESY PARKWAY, SUITE 1
FORT LAUDERDALE, FLORIDA 33309
MERRITT ISLAND, FL 32954 PHONE (321) 453-5820
BUSINESS LICENSE: LB # 2936

PROJECT NO.
2007-0143

SHEET 1 OF 1

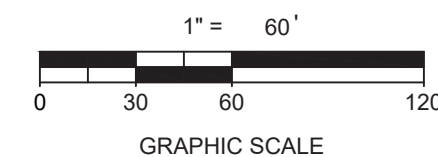
Boundary & Tree Survey



CARNAHAN PROCTOR & CROSS

604 COURTLAND STREET SUITE 101
PHONE : (407) 960-5980
ORLANDO, FLORIDA 32804
CERTIFICATE OF AUTHORIZATION # 2936

LAND DEVELOPMENT
SURVEYING
CONSTRUCTION ENGINEERING INSPECTION



6	ADD TREES & CHART	10-26-21	
5	REVISED NOTE 15	7-24-2019	J.D.S
4	UPDATED TITLE WORK	5-20-2019	J.D.S
3	ADD 100 YEAR FLOOD LINE	4-17-2019	J.D.S
2	UPDATED TITLE WORK	11-20-2018	J.D.S
1	LEGAL DESCRIPTION UPDATED	9-11-2018	J.D.F
No.	Revision	Date	Appvd.
Designed by	Drawn by	LS	Checked by J.W.Q
CAD checked by	J.D.F	Approved by	J.D.F
Scale	AS SHOWN	Date	8/20/2018

LONDON COVE TOWNHOMES

Project Title

Brevard County

Issued for

Boundary & Tree Survey

Drawing Title

Sheet 1 of 2

Drawing Number

180705

Project Number

LEGAL DESCRIPTION:

PARCEL 1 (LONDON COVE COMMERCIAL CENTER)

THE NORTH 300 FEET OF THE FOLLOWING DESCRIBED LAND:

THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY OF RELOCATED STATE ROAD NO. 524, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGIN AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD NO. 524; THENCE S88°33'18"W, ALONG SAID SOUTH RIGHT OF WAY, A DISTANCE OF 402.62 FEET TO THE BEGINNING OF A TANGENT CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1592.58 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°48'00" AN ARC DISTANCE OF 967.29 FEET TO A POINT ON THE WEST LINE OF SAID SECTION 18; THENCE S00°14'23"E, ALONG SAID WEST LINE, A DISTANCE OF 130.15 FEET; THENCE S39°11'23"E, A DISTANCE OF 196.68 FEET, TO A POINT ON A CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S39°11'23"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 37°44'41", AN ARC DISTANCE OF 851.51 FEET; THENCE N88°33'18"E, A DISTANCE OF 393.79 FEET, TO SAID EAST LINES OF SAID WEST 1/2 OF SAID SOUTHWEST 1/4 OF SAID SECTION 18; THENCE N00°14'26"W, ALONG SAID EAST LINE A DISTANCE OF 300.13 FEET TO THE POINT OF BEGINNING.

AND

PARCEL 2

A PORTION OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY OF RELOCATED STATE ROAD NO. 524, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD NO. 524; THENCE S00°14'26"E, ALONG SAID EAST LINE A DISTANCE OF 300.13 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE S00°14'26"E, ALONG SAID EAST LINE, A DISTANCE OF 432.45 FEET; THENCE S78°22'53"W A DISTANCE OF 300.78 FEET; THENCE WEST A DISTANCE OF 455.25 FEET; THENCE S64°32'24"W A DISTANCE OF 320.49 FEET; THENCE S75°20'40"W A DISTANCE OF 106.54 FEET; THENCE N63°26'03"W A DISTANCE OF 37.10 FEET; THENCE N07°10'52"E A DISTANCE OF 75.58 FEET; THENCE N40°22'20"E A DISTANCE OF 92.99 FEET; THENCE N66°36'34"E A DISTANCE OF 68.06 FEET; THENCE N15°16'11"W A DISTANCE OF 87.27 FEET; THENCE N06°42'05"E A DISTANCE OF 39.66 FEET; THENCE N32°34'42"W A DISTANCE OF 102.57 FEET; TO A POINT ON A CIRCULAR CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S35°55'11"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°28'29", AN ARC DISTANCE OF 777.74 FEET; THENCE N88°33'18"E, TANGENT TO SAID CURVE, A DISTANCE OF 393.79 FEET TO THE POINT OF BEGINNING.

EASEMENT:

A PORTION OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY LINE OF RELOCATED STATE ROAD NO. 524, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD NO. 524; THENCE S 88°33'18" W, ALONG THE NORTH LINE OF SAID SOUTHWEST 1/4 AND SAID SOUTH RIGHT OF WAY LINE, A DISTANCE OF 402.62 FEET TO A POINT OF CURVATURE OF A CURVE CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 1592.58 FEET, A CHORD BEARING OF S 84°12'34" W, AND A CHORD LENGTH OF 241.35 FEET; THENCE CONTINUE ALONG SAID SOUTH RIGHT OF WAY LINE AND ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 08°41'28" FOR AN ARC LENGTH OF 241.58 FEET TO THE POINT OF BEGINNING; THENCE LEAVING SAID SOUTH RIGHT OF WAY LINE S 11° 12' 35" E, A DISTANCE OF 473.53 FEET; THENCE S 75° 53' 20" W, A DISTANCE OF 111.91 FEET; THENCE S 01° 16' 51" E, A DISTANCE OF 168.14 FEET; THENCE S 00° 12' 11" W, A DISTANCE OF 112.05 FEET TO THE NORTH LINE OF THE LANDS DESCRIBED IN OFFICIAL RECORDS BOOK 5807, PAGE 7198 BREVARD COUNTY, FLORIDA; THENCE N 90° 00' 00" W, ALONG SAID NORTH BOUNDARY LINE A DISTANCE OF 45.00 FEET; THENCE LEAVING SAID NORTH BOUNDARY LINE N 00° 12' 11" E, A DISTANCE OF 103.67 FEET; THENCE N 21° 16' 51" W, A DISTANCE OF 208.60 FEET; THENCE N 75° 53' 20" E, A DISTANCE OF 120.15 FEET; THENCE N 11° 12' 35" W, A DISTANCE OF 430.98 FEET TO SAID SOUTH RIGHT OF WAY LINE AND TO A POINT ON A NON-TANGENT CURVE CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 1592.58 FEET, A CHORD BEARING OF N 79° 03' 15" E, AND A CHORD LENGTH OF 45.00 FEET; THENCE ALONG SAID RIGHT-OF-WAY AND THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 01° 37' 08", FOR AN ARC LENGTH OF 45.00 FEET TO THE POINT OF BEGINNING.

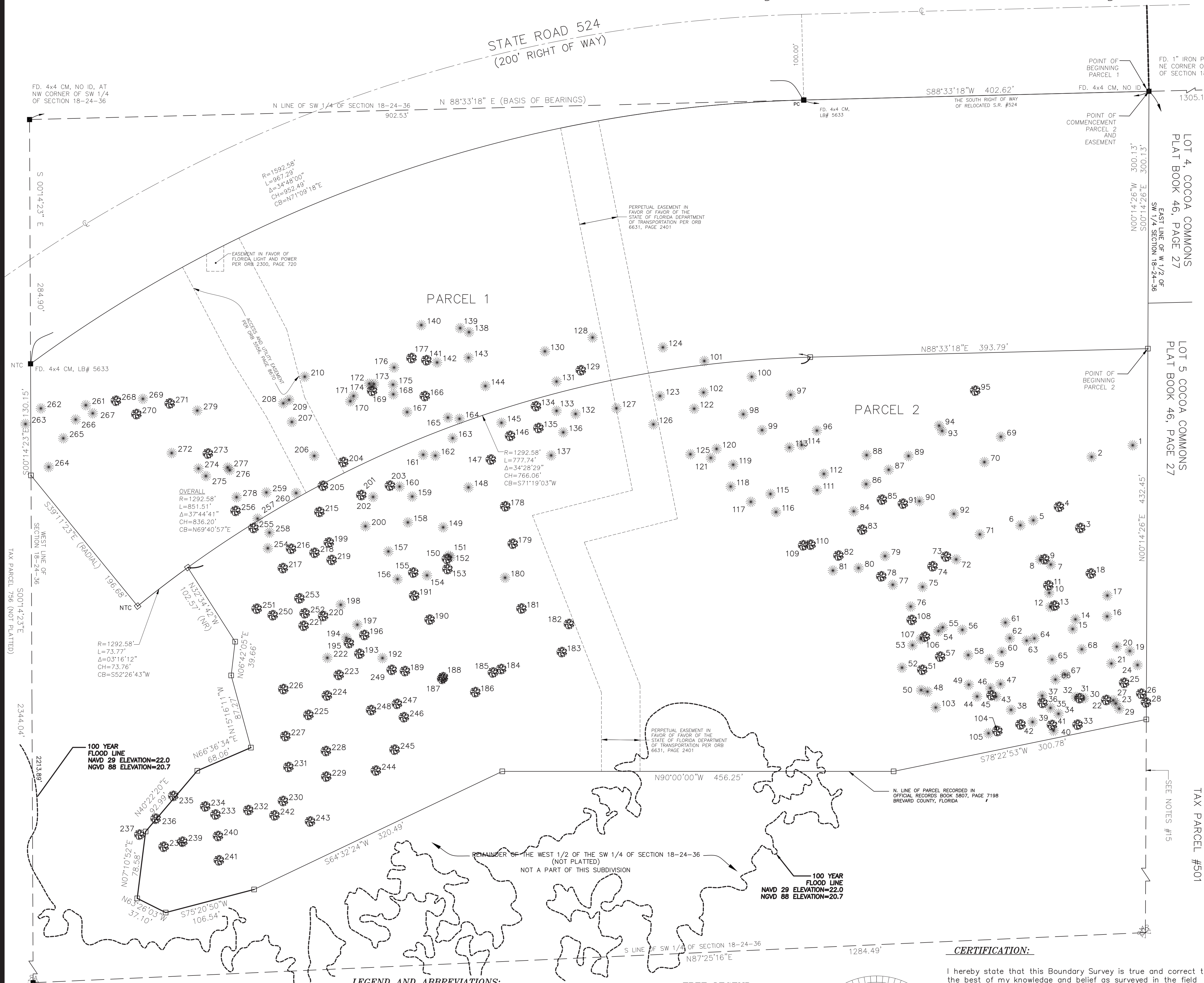
CONTAINING 0.892 ACRES MORE OR LESS.

SURVEYOR'S REPORT

- Easements or rights of way that appear on this survey have been incorporated into this drawing by a search of the Public Records.
- This survey meets STANDARDS OF PRACTICE FOR LAND SURVEYING Chapter 5J-17.050-.052 requirements.
- All bearings and distances shown hereon are referenced to the East Zone of Florida State Plane Coordinate System, NAD 83 (1990) adjustment.
- This survey is not valid without the signature and original raised seal of a Florida Licensed Surveyor and Mapper.
- The land description shown hereon was prepared by Carnahan Proctor and Cross Inc.
- Features shown by symbol as indicated in the legend are not to scale.
- There are no encroachments from this property onto adjacers, or from adjacers onto this property, except as shown.
- Bearings shown in this Survey are based on the south right of way line of State Road No. 524 and is also the North line of the SW 1/4 of Section 18-24-36, as shown on FDOT Map Section #70007-2501, bearing of said line N 88°33'18"E.
- According to the Federal Emergency Management Agency Flood Insurance Rate Map number 1200900320H, dated 01-29-2021, the described property in this survey is within Zone "X" and "AE", having the base flood elevation of 20.7 feet NAVD88.
- The 100 year flood line shown hereon is based upon the Grading Plan prepared by Dove Schmitt Engineering, Inc., Project Number DB-3, dated August 2018.
- Adjacent property information shown in this survey was obtained by searching at Brevard County appraiser's site.
- The total area of the subject property is 20.684 acres, more or less.
- Right of Way information shown in this Survey was determined by found monumentation and information obtained on the Brevard County Property Appraisers web site.
- The right of way information for State Road No. 524 was obtained from Florida Department of Transportation Right of Way Map, Section 70007-2501.
- This Survey was performed with the benefit of Property Information Report for the Filing of a Subdivision Plat ("Report") by First America Title Insurance Company Commitment No. 2037-4130255 effective date: May 6, 2019 at 8:00 a.m. We offer the following comments in regards to said Report:

E. Underlying rights of way, easements or plots affecting said property are as follows:

- Easement granted to Florida Power and Light Company by instrument recorded May 18, 1981 in Official Records Book 2300, Page 720 affects subject property as shown hereon.
- Access and Utility Easement granted to London Cove Homeowners Association, Inc., a Florida not-for-profit corporation by London Cove Property Owners Association, a Florida not-for-profit corporation by instrument recorded October 28, 2005 in Official Records Book 5556, Page 8670 is appurtenant to and affects subject property as shown hereon.
- Terms and conditions of the Cross Access Easement Agreement between SR 524 Cocoa II, LLC, a Florida Limited Liability Company, Poplar Associates, LLC, a North Carolina limited liability company and S.J. Holding, LLC, a Florida limited liability company recorded February 8, 2006 in Official Records Book 5602, Page 268 affects Parcel 1 of subject property but is blanketed.
- Perpetual Easement in favor of the State of Florida Department of Transportation recorded June 28, 2012 in Official Records Book 6631, Page 2401 affects subject property as shown hereon.
- Other information regarding said property includes:
 - Notice of Preliminary Development Plan Approval - London Cove, by the City of Cocoa, Florida recorded August 14, 2009 in Official Records Book 6009, Page 955 affects subject property but is blanketed in nature and cannot be graphically depicted.
- Tree count, locations, and species were provided by Client, Carnahan, Proctor, and Cross (CPC), assumes no responsibility of the accuracy regarding the Tree count, locations, or species, and did not verify tree data provided.



LEGEND AND ABBREVIATIONS:

- = FOUND 4"x4" CONCRETE MONUMENT DESCRIPTION AS NOTED
- = SET 4"x4" CONCRETE MONUMENT LB2936
- ⊙ = FOUND 5/8" IRON ROD DESCRIPTION AS NOTED
- ⊗ = SET REBAR & CAP, 5/8" LB2936
- PB = PLAT BOOK
- PG = PAGE
- LB = LICENSE BUSINESS
- CM = CONCRETE MONUMENT
- FD = FOUND
- IR = FOUND IRON ROD
- IRC = IRON ROD AND CAP
- CCR = CERTIFIED CORNER RECORD
- PRM = PERMANENT REFERENCE MONUMENT

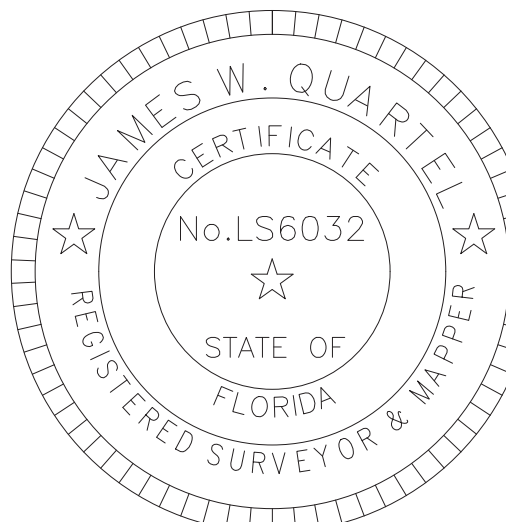
- L = LENGTH
- R = RADIUS
- Δ = DELTA
- CH = CHORD
- CB = CHORD BEARING
- CM = CONCRETE MONUMENT
- © = CENTERLINE
- S.R. = STATE ROAD
- ID = IDENTIFICATION
- R/W = RIGHT OF WAY
- N.T.L. = NON-TANGENT LINE
- PT = NON-TANGENT CURVE
- PT = POINT OF TANGENCY
- FDOT = FLORIDA DEPARTMENT OF TRANSPORTATION
- NSPS = NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS

TREE LEGEND

- ☼ = TREES (SEE TREE TABLE FOR DATA ON SHEET 2 OF 2 FOR SIZES & SPECIES)

CERTIFICATION:

I hereby state that this Boundary Survey is true and correct to the best of my knowledge and belief as surveyed in the field under my direction in August 14, 2018, and that this Boundary Survey meets the STANDARDS OF PRACTICE FOR LAND SURVEYING for Florida Surveyors and Mappers, as set forth in Chapter 5J-17.05 of the Florida Administrative Code, pursuant to Chapter 472.027, Florida Statutes.



James W Quartel

For the firm by,

James W. Quartel, P.S.M.
Professional Surveyor and Mapper
Florida License No. 6032

F:\PROJECT FOLDERS\180705 - LONDON COVE PLAT\CAD\TREE SURVEY\180705 LONDON COVE BOUNDARY-TREE

1	Slash Pine	20
2	Sand Pine	9
3	Sand Live Oak	11
4	Sand Live Oak	4
5	Sand Pine	8
6	Slash Pine	21
7	Sand Pine	6
8	Sand Pine	6
9	Sand Live Oak	4
10	Sand Pine	6
11	Sand Live Oak	4
12	Sand Pine	6, 8
13	Sand Live Oak	5, 5
14	Sand Pine	5, 6
15	Slash Pine	6
16	Sand Pine	4, 6, 7, 7, 8, 8
17	Sand Pine	5, 9
18	Sand Live Oak	6, 7, 9
19	Slash Pine	5, 6, 12
20	Slash Pine	6, 8
21	Pond Pine	5, 5, 7, 11
22	Loblolly Bay	10, 11, 12
23	Slash Pine	11, 12
24	Slash Pine	6, 10, 11, 11
25	Loblolly Bay	4, 5, 11
26	Loblolly Bay	5, 7, 10
27	Slash Pine	9, 9
28	Loblolly Bay	9
29	Slash Pine	4, 4, 5
30	Slash Pine	6, 13
31	Loblolly Bay	4, 11
32	Slash Pine	4, 4
33	Loblolly Bay	4, 4, 11
34	Slash Pine	4, 5, 6, 7
35	Pond Pine	8
36	Loblolly Bay	5
37	Slash Pine	11
38	Slash Pine	6, 7, 8, 11
39	Slash Pine	7, 10
40	Slash Pine	5, 5, 5
41	Loblolly Bay	9
42	Loblolly Bay	4, 4, 6
43	Slash Pine	5, 6, 6, 6
44	Slash Pine	5, 7, 9
45	Loblolly Bay	5
46	Slash Pine	6, 9, 11
47	Slash Pine	5, 8, 9
48	Slash Pine	4, 4, 12
49	Slash Pine	4, 5, 9, 9[
50	Slash Pine	8, 9, 13
51	Loblolly Bay	7, 9, 13
52	Slash Pine	9, 9, 10
53	Pond Pine	6, 10
54	Pond Pine	5, 7
55	Sand Pine	9
56	Slash Pine	19
57	Loblolly Bay	4, 4, 5
58	Pond Pine	6
59	Slash Pine	8
60	Pond Pine	8
61	Sand Pine	4, 5, 5, 5
62	Slash Pine	11
63	Sand Pine	4
64	Slash Pine	15
65	Slash Pine	19
66	Slash Pine	4, 4, 18
67	Slash Pine	4, 5, 6
68	Slash Pine	5, 5, 6, 6
69	Sand Pine	6
70	Sand Pine	5, 6
71	Sand Pine	5, 8
72	Sand Pine	4
73	Sand Live Oak	4, 4, 4
74	Sand Live Oak	8
75	Pond Pine	12

76	Slash Pine	4, 5, 5, 6, 6, 8, 9, 12
77	Slash Pine	4, 6, 7, 7, 7, 9
78	Southern Magnolia	8
79	Slash Pine	8
80	Slash Pine	11
81	Pond Pine	14
82	Loblolly Bay	4, 5
83	Sand Live Oak	5
84	Sand Pine	5
85	Sand Live Oak	4
86	Sand Pine	5
87	Sand Pine	5, 7
88	Sand Pine	6, 8
89	Sand Pine	14
90	Sand Pine	9, 10
91	Sand Live Oak	4, 5, 6
92	Sand Pine	4, 5
93	Sand Pine	12, 13
94	Slash Pine	18
95	Sand Live Oak	4, 4, 4, 4
96	Slash Pine	7, 11
97	Slash Pine	10, 12
98	Slash Pine	10, 11, 12, 14
99	Slash Pine	10
100	Slash Pine	4, 5, 6, 7
101	Slash Pine	7, 8
102	Slash Pine	8, 12
103	Pond Pine	5, 7, 8, 9
104	Loblolly Bay	6, 6
105	Pond Pine	5, 10
106	Loblolly Bay	4
107	Pond Pine	4, 5, 6, 8
108	Loblolly Bay	7
109	Loblolly Bay	5
110	Loblolly Bay	5, 5, 5, 12
111	Slash Pine	11, 12, 12
112	Sand Pine	5
113	Slash Pine	4, 5, 6, 7, 7
114	Sand Pine	5
115	Slash Pine	4, 5, 6, 17
116	Slash Pine	4, 4, 7, 8, 9, 9
117	Slash Pine	5, 8, 11, 12
118	Slash Pine	7, 8, 10, 12, 13
119	Slash Pine	4, 7, 11
120	Slash Pine	4, 5, 7, 8, 10
121	Slash Pine	7, 7, 7, 8
122	Slash Pine	6, 6, 7, 14
123	Slash Pine	7, 12
124	Slash Pine	6, 8
125	Slash Pine	7, 8, 8, 8
126	Slash Pine	7, 8, 10
127	Slash Pine	10, 17
128	Slash Pine	8
129	Red Maple	15
130	Slash Pine	6, 12
131	Slash Pine	4, 5, 6, 11, 13
132	Slash Pine	5, 6, 7, 8, 8
133	Slash Pine	6, 7, 12, 14
134	Sand Live Oak	4, 4, 4, 4
135	Sand Live Oak	4, 4, 4, 4
136	Slash Pine	5, 6, 7, 9
137	Slash Pine	5, 7, 8, 13, 13
138	Sand Pine	5, 7, 9
139	Sand Pine	4, 10, 12
140	Sand Pine	4, 4, 4, 4, 6, 6, 7
141	Sand Live Oak	4
142	Sand Pine	4, 6, 7
143	Sand Pine	4, 9
144	Sand Pine	9, 9, 11
145	Sand Pine	11
146	Sand Live Oak	4, 4, 4, 4
147	Sand Live Oak	4, 4
148	Sand Pine	6, 17
149	Sand Pine	9
150	Slash Pine	5, 7, 8
151	Slash Pine	4, 5, 7

152	Loblolly Bay	4, 5
153	Loblolly Bay	4, 4, 4, 5, 5, 5, 6, 7
154	Slash Pine	4, 5, 5, 6, 8
155	Loblolly Bay	6, 9, 10
156	Pond Pine	4, 5, 7, 8, 9
157	Pond Pine	14
158	Slash Pine	4, 5, 5, 5, 6, 6, 7
159	Slash Pine	5, 8, 8, 10
160	Slash Pine	6, 7, 7, 8
161	Sand Pine	5
162	Slash Pine	5, 5, 6, 7, 9
163	Slash Pine	12
164	Slash Pine	4, 5, 5, 5
165	Slash Pine	4, 6, 6, 7, 8
166	Loblolly Bay	5, 7, 9, 12
167	Pond Pine	9, 10, 12
168	Slash Pine	8, 12
169	Loblolly Bay	6, 7, 7
170	Pond Pine	5, 7, 12, 13
171	Sand Pine	5
172	Slash Pine	12, 14
173	Slash Pine	4, 11, 12
174	Sand Pine	5
175	Sand Pine	6, 7, 10
176	Sand Pine	7, 12, 14
177	Sand Live Oak	5
178	Sand Live Oak	4, 4, 4, 4, 5
179	Sand Live Oak	4, 4, 4, 4, 4, 4, 5, 6
180	Slash Pine	13
181	Sand Live Oak	4, 4, 4, 4, 4, 5
182	Loblolly Bay	8, 8
183	Loblolly Bay	5, 5, 6, 7, 7
184	Laurel Oak	11
185	Loblolly Bay	5, 6, 7
186	Loblolly Bay	4, 6, 6, 11
187	Loblolly Bay	5, 5, 7, 9
188	Loblolly Bay	4, 5, 5, 5
189	Loblolly Bay	4, 5, 6
190	Loblolly Bay	4, 5, 5, 7, 7, 11, 12
191	Loblolly Bay	4, 5, 5, 7
192	Slash Pine	24
193	Live Oak	8
194	Pond Pine	9, 13
195	Loblolly Bay	8
196	Laurel Oak	8
197	Slash Pine	14
198	Slash Pine	12, 12
199	Live Oak	6
200	Sand Pine	6
201	Loblolly Bay	5
202	Slash Pine	6
203	Loblolly Bay	6
204	Live Oak	4, 4, 4
205	Live Oak	4, 5
206	Sand Pine	5, 13
207	Sand Pine	4, 4, 4, 6, 7, 11, 12
208	Sand Pine	7, 12, 13
209	Sand Pine	8, 9, 9
210	Sand Pine	5, 6, 8
211	Sand Pine	21
212	Pond Pine	13
213	Loblolly Bay	4, 4, 4
214	Live Oak	7
215	Sand Live Oak	4, 4, 4
216	Loblolly Bay	4, 5, 7, 7, 8, 8
217	Loblolly Bay	4, 4, 5
218	Loblolly Bay	5
219	Loblolly Bay	4, 9
220	Loblolly Bay	4, 5, 5, 8, 8
221	Loblolly Bay	4, 4, 4, 5, 8, 20
222	Pond Pine	13
223	Loblolly Bay	4, 8, 18
224	Sand Live Oak	4, 5, 5, 6, 6
225	Sand Live Oak	4, 5, 5, 5
226	Sand Live Oak	4, 5, 5, 5, 7, 13

227	Sand Live Oak	5, 6, 8, 9
228	Sand Live Oak	5, 6, 7, 8
229	Loblolly Bay	6, 8, 12, 12, 25
230	Sand Live Oak	8, 8
231	Loblolly Bay	13, 13, 21
232	Sand Live Oak	7
233	Laurel Oak	8
234	Live Oak	10, 35
235	Live Oak	4, 13, 14, 18
236	Live Oak	6, 11
237	Live Oak	7, 9
238	Live Oak	5, 6, 8
239	Sand Live Oak	4, 5, 5, 5, 7
240	Laurel Oak	15, 17, 18
241	Loblolly Bay	6, 6, 6
242	Loblolly Bay	4, 4, 4
243	Loblolly Bay	4, 5, 5, 7
244	Loblolly Bay	4, 5, 5, 7
245	Loblolly Bay	4, 5, 6
246	Loblolly Bay	4, 4, 4, 4
247	Loblolly Bay	5, 6, 7
248	Loblolly Bay	5, 5
249	Loblolly Bay	5, 7, 10
250	Loblolly Bay	4, 4, 6, 7, 8
251	Laurel Oak	6, 6, 8
252	Loblolly Bay	4, 4, 6
253	Laurel Oak	7, 10, 10, 11
254	Slash Pine	5, 8, 8, 8, 9, 13
255	Sand Live Oak	4, 4, 4, 4, 5
256	Sand Live Oak	4, 4, 4, 5, 6
257	Slash Pine	6, 7, 9
258	Slash Pine	4, 7, 10, 12
259	Slash Pine	5, 7, 8, 9, 11
260	Slash Pine	12, 14
261	Slash Pine	5, 7, 18, 22
262	Slash Pine	10, 11, 11, 12
263	Slash Pine	12
264	Slash Pine	6, 6, 7
265	Slash Pine	7
266	Slash Pine	6, 6, 7, 7, 8
267	Sand Pine	4, 4
268	Sand Live Oak	5, 6
269	Sand Pine	4, 4
270	Sand Live Oak	5
271	Sand Live Oak	6
272	Slash Pine	10, 11
273	Sand Live Oak	4, 4, 4
274	Slash Pine	6, 7
275	Slash Pine	13
276	Sand Pine	4
277	Sand Pine	4, 4, 4
278	Slash Pine	7, 11
279	Sand Pine	7



CARNAHAN PROCTOR & CROSS

604 COURTLAND STREET SUITE 101
PHONE : (407) 960-5980
ORLANDO, FLORIDA 32804
CERTIFICATE OF AUTHORIZATION # 2936

LAND DEVELOPMENT
SURVEYING
CONSTRUCTION ENGINEERING INSPECTION

6	ADD TREES & CHART	10-26-21	
5	REVISED NOTE 15	7-24-2019	J.D.S
4	UPDATED TITLE WORK	5-20-2019	J.D.S
3	ADD 100 YEAR FLOOD LINE	4-17-2019	J.D.S
2	UPDATED TITLE WORK	11-20-2018	J.D.S
1	LEGAL DESCRIPTION UPDATED	9-11-2018	J.D.F
No.	Revision	Date	Appvd.
Designed by		Drawn by L.S	Checked by J.W.Q
CAD checked by J.D.F		Approved by J.D.F	
Scale	AS SHOWN	Date	8/20/2018

LONDON COVE
TOWNHOMES

Project Title

Brevard County

Issued for

Boundary &
Tree Survey

Drawing Title

Sheet 2 of 2

Drawing Number

180705

Project Number

LONDON COVE

A SUBDIVISION LYING IN SECTION 18, TOWNSHIP 24 SOUTH, RANGE 36 EAST, CITY OF COCOA, BREVARD COUNTY, FLORIDA

LEGAL DESCRIPTION:

PARCEL 1: (LONDON COVE COMMERCIAL CENTER)

THE NORTH 300 FEET OF THE FOLLOWING DESCRIBED LAND:

THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY OF RELOCATED STATE ROAD NO. 524, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGIN AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD NO. 524; THENCE S88°33'18"W, ALONG SAID SOUTH RIGHT OF WAY, A DISTANCE OF 402.62 FEET TO THE BEGINNING OF A TANGENT CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1592.58 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°48'00" AN ARC DISTANCE OF 967.29 FEET TO A POINT ON THE WEST LINE OF SAID SECTION 18; THENCE S00°14'23"E, ALONG SAID WEST LINE, A DISTANCE OF 130.15 FEET; THENCE S39°11'23"E, A DISTANCE OF 196.68 FEET, TO A POINT ON A CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S39°11'23"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 37°44'41", AN ARC DISTANCE OF 851.51 FEET; THENCE N88°33'18"E A DISTANCE OF 393.79 FEET, TO SAID EAST LINES OF SAID WEST 1/2 OF SAID SOUTHWEST 1/4 OF SAID SECTION 18; THENCE N00°14'26"W, ALONG SAID EAST LINE A DISTANCE OF 300.13 FEET TO THE POINT OF BEGINNING.

CONTAINING 9.19 ACRES MORE OR LESS

AND

PARCEL 2: (LONDON COVE)

A PORTION THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY OF RELOCATED STATE ROAD NO. 524, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD NO. 524; THENCE S00°14'26"E, ALONG SAID EAST LINE A DISTANCE OF 300.13 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE S00°14'26"E, ALONG SAID EAST LINE, A DISTANCE OF 432.45 FEET; THENCE S78°22'53"W A DISTANCE OF 300.78 FEET; THENCE WEST A DISTANCE 456.25 FEET; THENCE S64°32'24"W A DISTANCE OF 320.49 FEET; THENCE S75°20'40"W A DISTANCE OF 106.54 FEET; THENCE N63°26'03"W A DISTANCE OF 37.10 FEET; THENCE N07°10'52"E A DISTANCE OF 75.58 FEET; THENCE N40°22'20"E A DISTANCE OF 92.99 FEET; THENCE N66°36'34"E A DISTANCE OF 68.06 FEET; THENCE N15°16'11"W A DISTANCE OF 87.27 FEET; THENCE N06°42'05"E A DISTANCE OF 39.66 FEET; THENCE N32°34'42"W A DISTANCE OF 102.57 FEET TO A POINT ON A CIRCULAR CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S35°55'11"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°28'29", AN ARC DISTANCE OF 777.74 FEET; THENCE N88°33'18"E, TANGENT TO SAID CURVE, A DISTANCE OF 393.79 FEET TO THE POINT OF BEGINNING.

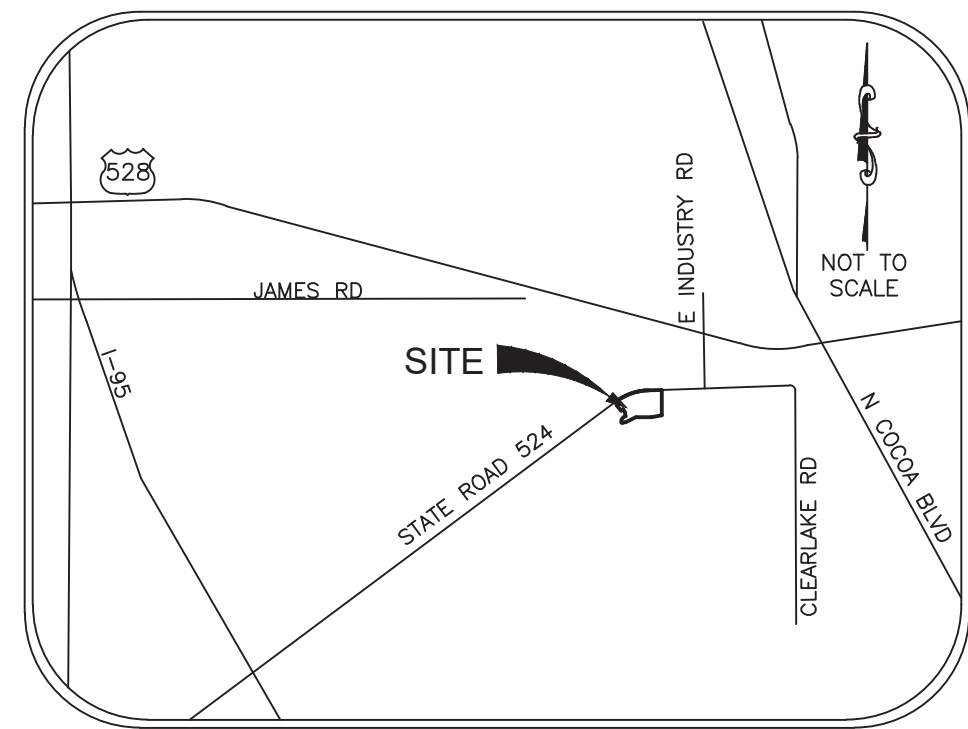
CONTAINING 11.50 ACRES MORE OR LESS

TOTAL PARCEL 1 & 2 = 20.69 ACRES MORE OR LESS

LEGEND AND ABBREVIATIONS:

- = FOUND 4"x4" CONCRETE MONUMENT DESCRIPTION AS NOTED
- = SET 4"x4" CONCRETE MONUMENT LB2936
- ⊙ = FOUND 5/8" IRON ROD DESCRIPTION AS NOTED
- ⊙ = SET REBAR & CAP, 5/8" LB2936
- PB = PLAT BOOK
- PG = PAGE
- LB = LICENSE BUSINESS
- CM = CONCRETE MONUMENT
- FD = FOUND
- IR = FOUND IRON ROD
- IRC = IRON ROD AND CAP
- L = LENGTH
- R = RADIUS
- Δ = DELTA
- CH = CHORD
- CB = CHORD BEARING
- PRM = PERMANENT REFERENCE MONUMENT
- ID = IDENTIFICATION
- NSPS = NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS
- FDOT = FLORIDA DEPARTMENT OF TRANSPORTATION
- C/L = CENTERLINE
- CM = CONCRETE MONUMENT
- PCP = PERMANENT CONTROL POINT
- PRM = PERMANENT REFERENCE MONUMENTS
- PLS = PROFESSIONAL LAND SURVEYOR
- LS = LAND SURVEYOR
- LB = LICENSED BUSINESS
- P.B. = PLAT BOOK
- PGS. = PAGES
- (M) = MEASURED
- (D) = DEED
- SB = SETBACK
- R/W = RIGHT OF WAY

- DELTA = CENTRAL ANGLE
- O.R.B. = OFFICIAL RECORD BOOK
- NTS = NOT TO SCALE
- NAVD = NORTH AMERICAN VERTICAL DATUM 1988
- NAD = NORTH AMERICAN DATUM
- NGVD = NATIONAL GEODETIC VERTICAL DATUM 1929
- SJRWMD = ST. JOHN'S RIVER WATER MANAGEMENT DISTRICT
- P.A.D.E. = PRIVATE ACCESS AND DRAINAGE EASEMENT
- U.E. = UTILITY EASEMENT
- P.S.M. = PROFESSIONAL SURVEYOR AND MAPPER
- P.O.C. = POINT OF COMMENCEMENT
- P.O.B. = POINT OF BEGINNING
- P.O.B. = POINT OF BEGINNING
- SE = SIDEWALK EASEMENT
- RAD BRG. = RADIAL BEARING
- POA = LONDON COVE PROPERTY OWNERS ASSOCIATION
- AC. = ACRES
- OA = OVERALL
- = PERMANENT CONTROL POINT
- OR = OFFICIAL RECORDS



LOCATION MAP:
NOT TO SCALE

NOTICE: THIS PLAT, AS RECORDED IN ITS GRAPHIC FORM, IS THE OFFICIAL DEPICTION OF THE SUBDIVIDED LAND DESCRIBED HEREIN AND WILL, IN NO CIRCUMSTANCES BE SUPPLANTED IN AUTHORITY BY ANY OTHER GRAPHIC OR DIGITAL FORM OF THE PLAT. THERE MAY BE ADDITIONAL RESTRICTIONS THAT ARE NOT RECORDED ON THIS PLAT THAT MAY BE FOUND IN THE PUBLIC RECORDS OF THIS COUNTY.

PLAT NOTES

- BEARINGS SHOWN HEREON ARE BASED ON THE SOUTH RIGHT-OF-WAY LINE OF STATE ROAD NO. 524 ALSO BEING THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 18-24-36, AS SHOWN ON FDOT MAP SECTION #70007-2501 BEING NORTH 88°33'18" EAST.
- PRIVATE EASEMENTS GRANTED TO OR OBTAINED BY A PARTICULAR ELECTRIC, TELEPHONE, GAS OR OTHER PUBLIC UTILITY, SHALL ALSO BE EASEMENTS FOR THE CONSTRUCTION, INSTALLATION, MAINTENANCE, AND OPERATION OF CABLE TELEVISION SERVICES; PROVIDED HOWEVER, NO SUCH CONSTRUCTION, INSTALLATION, MAINTENANCE AND OPERATIONS OF CABLE TELEVISION SERVICES SHALL INTERFERE WITH THE FACILITIES AND SERVICES OF AN ELECTRIC, TELEPHONE, GAS OR OTHER PUBLIC UTILITY. IN THE EVENT A CABLE TELEVISION COMPANY DAMAGES THE FACILITIES OF A PUBLIC UTILITY, IT SHALL BE SOLELY RESPONSIBLE FOR THE DAMAGES PURSUANT TO SECTION 177.091(28), FLORIDA STATUTES. SUCH CONSTRUCTION, INSTALLATION, MAINTENANCE AND OPERATION SHALL COMPLY WITH THE NATIONAL ELECTRICAL SAFETY CODE AS ADOPTED.
- ALL PLATTED UTILITY EASEMENTS SHALL PROVIDE THAT SUCH EASEMENTS SHALL ALSO BE EASEMENTS FOR THE CONSTRUCTION, INSTALLATION, MAINTENANCE, AND OPERATION OF CABLE TELEVISION SERVICES; PROVIDED, HOWEVER, NO SUCH CONSTRUCTION, INSTALLATION, MAINTENANCE, AND OPERATION OF CABLE TELEVISION SERVICES SHALL INTERFERE WITH THE FACILITIES AND SERVICES OF AN ELECTRIC, TELEPHONE, GAS, OR OTHER PUBLIC UTILITY. IN THE EVENT A CABLE TELEVISION COMPANY DAMAGES THE FACILITIES OF A PUBLIC UTILITY, IT SHALL BE SOLELY RESPONSIBLE FOR THE DAMAGES.
- ALL DRAINAGE EASEMENTS AND DRAINAGE FACILITIES/IMPROVEMENTS, EXCEPT THE FDOT DRAINAGE EASEMENT, SHALL BE DEDICATED TO AND MAINTAINED BY THE LONDON COVE PROPERTY OWNER'S ASSOCIATION, INC.
- ALL LOT DRAINAGE IS PRIVATE AND IS THE RESPONSIBILITY OF THE INDIVIDUAL LOT OWNER.
- AN INGRESS AND EGRESS EASEMENT IS HEREBY DEDICATED TO THE CITY OF COCOA BREVARD COUNTY OVER AND ACROSS ALL PRIVATE DRAINAGE EASEMENTS, PRIVATE STORMWATER TRACTS AND PRIVATE ROADWAYS FOR LAW ENFORCEMENT, EMERGENCY ACCESS AND EMERGENCY MAINTENANCE. THE CITY OF COCOA SHALL HAVE THE RIGHT, BUT NOT THE OBLIGATION, TO ACCESS, MAINTAIN, REPAIR, REPLACE OR OTHERWISE CARE FOR OR CAUSE TO BE CARED FOR, THE DRAINAGE EASEMENTS AND STORMWATER TRACTS SHOWN ON THE PLAT AND THE PRIVATE DRAINAGE FACILITIES THEREIN, INCLUDING WITHOUT LIMITATIONS THE DRAINAGE SYSTEMS CONSTRUCTED THEREON, IN THE EVENT OF AN EMERGENCY AND IS GRANTED AN EASEMENT FOR SUCH PURPOSES. TO THE EXTENT THAT THE CITY OPS TO MAINTAIN, REPAIR, REPLACE, OR OTHERWISE CARE FOR OR CAUSE TO BE CARED FOR THE DRAINAGE EASEMENTS AND STORMWATER TRACTS SHOWN ON THIS PLAT AND THE DRAINAGE SYSTEMS CONSTRUCTED THEREON, THE FREQUENCY, QUALITY EXTENT OF SUCH MAINTENANCE, REPAIR, REPLACEMENT AND CARE WILL BE SUBJECT TO THE CITY'S DISCRETION. A BLANKET INGRESS/EGRESS EASEMENT IS GRANTED IN FAVOR OF THE CITY OF COCOA FOR SAID PURPOSE OVER THE STORMWATER TRACTS AND PRIVATE DRAINAGE EASEMENTS SHOWN ON THIS PLAT.
- TRACTS A, IS A FUTURE DEVELOPMENT TRACT AND SHALL BE OWNED AND MAINTAINED BY THE LONDON COVE PROPERTY OWNER'S ASSOCIATION, INC. FILLING, DREDGING, CONSTRUCTION OF STRUCTURES OF ANY KIND ARE PROHIBITED EXCEPT AS PROVIDED IN THE CONSERVATION EASEMENT. DISTURBANCE OF NATURAL GROWTH SHALL BE RESTRICTED TO THE MITIGATION OF WILDFIRE AND HAZARDOUS TREE CONDITIONS THAT POSE A DIRECT HAZARD TO STRUCTURES. THE APPROPRIATE GOVERNMENTAL BODY OR AGENCY SHALL HAVE PERMISSION TO INGRESS, INSPECT, AND IF NECESSARY, TAKE CORRECTIVE ACTION REGARDING THE CONSERVATION EASEMENT.
- TRACTS B AND TRACT C, ARE FOR STORM WATER RETENTION AND SHALL BE OWNED AND MAINTAINED BY LONDON COVE PROPERTY OWNERS ASSOCIATION, INC. TRACT E IS FOR LONDON BOULEVARD RIGHT OF WAY AND SHALL BE OWNED AND MAINTAINED BY LONDON COVE PROPERTY OWNERS ASSOCIATION, INC. THE LONDON COVE PROPERTY OWNERS ASSOCIATION, INC. IS TO MAINTAIN THE DRAINAGE INFRASTRUCTURE AND LANDSCAPE MAINTENANCE.
- TRACT "D" AND TRACT "F" ARE WETLAND CONSERVATION EASEMENT AREAS TO BE DEDICATED TO ST. JOHN'S RIVER WATER MANAGEMENT DISTRICT BY THIS PLAT AND SHALL BE OWNED AND MAINTAINED BY THE LONDON COVE PROPERTY OWNERS ASSOCIATION, INC. RECORDED IN OR BOOK 6064, PAGES 2683-2687, PUBLIC RECORDS BREVARD COUNTY, FLORIDA.
- TRACT E (LONDON BOULEVARD, ACCESS ROAD) SHALL BE A PRIVATE ROADWAY OWNED AND MAINTAINED BY THE LONDON COVE PROPERTY OWNERS ASSOCIATION, INC., IT'S SUCCESSORS AND/OR ASSIGNS.
- TRACT E SHALL BE A PUBLIC UTILITY EASEMENT, AND SHALL ALSO PROVIDE FOR PRIVATE STORMWATER CONVEYANCE.
- TRACT E IS HEREBY DEDICATED FOR THE PRIVATE USE AND AS A COMMON VEHICLE AND PEDESTRIAN WAY ACCESS EASEMENT FOR THE BENEFIT OF ALL TRACTS AND PARCELS IN LONDON COVE FOR INGRESS AND EGRESS FROM EACH LOT TO THE ABUTTING PUBLIC STREETS.
- THE 54.50 INGRESS/EGRESS EASEMENT ALONG THE REAR OF LOTS 2 THROUGH 6 IS FOR PRIVATE ACCESS AND SHALL BE OWNED AND MAINTAINED BY SR 524 COCOA II, LLC AND IS SUBJECT TO A PRIVATE ACCESS, DRAINAGE, AND UTILITY EASEMENT. THE PRIVATE ACCESS, DRAINAGE, AND UTILITY EASEMENT (ADUE) ALONG THE REAR OF LOTS 2 THROUGH 6 AS DEPICTED IS RESERVED FOR THE EXCLUSIVE USE AND BENEFIT OF THE FOLLOWING ENTITIES AND PERSONS AND FOR THE FOLLOWING PURPOSES: (1) THE LONDON COVE PROPERTY OWNER'S ASSOCIATION FOR THE PURPOSE OF EXERCISING ALL POWERS AND RESPONSIBILITIES DELEGATED TO THE PROPERTY OWNERS' ASSOCIATION PURSUANT TO THE DECLARATION OF COVENANTS AND RESTRICTIONS FOR LONDON COVE, INCLUDING MAINTENANCE OF THE ROADWAY; (2) THE OWNERS OF THE LOTS WITHIN THE LONDON COVE SUBDIVISION AS WELL AS THEIR GUESTS AND INVITEES FOR PURPOSES OF ACCESS TO AND FROM PUBLIC STREETS AND LOTS LYING ADJACENT TO SUCH ADUES; (3) THOSE PERSONS AUTHORIZED TO ACCESS THE ADUE PURSUANT TO THAT AMENDED AND RESTATED CROSS ACCESS EASEMENT, RECORDED IN THE OFFICIAL RECORDS OF BREVARD COUNTY, BOOK _____, PAGE ____; AND (4) THE CITY OF COCOA, ITS EMPLOYEES AND AGENTS, THE U.S. POSTAL SERVICE, AND OTHER GOVERNMENTAL AND QUASI-GOVERNMENTAL ENTITIES FOR THE SOLE PURPOSE OF PERFORMING MUNICIPAL AND GOVERNMENT FUNCTIONS REASONABLY NECESSARY TO PROVIDE FOR AND PROTECT THE HEALTH, SAFETY, AND WELFARE OF THE PROPERTY, OWNERS OF THE LOTS, AND THE GUESTS AND INVITEES OF THE OWNERS, INCLUDING BUT NOT LIMITED TO, POLICE, FIRE, EMERGENCY MEDICAL SERVICES, MAIL AND PACKAGE DELIVERY, SANITATION, THE INSTALLATION AND MAINTENANCE OF PUBLIC UTILITIES, AND OTHER SIMILAR GOVERNMENT AND QUASI-GOVERNMENTAL SERVICES. ANY ACCESS IMPROVEMENTS AND APPURTENANCES AND RELATED FACILITIES CONSTRUCTED WITHIN THE PRIVATE ADUE FROM THE BACK OF THE CURB LINE TO THE BACK OF CURB LINE SHALL BE MAINTAINED BY THE LONDON COVE PROPERTY OWNER'S ASSOCIATION, WITH THE EXCEPTION OF PRIVATE DRIVEWAYS TO BE MAINTAINED BY INDIVIDUAL LOT OWNERS AND UTILITIES TO BE INSTALLED AND MAINTAINED BY GOVERNMENT AND QUASI-GOVERNMENTAL ENTITIES.
- THE CITY OF COCOA, FLORIDA, BREVARD COUNTY, FLORIDA, THE STATE OF FLORIDA AND THE FEDERAL GOVERNMENT OF THE UNITED STATES OF AMERICA SHALL BE ALLOWED ACCESS ON THE PRIVATE DRIVES, PEDESTRIAN WAYS, EASEMENTS AND COMMON OPEN SPACES TO ENSURE AND PROVIDE THE POLICE AND FIRE PROTECTION OF THE AREA, AND CONTROL THE HEALTH AND SAFETY OF THE RESIDENTS AND GUESTS OF LONDON COVE .
- EASEMENT GRANTED TO FLORIDA POWER AND LIGHT COMPANY BY INSTRUMENT RECORDED MAY 18, 1981 IN OFFICIAL RECORDS BOOK 2300, PAGE 720 AFFECTS SUBJECT PROPERTY AS SHOWN HEREON.
- ACCESS AND UTILITY EASEMENT GRANTED TO LONDON COVE HOMEOWNERS ASSOCIATION, INC., A FLORIDA NOT-FOR-PROFIT CORPORATION BY LONDON COVE PROPERTY OWNERS ASSOCIATION, INC., A FLORIDA NOT-FOR-PROFIT CORPORATION RECORDED OCTOBER 28, 2005 IN OFFICIAL RECORDS BOOK 5556, PAGE 8670 IS APPURTENANT TO AND AFFECTS SUBJECT PROPERTY AS SHOWN HEREON.
- TERMS AND CONDITIONS OF THE CROSS ACCESS EASEMENT AGREEMENT BETWEEN SR 524 COCOA II, LLC, A FLORIDA LIMITED LIABILITY COMPANY; POPLAR ASSOCIATES, LLC, A NORTH CAROLINA LIMITED LIABILITY COMPANY AND S.J. HOLDING, LLC, A FLORIDA LIMITED LIABILITY COMPANY RECORDED FEBRUARY 8, 2006 IN OFFICIAL RECORDS BOOK 5602, PAGE 268 AFFECTS PARCEL 1 OF SUBJECT PROPERTY BUT IS BLANKET IN NATURE.
- PERPETUAL EASEMENT IN FAVOR OF THE STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION RECORDED JUNE 28, 2012 IN OFFICIAL RECORDS BOOK 6631, PAGE 2401 AFFECTS SUBJECT PROPERTY AS SHOWN HEREON.
- THE EAST LINE OF THE SUBJECT PROPERTY IS ADJACENT AND CONTIGUOUS WITH THE WEST LINE OF THE PLAT OF COCOA COMMONS AS RECORDED IN PLAT BOOK 46, PAGE 27 OF THE PUBLIC RECORDS OF BREVARD COUNTY, WITHOUT ANY GAPS OR GORES.
- THE 5' SIDEWALK EASEMENT IS FOR THE PERPETUAL USE OF THE PUBLIC
- THE 8' WALL EASEMENT & SIGN EASEMENTS ARE HEREBY DEDICATED TO THE LONDON COVE PROPERTY OWNERS ASSOCIATION, INC.
- ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NUMBER 12009C0320G, DATED 1/29/2021, THE DESCRIBED PROPERTY IN THIS PLAT IS WITHIN ZONE X AND AE, HAVING THE BASE FLOOD ELEVATION OF 20.7 FEET NAVD88.
- LANDSCAPE MAINTENANCE AND IRRIGATION SYSTEM WILL BE MAINTAINED BY LONDON COVE PROPERTY OWNERS ASSOCIATION.

SHEET INDEX

- Sheet 1 of 3 - Cover Notes, Dedication
- Sheet 2 of 3 - Geometry
- Sheet 3 of 3 - Detail Sheet

TRACT DESIGNATION AND AREA SUMMARY

TRACT	AREA (ACRES)	USE	MAINTAINED & OWNED
A	7.66	FUTURE DEVELOPMENT	OWNER
B	2.93	STORM WATER TREATMENT/RECREATION/COMMON OPEN SPACE (WATER BODY)	POA
C	0.10	WETLAND CONSERVATION	POA
D	0.82	WETLAND CONSERVATION	POA
E	0.59	LONDON BOULEVARD RIGHT OF WAY.	POA
E	1.19	LONDON COVE LANE RIGHT OF WAY.	POA
F	0.09	WETLAND CONSERVATION	POA

PLAT BOOK _____ PAGE _____

SHEET 1 OF 3

LONDON COVE

KNOW ALL MEN BY THESE PRESENTS, THAT SR 524 COCOA II, LLC, BEING THE OWNER IN FEE SIMPLE OF THE LANDS DESCRIBED HEREIN, HEREBY DEDICATES SAID LANDS FOR THE USES AND PURPOSES HEREIN EXPRESSED IN THIS PLAT AND DEDICATES TO THE PUBLIC AND THE CITY OF COCOA, FLORIDA, ALL EASEMENTS SPECIFICALLY DESIGNATED AS PUBLIC EASEMENTS HEREIN. THE OWNER FURTHER HEREBY DEDICATES TO THE PUBLIC AND THE CITY OF COCOA, FLORIDA, A PERPETUAL PUBLIC EASEMENT OVER AND ACROSS THE PRIVATE RIGHTS-OF-WAY OF TRACT E FOR INSTALLATION AND MAINTENANCE OF PUBLIC UTILITIES AND FOR INGRESS AND EGRESS FOR LAW ENFORCEMENT AND EMERGENCY VEHICLES, MAIL AND PACKAGE DELIVERY, SOLID WASTE/SANITATION, AND OTHER SIMILAR GOVERNMENTAL AND QUASI-GOVERNMENTAL SERVICES.

TRACTS E AND PRIVATE DRAINAGE FACILITIES WITHIN THE SUBDIVISION ARE NOT DEDICATED TO, NOR THE RESPONSIBILITY OF THE CITY OF COCOA, FLORIDA.

PRINT NAME (WITNESS) _____ SIGNATURE (WITNESS) _____

DATE _____

PRINT NAME (WITNESS) _____ SIGNATURE (WITNESS) _____

DATE _____

STATE OF FLORIDA COUNTY OF _____

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME BY MEANS OF (_____) PHYSICAL PRESENCE OR (_____) ONLINE NOTARIZATION, THIS _____ DAY OF _____, 2024, BY MARY MONTGOMERY AS MANAGER OF SR 524 COCOA II, LLC, A FLORIDA LIMITED LIABILITY COMPANY, WHO IS PERSONALLY KNOWN TO ME OR HAS PRODUCED _____ AS IDENTIFICATION.

NOTARY PUBLIC _____

PRINT NAME _____

MY COMMISSION NO. _____

MY COMMISSION EXPIRES _____

CERTIFICATE OF APPROVAL BY MUNICIPALITY

THIS IS TO CERTIFY, that on _____ the city council of the City of Cocoa, Florida approved the foregoing plat.

Michael C. Blake, Mayor

Monica Arsenault, City Clerk

CERTIFICATE OF SURVEYOR

Known all men by these presents, that the undersigned being a licensed and registered land surveyor and mapper, does hereby certify that on November 28, 2022 he completed the survey of the lands as shown on the foregoing plat; that said plat is a true and correct representation of a survey made under my responsible direction and supervision; that said survey is accurate to the best of my knowledge and belief; that Permanent Reference Monuments (P.R.M.'s) have been placed as required by law, and that Permanent Control Points (P.C.P.'s), and Monuments according to Sec. 177.091(9), F.S., will be set under the guarantees posted with the Brevard County Board of County Commissioners for the required improvements; and, further, that the survey data complies with all the requirements of Chapter 177, Part 1, Florida Statutes, as amended.

James W. Quartel, P.S.M. Registration No. 6032, State of Florida

CARNAHAN, PROCTOR AND CROSS L.B. # 2936
604 COURTLAND STREET SUITE 101
ORLANDO, FLORIDA 32804
PHONE : (407) 960-5980

CERTIFICATE OF REVIEWING SURVEYOR FOR THE CITY OF COCOA

I HEREBY CERTIFY, That I have reviewed the foregoing plat and find that it is in conformity with Chapter 177, Part 1, Florida Statutes.

Andrew Perry, P.S.M. and Registered Florida
Surveyor and Mapper # _____

CERTIFICATE OF CLERK

I HEREBY CERTIFY, That I have examined the foregoing plat and find that it complies in form with all the requirements of Chapter 177, Part 1, Florida Statutes, and was filed for record on _____ at _____.

File No. _____.

Clerk of the Circuit Court
in and for Brevard County, FL



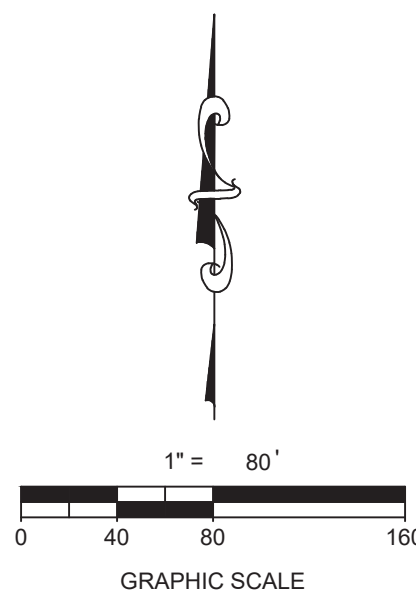
604 COURTLAND STREET SUITE 101
PHONE : (407) 960-5980
ORLANDO, FLORIDA 32804
CERTIFICATE OF AUTHORIZATION # 2936

LAND DEVELOPMENT
SURVEYING
CONSTRUCTION ENGINEERING INSPECTION

PLAT BOOK _____ PAGE _____
SHEET 2 OF 3

LINE TABLE		
L#	BEARING	LENGTH
L1	N00°14'23"W	130.15'
L2	S75°20'03"W	106.54'
L3	N63°26'03"W	37.10'
L4	N07°10'52"E	78.58'
L5	N40°22'20"E	92.99'
L6	N66°36'34"E	68.06'
L7	N15°16'11"W	87.27'
L8	N06°42'05"E	39.66'
L9	S32°34'42"W	102.57'
L10	S76°24'25"E	95.25'
L11	N76°24'25"W	62.28'
L12	N76°24'25"W	20.00'
L13	N76°24'25"W	12.96'
L14	N89°58'46"E	85.68'
L15	N25°25'51"W	36.40'
L16	S65°28'01"W	86.08'
L17	S65°28'01"W	79.92'
L18	N75°05'31"E	36.97'
L19	S04°33'50"E	66.43'
L20	N62°31'30"E	117.63'
L21	N76°15'48"E	33.75'
L22	S84°27'52"E	32.47'
L23	N45°09'39"E	60.46'
L24	N75°20'40"E	90.36'
L25	S63°26'03"E	9.99'
L26	S07°10'52"W	53.40'
L27	S40°22'20"W	79.68'
L28	S66°36'34"W	62.21'
L29	S22°01'54"E	25.04'
L30	S03°07'08"W	63.69'
L31	S32°34'42"E	123.93'
L32	S08°28'13"E	16.78'
L60	S27°34'08"E	8.84'
L62	S27°31'02"E	41.86'
L67	S25°24'50"E	44.30'
L68	S00°12'11"W	90.92'
L88	N31°53'50"W	79.50'
L91	S14°46'31"E	81.29'

C	CURVE DATA				
	CURVE LENGTH	RADIUS	CENTRAL ANGLE	CHORD BEARING	CHORD DISTANCE
C1	967.29	1592.58	34°48'00"	S71°09'16"	952.49
C2	73.77	1292.58	316°12	S52°26'43"	73.76
C3	197.39	1292.58	7°06'05"	S57°18'21"	197.26
C4	44.62	1592.58	1°36'19"	S61°39'33"	44.62
C5	100.07	1592.58	02°21'36"	S63°46'11"	100.07
C6	100.07	1592.58	00°38'38"	S64°01'16"	100.07
C7	204.02	1592.58	7°20'24"	S51°15'25"	203.88
C8	160.97	1592.58	5°47'28"	S81°40'54"	160.90
C9	110.57	1292.58	3°58'40"	S86°33'58"	110.55
C10	88.80	1292.58	3°58'49"	S88°53'53"	88.78
C11	136.61	1292.58	5°47'22"	S81°40'48"	136.58
C12	163.93	1292.58	7°16'00"	S75°09'06"	163.83
C13	162.80	1292.58	7°12'59"	S87°54'37"	162.83
C15	218.39	1292.58	9°40'50"	S59°33'02"	218.19
C16	51.17	49.50	59°33'34"	S73°58'48"	48.92
C17	64.09	60.50	45°36'45"	N67°10'24"	62.41
C18	11.00	85.00	9°08'09"	N63°54'08"	10.99
C19	24.60	36.00	30°09'14"	S16°54'41"	24.13
C20	73.63	79.50	52°36'09"	S64°48'23"	70.49
C21	6.39	79.50	4°36'19"	S86°34'23"	6.39
C22	79.26	79.50	5°47'42"	N87°06'32"	79.16
C23	14.32	29.00	28°17'30"	N81°35'31"	14.17
C24	9.83	29.00	19°25'50"	N75°43'21"	9.79
C25	24.15	29.00	4°43'21"	N75°52'06"	23.46
C26	17.49	1292.58	0°46'31"	S54°28'04"	17.49
C27	54.68	58.80	58°01'16"	S04°22'37"	52.36
C41	777.74	1292.58	34°28'29"	S71°09'03"	766.36
C42	133.39	1292.58	5°54'45"	S57°00'12"	133.03



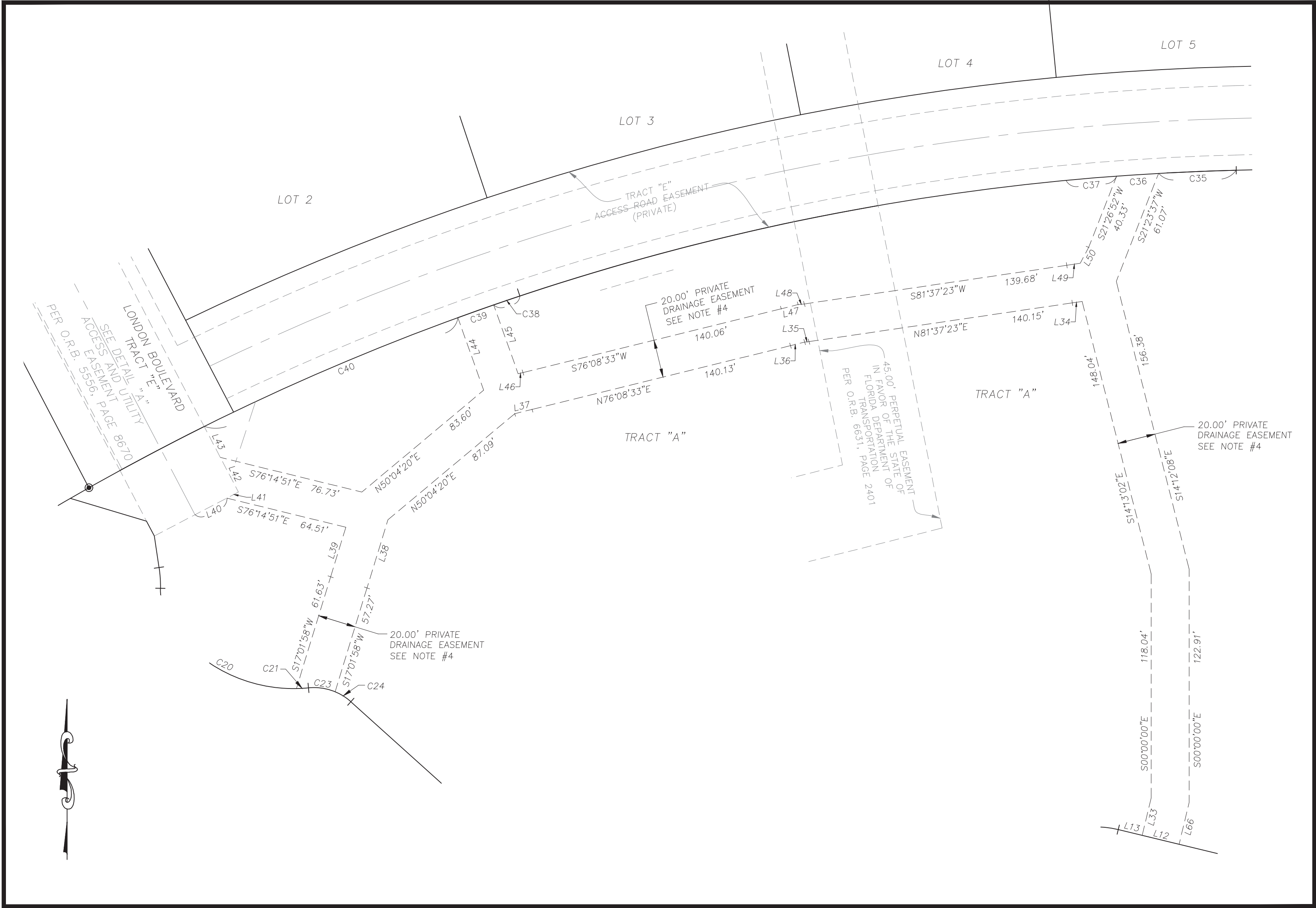
Sheet 1 of 3 – Cover Notes, Dedication
Sheet 2 of 3 – Geometry
Sheet 3 of 3 – Details

LONDON COVE

A SUBDIVISION LYING IN SECTION 18, TOWNSHIP 24 SOUTH, RANGE 36 EAST, CITY OF COCOA, BREVARD COUNTY, FLORIDA

PLAT BOOK _____ PAGE _____
SHEET 3 OF 3

DETAIL "A"
Scale 1"=40'

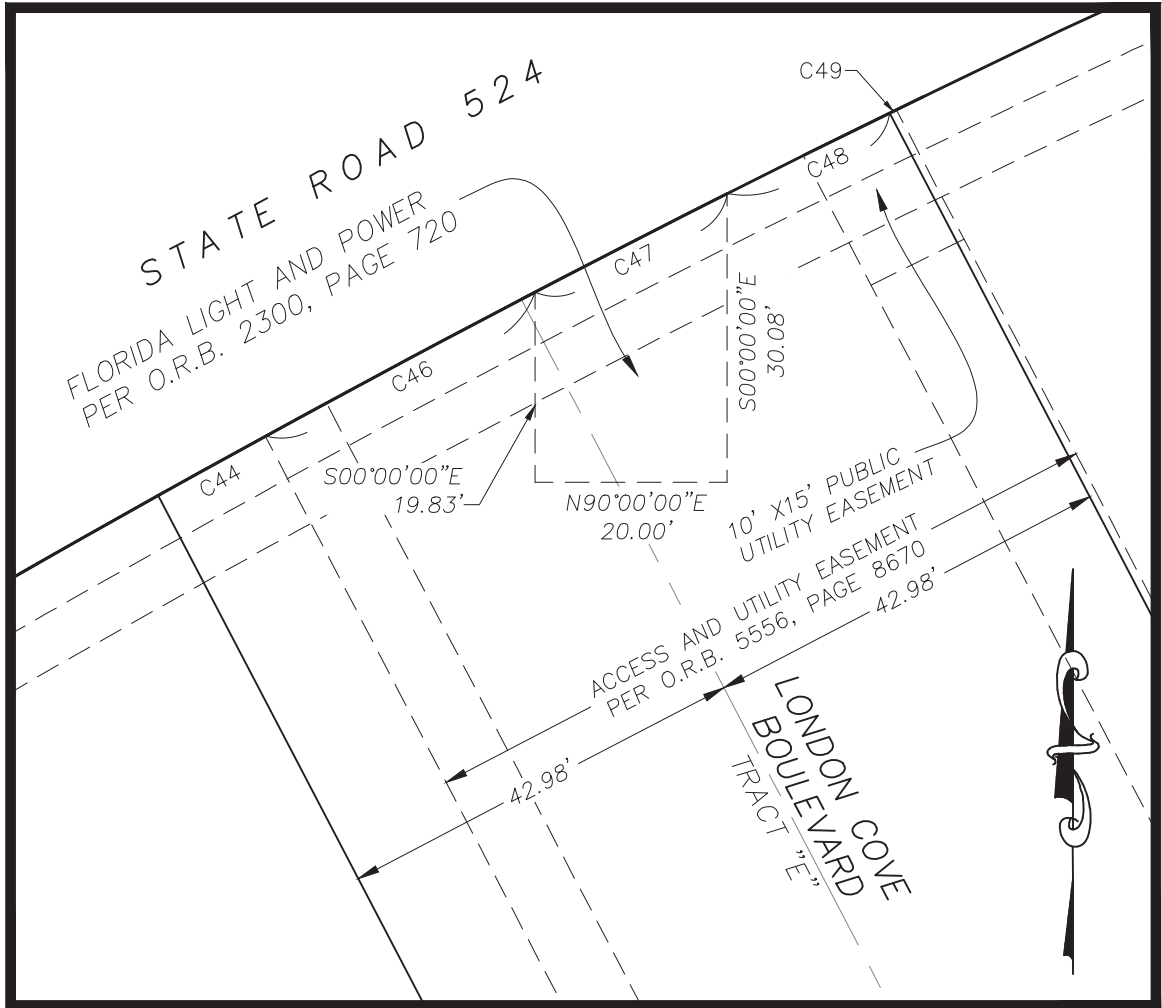


CURVE TABLE				
CURVE	LENGTH	RADIUS	CENTRAL ANGLE	CHORD BEARING
C20	73.03'	79.50'	52°38'09"	S64°48'23"E 70.49'
C21	6.39'	79.50'	4°36'19"	N86°34'23"E 6.39'
C23	14.32'	29.00'	28°17'30"	N81°35'01"W 14.17'
C24	9.83'	29.00'	19°25'50"	N57°43'21"W 9.79'
C28	185.61'	1587.58'	6°41'55"	S74°52'11"W 185.50'
C29	61.08'	26.25'	133°20'19"	N79°05'20"E 48.20'
C30	22.09'	26.25'	48°12'36"	S58°20'49"E 21.44'
C31	39.00'	26.25'	85°07'43"	N54°59'01"E 35.51'
C32	127.97'	1587.58'	4°37'07"	S82°16'04"W 127.94'
C33	9993.25'	1592.58'	359°31'27"	N80°06'06"E 13.22'
C34	9993.25'	1592.58'	359°31'27"	N80°06'06"E 13.22'
C35	40.90'	1292.58'	1°48'46"	S87°38'55"W 40.89'
C36	22.12'	1292.58'	0°58'51"	S86°15'07"W 22.12'
C37	26.78'	1292.58'	1°11'13"	S85°10'05"W 26.77'
C38	14.58'	1292.58'	0°38'47"	S71°11'43"W 14.58'
C39	19.99'	1292.58'	0°53'09"	S70°25'45"W 19.99'
C40	145.44'	1292.58'	6°28'48"	S66°45'46"W 145.36'
C42	17.20'	1292.58'	0°45'45"	S63°56'15"W 17.20'
C43	50.00'	1292.58'	2°12'59"	S62°25'52"W 50.00'
C44	12.77'	1592.58'	0°27'34"	S61°05'10"W 12.77'
C45	18.78'	1292.58'	0°49'56"	S60°54'25"W 18.78'
C46	31.85'	1592.58'	1°08'45"	S61°53'20"W 31.85'
C47	22.47'	1592.58'	0°48'31"	S62°51'58"W 22.47'
C48	18.88'	1592.58'	0°40'45"	S63°36'36"W 18.88'
C49	683.93'	1592.58'	24°36'19"	S76°15'08"W 678.68'
C50	12.83'	1592.58'	0°27'42"	S56°41'59"W 12.83'
C51	74.01'	1592.58'	2°39'45"	S62°38'50"W 74.00'
C54	133.39'	1292.58'	5°54'45"	S57°00'12"W 133.33'

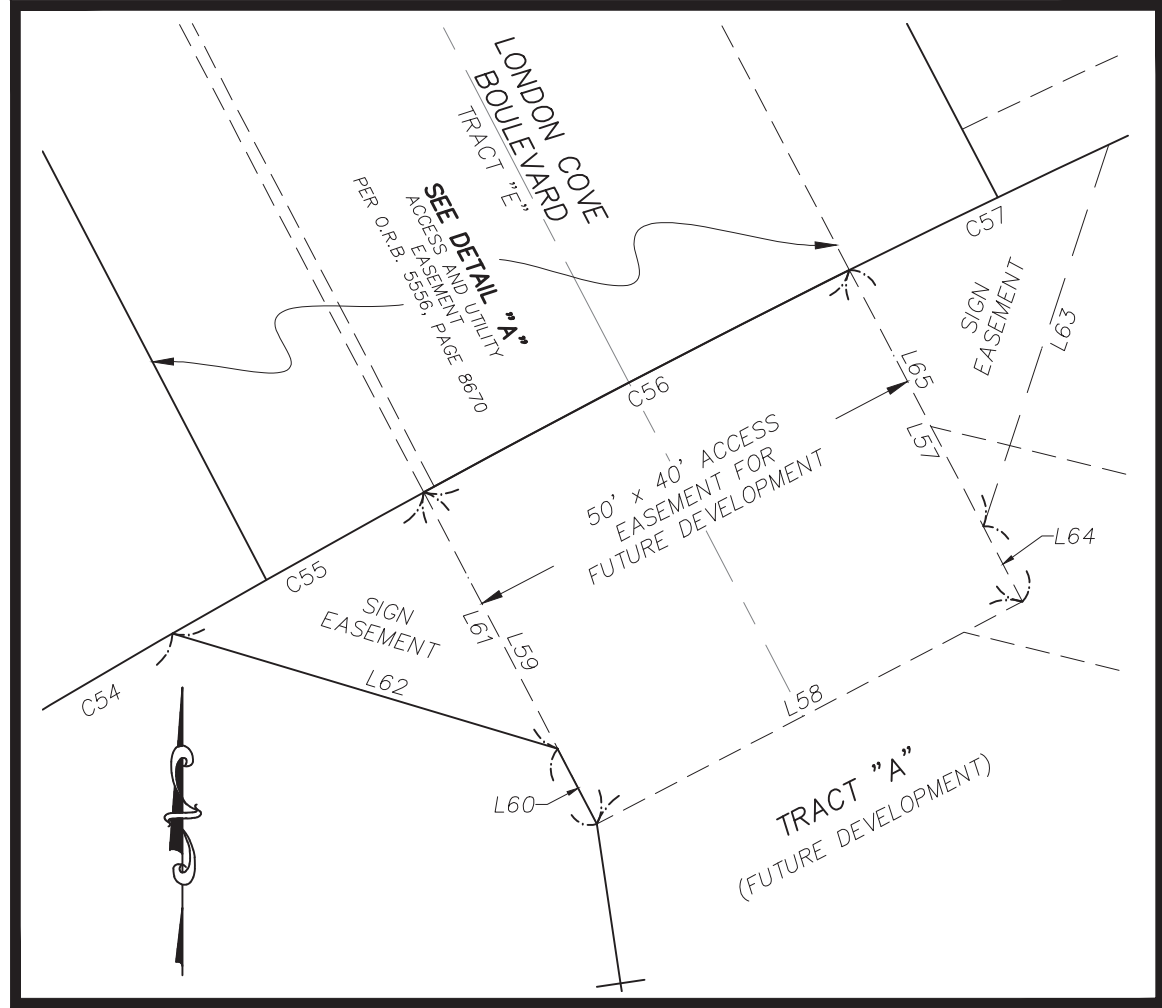
LINE TABLE		
LINE	BEARING	LENGTH
L12	N76°24'25"W	20.00'
L13	N76°24'25"W	12.96'
L33	S13°33'14"W	20.23'
L34	N81°34'23"E	5.22'
L35	N84°19'20"E	2.26'
L36	N75°41'14"E	7.73'
L37	N76°06'09"E	9.39'
L38	S17°03'43"W	37.51'
L39	S17°03'43"W	27.29'
L40	S62°25'52"W	18.91'
L41	N62°25'52"E	6.87'
L42	N27°34'08"W	20.59'
L43	N27°34'08"W	18.38'
L44	S19°32'52"E	40.56'
L45	S19°33'47"E	38.48'
L46	S76°06'09"W	2.61'
L47	S75°41'14"W	9.16'
L48	S84°19'20"W	3.30'
L49	S81°34'22"W	7.17'
L50	S27°50'04"W	9.49'
L51	N27°34'08"W	99.85'
L52	N31°53'50"W	79.50'
L53	N27°34'08"W	120.82'
L54	S27°34'08"E	120.54'
L55	S14°46'31"E	81.29'
L56	S27°34'08"E	99.85'
L57	S27°34'08"E	38.96'
L58	N62°25'52"E	50.00'
L59	S27°34'08"E	38.96'
L60	S27°34'08"E	8.84'

LINE TABLE		
LINE	BEARING	LENGTH
L61	N27°34'29"W	30.12'
L62	S73°21'02"E	41.86'
L63	S18°12'47"W	41.86'
L64	S27°34'08"E	8.84'
L65	N27°34'08"W	18.38'
L66	S13°33'14"W	22.62'

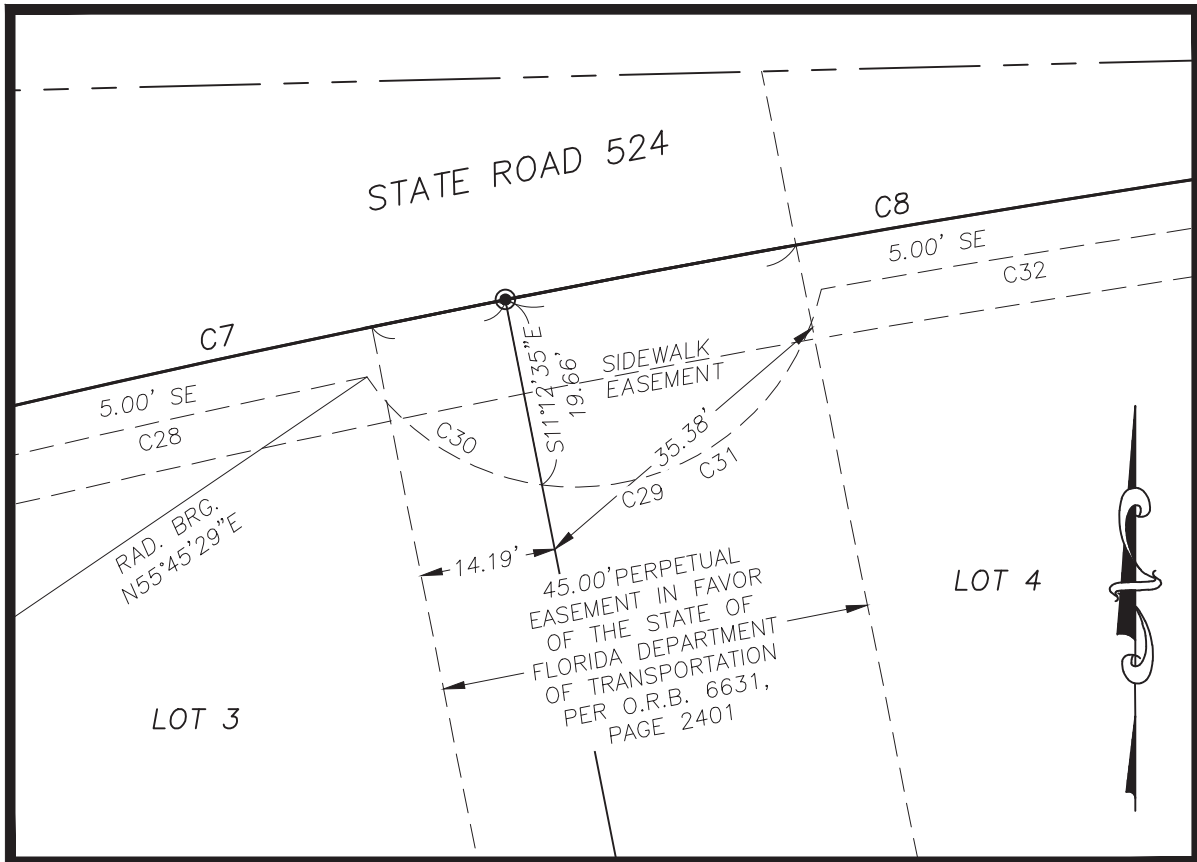
DETAIL "E"
Scale 1"=20'



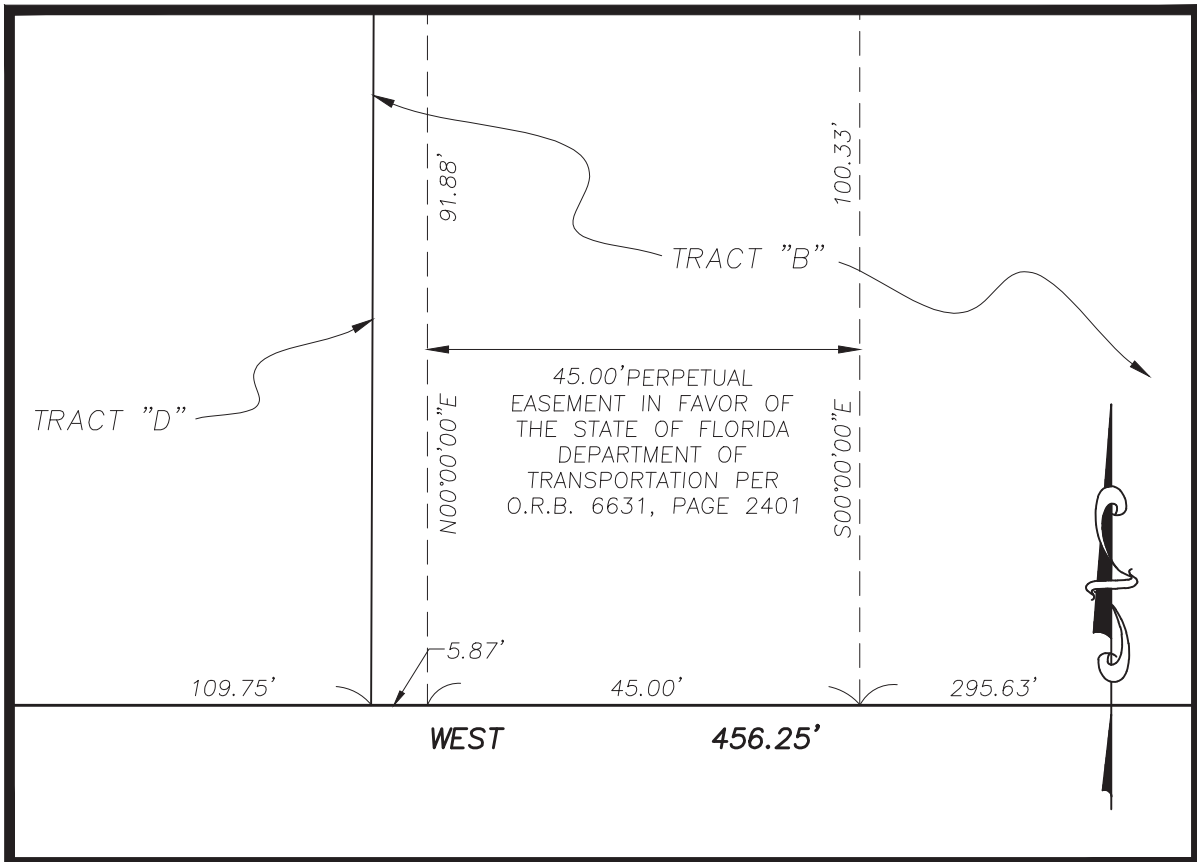
DETAIL "F"
Scale 1"=20'



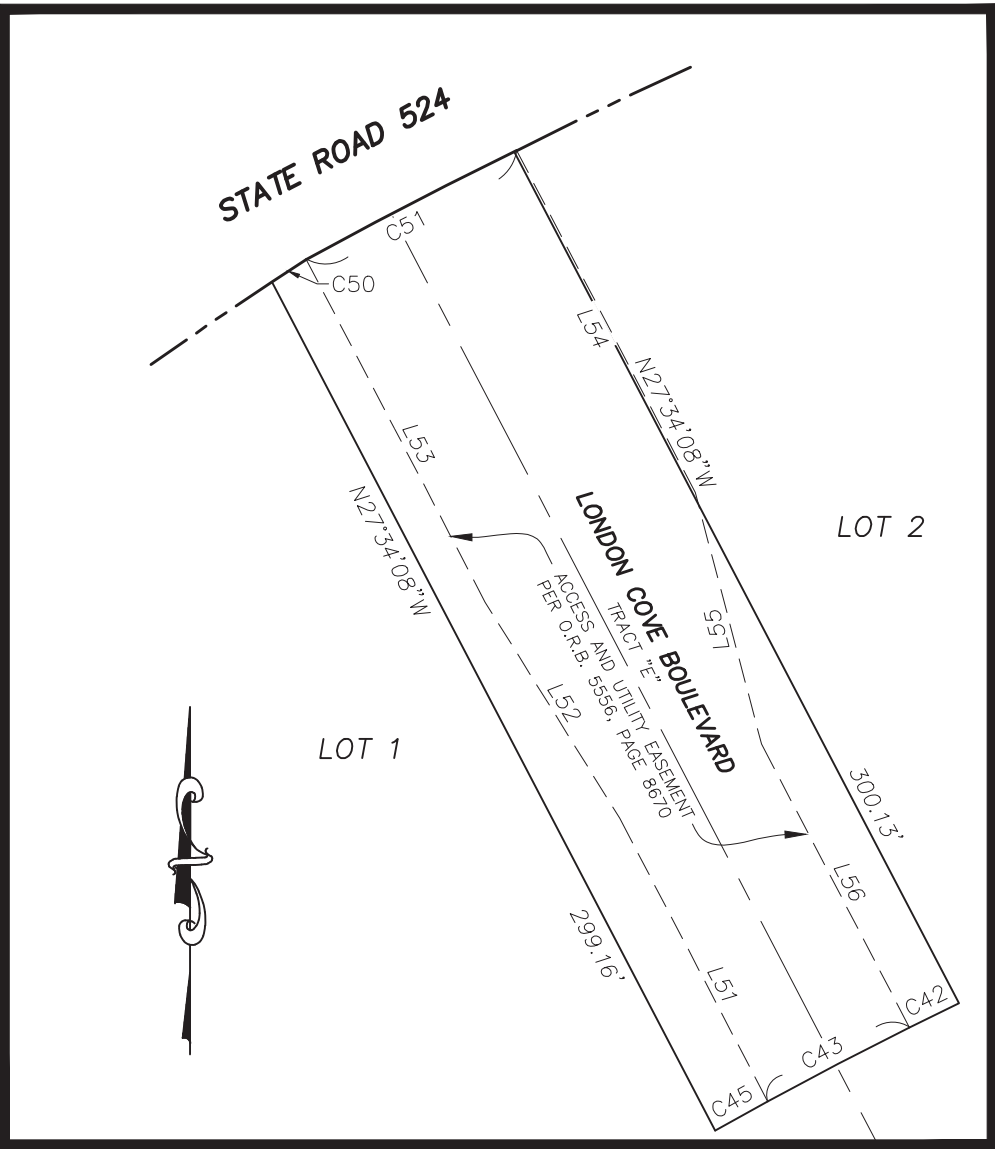
DETAIL "B"
Scale 1"=20'



DETAIL "C"
Scale 1"=20'



DETAIL "D"
Scale 1"=60'



604 COURTLAND STREET SUITE 101
PHONE : (407) 960-5980
ORLANDO, FLORIDA 32804
CERTIFICATE OF AUTHORIZATION # 2936

SHEET INDEX

Sheet 1 of 3 - Cover Notes, Dedication
Sheet 2 of 3 - Geometry
Sheet 3 of 3 - Details

LAND DEVELOPMENT
SURVEYING
CONSTRUCTION ENGINEERING INSPECTION

1235452

THIS INSTRUMENT WAS PREPARED BY
AND SHOULD BE RETURNED TO:

Dale A. Burket, Esquire
**LOWNDES, DROSDICK, DOSTER
KANTOR & REED, P.A.**
215 North Eola Drive
Orlando, FL 32802-2809
(407) 843-4600

AMENDED AND RESTATED CROSS ACCESS EASEMENT AGREEMENT

[Amending and Restating the terms of that certain Cross Access Easement Agreement dated December 20, 2005 and recorded on February 8, 2006 in Official Records Book 5602 at Page 0268 of the Public Records of Brevard County, Florida]

THIS AMENDED AND RESTATED CROSS ACCESS EASEMENT AGREEMENT (hereinafter referred to as this "Agreement"), is made and entered into as of the 23rd day of September, 2024 (the "Effective Date") by and between **SR 524 COCOA II, LLC**, a Florida limited liability company, whose mailing address is 941 W. Morse Boulevard, Suite 315, Winter Park, Florida 32789 (hereinafter referred to as "SR 524 Cocoa"); **COCOA COMMONS STATION LLC**, a Delaware limited liability company, whose mailing address is 11501 Northlake Drive, Cincinnati, Ohio 45249 (hereinafter referred to as "Cocoa Commons"); and **KEEPER II - COCOA, LLC**, a Maine limited liability company, whose address is One City Center, 4th Floor, Portland, Maine 04101 (hereinafter referred to as "Keeper") (collectively, the "Parties", and each, a "Party").

WITNESSETH:

WHEREAS, Cocoa Commons is the owner of fee simple title to certain real property located in Brevard County, Florida, more particularly described in Exhibit "A" attached hereto and made a part hereof (the "Cocoa Commons Property"); and

WHEREAS, SR 524 Cocoa is the owner of fee simple title to a certain parcel of land located in Brevard County, Florida, which is contiguous to the Cocoa Commons Property and is more particularly described in Exhibit "B" attached hereto and made a part hereof (the "SR 524 Cocoa Property"); and

WHEREAS, Keeper is the owner of fee simple title to a certain parcel of land located in Brevard County, Florida, which is contiguous to the SR 524 Cocoa Property and is more particularly described in Exhibit "C" attached hereto and made a part hereof (the "Keeper Property") (the Cocoa Commons Property, the SR 524 Cocoa Property and the Keeper Property are sometimes herein collectively referred to as the "Properties");

WHEREAS, on December 20, 2005, SR 524 Cocoa, S.J. Holding, LLC (grantor to Keeper) and Poplar Associates, LLC, a North Carolina limited liability company (which entity is the predecessor in title to Cocoa Commons) entered into that certain Cross Access Easement Agreement dated December 20, 2005 and recorded on February 8, 2006 in Official Records Book 5602, Page 268 in the Public Records of Brevard County, Florida (the "Original Easement");

WHEREAS, Cocoa Commons is the current owner of the Cocoa Commons Property by virtue of that certain Special Warranty Deed naming Ramco – Gershenson Properties, L.P. as grantor and Cocoa Commons as grantee, dated November 19, 2015 and recorded December 2, 2015 in Official Records Book 7503, Page 1711 of the Public Records of Brevard County, Florida; and

WHEREAS, SR 524 Cocoa, Keeper and Cocoa Commons have agreed to amend and restate the terms of the Original Easement according to the terms set forth herein.

NOW, THEREFORE, for and in consideration of the mutual agreements stated in this Agreement and of the sum of TEN AND NO/100 DOLLARS (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree that the Original Easement shall be and hereby is amended and restated according to the following terms:

1. Recitals. The recitals set forth above are true and correct and are incorporated herein and by this reference made a part hereof.

2. Easement Upon Cocoa Commons Property. Cocoa Commons hereby gives, grants, bargains, sells and conveys to SR 524 Cocoa and its successors and assigns, a perpetual, non-exclusive easement over, upon and across all portions of the Cocoa Commons Property on which driveways and walkways exist from time to time (the "Cocoa Commons Easement Areas") for the nonexclusive benefit of residents, employees, agents, licensees, contractors, engineers, consultants, tenants, invitees, guests, customers and patrons of the SR 524 Cocoa Property (the "SR 524 Cocoa Permitted Users") for the exclusive purposes of passenger vehicles (as to the driveways) and pedestrian (as to the walkways) ingress and egress to and from the SR 524 Cocoa Property, all subject to the terms, conditions and limitations set forth herein. The Cocoa Commons Easement Area may not be used by construction equipment, overweight vehicles, or other commercial traffic. Without limiting the foregoing, the Cocoa Commons Easement Areas shall not extend to those portions of the "Service Drive" located on the Cocoa Commons Property except as strictly necessary for ingress and egress from the SR 524 Property to the Keeper Property, as designated on the Site Plan attached to the Memorandum of Lease recorded in Official Records Book 4119, Page 1515, as amended by that certain First Addendum to Memorandum of Lease recorded in Official Records Book 4231, page 1522, as further amended by that certain Second Addendum to Memorandum of Lease recorded in Official Records Book 4266, page 3695, as further amended by that certain Third Amendment to Memorandum of Lease recorded in Official Records Book 5820, Page 5335, and as may be amended from time to time by the parties thereto, all as recorded in the public records of Brevard County, Florida (collectively, the "Memorandum").

The right to access and use the Cocoa Commons Easement Area shall be subject to (a) all applicable laws and regulations and (b) the rules and regulations established by Cocoa Commons

from time to time governing traffic flow, safety, security and other matters relevant to the operation of the Cocoa Commons Property. Cocoa Commons may temporarily prohibit the SR 524 Cocoa Permitted Users from accessing the Cocoa Commons Easement Areas to perform maintenance, repairs and construction to the Cocoa Commons Easement Areas or other parts of the Cocoa Commons Property or as a result of security or safety concerns. Cocoa Commons shall have the right to re-align, re-configure and re-locate the Cocoa Commons Easement Areas and any and all improvements located on the Cocoa Commons Property at any time, so long as vehicular and pedestrian ingress and egress is maintained between the SR 524 Cocoa Property, the Cocoa Commons Property and the Keeper Property, subject to the terms and conditions of this Agreement.

To offset some of the additional costs that may be incurred by Cocoa Commons as a result of the easement granted over the Cocoa Commons Easement Area, SR 524 Cocoa shall pay to Cocoa Commons on the date hereof and on or before each January 1st thereafter the sum of Five Thousand and No/100 Dollars (\$5,000.00), which shall be adjusted every January 1st (i.e. the first adjustment will occur on January 1, 2024, the second will occur on January 1, 2025 and so on) by multiplying the then current payment amount by 103%. The easement over the Cocoa Commons Easement Areas shall be suspended any time that amounts payable under this paragraph are past due. If SR 524 Cocoa fails to pay such amount within thirty (30) days after notice of such failure, and such failure continues for thirty (30) days after receipt by SR 524 Cocoa of a second written notice stating, in bold capital letters, "Failure to pay the amount due within thirty (30) days shall entitle Cocoa Commons to terminate the Amended and Restated Cross Access Easement Agreement," then Cocoa Commons may terminate the easement granted under this paragraph 2 over the Cocoa Commons Easement Areas. In the event of a termination of the easement granted under this paragraph 2 over the Cocoa Commons Easement Areas, the City of Cocoa's City Manager shall be notified thirty (30) days prior to such termination.

Notwithstanding anything herein to the contrary, SR 524 Cocoa and Keeper hereby acknowledge and agree that as prime consideration and inducement for Publix Super Markets, Inc. ("Publix") to consent to the easements granted hereunder, SR 524 Cocoa and Keeper for themselves, their heirs, successors and assigns hereby agree that, absent the prior written permission of Publix, its successors or assigns: no retail grocery supermarket shall be permitted to operate within or upon the SR 524 Cocoa Property or the Keeper Property, or any portion thereof; provided, however, this restriction is not intended to prohibit the use of the SR 524 Cocoa Property, or any portion thereof, by a business which sells grocery items as an incidental use (defined as a business which sells grocery items which occupy no more than two thousand (2,000) square feet of total retail space, including associated aisle space). This restriction shall run with and bind the SR 524 Cocoa Property and the Keeper Property for a period of (a) twenty (20) years or (b) the maximum amount of time permitted under Florida law, whichever is shorter, but which shall not be less than the term of the Publix lease described in the Memorandum. The SR 524 Cocoa Property and the Keeper Property shall be subject to the restrictions set forth in Paragraph 18.02(a), entitled "Adjacent Property of Landlord" of that certain lease regarding the Publix premises as restated in the Memorandum. Furthermore, the parties acknowledge and agree that Publix, its successors and assigns, is deemed an express third party beneficiary of this Agreement, able to enforce the terms and covenants stated herein both at law and in equity, including but not limited to enforcement by an action for specific performance, and in the event of litigation, if the

prevailing party, entitled to recover its reasonable attorneys' fees and costs at both the trial and appellate levels.

3. Easement Upon Keeper Property. Keeper hereby gives, grants, bargains, sells and conveys to SR 524 Cocoa and its successors and assigns, a perpetual, non-exclusive easement over, upon, and across all portions of the Keeper Property on which driveways and walkways are now and hereafter constructed (the "Keeper Easement Areas") for the exclusive purposes of vehicular and pedestrian ingress and egress to and from the SR 524 Cocoa Property, for the benefit of the SR 524 Cocoa Property, subject to the terms, conditions and limitations set forth herein. The easement rights granted hereunder may be exercised and utilized by the SR 524 Cocoa Permitted Users. Keeper shall have the right to re-align, re-configure and re-locate the Keeper Easement Areas and any and all improvements located on the Keeper Property at any time, so long as vehicular and pedestrian ingress and egress is maintained between the SR 524 Cocoa Property, the Keeper Property and the Cocoa Commons Property.

4. Easement Upon SR 524 Cocoa Property. SR 524 Cocoa hereby gives, grants, bargains, sells and conveys to each of Keeper and Cocoa Commons and their respective successors and assigns, a perpetual, non-exclusive easement over, upon and across all portions of the SR 524 Cocoa Property on which driveways and walkways are hereafter constructed (the "SR 524 Cocoa Easement Area") for the exclusive purpose of vehicular and pedestrian ingress and egress to and from, and for the benefit of, the Keeper Property and the Cocoa Commons Property, respectively, subject to the terms, conditions and limitations set forth herein. The easement rights granted herein be exercised and utilized by Keeper and Cocoa Commons and their respective agents, employees, contractors, engineers, consultants, tenants, invitees, licensees, customers and patrons (the "Keeper and Cocoa Commons Permitted Users"). The right to access and use the SR 524 Cocoa Easement Areas shall be subject to (a) all applicable laws and regulations and (b) the rules and regulations established by SR 524 Cocoa or any property owners association from time to time established with respect to the SR 524 Cocoa Property governing traffic flow, safety, security and other matters relevant to the operation of the SR 524 Cocoa Property. SR 524 Cocoa may temporarily prohibit the Keeper and Cocoa Commons Permitted Users from accessing the SR 524 Cocoa Easement Areas to perform maintenance, repairs and construction to the SR 524 Cocoa Easement Areas or other parts of the SR 524 Cocoa Property or as a result of security or safety concerns; provided, however, the SR 524 Cocoa Easement Areas shall not close for more than one (1) day in each calendar year and such closure shall not occur on the following days: (a) the Wednesday before Easter through Easter Sunday; (b) the week before Thanksgiving through Thanksgiving Day; and (c) the week before Christmas through Christmas Day. Further, SR 524 Cocoa shall have the right to re-align, re-configure and re-locate the SR 524 Cocoa Easement Areas and any and all improvements located on the SR 524 Cocoa Property at any time, upon first obtaining Cocoa Commons written consent, which may be withheld in its sole discretion, and so long as vehicular and pedestrian ingress and egress is maintained between the SR 524 Cocoa Property, the Cocoa Commons Property and the Keeper Property. Except in the case of emergency, SR 524 shall provide thirty (30) days written notice prior to commencing any work which will require a closure of the SR 524 Cocoa Easement Area.

In addition, if SR 524 Cocoa has not completed its maintenance, repair, construction, re-alignment, re-configure or re-location of the SR 524 Cocoa Easement Areas by the date that is ninety (90) days after commencing such work, subject to delays due to weather and/or

governmental inspections and actions, and SR 524 Cocoa is not otherwise diligently pursuing the completion of such work, then Cocoa Commons may, at its sole discretion and any time after such ninety (90) day period, elect to complete such work at the expense of SR 524 Cocoa. The terms and provisions of the foregoing sentence to the contrary notwithstanding, if such condition constitutes an imminent threat of injury to persons or damage to property, Cocoa Commons shall exercise reasonable efforts to notify SR 24 Cocoa of such condition, but, in any event, Cocoa Commons shall have the right, but not the obligation, to repair such condition at the expense of SR 524 Cocoa. SR 524 Cocoa agrees to reimburse Cocoa Commons for all costs of such repairs promptly upon demand.

5. Construction of Access Connections.

SR 524 Cocoa, at its sole cost and expense, shall have the right to design, engineer, permit, and construct roadway and walkway facilities from the SR 524 Cocoa Property to the existing roadway and walkway facilities located on the Cocoa Commons Property and the Keeper Property (the "Access Connections"), within the area shown generally on Exhibit "D" attached hereto and made a part hereof (the "Plan"). The Access Connections shall be designed and constructed by SR 524 Cocoa to connect smoothly and cohesively to the existing driveway and walkway facilities already existing on the Cocoa Commons Property and the Keeper Property, as shown generally on the Plan. All work to the Cocoa Commons Property shall be performed by properly licensed contractors, lien free, and in accordance with all laws and regulations and all agreements binding on the Cocoa Commons Property. Cocoa Commons and Keeper each hereby grants to SR 524 Cocoa a temporary easement to enter upon that portion of their respective Properties that is adjacent within thirty (30) feet of the Access Connections, for the purpose of constructing the Access Connections, said temporary easement to automatically terminate upon the completion of the Access Connections. Upon completion of construction of the Access Connections, SR 524 Cocoa shall restore any portions of the Cocoa Commons and Keeper Properties that SR 524 Cocoa has utilized in connection with the construction of the Access Connections to its condition existing prior to the commencement of construction. Prior to performing any work on the Cocoa Commons Property, SR 524 Cocoa shall at its sole cost and expense (a) submit plans and specifications for such work to Cocoa Commons for Cocoa Common's approval which may not be unreasonably withheld or delayed and which shall be deemed given unless withheld with stated reasons for disapproval within fifteen (15) business days after Cocoa Common's receipt thereof; (b) obtain all permits, approvals, licenses and certificates required by any governmental or quasi-governmental authority as a condition to such work; (c) furnish to Cocoa Commons a certificate in customary form and substance issued by SR 524 Cocoa's insurer (i) evidencing that SR 524 Cocoa maintains a policy of commercial general liability insurance in an amount not less than \$3,000,000 from a company reasonably acceptable to Cocoa Commons that names Cocoa Commons as an additional insured, and (ii) agreeing not to cancel or modify such policy of insurance without giving Cocoa Commons thirty (30) days' prior written notice; and (d) furnish Cocoa Commons with a guaranty in form and substance reasonably acceptable to Cocoa Commons from a guarantor with credit acceptable to Cocoa Commons guaranteeing completion of the work in accordance with the terms of this paragraph 5. Upon completion of the work, SR 524 Cocoa shall promptly at its sole cost and expense (i) obtain any necessary certificates of final approval from the governmental and quasi-governmental authorities having approval rights over the work and promptly furnish Cocoa Commons with copies thereof, (ii) cause a surveyor licensed in the State of Florida to update Cocoa Common's existing survey reflecting the completed work and (iii) furnish Cocoa Commons with

evidence of full payment and unconditional lien waivers (as to the Cocoa Commons Property) of all liens for labor, services and materials. If SR 524 Cocoa believes Cocoa Commons has not acted reasonably where required by this Agreement to act reasonably (but excluding bad faith on the part of Cocoa Commons), SR 524 Cocoa's sole remedy shall be to bring an action or proceeding for specific performance and under no such circumstance shall Cocoa Commons have any liability to SR 524 Cocoa for damages of any kind, including, without limitation, direct, consequential, special, or indirect damages such being expressly waived by SR 524 Cocoa.

SR 524 Cocoa shall indemnify, defend and hold the owners of the Cocoa Commons Property and the Keeper Property harmless from any and all claims, demands, damage, suits, liabilities, actions and expenses, including reasonable attorneys' fees and costs, whatsoever incurred or suffered by Cocoa Commons and Keeper arising out of or in any way related to (a) a breach of this Agreement by SR 524 Cocoa or (b) the construction of the Access Connections, except to the extent due to the gross negligence or willful misconduct of Cocoa Commons or Keeper or their respective agents or employees.

6. Maintenance. Each party shall be responsible for the maintenance and repair of the Easement Areas within their respective Properties.

7. Compliance with Law. SR 524 Cocoa represents and warrants that the easements granted under this Agreement will comply with all applicable laws and regulations and will not cause the Cocoa Commons Property or the Keeper Property to become in violation of any law or regulation. SR 524 Cocoa shall be responsible at its sole cost and expense to cause each of the easements granted under this Agreement to comply with all applicable laws and regulations in effect from time to time.

8. Binding Effect. This Agreement shall run with the title to the Cocoa Commons Property, the SR 524 Cocoa Property and the Keeper Property and inure to and be for the benefit and burden of Cocoa Commons, SR 524 Cocoa and Keeper and their respective successors and assigns. This Agreement shall be enforceable at law and in equity, including but not limited to enforcement by an action for specific performance. In the event of litigation, the prevailing party shall be entitled to recover its reasonable attorneys' fees and costs at both the trial and appellate levels.

9. Amendment. This Agreement may be modified or amended only upon the mutual written consent of the Parties and, as applicable, the Parties' respective mortgagees or express successors and assigns.

10. Further Assurances. Each of the Parties hereto covenant and agree to execute and deliver such other instruments and documents, and do all matters and things, which may be reasonable and necessary, to carry out the intentions contemplated by this Agreement. Furthermore, within fifteen (15) days of receipt of written request from the other party, each party shall deliver a certificate to requesting party, stating that the requesting party is not in default under this Agreement, or if the requesting party is in default under this Agreement, stating the nature of such default.

11. Applicable Law. This Agreement shall be construed in accordance with the laws of the State of Florida.

12. No Public Rights. Nothing herein contained shall be construed to create any rights of any kind or nature in favor of the general public.

13. Notices. All notices required or permitted hereunder shall be sent by U.S. certified mail, return receipt requested, or by nationally-recognized overnight courier service requiring receipt, and shall be deemed given when delivery is made or attempted and refused if sent to the parties at their respective addresses set forth below or to such other address as any of them shall specify by written notice given in accordance with this paragraph:

If to SR 524 Cocoa: 941 W. Morse Boulevard, Suite 315
Winter Park, FL 32789
Attn: Mary L. Demetree

With a copy to: Lowndes, Drosdick, Doster, Kantor & Reed
215 North Eola Drive
Orlando, FL 32802
Attention: Dale A. Burket, Esq.
Telephone: (407) 843-4600
Email: dale.burket@lowndes-law.com

If to Cocoa Commons: Cocoa Commons Station LLC
11501 Northlake Drive
Cincinnati, OH 45249

If to Keeper: Keeper II - Cocoa, LLC
One City Center, 4th Floor
Portland, ME 04101

[SIGNATURES APPEAR ON THE FOLLOWING PAGES]

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed in their names, by their property officers, agents, or representatives thereunto duly authorized, as of the day and year first above written.

Witnesses:

Robson Farnash
Printed Name: Robson Farnash

Address 11501 Northlake Dr.
Cincinnati, Ohio 45249

Anna M. Sevier
Printed Name: Anna M. Sevier

Address 11501 Northlake Dr.
Cincinnati, Ohio 45249

COCOA COMMONS STATION LLC, a Delaware limited liability company

By: Phillips Edison Grocery Center Operating Partnership II L.P., a Delaware limited partnership, its sole member

By: Phillips Edison Grocery Center OP GP II LLC, a Delaware limited liability company, its General Partner

By: *Joe Schlosser*
Joe Schlosser, Senior Vice President

COUNTY OF HAMILTON)
)SS:
STATE OF OHIO)

The foregoing instrument was acknowledged before me by means of ☒ personal appearance or ☐ online notarization, on May 10, 2024 by Joe Schlosser, Senior Vice President of Phillips Edison Grocery Center OP GP II LLC, a Delaware limited liability company the General Partner of Phillips Edison Grocery Center Operating Partnership II L.P., a Delaware limited partnership the sole member of COCOA COMMONS STATION LLC, a Delaware limited liability company on behalf of the companies, who is personally known to me ~~or has produced~~ _____ as identification.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my notarial seal on the date and year above-mentioned.

Anna M. Sevier
Signature of Notary



ANNA M SEVIER
Notary Public
State of Ohio
My Comm. Expires
July 30, 2027

Anna M. Sevier
Name of Notary (Typed, Printed or Stamped)
Commission Number (if not legible on seal) 2017-02-665437
My Commission Expires (if not legible on seal) July 30, 2027

Signed, sealed and delivered in
the presence of:

[Signature]
Printed Name: DAVE VAUGHN
Address 806 E PINE ST.
ORLANDO, FL 32801

SR 524 COCOA II, LLC, a Florida limited
liability company

By: *[Signature]*
Name: Mary L. Demetree
As Its: Manager

[Signature]
Printed Name: Maddyn Boelter
Address 5350 Regal Oak Cir
Orlando FL 32810

STATE OF FLORIDA
COUNTY OF ORANGE

The foregoing instrument was acknowledged before me by means of ☒ physical presence
or ☐ online notarization, this 6th day of May 2024, by Mary L. Demetree, as Manager
of **SR 524 COCOA II, LLC**, a Florida limited liability company, on behalf of the company who
is personally known to me or has produced N/A as identification.

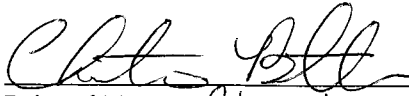


[Signature]
Signature of Notary

[Signature]
Name of Notary (Typed, Printed or Stamped)
Commission Number (if not legible on seal) _____
My Commission Expires (if not legible on seal) _____

Signed, sealed and delivered in
the presence of:

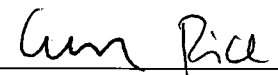
KEEPER II – COCOA, LLC, a Maine
limited liability company


Printed Name: Christina Butler

Address One City Center
Portland ME 04101

By: 
Name: Maximiliano P. Monks
As Its: Authorized Signatory

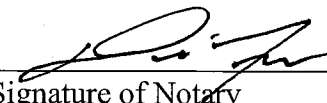
(CORPORATE SEAL)


Printed Name: Carson Rice

Address One City Center
Portland ME 04101

STATE OF MAINE
COUNTY OF CUMBERLAND

Personally appeared before me the above-named Maximiliano P. Monks, agent, duly
authorized, of Keeper II – Cocoa, LLC as aforesaid, and acknowledged the foregoing instrument
to be his free act and deed in his said capacity and the free act and deed of said Keeper II – Cocoa,
LLC.


Signature of Notary
DEVIN FLYNN
Notary Public, Maine
My Commission Expires
July 31, 2027

Name of Notary (Typed, Printed or Stamped)
Commission Number (if not legible on seal) _____
My Commission Expires (if not legible on seal) _____

CONSENT OF PUBLIX

Publix Super Markets, Inc., a Florida corporation, hereby consents to the within and foregoing Amended and Restated Cross Access Easement Agreement to which this Consent is attached, as required by the terms of that certain Memorandum of Lease recorded in Official Records Book 4119, page 1515 of the Public Records of Brevard County, Florida, as amended (collectively, the “Memorandum”). In no event shall this Consent be deemed to be an amendment or modification of the Lease (as defined in the Memorandum).

**PUBLIX SUPER MARKETS, INC., a
Florida corporation**

By: Bridgid
Name: Bridgid O'Connor
As Its: VP of Real Estate Strategy

STATE OF FLORIDA
COUNTY OF Polk

The foregoing instrument was acknowledged before me by means of ☒ physical presence or ☐ online notarization, this 23 day of September, 2024, by Bridgid O'Connor, as of Vice President **PUBLIX SUPER MARKETS, INC.**, a Florida corporation, on behalf of the corporation. He/She is personally known to me or has produced _____ as identification.

(NOTARY SEAL)

Jessica Hernandez
Signature of Notary



JESSICA HERNANDEZ
Commission # HH 253135
Expires April 14, 2026

Jessica Hernandez

Name of Notary (Typed, Printed or Stamped)
Commission Number (if not legible on seal) _____
My Commission Expires (if not legible on seal) _____

Exhibit "A" – Cocoa Commons Property

PARCEL 1:

LOT 5 OF "COCOA COMMONS" RECORDED IN PLAT BOOK 46, PAGE 27 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA;

LESS AND EXCEPT THE FOLLOWING PORTION OF AFORESAID LOT 5:

COMMENCE AT THE NORTHEAST CORNER OF SAID LOT 5, AND RUN S. 00°06'46"W., ALONG THE EAST LINE OF SAID LOT, A DISTANCE OF 977.17 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE S. 00°06'46"W., ALONG SAID EAST LINE, A DISTANCE OF 1603.39 FEET TO THE SOUTHEAST CORNER OF SAID LOT; THENCE S.87°59'33"W., ALONG THE SOUTH LINE OF SAID LOT, A DISTANCE OF 1311.28 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE N. 00°14'26"E., ALONG THE WEST LINE OF SAID LOT, A DISTANCE OF 1942.49 FEET; THENCE DEPARTING SAID LINE, N. 68°37'00"E., A DISTANCE OF 19.68 FEET; THENCE S. 65°24'37"E., A DISTANCE OF 27.67 FEET; THENCE S. 89°39'15"E., A DISTANCE OF 21.39 FEET; THENCE N.73°12'27"E., A DISTANCE OF 170.14 FEET; THENCE N.88°30'51"E., A DISTANCE OF 208.34 FEET TO THE POINT OF CURVATURE OF A 60.00 RADIUS CURVE TO THE RIGHT; THENCE SOUTHEASTERLY, ALONG THE ARC OF SAID CURVE, THRU A CENTRAL ANGLE OF 45°43'28" A DISTANCE OF 47.88 FEET TO A POINT OF TANGENCY; THENCE S.45°45'41"E., A DISTANCE OF 47.16 FEET; THENCE S.07°32'47"W., A DISTANCE OF 47.72 FEET; THENCE N.77°33'53"W., A DISTANCE OF 52.50 FEET; THENCE S.75°09'18"W., A DISTANCE OF 10.35 FEET; THENCE S.29°11'02"W., A DISTANCE OF 11.45 FEET; THENCE S.16°46'59"E., A DISTANCE OF 16.70 FEET; THENCE S.27°46'27"E., A DISTANCE OF 25.81 FEET; THENCE S.86°21'42"E., A DISTANCE OF 15.70 FEET; THENCE N.81°34'47"E., A DISTANCE OF 57.95 FEET; THENCE N.69°01'49"E., A DISTANCE OF 53.28 FEET TO A POINT ON A 140.00 FOOT RADIUS CURVE TO THE LEFT HAVING A RADIAL BEARING OF N.32°53'55"E.; THENCE SOUTHEASTERLY, ALONG THE ARC OF SAID CURVE, THRU A CENTRAL ANGLE OF 34°20'37", A DISTANCE OF 83.92 FEET TO A POINT OF TANGENCY; THENCE N.88°33'18"E., A DISTANCE OF 144.66 FEET; THENCE S.88°16'46"E., A DISTANCE OF 93.02 FEET; THENCE S. 59°14'02" E., A DISTANCE OF 130.43 FEET; THENCE S.47°33'44"E., A DISTANCE OF 47.14 FEET; THENCE S.50°02'29"E., A DISTANCE OF 84.78 FEET; THENCE S.04°07'28"E., A DISTANCE OF 84.64 FEET; THENCE S.89°53'14"E., A DISTANCE OF 190.56 FEET TO THE SOUTHWEST CORNER OF LOT 13, BLOCK 14 OF "COLLEGE GREEN ESTATES, UNIT FIVE", RECORDED IN PLAT BOOK 21, PAGE 22 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, SAID CORNER BEING THE POINT OF BEGINNING.

AND ALSO LESS AND EXCEPT THAT PORTION OF AFORESAID LOT 5 LYING WITHIN THE FOLLOWING DESCRIBED PROPERTY THAT WAS CONVEYED TO MOBIL OIL CORPORATION, BY WARRANTY DEED RECORDED IN OFFICIAL RECORDS BOOK 4208, PAGE 88, OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, DESCRIBED AS FOLLOWS:

A PARCEL OF LAND LYING IN THE EAST ½ OF THE SOUTHWEST ¼ OF SECTION 18, TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF LOT 52 OF COLLEGE GREEN ESTATES, UNIT SIX, RECORDED IN PLAT BOOK 21, PAGE 63 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, AND RUN S 88°33'18" W, ALONG THE SOUTH RIGHT OF WAY LINE OF STATE ROAD NO. 524, A DISTANCE OF 123.47 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE S 88°33'18" W, ALONG SAID RIGHT OF WAY LINE, A DISTANCE OF 235.00 FEET; THENCE S 01°26'42" E; PERPENDICULAR TO SAID RIGHT OF WAY LINE, A DISTANCE OF 247.00 FEET; THENCE N 88°33'18"E, PARALLEL TO SAID RIGHT OF WAY LINE, A DISTANCE OF 235.00 FEET; THENCE N 01°26'42" W, PERPENDICULAR TO SAID RIGHT OF WAY LINE, A DISTANCE OF 247.00 FEET TO THE POINT OF BEGINNING.

PARCEL 2:

NON-EXCLUSIVE EASEMENT FOR INGRESS AND EGRESS OVER AND ACROSS THE FOLLOWING:

A PARCEL OF LAND LYING IN THE EAST ½ OF THE SOUTHWEST 1/4 OF SECTION 18, TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA. BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF LOT 52 OF "COLLEGE GREEN ESTATES, UNIT SIX", RECORDED IN PLAT BOOK 21, PAGE 63 OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA, AND RUN S.88°33'18"W., ALONG THE SOUTH RIGHT OF WAY LINE OF STATE ROAD NO. 524, A DISTANCE OF 1177.92 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE S.01°26'42"E., PERPENDICULAR TO SAID RIGHT OF WAY LINE, A DISTANCE OF 7.76 FEET TO THE POINT OF CURVATURE OF A 50.67 FOOT RADIUS CURVE TO THE RIGHT; THENCE SOUTHWESTERLY, ALONG THE ARC OF SAID CURVE, THRU A CENTRAL ANGLE OF 53°55'29" A DISTANCE OF 47.69 FEET TO A POINT OF TANGENCY; THENCE S.52°28'47"W., A DISTANCE OF 53.10 FEET TO A POINT OF CURVATURE OF A 17.33 FOOT RADIUS CURVE TO THE LEFT; THENCE SOUTHERLY, ALONG THE ARC OF SAID CURVE, THRU A CENTRAL ANGLE OF 53°55'29" A DISTANCE OF 16.31 FEET TO A POINT OF TANGENCY; THENCE S.01°26'42"E, A DISTANCE OF 86.01 FEET TO THE POINT OF CURVATURE OF A 14.33 FOOT RADIUS CURVE TO THE LEFT; THENCE SOUTHEASTERLY, ALONG THE ARC OF SAID CURVE, THRU A CENTRAL ANGLE OF 90°00'00" A DISTANCE OF 22.51 FEET; THENCE S.01°26'42"E., A DISTANCE OF 25.33 FEET TO THE POINT OF CURVATURE OF A 14.33 FOOT RADIUS CURVE TO THE LEFT HAVING A RADIAL BEARING OF S.01°26'42"E; THENCE SOUTHERLY, ALONG THE ARC OF SAID CURVE, THRU A CENTRAL ANGLE OF 90°00'00" A DISTANCE OF 22.51 FEET; THENCE S.01°26'42"E, A DISTANCE OF 13.01 FEET; THENCE S.88°33'18"W., A DISTANCE OF 31.33 FEET; THENCE N.01°26'42"W., A DISTANCE OF 153.01 FEET TO

THE POINT OF CURVATURE OF A 48.66 FOOT RADIUS CURVE TO THE RIGHT; THENCE NORTHEASTERLY, ALONG THE ARC OF SAID CURVE, THRU A CENTRAL ANGLE OF 46°55'37", A DISTANCE OF 39.87 FEET TO A POINT OF TANGENCY; THENCE N.45°29'65"E., A DISTANCE OF 40.19 FEET TO THE POINT OF CURVATURE OF A 44.33 FOOT RADIUS CURVE TO THE LEFT; THENCE NORTHERLY, ALONG THE ARC OF SAID CURVE, THRU A CENTRAL ANGLE OF 45°08'20" A DISTANCE OF 34.92 FEET TO A POINT ON THE AFORESAID SOUTH RIGHT OF WAY LINE OF STATE ROAD NO. 524; THENCE N88°33'18"E., ALONG SAID RIGHT OF WAY LINE, A DISTANCE OF 43.36 FEET TO THE POINT OF BEGINNING.

PARCEL 3:

NON-EXCLUSIVE EASEMENTS FOR (1) VEHICULAR AND PEDESTRIAN ACCESS, INGRESS AND EGRESS AS SET FORTH IN ARTICLE 6; (2) UTILITIES AS SET FORTH IN ARTICLE 7; AND (3) STORMWATER DRAINAGE AS SET FORTH IN ARTICLE 8; OF THAT CERTAIN DECLARATION OF RESTRICTIONS, COVENANTS AND CONDITIONS AND GRANT OF EASEMENTS RECORDED IN OFFICIAL RECORDS BOOK 4208, PAGE 15, OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA.

PARCEL 4:

NON-EXCLUSIVE EASEMENTS FOR VEHICULAR AND PEDESTRIAN INGRESS AND EGRESS AS SET FORTH IN PARAGRAPH 4 OF THAT CERTAIN CROSS ACCESS EASEMENT AGREEMENT RECORDED IN OFFICIAL RECORDS BOOK 5602, PAGE 268, OF THE PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA.

Exhibit "B" – SR 524 Cocoa Property**PARCEL ONE (LONDON COVE COMMERCIAL CENTER):**

THE NORTH 300 FEET OF THE FOLLOWING DESCRIBED LAND:

THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 18, TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY OF RELOCATED STATE ROAD NO. 524, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGIN AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD NO. 524; THENCE S88°33'18"W, ALONG SAID SOUTH RIGHT OF WAY, A DISTANCE OF 402.62 FEET TO THE BEGINNING OF A TANGENT CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1592.58 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°48'00" AN ARC DISTANCE OF 967.29 FEET TO A POINT ON THE WEST LINE OF SAID SECTION 18; THENCE S00°14'23"E, ALONG SAID WEST LINE, A DISTANCE OF 130.15 FEET; THENCE S39°11'23"E, A DISTANCE OF 196.68 FEET, TO A POINT ON A CIRCULAR CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S39°11'23"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 37°44'41", AN ARC DISTANCE OF 851.51 FEET; THENCE N88°33'18"E A DISTANCE OF 393.79 FEET, TO SAID EAST LINES OF SAID WEST 1/2 OF SAID SOUTHWEST 1/4 OF SAID SECTION 18; THENCE N00°14'26"E, ALONG SAID EAST LINE A DISTANCE OF 300.13 FEET TO THE POINT OF BEGINNING.

AND

PARCEL 2

A PORTION OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, LYING SOUTH OF THE SOUTH RIGHT OF WAY LINE OF RELOCATED STATE ROAD NO. 524, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE INTERSECTION OF THE EAST LINE OF THE SAID WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 18 AND THE SOUTH RIGHT OF WAY OF SAID STATE ROAD NO. 524; THENCE S00°14'26"W, ALONG SAID EAST LINE A DISTANCE OF 300.13 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE S00°14'26"W, ALONG SAID EAST LINE, A DISTANCE OF 432.45 FEET; THENCE S78°22'53"W A DISTANCE OF 300.78 FEET; THENCE WEST A DISTANCE 456.25 FEET; THENCE S64°32'24"W A DISTANCE OF 320.49 FEET; THENCE S75°20'50"W A DISTANCE OF 106.54 FEET; THENCE N63°26'03"W A DISTANCE OF 37.10 FEET; THENCE N07°10'52"E A DISTANCE OF 78.58 FEET; THENCE N40°22'20"E A DISTANCE OF 92.99 FEET;

THENCE N66°36'34"E A DISTANCE OF 68.06 FEET; THENCE N15°16'11"W A DISTANCE OF 87.27 FEET; THENCE N06°42'05"E A DISTANCE OF 39.66 FEET; THENCE N32°34'42"W A DISTANCE OF 102.57 FEET; TO A POINT ON A CIRCULAR CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1292.58 FEET; SAID RADIUS BEARS S35°55'11"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 34°28'29", AN ARC DISTANCE OF 777.74 FEET; THENCE N88°33'18"E, TANGENT TO SAID CURVE, A DISTANCE OF 393.79 FEET TO THE POINT OF BEGINNING.

Exhibit "C" – Keeper Property

LOT 4, OF "COCOA COMMONS", RECORDED IN PLAT BOOK 46, PAGE 27, OF THE
PUBLIC RECORDS OF BREVARD COUNTY, FLORIDA.

Exhibit "D" – Plan (Page 1)

SKETCH OF LEGAL DESCRIPTION CROSS ACCESS EASEMENT

TABLE OF CONTENTS:

SHEET 1 – LEGAL DESCRIPTION, CERTIFICATION AND NOTES
 SHEET 2 – SKETCH

LEGAL DESCRIPTION

A PORTION OF COCOA COMMONS, AS RECORDED IN PLAT BOOK 46, PAGE 27, PUBLIC RECORDS, BREVARD COUNTY, FLORIDA LYING IN SECTION 18 TOWNSHIP 24 SOUTH, RANGE 36 EAST, BREVARD COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF COCOA COMMONS, AS RECORDED IN PLAT BOOK 46, PAGE 27, PUBLIC RECORDS, BREVARD COUNTY, FLORIDA; SAID POINT ALSO BEING A POINT ON THE SOUTH RIGHT OF WAY LINE OF STATE ROAD 524 PER FLORIDA DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP SECTION 70007-2501 AND THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 18, TOWNSHIP 24 SOUTH, RANGE 36 EAST; THENCE N88°33'18"E, ALONG SAID SOUTH RIGHT OF WAY LINE, A DISTANCE OF 78.15 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE N88°33'18"E, ALONG SAID SOUTH RIGHT OF WAY LINE, A DISTANCE OF 50.02 FEET; THENCE DEPARTING SAID RIGHT OF WAY LINE RUN S00°14'26"W, A DISTANCE OF 33.68 FEET; THENCE S48°51'21"W, A DISTANCE OF 89.41 FEET; THENCE S01°07'36"E, A DISTANCE OF 209.23 FEET; THENCE S88°33'18"W, A DISTANCE OF 66.05 FEET; TO A POINT ON AFORESAID WEST LINE OF COCOA COMMONS; THENCE N00°14'26"E, ALONG SAID WEST LINE, A DISTANCE OF 54.52 FEET; THENCE DEPARTING SAID WEST LINE, RUN N88°33'18"E, A DISTANCE OF 4.89 FEET TO THE POINT OF CURVATURE OF A CURVE CONCAVE NORTHWESTERLY HAVING A RADIUS OF 25.00 FEET AND A CHORD BEARING OF N43°42'51"E; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 89°40'54", AN ARC DISTANCE OF 39.13 FEET TO THE POINT OF TANGENCY; THENCE N01°07'36"W, A DISTANCE OF 152.90 FEET; THENCE N48°51'21"E, A DISTANCE OF 70.13 FEET; THENCE N00°14'26"E, A DISTANCE OF 22.95 FEET TO THE POINT OF BEGINNING.

CONTAINING 14122 SQUARE FEET MORE OR LESS

NOTES:

1. THIS SKETCH OF DESCRIPTION IS NOT A SURVEY.
2. THIS SKETCH AND DESCRIPTION IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
3. THE LAND DESCRIPTION HEREON WAS WRITTEN BY THIS SURVEYOR AT THE DIRECTION OF THE CLIENT.
4. BEARINGS SHOWN HEREON ARE BASED ON THE WEST BOUNDARY LINE OF COCOA COMMONS, AS BEING N00°14'26"E, PER PLAT BOOK 46, PAGE 27.
5. NO ABSTRACT FOR RIGHT-OF-WAY, EASEMENTS, OWNERSHIP OR OTHER INSTRUMENTS OF RECORD HAVE BEEN PROVIDED TO THIS FIRM.
6. ANY MODIFICATIONS TO THIS LEGAL DESCRIPTION WITHOUT WRITTEN PERMISSION, IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY.

CERTIFICATION:

I HEREBY STATE THAT THIS SKETCH AND DESCRIPTION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THAT THIS SKETCH AND DESCRIPTION MEETS STANDARDS OF PRACTICE FOR FLORIDA SURVEYORS AND MAPPERS, AS SET FORTH IN CHAPTER 32-17.05 OF THE FLORIDA ADMINISTRATIVE CODE, PURSUANT TO CHAPTER 472.027, FLORIDA STATUTES.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAMES W. QUARTEL, P.S.M. ON JULY 02, 2024.

For the firm by:

JAMES W. QUARTEL, P.S.M.
 Professional Surveyor and Mapper
 Florida License No. 8032



804 COURTLAND STREET SUITE 101
 PHONE: (407) 960-1980
 ORLANDO, FLORIDA 32804
 CERTIFICATE OF AUTHORIZATION # 2296

LAND DEVELOPMENT
 SURVEYING
 CONSTRUCTION ENGINEERING INSPECTION

DATE
 07-01-24
 DRAWN BY
 HW
 CHECKED BY
 JWD

PROJECT # 180705.06 – LONDON COVE
 SKETCH OF DESCRIPTION – CROSS ACCESS EASEMENT
 BREVARD COUNTY, FL

SHEET NO.	OF
1	2
FILE: 180705.06	

VICINITY MAP NOT TO SCALE

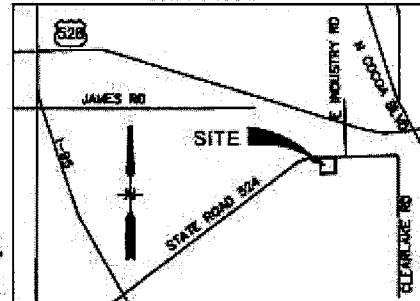
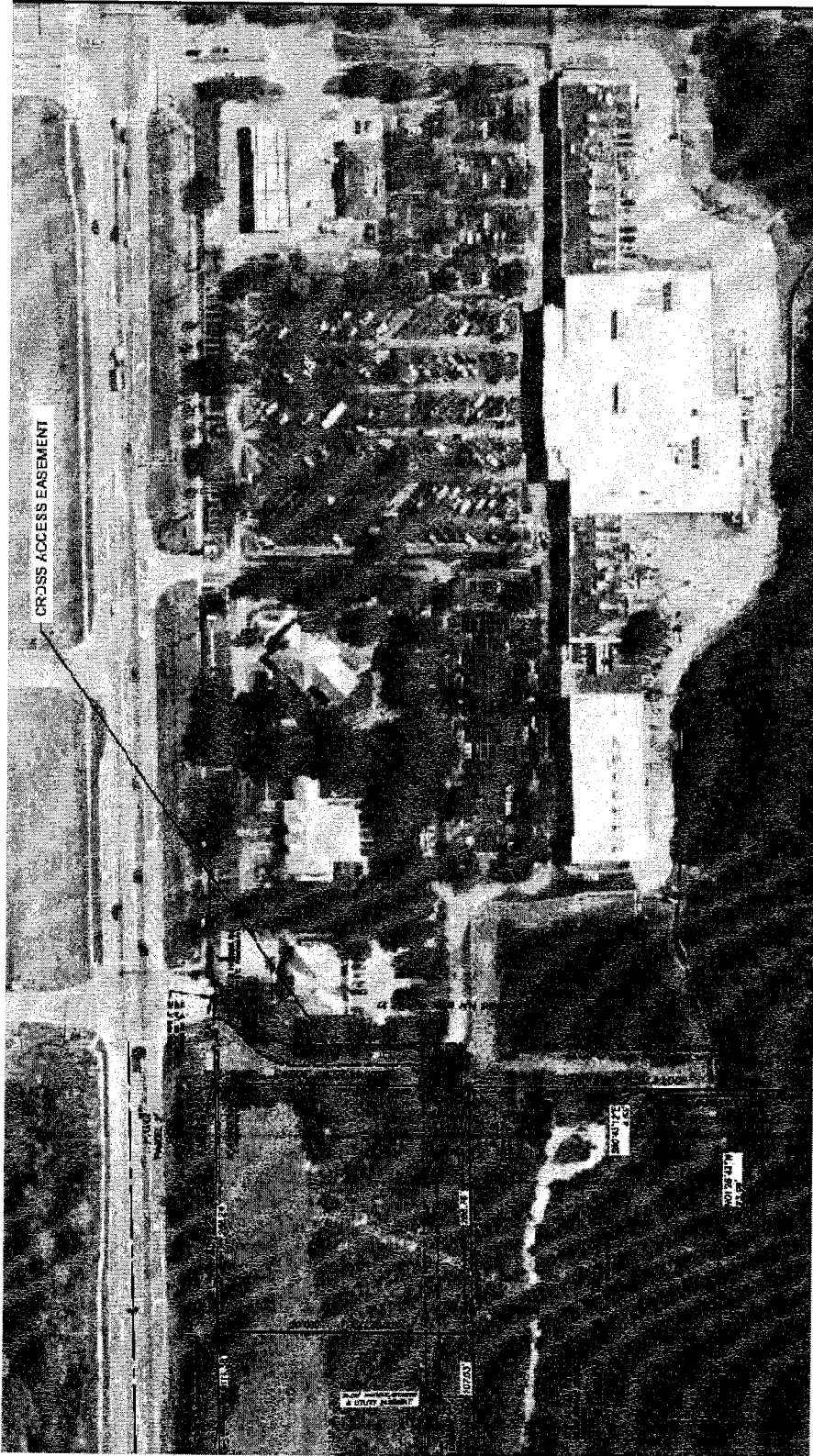


Exhibit “D” – Plan (Page 2)

Exhibit "D" – Plan (Page 3)



From: [Mehta, Dharmesh](#)
To: [Dave Schmitt](#); [Robert Walker](#); [Laura Campos](#)
Cc: [Nancy Carreras](#); [Rickard, William Scott](#); [Schappel, David](#); [Keels, Curtis](#); [Strowbridge, Edward](#); [Gillianna Canelo](#); [Chris Schmitt](#); [D5-Brevard Permits](#)
Subject: Re: London Cove Development SR 524 City of Cocoa
Date: Tuesday, October 8, 2024 10:08:34 AM

Good morning,

FDOT has no objections to crossing utilities through the drainage easement area, provided that all requirements outlined in the UAM and DM are met.

Please feel free to reach out with any questions.

Thank You,

Danny Mehta

FDOT Brevard Operations

Permits Department

Office : (321)634-6100 DOTNet 885-6100

Direct : (321)634-6132 DOTNet 885-6132

Email : dharmesh.mehta@dot.state.fl.us

Work Hours: M-Th: 7:00 a.m.-5.30 p.m.

From: Dave Schmitt <dave.schmitt@dseorl.com>
Sent: Tuesday, October 8, 2024 8:56 AM
To: Mehta, Dharmesh <Dharmesh.Mehta@dot.state.fl.us>; Robert Walker <Robert.Walker@dseorl.com>; Laura Campos <lacampos@HNTB.com>
Cc: Nancy Carreras <Nancy.Carreras@dseorl.com>; Rickard, William Scott <William.Rickard@dot.state.fl.us>; Schappel, David <David.Schappel@dot.state.fl.us>; Keels, Curtis <Curtis.Keels@dot.state.fl.us>; Strowbridge, Edward <Edward.Strowbridge@dot.state.fl.us>; Gillianna Canelo <gillianna.canelo@dseorl.com>; Chris Schmitt <chris.schmitt@dseorl.com>; D5-Brevard Permits <D5-BrevardPermits@dot.state.fl.us>
Subject: RE: London Cove Development SR 524 City of Cocoa

Hello, we have an existing utility permit. We are submitting for new driveway and drainage permit since prior expired. What we need is email from you for City saying we will be fine to cross the drainage easement that crosses this site. It should not be a problem since we have had crossings over the past 17 years on versions of this plan. Hopefully, you can help us. Thank you

Dave Schmitt, P.E.

Dave Schmitt Engineering, Inc.

12301 Lake Underhill Road – Suite 241

Orlando, FL 32828

407-207-9088

407-207-9089 fax

dave.schmitt@dseorl.com

From: Mehta, Dharmesh <Dharmesh.Mehta@dot.state.fl.us>
Sent: Monday, October 7, 2024 5:40 PM

To: Robert Walker <Robert.Walker@dseorl.com>; Laura Campos <lacampos@HNTB.com>
Cc: Dave Schmitt <dave.schmitt@dseorl.com>; Nancy Carreras <Nancy.Carreras@dseorl.com>; Rickard, William Scott <William.Rickard@dot.state.fl.us>; Schappel, David <David.Schappel@dot.state.fl.us>; Keels, Curtis <Curtis.Keels@dot.state.fl.us>; Strowbridge, Edward <Edward.Strowbridge@dot.state.fl.us>; Gillianna Canelo <gillianna.canelo@dseorl.com>; Chris Schmitt <chris.schmitt@dseorl.com>; D5-Brevard Permits <D5-BrevardPermits@dot.state.fl.us>
Subject: Re: London Cove Development SR 524 City of Cocoa

Hi Robert,

Following our conversation this afternoon, please submit a request for a revision to Permit 2020-H-590-00014 of watermain, reclaim watermain for the City of Cocoa. The revision should include cross sections detailing the installation of the water main, reclaimed water main, and drainage in the easement area.

Additionally, please note that the force main connection will be submitted under a separate new FDOT utility permit application. If the project is moving forward, new driveway and drainage FDOT permit submissions will also be required.

If you have any questions, please feel free to contact us.

Thank You,
Danny Mehta
FDOT Brevard Operations
Permits Department
Office : (321)634-6100 DOTNet 885-6100
Direct : (321)634-6132 DOTNet 885-6132
Email : dharmesh.mehta@dot.state.fl.us
Work Hours: M-Th: 7:00 a.m.-5.30 p.m.

From: Mehta, Dharmesh <Dharmesh.Mehta@dot.state.fl.us>

Sent: Monday, October 7, 2024 4:53 PM

To: Robert Walker <Robert.Walker@dseorl.com>; Laura Campos <lacampos@HNTB.com>

Cc: Dave Schmitt <dave.schmitt@dseorl.com>; Nancy Carreras <Nancy.Carreras@dseorl.com>;

Rickard, William Scott <William.Rickard@dot.state.fl.us>; Schappel, David

<David.Schappel@dot.state.fl.us>; Keels, Curtis <Curtis.Keels@dot.state.fl.us>; Strowbridge, Edward

<Edward.Strowbridge@dot.state.fl.us>; Gillianna Canelo <gillianna.canelo@dseorl.com>; Chris

Schmitt <chris.schmitt@dseorl.com>; D5-Brevard Permits <D5-BrevardPermits@dot.state.fl.us>

Subject: Re: London Cove Development SR 524 City of Cocoa

Hi Robert,

The following permits have been denied/voided in accordance with Florida Rule Chapter regulations due to the applications exceeding the 90-day statutory limit.

- Driveway Permit: 2018-A-590-036

Drainage Permit: 2018-D-590-028

To proceed, new permit submissions are required.

2020-H-590-00014 is still active.

If you have any questions, please feel free to reach out.

Thank You,

Danny Mehta

FDOT Brevard Operations

Permits Department

Office : (321)634-6100 DOTNet 885-6100

Direct : (321)634-6132 DOTNet 885-6132

Email : dharmesh.mehta@dot.state.fl.us

Work Hours: M-Th: 7:00 a.m.-5.30 p.m.

From: Robert Walker <Robert.Walker@dseorl.com>

Sent: Monday, October 7, 2024 4:23 PM

To: Mehta, Dharmesh <Dharmesh.Mehta@dot.state.fl.us>; Laura Campos <lacampos@HNTB.com>

Cc: Dave Schmitt <dave.schmitt@dseorl.com>; Nancy Carreras <Nancy.Carreras@dseorl.com>;

Rickard, William Scott <William.Rickard@dot.state.fl.us>; Schappel, David

<David.Schappel@dot.state.fl.us>; Keels, Curtis <Curtis.Keels@dot.state.fl.us>; Strowbridge, Edward

<Edward.Strowbridge@dot.state.fl.us>; Gillianna Canelo <gillianna.canelo@dseorl.com>; Chris

Schmitt <chris.schmitt@dseorl.com>

Subject: RE: London Cove Development SR 524 City of Cocoa

Hi Danny,

These are the permit numbers for the site. Below is a ShareFile of the set of construction plans for your review.

Utility: 2020-H-590-00014

Driveway: 2018-A-590-036

Drainage: 2018-D-590-028

<https://fileshare.dseorl.com/fileshare/wl/?id=SKwKEZ0wekirudSf4y1d0Yloqpqeah3x>

Thank you!

Robert Walker

Project Manager

Dave Schmitt Engineering, Inc.

12301 Lake Underhill Road – Suite 241

Orlando, FL 32828

Office: 407.207.9088 x 112

Cell: 352.630.9819

Robert.Walker@dseorl.com

From: Mehta, Dharmesh <Dharmesh.Mehta@dot.state.fl.us>
Sent: Monday, October 7, 2024 3:59 PM
To: Robert Walker <Robert.Walker@dseorl.com>; Laura Campos <lacampos@HNTB.com>
Cc: Dave Schmitt <dave.schmitt@dseorl.com>; Nancy Carreras <Nancy.Carreras@dseorl.com>; Rickard, William Scott <William.Rickard@dot.state.fl.us>; Schappel, David <David.Schappel@dot.state.fl.us>; Keels, Curtis <Curtis.Keels@dot.state.fl.us>; Strowbridge, Edward <Edward.Strowbridge@dot.state.fl.us>; Gillian Canelo <gillian.canelo@dseorl.com>
Subject: Re: London Cove Development SR 524 City of Cocoa

Hi Robert,

Could you please provide the FDOT permit application numbers for this project? FDOT requires the submission of a permit to allow utility installation within the easement area, including details on how the utility connections are constructed in relation to drainage.

Please feel free to reach out if you have any questions.

Thank You,
Danny Mehta
FDOT Brevard Operations
Permits Department
Office : (321)634-6100 DOTNet 885-6100
Direct : (321)634-6132 DOTNet 885-6132
Email : dharmesh.mehta@dot.state.fl.us
Work Hours: M-Th: 7:00 a.m.-5.30 p.m.

From: Robert Walker <Robert.Walker@dseorl.com>
Sent: Monday, October 7, 2024 3:43 PM
To: Mehta, Dharmesh <Dharmesh.Mehta@dot.state.fl.us>; Laura Campos <lacampos@HNTB.com>
Cc: Dave Schmitt <dave.schmitt@dseorl.com>; Nancy Carreras <Nancy.Carreras@dseorl.com>; Rickard, William Scott <William.Rickard@dot.state.fl.us>; Schappel, David <David.Schappel@dot.state.fl.us>; Keels, Curtis <Curtis.Keels@dot.state.fl.us>; Strowbridge, Edward <Edward.Strowbridge@dot.state.fl.us>; Gillian Canelo <gillian.canelo@dseorl.com>
Subject: RE: London Cove Development SR 524 City of Cocoa

Hi Dharmesh,

Thank you for your reply, we have already submitted all required FDOT permit applications for this project. Based on a City of Cocoa subdivision review comment, the City is requesting that approval from FDOT as it relates to the subdivision utilities; water, wastewater, reclaim water, and storm water lines crossing over existing FDOT Drainage Easement as described in O.R.B. 6631, Page 2401. I don't believe we need to submit a permit application for this, all this City is asking for is an affirmative or negative response to the request. Since this project has been on-going since 2010 we don't believe there is a FDOT issue with the crossing as the FDOT easement was granted by the owners of the property long ago with the intension of developing the site as shown on the attached PDF Utility plan. Please contact us if you have any questions. Respectfully, this is a time sensitive request, and your response is very

appreciated.

Thank you for your time and consideration.

Robert Walker

Project Manager

Dave Schmitt Engineering, Inc.

12301 Lake Underhill Road – Suite 241

Orlando, FL 32828

Office: 407.207.9088 x 112

Cell: 352.630.9819

Robert.Walker@dseorl.com

From: Mehta, Dharmesh <Dharmesh.Mehta@dot.state.fl.us>

Sent: Monday, October 7, 2024 1:20 PM

To: Robert Walker <Robert.Walker@dseorl.com>; Laura Campos <lacampos@HNTB.com>

Cc: Dave Schmitt <dave.schmitt@dseorl.com>; Nancy Carreras <Nancy.Carreras@dseorl.com>; Rickard, William Scott <William.Rickard@dot.state.fl.us>; Schappel, David <David.Schappel@dot.state.fl.us>; Keels, Curtis <Curtis.Keels@dot.state.fl.us>; Strowbridge, Edward <Edward.Strowbridge@dot.state.fl.us>

Subject: Re: London Cove Development SR 524 City of Cocoa

Hi Robert,

Please submit the utility permit through the FDOT One Stop Permitting (OSP) system, including all relevant details. We will review it and explore the possibilities.

If this project is in the final stages, please remember that new driveway and drainage permit submissions to FDOT are also required.

Feel free to reach out to us if you have any questions.

Thank You,

Danny Mehta

FDOT Brevard Operations

Permits Department

Office : (321)634-6100 DOTNet 885-6100

Direct : (321)634-6132 DOTNet 885-6132

Email : dharmesh.mehta@dot.state.fl.us

Work Hours: M-Th: 7:00 a.m.-5.30 p.m.

From: Robert Walker <Robert.Walker@dseorl.com>

Sent: Friday, October 4, 2024 8:25 AM

To: Laura Campos <lacampos@HNTB.com>

Cc: Dave Schmitt <dave.schmitt@dseorl.com>; Nancy Carreras <Nancy.Carreras@dseorl.com>; Mehta, Dharmesh <Dharmesh.Mehta@dot.state.fl.us>; Rickard, William Scott <William.Rickard@dot.state.fl.us>; Schappel, David <David.Schappel@dot.state.fl.us>

Subject: RE: London Cove Development SR 524 City of Cocoa

Hi Laura,

Pursuant to a request from Dave Schappel (below message) we need some assistance with the existing FDOT easement as described in below message. Please contact us as this project is in the final stages and we need to move forward as soon as possible.

Thank you and have a great day!

Robert Walker

Project Manager

Dave Schmitt Engineering, Inc.

12301 Lake Underhill Road – Suite 241

Orlando, FL 32828

Office: 407.207.9088 x 112

Cell: 352.630.9819

Robert.Walker@dseorl.com

From: Schappel, David <David.Schappel@dot.state.fl.us>

Sent: Friday, October 4, 2024 8:05 AM

To: Robert Walker <Robert.Walker@dseorl.com>

Cc: Dave Schmitt <dave.schmitt@dseorl.com>; Nancy Carreras <Nancy.Carreras@dseorl.com>;

Laura Campos <lacampos@HNTB.com>; Mehta, Dharmesh <Dharmesh.Mehta@dot.state.fl.us>;

Rickard, William Scott <William.Rickard@dot.state.fl.us>

Subject: RE: London Cove Development SR 524 City of Cocoa

Good morning, Robert,

Good to hear from you.

Thank you for contacting me about London Cove.

If you would, please contact Laura Campos, PE, who is much better at this than I am.

Regards,

Dave Schappel, PE

Kepler (DeLand) Operations

1650 N Kepler Road, DeLand, FL 32724

386-279-5442 (cell)

'Drainage Since 1970'

From: Robert Walker <Robert.Walker@dseorl.com>

Sent: Thursday, October 3, 2024 3:03 PM

To: Schappel, David <David.Schappel@dot.state.fl.us>

Cc: Dave Schmitt <dave.schmitt@dseorl.com>; Nancy Carreras <Nancy.Carreras@dseorl.com>

Subject: London Cove Development SR 524 City of Cocoa

EXTERNAL SENDER: Use caution with links and attachments.

Hi Dave,

Please see the attached plan that has been in the works for some time. We are sending this to you as we would like to know if we can cross the existing FDOT drainage easement as described in O.R.B. 6631, Page 2401 with needed utilities for future development infrastructure for the project. Please let us know at your earliest convenience. We appreciate your time and consideration.

Thank you!

P.S. I worked with you at Interplan.

Robert Walker

Project Manager

Dave Schmitt Engineering, Inc.

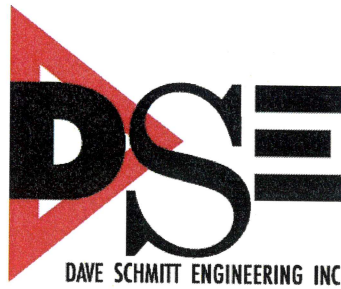
12301 Lake Underhill Road – Suite 241

Orlando, FL 32828

Office: 407.207.9088 x 112

Cell: 352.630.9819

Robert.Walker@dseorl.com



February 21, 2025

Kristin Eick
Florida Bar Certified in City, County, and Local Government Law
111 N. Orange Ave., Suite 2000
P.O. Box 2873
Orlando, Florida 32802

Re: London Cove
City of Cocoa - PZ-18-00100002
DSE Job: DB-3
Engineer Letter

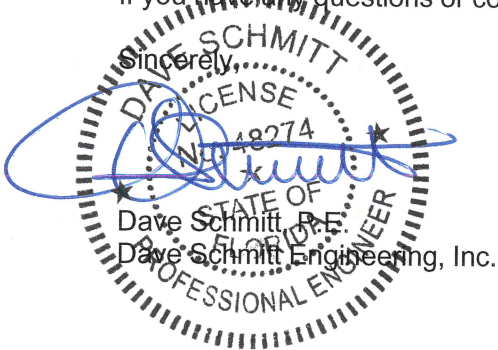
Sent Via Email: keick@Orlandolaw.net

Dear Kristin Eick,

As Engineer of record I am certifying that the engineering plans for the utility crossings will satisfy all requirements of the UAM and the DM as outlined by FDOT in their letter.

If you have any questions or concerns, please do not hesitate to contact our office at (407) 207-9088.

Sincerely,



Cc: Dack Vaught, Demetree Builders
Ray Bradick, PKA Orlando
File



Utility Calculations

London Cove
Cocoa, Florida

(DSE Job No.: DB-3)

Prepared By
Dave Schmitt Engineering, Inc.

Prepared For
Demetree Builders

July 2009
January 2010
September 2018
October 2018
December 2018
February 2019
September 2020
Revised October 2024

State of Florida Board of Professional Engineers
Certification of Authorization #27471

Utility Calculations

London Cove Cocoa, Florida



Prepared For
Demetree Builders

Prepared By
Dave Schmitt Engineering, Inc.

Dave Schmitt, P.E
Fl. Reg. #48274

July 2009
January 2010
September 2018
October 2018
December 2018
February 2019
September 2020
October 2024

12301 Lake Underhill Rd Suite 241, Orlando, Florida 32828 (407) 207-9088
State of Florida Board of Professional Engineers
Certification of Authorization #27471

*Utility Calculations
London Cove
Cocoa, Florida*

Table of Contents

Water & Fireflow Summary & Exhibits.....	1
Water & Fireflow Calculations	
Wastewater Summary & Exhibits.....	2
Wastewater Calculations	
Reuse Water Summary & Exhibits.....	3
Reuse Water Calculations	
Annex H Fire Flow Requirements for Buildings.....	4

WATER & FIREFLOW SUMMARY

London Cove is located on SR 524 just west of Industry Road in Brevard County, Florida in Section 7, Township 21 South, and Range 31 East.

The project site will include future residential development, which was assumed to be townhomes for design purposes, as well as commercial development.

Connection to the Existing System

The system is to be connecting to an existing 8" stub out on the south side of SR 524 from an existing 36" water main located along the north side of SR 524. A fire hydrant flow test was completed on January 11, 2019 and results from this test were used on our point of connection. The fire flow test is included.

Fire flow was calculated using Annex H, Building type V(000) for the maximum building size of 43,462sf. Per Annex H, the required fire flow is 5,750gpm with a 75% reduction for sprinkled buildings. The required fire flow is 1,437gpm and was modeled as 1,500gpm for design purposes.

System Demand

See included Water Demands calculation sheet.

System Performance

Supply required fireflow and maximum daily demand at minimum residual 20 PSI.

Methodology

The system is modeled using WaterCAD. The system demands are calculated for the peak hourly flow, maximum daily flow, and maximum daily flow with added Fireflow for two sets of fire hydrants. The residual pressure is checked at all nodes in the model for all simulations to verify that minimum or greater pressures can be maintained. Fireflow demands are placed at worst-case locations in the model.

Results

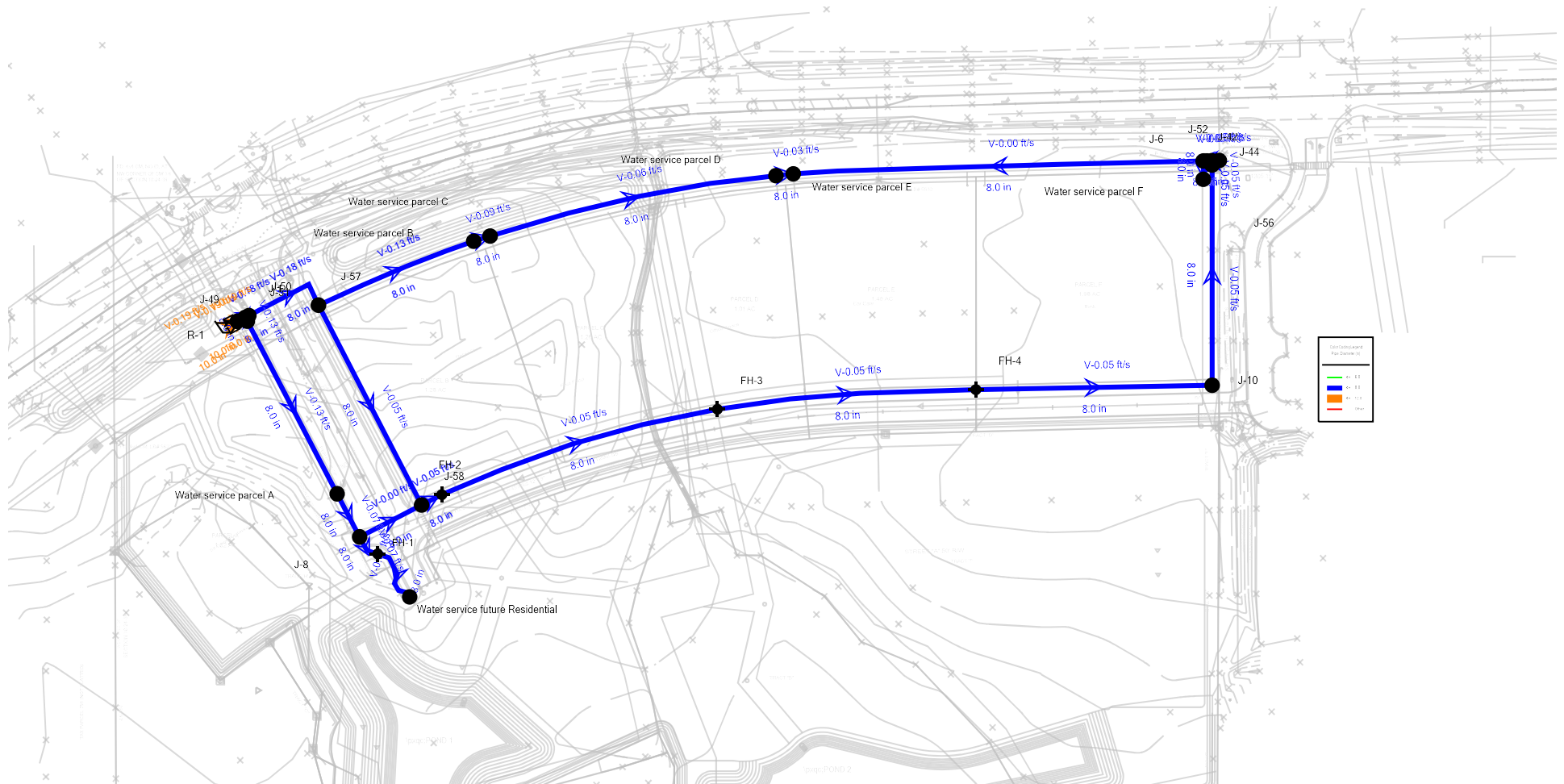
The system meets all pressure and fireflow requirements during all modeled scenarios.

London Cove

Potable Water Flows

Scenario: ADF

Active Scenario: ADF



London Cove
Potable Water Flows
FlexTable: Pipe Table
Active Scenario: ADF

Label	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Material	Hazen- Williams C	Velocity (ft/s)	Pressure (Start) (psi)	Flow (gal/min)
P-1	FH-2	FH-3	341.17	8.0	PVC	120.0	0.05	63.6	8.37
P-2	FH-3	FH-4	305.97	8.0	PVC	120.0	0.05	63.0	8.37
P-3	FH-1	Water service future Residential	73.31	8.0	PVC	120.0	0.07	63.8	11.20
P-4	Water service parcel B	Water service parcel C	20.23	8.0	PVC	120.0	0.09	62.8	14.43
P-5	Water service parcel C	Water service parcel D	345.14	8.0	PVC	120.0	0.06	62.8	9.33
P-6	Water service parcel D	Water service parcel E	20.63	8.0	PVC	120.0	0.03	62.8	5.33
P-7	Water service parcel E	J-6	483.73	8.0	PVC	120.0	0.00	62.8	-0.47
P-8	J-42	J-56	5.29	8.0	PVC	120.0	0.05	62.8	-8.37
P-9	J-56	J-10	259.25	8.0	PVC	120.0	0.05	62.8	-8.37
P-10	J-6	J-52	4.47	8.0	PVC	120.0	0.05	62.0	-8.37
P-11	J-52	J-42	5.51	8.0	PVC	120.0	0.05	62.3	-8.37
P-12	J-42	J-44	8.92	8.0	PVC	120.0	0.00	62.8	0.00
P-13	J-49	J-1	10.57	10.0	PVC	120.0	0.19	63.0	47.40
P-14	J-1	J-50	4.87	8.0	PVC	120.0	0.18	63.0	27.66
P-15	J-1	J-51	5.11	8.0	PVC	120.0	0.13	63.0	19.74
P-16	J-51	Water service parcel A	229.25	8.0	PVC	120.0	0.13	63.1	19.74
P-17	J-6	Water service parcel F	21.63	8.0	PVC	120.0	0.05	62.0	7.90
P-18	R-1	CV-1	6.39	10.0	PVC	120.0	0.19	0.0	47.40
P-19	CV-1	J-49	7.44	10.0	PVC	120.0	0.19	63.0	47.40
P-20	Water service parcel A	J-8	57.30	8.0	PVC	120.0	0.07	63.6	11.74
P-21	J-8	FH-1	31.61	8.0	PVC	120.0	0.07	63.7	11.20
P-22	FH-4	J-10	278.73	8.0	PVC	120.0	0.05	62.9	8.37
P-23	J-50	J-57	106.66	8.0	PVC	120.0	0.18	63.0	27.66
P-24	J-57	Water service parcel B	198.09	8.0	PVC	120.0	0.13	63.0	19.83
P-25	FH-2	J-58	26.79	8.0	PVC	120.0	0.05	63.6	-8.37
P-26	J-58	J-8	82.16	8.0	PVC	120.0	0.00	63.6	-0.54
P-27	J-57	J-58	265.01	8.0	PVC	120.0	0.05	63.0	7.84

London Cove
Potable Water Flows
FlexTable: Junction Table
Active Scenario: ADF

Label	Elevation (ft)	Demand (gal/min)	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)
Water service future Residential	24.40	11.20	170.72	63.3	146.32
J-10	25.85	0.00	170.71	62.7	144.86
J-8	23.40	0.00	170.72	63.7	147.32
Water service parcel B	25.50	5.40	170.71	62.8	145.21
Water service parcel C	25.50	5.10	170.71	62.8	145.21
Water service parcel D	25.50	4.00	170.71	62.8	145.21
Water service parcel E	25.50	5.80	170.71	62.8	145.21
J-6	27.50	0.00	170.71	62.0	143.21
J-42	25.50	0.00	170.71	62.8	145.21
J-1	25.00	0.00	170.72	63.0	145.72
J-44	0.00	0.00	170.71	73.9	170.71
Water service parcel A	23.77	8.00	170.72	63.6	146.95
Water service parcel F	0.00	7.90	170.71	73.9	170.71
J-49	25.00	0.00	170.72	63.0	145.72
J-50	25.01	0.00	170.72	63.0	145.71
J-51	24.97	0.00	170.72	63.1	145.75
J-52	26.70	0.00	170.71	62.3	144.01
J-56	25.51	0.00	170.71	62.8	145.21
J-57	25.18	0.00	170.72	63.0	145.54
J-58	23.66	0.00	170.72	63.6	147.05

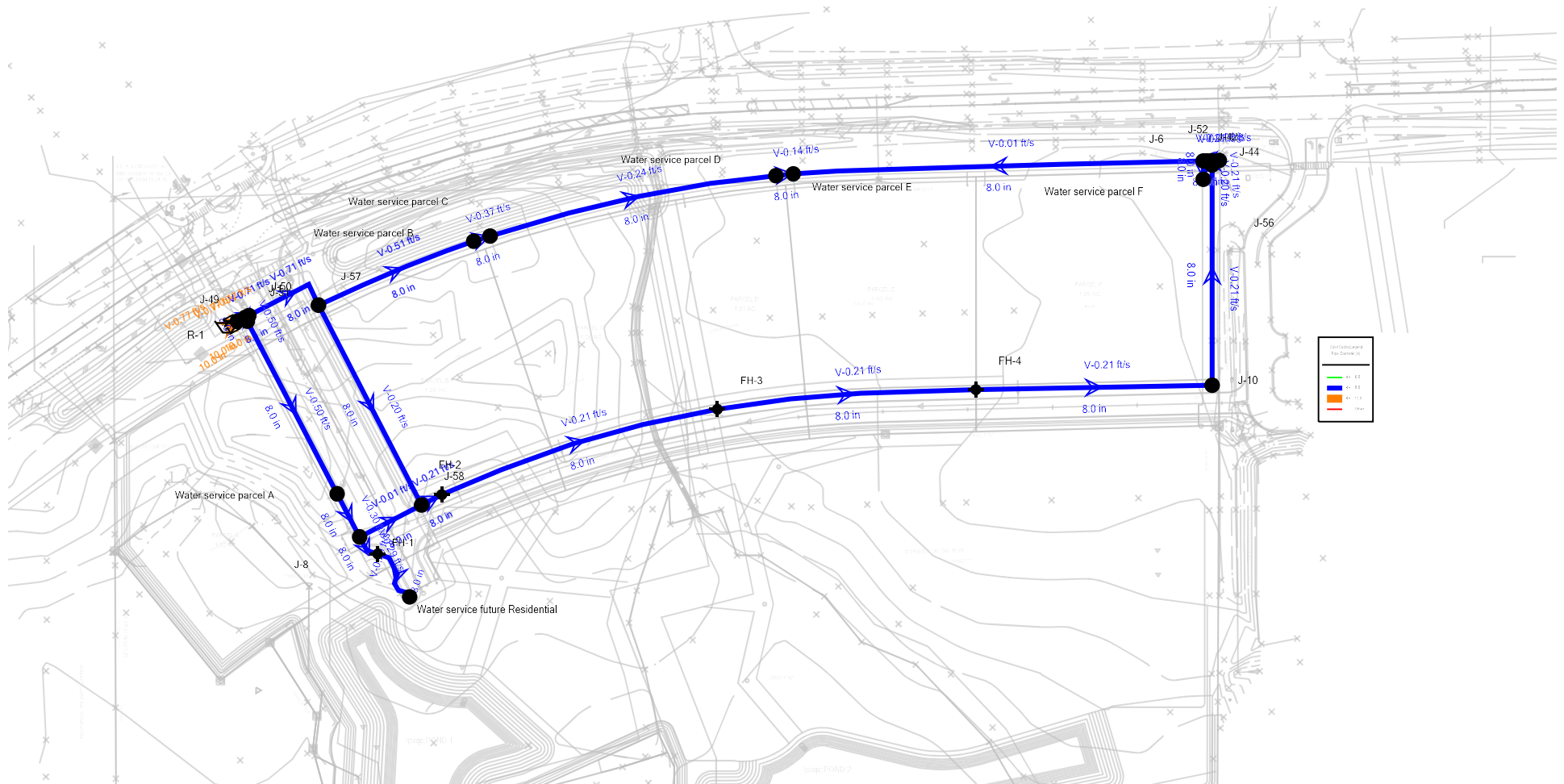
London Cove
Potable Water Flows
FlexTable: Reservoir Table
Active Scenario: ADF

Label	Elevation (ft)	Flow (Out net) (gal/min)	Hydraulic Grade (ft)
R-1	170.72	47.40	170.72

London Cove
Potable Water Flows
FlexTable: Hydrant Table
Active Scenario: ADF

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gal/min)	Pressure Head (ft)
FH-2	23.75	170.72	63.6	0.00	146.97
FH-3	25.10	170.71	63.0	0.00	145.61
FH-4	25.30	170.71	62.9	0.00	145.41
FH-1	23.30	170.72	63.8	0.00	147.42

London Cove
Potable Water Flows
Scenario: PHF
Active Scenario: PHF



London Cove
Potable Water Flows
FlexTable: Pipe Table
Active Scenario: PHF

Label	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Material	Hazen- Williams C	Velocity (ft/s)	Pressure (Start) (psi)	Flow (gal/min)
P-1	FH-2	FH-3	341.17	8.0	PVC	120.0	0.21	63.6	33.52
P-2	FH-3	FH-4	305.97	8.0	PVC	120.0	0.21	63.0	33.52
P-3	FH-1	Water service future Residential	73.31	8.0	PVC	120.0	0.29	63.8	44.90
P-4	Water service parcel B	Water service parcel C	20.23	8.0	PVC	120.0	0.37	62.8	57.78
P-5	Water service parcel C	Water service parcel D	345.14	8.0	PVC	120.0	0.24	62.8	37.48
P-6	Water service parcel D	Water service parcel E	20.63	8.0	PVC	120.0	0.14	62.8	21.48
P-7	Water service parcel E	J-6	483.73	8.0	PVC	120.0	0.01	62.8	-1.82
P-8	J-42	J-56	5.29	8.0	PVC	120.0	0.21	62.8	-33.52
P-9	J-56	J-10	259.25	8.0	PVC	120.0	0.21	62.8	-33.52
P-10	J-6	J-52	4.47	8.0	PVC	120.0	0.21	61.9	-33.52
P-11	J-52	J-42	5.51	8.0	PVC	120.0	0.21	62.3	-33.52
P-12	J-42	J-44	8.92	8.0	PVC	120.0	0.00	62.8	0.00
P-13	J-49	J-1	10.57	10.0	PVC	120.0	0.77	63.0	189.70
P-14	J-1	J-50	4.87	8.0	PVC	120.0	0.71	63.0	110.70
P-15	J-1	J-51	5.11	8.0	PVC	120.0	0.50	63.0	79.00
P-16	J-51	Water service parcel A	229.25	8.0	PVC	120.0	0.50	63.1	79.00
P-17	J-6	Water service parcel F	21.63	8.0	PVC	120.0	0.20	61.9	31.70
P-18	R-1	CV-1	6.39	10.0	PVC	120.0	0.77	0.0	189.70
P-19	CV-1	J-49	7.44	10.0	PVC	120.0	0.77	63.0	189.70
P-20	Water service parcel A	J-8	57.30	8.0	PVC	120.0	0.30	63.6	47.00
P-21	J-8	FH-1	31.61	8.0	PVC	120.0	0.29	63.7	44.90
P-22	FH-4	J-10	278.73	8.0	PVC	120.0	0.21	62.9	33.52
P-23	J-50	J-57	106.66	8.0	PVC	120.0	0.71	63.0	110.70
P-24	J-57	Water service parcel B	198.09	8.0	PVC	120.0	0.51	62.9	79.28
P-25	FH-2	J-58	26.79	8.0	PVC	120.0	0.21	63.6	-33.52
P-26	J-58	J-8	82.16	8.0	PVC	120.0	0.01	63.6	-2.10
P-27	J-57	J-58	265.01	8.0	PVC	120.0	0.20	62.9	31.42

London Cove
Potable Water Flows
FlexTable: Junction Table
Active Scenario: PHF

Label	Elevation (ft)	Demand (gal/min)	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)
Water service future Residential	24.40	44.90	170.66	63.3	146.26
J-10	25.85	0.00	170.63	62.6	144.78
J-8	23.40	0.00	170.66	63.7	147.26
Water service parcel B	25.50	21.50	170.63	62.8	145.13
Water service parcel C	25.50	20.30	170.63	62.8	145.13
Water service parcel D	25.50	16.00	170.61	62.8	145.11
Water service parcel E	25.50	23.30	170.61	62.8	145.11
J-6	27.50	0.00	170.61	61.9	143.11
J-42	25.50	0.00	170.61	62.8	145.11
J-1	25.00	0.00	170.71	63.0	145.71
J-44	0.00	0.00	170.61	73.8	170.61
Water service parcel A	23.77	32.00	170.67	63.6	146.90
Water service parcel F	0.00	31.70	170.61	73.8	170.61
J-49	25.00	0.00	170.72	63.0	145.72
J-50	25.01	0.00	170.71	63.0	145.70
J-51	24.97	0.00	170.71	63.1	145.74
J-52	26.70	0.00	170.61	62.3	143.92
J-56	25.51	0.00	170.61	62.8	145.11
J-57	25.18	0.00	170.67	62.9	145.49
J-58	23.66	0.00	170.66	63.6	147.00

London Cove
Potable Water Flows
FlexTable: Reservoir Table
Active Scenario: PHF

Label	Elevation (ft)	Flow (Out net) (gal/min)	Hydraulic Grade (ft)
R-1	170.72	189.70	170.72

London Cove
Potable Water Flows
FlexTable: Hydrant Table
Active Scenario: PHF

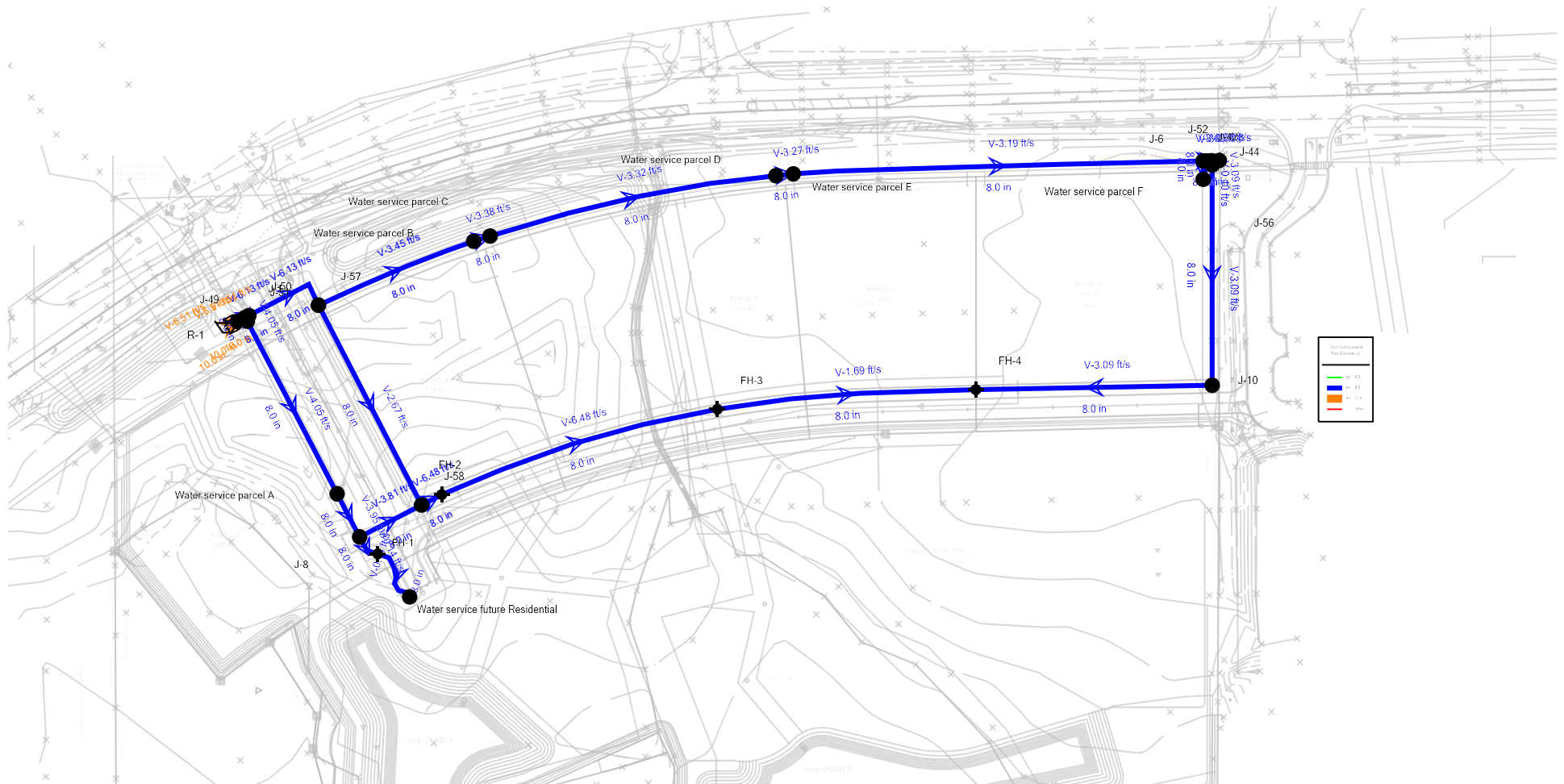
Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gal/min)	Pressure Head (ft)
FH-2	23.75	170.66	63.6	0.00	146.91
FH-3	25.10	170.65	63.0	0.00	145.55
FH-4	25.30	170.64	62.9	0.00	145.34
FH-1	23.30	170.66	63.8	0.00	147.36

London Cove

Potable Water Flows

Scenario: MDF - Fireflow at FH-3 & FH-4

Active Scenario: MDF - Fireflow at FH-3 & FH-4



London Cove
Potable Water Flows
FlexTable: Pipe Table

Active Scenario: MDF - Fireflow at FH-3 & FH-4

Label	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Material	Hazen- Williams C	Velocity (ft/s)	Pressure (Start) (psi)	Flow (gal/min)
P-1	FH-2	FH-3	341.17	8.0	PVC	120.0	6.48	61.7	1,015.29
P-2	FH-3	FH-4	305.97	8.0	PVC	120.0	1.69	57.9	265.29
P-3	FH-1	Water service future Residential	73.31	8.0	PVC	120.0	0.14	62.5	22.50
P-4	Water service parcel B	Water service parcel C	20.23	8.0	PVC	120.0	3.38	61.1	530.31
P-5	Water service parcel C	Water service parcel D	345.14	8.0	PVC	120.0	3.32	61.1	520.11
P-6	Water service parcel D	Water service parcel E	20.63	8.0	PVC	120.0	3.27	60.1	512.11
P-7	Water service parcel E	J-6	483.73	8.0	PVC	120.0	3.19	60.1	500.51
P-8	J-42	J-56	5.29	8.0	PVC	120.0	3.09	58.8	484.71
P-9	J-56	J-10	259.25	8.0	PVC	120.0	3.09	58.8	484.71
P-10	J-6	J-52	4.47	8.0	PVC	120.0	3.09	58.0	484.71
P-11	J-52	J-42	5.51	8.0	PVC	120.0	3.09	58.3	484.71
P-12	J-42	J-44	8.92	8.0	PVC	120.0	0.00	58.8	0.00
P-13	J-49	J-1	10.57	10.0	PVC	120.0	6.51	62.9	1,594.80
P-14	J-1	J-50	4.87	8.0	PVC	120.0	6.13	62.9	959.76
P-15	J-1	J-51	5.11	8.0	PVC	120.0	4.05	62.9	635.04
P-16	J-51	Water service parcel A	229.25	8.0	PVC	120.0	4.05	62.9	635.04
P-17	J-6	Water service parcel F	21.63	8.0	PVC	120.0	0.10	58.0	15.80
P-18	R-1	CV-1	6.39	10.0	PVC	120.0	6.51	0.0	1,594.80
P-19	CV-1	J-49	7.44	10.0	PVC	120.0	6.51	63.0	1,594.80
P-20	Water service parcel A	J-8	57.30	8.0	PVC	120.0	3.95	62.5	619.04
P-21	J-8	FH-1	31.61	8.0	PVC	120.0	0.14	62.4	22.50
P-22	FH-4	J-10	278.73	8.0	PVC	120.0	3.09	57.6	-484.71
P-23	J-50	J-57	106.66	8.0	PVC	120.0	6.13	62.8	959.76
P-24	J-57	Water service parcel B	198.09	8.0	PVC	120.0	3.45	61.8	541.01
P-25	FH-2	J-58	26.79	8.0	PVC	120.0	6.48	61.7	-1,015.29
P-26	J-58	J-8	82.16	8.0	PVC	120.0	3.81	62.0	-596.54
P-27	J-57	J-58	265.01	8.0	PVC	120.0	2.67	61.8	418.75

London Cove
Potable Water Flows
FlexTable: Junction Table

Active Scenario: MDF - Fireflow at FH-3 & FH-4

Label	Elevation (ft)	Demand (gal/min)	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)
Water service future Residential	24.40	22.50	167.66	62.0	143.26
J-10	25.85	0.00	159.97	58.0	134.12
J-8	23.40	0.00	167.67	62.4	144.27
Water service parcel B	25.50	10.70	166.77	61.1	141.27
Water service parcel C	25.50	10.20	166.64	61.1	141.14
Water service parcel D	25.50	8.00	164.46	60.1	138.96
Water service parcel E	25.50	11.60	164.33	60.1	138.83
J-6	27.50	0.00	161.49	58.0	133.99
J-42	25.50	0.00	161.43	58.8	135.93
J-1	25.00	0.00	170.31	62.9	145.31
J-44	0.00	0.00	161.43	69.8	161.43
Water service parcel A	23.77	16.00	168.16	62.5	144.40
Water service parcel F	0.00	15.80	161.49	69.9	161.49
J-49	25.00	0.00	170.49	62.9	145.49
J-50	25.01	0.00	170.21	62.8	145.20
J-51	24.97	0.00	170.26	62.9	145.29
J-52	26.70	0.00	161.46	58.3	134.77
J-56	25.51	0.00	161.41	58.8	135.90
J-57	25.18	0.00	168.12	61.8	142.94
J-58	23.66	0.00	167.00	62.0	143.33

London Cove
Potable Water Flows
FlexTable: Reservoir Table

Active Scenario: MDF - Fireflow at FH-3 & FH-4

Label	Elevation (ft)	Flow (Out net) (gal/min)	Hydraulic Grade (ft)
R-1	170.72	1,594.80	170.72

London Cove
Potable Water Flows
FlexTable: Hydrant Table

Active Scenario: MDF - Fireflow at FH-3 & FH-4

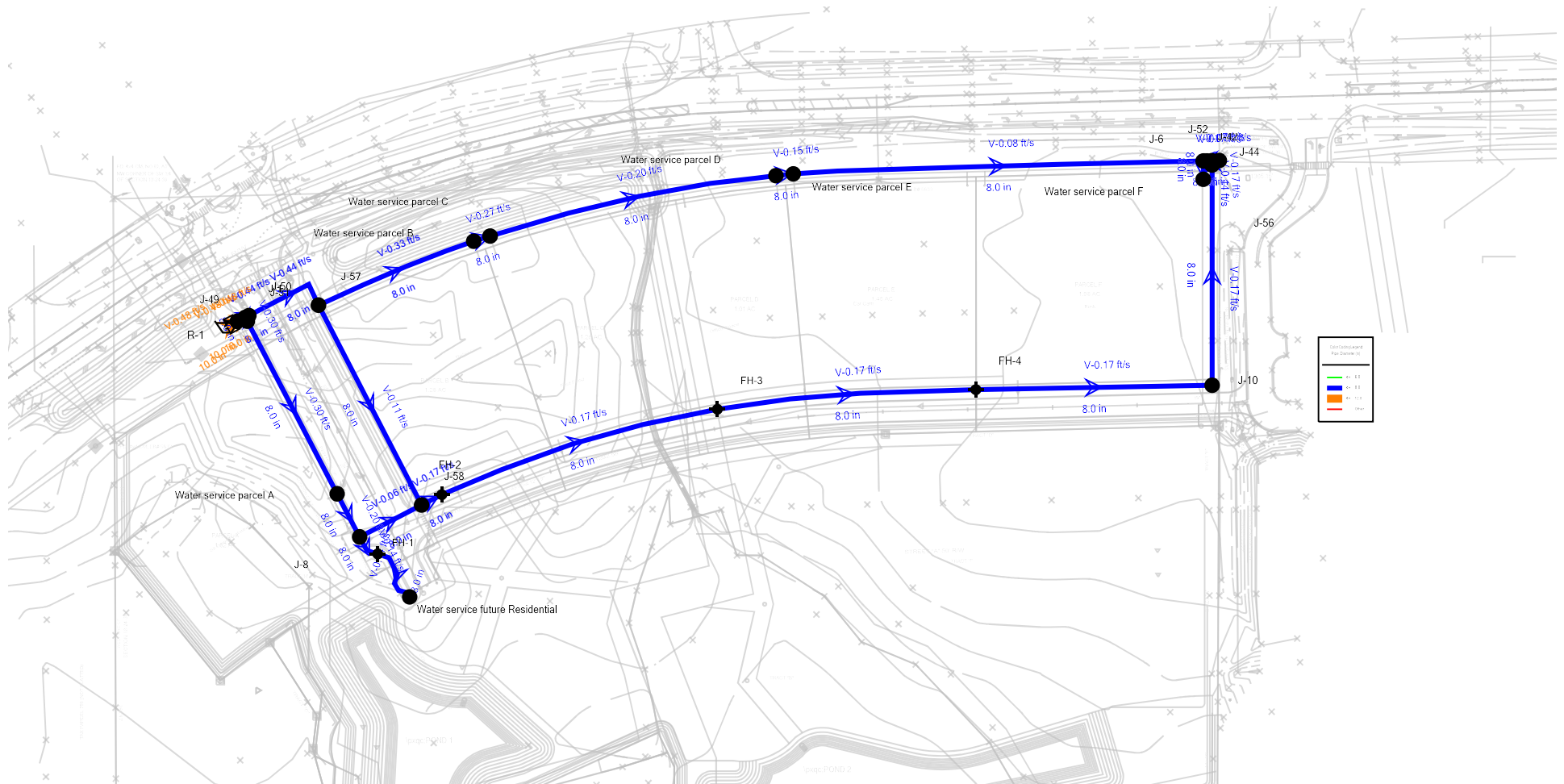
Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gal/min)	Pressure Head (ft)
FH-2	23.75	166.41	61.7	0.00	142.66
FH-3	25.10	158.98	57.9	750.00	133.88
FH-4	25.30	158.42	57.6	750.00	133.12
FH-1	23.30	167.66	62.5	0.00	144.36

London Cove

Potable Water Flows

Scenario: MDF - Fireflow Future at FH-6 & FH-7

Active Scenario: MDF - Fireflow Future at FH-6 & FH-7



London Cove
Potable Water Flows
FlexTable: Pipe Table

Active Scenario: MDF - Fireflow Future at FH-6 & FH-7

Label	Start Node	Stop Node	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Velocity (ft/s)	Pressure (Start) (psi)	Flow (gal/min)
P-1	FH-2	FH-3	341.17	8.0	PVC	120.0	0.17	63.6	26.46
P-2	FH-3	FH-4	305.97	8.0	PVC	120.0	0.17	63.0	26.46
P-3	FH-1	Water service future Reside ntial	73.31	8.0	PVC	120.0	0.14	63.8	22.50
P-4	Water service parcel B	Water service parcel C	20.23	8.0	PVC	120.0	0.27	62.8	41.64
P-5	Water service parcel C	Water service parcel D	345.14	8.0	PVC	120.0	0.20	62.8	31.44
P-6	Water service parcel D	Water service parcel E	20.63	8.0	PVC	120.0	0.15	62.8	23.44
P-7	Water service parcel E	J-6	483.73	8.0	PVC	120.0	0.08	62.8	11.84
P-8	J-42	J-56	5.29	8.0	PVC	120.0	0.17	62.8	-26.46
P-9	J-56	J-10	259.25	8.0	PVC	120.0	0.17	62.8	-26.46
P-10	J-6	J-52	4.47	8.0	PVC	120.0	0.17	61.9	-26.46
P-11	J-52	J-42	5.51	8.0	PVC	120.0	0.17	62.3	-26.46
P-12	J-42	J-44	8.92	8.0	PVC	120.0	0.00	62.8	0.00
P-13	J-49	J-1	10.57	10.0	PVC	120.0	0.48	63.0	117.30
P-14	J-1	J-50	4.87	8.0	PVC	120.0	0.44	63.0	69.61
P-15	J-1	J-51	5.11	8.0	PVC	120.0	0.30	63.0	47.69
P-16	J-51	Water service parcel A	229.25	8.0	PVC	120.0	0.30	63.1	47.69
P-17	J-6	Water service parcel F	21.63	8.0	PVC	120.0	0.14	61.9	22.50
P-18	R-1	CV-1	6.39	10.0	PVC	120.0	0.48	0.0	117.30
P-19	CV-1	J-49	7.44	10.0	PVC	120.0	0.48	63.0	117.30
P-20	Water service parcel A	J-8	57.30	8.0	PVC	120.0	0.20	63.6	31.69
P-21	J-8	FH-1	31.61	8.0	PVC	120.0	0.14	63.7	22.50
P-22	FH-4	J-10	278.73	8.0	PVC	120.0	0.17	62.9	26.46
P-23	J-50	J-57	106.66	8.0	PVC	120.0	0.44	63.0	69.61
P-24	J-57	Water service parcel B	198.09	8.0	PVC	120.0	0.33	63.0	52.34
P-25	FH-2	J-58	26.79	8.0	PVC	120.0	0.17	63.6	-26.46
P-26	J-58	J-8	82.16	8.0	PVC	120.0	0.06	63.6	-9.19
P-27	J-57	J-58	265.01	8.0	PVC	120.0	0.11	63.0	17.28

London Cove
Potable Water Flows
FlexTable: Junction Table

Active Scenario: MDF - Fireflow Future at FH-6 & FH-7

Label	Elevation (ft)	Demand (gal/min)	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)
Water service future Residential	24.40	22.50	170.69	63.3	146.29
J-10	25.85	0.00	170.67	62.7	144.82
J-8	23.40	0.00	170.70	63.7	147.30
Water service parcel B	25.50	10.70	170.68	62.8	145.18
Water service parcel C	25.50	10.20	170.68	62.8	145.18
Water service parcel D	25.50	8.00	170.67	62.8	145.17
Water service parcel E	25.50	11.60	170.67	62.8	145.17
J-6	27.50	15.80	170.67	61.9	143.17
J-42	25.50	0.00	170.67	62.8	145.17
J-1	25.00	0.00	170.72	63.0	145.72
J-44	0.00	0.00	170.67	73.8	170.67
Water service parcel A	23.77	16.00	170.70	63.6	146.93
Water service parcel F	0.00	22.50	170.67	73.8	170.67
J-49	25.00	0.00	170.72	63.0	145.72
J-50	25.01	0.00	170.72	63.0	145.71
J-51	24.97	0.00	170.72	63.1	145.74
J-52	26.70	0.00	170.67	62.3	143.97
J-56	25.51	0.00	170.67	62.8	145.16
J-57	25.18	0.00	170.70	63.0	145.52
J-58	23.66	0.00	170.70	63.6	147.03

London Cove
Potable Water Flows
FlexTable: Reservoir Table

Active Scenario: MDF - Fireflow Future at FH-6 & FH-7

Label	Elevation (ft)	Flow (Out net) (gal/min)	Hydraulic Grade (ft)
R-1	170.72	117.30	170.72

London Cove
Potable Water Flows
FlexTable: Hydrant Table

Active Scenario: MDF - Fireflow Future at FH-6 & FH-7

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gal/min)	Pressure Head (ft)
FH-2	23.75	170.70	63.6	0.00	146.95
FH-3	25.10	170.69	63.0	0.00	145.59
FH-4	25.30	170.68	62.9	0.00	145.38
FH-1	23.30	170.70	63.8	0.00	147.40

WASTEWATER SUMMARY

London Cove is located on SR 524 just west of Industry Road in Brevard County, Florida in Section 7, Township 21 South, and Range 31 East.

The project site will include future residential development, which was assumed to be townhomes for design purposes, as well as commercial development.

Connection to the Existing System

There is currently no gravity sewer running along SR 524 at the project location. The City of Cocoa has stated that London Cove will tie into the provided gravity manhole on the site of Fire Station #3. The manhole flows into the lift station on the property of Fire Station #3. The 8" forcemain from the lift station will connect to the existing 10" cast iron forcemain along SR 524. Per telelogger information supplied by the City of Cocoa the tie-pressure of the existing forcemain ranges from 0 PSI to approximately 30 PSI (see included telelogger chart), therefore 30 PSI was assumed for the high-head condition at the tie-in point.

System Demand

See included design flow determination calculation sheets.

System Performance

See included design flow determination calculation sheets.

Results

The proposed lift station can pump at more than the design flow in the worst-case scenario.

Sewage Lift Station Design

(MAXIMUM & MINIMUM F.M. PRESSURE CONDITION)

London Cove

City of Cocoa, FL

Lift Station

Bold indicates user input
Italics indicate calculated values

Step 1: Determine the average and peak daily flows.

Total Anticipated Waste Water Generated:	68,377 gpd	Future Development	15,250 gpd	61 units	250 gpd
Hours of Operation:	24 hours	Commercial	49,175 gpd	196.7 ERU	250 gpd
Assumed Peak Flow Factor:	4.0 no units	Fire Station	<u>3,952</u> gpd	Provided By City Utilities	
<i>Average Daily Flow (ADF):</i>	<i>47.48 gpm</i>	Total:	68,377 gpd		
<i>Peak Flow:</i>	<i>189.94 gpm</i>				

Step 2: Determine Force Main Diameter and Pumping Rate.

Design Criteria:

- Force main shall operate at no less than 2.5 fps
- Minimum pumping rate shall be at least the peak flow rate.
- Force main velocity not to exceed 5.0 fps

Assumed Force Main Diameter:	8.00
<i>Minimum Allowable Flow Rate:</i>	<i>391.65 gpm</i>
<i>Minimum Allowable Pumping Rate:</i>	<i>391.65 gpm</i>
<i>Design Pumping Rate:</i>	<i>395 gpm</i>
<i>Operating Velocity:</i>	<i>2.52 fps</i>

Step 3: Size Wetwell.

Design Criteria:

- Pump shall operate for at least 2.5 minutes.
- Pump to start no more than 5 times per hour at peak flow.
- Pump to start no less than 1 time per hour at average flow.

Assumed Cycle Time at Peak Flow	8.0 minutes
Assumed Cycle Time at Average Flow	40.0 minutes
<i>Number of Pump Starts at Peak Hour Flow:</i>	<i>3.8 starts</i>
<i>Wetwell Volume Based on Peak Flow:</i>	<i>1026.1 gallons</i>
<i>Cycle Time at Average Daily Flow:</i>	<i>24.6 minutes</i>
<i>Number of Pump Starts per hour at ADF:</i>	<i>1.2 starts</i>

Average Daily Flow		
TIME ON	3.0	MIN
TIME OFF	21.6	MIN
TOTAL CYCLE TIME	24.6	MIN
STARTS PER HOUR	1.2	
Peak Daily Flow		
TIME ON	2.60	MIN
TIME OFF	5.40	MIN
TOTAL CYCLE TIME	8.00	MIN
STARTS PER HOUR	3.8	

Step 4: Determine Pump Control Settings.

Proposed Wetwell Diameter:	8 feet
Proposed Effluent Line Elevation:	24.50 ft NGVD
Proposed Influent Line Invert Elevation:	11.70 ft NGVD
Proposed Top of Station Elevation:	27.50 ft NGVD

<i>Alarm On Elevation:</i>	<i>12.25 ft NGVD</i>
<i>Lag Pump On Elevation:</i>	<i>12.00 ft NGVD</i>
<i>Lead Pump On Elevation:</i>	<i>11.75 ft NGVD</i>
<i>Pumps Off Elevation:</i>	<i>9.02 ft NGVD</i>
<i>Bottom of Station Elevation:</i>	<i>7.50 ft NGVD</i>
<i>Total Depth of Station:</i>	<i>20.00 feet</i>

Step 5: System Head Analysis.

Force Main Data:

<u>On-site</u>	
Force Main Diameter	8.0 inch
Length of Force Main	130 feet
Pipe Material for Force Main	PVC
Hazen-Williams C Value:	120
<u>Off-site</u>	
Force Main Diameter	8.0 inch
Length of Force Main	700 feet
Pipe Material for Force Main	PVC
Hazen-Williams C Value:	120

Fitting Losses:

Fitting	K	On-site 8.0 inch	Total K 8.0 inch	Off-site 8.0 inch	Total K 8.0 inch
90 Bend	0.50	0	0.0	1	0.5
45 Bend	0.25	2	0.5	0	0.0
22 1/2 Bend	0.30	1	0.3	0	0.0
11 1/4 Bend	0.20	1	0.2	0	0.0
Gate Valve	0.60	4	2.4	1	0.6
Check Valve	1.40	1	1.4	0	0.0
Tee (Run)	0.40	2	0.8	1	0.4
Tee (Branch)	0.80	1	0.8	0	0.0
Outlet	1.00	0	0.0	0	0.0
Increaser	0.30	0	0.0	1	0.3
Wye	1.80	0	0.0	0	0.0
Entrance	0.80	0	0.0	0	0.0
Reducer	1.00	0	0.0	0	0.0
Total Fitting Loss K Value:			6.4		1.8

Static Head Conditions:

FM Highest Point Elev/Elev At Point of Dischrg **25.00 ft NGVD**
Maximum Static Head 15.98 feet (Discharge - Pumps Off)
Minimum Static Head 13.25 feet (Discharge - Lead Pump On)

Pressure at Manifold Connection **30.00 psi**
Pressure at Manifold Connection 69.2 ft Head

System Head Curve:

Spread Value: 0 GPM

Flow Rate (gpm)	8.0 inch FM On-Site			8.0 inch FM Off-Site			TDH (ft)
	Velocity (fps)	Line Loss (ft)	Fitting Loss (ft)	Velocity (fps)	Line Loss (ft)	Fitting Loss (ft)	
0	0.00	0.00	0.00	0.00	0.00	0.00	85.21
100	0.64	0.04	0.04	0.64	0.21	0.01	85.51
200	1.28	0.14	0.16	1.28	0.75	0.05	86.31
200	1.28	0.14	0.16	1.28	0.75	0.05	86.31
395	2.52	0.49	0.63	2.52	2.65	0.18	89.16
445	2.84	0.61	0.80	2.84	3.30	0.23	90.15
495	3.16	0.75	0.99	3.16	4.02	0.28	91.25
545	3.48	0.89	1.20	3.48	4.80	0.34	92.45
595	3.80	1.05	1.43	3.80	5.65	0.40	93.75
645	4.12	1.22	1.68	4.12	6.56	0.47	95.15
695	4.44	1.40	1.96	4.44	7.53	0.55	96.65
745	4.76	1.59	2.25	4.76	8.57	0.63	98.25
795	5.07	1.79	2.56	5.07	9.66	0.72	99.94
895	5.71	2.23	3.24	5.71	12.03	0.91	103.63

PUMP SPECIFICATIONS

Pump Capacity 395 gpm
 TDH at Operating Point 89.16 ft
 Peak Influent Rate 189.94 gpm
 Pump Cycle Time at Peak Flow 8.00 min
 Pump Cycle Time at Average Flow 24.56 min
 Pump Manufacturer **XYLEM**
 Pump Model No. **NP 3153 HT~3 (463)**
 RPM **1800**
 Horsepower 17 hp
 Electrical - Volts / Phase **460/3**
 Discharge Size 3.9375 in
 Impeller Diameter 10.375 in

Velocity Check
 0.88 cfs
 0.35 pipe area (sf)
 2.52 Velocity (fps)

PROJECT NAME: London Cove
PROJECT NUMBER: DB-3
FILENAME: LS-BOUY

09/29/20
9:32 AM

LIFT STATION BOUYANCY CALCULATIONS

Density:

Water = 62.40 lbs/cf
Concrete = 150.00 lbs/cf
Soil = 100.00 lbs/cf

Lift Station:

Inside Diameter = 8.00 ft
Wall Thickness = 8.00 in
Bot. Slab Thickness = 12.00 in
Bot. Slab Dia. = 12.00 ft
Top Slab Thickness = 10.00 in
Opening Hatch Area = 24.00 sf 48 x 72
Additional Conc for Base Slab = 1.00 cu yd

Elevations:

Ground Elevation = 27.50 ft
Top Slab Elevation = 28.00 ft
Bot. Slab Elevation = 7.50 ft (Top of bottom slab)
High Water Table Elevation = 21.50 ft

Weight of Water Displaced (Including Additional Conc for Base Slab):

W = Volume of LS below High Water Elevation x Density
W = 1,072 x 62.4 = 66,889 lbs

Weight of Lift Station:

W = Bottom Slab Weight + Top Lid Weight (Less Hatch Opening) + Wall Weight + Additional Concrete
W = 16,965 + 5,552 + 55,816 + 4,050
= 82,382 lbs

Weight of Over-Burden:

W = Weight of Soil below Water Table - Weight of Water
W = 62,553 - 39,033 = 23,520 lbs

Total Upward Pressure = 66,889 lbs
Total Downward Pressure = 105,902 lbs Safety Factor = 1.58

NOTE: Weight of Pumps & Pipes Are Not Included in Downward Pressure.

NP 3153 HT 3~ 463

Performance curve



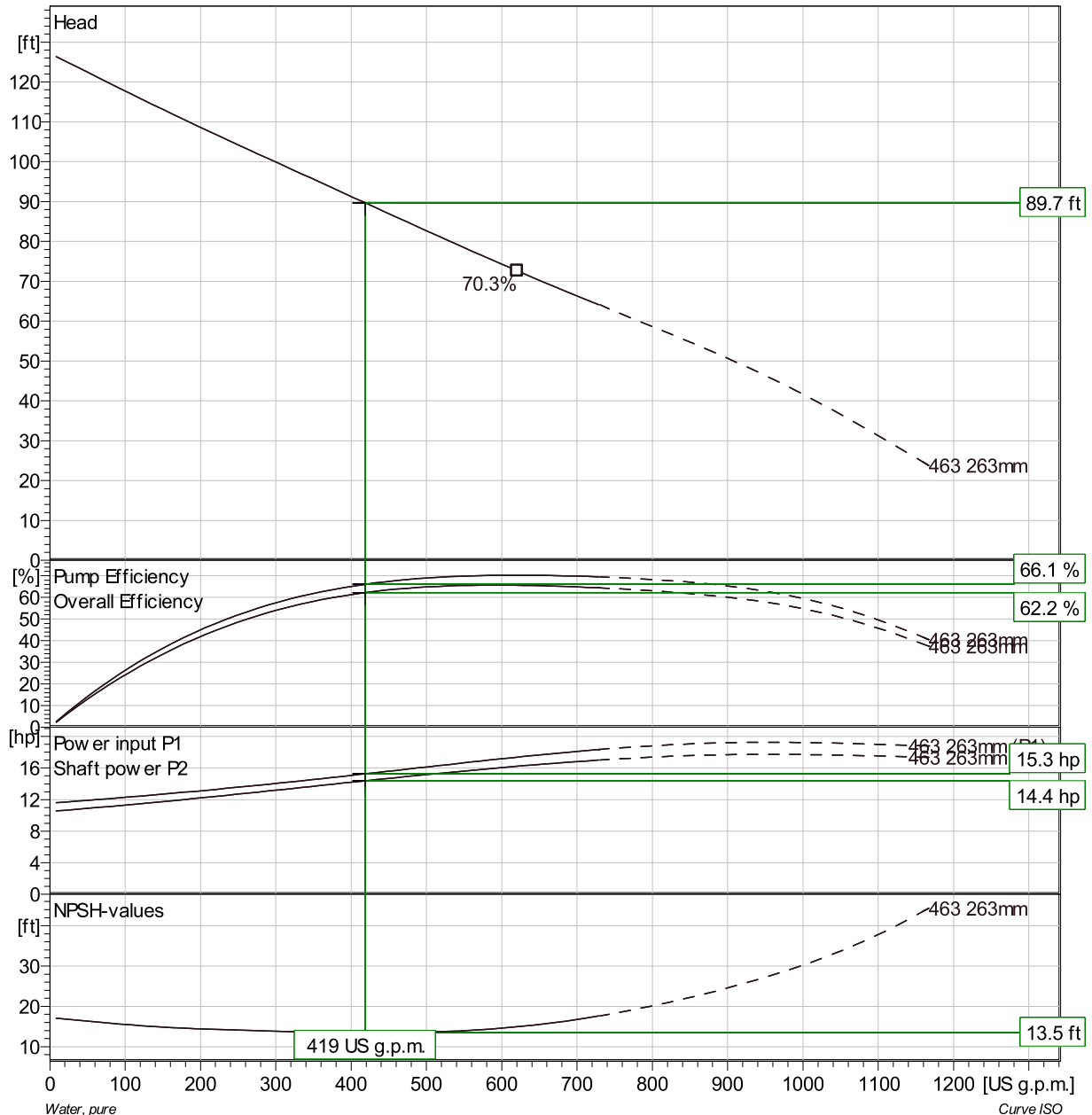
Pump

Discharge Flange Diameter 3 15/16 inch
Suction Flange Diameter 100 mm
Impeller diameter 10 3/8"
Number of blades 2

Motor

Motor # N3153.820 21-18-4XS-W IE3 17hp
Stator variant 5
Frequency 60 Hz
Rated voltage 460 V
Number of poles 4
Phases 3~
Rated power 17 hp
Rated current 18 A
Starting current 148 A
Rated speed 1800 rpm

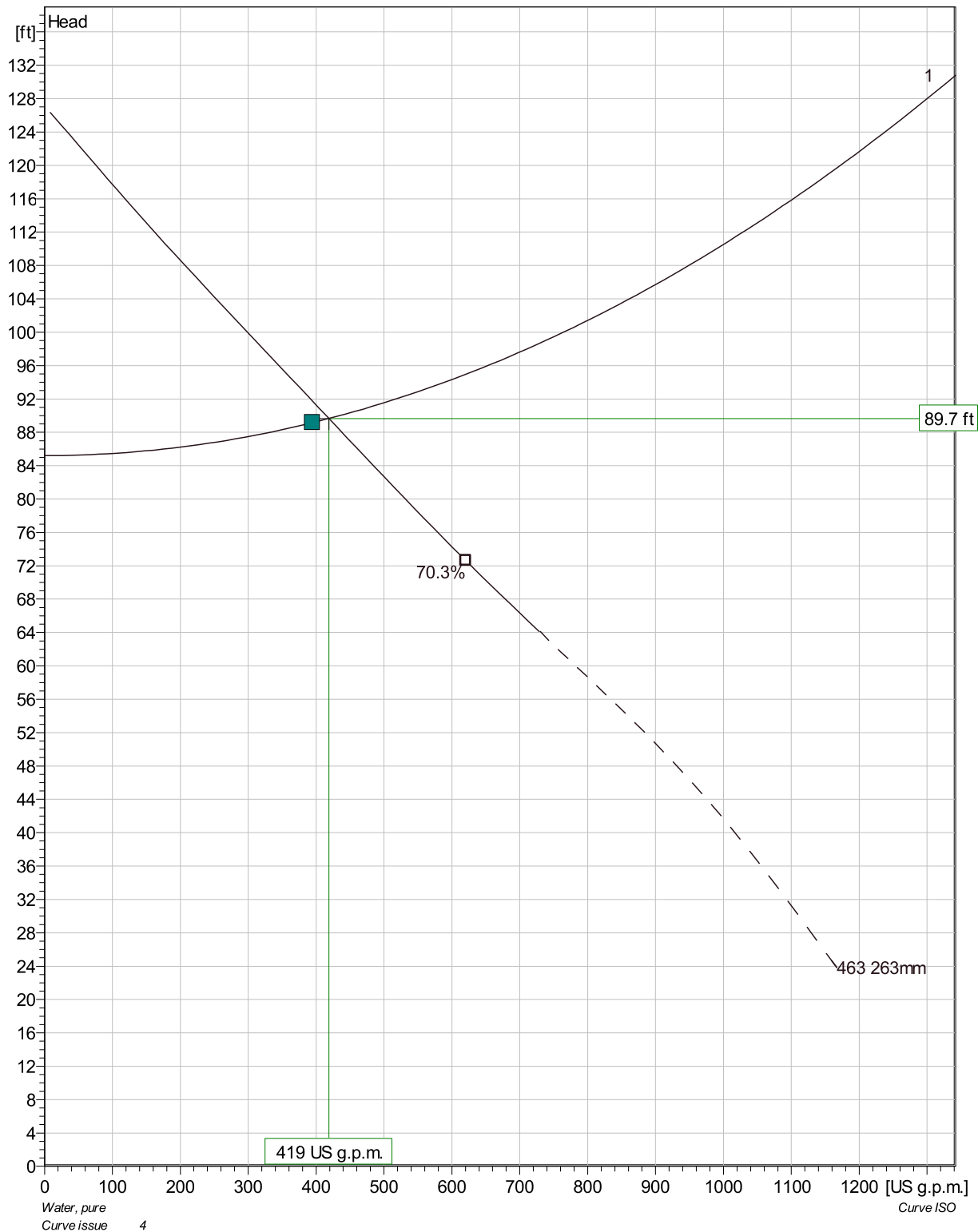
Power factor
1/1 Load 0.96
3/4 Load 0.96
1/2 Load 0.93
Motor efficiency
1/1 Load 92.6 %
3/4 Load 92.6 %
1/2 Load 91.5 %



Duty point		Guarantee
Flow	Head	
395 US g.p.m.	89.2 ft	No

Project	Project ID	Created by	Created on 1/7/2019	Last update
---------	------------	------------	------------------------	-------------

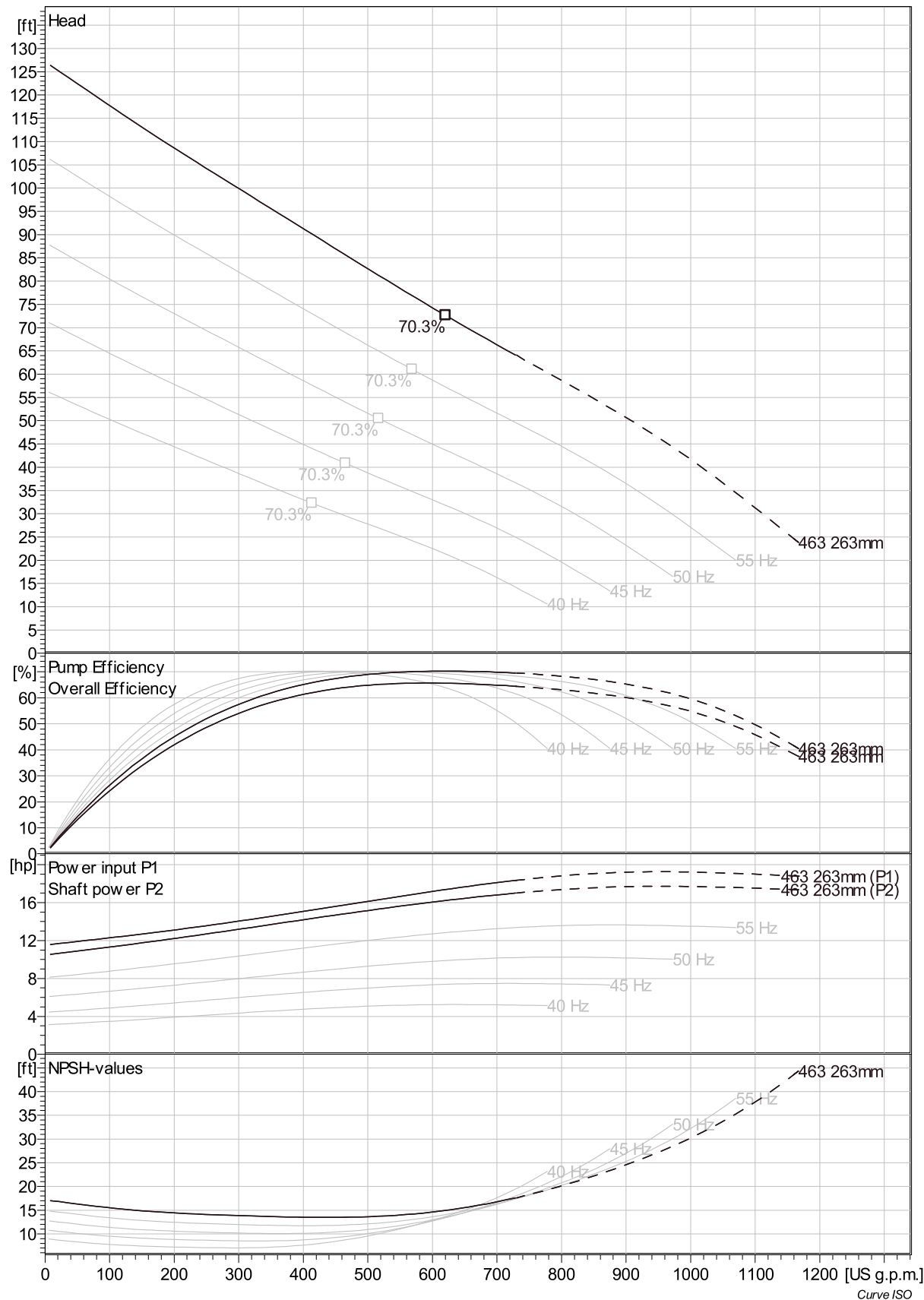
NP 3153 HT 3~ 463
Duty Analysis



Pumps running /System	Individual pump			Total					NPSH _{re}
	Flow	Head	Shaft power	Flow	Head	Shaft power	Pump eff.	Specific energy	
1	419 US g.p.m.	89.7 ft	14.4 hp	419 US g.p.m.	89.7 ft	14.4 hp	66.1 %	453 kWh/US MG	13.5 ft

Project	Project ID	Created by	Created on 1/7/2019	Last update
---------	------------	------------	------------------------	-------------

NP 3153 HT 3~ 463
VFD Curve



Project

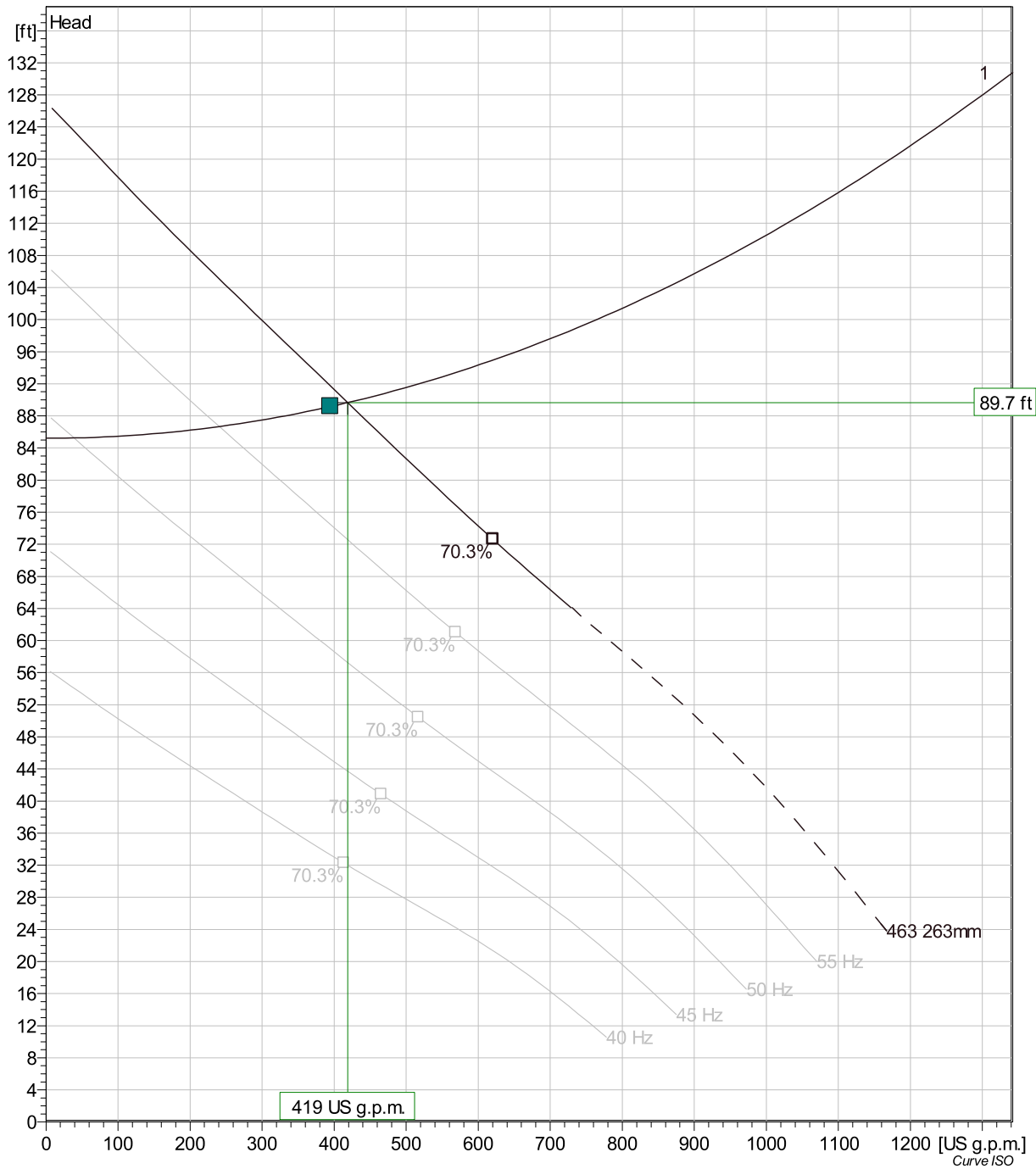
Project ID

Created by

Created on
1/7/2019

Last update

NP 3153 HT 3~ 463
VFD Analysis

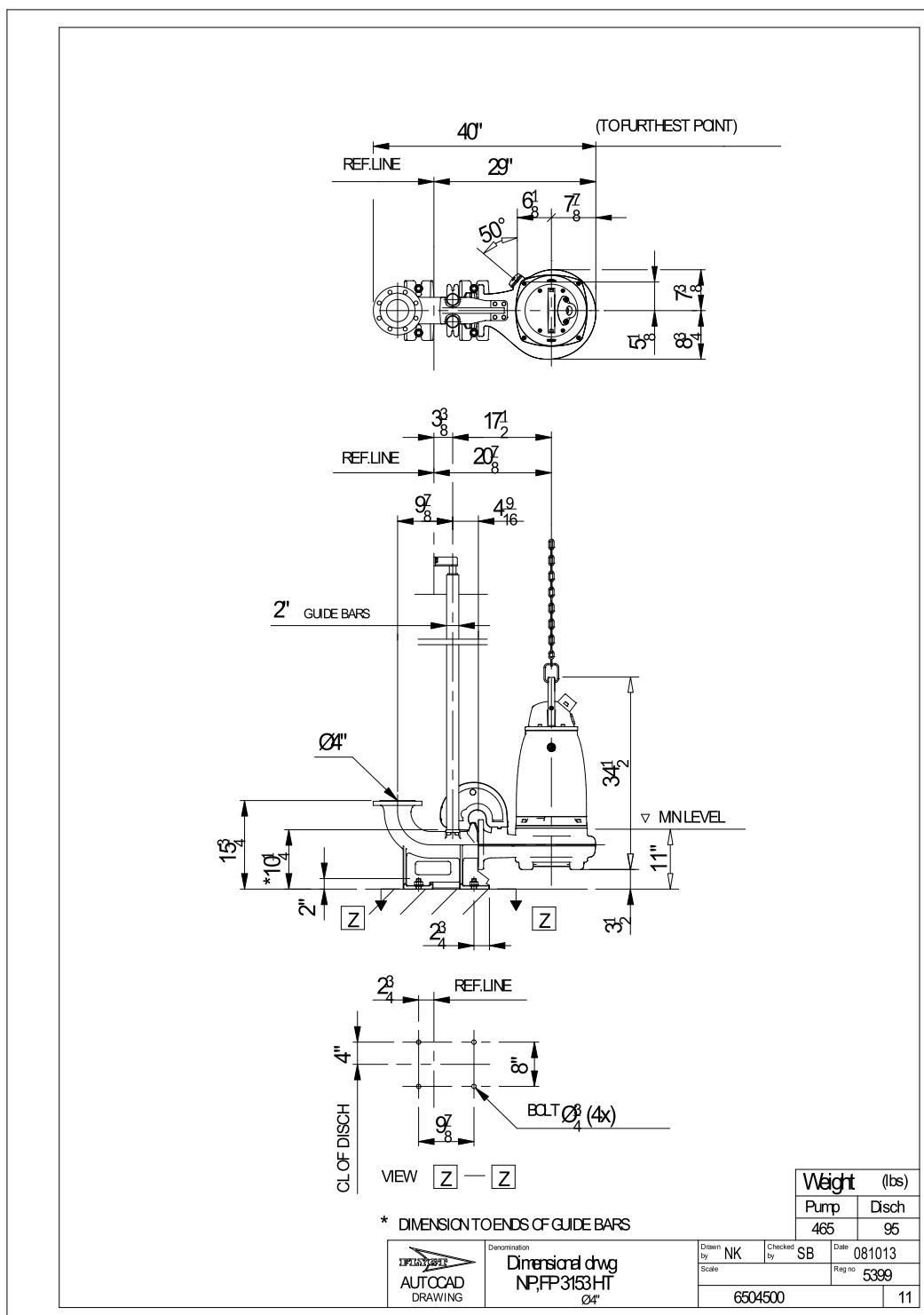


Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	60 Hz	419 US g.p.m.	89.7 ft	14.4 hp	419 US g.p.m.	89.7 ft	14.4 hp	66.1 %	453 kWh/US MG	13.5 ft
1	55 Hz	241 US g.p.m.	86.7 ft	9.87 hp	241 US g.p.m.	86.7 ft	9.87 hp	53.4 %	566 kWh/US MG	12.2 ft
1	50 Hz	38.9 US g.p.m.	85.2 ft	6.29 hp	38.9 US g.p.m.	85.2 ft	6.29 hp	13.4 %	2260 kWh/US MG	12.2 ft
1	45 Hz									
1	40 Hz									

Project	Project ID	Created by	Created on 1/7/2019	Last update
---------	------------	------------	------------------------	-------------

NP 3153 HT 3~ 463

Dimensional drawing



Project	Project ID	Created by	Created on	Last update
			1/7/2019	

REUSE WATER SUMMARY

London Cove is located on SR 524 just west of Industry Road in Brevard County, Florida in Section 7, Township 21 South, and Range 31 East.

The project site will include 61 town home units as well as commercial development.

Connection to the Existing System

The system will connect to an existing reuse main on the north side of SR 524. A tie in pressure of 60 psi has been used.

System Demand

See included reuse water demands calculation sheet.

System Performance

Supply 1" of irrigation per week at peak hourly demand.

Methodology

The system is modeled using WaterCAD and the assumed pressure of the reuse watermain. The system demands are calculated for the peak hourly flow using a peak factor of 6.0.

Results

The system was modeled with a minimum acceptable pressure of 35 psi. This has been achieved for all scenarios.

London Cove Reuse Water Demands

Demand criteria: 1" per week over irrigable area with peak factor of 6.
(For these calculations irrigable area was assumed to be the pervious area for the tracts.)

Tract	Land Use	Total Area (AC)	Pervious Area (AC)	Pervious Area (SF)	Unit Factor	Avg. Daily Flow (GPM)	Peaking Factor	Peak Hourly Flow (GPM)
*Future Residential	Future Residential	9.80	3.42	148975	2.69 GPM/acre	9.20	6.0	55.20
Parcel A	Commercial	1.62	0.32	14113	2.69 GPM/acre	0.87	6.0	5.23
Parcel B	Commercial	1.28	0.26	11151	2.69 GPM/acre	0.69	6.0	4.13
Parcel C	Commercial	1.26	0.25	10977	2.69 GPM/acre	0.68	6.0	4.07
Parcel D	Commercial	1.01	0.20	8799	2.69 GPM/acre	0.54	6.0	3.26
Parcel E	Commercial	1.45	0.29	12632	2.69 GPM/acre	0.78	6.0	4.68
Parcel F	Commercial	1.98	0.40	17250	2.69 GPM/acre	1.07	6.0	6.39

*For design purposes future development was assumed to be Townhomes.

Demand has been distributed evenly among all nodes within each tract

Tract	Peak Hourly Flow (GPM)	# of Nodes Per Tract	Peak Hour Flow Per Node (GPM)
*Future Residential	55.20	3	18.40
Parcel A	5.23	1	5.23
Parcel B	4.13	1	4.13
Parcel C	4.07	1	4.07
Parcel D	3.26	1	3.26
Parcel E	4.68	1	4.68
Parcel F	6.39	1	6.39

Derivation of 2.69 GPM/acre Unit Factor:

1" per week =====>

$$(1 \text{ ac.}) * (43560 \text{ s.f.}) / (12 \text{ in. per ft.}) / (7 \text{ days per wk.}) / (24 \text{ hrs. per day}) / (60 \text{ min. per hr.}) * (7.4805 \text{ gal. per c.f.}) = 2.69 \text{ gpm}$$

Annex H Fire Flow Requirements for Buildings

This annex is not a part of the requirements of this NFPA document unless specifically adopted by the jurisdiction.

H.1 Scope.

The procedure determining fire flow requirements for buildings or portions of buildings hereafter constructed shall be in accordance with Annex H. Annex H does not apply to structures other than buildings.

H.2 Definitions.

For the purpose of Annex I, certain terms are defined as follows.

H.2.1 Fire Area. The floor area, in square feet, used to determine the required fire flow.

H.2.2 Fire Flow. The flow rate of a water supply, measured at 20 psi (137.9 kPa) residual pressure, that is available for fire fighting.

H.3 Modifications.

H.3.1 Decreases. Fire flow requirements may be modified downward by the AHJ for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire flow requirements is impractical.

H.3.2 Increases. Fire flow shall be permitted to be modified upward by the AHJ where conditions indicate an unusual susceptibility to group fires or conflagrations. An upward modification shall not be more than twice that required for the building under consideration.

H.4 Fire Area.

H.4.1 General. The fire area shall be the total floor area of all floor levels except as modified in Section H.4.

H.4.2 Area Separation. Portions of buildings that are separated by one or more 4-hour fire wall constructed in accordance with the building code, without openings and provided with a 30 in. (76 cm) parapet, are allowed to be considered as separate fire areas.

H.4.3 Type I (443), Type I (332), and Type II (222) Construction. The fire area of buildings constructed of Type I (443), Type I (332), and Type II (222) construction shall be the area of the three largest successive floors.

H.5 Fire Flow Requirements for Buildings.

H.5.1 One- and Two-Family Dwellings. The minimum fire flow and flow duration requirements for one- and two-family dwellings having a fire area that does not exceed 3600 ft² (334.5 m²) shall be 1000 gpm (3785 L/min). Fire flow and flow duration for dwellings having a fire area in excess of 3600 ft² (334.5 m²) shall not be less than that specified in Table H.5.1.

Fire Area ft ² (×0.0929 for m ²)					Fire Flow gpm ² (×3.785 for L/min)	Flow Duration (hours)
I(443), I(332), II(222) ¹	II(111), III(211) ¹	IV(2HH), V(111) ¹	II(000), III(200), III(000) ¹	V(000) ¹		
0–22,700	0–12,700	0–8,200	0–5,900	0–3,600	1,500	2
22,701– 30,200	12,701–17,000	8,201– 10,900	5,901–7,900	3,601–4,800	1,750	
30,201– 38,700	17,001–21,800	10,901– 12,900	7,901–9,800	4,801–6,200	2,000	
38,701– 48,300	21,801–24,200	12,901– 17,400	9,801– 12,600	6,201–7,700	2,250	
48,301– 59,000	24,201–33,200	17,401– 21,300	12,601– 15,400	7,701–9,400	2,500	

59,001–70,900	33,201–39,700	21,301–25,500	15,401–18,400	9,401–11,300	2,750	3
70,901–83,700	39,701–47,100	25,501–30,100	18,401–21,800	11,301–13,400	3,000	
83,701–97,700	47,101–54,900	30,101–35,200	21,801–25,900	13,401–15,600	3,250	
97,701–112,700	54,901–63,400	35,201–40,600	25,901–29,300	15,601–18,000	3,500	
112,701–128,700	63,401–72,400	40,601–46,400	29,301–33,500	18,001–20,600	3,750	
128,701–145,900	72,401–82,100	46,401–52,500	33,501–37,900	20,601–23,300	4,000	4
145,901–164,200	82,101–92,400	52,501–59,100	37,901–42,700	23,301–26,300	4,250	
164,201–183,400	92,401–103,100	59,101–66,000	42,701–47,700	26,301–29,300	4,500	
183,401–203,700	103,101–114,600	66,001–73,300	47,701–53,000	29,301–32,600	4,750	
203,701–225,200	114,601–126,700	73,301–81,100	53,001–58,600	32,601–36,000	5,000	
225,201–247,700	126,701–139,400	81,101–89,200	58,601–65,400	36,001–39,600	5,250	
247,701—271,200	139,401–152,600	89,201–97,700	65,401–70,600	39,601–43,400	5,500	
271,201–295,900	152,601–166,500	97,701–106,500	70,601–77,000	43,401–47,400	5,750	
295,901–Greater	166,501–Greater	106,501–115,800	77,001–83,700	47,401–51,500	6,000	
295,901–Greater	166,501–Greater	115,801–125,500	83,701–90,600	51,501–55,700	6,250	
295,901—Greater	166,501–Greater	125,501–135,500	90,601–97,900	55,701–60,200	6,500	
295,901–Greater	166,501–Greater	135,501–145,800	97,901–106,800	60,201–64,800	6,750	
295,901–Greater	166,501–Greater	145,801–156,700	106,801–113,200	64,801–69,600	7,000	
295,901–Greater	166,501–Greater	156,701–167,900	113,201–121,300	69,601–74,600	7,250	
295,901–Greater	166,501–Greater	167,901–179,400	121,301–129,600	74,601–79,800	7,500	
295,901–Greater	166,501–Greater	179,401–191,400	129,601–138,300	79,801–85,100	7,750	
295,901–Greater	166,501–Greater	191,401–Greater	128,301–Greater	85,101–Greater	8,000	

¹ Type of construction are based on NFPA 220.
² Measured at 20 psi (139.9 kPa).

Exception: A reduction in required fire flow of 50 percent, as approved, shall be permitted when the building is provided with an approved automatic sprinkler system.

H.5.2 Buildings Other than One- and Two-Family Dwellings. The minimum fire flow and flow duration for buildings other than one- and two-family dwellings shall be as specified in Table H.5.1.

Exception: A reduction in required fire flow of up to 75 percent, as approved, is allowed when the building is provided with an approved automatic sprinkler system. The resulting fire flow shall not be less than 1000 gal per minute (3785 L/min.).

Annex I Fire Hydrant Locations and Distribution

This annex is not a part of the requirements of this NFPA document unless specifically adopted by the jurisdiction.

I.1 Scope.

Fire hydrants shall be provided in accordance with Annex J for the protection of buildings, or portions of buildings, hereafter constructed.

I.2 Location.

Fire hydrants shall be provided along required fire apparatus access roads and adjacent public streets.

I.3 Number of Fire Hydrants.

The minimum number of fire hydrants available to a building shall not be less than that listed in Table I.3. The number of fire hydrants available to a complex or subdivision shall not be less than that determined by spacing requirements listed in Table I.3 when applied to fire apparatus access roads and perimeter public streets from which fire operations could be conducted.

Table I.3 Number and Distribution of Fire Hydrants			
	Number and Distribution of Fire Hydrants		
Fire Flow Requirements (gpm)	Minimum Number of Hydrants	Average Spacing Between Hydrants ^{1,2,3} (ft)	Maximum Distance from any Point on Street or Road Frontage to a Hydrant ⁴ (ft)
1750 or less	1	500	250
2000 – 2250	2	450	225
2500	3	450	225
3000	3	400	225
3500 – 4000	4	350	210
4500 – 5000	5	300	180
5500	6	300	180
6000	6	250	150
6500 – 7000	7	250	150
7500 or more	8 or more ⁵	200	120

Note: 1 gpm = 3.8 L/min; 1 ft = 0.3 m.
¹ Reduce by 100 ft (30.5 m) for dead-end streets or roads.
² Where street are provided with median dividers which can be crossed by fire fighters pulling hose lines, or arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 ft (152.4 m) on each side of the street and be arranged on an alternating basis up to a fire flow requirement of 7000 gpm (26,500 L/min) and 400 ft (122 m) or higher fire flow requirements.

³ Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1000 ft (305 m) to provide for transportation hazards.

⁴ Reduce by 50 ft (15.2 m) for dead-end streets or roads.

⁵ One hydrant for each 1000 gpm (3785 L/min) or fraction thereof.

I.4 Consideration of Existing Fire Hydrants.

Existing fire hydrants on public streets are allowed to be considered as available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads.

I.5 Distribution of Fire Hydrants.

The average spacing between fire hydrants shall not exceed that listed in Table I.3.

Exception: The AHJ shall be permitted to accept a deficiency of up to 10 percent where existing fire hydrants provide all or a portion of the required fire hydrant service. Regardless of the average spacing, fire hydrants shall be located such that all points on streets and access roads adjacent to a building are within the distances listed in Table I.3.

LONDON COVE
Water Demands Estimate

Peak Hourly Flow = 4.00 x Avg. Daily Flow

Max. Day Flow = 1.43 x Avg. Daily Flow

Future Development		ERC (unit)	ADF (gal/day/unit)	Total ADF (gal/day)	PHF (gal/min)	MDF (gal/min)
Southern Parcel		61	265	16165	44.9	16.1
Commercial Lot 1:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	20600	1	265	5459	15.2	5.4
Commercial Lot 2:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	14200	1	265	3763	10.5	3.7
Commercial Lot 3:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	15500	1	265	4108	11.4	4.1
Commercial Lot 4:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	12300	1	265	3260	9.1	3.2
Commercial Lot 5:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	20200	1	265	5353	14.9	5.3
Commercial Lot 6:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	24000	1	265	6360	17.7	6.3
Total Estimated Demand		67	1855	44467	124	44

Zone 1

	Min. Residual Pressure (PSI)	Max. Velocity (FPS)
Scenario 1 - Peak Hourly Flow - No Fireflow	72.7	0.41
Scenario 2 - Maximum Daily Flow - No Fireflow	72.7	0.14
Scenario 3 - Maximum Daily Flow - FF at H-35 & H-63 Microtel	69.0	4.72

Zone 1-2

	Min. Residual Pressure (PSI)	Max. Velocity (FPS)
Scenario 1 - Peak Hourly Flow - No Fireflow	66.7	1.57
Scenario 2 - Maximum Daily Flow - No Fireflow	67.7	0.56
Scenario 3 - Maximum Daily Flow - FF at H-35 & H-63 Microtel	63.9	4.88
Scenario 4 - Maximum Daily flow - FF at H-54	42.7	7.90

Zone 1-3

	Min. Residual Pressure (PSI)	Max. Velocity (FPS)
Scenario 1 - Peak Hourly Flow - No Fireflow	67.3	1.22
Scenario 2 - Maximum Daily Flow - No Fireflow	67.8	0.43
Scenario 3 - Maximum Daily Flow - FF at H-35 & H-63 Microtel	65.3	4.48
Scenario 4 - Maximum Daily flow - FF at H-33 & H-54	49.3	6.25

Zone 1-4

	Min. Residual Pressure (PSI)	Max. Velocity (FPS)
Scenario 1 - Peak Hourly Flow - No Fireflow	67.3	1.07
Scenario 2 - Maximum Daily Flow - No Fireflow	67.8	0.38
Scenario 3 - Maximum Daily flow - FF at H-19 & H-64 Ph. 15 Dept. Store	64.0	6.00

Zone 1-5

	Min. Residual Pressure (PSI)	Max. Velocity (FPS)
Scenario 1 - Peak Hourly Flow - No Fireflow	67.1	1.44
Scenario 2 - Maximum Daily Flow - No Fireflow	67.8	0.51
Scenario 3 - Maximum Daily Flow - FF at H-12 & H-33 & H-54	47.5	7.48

Zone 1-6

	Min. Residual Pressure (PSI)	Max. Velocity (FPS)
Scenario 1 - Peak Hourly Flow - No Fireflow	67.3	1.02
Scenario 2 - Maximum Daily Flow - No Fireflow	67.8	0.36
Scenario 3 - Maximum Daily Flow - FF at H-5 & H-6 Condo	66.1	6.64

London Cove

Brevard County, Florida

PREPARED FOR



Dack Vaught
Demetree Builders, Inc.
1350 N. Orange Avenue
Winter Park, FL 34789

PREPARED BY



225 East Robinson Street, Suite 300
Landmark Center Two
Orlando, FL 32801
407.839.4006

January 2023



Table of Contents

Table of Contents	i
Introduction	1
Project Description	1
Trip Generation.....	1
Trip Distribution and Assignment.....	1
Existing Conditions	1
Study Area.....	1
Existing Roadway Capacity Analysis.....	2
Existing Intersection Capacity Analysis.....	4
Future Conditions	5
Future Roadway Capacity Analysis	5
Proportionate Fair Share.....	6
Future Intersection Capacity Analysis	8
Turn Lane Need Evaluation.....	9
Intersection Queue Analysis	9
Conclusions	11
Appendix A – Site Plan	
Appendix B – ITE Trip Generation Summary Sheets	
Appendix C – CFRPM Travel Demand Model Plot	
Appendix D – Traffic Count Data	
Appendix E – Signal Timings	
Appendix F – Synchro Analysis – Existing Conditions	
Appendix G – Historical Trend Analysis	
Appendix H – Intersection Volume Derivation and Vested Trip Data	
Appendix I – Proportionate Fair Share Facility Cost Estimate	
Appendix J - Synchro Analysis – Future Conditions	
Appendix K – NCHRP Report 457 Data	



List of Tables

Table No.	Title	Page
Table 1:	Project Trip Generation	1
Table 2:	Significance Analysis.....	2
Table 3:	Existing Roadway Capacity Analysis.....	3
Table 4:	Existing Intersection Capacity Analysis.....	4
Table 5:	Future Roadway Capacity Analysis	7
Table 6:	Proportionate Fair Share Analysis.....	7
Table 7:	Future Intersection Capacity Analysis	8
Table 8:	Intersection Queue Analysis	9

List of Figures

Figure No.	Title	Page
Figure 1:	Project Location Map.....	1
Figure 2:	Project Trip Distribution.....	1
Figure 3:	Existing AM Peak Hour and PM Peak Hour Volumes.....	1
Figure 4:	2026 Future Build-Out Peak Hour Traffic Volumes.....	10

Introduction

VHB has been retained by Demetree Builder, Inc. to conduct a traffic impact study for the proposed London Cove development to be located on the south side of SR 524 forming a 4-way intersection at London Boulevard in Cocoa, Florida. The project location is illustrated on **Figure 1**. The analysis quantifies both the existing traffic conditions along area roadways surrounding the parcel and the projected future traffic conditions expected for the buildout condition (including development of the proposed site). The site plan can be found in **Appendix A**.

Project Description

The proposed development will be located on the south side of SR 524 in Cocoa, Florida. The site is bound by SR 524 to the north, vacant land to the south, a commercial entrance to the east, and a new fire station to the west.

For the purpose of this analysis, the proposed development will consist of 166 townhomes, and a mix of commercial (fast food restaurants, a coffee shop and general commercial) with a build-out year of 2026. The project will have direct access to SR 524 via a full access driveway in line with existing London Boulevard. A secondary access is provided at the existing commercial driveway / CVS entrance on SR 524.

Figure 1: Project Location Map

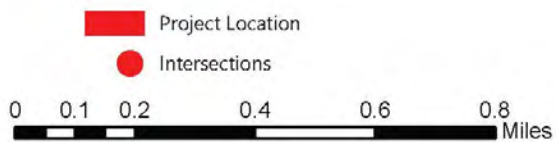
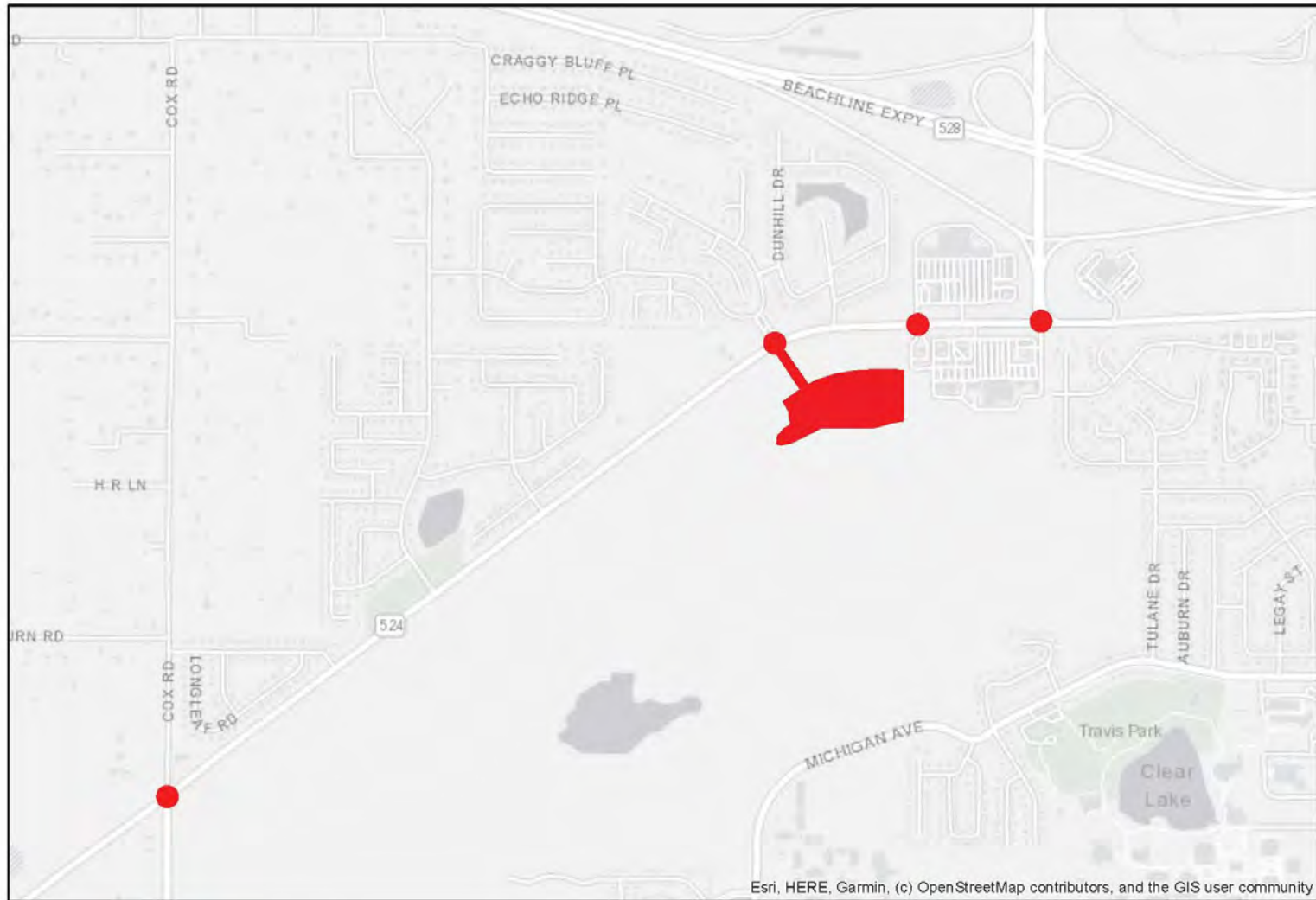


Figure 1
Location Map

Trip Generation

Table 1 summarizes the trip generation for the proposed development. The daily and peak hour trips were calculated based on equations contained in the Institute of Transportation Engineers' *Trip Generation*, 11th Edition. ITE Land Use Codes 221, 820, 934, and 937. The proposed development is expected to generate 8,735 new daily trips, 548 new AM peak hour trips, and 375 new PM peak hour trips. The ITE Trip Generation summary sheets can be found in **Appendix B**.

Trip Distribution and Assignment

The distribution of site generated traffic is a function of the existing roadway volumes from the traffic counts taken, surrounding land use characteristics, and proposed site access plan. The distribution of primary trips to and from the site is shown in **Figure 2**. The Central Florida Regional Planning Model (CFRPM) 7 plot can be found in **Appendix C**.

Table 1: Project Trip Generation

Land Use	ITE Code	Size / Units	Total Trips				Internal Capture				"Pass By" Capture				Net External Trips			
			Daily Trips	A.M. Peak Hour Total	A.M. Peak Hour In	A.M. Peak Hour Out	Daily Trips	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	Daily Trips	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	Daily Trips	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total
Multi-Family Housing (Mid-Rise)	221	166 DU's	745	61	14	47	264	0	2	2	0	0	0	0	481	59	14	45
Retail/ Commercial	820	46,280 SF	3,560	44	27	17	29	0	0	0	272	0	0	0	3,259	44	27	17
Fast Food w/ Drive Thru	934	3,801 SF	1,791	153	78	75	40	2	2	4	272	32	16	16	1,479	117	60	57
Fast Food w/ Drive Thru	934	4,435 SF	2,089	179	91	88	40	2	2	4	272	32	16	16	1,777	143	73	70
Coffee/ Donut w/Drive Thru	937	2,500 SF	2,051	223	114	109	40	2	2	4	272	34	17	17	1,739	185	95	90
Total			10,236	660	324	336	413	6	8	14	1,088	98	49	49	8,735	548	269	279

Land Use	ITE Code	Size / Units	Total Trips				Internal Capture				"Pass By" Capture				Net External Trips			
			Daily Trips	P.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	Daily Trips	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily Trips	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily Trips	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total
Multi-Family Housing (Mid-Rise)	221	166 DU's	745	65	40	25	264	16	12	28	0	0	0	0	481	37	24	13
Retail/ Commercial	820	46,280 SF	3,560	307	147	160	29	59	53	112	272	34	17	17	3,259	161	71	90
Fast Food w/ Drive Thru	934	3,801 SF	1,791	125	65	60	40	14	18	32	272	34	17	17	1,479	59	34	25
Fast Food w/ Drive Thru	934	4,435 SF	2,089	145	75	70	40	14	18	32	272	34	17	17	1,777	79	44	35
Coffee/ Donut w/Drive Thru	937	2,500 SF	2,051	109	55	54	40	16	20	36	272	34	17	17	1,739	39	22	17
Total			10,236	751	382	369	413	119	121	240	1,088	136	68	68	8,735	375	195	180

Sources:
 Institute of Transportation Engineers' Trip Generation Manual 11th Edition
 ITE GTM 11th Edition Pass-By Data and Rate Tables
 NCHRP Report 684 - Internal Capture Estimator

Notes: Passby reduction limited to 10% of SR 524 adjacent street traffic

Figure 2: Project Trip Distribution

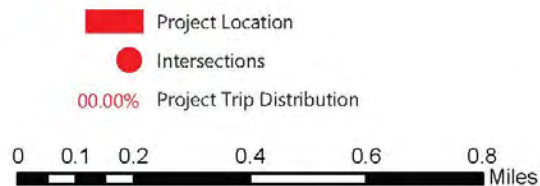
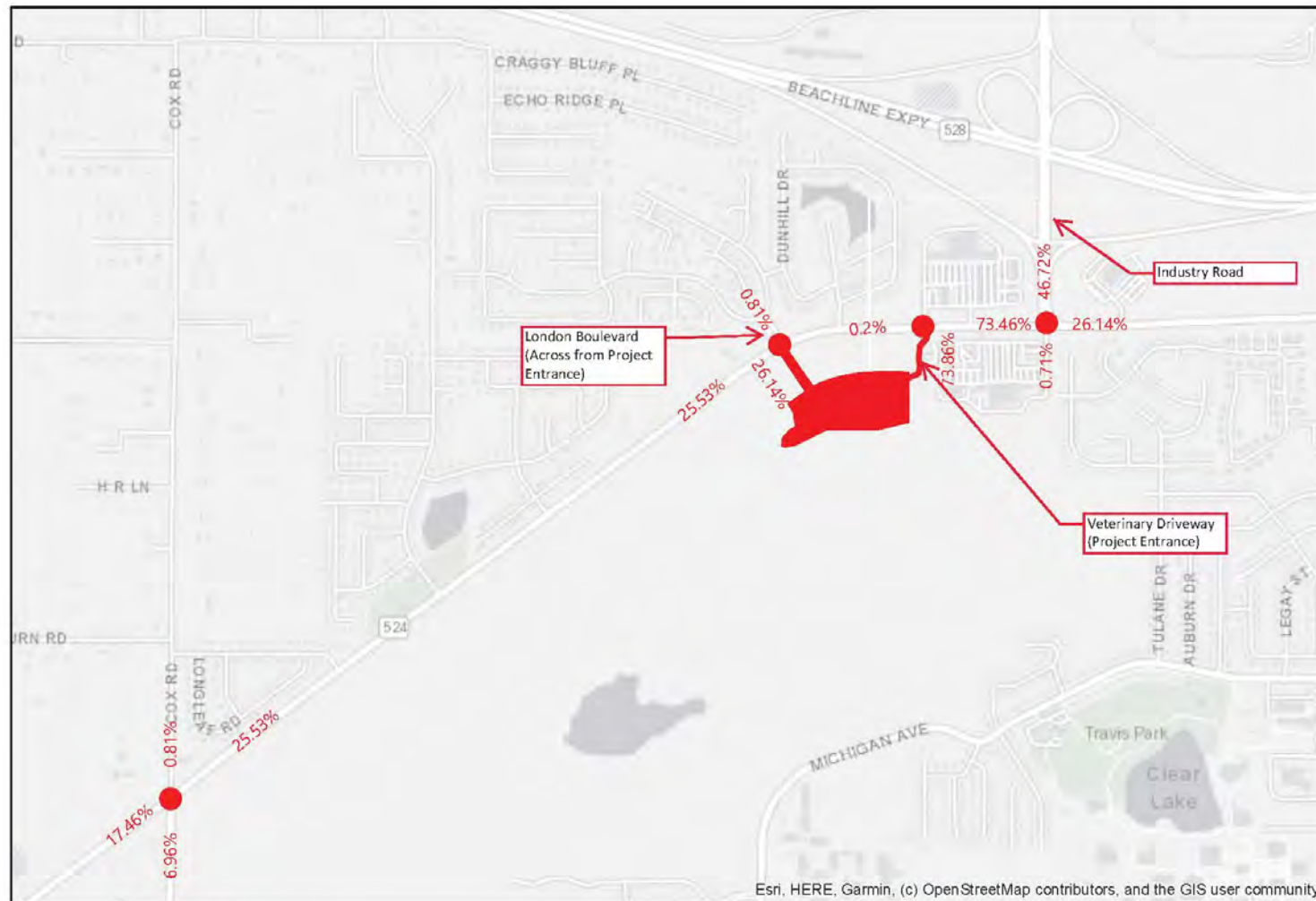


Figure 2
Project Trip Distribution

2

Existing Conditions

This section summarizes existing transportation conditions observed in the study area, including roadway and intersection geometry, existing traffic control, and daily and evening peak hour traffic volumes.

Study Area

The candidate roadways were selected based on areas where the projected trip generation traffic consumes more than 5% of the maximum service volumes. The roadways are shown in **Table 2**. In addition the following intersections were analyzed:

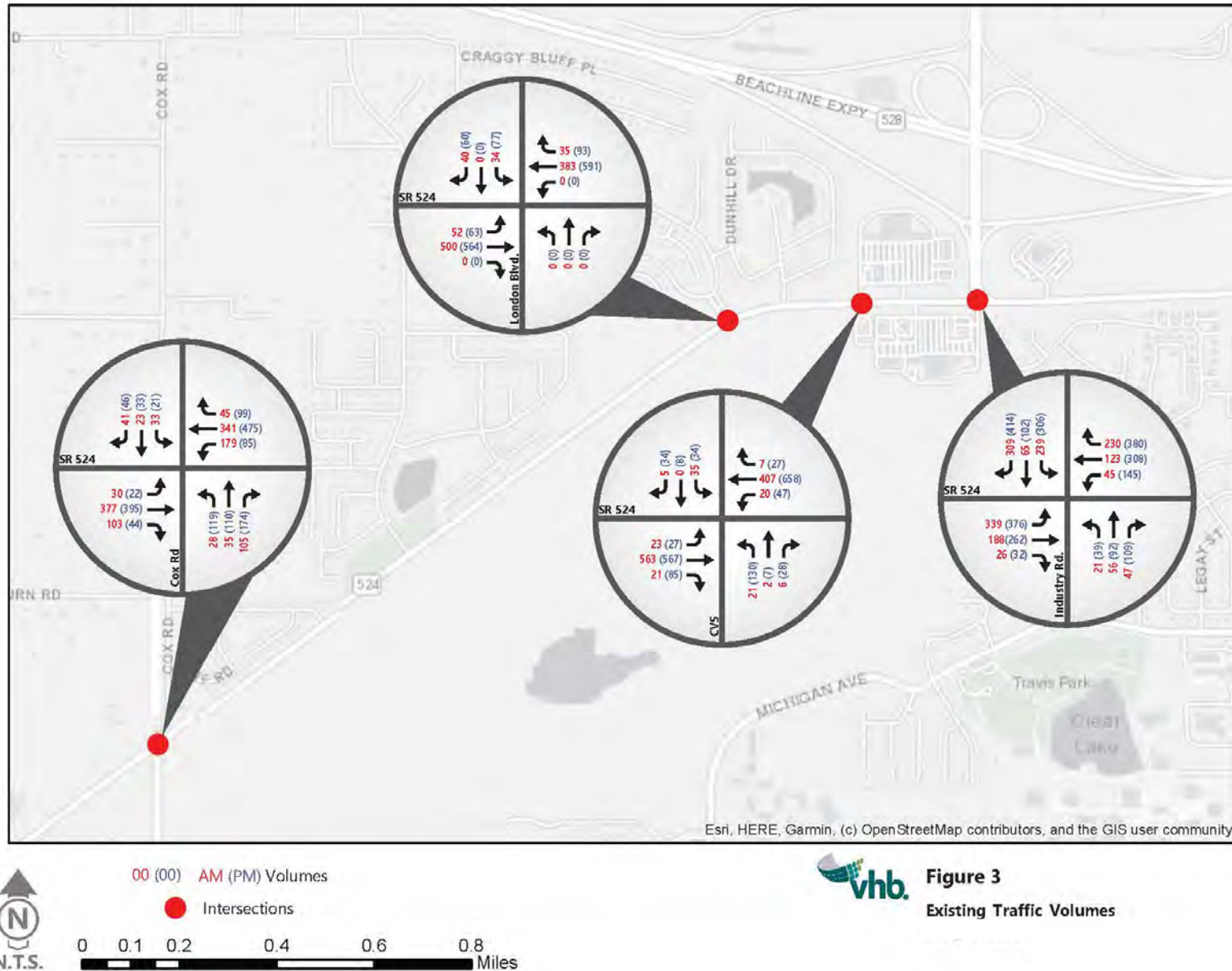
- SR 524 at Cox Road
- SR 524 at London Boulevard
- SR 524 at CVS Entrance
- SR 524 at Industry Road

Turning movement counts were collected on June 30, 2022 and July 19, 2022 for the AM and PM peak hours, with adjustments for peak season factors. A seasonal factor of 1.03 and 1.05 were applied to the June and July counts respectively. A copy of the data collected is included in **Appendix D**. The City of Cocoa signal timings were utilized in the intersection analysis and can be observed in **Appendix E**. Error! Reference source not found. illustrates the existing AM and PM peak hour traffic volumes.

Table 2: Significance Analysis

Roadway	Segment	No. of Lanes	Adopted LOS	PM Peak Hour LOS Capacity	Dist. %	Project Trips	Significance %	Significant? (Yes / No)
SR 524	I-95 to Cox Rd	2	D	1,600	17.46%	65	4.09%	No
	Cox Rd to London Blvd	2	D	1,752	25.53%	96	5.46%	Yes
	London Blvd to Industry Rd	2	D	1,752	73.46%	275	15.72%	Yes
Clearlake Road	Michigan Ave to SR 524	3	D	2,590	26.14%	98	3.78%	No
Industry Road	SR 524 to Grissom Pkwy	4	E	3,761	46.72%	175	4.66%	No
Cox Road	SR 520 to SR 524	2	D	1,593	6.96%	26	1.64%	No
	SR 524 to James Rd	2	D	1,593	0.81%	3	0.19%	No
<i>Sources:</i> SCTPO Traffic Counts Interactive Map SCTPO Traffic Counts Historical Report 2012-2021 FDOT 2020 QLOS Tables								

Figure 3: Existing AM Peak Hour and PM Peak Hour Volumes



Existing Roadway Capacity Analysis

VHB conducted an assessment to determine the existing level of service of the study roadways. The level of service (LOS) of a given roadway is related to prevailing traffic volumes and to capacity, which is defined as the maximum number of vehicles that can pass through a roadway section during a specified period of time. The capacity of a roadway is determined by a number of factors including composition of traffic (cars, buses, and trucks); roadway alignment; width and number of lanes; posted travel speeds and other variables.

The level of service and remaining capacity for each of the study roadways were determined based on the Space Coast Transportation Planning Organization (SCTPO). A comparison of the PM peak hour 2-way traffic volumes were made against the roadway capacities to determine the existing level of service. The existing roadway capacity analysis was performed for all roadways within the study area as shown in **Table 3**. In summary, all study roadways operate at an acceptable level of service.



Table 3: Existing Roadway Capacity Analysis

Roadway	No. of Lanes	Adopted LOS	Daily LOS Capacity	2022 AADT	Remaining Daily Capacity	Over Capacity? (Yes / No)	PM Peak Hour LOS Capacity	2022 PM Peak Hour Volume	Remaining PM Peak Hour Capacity	Over Capacity? (Yes / No)
SR 524										
I-95 to Cox Rd	2	D	18,590	14,549	4,041	No	1,673	1,309	364	No
Cox Rd to London Blvd	2	D	19,470	14,380	5,090	No	1,752	1,294	458	No
London Blvd to Industry Rd	2	D	19,470	14,380	5,090	No	1,752	1,294	458	No
Clearlake Road										
Michigan Ave to SR 524	3	D	39,800	18,220	21,580	No	3,582	1,640	1,942	No
Industry Road										
SR 524 to Grissom Pkwy	4	E	41,790	17,720	24,070	No	3,761	1,595	2,166	No
Cox Road										
SR 520 to SR 524	2	D	17,700	5,050	12,650	No	1,593	455	1,139	No
SR 524 to James Rd	2	D	17,700	2,640	15,060	No	1,593	238	1,355	No
<i>Sources:</i> <i>SCTPO Traffic Counts Interactive Map</i> <i>SCTPO Traffic Counts Historical Report 2012-2021</i> <i>FDOT 2020 QLOS Tables</i>										

Existing Intersection Capacity Analysis

The existing intersections were evaluated using the methodology outlined in the Highway Capacity Manual and using the Synchro 11 Software. The results of the signalized intersection capacity analysis for the AM and PM peak hour are shown in Error! Not a valid bookmark self-reference.. As noted below, the intersection at SR 524 and Cox Road PM peak hour period is operating at an adverse level of service. All the additional intersection are operating at an acceptable level of service. The analysis and subsequent HCM 6 output data can be found in **Appendix F**.

Table 4: Existing Intersection Capacity Analysis

Intersection	Control Type	Approach	2022 AM Peak Hour			2022 PM Peak Hour		
			V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
SR 524 and Cox Road	Signalized	EB	0.34	14.1	B	0.2	0.2	A
		WB	0.29	8.6	A	0.2	0.2	A
		NB	0.83	106.8	F	1.5	313.0	F
		SB	0.53	82.4	F	0.4	74.5	E
		Overall		28.1	C		86.6	F
SR 524 and London Boulevard	Signalized	EB	0.44	5.4	A	0.5	6.0	A
		WB	0.34	4.6	A	0.5	6.5	A
		NB						
		SB	0.33	28.1	C	0.6	34.1	C
		Overall		6.6	A		8.6	A
SR 524 and CVS	Signalized	EB	0.66	23.8	C	0.6	16.4	B
		WB	0.48	2.1	A	0.7	3.5	A
		NB	0.16	55.9	E	0.7	63.0	E
		SB	0.35	58.6	E	0.3	58.2	E
		Overall		17.3	B		18.1	B
SR 524 and Industry Road	Signalized	EB	0.49	14.4	B	0.6	19.6	B
		WB	0.16	20.7	C	0.4	25.9	C
		NB	0.58	53.8	D	0.8	64.1	E
		SB	0.77	45.2	D	0.8	51.8	D
		Overall		30.8	C		37.0	D

Sources:
Synchro 11

3

Future Conditions

To determine the impacts of the site-generated traffic volumes on the surrounding study intersections, future traffic conditions were analyzed. The background traffic volumes were projected to a future year of 2026 based on historical traffic data, noted in **Appendix G**. A minimum 2% growth rate was applied to the roadway and intersection counts. The anticipated number of trips generated from the development were calculated based on the *ITE Trip Generation Manual, 11th Edition* and distributed to the project roadways. Future vested trip traffic volumes data were provided by the City and included in the future analysis. The intersection volume derivation and vested trip data are documented in **Appendix H**.

Future Roadway Capacity Analysis

The future capacity analysis for the study area roadways for the project build-out can be found in **Existing Intersection** Capacity Analysis

The existing intersections were evaluated using the methodology outlined in the Highway Capacity Manual and using the Synchro 11 Software. The results of the signalized intersection capacity analysis for the AM and PM peak hour are shown in Error! Not a valid bookmark self-reference.. As noted below, the intersection at SR 524 and Cox Road PM peak hour period is operating at an adverse level of service. All the additional intersection are operating at an acceptable level of service. The analysis and subsequent HCM 6 output data can be found in **Appendix F**.

Table 4 for the PM peak hour condition. The analysis concludes that SR 524 for future conditions operate above capacity and is a result from background traffic conditions. Additionally, the FDOT conducted a PD&E Study for a segment of SR 524 (FPID No. 437983-1). The last update was May 5, 2021. The findings are consistent with the results of this study. However, funding for a widening project does not exist at this time.

Proportionate Fair Share

Per the City of Cocoa Code of Ordinances, a proportionate fair share calculation shall be applied to developments where lack of capacity to satisfy transportation concurrency requirements on a facility are identified. The calculation for the proportionate fair share calculation to widen segments of SR 524 from two to four lanes, per Section 15-65(C), can be reviewed in **Table 6**. The FDOT Cost Per Mile Models Reports cost estimation were utilized for analysis can be reviewed in **Appendix I**. It should be noted that the segment of SR 524 from I-95 to Cox Road was not included in the proportionate fair share analysis as the segment was deemed not significant, with a captured trip percentage of the service volumes at 4.19%.



Table 5: Future Roadway Capacity Analysis

Roadway / Segment	No. of Lanes	Adopted PM Peak Hour LOS Capacity	Adopted Daily LOS Capacity	Growth Factor	2022 PM Peak Hour Volume	2022 AADT	2026 Background							2026 Build-Out				
							Daily Vested Trips	PM Peak Vested Trips	PM Peak Hour Trips	Daily Trips	Remaining PM Peak Hour Capacity	Remaining Daily Capacity	PM Peak Hour Background Deficient?	Project Traffic			Remaining PM Peak Hour Capacity	Remaining Daily Capacity
														Dist. %	PM Peak Hour Volume	Daily Volume		
SR 524																		
I-95 to Cox Rd	2	1,673	18,590	3.19%	1,309	14,549	451	456	1,477	16,859	-260	1,731	Yes	17.46%	65	1,525	-325	206
Cox Rd to London Blvd	2	1,752	19,470	2.00%	1,294	14,380	1,634	456	1,398	17,164	-101	2,306	Yes	25.53%	96	2,230	-197	76
London Blvd to Industry Rd	2	1,752	19,470	2.00%	1,294	14,380	3,492	456	1,398	19,022	-101	448	Yes	73.46%	275	6,417	-376	-5,969
Clearlake Road																		
Michigan Ave to SR 524	2	3,582	39,800	2.00%	1,640	18,220	234	0	1,771	19,912	1,811	19,888	No	26.14%	98	2,283	1,713	17,605
Industry Road																		
SR 524 to Grissom Pkwy	4	3,761	41,790	2.00%	1,595	17,720	0	115	1,722	19,138	1,924	22,652	No	46.72%	175	4,081	1,749	18,571
Cox Road																		
SR 520 to SR 524	2	1,593	17,700	2.92%	455	5,050	0	43	508	5,640	1,042	12,060	No	6.96%	26	608	1,016	11,452
SR 524 to James Rd	2	1,593	17,700	2.00%	238	2,640	0	156	257	2,851	1,180	14,849	No	0.81%	3	71	1,177	14,778

Sources:
 SCTPO Traffic Counts Interactive Map
 SCTPO Traffic Counts Historical Report 2012-2021
 FDOT 2020 QLOS Tables
 City of Cocoa
 Brevard County

Table 6: Proportionate Fair Share Analysis

Planned Improvement Roadway(s)	Limits of Improvement (From - To)		Segment Length	Adopted LOS	Existing Generalized Capacity	Improved Generalized Capacity	Capacity Increase	Cost per Mile	Total Project Cost	Project Trips	Proportionate Fair Share Cost
SR 524	Cox Road	London Boulevard	1.28	D	1,600	3,580	1,980	\$3,259,629.45	\$4,165,806.44	96	\$ 201,978.49
SR 524	London Boulevard	Industry Road	0.46	D	1,600	3,580	1,980	\$3,259,629.45	\$1,483,131.40	275	\$ 205,990.47
Total											\$ 537,316.99

Sources:
 Florida Department of Transportation Cost per Mile Models Reports
 City of Cocoa, Florida Code of Ordinances, Part II, Chapter 15, Article V

Future Intersection Capacity Analysis

The analysis for the operation at the signalized intersections were conducted by determining the operation for the future buildout condition with project trips added. The intersection operations for the future buildout condition is depicted in **Table** . The Synchro signalized intersection report printouts are provided in the **Appendix J**. The future turning movement volumes can be reviewed in **Figure 4**.

For the AM peak hour period, all intersections are operating at an adverse level of service with the exception of SR 524 at the CVS entrance. For the PM peak hour period, only SR 524 at Industry Road is operating at an adverse level of service.

Table 7: Future Intersection Capacity Analysis

Intersection	Control Type	Approach	2026 AM Peak Hour			2026 PM Peak Hour		
			V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
SR 524 and Cox Road	Signalized	EB	0.2	0.3	A	0.3	0.3	A
		WB	0.2	0.1	A	0.3	0.2	A
		NB	1.0	134.0	F	1.0	142.6	F
		SB	1.8	488.9	F	1.2	220.8	F
		Overall		96.2	F		45.1	D
SR 524 and London Boulevard	Signalized	EB	0.8	25.0	C	0.9	55.0	E
		WB	0.4	15.6	B	0.5	18.3	B
		NB	2.1	404.3	F	0.4	70.0	E
		SB	2.1	426.5	F	0.8	83.6	F
		Overall		222.0	F		41.9	D
SR 524 and CVS	Signalized	EB	0.7	24.8	C	0.6	20.1	C
		WB	0.7	13.2	B	0.7	7.8	A
		NB	0.6	45.1	D	1.4	166.3	F
		SB	0.8	56.6	E	1.1	153.0	F
		Overall		27.6	C		53.1	D
SR 524 and Industry Road	Signalized	EB	1.2	92.8	F	1.0	40.9	D
		WB	1.0	94.4	F	0.7	27.7	C
		NB	1.6	258.0	F	1.6	198.0	F
		SB	0.8	35.6	D	0.9	55.3	E
		Overall		96.2	F		65.2	E

Sources:
Synchro 11

Turn Lane Need Evaluation

The need for a westbound-to-southbound left turn lane and an eastbound-to-southbound right turn lane were evaluated following guidance provided from the National Cooperative Highway Research Program (NCHRP) Report 457. The NCHRP Report 457 data can be found in **Appendix K**. It should be noted that the NCHRP Report 457 criteria for turn lanes is based on unsignalized two-way stop controlled intersections. It therefore provides a conservative analysis.

The opposing volumes (622 vehicles) versus the advancing volumes (653 vehicles) were compared and met the criteria to justify the need for an exclusive left turn lane. Therefore, an exclusive left-turn lane is recommended. The right turn volume of 104 vehicles compared to 622 vehicles on SR 524 in the eastbound direction for the PM peak hour condition justifies the need for an exclusive right turn lane. Therefore, an exclusive right-turn lane is recommended.

Intersection Queue Analysis

An intersection queue analysis was performed for dedicated turn lanes where project trips are present at the study area intersections. The analysis compares the existing storage length to the buildout traffic queue. As shown in **Table**, multiple movements do not meet the FDOT deceleration standards or are sufficient for the expected future volumes of the roadway.

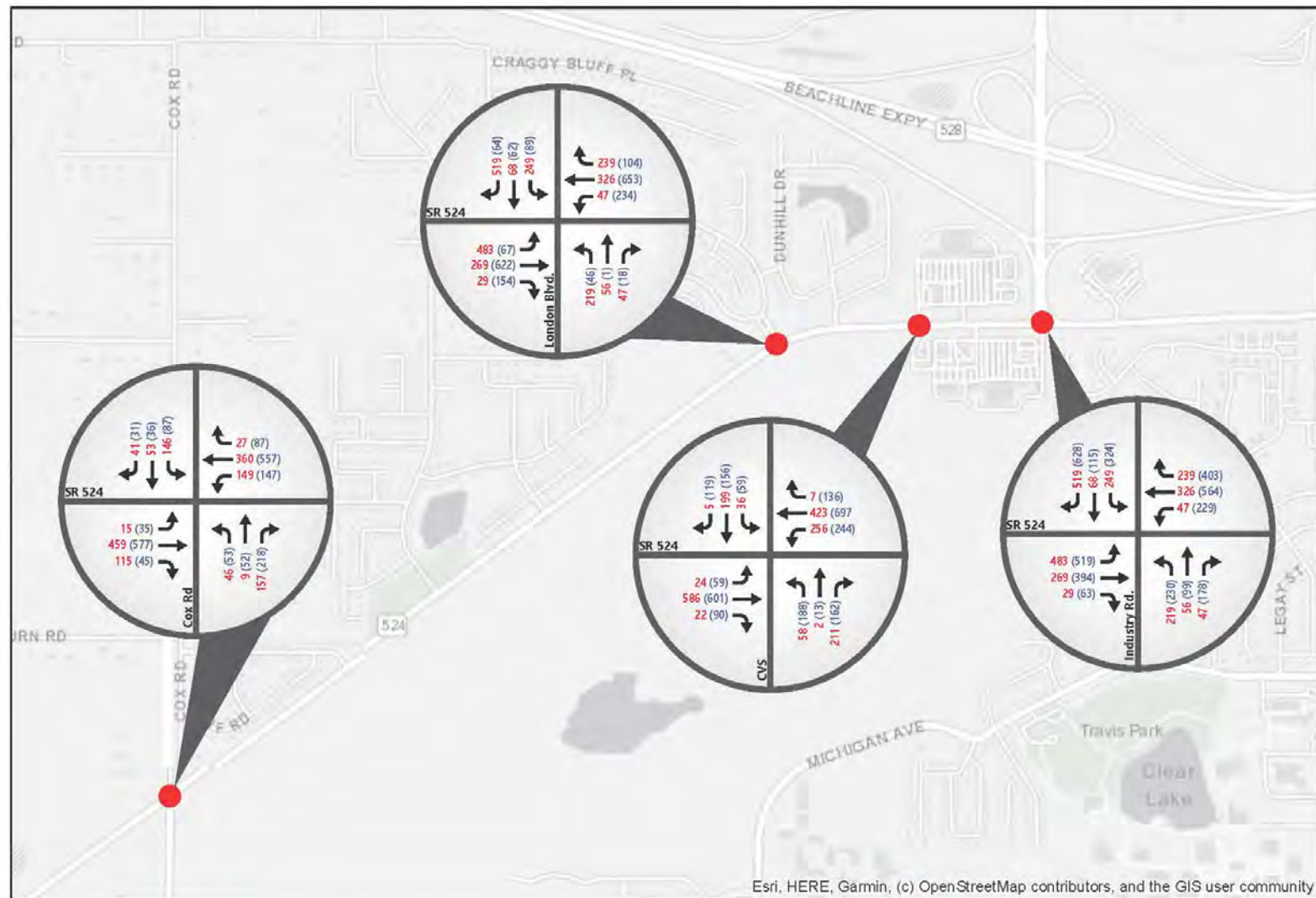
Table 8: Intersection Queue Analysis

Intersection	Movement	95th Percentile Queue	Rounded Queue	Queue Length (ft)	Design Speed (mph)	Deceleration Length (ft)	Total Required Length	Existing Length (ft)	Sufficient?	Length Required
SR 524 and London Boulevard	EBL	17.4	20	500	55	290	790	310	No	480
	EBR*	6.7	10	250	55	290	540	0	No	540
	WBL*	11.4	15	375	55	290	665	0	No	665
SR 524 and CVS	EBL	1.3	5	125	45	185	310	435	Yes	-
	WBL**	8.2	10	250	45	185	435	150	No	285
SR 524 and Industry Road	EBL	30.7	35	875	45	185	1060	420	No	640
	WBL	7.3	10	250	45	185	435	490	Yes	-
	SBL	10.3	15	375	45	185	560	610	Yes	-

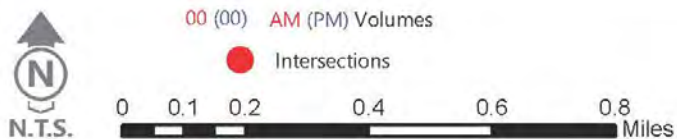
Sources:
 Synchro 11
 Florida Department of Transportation Florida Design Manual Exhibit 212-1

Notes:
 *These movements are included in the proposed development plan

Figure 3: 2026 Future Build-Out Peak Hour Traffic Volumes



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community



4

Conclusions

This traffic analysis has been prepared in support of obtaining concurrency through the City of Cocoa, for a mixed-use development to be located on the south side of SR 524 at London Boulevard in Cocoa, Florida.

Conclusions:

- The proposed development is expected to generate 8,735 new daily trips, 548 new AM peak hour trips, and 375 new PM peak hour trips.
- The existing roadway analysis reveals that all study roadways operate at an acceptable level of service.
- The existing intersection analysis reveals that the study intersections are operating at an acceptable level of service except for the PM peak hour condition at SR 524 and Cox Road.
- The future roadway analysis reveals that all study area roadways operate at an acceptable level of service except for roadway segments on SR 524 from Cox Road to Industry Road due to a future background deficiency.
- The future intersections analysis reveals that multiple study intersections are operating at an adverse level of service in the AM and PM peak hours.
 - o Intersections operating at an adverse level of service in the AM peak hour include SR 524 and Cox Road, SR 524 and London Boulevard, and SR 524 at Industry Road.
 - o Intersections operating at an adverse level of service in the PM peak hour include SR 524 and Industry Road.

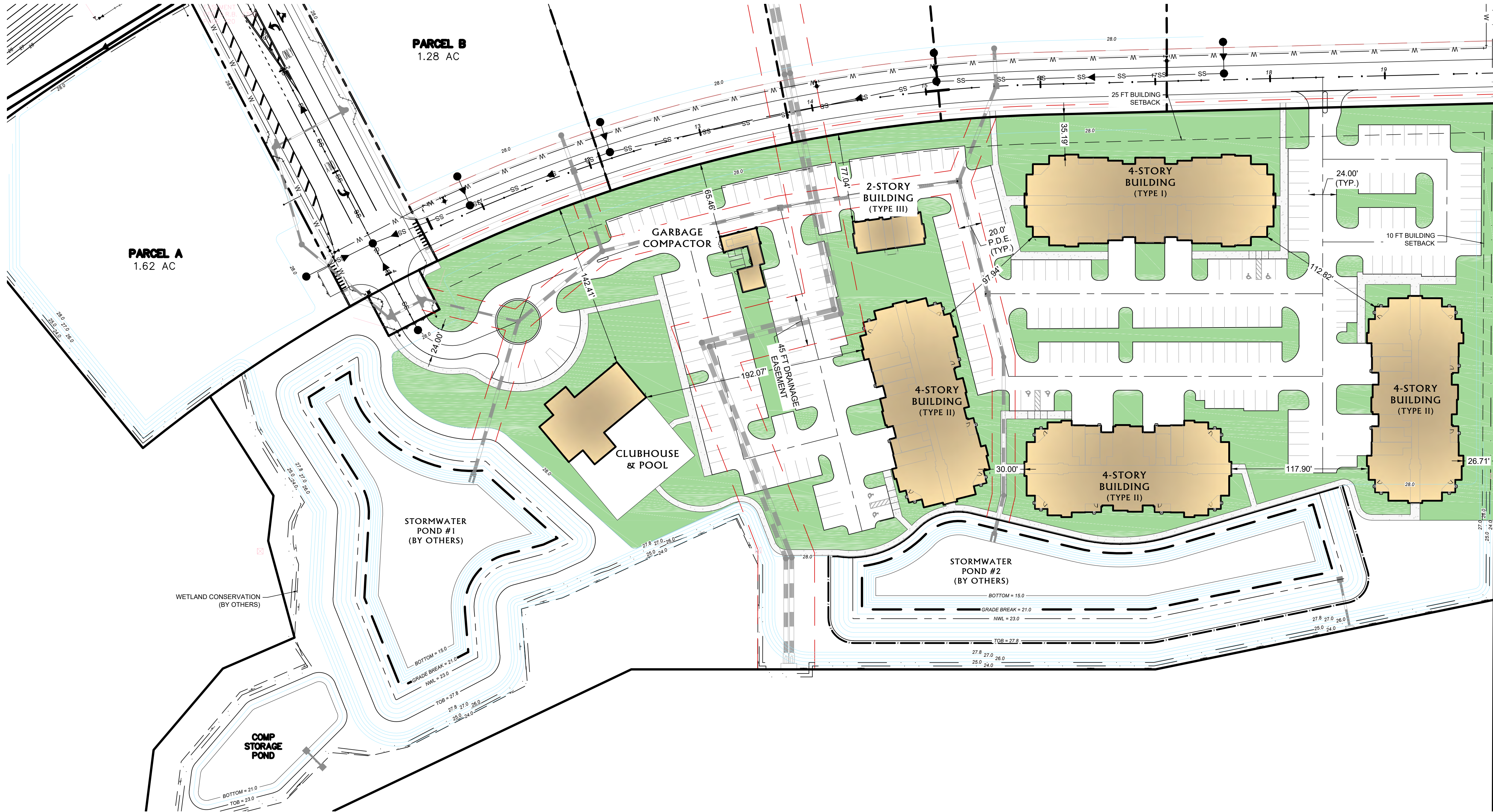
Recommendations:

- Construct a 250' eastbound right turn lane at the intersection of SR 524 and London Boulevard/Project Entrance.
- Construct a 375' westbound left turn lane at the intersection of SR 524 and London Boulevard/Project Entrance.
- Restripe the westbound left turn lane at SR 524 and CVS entrance to be 435'.

APPENDICES

APPENDIX A

Site Plan



SITE INFORMATION

GENERAL STATEMENT

THIS PROPOSED PROJECT INVOLVES CONSTRUCTION AND DEVELOPMENT A MULTI-FAMILY RESIDENTIAL FACILITY ON TRACT A OF THE PROPOSED LONDON COVE SUBDIVISION. INFRASTRUCTURE IMPROVEMENTS CONSIST OF DRAINAGE PIPES AND STRUCTURE, PARKING AREA, DRIVE AISLE AND WATER AND SEWER SERVICE. CONSTRUCTION OF THE FACILITIES WILL INVOLVE CLEARING, GRUBBING, FILLING, EXCAVATION, GRADING AND STABILIZATION. POTENTIAL POLLUTION SOURCES INCLUDE SOIL EROSION AND SILTATION, AND DISCHARGES FROM CONSTRUCTION EQUIPMENT (I.E. OIL, GAS).

APPLICANT/OWNER

INTEGRA LAND COMPANY
1525 INTERNATIONAL PARKWAY, SUITE 2001
LAKE MARY, FLORIDA 32746
PHONE: (407) 902-3827

SITE ADDRESS

STATE ROAD 524
COCOA, FL 32926

FUTURE LAND USE

LOW-DENSITY RESIDENTIAL
MEDIUM-DENSITY RESIDENTIAL

TAX PARCEL I.D. NUMBER(S)

24-36-18-00-500.1 (PORTION OF)
24-36-18-00-502 (PORTION OF)

PROJECT INFORMATION

SITE AREA (LONDON COVE) 6,545,470 SF (14.04 AC)
PROJECT AREA (TRACT A) 500,504 SF (11.49 AC) 100.00%
BUILDINGS COVERAGE (40% MAX) 58,270 SF (1.34 AC) 11.6%
SIDEWALK AREA 13,329 SF (0.31 AC) 2.7%
ASPHALT AREA 125,875 SF (2.89 AC) 25.1%
TOTAL IMPERVIOUS AREA 185,474 SF (4.26 AC) 37.1%
TOTAL PERVIOUS AREA 315,030 SF (7.20 AC) 62.9%
DENSITY 166 UNITS/11.49 ACRES = 14.4 UNITS PER ACRE (15 MAX)
GROSS FLOOR AREA 212,484 SF
FLOOR AREA RATIO (BASED ON PROJECT AREA) 0.42

BUILDING INFORMATION

TOTAL EXISTING BUILDINGS NONE
TOTAL PROPOSED BUILDINGS 5 RESIDENTIAL
1 CLUBHOUSE
1 MAINTENANCE / GARBAGE COMPACTOR
CLUBHOUSE 4,192 SF (35')
MAINTENANCE BUILDING 1,035 SF
MAXIMUM HEIGHT ALLOWED (SEE NOTE BELOW) 35'

BUILDING LENGTH (233 FEET), HEIGHT (57 FEET), AND MINIMUM LIVING AREA (638 S.F. FOR A MAXIMUM OF 148) 1-BEDROOM UNITS) ARE BEING APPLIED FOR A WAIVER AS PART OF THE DEVELOPER'S AGREEMENT.

RESIDENT BUILDINGS	QUANTITY	HEIGHT	SQUARE FOOTAGE
TYPE I	3	4-STORY / 57'	49,913
TYPE II	1	4-STORY / 57'	61,607
TYPE III	1	2-STORY/24'	1,638
TOTAL RESIDENT BUILDINGS	5		

GENERAL HOME MIX	HOMES	PERCENTAGE	MIN. AREA REQ.	MIN. AREA PROV.
1-BEDROOM	14	8.4%	800 SF	638 SF
1-BEDROOM	2	1.2%	800 SF	638 SF
1-BEDROOM	32	19.3%	800 SF	748 SF
1-BEDROOM	12	7.2%	800 SF	811 SF
2-BEDROOM	42	25.3%	900 SF	1,088 SF
2-BEDROOM	48	28.9%	900 SF	1,154 SF
3-BEDROOM	16	9.6%	1,000 SF	1,308 SF
TOTAL UNITS	166	100.0%		

PARKING INFORMATION

TANDEM SPACES 26 (INTERNAL TO BUILDINGS)
SURFACE PARKING
STANDARD 245
COMPACT 18
MOTORCYCLE 6
ADA ACCESSIBLE 8
TOTAL PARKING PROVIDED 303
PARKING REQUIRED PER CODE 302 (60 x 1.5 + 106 x 2)
ADA PARKING (REQUIRED) 6
ADA PARKING (PROVIDED) 8

MAXIMUM BUILDING COVERAGE

ALLOWED: 40.00% (MAX)
PROPOSED: 11.6%

FLOOD ZONE

THE SUBJECT PROPERTY IS LOCATED IN FLOOD ZONE 'X' PER F.I.R.M. PANEL No. 12099C 0320 H, DATED MARCH 17, 2014.

SANITARY SEWER SOURCE

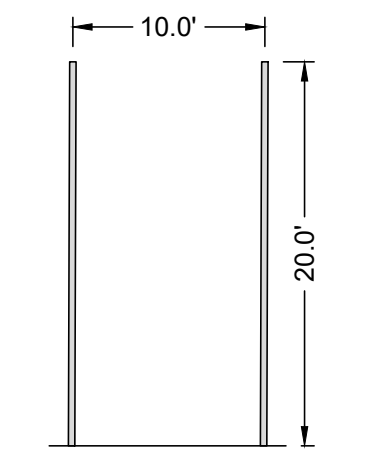
CITY OF COCOA SANITARY SEWER SYSTEM

POTABLE WATER SOURCE

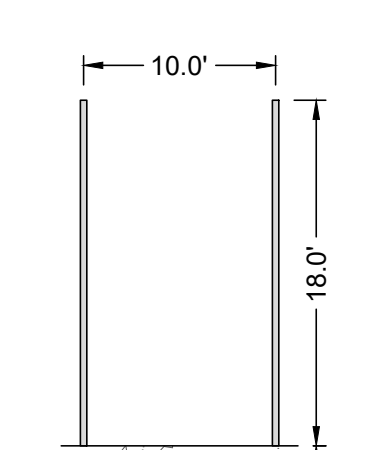
CITY OF COCOA WATER SYSTEM

BUILDING SETBACKS

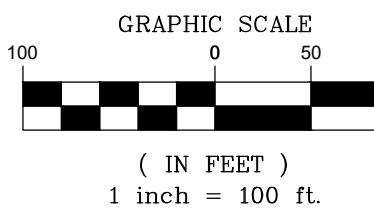
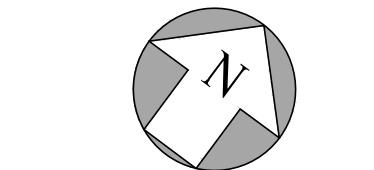
PROPERTY SETBACKS	REQ'D	PROVIDED
FRONT	25'	35.2'
SIDE INTERIOR	10'	26.7'
SIDE CORNER	15'	N/A
REAR	20'	123.4'



TYPICAL PARKING SPACE
N.T.S.



TYPICAL PARKING SPACE
WITH SIDEWALK
N.T.S.



REVISIONS	COMMENTS	DATE
1		5/25/22
2		
3		
4		
5		
6		
7		
8		

JOB NO.	22-1007
DESIGNED	DWB
DRAWN	DWB
DATE	05/20/2022
CHECKED	BAM
DATE ISSUED	5/25/22

MBV ENGINEERING, INC.
MOA BOWLES VILLANAR & ASSOCIATES
CIVIL • STRUCTURAL • SURVEYING • ENVIRONMENTAL
1250 W. EAU GALIE BLVD, SUITE H
MELBOURNE, FLORIDA 32935
P: 321.253.1510
F: 321.253.1511
VERO: 772.998.0035, FT PIERCE: 772.468.8005, PALM CITY: 772.468.9695

OVERALL SITE PLAN

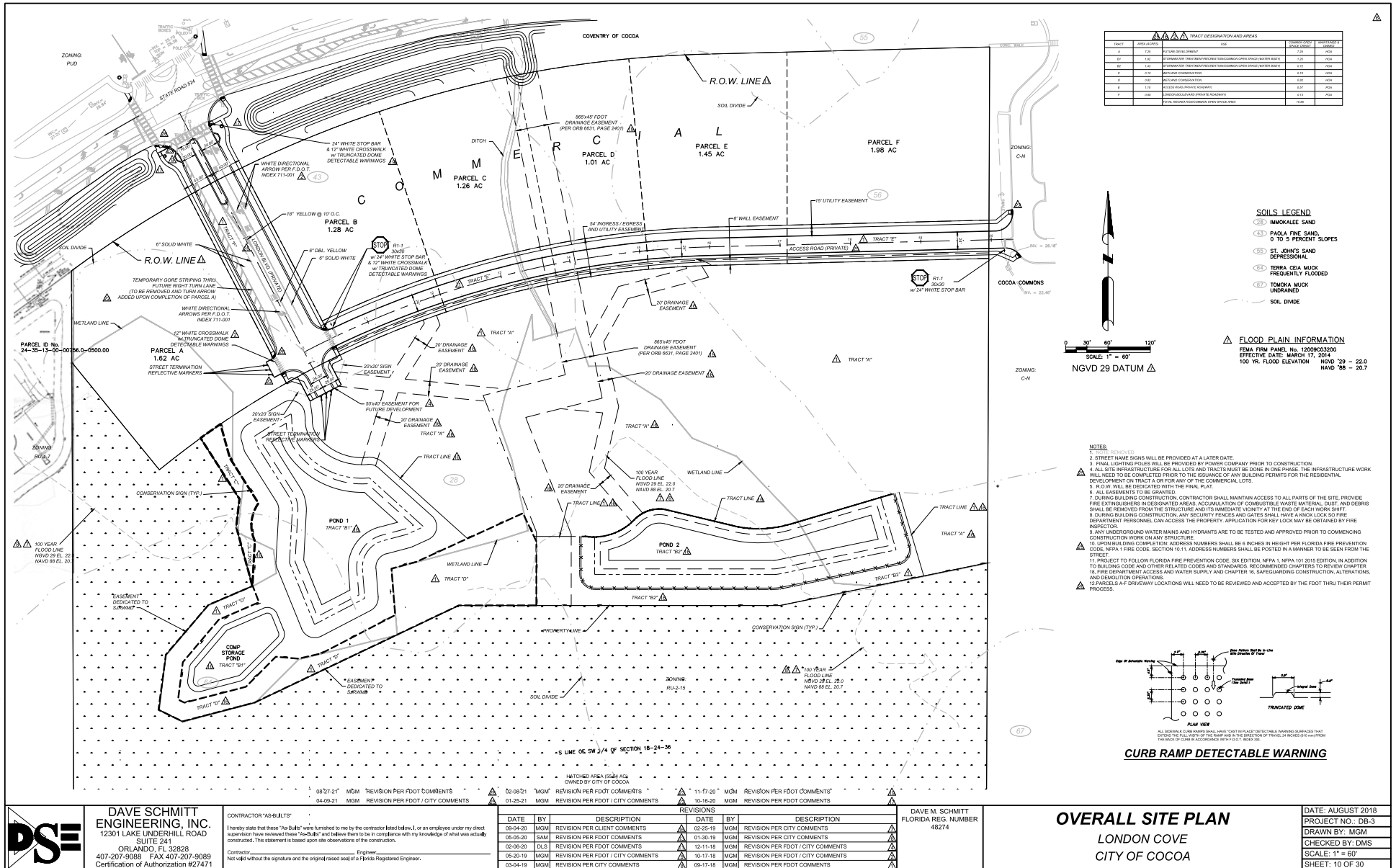
INTEGRA TRAILS 2

FLORIDA
CITY OF COCOA

NOT FOR CONSTRUCTION
PLAN SHEETS ARE PRELIMINARY AND FOR INFORMATION ONLY. PLANS SHOULD NOT BE USED AS A BASIS FOR BIDS.
CONTRACTOR SHOULD ORDER THE OFFICIAL PLANS FROM THE ENGINEER OF RECORD TO ENSURE THAT ANY ACCORDANCE ARE PROPERLY DISTRIBUTED. PLANS ARE INVALID WITHOUT ENGINEER OF RECORDS SEAL AND SIGNATURE.

CP-1
SHEET
22-1007

F:\DB3\Plan\10 OVERALL SITE PLAN.dwg, 8/27/2021 10:13:44 AM



APPENDIX B
ITE Trip Generation Summary Sheets

Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

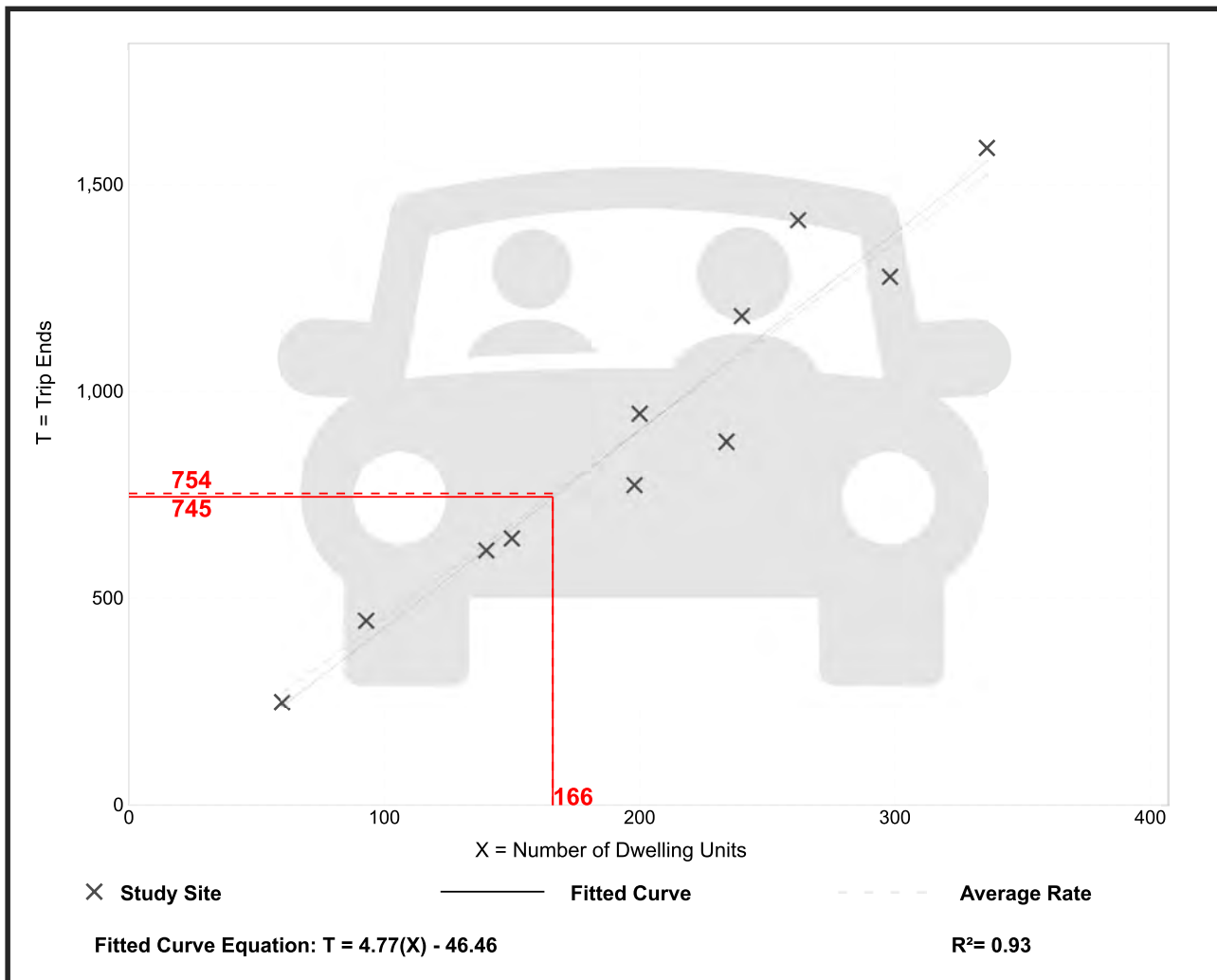
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 11
Avg. Num. of Dwelling Units: 201
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.54	3.76 - 5.40	0.51

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

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: 31

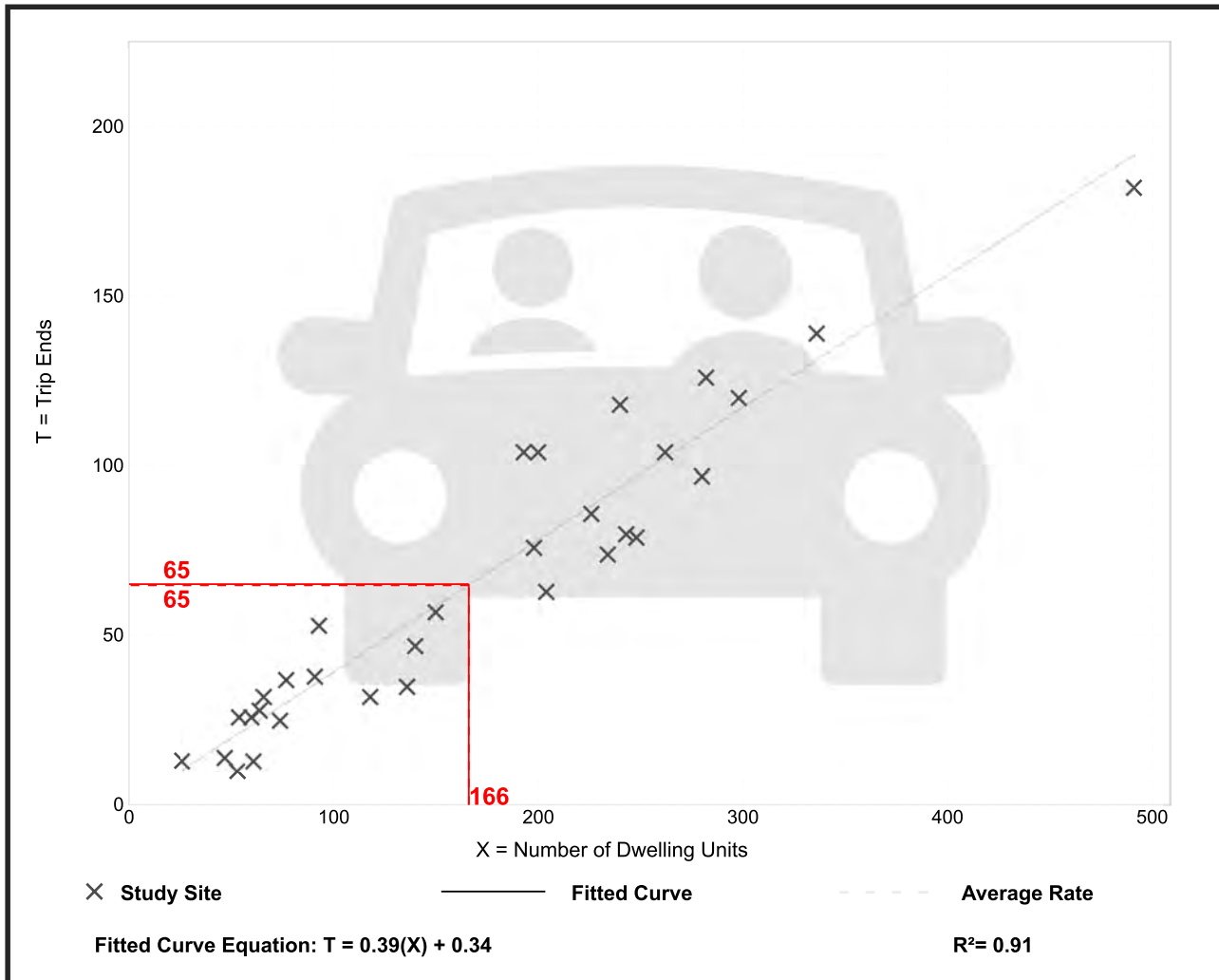
Avg. Num. of Dwelling Units: 169

Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

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: 30

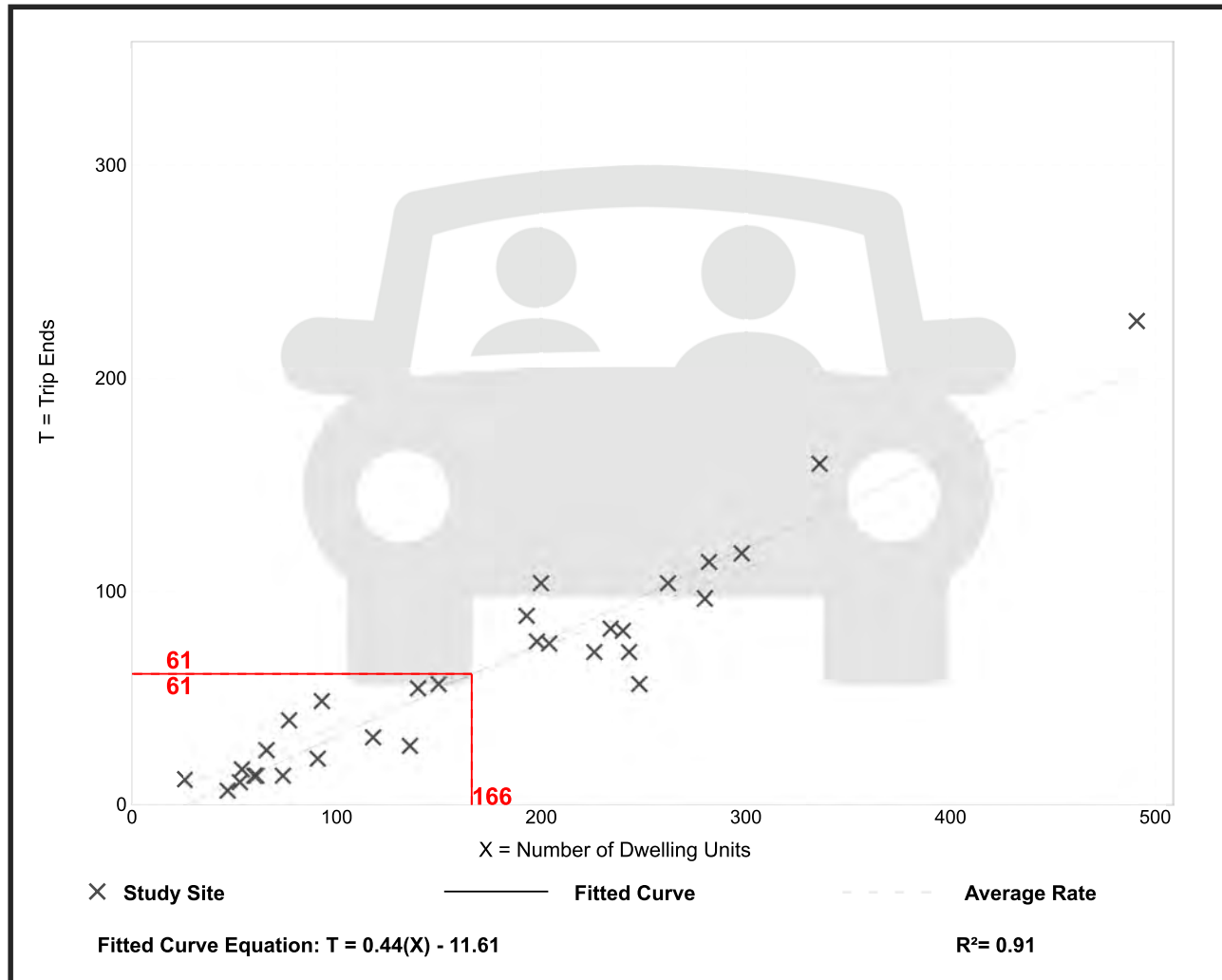
Avg. Num. of Dwelling Units: 173

Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



Shopping Center

(820)

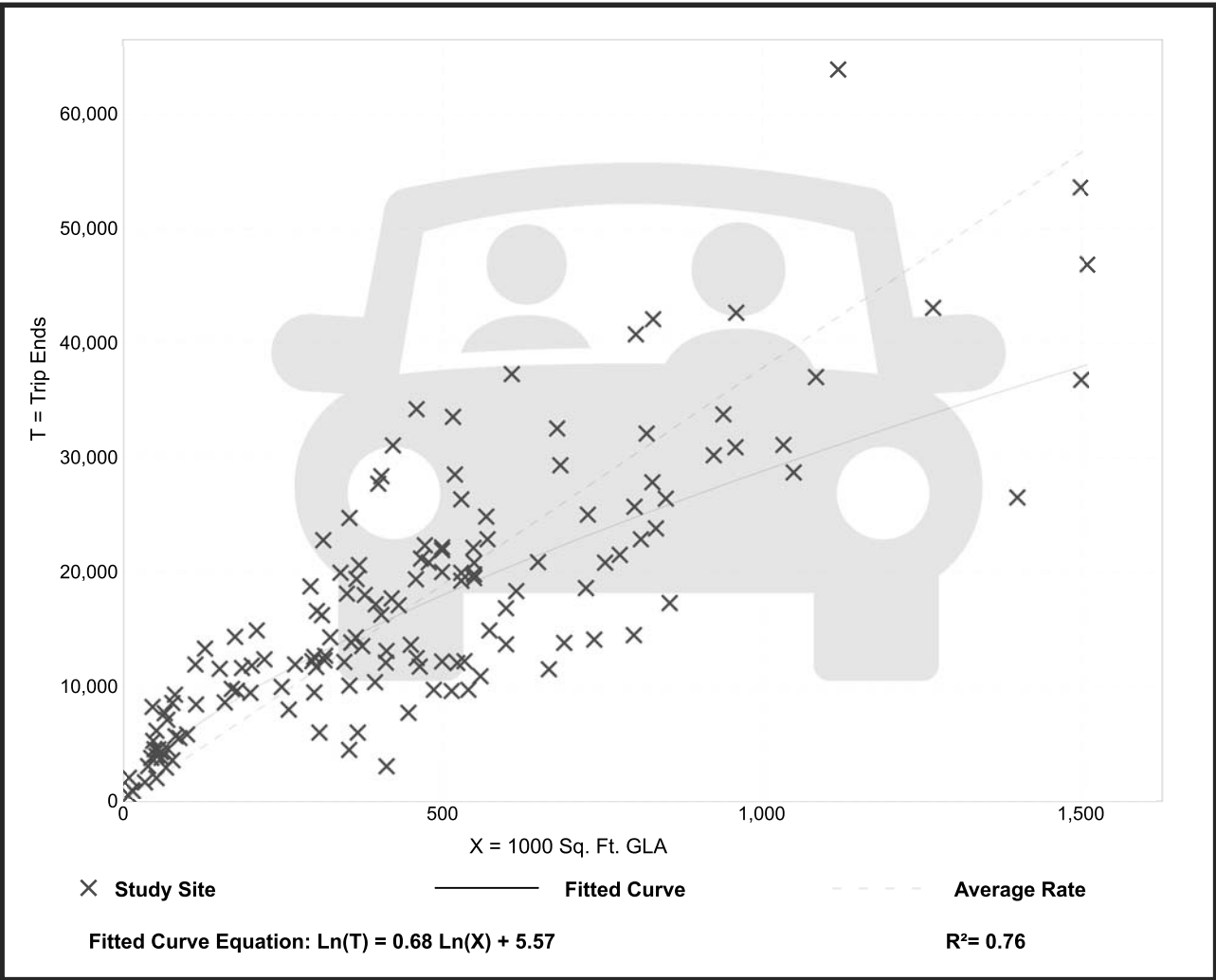
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 147
Avg. 1000 Sq. Ft. GLA: 453
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
37.75	7.42 - 207.98	16.41

Data Plot and Equation



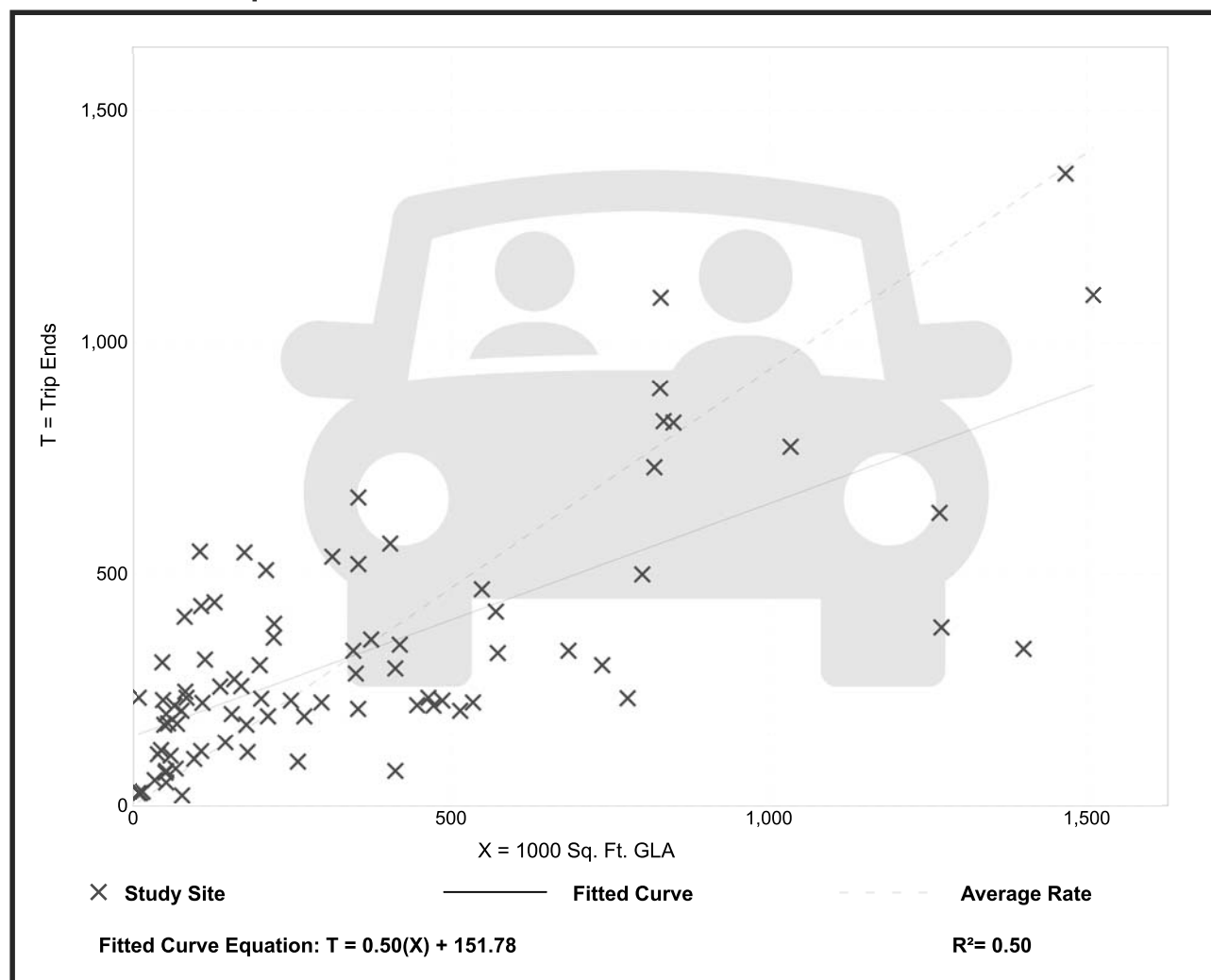
Shopping Center (820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
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: 84
 Avg. 1000 Sq. Ft. GLA: 351
 Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.94	0.18 - 23.74	0.87

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement • Institute of Transportation Engineers

Shopping Center

(820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

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: 261

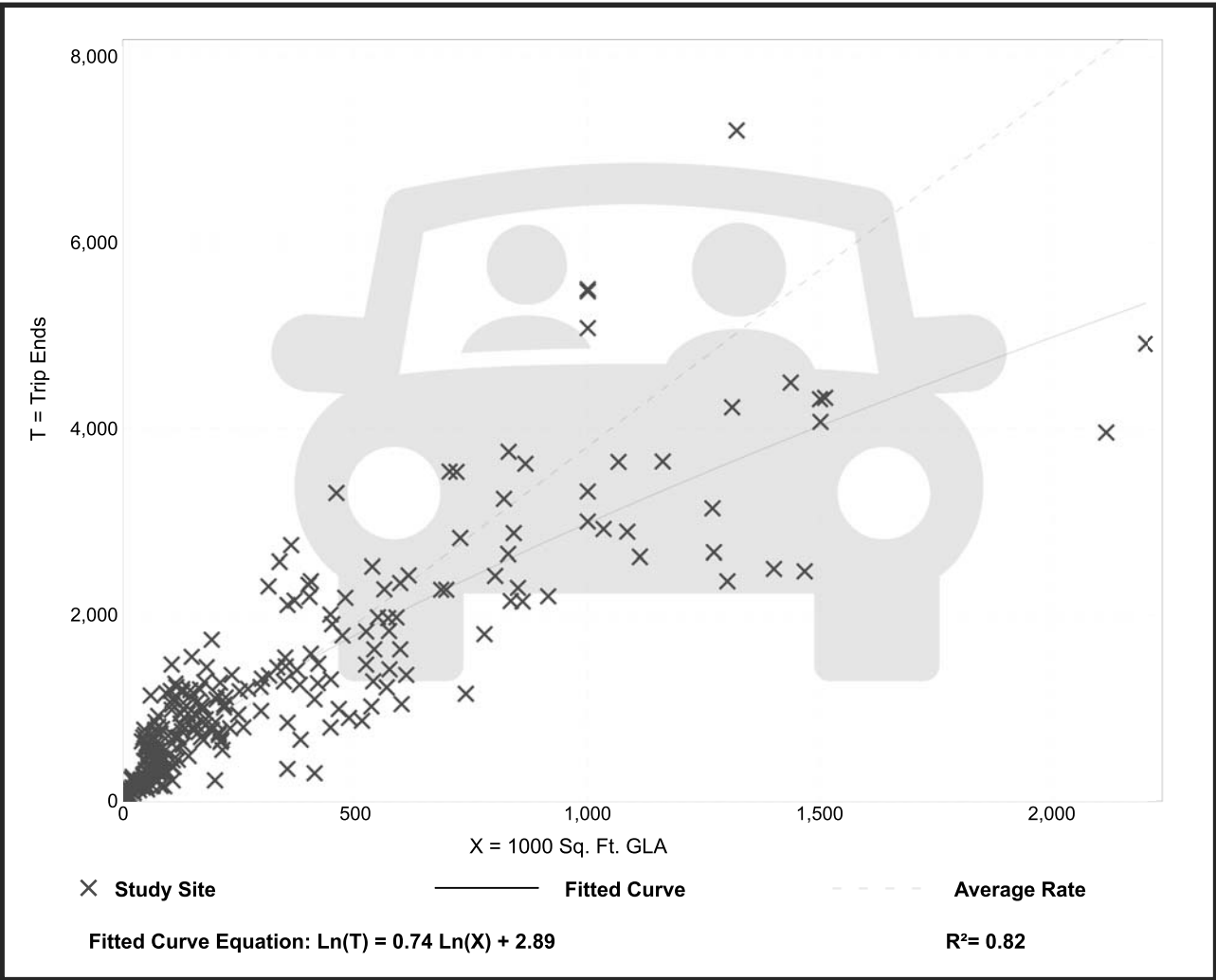
Avg. 1000 Sq. Ft. GLA: 327

Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.81	0.74 - 18.69	2.04

Data Plot and Equation



Fast-Food Restaurant with Drive-Through Window (934)

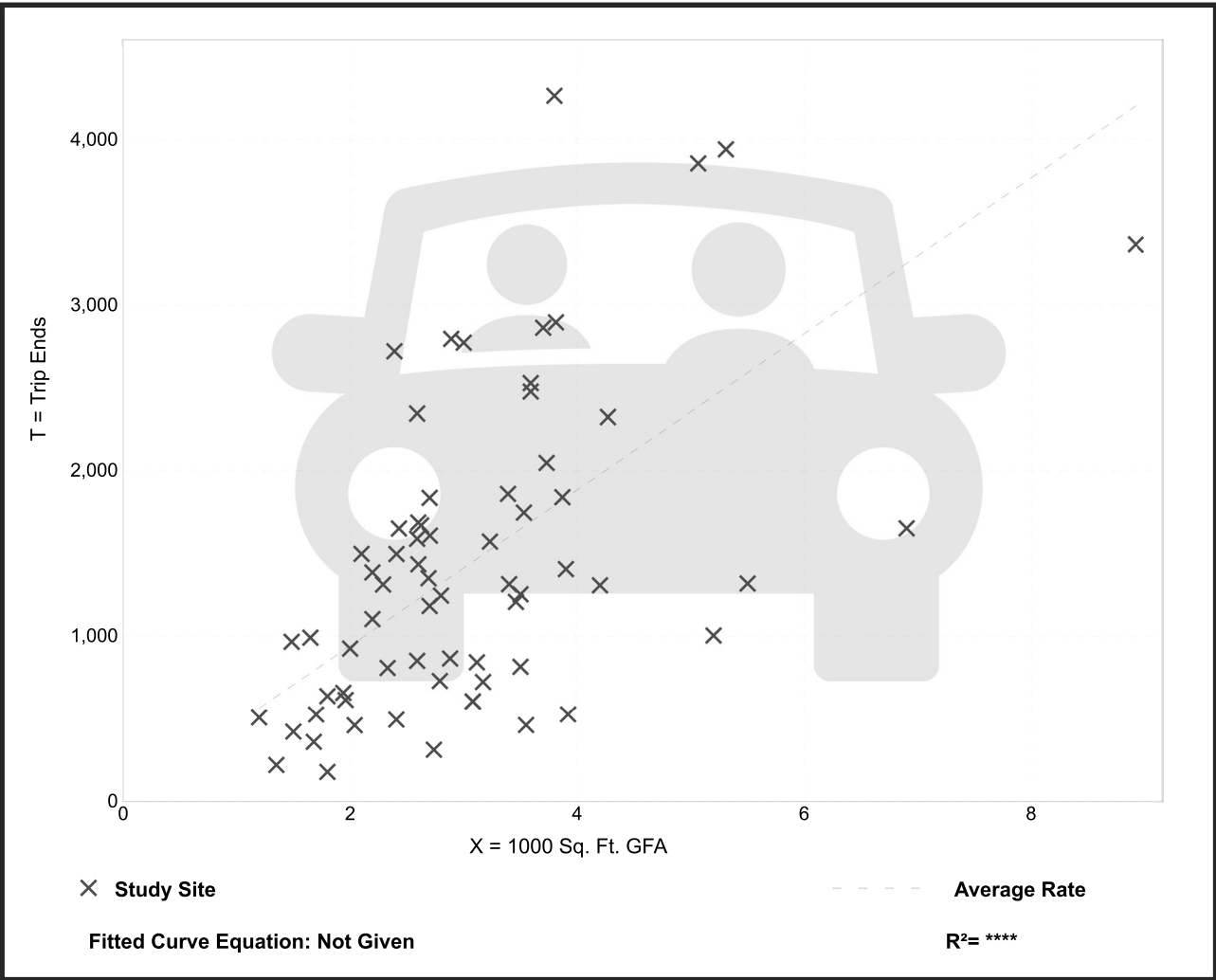
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 67
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
470.95	98.89 - 1137.66	244.44

Data Plot and Equation



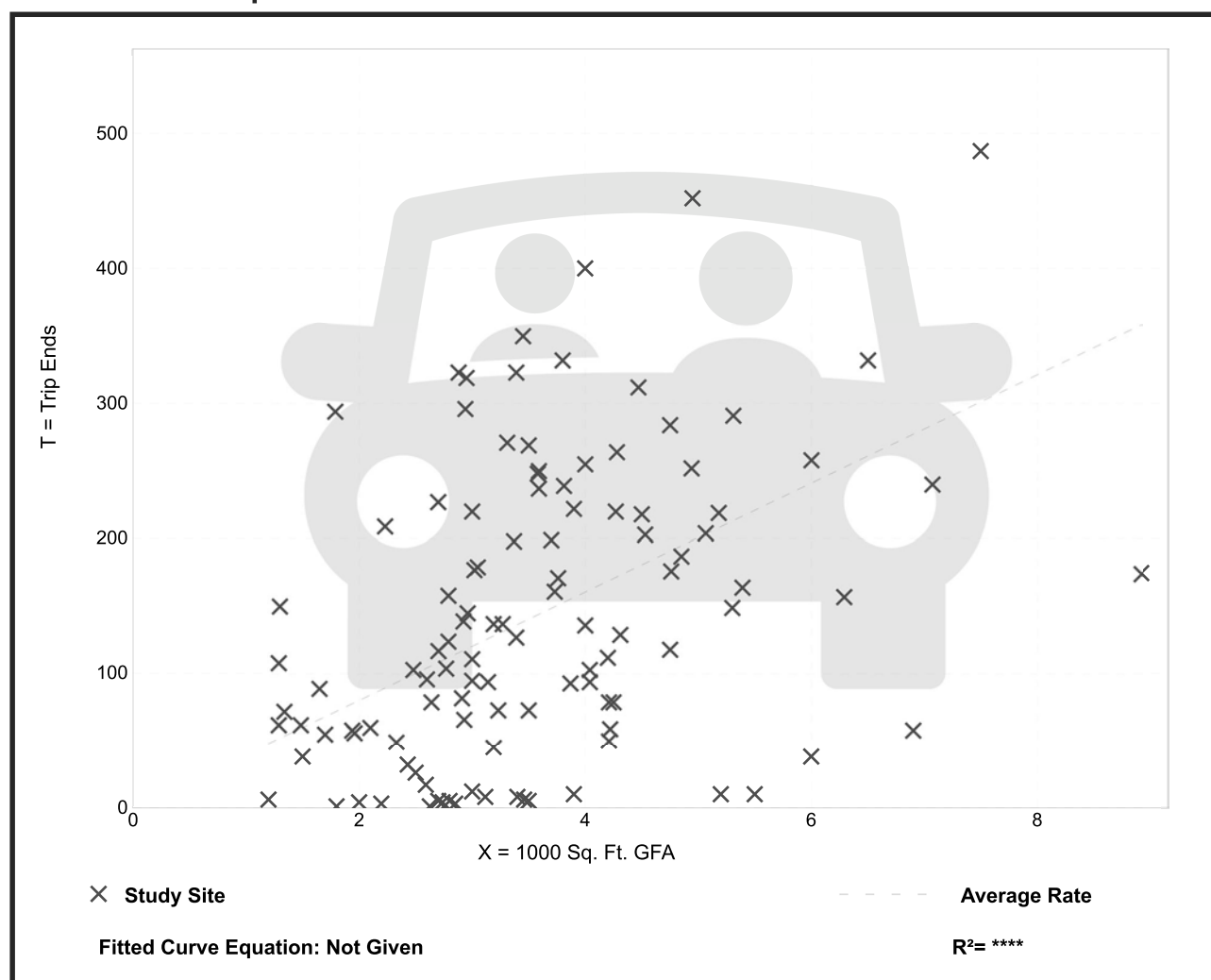
Fast-Food Restaurant with Drive-Through Window (934)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 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: 111
 Avg. 1000 Sq. Ft. GFA: 4
 Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
40.19	0.38 - 164.25	28.78

Data Plot and Equation



Fast-Food Restaurant with Drive-Through Window (934)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

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: 185

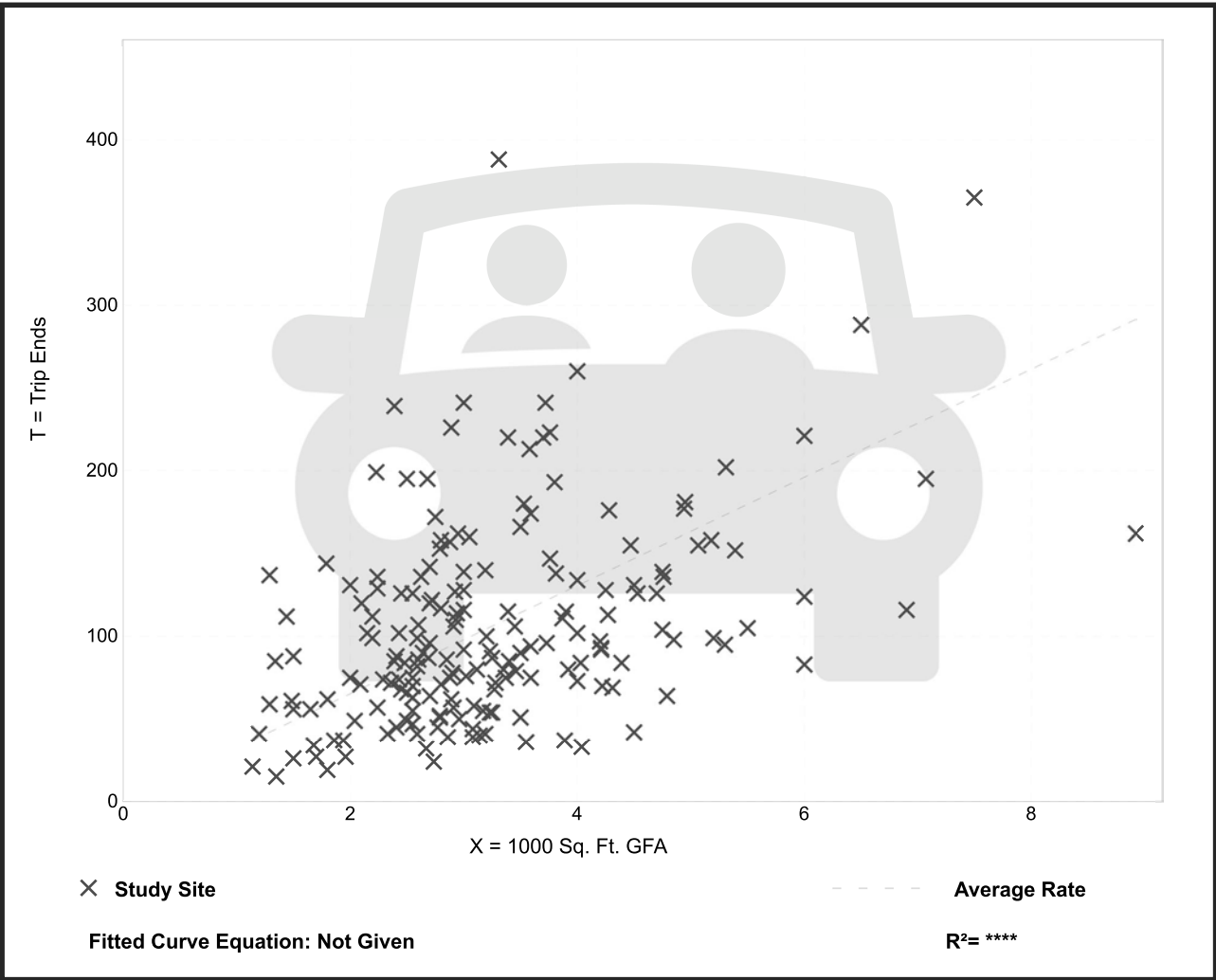
Avg. 1000 Sq. Ft. GFA: 3

Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
32.67	8.17 - 117.22	17.87

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

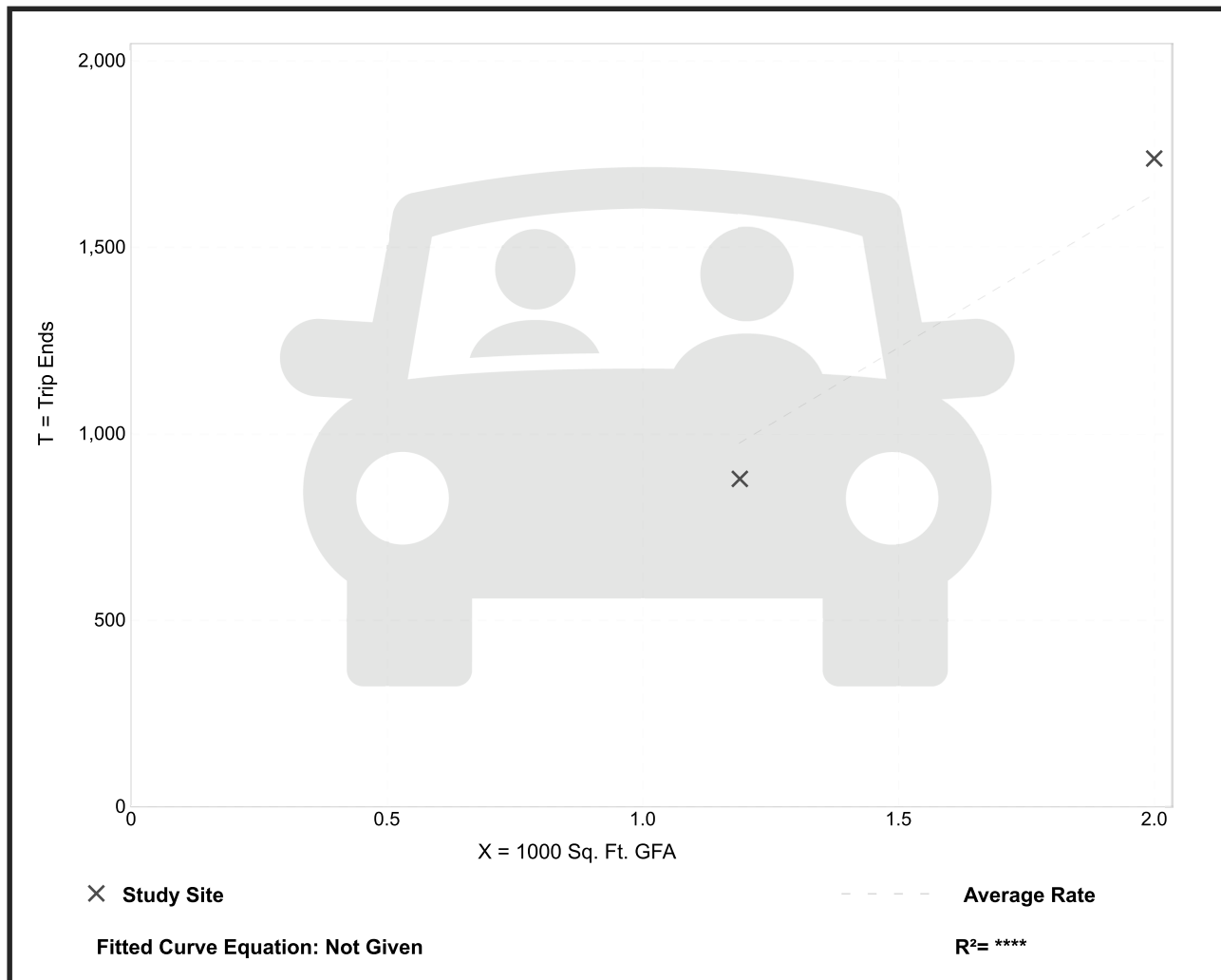
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
820.38	738.66 - 869.00	*

Data Plot and Equation

Caution – Small Sample Size



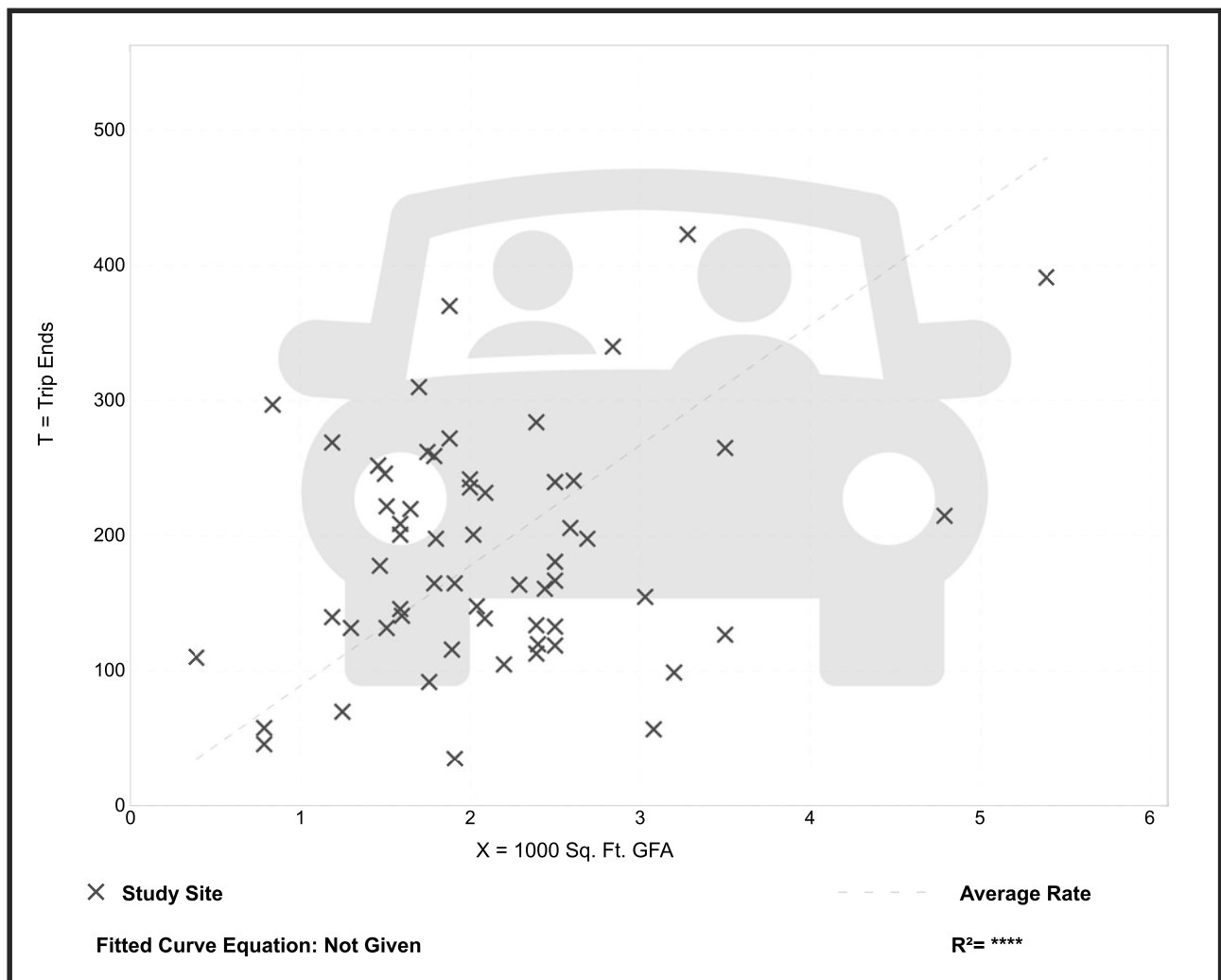
Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 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: 61
 Avg. 1000 Sq. Ft. GFA: 2
 Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
88.99	18.32 - 353.57	48.19

Data Plot and Equation



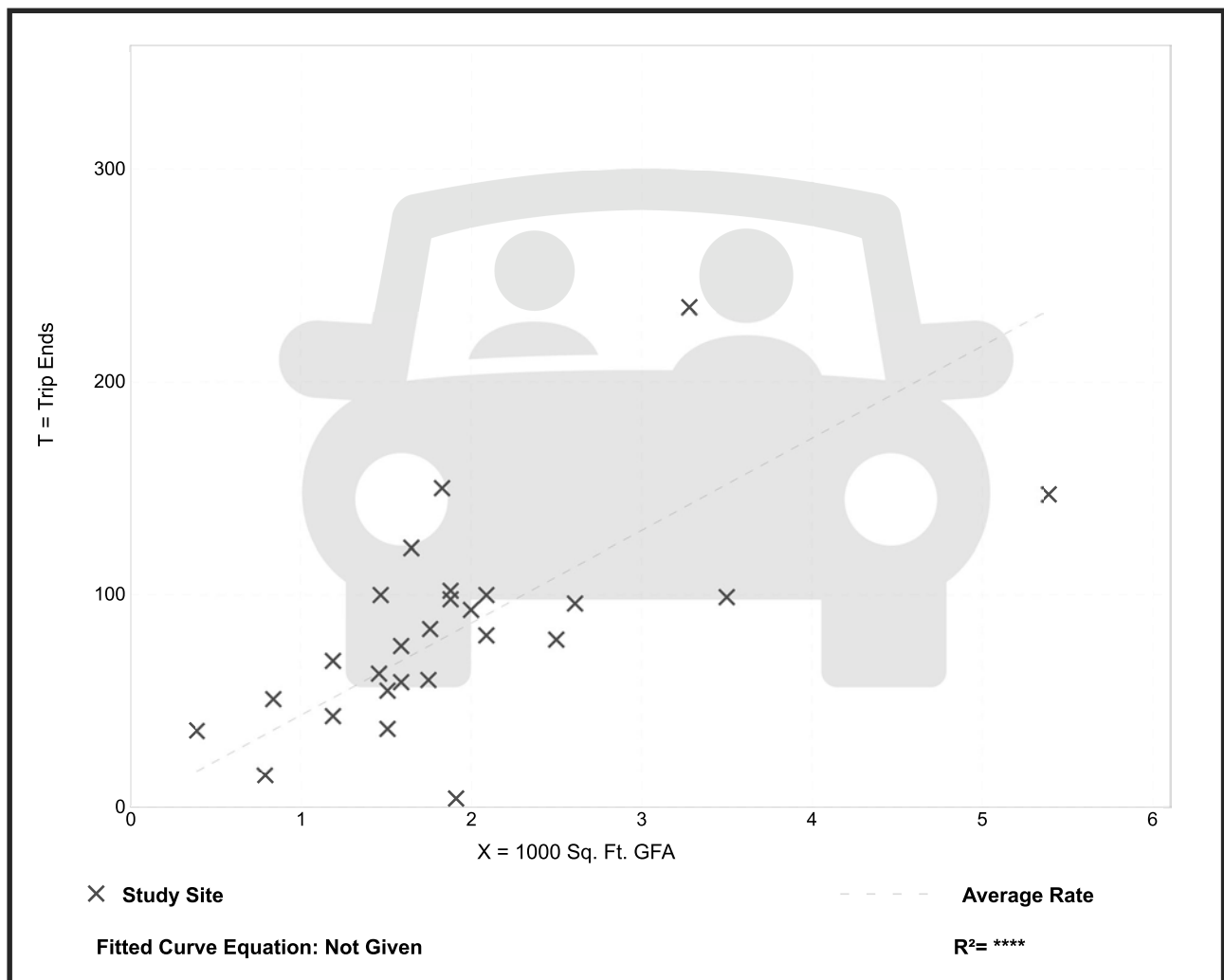
Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 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: 26
 Avg. 1000 Sq. Ft. GFA: 2
 Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
43.38	2.09 - 92.31	18.88

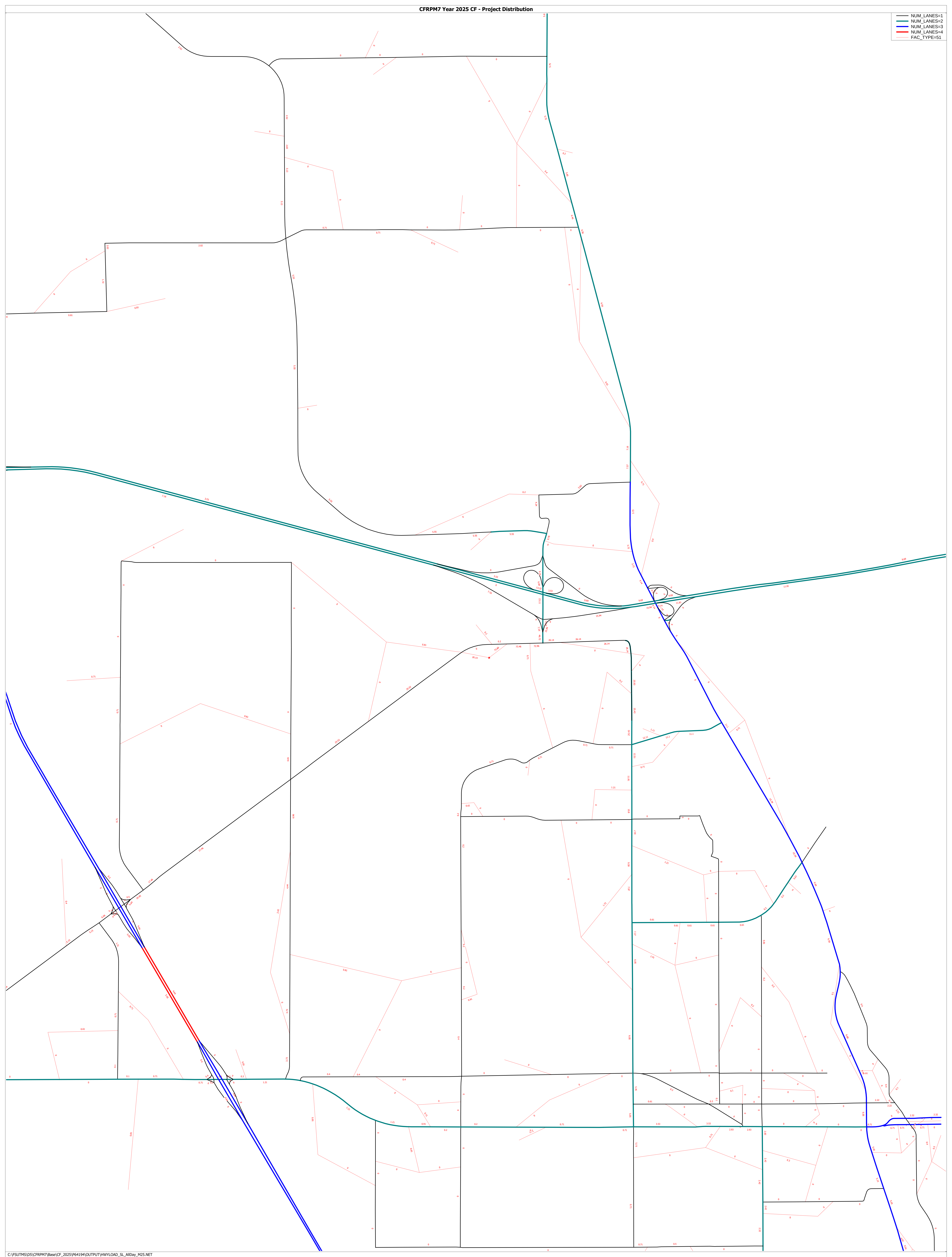
Data Plot and Equation



APPENDIX C

CFRPM Travel Demand Model Plot

- NUM_LANES=1
- NUM_LANES=2
- NUM_LANES=3
- NUM_LANES=4
- FAC_TYPE=51



APPENDIX D

Traffic Count Data

DE TRAFFIC

detraffic.com
(386) 341-4186
Cox Rd at SR 524
Brevard County, FL

File Name : Cox at 524
Site Code : 00000001
Start Date : 7/19/2022
Page No : 1

Groups Printed- Automobiles - Commercial

	Cox Rd Southbound					SR 524 Westbound					Cox Rd Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
07:00 AM	6	6	4	2	18	13	70	4	2	89	3	6	12	3	24	11	57	7	9	84	215
07:15 AM	4	4	5	3	16	43	87	5	4	139	5	6	21	7	39	9	92	14	9	124	318
07:30 AM	9	5	5	5	24	51	75	6	4	136	7	7	20	4	38	10	92	18	9	129	327
07:45 AM	8	8	4	6	26	41	85	5	7	138	5	10	20	5	40	4	90	17	8	119	323
Total	27	23	18	16	84	148	317	20	17	502	20	29	73	19	141	34	331	56	35	456	1183
08:00 AM	10	5	7	4	26	35	78	8	4	125	10	10	18	5	43	6	85	18	5	114	308
08:15 AM	9	5	5	8	27	24	82	7	5	118	5	12	20	6	43	6	77	15	6	104	292
08:30 AM	9	5	4	4	22	19	75	6	4	104	7	7	15	4	33	7	65	17	4	93	252
08:45 AM	14	5	7	9	35	12	89	8	5	114	6	8	12	8	34	5	61	12	6	84	267
Total	42	20	23	25	110	90	324	29	18	461	28	37	65	23	153	24	288	62	21	395	1119
04:00 PM	7	8	4	4	23	16	82	17	2	117	17	11	20	6	54	4	96	10	3	113	307
04:15 PM	5	5	6	3	19	19	110	19	3	151	21	20	26	2	69	6	105	9	2	122	361
04:30 PM	5	8	8	5	26	17	121	26	2	166	25	24	35	3	87	7	100	9	3	119	398
04:45 PM	4	6	5	5	20	20	104	17	5	146	27	26	43	6	102	4	81	9	3	97	365
Total	21	27	23	17	88	72	417	79	12	580	90	81	124	17	312	21	382	37	11	451	1431
05:00 PM	5	9	8	4	26	25	122	19	2	168	34	35	36	9	114	5	89	4	4	102	410
05:15 PM	6	8	4	5	23	19	105	20	3	147	27	20	26	8	81	5	106	7	3	121	372
05:30 PM	7	11	5	4	27	19	103	22	3	147	19	23	26	7	75	5	113	5	4	127	376
05:45 PM	5	11	2	5	23	20	79	18	4	121	24	12	27	8	71	4	102	6	2	114	329
Total	23	39	19	18	99	83	409	79	12	583	104	90	115	32	341	19	410	22	13	464	1487
Grand Total	113	109	83	76	381	393	1467	207	59	2126	242	237	377	91	947	98	1411	177	80	1766	5220
Apprch %	29.7	28.6	21.8	19.9		18.5	69	9.7	2.8		25.6	25	39.8	9.6		5.5	79.9	10	4.5		
Total %	2.2	2.1	1.6	1.5	7.3	7.5	28.1	4	1.1	40.7	4.6	4.5	7.2	1.7	18.1	1.9	27	3.4	1.5	33.8	
Automobiles	101	95	74	74	344	383	1341	191	55	1970	227	207	353	89	876	83	1297	165	77	1622	4812
% Automobiles	89.4	87.2	89.2	97.4	90.3	97.5	91.4	92.3	93.2	92.7	93.8	87.3	93.6	97.8	92.5	84.7	91.9	93.2	96.2	91.8	92.2
Commercial	12	14	9	2	37	10	126	16	4	156	15	30	24	2	71	15	114	12	3	144	408
% Commercial	10.6	12.8	10.8	2.6	9.7	2.5	8.6	7.7	6.8	7.3	6.2	12.7	6.4	2.2	7.5	15.3	8.1	6.8	3.8	8.2	7.8

DE TRAFFIC

detraffic.com
(386) 341-4186
Cox Rd at SR 524
Brevard County, FL

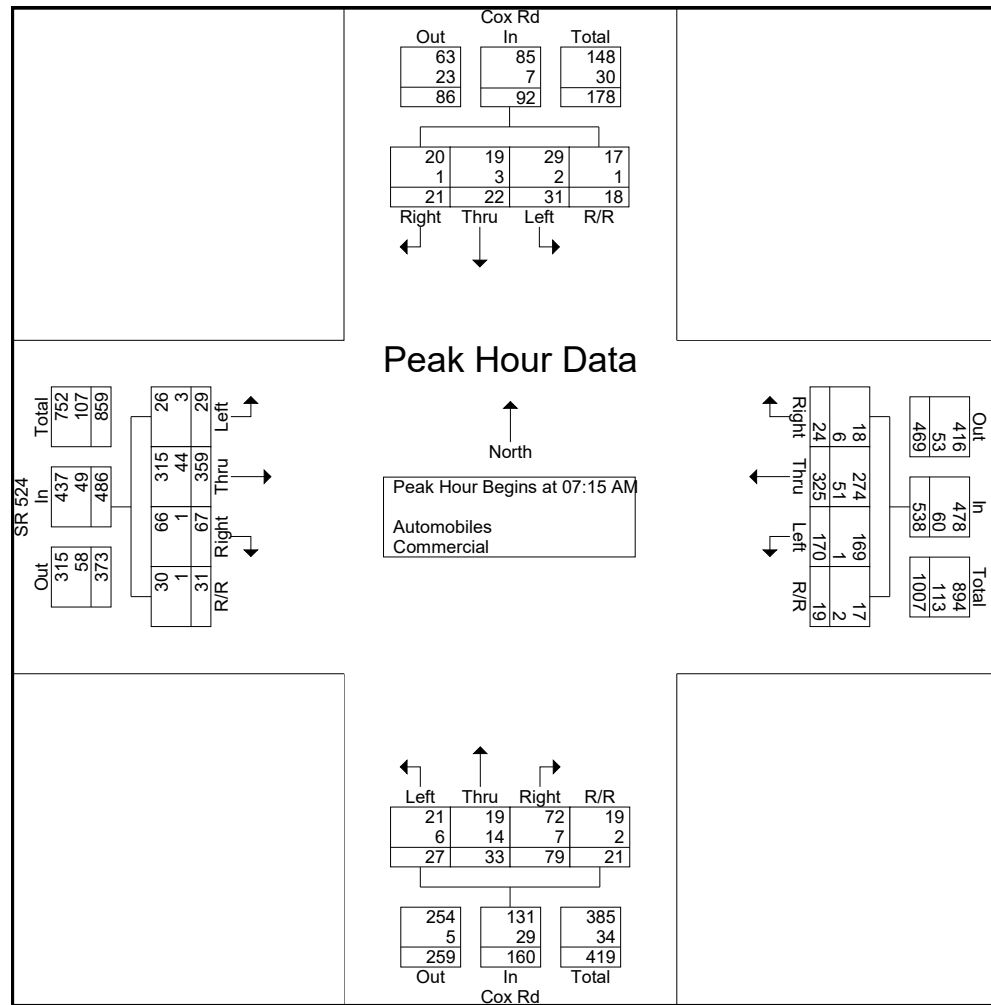
File Name : Cox at 524
Site Code : 00000001
Start Date : 7/19/2022
Page No : 2

	Cox Rd Southbound					SR 524 Westbound					Cox Rd Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	4	4	5	3	16	43	87	5	4	139	5	6	21	7	39	9	92	14	9	124	318
07:30 AM	9	5	5	5	24	51	75	6	4	136	7	7	20	4	38	10	92	18	9	129	327
07:45 AM	8	8	4	6	26	41	85	5	7	138	5	10	20	5	40	4	90	17	8	119	323
08:00 AM	10	5	7	4	26	35	78	8	4	125	10	10	18	5	43	6	85	18	5	114	308
Total Volume	31	22	21	18	92	170	325	24	19	538	27	33	79	21	160	29	359	67	31	486	1276
% App. Total	33.7	23.9	22.8	19.6		31.6	60.4	4.5	3.5		16.9	20.6	49.4	13.1		6	73.9	13.8	6.4		
PHF	.775	.688	.750	.750	.885	.833	.934	.750	.679	.968	.675	.825	.940	.750	.930	.725	.976	.931	.861	.942	.976
Automobiles	29	19	20	17	85	169	274	18	17	478	21	19	72	19	131	26	315	66	30	437	1131
% Automobiles	93.5	86.4	95.2	94.4	92.4	99.4	84.3	75.0	89.5	88.8	77.8	57.6	91.1	90.5	81.9	89.7	87.7	98.5	96.8	89.9	88.6
Commercial	2	3	1	1	7	1	51	6	2	60	6	14	7	2	29	3	44	1	1	49	145
% Commercial	6.5	13.6	4.8	5.6	7.6	0.6	15.7	25.0	10.5	11.2	22.2	42.4	8.9	9.5	18.1	10.3	12.3	1.5	3.2	10.1	11.4

DE TRAFFIC

detraffic.com
(386) 341-4186
Cox Rd at SR 524
Brevard County, FL

File Name : Cox at 524
Site Code : 00000001
Start Date : 7/19/2022
Page No : 3



DE TRAFFIC

detraffic.com
(386) 341-4186
Cox Rd at SR 524
Brevard County, FL

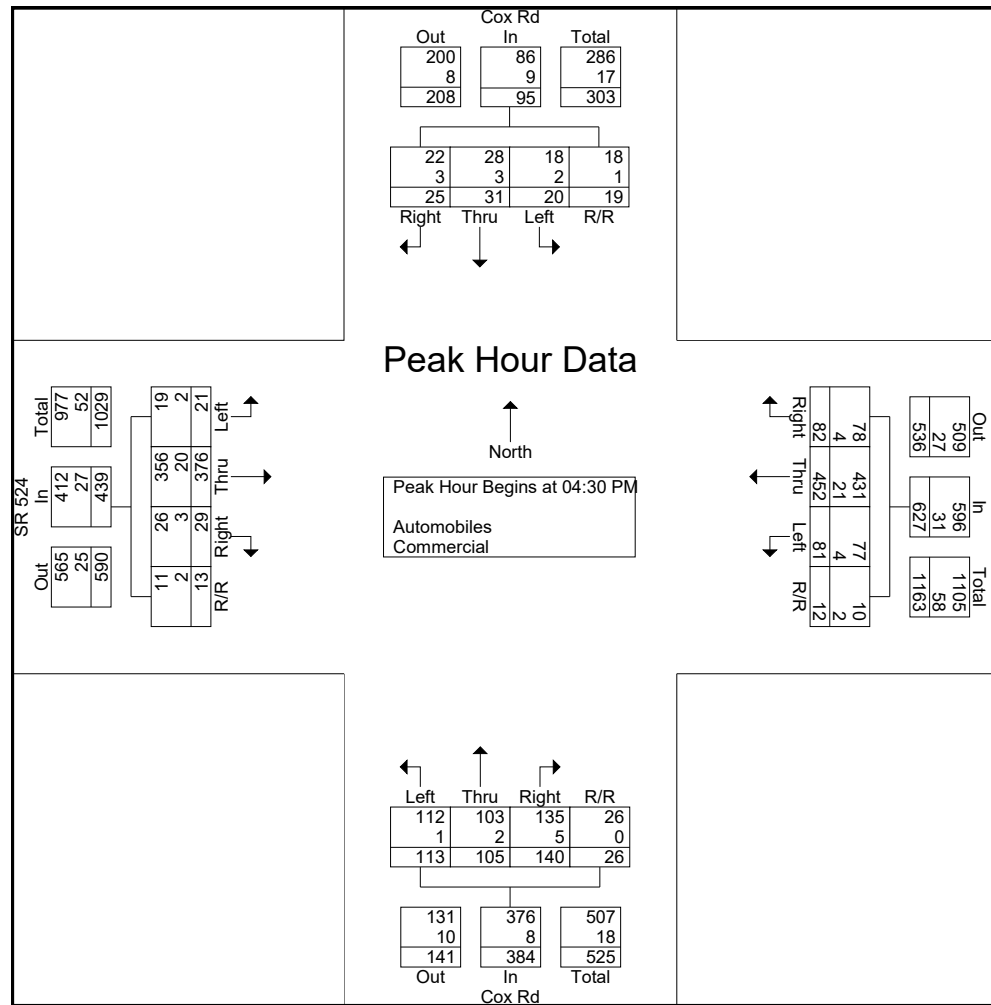
File Name : Cox at 524
Site Code : 00000001
Start Date : 7/19/2022
Page No : 4

	Cox Rd Southbound					SR 524 Westbound					Cox Rd Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	5	8	8	5	26	17	121	26	2	166	25	24	35	3	87	7	100	9	3	119	398
04:45 PM	4	6	5	5	20	20	104	17	5	146	27	26	43	6	102	4	81	9	3	97	365
05:00 PM	5	9	8	4	26	25	122	19	2	168	34	35	36	9	114	5	89	4	4	102	410
05:15 PM	6	8	4	5	23	19	105	20	3	147	27	20	26	8	81	5	106	7	3	121	372
Total Volume	20	31	25	19	95	81	452	82	12	627	113	105	140	26	384	21	376	29	13	439	1545
% App. Total	21.1	32.6	26.3	20		12.9	72.1	13.1	1.9		29.4	27.3	36.5	6.8		4.8	85.6	6.6	3		
PHF	.833	.861	.781	.950	.913	.810	.926	.788	.600	.933	.831	.750	.814	.722	.842	.750	.887	.806	.813	.907	.942
Automobiles	18	28	22	18	86	77	431	78	10	596	112	103	135	26	376	19	356	26	11	412	1470
% Automobiles	90.0	90.3	88.0	94.7	90.5	95.1	95.4	95.1	83.3	95.1	99.1	98.1	96.4	100	97.9	90.5	94.7	89.7	84.6	93.8	95.1
Commercial	2	3	3	1	9	4	21	4	2	31	1	2	5	0	8	2	20	3	2	27	75
% Commercial	10.0	9.7	12.0	5.3	9.5	4.9	4.6	4.9	16.7	4.9	0.9	1.9	3.6	0	2.1	9.5	5.3	10.3	15.4	6.2	4.9

DE TRAFFIC

detraffic.com
(386) 341-4186
Cox Rd at SR 524
Brevard County, FL

File Name : Cox at 524
Site Code : 00000001
Start Date : 7/19/2022
Page No : 5



DE TRAFFIC

detraffic.com
(386) 341-4186
Cox Rd at SR 524
Brevard County, FL

File Name : Cox at 524
Site Code : 00000001
Start Date : 7/19/2022
Page No : 6

Groups Printed- Peds

Start Time	Cox Rd Southbound				SR 524 Westbound				Cox Rd Northbound				SR 524 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

DE TRAFFIC
detraffic.com
(386) 341-4186
London Blvd at SR 524
Brevard County, FL

File Name : London at 524
Site Code : 00000003
Start Date : 6/30/2022
Page No : 1

Groups Printed- Automobiles - Commercial

	London Blvd Southbound					SR 524 Westbound					N/A Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
07:00 AM	6	0	9	2	17	0	81	3	3	87	0	0	0	0	0	9	117	0	0	126	230
07:15 AM	5	0	9	1	15	0	94	6	1	101	0	0	0	0	0	11	130	0	0	141	257
07:30 AM	6	0	4	3	13	0	97	5	2	104	0	0	0	0	0	17	112	0	0	129	246
07:45 AM	16	0	9	2	27	0	100	11	3	114	0	0	0	0	0	13	126	0	0	139	280
Total	33	0	31	8	72	0	372	25	9	406	0	0	0	0	0	50	485	0	0	535	1013
08:00 AM	8	0	6	4	18	0	74	13	5	92	0	0	0	0	0	8	109	0	0	117	227
08:15 AM	8	0	5	2	15	0	63	7	5	75	0	0	0	0	0	10	134	0	0	144	234
08:30 AM	11	0	8	5	24	0	69	8	2	79	0	0	0	0	0	8	109	0	0	117	220
08:45 AM	11	0	3	4	18	0	81	11	4	96	0	0	0	0	0	7	113	0	0	120	234
Total	38	0	22	15	75	0	287	39	16	342	0	0	0	0	0	33	465	0	0	498	915
04:00 PM	11	0	9	5	25	0	153	12	3	168	0	0	0	0	0	13	130	0	0	143	336
04:15 PM	16	0	7	5	28	0	143	18	4	165	0	0	0	0	0	16	119	0	0	135	328
04:30 PM	17	0	8	5	30	0	127	19	6	152	0	0	0	0	0	15	159	0	0	174	356
04:45 PM	24	0	10	6	40	0	148	18	4	170	0	0	0	0	0	15	128	0	0	143	353
Total	68	0	34	21	123	0	571	67	17	655	0	0	0	0	0	59	536	0	0	595	1373
05:00 PM	22	0	7	5	34	0	138	17	5	160	0	0	0	0	0	15	139	0	0	154	348
05:15 PM	12	0	11	6	29	0	161	17	4	182	0	0	0	0	0	16	122	0	0	138	349
05:30 PM	17	0	16	4	37	0	108	14	5	127	0	0	0	0	0	11	131	0	0	142	306
05:45 PM	13	0	13	6	32	0	103	11	4	118	0	0	0	0	0	10	110	0	0	120	270
Total	64	0	47	21	132	0	510	59	18	587	0	0	0	0	0	52	502	0	0	554	1273
Grand Total	203	0	134	65	402	0	1740	190	60	1990	0	0	0	0	0	194	1988	0	0	2182	4574
Apprch %	50.5	0	33.3	16.2		0	87.4	9.5	3		0	0	0	0		8.9	91.1	0	0		
Total %	4.4	0	2.9	1.4	8.8	0	38	4.2	1.3	43.5	0	0	0	0	0	4.2	43.5	0	0	47.7	
Automobiles	198	0	128	62	388	0	1596	184	58	1838	0	0	0	0	0	188	1856	0	0	2044	4270
% Automobiles	97.5	0	95.5	95.4	96.5	0	91.7	96.8	96.7	92.4	0	0	0	0	0	96.9	93.4	0	0	93.7	93.4
Commercial	5	0	6	3	14	0	144	6	2	152	0	0	0	0	0	6	132	0	0	138	304
% Commercial	2.5	0	4.5	4.6	3.5	0	8.3	3.2	3.3	7.6	0	0	0	0	0	3.1	6.6	0	0	6.3	6.6

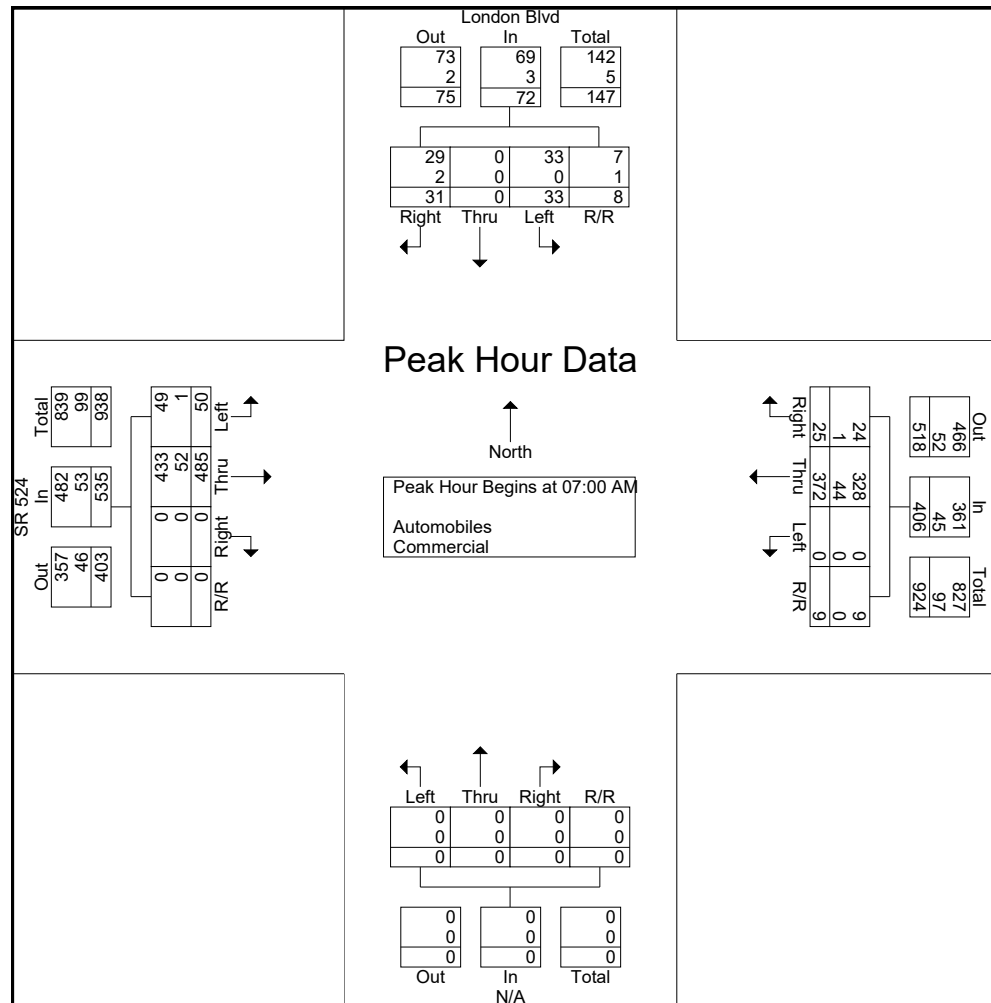
DE TRAFFIC
detrtraffic.com
(386) 341-4186
London Blvd at SR 524
Brevard County, FL

File Name : London at 524
Site Code : 00000003
Start Date : 6/30/2022
Page No : 2

	London Blvd Southbound					SR 524 Westbound					N/A Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	6	0	9	2	17	0	81	3	3	87	0	0	0	0	0	9	117	0	0	126	230
07:15 AM	5	0	9	1	15	0	94	6	1	101	0	0	0	0	0	11	130	0	0	141	257
07:30 AM	6	0	4	3	13	0	97	5	2	104	0	0	0	0	0	17	112	0	0	129	246
07:45 AM	16	0	9	2	27	0	100	11	3	114	0	0	0	0	0	13	126	0	0	139	280
Total Volume	33	0	31	8	72	0	372	25	9	406	0	0	0	0	0	50	485	0	0	535	1013
% App. Total	45.8	0	43.1	11.1		0	91.6	6.2	2.2		0	0	0	0		9.3	90.7	0	0		
PHF	.516	.000	.861	.667	.667	.000	.930	.568	.750	.890	.000	.000	.000	.000	.000	.735	.933	.000	.000	.949	.904
Automobiles	33	0	29	7	69	0	328	24	9	361	0	0	0	0	0	49	433	0	0	482	912
% Automobiles	100	0	93.5	87.5	95.8	0	88.2	96.0	100	88.9	0	0	0	0	0	98.0	89.3	0	0	90.1	90.0
Commercial	0	0	2	1	3	0	44	1	0	45	0	0	0	0	0	1	52	0	0	53	101
% Commercial	0	0	6.5	12.5	4.2	0	11.8	4.0	0	11.1	0	0	0	0	0	2.0	10.7	0	0	9.9	10.0

DE TRAFFIC
detrtraffic.com
(386) 341-4186
London Blvd at SR 524
Brevard County, FL

File Name : London at 524
Site Code : 00000003
Start Date : 6/30/2022
Page No : 3



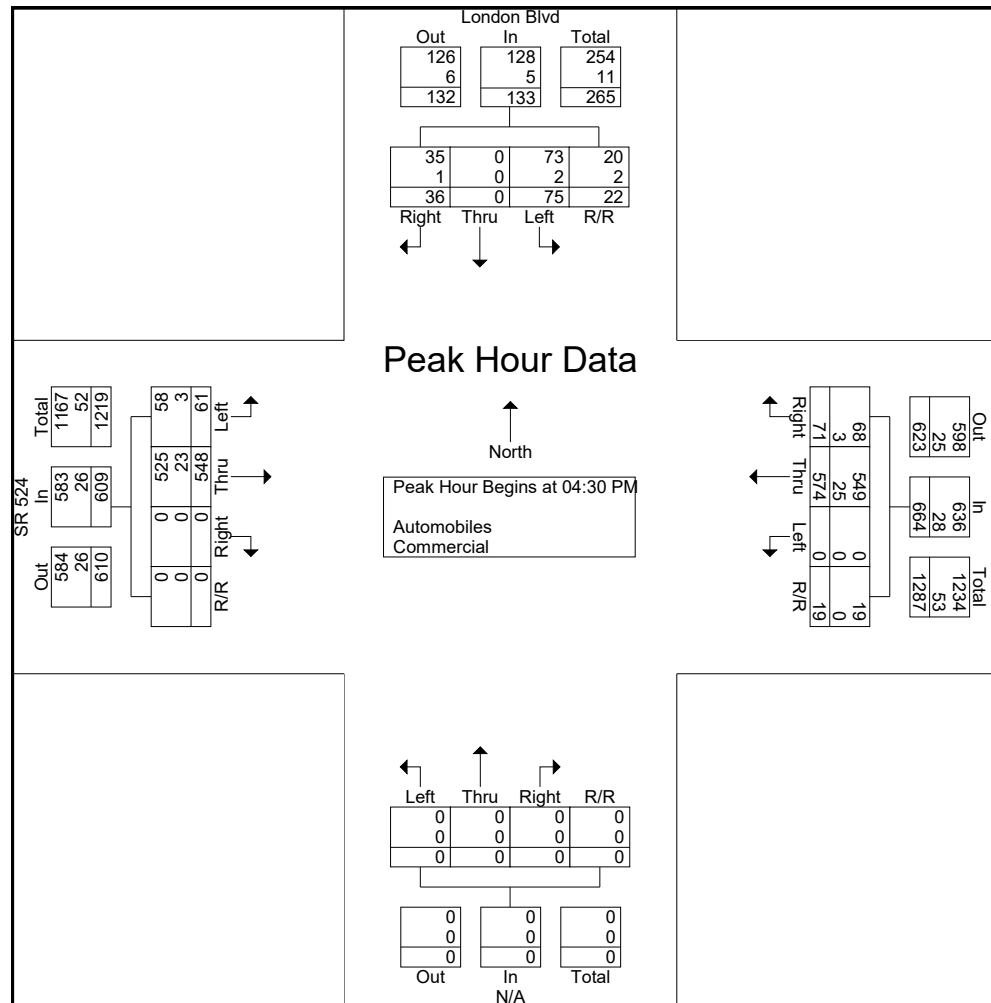
DE TRAFFIC
detraffic.com
(386) 341-4186
London Blvd at SR 524
Brevard County, FL

File Name : London at 524
Site Code : 00000003
Start Date : 6/30/2022
Page No : 4

	London Blvd Southbound					SR 524 Westbound					N/A Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	17	0	8	5	30	0	127	19	6	152	0	0	0	0	0	15	159	0	0	174	356
04:45 PM	24	0	10	6	40	0	148	18	4	170	0	0	0	0	0	15	128	0	0	143	353
05:00 PM	22	0	7	5	34	0	138	17	5	160	0	0	0	0	0	15	139	0	0	154	348
05:15 PM	12	0	11	6	29	0	161	17	4	182	0	0	0	0	0	16	122	0	0	138	349
Total Volume	75	0	36	22	133	0	574	71	19	664	0	0	0	0	0	61	548	0	0	609	1406
% App. Total	56.4	0	27.1	16.5		0	86.4	10.7	2.9		0	0	0	0		10	90	0	0		
PHF	.781	.000	.818	.917	.831	.000	.891	.934	.792	.912	.000	.000	.000	.000	.000	.953	.862	.000	.000	.875	.987
Automobiles	73	0	35	20	128	0	549	68	19	636	0	0	0	0	0	58	525	0	0	583	1347
% Automobiles	97.3	0	97.2	90.9	96.2	0	95.6	95.8	100	95.8	0	0	0	0	0	95.1	95.8	0	0	95.7	95.8
Commercial	2	0	1	2	5	0	25	3	0	28	0	0	0	0	0	3	23	0	0	26	59
% Commercial	2.7	0	2.8	9.1	3.8	0	4.4	4.2	0	4.2	0	0	0	0	0	4.9	4.2	0	0	4.3	4.2

DE TRAFFIC
detrtraffic.com
(386) 341-4186
London Blvd at SR 524
Brevard County, FL

File Name : London at 524
Site Code : 00000003
Start Date : 6/30/2022
Page No : 5



DE TRAFFIC
 detraffic.com
 (386) 341-4186
 London Blvd at SR 524
 Brevard County, FL

File Name : London at 524
 Site Code : 00000003
 Start Date : 6/30/2022
 Page No : 6

Groups Printed- Peds

	London Blvd Southbound				SR 524 Westbound				N/A Northbound				SR 524 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

DE TRAFFIC

detraffic.com

(386) 341-4186

SR 524 at CVS

Brevard County, FL

File Name : CVS at 524

Site Code : 00000002

Start Date : 6/30/2022

Page No : 1

Groups Printed- Automobiles - Commercial

	Street Mall (CVS) Southbound					SR 524 Westbound					Street Mall Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
07:00 AM	9	0	1	0	10	3	81	2	0	86	2	0	1	0	3	7	137	3	2	149	248
07:15 AM	8	0	1	0	9	5	89	0	1	95	8	0	3	0	11	5	147	4	1	157	272
07:30 AM	9	0	2	1	12	6	104	2	1	113	8	2	1	1	12	7	122	6	0	135	272
07:45 AM	8	0	0	0	8	5	121	1	0	127	2	0	0	0	2	3	141	3	1	148	285
Total	34	0	4	1	39	19	395	5	2	421	20	2	5	1	28	22	547	16	4	589	1077
08:00 AM	5	1	0	1	7	6	74	2	1	83	6	1	1	0	8	6	130	9	3	148	246
08:15 AM	10	1	2	0	13	9	66	0	2	77	8	2	1	1	12	3	118	4	0	125	227
08:30 AM	11	0	4	1	16	3	87	0	1	91	3	0	4	0	7	5	120	6	2	133	247
08:45 AM	8	0	1	0	9	7	100	0	0	107	11	2	1	2	16	6	133	9	1	149	281
Total	34	2	7	2	45	25	327	2	4	358	28	5	7	3	43	20	501	28	6	555	1001
04:00 PM	6	3	5	1	15	14	174	3	1	192	26	1	7	1	35	3	152	13	3	171	413
04:15 PM	7	2	11	2	22	2	168	6	2	178	15	5	3	3	26	2	129	17	3	151	377
04:30 PM	10	1	4	1	16	12	132	4	3	151	38	3	3	2	46	2	136	20	3	161	374
04:45 PM	4	2	8	2	16	15	163	5	1	184	27	4	6	3	40	7	140	16	4	167	407
Total	27	8	28	6	69	43	637	18	7	705	106	13	19	9	147	14	557	66	13	650	1571
05:00 PM	12	2	4	2	20	11	151	8	2	172	34	0	4	2	40	10	154	11	5	180	412
05:15 PM	7	3	10	2	22	8	193	2	1	204	27	0	4	3	34	7	120	20	4	151	411
05:30 PM	13	1	5	3	22	10	119	2	2	133	35	1	4	2	42	9	118	16	2	145	342
05:45 PM	9	0	6	1	16	5	134	6	3	148	21	3	8	2	34	8	131	15	3	157	355
Total	41	6	25	8	80	34	597	18	8	657	117	4	20	9	150	34	523	62	14	633	1520
Grand Total	136	16	64	17	233	121	1956	43	21	2141	271	24	51	22	368	90	2128	172	37	2427	5169
Apprch %	58.4	6.9	27.5	7.3		5.7	91.4	2	1		73.6	6.5	13.9	6		3.7	87.7	7.1	1.5		
Total %	2.6	0.3	1.2	0.3	4.5	2.3	37.8	0.8	0.4	41.4	5.2	0.5	1	0.4	7.1	1.7	41.2	3.3	0.7	47	
Automobiles	132	16	62	17	227	110	1828	42	21	2001	270	24	50	22	366	90	1990	168	37	2285	4879
% Automobiles	97.1	100	96.9	100	97.4	90.9	93.5	97.7	100	93.5	99.6	100	98	100	99.5	100	93.5	97.7	100	94.1	94.4
Commercial	4	0	2	0	6	11	128	1	0	140	1	0	1	0	2	0	138	4	0	142	290
% Commercial	2.9	0	3.1	0	2.6	9.1	6.5	2.3	0	6.5	0.4	0	2	0	0.5	0	6.5	2.3	0	5.9	5.6

DE TRAFFIC

detraffic.com
(386) 341-4186
SR 524 at CVS
Brevard County, FL

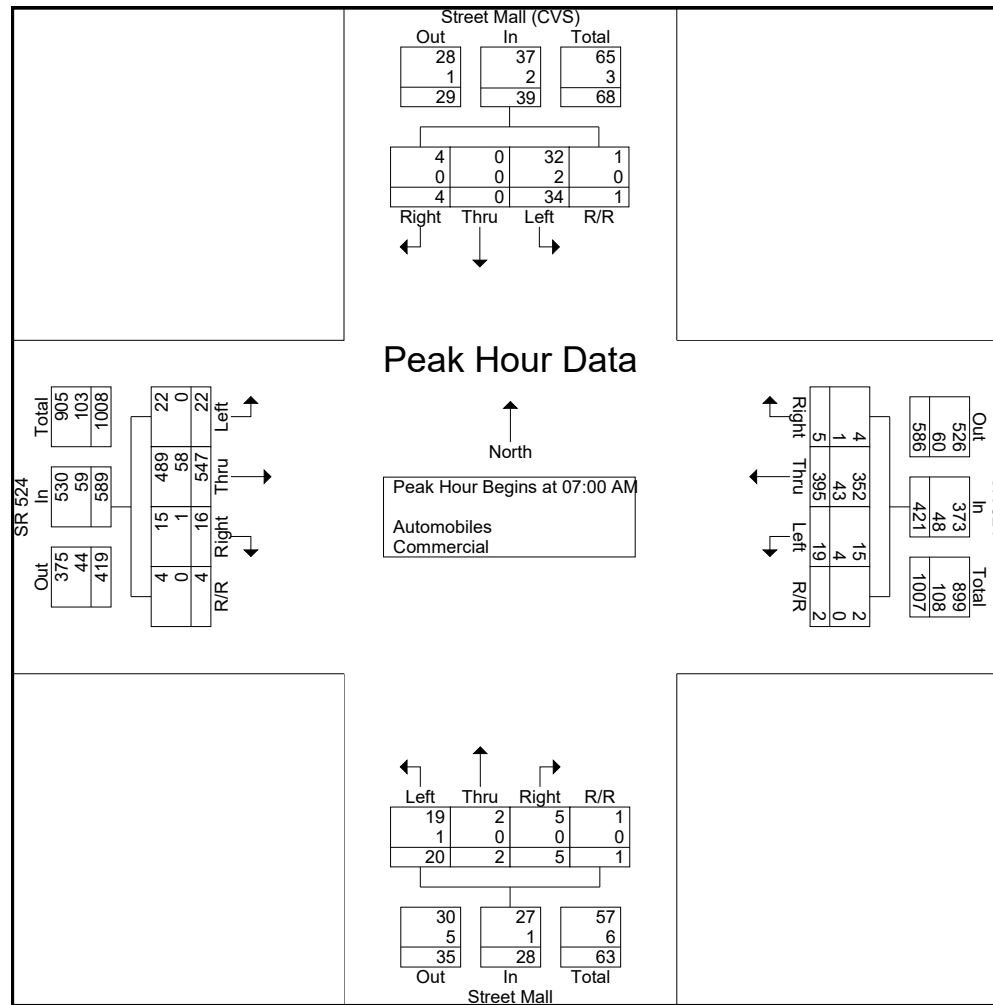
File Name : CVS at 524
Site Code : 00000002
Start Date : 6/30/2022
Page No : 2

	Street Mall (CVS) Southbound					SR 524 Westbound					Street Mall Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	9	0	1	0	10	3	81	2	0	86	2	0	1	0	3	7	137	3	2	149	248
07:15 AM	8	0	1	0	9	5	89	0	1	95	8	0	3	0	11	5	147	4	1	157	272
07:30 AM	9	0	2	1	12	6	104	2	1	113	8	2	1	1	12	7	122	6	0	135	272
07:45 AM	8	0	0	0	8	5	121	1	0	127	2	0	0	0	2	3	141	3	1	148	285
Total Volume	34	0	4	1	39	19	395	5	2	421	20	2	5	1	28	22	547	16	4	589	1077
% App. Total	87.2	0	10.3	2.6		4.5	93.8	1.2	0.5		71.4	7.1	17.9	3.6		3.7	92.9	2.7	0.7		
PHF	.944	.000	.500	.250	.813	.792	.816	.625	.500	.829	.625	.250	.417	.250	.583	.786	.930	.667	.500	.938	.945
Automobiles	32	0	4	1	37	15	352	4	2	373	19	2	5	1	27	22	489	15	4	530	967
% Automobiles	94.1	0	100	100	94.9	78.9	89.1	80.0	100	88.6	95.0	100	100	100	96.4	100	89.4	93.8	100	90.0	89.8
Commercial	2	0	0	0	2	4	43	1	0	48	1	0	0	0	1	0	58	1	0	59	110
% Commercial	5.9	0	0	0	5.1	21.1	10.9	20.0	0	11.4	5.0	0	0	0	3.6	0	10.6	6.3	0	10.0	10.2

DE TRAFFIC

detraffic.com
(386) 341-4186
SR 524 at CVS
Brevard County, FL

File Name : CVS at 524
Site Code : 00000002
Start Date : 6/30/2022
Page No : 3



DE TRAFFIC

detraffic.com
(386) 341-4186
SR 524 at CVS
Brevard County, FL

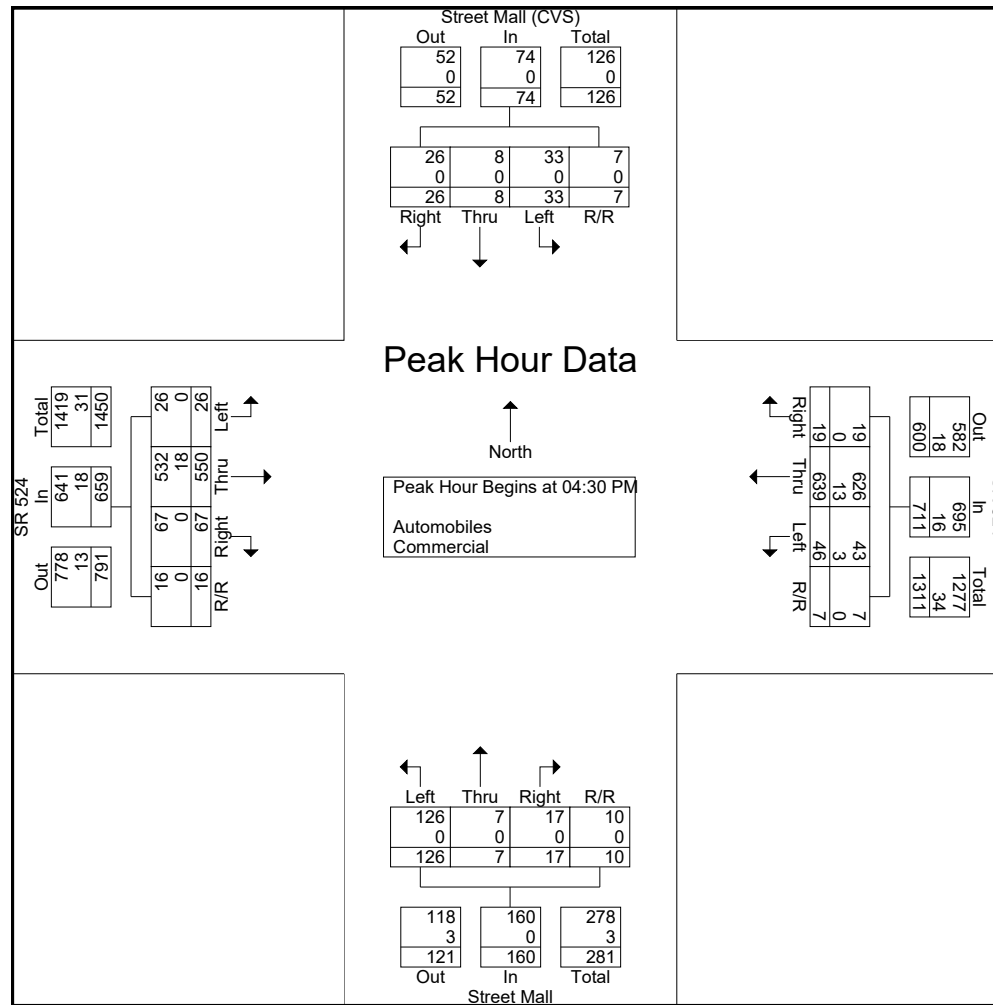
File Name : CVS at 524
Site Code : 00000002
Start Date : 6/30/2022
Page No : 4

	Street Mall (CVS) Southbound					SR 524 Westbound					Street Mall Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	10	1	4	1	16	12	132	4	3	151	38	3	3	2	46	2	136	20	3	161	374
04:45 PM	4	2	8	2	16	15	163	5	1	184	27	4	6	3	40	7	140	16	4	167	407
05:00 PM	12	2	4	2	20	11	151	8	2	172	34	0	4	2	40	10	154	11	5	180	412
05:15 PM	7	3	10	2	22	8	193	2	1	204	27	0	4	3	34	7	120	20	4	151	411
Total Volume	33	8	26	7	74	46	639	19	7	711	126	7	17	10	160	26	550	67	16	659	1604
% App. Total	44.6	10.8	35.1	9.5		6.5	89.9	2.7	1		78.8	4.4	10.6	6.2		3.9	83.5	10.2	2.4		
PHF	.688	.667	.650	.875	.841	.767	.828	.594	.583	.871	.829	.438	.708	.833	.870	.650	.893	.838	.800	.915	.973
Automobiles	33	8	26	7	74	43	626	19	7	695	126	7	17	10	160	26	532	67	16	641	1570
% Automobiles	100	100	100	100	100	93.5	98.0	100	100	97.7	100	100	100	100	100	100	96.7	100	100	97.3	97.9
Commercial	0	0	0	0	0	3	13	0	0	16	0	0	0	0	0	0	18	0	0	18	34
% Commercial	0	0	0	0	0	6.5	2.0	0	0	2.3	0	0	0	0	0	0	3.3	0	0	2.7	2.1

DE TRAFFIC

detraffic.com
(386) 341-4186
SR 524 at CVS
Brevard County, FL

File Name : CVS at 524
Site Code : 00000002
Start Date : 6/30/2022
Page No : 5



DE TRAFFIC

detraffic.com
(386) 341-4186
SR 524 at CVS
Brevard County, FL

File Name : CVS at 524
Site Code : 00000002
Start Date : 6/30/2022
Page No : 6

Groups Printed- Peds

	Street Mall (CVS) Southbound					SR 524 Westbound					Street Mall Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

DE TRAFFIC
detrtraffic.com
(386) 341-4186
Industry Rd at SR 524
Brevard County, FL

File Name : Industry at 524
Site Code : 00000001
Start Date : 6/30/2022
Page No : 1

Groups Printed- Automobiles - Commercial

	Industry Rd Southbound					SR 524 Westbound					Industry Rd Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
07:00 AM	33	10	57	11	111	4	23	36	19	82	5	8	6	2	21	106	35	4	3	148	362
07:15 AM	46	8	62	20	136	2	24	45	24	95	1	10	6	1	18	122	39	5	2	168	417
07:30 AM	57	8	57	17	139	8	42	35	19	104	0	12	3	6	21	97	39	3	3	142	406
07:45 AM	69	12	53	16	150	15	22	34	17	88	4	10	11	1	26	96	40	9	4	149	413
Total	205	38	229	64	536	29	111	150	79	369	10	40	26	10	86	421	153	21	12	607	1598
08:00 AM	50	15	52	10	127	8	30	41	19	98	6	12	11	3	32	78	46	1	2	127	384
08:15 AM	53	11	49	11	124	9	26	37	19	91	6	19	7	2	34	78	51	4	3	136	385
08:30 AM	54	19	75	16	164	15	21	43	21	100	2	12	11	2	27	99	38	6	4	147	438
08:45 AM	75	18	70	17	180	12	42	26	17	97	6	11	7	3	27	74	48	3	2	127	431
Total	232	63	246	54	595	44	119	147	76	386	20	54	36	10	120	329	183	14	11	537	1638
04:00 PM	61	28	68	24	181	41	69	72	24	206	4	20	13	6	43	104	97	3	1	205	635
04:15 PM	66	32	82	16	196	31	68	66	16	181	5	22	16	4	47	87	64	6	3	160	584
04:30 PM	78	22	65	18	183	33	63	73	24	193	6	21	18	8	53	89	56	4	4	153	582
04:45 PM	66	15	77	24	182	36	73	64	18	191	8	22	21	9	60	95	78	2	5	180	613
Total	271	97	292	82	742	141	273	275	82	771	23	85	68	27	203	375	295	15	13	698	2414
05:00 PM	93	41	89	19	242	30	82	75	27	214	13	25	17	7	62	106	65	6	2	179	697
05:15 PM	60	21	86	24	191	42	81	64	24	211	11	21	18	8	58	75	55	5	3	138	598
05:30 PM	54	25	73	24	176	31	60	75	22	188	5	20	19	8	52	84	70	2	4	160	576
05:45 PM	45	20	57	16	138	28	47	56	25	156	6	24	19	9	58	74	82	3	2	161	513
Total	252	107	305	83	747	131	270	270	98	769	35	90	73	32	230	339	272	16	11	638	2384
Grand Total	960	305	1072	283	2620	345	773	842	335	2295	88	269	203	79	639	1464	903	66	47	2480	8034
Apprch %	36.6	11.6	40.9	10.8		15	33.7	36.7	14.6		13.8	42.1	31.8	12.4		59	36.4	2.7	1.9		
Total %	11.9	3.8	13.3	3.5	32.6	4.3	9.6	10.5	4.2	28.6	1.1	3.3	2.5	1	8	18.2	11.2	0.8	0.6	30.9	
Automobiles	946	303	968	279	2496	344	763	825	331	2263	86	266	203	79	634	1343	893	66	47	2349	7742
% Automobiles	98.5	99.3	90.3	98.6	95.3	99.7	98.7	98	98.8	98.6	97.7	98.9	100	100	99.2	91.7	98.9	100	100	94.7	96.4
Commercial	14	2	104	4	124	1	10	17	4	32	2	3	0	0	5	121	10	0	0	131	292
% Commercial	1.5	0.7	9.7	1.4	4.7	0.3	1.3	2	1.2	1.4	2.3	1.1	0	0	0.8	8.3	1.1	0	0	5.3	3.6

DE TRAFFIC

detraffic.com

(386) 341-4186

Industry Rd at SR 524

Brevard County, FL

File Name : Industry at 524

Site Code : 00000001

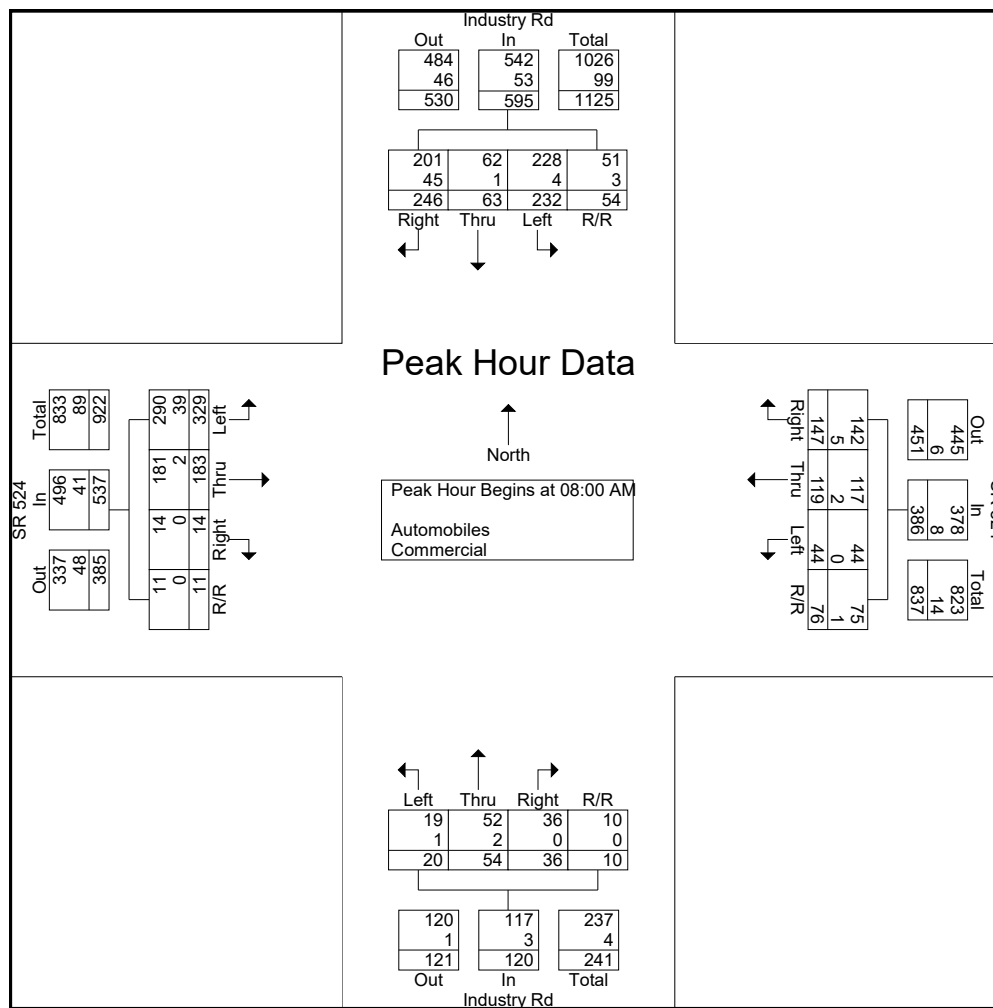
Start Date : 6/30/2022

Page No : 2

	Industry Rd Southbound					SR 524 Westbound					Industry Rd Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	50	15	52	10	127	8	30	41	19	98	6	12	11	3	32	78	46	1	2	127	384
08:15 AM	53	11	49	11	124	9	26	37	19	91	6	19	7	2	34	78	51	4	3	136	385
08:30 AM	54	19	75	16	164	15	21	43	21	100	2	12	11	2	27	99	38	6	4	147	438
08:45 AM	75	18	70	17	180	12	42	26	17	97	6	11	7	3	27	74	48	3	2	127	431
Total Volume	232	63	246	54	595	44	119	147	76	386	20	54	36	10	120	329	183	14	11	537	1638
% App. Total	39	10.6	41.3	9.1		11.4	30.8	38.1	19.7		16.7	45	30	8.3		61.3	34.1	2.6	2		
PHF	.773	.829	.820	.794	.826	.733	.708	.855	.905	.965	.833	.711	.818	.833	.882	.831	.897	.583	.688	.913	.935
Automobiles	228	62	201	51	542	44	117	142	75	378	19	52	36	10	117	290	181	14	11	496	1533
% Automobiles	98.3	98.4	81.7	94.4	91.1	100	98.3	96.6	98.7	97.9	95.0	96.3	100	100	97.5	88.1	98.9	100	100	92.4	93.6
Commercial	4	1	45	3	53	0	2	5	1	8	1	2	0	0	3	39	2	0	0	41	105
% Commercial	1.7	1.6	18.3	5.6	8.9	0	1.7	3.4	1.3	2.1	5.0	3.7	0	0	2.5	11.9	1.1	0	0	7.6	6.4

DE TRAFFIC
detrtraffic.com
(386) 341-4186
Industry Rd at SR 524
Brevard County, FL

File Name : Industry at 524
Site Code : 00000001
Start Date : 6/30/2022
Page No : 3



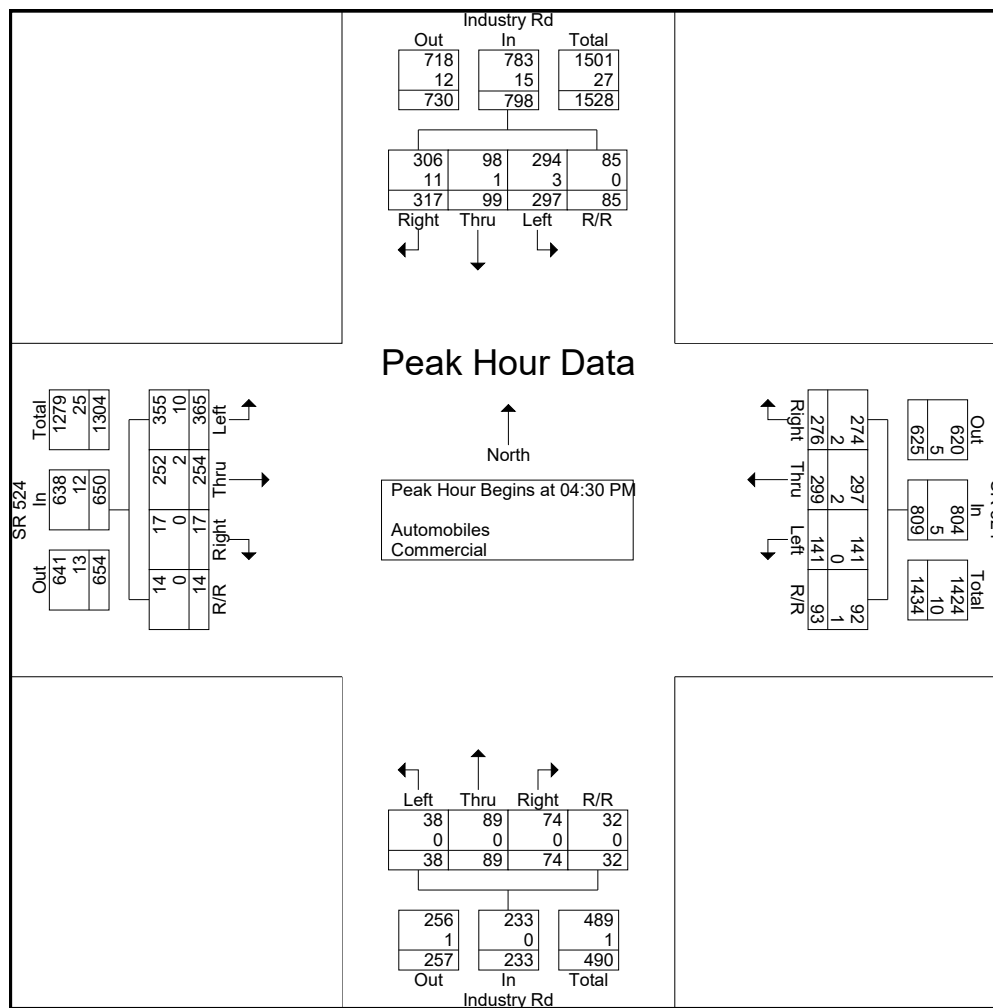
DE TRAFFIC
detraffic.com
(386) 341-4186
Industry Rd at SR 524
Brevard County, FL

File Name : Industry at 524
Site Code : 00000001
Start Date : 6/30/2022
Page No : 4

	Industry Rd Southbound					SR 524 Westbound					Industry Rd Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Left	Thru	Right	R/R	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	78	22	65	18	183	33	63	73	24	193	6	21	18	8	53	89	56	4	4	153	582
04:45 PM	66	15	77	24	182	36	73	64	18	191	8	22	21	9	60	95	78	2	5	180	613
05:00 PM	93	41	89	19	242	30	82	75	27	214	13	25	17	7	62	106	65	6	2	179	697
05:15 PM	60	21	86	24	191	42	81	64	24	211	11	21	18	8	58	75	55	5	3	138	598
Total Volume	297	99	317	85	798	141	299	276	93	809	38	89	74	32	233	365	254	17	14	650	2490
% App. Total	37.2	12.4	39.7	10.7		17.4	37	34.1	11.5		16.3	38.2	31.8	13.7		56.2	39.1	2.6	2.2		
PHF	.798	.604	.890	.885	.824	.839	.912	.920	.861	.945	.731	.890	.881	.889	.940	.861	.814	.708	.700	.903	.893
Automobiles	294	98	306	85	783	141	297	274	92	804	38	89	74	32	233	355	252	17	14	638	2458
% Automobiles	99.0	99.0	96.5	100	98.1	100	99.3	99.3	98.9	99.4	100	100	100	100	100	97.3	99.2	100	100	98.2	98.7
Commercial	3	1	11	0	15	0	2	2	1	5	0	0	0	0	0	10	2	0	0	12	32
% Commercial	1.0	1.0	3.5	0	1.9	0	0.7	0.7	1.1	0.6	0	0	0	0	0	2.7	0.8	0	0	1.8	1.3

DE TRAFFIC
detrtraffic.com
(386) 341-4186
Industry Rd at SR 524
Brevard County, FL

File Name : Industry at 524
Site Code : 00000001
Start Date : 6/30/2022
Page No : 5



DE TRAFFIC
 detraffic.com
 (386) 341-4186
 Industry Rd at SR 524
 Brevard County, FL

File Name : Industry at 524
 Site Code : 00000001
 Start Date : 6/30/2022
 Page No : 6

Groups Printed- Peds

	Industry Rd Southbound					SR 524 Westbound					Industry Rd Northbound					SR 524 Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					



SB Approach



EB Approach



WB Approach

	London Blvd at SR 524		Brevard County	
	www.de-traffic.com		Project Number: V22-03	Sheet Number: 1
	299 McGregor Rd. DeLand FL. 32720			



NB Approach



SB Approach



EB Approach



WB Approach



CVS Entrance
at SR 524

Brevard County

www.de-traffic.com

299 McGregor Rd. DeLand FL 32720

Project
Number: V22-03

Sheet
Number: 2



NB Approach



SB Approach



EB Approach



WB Approach



Industry Rd
at SR 524

Brevard County

www.de-traffic.com

299 McGregor Rd. DeLand FL 32720

Project
Number: V22-03

Sheet
Number: 3

2021 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 7000 BREVARD COUNTYWIDE

WEEK	DATES	SF	MOCF: 0.95 PSCF
1	01/01/2021 - 01/02/2021	1.02	1.07
2	01/03/2021 - 01/09/2021	1.02	1.07
3	01/10/2021 - 01/16/2021	1.03	1.08
4	01/17/2021 - 01/23/2021	1.02	1.07
5	01/24/2021 - 01/30/2021	1.00	1.05
6	01/31/2021 - 02/06/2021	0.99	1.04
7	02/07/2021 - 02/13/2021	0.98	1.03
* 8	02/14/2021 - 02/20/2021	0.97	1.02
* 9	02/21/2021 - 02/27/2021	0.95	1.00
*10	02/28/2021 - 03/06/2021	0.94	0.99
*11	03/07/2021 - 03/13/2021	0.93	0.98
*12	03/14/2021 - 03/20/2021	0.91	0.96
*13	03/21/2021 - 03/27/2021	0.92	0.97
*14	03/28/2021 - 04/03/2021	0.94	0.99
*15	04/04/2021 - 04/10/2021	0.95	1.00
*16	04/11/2021 - 04/17/2021	0.96	1.01
*17	04/18/2021 - 04/24/2021	0.96	1.01
*18	04/25/2021 - 05/01/2021	0.97	1.02
*19	05/02/2021 - 05/08/2021	0.98	1.03
*20	05/09/2021 - 05/15/2021	0.98	1.03
21	05/16/2021 - 05/22/2021	0.99	1.04
22	05/23/2021 - 05/29/2021	1.00	1.05
23	05/30/2021 - 06/05/2021	1.00	1.05
24	06/06/2021 - 06/12/2021	1.01	1.06
25	06/13/2021 - 06/19/2021	1.01	1.06
26	06/20/2021 - 06/26/2021	1.02	1.07
27	06/27/2021 - 07/03/2021	1.03	1.08
28	07/04/2021 - 07/10/2021	1.04	1.09
29	07/11/2021 - 07/17/2021	1.04	1.09
30	07/18/2021 - 07/24/2021	1.05	1.11
31	07/25/2021 - 07/31/2021	1.06	1.12
32	08/01/2021 - 08/07/2021	1.06	1.12
33	08/08/2021 - 08/14/2021	1.07	1.13
34	08/15/2021 - 08/21/2021	1.07	1.13
35	08/22/2021 - 08/28/2021	1.07	1.13
36	08/29/2021 - 09/04/2021	1.06	1.12
37	09/05/2021 - 09/11/2021	1.05	1.11
38	09/12/2021 - 09/18/2021	1.04	1.09
39	09/19/2021 - 09/25/2021	1.04	1.09
40	09/26/2021 - 10/02/2021	1.03	1.08
41	10/03/2021 - 10/09/2021	1.03	1.08
42	10/10/2021 - 10/16/2021	1.02	1.07
43	10/17/2021 - 10/23/2021	1.03	1.08
44	10/24/2021 - 10/30/2021	1.03	1.08
45	10/31/2021 - 11/06/2021	1.03	1.08
46	11/07/2021 - 11/13/2021	1.03	1.08
47	11/14/2021 - 11/20/2021	1.03	1.08
48	11/21/2021 - 11/27/2021	1.03	1.08
49	11/28/2021 - 12/04/2021	1.03	1.08
50	12/05/2021 - 12/11/2021	1.02	1.07
51	12/12/2021 - 12/18/2021	1.02	1.07
52	12/19/2021 - 12/25/2021	1.02	1.07
53	12/26/2021 - 12/31/2021	1.03	1.08

* PEAK SEASON

08-MAR-2022 12:36:27

830UPD

5_7000_PKSEASON.TXT

2021 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 7095 BREVARD I95

WEEK	DATES	SF	MOCF: 0.97 PSCF
1	01/01/2021 - 01/02/2021	0.92	0.95
2	01/03/2021 - 01/09/2021	1.02	1.05
3	01/10/2021 - 01/16/2021	1.13	1.16
4	01/17/2021 - 01/23/2021	1.12	1.15
5	01/24/2021 - 01/30/2021	1.12	1.15
6	01/31/2021 - 02/06/2021	1.11	1.14
7	02/07/2021 - 02/13/2021	1.11	1.14
8	02/14/2021 - 02/20/2021	1.10	1.13
9	02/21/2021 - 02/27/2021	1.07	1.10
10	02/28/2021 - 03/06/2021	1.03	1.06
11	03/07/2021 - 03/13/2021	1.00	1.03
12	03/14/2021 - 03/20/2021	0.97	1.00
13	03/21/2021 - 03/27/2021	0.97	1.00
14	03/28/2021 - 04/03/2021	0.97	1.00
15	04/04/2021 - 04/10/2021	0.98	1.01
16	04/11/2021 - 04/17/2021	0.98	1.01
17	04/18/2021 - 04/24/2021	0.98	1.01
18	04/25/2021 - 05/01/2021	0.99	1.02
19	05/02/2021 - 05/08/2021	0.99	1.02
20	05/09/2021 - 05/15/2021	1.00	1.03
21	05/16/2021 - 05/22/2021	0.99	1.02
22	05/23/2021 - 05/29/2021	0.98	1.01
23	05/30/2021 - 06/05/2021	0.98	1.01
24	06/06/2021 - 06/12/2021	0.97	1.00
25	06/13/2021 - 06/19/2021	0.97	1.00
26	06/20/2021 - 06/26/2021	0.96	0.99
27	06/27/2021 - 07/03/2021	0.96	0.99
28	07/04/2021 - 07/10/2021	0.96	0.99
29	07/11/2021 - 07/17/2021	0.96	0.99
30	07/18/2021 - 07/24/2021	0.97	1.00
31	07/25/2021 - 07/31/2021	0.99	1.02
32	08/01/2021 - 08/07/2021	1.01	1.04
33	08/08/2021 - 08/14/2021	1.03	1.06
34	08/15/2021 - 08/21/2021	1.05	1.08
35	08/22/2021 - 08/28/2021	1.06	1.09
36	08/29/2021 - 09/04/2021	1.07	1.10
37	09/05/2021 - 09/11/2021	1.07	1.10
38	09/12/2021 - 09/18/2021	1.08	1.11
39	09/19/2021 - 09/25/2021	1.06	1.09
*40	09/26/2021 - 10/02/2021	1.05	1.08
*41	10/03/2021 - 10/09/2021	1.03	1.06
*42	10/10/2021 - 10/16/2021	1.02	1.05
*43	10/17/2021 - 10/23/2021	1.00	1.03
*44	10/24/2021 - 10/30/2021	0.98	1.01
*45	10/31/2021 - 11/06/2021	0.96	0.99
*46	11/07/2021 - 11/13/2021	0.94	0.97
*47	11/14/2021 - 11/20/2021	0.92	0.95
*48	11/21/2021 - 11/27/2021	0.92	0.95
*49	11/28/2021 - 12/04/2021	0.92	0.95
*50	12/05/2021 - 12/11/2021	0.92	0.95
*51	12/12/2021 - 12/18/2021	0.92	0.95
*52	12/19/2021 - 12/25/2021	1.02	1.05
53	12/26/2021 - 12/31/2021	1.13	1.16

* PEAK SEASON

08-MAR-2022 12:36:27

830UPD

5_7095_PKSEASON.TXT

APPENDIX E

Signal Timings

Station : 1018 - SR 524 & Industry Rd (Standard File)

Phase [1.1.1]

	1 (EL)	2 (WT)	3 (SL)	4 (NT)	5 (WL)	6 (ET)	7 (NL)	8 (ST)	9	10	11	12	13	14	15	16
Walk	0	7	0	0	0	7	0	7	0	0	0	0	0	0	0	0
Ped Clearance	0	42	0	0	0	32	0	26	0	0	0	0	0	0	0	0
Min Green	12	15	5	7	5	15	5	7	0	0	0	0	0	0	0	0
Gap Ext	3	3.5	3	3	3	3.5	3	3	0	0	0	0	0	0	0	0
Max1	70	50	55	25	25	60	20	40	0	0	0	0	0	0	0	0
Max2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clr	5.2	5.1	3.7	3.4	5.1	5.2	3.4	3.7	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red Clr	2.6	2	2.6	2.9	2.4	2	2.6	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Auto Flash Entry				ON				ON								
Auto Flash Exit		ON				ON										
Non-Actuated 1																
Non-Actuated 2																
Rest In Walk																

Phase Option [1.1.2]

	1 (EL)	2 (WT)	3 (SL)	4 (NT)	5 (WL)	6 (ET)	7 (NL)	8 (ST)	9	10	11	12	13	14	15	16
Enable	ON	ON	ON	ON	ON	ON	ON	ON								
Lock Call		ON				ON										
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable		ON				ON										
Guar Passage																
Cond Service																
Add Init Calc																

Alternate Phase Program 1, Calls and Redirection [1.1.6.3]

Entry	Call Phases				From	To	From	To	From	To	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 2, Calls and Redirection [1.1.6.3]

Entry	Call Phases				From	To	From	To	From	To	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 1, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	

Alternate Phase Program 2, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	

Prepared By

Date Implemented

Reviewed By

Traffic Engineer

Station : 1018 - SR 524 & Industry Rd (Standard File)

Unit Parameters [1.2.1]

StartUp Flash	Auto Ped Clear	Red Revert	Local Flash Start	Allow < 3 sec Yel	Allow Skip Yel	MCE Timeout	Enable Run	Start Red Time	Phase Mode	Startup Calls	Diamond Mode	Stop Time Over Preempt	Free Ring Sequence	Clearance Decide	Min Ped Clear Time	Ring Algo

	OFF		OFF	OFF	OFF		ON		STD8	OFF	3PH		OFF		1		OFF	OFF		
--	-----	--	-----	-----	-----	--	----	--	------	-----	-----	--	-----	--	---	--	-----	-----	--	--

Comm, General Comm Parameters [6.1]

Station ID	Master Station ID	Fallback time	Allow Pencil	Port	System-Up	Sys-Down	PC/Print	Aux 232
1018								

Port Parameters [6.2]

Comm	Mode	Baud	MsgTime	Duplex	Enable	DialTime	Modem	ModemTime	Tel#1	Tel#2
System Up(P-A)										
System Down(P-B)										
PC/Print(P-2)										

Overlap General Parameters [1.5.1]

Conflict Lock	Lock Inhibit	Program Card	Use Parent	Canadian Fast Flash
OFF	OFF	ON	ALWAYS	

Overlap Program Parameters [1.5.2.1]

Overlap	Included Phases								Modifier Phases								Type	Green	Yellow	Red
Overlap 1																	NORMAL		3.5	1.5
Overlap 2																	NORMAL		3.5	1.5
Overlap 3																	NORMAL		3.5	1.5
Overlap 4																	NORMAL		3.5	1.5
Overlap 5																	NORMAL		3.5	1.5
Overlap 6																	NORMAL		3.5	1.5
Overlap 7																	NORMAL		3.5	1.5
Overlap 8																	NORMAL		3.5	1.5

Overlap Conflict Parameters+ [1.5.2.2]

Overlap	Conflicting Phases								Conflicting Overlaps								Conflicting Peds							
Overlap 1																								
Overlap 2																								
Overlap 3																								
Overlap 4																								
Overlap 5																								
Overlap 6																								
Overlap 7																								
Overlap 8																								

Detector, Vehicle Parameters 1-16 [5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	1	2	2	3	3	4	4	0	6	6	7	8	8	5	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Detector, Vehicle Parameters 17-32 [5.1]

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station : 1018 - SR 524 & Industry Rd (Standard File)

Detector Alternate Program 1, Vehicle Parameters [5.5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Channels/SDLC, Assign to Phases [1.3.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PH/OLP #	1	2	3	4	5	6	7	8	1	2	3	4	2	4	6	8	1	3	5	7				
Type	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OLP	OLP	OLP	OLP	PED	PED	PED	PED	PED	PED	PED	PED	VEH	VEH	VEH	VEH
Flash	RED	YEL	RED	RED	RED	YEL	RED	RED	RED	RED	RED	RED	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK
Alt Hz																								
Dimming Green																								
Dimming Yellow																								
Dimming Red																								
Dimming Cyc	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Channel/SDLC, Parameters [1.3.3]

TOD Dim Enable	Extra Maps Enable	D Connector Enable	Single BIU Map	IO Mode	Preempt or Ext Output
OFF	DEFAULT				

Channel/SDLC, MMU Map [1.3.5]

MMU-to-Controller Channel Map

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Channel/SDLC, Permissive [1.3.4]

Channel	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															

4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1

2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14

Channel/SDLC, Permissive [1.3.7]

SDLC Device		Term/Fac		Detector								MMU								Diag
BIU#		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8			
Dev Present		ON	ON							ON									ON	
Peer to Peer																				

Ring Sequence [1.2.4]

Ring	P1	P2	P3	P4	P5	P6	P7	P8
Ring 1	1	2	3	4				
Ring 2	5	6	7	8				
Ring 3								
Ring 4								

Station : 1018 - SR 524 & Industry Rd (Standard File)

Alarms, Enable Events [1.6.1]

Event#	Event Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	ON
7	ON
8	ON
9	
10	ON
11	
12	ON
13	ON
14	ON
15	ON
16	ON
17	ON
18	ON
19	ON
20	ON
21	ON
22	ON
23	ON
24	
25	
26	ON
27	ON
28	ON
29	ON
30	ON
31	ON
32	
33	
34	
35	ON
36	
37	ON
38	ON
39	
40	
41	ON
42	
43	
44	
45	
46	
47	
48	ON
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	ON
61	
62	
63	
64	

Alarms, Enable Alarms [1.6.4]

Alarm#	Alarm Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	ON
7	ON
8	ON
9	
10	ON
11	
12	ON
13	ON
14	ON
15	ON
16	ON
17	ON
18	ON
19	ON
20	ON
21	ON
22	ON
23	ON
24	
25	
26	ON
27	ON
28	
29	ON
30	ON
31	
32	
33	
34	
35	ON
36	
37	ON
38	ON
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	ON
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	ON
61	
62	
63	
64	

Preemption Times[3.1]/Phases[3.2]/Options[3.3]

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Auto Flash	ON	ON	ON	ON	ON	ON
Override Higher Preempt	ON	ON	ON	ON	ON	ON
Flash in Dwell						
Link to Preempt						
Delay						
Min Duration	15					
Min Green	5					
Min Walk						
Ped Clear						
Track Green	25					
Min Dwell						
Max Presence						
Track Veh 1	1					
Track Veh 2	6					
Track Veh 3						
Track Veh 4						
Dwell Cyc Veh 1	3					
Dwell Cyc Veh 2	4					
Dwell Cyc Veh 3	5					
Dwell Cyc Veh 4	8					
Dwell Cyc Veh 5						
Dwell Cyc Veh 6						
Dwell Cyc Veh 7						
Dwell Cyc Veh 8						
Dwell Cyc Veh 9						
Dwell Cyc Veh 10						
Dwell Cyc Veh 11						
Dwell Cyc Veh 12						
Dwell Cyc Ped1						
Dwell Cyc Ped2						
Dwell Cyc Ped3						
Dwell Cyc Ped4						
Dwell Cyc Ped5						
Dwell Cyc Ped6						
Dwell vPed7						
Dwell Cyc Ped8						
Exit 1	1					
Exit 2	6					
Exit 3						
Exit 4						

Alarms, Parameters [1.4.1]

Auto Flash Parameter

Yellow	Red	Mode	Source
45	30		

Alarms, Parameters [1.6.7]

Preempt Event Enabled	Pattern Event Enabled
OFF	ON

Alarms, Phases/Overlaps [1.4.2]

Auto Flash	1	2	3	4	5	6	7	8	9	10	11	12
Phases	2	6										
Overlaps												

Station : 1018 - SR 524 & Industry Rd (Standard File)**Preemption Times+ [3.4]/Overlaps+ [3.5]/Options+ [3.6]**

Preempt	1	2	3	4	5	6
Enable	ON					
Type	RAIL	EMERG	EMERG	EMERG	EMERG	EMERG
Skip Track						
Volt Mon Flash						
Coord in Preempt						
Return Max/Min	MAX	MAX	MAX	MAX	MAX	MAX
Extend Dwell						
Pattern						
Output Mode	TS2	TS2	TS2	TS2	TS2	TS2
Track Over 1						
Track Over 2						
Track Over 3						
Track Over 4						
Track Over 5						
Track Over 6						
Track Over 7						
Track Over 8						
Track Over 9						
Track Over 10						
Track Over 11						
Track Over 12						
DwellCyc Over 1						
DwellCyc Over 2						
DwellCyc Over 3						
DwellCyc Over 4						
DwellCyc Over 5						
DwellCyc Over 6						
DwellCyc Over 7						
DwellCyc Over 8						
DwellCyc Over 9						
DwellCyc Over 10						
DwellCyc Over 11						
DwellCyc Over 12						
Ped Clear						
Yellow						
Red						
Return Max						

Coordination, Modes,+ [2.1]**Modes**

Operational	Correct	Maximum	Force-Off
	SHRT/LNG	MAX 1	FIXED

Modes+

Mode	Leave Before	Leave After	Recycle	Stop In Walk	External	Auto Reset	Latch Sec Foff	Coord Easy Float	Yield Value	Coord NTCIP Yield Sign	Closed Loop Active
RESERVED	TIMED	TIMED	P3478_INH	ON	OFF	ON	OFF	OFF	0	+	OFF

Coordination, Pattern 1-16 [2.1]

Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cycle Time	120	110	140							130	140	130	130			
Offset Time	17	93								40	40	112	105			
Split Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seq Number	1	1	1	1	1	1	1	1	1	2	3	2	2	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Coordination, Pattern 17-32 [2.1]

Pattern	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Cycle Time				200	200	200										
Offset Time				164	63	136										
Split Number	17	18	19	20	21	22	23	24								
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Station : 1018 - SR 524 & Industry Rd (Standard File)

Coordination, Splits [2.7.1]

Split Table 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	35	28	33	24	16	47	16	41								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	23	30	23	34	16	37	16	41								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	32	51	38	19	16	67	18	39								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	15	43	22	50	30	28	24	48								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	17	52	21	50	36	33	26	45								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	15	57	15	43	35	37	20	38								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Station : 1018 - SR 524 & Industry Rd (Standard File)

Split Table 13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	15	51	19	45	30	36	21	43								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 17	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	80	61	19	40	23	118	19	40								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	40	70	20	70	25	85	20	70								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	80	51	19	50	23	108	19	50								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 25	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 26	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 27	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 29	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 32	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

TB Coor, Advanced Scheduler [4.3]

TB Coor, Day Plan [4.4][illegible]

Station : 1018 - SR 524 & Industry Rd (Standard File)

Day Plan Table 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action	100															

Day Plan Table 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action	100															

Day Plan Table 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action	100															

Day Plan Table 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action	100															

Day Plan Table 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action	100															

Day Plan Table 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action	100															

Station : 1018 - SR 524 & Industry Rd (Standard File)

TB Coor, Action Table [4.5]

Action	Pattern	Aux 1	Aux 2	Aux 3	Special 1	Special 2	Special 3	Special 4	Special 5	Special 6	Special 7	Special 8
1	1				0	0						
2	2				0	0						
3	3				0	0						
4	4				0	0						
5	5				0	0						
6	6				0	0						
7	7				0	0						
8	8				0	0						
9	9				0	0						
10	10				0	0						
11	11				0	0						
12	12				0	0						
13	13				0	0						
14	14				0	0						
15	15				0	0						
16	16				0	0						
17	17				0	0						
18	18				0	0						
19	19				0	0						
20	20				0	0						
21	21				0	0						
22	22				0	0						
23	23				0	0						
24	24				0	0						
25	25				0	0						
26	1				0	0						
27	2				0	0						
28	3				0	0						
29	4				0	0						
30	5				0	0						
31	6				0	0						
32	7				0	0						
33	8				0	0						
34	9				0	0						
35	10				0	0						
36	11				0	0						
37	12				0	0						
38	13				0	0						
39	14				0	0						
40	15				0	0						
41	16				0	0						
42	17				0	0						
43	18				0	0						
44	19				0	0						
45	20				0	0						
46	21				0	0						
47	22				0	0						
48	23				0	0						
49	24				0	0						
50	48				0	0						
51					0	0						
52					0	0						
53					0	0						
54					0	0						
55					0	0						
56					0	0						
57					0	0						
58					0	0						
59					0	0						
60					0	0						
61					0	0						
62					0	0						
63					0	0						
64					0	0						
99	255				0	0						
100	254				0	0						

Station : 185 - SR 524 & Cox Rd (Permanent File)

Phase [1.1.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clearance	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0
Min Green	0	15	0	6	5	15	0	6	0	0	0	0	0	0	0	0
Passage	0	3.5	0	3.5	3.5	3.5	0	3.5	0	0	0	0	0	0	0	0
Max1	0	50	0	25	15	50	0	25	0	0	0	0	0	0	0	0
Max2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	4	5.5	4	4.4	5.5	5.5	0	4.8	0	0	0	0	0	0	0	0
Red	2	2.5	2	2	2.4	2	2	2	0	0	0	0	0	0	0	0
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Auto Exit		ON				ON										
Rest In Walk																

Phase Option [1.1.2]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable		ON		ON	ON	ON		ON								
Auto Entry				ON				ON								
Non Act1																
Non Act2																
Lock Call		ON				ON										
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable		ON				ON										
Guar Passage																
Cond Service																
Add Init Calc																

Alternate Phase Program 1, Calls and Redirection [1.1.6.3]

Entry	Call Phases	From	To	From	To	From	To	From	To	Assigned Ph
1	0 0 0 0 0	0	0	0	0	0	0	0	0	0
2	0 0 0 0 0	0	0	0	0	0	0	0	0	0
3	0 0 0 0 0	0	0	0	0	0	0	0	0	0
4	0 0 0 0 0	0	0	0	0	0	0	0	0	0
5	0 0 0 0 0	0	0	0	0	0	0	0	0	0
6	0 0 0 0 0	0	0	0	0	0	0	0	0	0
7	0 0 0 0 0	0	0	0	0	0	0	0	0	0
8	0 0 0 0 0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 2, Calls and Redirection [1.1.6.3]

Entry	Call Phases	From	To	From	To	From	To	From	To	Assigned Ph
1	0 0 0 0 0	0	0	0	0	0	0	0	0	0
2	0 0 0 0 0	0	0	0	0	0	0	0	0	0
3	0 0 0 0 0	0	0	0	0	0	0	0	0	0
4	0 0 0 0 0	0	0	0	0	0	0	0	0	0
5	0 0 0 0 0	0	0	0	0	0	0	0	0	0
6	0 0 0 0 0	0	0	0	0	0	0	0	0	0
7	0 0 0 0 0	0	0	0	0	0	0	0	0	0
8	0 0 0 0 0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 1, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 2, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0

Prepared By

Date Implemented

Reviewed By

Traffic Engineer

Station : 185 - SR 524 & Cox Rd (Permanent File)

Unit Parameters [1.2.1]

StartUp Flash	Auto Ped Clear	Backup Time	Red Revert	Console Timeout	Tone Disable	Feature Profile	Phase Mode	Diamond Mode	SDLC Retry Time	TS2 Det Faults	Cycle Fault Action	Max Cycle Time	Max Seek Track Time	Max Seek Dwell Time	Enable Run	Local Flash Start	Start Red Time	Disable Init Ped	Yellow 3 Second Disable	Omit Yellow Enable	Free Ring Sequence
	OFF			30	OFF		STD8	4PH		OFF	ALARM				ON	OFF		OFF	OFF	OFF	

Comm, General Comm Parameters [6.1]

Station ID	Master Station ID	Fallback time	Allow Pencil	Port	System-Up	Sys-Down	PC/Print	Aux 232
185		900	OFF					

Port Parameters [6.2]

Comm	Mode	Baud	MsgTime	Duplex	Enable	DialTime	Modem	ModemTime	Tel#1	Tel#2
System Up(P-A)										
System Down(P-B)										
PC/Print(P-2)										

Overlap General Parameters [1.5.1]

Conflict Lock	Lock Inhibit	Program Card	Use Parent	Canadian Fast Flash
ON	OFF	OFF	ON	OFF

Overlap Program Parameters [1.5.2.1]

Overlap	Included Phases								Modifier Phases								Type	Green	Yellow	Red
Overlap 1	1	2	3			6											NORMAL		4	1.5
Overlap 2																	NORMAL		3.5	1.5
Overlap 3																	NORMAL		3.5	1.5
Overlap 4																	NORMAL		3.5	1.5
Overlap 5																	NORMAL		3.5	1.5
Overlap 6																	NORMAL		3.5	1.5
Overlap 7																	NORMAL		3.5	1.5
Overlap 8																	NORMAL		3.5	1.5

Overlap Conflict Parameters+ [1.5.2.2]

Overlap	Conflicting Phases								Conflicting Overlaps								Conflicting Peds							
Overlap 1																							OFF	OFF
Overlap 2																							OFF	OFF
Overlap 3																							OFF	OFF
Overlap 4																							OFF	OFF
Overlap 5																							OFF	OFF
Overlap 6																							OFF	OFF
Overlap 7																							OFF	OFF
Overlap 8																							OFF	OFF

Detector, Vehicle Parameters 1-16 [5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	6	2	0	0	5	6	6	8	0	0	2	4	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0

Detector, Vehicle Parameters 17-32 [5.1]

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station : 185 - SR 524 & Cox Rd (Permanent File)

Detector Alternate Program 1, Vehicle Parameters [5.5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Channels/SDLC, Assign to Phases [1.3.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PH/OLP #	1	2	3	4	5	6	7	8	1	2	3	4	2	4	6	8	1	3	5	7				
Type	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OLP	OLP	OLP	OLP	PED	PED	PED	PED	PED	PED	PED	PED	VEH	VEH	VEH	VEH
Flash	RED	YEL	RED	RED	RED	YEL	RED	RED	RED	RED	RED	RED	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK
Flash 1-2 Hertz																								
Dimming Green																								
Dimming Yellow																								
Dimming Red																								
Alt Cyc	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Channel/SDLC, Parameters [1.3.3]

TOD Dim Enable	Extra Maps Enable	D Connector Enable	Single BIU Map	IO Mode	Preempt or Ext Output
OFF	DEFAULT		ON	AUTO	EXT

Channel/SDLC, MMU Map [1.3.5]

MMU-to-Controller Channel Map

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Channel/SDLC, Permissive [1.3.4]

Channel	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															

4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1

2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14

Channel/SDLC, Permissive [1.3.7]

SDLC Device		Term/Fac		Detector								MMU								Diag
BIU#		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8			
Present		ON	ON							ON									ON	
Peer to Peer																				

Ring Sequence [1.2.4]

Ring	P1	P2	P3	P4	P5	P6	P7	P8
Ring 1	1	2	3	4				
Ring 2	5	6	7	8				
Ring 3								
Ring 4								

Station : 185 - SR 524 & Cox Rd (Permanent File)

Alarms, Enable Events [1.6.1]

Event#	Event Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	ON
7	ON
8	ON
9	ON
10	ON
11	ON
12	ON
13	ON
14	ON
15	ON
16	ON
17	ON
18	ON
19	ON
20	ON
21	ON
22	ON
23	ON
24	ON
25	ON
26	ON
27	ON
28	ON
29	ON
30	ON
31	ON
32	ON
33	
34	ON
35	ON
36	ON
37	ON
38	ON
39	ON
40	ON
41	ON
42	
43	
44	
45	
46	
47	
48	
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	
61	
62	
63	
64	

Alarms, Enable Alarms [1.6.4]

Alarm#	Alarm Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	ON
7	ON
8	ON
9	
10	ON
11	
12	
13	
14	
15	
16	ON
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	ON
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	
61	
62	
63	
64	

Preemption Times[3.1]/Phases[3.2]/Options[3.3]

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Flash	ON	ON	ON	ON	ON	ON
Override Higher	ON	ON	ON	ON	ON	ON
Flash Dwell						
Link						
Delay						
Min Duration						
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell						
Max Presence						
Track R1						
Track R2						
Track R3						
Track R4						
Dwell P1						
Dwell P2						
Dwell P3						
Dwell P4						
Dwell P5						
Dwell P6						
Dwell P7						
Dwell P8						
Dwell P9						
Dwell P10						
Dwell P11						
Dwell P12						
Dwell Ped1						
Dwell Ped2						
Dwell Ped3						
Dwell Ped4						
Dwell Ped5						
Dwell Ped6						
Dwell Ped7						
Dwell Ped8						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Alarms, Parameters [1.4.1]

Auto Flash Parameter

Yellow	Red	Mode	Source
45	30	VOT MON	TEST B

Alarms, Parameters [1.6.7]

Preempt Event Enabled	Pattern Event Enabled
ON	ON

Alarms, Phases/Overlaps [1.4.2]

Auto Flash	1	2	3	4	5	6	7	8	9	10	11	12
Phases	2	6										
Overlaps												

Station : 185 - SR 524 & Cox Rd (Permanent File)

Preemption Times+ [3.4]/Overlaps+ [3.5]/Options+ [3.6]

Preempt	1	2	3	4	5	6
Enable						
Type	EMERG	EMERG	EMERG	EMERG	EMERG	EMERG
Skip Track						
Volt Mon Flash						
Coord in Preempt	ON					
Max2						
Return Max/Min	MAX	MAX	MAX	MAX	MAX	MAX
Extend Dwell						
Pattern						
Output Mode	TS2	TS2	TS2	TS2	TS2	TS2
Track Over 1						
Track Over 2						
Track Over 3						
Track Over 4						
Track Over 5						
Track Over 6						
Track Over 7						
Track Over 8						
Track Over 9						
Track Over 10						
Track Over 11						
Track Over 12						
Dwell Over 1						
Dwell Over 2						
Dwell Over 3						
Dwell Over 4						
Dwell Over 5						
Dwell Over 6						
Dwell Over 7						
Dwell Over 8						
Dwell Over 9						
Dwell Over 10						
Dwell Over 11						
Dwell Over 12						
Ped Clear						
Yellow						
Red						
Return Min/Max						
Delay Inh						
Exit Time						
All Red B4						

Coordination, Modes, + [2.1]

Modes

Modes+

Operational	Correct	Maximum	Force-Off
	SHRT/LNG	MAX 1	FIXED

Mode	Leave Before	Leave After	Recycle	Stop In Walk	External	Auto Reset	Latch Sec Foff	Coord Easy Float	Yield Value	Coord NTCIP Yield Sign	Closed Loop Active
FRC	TIMED	TIMED	P3478 INH	ON	OFF	ON	OFF	OFF	0	+	OFF

Coordination, Pattern 1-16 [2.1]

Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cycle Time																
Offset Time																
Split Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Coordination, Pattern 17-32 [2.1]

Pattern	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Cycle Time	200	200		200			200	200								
Offset Time	128	182		161			4	39								
Split Number	17	18	19	20	21	22	23	24								
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Station : 185 - SR 524 & Cox Rd (Permanent File)

Coordination, Splits [2.7.1]

Split Table 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Station : 185 - SR 524 & Cox Rd (Permanent File)

Split Table 13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 17	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		160		40	19	141		40								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		160		40	19	141		40								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		160		40	15	145		40								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		65		135	15	50		135								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		144		56	15	129		56								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 25	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 26	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 27	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 29	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

Split Table 32	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord-Ph		ON														

TB Coor, Advanced Scheduler [4.3]

TB Coor, Day Plan [4.4]

Day Plan Table 6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	32		255	28	18	16		204		23	2			1	52	4
Minute	34		1	85	4	32		1	128	7	18		221		23	2
Action		221		48	33				51	4	32	34	255	28	7	18

Station : 185 - SR 524 & Cox Rd (Permanent File)

Day Plan Table 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	32		1												54	4
Minute															8	37
Action		204													23	8

Day Plan Table 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	33	136	255	28	23	8		17		70	9			255	65	2
Minute			1	55	4	33	34	14		22	7			47	3	21
Action		119		8	37				36	1	23			31	34	16

Day Plan Table 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	24	16	255	28	34	16		204		57	35	18		8	34	4
Minute	2		1	65	2	24		1		24	16				57	35
Action		253		3	21				34	4	25			88	24	16

Day Plan Table 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	25	34	14	192	24	16				54	34	162			2	4
Minute			24	38	4	25			88	20	4		221	1	54	34
Action		17		57	35	18		8		4	32		255	24	20	4

Day Plan Table 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	32		1		20	5		221		35	21				51	4
Minute			16	3	6	32		255	28	20	5		204		83	41
Action		204		35	21	34		1	4	6	32		1		22	7

Day Plan Table 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	32		255	28	22	7		17		88	23				17	7
Minute	18			51	4	32	34	14		18	16		204		88	23
Action		253		83	41				1	7	32		1	28	18	16

Station : 185 - SR 524 & Cox Rd (Permanent File)

TB Coor, Action Table [4.5]

Action	Pattern	Aux 1	Aux 2	Aux 3	Special 1	Special 2	Special 3	Special 4	Special 5	Special 6	Special 7	Special 8
1	1											
2	2											
3	3											
4	4											
5	5											
6	6											
7	7											
8	8											
9	9											
10	10											
11	11											
12	12											
13	13											
14	14											
15	15											
16	16											
17	17											
18	18											
19	19											
20	20											
21	21											
22	22											
23	23											
24	24											
25	255											
26	1											
27	2											
28	3											
29	4											
30	5											
31	6											
32	7											
33	8											
34	9											
35	10											
36	11											
37	12											
38	13											
39	14											
40	15											
41	16											
42	17											
43	18											
44	19											
45	20											
46	21											
47	22											
48	23											
49	24											
50	48											
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
99												
100	254											

Station : 1031 - SR 524 & Shoppes of North Cocoa (Standard File)

Phase [1.1.1]

	1 (EL)	2 (WT)	3	4 (NT)	5 (WL)	6 (ET)	7	8 (ST)	9	10	11	12	13	14	15	16
Walk	0	7	0	0	0	7	0	7	0	0	0	0	0	0	0	0
Ped Clearance	0	19	0	0	0	20	0	24	0	0	0	0	0	0	0	0
Min Green	5	17	0	5	5	17	0	5	0	0	0	0	0	0	0	0
Gap Ext	3	3	0	3	3	3	0	3	0	0	0	0	0	0	0	0
Max1	20	60	0	35	20	60	0	30	0	0	0	0	0	0	0	0
Max2	25	70	0	35	25	70	0	35	0	0	0	0	0	0	0	0
Yellow Clr	4.8	4.8	3.5	3.4	4.8	4.8	3.5	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red Clr	2	2	0	2.3	2	2	0	2.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Auto Flash Entry				ON				ON								
Auto Flash Exit																
Non-Actuated 1																
Non-Actuated 2																
Rest In Walk																

Phase Option [1.1.2]

	1 (EL)	2 (WT)	3	4 (NT)	5 (WL)	6 (ET)	7	8 (ST)	9	10	11	12	13	14	15	16
Enable	ON	ON		ON	ON	ON		ON								
Lock Call		ON				ON			ON	ON	ON	ON	ON	ON	ON	ON
Min Recall		ON				ON										
Max Recall		ON				ON										
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable		ON				ON			ON	ON	ON	ON	ON	ON	ON	ON
Guar Passage																
Cond Service																
Add Init Calc																

Alternate Phase Program 1, Calls and Redirection [1.1.6.3]

Entry	Call Phases				From	To	From	To	From	To	From	To	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 2, Calls and Redirection [1.1.6.3]

Entry	Call Phases				From	To	From	To	From	To	From	To	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 1, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	3.5	1.5	0	
2	0	0	0	0	0	0	3.5	1.5	0	
3	0	0	0	0	0	0	3.5	1.5	0	
4	0	0	0	0	0	0	3.5	1.5	0	
5	0	0	0	0	0	0	3.5	1.5	0	
6	0	0	0	0	0	0	3.5	1.5	0	
7	0	0	0	0	0	0	3.5	1.5	0	
8	0	0	0	0	0	0	3.5	1.5	0	

Alternate Phase Program 2, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	3.5	1.5	0	
2	0	0	0	0	0	0	3.5	1.5	0	
3	0	0	0	0	0	0	3.5	1.5	0	
4	0	0	0	0	0	0	3.5	1.5	0	
5	0	0	0	0	0	0	3.5	1.5	0	
6	0	0	0	0	0	0	3.5	1.5	0	
7	0	0	0	0	0	0	3.5	1.5	0	
8	0	0	0	0	0	0	3.5	1.5	0	

Prepared By

Date Implemented

Reviewed By

Traffic Engineer

Station : 1031 - SR 524 & Shoppes of North Cocoa (Standard File)

Unit Parameters [1.2.1]

StartUp Flash	Auto Ped Clear	Red Revert	Local Flash Start	Allow < 3 sec Yel	Allow Skip Yel	MCE Timeout	Enable Run	Start Red Time	Phase Mode	Startup Calls	Diamond Mode	Stop Time Over Preempt	Free Ring Sequence	Clearance Decide	Min Ped Clear Time	Ring Algo

	OFF	3	OFF	OFF	OFF		ON		STD8	OFF	4PH	OFF		1	OFF	OFF		
--	-----	---	-----	-----	-----	--	----	--	------	-----	-----	-----	--	---	-----	-----	--	--

Comm, General Comm Parameters [6.1]

Station ID	Master Station ID	Fallback time	Allow Pencil	Port	System-Up	Sys-Down	PC/Print	Aux 232
1031								

Port Parameters [6.2]

Comm	Mode	Baud	MsgTime	Duplex	Enable	DialTime	Modem	ModemTime	Tel#1	Tel#2
System Up(P-A)										
System Down(P-B)										
PC/Print(P-2)										

Overlap General Parameters [1.5.1]

Conflict Lock	Lock Inhibit	Program Card	Use Parent	Canadian Fast Flash
OFF	OFF	ON	ALWAYS	

Overlap Program Parameters [1.5.2.1]

Overlap	Included Phases								Modifier Phases								Type	Green	Yellow	Red
Overlap 1																	NORMAL		3.5	1.5
Overlap 2																	NORMAL		3.5	1.5
Overlap 3																	NORMAL		3.5	1.5
Overlap 4																	NORMAL		3.5	1.5
Overlap 5																	NORMAL		3.5	1.5
Overlap 6																	NORMAL		3.5	1.5
Overlap 7																	NORMAL		3.5	1.5
Overlap 8																	NORMAL		3.5	1.5

Overlap Conflict Parameters+ [1.5.2.2]

Overlap	Conflicting Phases								Conflicting Overlaps								Conflicting Peds							
Overlap 1																								
Overlap 2																								
Overlap 3																								
Overlap 4																								
Overlap 5																								
Overlap 6																								
Overlap 7																								
Overlap 8																								

Detector, Vehicle Parameters 1-16 [5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	1	2	2	8	4	4	5	8	6	6	0	0	0	0	0	0
Switch Phase	2	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
Delay Time	5	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0

Detector, Vehicle Parameters 17-32 [5.1]

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station : 1031 - SR 524 & Shoppes of North Cocoa (Standard File)

Detector Alternate Program 1, Vehicle Parameters [5.5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Channels/SDLC, Assign to Phases [1.3.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PH/OLP #	1	2	3	4	5	6	7	8	1	2	3	4	2	4	6	8	1	3	5	7				
Type	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OLP	OLP	OLP	OLP	PED	PED	PED	PED	PED	PED	PED	PED	VEH	VEH	VEH	VEH
Flash	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	RED	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK
Alt Hz																								
Dimming Green																								
Dimming Yellow																								
Dimming Red																								
Dimming Cyc	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Channel/SDLC, Parameters [1.3.3]

TOD Dim Enable	Extra Maps Enable	D Connector Enable	Single BIU Map	IO Mode	Preempt or Ext Output
OFF	DEFAULT				

Channel/SDLC, MMU Map [1.3.5]

MMU-to-Controller Channel Map

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Channel/SDLC, Permissive [1.3.4]

Channel	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															

4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1

2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14

Channel/SDLC, Permissive [1.3.7]

SDLC Device	Term/Fac		Detector																MMU	Diag
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8		
Dev Present	ON	ON									ON								ON	
Peer to Peer																				

Ring Sequence [1.2.4]

Ring	P1	P2	P3	P4	P5	P6	P7	P8
Ring 1	1	2	3	4				
Ring 2	5	6	7	8				
Ring 3								
Ring 4								

Station : 1031 - SR 524 & Shoppes of North Cocoa (Standard File)

Alarms, Enable Events [1.6.1]

Event#	Event Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	ON
7	ON
8	ON
9	
10	ON
11	
12	ON
13	ON
14	ON
15	ON
16	ON
17	ON
18	ON
19	ON
20	ON
21	ON
22	ON
23	ON
24	
25	
26	ON
27	ON
28	
29	ON
30	ON
31	
32	
33	
34	
35	ON
36	
37	ON
38	ON
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	ON
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	ON
61	
62	
63	
64	

Alarms, Enable Alarms [1.6.4]

Alarm#	Alarm Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	ON
7	ON
8	ON
9	
10	ON
11	
12	ON
13	ON
14	ON
15	ON
16	ON
17	ON
18	ON
19	ON
20	ON
21	ON
22	ON
23	ON
24	
25	
26	ON
27	ON
28	
29	ON
30	ON
31	
32	
33	
34	
35	ON
36	
37	ON
38	ON
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	ON
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	ON
61	
62	
63	
64	

Preemption Times[3.1]/Phases[3.2]/Options[3.3]

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Auto Flash	ON	ON	ON	ON	ON	ON
Override Higher Preempt	ON	ON	ON	ON	ON	ON
Flash in Dwell						
Link to Preempt						
Delay						
Min Duration						
Min Green	5	5	5	5	5	5
Min Walk						
Ped Clear	99	99	99	99	99	99
Track Green						
Min Dwell	5	10	10	10	10	10
Max Presence						
Track Veh 1						
Track Veh 2						
Track Veh 3						
Track Veh 4						
Dwell Cyc Veh 1						
Dwell Cyc Veh 2						
Dwell Cyc Veh 3						
Dwell Cyc Veh 4						
Dwell Cyc Veh 5						
Dwell Cyc Veh 6						
Dwell Cyc Veh 7						
Dwell Cyc Veh 8						
Dwell Cyc Veh 9						
Dwell Cyc Veh 10						
Dwell Cyc Veh 11						
Dwell Cyc Veh 12						
Dwell Cyc Ped1						
Dwell Cyc Ped2						
Dwell Cyc Ped3						
Dwell Cyc Ped4						
Dwell Cyc Ped5						
Dwell Cyc Ped6						
Dwell vPed7						
Dwell Cyc Ped8						
Exit 1						
Exit 2						
Exit 3						
Exit 4						

Alarms, Parameters [1.4.1]

Auto Flash Parameter

Yellow	Red	Mode	Source
35	15		

Alarms, Parameters [1.6.7]

Preempt Event Enabled	Pattern Event Enabled
OFF	ON

Alarms, Phases/Overlaps [1.4.2]

Auto Flash	1	2	3	4	5	6	7	8	9	10	11	12
Phases												
Overlaps												

Station : 1031 - SR 524 & Shoppes of North Cocoa (Standard File)

Preemption Times+ [3.4]/Overlaps+ [3.5]/Options+ [3.6]

Preempt	1	2	3	4	5	6
Enable						
Type	EMERG	EMERG	EMERG	EMERG	EMERG	EMERG
Skip Track						
Volt Mon Flash						
Coord in Preempt						
Return Max/Min	MAX	MAX	MAX	MAX	MAX	MAX
Extend Dwell						
Pattern						
Output Mode	TS2	TS2	TS2	TS2	TS2	TS2
Track Over 1						
Track Over 2						
Track Over 3						
Track Over 4						
Track Over 5						
Track Over 6						
Track Over 7						
Track Over 8						
Track Over 9						
Track Over 10						
Track Over 11						
Track Over 12						
DwellCyc Over 1						
DwellCyc Over 2						
DwellCyc Over 3						
DwellCyc Over 4						
DwellCyc Over 5						
DwellCyc Over 6						
DwellCyc Over 7						
DwellCyc Over 8						
DwellCyc Over 9						
DwellCyc Over 10						
DwellCyc Over 11						
DwellCyc Over 12						
Ped Clear						
Yellow						
Red						
Return Max						

Coordination, Modes,+ [2.1]

Modes

Operational	Correct	Maximum	Force-Off
	SHRT/LNG	MAX INH	FIXED

Modes+

Mode	Leave Before	Leave After	Recycle	Stop In Walk	External	Auto Reset	Latch Sec Foff	Coord Easy Float	Yield Value	Coord NTCIP Yield Sign	Closed Loop Active	
EASY	TIMED	TIMED	NO RECYCLE	ON	OFF	ON	OFF	OFF	0	+	OFF	ON

Coordination, Pattern 1-16 [2.1]

Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cycle Time	120	110	140	120	130	150										
Offset Time	37	105	135	92	124	126										
Split Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Coordination, Pattern 17-32 [2.1]

Pattern	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Cycle Time				200	200	200										
Offset Time				81	192	32										
Split Number	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Station : 1031 - SR 524 & Shoppes of North Cocoa (Standard File)

Coordination, Splits [2.7.1]

Split Table 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	69		35	16	69		35								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	58		36	16	58		36								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	87		37	16	87		37								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	14	77		29	14	77		29								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	27	65		38	27	65		38								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	22	92		36	22	92		36								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Station : 1031 - SR 524 & Shoppes of North Cocoa (Standard File)

Split Table 13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 17	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	22	138		40	22	138		40								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	22	138		40	22	138		40								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	22	138		40	22	138		40								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase		ON														

Split Table 23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 25	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 26	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 27	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 29	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

Split Table 32	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
Coord Phase																

TB Coor, Advanced Scheduler [4.3]

TB Coor, Day Plan [4.4][illegible]

Station : 1031 - SR 524 & Shoppes of North Cocoa (Standard File)

Day Plan Table 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Station : 1031 - SR 524 & Shoppes of North Cocoa (Standard File)

TB Coor, Action Table [4.5]

Action	Pattern	Aux 1	Aux 2	Aux 3	Special 1	Special 2	Special 3	Special 4	Special 5	Special 6	Special 7	Special 8
1	1				0	0						
2	2				0	0						
3	3				0	0						
4	4				0	0						
5	5				0	0						
6	6				0	0						
7	7				0	0						
8	8				0	0						
9					0	0						
10	10				0	0						
11	11				0	0						
12	12				0	0						
13	13				0	0						
14	14				0	0						
15	15				0	0						
16	16				0	0						
17	17				0	0						
18	18				0	0						
19	19				0	0						
20	20				0	0						
21	21				0	0						
22	22				0	0						
23	23				0	0						
24	24				0	0						
25	25				0	0						
26	1				0	0						
27	2				0	0						
28	3				0	0						
29	4				0	0						
30	5				0	0						
31	6				0	0						
32	7				0	0						
33	8				0	0						
34	9				0	0						
35	10				0	0						
36	11				0	0						
37	12				0	0						
38	13				0	0						
39	14				0	0						
40	15				0	0						
41	16				0	0						
42	17				0	0						
43	18				0	0						
44	19				0	0						
45	20				0	0						
46	21				0	0						
47	22				0	0						
48	23				0	0						
49	24				0	0						
50	48				0	0						
51					0	0						
52					0	0						
53					0	0						
54					0	0						
55					0	0						
56					0	0						
57					0	0						
58					0	0						
59					0	0						
60					0	0						
61					0	0						
62					0	0						
63					0	0						
64					0	0						
99	255				0	0						
100	254				0	0						

Station : 1019 - SR 524 & London Blvd (Standard File)

Phase [1.1.1]

	1	2 (ET)	3	4 (SL)	5	6 (WT)	7	8	9	10	11	12	13	14	15	16
Walk	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0
Ped Clearance	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0
Min Green	0	15	0	6	0	15	0	0	3	0	3	0	3	0	3	0
Gap Ext	0	3.5	0	3	0	4	0	0	0	0	0	0	0	0	0	0
Max1	0	40	0	30	0	40	0	0	0	0	0	0	0	0	0	0
Max2	0	50	0	30	0	50	0	0	0	0	0	0	0	0	0	0
Yellow Clr	4.3	5	4.3	5	4.3	5	4	4.3	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red Clr	2	2.5	2	2	2	2.5	2	2	2	2	2	2	2	2	2	2
Red Revert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Added Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Before Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce By	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Step	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Auto Flash Entry			ON	ON												
Auto Flash Exit		ON				ON										
Non-Actuated 1																
Non-Actuated 2																
Rest In Walk																

Phase Option [1.1.2]

	1	2 (ET)	3	4 (SL)	5	6 (WT)	7	8	9	10	11	12	13	14	15	16
Enable		ON		ON		ON										
Lock Call		ON				ON			ON	ON	ON	ON	ON	ON	ON	ON
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON				ON										
Sim Gap Enable		ON				ON				ON		ON		ON		ON
Guar Passage																
Cond Service																
Add Init Calc																

Alternate Phase Program 1, Calls and Redirection [1.1.6.3]

Entry	Call Phases				From	To	From	To	From	To	From	To	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 2, Calls and Redirection [1.1.6.3]

Entry	Call Phases				From	To	From	To	From	To	From	To	Assigned Ph
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0

Alternate Phase Program 1, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	

Alternate Phase Program 2, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	

Prepared By

Date Implemented

Reviewed By

Traffic Engineer

Station : 1019 - SR 524 & London Blvd (Standard File)

Unit Parameters [1.2.1]

StartUp Flash	Auto Ped Clear	Red Revert	Local Flash Start	Allow < 3 sec Yel	Allow Skip Yel	MCE Timeout	Enable Run	Start Red Time	Phase Mode	Startup Calls	Diamond Mode	Stop Time Over Preempt	Free Ring Sequence	Clearance Decide	Min Ped Clear Time	Ring Algo

	OFF	5	OFF	OFF	OFF		ON		STD8	OFF	SEP	OFF	1	OFF	OFF		
--	-----	---	-----	-----	-----	--	----	--	------	-----	-----	-----	---	-----	-----	--	--

Comm, General Comm Parameters [6.1]

Station ID	Master Station ID	Fallback time	Allow Pencil	Port	System-Up	Sys-Down	PC/Print	Aux 232
1019								

Port Parameters [6.2]

Comm	Mode	Baud	MsgTime	Duplex	Enable	DialTime	Modem	ModemTime	Tel#1	Tel#2
System Up(P-A)										
System Down(P-B)										
PC/Print(P-2)										

Overlap General Parameters [1.5.1]

Conflict Lock	Lock Inhibit	Program Card	Use Parent	Canadian Fast Flash
OFF	OFF	ON	ALWAYS	

Overlap Program Parameters [1.5.2.1]

Overlap	Included Phases								Modifier Phases								Type	Green	Yellow	Red
Overlap 1																	NORMAL		3.5	1.5
Overlap 2																	NORMAL		3.5	1.5
Overlap 3																	NORMAL		3.5	1.5
Overlap 4																	NORMAL		3.5	1.5
Overlap 5																	NORMAL		3.5	1.5
Overlap 6																	NORMAL		3.5	1.5
Overlap 7																	NORMAL		3.5	1.5
Overlap 8																	NORMAL		3.5	1.5

Overlap Conflict Parameters+ [1.5.2.2]

Overlap	Conflicting Phases								Conflicting Overlaps								Conflicting Peds							
Overlap 1																								
Overlap 2																								
Overlap 3																								
Overlap 4																								
Overlap 5																								
Overlap 6																								
Overlap 7																								
Overlap 8																								

Detector, Vehicle Parameters 1-16 [5.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	2	2	4	4	0	6	6	6	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0

Detector, Vehicle Parameters 17-32 [5.1]

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station : 1019 - SR 524 & London Blvd (Standard File)**Detector Alternate Program 1, Vehicle Parameters [5.5.1]**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Call Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Channels/SDLC, Assign to Phases [1.3.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PH/OLP #	1	2	3	4	5	6	4	8	1	2	3	4	2	4	6	3	1	3	5	7				
Type	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OLP	OLP	OLP	OLP	PED	PED	PED	PED	PED	PED	PED	PED	VEH	VEH	VEH	VEH
Flash	RED	YEL	RED	RED	RED	YEL	RED	RED	RED	RED	RED	RED	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK	DRK
Alt Hz																								
Dimming Green																								
Dimming Yellow																								
Dimming Red																								
Dimming Cyc	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Channel/SDLC, Parameters [1.3.3]

TOD Dim Enable	Extra Maps Enable	D Connector Enable	Single BIU Map	IO Mode	Preempt or Ext Output
OFF	DEFAULT				

Channel/SDLC, MMU Map [1.3.5]**MMU-to-Controller Channel Map**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Channel/SDLC, Permissive [1.3.4]

Channel	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
1															
2															
3															

4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1

2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
1
2
3
4
5
6
7
8
9
10
11
12
13
14

Channel/SDLC, Permissive [1.3.7]

SDLC Device		Term/Fac		Detector								MMU								Diag
BIU#		1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8			
Dev Present		ON	ON							ON									ON	
Peer to Peer																				

Ring Sequence [1.2.4]

Ring	P1	P2	P3	P4	P5	P6	P7	P8
Ring 1	1	2	3	4				
Ring 2	5	6	7	8				
Ring 3								
Ring 4								

Station : 1019 - SR 524 & London Blvd (Standard File)

Alarms, Enable Events [1.6.1]

Event#	Event Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	ON
7	ON
8	ON
9	
10	ON
11	
12	ON
13	ON
14	ON
15	ON
16	ON
17	ON
18	ON
19	ON
20	ON
21	ON
22	ON
23	ON
24	
25	
26	ON
27	ON
28	
29	ON
30	ON
31	
32	
33	
34	
35	ON
36	
37	ON
38	ON
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	ON
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	ON
61	
62	
63	
64	

Alarms, Enable Alarms [1.6.4]

Alarm#	Alarm Enable
1	ON
2	ON
3	ON
4	ON
5	ON
6	ON
7	ON
8	ON
9	
10	ON
11	
12	ON
13	ON
14	ON
15	ON
16	ON
17	ON
18	ON
19	ON
20	ON
21	ON
22	ON
23	ON
24	
25	
26	ON
27	ON
28	
29	ON
30	ON
31	
32	
33	
34	
35	ON
36	
37	ON
38	ON
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	ON
49	ON
50	ON
51	ON
52	ON
53	ON
54	ON
55	ON
56	ON
57	ON
58	ON
59	
60	ON
61	
62	
63	
64	

Preemption Times[3.1]/Phases[3.2]/Options[3.3]

Channel	1	2	3	4	5	6
Lock Input	ON	ON	ON	ON	ON	ON
Override Auto Flash	ON	ON	ON	ON	ON	ON
Override Higher Preempt	ON	ON	ON	ON	ON	ON
Flash in Dwell						
Link to Preempt						
Delay						
Min Duration						
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell						
Max Presence						
Track Veh 1						
Track Veh 2						
Track Veh 3						
Track Veh 4						
Dwell Cyc Veh 1						
Dwell Cyc Veh 2						
Dwell Cyc Veh 3						
Dwell Cyc Veh 4						
Dwell Cyc Veh 5						
Dwell Cyc Veh 6						
Dwell Cyc Veh 7						
Dwell Cyc Veh 8						
Dwell Cyc Veh 9						
Dwell Cyc Veh 10						
Dwell Cyc Veh 11						
Dwell Cyc Veh 12						
Dwell Cyc Ped1						
Dwell Cyc Ped2						
Dwell Cyc Ped3						
Dwell Cyc Ped4						
Dwell Cyc Ped5						
Dwell Cyc Ped6						
Dwell vPed7						
Dwell Cyc Ped8						
Exit 1						
Exit 2						
Exit 3						
Exit 4						

Alarms, Parameters [1.4.1]

Auto Flash Parameter

Yellow	Red	Mode	Source
45	30		

Alarms, Parameters [1.6.7]

Preempt Event Enabled	Pattern Event Enabled
OFF	ON

Alarms, Phases/Overlaps [1.4.2]

Auto Flash	1	2	3	4	5	6	7	8	9	10	11	12
Phases	2	6										
Overlaps												

Station : 1019 - SR 524 & London Blvd (Standard File)
Preemption Times+ [3.4]/Overlaps+ [3.5]/Options+ [3.6]

Preempt	1	2	3	4	5	6
Enable						
Type	EMERG	EMERG	EMERG	EMERG	EMERG	EMERG
Skip Track						
Volt Mon Flash						
Coord in Preempt	ON					
Return Max/Min	MAX	MAX	MAX	MAX	MAX	MAX
Extend Dwell						
Pattern						
Output Mode	TS2	TS2	TS2	TS2	TS2	TS2
Track Over 1						
Track Over 2						
Track Over 3						
Track Over 4						
Track Over 5						
Track Over 6						
Track Over 7						
Track Over 8						
Track Over 9						
Track Over 10						
Track Over 11						
Track Over 12						
DwellCyc Over 1						
DwellCyc Over 2						
DwellCyc Over 3						
DwellCyc Over 4						
DwellCyc Over 5						
DwellCyc Over 6						
DwellCyc Over 7						
DwellCyc Over 8						
DwellCyc Over 9						
DwellCyc Over 10						
DwellCyc Over 11						
DwellCyc Over 12						
Ped Clear						
Yellow						
Red						
Return Max						

Coordination, Modes, + [2.1]
Modes

Operational	Correct	Maximum	Force-Off
	SHRT/LNG	MAX INH	FIXED

Modes+

Mode	Leave Before	Leave After	Recycle	Stop In Walk	External	Auto Reset	Latch Sec Foff	Coord Easy Float	Yield Value	Coord NTCIP Yield Sign	Closed Loop Active
RESERVED	TIMED	TIMED	P3478_INH	ON	OFF	ON	OFF	OFF	0	+	OFF

Coordination, Pattern 1-16 [2.1]

Pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cycle Time	60	110	70	120	110					110	130					
Offset Time	54	17	33	71	53					32	58					
Split Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Coordination, Pattern 17-32 [2.1]

Pattern	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Cycle Time				200	200	200										
Offset Time				58	24	53										
Split Number	17	18	19	20	21	22	23	24								
Seq Number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Offset	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn	endgrn

Station : 1019 - SR 524 & London Blvd (Standard File)

Coordination, Splits [2.7.1]

Split Table 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		44		16		44		16								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		86		24		86		24								
Mode	NON	MAX	NON	NON	NON	NON	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		53		17		53		17								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	20	60	15	25	20	60										
Mode	NON	MAX	NON	NON	NON	NON	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	16	44		30	16	44		20								
Mode	NON	MAX	NON	NON	NON	NON	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	15	62		23	36	51		23								
Mode	MIN	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time	15	80	14	21	30	65										
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Station : 1019 - SR 524 & London Blvd (Standard File)

Split Table 13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 17	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 18	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		160		40		160		40								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		164		36		164		36								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time		160		40		160		40								
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 25	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 26	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 27	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 29	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

Split Table 32	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time																
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON	OMT	OMT	OMT	OMT	OMT	OMT	OMT	OMT
Coord Phase		ON														

TB Coor, Advanced Scheduler [4.3]

TB Coor, Day Plan [4.4][illegible]

Station : 1019 - SR 524 & London Blvd (Standard File)

Day Plan Table 7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action	100															

Day Plan Table 8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table 9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action																

Day Plan Table 11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action	100															

Day Plan Table 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour																
Minute																
Action	100															

Station : 1019 - SR 524 & London Blvd (Standard File)

TB Coor, Action Table [4.5]

Action	Pattern	Aux 1	Aux 2	Aux 3	Special 1	Special 2	Special 3	Special 4	Special 5	Special 6	Special 7	Special 8
1	1				0	0						
2	2				0	0						
3	3				0	0						
4	4				0	0						
5	5				0	0						
6	6				0	0						
7	7				0	0						
8	8				0	0						
9	9				0	0						
10	10				0	0						
11	11				0	0						
12	12				0	0						
13	13				0	0						
14	14				0	0						
15	15				0	0						
16	16				0	0						
17	17				0	0						
18	18				0	0						
19	19				0	0						
20	20				0	0						
21	21				0	0						
22	22				0	0						
23	23				0	0						
24	24				0	0						
25	25				0	0						
26	26				0	0						
27	27				0	0						
28	28				0	0						
29	29				0	0						
30	30				0	0						
31	31				0	0						
32	32				0	0						
33	8				0	0						
34	9				0	0						
35	10				0	0						
36	11				0	0						
37	12				0	0						
38	13				0	0						
39	14				0	0						
40	15				0	0						
41	16				0	0						
42	17				0	0						
43	18				0	0						
44	19				0	0						
45	20				0	0						
46	21				0	0						
47	22				0	0						
48	23				0	0						
49	24				0	0						
50	48				0	0						
51					0	0						
52					0	0						
53					0	0						
54					0	0						
55					0	0						
56					0	0						
57					0	0						
58					0	0						
59					0	0						
60					0	0						
61					0	0						
62					0	0						
63					0	0						
64					0	0						
99	255				0	0						
100	254				0	0						

APPENDIX F

Synchro Analysis – Existing Conditions

Existing PM Peak Hour
1: SR 524 & Cox Rd

08/01/2022

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	119	110	174	21	33	46	22	395	44	85	475	99
Future Volume (vph)	119	110	174	21	33	46	22	395	44	85	475	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	215		315	200		290
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.942			0.938				0.850			0.850
Flt Protected		0.985			0.990		0.950			0.950		
Satd. Flow (prot)	0	1721	0	0	1611	0	1641	1810	1442	1719	1810	1524
Flt Permitted		0.829			0.692		0.478			0.445		
Satd. Flow (perm)	0	1449	0	0	1126	0	826	1810	1442	805	1810	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			18				79			105
Link Speed (mph)		40			45			55			55	
Link Distance (ft)		741			1069			578			4223	
Travel Time (s)		12.6			16.2			7.2			52.4	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	3%	10%	10%	9%	10%	5%	12%	5%	5%	6%
Adj. Flow (vph)	127	117	185	22	35	49	23	420	47	90	505	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	429	0	0	106	0	23	420	47	90	505	105
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			6		5	2	

Existing PM Peak Hour

Synchro 11 Report
Page 1

Existing PM Peak Hour
1: SR 524 & Cox Rd

08/01/2022

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Permitted Phases	4			8			6		6	2		2
Detector Phase	4	4		8	8		6	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		15.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	24.4	24.4		27.6	27.6		25.5	25.5	25.5	12.9	26.0	26.0
Total Split (s)	40.0	40.0		40.0	40.0		141.0	141.0	141.0	19.0	160.0	160.0
Total Split (%)	20.0%	20.0%		20.0%	20.0%		70.5%	70.5%	70.5%	9.5%	80.0%	80.0%
Maximum Green (s)	33.6	33.6		30.4	30.4		133.5	133.5	133.5	11.1	152.0	152.0
Yellow Time (s)	4.4	4.4		4.8	4.8		5.5	5.5	5.5	5.5	5.5	5.5
All-Red Time (s)	2.0	2.0		4.8	4.8		2.0	2.0	2.0	2.4	2.5	2.5
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.4			9.6		7.5	7.5	7.5	7.9	8.0	8.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	None		None	None		Max	Max	Max	None	C-Max	C-Max
Act Effect Green (s)		33.6			30.4		136.0	136.0	136.0	152.1	152.0	152.0
Actuated g/C Ratio		0.17			0.15		0.68	0.68	0.68	0.76	0.76	0.76
v/c Ratio		1.68			0.57		0.04	0.34	0.05	0.14	0.37	0.09
Control Delay		362.8			78.1		11.1	14.4	0.3	6.6	8.9	1.0
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		362.8			78.1		11.1	14.4	0.3	6.6	8.9	1.0
LOS		F			E		B	B	A	A	A	A
Approach Delay		362.8			78.1			12.9			7.4	
Approach LOS		F			E			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 109 (55%), Referenced to phase 2:SWTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.68

Intersection Signal Delay: 101.7

Intersection LOS: F

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: SR 524 & Cox Rd



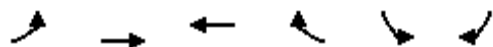
Existing PM Peak Hour
1: SR 524 & Cox Rd

08/01/2022

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	119	110	174	21	33	46	22	395	44	85	475	99
Future Volume (veh/h)	119	110	174	21	33	46	22	395	44	85	475	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1856	1752	1752	1767	1752	1826	1722	1826	1826	1811
Adj Flow Rate, veh/h	127	117	157	22	35	29	23	420	0	90	505	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	3	10	10	9	10	5	12	5	5	6
Cap, veh/h	103	73	98	64	97	71	1043	2226		1215	2344	
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	1.00	1.00	0.00	0.02	1.00	0.00
Sat Flow, veh/h	472	434	583	246	579	420	837	1826	1459	1739	1826	1535
Grp Volume(v), veh/h	401	0	0	86	0	0	23	420	0	90	505	0
Grp Sat Flow(s),veh/h/ln	1489	0	0	1245	0	0	837	1826	1459	1739	1826	1535
Q Serve(g_s), s	22.9	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	33.6	0.0	0.0	10.7	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.32		0.39	0.26		0.34	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	274	0	0	232	0	0	1043	2226		1215	2344	
V/C Ratio(X)	1.46	0.00	0.00	0.37	0.00	0.00	0.02	0.19		0.07	0.22	
Avail Cap(c_a), veh/h	274	0	0	232	0	0	1043	2226		1268	2344	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	85.2	0.0	0.0	73.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Incr Delay (d2), s/veh	227.9	0.0	0.0	1.2	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	48.0	0.0	0.0	7.2	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	313.0	0.0	0.0	74.5	0.0	0.0	0.1	0.2	0.0	0.1	0.2	0.0
LnGrp LOS	F	A	A	E	A	A	A	A		A	A	
Approach Vol, veh/h	401			86			443		A		595	A
Approach Delay, s/veh	313.0			74.5			0.2				0.2	
Approach LOS	F			E			A				A	
Timer - Assigned Phs	2			4		5	6	8				
Phs Duration (G+Y+Rc), s	267.9			43.2		12.9	255.1	43.2				
Change Period (Y+Rc), s	8.0			* 9.6		7.9	* 8	9.6				
Max Green Setting (Gmax), s	152.0			* 34		11.1	* 1.3E2	30.4				
Max Q Clear Time (g_c+I1), s	2.0			35.6		2.0	5.3	12.7				
Green Ext Time (p_c), s	3.8			0.0		0.1	3.2	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			86.6									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NER, SWR] is excluded from calculations of the approach delay and intersection delay.												

Existing PM Peak Hour
2: SR 524 & London Blvd

08/01/2022



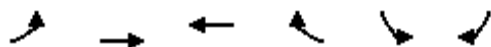
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	63	564	591	93	77	60
Future Volume (vph)	63	564	591	93	77	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	330			440	0	100
Storage Lanes	1			1	1	1
Taper Length (ft)	50				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1727	1597	1482	1770	1583
Flt Permitted	0.390				0.950	
Satd. Flow (perm)	726	1727	1597	1482	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				99		64
Link Speed (mph)		55	55		30	
Link Distance (ft)		743	451		333	
Travel Time (s)		9.2	5.6		7.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	10%	19%	9%	2%	2%
Adj. Flow (vph)	67	600	629	99	82	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	67	600	629	99	82	64
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		2	6		4	

Existing PM Peak Hour

Synchro 11 Report
Page 4

Existing PM Peak Hour
2: SR 524 & London Blvd

08/01/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0	15.0	6.0	6.0
Minimum Split (s)	22.5	22.5	22.5	22.5	13.5	13.5
Total Split (s)	53.0	53.0	53.0	53.0	17.0	17.0
Total Split (%)	75.7%	75.7%	75.7%	75.7%	24.3%	24.3%
Maximum Green (s)	45.5	45.5	45.5	45.5	10.0	10.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	Max	None	None
Act Effect Green (s)	51.3	51.3	51.3	51.3	8.3	8.3
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.12	0.12
v/c Ratio	0.13	0.47	0.54	0.09	0.39	0.26
Control Delay	5.3	7.1	11.4	2.3	33.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	7.1	11.4	2.3	33.6	11.1
LOS	A	A	B	A	C	B
Approach Delay		6.9	10.2		23.7	
Approach LOS		A	B		C	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 33 (47%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 10.1

Intersection LOS: B

Intersection Capacity Utilization 66.9%

ICU Level of Service C

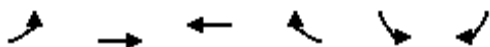
Analysis Period (min) 15

Splits and Phases: 2: SR 524 & London Blvd



Existing PM Peak Hour
2: SR 524 & London Blvd

08/01/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	63	564	591	93	77	60
Future Volume (veh/h)	63	564	591	93	77	60
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1752	1618	1767	1870	1870
Adj Flow Rate, veh/h	67	600	629	0	82	41
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	10	19	9	2	2
Cap, veh/h	528	1253	1157		139	123
Arrive On Green	0.71	0.71	0.71	0.00	0.08	0.08
Sat Flow, veh/h	797	1752	1618	1497	1781	1585
Grp Volume(v), veh/h	67	600	629	0	82	41
Grp Sat Flow(s),veh/h/ln	797	1752	1618	1497	1781	1585
Q Serve(g_s), s	3.0	10.4	12.7	0.0	3.1	1.7
Cycle Q Clear(g_c), s	15.7	10.4	12.7	0.0	3.1	1.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	528	1253	1157		139	123
V/C Ratio(X)	0.13	0.48	0.54		0.59	0.33
Avail Cap(c_a), veh/h	528	1253	1157		254	226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	8.3	4.3	4.7	0.0	31.2	30.6
Incr Delay (d2), s/veh	0.5	1.3	1.8	0.0	4.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	3.3	3.9	0.0	2.6	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.8	5.6	6.5	0.0	35.2	32.1
LnGrp LOS	A	A	A		D	C
Approach Vol, veh/h		667	629	A	123	
Approach Delay, s/veh		6.0	6.5		34.1	
Approach LOS		A	A		C	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		57.5		12.5		57.5
Change Period (Y+Rc), s		7.5		7.0		7.5
Max Green Setting (Gmax), s		45.5		10.0		45.5
Max Q Clear Time (g_c+I1), s		17.7		5.1		14.7
Green Ext Time (p_c), s		4.0		0.1		3.9
Intersection Summary						
HCM 6th Ctrl Delay			8.6			
HCM 6th LOS			A			

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Existing PM Peak Hour
3: Veterinary Entrance/CVS Entrance & SR 524

08/01/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	567	85	47	658	27	130	7	28	34	8	34
Future Volume (vph)	27	567	85	47	658	27	130	7	28	34	8	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	465		410	175		270	65		0	0		0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (ft)	50			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.879			0.939	
Flt Protected	0.950			0.950			0.950				0.978	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1637	0	0	1711	0
Flt Permitted	0.318			0.369			0.687				0.847	
Satd. Flow (perm)	592	1863	1583	687	1863	1583	1280	1637	0	0	1482	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89			74		29			27	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		644			378			279			244	
Travel Time (s)		9.8			5.7			6.3			5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	597	89	49	693	28	137	7	29	36	8	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	597	89	49	693	28	137	36	0	0	80	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4			8		

Existing PM Peak Hour

Synchro 11 Report
Page 7

Existing PM Peak Hour
3: Veterinary Entrance/CVS Entrance & SR 524

08/01/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	12.1	35.1	35.1	12.1	35.1	35.1	10.7	10.7		10.7	10.7	
Total Split (s)	16.0	87.0	87.0	16.0	87.0	87.0	37.0	37.0		37.0	37.0	
Total Split (%)	11.4%	62.1%	62.1%	11.4%	62.1%	62.1%	26.4%	26.4%		26.4%	26.4%	
Maximum Green (s)	9.2	80.2	80.2	9.2	80.2	80.2	31.3	31.3		31.3	31.3	
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8	6.8	5.7	5.7			5.7	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	C-Max	C-Max	None	None		None	None	
Act Effect Green (s)	103.3	97.7	97.7	104.7	100.2	100.2	19.8	19.8			19.8	
Actuated g/C Ratio	0.74	0.70	0.70	0.75	0.72	0.72	0.14	0.14			0.14	
v/c Ratio	0.06	0.46	0.08	0.09	0.52	0.02	0.76	0.14			0.34	
Control Delay	3.8	10.0	0.8	5.7	12.7	0.0	82.0	21.0			38.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	3.8	10.0	0.8	5.7	12.7	0.0	82.0	21.0			38.5	
LOS	A	A	A	A	B	A	F	C			D	
Approach Delay		8.6			11.8			69.3			38.5	
Approach LOS		A			B			E			D	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 135 (96%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 17.4

Intersection LOS: B

Intersection Capacity Utilization 63.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Veterinary Entrance/CVS Entrance & SR 524

 Ø2 (R)	 Ø1	 Ø4
87 s	16 s	37 s
 Ø6	 Ø5	 Ø8
87 s	16 s	37 s

Existing PM Peak Hour
3: Veterinary Entrance/CVS Entrance & SR 524

08/01/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	567	85	47	658	27	130	7	28	34	8	34
Future Volume (veh/h)	27	567	85	47	658	27	130	7	28	34	8	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	597	72	49	693	21	137	7	18	36	8	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	783	1071	908	647	1071	908	210	54	138	113	32	70
Arrive On Green	0.17	0.57	0.57	0.35	1.00	1.00	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1371	464	1192	648	277	609
Grp Volume(v), veh/h	28	597	72	49	693	21	137	0	25	73	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1371	0	1656	1534	0	0
Q Serve(g_s), s	0.0	28.0	2.8	0.0	0.0	0.0	7.8	0.0	1.9	3.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	28.0	2.8	0.0	0.0	0.0	13.8	0.0	1.9	6.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.72	0.49		0.40
Lane Grp Cap(c), veh/h	783	1071	908	647	1071	908	210	0	192	216	0	0
V/C Ratio(X)	0.04	0.56	0.08	0.08	0.65	0.02	0.65	0.00	0.13	0.34	0.00	0.00
Avail Cap(c_a), veh/h	783	1071	908	647	1071	908	358	0	370	378	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.7	18.8	13.4	12.0	0.0	0.0	60.8	0.0	55.6	57.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.1	0.2	0.0	3.0	0.0	3.4	0.0	0.3	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	17.8	1.9	1.0	1.6	0.0	8.7	0.0	1.5	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.7	20.9	13.5	12.0	3.0	0.0	64.3	0.0	55.9	58.2	0.0	0.0
LnGrp LOS	A	C	B	B	A	A	E	A	E	E	A	A
Approach Vol, veh/h		697			763			162			73	
Approach Delay, s/veh		19.4			3.5			63.0			58.2	
Approach LOS		B			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	31.1	87.0		21.9	31.1	87.0		21.9				
Change Period (Y+Rc), s	6.8	6.8		* 5.7	6.8	6.8		* 5.7				
Max Green Setting (Gmax), s	9.2	80.2		* 31	9.2	80.2		* 31				
Max Q Clear Time (g_c+I1), s	2.0	2.0		15.8	2.0	30.0		8.0				
Green Ext Time (p_c), s	0.0	5.1		0.4	0.0	4.2		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			18.1									
HCM 6th LOS			B									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Existing PM Peak Hour
4: Industry Rd & SR 524

08/01/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	376	262	32	145	308	380	39	92	109	306	102	414
Future Volume (vph)	376	262	32	145	308	380	39	92	109	306	102	414
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		400	515		520	150		150	630		0
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	50			50			50			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	3433	1863	1583
Flt Permitted	0.409			0.590			0.950			0.950		
Satd. Flow (perm)	762	1863	1583	1099	1863	1583	1770	1863	1583	3433	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			180			400			248			350
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		561			706			374			884	
Travel Time (s)		12.8			10.7			8.5			20.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	396	276	34	153	324	400	41	97	115	322	107	436
Shared Lane Traffic (%)												
Lane Group Flow (vph)	396	276	34	153	324	400	41	97	115	322	107	436
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases	6		6	2		2			4			8

Existing PM Peak Hour

Synchro 11 Report
Page 10

Existing PM Peak Hour
4: Industry Rd & SR 524

08/01/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	1
Switch Phase												
Minimum Initial (s)	12.0	15.0	15.0	5.0	15.0	15.0	5.0	7.0	7.0	5.0	7.0	12.0
Minimum Split (s)	19.8	40.0	40.0	12.8	22.1	22.1	11.3	13.3	13.3	11.3	20.0	19.8
Total Split (s)	32.0	67.0	67.0	16.0	51.0	51.0	18.0	19.0	19.0	38.0	39.0	32.0
Total Split (%)	22.9%	47.9%	47.9%	11.4%	36.4%	36.4%	12.9%	13.6%	13.6%	27.1%	27.9%	22.9%
Maximum Green (s)	24.2	59.8	59.8	8.5	43.9	43.9	12.0	12.7	12.7	31.7	33.3	24.2
Yellow Time (s)	5.2	5.2	5.2	5.1	5.1	5.1	3.4	3.4	3.4	3.7	3.7	5.2
All-Red Time (s)	2.6	2.0	2.0	2.4	2.0	2.0	2.6	2.9	2.9	2.6	2.0	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.8	7.2	7.2	7.5	7.1	7.1	6.0	6.3	6.3	6.3	5.7	7.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	88.2	71.5	71.5	70.1	60.4	60.4	8.6	12.6	12.6	18.5	25.6	52.4
Actuated g/C Ratio	0.63	0.51	0.51	0.50	0.43	0.43	0.06	0.09	0.09	0.13	0.18	0.37
v/c Ratio	0.63	0.29	0.04	0.26	0.40	0.44	0.38	0.58	0.31	0.71	0.31	0.54
Control Delay	18.2	22.5	0.1	14.3	32.4	4.7	72.0	74.3	2.2	67.0	52.2	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	22.5	0.1	14.3	32.4	4.7	72.0	74.3	2.2	67.0	52.2	8.7
LOS	B	C	A	B	C	A	E	E	A	E	D	A
Approach Delay	19.0			16.6			41.2			35.8		
Approach LOS	B			B			D			D		

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 25.7

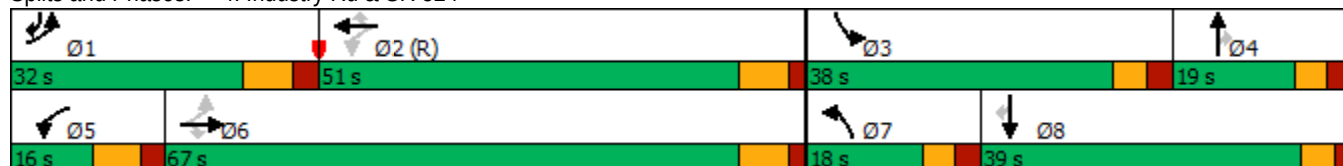
Intersection LOS: C

Intersection Capacity Utilization 69.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Industry Rd & SR 524



Existing PM Peak Hour
4: Industry Rd & SR 524

08/01/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	262	32	145	308	380	39	92	109	306	102	414
Future Volume (veh/h)	376	262	32	145	308	380	39	92	109	306	102	414
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	396	276	19	153	324	0	41	97	81	322	107	347
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	628	957	811	622	809		53	224	190	390	384	544
Arrive On Green	0.14	0.51	0.51	0.06	0.43	0.00	0.03	0.12	0.12	0.11	0.21	0.21
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	3456	1870	1585
Grp Volume(v), veh/h	396	276	19	153	324	0	41	97	81	322	107	347
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1728	1870	1585
Q Serve(g_s), s	16.6	11.8	0.8	6.7	16.7	0.0	3.2	6.7	6.6	12.8	6.8	25.8
Cycle Q Clear(g_c), s	16.6	11.8	0.8	6.7	16.7	0.0	3.2	6.7	6.6	12.8	6.8	25.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	628	957	811	622	809		53	224	190	390	384	544
V/C Ratio(X)	0.63	0.29	0.02	0.25	0.40		0.77	0.43	0.43	0.83	0.28	0.64
Avail Cap(c_a), veh/h	690	957	811	622	809		153	224	190	782	445	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	19.6	16.9	19.7	27.3	0.0	67.4	57.2	57.1	60.8	46.9	38.7
Incr Delay (d2), s/veh	1.6	0.8	0.1	0.2	1.5	0.0	20.8	1.3	1.5	4.5	0.4	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.4	9.2	0.6	4.9	12.1	0.0	3.2	5.9	5.0	9.8	5.8	15.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	20.4	17.0	19.9	28.8	0.0	88.3	58.5	58.6	65.3	47.3	40.7
LnGrp LOS	B	C	B	B	C		F	E	E	E	D	D
Approach Vol, veh/h		691			477	A		219			776	
Approach Delay, s/veh		19.6			25.9			64.1			51.8	
Approach LOS		B			C			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.1	67.7	22.1	23.1	16.0	78.8	10.2	35.0				
Change Period (Y+Rc), s	* 7.8	* 7.2	* 6.3	6.3	7.5	7.2	6.0	* 6.3				
Max Green Setting (Gmax), s	* 24	* 44	* 32	12.7	8.5	59.8	12.0	* 33				
Max Q Clear Time (g_c+I1), s	18.6	18.7	14.8	8.7	8.7	13.8	5.2	27.8				
Green Ext Time (p_c), s	0.7	2.1	1.0	0.2	0.0	1.9	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			37.0									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Existing PM Peak Hour

Synchro 11 Report
Page 12

Existing AM Peak Hour
1: SR 524 & Cox Rd

08/01/2022

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	28	35	105	33	23	41	30	377	103	179	341	47
Future Volume (vph)	28	35	105	33	23	41	30	377	103	179	341	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	215		315	200		290
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.916			0.942				0.850			0.850
Flt Protected		0.992			0.983		0.950			0.950		
Satd. Flow (prot)	0	1463	0	0	1638	0	1641	1696	1583	1770	1638	1369
Flt Permitted		0.912			0.515		0.545			0.465		
Satd. Flow (perm)	0	1345	0	0	858	0	941	1696	1583	866	1638	1369
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			16				110			50
Link Speed (mph)		40			45			55			55	
Link Distance (ft)		741			1069			578			4223	
Travel Time (s)		12.6			16.2			7.2			52.4	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	22%	42%	9%	6%	14%	5%	10%	12%	2%	2%	16%	18%
Adj. Flow (vph)	30	37	112	35	24	44	32	401	110	190	363	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	0	0	103	0	32	401	110	190	363	50
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			6		5	2	

Existing AM PEak Hour

Synchro 11 Report
Page 1

Existing AM Peak Hour
1: SR 524 & Cox Rd

08/01/2022

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Permitted Phases	4			8			6		6	2		2
Detector Phase	4	4		8	8		6	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		15.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5	22.5	12.9	23.0	23.0
Total Split (s)	40.0	40.0		40.0	40.0		141.0	141.0	141.0	19.0	160.0	160.0
Total Split (%)	20.0%	20.0%		20.0%	20.0%		70.5%	70.5%	70.5%	9.5%	80.0%	80.0%
Maximum Green (s)	33.6	33.6		30.4	30.4		133.5	133.5	133.5	11.1	152.0	152.0
Yellow Time (s)	4.4	4.4		4.8	4.8		5.5	5.5	5.5	5.5	5.5	5.5
All-Red Time (s)	2.0	2.0		4.8	4.8		2.0	2.0	2.0	2.4	2.5	2.5
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.4			9.6		7.5	7.5	7.5	7.9	8.0	8.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	None		None	None		Max	Max	Max	None	C-Max	C-Max
Act Effect Green (s)		26.2			23.0		141.6	141.6	141.6	159.5	159.4	159.4
Actuated g/C Ratio		0.13			0.12		0.71	0.71	0.71	0.80	0.80	0.80
v/c Ratio		0.86			0.92		0.05	0.33	0.10	0.26	0.28	0.05
Control Delay		102.6			137.0		10.7	12.9	1.8	6.0	6.4	1.3
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		102.6			137.0		10.7	12.9	1.8	6.0	6.4	1.3
LOS		F			F		B	B	A	A	A	A
Approach Delay		102.6			137.0			10.5			5.9	
Approach LOS		F			F			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 200

Actuated Cycle Length: 200

Offset: 109 (55%), Referenced to phase 2:SWTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 29.2

Intersection LOS: C

Intersection Capacity Utilization 61.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: SR 524 & Cox Rd



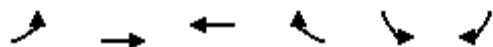
Existing AM Peak Hour
1: SR 524 & Cox Rd

08/01/2022

													
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Traffic Volume (veh/h)	28	35	105	33	23	41	30	377	103	179	341	47	
Future Volume (veh/h)	28	35	105	33	23	41	30	377	103	179	341	47	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No				No			No			No		
Adj Sat Flow, veh/h/ln	1574	1278	1767	1811	1693	1826	1752	1722	1870	1870	1663	1633	
Adj Flow Rate, veh/h	30	37	90	35	24	25	32	401	0	190	363	0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	22	42	9	6	14	5	10	12	2	2	16	18	
Cap, veh/h	45	48	96	71	47	39	683	1167		683	1264		
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.68	0.68	0.00	0.04	0.76	0.00	
Sat Flow, veh/h	158	313	633	301	310	259	954	1722	1585	1781	1663	1384	
Grp Volume(v), veh/h	157	0	0	84	0	0	32	401	0	190	363	0	
Grp Sat Flow(s),veh/h/ln	1104	0	0	870	0	0	954	1722	1585	1781	1663	1384	
Q Serve(g_s), s	10.2	0.0	0.0	0.0	0.0	0.0	2.2	19.6	0.0	6.4	13.4	0.0	
Cycle Q Clear(g_c), s	28.1	0.0	0.0	17.9	0.0	0.0	2.2	19.6	0.0	6.4	13.4	0.0	
Prop In Lane	0.19		0.57	0.42		0.30	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	189	0	0	157	0	0	683	1167		683	1264		
V/C Ratio(X)	0.83	0.00	0.00	0.53	0.00	0.00	0.05	0.34		0.28	0.29		
Avail Cap(c_a), veh/h	207	0	0	158	0	0	683	1167		706	1264		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	83.7	0.0	0.0	78.5	0.0	0.0	10.7	13.5	0.0	9.6	7.4	0.0	
Incr Delay (d2), s/veh	23.1	0.0	0.0	4.0	0.0	0.0	0.1	0.8	0.0	0.3	0.6	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh/ln	14.2	0.0	0.0	7.6	0.0	0.0	0.9	12.0	0.0	4.3	8.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	106.8	0.0	0.0	82.4	0.0	0.0	10.9	14.3	0.0	9.8	7.9	0.0	
LnGrp LOS	F	A	A	F	A	A	B	B		A	A		
Approach Vol, veh/h	157		84			433		A		553			A
Approach Delay, s/veh	106.8		82.4			14.1				8.6			
Approach LOS	F		F			B				A			
Timer - Assigned Phs	2		4		5	6	8						
Phs Duration (G+Y+Rc), s	160.1			39.9	16.5	143.6	39.9						
Change Period (Y+Rc), s	8.0			* 9.6	7.9	* 8	9.6						
Max Green Setting (Gmax), s	152.0			* 34	11.1	* 1.3E2	30.4						
Max Q Clear Time (g_c+I1), s	15.4			30.1	8.4	21.6	19.9						
Green Ext Time (p_c), s	2.5			0.3	0.2	3.1	0.3						
Intersection Summary													
HCM 6th Ctrl Delay	28.1												
HCM 6th LOS	C												
Notes													
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.													
Unsignalized Delay for [NER, SWR] is excluded from calculations of the approach delay and intersection delay.													

Existing AM Peak Hour
2: SR 524 & London Blvd

08/01/2022



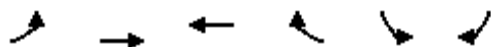
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	52	500	383	35	34	40
Future Volume (vph)	52	500	383	35	34	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	330			440	0	100
Storage Lanes	1			1	1	1
Taper Length (ft)	50				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1712	1696	1568	1770	1495
Flt Permitted	0.523				0.950	
Satd. Flow (perm)	974	1712	1696	1568	1770	1495
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				37		43
Link Speed (mph)		55	55		30	
Link Distance (ft)		743	451		333	
Travel Time (s)		9.2	5.6		7.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	11%	12%	3%	2%	8%
Adj. Flow (vph)	55	532	407	37	36	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	532	407	37	36	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		2	6		4	

Existing AM PEak Hour

Synchro 11 Report
Page 4

Existing AM Peak Hour
2: SR 524 & London Blvd

08/01/2022



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0	15.0	6.0	6.0
Minimum Split (s)	22.5	22.5	22.5	22.5	13.5	13.5
Total Split (s)	44.0	44.0	44.0	44.0	16.0	16.0
Total Split (%)	73.3%	73.3%	73.3%	73.3%	26.7%	26.7%
Maximum Green (s)	36.5	36.5	36.5	36.5	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.5	3.5	4.0	4.0	3.0	3.0
Recall Mode	C-Max	C-Max	Max	Max	None	None
Act Effect Green (s)	46.8	46.8	46.8	46.8	6.9	6.9
Actuated g/C Ratio	0.78	0.78	0.78	0.78	0.12	0.12
v/c Ratio	0.07	0.40	0.31	0.03	0.18	0.20
Control Delay	4.4	5.7	8.6	4.2	25.6	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	5.7	8.6	4.2	25.6	11.2
LOS	A	A	A	A	C	B
Approach Delay		5.6	8.2		17.8	
Approach LOS		A	A		B	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Offset: 54 (90%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 56.0%

ICU Level of Service B

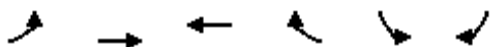
Analysis Period (min) 15

Splits and Phases: 2: SR 524 & London Blvd



Existing AM Peak Hour
2: SR 524 & London Blvd

08/01/2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	52	500	383	35	34	40
Future Volume (veh/h)	52	500	383	35	34	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1737	1722	1856	1870	1781
Adj Flow Rate, veh/h	55	532	407	0	36	34
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	11	12	3	2	8
Cap, veh/h	701	1198	1187		123	104
Arrive On Green	0.69	0.69	0.69	0.00	0.07	0.07
Sat Flow, veh/h	978	1737	1722	1572	1781	1510
Grp Volume(v), veh/h	55	532	407	0	36	34
Grp Sat Flow(s),veh/h/ln	978	1737	1722	1572	1781	1510
Q Serve(g_s), s	1.5	8.2	5.8	0.0	1.2	1.3
Cycle Q Clear(g_c), s	7.2	8.2	5.8	0.0	1.2	1.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	701	1198	1187		123	104
V/C Ratio(X)	0.08	0.44	0.34		0.29	0.33
Avail Cap(c_a), veh/h	701	1198	1187		267	226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	5.3	4.2	3.8	0.0	26.5	26.6
Incr Delay (d2), s/veh	0.2	1.2	0.8	0.0	1.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	2.3	1.6	0.0	0.9	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.5	5.4	4.6	0.0	27.9	28.4
LnGrp LOS	A	A	A		C	C
Approach Vol, veh/h		587	407	A	70	
Approach Delay, s/veh		5.4	4.6		28.1	
Approach LOS		A	A		C	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		48.9		11.1		48.9
Change Period (Y+Rc), s		7.5		7.0		7.5
Max Green Setting (Gmax), s		36.5		9.0		36.5
Max Q Clear Time (g_c+I1), s		10.2		3.3		7.8
Green Ext Time (p_c), s		4.1		0.1		3.3
Intersection Summary						
HCM 6th Ctrl Delay			6.6			
HCM 6th LOS			A			

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Existing AM Peak Hour
3: Veterinary Entrance/ CVS Entrance & SR 524

08/01/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	563	21	20	407	7	21	2	6	35	0	5
Future Volume (vph)	23	563	21	20	407	7	21	2	6	35	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	465		410	175		270	65		0	0		0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (ft)	50			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.887			0.984	
Flt Protected	0.950			0.950			0.950				0.958	
Satd. Flow (prot)	1770	1712	1538	1492	1712	1417	1719	1652	0	0	1697	0
Flt Permitted	0.498			0.406			0.844				0.746	
Satd. Flow (perm)	928	1712	1538	638	1712	1417	1527	1652	0	0	1322	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86			86		6			96	
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		644			378			279			244	
Travel Time (s)		9.8			5.7			6.3			5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	11%	5%	21%	11%	14%	5%	2%	2%	6%	2%	2%
Adj. Flow (vph)	24	593	22	21	428	7	22	2	6	37	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	593	22	21	428	7	22	8	0	0	42	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	

Existing AM PEak Hour

Synchro 11 Report
Page 7

Existing AM Peak Hour
3: Veterinary Entrance/CVS Entrance & SR 524

08/01/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6		6	2		2	4			8		
Detector Phase	1	6	6	5	2	2	4	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	17.0	17.0	5.0	17.0	17.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	12.1	35.1	35.1	12.1	35.1	35.1	10.7	10.7		10.7	10.7	
Total Split (s)	16.0	69.0	69.0	16.0	69.0	69.0	35.0	35.0		35.0	35.0	
Total Split (%)	13.3%	57.5%	57.5%	13.3%	57.5%	57.5%	29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	9.2	62.2	62.2	9.2	62.2	62.2	29.3	29.3		29.3	29.3	
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	4.8	3.4	3.4		3.4	3.4	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8	6.8	5.7	5.7			5.7	
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	C-Max	C-Max	None	None		None	None	
Act Effect Green (s)	100.5	98.5	98.5	99.1	96.0	96.0	7.6	7.6			7.6	
Actuated g/C Ratio	0.84	0.82	0.82	0.83	0.80	0.80	0.06	0.06			0.06	
v/c Ratio	0.03	0.42	0.02	0.04	0.31	0.01	0.23	0.07			0.24	
Control Delay	0.8	4.3	0.0	2.3	5.7	0.0	58.1	34.8			3.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	0.8	4.3	0.0	2.3	5.7	0.0	58.1	34.8			3.3	
LOS	A	A	A	A	A	A	E	C			A	
Approach Delay		4.0			5.4			51.9			3.3	
Approach LOS		A			A			D			A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 37 (31%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 5.8

Intersection LOS: A

Intersection Capacity Utilization 49.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Veterinary Entrance/CVS Entrance & SR 524

 Ø2 (R)	 Ø1	 Ø4
69 s	16 s	35 s
 Ø6	 Ø5	 Ø8
69 s	16 s	35 s

Existing AM Peak Hour
3: Veterinary Entrance/CVS Entrance & SR 524

08/01/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	563	21	20	407	7	21	2	6	35	0	5
Future Volume (veh/h)	23	563	21	20	407	7	21	2	6	35	0	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1737	1826	1589	1737	1693	1826	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h	24	593	18	21	428	5	22	2	5	37	0	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	11	5	21	11	14	5	2	2	6	2	2
Cap, veh/h	1046	900	802	662	900	743	134	21	53	110	0	6
Arrive On Green	0.28	0.52	0.52	0.55	1.00	1.00	0.05	0.05	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1781	1737	1547	1513	1737	1434	1379	474	1184	1170	9	127
Grp Volume(v), veh/h	24	593	18	21	428	5	22	0	7	41	0	0
Grp Sat Flow(s),veh/h/ln	1781	1737	1547	1513	1737	1434	1379	0	1657	1306	0	0
Q Serve(g_s), s	0.0	30.0	0.7	0.0	0.0	0.0	0.0	0.0	0.5	3.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	30.0	0.7	0.0	0.0	0.0	1.5	0.0	0.5	3.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.71	0.90		0.10
Lane Grp Cap(c), veh/h	1046	900	802	662	900	743	134	0	75	116	0	0
V/C Ratio(X)	0.02	0.66	0.02	0.03	0.48	0.01	0.16	0.00	0.09	0.35	0.00	0.00
Avail Cap(c_a), veh/h	1046	900	802	662	900	743	408	0	405	399	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.6	21.1	14.1	7.9	0.0	0.0	55.4	0.0	54.9	56.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.8	0.1	0.0	1.8	0.0	0.6	0.0	0.5	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	17.9	0.4	0.3	0.8	0.0	1.2	0.0	0.4	2.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.6	24.9	14.1	7.9	1.8	0.0	56.0	0.0	55.5	58.6	0.0	0.0
LnGrp LOS	A	C	B	A	A	A	E	A	E	E	A	A
Approach Vol, veh/h		635			454			29			41	
Approach Delay, s/veh		23.8			2.1			55.9			58.6	
Approach LOS		C			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	39.9	69.0		11.1	39.9	69.0		11.1				
Change Period (Y+Rc), s	6.8	6.8		* 5.7	6.8	6.8		* 5.7				
Max Green Setting (Gmax), s	9.2	62.2		* 29	9.2	62.2		* 29				
Max Q Clear Time (g_c+I1), s	2.0	2.0		3.5	2.0	32.0		5.9				
Green Ext Time (p_c), s	0.0	2.6		0.1	0.0	3.9		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			17.3									
HCM 6th LOS			B									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Existing AM Peak Hour
4: Industry Rd & SR 524

08/01/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	339	188	26	45	123	230	21	56	47	239	65	309
Future Volume (vph)	339	188	26	45	123	230	21	56	47	239	65	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	450		400	515		520	150		150	630		0
Storage Lanes	1		1	1		1	1		1	2		1
Taper Length (ft)	50			50			50			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1612	1881	1583	1770	1863	1568	1719	1827	1583	3433	1863	1392
Flt Permitted	0.583			0.633			0.950			0.950		
Satd. Flow (perm)	989	1881	1583	1179	1863	1568	1719	1827	1583	3433	1863	1392
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			210			281			289			325
Link Speed (mph)		30			45			30			30	
Link Distance (ft)		561			706			374			884	
Travel Time (s)		12.8			10.7			8.5			20.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	12%	1%	2%	2%	2%	3%	5%	4%	2%	2%	2%	16%
Adj. Flow (vph)	357	198	27	47	129	242	22	59	49	252	68	325
Shared Lane Traffic (%)												
Lane Group Flow (vph)	357	198	27	47	129	242	22	59	49	252	68	325
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1

Existing AM PEak Hour

Synchro 11 Report
Page 10

Existing AM Peak Hour
4: Industry Rd & SR 524

08/01/2022

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	6		6	2		2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	1
Switch Phase												
Minimum Initial (s)	12.0	15.0	15.0	5.0	15.0	15.0	5.0	7.0	7.0	5.0	7.0	12.0
Minimum Split (s)	19.8	40.0	40.0	12.8	22.1	22.1	11.3	13.3	13.3	11.3	20.0	19.8
Total Split (s)	35.0	47.0	47.0	16.0	28.0	28.0	16.0	24.0	24.0	33.0	41.0	35.0
Total Split (%)	29.2%	39.2%	39.2%	13.3%	23.3%	23.3%	13.3%	20.0%	20.0%	27.5%	34.2%	29.2%
Maximum Green (s)	27.2	39.8	39.8	8.5	20.9	20.9	10.0	17.7	17.7	26.7	35.3	27.2
Yellow Time (s)	5.2	5.2	5.2	5.1	5.1	5.1	3.4	3.4	3.4	3.7	3.7	5.2
All-Red Time (s)	2.6	2.0	2.0	2.4	2.0	2.0	2.6	2.9	2.9	2.6	2.0	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.8	7.2	7.2	7.5	7.1	7.1	6.0	6.3	6.3	6.3	5.7	7.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	78.7	67.6	67.6	58.7	52.4	52.4	7.1	9.5	9.5	14.1	19.4	44.3
Actuated g/C Ratio	0.66	0.56	0.56	0.49	0.44	0.44	0.06	0.08	0.08	0.12	0.16	0.37
v/c Ratio	0.48	0.19	0.03	0.08	0.16	0.29	0.22	0.41	0.13	0.63	0.23	0.45
Control Delay	13.1	16.5	0.0	12.4	26.0	2.9	58.2	60.5	0.7	57.2	44.8	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	16.5	0.0	12.4	26.0	2.9	58.2	60.5	0.7	57.2	44.8	4.3
LOS	B	B	A	B	C	A	E	E	A	E	D	A
Approach Delay		13.7			11.1			37.6			29.2	
Approach LOS		B			B			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 70 (58%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 20.5

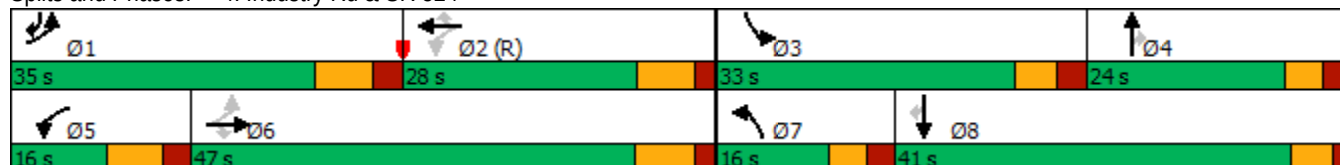
Intersection LOS: C

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Industry Rd & SR 524



Existing AM Peak Hour
4: Industry Rd & SR 524

08/01/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	339	188	26	45	123	230	21	56	47	239	65	309
Future Volume (veh/h)	339	188	26	45	123	230	21	56	47	239	65	309
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1885	1870	1870	1870	1856	1826	1841	1870	1870	1870	1663
Adj Flow Rate, veh/h	357	198	15	47	129	0	22	59	38	252	68	268
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	1	2	2	2	3	5	4	2	2	2	16
Cap, veh/h	735	1010	849	617	797		38	202	174	325	345	457
Arrive On Green	0.14	0.54	0.54	0.03	0.43	0.00	0.02	0.11	0.11	0.09	0.18	0.18
Sat Flow, veh/h	1640	1885	1585	1781	1870	1572	1739	1841	1585	3456	1870	1409
Grp Volume(v), veh/h	357	198	15	47	129	0	22	59	38	252	68	268
Grp Sat Flow(s),veh/h/ln	1640	1885	1585	1781	1870	1572	1739	1841	1585	1728	1870	1409
Q Serve(g_s), s	13.9	6.5	0.5	1.8	5.1	0.0	1.5	3.5	2.6	8.6	3.7	19.0
Cycle Q Clear(g_c), s	13.9	6.5	0.5	1.8	5.1	0.0	1.5	3.5	2.6	8.6	3.7	19.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	735	1010	849	617	797		38	202	174	325	345	457
V/C Ratio(X)	0.49	0.20	0.02	0.08	0.16		0.58	0.29	0.22	0.77	0.20	0.59
Avail Cap(c_a), veh/h	877	1010	849	684	797		145	272	234	769	550	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	14.4	13.1	18.0	21.2	0.0	58.2	49.1	48.7	53.1	41.4	33.8
Incr Delay (d2), s/veh	0.5	0.4	0.0	0.1	0.4	0.0	13.5	0.8	0.6	3.9	0.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.8	5.2	0.4	1.3	4.1	0.0	1.4	3.0	1.9	7.0	3.1	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	14.9	13.1	18.1	21.7	0.0	71.7	49.9	49.4	57.1	41.7	35.0
LnGrp LOS	B	B	B	B	C		E	D	D	E	D	C
Approach Vol, veh/h		570			176	A		119			588	
Approach Delay, s/veh		14.4			20.7			53.8			45.2	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.6	58.3	17.6	19.4	11.5	71.5	8.6	28.4				
Change Period (Y+Rc), s	* 7.8	* 7.2	* 6.3	6.3	7.5	7.2	6.0	* 6.3				
Max Green Setting (Gmax), s	* 27	* 21	* 27	17.7	8.5	39.8	10.0	* 35				
Max Q Clear Time (g_c+I1), s	15.9	7.1	10.6	5.5	3.8	8.5	3.5	21.0				
Green Ext Time (p_c), s	0.9	0.5	0.8	0.2	0.0	1.2	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			30.8									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Existing AM PEak Hour

Synchro 11 Report
Page 12

APPENDIX G

Historical Trend Analysis

Roadway	Segment	2018	2019	2020	2021	2022	2026 Trend	Resulting Growth Rate	Used Growth Rate	2026 AADT
		2018	2019	2020	2021	2022	2026			
SR 524										
	I-95 to Cox Rd	12,690	11,700	11,020	13,300	14,549	15,843	3.19%	3.19%	16,408
	Cox Rd to London Blvd	15,030	13,380	12,530	14,630	14,380	13,960	-1.13%	2.00%	15,530
	London Blvd to Industry Rd	15,030	13,380	12,530	14,630	14,380	13,960	-1.13%	2.00%	15,530
Clearlake Road										
	Michigan Ave to SR 524	18,640	17,783	16,933	15,875	18,220	15,841	-0.58%	2.00%	19,678
Industry Road										
	SR 524 to Grissom Pkwy	18,700	20,700	17,390	17,720	17,720	15,482	-1.38%	2.00%	19,138
Cox Road										
	SR 520 to SR 524	4,460	4,370	4,850	4,770	5,050	5,648	2.92%	2.92%	5,640
	SR 524 to James Rd	2,660	2,630	2,540	2,590	2,640	2,564	-0.19%	2.00%	2,851

APPENDIX H

Intersection Volume Derivation and Vested Trips Data

			Existing TMV	Grown	In / Out	Distribution	Traffic	Vested Trips	Passby Total	AM Total (Buildout)
Cox	2% Northbound	Left	44	46		17.46%	0			46
	2%	Through	9	9		0.81%	0			9
	2%	Right	85	88 In		25.53%	69			157 In
Cox	3% Southbound	Left	73	77 In		25.53%	69			146 In
	3%	Through	50	53		6.96%	0			53
	3%	Right	39	41		17.46%	0			41
524	3% Eastbound	Left	14	15		0.81%	0			15
	3%	Through	367	390 In		25.53%	69			459 In
	3%	Right	108	115		6.96%	0			115
524	2% Westbound	Left	125	130 Out		6.96%	19			149 Out
	2%	Through	299	311 Out		17.46%	49			360 Out
	2%	Right	24	25 Out		0.81%	2			27 Out
			Existing TMV	Grown	In / Out	Distribution	Traffic	Vested Trips	Passby Total	AM Total (Buildout)
None	0 Northbound	Left	0	0 Out		25.53%	71			71 Out
	0	Through	0	0 Out		0.81%	2			2 Out
	0	Right	0	0 Out		0.00%	0		13	13 Out
London	2% Southbound	Left	34	35		0.00%	0			35
	2%	Through	0	0 In		26.14%	70			70 In
	2%	Right	40	42		25.53%	0			42
524	2% Eastbound	Left	52	54		0.81%	0			54
	2%	Through	500	520		0.00%	0			520
	2%	Right	0	0 In		26.14%	70		13	83 In
524	2% Westbound	Left	0	0 In		26.14%	70			70 In
	2%	Through	383	398		25.53%	0			398
	2%	Right	35	36		0.81%	0			36
			Existing TMV	Grown	In / Out	Distribution	Traffic	Vested Trips	Passby Total	AM Total (Buildout)
Driveway	2% Northbound	Left	21	22		0.00%	0		36	58
	2%	Through	2	2 Out		0.02%	0			2 Out
	2%	Right	6	6 Out		73.46%	205			211 Out
CVS	2% Southbound	Left	35	36		73.46%	0			36
	2%	Through	0	0 In		73.86%	199			199 In
	2%	Right	5	5		0.00%	0			5
524	2% Eastbound	Left	23	24		0.02%	0			24
	2%	Through	563	586		73.46%	0			586
	2%	Right	21	22		73.86%	0			22

524	2% Westbound	Left	20	21 In	73.86%	199	36	256 In		
	2%	Through	407	423	0.00%	0		423		
	2%	Right	7	7	0.02%	0		7		
Driveway		SR 524 and Industry	Existing TMV	Grown	In / Out	Distribution	Traffic	Vested Trips	Passby Total	AM Total (Buildout)
	0 Northbound	Left	21	21 In	73.46%	198			219 In	
	0	Through	56	56	46.72%	0			56	
	0	Right	47	47	26.14%	0			47	
Industry	2% Southbound	Left	239	249	26.14%	0			249	
	2%	Through	65	68	0.71%	0			68	
	2%	Right	309	321 In	73.46%	198			519 In	
524	2% Eastbound	Left	339	353 Out	46.72%	130			483 Out	
	2%	Through	188	196 Out	26.14%	73			269 Out	
	2%	Right	26	27 Out	0.71%	2			29 Out	
524	2% Westbound	Left	45	47	0.71%	0			47	
	2%	Through	123	128 In	73.46%	198			326 In	
	2%	Right	230	239	46.72%	0			239	

Cox		SR 524 and Cox Rd	Existing TMV	Grown	In / Out	Distribution	Traffic	Vested Trips	Passby Total	PM Total (Buildout)
	2% Northbound	Left	50		53	17.46%		0		53
	2%	Through	49		52	0.81%		0		52
	2%	Right	151		160 In	25.53%	50	8		218 In
Cox	3% Southbound	Left	34		37 In	25.53%	50			87 In
	3%	Through	33		36	6.96%	0			36
	3%	Right	28		30	17.46%	0	1		31
524	3% Eastbound	Left	32		35	0.81%	0			35
	3%	Through	407		445 In	25.53%	50	82		577 In
	3%	Right	21		23	6.96%	0	22		45
524	2% Westbound	Left	122		129 Out	6.96%	13	5		147 Out
	2%	Through	438		464 Out	17.46%	31	62		557 Out
	2%	Right	80		85 Out	0.81%	1	1		87 Out
None		SR 524 and London Blvd	Existing TMV	Grown (Background)	In / Out	Distribution	Traffic	Vested Trips	Passby Total	PM Total (Buildout)
	0 Northbound	Left	0		0 Out	25.53%	46			46 Out
	0	Through	0		0 Out	0.81%	1			1 Out
	0	Right	0		0 Out	0.00%	0		18	18 Out
London										0
	2% Southbound	Left	77		82	0.00%	0	7		89
	2%	Through	0		0 In	26.14%	51	11		62 In
	2%	Right	60		64	25.53%	0			64
524			0							0
	2% Eastbound	Left	63		67	0.81%	0			67
	2%	Through	564		598	0.00%	0	24		622
	2%	Right	0		0 In	26.14%	51	85	18	154 In
524										0
	2% Westbound	Left	0		0 In	26.14%	51	183		234 In
	2%	Through	591		626	25.53%	0	27		653
	2%	Right	93		99	0.81%	0	5		104
Driveway		SR 524 and CVS	Existing TMV	Grown (Background)	In / Out	Distribution	Traffic	Vested Trips	Passby Total	PM Total (Buildout)
	2% Northbound	Left	130		138	0.00%	0		50	188
	2%	Through	7		7 Out	0.02%	0	6		13 Out
	2%	Right	28		30 Out	73.46%	132			162 Out
CVS			0							
	2% Southbound	Left	34		36	73.46%	0	23		59
	2%	Through	8		8 In	73.86%	144	4		156 In
	2%	Right	34		36	0.00%	0	83		119
524			0							
	2% Eastbound	Left	27		29	0.02%	0	30		59
	2%	Through	567		601	73.46%	0			601
	2%	Right	85		90	73.86%	0			90

524			0						
	2% Westbound	Left	47	50 In	73.86%	144		50	244 In
	2%	Through	658	697	0.00%	0			697
	2%	Right	27	29	0.02%	0	107		136
				Grown					PM Total
Driveway		SR 524 and Industry	Existing TMV	(Background) In / Out	Distribution	Traffic	Vested Trips	Passby Total	(Buildout)
	0 Northbound	Left	39	39 In	73.46%	143	48		230 In
	0	Through	92	92	46.72%	0	7		99
	0	Right	109	109	26.14%	0	69		178
Industry			0						
	2% Southbound	Left	306	324	26.14%	0			324
	2%	Through	102	108	0.71%	0	7		115
	2%	Right	414	439 In	73.46%	143	46		628 In
524			0						
	2% Eastbound	Left	376	399 Out	46.72%	84	36		519 Out
	2%	Through	262	278 Out	26.14%	47	69		394 Out
	2%	Right	32	34 Out	0.71%	1	28		63 Out
524			0						
	2% Westbound	Left	145	154	0.71%	0	75		229
	2%	Through	308	326 In	73.46%	143	95		564 In
	2%	Right	380	403	46.72%	0			403

TRAFFIC IMPACT STUDY

COCOA APARTMENTS
CITY OF COCOA, BREVARD COUNTY



Prepared for:

Framework Group, LLC
1200 W Platt Street, Suite 201
Tampa, Florida 33603

Prepared by:

Traffic Planning and Design, Inc.
535 Versailles Drive
Maitland, Florida 32751
407-628-9955

August 2020

Revised
December 2020

TPD № 5382

PROFESSIONAL ENGINEERING CERTIFICATION

I hereby certify that I am a Professional Engineer properly registered in the State of Florida practicing with Traffic Planning & Design, Inc., a corporation authorized to operate as an engineering business, EB-3702, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I have prepared or approved the evaluations, findings, opinions, conclusions, or technical advice attached hereto for:

PROJECT: Cocoa Apartments
LOCATION: City of Cocoa, Brevard County
CLIENT: Framework Group, LLC

I hereby acknowledge that the procedures and references used to develop the results contained in these computations are standard to the professional practice of Transportation Engineering as applied through professional judgment and experience.

NAME: Turgut Dervish

P.E. No: 20400

DATE: December 7, 2020

SIGNATURE:



TABLE OF CONTENTS

	Page
INTRODUCTION	1
EXISTING CONDITIONS ANALYSIS	3
Roadway Segment Analysis	
Intersection Analysis	
PROPOSED DEVELOPMENT AND TRIP GENERATION	6
Trip Generation	
Trip Distribution/Trip Assignment	
Significance Analysis	
PROJECTED TRAFFIC CONDITIONS	11
Roadway Segment Analysis	
Intersection Analysis	
Site Access and Auxiliary Lanes	
STUDY CONCLUSIONS	14
APPENDICES.....	15
A Space Coast/TPO Traffic Count Database	
B Intersection Traffic Counts & Adjustments Factors	
C Existing HCS Capacity Worksheets	
D ITE Trip Generation Sheets	
E Model Distribution Plot	
F Trends Analysis Worksheets	
G Projected HCS Capacity Worksheets	

TABLE OF CONTENTS, continued

LIST OF TABLES

	Page
Table 1 Existing P.M. Peak Hour Roadway Capacity Analysis.....	3
Table 2 Existing Intersection Capacity Analysis	4
Table 3 Trip Generation Summary.....	7
Table 4 Significance Analysis	10
Table 5 Projected Traffic Conditions Analysis	11
Table 6 Projected Intersection Capacity Analysis.....	12

LIST OF FIGURES

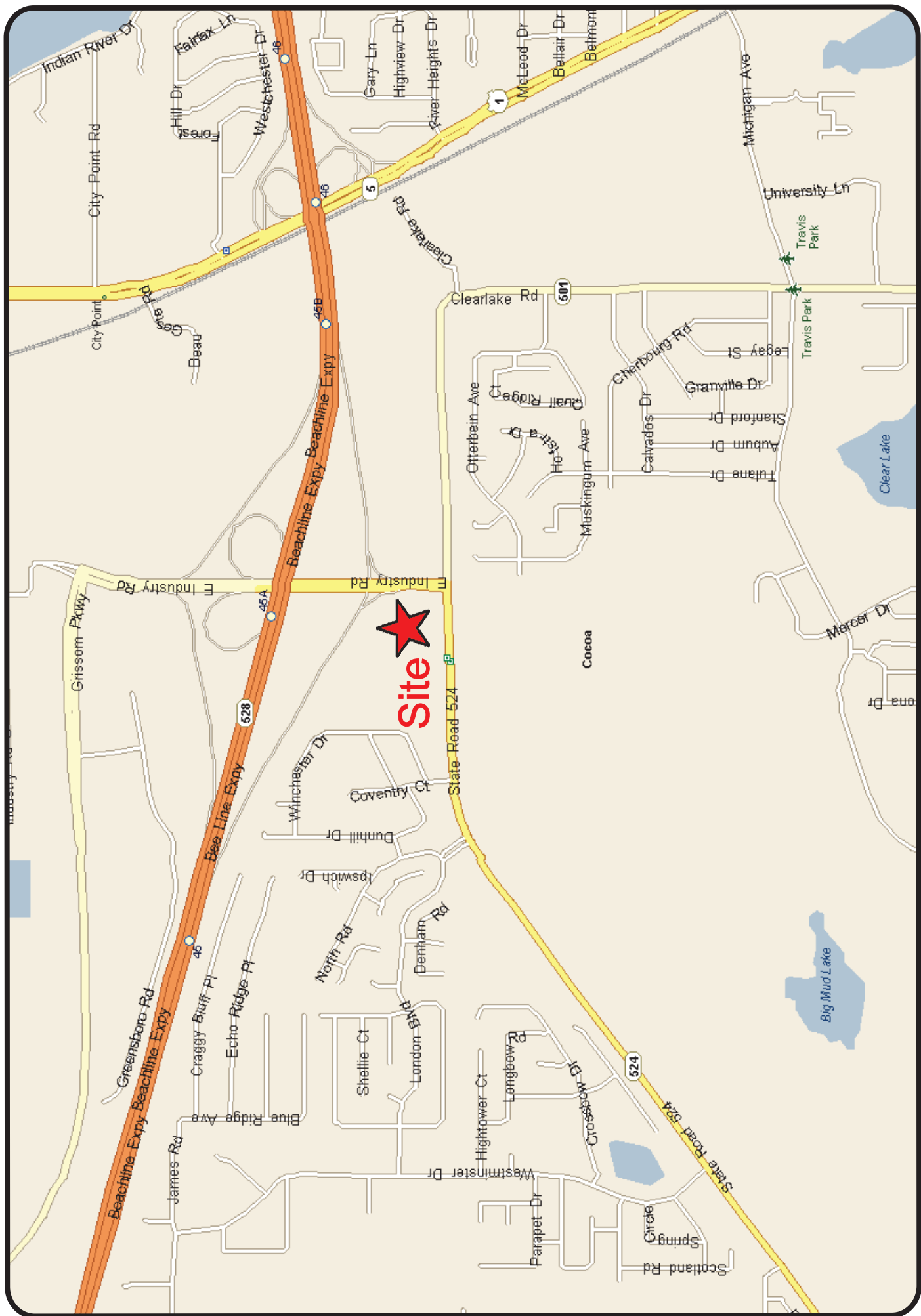
Figure 1 Site Location	2
Figure 2 Existing P.M. Peak Hour Traffic Volumes	5
Figure 3 Site Plan	8
Figure 4 Trip Distribution and Assignment.....	9
Figure 5 Projected P.M. Peak Hour Traffic Volumes	13

INTRODUCTION

This analysis was undertaken in order to assess the traffic impact of the proposed development of the Cocoa Apartments in Cocoa, Brevard County. Located in the northwest corner of the SR 524 and E. Industry Road intersection, the development will consist of 280 multi-family dwelling units and 20,000 square feet of retail commercial in an adjacent outparcel. **Figure 1** depicts the site location and the area roadways.

Data utilized in this study consisted of a site plan provided by Project Engineers, traffic volume data and Level of Service standards obtained from the Space Coast MPO. Additionally, intersection turning movement counts were collected by Traffic Planning and Design, Inc. staff.





Site Location

EXISTING CONDITIONS ANALYSIS

A capacity analysis was performed for the study roadway segments and intersections identified utilizing a 5% significance threshold as per Brevard County guidelines. As will be documented subsequently, only a short segment of SR 524 adjacent to the project site will be significantly impacted. Therefore, this and other adjacent roadway segments and the closest signalized intersections were included in the analysis. The analysis was conducted utilizing existing traffic volumes to establish the current operating conditions for the daily conditions for the roadway segments and P.M. peak hour traffic conditions for the intersections.

Roadway Segment Analysis

The adjacent roadway segments were analyzed by comparing their existing traffic volumes with the adopted LOS/capacities for daily traffic conditions. The existing daily traffic volumes and adopted LOS capacities were obtained from the Space Coast TPO. Pertinent pages from the traffic count database are included in **Appendix A**. The existing capacity analysis is summarized in **Table 1**.

Table 1
Existing Daily Roadway Capacity Analysis

Seg. ID	Roadway Segment	No. of Lanes	Functional Classification	Adopted*		Existing Daily Volume	V/C Ratio	LOS
				LOS	MAV			
SR 524								
76	Cox Rd to London Blvd	2	Urban Minor Arterial	D	19,470	13,380	0.69	C
	London Blvd to Site Access	2	Urban Minor Arterial	D	19,470	13,380	0.69	C
	Site Access to Industry Rd	2	Urban Minor Arterial	D	19,470	13,380	0.69	C
Clearlake Road								
95/50	SR 524 to Otterbein Ave	4	Urban Minor Arterial	E	41,790	18,610	0.45	C
31	Otterbein Ave to Michigan Ave	4	Urban Minor Arterial	E	39,800	19,350	0.49	C
Industry Road								
198	SR 524 to Grissom Pkwy	4	Urban Minor Arterial	E	41,790	20,700	0.50	C
594	Grissom Pkwy to Cidco Rd	2	Urban Local	E	15,600	4,570	0.29	C

* Based on the Space Coast TPO Traffic Count Spreadsheets

As shown, the existing conditions analysis reveals that the study roadway segments currently operate satisfactorily above their adopted Level of Service capacity.



Intersection Analysis

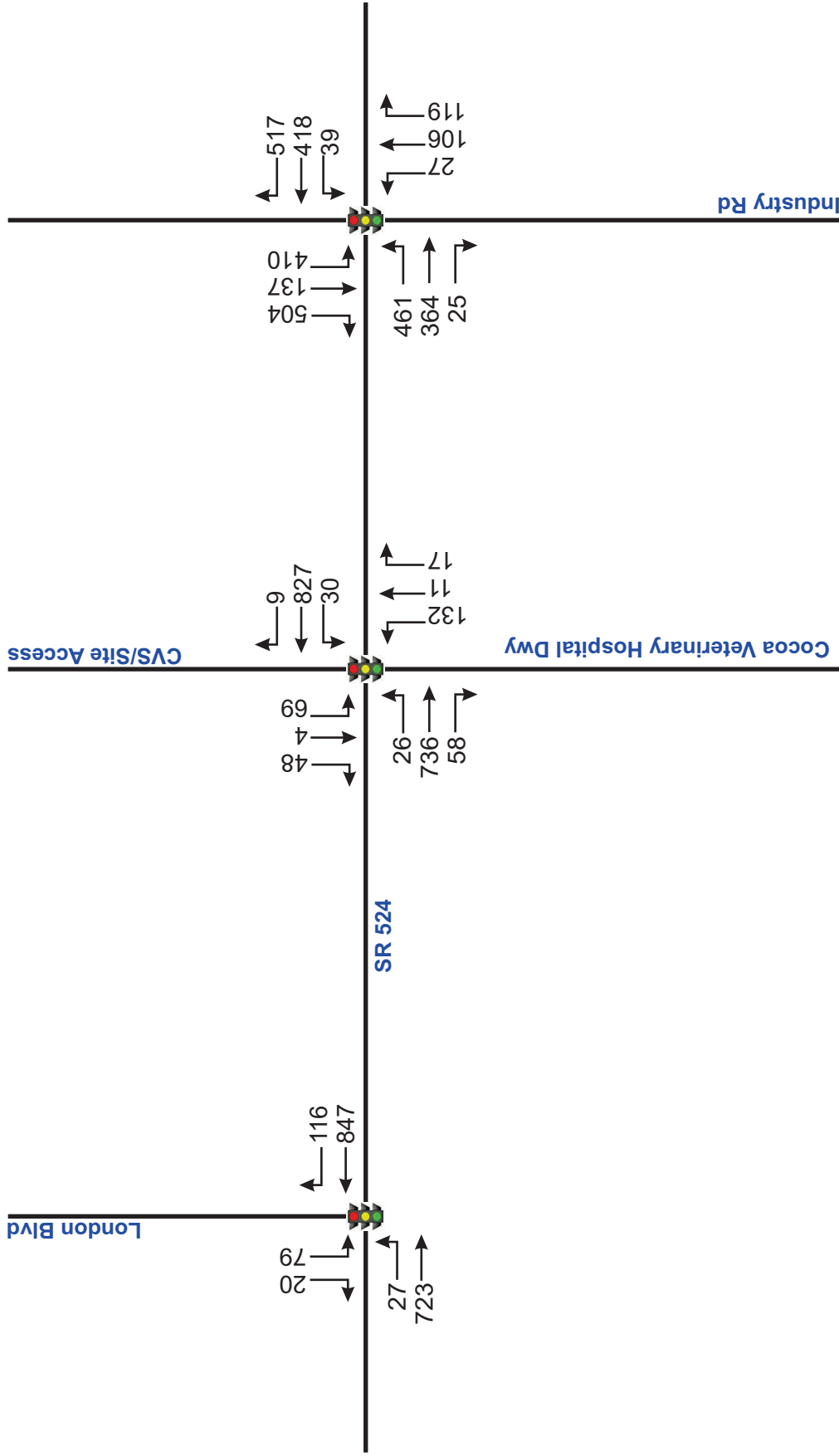
In addition to the adjacent roadway segments, three signalized intersections on SR 524 were included in the analysis. The intersections were analyzed in accordance with the procedures of the *Highway Capacity Manual (HCM 6E)* and *Highway Capacity Software (HCS)*. In the analysis, existing P.M. peak hour traffic volumes and intersection geometry were used. The intersection counts were made in August 2020 and may not represent normal traffic conditions due to COVID-19 pandemic. Therefore, a COVID factor of 1.23 was determined by comparing 2019 counts with the 2020 counts on Industry Road just north of SR 524. This factor was applied to the existing counts in addition to the Seasonal Factor (SF) of 1.11 obtained from FDOT for Brevard County. The adjusted intersection volumes in the form of turning movement counts are depicted in **Figure 2**. The intersection traffic counts, and adjustments factors are included in **Appendix B**. The results of the intersection capacity analysis are summarized in **Table 2**.

Table 2
Existing Intersection Capacity Analysis

Intersection	Control	EB		WB		NB		SB		Overall	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 524/London Blvd	Signal	4.1	A	9.0	A	--	--	32.7	C	8.3	A
SR 524 & Site Entrance/SC west Entrance	Signal	21.6	C	24.4	C	61.4	E	65.2	E	28.7	C
SR 524 & Industry Rd	Signal	45.2	D	32.5	C	93.1	D	53.7	D	43.6	D

The study intersections currently operate at satisfactory Levels of Service. The *HCS* capacity analysis worksheets are included in **Appendix C**.





Existing P.M. Peak Hour Traffic Volumes

Cocoa Apartments
Project № 5382
Figure 2



PROPOSED DEVELOPMENT AND TRIP GENERATION

The proposed development will consist of 280 multi-family dwelling units and 20,000 square feet of retail commercial. Access to the development will be provided by a signalized full access on SR 524 which currently serves the existing CVS store. **Figure 3** depicts the site plan and its access configuration. To determine the impact of the development in the area, an analysis of its trip generation characteristics was made. This included the determination of the number of trips generated by the site and their distribution onto the surrounding roadways.

Trip Generation

Trip generation rates were obtained from data contained in the Institute of *Transportation Engineers (ITE) Trip Generation Manual, 10th Edition*. The trip generation calculation of daily and P.M. peak hour volumes is summarized in **Table 3**, and the trip generation charts are included in **Appendix D**. The retail commercial development will generate 34% of its trips from the existing traffic stream on SR 524. Subtracting the pass-by trips results in new net trips to be added to the area roadways. The proposed development is estimated to generate 3,394 new net daily trips, 257 P.M. peak hour trips to be added to the area roadways.

Trip Distribution/Trip Assignment

To determine the distribution of the project trips in the area, the CFRPM (V6.1) was used. A slight modification was made to this model to add a TAZ representing the project and its SE data. Subsequently, the model was run with a Select Zone Analysis which produced a distribution of the project trips in the area. The model-generated distribution is included in **Appendix E**. The project trip distribution in the project vicinity is illustrated in **Figure 4**. Utilizing this distribution pattern, the development's daily and P.M. peak hour trips were assigned to the area roadways also shown in Figure 4.



Table 3
Trip Generation Summary

ITE Code	Land Use	Size*	Daily Trips		A.M. Peak Hour Generation				P.M. Peak Hour Generation			
			Rate	Trips	Rate**	Enter	Exit	Total	Rate**	Enter	Exit	Total
220	Multi-Family Residential	280 DU	7.4	2,076	0.45	29	98	127	0.53	93	55	148
820	Retail Commercial	20.0 KSF	100.6	2,012	0.94**	12	7	19	8.00	79	86	165
Total Trips			--	4,088	--	41	105	146	--	172	141	313
Pass-by Trips/Retail (34%) ***			--	694	--	4	3	7	--	27	29	56
Total Net New Trips			--	3,394	--	37	102	139	--	145	112	257

* DU = Dwelling Units, KSF=1,000 square feet

** Average Rate Used, other rates derived from ITE Equations ($R^2 > 0.75$)

***Obtained from the 3rd Edition of the ITE Trip Generation Handbook



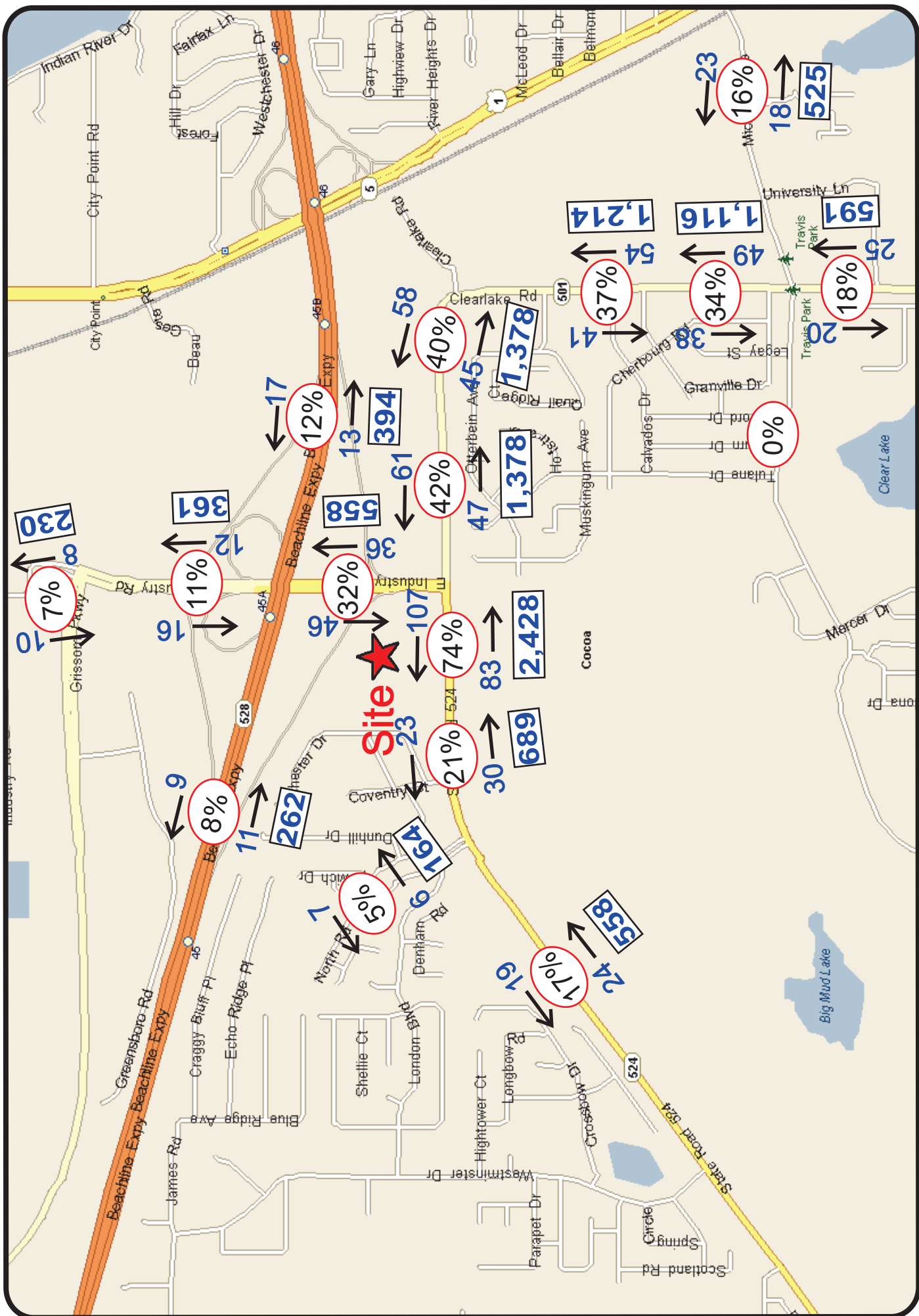


Cocoa Apartments
Project No 5382

Figure 3

Site Plan





Significance Analysis

As per Brevard County procedures and requirements, the influence area of the proposed project will include those roadway segments where project trips consume 5% or more of the Maximum Allowable Volume (MAV). Based upon the significance test performed, as shown in **Table 4**, the project will consume 5% or more of the adopted MAV at only a short segment of SR 524 from the CVS/Site Access to Industry Road. This segment along with the adjacent roadway segments of SR 524, Industry Road and Clearlake Road were included in the analysis.

Additionally, the following intersections were included in the analysis:

- SR 524 & London Boulevard
- SR 524 & Site Entrance/CVS Entrance
- SR 524 & Industry Road

Table 4
Significance Analysis

Seg ID	Roadway Segment	Adopted		Project Trips		Significance **
		LOS	MAV	%*	Volume	
SR 524						
76	Cox Rd to London Blvd	D	19,470	17%	577	2.96
	London Blvd to Site Access	D	19,470	21%	713	3.66
	Site Access to Industry Rd	D	19,470	74%	2,512	12.90
Clearlake Road						
49/50	SR 524 to Otterbein Ave	E	41,790	42%	1,425	3.41
31	Otterbein Ave to Michigan Ave	E	39,800	37%	1,256	3.16
32	Michigan Ave to Rosetine St	E	39,800	18%	611	1.53
Industry Road						
198	SR 524 to Grissom Pkwy	E	41,790	32%	1,086	2.60
594	Grissom Pkwy to Cidco Rd	E	15,600	7%	238	1.52
Michigan Avenue						
48	Clearlake Rd to US 1	E	39,800	16%	543	1.36

*Highest Percentage on the Link

**Project Trips as % of MAV



PROJECTED TRAFFIC CONDITIONS

Projected traffic conditions were analyzed using projected traffic volumes for the roadway segments and study intersections in 2023. To determine the projected traffic volumes for the project's buildout year, background traffic volumes were combined with the approved Integra Cocoa trips plus project trips. Background traffic volumes were estimated with the use of an annual growth rate of 2.00%. The historical trends analysis of traffic counts on SR 524 and Industry Road in the project vicinity indicated an annual growth rate ranging from 1.23% to 2.10% to the design year. The trends analysis charts are included in **Appendix F**.

Roadway Segment Analysis

Table 5 is an analysis of the projected traffic conditions for the study roadway segments. This table lists the roadway segments along with their number of lanes, functional classification, existing/ projected traffic volumes, LOS/capacity and resultant Level of Service. The table reveals that the roadway segments are projected to operate satisfactorily within their adopted LOS standards.

Table 5
Projected Traffic Conditions Analysis

Segment ID	Roadway Segment	# of Lns	Functional Classification	Adopted		Projected Daily Volume				V/C Ratio	Projected LOS
				LOS	MAV	Background*	Integra Cocoa	Project Trips	Total Volume		
SR 524											
75	Cox Rd to London Blvd	2	Urban Minor Arterial	D	19,470	14,183	660	577	15,420	0.79	C
	London Blvd to Site Access	2	Urban Minor Arterial	D	19,470	14,183	696	713	15,592	0.80	C
	Site Access to Industry Rd	2	Urban Minor Arterial	D	19,470	14,183	696	2,512	17,391	0.89	C
Clearlake Road											
	SR 524 to Otterbein Ave	4	Urban Minor Arterial	E	41,790	19,727	298	1,425	21,450	0.51	C
	Otterbein Ave to Michigan Ave	4	Urban Minor Arterial	E	39,800	20,511	278	1,256	22,045	0.55	C
Industry Road											
198	SR 524 to Grissom Pkwy	4	Urban Minor Arterial	E	41,790	21,942	391	1,086	23,419	0.56	C
594	Grissom Pkwy to Cidco Rd	2	Urban Local	E	15,600	4,844	44	238	5,126	0.33	C

* Existing Volume X 1.06



Intersection Analysis

The projected traffic volumes at the study intersections, and the two site access driveways are depicted in **Figure 5**. The figure shows the background P.M. peak hour traffic along with traffic generated by the project. The intersections were analyzed utilizing *Highway Capacity Software (HCS)* in accordance with the *Highway Capacity Manual (HCM 6E)*. The results of this analysis as summarized in **Table 6** indicate satisfactory traffic operating conditions under projected conditions. The *HCS* capacity analysis worksheets are included in **Appendix G**.

Table 6
Projected Intersection Capacity Analysis

Intersection	Control	EB		WB		NB		SB		Overall	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 524/London Blvd	Signal	5.3	A	9.8	A	0.0	A	41.5	D	9.7	A
SR 524 & Industry Rd	Signal	43.7	D	37.4	D	46.6	D	74.1	E	51.6	D
SR 524 & Site Entrance/SC west Entrance	Signal	33.2	C	52.4	D	73.1	E	61.8	E	47.3	D

Site Access and Auxiliary Lanes

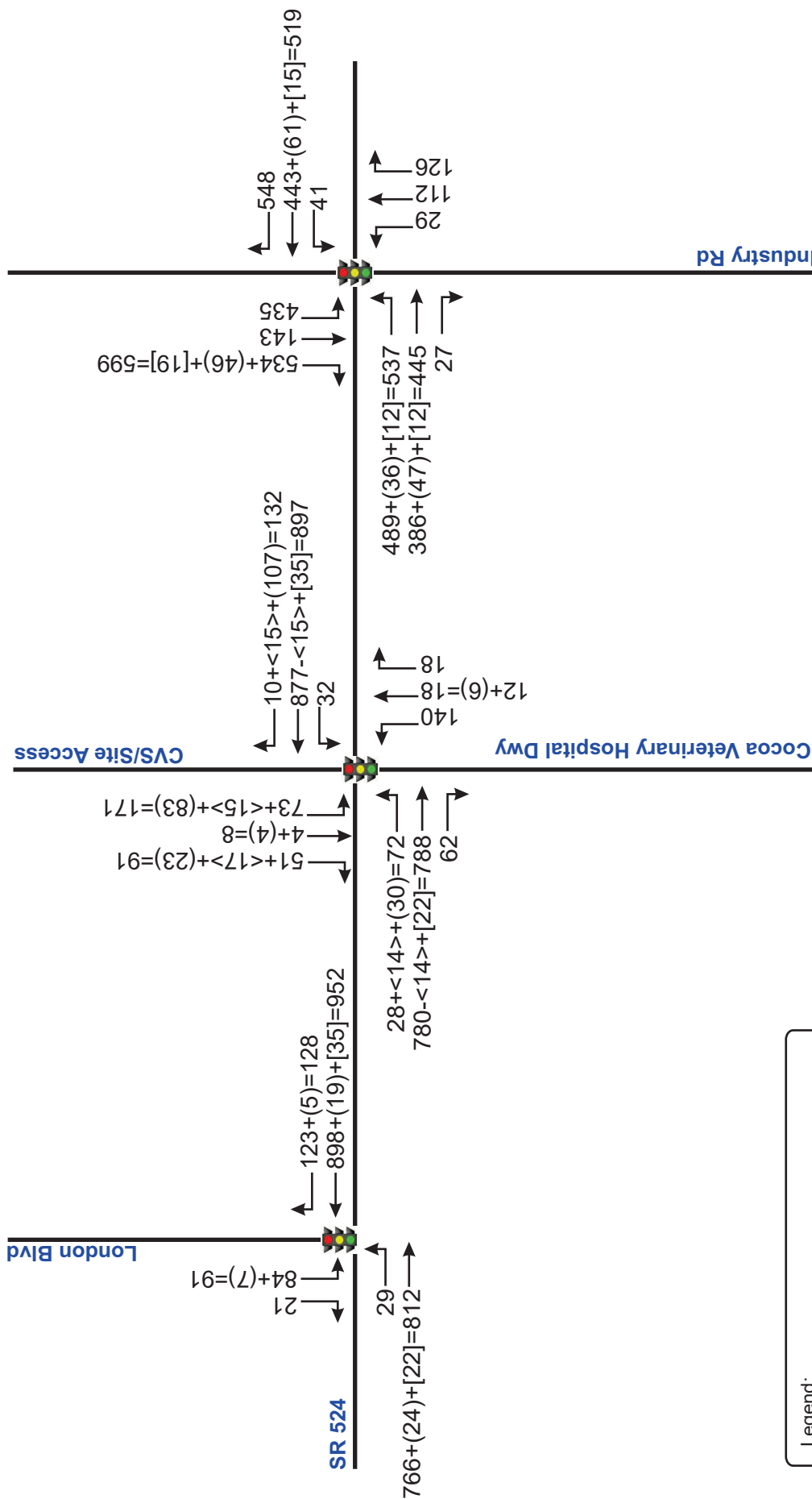
The site is proposed to be served by the existing signalized full access driveway on SR 524 which currently served the CVS store. A 465-foot-long left turn lane and a 290-foot right turn lane exist at this site access driveway. To determine the adequacy of these turn lane lengths, the following analysis was performed:

Length Required = Deceleration Distance (DD) + Queue Length (QL)

- DD = 185 ft (for 45 mph), from FDOT Index 711-001
- Left Turn Lane required = 185 + 126 ft QL from HCS = 311 ft.
- Right Turn Lane Required = 185 + 81 ft QL from HCS = 266 ft

Based upon this analysis, the existing turn lane lengths are adequate.





Projected P.M. Peak Hour Traffic Volumes

Cocoa Apartments (Revised)
Project № 5382
Figure 5



STUDY CONCLUSIONS

This traffic analysis was conducted in order to assess the traffic impact of the proposed development of the Cocoa Apartments in Cocoa, Brevard County. Located in the northwest corner of the SR 524 and E. Industry Road intersection, the development will consist of 280 multi-family dwelling units and 20,000 square feet of retail commercial in an outparcel. The findings of this analysis are as follows:

- The proposed development will generate 3,394 new net daily trips and 257 P.M. peak hour trips.
- The analysis of existing conditions indicates that the impacted roadway segment and the study intersections currently operate at satisfactory Levels of Service.
- The analysis of projected traffic conditions revealed that the impacted roadway segments and the study intersections will not be deficient in traffic capacity. The roadway segments and the intersections are projected to operate at satisfactory Levels of Service with project trips added.
- The site is proposed to be served via an existing full access connection on SR 524 which is signalized. There are an existing right and left turn lanes which would be adequate for the projected turns as a result of the proposed development.



APPENDICES

APPENDIX A

Space Coast/TPO Traffic Count Database

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2010 - 2019

ID	ROAD	SEGMENT (Sections)	2010 AADT	2011 AADT	2012 AADT	2013 AADT	2014 AADT	2015 AADT	2016 AADT	2017 AADT	2018 AADT	2019 AADT	Current MAV	Last Count Taken	Functional Classification
AREA: CENTRAL															
18	SPYGLASS HILL	MURRELL-PINEHURST	4,320	4,250	3,980	3,880	3,780	3,960	4,240	4,720	4,640	4,780	15,600	1/14/2019	Urban Minor Collector
	SR 520	ORANGE CO.-I-95	14,937	16,157	14,740	15,090	15,167	17,220	16,670	16,637	16,567	17,160			
534	SR 520	ORANGE CO.-SR 524	12,790	14,750	13,480	13,140	12,760	15,950	15,170	15,750	12,240	16,010	40,300	1/23/2019	Rural Principal Arterial Other
1	SR 520	SR 524-Friday	14,110	15,180	13,290	14,050	13,990	15,720	14,880	14,320	16,610	14,650	41,790	3/5/2019	Urban Principal Arterial-Other
84	SR 520	Friday-I-95	17,910	18,540	17,450	18,080	18,750	19,990	19,960	19,840	20,850	20,820	41,790	1/23/2019	Urban Principal Arterial-Other
	SR 520	I-95-CLEARLAKE	21,343	19,957	19,850	20,367	20,583	23,857	22,600	21,240	20,573	23,173			
2	SR 520	I-95-Burnett	20,710	19,420	19,910	20,200	21,440	24,190	22,190	21,780	21,740	21,650	41,790	1/28/2019	Urban Principal Arterial-Other
3	SR 520	Burnett-Range	21,640	20,040	20,350	19,980	19,680	24,180	22,970	21,040	20,040	21,280	41,790	1/28/2019	Urban Principal Arterial-Other
14	SR 520	Range-Clearlake	21,680	20,410	19,290	20,920	20,630	23,200	22,640	20,900	19,940	26,590	41,790	1/28/2019	Urban Principal Arterial-Other
	SR 520	CLEARLAKE-FISKE	22,115	21,390	20,045	20,815	21,385	24,880	24,575	22,915	22,735	22,115			
4	SR 520	Clearlake-Lake	19,950	19,630	18,380	19,160	19,560	22,860	22,870	20,200	20,800	20,400	39,800	1/23/2019	Urban Principal Arterial-Other
5	SR 520	Lake-Fiske	24,280	23,150	21,710	22,470	23,210	26,900	26,280	25,630	24,670	23,830	39,800	1/23/2019	Urban Principal Arterial-Other
	SR 520	FISKE-US 1	25,505	25,210	23,390	23,775	25,160	28,120	28,250	26,600	25,495	25,275			
6	SR 520	Fiske-Blake	25,490	25,310	23,390	23,820	25,090	28,270	28,430	26,540	25,550	25,280	41,790	1/23/2019	Urban Principal Arterial-Other
7	SR 520	Blake-US 1	25,520	25,110	NC	23,730	25,230	27,970	28,070	26,660	25,440	25,270	41,790	1/23/2019	Urban Principal Arterial-Other
	SR 520 (Eastbound)	US 1-CAUSEWAY (EB)	19,695	20,125	19,215	19,838	19,020	21,483	18,600	20,718	20,855	21,135			
8	SR 520	US 1-Forrest	13,790	15,200	14,530	15,570	17,090	18,210	13,820	16,750	17,250	16,830	19,440	1/22/2019	Urban Principal Arterial-Other
9	SR 520	Forrest-Brevard	21,780	21,710	20,280	21,020	19,560	21,850	19,620	22,460	20,930	22,250	19,440	1/22/2019	Urban Principal Arterial-Other
10	SR 520	Brevard-Delannoy	20,970	21,450	20,280	20,900	19,450	22,930	22,010	21,670	22,280	22,500	19,440	1/22/2019	Urban Principal Arterial-Other
11	SR 520	Delannoy-Riveredge	22,240	22,140	21,770	21,860	19,980	22,940	18,950	21,990	22,960	22,960	19,440	1/22/2019	Urban Principal Arterial-Other
	SR 520 (Westbound)	CAUSEWAY-US 1 (WB)	20,790	21,085	20,205	20,770	20,643	21,703	20,098	21,220	20,920	21,915			
12	SR 520	Causeway-Delannoy	22,570	23,220	21,860	22,160	21,250	23,700	23,050	21,130	22,990	22,780	19,440	1/22/2019	Urban Principal Arterial-Other
13	SR 520	Delannoy-Brevard	24,230	24,360	23,150	23,970	23,100	23,460	21,900	24,290	22,980	24,250	19,440	1/22/2019	Urban Principal Arterial-Other
15	SR 520	Brevard-Forrest	21,710	21,530	21,080	21,220	21,560	22,400	18,690	21,810	20,660	21,610	19,440	1/22/2019	Urban Principal Arterial-Other
87	SR 520	Forrest-US 1	14,650	15,230	14,730	15,730	16,660	17,250	16,750	17,650	17,050	19,020	19,440	1/22/2019	Urban Principal Arterial-Other
66	SR 524	SR 520-I-95	4,680	4,650	4,400	4,670	4,530	5,690	5,300	5,890	7,200	6,870	24,200	1/23/2019	Urban Minor Arterial
	SR 524	I-95-INDUSTRY RD	11,490	11,180	10,795	11,220	10,880	12,765	12,605	11,710	13,860	12,540			
73	SR 524	I-95-Cox	10,050	9,810	9,610	9,780	9,670	11,440	11,170	10,460	12,690	11,700	18,590	1/23/2019	Urban Minor Arterial
76	SR 524	Cox-Industry Rd	12,930	12,550	11,980	12,660	12,090	14,090	14,040	12,960	15,030	13,380	19,470	1/23/2019	Urban Minor Arterial
	SR 528	ORANGE CO.-I-95	26,750	28,240	26,205	27,835	28,320	34,205	31,740	33,780	40,640	37,805			
91	SR 528	ORANGE CO.-SR 407	29,770	31,790	28,950	30,820	30,220	37,830	35,120	37,330	40,640	42,560	43,000	3/12/2019	Rural Principal Arterial - Freeways & Expressways
90	SR 528	SR 407-I-95	23,730	24,690	23,460	24,850	26,420	30,580	28,360	30,230	NC	33,050	43,000	1/29/2019	Rural Principal Arterial - Freeways & Expressways
	SR 528	I-95-US 1	25,550	25,950	24,945	25,860	25,315	30,165	27,775	28,340	31,000	32,730			
93	SR 528	I-95-INDUSTRY RD	20,820	21,360	20,720	21,000	23,050	23,030	22,810	23,290	29,350	28,880	74,400	1/29/2019	Urban Principal Arterial - Freeways & Expressways
92	SR 528	INDUSTRY RD-US 1	30,280	30,540	29,170	30,720	27,580	37,300	32,740	33,390	32,650	36,580	74,400	1/29/2019	Urban Principal Arterial - Freeways & Expressways
25	STADIUM PKWY	WICKHAM-JAMIESON	4,890	5,090	5,910	6,550	6,890	7,810	8,480	9,150	10,460	11,240	17,700	1/14/2019	Urban Minor Arterial
	STADIUM PKWY	JAMIESON-I-95	15,500	15,880	15,585	16,515	16,965	17,707	18,173	19,337	20,273	20,780			
26	STADIUM PKWY	Jamieson-Viera Blvd	16,570	17,350	17,250	18,270	18,910	19,950	20,890	22,170	22,920	23,650	39,800	1/16/2019	Urban Minor Arterial
535	STADIUM PKWY	VIERA BLVD.-ROSEMOUNT DR	14,430	14,410	13,920	14,760	15,020	15,980	16,120	17,160	17,870	18,460	39,800	1/16/2019	Urban Minor Arterial
606	STADIUM PKWY	ROSEMOUNT DRIVE-I-95/FISKE						17,190	17,510	18,680	20,030	20,230	39,800	1/16/2019	Urban Minor Arterial
607	TAVISTOCK	JAMIESON-VIERA BLVD						3,300	3,680	3,720	3,780	3,620	15,600	1/14/2019	Urban Local
608	TAVISTOCK	VIERA BLVD-STADIUM PARKWAY						2,890	2,680	2,650	3,160	2,290	15,600	1/16/2019	Urban Local
	US 1	PINEDA-BARNES	32,480	33,950	27,120	29,530	31,853	32,577	32,687	30,737	32,013	31,497			
89	US 1	Pineda-Suntree Blvd	39,470	42,600	NC	33,100	37,580	37,310	38,750	34,340	38,730	37,540	41,790	1/14/2019	Urban Principal Arterial-Other
567	US 1	Suntree Blvd-Viera Blvd	30,740	31,160	28,680	28,770	31,550	32,650	31,520	30,670	31,070	29,740	41,790	3/6/2019	Urban Principal Arterial-Other
36	US 1	Viera Blvd-Barnes	27,230	28,090	25,560	26,720	26,430	27,770	27,790	27,200	26,240	27,210	41,790	3/13/2019	Urban Principal Arterial-Other
70	US 1	BARNES-EYSTER	24,700	25,800	23,920	26,150	25,690	25,980	26,300	25,060	26,090	26,340	41,790	3/12/2019	Urban Principal Arterial-Other

*Note: 2016 AADT's Beaches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted; UC=Under Construction

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2010 - 2019

ID	ROAD	SEGMENT (Sections)	2010 AADT	2011 AADT	2012 AADT	2013 AADT	2014 AADT	2015 AADT	2016 AADT	2017 AADT	2018 AADT	2019 AADT	Current MAV	Last Count Taken	Functional Classification
AREA: MERRITT ISLAND															
603	SPACE COMMERCE WAY	SR 3-NASA CAUSEWAY						3,090	3,040	3,780	3,440	4,960	12,900	2/18/2019	Rural Principal Arterial Other
	SR 520	HUMPHREY BR-S. BANANA	34,103	33,698	30,878	32,220	33,311	34,200	32,467	30,929	29,694	29,844			
101	SR 520	Bridge-N.Tropical	46,750	46,850	NC	44,390	46,090	48,440	44,400	44,820	39,660	43,440	59,900	2/4/2019	Urban Principal Arterial-Other
148	SR 520	N.Tropical-SR 3	38,370	38,460	37,670	37,240	34,900	39,820	37,210	36,850	35,640	35,120	59,900	2/6/2019	Urban Principal Arterial-Other
97	SR 520	SR 3-Plaza ent	34,550	33,760	33,430	31,820	34,410	33,630	32,070	29,870	28,700	25,840	62,900	2/4/2019	Urban Principal Arterial-Other
98	SR 520	Plaza ent-Plumosa	34,430	33,940	30,530	31,860	34,130	33,790	31,800	29,940	30,490	31,230	62,900	2/6/2019	Urban Principal Arterial-Other
99	SR 520	Plumosa-Mall ent	33,970	32,810	32,560	30,560	32,780	32,140	31,640	28,750	25,300	28,870	62,900	2/6/2019	Urban Principal Arterial-Other
100	SR 520	Mall ent-SykesCrkPkw	27,500	25,620	26,270	26,010	28,740	27,140	24,810	23,660	24,130	23,280	62,900	3/6/2019	Urban Principal Arterial-Other
149	SR 520	Sykes-Newfound HrbDr	34,630	34,170	32,270	32,520	33,160	34,480	35,170	30,740	31,000	30,070	62,900	2/13/2019	Urban Principal Arterial-Other
150	SR 520	Newfound Hbr-N Banana	28,560	27,750	27,330	27,290	28,940	29,920	28,670	26,820	26,050	25,830	62,900	2/13/2019	Urban Principal Arterial-Other
151	SR 520	N Banana-S Banana	28,170	29,920	26,960	28,290	26,650	28,440	26,430	26,910	26,280	24,920	62,900	2/13/2019	Urban Principal Arterial-Other
	SR 528	US 1-SR 401	36,903	36,847	35,343	37,053	37,850	39,243	37,940	39,587	38,480	39,403			
128	SR 528	US 1-N COURTENAY	45,990	46,150	43,000	44,700	45,760	49,740	48,660	48,600	44,630	46,100	74,400	3/6/2019	Urban Principal Arterial-Other
129	SR 528	N Crthy-N Banana Rv Dr	33,710	33,920	32,770	33,630	36,360	32,570	31,070	36,810	37,340	37,570	74,400	2/13/2019	Urban Principal Arterial-Other
127	SR 528	N Banana Rv Dr-SR 401	31,010	30,470	30,260	32,830	31,430	35,420	34,090	33,350	33,470	34,540	74,400	2/13/2019	Urban Principal Arterial-Other
123	SYKES CREEK	FORTENBERRY-SR 520	5,630	5,530	5,490	5,610	NC	5,610	5,390	5,440	4,830	4,670	33,800	2/6/2019	Urban Major Collector
121	SYKES CREEK	SR 520-MERRITT	12,460	11,970	12,010	11,770	12,210	12,640	12,680	12,070	12,570	12,010	39,800	2/6/2019	Urban Major Collector
108	SYKES CREEK	MERRITT-N BANANA	9,880	9,670	9,700	9,890	NC	10,610	11,080	10,970	10,660	10,090	17,700	2/18/2019	Urban Major Collector
AREA: CENTRAL															
75	ADAMSON	PINE-SR 524	4,360	5,220	4,720	4,880	4,700	5,210	5,380	5,340	6,100	5,100	17,700	3/5/2019	Urban Minor Collector
	BARNES	FISKE-MURRELL	16,580	16,410	15,420	15,060	15,460	15,895	13,145	13,835	17,545				
77	BARNES	FISKE-THREE MEADOWS DRIVE	16,580	16,410	15,420	15,060	15,460	15,940	UC	13,440	13,750	19,340	39,800	1/16/2019	Urban Principal Arterial-Other
604	BARNES	THREE MEADOWS DRIVE-MURRELL						15,850	UC	12,850	13,920	15,750	39,800	1/22/2019	Urban Principal Arterial-Other
72	BARNES	MURRELL-US 1	10,930	NC	9,560	NC	9,720	9,910	8,800	9,560	10,510	10,910	17,700	1/16/2019	Urban Principal Arterial-Other
49	CLEARLAKE	PLUCKEBAUM-SR 520	6,380	5,640	5,130	5,400	4,800	5,050	4,590	4,750	5,910	5,160	15,600	1/28/2019	Urban Major Collector
	CLEARLAKE	SR 520-MICHIGAN	20,650	18,265	17,620	15,747	15,933	18,307	18,030	16,990	17,407	16,327			
29	CLEARLAKE	SR 520-Lake	16,580	13,250	12,650	11,550	11,640	14,160	13,400	12,810	14,590	12,870	39,800	3/5/2019	Urban Minor Arterial
30	CLEARLAKE	Lake-Dixon	19,470	17,740	17,010	16,010	16,210	19,620	19,120	18,200	18,010	17,110	39,800	1/29/2019	Urban Minor Arterial
31	CLEARLAKE	Dixon-Rosetine	23,220	20,620	20,250	NC	19,950	NC	21,570	NC	19,620	NC	39,800	1/30/2018	Urban Minor Arterial
32	CLEARLAKE	Rosetine-Michigan	23,330	21,450	20,570	19,680	NC	21,140	NC	19,960	NC	19,000	39,800	3/5/2019	Urban Minor Arterial
	CLEARLAKE	MICHIGAN-SR 524	20,023	19,460	18,100	17,233	17,727	19,817	19,927	18,193	18,640	17,783			
39	CLEARLAKE	Michigan-Otterbein	22,180	21,620	20,360	18,910	18,410	21,290	21,320	19,970	20,550	19,530	39,800	1/29/2019	Urban Minor Arterial
50	CLEARLAKE	Otterbein-N. Wal-Mart Ent.	17,100	16,580	14,920	14,120	15,520	16,960	16,090	14,810	15,770	15,210	41,790	1/29/2019	Urban Minor Arterial
95	CLEARLAKE	WAL-MART-SR 524	20,790	20,180	19,020	18,670	19,250	21,200	22,370	19,800	19,600	18,610	41,790	1/29/2019	Urban Minor Arterial
61	COX	SR 520-SR 524	4,400	4,180	3,210	4,260	4,100	4,560	4,810	4,240	4,460	4,370	17,700	1/23/2019	Urban Major Collector
69	COX	SR 524-JAMES	2,670	2,520	2,550	2,580	2,490	2,760	2,690	2,600	2,660	2,630	17,700	1/23/2019	Urban Major Collector
	DIXON	CLEARLAKE-JUS 1	12,173	11,320	10,970	9,855	9,630	10,160	10,415	10,303	10,758	10,340			
47	DIXON	Clearlake-Pineda St	12,740	11,740	11,490	10,280	10,320	11,360	11,290	10,920	11,070	10,620	39,800	3/5/2019	Urban Minor Arterial
51	DIXON	Pineda St-Fiske	11,820	11,250	10,760	9,590	9,420	10,260	10,130	10,240	10,490	10,390	39,800	3/13/2019	Urban Minor Arterial
46	DIXON	Fiske-Byrd Plaza ent	12,640	11,430	NC	10,140	9,800	10,220	10,760	10,560	11,260	10,780	39,800	3/5/2019	Urban Minor Arterial
45	DIXON	Byrd Plaza Ent-US 1	11,490	10,860	10,660	9,410	8,980	8,800	9,480	9,490	10,210	9,570	39,800	1/29/2019	Urban Minor Arterial
	FISKE	I-95-BARTON	23,645	21,390	20,990	21,360	21,805	23,125	23,310	22,190	24,190	25,015			
44	FISKE	I-95/Barnes-Eyster	23,210	21,050	21,060	21,880	22,160	24,690	25,080	24,190	25,820	27,300	41,790	1/16/2019	Urban Principal Arterial-Other
96	FISKE	Eyster-Barton	24,080	21,730	20,920	20,840	21,450	21,560	21,540	20,190	22,560	22,730	41,790	1/22/2019	Urban Principal Arterial-Other

*Note: 2016 AADT's Beaches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted; UC=Under Construction

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2010 - 2019

ID	ROAD	SEGMENT (Sections)	2010 AADT	2011 AADT	2012 AADT	2013 AADT	2014 AADT	2015 AADT	2016 AADT	2017 AADT	2018 AADT	2019 AADT	Current MAV	Last Count Taken	Functional Classification
AREA: NORTH															
206	BARNA	SR 405-SR 50	5,470	5,200	4,770	4,770	4,930	5,160	5,540	5,920	NC	6,400	15,600	12/4/2019	Urban Major Collector
521	CAMP	GRISSOM-US 1	2,800	2,650	2,450	2,290	2,370	2,150	2,670	2,730	2,690	2,430	15,600	11/5/2019	Urban Major Collector
PINE-US 1															
522	CITRUS	PINE-LEE	NC	3,710	NC	3,550	NC	3,380	NC	3,830	NC	4,500	15,600	10/30/2019	Urban Major Collector
212	CANAVERAL GROVES	LEE-GRISSOM	7,310	NC	7,020	NC	6,760	NC	7,290	NC	7,680	NC	15,600	11/6/2018	Urban Major Collector
213	CANAVERAL GROVES	GRISSOM-US 1	NC	5,570	NC	5,180	NC	5,340	NC	5,410	NC	6,020	15,600	12/4/2019	Urban Major Collector
FOX LAKE-SR 46															
188	CARPENTER	FOX LAKE-GARDEN	4,637	4,687	4,377	4,483	4,390	4,455	4,557	4,437	4,630	4,560	15,600	11/13/2019	Urban Major Collector
184	CARPENTER	GARDEN-DAIRY	3,740	3,800	3,450	3,560	3,540	3,520	3,480	3,690	3,830	3,560	15,600	11/6/2019	Urban Major Collector
183	CARPENTER	DAIRY-SR 46	5,220	5,230	4,890	4,970	4,960	5,390	5,390	5,410	5,400	5,450	15,600	11/6/2019	Urban Major Collector
CARPENTER-US 1															
185	DAIRY	CARPENTER-US 1	5,925	5,900	5,850	5,660	5,795	5,475	7,760	6,060	6,130	5,940	15,600	11/5/2019	Urban Major Collector
523	DAIRY	CARPENTER-HOLDER	NC	5,300	NC	5,100	NC	4,820	NC	5,030	NC	5,270	15,600	11/5/2019	Urban Major Collector
186	DAIRY	HOLDER-SINGLETON	6,280	NC	6,180	NC	6,070	NC	7,760	NC	6,330	NC	15,600	11/7/2018	Urban Major Collector
187	DAIRY	SINGLETON-OLD DIXIE	NC	6,500	NC	6,220	NC	6,130	NC	6,930	NC	6,610	15,600	11/6/2019	Urban Major Collector
596	DEERING PARKWAY	OLD DIXIE-US 1	5,570	NC	5,520	NC	5,520	NC	NC	6,220	5,930	NC	15,600	11/27/2018	Urban Major Collector
I-95-US 1															
549	FAY	GOLFVIEW-GRISSOM	6,543	6,400	8,065	5,800	7,805	5,825	8,765	6,275	7,760	6,200	14,200	11/6/2019	Rural Major Collector
207	FAY	GOLFVIEW-HOMESTEAD	2,660	2,740	NC	2,680	NC	2,880	NC	3,160	NC	3,120	15,600	11/5/2019	Urban Major Collector
229	FAY	HOMESTEAD-DEER	7,250	6,990	6,780	NC	6,460	NC	6,640	NC	6,740	NC	15,600	11/27/2018	Urban Major Collector
DEER-GRISSOM															
208	FAY	GRISSOM-US 1	9,720	9,470	9,350	8,920	9,150	8,770	10,890	9,390	8,780	9,280	15,600	11/5/2019	Urban Major Collector
209	FAY	GRISSOM-AREQUIPPA	14,555	14,965	13,975	13,730	13,670	13,590	14,465	14,280	14,380	14,325	33,800	11/27/2018	Urban Major Collector
210	FAY	AREQUIPPA-CAROLE	12,830	NC	12,380	NC	12,830	13,400	13,590	NC	13,090	NC	33,800	11/27/2018	Urban Major Collector
235	FOX LAKE	CARPENTER-SOUTH	NC	13,410	NC	12,230	NC	12,350	NC	12,860	NC	12,900	33,800	11/5/2019	Urban Major Collector
CARPENTER-SOUTH															
197	GRISSOM	INDUSTRY-PORT ST. JOHN PARKWAY	16,280	16,520	15,570	15,230	14,510	15,020	15,340	15,700	15,670	15,750	33,800	11/5/2019	Urban Major Collector
196	GRISSOM	CAMP-PORT ST. JOHN PARKWAY	4,250	NC	3,870	NC	NC	3,920	NC	NC	4,130	NC	17,700	11/27/2018	Urban Major Collector
PORT ST. JOHN PARKWAY-KINGS HWY															
194	GRISSOM	PORT ST. JOHN PARKWAY-KINGS HWY	11,863	12,123	11,687	11,573	12,220	11,170	14,117	11,890	12,660	12,607	17,700	11/5/2019	Urban Minor Arterial
193	GRISSOM	BRIDGE-FAY	12,890	13,680	12,670	12,720	13,840	NC	14,940	13,920	14,150	14,550	17,700	11/5/2019	Urban Minor Arterial
192	GRISSOM	FAY-CURTIS	11,290	11,750	11,380	12,130	12,390	12,740	13,700	12,070	12,670	12,990	15,600	11/5/2019	Urban Minor Arterial
191	GRISSOM	CURTIS-KINGS HIGHWAY	NC	10,940	NC	9,870	NC	9,600	NC	9,680	NC	10,280	15,600	11/5/2019	Urban Minor Arterial
KINGS HIGHWAY-SR 405															
190	GRISSOM	KINGS HIGHWAY-SR 405	11,410	NC	11,010	NC	10,430	NC	13,710	NC	11,160	NC	15,600	11/27/2018	Urban Minor Arterial
KINGS HIGHWAY-SHEPARD															
189	GRISSOM	SHEPARD-SR 405	9,690	9,655	8,980	8,970	9,310	9,320	8,660	10,080	9,160	10,440	30,400	11/5/2019	Rural Minor Arterial
524	GOLFVIEW	PORT ST. JOHN PKWY-FAY	10,010	9,890	NC	8,970	NC	9,320	NC	10,080	NC	10,440	39,800	11/5/2019	Urban Minor Arterial
526	HOLDER	DAIRY-SR 46	9,370	9,420	8,980	NC	9,310	NC	8,620	NC	9,160	NC	15,600	11/6/2018	Urban Minor Arterial
SR 50-GRACE															
583	HOPKINS	SR 50-GRACE	4,640	NC	4,610	NC	4,830	NC	NC	5,570	5,680	NC	17,700	11/6/2018	Urban Major Collector
584	HOPKINS	KNOX MCREA-COUNTRY CLUB DR	NC	2,720	NC	2,670	NC	NC	NC	2,840	NC	2,730	17,700	11/6/2019	Urban Major Collector
577	HOPKINS	COUNTRY CLUB DR-HARRISON	15,940	16,170	15,900	16,040	18,530	18,030	18,430	17,560	18,700	20,700	41,790	10/30/2019	Urban Minor Arterial
586	HOPKINS	HARRISON-GRACE	NC	4,710	NC	4,550	NC	4,450	NC	4,820	NC	5,050	15,600	11/6/2019	Urban Minor Arterial
198	INDUSTRY	SR 524-GRISSOM	NC	4,300	NC	4,300	NC	4,060	NC	5,060	NC	5,200	15,600	10/30/2019	Urban Local
594	INDUSTRY	GRISSOM-CIDCO RD	13,870	12,060	11,200	10,520	11,110	10,170	12,070	12,260	13,400	14,380	30,400	11/5/2019	Rural Principal Arterial
245	KINGS HWY	GRISSOM-US 1	NC	4,710	NC	4,300	NC	4,060	NC	5,060	NC	5,200	15,600	11/5/2019	Urban Major Collector
223	NASA CSWY	US 1-SPACE COMMERCE WAY	13,870	12,060	11,200	10,520	11,110	10,170	12,070	12,260	13,400	14,380	30,400	11/5/2019	Rural Principal Arterial

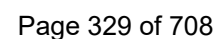
*Note: 2016 AADT's Beaches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted; UC=Under Construction

APPENDIX B

Intersection Traffic Counts & Adjustments Factors

ID: 20-130167-003
City: Cocoa

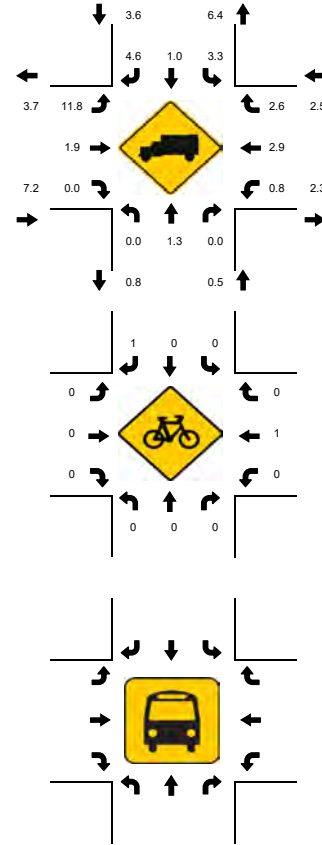
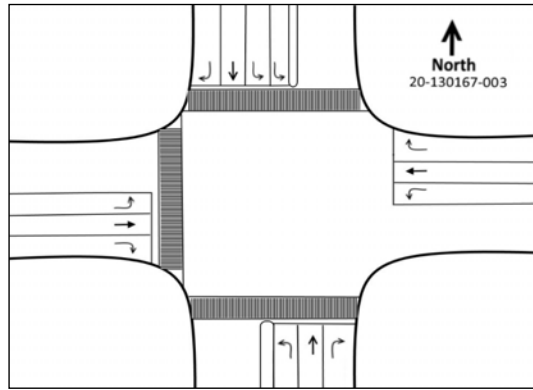
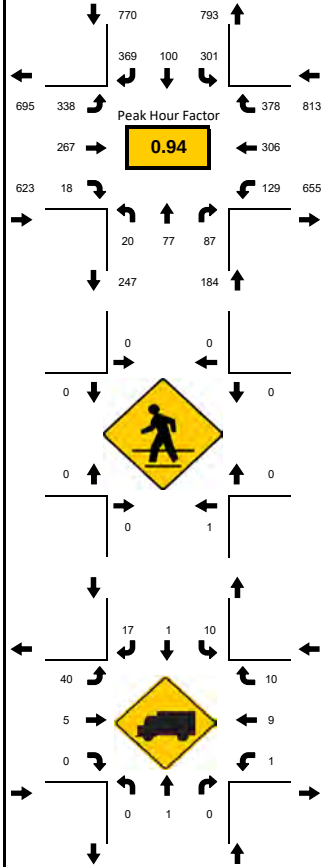
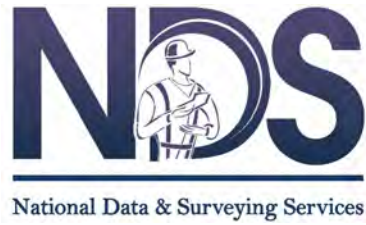
Day: Wednesday
Date: 08/26/2020



LOCATION: E Industry Rd & SR 524
CITY/STATE: Cocoa, FL

PROJECT ID: 20-130167-003
DATE: 08/26/2020

Peak-Hour: 04:00 PM - 05:00 PM
Peak 15-Minute: 04:15 PM - 04:30 PM



15-Min Count Period Beginning At	E Industry Rd Northbound					E Industry Rd Southbound					SR 524 Eastbound					SR 524 Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
04:00 PM	3	21	21	0		78	15	108	0		101	78	3	0		37	83	80	0		628	2390
04:15 PM	4	18	18	0		77	35	91	0		92	72	10	0		34	73	115	0		639	2381
04:30 PM	10	16	32	0		64	21	83	1		72	60	3	0		33	91	96	0		582	2340
04:45 PM	3	22	16	0		81	29	87	0		73	57	2	0		24	59	87	1		541	2298
05:00 PM	2	23	23	0		58	24	92	0		112	68	5	0		34	87	91	0		619	2256
05:15 PM	8	26	22	0		81	37	98	0		95	45	9	0		28	61	88	0		598	1637
05:30 PM	10	20	16	0		64	32	75	0		66	61	1	1		39	71	84	0		540	1039
05:45 PM	6	21	28	0		61	26	80	0		54	56	4	0		25	71	67	0		499	499
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
All Vehicles	40	88	128	0		324	140	432	4		404	312	40	0		148	364	460	4		2888	
Heavy Trucks	0	4	0			20	4	24			60	8	0			4	16	12			152	
Pedestrians		4						0				0					0				4	
Bicycles	0	0	0			0	0	4			0	0	0			0	4	0			8	
Railroad																						
Stopped Buses																						



National Data & Surveying Services

Site Code: **20-130167-003**

Date: **08/26/2020**

Weather: **Sunny**

City: **Cocoa**

County: **Brevard**

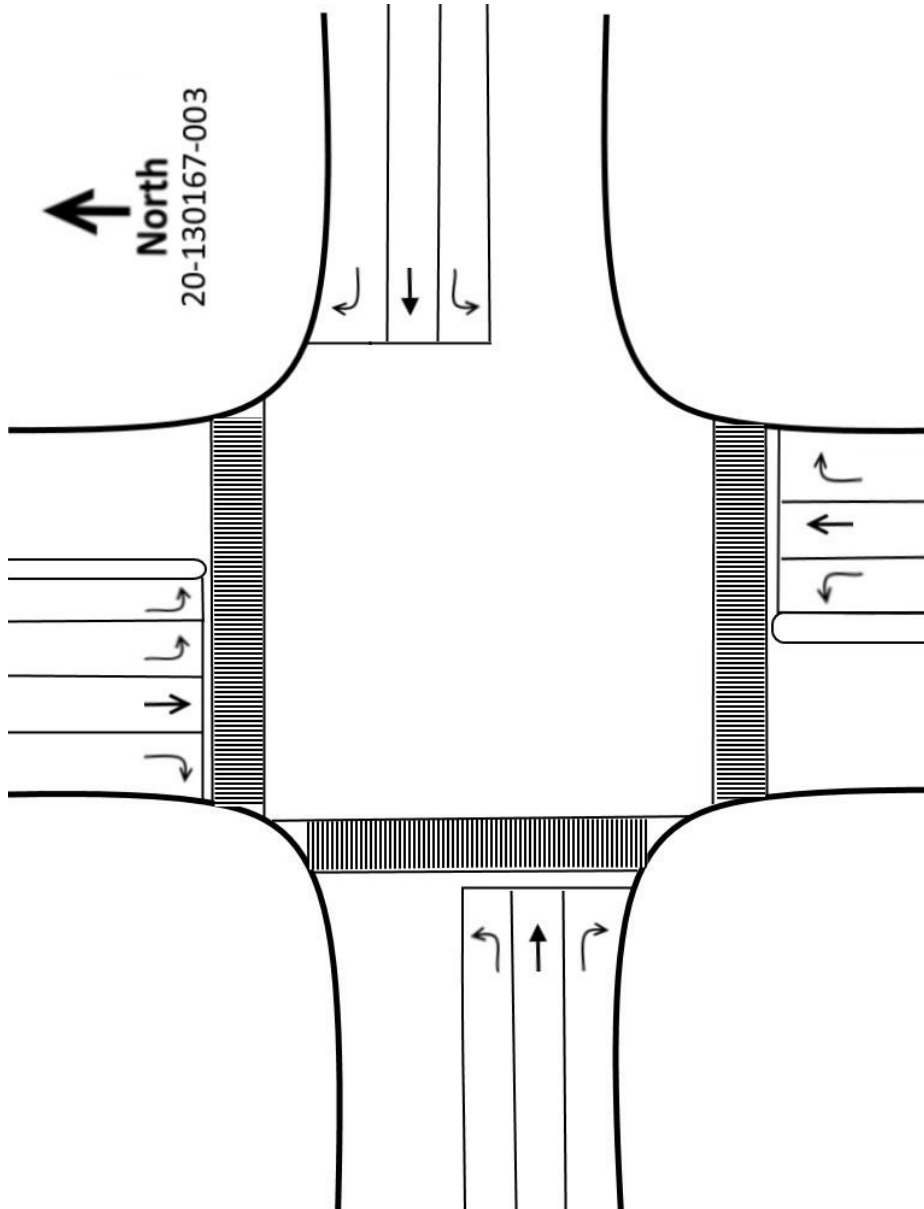
Count Times: **16:00 - 18:00**

Control: **Signalized**



N/S Street: **E Industry Rd**

Speed: **45 MPH**



E/W Street: **SR 524**

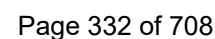
Speed: **55 MPH**

SIGNAL TIMING

PHASES	1	2	3
NL/SL	-	00:17	00:18
SL/ST	00:27	00:14	00:13
NT/ST	00:24	00:21	00:17
EL/WL	00:20	-	00:25
EL/ET	-	00:49	00:12
WL/WT	00:03	-	-
ET/WT	00:23	00:36	00:44

ID: 20-130167-002
City: Cocoa

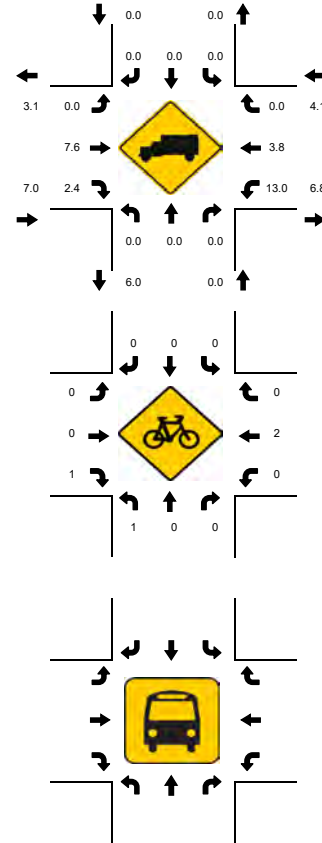
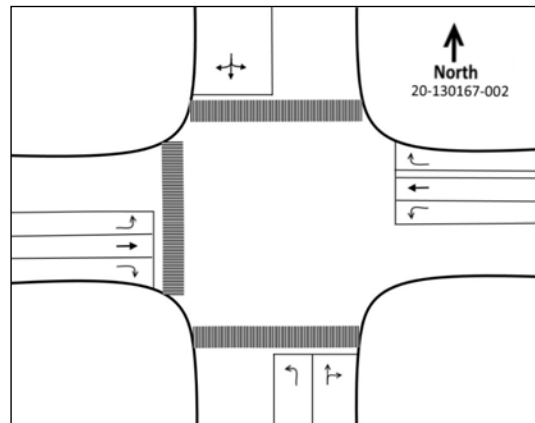
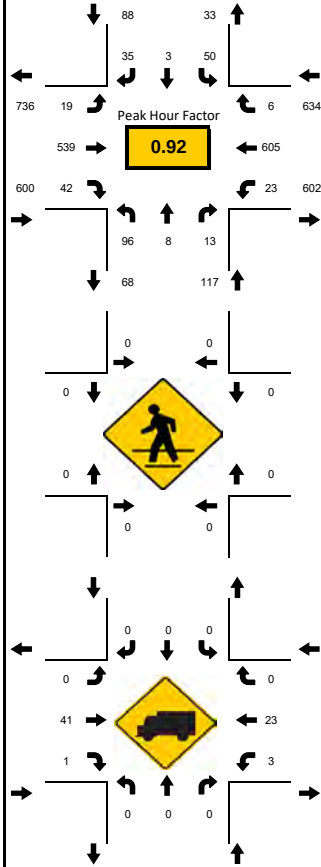
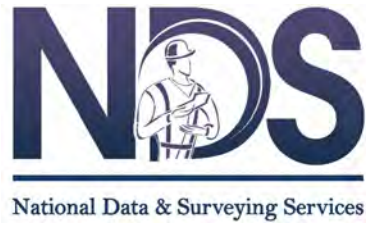
Day: Wednesday
Date: 08/26/2020



LOCATION: CVS Pharmacy Entrance/Cocoa Veterinary Hospital Dwy & SR 524
CITY/STATE: Cocoa, FL

PROJECT ID: 20-130167-002
DATE: 08/26/2020

Peak-Hour: 04:15 PM - 05:15 PM
Peak 15-Minute: 05:00 PM - 05:15 PM



15-Min Count Period Beginning At	Cocoa Veterinary Hospital Dwy Northbound					Cocoa Veterinary Hospital Dwy Southbound					SR 524 Eastbound					SR 524 Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
04:00 PM	16	1	3	0		13	1	2	0		5	156	11	0		8	168	0	0		384	1432
04:15 PM	25	1	1	0		9	0	5	0		4	148	12	0		8	153	1	0		367	1439
04:30 PM	25	2	5	0		19	3	9	0		5	106	12	0		6	151	1	0		344	1429
04:45 PM	24	3	3	0		9	0	10	0		6	124	7	0		4	143	3	1		337	1386
05:00 PM	22	2	4	0		13	0	11	0		4	161	11	0		4	158	1	0		391	1354
05:15 PM	25	0	2	0		12	1	4	0		7	122	21	0		7	154	1	1		357	963
05:30 PM	30	0	0	0		9	1	7	0		4	112	7	0		4	127	0	0		301	606
05:45 PM	27	2	3	0		8	2	9	0		3	92	10	0		8	141	0	0		305	305
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
All Vehicles	100	12	20	0		76	12	44	0		24	644	48	0		32	632	12	4		1660	
Heavy Trucks	0	0	0			0	0	0			0	64	4			4	36	0			108	
Pedestrians	0					0		0			0					0					0	
Bicycles	4	0	0			0	0	0			0	0	4			0	4	0			12	
Railroad																						
Stopped Buses																						



National Data & Surveying Services

Site Code: **20-130167-002**

Date: **08/26/2020**

Weather: **Sunny**

City: **Cocoa**

County: **Brevard**

Count Times: **16:00 - 18:00**

Control: **Signalized**

SIGNAL TIMING

PHASES	1	2	3
NT/ST	00:23	00:24	00:16
WL/WT	-	-	00:13
ET/WT	01:07	01:09	01:08

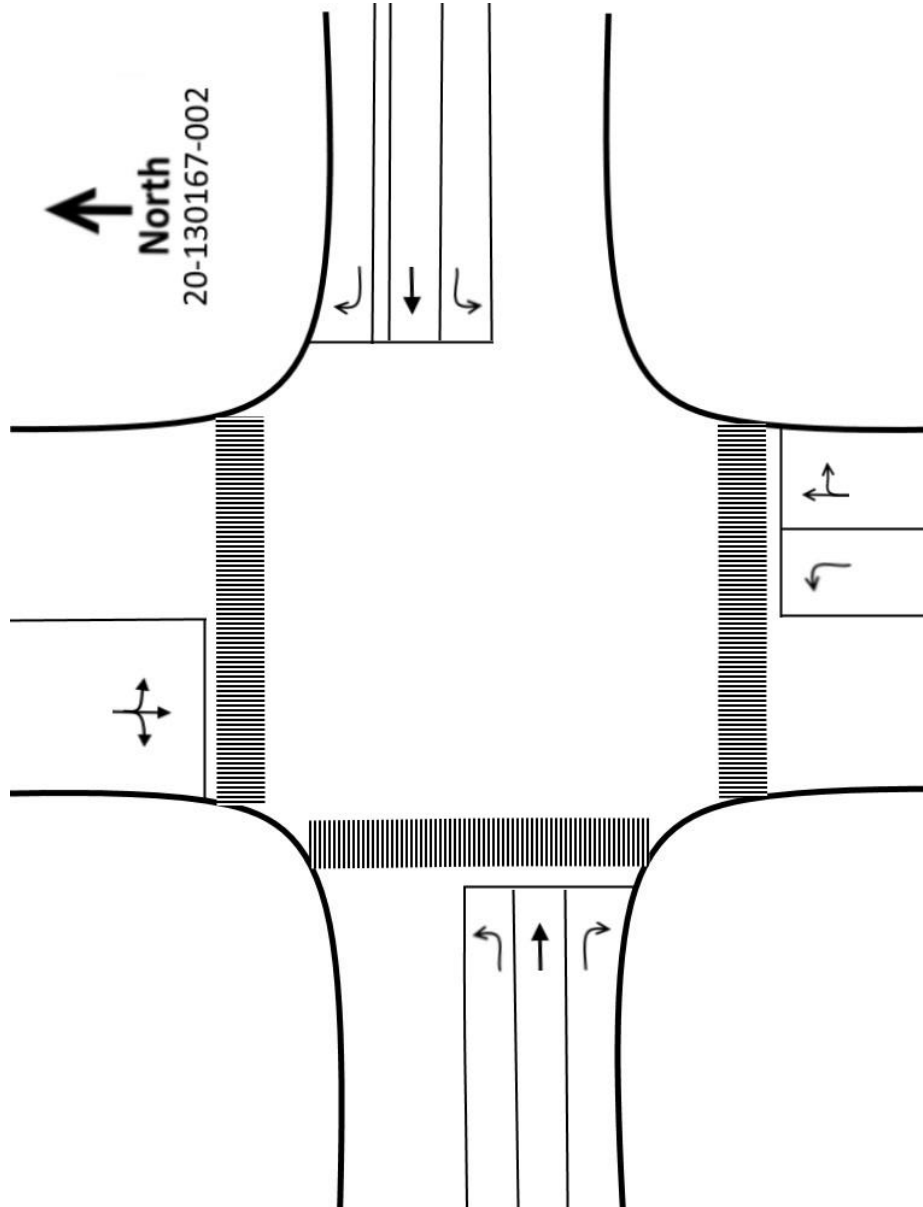


N/S Street: **CVS Pharmacy Entrance/Cocoa Veterinary Hospital Dwy**

Speed: **N/A**

E/W Street: **SR 524**

Speed: **55 MPH**

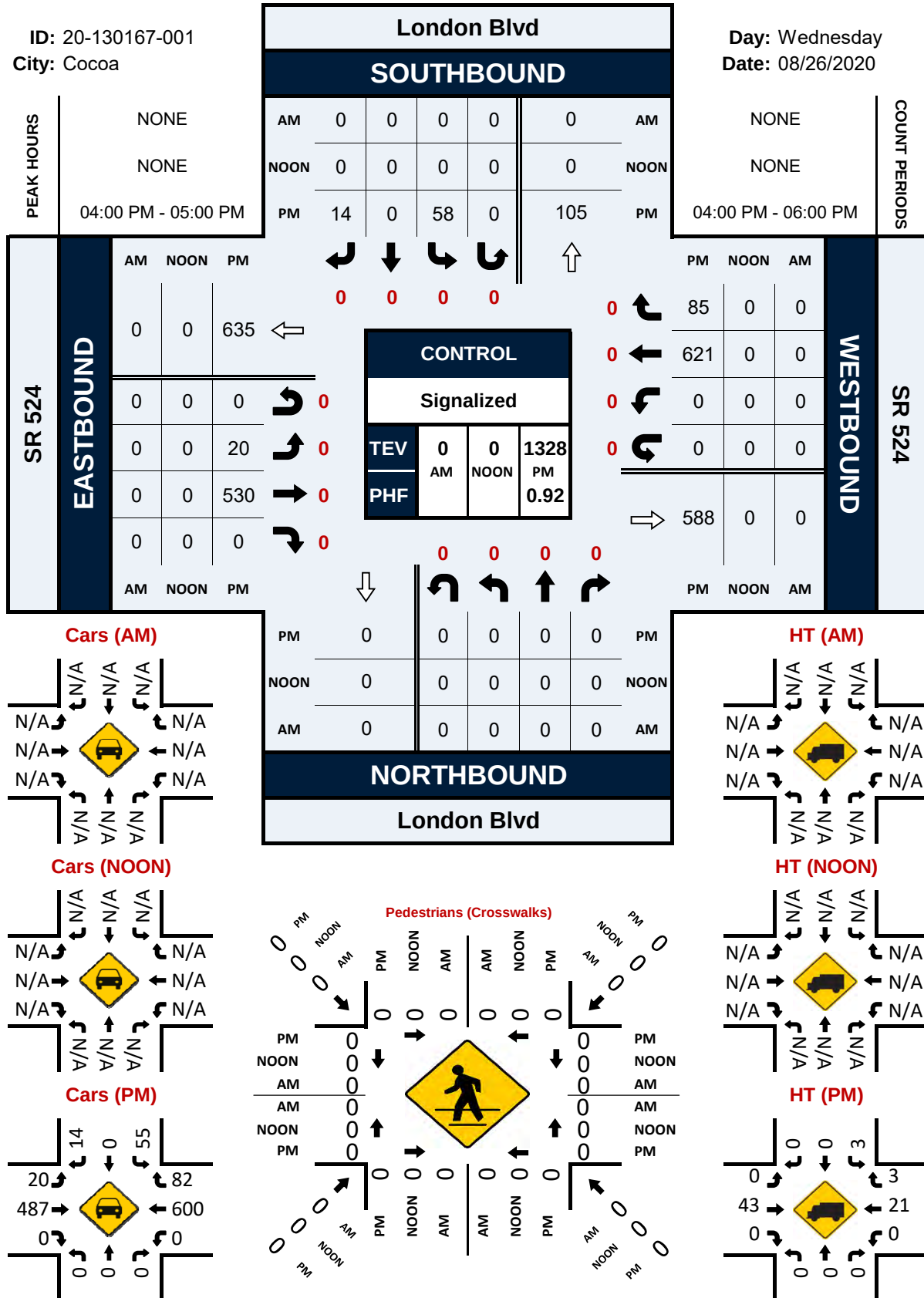


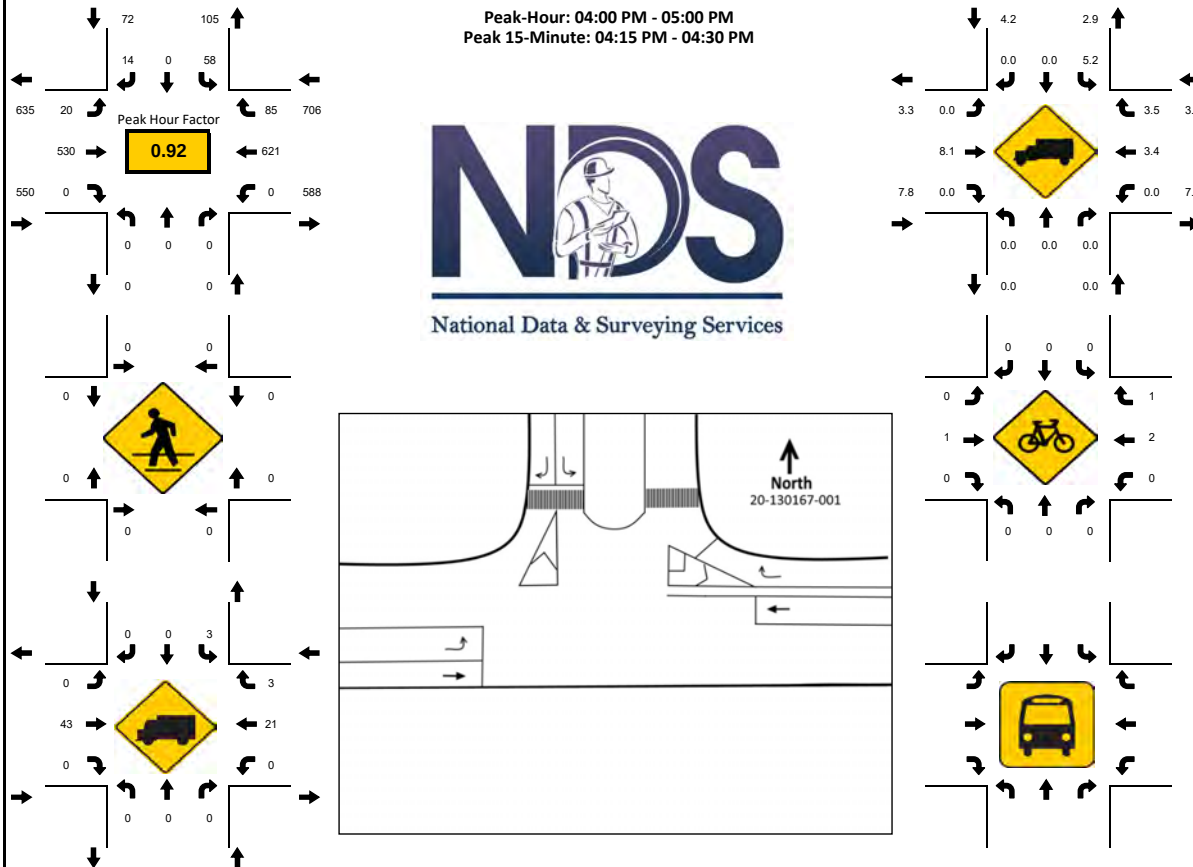
London Blvd & SR 524

Peak Hour Turning Movement Count

ID: 20-130167-001
City: Cocoa

Day: Wednesday
Date: 08/26/2020



[illegible]



National Data & Surveying Services

Site Code: **20-130167-001**

Date: **08/26/2020**

Weather: **Sunny**

City: **Cocoa**

County: **Brevard**

Count Times: **16:00 - 18:00**

Control: **Signalized**

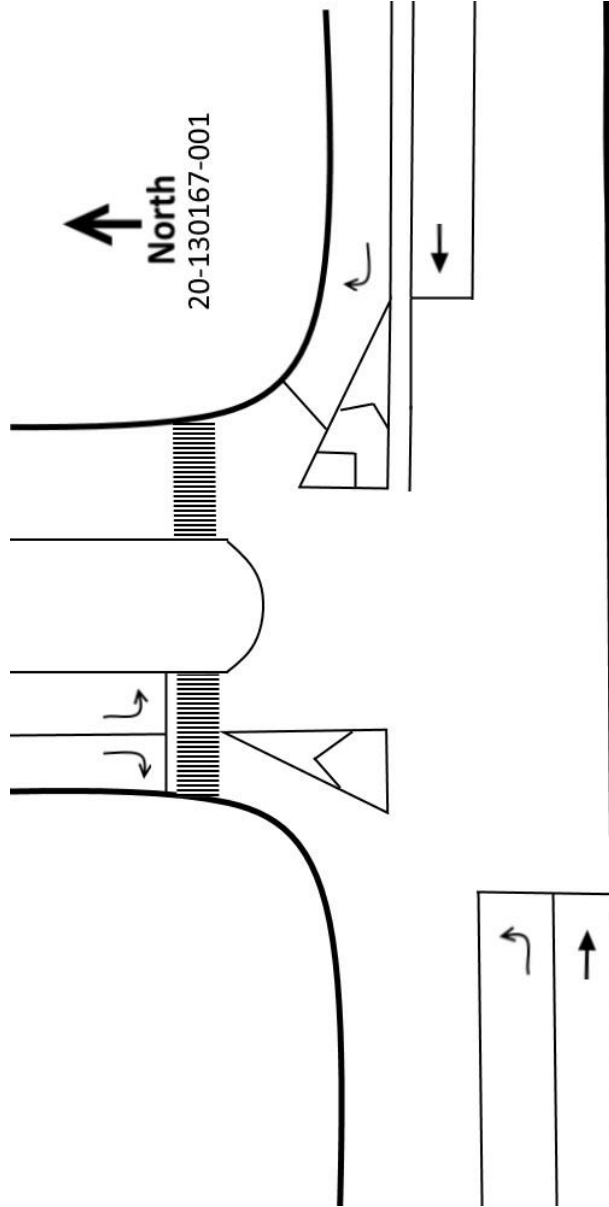
SIGNAL TIMING

PHASES	1	2	3
SL/SR	00:23	00:20	00:17
ET/WT	02:38	00:44	02:00



N/S Street: **London Blvd**

Speed: **25 MPH**



E/W Street: **SR 524**

Speed: **55 MPH**

2019 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 7000 BREVARD COUNTYWIDE

WEEK	DATES	SF	MOCF: 0.91 PSCF
1	01/01/2019 - 01/05/2019	1.03	1.13
2	01/06/2019 - 01/12/2019	1.00	1.10
3	01/13/2019 - 01/19/2019	0.97	1.07
4	01/20/2019 - 01/26/2019	0.96	1.05
* 5	01/27/2019 - 02/02/2019	0.94	1.03
* 6	02/03/2019 - 02/09/2019	0.92	1.01
* 7	02/10/2019 - 02/16/2019	0.90	0.99
* 8	02/17/2019 - 02/23/2019	0.90	0.99
* 9	02/24/2019 - 03/02/2019	0.89	0.98
* 10	03/03/2019 - 03/09/2019	0.88	0.97
* 11	03/10/2019 - 03/16/2019	0.88	0.97
* 12	03/17/2019 - 03/23/2019	0.89	0.98
* 13	03/24/2019 - 03/30/2019	0.90	0.99
* 14	03/31/2019 - 04/06/2019	0.91	1.00
* 15	04/07/2019 - 04/13/2019	0.92	1.01
* 16	04/14/2019 - 04/20/2019	0.93	1.02
* 17	04/21/2019 - 04/27/2019	0.94	1.03
18	04/28/2019 - 05/04/2019	0.96	1.05
19	05/05/2019 - 05/11/2019	0.98	1.08
20	05/12/2019 - 05/18/2019	0.99	1.09
21	05/19/2019 - 05/25/2019	1.01	1.11
22	05/26/2019 - 06/01/2019	1.02	1.12
23	06/02/2019 - 06/08/2019	1.03	1.13
24	06/09/2019 - 06/15/2019	1.05	1.15
25	06/16/2019 - 06/22/2019	1.05	1.15
26	06/23/2019 - 06/29/2019	1.05	1.15
27	06/30/2019 - 07/06/2019	1.05	1.15
28	07/07/2019 - 07/13/2019	1.05	1.15
29	07/14/2019 - 07/20/2019	1.06	1.16
30	07/21/2019 - 07/27/2019	1.06	1.16
31	07/28/2019 - 08/03/2019	1.07	1.18
32	08/04/2019 - 08/10/2019	1.08	1.19
33	08/11/2019 - 08/17/2019	1.08	1.19
34	08/18/2019 - 08/24/2019	1.10	1.21
35	08/25/2019 - 08/31/2019	1.11	1.22
36	09/01/2019 - 09/07/2019	1.12	1.23
37	09/08/2019 - 09/14/2019	1.13	1.24
38	09/15/2019 - 09/21/2019	1.14	1.25
39	09/22/2019 - 09/28/2019	1.12	1.23
40	09/29/2019 - 10/05/2019	1.10	1.21
41	10/06/2019 - 10/12/2019	1.07	1.18
42	10/13/2019 - 10/19/2019	1.05	1.15
43	10/20/2019 - 10/26/2019	1.05	1.15
44	10/27/2019 - 11/02/2019	1.04	1.14
45	11/03/2019 - 11/09/2019	1.04	1.14
46	11/10/2019 - 11/16/2019	1.03	1.13
47	11/17/2019 - 11/23/2019	1.03	1.13
48	11/24/2019 - 11/30/2019	1.03	1.13
49	12/01/2019 - 12/07/2019	1.03	1.13
50	12/08/2019 - 12/14/2019	1.03	1.13
51	12/15/2019 - 12/21/2019	1.03	1.13
52	12/22/2019 - 12/28/2019	1.00	1.10
53	12/29/2019 - 12/31/2019	0.97	1.07

* PEAK SEASON

14-FEB-2020 15:39:28

830UPD

5_7000_PKSEASON.TXT

Covid Factor

Sta 435	ADT	27,000
Sta 434	ADT	22,100

From Synopsis Report @ Sta 434

PM Peak Hour = 1,584 vph

$$SF_{adj} = 1.10 \rightarrow 1,584 \times 1.10 = 1,742 \text{ vph}$$

$$K = 1742 / 22100 = 0.0788$$

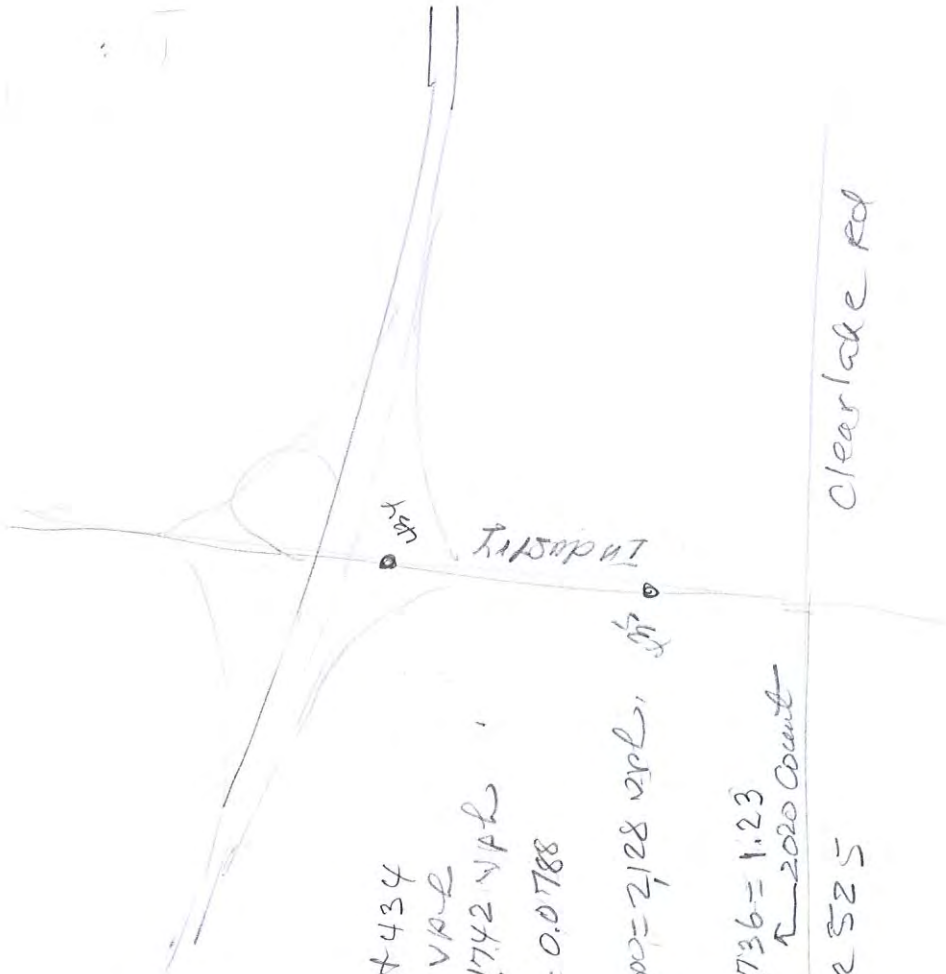
$$\text{PM Peak Hour Count @ Sta 435} = 0.0788 \times 27,000 = 2,128 \text{ vph}$$

$$\text{Covid Factor} = 2,128 / 1736 = 1.23$$

2020 Count

SR 525

Clearlake Rd



COUNTY:	70
STATION:	043
DESCRIPTION:	ON
START DATE:	08/
START TIME:	000

TIME	DIRECTION: N				TOTAL	DIRECTION: S				TOTAL	COMBINED TOTAL
	1ST	2ND	3RD	4TH		1ST	2ND	3RD	4TH		
0000	28	29	16	27	100	7	15	18	18	58	158
0100	33	6	10	8	57	17	11	19	22	69	126
0200	38	8	7	13	36	18	7	9	14	48	84
0300	15	10	14	26	65	8	18	18	19	63	128
0400	23	21	32	41	117	22	21	36	25	104	221
0500	36	43	52	65	196	40	41	77	95	253	449
0600	58	82	96	106	342	90	125	152	205	572	914
0700	111	95	107	109	422	190	255	261	315	1021	1443
0800	103	110	133	125	471	224	216	273	265	978	1449
0900	98	108	107	104	417	212	198	162	191	763	1180
1000	133	101	106	139	479	178	162	182	170	692	1171
1100	105	108	99	118	430	152	199	172	176	699	1129
1200	128	136	110	143	517	234	200	181	180	795	1312
1300	136	134	143	127	540	174	204	174	155	707	1247
1400	124	107	104	103	438	174	201	214	198	787	1225
1500	142	124	141	177	584	228	213	272	250	963	1547
1600	144	157	151	159	611	214	244	248	233	939	1550
1700	168	137	159	143	607	262	265	227	223	977	1584
1800	126	107	99	95	427	183	159	136	119	597	1024
1900	92	103	79	86	360	130	115	109	98	452	812
2000	89	84	75	57	305	81	103	90	73	347	652
2100	50	40	44	30	164	49	50	65	36	200	364
2200	39	37	27	24	127	31	45	35	26	137	264
2300	21	19	28	14	82	25	28	23	15	91	173
24-HOUR TOTALS:					7894					12312	20206

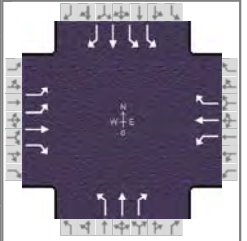
	DIRECTION: N		DIRECTION: S		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	800	471	715	1055	745	1483
P.M.	1615	635	1630	1008	1630	1623
DAILY	1615	635	715	1055	1630	1623

APPENDIX C

Existing HCS Capacity Worksheets

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information	
Agency	TPD, Inc.				Duration, h	0.25
Analyst	BH	Analysis Date	8/28/2020		Area Type	Other
Jurisdiction	Brevard County	Time Period	P.M. Peak Existing		PHF	0.94
Urban Street	SR 524	Analysis Year	2020		Analysis Period	1> 7:00
Intersection	SR 524 & Industry Rd		File Name	SR 524 & Industry Rd.xus		
Project Description	Cocoa Apartment					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	461	364	25	39	418	517	27	106	119	410	137	504

Signal Information														
Cycle, s	106.1	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	On	Green	4.2	6.4	26.0	3.4	8.1	21.9				
				Yellow	4.0	4.0	4.0	4.0	4.0	4.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	2.0	2.0	2.0				

1	2	3	4
5	6	7	8

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0
Phase Duration, s	22.7	44.4	10.2	32.0	9.4	27.9	23.5	42.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	4.9	5.0	4.9	5.0	5.0	5.2	5.0	5.2
Queue Clearance Time (g_s), s	16.5	19.3	4.4	28.0	3.7	9.2	14.6	37.0
Green Extension Time (g_e), s	0.2	9.1	0.0	0.0	0.0	6.5	3.0	0.0
Phase Call Probability	1.00	1.00	0.71	1.00	0.57	1.00	1.00	1.00
Max Out Probability	1.00	0.28	1.00	1.00	1.00	0.03	0.00	1.00

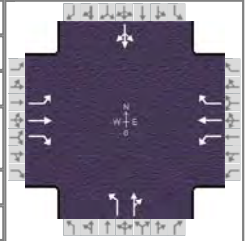
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	490	387	27	41	445	550	29	113	127	436	146	536
Adjusted Saturation Flow Rate (s), veh/h/ln	1757	1900	1610	1810	1900		1810	1900	1610	1757	1900	1610
Queue Service Time (g_s), s	14.5	17.3	1.1	2.4	24.5		1.7	5.3	7.2	12.6	5.8	35.0
Cycle Queue Clearance Time (g_c), s	14.5	17.3	1.1	2.4	24.5		1.7	5.3	7.2	12.6	5.8	35.0
Green Ratio (g/C)	0.16	0.36	0.36	0.04	0.25		0.03	0.21	0.21	0.17	0.34	0.34
Capacity (c), veh/h	552	688	583	72	466		58	392	333	580	645	546
Volume-to-Capacity Ratio (X)	0.888	0.563	0.046	0.574	0.955		0.491	0.287	0.381	0.752	0.226	0.981
Back of Queue (Q), ft/ln (95 th percentile)	289	296.4	18.3	55.3	520.5		39.2	109.6	126.6	232.4	115	621.2
Back of Queue (Q), veh/ln (95 th percentile)	11.6	11.9	0.7	2.2	20.8		1.6	4.4	5.1	9.3	4.6	24.8
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	43.8	27.1	21.9	50.0	39.5		50.5	35.5	36.2	42.2	25.1	34.7
Incremental Delay (d_2), s/veh	16.1	1.1	0.0	9.9	30.6		8.8	0.6	1.0	2.8	0.3	33.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	59.9	28.2	22.0	59.9	70.1	0.0	59.3	36.1	37.3	45.0	25.3	68.4
Level of Service (LOS)	E	C	C	E	E	A	E	D	D	D	C	E
Approach Delay, s/veh / LOS	45.2	D		32.5		C	39.1	D		53.7	D	
Intersection Delay, s/veh / LOS	43.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.11	B	2.45	B	2.30	B	2.28	B
Bicycle LOS Score / LOS	1.98	B	2.20	B	0.93	A	2.33	B

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	BH	Analysis Date	8/28/2020
Jurisdiction	Brevard County	Time Period	P.M. Peak Existing
Urban Street	SR 524	Analysis Year	2020
Intersection	SR 524 & CVS Entrance	File Name	SR 524 & CVS En
Project Description	Cocoa Apartment		



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	26	736	58	30	827	9	132	11	17	69	4	48

Signal Information

Cycle, s	115.1	Reference Phase	2		
Offset, s	0	Reference Point	End		
Uncoordinated	Yes	Simult. Gap E/W	On		
Force Mode	Fixed	Simult. Gap N/S	On		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	3.0	2.0	3.0		10.0		12.0
Phase Duration, s	9.6	71.2	9.9	71.5		17.3		16.7
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	4.9	4.9	4.9	4.9		5.0		5.1
Queue Clearance Time (g _s), s	3.8	38.4	4.0	46.6		11.0		10.6
Green Extension Time (g _e), s	0.0	17.2	0.0	18.8		0.4		0.3
Phase Call Probability	0.60	1.00	0.65	1.00		1.00		0.99
Max Out Probability	1.00	0.24	1.00	0.13		0.56		0.44

Movement Group Results

Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	28	800	63	33	899	10	143	30			132	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1610	1810	1900	1610	1810	1713			1727	
Queue Service Time (g_s), s	1.8	36.4	2.0	2.0	44.6	0.3	9.0	1.9			8.6	
Cycle Queue Clearance Time (g_c), s	1.8	36.4	2.0	2.0	44.6	0.3	9.0	1.9			8.6	
Green Ratio (g/C)	0.03	0.57	0.57	0.03	0.57	0.57	0.10	0.10			0.09	
Capacity (c), veh/h	56	1076	912	61	1081	916	178	168			161	
Volume-to-Capacity Ratio (X)	0.502	0.743	0.069	0.533	0.831	0.011	0.807	0.181			0.815	
Back of Queue (Q), ft/ln (95 th percentile)	41.6	511.6	29.6	47.7	609.3	4.4	202.9	36.8			190.8	
Back of Queue (Q), veh/ln (95 th percentile)	1.7	20.5	1.2	1.9	24.4	0.2	8.1	1.5			7.6	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	55.0	18.7	11.3	54.8	20.3	10.8	50.9	47.7			51.3	
Incremental Delay (d_2), s/veh	9.5	2.2	0.0	9.9	2.8	0.0	13.2	0.7			13.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Control Delay (d), s/veh	64.5	20.9	11.3	64.7	23.1	10.8	64.1	48.4			65.2	
Level of Service (LOS)	E	C	B	E	C	B	E	D			E	
Approach Delay, s/veh / LOS	21.6	C		24.4	C		61.4	E		65.2	E	
Intersection Delay, s/veh / LOS	28.7						C					

Multimodal Results

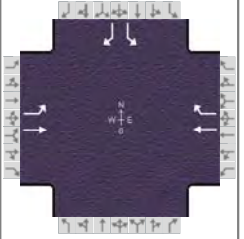
	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.89		B	1.67		B	2.14		B	2.16		B
Bicycle LOS Score / LOS	1.96		B	2.04		B	0.77		A	0.70		A

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	BH	Analysis Date	8/28/2020
Jurisdiction	Brevard County	Time Period	P.M. Peak Existing
Urban Street	SR 524	Analysis Year	2020
Intersection	SR 524 & London Blvd	File Name	SR 524 & London
Project Description	Cocoa Apartment		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	27	723			847	116				79		20

Signal Information

Cycle, s	73.7	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	2.7	47.7	5.3	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2				8
Case Number	1.0	4.0		7.3				9.0
Phase Duration, s	8.7	62.4		53.7				11.3
Change Period, ($Y+R_c$), s	6.0	6.0		6.0				6.0
Max Allow Headway (MAH), s	4.9	4.9		4.9				5.1
Queue Clearance Time (g_s), s	2.4	14.2		26.5				5.4
Green Extension Time (g_e), s	0.0	20.6		21.1				0.3
Phase Call Probability	0.45	1.00		1.00				0.89
Max Out Probability	1.00	0.11		0.08				0.01

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6			2	12				3		18
Adjusted Flow Rate (v), veh/h	29	786			921	126				86		22
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900			1900					1810		
Queue Service Time (g_s), s	0.4	12.2			24.5					3.4		
Cycle Queue Clearance Time (g_c), s	0.4	12.2			24.5					3.4		
Green Ratio (g/C)	0.71	0.76			0.65					0.07		
Capacity (c), veh/h	359	1453			1229					131		
Volume-to-Capacity Ratio (X)	0.082	0.541			0.749					0.655		
Back of Queue (Q), ft/ln (95 th percentile)	5.2	57.3			257.4					75.1		
Back of Queue (Q), veh/ln (95 th percentile)	0.2	2.3			10.3					3.0		
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00			0.00					0.00		
Uniform Delay (d_1), s/veh	8.1	3.5			8.9					33.3		
Incremental Delay (d_2), s/veh	0.1	0.4			1.3					7.6		
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0					0.0		
Control Delay (d), s/veh	8.3	3.9			10.3	0.0				41.0		0.0
Level of Service (LOS)	A	A			B	A				D		A
Approach Delay, s/veh / LOS	4.1	A		9.0	A		0.0			32.7		C
Intersection Delay, s/veh / LOS	8.3						A					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	0.63	A		1.86	B		1.95	B		1.95		B
Bicycle LOS Score / LOS	1.83	B		2.21	B							F

APPENDIX D

ITE Trip Generation Sheets

Multifamily Housing (Low-Rise) (220)

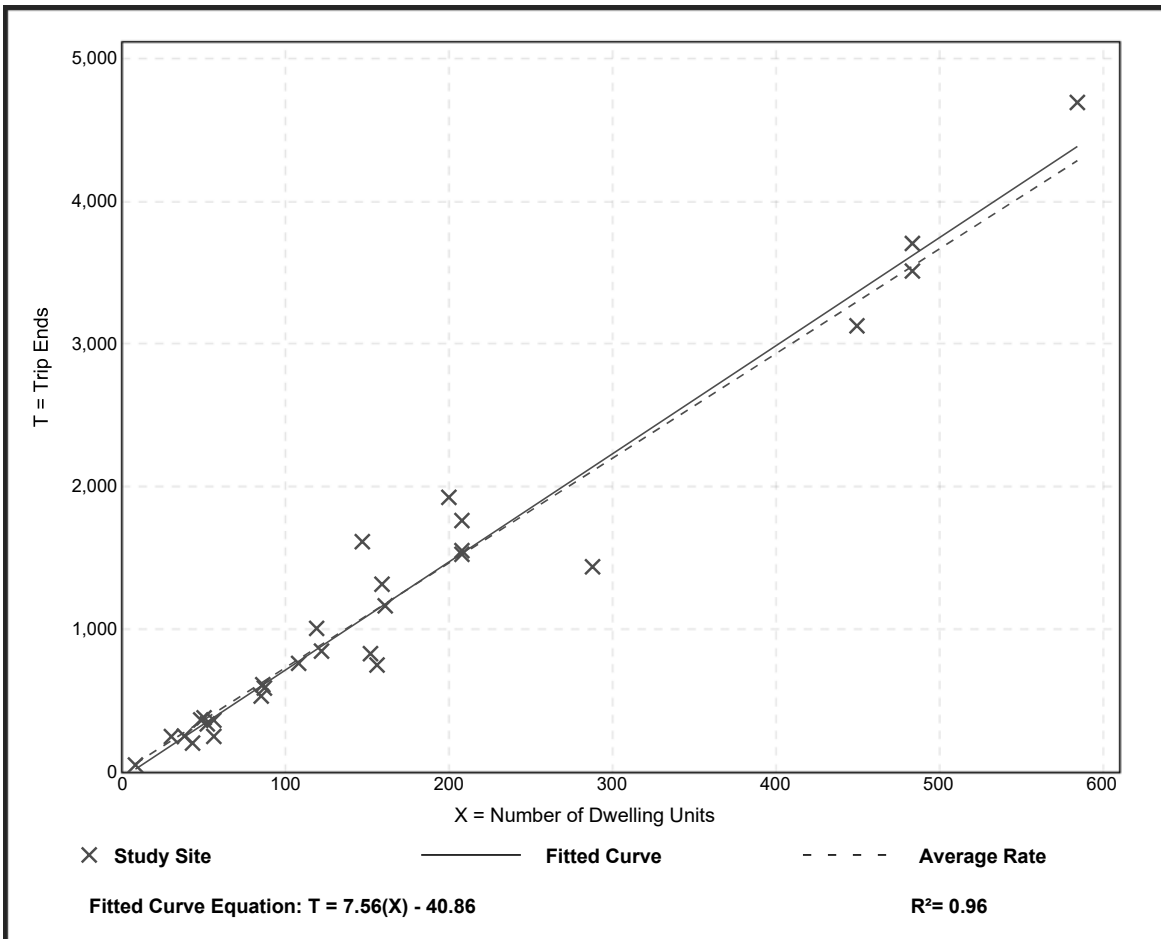
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

Multifamily Housing (Low-Rise) (220)

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: 42

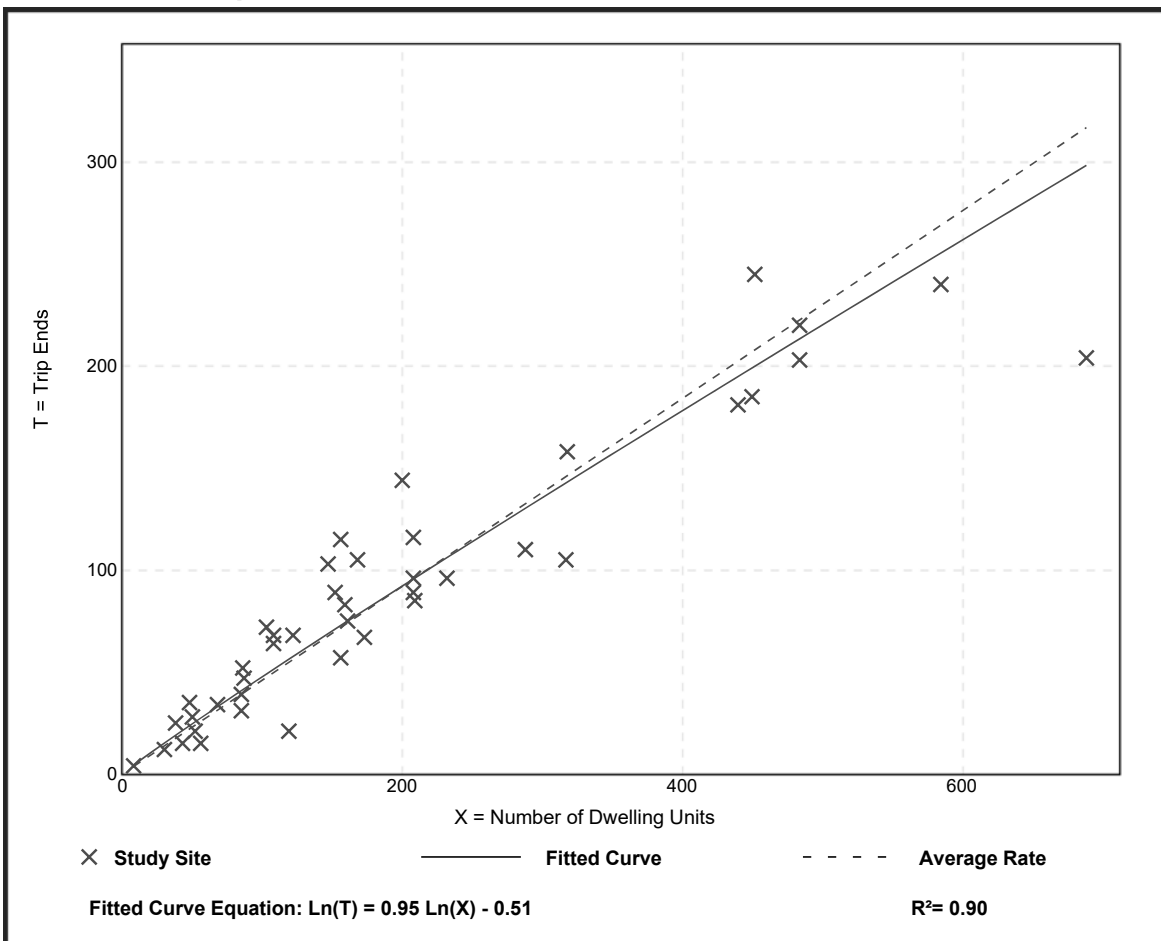
Avg. Num. of Dwelling Units: 199

Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

Multifamily Housing (Low-Rise) (220)

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: 50

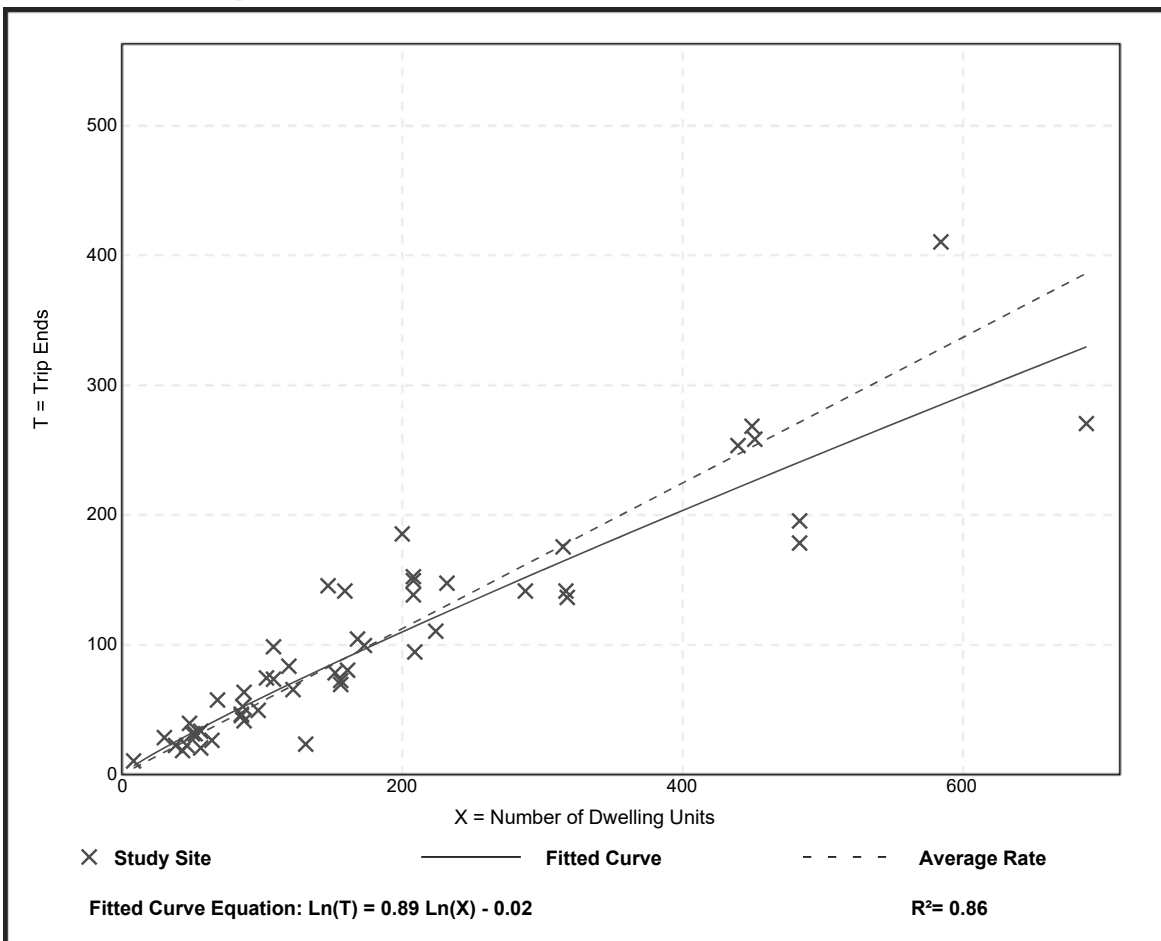
Avg. Num. of Dwelling Units: 187

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



Trip Generation Manual, 10th Edition • Institute of Transportation Engineers

Shopping Center (820)

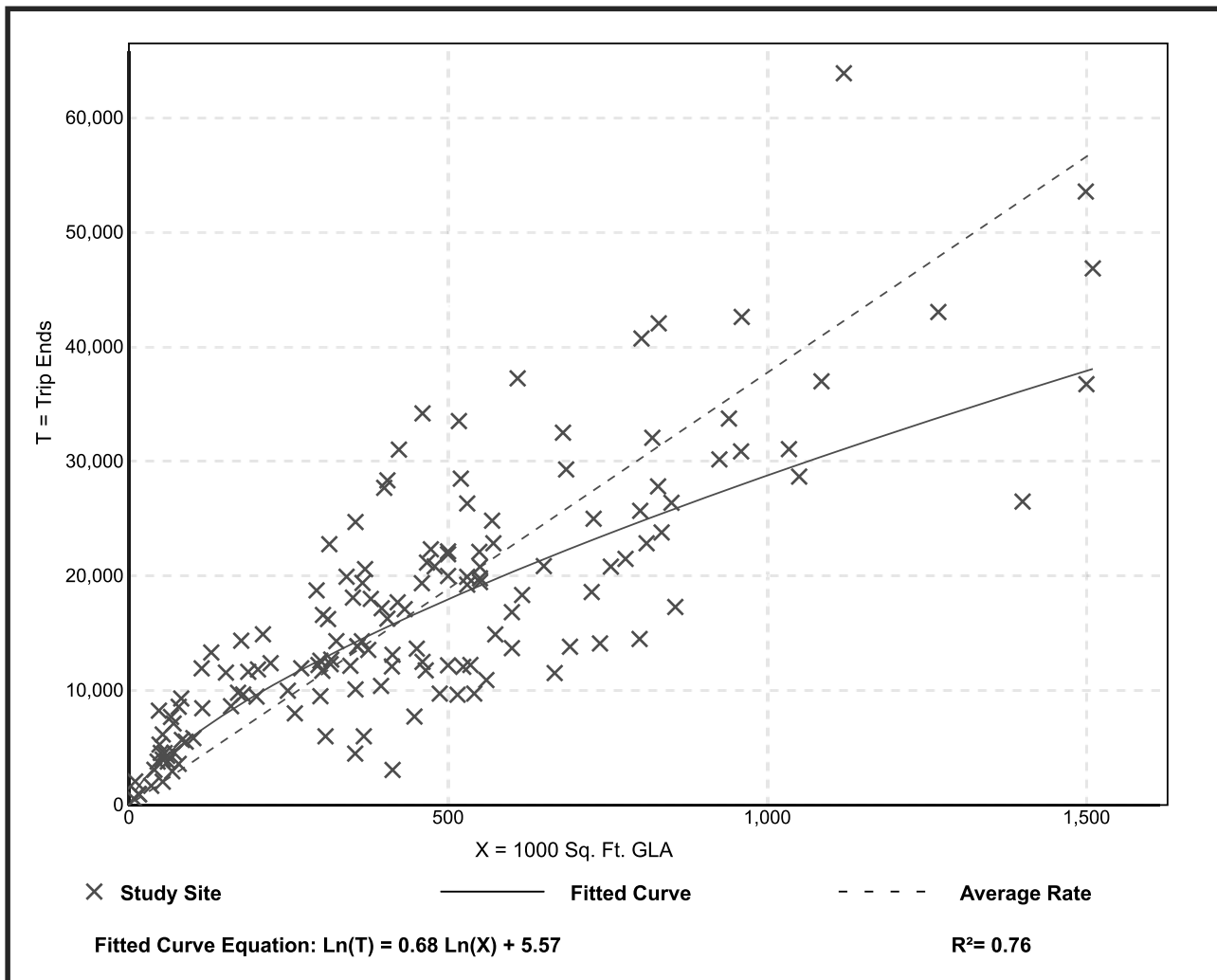
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 147
Avg. 1000 Sq. Ft. GLA: 453
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
37.75	7.42 - 207.98	16.41

Data Plot and Equation



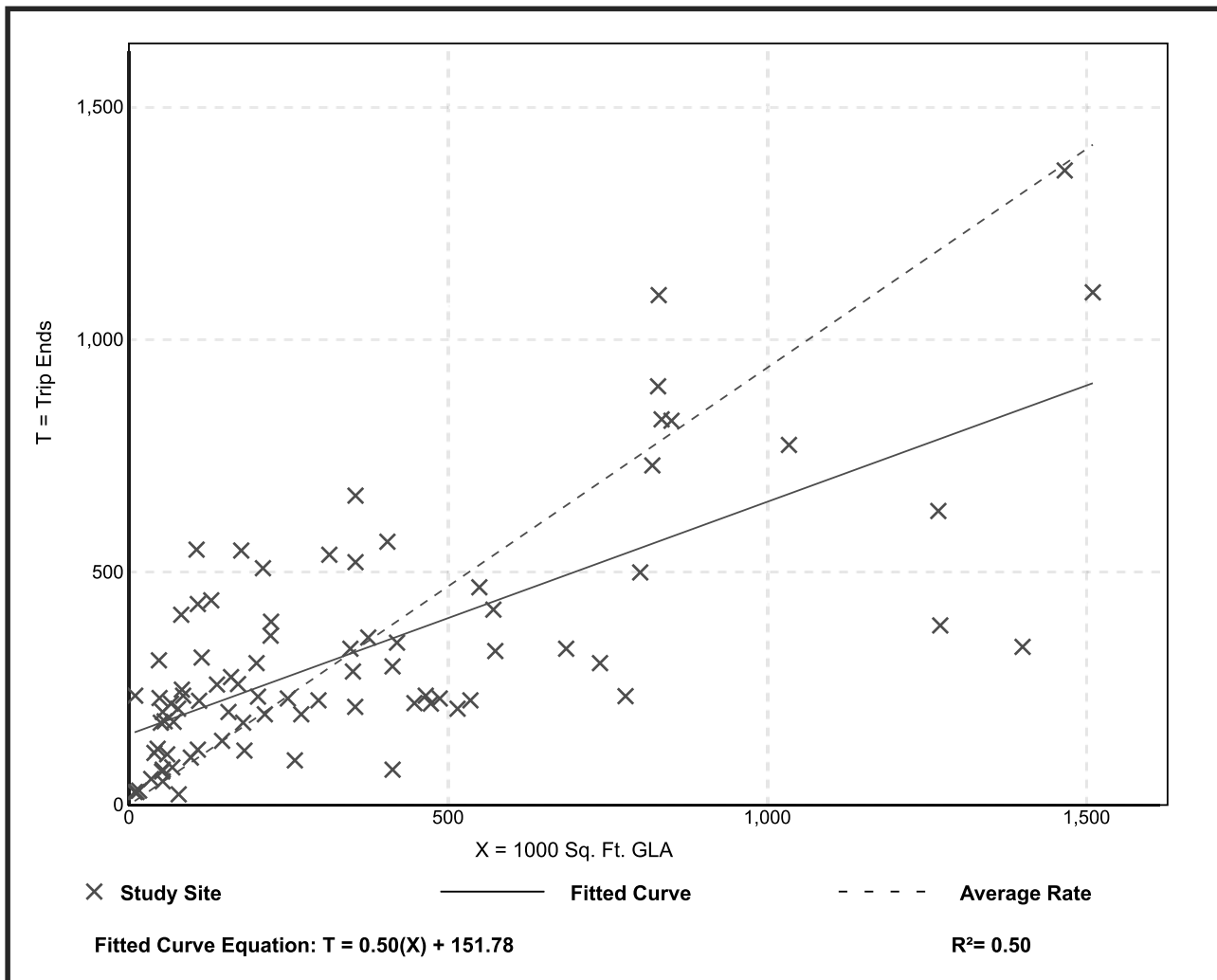
Shopping Center (820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
 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: 84
 Avg. 1000 Sq. Ft. GLA: 351
 Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.94	0.18 - 23.74	0.87

Data Plot and Equation



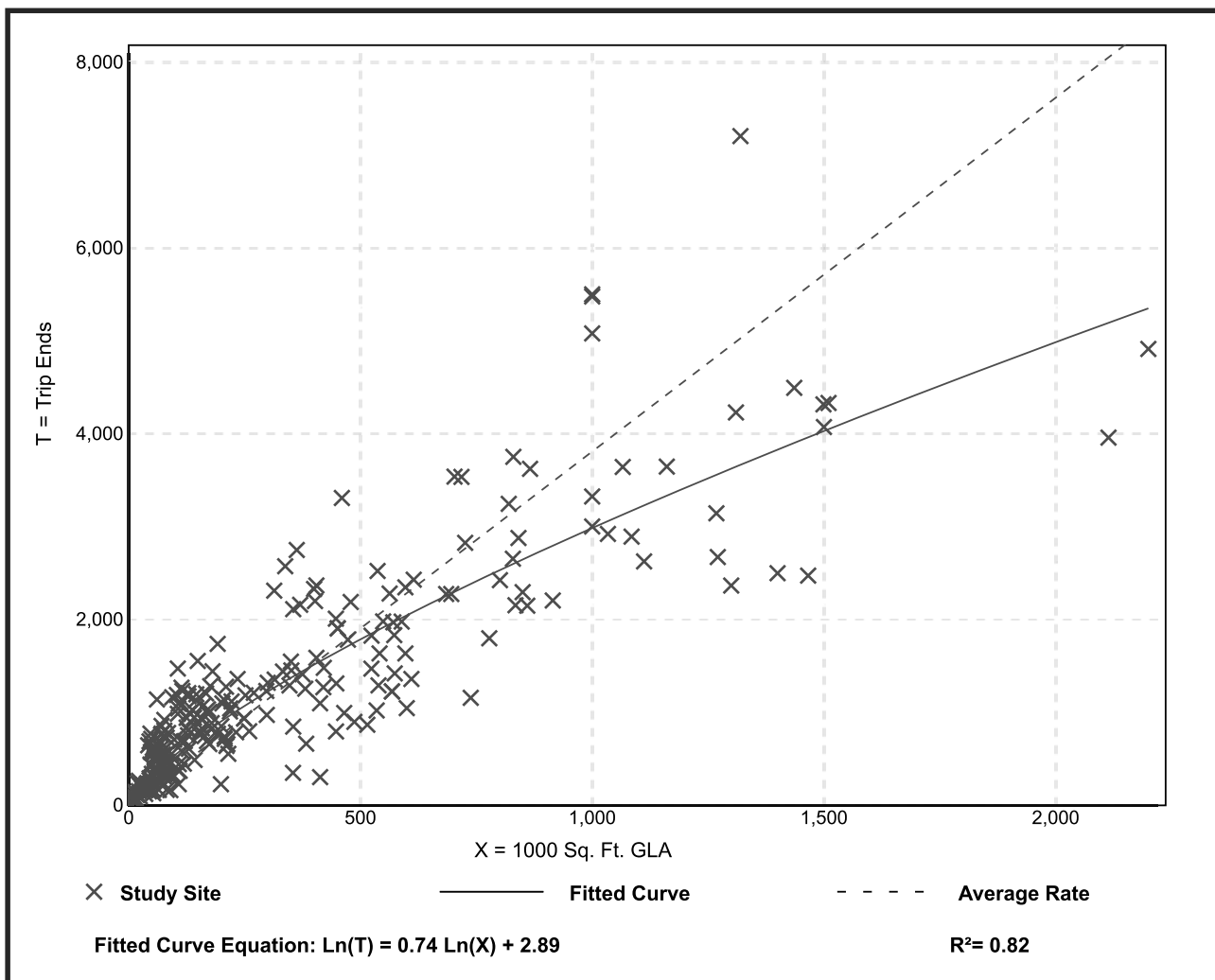
Shopping Center (820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
 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: 261
 Avg. 1000 Sq. Ft. GLA: 327
 Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

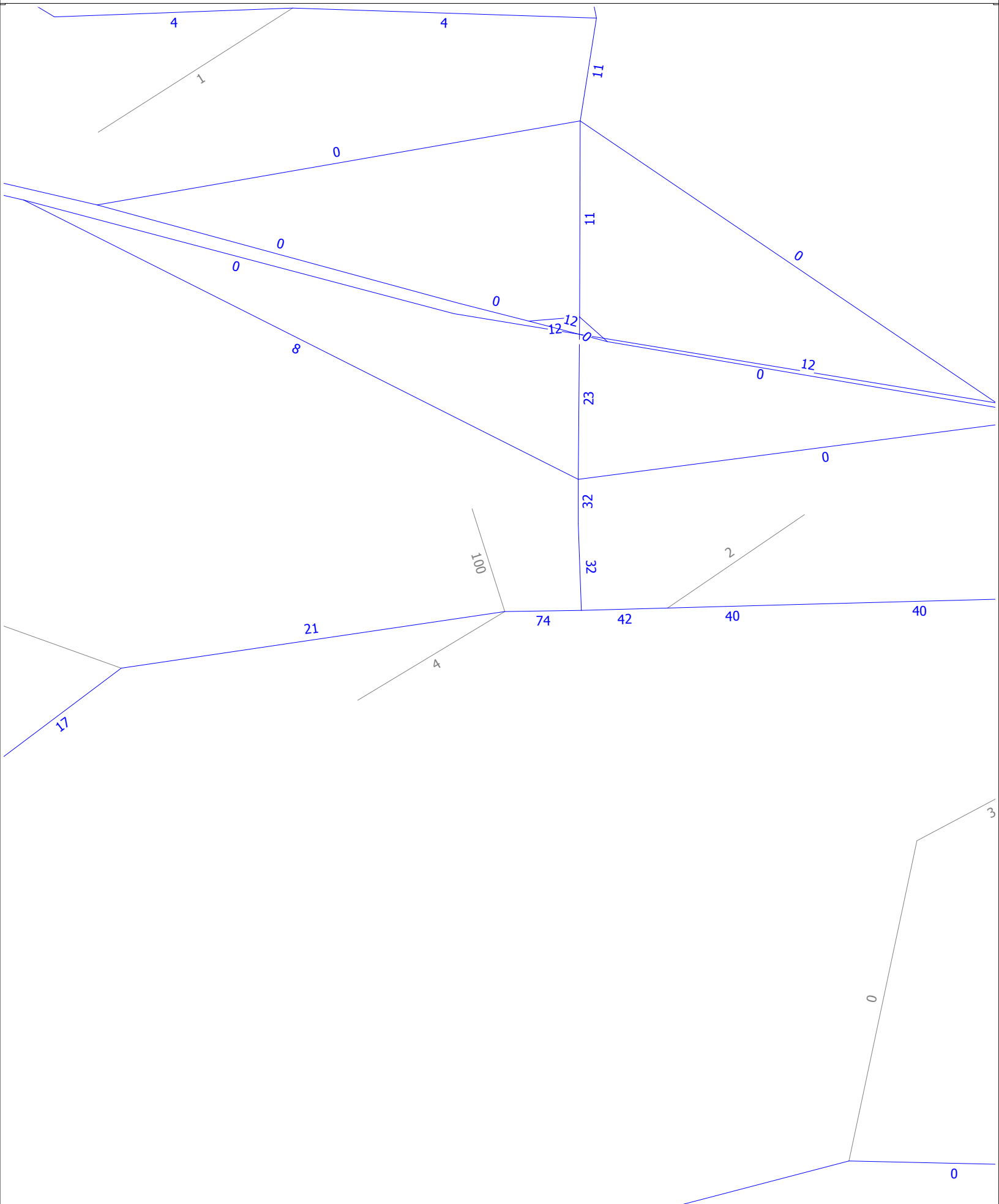
Average Rate	Range of Rates	Standard Deviation
3.81	0.74 - 18.69	2.04

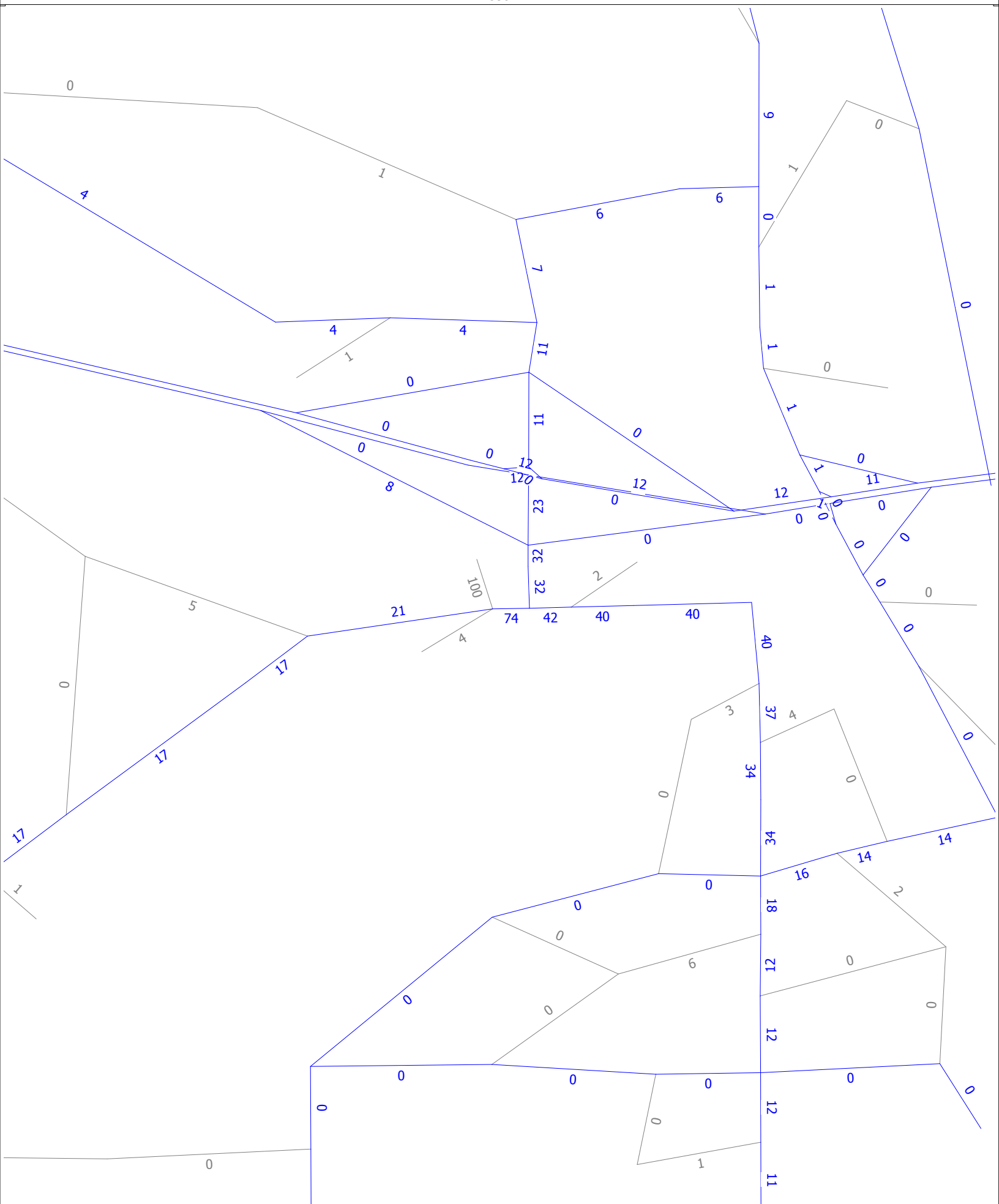
Data Plot and Equation

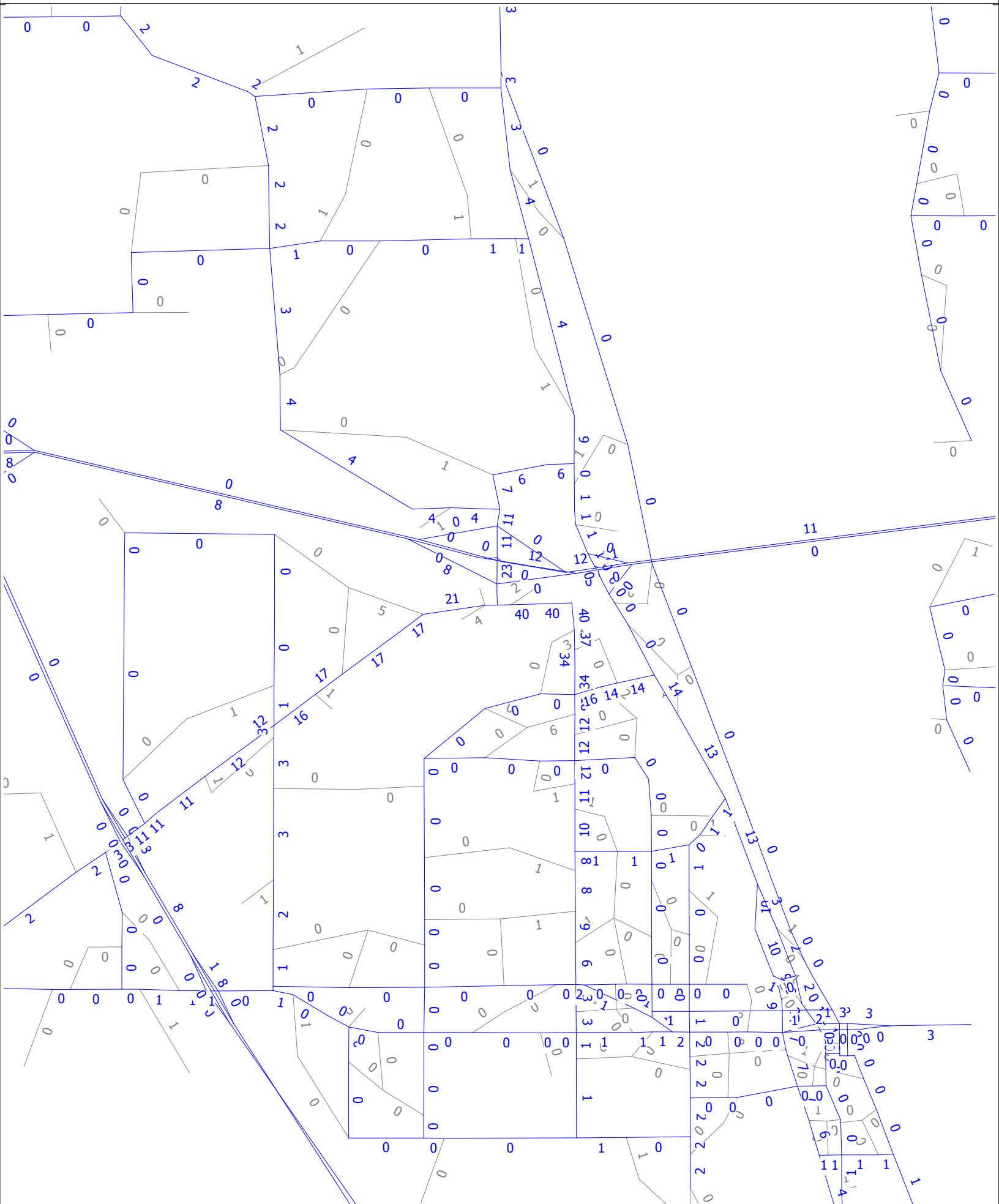


APPENDIX E

Model Distribution Plot







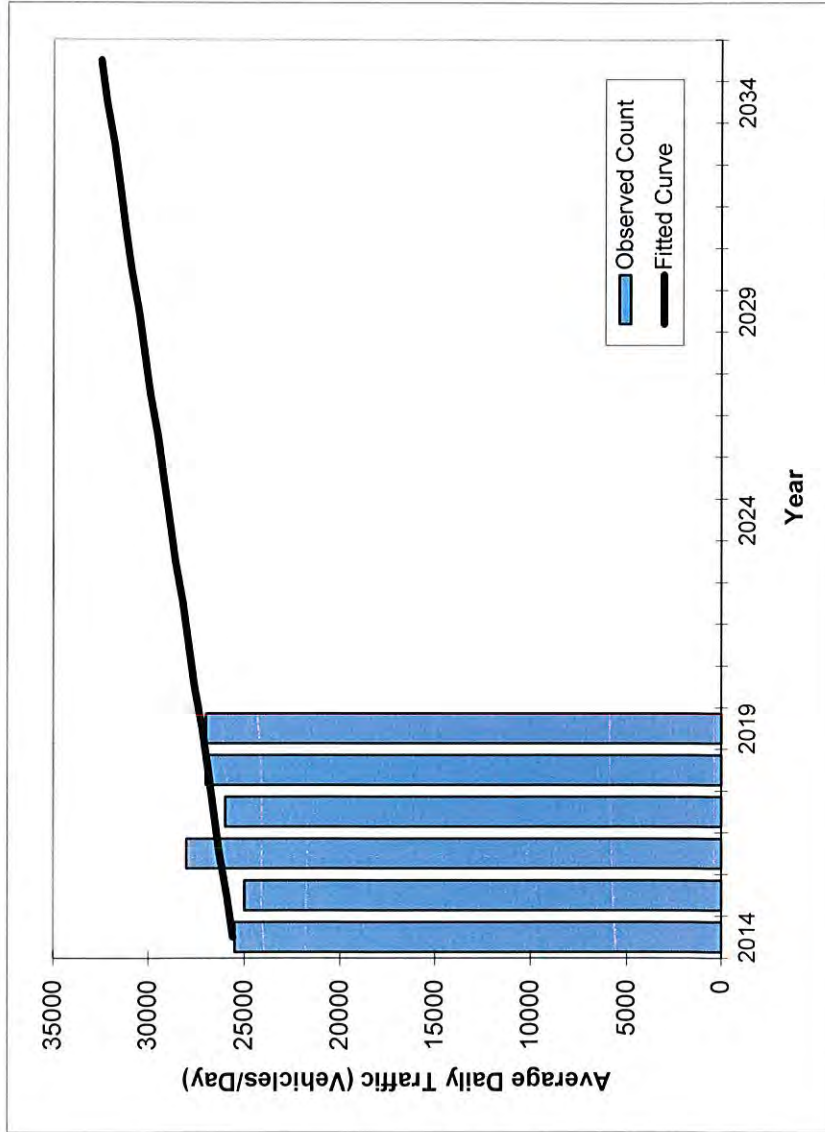
APPENDIX F

Trends Analysis Worksheets

Traffic Trends - V3.0 SR 524 , 0.054 MI N of SR 501 --

FIN#	1234
Location	1

County:	Brevard (70)
Station #:	70-0435
Highway:	SR 524 , 0.054 MI N of SR 501



** Annual Trend Increase:	329
Trend R-squared:	30.43%
Trend Annual Historic Growth Rate:	1.25%
Trend Growth Rate (2019 to Design Year):	1.23%
Printed:	27-Aug-20
Straight Line Growth Option	

Traffic (ADT/AADT)	
Year	Trend**
2014	25500
2015	25000
2016	28000
2017	26000
2018	27000
2019	27000
2021 Opening Year Trend	
2021	N/A
2023 Mid-Year Trend	
2023	N/A
2025 Design Year Trend	
2025	N/A
TRANPLAN Forecasts/Trends	

*Axle-Adjusted

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 70 - BREVARD

SITE: 0435 - ON SR-524, 0.054 MI. N OF SR-501 (UVL)

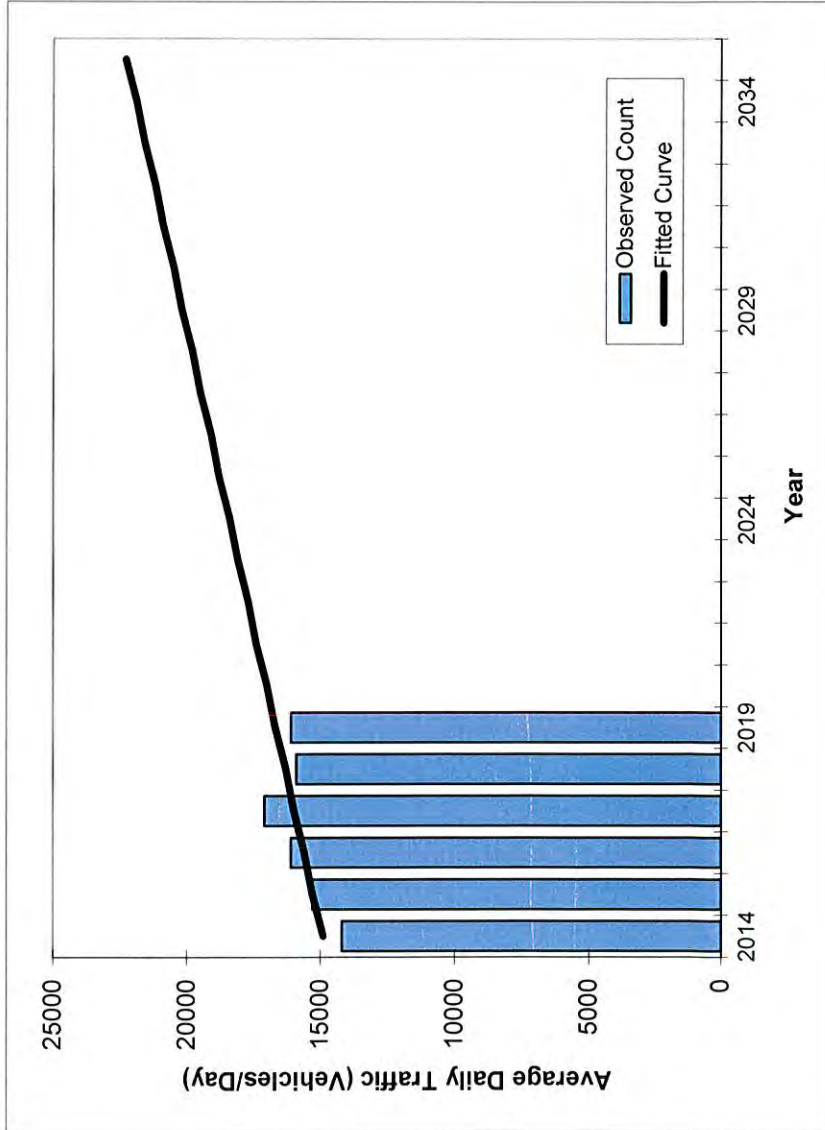
YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----	-----	-----	-----	-----	-----
2019	27000 S	N 14500	S 12500	9.00	54.70	9.10
2018	27000 F	N 14500	S 12500	9.00	54.10	10.30
2017	26000 C	N 14000	S 12000	9.00	54.30	10.60
2016	28000 C	N 12500	S 15500	9.00	53.40	6.50
2015	25000 C	N 12500	S 12500	9.00	53.80	6.40
2014	25500 C	N 13500	S 12000	9.00	53.80	7.10
2013	21000 C	N 11000	S 10000	9.00	54.20	8.90
2012	23000 C	N 11500	S 11500	9.00	53.60	6.80
2011	23000 C	N 11500	S 11500	9.00	54.30	7.20
2010	21000 C	N 10000	S 11000	10.91	56.02	5.70
2009	23500 C	N 12000	S 11500	11.80	61.02	7.40
2008	24000 C	N 12500	S 11500	11.37	57.79	6.70
2007	25500 C	N 13000	S 12500	9.20	54.21	6.00
2006	24500 C	N 12500	S 12000	11.35	57.22	7.80
2005	23000 C	N 9000	S 14000	11.30	53.80	4.80
2004	19400 C	N 10000	S 9400	10.10	56.80	3.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0 SR 524 , 0.664 MI . W of SR 501 --

FIN#	1234
Location	1

County:	Brevard (70)
Station #:	70-0426
Highway:	SR 524 , 0.664 MI . W of SR 501



** Annual Trend Increase:	351
Trend R-squared:	46.10%
Trend Annual Historic Growth Rate:	2.42%
Trend Growth Rate (2019 to Design Year):	2.10%
Printed:	27-Aug-20
Straight Line Growth Option	

Year	Traffic (ADT/AADT)	
	Count*	Trend**
2014	14200	14900
2015	15300	15300
2016	16100	15600
2017	17100	16000
2018	15900	16300
2019	16100	16700
2021 Opening Year Trend		
2021	N/A	17400
2023 Mid-Year Trend		
2023	N/A	18100
2025 Design Year Trend		
2025	N/A	18800
TRANPLAN Forecasts/Trends		

*Axle-Adjusted

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 70 - BREVARD

SITE: 0426 - ON SR-524, 0.664 MI. W OF SR-501 (UVL)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----	-----	-----	-----	-----	-----
2019	16100 F	E 8200	W 7900	9.00	54.70	9.10
2018	15900 C	E 8100	W 7800	9.00	54.10	10.30
2017	17100 C	E 8600	W 8500	9.00	54.30	10.60
2016	16100 C	E 8100	W 8000	9.00	53.40	6.50
2015	15300 C	E 7600	W 7700	9.00	53.80	6.40
2014	14200 C	E 7200	W 7000	9.00	53.80	7.10
2013	12100 C	E 5400	W 6700	9.00	54.20	8.90
2012	13400 C	E 6700	W 6700	9.00	53.60	6.80
2011	14500 C	E 7300	W 7200	9.00	54.30	7.20
2010	15000 C	E 7400	W 7600	10.91	56.02	5.70
2009	15000 C	E 7400	W 7600	11.80	61.02	7.40
2008	15200 C	E 7800	W 7400	11.37	57.79	6.70
2007	15800 C	E 7900	W 7900	10.03	55.54	6.00
2006	15000 C	E 7500	W 7500	11.35	57.22	7.80
2005	16700 C	E 8300	W 8400	11.30	53.80	7.60
2004	14400 C	E 7200	W 7200	10.10	56.80	3.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

APPENDIX G

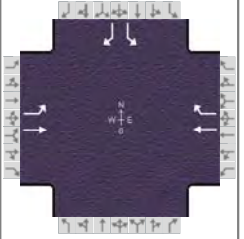
Projected HCS Capacity Worksheets

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	BH	Analysis Date	8/28/2020
Jurisdiction	Brevard County	Time Period	P.M. Peak Projected
Urban Street	SR 524	Analysis Year	2023
Intersection	SR 524 & London Blvd	File Name	SR 524 & London
Project Description	Cocoa Apartment		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	29	812			952	128				91		21

Signal Information

Cycle, s	91.3	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	3.3	63.1	6.9	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2				8
Case Number	1.0	4.0		7.3				9.0
Phase Duration, s	9.3	78.4		69.1				12.9
Change Period, (Y+R _c), s	6.0	6.0		6.0				6.0
Max Allow Headway (MAH), s	4.9	4.9		4.9				5.1
Queue Clearance Time (g _s), s	2.4	22.2		35.8				6.9
Green Extension Time (g _e), s	0.0	25.9		27.3				0.3
Phase Call Probability	0.55	1.00		1.00				0.95
Max Out Probability	1.00	0.28		0.22				0.03

Movement Group Results

Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6			2	12				3		18
Adjusted Flow Rate (v), veh/h	32	883			1035	139				99		23
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1710			1900					1810		
Queue Service Time (g_s), s	0.4	20.2			33.8					4.9		
Cycle Queue Clearance Time (g_c), s	0.4	20.2			33.8					4.9		
Green Ratio (g/C)	0.75	0.79			0.69					0.08		
Capacity (c), veh/h	323	1356			1313					137		
Volume-to-Capacity Ratio (X)	0.098	0.651			0.788					0.723		
Back of Queue (Q), ft/ln (95 th percentile)	9.6	121.7			357.6					110.3		
Back of Queue (Q), veh/ln (95 th percentile)	0.4	4.9			14.3					4.4		
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00			0.00					0.00		
Uniform Delay (d_1), s/veh	10.3	4.0			9.6					41.3		
Incremental Delay (d_2), s/veh	0.2	1.1			1.5					9.8		
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0					0.0		
Control Delay (d), s/veh	10.5	5.1			11.1	0.0				51.1		0.0
Level of Service (LOS)	B	A			B	A				D		A
Approach Delay, s/veh / LOS	5.3	A		9.8	A		0.0			41.5	D	
Intersection Delay, s/veh / LOS	9.7						A					

Multimodal Results

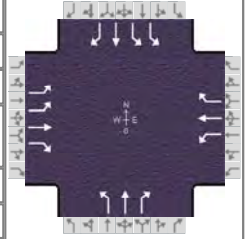
	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	0.63		A	1.86		B	1.96		B	1.96		B
Bicycle LOS Score / LOS	2.00		B	2.42		B						F

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	BH	Analysis Date	8/28/2020
Jurisdiction	Brevard County	Time Period	P.M. Peak Projected
Urban Street	SR 524	Analysis Year	2023
Intersection	SR 524 & Industry Rd	File Name	SR 524 & Industry
Project Description	Cocoa Apartment		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	537	445	27	41	519	548	29	112	126	435	143	599

Signal Information

Cycle, s	120.4	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	4.6	10.9	34.0	3.9	9.3	21.7		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	4.0	4.0		
				Red	2.0	2.0	2.0	2.0	2.0	2.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0
Phase Duration, s	27.5	56.9	10.6	40.0	9.9	27.7	25.1	43.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	4.9	5.0	4.9	5.0	5.0	5.2	5.0	5.2
Queue Clearance Time (g_s), s	20.0	25.9	4.7	36.0	3.9	8.3	16.4	39.0
Green Extension Time (g_e), s	1.5	0.0	0.0	0.0	0.0	0.0	2.7	0.0
Phase Call Probability	1.00	1.00	0.77	1.00	0.64	1.00	1.00	1.00
Max Out Probability	0.98	1.00	1.00	1.00	1.00	1.00	0.01	1.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	571	473	29	44	552	583	31	119	102	463	152	563
Adjusted Saturation Flow Rate (s), veh/h/ln	1853	1847	1699	1909	2004		1909	2004	1699	1853	2004	1699
Queue Service Time (g_s), s	18.0	23.9	1.2	2.7	32.9		1.9	6.2	6.3	14.4	6.9	37.0
Cycle Queue Clearance Time (g_c), s	18.0	23.9	1.2	2.7	32.9		1.9	6.2	6.3	14.4	6.9	37.0
Green Ratio (g/C)	0.18	0.42	0.42	0.04	0.28		0.03	0.18	0.18	0.16	0.31	0.31
Capacity (c), veh/h	663	781	719	73	566		61	362	306	589	616	522
Volume-to-Capacity Ratio (X)	0.861	0.606	0.040	0.597	0.976		0.504	0.329	0.333	0.786	0.247	1.078
Back of Queue (Q), ft/ln (95 th percentile)	343.6	415.3	20.5	66.8	695.4		47.8	140.3	120.8	277.9	148.7	840.6
Back of Queue (Q), veh/ln (95 th percentile)	13.6	15.3	0.8	2.7	27.6		1.9	5.6	4.8	11.0	5.9	33.4
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	48.0	26.9	20.4	57.0	42.8		57.3	43.0	43.0	48.7	31.3	41.7
Incremental Delay (d_2), s/veh	9.4	1.6	0.0	10.6	31.6		8.8	0.8	0.9	3.3	0.3	62.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	57.4	28.5	20.4	67.6	74.4	0.0	66.2	43.7	43.9	52.0	31.6	103.8
Level of Service (LOS)	E	C	C	E	E	A	E	D	D	D	C	F
Approach Delay, s/veh / LOS	43.7		D	37.4		D	46.6		D	74.1		E
Intersection Delay, s/veh / LOS	51.6						D					

Multimodal Results

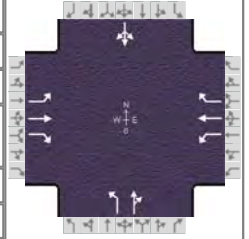
	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.15		B	2.55		C	2.31		B	2.29		B
Bicycle LOS Score / LOS	2.26		B	2.43		B	0.90		A	2.43		B

HCS7 Signalized Intersection Results Summary

General Information

Agency	TPD, Inc.		
Analyst	BH	Analysis Date	8/28/2020
Jurisdiction	Brevard County	Time Period	P.M. Peak Projected
Urban Street	SR 524	Analysis Year	2023
Intersection	SR 524 & CVS Entrance	File Name	SR 524 & CVS En
Project Description	Cocoa Apartment		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	72	788	62	32	897	132	140	18	18	171	8	91

Signal Information

Cycle, s	107.2	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	3.9	42.1	5.7	10.0	15.4	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
				Red	2.0	2.0	2.0	2.0	2.0	0.0	

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	2.0	3.0	2.0	3.0		10.0		12.0
Phase Duration, s	11.7	59.9	9.9	58.0		16.0		21.4
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	4.9	4.9	4.9	4.9		5.0		5.0
Queue Clearance Time (g _s), s	6.3	41.9	3.9	54.0		10.3		15.0
Green Extension Time (g _e), s	0.0	0.0	0.0	0.0		0.0		0.5
Phase Call Probability	0.90	1.00	0.64	1.00		1.00		1.00
Max Out Probability	1.00	1.00	0.28	1.00		1.00		1.00

Movement Group Results

Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	78	857	67	35	975	143	152	28			234	
Adjusted Saturation Flow Rate (s), veh/h/ln	1905	2000	1695	1905	2000	1695	1924	1914			1888	
Queue Service Time (g_s), s	4.3	39.9	2.2	1.9	52.0	5.1	8.3	1.5			13.0	
Cycle Queue Clearance Time (g_c), s	4.3	39.9	2.2	1.9	52.0	5.1	8.3	1.5			13.0	
Green Ratio (g/C)	0.05	0.50	0.50	0.04	0.49	0.49	0.09	0.09			0.14	
Capacity (c), veh/h	102	1005	852	69	970	822	180	179			272	
Volume-to-Capacity Ratio (X)	0.769	0.852	0.079	0.506	1.005	0.174	0.848	0.158			0.859	
Back of Queue (Q), ft/ln (95 th percentile)	125.6	631.9	34.6	46.1	961.6	81.1	230	31.5			287.8	
Back of Queue (Q), veh/ln (95 th percentile)	5.0	25.3	1.4	1.8	38.5	3.2	9.2	1.3			11.5	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00	
Uniform Delay (d_1), s/veh	50.1	23.2	13.8	50.7	27.6	15.5	47.8	44.7			44.8	
Incremental Delay (d_2), s/veh	29.0	7.4	0.1	8.0	30.0	0.1	30.5	0.6			17.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Control Delay (d), s/veh	79.1	30.6	13.9	58.7	57.6	15.7	78.3	45.3			61.8	
Level of Service (LOS)	E	C	B	E	F	B	E	D			E	
Approach Delay, s/veh / LOS	33.2	C		52.4	D		73.1	E		61.8	E	
Intersection Delay, s/veh / LOS	47.3						D					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.92		B	1.81		B	2.14		B	2.15		B
Bicycle LOS Score / LOS	2.14		B	2.39		B	0.79		A	0.87		A



O'ROURKE
ENGINEERING & PLANNING

TRAFFIC ANALYSIS
FOR
RETREAT AT COCOA COMMONS

Prepared for:

Mr. Gabe Ehrenstein
Arbour Valley Communities

Prepared by:

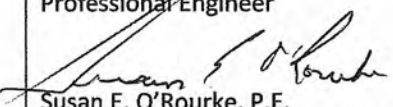
O'Rourke Engineering & Planning
22 SE Seminole Street
Stuart, Florida 34994
(772) 781-7918

October 15, 2020
Updated December 18, 2020
Updated March 9, 2021

BR19041.0

Prepared by:
O'Rourke Engineering & Planning
Certificate of Authorization: #26869
22 SE Seminole Street
Stuart, Florida 34994
772-781-7918

Professional Engineer


Susan E. O'Rourke, P.E.

Date signed and sealed: 3/9/2021

License #: 42684



O'ROURKE
ENGINEERING & PLANNING

December 18, 2020

Mr. Gabe Ehrenstein
Principal
Arbour Valley Communities
gabe@arbourvalley.com

Re: Retreat at Cocoa Commons

Dear Mr. Ehrenstein:

O'Rourke Engineering & Planning has completed the analysis for the residential development on the southeast corner of SR-524 and London Boulevard in the City of Cocoa, Brevard County. The steps in the analysis and the ensuing results are presented herein.

It has been a pleasure working with you. If you have any questions or comments, please give me a call.

Respectfully submitted,
O'ROURKE ENGINEERING & PLANNING

Susan E. O'Rourke, P.E.
Registered Civil Engineer – Traffic

TABLE OF CONTENTS

INTRODUCTION	1
PROJECT DESCRIPTION	1
ROADWAY CONDITIONS	1
PROJECT TRAFFIC	3
PROJECT DISTRIBUTION/ASSIGNMENT/IMPACT	3
FUTURE ROADWAY AND TRAFFIC CONDITIONS	8
DRIVEWAY / INTERSECTION ANALYSIS	8
CONCLUSION	8

TABLES

TABLE 1: Trip Generation	4
TABLE 2: Link Analysis	9

FIGURES

FIGURE 1: Project Location/Site Plan	2
FIGURE 2a: 2022 Total Driveway Volumes	5
FIGURE 2b: Residential Driveway Volumes	6
FIGURE 2c: Retail Driveway Volumes	7

APPENDIX

APPENDIX A: Space Coast 2019 Traffic Counts Report/FDOT Quality LOS Tables/Artplan	
APPENDIX B: Project Driveway/London Boulevard/SR 524 Data and Analysis	

INTRODUCTION

O'Rourke Engineering & Planning was retained to prepare a traffic concurrency analysis for the proposed revision to an approved residential development to be located on the southeast corner of SR-524 and London Boulevard in the City of Cocoa, Brevard County, Florida. The purpose of this report is to determine the change in project impact on the surrounding roadway system.

In order to make the determination that the project complies with City and County Concurrency Guidelines, the following analytical steps were taken:

- ♦ summary of the project,
- ♦ summary of existing lane geometrics,
- ♦ summary of maximum allowable service volumes,
- ♦ assessment of project traffic,
- ♦ determination of study area,
- ♦ summary of short term cumulative traffic volumes,
- ♦ summary of levels of service with the project traffic added

Each of these steps is outlined herein.

PROJECT DESCRIPTION

The Retreat at Cocoa Commons is a residential development with 96 senior attached units. The site has an approval for 61 multifamily townhomes. The project has an expected buildout of 2022. The project is located on the southeast corner of SR-524 and London Boulevard. The project location/site plan is shown in **Figure 1**.

ROADWAY CONDITIONS

The study area is limited to the immediately accessed links, since there is a net decrease in traffic. The study area roadways were defined in terms of existing lane geometrics and existing traffic volumes.

Existing/Committed Lane Geometrics

The study area was reviewed to determine the existing number and type of lanes along the roadway. Each roadway is described below.

- SR-524 is a two-lane arterial roadway with a northeast/southwest alignment.



CD & 650K
SHEET NO.
MIP-1

Master Improvements Plan				
DATE	SCALE	DESIGNED BY	DRAWN BY	JOB NO.
08/06/2020	1"=50'	JHT	DBI	1909-1295

Figure 1
Retreat at Cocoa Commons

Cocoa, Florida

Jeff H. Kravani, Inc.
Consulting Engineers
1934 COMMERCE LANE, SUITE 5
JUPITER, FLORIDA 33458
TEL: (561) 575-6030
FAX: (561) 575-6088
EMAIL: jhkravani@earthlink.net
WEBSITE: www.jhinc.com

INVESTIGATOR

PROJECT TRAFFIC

To estimate traffic generated by the project, the ITE Trip Generation, 10th Edition trip rates were applied to the proposed and approved project uses. These calculations provide an estimate of the typical generation. Trip generation for the project is shown in **Table 1**.

As shown, the project will generate net 59 fewer daily trips, 11 fewer AM peak hour trips, and 13 fewer PM peak hour trips. No link analyses are required since the proposed project generates fewer trips than approved. However, the County has indicated that for concurrency purposes, the entire project should be evaluated on SR 524.

PROJECT DISTRIBUTION/ASSIGNMENT/IMPACT

The project traffic was distributed using the original assignment from the previous Traffic Study conducted for the site dated August 6, 2018. The previous assignment was generated using the FSUTMS Central Florida Regional Planning Model. All traffic was assigned to London Boulevard at SR-524. Although there is a cross access to Coventry Court, no traffic was assigned to that entry to remain consistent with the original approved assumptions.

Distribution/Assignment – This general distribution led to an assignment of trips to the Project Driveway/London Boulevard/SR 524 intersection based on the anticipated ultimate destinations. The project percent assignment and total assignment on SR 524 and at the intersection is shown in **Figures 2a**. **Figures 2b** and **2c** illustrate the residential and retail components, respectively.

Table 1

Trip Generation - Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Proposed Land Use									
Senior Adult Living - Attached	252	96	DU	$T=4.02(X)-25.37$	50%	50%	181	180	361
Existing Land Use									
Multifamily Housing (Low-Rise)	220	61	DU	$T = 7.56(X) - 40.86$	50%	50%	210	210	420
Net Change							(29)	(30)	(59)

Source: Palm Beach County Trip Generation Rates, March 2, 2020

Trip Generation - AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Proposed Land Use									
Senior Adult Living - Attached	252	96	DU	$T=0.20(X)-0.18$	35%	65%	7	12	19
Existing Land Use									
Multifamily Housing (Low-Rise)	220	61	DU	$\ln(T)=0.95\ln(X)-0.51$	23%	77%	7	23	30
Net Change							-	(11)	(11)

Source: Palm Beach County Trip Generation Rates, March 2, 2020

Trip Generation - PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Proposed Land Use									
Senior Adult Living - Attached	252	96	DU	$T=0.24(X)+2.26$	55%	45%	14	11	25
Existing Land Use									
Multifamily Housing (Low-Rise)	220	61	DU	$\ln(T) = 0.89\ln(X) - 0.02$	63%	37%	24	14	38
Net Change							(10)	(3)	(13)

Source: Palm Beach County Trip Generation Rates, March 2, 2020

Total Combined		IN	OUT
AM		132	88
PM		270	289

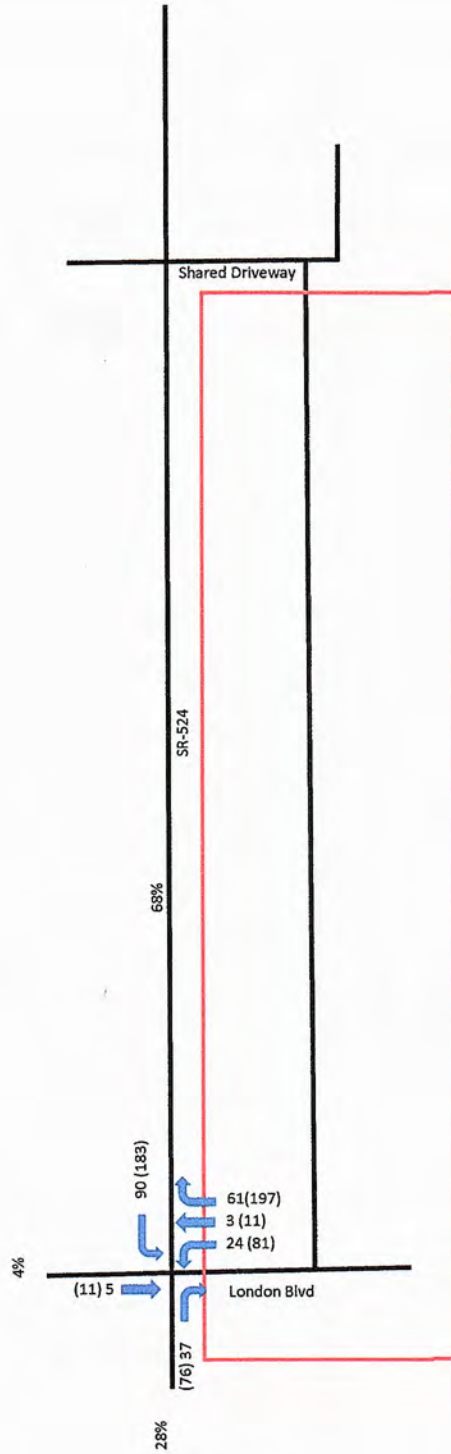


Figure 2a
Total Driveway Volumes
Retreat at Cocoa Commons

Legend
 %XX = Project Assignment
 XX = AM Project Traffic
 (XX) = PM Project Traffic



22 SE Seminole Street
Stuart, FL 34994

Date:



NTS

Job Number:

Project Trips			
	IN	OUT	
AM	7	12	
PM	14	11	

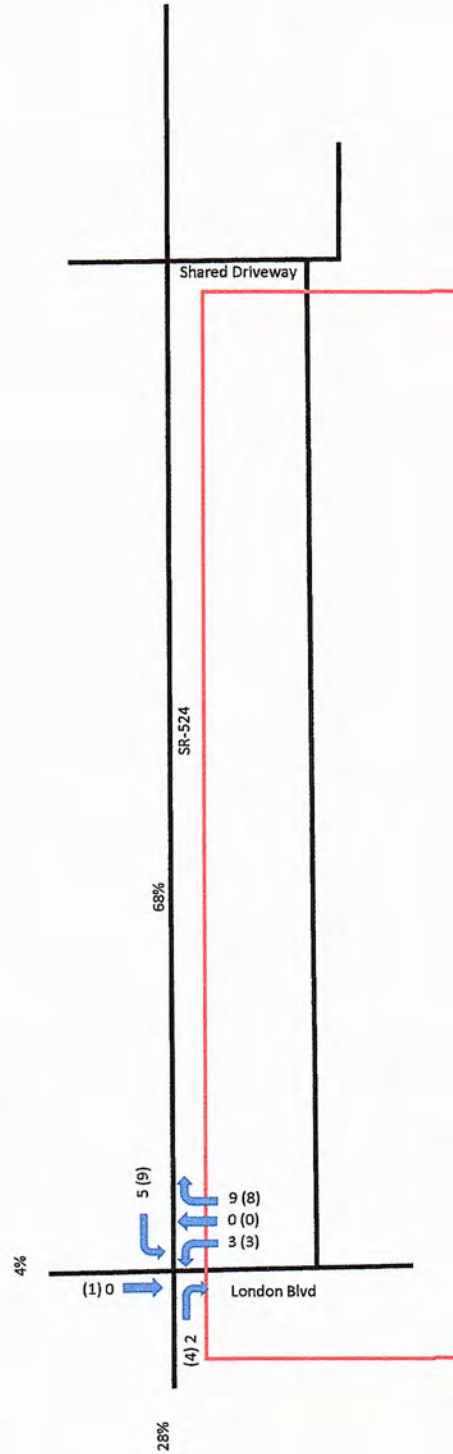


Figure 2b
Residential Driveway Volumes
Retreat at Cocoa Commons

Legend
%XX = Project Assignment
XX = AM Project Traffic
(XX) = PM Project Traffic



22 SE Seminole Street
Stuart, FL 34994

Date:



NTS

Job Number:

Retail Background

	IN	OUT
AM	125	76
PM	256	278

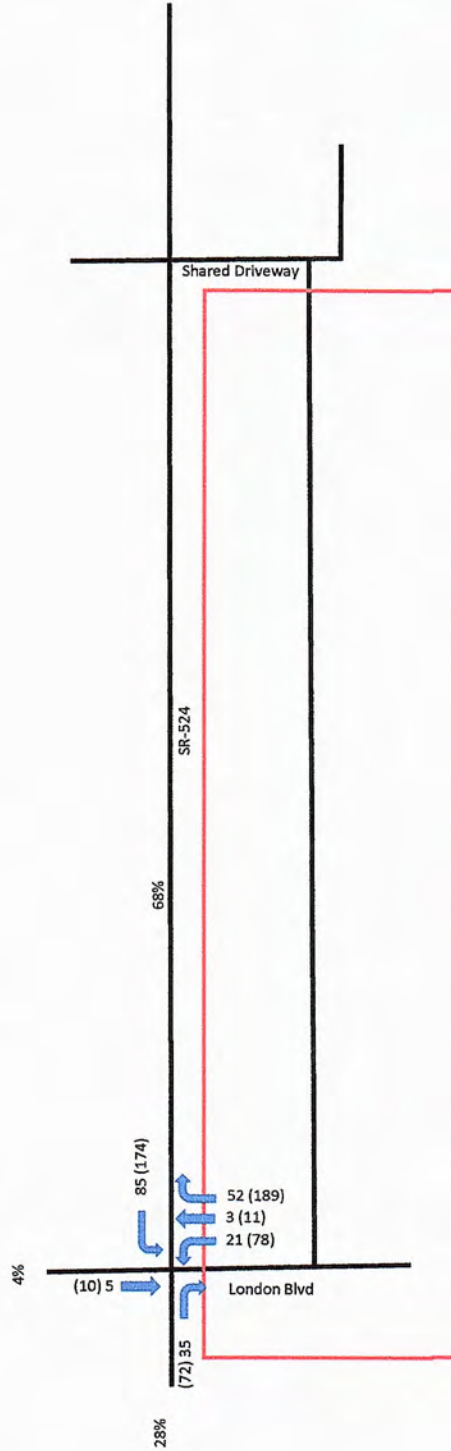


Figure 2c
Retail Driveway Volumes
Retreat at Cocoa Commons

Legend

%XX = Project Assignment
XX = AM Project Traffic
(XX) = PM Project Traffic



22 SE Seminole Street
Stuart, FL 34994

Date:



NTS

Job Number:

FUTURE ROADWAY AND TRAFFIC CONDITIONS

Future Volumes

The Retreat at Cocoa Commons is de minimis and therefore link analyses are not required. The project is estimated to be completed by 2022. To estimate 2022 volumes at the Project Driveway/London Boulevard/SR 524 intersection, the turning movement counts for the intersection were used. The growth rate of 2.05% per year was calculated using a 5-year historic growth rate from 2014 and 2019 AADT's on SR 524. Traffic from previously approved project Integra, Cirrus Apartments, and the retail component of Cocoa Commons plus Cocoa Landing were added as well. The project traffic was then added to the grown volumes to estimate the 2022 future Total Traffic volumes.

Table 2 summarizes the resulting impacts on SR 524. As shown, arterial analysis was used to demonstrate level of service compliance between the project and Industry Road. **Appendix A** provides the Space Coast 2019 Traffic Counts Report, other project data, growth rate calculation, and the Artplan analysis.

DRIVEWAY/INTERSECTION ANALYSIS

The project will have one full access driveway located on SR-524, which has a speed limit of 45 mph. A 340-foot westbound left turn lane, 265-foot eastbound right turn lane, and a 285 feet northbound approach exist at the intersection. The project driveway was analyzed for the AM and PM peak hours using HCS for unsignalized intersections to establish the level of service and determine that the queues could be accommodated in the existing turn lanes. The driveway will operate at a LOS A in the AM peak hour and a LOS B in the PM peak hour. The queues in the westbound left – 111 feet, eastbound right – 18 feet, and northbound approach – 139 feet, will be accommodated with the existing intersection design. The driveway analysis is included in **Appendix B**.

CONCLUSION

The Retreat at Cocoa Commons project has a reduction in traffic impact of 59 daily trips with 11 AM peak hour trips and 13 PM peak hour trips. However, looking at the cumulative impacts of the residential and retail components, plus Integra, plus Cirrus, level of service will be acceptable. Although the theoretical capacity was excluded, Artplan demonstrated acceptable level of service. Based on the data and calculations presented herein, the project does not require additional analysis and is deemed to be consistent with transportation concurrency requirements.

Cocoa Commons Link Analysis - AADT

Segment	From	To	Lanes (E+C)	Functional Class	LOS D MAV ⁽¹⁾	Is Project Traffic More than 2% of Capacity?	2019 AADT	Growth Rate (Historic 3-Year)	2022 AADT	Census Apartments	Integra	Cocoa Landing	Cocoa Commons Retail	2022 AADT Growth + Background	Cocoa Commons (project)	2022 Total AADT (existing+growth+Integra+Cocoa Commons+Cirrus)	Does Project Meet Concurrency?
SR-524	Cox Rd	Project Entrance Industry Rd	2L	Urban Minor Arterial	19470	No	13380	1.02	14199	577	680	1313	1093	17843	101	17944	Yes
	Project Entrance		2L	Urban Minor Arterial	19470	No	13380	1.02	14199	2512	698	2335	2655	22387	245	22633	No

Source: Space Coast TPO Traffic Counts 2019

(1) Space Coast TPO, 17,700 x 1.10

Time: 361
Years Growth: 3

Cocoa Commons Link Analysis - AM Peak Hour

Segment	From	To	Direction	Lanes (E+C)	Functional Class	LOS D ⁽²⁾	Is Project Traffic More than 2% of Capacity?	2019 Peak Hour (Directional)	Growth Rate (Historic 3-Year)	2022 Peak Hour (Directional)	Census Apartments	Integra	Cocoa Landing	Cocoa Commons Retail	2022 Peak Hour Growth + Background	Cocoa Commons (project)	2022 Total Peak Hour (existing+growth+Integra+Cocoa Commons+Cirrus)	Does Project Meet Concurrency?
SR-524	Cox Rd	Project Entrance	EB	IN	2L	Urban Minor Arterial	No	452	1.02	522	6	11	18	25	582	2	594	Yes
	Project Entrance	Project Entrance	WB	OUT	2L	Urban Minor Arterial	No	455	1.02	483	17	33	60	12	604	3	607	Yes
	Cox Rd	Project Entrance	EB	OUT	2L	Urban Minor Arterial	No	492	1.02	522	75	34	106	29	768	8	774	Yes
	Project Entrance	Industry Rd	WB	IN	2L	Urban Minor Arterial	No	455	1.02	483	27	12	31	62	615	5	620	Yes

Source: Space Coast TPO Traffic Counts 2019

(1) From TMC at SR-524 & Cox Rd

(2) 880 x 1.10 = 968

IN: 7
OUT: 12
Years Growth: 3

Cocoa Commons Link Analysis - PM Peak Hour

Segment	From	To	Direction	Lanes (E+C)	Functional Class	LOS D ⁽²⁾	Is Project Traffic More than 2% of Capacity?	2019 Peak Hour (Directional)	Growth Rate (Historic 3-Year)	2022 Peak Hour (Directional)	Census Apartments	Integra	Cocoa Landing	Cocoa Commons Retail	2022 Peak Hour Growth + Background	Cocoa Commons (project)	2022 Total Peak Hour (existing+growth+Integra+Cocoa Commons+Cirrus)	Does Project Meet Concurrency?
SR-524	Cox Rd	Project Entrance	EB	IN	2L	Urban Minor Arterial	No	555	1.02	689	25	33	55	46	748	4	752	Yes
	Project Entrance	Project Entrance	WB	OUT	2L	Urban Minor Arterial	No	684	1.02	726	19	21	32	52	850	3	853	Yes
	Cox Rd	Project Entrance	EB	OUT	2L	Urban Minor Arterial	No	555	1.02	589	83	22	58	124	876	7	883	Yes
	Project Entrance	Industry Rd	WB	IN	2L	Urban Minor Arterial	No	684	1.02	726	107	34	87	110	1074	10	1084	Yes ⁽³⁾

Source: Space Coast TPO Traffic Counts 2019

(1) From TMC at SR-524 & Cox Rd

(2) 880 x 1.10 = 968

(3) Level of Service Demonstrated with an Arplan Analysis

IN: 14
OUT: 11
Years Growth: 3

APPENDIX A

Space Coast 2019 Traffic Counts Report

FDOT Quality LOS Tables

Approved Project Data

Historical Growth Rate Calculation

Segment	From	To	2014 AADT	2019 AADT	5 Year Historical Growth Rate
SR524	Cox	Industry Rd	12,090	13,380	2.05%

*Source Space Coast TPO Historical Traffic Counts

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2010 - 2019

ID	ROAD	SEGMENT (Sections)	2010 AADT	2011 AADT	2012 AADT	2013 AADT	2014 AADT	2015 AADT	2016 AADT	2017 AADT	2018 AADT	2019 AADT	Current MAV	Last Count Taken	Functional Classification
AREA: CENTRAL															
18	SPYGLASS HILL	MURRELL-PINEHURST	4,320	4,250	3,980	3,980	3,780	3,960	4,240	4,720	4,640	4,780	15,600	1/14/2019	Urban Minor Collector
534	SR 520	ORANGE CO.-I-95	14,937	16,157	14,740	15,090	15,167	17,220	16,670	16,637	16,567	17,160	40,300	1/23/2019	Rural Principal Arterial Other
1	SR 520	ORANGE CO.-SR 524	12,790	14,750	13,480	13,140	12,760	15,950	15,170	15,750	12,240	16,010	41,790	3/5/2019	Urban Principal Arterial-Other
84	SR 520	SR 524-Friday	14,710	15,180	13,290	14,050	13,990	15,720	14,880	14,320	16,610	14,650	41,790	1/23/2019	Urban Principal Arterial-Other
2	SR 520	Friday-I-95	17,910	18,540	17,450	18,080	18,750	19,990	19,960	19,840	20,850	20,820	41,790	1/23/2019	Urban Principal Arterial-Other
3	SR 520	I-95-CLEARLAKE	21,343	19,957	19,850	20,367	20,583	23,857	22,600	21,240	20,573	23,173	41,790	1/28/2019	Urban Principal Arterial-Other
14	SR 520	I-95-Burnett	20,710	19,420	19,910	20,200	21,440	24,190	22,190	21,780	21,740	21,650	41,790	1/28/2019	Urban Principal Arterial-Other
4	SR 520	Burnett-Range	21,640	20,040	20,350	19,980	19,680	24,180	22,970	21,040	20,040	21,280	41,790	1/28/2019	Urban Principal Arterial-Other
5	SR 520	Range-Clearlake	22,115	21,390	20,045	21,385	24,880	24,575	22,915	22,735	22,115	22,115	39,800	1/23/2019	Urban Principal Arterial-Other
6	SR 520	Clearlake-Lake	19,950	19,630	18,380	19,160	19,560	22,860	22,870	20,200	20,800	20,400	39,800	1/23/2019	Urban Principal Arterial-Other
7	SR 520	Lake-Fiske	24,280	23,150	21,710	22,470	23,210	26,900	26,280	25,630	24,670	23,830	39,800	1/23/2019	Urban Principal Arterial-Other
8	SR 520	FISKE-US 1	25,505	25,210	23,390	23,775	25,160	28,120	28,250	26,600	25,495	25,275	41,790	1/23/2019	Urban Principal Arterial-Other
9	SR 520	Fiske-Blake	25,490	25,310	23,390	23,820	25,090	28,270	28,430	26,540	25,550	25,280	41,790	1/23/2019	Urban Principal Arterial-Other
10	SR 520	Blake-US 1	25,520	25,110	NC	23,730	25,230	27,970	28,070	26,660	25,440	25,270	41,790	1/23/2019	Urban Principal Arterial-Other
11	SR 520	US 1-CAUSEWAY (EB)	19,695	20,125	19,215	19,838	19,020	21,483	18,600	20,718	20,855	21,135	19,440	1/22/2019	Urban Principal Arterial-Other
12	SR 520	US 1-Forrest	13,790	15,200	14,530	15,570	17,090	18,210	13,820	16,750	17,250	16,830	19,440	1/22/2019	Urban Principal Arterial-Other
13	SR 520	Forrest-Brevard	21,780	21,710	20,280	21,020	19,560	21,850	19,620	22,460	20,930	22,250	19,440	1/22/2019	Urban Principal Arterial-Other
14	SR 520	Brevard-Delannoy	20,970	21,450	20,280	20,900	19,450	22,930	22,010	21,670	22,280	22,500	19,440	1/22/2019	Urban Principal Arterial-Other
15	SR 520	Delannoy-Riveredge	22,240	22,140	21,770	21,860	19,980	22,940	18,950	21,990	22,960	22,960	19,440	1/22/2019	Urban Principal Arterial-Other
16	SR 520	CAUSEWAY-US 1 (WB)	22,790	21,085	20,205	20,770	20,643	21,703	20,098	21,220	20,920	21,915	19,440	1/22/2019	Urban Principal Arterial-Other
17	SR 520	Causeway-Delannoy	22,570	23,220	21,860	22,160	21,250	23,700	23,050	21,130	22,990	22,780	19,440	1/22/2019	Urban Principal Arterial-Other
18	SR 520	Delannoy-Brevard	24,230	24,360	23,150	23,970	23,100	23,460	21,900	24,290	22,980	24,250	19,440	1/22/2019	Urban Principal Arterial-Other
19	SR 520	Brevard-Forrest	21,710	21,530	21,080	21,220	21,560	22,400	18,690	21,810	20,680	21,610	19,440	1/22/2019	Urban Principal Arterial-Other
20	SR 520	Forrest-US 1	14,650	15,230	14,730	15,730	16,660	17,250	16,750	17,650	17,050	19,020	19,440	1/22/2019	Urban Principal Arterial-Other
21	SR 520	SR 520-I-95	4,680	4,850	4,400	4,670	4,530	5,690	5,300	5,890	7,200	6,870	24,200	1/23/2019	Urban Minor Arterial
22	SR 520	I-95-INDUSTRY RD	11,490	11,180	10,795	11,220	10,880	12,765	12,605	11,710	13,860	12,540	18,590	1/23/2019	Urban Minor Arterial
23	SR 520	I-95-Cox	10,050	9,810	9,610	9,780	9,870	11,440	11,170	10,460	12,690	11,700	19,470	1/23/2019	Urban Minor Arterial
24	SR 520	Cox-Industry Rd	12,930	12,550	11,980	12,660	12,090	14,080	14,040	12,960	15,030	13,380	43,000	3/12/2019	Rural Principal Arterial - Freeways & Expressways
25	SR 520	ORANGE CO.-I-95	26,750	28,240	26,205	27,835	28,320	34,205	31,740	33,780	40,640	37,805	43,000	1/29/2019	Rural Principal Arterial - Freeways & Expressways
26	SR 520	SR 407-I-95	29,770	31,790	28,950	30,820	30,220	37,830	35,120	37,330	40,640	42,560	43,000	1/29/2019	Rural Principal Arterial - Freeways & Expressways
27	SR 520	I-95-US 1	25,550	25,950	24,945	25,860	25,315	30,165	27,775	28,340	31,000	32,730	74,400	1/29/2019	Urban Principal Arterial - Freeways & Expressways
28	SR 520	I-95-INDUSTRY RD	20,820	21,360	20,720	21,000	23,050	23,030	22,810	23,290	29,350	28,880	74,400	1/29/2019	Urban Principal Arterial - Freeways & Expressways
29	SR 520	INDUSTRY RD-US 1	30,280	30,540	29,170	30,720	27,580	37,300	32,740	33,390	32,650	36,580	17,700	1/14/2019	Urban Minor Arterial
30	SR 520	WICKHAM-JAMIESON	15,500	15,880	15,585	16,515	16,965	17,707	18,173	19,337	20,273	20,780	39,800	1/16/2019	Urban Minor Arterial
31	SR 520	JAMIESON-I-95	16,570	17,350	17,250	18,270	18,910	19,950	20,890	22,170	22,920	23,650	39,800	1/16/2019	Urban Minor Arterial
32	SR 520	VIERA BLVD.-ROSEMOUNT DR	14,430	14,410	13,920	14,760	15,020	17,190	17,510	18,680	20,030	20,230	15,600	1/14/2019	Urban Local
33	SR 520	JAMIESON-VIERA BLVD	32,480	33,950	27,120	29,530	31,853	2,890	2,680	2,650	3,160	2,290	15,600	1/16/2019	Urban Local
34	SR 520	VIERA BLVD-STADIUM PARKWAY	39,470	42,600	NC	33,100	37,580	32,577	32,687	30,737	32,013	31,497	41,790	1/14/2019	Urban Principal Arterial-Other
35	SR 520	PINEDA-BARNES	30,740	31,160	28,680	28,770	31,550	32,650	31,520	30,670	31,070	29,740	41,790	3/6/2019	Urban Principal Arterial-Other
36	SR 520	Sunrise Blvd-Viera Blvd	27,230	28,090	25,560	26,720	26,430	27,770	27,790	27,200	26,240	27,210	41,790	3/13/2019	Urban Principal Arterial-Other
37	SR 520	Viera Blvd-Barnes	24,700	25,800	23,920	26,150	25,690	25,980	26,300	25,060	26,090	26,340	41,790	3/12/2019	Urban Principal Arterial-Other
38	SR 520	BARNES-EYSTER													

*Note: 2016 AADT's Beaches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted; UC=Under Construction

Table II - 7: Existing Roadway Performance

ROAD NAME	FROM	TO	JURIS	CLASS	LANES	2006-2007 Counts						Adopted LOS	FDOT Class	Max. Serv. Vol.			LOS
						ADT	K	D	Peak Dir.	C	D			E			
Adamson Rd.	Coconut Av.	SR 524	County	UC	2	4,500	9.5%	55.0%	235	D	Major Non-State	738	792	792	C		
Beachline Expressway (SR 528)	Interstate 95	E. Industry Rd.	State	LAIH	4	25,790	9.5%	55.0%	1,348	D	Freeway > 2 miles	3,020	3,720	4,020	C		
	E. Industry Rd.	US 1	State	LAIH	4	25,790	9.5%	55.0%	1,348	D	Freeway > 2 miles	3,020	3,720	4,020	C		
	US 1	East of US 1	State	LAIH	4	36,720	9.5%	55.0%	1,919	D	Freeway > 2 miles	3,020	3,720	4,020	C		
Bennett Causeway (SR 524)	SR 520	Friday Rd.	State	UPA	2	5,080	9.5%	55.0%	265	D	I	820	880	880	C		
	Friday Rd.	Interstate 95	State	UPA	2	5,080	9.5%	55.0%	265	D	I	820	880	880	C		
	Interstate 95	Friday Rd.	State	UPA	2	11,720	9.5%	55.0%	612	D	I	820	880	880	C		
	Friday Rd.	Cox Rd.	State	UPA	2	11,720	9.5%	55.0%	612	D	I	820	880	880	C		
	Cox Rd.	E. Industry Rd.	State	UPA	2	11,720	9.5%	55.0%	612	D	I	820	880	880	C		
	E. Industry Rd.	Clearlake Rd.	State	UPA	4	22,150	9.5%	55.0%	1,157	D	I	1,890	1,960	1,960	C		
Clearlake Rd.	SR 524	Michigan Av.	State	UPA	4	20,160	9.5%	55.0%	1,053	D	I	1,890	1,960	1,960	C		
	Michigan Av.	Dixon Blvd.	State	UPA	4	20,160	9.5%	55.0%	1,053	D	I	1,890	1,960	1,960	C		
	Dixon Blvd.	Lake Dr.	State	UPA	4	19,220	9.5%	55.0%	1,004	D	I	1,890	1,960	1,960	C		
	Lake Dr.	SR 520	State	UPA	4	19,220	9.5%	55.0%	1,004	D	I	1,890	1,960	1,960	C		
Cocoa Blvd. (US 1)	SR 520	Pluckebaum Rd.	State	UPA	2	5,390	9.5%	55.0%	282	D	I	820	880	880	C		
	Cidco Rd.	SR 528	State	UPA	4		9.5%	55.0%	0	D	I	1,890	1,960	1,960	C		
	SR 528	Michigan Av.	State	UPA	4	33,710	9.5%	55.0%	1,761	D	I	1,890	1,960	1,960	C		
	Michigan Av.	Dixon Blvd.	State	UPA	4	33,710	9.5%	55.0%	1,761	D	I	1,890	1,960	1,960	C		
	Dixon Blvd.	Forrest Av.	State	UPA	4	24,540	9.5%	55.0%	1,282	D	I	1,890	1,960	1,960	C		
	Forrest Av.	Peachtree St.	State	UPA	4		9.5%	55.0%	0	D	I	1,890	1,960	1,960	C		
	Peachtree St.	SR 520	State	UPA	4		9.5%	55.0%	0	D	I	1,890	1,960	1,960	C		

Table 1 - Trip Generation - Previously Approved Retail

Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips			Pass-by Trips			Net New Trips		
					In	Out	In	Out	Total	In	Out	Total	In	Out	Total
Shopping Center	820	97,657	Sft	$\ln(T) = 0.68\ln(X) + 5.57$	50%	50%	2,958	2,958	5,916	1,006	1,005	2,011	1,952	1,953	3,905

Source: ITE 10th Edition Trip Generation Rates

AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips			Pass-by Trips			Net New Trips		
					In	Out	In	Out	Total	In	Out	Total	In	Out	Total
Shopping Center	820	97,657	Sft	$T = 0.50(X) + 151.78$	62%	38%	125	76	201	34	34	68	91	42	133

Source: ITE 10th Edition Trip Generation Rates

PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips			Pass-by Trips			Net New Trips		
					In	Out	In	Out	Total	In	Out	Total	In	Out	Total
Shopping Center	820	97,657	Sft	$\ln(T) = 0.74\ln(X) + 2.89$	48%	52%	256	278	534	90	92	182	166	186	352

Source: ITE 10th Edition Trip Generation Rates

Table 1
London Cove Townhomes
Trip Generation Summary

Land Use	ITE Code	Size / Units	Total Trips			Internal Capture			"Pass By" Capture			Net External Trips				
			Daily Trips	A.M. Peak Hour		Daily Trips	A.M. Peak Hour		Daily Trips	A.M. Peak Hour		Daily Trips	A.M. Peak Hour			
				In	Out		In	Out		Total	In		Out			
														In	Out	Total
condo To house	230	61	420	30	7	23	149	0	0	0	0	0	271	30	7	23
Return to or in	820	97,657	5,916	92	57	35	149	0	0	1,384	0	0	4,383	92	57	35
Total			6,336	122	64	58	298	0	0	1,384	0	0	4,654	122	64	58

Land Use	ITE Code	Size / Units	Total Trips			Internal Capture			"Pass By" Capture			Net External Trips				
			Daily Trips	P.M. Peak Hour		Daily Trips	P.M. Peak Hour		Daily Trips	P.M. Peak Hour		Daily Trips	P.M. Peak Hour			
				Total	In		Out	Total		In	Out		Total	In	Out	
condo To inhouse	230	61 s	420	38	24	14	149	9	8	0	0	0	271	21	15	6
Return to or in	820	97 657	5 916	534	256	278	149	8	9	1 384	145	72	4 383	372	176	196
Total			6,336	572	280	292	298	17	17	1,384	145	72	4,654	393	191	202

Source: VHB

Pasady Capture - 24% Daily (1,384) and limited to 10% of SR 524 P.M. Peak Hour Traffic (145)

86 86
(32%)
162 183
August 18

[illegible]

cube

A-6

Roadway Count Summary

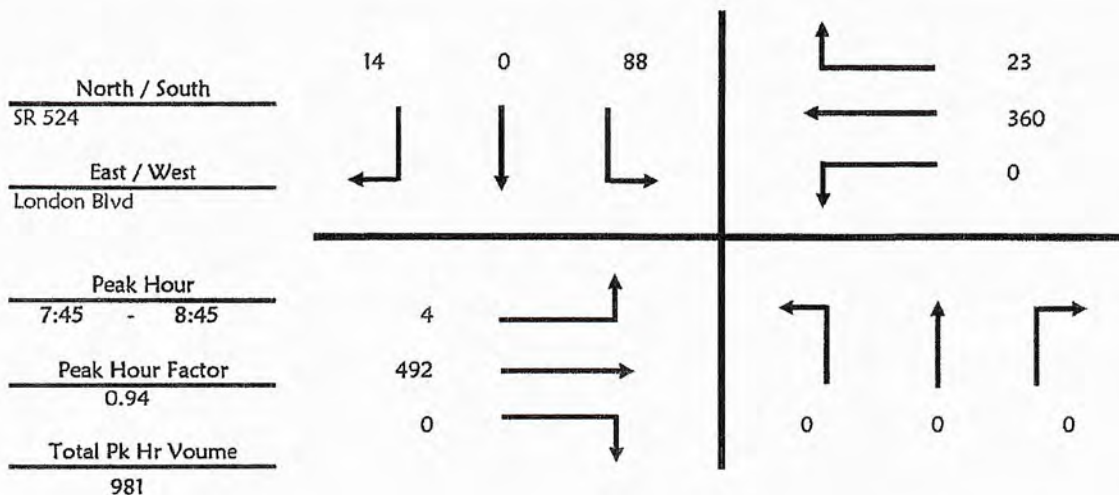
Vanasse Hangen Brustlin, Inc.

County Bevard City Cocoa
 Intersection SR 524 & London Blvd
 Date July 27, 2018 All Vehicles
 Time Period 7:00 to 9:00

VHB Project #: 63290

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	15	0	5
7:15 - 7:30	0	0	0	17	0	2
7:30 - 7:45	0	0	0	19	0	5
7:45 - 8:00	0	0	0	22	0	3
8:00 - 8:15	0	0	0	29	0	4
8:15 - 8:30	0	0	0	24	0	5
8:30 - 8:45	0	0	0	13	0	2
8:45 - 9:00	0	0	0	23	0	3
	0	0	0	162	0	29

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	101	0	0	62	2
7:15 - 7:30	0	113	0	0	81	4
7:30 - 7:45	1	134	0	0	90	1
7:45 - 8:00	2	133	0	0	93	5
8:00 - 8:15	0	108	0	0	72	4
8:15 - 8:30	2	129	0	0	79	7
8:30 - 8:45	0	122	0	0	116	7
8:45 - 9:00	1	125	0	0	78	8
	6	965	0	0	671	38



Roadway Count Summary

Vanasse Hangen Brustlin, Inc.

County Bevard City Cocoa
 Intersection SR 524 & London Blvd
 Date July 27, 2018 All Vehicles
 Time Period 16:00 to 18:00

VHB Project #: 63290

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	14	0	1
16:15 - 16:30	0	0	0	5	0	0
16:30 - 16:45	0	0	0	19	0	2
16:45 - 17:00	0	0	0	17	0	1
17:00 - 17:15	0	0	0	16	0	4
17:15 - 17:30	0	0	0	23	0	3
17:30 - 17:45	0	0	0	17	0	4
17:45 - 18:00	0	0	0	13	0	2
	0	0	0	124	0	17

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	5	142	0	0	134	17
16:15 - 16:30	3	88	0	0	181	27
16:30 - 16:45	2	122	0	0	174	26
16:45 - 17:00	1	128	0	0	146	18
17:00 - 17:15	9	127	0	0	165	25
17:15 - 17:30	4	140	0	0	153	39
17:30 - 17:45	2	131	0	0	165	21
17:45 - 18:00	7	127	0	0	111	25
	33	1,005	0	0	1,229	198

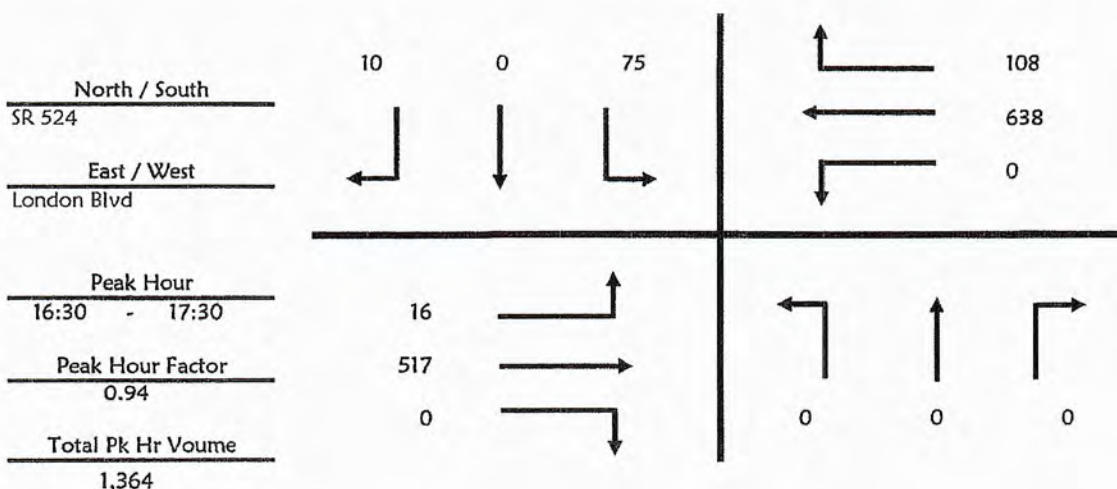


Table 2
London Cove Townhomes
2020 Intersection Analysis Summary

SR 524 at London Blvd/Project Entrance

AM PEAK HOUR							
		Existing Seasonally Adj.	Grown	In / Out	Project Dist.	Traffic	AM Total
EB							
Rate	Left	4	4			0	4
2.0%	Thru	507	527			0	527
	Right	0	0	1	28.02%	18	18
WB							
Rate	Left	0	0	1	68.20%	44	44
2.0%	Thru	371	386			0	386
	Right	24	25			0	25
NB							
Rate	Left	0	0	O	28.02%	16	16
2.0%	Thru	0	0	O	3.72%	2	2
	Right	0	0	O	68.20%	40	40
SB							
Rate	Left	91	94			0	94
2.0%	Thru	0	0	1	3.72%	2	2
	Right	14	15			0	15
PM PEAK HOUR							
		Existing Seasonally Adj.	Grown	In / Out	Project Dist.	Traffic	PM Total
EB							
Rate	Left	16	17			0	17
2.0%	Thru	531	553			0	553
	Right	0	0	1	28.02%	74	74
WB							
Rate	Left	0	0	1	68.20%	179	179
2.0%	Thru	657	683			0	683
	Right	111	116			0	116
NB							
Rate	Left	0	0	O	28.02%	77	77
2.0%	Thru	0	0	O	3.72%	10	10
	Right	0	0	O	68.20%	188	188
SB							
Rate	Left	77	80			0	80
2.0%	Thru	0	0	1	3.72%	10	10
	Right	10	11			0	11

VHB

Aug-18



Table 1 : Project Trip Generation

Integra Cocoa
Trip Generation Comparison Summary

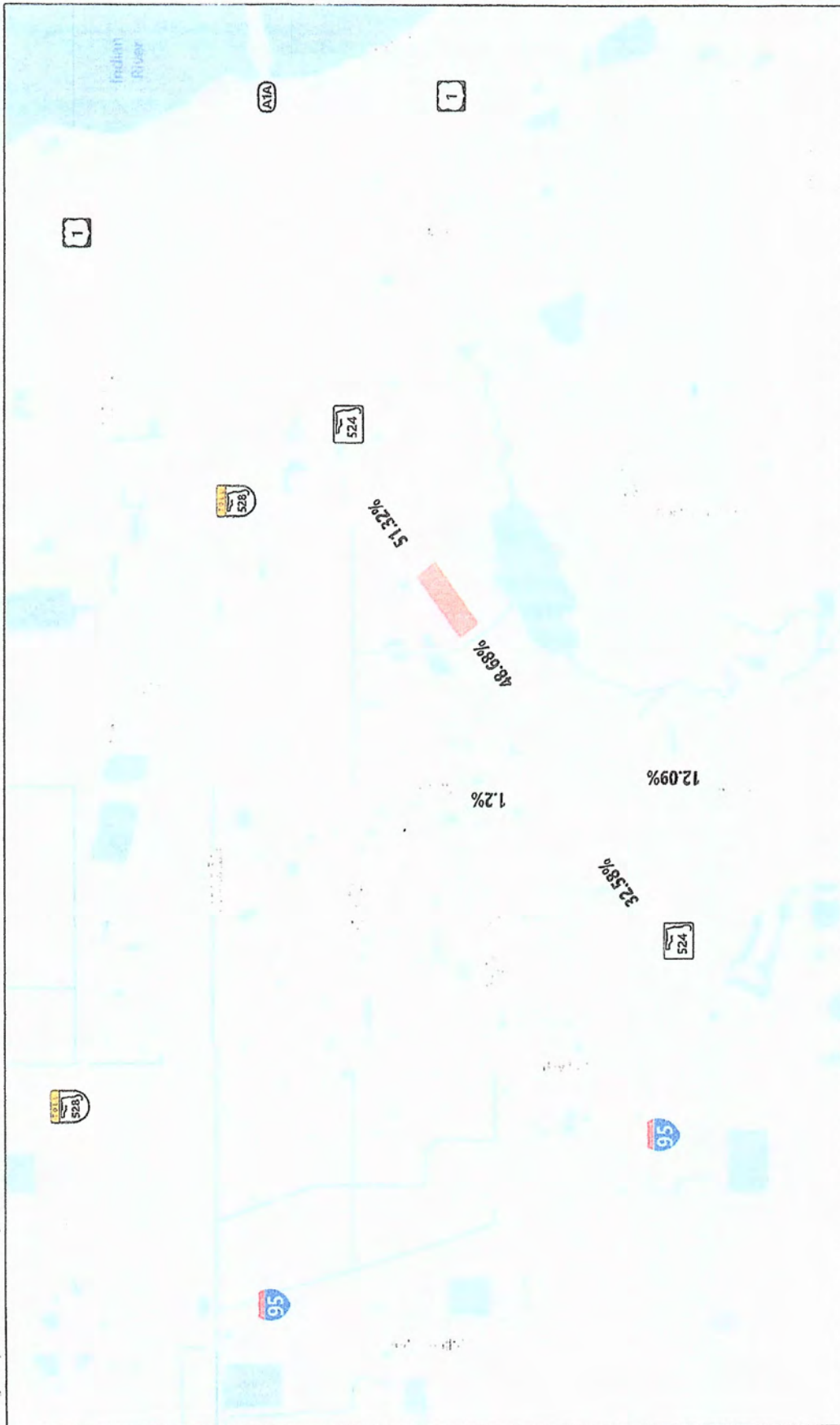
ITE Code	Land Use	Size / Units	Daily Trips	Total Trips					
				AM Peak Hour			PM Peak Hour		
				Total	Enter	Exit	Total	Enter	Exit
221	Multi Family (Mid-Rise)	249 / DU	1,356	90	23	67	110	67	43
Totals:				90	23	67	110	67	43

VHB

Apr-19

Notes:

Trip generation rates/equations are based on the Institute of Transportation (ITE)
Trip Generation Manual 10th Edition.



Project Location
 AM (PM)
 Peak Hour Traffic Volumes



Figure 2
 Project Trip Distribution

Table 3
Trip Generation Summary

ITE Code	Land Use	Size*	Daily Trips		A.M. Peak Hour Generation				P.M. Peak Hour Generation			
			Rate	Trips	Rate**	Enter	Exit	Total	Rate**	Enter	Exit	Total
220	Multi-Family Residential	280 DU	7.4	2,076	0.45	29	98	127	0.53	93	55	148
820	Retail Commercial	20.0 KSF	100.6	2,012	0.94**	12	7	19	8.00	79	86	165
Total Trips			--	4,088	--	41	105	146	--	172	141	313
Pass-by Trips/Retail (34%) ***			--	694	--	4	3	7	--	27	29	56
Total Net New Trips			--	3,394	--	37	102	139	--	145	112	257

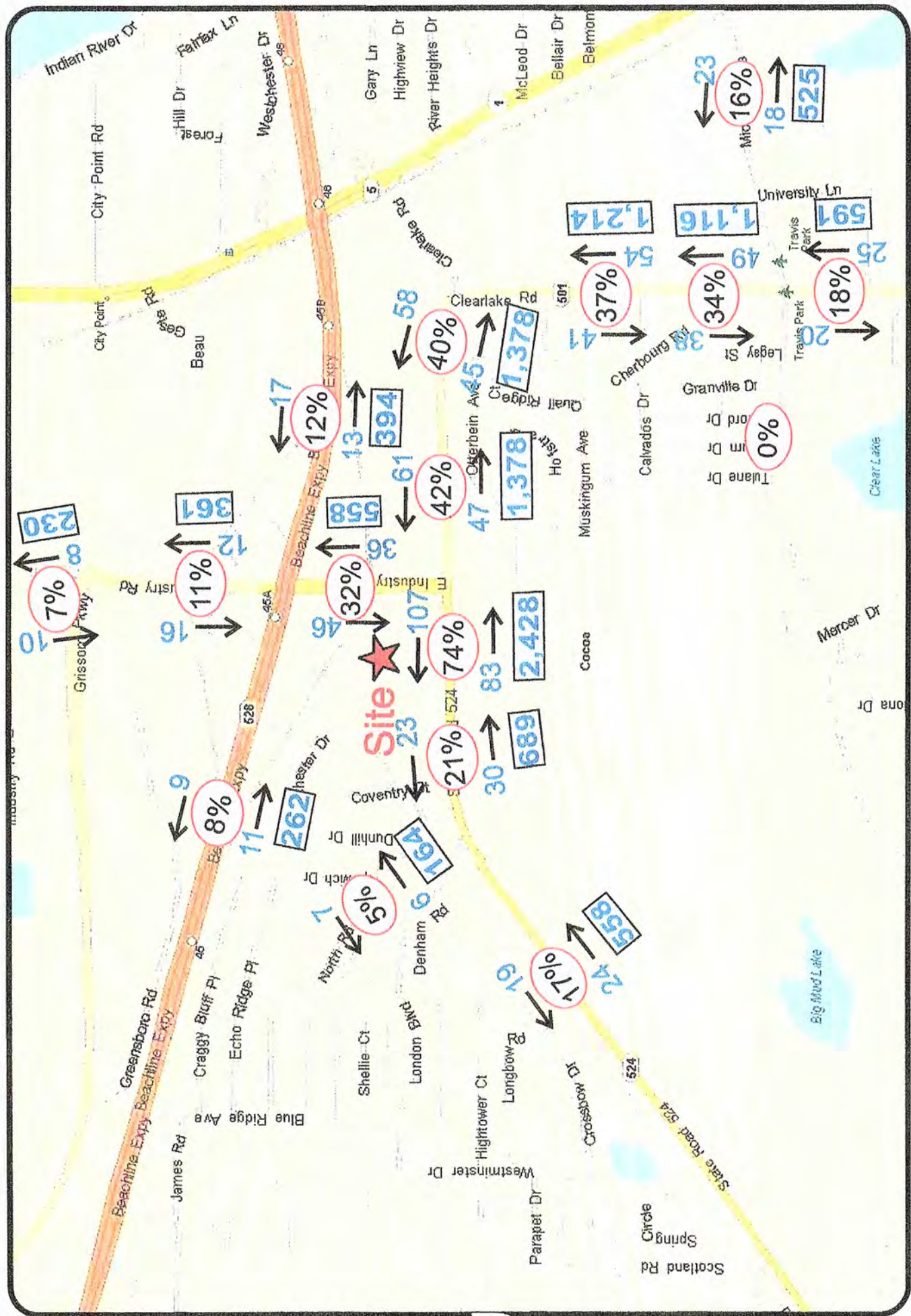
* DU = Dwelling Units, KSF=1,000 square feet

**Average Rate Used, other rates derived from ITE Equations ($R^2 > 0.75$)

***Obtained from the 3rd Edition of the ITE Trip Generation Handbook



Cirrus Apartments
Project No. 5382
Page 7



Trip Distribution/Assignment

ARTPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	James Kemp	Arterial Name	SR-524	Study Period	Dir Hr Demand Vol
Date Prepared	12/18/2020 3:41:27 PM	From	Industrial Rd	Modal Analysis	Auto Only
Agency	O'Rourke Engineering	To	London	Program	ARTPLAN 2012
Area Type	Other Urbanized	Peak Direction	Westbound	Version Date	12/12/2012
Arterial Class	1				
File Name	C:\Users\SOR2\Documents\Projects\Brevard County\Cocoa Commons\3.5.21\C6 - SR-524 - WB - PM.xap				
User Notes	PM Peak Hour - WB				

Arterial Data

K	0.09	PHF	1	Control Type	FullyActuated
D	0.565	% Heavy Vehicles	2	Base Sat. Flow Rate	1950

Automobile Intersection Data

Cross Street	Cycle Length	Thru g/C	Arr. Type	INT # Dir.Lanes	% Left Turns	% Right Turns	Left Turn Lanes	Left Turn Phasing	# Left Turn Lanes	LT Storage Length	Left g/C	Right Turn Lanes
Shoppes of cocoa	110	0.55	3	1	10	10	Yes	ProtPerm	1	235	0.15	Yes
London	115	0.55	3	1	16	10	Yes	ProtPerm	1	335	0.15	Yes

Automobile Segment Data

Segment #	Length	AADT	Hourly Vol.	SEG # Dir.Lanes	Posted Speed	Free Flow Speed	Median Type	On-Street Parking	Parking Activity
1 (to Shoppes of cocoa)	1050	18000	1084	1	45	50	Restrictive	No	N/A
2 (to London)	1226	18000	1084	1	45	50	Restrictive	No	N/A

Automobile LOS

Segment #		Thru Mvmt Flow Rate	Adj. Sat. Flow Rate	v/c	Control Delay	Int. Approach LOS	Queue Ratio	Speed (mph)	Segment LOS		
1 (to Shoppes of cocoa)		867	1736	0.908	26.45	C	0.32	17.05	E		
2 (to London)		802	1731	0.843	23.78	C	0.39	19.87	D		
Arterial Length	0.4538	Weighted g/C	##	FFS Delay	57.47	Threshold Delay	0.00	Auto Speed	18.46	Auto LOS	D

Automobile Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1000 veh/h/ln.

	A	B	C	D	E
Lanes	Hourly Volume In Peak Direction				
1	**	**	680	1110	1200
2	**	**	1380	2310	2380
3	**	**	2120	3540	3580
4	**	**	2850	4760	***
*	**	**	680	1110	1200
Lanes	Hourly Volume In Both Directions				
2	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
*	N/A	N/A	N/A	N/A	N/A
Lanes	Annual Average Daily Traffic				
2	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
*	N/A	N/A	N/A	N/A	N/A

* Service Volumes for the specific facility being analyzed, based on # of lanes from the intersection and segment data screens.

** Cannot be achieved based on input data provided.

*** Not applicable for that level of service letter grade. See generalized tables notes for more details.

Under the given conditions, left turn lane storage is highly likely to overflow. The number of directional thru lanes should be reduced accordingly.

Facility weighted g/C exceeds normally acceptable upper range (0.5); verify that g/C inputs are correct.

Intersection capacity (ies) are exceeded for the full hour; an operational level analysis tool is more appropriate for this situation.

APPENDIX B

Project Driveway/London Boulevard/SR 524

Data and Analysis

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: London Blvd	E/W STREET: SR-524	CONTROL:
FILENAME: 7/26/2018	CITY: Cocoa	INTERSECTION:
COUNT DATE: 7/26/2018	DAY: Thursday	
REPORT DATE:	ANALYSIS YEAR: 2022	

15 Min Period	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
7:00-7:15	0	0	0	15	0	5	0	101	0	0	62	2	185	910		
7:15-7:30	0	0	0	17	0	2	0	113	0	0	81	4	217	942		
7:30-7:45	0	0	0	19	0	5	1	134	0	0	90	1	250	971		
7:45-8:00	0	0	0	22	0	3	2	153	0	0	93	5	258	981		
8:00-8:15	0	0	0	29	0	4	0	108	0	0	72	4	217	961		
8:15-8:30	0	0	0	24	0	5	2	129	0	0	79	7	246			
8:30-8:45	0	0	0	13	0	2	0	122	0	0	116	7	260			
8:45-9:00	0	0	0	23	0	3	1	125	0	0	78	8	238			

AM PEAK HOUR IS FROM: 7:45AM TO 8:45AM

Volumes	0	0	0	88	0	14	4	492	0	0	360	23	981
Season Factor	0	0	0	91	0	14	4	507	0	0	371	24	1010
Growth	0	0	0	98	0	16	4	550	0	0	402	26	1096
In/Out	OUT	OUT	OUT	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
Percentage	28%	4%	68%	0%	4%	0%	0%	0%	28%	68%	0%	0%	0%
PROJECT	3	0	9	0	0	0	0	0	2	5	0	0	0
Background Retail	21	3	52		5			34	35	85	12		
Integra								106		31			
Cocoa Landing								24		19			
Cirrus Apartments													

Seasonal Factor: 1.0300
Trips In: 7
Trips Out: 12
Growth Rate: 1.0205
Years Growth: 4

N/S STREET: London Blvd	E/W STREET: SR-524	CONTROL:
FILENAME: 7/26/2018	CITY: Cocoa	INTERSECTION:
COUNT DATE: 7/26/2018	DAY: Thursday	
REPORT DATE:	ANALYSIS YEAR: 2022	

15 Min Period	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
4:00-4:15	0	0	0	14	0	1	5	142	0	0	134	17	313	1273		
4:15-4:30	0	0	0	5	0	0	3	88	0	0	181	27	304	1308		
4:30-4:45	0	0	0	19	0	2	2	122	0	0	174	26	345	1364		
4:45-5:00	0	0	0	17	0	1	1	128	0	0	146	18	311	1359		
5:00-5:15	0	0	0	16	0	4	9	127	0	0	165	25	346	1333		
5:15-5:30	0	0	0	23	0	3	4	140	0	0	153	39	362			
5:30-5:45	0	0	0	17	0	4	2	131	0	0	165	21	340			
5:45-6:00	0	0	0	13	0	2	7	127	0	0	111	25	285			

PM PEAK HOUR IS FROM: 4:30 PM TO 5:30 PM

Volumes	0	0	0	75	0	10	16	517	0	0	638	108	1364
Season Factor	0	0	0	77	0	10	16	533	0	0	657	111	1405
Growth	0	0	0	84	0	11	18	578	0	0	713	121	1524
In/Out	OUT	OUT	OUT	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
Percentage	28%	4%	68%	0%	4%	0%	0%	0%	28%	68%	0%	0%	0%
PROJECT	3	0	8	0	1	0	0	0	4	9	0	0	0
Background Retail	78	11	189		10			22	72	174	34		
Integra								58		97			
Cocoa Landing								6		17			
Cirrus Apartments													

Seasonal Factor: 1.03
Growth Rate: 1.0205
Trips In: 14
Trips Out: 11
Years Growth: 4

N/S STREET: London Blvd	E/W STREET: SR-524	CONTROL:
FILENAME: 7/26/2018	CITY: Cocoa	INTERSECTION:
COUNT DATE: 7/26/2018	DAY: Thursday	
REPORT DATE:	ANALYSIS YEAR: 2022	

15 Min Period	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
4:00-4:15	0	0	0	14	0	1	5	142	0	0	134	17	313	1273		
4:15-4:30	0	0	0	5	0	0	3	88	0	0	181	27	304	1308		
4:30-4:45	0	0	0	19	0	2	2	122	0	0	174	26	345	1364		
4:45-5:00	0	0	0	17	0	1	1	128	0	0	146	18	311	1359		
5:00-5:15	0	0	0	16	0	4	9	127	0	0	165	25	346	1333		
5:15-5:30	0	0	0	23	0	3	4	140	0	0	153	39	362			
5:30-5:45	0	0	0	17	0	4	2	131	0	0	165	21	340			
5:45-6:00	0	0	0	13	0	2	7	127	0	0	111	25	285			

PM PEAK HOUR IS FROM: 4:30 PM TO 5:30 PM

Volumes	0	0	0	75	0	10	16	517	0	0	638	108	1364
Season Factor	0	0	0	77	0	10	16	533	0	0	657	111	1405
Growth	0	0	0	84	0	11	18	578	0	0	713	121	1524
In/Out	OUT	OUT	OUT	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
Percentage	28%	4%	68%	0%	4%	0%	0%	0%	28%	68%	0%	0%	0%
PROJECT	3	0	8	0	1	0	0	0	4	9	0	0	0
Background Retail	78	11	189		10			22	72	174	34		
Integra								58		97			
Cocoa Landing								6		17			
Cirrus Apartments													

Seasonal Factor: 1.03
Growth Rate: 1.0205
Trips In: 14
Trips Out: 11
Years Growth: 4

N/S STREET: London Blvd	E/W STREET: SR-524	CONTROL:
FILENAME: 7/26/2018	CITY: Cocoa	INTERSECTION:
COUNT DATE: 7/26/2018	DAY: Thursday	
REPORT DATE:	ANALYSIS YEAR: 2022	

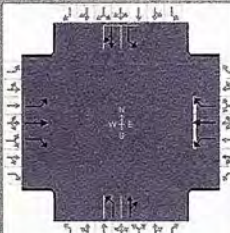
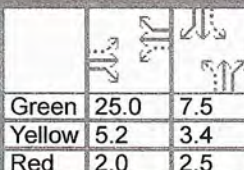
15 Min Period	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
4:00-4:15	0	0	0	14	0	1	5	142	0	0	134	17	313	1273		
4:15-4:30	0	0	0	5	0	0	3	88	0	0	181	27	304	1308		
4:30-4:45	0	0	0	19	0	2	2	122	0	0	174	26	345	1364		
4:45-5:00	0	0	0	17	0	1	1	128	0	0	146	18	311	1359		
5:00-5:15	0	0	0	16	0	4	9	127	0	0	165	25	346	1333		
5:15-5:30	0	0	0	23	0	3	4	140	0	0	153	39	362			
5:30-5:45	0	0	0	17	0	4	2	131	0	0	165	21	340			
5:45-6:00	0	0	0	13	0	2	7	127	0	0	111	25	285			

PM PEAK HOUR IS FROM: 4:30 PM TO 5:30 PM

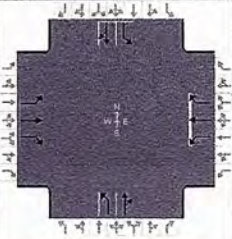
Volumes	0	0	0	75	0	10	16	517	0	0	638	108	1364
Season Factor	0	0	0	77	0	10	16	533	0	0	657	111	1405
Growth	0	0	0	84	0	11	18	578	0	0	713	121	1524
In/Out	OUT	OUT	OUT	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
Percentage	28%	4%	68%	0%	4%	0%	0%	0%	28%	68%	0%	0%	0%
PROJECT	3	0	8	0	1	0	0	0	4	9	0	0	0
Background Retail	78	11	189		10			22	72	174	34		
Integra								58		97			
Cocoa Landing								6		17			
Cirrus Apartments													

Seasonal Factor: 1.03
Growth Rate: 1.0205
Trips In: 14
Trips Out: 11
Years Growth: 4

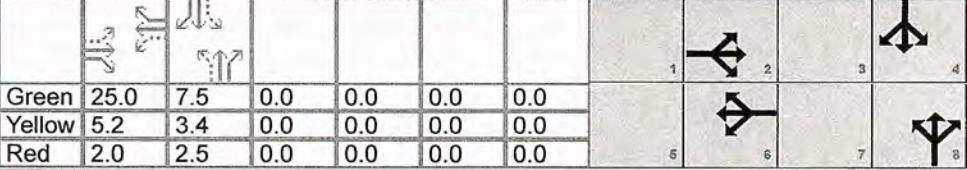
HCS7 Signalized Intersection Results Summary

General Information						Intersection Information									
Agency		O'Rourke Engineering & Planning				Duration, h		0.250							
Analyst		James Kemp		Analysis Date		10/13/2020		Area Type		Other					
Jurisdiction		Cocoa		Time Period		AM Peak Hour		PHF		0.92					
Urban Street		SR - 524		Analysis Year		2022		Analysis Period		1> 7:00					
Intersection		London Blvd		File Name		C6 - SR-524 & London Blvd - 2022 - AM - with Pr...									
Project Description		with Project													
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				4	714	37	90	464	31	24	3	61	105	5	16
Signal Information															
Cycle, s	45.6	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	Yes	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
Green	25.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	2.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					2		6		8		4				
Case Number					5.0		5.0		6.0		6.0				
Phase Duration, s					32.2		32.2		13.4		13.4				
Change Period, (Y+R _c), s					7.2		7.2		6.0		6.0				
Max Allow Headway (MAH), s					3.1		3.1		3.2		3.2				
Queue Clearance Time (g _s), s					16.1		21.9		3.7		7.5				
Green Extension Time (g _e), s					3.4		3.4		0.5		0.4				
Phase Call Probability					1.00		1.00		0.95		0.95				
Max Out Probability					0.00		0.00		0.00		0.00				
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h				4	776	40	98	504	34	26	70		114	23	
Adjusted Saturation Flow Rate (s), veh/h/ln				909	1900	1610	706	1900	1610	1411	1622		1352	1671	
Queue Service Time (g _s), s				0.1	14.1	0.5	5.6	7.4	0.4	0.7	1.7		3.7	0.5	
Cycle Queue Clearance Time (g _c), s				7.7	14.1	0.5	19.9	7.4	0.4	1.4	1.7		5.5	0.5	
Green Ratio (g/C)				0.55	0.55	0.55	0.55	0.55	0.55	0.16	0.16		0.16	0.16	
Capacity (c), veh/h				504	1042	883	324	1042	883	365	260		322	268	
Volume-to-Capacity Ratio (X)				0.009	0.745	0.046	0.302	0.484	0.038	0.071	0.268		0.354	0.085	
Back of Queue (Q), ft/ln (95 th percentile)				0.8	130.4	4	31.8	66.6	3.3	9.3	25.1		45.5	7.9	
Back of Queue (Q), veh/ln (95 th percentile)				0.0	5.2	0.2	1.3	2.7	0.1	0.4	1.0		1.8	0.3	
Queue Storage Ratio (RQ) (95 th percentile)				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh				8.7	7.8	4.7	15.5	6.3	4.7	16.8	16.7		19.1	16.2	
Incremental Delay (d ₂), s/veh				0.0	0.4	0.0	0.2	0.1	0.0	0.0	0.2		0.2	0.1	
Initial Queue Delay (d ₃), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh				8.7	8.2	4.7	15.7	6.4	4.7	16.8	16.9		19.4	16.2	
Level of Service (LOS)				A	A	A	B	A	A	B	B		B	B	
Approach Delay, s/veh / LOS				8.0	A		7.7	A		16.9	B		18.8	B	
Intersection Delay, s/veh / LOS				9.3						A					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				1.86	B		1.86	B		2.10	B		2.10	B	
Bicycle LOS Score / LOS				1.84	B		1.54	B		0.65	A		0.71	A	

HCS7 Signalized Intersection Input Data

General Information						Intersection Information							
Agency	O'Rourke Engineering & Planning					Duration, h	0.250						
Analyst	James Kemp		Analysis Date	10/13/2020		Area Type	Other						
Jurisdiction	Cocoa		Time Period	AM Peak Hour		PHF	0.92						
Urban Street	SR - 524		Analysis Year	2022		Analysis Period	1> 7:00						
Intersection	London Blvd		File Name	C6 - SR-524 & London Blvd - 2022 - AM - with Pr...									
Project Description	with Project												

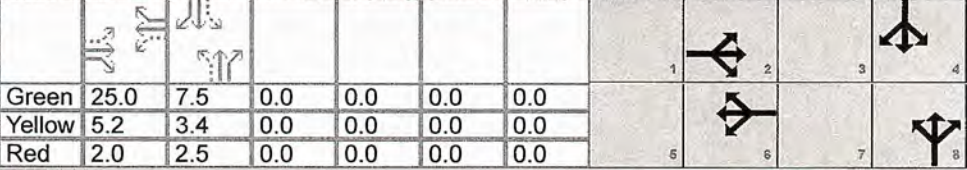
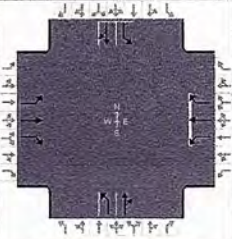
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				4	714	37	90	464	31	24	3	61	105	5	16

Signal Information															
Cycle, s	45.6	Reference Phase	2	Green	25.0	7.5	0.0	0.0	0.0	0.0					
Offset, s	0	Reference Point	End	Yellow	5.2	3.4	0.0	0.0	0.0	0.0					
Uncoordinated	Yes	Simult. Gap E/W	On	Red	2.0	2.5	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												

Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				4	714	37	90	464	31	24	3	61	105	5	16
Initial Queue (Q _b), veh/h				0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h					None			None			None			None	
Heavy Vehicles (P _{HV}), %				0	0	0	0	0	0	0	0		0	0	
Ped / Bike / RTOR, /h				0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft				12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Turn Bay Length, ft				0	0	0	0	0	0	0	0		0	0	
Grade (P _g), %					0			0			0			0	
Speed Limit, mi/h				45	45	45	45	45	45	35	35	35	35	35	35

Phase Information		EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s			75.0		75.0		40.0		40.0
Yellow Change Interval (Y), s			5.2		5.1		4.0		3.4
Red Clearance Interval (R _c), s			2.0		2.0		2.0		2.5
Minimum Green (G _{min}), s			10		10		7		7
Start-Up Lost Time (I _t), s		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s			2.0		2.0		2.0		2.0
Recall Mode			Min		Min		Off		Off
Dual Entry			Yes		Yes		Yes		Yes
Walk (Walk), s			0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s			0.0		0.0		0.0		0.0

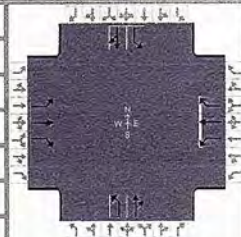
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft				9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb				0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft				12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking				No		0.50	No		0.50	No		0.50	No		0.50



HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	O'Rourke Engineering & Planning			Duration, h	0.250
Analyst	James Kemp	Analysis Date	10/13/2020	Area Type	Other
Jurisdiction	Cocoa	Time Period	PM Peak Hour	PHF	0.95
Urban Street	SR - 524	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	London Blvd	File Name	C6 - SR-524 & London Blvd - 2022 - PM - with Pr...		
Project Description	with Project				





Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	18	664	76	183	861	126	81	11	197	86	11	11

Signal Information											
Cycle, s	70.6	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	41.0	16.5	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.2	3.4	0.0	0.0	0.0	0.0	
				Red	2.0	2.5	0.0	0.0	0.0	0.0	

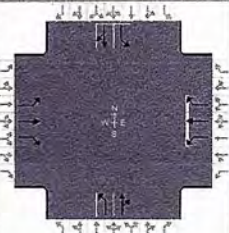
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		5.0		5.0		6.0		6.0
Phase Duration, s		48.2		48.2		22.4		22.4
Change Period, (Y+R _c), s		7.2		7.2		6.0		6.0
Max Allow Headway (MAH), s		3.2		3.2		3.3		3.3
Queue Clearance Time (g _s), s		30.7		35.1		10.5		15.7
Green Extension Time (g _e), s		5.8		5.8		0.9		0.9
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		0.01		0.01		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	19	699	80	193	906	133	85	219		91	23	
Adjusted Saturation Flow Rate (s), veh/h/ln	625	1900	1610	759	1900	1610	1410	1623		1181	1743	
Queue Service Time (g_s), s	1.8	17.2	1.5	15.9	26.9	2.7	3.5	8.5		5.2	0.7	
Cycle Queue Clearance Time (g_c), s	28.7	17.2	1.5	33.1	26.9	2.7	4.3	8.5		13.7	0.7	
Green Ratio (g/C)	0.58	0.58	0.58	0.58	0.58	0.58	0.23	0.23		0.23	0.23	
Capacity (c), veh/h	227	1105	937	359	1105	937	414	375		233	403	
Volume-to-Capacity Ratio (X)	0.083	0.632	0.085	0.537	0.820	0.142	0.206	0.583		0.388	0.057	
Back of Queue (Q), ft/ln (95 th percentile)	10.8	223.3	17.7	111.4	323.6	30.5	50.2	138.8		64.3	12.7	
Back of Queue (Q), veh/ln (95 th percentile)	0.4	8.9	0.7	4.5	12.9	1.2	2.0	5.6		2.6	0.5	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	23.3	9.8	6.5	20.7	11.8	6.7	22.8	24.1		30.2	21.1	
Incremental Delay (d_2), s/veh	0.1	0.2	0.0	0.5	0.6	0.0	0.1	0.5		0.4	0.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	23.3	10.0	6.5	21.2	12.4	6.8	22.9	24.7		30.6	21.2	
Level of Service (LOS)	C	A	A	C	B	A	C	C		C	C	
Approach Delay, s/veh / LOS	10.0	A		13.2	B		24.2	C		28.7	C	
Intersection Delay, s/veh / LOS	14.2						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.87	B		1.87	B		2.11	B		2.11	B	
Bicycle LOS Score / LOS	1.80	B		2.52	C		0.99	A		0.68	A	

HCS7 Signalized Intersection Input Data

General Information					Intersection Information				
Agency	O'Rourke Engineering & Planning				Duration, h	0.250			
Analyst	James Kemp	Analysis Date	10/13/2020		Area Type	Other			
Jurisdiction	Cocoa	Time Period	PM Peak Hour		PHF	0.95			
Urban Street	SR - 524	Analysis Year	2022		Analysis Period	1> 7:00			
Intersection	London Blvd	File Name	C6 - SR-524 & London Blvd - 2022 - PM - with Pr...						
Project Description	with Project								



Demand Information				EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	18	664	76	183	861	126	81	11	197	86	11	11			

Signal Information															
Cycle, s	70.6	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	41.0	16.5	0.0	0.0	0.0	0.0					
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	5.2	3.4	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.5	0.0	0.0	0.0	0.0					

Traffic Information				EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	18	664	76	183	861	126	81	11	197	86	11	11			
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0			
Base Saturation Flow Rate (S ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Parking (N _m), man/h		None			None			None			None			None	
Heavy Vehicles (P _{HV}), %	0	0	0	0	0	0	0	0	0	0	0	0		0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0		0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0		0	
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3		3	
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0			
Turn Bay Length, ft	0	0	0	0	0	0	0	0	0		0	0			
Grade (Pg), %		0			0			0			0			0	
Speed Limit, mi/h	45	45	45	45	45	45	45	35	35	35	35	35		35	

Phase Information		EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s			75.0		75.0		40.0		40.0
Yellow Change Interval (Y), s			5.2		5.1		4.0		3.4
Red Clearance Interval (R _c), s			2.0		2.0		2.0		2.5
Minimum Green (G _{min}), s			10		10		7		7
Start-Up Lost Time (I _t), s		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s			2.0		2.0		2.0		2.0
Recall Mode			Min		Min		Off		Off
Dual Entry			Yes		Yes		Yes		Yes
Walk (Walk), s			0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s			0.0		0.0		0.0		0.0

Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0	No	25	0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb	0	0	No	0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking	No		0.50	No		0.50	No		0.50	No		0.50	No		0.50

Changed yellow & red times per FOOT

Phase Times [1.1.1]

	1	2	3	4	5	6	7	8
Min Green		10		7		10		7
Gap, Ext		3		3		3		3
Max 1		60		30		60		30
Max 2		75		40		75		40
Yel Clearance		5.2 4.7		3.4 4		5.1 4.7		4
Red Clearance		2		2.5		2		2
Walk						5		
Ped Clearance						27		
Red Revert								
Add Initial								
Max Initial								
Time B4 Reduct								
Cars B4 Reduct								
Time To Reduce								
Reduce By								
Min Gap								
DyMaxLim								
Max Step								

Auto Flash Parm's [1.4.1]

Flash Parameter		Clearance Time
Mode	VOT_MON	Yellow 45
Auto Flash, Phases/Overlaps [1.4.2]		Red 30
Yel (phases)	2	6
Yel (overlaps)		

SR 524 & London Blvd (ID 1019) (Standard File)

01/13/14

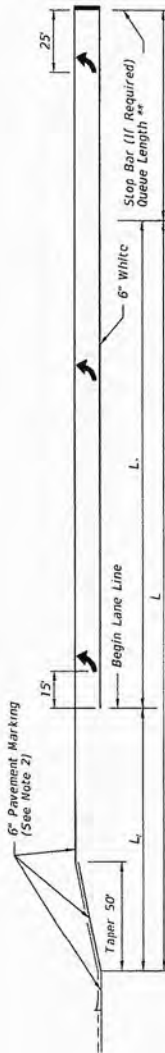
Speed Limit = 45 Miles

Phase Options [1.1.2]

	1	2	3	4	5	6	7	8
Enable		1		1		1		
Min Recall		1				1		
Max Recall								
Ped Recall								
Soft Recall								
Lock Calls		1				1		
Auto Flash Entry								1
Auto Flash Exit		1				1		
Dual Entry		1				1		
Enable Simul Gap		1				1		
Gaurant Passage								
Rest In Walk								
Condition Service								
Non-Actuated 1								
Non-Actuated 2								
Add Init Calc								

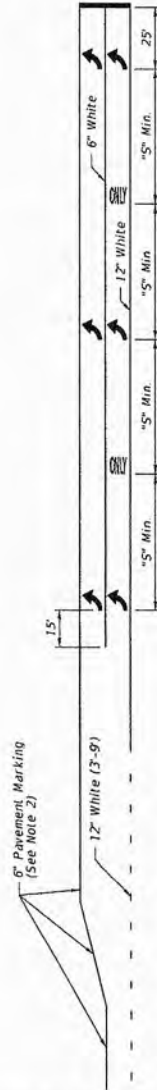
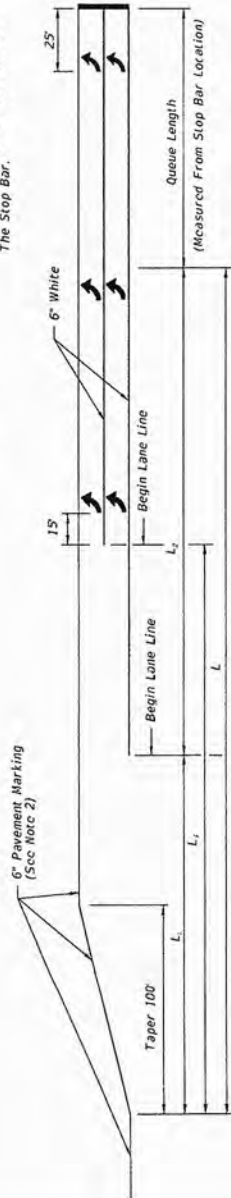
Phase Options+ [1.1.3]

Reservice								
Walk Thru Yel								
Skip Red No Call								
Red Rest								
Max II								
Conflicting Phase								
Conflicting Phase	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Omit Yellow								
Ped Out/Olap								
Start Yel, Next Ph								

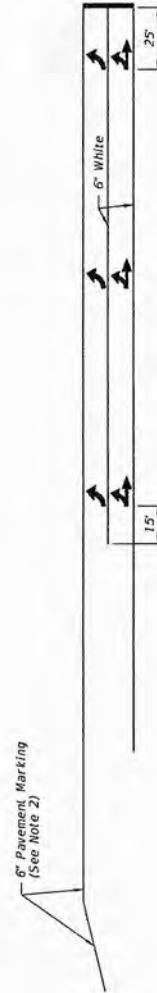


SINGLE LEFT TURNS

** Queue Length Is Measured From The Median Nose Radial Point Or, When A Stop Bar Is Required, From The Stop Bar.



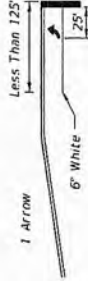
Through Lane Becomes Exclusive Left Turn



Through Lane Becomes Optional Left Turn

DOUBLE LEFT TURNS

TURN LANES - CURBED AND UNCURBED MEDIANS									
Posted Speed (mph)	URBAN CONDITIONS				RURAL CONDITIONS				Clearance Distance
	Clearance Distance	Brake To Stop Distance	Total Decel. Distance	L _t	Clearance Distance	Brake To Stop Distance	Total Decel. Distance	L _t	
≤30	70'	75'	145'	110'	75'	75'	150'	110'	—
35	80'	85'	165'	120'	85'	85'	170'	120'	—
40	85'	90'	175'	130'	90'	90'	185'	130'	—
45	105'	110'	215'	160'	110'	110'	220'	160'	160'
50	125'	130'	255'	185'	130'	130'	260'	185'	195'
55	145'	150'	295'	210'	150'	150'	300'	210'	230'
≥60	170'	175'	345'	240'	175'	175'	350'	240'	270'



ARROW SPACING

NOTES:

1. This Index also applies to right turn lanes.
2. Make pavement marking yellow for left-turn lanes and white for right-turn lanes.
3. See Sheet 1 for "S" value.
4. Space arrows evenly between the first and last arrow with a minimum spacing of "S" between arrows.
5. For turn lanes greater than 225' in length, use a minimum of three arrows. Use additional arrows in accordance with the Plans or as directed by the Engineer. Space arrows evenly throughout the available length with a minimum spacing of "S" between arrows.

TURN LANE MARKINGS

DESCRIPTION:

LAST REVISION 11/01/19

FDOT
FY 2020-21
STANDARD PLANS

PAVEMENT MARKINGS

INDEX
711-001

SHEET
11 of 13

Integra Cocoa FDOT Driveway Permit

Brevard County, Florida

PREPARED FOR

David McDaniel
Integra Land Company
1525 International Parkway
Suite 2001
Lake Mary, FL 34746

PREPARED BY



225 East Robinson Street, Suite 300
Landmark Center Two
Orlando, FL 32801
407.839.4006

May 2019

Ryan Fetchko, P.E.
P.E. 83406





Table of Contents

Table of Contents.....	i
Introduction	1
Project Description.....	1
Trip Generation.....	3
Trip Distribution and Assignment.....	3
Existing Conditions	2
Study Area	2
Existing Roadway Capacity Analysis	4
Existing Unsignalized Intersection Capacity Analysis	6
Existing Signalized Intersection Capacity Analysis.....	7
Future Conditions	9
Future Roadway Capacity Analysis	9
Future Unsignalized Intersection Capacity Analysis.....	11
Future Signalized Intersection Capacity Analysis	12
Turn Lane Need Evaluation.....	13
Intersection Queue Analysis	13
Conclusions.....	17
 Appendices	
Appendix A – Site Plan	
Appendix B – ITE Trip Generation Summary Sheets	
Appendix C – CFRPM Travel Demand Model Plot	
Appendix D – Traffic Count Data	
Appendix E – Signal Timings	
Appendix F – Synchro Analysis – Existing Conditions	
Appendix G – Historical Trend Analysis	
Appendix H – Intersection Volume Derivation	
Appendix I – Synchro Analysis – Future Conditions	
Appendix J – NCHRP Report 457 Data	



List of Tables

Table No.	Title	Page
Table 1 :	Project Trip Generation	1
Table 2 :	Test for Significance Project Impact (3%).....	3
Table 3 :	YR 2017 Existing Roadway Capacity Analysis	5
Table 4:	Unsignalized Intersection Capacity Analysis – Existing Conditions.....	6
Table 5 :	Signalized Intersection Capacity Analysis – Existing Conditions.....	7
Table 5 :	Year 2021 Future Roadway Capacity Analysis	10
Table 6 :	Unsignalized Intersection Capacity Analysis – Future Buildout Condition...	11
Table 7 :	Signalized Intersection Capacity Analysis – Future Buildout Condition.....	12
Table 8:	Intersection Queue Analysis.....	14



List of Figures

Figure No.	Title	Page
Figure 1:	Project Location Map	2
Figure 2:	Project Trip Distribution	1
Figure 3:	AM and PM Peak Hour Traffic Volumes	8
Figure 4:	2021 Future Build AM Peak Hour Traffic Volumes	15
Figure 5:	2021 Future Build PM Peak Hour Traffic Volume	16



1

Introduction

VHB has been retained by Integra Land Company a Florida corporation to conduct a traffic impact study for the proposed Integra Cocoa Property development to be located on the south side of SR 524 between Cox Road and London Boulevard in Cocoa, Florida. The project location is illustrated on **Figure 1**. The analysis quantifies both the existing traffic conditions along area roadways surrounding the parcel and the projected future traffic conditions expected for the Build condition (including development of the proposed site). The site plan can be found in **Appendix A**.

Project Description

The proposed development will be located on the south side of SR 524 in Cocoa, Florida. The site is bound by SR 524 to the north, and vacant land to the south, east, and west.

For the purpose of this analysis, the proposed development will consist of 249 mid-rise apartments with a build-out year of 2021. The project will have direct access to SR 524 via a full access driveway in line with existing Lance Boulevard.

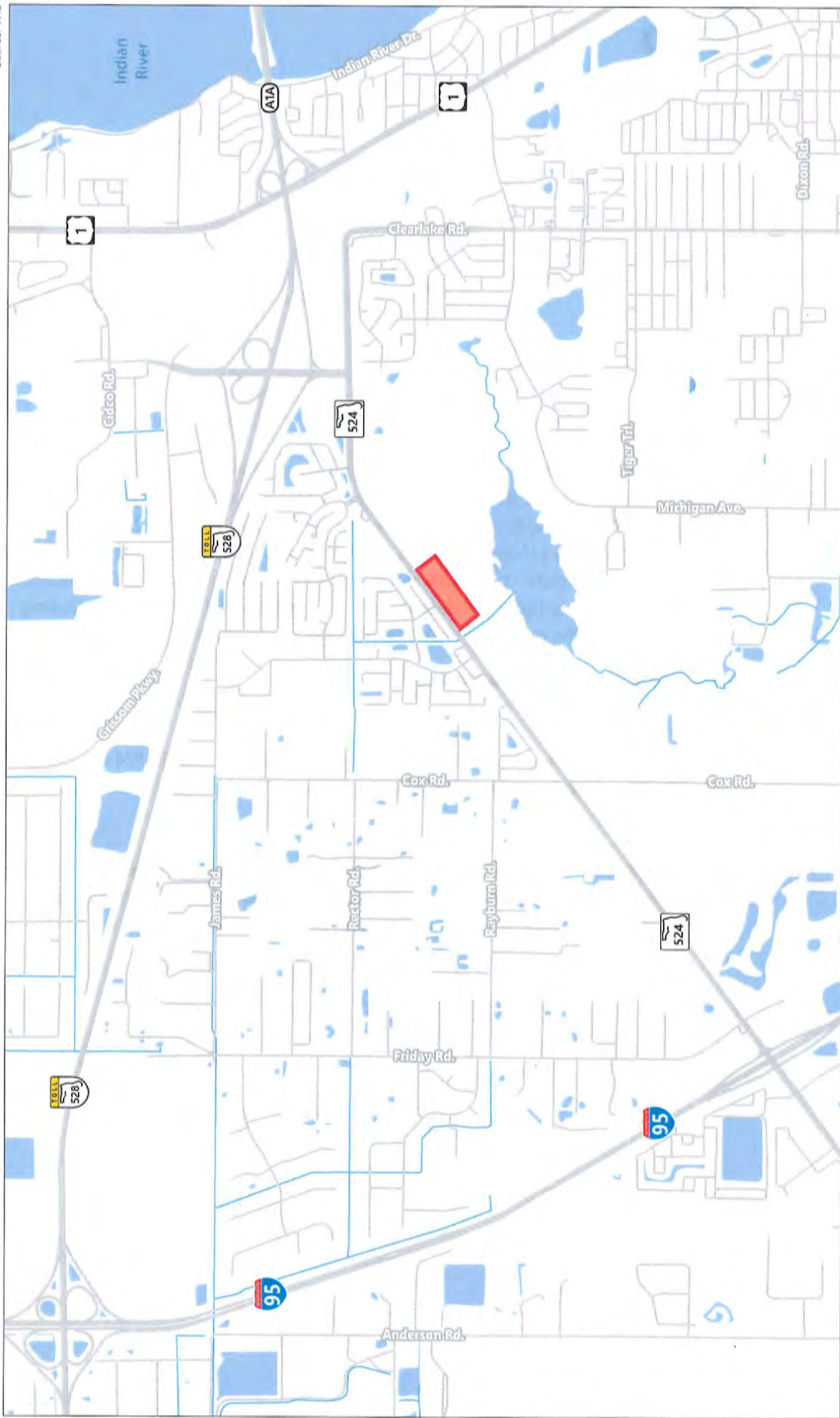


Figure 1
Location Map

Project Location





Trip Generation

Table 1 summarizes the trip generation for the proposed development. The daily and peak hour trips were calculated based on equations contained in the Institute of Transportation Engineers' *Trip Generation*, 10th Edition. ITE Land Use Code 221 – Multi Family Mid-Rise was the most appropriate for the proposed development. As shown in **Table 1**, the proposed development is expected to generate 1,356 new daily trips, 90 new AM peak hour trips (23 in, 67 out), and 110 new PM peak hour trips (67 in, 43 out). The ITE Trip Generation summary sheets can be found in **Appendix B**.

Trip Distribution and Assignment

The distribution of site generated traffic is a function of the existing roadway volumes from the traffic counts taken, surrounding land use characteristics, and proposed site access plan. The distribution of primary trips to and from the site is shown in **Figure 2**. The Central Florida Regional Planning Model (CFRPM) version 6.1 plot can be found in **Appendix C**.



Table 1 : Project Trip Generation

Integra Cocoa
Trip Generation Comparison Summary

ITE Code	Land Use	Size / Units	Daily Trips	Total Trips					
				AM Peak Hour			PM Peak Hour		
				Total	Enter	Exit	Total	Enter	Exit
221	Multi Family (Mid-Rise)	249 / DU	1,356	90	23	67	110	67	43
Totals:				90	23	67	110	67	43

VHB

Apr-19

Notes:

*Trip generation rates/equations are based on the Institute of Transportation (ITE)
Trip Generation Manual 10th Edition.*

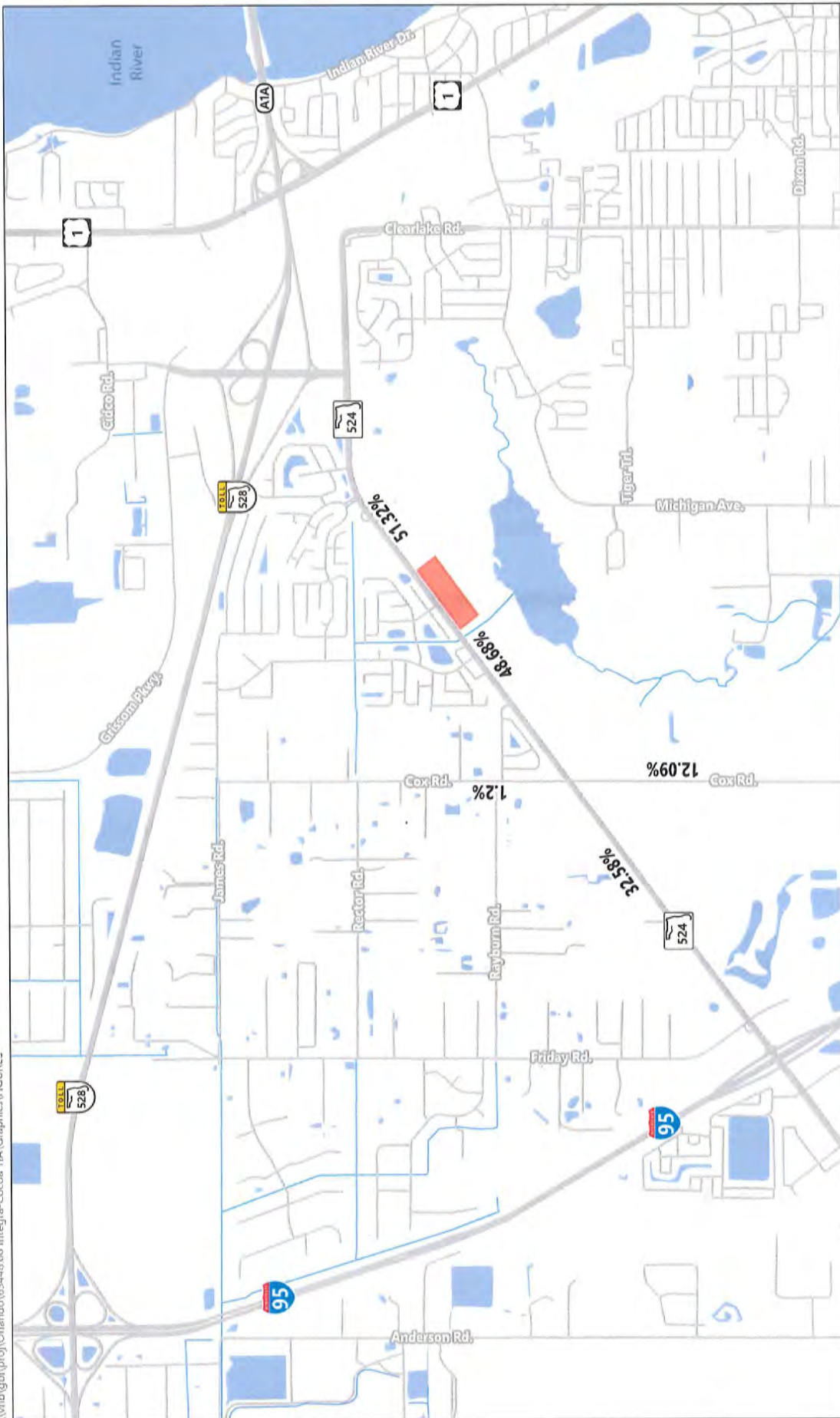


Figure 2
Project Trip Distribution

Project Location
AM (PM)
Peak Hour Traffic Volumes



Existing Conditions

This section summarizes existing transportation conditions observed in the study area, including roadway and intersection geometry, existing traffic control, and daily and evening peak hour traffic volumes.

Study Area

The candidate roadways are shown in **Table 2**. In addition the following intersections were analyzed:

- SR 524 at London Boulevard
- SR 524 at Lance Boulevard/Project Entrance
- SR 524 at Cox Road

Turning movement counts were collected at the study intersections (dated July 27, 2018 for London Boulevard and January 23, 2019 for Lance Boulevard and Cox Road) during the AM (7:00-9:00 A.M.) and PM (4:00-6:00 P.M.) peak periods. These counts were adjusted using a Seasonal Factor of 1.03 for London Boulevard and 1.00 for Lance Boulevard and Cox Road to reflect average daily conditions. A copy of the data collected is included in **Appendix D**. Existing signals timings provided by the City of Cocoa were used in the intersection analysis. **Figure 3** illustrates the existing AM and PM peak hour traffic volumes. The signal timings can be observed in **Appendix E**.



Table 2 : Test for Significance Project Impact (3%)

CR 466 Property						
<i>Test for Significance Project Impact (3%)</i>						
PM PEAK HOUR						
Roadway	No. of Lanes	Adopted LOS	LOS MSV	Dis%	Project Trips	Significance %
SR 524						
Cox Rd to London Blvd	2	D	924	51.32%	23	2.49%
Cox Road						
SR 520 to SR 524	2	E	792	12.09%	6	0.76%
SR 524 to James Rd	2	E	792	1.20%	1	0.13%

Source:

VHB

FDOT Florida Traffic Online

2013 Quality Level of Service Handbook

SCTPO

As shown in **Table 2**, there are no roadways with significance exceeding 3.00% within the list of roadways evaluated.

Existing Roadway Capacity Analysis

VHB conducted an assessment to determine the existing level of service of the study roadways. The level of service (LOS) of a given roadway is related to prevailing traffic volumes and to capacity, which is defined as the maximum number of vehicles that can pass through a roadway section during a specified period of time. The capacity of a roadway is determined by a number of factors including composition of traffic (cars, buses, and trucks); roadway alignment; width and number of lanes; posted travel speeds and other variables.

The level of service and remaining capacity for each of the study roadways were determined based on the 2012 FDOT Quality/Level of Service Handbook Tables. A comparison of the PM peak hour directional traffic volumes were made against the roadway capacities to determine the existing level of service. The existing roadway capacity analysis was performed for all roadways within the study area as shown in **Table 3**. In summary, all study roadways operate at an acceptable level of service.



Table 3 : YR 2019 Existing Roadway Capacity Analysis

Integra Cocoa
YR 2019 Existing Roadway Capacity Analysis

<i>PM PEAK HOUR</i>									
Roadway	No. of Lanes	Adopted LOS	Directional PM Peak Hour Capacity	2018 Directional PM Peak Hour	2016 Peak Hour V/C Ratio	Remaining Directional PM Peak Hour Capacity	Over Capacity Yes/No		
SR 524									
Cox Rd to London Blvd	2	D	924	751	0.81	173	NO		
Cox Road									
SR 520 to SR 524	2	E	792	234	0.30	558	NO		
SR 524 to James Rd	2	E	792	152	0.19	640	NO		

Source:
VHB
FDOT Traffic Online/ VHB Counts

Existing Unsignalized Intersection Capacity Analysis

The existing intersections were evaluated using the methodology outlined in the Highway Capacity Manual and using the Synchro 10 Software. The results of the unsignalized intersection capacity analysis for the AM and PM peak hour are shown in **Table 4**. The analysis results for unsignalized intersections reflect the operation of the mainline left turn movements or the critical turning movements from the minor street. The Synchro unsignalized intersection report printouts are provided in the **Appendix F**.

Table 4: Unsignalized Intersection Capacity Analysis – Existing Conditions

Intersection	Control Type	Movement	2019 AM Peak Hour			2019 PM Peak Hour		
			V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
SR 524 & Lance Blvd	TWSC	SBLR	0.12	13.2	B	0.14	16.0	C
		EBL	0.01	8.2	A	0.02	9.4	A

Source: VHB, Inc. using Synchro 10 software.

1 Average delay in seconds per vehicle

As **Table 4** indicates, the study intersection is operating at LOS C or better.

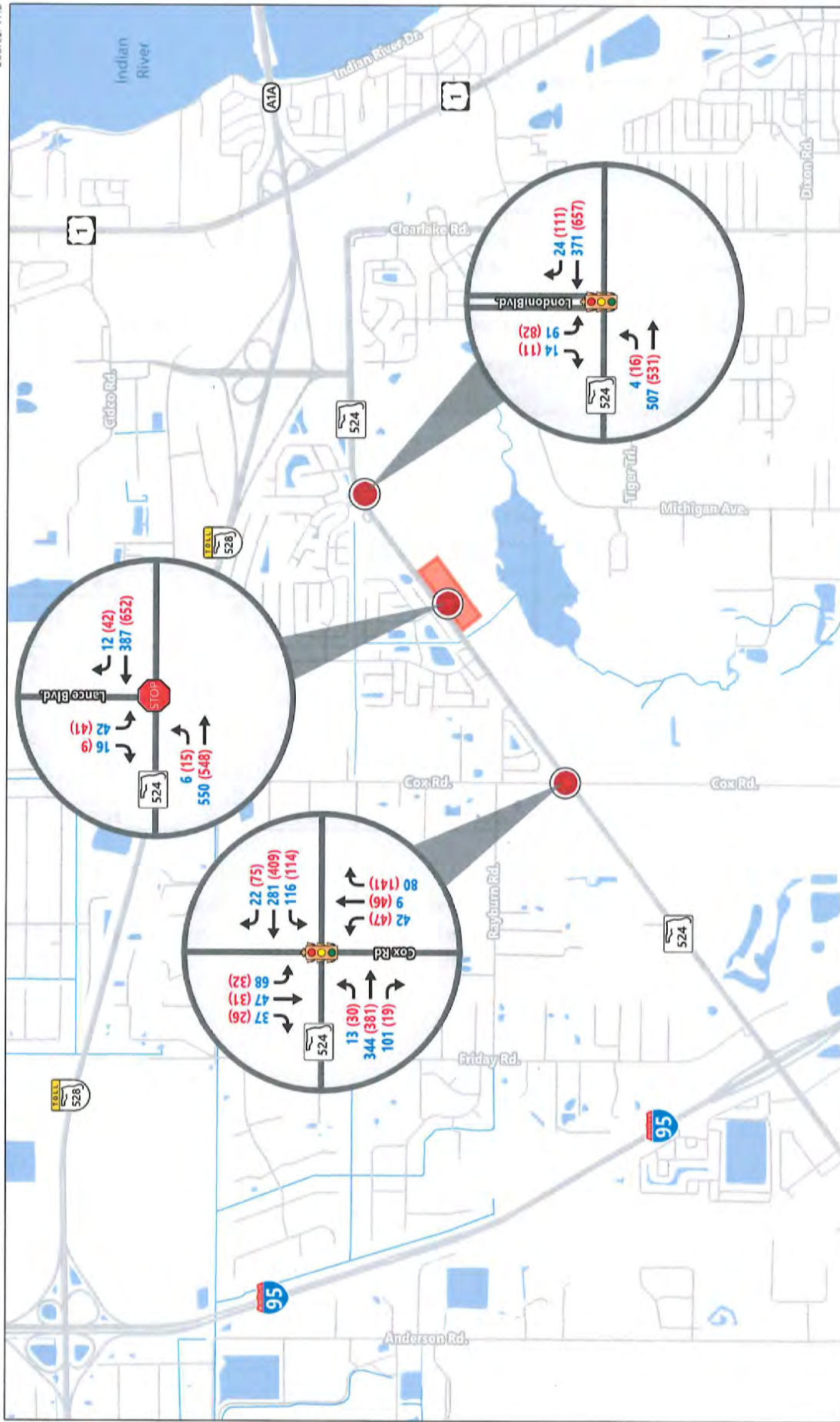
Existing Signalized Intersection Capacity Analysis

The existing intersections were evaluated using the methodology outlined in the Highway Capacity Manual and using the Synchro 10 Software. The results of the signalized intersection capacity analysis for the AM and PM peak hour are shown in **Table 5**.

Table 5 : Signalized Intersection Capacity Analysis – Existing Conditions

Intersection	Control Type	Movement	2019 AM Peak Hour			2019 PM Peak Hour		
			V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
SR 524 & London Blvd	Signalized	EBL	0.01	3.8	A	0.03	5.6	A
		EBT	0.39	4.0	A	0.40	3.9	A
		WBT	0.31	3.0	A	0.48	3.6	A
		WBR	0.00	0.0	A	0.00	0.0	A
		SBL	0.74	48.8	D	0.66	46.5	D
		SBR	0.13	39.5	D	0.10	39.6	D
		Overall		8.3	A		6.6	A
SR 524 & Cox Rd	Signalized	NBLTR	0.20	10.9	B	0.32	12.8	B
		SBLTR	0.21	11.0	B	0.12	10.9	B
		EBL	0.03	16.6	B	0.10	20.0	C
		EBT	0.80	24.0	C	0.82	25.8	C
		EBR	0.00	0.0	A	0.00	0.0	A
		WBL	0.39	15.5	B	0.42	17.0	B
		WBT	0.45	13.3	B	0.56	15.4	B
		WBR	0.00	0.0	A	0.00	0.0	A
		Overall		16.5	B		18.0	B

As **Table 5** indicates, the overall operation of the study intersections are at LOS B or better with all movements having v/c ratios less than 1.0. The analysis and subsequent HCM 6 output data can be found in **Appendix F**.



Project Location
 AM (PM)
 Peak Hour Traffic Volumes



Figure 3
 2019 AM and PM
 Peak Hour Traffic Volumes



3

Future Conditions

To determine the impacts of the site-generated traffic volumes on the surrounding study intersections, future traffic conditions were analyzed. The background traffic volumes were projected to a future year of 2021 based on historical traffic data. From the resulting trends analysis (as documented in **Appendix G**), a minimum 2% growth rate was applied to the roadway and intersection counts. Additionally, the anticipated number of trips generated from the development were calculated based on the trip generation rates/equations obtained from the *ITE Trip Generation Manual, 10th Edition* (see **Table 1**) and distributed to the roadways and intersections (including project driveways) based on the site layout and model distribution (see **Figure 2**). It should be noted that the future traffic volumes were derived by using the forecasted traffic from the London Cove project located to the east and adding this project's traffic volumes. The intersection volume derivation is documented in **Appendix H**.

Future Roadway Capacity Analysis

The future capacity analysis for the study area roadways for the project build-out can be found in **Table 5** for the PM peak hour condition. The analysis concludes that all of the roadway segments for future conditions operate below capacity.



Table 5 : Year 2021 Future Roadway Capacity Analysis

Integra Cocoa																
Future (YR 2021) PM Peak Hour Roadway Analysis																
Roadway	No. of Lanes	Level of Service			2019 Directional PM Peak Hour *	Count Year	Growth Rate **	Background Traffic		YR 2021 Project Traffic			Total Traffic	Deficient Yes/No	Project Deficiency Yes/No	Remaining Capacity
		Adopted LOS	MSV					Background Total	Deficient Yes/No	Trips	Project Dis %					
SR 524 Cox Rd to Project Entrance Project Entrance to London Blvd	2	D	924	751	2018	3.6%	831	NO	33	48.68%	864	NO	No	60		
	2	D	924	751	2018	3.6%	831	NO	35	51.32%	866	NO	No	58		
Cox Road SR 520 to SR 524 SR 524 to James Rd	2	E	792	234	2019	2.0%	243	NO	9	12.09%	252	NO	No	540		
	2	E	792	152	2019	2.0%	158	NO	1	1.20%	159	NO	No	633		
Source:																
April-19																

Future Unsignalized Intersection Capacity Analysis

The analysis for the operation at the unsignalized intersections was conducted by determining the operation for the future buildout condition with project trips added.

To determine the operational conditions at the unsignalized intersections, the connections were evaluated for AM and PM peak hour conditions using Synchro 10 software. The results of the unsignalized intersection capacity analysis for the AM and PM peak hour are shown in **Table 6**. The analysis results for unsignalized intersections reflect the operation of the mainline left turn movements or the critical turning movements from the minor street. The Synchro unsignalized intersection report printouts are provided in the **Appendix I**. **Figure 4** and **Figure 5** illustrate the AM and PM peak hour future traffic volumes.

Table 6 : Unsignalized Intersection Capacity Analysis – Future Buildout Condition

Intersection	Control Type	Movement	2021 AM Peak Hour			2021 PM Peak Hour		
			V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
SR 524 & Lance Blvd/Project Entrance	TWSC	EBL	0.01	8.5	A	0.02	9.6	A
		WBL	0.02	9.1	A	0.04	9.1	A
		NBLTR	0.33	29.9	D	0.31	39.7	E
		SBLTR	0.19	17.7	C	0.20	21.8	C

Source: VHB, Inc. using Synchro 10 software.

1 Average delay in seconds per vehicle

As **Table 6** indicates, the overall operation of the study intersections are at LOS E or better.

Future Signalized Intersection Capacity Analysis

The analysis for the operation at the signalized intersections were conducted by determining the operation for the future buildout condition with project trips added.

The intersection operations for the future buildout condition is depicted in Table 7. The Synchro signalized intersection report printouts are provided in the Appendix I.

Table 7 : Signalized Intersection Capacity Analysis – Future Buildout Condition

Intersection	Control Type	Movement	2021 AM Peak Hour			2021 PM Peak Hour		
			V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
SR 524 & London Blvd	Signalized	EBL	0.01	20.8	C	0.90	23.1	C
		EBT	0.67	28.3	C	0.64	24.9	C
		EBR	0.14	17.5	B	0.10	15.2	B
		WBL	0.37	37.7	D	0.23	29.5	C
		WBT	0.46	16.9	B	0.68	20.0	C
		WBR	0.00	0.0	A	0.00	0.0	A
		NBL	0.55	61.2	E	0.54	61.0	E
		NBTR	0.41	41.7	D	0.33	44.7	D
		SBLT	0.43	50.5	D	0.37	51.4	D
		SBR	0.04	37.3	D	0.04	41.5	D
		Overall		30.2	C		27.0	C
SR 524 & Cox Rd	Signalized	NBLTR	0.20	12.3	B	0.33	15.4	B
		SBLTR	0.22	12.4	B	0.13	13.0	B
		EBL	0.04	24.2	C	0.12	28.3	C
		EBT	0.85	11.5	C	0.86	34.0	C
		EBR	0.00	0.0	A	0.00	0.0	A
		WBL	0.51	22.0	C	0.53	23.2	C
		WBT	0.52	19.5	B	0.61	20.9	C
		WBR	0.00	0.0	A	0.00	0.0	A
		Overall		22.3	C		23.8	C

Source: VHB, Inc. using Synchro 10 software.

- 1 Average delay in seconds per vehicle
- 2 Overall level of service

As Table 7 indicates, the overall operation of the study intersections are at LOS C or better. Also, all turning movements have v/c ratios less than 1.0.

Turn Lane Need Evaluation

The need for a westbound-to-southbound left turn lane at the SR 524 project driveway was evaluated following guidance provided from the National Cooperative Highway Research Program (NCHRP) Report 457. Pursuant to this resource, the opposing volumes (621 vehicles) versus the advancing volumes (34 vehicles) are compared to justify the need for an exclusive left turn lane. Per Figure 2-5 of NCHRP Report 457 the criteria is met. Therefore, an exclusive left turn lane is recommended.

The need for an eastbound-to-southbound right turn lane at the SR 524 project driveway was evaluated. Pursuant to NCHRP Report 457, the right turn volumes are compared to the major road volumes to determine the need for an exclusive right turn lane. In this case, there are 33 vehicles conducting a right turn compared to 621 vehicles on CR SR 524 in the eastbound direction for the PM peak hour condition. According to Figure 2-6, the criteria is met. Therefore, an exclusive right turn lane is recommended. The NCHRP Report 457 data can be found in **Appendix J**.

Intersection Queue Analysis

An intersection queue analysis was performed for dedicated turn lanes where project trips are present at the study area intersections. The analysis compares the existing storage length to the buildout traffic queue. As shown in **Table 8**, the westbound left at SR 524 and Cox Road is not sufficient to accommodate queue and deceleration as it pertains to FDOT standards. Although this lane does not meet FDOT standards it fails during the existing conditions due to the speed on the roadway.



Table 8: Intersection Queue Analysis

Intersection	Movement	95th Percentile Queue Project Trips [feet]	Rounded Queue	Design Speed	Deceleration Length [feet] ¹	Total Turn Lane Length Required	Existing Length	Sufficient
SR 524 at London Blvd	EBT*	488	500	60	405	905	-	Yes
	WBT**	515	525	60	405	930	-	Yes
SR 524 at Lance Blvd/Project Entrance	EBR*	0	0	60	405	405	NEW	New
	WBL**	3	25	60	405	430	NEW	New
	NBLTR*	35	50	30	145	195	NEW	New
SR 524 at Cox Rd	EBT**	340	350	60	405	755	-	Yes
	WBL**	78	100	60	405	505	250	Existing Deficient
	WBT**	275	275	60	405	680	-	Yes
	WBR*	0	0	60	405	405	425	Yes
	NBLTR**	150	150	40	155	305	-	Yes
	SBLTR*	75	75	45	185	260	-	Yes

*Highest Peak Hour (AM)

** Highest Peak Hour (PM)

*** Calculated as a signalized intersection

¹ FDOT Index 301

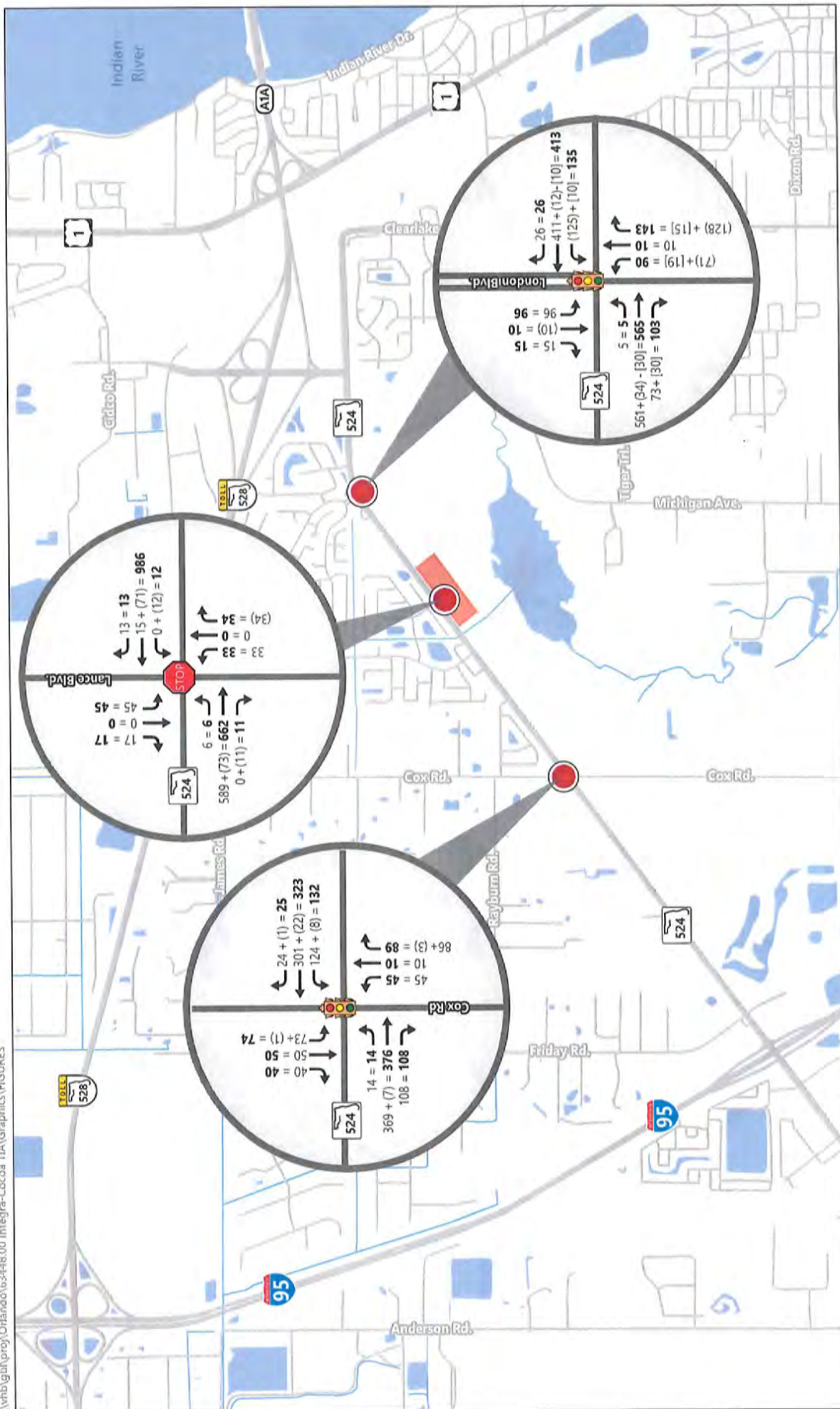


Figure 4
2021 Future Build
AM Peak Hour Traffic Volumes

Legend:

- Project Location
- $x + (y) + [z] = xx$ — Total Traffic
- Pass By Traffic
- Project Traffic
- Background Traffic

North Arrow: N.T.S.

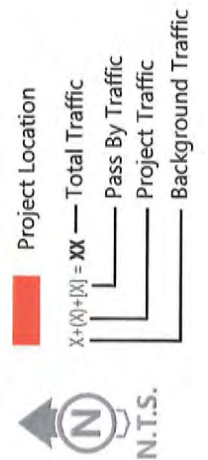
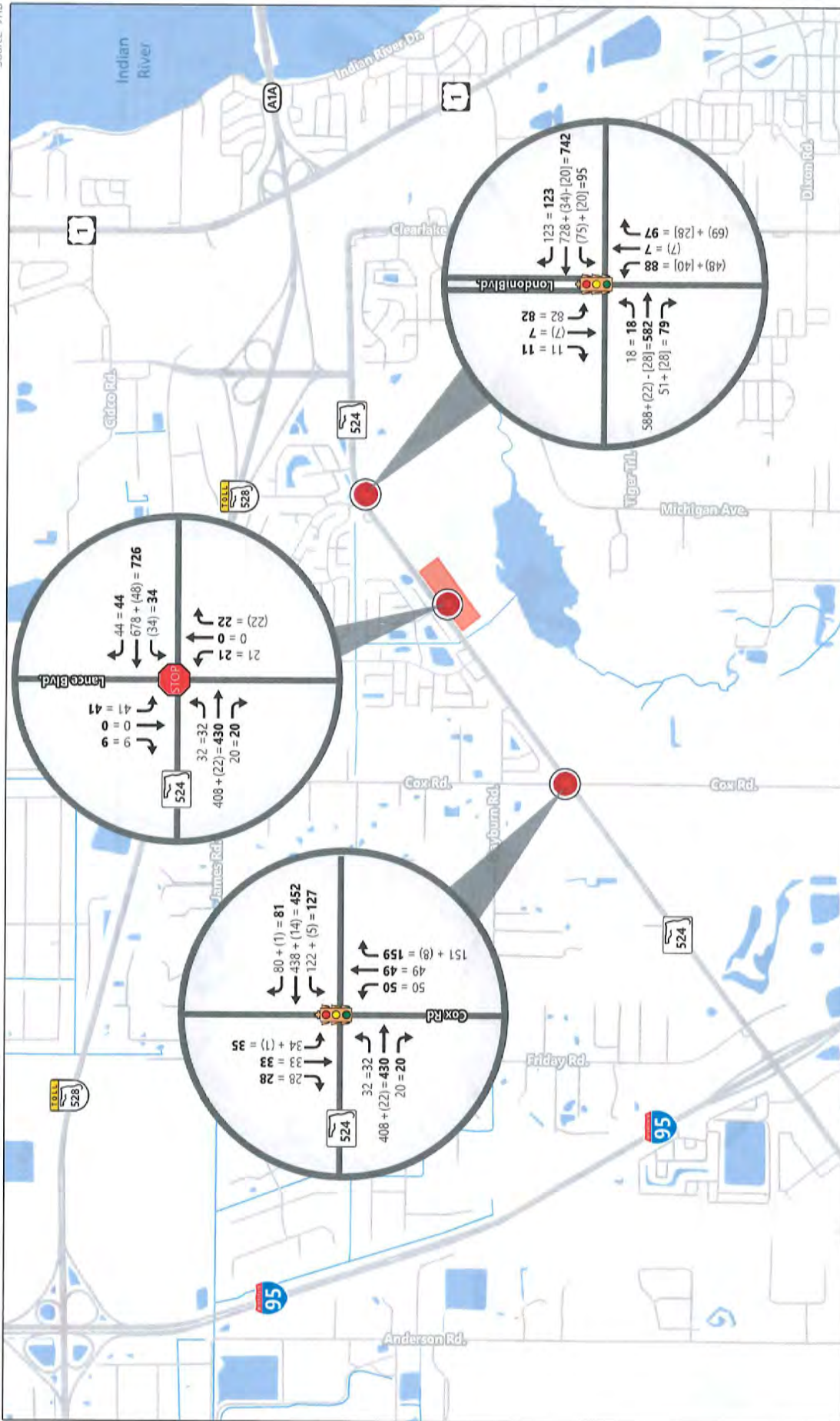


Figure 5
2021 Future Build
PM Peak Hour Traffic Volumes



4

Conclusions

This traffic analysis has been prepared in support of obtaining concurrency through the City of Cocoa (249 apartments), to be located on the south side of SR 524 between Cox Road and London Boulevard in Cocoa, Florida.

The following is a summary of study findings:

- The proposed development is expected to generate 1,356 new daily trips, 90 new AM peak hour trips (23 in, 67 out), and 110 new PM peak hour trips (67 in, 43 out).
- The existing conditions analysis shows that all study roadways operate at an acceptable level of service.
- The existing signalized intersection analysis reveals that the study intersections are operating at an overall LOS B or better.
- The future condition analysis shows that the project driveway will operate with an acceptable LOS. A dedicated eastbound right turn lane and a dedicated westbound left turn lane are recommended to be constructed.
- The signalized intersections AM and PM peak hour future build condition operates at an acceptable level of service.
- The analysis concludes that all study area roadways exhibit traffic volumes lower than their respective maximum service.

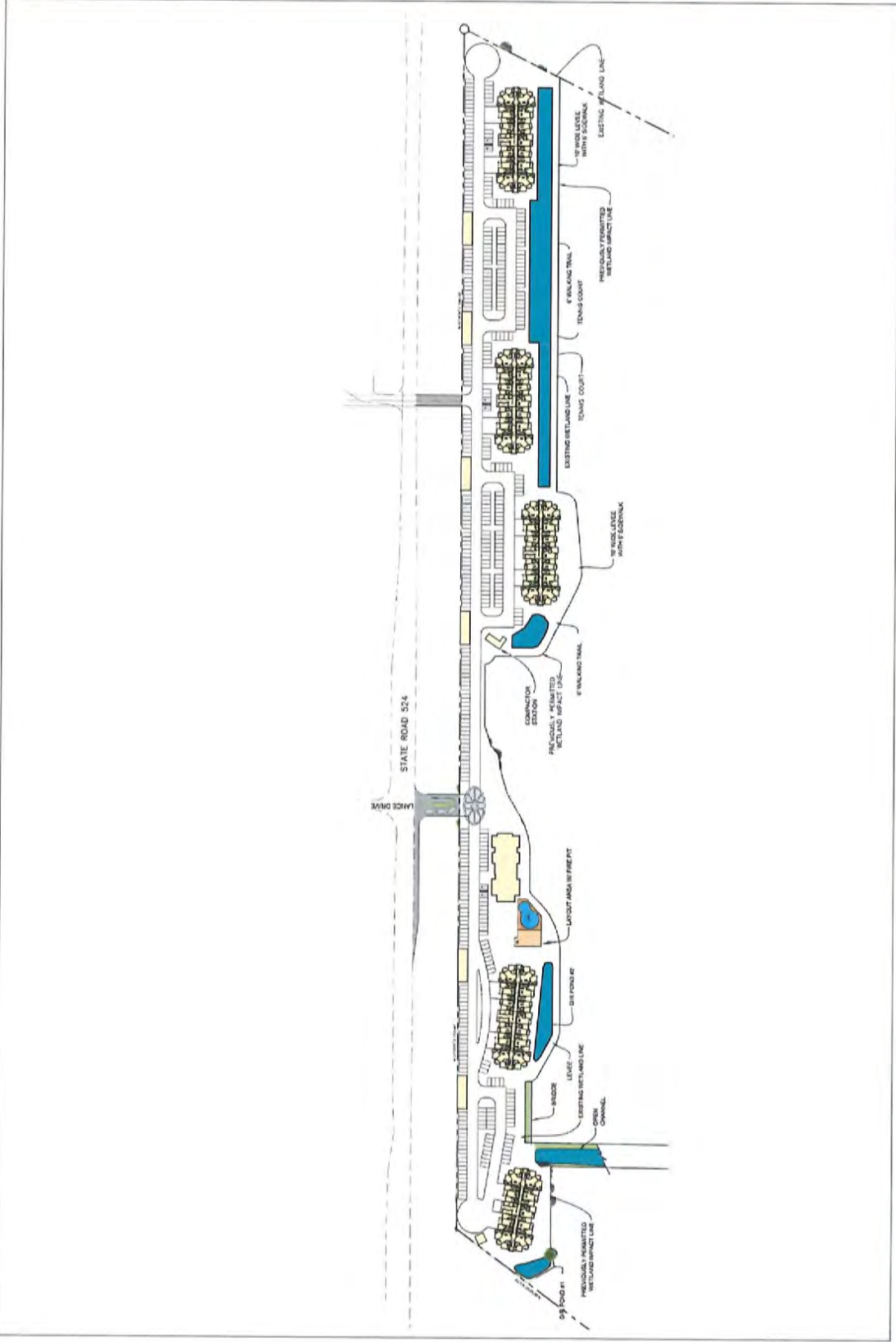
Recommendations:

- Construct a 405' eastbound right turn lane at the intersection of SR 524 and Lance Boulevard/Project Entrance.
- Construct a 430' westbound left turn lane at the intersection of SR 524 and Lance Boulevard/Project Entrance.
- Restripe the westbound left turn lane at SR 524 and Cox Road to be 505'.

APPENDICES

APPENDIX A

Site Plan



DATA

UNIT TOTAL	
1 - BEDROOM	99
2 - BEDROOM	118
3 - BEDROOM	32
TOTAL	249

PARKING TOTAL	
SURFACE (9X19)	433
GARAGES	66
TOTAL	499
SPACES PER UNIT	2.0

TOTAL ACREAGE
13.14 acres



APPENDIX B

ITE Trip Generation Summary Sheets

Multifamily Housing (Mid-Rise) (221)

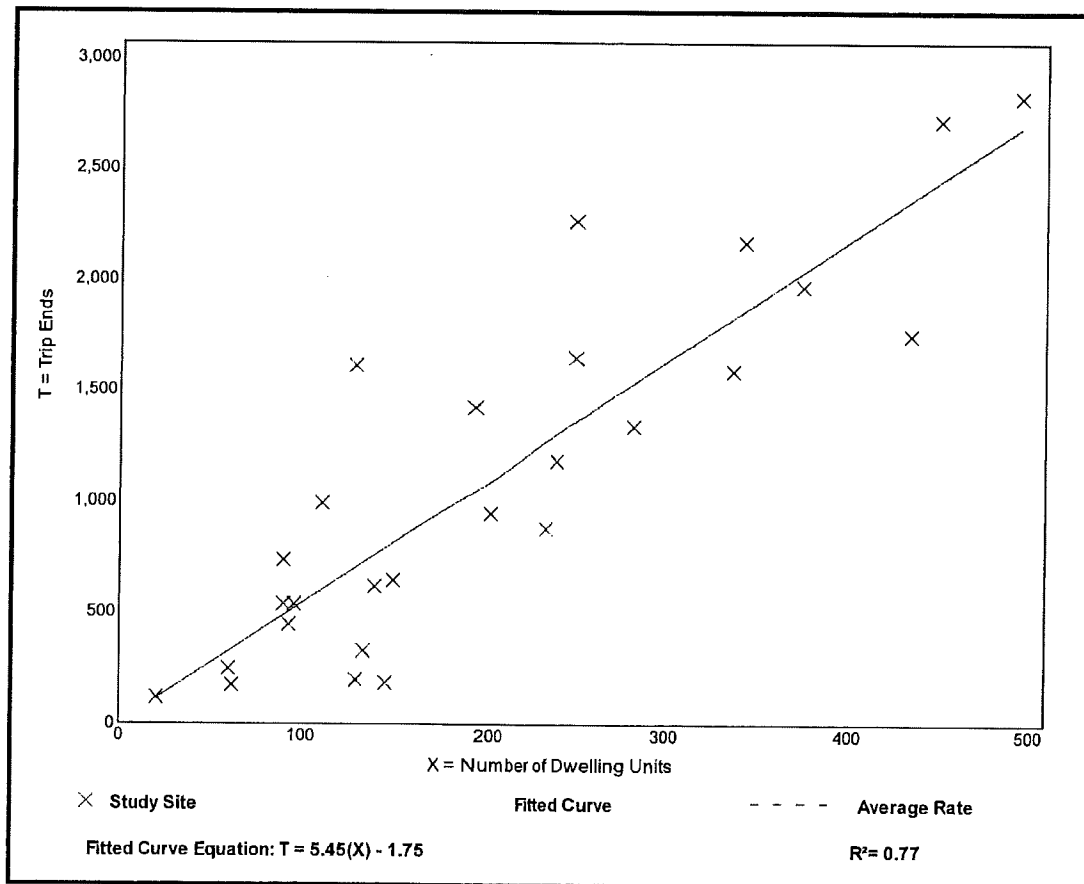
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 27
Avg. Num. of Dwelling Units: 205
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
5.44	1.27 - 12.50	2.03

Data Plot and Equation



Multifamily Housing (Mid-Rise) (221)

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: 53

Avg. Num. of Dwelling Units: 207

Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate

0.36

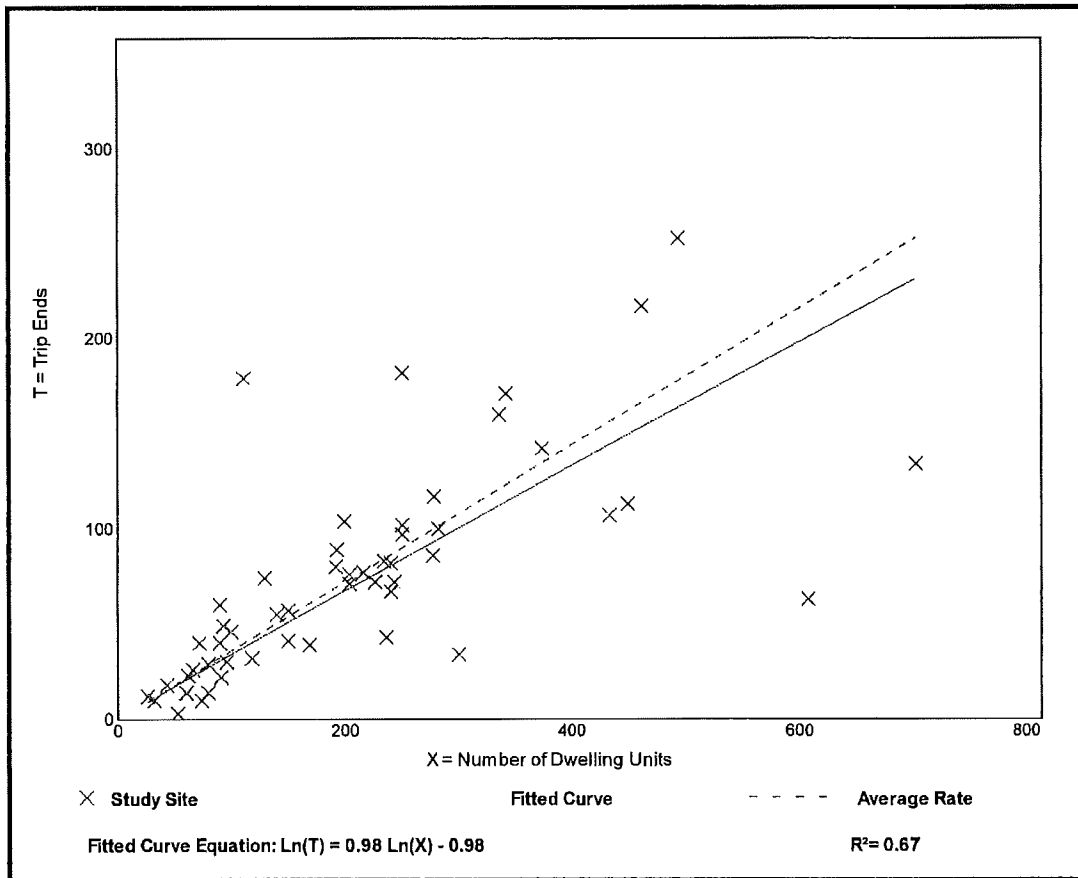
Range of Rates

0.06 - 1.61

Standard Deviation

0.19

Data Plot and Equation



Multifamily Housing (Mid-Rise) (221)

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: 60

Avg. Num. of Dwelling Units: 208

Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate

0.44

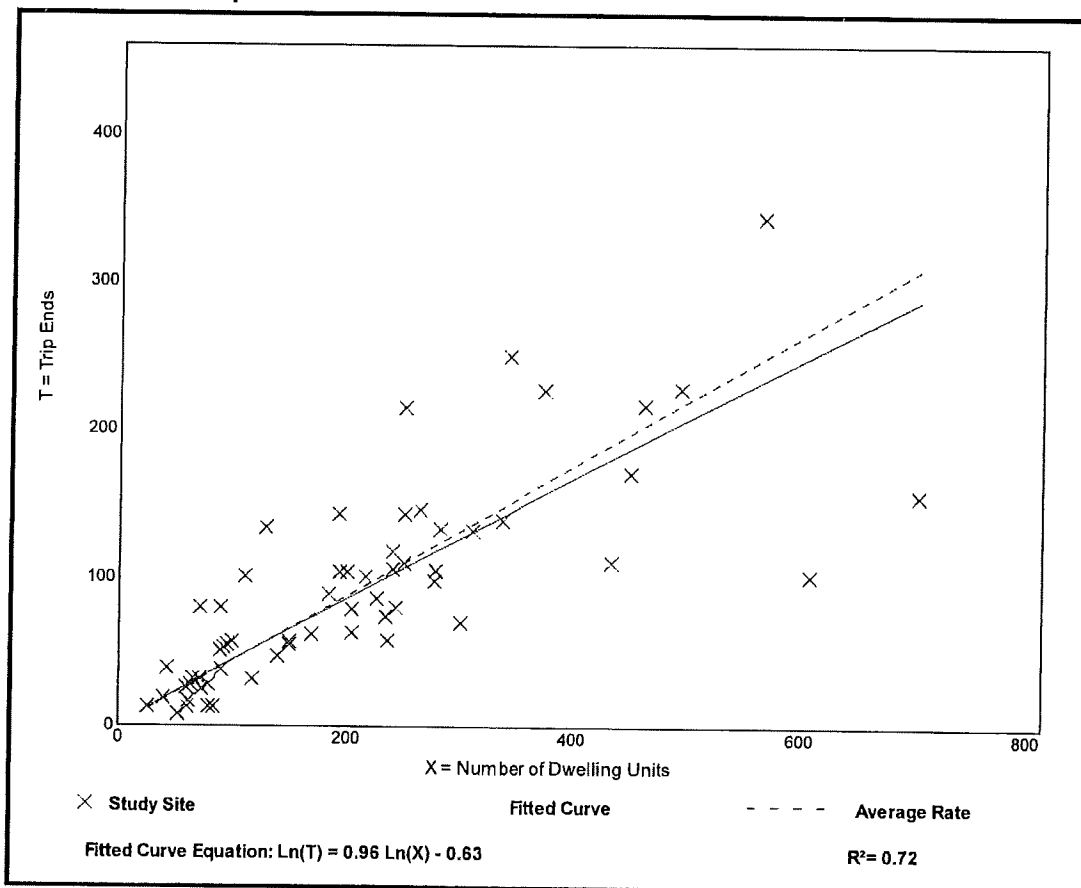
Range of Rates

0.15 - 1.11

Standard Deviation

0.19

Data Plot and Equation



APPENDIX C

CFRPM Travel Demand Model Plot

APPENDIX D

Traffic Count Data

Roadway Count Summary

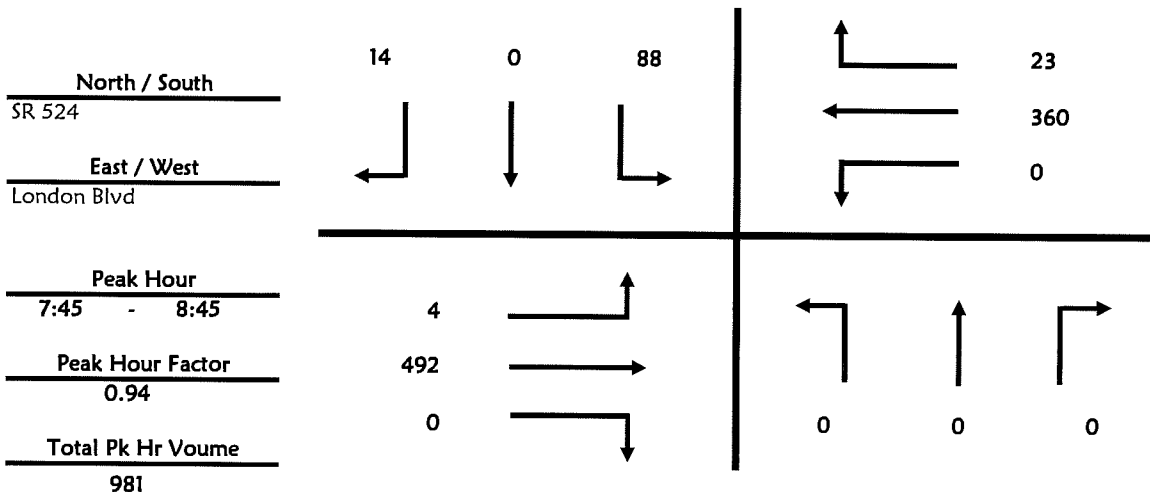
Vanasse Hangen Brustlin, Inc.

County Bevard City Cocoa
 Intersection SR 524 & London Blvd
 Date July 27, 2018 All Vehicles
 Time Period 7:00 to 9:00

VHB Project #: 63290

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	0	0	15	0	5
7:15 - 7:30	0	0	0	17	0	2
7:30 - 7:45	0	0	0	19	0	5
7:45 - 8:00	0	0	0	22	0	3
8:00 - 8:15	0	0	0	29	0	4
8:15 - 8:30	0	0	0	24	0	5
8:30 - 8:45	0	0	0	13	0	2
8:45 - 9:00	0	0	0	23	0	3
	0	0	0	162	0	29

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
7:00 - 7:15	0	101	0	0	62	2
7:15 - 7:30	0	113	0	0	81	4
7:30 - 7:45	1	134	0	0	90	1
7:45 - 8:00	2	133	0	0	93	5
8:00 - 8:15	0	108	0	0	72	4
8:15 - 8:30	2	129	0	0	79	7
8:30 - 8:45	0	122	0	0	116	7
8:45 - 9:00	1	125	0	0	78	8
	6	965	0	0	671	38



Roadway Count Summary

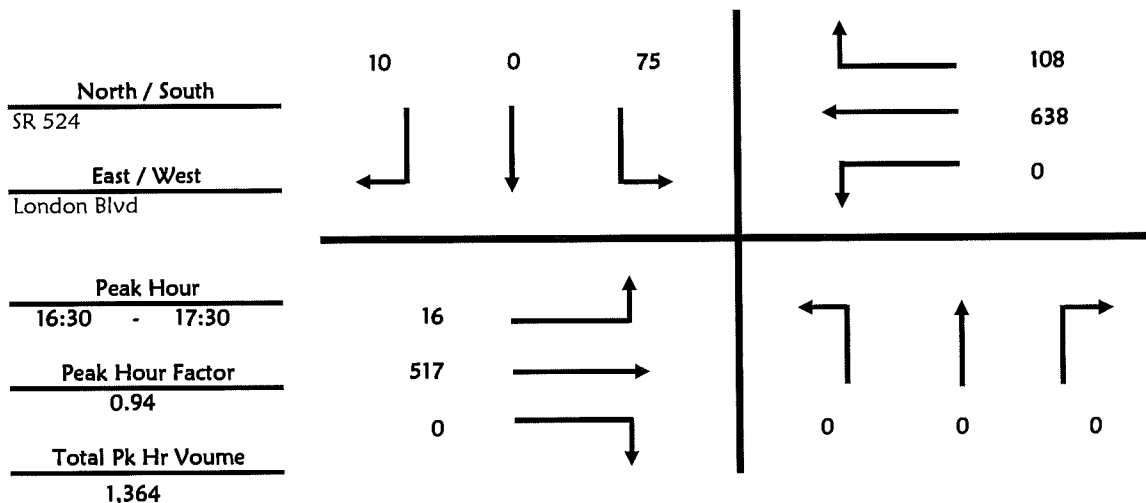
Vanasse Hangen Brustlin, Inc.

County Bevard City Cocoa
 Intersection SR 524 & London Blvd
 Date July 27, 2018 All Vehicles
 Time Period 16:00 to 18:00

VHB Project #: 63290

Time Period	Northbound			Southbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	0	0	0	14	0	1
16:15 - 16:30	0	0	0	5	0	0
16:30 - 16:45	0	0	0	19	0	2
16:45 - 17:00	0	0	0	17	0	1
17:00 - 17:15	0	0	0	16	0	4
17:15 - 17:30	0	0	0	23	0	3
17:30 - 17:45	0	0	0	17	0	4
17:45 - 18:00	0	0	0	13	0	2
	0	0	0	124	0	17

Time Period	Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right
16:00 - 16:15	5	142	0	0	134	17
16:15 - 16:30	3	88	0	0	181	27
16:30 - 16:45	2	122	0	0	174	26
16:45 - 17:00	1	128	0	0	146	18
17:00 - 17:15	9	127	0	0	165	25
17:15 - 17:30	4	140	0	0	153	39
17:30 - 17:45	2	131	0	0	165	21
17:45 - 18:00	7	127	0	0	111	25
	33	1,005	0	0	1,229	198



Roadway Count Summary

Vanasse Hangen Brustlin, Inc.

County Brevard

City cocoa

Intersection SR 524

& Cox Road

Date January 23, 2019

All Vehicles

VHB Project #: 81936.19

AM Peak Hour

Time Period	Northbound			Southbound			Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM - 7:15 AM	5	2	10	9	7	8	0	64	19	19	63	6
7:15 AM - 7:30 AM	3	2	12	11	8	8	1	87	26	26	61	1
7:30 AM - 7:45 AM	6	1	15	20	9	10	2	101	38	28	56	3
7:45 AM - 8:00 AM	12	4	18	19	11	13	5	83	31	41	64	3
8:00 AM - 8:15 AM	14	3	23	15	13	4	3	81	21	32	90	10
8:15 AM - 8:30 AM	10	1	24	14	14	10	3	79	11	15	71	6
8:30 AM - 8:45 AM	6	4	16	14	12	6	4	79	14	25	76	11
8:45 AM - 9:00 AM	4	4	16	9	9	7	3	74	6	20	59	7
TOTAL	60	21	134	111	83	66	21	648	166	206	540	47
Peak Hour												
7:30 AM - 8:30 AM	42	9	80	68	47	37	13	344	101	116	281	22

Mid-day

Time Period	Northbound			Southbound			Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
11:00 AM - 11:15 AM	5	8	20	10	4	6	1	67	7	21	72	9
11:15 AM - 11:30 AM	8	2	26	11	5	4	4	88	7	27	64	11
11:30 AM - 11:45 AM	10	4	17	16	4	2	2	55	10	25	59	15
11:45 AM - 12:00 PM	8	4	36	11	6	6	7	75	8	26	69	11
12:00 PM - 12:15 PM	16	7	46	8	11	2	3	83	11	25	78	13
12:15 PM - 12:30 PM	9	7	29	8	7	4	3	66	11	36	82	14
12:30 PM - 12:45 PM	8	5	27	12	13	5	2	75	9	23	81	12
12:45 PM - 1:00 PM	12	6	25	6	11	3	6	80	9	36	70	14
TOTAL	76	43	226	82	61	32	28	589	72	219	575	99
Peak Hour												
12:00 PM - 1:00 PM	45	25	127	34	42	14	14	304	40	120	311	53

PM Peak Hour

Time Period	Northbound			Southbound			Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2:00 PM - 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM - 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM - 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM - 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM - 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 4:15 PM	47	12	55	12	9	5	9	77	11	21	115	22
4:15 PM - 4:30 PM	9	9	22	15	4	6	5	84	6	20	106	18
4:30 PM - 4:45 PM	6	13	31	14	7	3	10	106	8	28	96	22
4:45 PM - 5:00 PM	7	12	23	15	4	6	4	87	6	24	97	16
5:00 PM - 5:15 PM	21	10	55	12	5	6	6	88	3	22	106	21
5:15 PM - 5:30 PM	9	7	32	8	10	4	11	105	8	24	93	19
5:30 PM - 5:45 PM	12	21	29	7	10	9	7	88	4	30	100	21
5:45 PM - 6:00 PM	5	8	25	5	6	7	6	100	4	38	110	14
TOTAL	116	92	272	88	55	46	58	735	50	207	823	153
Peak Hour												
5:00 PM - 6:00 PM	47	46	141	32	31	26	30	381	19	114	409	75

Roadway Count Summary

Vanasse Hangen Brustlin, Inc.

County Brevard

City cocoa

Intersection SR 524

& Lance Blvd

Date January 23, 2019

All Vehicles

VHB Project #: 81936.19

AM Peak Hour

Time Period	Northbound			Southbound			Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
7:00 AM - 7:15 AM	0	0	0	7	0	4	0	99	0	0	72	2
7:15 AM - 7:30 AM	0	0	0	9	0	7	0	128	0	0	77	2
7:30 AM - 7:45 AM	0	0	0	13	0	4	0	149	0	0	68	1
7:45 AM - 8:00 AM	0	0	0	10	0	4	2	144	0	0	105	2
8:00 AM - 8:15 AM	0	0	0	8	0	3	2	129	0	0	119	4
8:15 AM - 8:30 AM	0	0	0	11	0	5	2	128	0	0	95	5
8:30 AM - 8:45 AM	0	0	0	5	0	2	1	116	0	0	101	7
8:45 AM - 9:00 AM	0	0	0	8	0	0	0	107	0	0	97	6
TOTAL	0	0	0	71	0	29	7	1,000	0	0	734	29
Peak Hour 7:30 AM - 8:30 AM	0	0	0	42	0	16	6	550	0	0	387	12

Mid-day

Time Period	Northbound			Southbound			Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
11:00 AM - 11:15 AM	0	0	0	9	0	0	1	107	0	0	98	4
11:15 AM - 11:30 AM	0	0	0	3	0	2	0	125	0	0	108	8
11:30 AM - 11:45 AM	0	0	0	4	0	4	0	109	0	0	102	3
11:45 AM - 12:00 PM	0	0	0	4	0	1	0	125	0	0	118	3
12:00 PM - 12:15 PM	0	0	0	3	0	1	1	137	0	0	123	5
12:15 PM - 12:30 PM	0	0	0	7	0	1	2	103	0	0	124	6
12:30 PM - 12:45 PM	0	0	0	5	0	0	1	112	0	0	126	4
12:45 PM - 1:00 PM	0	0	0	10	0	4	1	114	0	0	117	6
TOTAL	0	0	0	45	0	13	6	932	0	0	916	39
Peak Hour 12:00 PM - 1:00 PM	0	0	0	25	0	6	5	466	0	0	490	21

PM Peak Hour

Time Period	Northbound			Southbound			Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2:00 PM - 2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM - 2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM - 2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM - 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM - 3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 4:15 PM	0	0	0	5	0	6	4	139	0	0	165	13
4:15 PM - 4:30 PM	0	0	0	6	0	2	4	123	0	0	160	11
4:30 PM - 4:45 PM	0	0	0	5	0	2	4	141	0	0	151	8
4:45 PM - 5:00 PM	0	0	0	10	0	3	3	122	0	1	153	17
5:00 PM - 5:15 PM	0	0	0	9	0	2	2	162	0	0	164	13
5:15 PM - 5:30 PM	0	0	0	7	0	2	4	146	0	0	151	7
5:30 PM - 5:45 PM	0	0	0	11	0	4	4	112	0	0	176	13
5:45 PM - 6:00 PM	0	0	0	12	0	1	5	128	0	0	161	9
TOTAL	0	0	0	65	0	22	30	1,073	0	1	1,281	91
Peak Hour 5:00 PM - 6:00 PM	0	0	0	39	0	9	15	548	0	0	652	42

APPENDIX E

Signal Timings

Changed yellow & red times per FOOT

Phase Times [1.1.1]

	1	2	3	4	5	6	7	8
Min Green		10		7		10		7
Gap, Ext		3		3		3		3
Max 1		60		30		60		30
Max 2		75		40		75		40
Yel Clearance		5.3 4.7		3.4 4		5.1 4.7		4
Red Clearance		2		2.5		2		2
Walk						5		
Ped Clearance						27		
Red Revert								
Add Initial								
Max Initial								
Time B4 Reduct								
Cars B4 Reduct								
Time To Reduce								
Reduce By								
Min Gap								
DyMaxLim								
Max Step								

Auto Flash Parms [1.4.1]

Flash Parameter	Mode	VOT_MON	Clearance Time
		Yellow	45
		Red	30

Auto Flash, Phases/Overlaps [1.4.2]

Yel (phases)	2	6						
Yel (overlaps)								

SR 524 & London Blvd (ID 1019) (Standard File)

01/13/14

Speed Limit = 45 Miles

Phase Options [1.1.2]

	1	2	3	4	5	6	7	8
Enable		1		1		1		
Min Recall		1				1		
Max Recall								
Ped Recall								
Soft Recall								
Lock Calls		1				1		
Auto Flash Entry								1
Auto Flash Exit		1				1		
Dual Entry		1				1		
Enable Simul Gap		1				1		
Gaurant Passage								
Rest In Walk								
Conditon Service								
Non-Actuated 1								
Non-Actuated 2								
Add Init Calc								

Phase Options+ [1.1.3]

	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Reservice								
Walk Thru Yel								
Skip Red No Call								
Red Rest								
Max II								
Conflicting Phase								
Conflicting Phase								
Omit Yellow								
Ped Out/Olap								
Start Yel, Next Ph								

Detector, Vehicle Parameters 1-24 [5.1]

Det#	Call Φ	Switch Φ	Delay	Extend	Queue	NoAct	MaxPres	ErrCnt	FailTime
1	1						15	70	1
2	2						15	70	15
3	3						15	70	15
4	4						15	70	15
5	5						15	70	15
6	6						15	70	15
7	7						15	70	15
8	8						15	70	15
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Detector, Vehicle Parameters 41-64 [5.1]

Det#	Call Φ	Switch Φ	Delay	Extend	Queue	NoAct	MaxPres	ErrCnt	FailTime
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									

Signal Clearance Timings

Section: 7C070
 MP: 4.194
 Maintaining Agency: Cocoa
 Controller: Naztec

Location: SR 524 & London Blvd.
 North/South Street: London Blvd.
 East/West Street: SR 524

Direction	Width of Intersection measured on Google (ft)	Field verified Width of Intersection (ft)	Speed Limit (mph)	Field Measured Slope	Phase	Calculated Yellow Clearance (sec)	Existing Yellow Clearance (sec)	Proposed Yellow Clearance (sec)	Calculated Red Clearance* (sec)	Existing Red Clearance (sec)	Proposed Red Clearance (sec)	Width of Crosswalk (ft)	Existing Ped Walk (sec)	Existing Ped Clearance (sec)	Calculated Ped Clearance Timing (sec)	Proposed Ped Clearance Timing (sec)
SBL	108		25		4	3.3	4.0	3.4	3.5	2.0	2.5					
SB	N/A	x	25	-0.50%	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EBL	78		50		N/A	5.2	5.0	5.2	2.7	2.5	2.0					
EB	88	x	50	-0.50%	2	5.2	5.0	5.2	1.5	2.5	2.0	N/A	N/A	N/A	N/A	N/A
WBL	N/A		50		N/A	N/A	N/A	N/A	N/A	N/A	N/A					
WB	112	x	50	-0.20%	6	5.1	5.0	5.1	1.8	2.5	2.0	91	5	27	26	26

* speed of 25 mph was used for left turn calculation of red clearance time unless speed limit of approach was lower

Field Measurements (Grade)						
Approach Direction	Speed Limit	Dilemma Zone Field Locations				
		Location A	Location B	Location C	Slope used	
SB	25	Distance from stop bar (ft)	0	51	102	
		Smart level (%)	-0.40%	-0.50%	-0.40%	-0.50%
EB	50	Distance from stop bar (ft)	0	150	330	
		Smart level (%)	0.10%	-0.40%	-0.50%	-0.50%
WB	50	Distance from stop bar (ft)	0	160	360	
		Smart level (%)	-0.20%	-0.10%	-0.20%	-0.20%

APPENDIX F

Synchro Analysis – Existing Conditions

HCM 6th Signalized Intersection Summary 3: SR 524 & London Blvd

2019 Existing - AM
04/19/2019

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	507	371	24	91	14
Future Volume (veh/h)	4	507	371	24	91	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1752	1618	1767	1870	1870
Adj Flow Rate, veh/h	4	539	395	0	97	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	10	19	9	2	2
Cap, veh/h	783	1368	1264		131	116
Arrive On Green	0.78	0.78	0.78	0.00	0.07	0.07
Sat Flow, veh/h	989	1752	1618	1497	1781	1585
Grp Volume(v), veh/h	4	539	395	0	97	15
Grp Sat Flow(s),veh/h/ln	989	1752	1618	1497	1781	1585
Q Serve(g_s), s	0.1	8.8	6.4	0.0	4.8	0.8
Cycle Q Clear(g_c), s	6.5	8.8	6.4	0.0	4.8	0.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	783	1368	1264		131	116
V/C Ratio(X)	0.01	0.39	0.31		0.74	0.13
Avail Cap(c_a), veh/h	783	1368	1264		477	424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	3.8	3.1	2.9	0.0	40.9	39.0
Incr Delay (d2), s/veh	0.0	0.9	0.1	0.0	8.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.7	1.5	0.0	4.3	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.8	4.0	3.0	0.0	48.8	39.5
LnGrp LOS	A	A	A		D	D
Approach Vol, veh/h		543	395	A	112	
Approach Delay, s/veh		4.0	3.0		47.6	
Approach LOS		A	A		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		77.5		12.5		77.5
Change Period (Y+Rc), s		7.2		5.9		* 7.2
Max Green Setting (Gmax), s		52.8		24.1		* 53
Max Q Clear Time (g_c+I1), s		10.8		6.8		8.4
Green Ext Time (p_c), s		3.2		0.2		2.2
Intersection Summary						
HCM 6th Ctrl Delay			8.3			
HCM 6th LOS			A			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.						

Intersection						
Int Delay, s/veh	0.8					
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	42	16	6	550	387	12
Future Vol, veh/h	42	16	6	550	387	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	350
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	6	2	7	15	2
Mvmt Flow	44	17	6	579	407	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	998	407	420	0	-	0
Stage 1	407	-	-	-	-	-
Stage 2	591	-	-	-	-	-
Critical Hdwy	6.42	6.26	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.354	2.218	-	-	-
Pot Cap-1 Maneuver	270	636	1139	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	269	636	1139	-	-	-
Mov Cap-2 Maneuver	461	-	-	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Approach	SE	NE		SW		
HCM Control Delay, s	13.2	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR	
Capacity (veh/h)	1139	-	499	-	-	
HCM Lane V/C Ratio	0.006	-	0.122	-	-	
HCM Control Delay (s)	8.2	-	13.2	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.4	-	-	

HCM 6th Signalized Intersection Summary
20: SR 524 & Cox Rd

2019 Existing - AM
04/19/2019

													
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Traffic Volume (veh/h)	42	9	80	68	47	37	13	344	101	116	281	22	
Future Volume (veh/h)	42	9	80	68	47	37	13	344	101	116	281	22	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1737	1737	1737	1826	1826	1826	1870	1752	1841	1856	1633	1870	
Adj Flow Rate, veh/h	45	10	85	72	50	39	14	366	0	123	299	0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Percent Heavy Veh, %	11	11	11	5	5	5	2	10	4	3	18	2	
Cap, veh/h	246	80	381	353	239	161	402	457		314	667		
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.26	0.26	0.00	0.07	0.41	0.00	
Sat Flow, veh/h	377	181	862	602	541	365	1080	1752	1560	1767	1633	1585	
Grp Volume(v), veh/h	140	0	0	161	0	0	14	366	0	123	299	0	
Grp Sat Flow(s),veh/h/ln	1420	0	0	1509	0	0	1080	1752	1560	1767	1633	1585	
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.6	11.7	0.0	2.8	8.0	0.0	
Cycle Q Clear(g_c), s	3.3	0.0	0.0	3.4	0.0	0.0	0.6	11.7	0.0	2.8	8.0	0.0	
Prop In Lane	0.32		0.61	0.45		0.24	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	706	0	0	753	0	0	402	457		314	667		
V/C Ratio(X)	0.20	0.00	0.00	0.21	0.00	0.00	0.03	0.80		0.39	0.45		
Avail Cap(c_a), veh/h	706	0	0	753	0	0	849	1182		466	1483		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	
Uniform Delay (d), s/veh	10.3	0.0	0.0	10.3	0.0	0.0	16.6	20.7	0.0	14.7	12.9	0.0	
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.6	0.0	0.0	0.0	3.3	0.0	0.8	0.5	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh/ln	1.9	0.0	0.0	2.1	0.0	0.0	0.2	7.6	0.0	1.7	4.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	10.9	0.0	0.0	11.0	0.0	0.0	16.6	24.0	0.0	15.5	13.3	0.0	
LnGrp LOS	B	A	A	B	A	A	B	C		B	B		
Approach Vol, veh/h	140				161			380		A		422	A
Approach Delay, s/veh	10.9				11.0			23.8				14.0	
Approach LOS	B				B			C				B	
Timer - Assigned Phs	2		3	4	6			8					
Phs Duration (G+Y+Rc), s	31.0		8.9	20.2	31.0			29.0					
Change Period (Y+Rc), s	4.5		4.5	4.5	4.5			4.5					
Max Green Setting (Gmax), s	26.5		9.5	40.5	26.5			54.5					
Max Q Clear Time (g_c+I1), s	5.3		4.8	13.7	5.4			10.0					
Green Ext Time (p_c), s	0.7		0.1	1.9	0.8			1.6					
Intersection Summary													
HCM 6th Ctrl Delay	16.5												
HCM 6th LOS	B												

Notes

Unsignalized Delay for [NER, SWR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary 3: SR 524 & London Blvd

2019 Existing - PM
04/19/2019

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	531	657	111	77	10
Future Volume (veh/h)	16	531	657	111	77	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1796	1856	1870	1870	1870
Adj Flow Rate, veh/h	17	565	699	0	82	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	7	3	2	2	2
Cap, veh/h	568	1409	1455		125	111
Arrive On Green	0.78	0.78	0.78	0.00	0.07	0.07
Sat Flow, veh/h	747	1796	1856	1585	1781	1585
Grp Volume(v), veh/h	17	565	699	0	82	11
Grp Sat Flow(s),veh/h/ln	747	1796	1856	1585	1781	1585
Q Serve(g_s), s	0.7	8.9	11.7	0.0	4.0	0.6
Cycle Q Clear(g_c), s	12.5	8.9	11.7	0.0	4.0	0.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	568	1409	1455		125	111
V/C Ratio(X)	0.03	0.40	0.48		0.66	0.10
Avail Cap(c_a), veh/h	568	1409	1455		477	424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	5.5	3.1	3.4	0.0	40.8	39.2
Incr Delay (d2), s/veh	0.1	0.9	0.2	0.0	5.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	2.7	3.0	0.0	3.5	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.6	3.9	3.6	0.0	46.5	39.6
LnGrp LOS	A	A	A		D	D
Approach Vol, veh/h		582	699	A	93	
Approach Delay, s/veh		4.0	3.6		45.7	
Approach LOS		A	A		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		77.8		12.2		77.8
Change Period (Y+Rc), s		7.2		5.9		* 7.2
Max Green Setting (Gmax), s		52.8		24.1		* 53
Max Q Clear Time (g_c+I1), s		14.5		6.0		13.7
Green Ext Time (p_c), s		3.5		0.2		4.6
Intersection Summary						
HCM 6th Ctrl Delay			6.6			
HCM 6th LOS			A			

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.7					
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	39	9	15	548	652	42
Future Vol, veh/h	39	9	15	548	652	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	125	-	-	350
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	13	7	5	3	2
Mvmt Flow	42	10	16	589	701	45
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1322	701	746	0	-	0
Stage 1	701	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Critical Hdwy	6.42	6.33	4.17	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.417	2.263	-	-	-
Pot Cap-1 Maneuver	173	421	840	-	-	-
Stage 1	492	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	170	421	840	-	-	-
Mov Cap-2 Maneuver	370	-	-	-	-	-
Stage 1	483	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Approach	SE	NE		SW		
HCM Control Delay, s	16	0.2		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NEL	NET	SELn1	SWT	SWR	
Capacity (veh/h)	840	-	379	-	-	
HCM Lane V/C Ratio	0.019	-	0.136	-	-	
HCM Control Delay (s)	9.4	-	16	-	-	
HCM Lane LOS	A	-	C	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-	

HCM 6th Signalized Intersection Summary
20: SR 524 & Cox Rd

2019 Existing - PM

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	47	46	141	32	31	26	30	381	19	114	409	75
Future Volume (veh/h)	47	46	141	32	31	26	30	381	19	114	409	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1796	1811	1737	1856	1870
Adj Flow Rate, veh/h	50	49	150	34	33	28	32	405	0	121	435	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	2	7	6	11	3	2
Cap, veh/h	171	181	433	287	274	203	334	494		286	770	
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.27	0.27	0.00	0.07	0.42	0.00
Sat Flow, veh/h	234	404	966	474	611	454	954	1796	1535	1654	1856	1585
Grp Volume(v), veh/h	249	0	0	95	0	0	32	405	0	121	435	0
Grp Sat Flow(s), veh/h/ln	1604	0	0	1539	0	0	954	1796	1535	1654	1856	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.7	13.9	0.0	3.2	11.8	0.0
Cycle Q Clear(g_c), s	6.3	0.0	0.0	2.1	0.0	0.0	4.3	13.9	0.0	3.2	11.8	0.0
Prop In Lane	0.20		0.60	0.36		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	785	0	0	764	0	0	334	494		286	770	
V/C Ratio(X)	0.32	0.00	0.00	0.12	0.00	0.00	0.10	0.82		0.42	0.56	
Avail Cap(c_a), veh/h	785	0	0	764	0	0	630	1051		381	1452	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	10.6	0.0	0.0	19.9	22.3	0.0	16.0	14.7	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.3	0.0	0.0	0.1	3.4	0.0	1.0	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	0.0	0.0	1.3	0.0	0.0	0.6	9.1	0.0	1.9	7.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	0.0	10.9	0.0	0.0	20.0	25.8	0.0	17.0	15.4	0.0
LnGrp LOS	B	A	A	B	A	A	C	C		B	B	
Approach Vol, veh/h		249			95			437	A		556	A
Approach Delay, s/veh		12.8			10.9			25.4			15.7	
Approach LOS		B			B			C			B	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		34.0	9.2	22.6		34.0		31.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		29.5	8.5	38.5		29.5		51.5				
Max Q Clear Time (g_c+I1), s		8.3	5.2	15.9		4.1		13.8				
Green Ext Time (p_c), s		1.4	0.1	2.2		0.4		2.4				
Intersection Summary												
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			B									
Notes												
Unsignalized Delay for [NER, SWR] is excluded from calculations of the approach delay and intersection delay.												

APPENDIX G

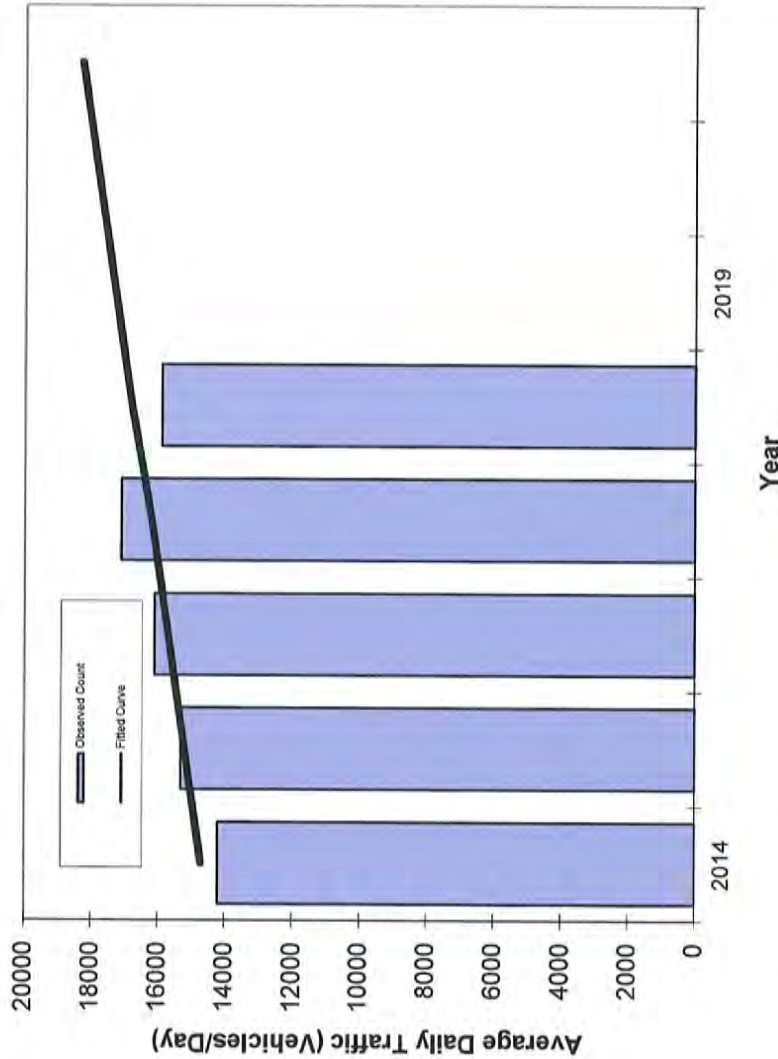
Historical Trend Analysis

Traffic Trends - V3.0

0

FIN#	439136-1
Location	2

County:	Brevard (70)
Station #:	0426
Highway:	SR 524



** Annual Trend Increase:	520
Trend R-squared:	59.19%
Trend Annual Historic Growth Rate:	3.57%
Trend Growth Rate (2018 to Design Year):	2.98%
Printed:	16-Apr-19
Straight Line Growth Option	

Year	Traffic (ADT/AADT)	
	Count*	Trend**
2014	14200	14700
2015	15300	15200
2016	16100	15700
2017	17100	16200
2018	15900	16800
2019 Opening Year Trend		
2019	N/A	17300
2020 Mid-Year Trend		
2020	N/A	17800
2021 Design Year Trend		
2021	N/A	18300
TRANPLAN Forecasts/Trends		

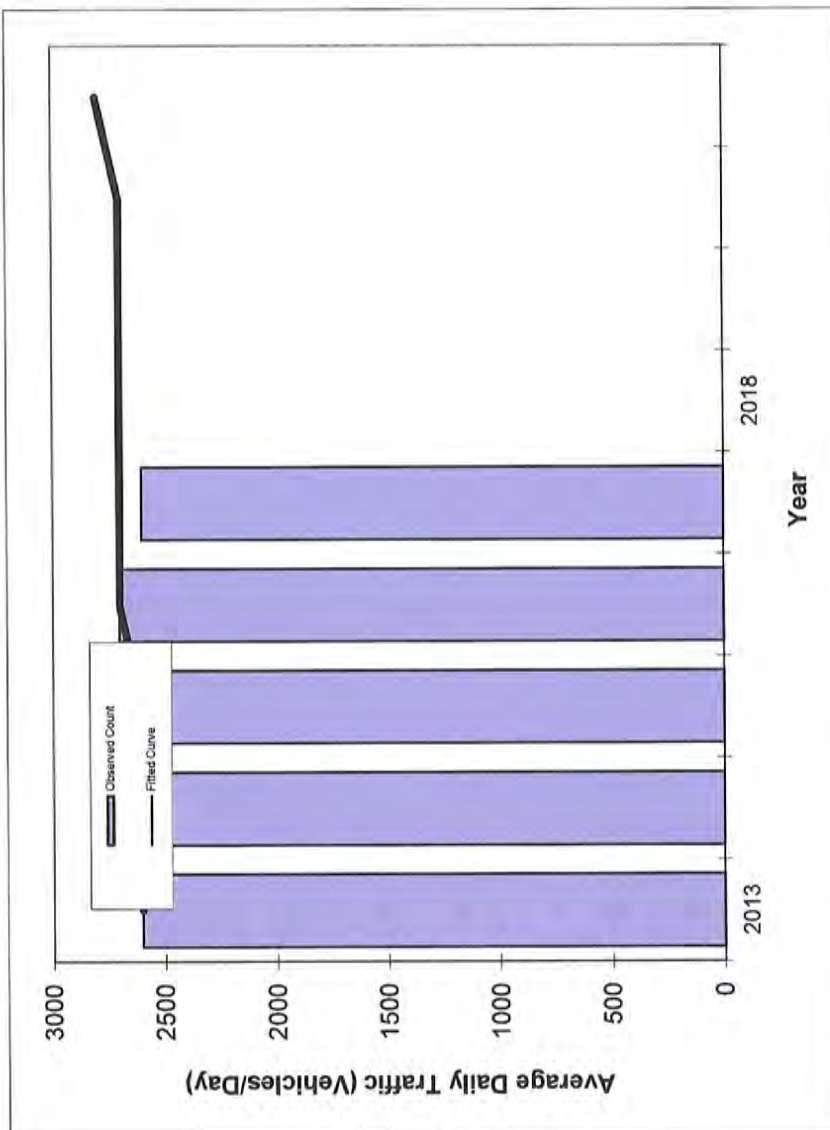
*Axle-Adjusted

Traffic Trends - V3.0

0

FIN#	439136-1
Location	2

County:	Brevard (70)
Station #:	0426
Highway:	COX Rd



** Annual Trend Increase:	20
Trend R-squared:	7.69%
Trend Annual Historic Growth Rate:	0.96%
Trend Growth Rate (2017 to Design Year):	0.93%
Printed:	18-Apr-19
Straight Line Growth Option	

Year	Traffic (ADT/AADT)	Trend**
2013	2600	2600
2014	2500	2600
2015	2800	2600
2016	2700	2700
2017	2600	2700
2019 Opening Year Trend	2019	N/A
2020 Mid-Year Trend	2020	N/A
2021 Design Year Trend	2021	N/A
TRANPLAN Forecasts/Trends		

*Axle-Adjusted

APPENDIX H

Intersection Volume Derivation

Table 2
Integra Cocoa
2021 Intersection Analysis Summary

SR 524 at London Blvd

AM PEAK HOUR									
		Existing	Grown	Project			London Cove Traffic		AM
		Seasonally Adj.		In / Out	Dist.	Traffic	Project Trips	Passby Total	Total
EB									
Rate	Left	4	5			0			5
3.6%	Thru	507	561	O	51.32%	34		-30	565
	Right	0	0			0	73	30	103
WB									
Rate	Left	0	0			0	125	10	135
3.6%	Thru	371	411	I	51.32%	12		-10	413
	Right	24	26			0			26
NB									
Rate	Left	0	0			0	71	19	90
2.0%	Thru	0	0			0	10		10
	Right	0	0			0	128	15	143
SB									
Rate	Left	91	96			0			96
2.0%	Thru	0	0			0	10		10
	Right	14	15			0			15
PM PEAK HOUR									
		Existing	Grown	Project			London Cove Traffic		PM
		Seasonally Adj.		In / Out	Dist.	Traffic	Project Trips	Passby Total	Total
EB									
Rate	Left	16	18			0			18
3.6%	Thru	531	588	O	51.32%	22		-28	582
	Right	0	0			0	51	28	79
WB									
Rate	Left	0	0			0	75	20	95
3.6%	Thru	657	728	I	51.32%	34		-20	742
	Right	111	123			0			123
NB									
Rate	Left	0	0			0	48	40	88
2.0%	Thru	0	0			0	7		7
	Right	0	0			0	69	28	97
SB									
Rate	Left	77	82			0			82
2.0%	Thru	0	0			0	7		7
	Right	10	11			0			11

SR 524 at Lance Blvd/ Project Entrance

AM PEAK HOUR									
		Existing Seasonally Adj.	Grown	Project			London Cove Traffic		AM Total
				In / Out	Dist.	Traffic	Project Trips	Passby Total	
EB									
Rate	Left	6	6			0		6	
3.6%	Thru	550	589			0	73	662	
	Right	0	0	I	48.68%	11		11	
WB									
Rate	Left	0	0	I	51.32%	12		12	
3.6%	Thru	387	415			0	71	486	
	Right	12	13			0		13	
NB									
Rate	Left	0	0	O	48.68%	33		33	
2.0%	Thru	0	0			0		0	
	Right	0	0	O	51.32%	34		34	
SB									
Rate	Left	42	45			0		45	
2.0%	Thru	0	0			0		0	
	Right	16	17			0		17	
PM PEAK HOUR									
		Existing Seasonally Adj.	Grown	Project			London Cove Traffic		PM Total
				In / Out	Dist.	Traffic	Project Trips	Passby Total	
EB									
Rate	Left	15	16			0		16	
2.0%	Thru	548	570			0	51	621	
	Right	0	0	I	48.68%	33		33	
WB									
Rate	Left	0	0	I	51.32%	34		34	
2.0%	Thru	652	678			0	48	726	
	Right	42	44			0		44	
NB									
Rate	Left	0	0	O	48.68%	21		21	
2.0%	Thru	0	0			0		0	
	Right	0	0	O	51.32%	22		22	
SB									
Rate	Left	39	41			0		41	
2.0%	Thru	0	0			0		0	
	Right	9	9			0		9	

SR 524 at Cox Road

AM PEAK HOUR							
		Existing	Grown	Project			AM
		Seasonally Adj.		In / Out	Dist.	Traffic	Total
EB							
Rate	Left	13	14			0	14
3.6%	Thru	344	369	I	32.58%	7	376
	Right	101	108			0	108
WB							
Rate	Left	116	124	O	12.09%	8	132
3.6%	Thru	281	301	O	32.58%	22	323
	Right	22	24	O	1.20%	1	25
NB							
Rate	Left	42	45			0	45
2.0%	Thru	9	10			0	10
	Right	80	86	I	12.09%	3	89
SB							
Rate	Left	68	73	I	1.20%	1	74
2.0%	Thru	47	50			0	50
	Right	37	40			0	40
PM PEAK HOUR							
		Existing	Grown	Project			PM
		Seasonally Adj.		In / Out	Dist.	Traffic	Total
EB							
Rate	Left	30	32			0	32
3.6%	Thru	381	408	I	32.58%	22	430
	Right	19	20			0	20
WB							
Rate	Left	114	122	O	12.09%	5	127
3.6%	Thru	409	438	O	32.58%	14	452
	Right	75	80	O	1.20%	1	81
NB							
Rate	Left	47	50			0	50
2.0%	Thru	46	49			0	49
	Right	141	151	I	12.09%	8	159
SB							
Rate	Left	32	34	I	1.20%	1	35
2.0%	Thru	31	33			0	33
	Right	26	28			0	28

APPENDIX I

Synchro Analysis – Future Conditions

HCM 6th Signalized Intersection Summary 3: Project Entrance/London Blvd & SR 524

2021 Buildout - AM

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	565	103	135	413	26	90	10	143	96	10	15
Future Volume (veh/h)	5	565	103	135	413	26	90	10	143	96	10	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1870	1870	1618	1767	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	595	108	142	435	0	95	11	151	101	11	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	10	2	2	19	9	2	2	2	2	2	2
Cap, veh/h	341	883	799	385	947		172	27	369	238	23	392
Arrive On Green	0.01	0.50	0.50	0.09	0.58	0.00	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1781	1752	1585	1781	1618	1497	1383	109	1493	752	95	1585
Grp Volume(v), veh/h	5	595	108	142	435	0	95	0	162	112	0	16
Grp Sat Flow(s),veh/h/ln	1781	1752	1585	1781	1618	1497	1383	0	1602	846	0	1585
Q Serve(g_s), s	0.2	33.2	4.7	0.0	19.8	0.0	8.8	0.0	11.0	10.2	0.0	1.0
Cycle Q Clear(g_c), s	0.2	33.2	4.7	0.0	19.8	0.0	29.9	0.0	11.0	21.2	0.0	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.93	0.90		1.00
Lane Grp Cap(c), veh/h	341	883	799	385	947		172	0	396	262	0	392
V/C Ratio(X)	0.01	0.67	0.14	0.37	0.46		0.55	0.00	0.41	0.43	0.00	0.04
Avail Cap(c_a), veh/h	414	883	799	385	947		192	0	419	280	0	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.7	24.2	17.2	37.1	15.3	0.0	58.5	0.0	41.0	49.4	0.0	37.2
Incr Delay (d2), s/veh	0.0	4.1	0.4	0.6	1.6	0.0	2.7	0.0	0.7	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	19.5	3.0	6.6	11.3	0.0	5.8	0.0	7.9	6.2	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	28.3	17.5	37.7	16.9	0.0	61.2	0.0	41.7	50.5	0.0	37.3
LnGrp LOS	C	C	B	D	B		E	A	D	D	A	D
Approach Vol, veh/h		708			577	A		257			128	
Approach Delay, s/veh		26.6			22.0			48.9			48.9	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.8	73.0		38.2	8.3	83.5		38.2				
Change Period (Y+Rc), s	7.5	7.5		6.0	7.5	7.5		6.0				
Max Green Setting (Gmax), s	9.5	65.5		34.0	6.2	68.8		34.0				
Max Q Clear Time (g_c+I1), s	2.0	35.2		23.2	2.2	21.8		31.9				
Green Ext Time (p_c), s	0.2	3.9		0.4	0.0	2.5		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			30.2									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Intersection												
Int Delay, s/veh	2.5											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	45	0	17	33	0	34	6	662	11	12	486	13
Future Vol, veh/h	45	0	17	33	0	34	6	662	11	12	486	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	450	450	-	350
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	92	92	95	95
Heavy Vehicles, %	2	2	6	2	2	2	2	7	2	2	15	2
Mvmt Flow	47	0	18	35	0	36	6	697	12	13	512	14

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1271	1259	512	1263	1261	697	526	0	0	709	0	0
Stage 1	538	538	-	709	709	-	-	-	-	-	-	-
Stage 2	733	721	-	554	552	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.26	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.354	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	145	171	554	147	170	441	1041	-	-	890	-	-
Stage 1	527	522	-	425	437	-	-	-	-	-	-	-
Stage 2	412	432	-	517	515	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	131	167	554	140	166	441	1041	-	-	890	-	-
Mov Cap-2 Maneuver	305	340	-	140	166	-	-	-	-	-	-	-
Stage 1	524	514	-	422	434	-	-	-	-	-	-	-
Stage 2	376	429	-	493	507	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	17.7	29.9	0.1	0.2
HCM LOS	C	D		

Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	1041	-	-	214	348	890	-
HCM Lane V/C Ratio	0.006	-	-	0.33	0.188	0.015	-
HCM Control Delay (s)	8.5	-	-	29.9	17.7	9.1	-
HCM Lane LOS	A	-	-	D	C	A	-
HCM 95th %tile Q(veh)	0	-	-	1.4	0.7	0	-

HCM 6th Signalized Intersection Summary 20: SR 524 & Cox Rd

2021 Buildout - AM
04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	45	10	89	74	50	40	14	376	108	132	323	25
Future Volume (veh/h)	45	10	89	74	50	40	14	376	108	132	323	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1826	1826	1826	1870	1752	1841	1856	1633	1870
Adj Flow Rate, veh/h	47	11	94	78	53	42	15	396	0	139	340	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	11	11	11	5	5	5	2	10	4	3	18	2
Cap, veh/h	246	77	430	373	249	179	337	466		275	650	
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.27	0.27	0.00	0.08	0.40	0.00
Sat Flow, veh/h	383	156	874	628	506	364	1040	1752	1560	1767	1633	1585
Grp Volume(v), veh/h	152	0	0	173	0	0	15	396	0	139	340	0
Grp Sat Flow(s), veh/h/ln	1413	0	0	1498	0	0	1040	1752	1560	1767	1633	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.9	17.6	0.0	4.4	13.0	0.0
Cycle Q Clear(g_c), s	4.5	0.0	0.0	4.5	0.0	0.0	3.1	17.6	0.0	4.4	13.0	0.0
Prop In Lane	0.31		0.62	0.45		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	753	0	0	801	0	0	337	466		275	650	
V/C Ratio(X)	0.20	0.00	0.00	0.22	0.00	0.00	0.04	0.85		0.51	0.52	
Avail Cap(c_a), veh/h	753	0	0	801	0	0	838	1310		450	1599	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.7	0.0	0.0	11.7	0.0	0.0	24.1	28.6	0.0	20.6	18.8	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.6	0.0	0.0	0.1	4.4	0.0	1.4	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.0	0.0	3.0	0.0	0.0	0.4	11.5	0.0	3.0	7.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	0.0	0.0	12.4	0.0	0.0	24.2	33.1	0.0	22.0	19.5	0.0
LnGrp LOS	B	A	A	B	A	A	C	C		C	B	
Approach Vol, veh/h		152			173			411	A		479	A
Approach Delay, s/veh		12.3			12.4			32.7			20.2	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		45.0	10.8	26.4		45.0		37.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		40.5	14.5	61.5		40.5		80.5				
Max Q Clear Time (g_c+I1), s		6.5	6.4	19.6		6.5		15.0				
Green Ext Time (p_c), s		0.9	0.2	2.2		1.0		1.9				
Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [NER, SWR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary 3: Project Entrance/London Blvd & SR 524

2021 Buildout - PM

04/19/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	582	79	95	742	123	88	7	97	82	7	11
Future Volume (veh/h)	18	582	79	95	742	123	88	7	97	82	7	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1796	1870	1870	1856	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	613	83	100	781	0	93	7	102	86	7	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	2	2	3	2	2	2	2	2	2	2
Cap, veh/h	211	956	844	442	1141		173	21	307	232	17	324
Arrive On Green	0.02	0.53	0.53	0.10	0.61	0.00	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	1796	1585	1781	1856	1585	1393	103	1498	873	82	1585
Grp Volume(v), veh/h	19	613	83	100	781	0	93	0	109	93	0	12
Grp Sat Flow(s),veh/h/ln	1781	1796	1585	1781	1856	1585	1393	0	1601	955	0	1585
Q Serve(g_s), s	0.7	31.5	3.4	0.0	36.4	0.0	8.5	0.0	7.6	8.2	0.0	0.8
Cycle Q Clear(g_c), s	0.7	31.5	3.4	0.0	36.4	0.0	24.2	0.0	7.6	15.7	0.0	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.94	0.92		1.00
Lane Grp Cap(c), veh/h	211	956	844	442	1141		173	0	328	249	0	324
V/C Ratio(X)	0.09	0.64	0.10	0.23	0.68		0.54	0.00	0.33	0.37	0.00	0.04
Avail Cap(c_a), veh/h	261	956	844	442	1141		246	0	411	318	0	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	21.6	15.0	29.2	16.7	0.0	58.4	0.0	44.1	50.5	0.0	41.4
Incr Delay (d2), s/veh	0.2	3.3	0.2	0.3	3.3	0.0	2.6	0.0	0.6	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	18.7	2.1	3.9	20.6	0.0	5.6	0.0	5.5	5.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	24.9	15.2	29.5	20.0	0.0	61.0	0.0	44.7	51.4	0.0	41.5
LnGrp LOS	C	C	B	C	C		E	A	D	D	A	D
Approach Vol, veh/h	715				881				202			
Approach Delay, s/veh	23.7				21.1				52.2			
Approach LOS	C				C				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.7	76.7		32.6	10.0	87.4		32.6				
Change Period (Y+Rc), s	7.5	7.5		6.0	7.5	7.5		6.0				
Max Green Setting (Gmax), s	6.4	69.2		33.4	6.2	69.4		33.4				
Max Q Clear Time (g_c+I1), s	2.0	33.5		17.7	2.7	38.4		26.2				
Green Ext Time (p_c), s	0.1	4.0		0.4	0.0	5.3		0.5				
Intersection Summary												
HCM 6th Ctrl Delay	27.0											
HCM 6th LOS	C											
Notes												

Intersection												
Int Delay, s/veh	2.1											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↗	↗	↗	↗	↗	↗
Traffic Vol, veh/h	41	0	9	21	0	22	16	621	33	34	726	44
Future Vol, veh/h	41	0	9	21	0	22	16	621	33	34	726	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	450	450	-	350
Veh in Median Storage, #	-	2	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	92	92	95	95
Heavy Vehicles, %	2	2	13	2	2	2	7	5	2	2	3	2
Mvmt Flow	43	0	9	22	0	23	17	654	36	37	764	46

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	1556	1562	764	1554	1572	654	810	0
Stage 1	838	838	-	688	688	-	-	-
Stage 2	718	724	-	866	884	-	-	-
Critical Hdwy	7.12	6.52	6.33	7.12	6.52	6.22	4.17	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-
Follow-up Hdwy	3.518	4.018	3.417	3.518	4.018	3.318	2.263	-
Pot Cap-1 Maneuver	92	112	387	92	110	467	794	-
Stage 1	361	382	-	436	447	-	-	-
Stage 2	420	430	-	348	363	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	83	105	387	86	103	467	794	-
Mov Cap-2 Maneuver	250	270	-	86	103	-	-	-
Stage 1	353	366	-	427	438	-	-	-
Stage 2	391	421	-	326	348	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	21.8	39.7	0.2	0.4
HCM LOS	C	E		

Minor Lane/Major Mvmt	NEL	NET	NERNWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	794	-	-	148	267	905	-
HCM Lane V/C Ratio	0.021	-	-	0.306	0.197	0.041	-
HCM Control Delay (s)	9.6	-	-	39.7	21.8	9.1	-
HCM Lane LOS	A	-	-	E	C	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.7	0.1	-

HCM 6th Signalized Intersection Summary 20: SR 524 & Cox Rd

2021 Buildout - PM

04/19/2019

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	50	49	159	35	33	28	32	430	20	127	452	81
Future Volume (veh/h)	50	49	159	35	33	28	32	430	20	127	452	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1870	1796	1811	1737	1856	1870
Adj Flow Rate, veh/h	53	52	167	37	35	29	34	453	0	134	476	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	3	3	2	7	6	11	3	2
Cap, veh/h	168	177	470	294	275	207	281	525		252	776	
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.29	0.29	0.00	0.08	0.42	0.00
Sat Flow, veh/h	248	368	980	497	572	430	918	1796	1535	1654	1856	1585
Grp Volume(v), veh/h	272	0	0	101	0	0	34	453	0	134	476	0
Grp Sat Flow(s),veh/h/ln	1595	0	0	1499	0	0	918	1796	1535	1654	1856	1585
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.0	2.7	21.1	0.0	4.8	17.8	0.0
Cycle Q Clear(g_c), s	8.9	0.0	0.0	2.8	0.0	0.0	9.3	21.1	0.0	4.8	17.8	0.0
Prop In Lane	0.19		0.61	0.37		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	815	0	0	775	0	0	281	525		252	776	
V/C Ratio(X)	0.33	0.00	0.00	0.13	0.00	0.00	0.12	0.86		0.53	0.61	
Avail Cap(c_a), veh/h	815	0	0	775	0	0	640	1228		380	1646	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.3	0.0	0.0	12.7	0.0	0.0	28.1	29.7	0.0	21.5	20.2	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.3	0.0	0.0	0.2	4.4	0.0	1.7	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.0	0.0	0.0	1.9	0.0	0.0	1.0	13.6	0.0	3.1	11.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	0.0	0.0	13.0	0.0	0.0	28.3	34.0	0.0	23.2	20.9	0.0
LnGrp LOS	B	A	A	B	A	A	C	C		C	C	
Approach Vol, veh/h		272			101			487	A		610	A
Approach Delay, s/veh		15.4			13.0			33.6			21.4	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		47.0	11.2	30.4		47.0		41.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		42.5	13.5	60.5		42.5		78.5				
Max Q Clear Time (g_c+I1), s		10.9	6.8	23.1		4.8		19.8				
Green Ext Time (p_c), s		1.7	0.2	2.7		0.5		2.7				
Intersection Summary												
HCM 6th Ctrl Delay			23.8									
HCM 6th LOS			C									
Notes												
Unsignalized Delay for [NER, SWR] is excluded from calculations of the approach delay and intersection delay.												

APPENDIX J
NCHRP Report 457 Data

can also indirectly reduce the delay to the left-turn or through movements by lessening their need to compete for service with the right-turn movement.

One disadvantage of adding a lane to the minor-road approach is that it may require reallocating the existing pavement or widening of the approach cross section. Sometimes the pavement width needed for the additional lane is available within the existing roadway cross section. In this instance, the only impact is a reallocation of the paved surface through modification of the pavement markings. However, in downtown settings this reallocation may require the removal of some curb parking stalls and can affect adjacent business significantly. Occasionally, the cross section must be widened to provide for the additional lane. If the needed lane width can be provided within the available right-of-way, the cost may be limited to that of construction. However, if additional right-of-way is needed, the costs of acquiring this property in urban settings can be high.

Guidance. The literature does not offer guidance regarding conditions where a second approach lane would benefit from the operation of a minor-road approach. However, the procedures in Chapter 17 of the *Highway Capacity Manual 2000* (15) can be used to identify major- and minor-road volume combinations that would benefit operationally from the provision of a second approach lane or bay. Bonneson and Fontaine (20) developed Figure 2-4 using these procedures and an assumed upper limit of 0.7 for the shared-lane, minor-road volume-to-capacity ratio.

Application. Figure 2-4 indicates the conditions that may justify the use of two approach lanes. Use of the information in this figure requires two types of data:

1. Major-road approach volume for the peak hour of the average day and
2. Minor-road turn movement volume for the peak hour of the average day (used to compute right-turn percentage).

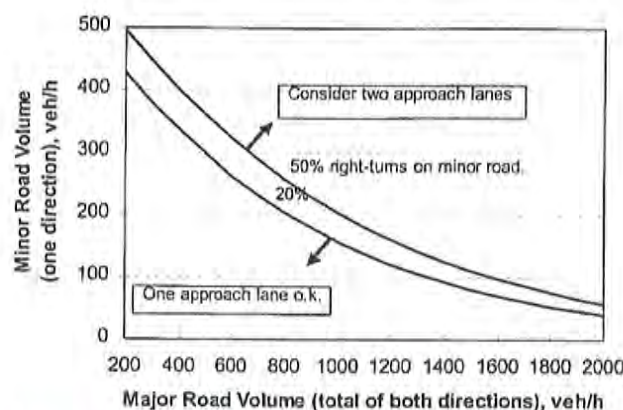


Figure 2-4. Guideline for determining minor-road approach geometry at two-way stop-controlled intersections.

Figure 2-4 would be used once for each minor-road approach to the intersection. The appropriate trend line would be identified on the basis of the percentage of right-turns on the subject minor-road approach. If the volume combination for the major and minor roads intersects above or to the right of this trend line, a second traffic lane should be considered for the subject minor-road approach. If a bay is selected for addition to the intersection, it should be long enough to store vehicles 95 percent of the time (i.e., the bay should not overflow more than 5 percent of the time). Techniques for estimating the 95th percentile storage length are provided in the section, [Increase the Length of the Turn Bay](#).

Add a Left-Turn Bay on the Major Road

Introduction. Provision of a left-turn bay on the major road to a two-way stop-controlled intersection can significantly improve operations and safety at the intersection. A left-turn bay effectively separates those vehicles that are slowing or stopped to turn from those vehicles in through traffic lanes. This separation minimizes turn-related crashes and eliminates unnecessary delay to through vehicles. Data reported by Neuman (21) indicate that the crash rate for unsignalized intersections can be reduced by 35 to 75 percent through the provision of a left-turn bay.

One disadvantage of adding a bay to the major-road approach is that it may require reallocating the existing pavement or widening of the approach cross section. Sometimes the pavement width needed for the additional lane is available within the existing roadway cross section. However, in downtown settings this reallocation may require the removal of some curb parking stalls and can affect adjacent business significantly. Occasionally, the cross section must be widened to provide for the turn bay. If the needed width can be provided within the available right-of-way, the cost may be limited to that of construction. However, if additional right-of-way is needed, the costs of acquiring this property in urban settings can be high.

Guidance. Neuman (21) suggests that the following guidelines should be used to determine when to provide a left-turn bay on the major road of a two-way stop-controlled intersection:

1. A left-turn lane should be considered at any median crossover on a divided, high-speed road.
2. A left-turn lane should be provided on the unstopped approach of a high-speed rural highway when it intersects with other arterials or collectors.
3. A left-turn lane is recommended on the unstopped approach of any intersection when the combination of intersection volumes intersect above or to the right of the appropriate trend line shown in Figure 2-5.

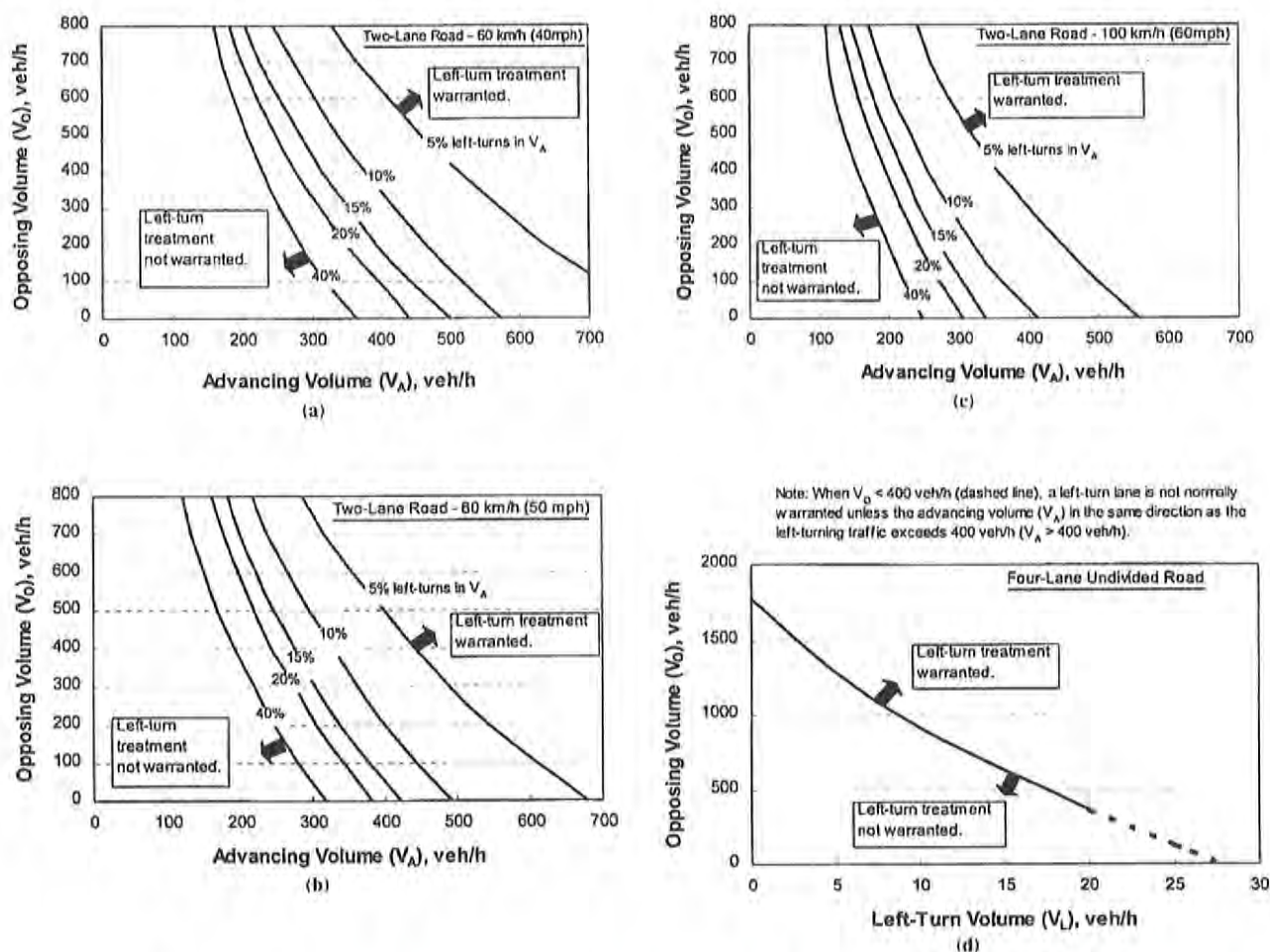


Figure 2-5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection

Application. The guidance stated in the preceding section defines the conditions that may justify the provision of a left-turn bay. Application of this guidance requires two types of data:

1. Major-road turn movement volume for the peak hour of the average day and
2. Major-road 85th percentile speed (posted speed can be substituted if data are unavailable).

Use of Figure 2-5 requires determination of the opposing volume, the advancing volume, and the operating speed. The opposing volume should include only the right-turn and through movements on the approach across from (and heading in the opposite direction of) the subject major-road approach. The advancing volume should include the left-turn, right-turn, and through movements on the subject approach. The operating speed can be estimated as the 85th percentile speed. If the operating speed does not coincide with 60, 80, or 100 km/h (i.e., 40, 50, or 60 mph), then interpolation can

be used or, as a more conservative approach, the operating speed can be rounded up to the nearest speed for which a figure is provided.

In application, Figure 2-5 is used once for each major-road approach to the intersection. The appropriate trend line is identified on the basis of the percentage of left-turns on the subject major-road approach. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn bay should be considered for the subject approach. If a bay is included at the intersection, it should be long enough to store left-turn vehicles 99.5 percent of the time (i.e., the bay should not overflow more than 0.5 percent of the time). Techniques for estimating this storage length are provided in the section, [Increase the Length of the Turn Bay](#).

Add a Right-Turn Bay on the Major Road

Introduction. Provision of a right-turn bay on the major road to a two-way stop-controlled intersection can signifi-

cantly improve operations and safety at the intersection. A right-turn bay effectively separates those vehicles that are slowing or stopped to turn from those vehicles in the through traffic lanes. This separation minimizes turn-related collisions (e.g., angle, rear-end, and same-direction-sideswipe) and eliminates unnecessary delay to through vehicles.

One disadvantage of adding a bay to the major-road approach is that it may require reallocating the existing pavement or widening of the approach cross section. Sometimes the pavement width needed for the additional lane is available within the existing roadway cross section. However, in downtown settings this reallocation may require the removal of some curb parking stalls and can affect adjacent business significantly. Occasionally, the cross section must be widened to provide for the turn bay. If the needed width can be provided within the available right-of-way, the cost may be limited to that of construction. However, if additional right-of-way is needed, the costs of acquiring this property in urban settings can be high.

Guidance. Hasan and Stokes (22) developed guidelines for determining when to provide a right-turn bay on the major road of a two-way stop-controlled intersection. These guidelines were based on an evaluation of the operating and collision costs associated with the right-turn maneuver relative to the cost of constructing a right-turn bay. The operating costs included those of road-user fuel and delay. Separate guidelines were developed for two-lane and four-lane roadways. These guidelines are shown in Figure 2-6.

Application. The guidance described in the preceding section defines conditions that may justify the provision of a right-turn bay. Application of this guidance requires two types of data:

1. Major-road turn movement volume for the peak hour of the average day and
2. Major-road 85th percentile speed (posted speed can be substituted if data are unavailable).

Figure 2-6 should be consulted once for each major-road approach. If the combination of major-road approach volume and right-turn volume intersects above or to the right of the trend line corresponding to the major-road operating speed, then a right-turn bay is a viable alternative.

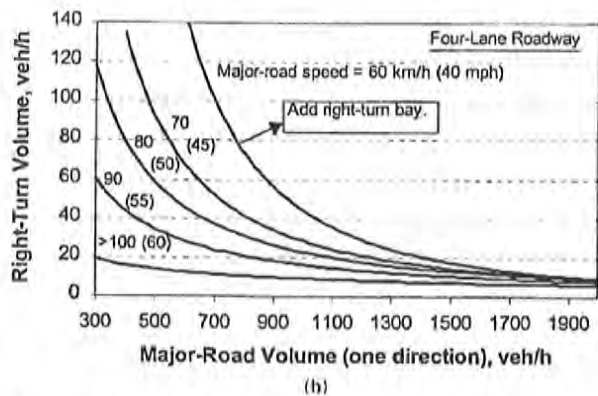
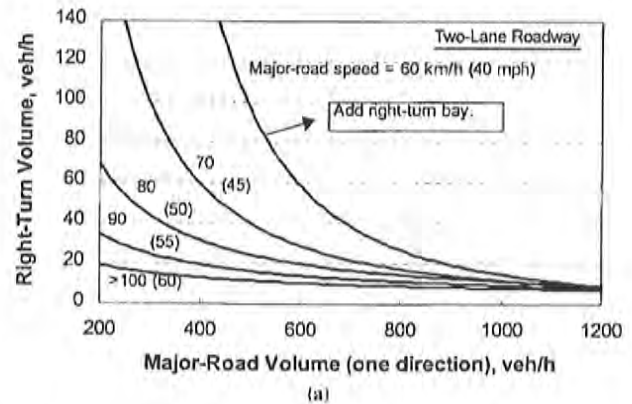


Figure 2-6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection

Increase Length of Turn Bay

Introduction. Turn bay length can affect the safety and operation of the intersection approach significantly. This effect becomes more negative as the frequency with which vehicles exceed the available storage increases. Also, for unstopped approaches, this effect becomes more negative as more of the turning vehicle's deceleration occurs in the through lane, prior to the bay. The need to provide adequate storage length, deceleration length, or both is dependent on the type of approach control used and whether the vehicle is turning left or right. Table 2-13 identifies the appropriate bay

TABLE 2-13 Turn-bay length components at unsignalized intersections

Approach Control	Length Components	
	Left-Turn Bay	Right-Turn Bay
Unstopped	Storage Length + Deceleration Length	Deceleration Length
Stopped	Storage Length	Storage Length

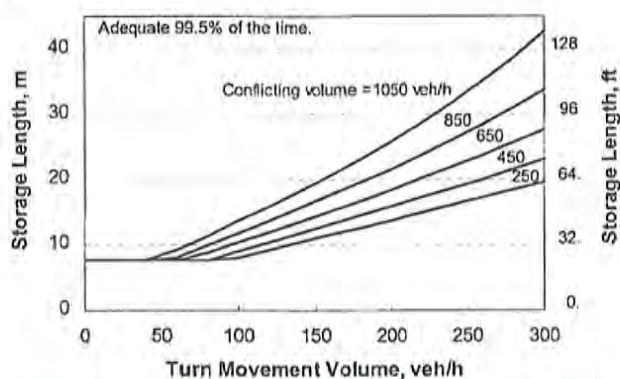


Figure 2-7. Guideline for determining if the bay storage length for an unstopped approach is adequate.

length components for typical combinations of approach control and turn movement.

Guidance. A turn bay should be long enough to store waiting vehicles almost all of the time and, in doing so, prevent conflict between the through and turning movements. A bay equal in length to the 95th percentile queue (which allows for a 5-percent probability of overflow) is typically used for most stop- or signal-controlled approaches. A bay length corresponding to a 0.5-percent probability of overflow is recommended by Harmelink (23) for unstopped approaches in recognition of the greater speed differential between through and turning movements.

Figures 2-7 and 2-8 illustrate the combination of volume and storage length that limit overflows to 0.5 and 5 percent, respectively. The trends in these figures are based on the queue length equation reported by Harmelink (23). The capacity needed for this equation was estimated using the procedures in Chapter 17 of the *Highway Capacity Manual 2000* (15). The development of Figures 2-7 and 2-8 is described elsewhere by Bonneson and Fontaine (20). A practical minimum storage length of 8 m (25 ft) is reflected in both figures.

As indicated in Table 2-13, a bay on the unstopped approach to an intersection should also provide sufficient length for the turning vehicle to decelerate once it is clear of the adjacent through traffic lane. A report by Koepke (24) provides an indication of the bay length needed for turn vehicle deceleration. However, the lengths cited by Koepke include both deceleration length and bay taper length. Subtraction of the taper length [estimated at 35 m (120 ft)] from the reported lengths leaves a conservative estimate of the length of full-width turn bay needed to facilitate the deceleration process. This length is shown in Figure 2-9.

Application. The guidelines described in the preceding section can be used to determine when turn-bay length may

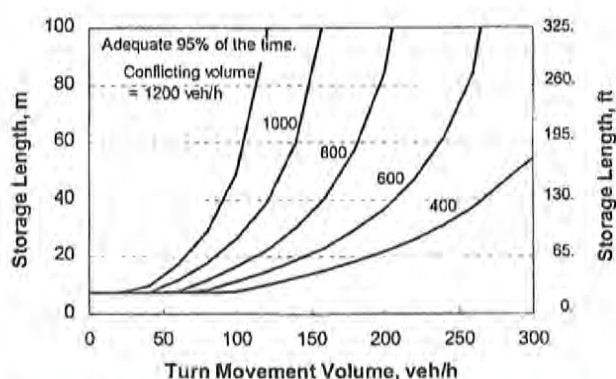


Figure 2-8. Guideline for determining if the bay storage length for a stopped approach is adequate.

need to be increased to minimize operational or safety problems associated with short turn bays. Application of this guideline requires three types of data:

1. Major- and minor-road turn movement volumes for the peak hour of the average day;
2. Major-road 85th percentile speed (posted speed can be substituted if data are unavailable); and
3. Major- and minor-road bay lengths (taper length should be excluded).

In application, each turn movement is considered separately. Table 2-13 is consulted first to determine if storage length, deceleration length, or both should be provided within the bay for the subject approach. Next, Figures 2-7, 2-8, and 2-9 are consulted. The subject movement volume and conflicting volumes should be used to determine the minimum length(s) needed from the appropriate figure(s). The operat-

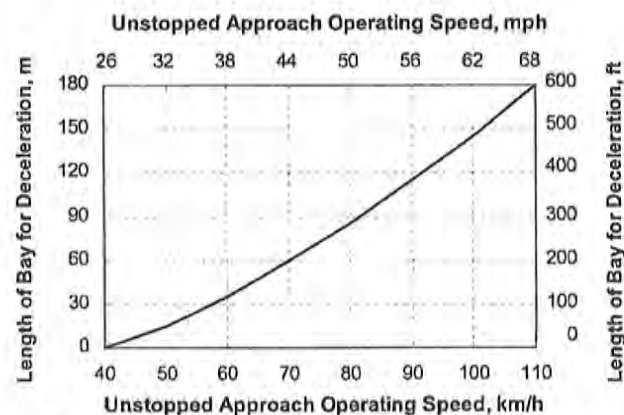


Figure 2-9. Guideline for determining if the deceleration length component of a bay is adequate.



December 14, 2020

To: Bryant Smith

From: Susan E. O'Rourke, P.E.

Re: Cocoa Landing and Integra

At the time that we prepared the Cocoa Landing, the "background traffic" was accounted for using a growth rate of 2%. Based on your comment, we have added the link trips of 11 eastbound and 33 eastbound in the AM link analysis and 33 eastbound and 21 westbound trips in the PL peak hour to the Link analysis. The result is that the link remains below the directional capacity of 880, with 637 eastbound and 547 westbound with Integra, Cocoa Landing and 2% growth added.

The intersection of Cox and SR 524 will continue to operate at LOS B with the addition of Integra.

The updated table and intersection analysis are attached for your review along with the trip generation and assignment from the Integra traffic study.

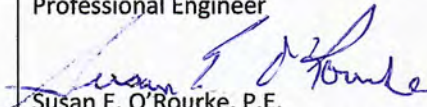
Prepared by: O'Rourke Engineering & Planning Certificate of Authorization: #26869 22 SE Seminole Street Stuart, Florida 34994 772-781-7918	Professional Engineer  Susan E. O'Rourke, P.E. Date signed and sealed: 12/15/2020 License #: 42684
---	---

Table 3a: Link Analysis - AM Peak Hour

Road Name		From	To	Direction	Lanes (E+C)	2% or Greater	2012 AADT	2017 AADT	K Factor	D Factor	2019 Peak Hour Directional Volume	Growth Rate (Historic 5-Year)	Committed Traffic Assignment	2022 Peak Hour Volume (E+C)	LOS D Directional Peak Hour (E+C)	Project Volume Peak Direction	2022 Total Volume Peak Hour Directional	Project Percent Assignment	Percent Project of Capacity Peak Direction	Does Project Meet Concurrency?
SR-524	Cox Rd	Project entrance	EB	IN	2L	no	11,980	12,960	0.080	0.590	492	1.02	11	533	880	18	540	36%	2.05	YES
	Cox Rd	Project entrance	WB	OUT	2L	yes	11,980	312,960	0.080	0.590	455	1.02	33	516	880	60	543	36%	6.8%	YES
	Project entrance	Industry Rd	EB	OUT	2L	yes	11,980	12,960	0.080	0.530	492	1.02	11	533	880	106	628	64%	12.1%	YES
	Project entrance	Industry Rd	WB	IN	2L	no	11,980	12,960	0.080	0.590	455	1.02	33	516	880	31	514	64%	3.5%	YES

Source: Space Coast 2017 Roadway Level of Service Inventory Report unless noted.

(1) From TMC at SR-524 & Cox Rd

Trips In: 49
Trips Out: 166
Years Grown: 3

Table 3b: Link Analysis - PM Peak Hour

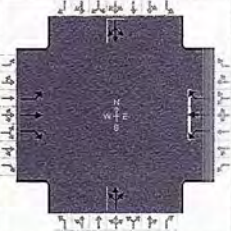
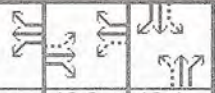
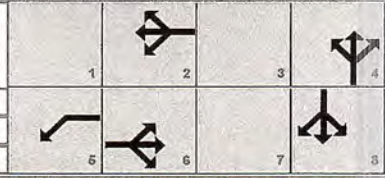
Road Name		From	To	Direction	Lanes (E+C)	2% or Greater	2012 AADT	2017 AADT	K Factor	D Factor	2019 Peak Hour Directional Volume	Growth Rate (Historic 5-Year)	Committed Traffic Assignment	2022 Peak Hour Volume (E+C)	LOS D Directional Peak Hour (E+C)	Project Volume Peak Direction	2022 Total Volume Peak Hour Directional	Project Percent Assignment	Percent Project of Capacity Peak Direction	Does Project Meet Concurrency?		
SR-524	Cox Rd	Project entrance	Project entrance	EB	IN	2L	YES	11980	12960	0.080	0.590	555	1.02	33	622	880	55	644	36%	6.25	YES	
				WB	OUT	2L	NO	11980	12960	0.080	0.590	684	1.02	21	747	880	32	756	36%	3.6%	YES	
				Industry Rd	EB	OUT	2L	Yes	11980	12960	0.080	0.530	555	1.02	33	622	880	58	647	64%	6.6%	YES
				Project entrance	WB	IN	2L	Yes	11980	12960	0.080	0.590	684	1.02	21	747	880	97	823	64%	11.0%	YES

Source: Space Coast 2017 Roadway Level of Service Inventory Report unless noted.

(1) From TMC at SR-524 & Cox Rd

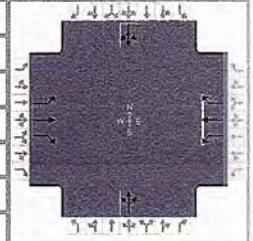
Trips In: 152
Trips Out: 90
Years Grown: 3

HCS7 Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		O'Rourke Engineering & Planning				Duration, h		0.25											
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type		CBD									
Jurisdiction		Brevard County		Time Period		PM Peak Hour		PHF		0.95									
Urban Street		SR-524		Analysis Year		2022		Analysis Period		1> 7:00									
Intersection		Cox Rd		File Name		C6 - SR-524 & Cox Rd - PM 2022 with Project.xus													
Project Description		2022 with Project																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				41	415	52	134	563	75	69	57	198	56	27	29				
Signal Information																			
Cycle, s	59.7	Reference Phase	2	Green	4.9	18.6	16.4	0.0	0.0	0.0									
Offset, s	0	Reference Point	End	Yellow	3.5	5.5	4.4	0.0	0.0	0.0									
Uncoordinated	Yes	Simult. Gap E/W	On	Red	2.4	2.0	2.0	0.0	0.0	0.0									
Force Mode	Fixed	Simult. Gap N/S	On																
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						6		5		2				4				8	
Case Number						5.3		1.0		3.0				8.0				8.0	
Phase Duration, s						26.1		10.8		36.9				22.8				22.8	
Change Period, (Y+R _c), s						7.5		5.9		7.5				6.8				6.8	
Max Allow Headway (MAH), s						3.0		3.0		3.0				3.2				3.2	
Queue Clearance Time (g _s), s						16.1		5.2		18.1				15.2				6.5	
Green Extension Time (g _e), s						2.4		0.1		2.4				0.7				0.9	
Phase Call Probability						1.00		0.90		1.00				1.00				1.00	
Max Out Probability						0.00		0.00		0.00				0.02				0.00	
Movement Group Results				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement				1	6	16	5	2	12	7	4	14	3	8	18				
Adjusted Flow Rate (v), veh/h				43	437	55	141	593	79		341			118					
Adjusted Saturation Flow Rate (s), veh/h/ln				754	1710	1449	1629	1710	1449		1463			1110					
Queue Service Time (g _s), s				2.8	14.1	1.6	3.2	16.1	1.7		8.8			0.0					
Cycle Queue Clearance Time (g _c), s				8.1	14.1	1.6	3.2	16.1	1.7		13.2			4.5					
Green Ratio (g/C)				0.31	0.31	0.31	0.43	0.49	0.49		0.27			0.27					
Capacity (c), veh/h				289	533	452	320	842	713		466			388					
Volume-to-Capacity Ratio (X)				0.149	0.820	0.121	0.441	0.704	0.111		0.732			0.304					
Back of Queue (Q), ft/ln (95 th percentile)				19.6	209.8	20.4	42.5	200.1	18.6		175.4			50.4					
Back of Queue (Q), veh/ln (95 th percentile)				0.8	8.4	0.8	1.7	8.0	0.7		7.0			2.0					
Queue Storage Ratio (RQ) (95 th percentile)				0.00	0.00	0.00	0.00	0.00	0.00		0.00			0.00					
Uniform Delay (d ₁), s/veh				19.1	19.0	14.7	13.3	11.8	8.1		20.7			17.4					
Incremental Delay (d ₂), s/veh				0.1	1.2	0.0	0.4	0.4	0.0		0.9			0.2					
Initial Queue Delay (d ₃), s/veh				0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0					
Control Delay (d), s/veh				19.2	20.2	14.8	13.7	12.2	8.2		21.6			17.6					
Level of Service (LOS)				B	C	B	B	B	A		C			B					
Approach Delay, s/veh / LOS				19.6		B		12.1		B		21.6		C		17.6		B	
Intersection Delay, s/veh / LOS				16.5						B									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				1.68		B		1.65		B		2.10		B		2.10		B	
Bicycle LOS Score / LOS				1.37		A		1.83		B		1.05		A		0.68		A	

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	O'Rourke Engineering & Planning			Duration, h	0.25
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	CBD
Jurisdiction	Brevard County	Time Period	AM Peak Hour	PHF	0.95
Urban Street	SR-524	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Cox Rd	File Name	C6 - SR-524 & Cox Rd - AM 2022 with Project.xus		
Project Description	2022 with Project				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	12	389	129	196	351	22	48	15	95	62	64	28

Signal Information												
Cycle, s	48.3	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		8
Case Number		5.3	1.0	3.0		8.0		8.0
Phase Duration, s		22.5	11.5	34.0		14.3		14.3
Change Period, ($Y+R_c$), s		7.5	5.9	7.5		6.8		6.8
Max Allow Headway (MAH), s		3.0	3.0	3.0		3.1		3.1
Queue Clearance Time (g_s), s		12.5	5.7	8.0		7.0		6.9
Green Extension Time (g_e), s		1.7	0.2	1.7		0.6		0.6
Phase Call Probability		1.00	0.94	1.00		0.99		0.99
Max Out Probability		0.00	0.00	0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	13	409	136	206	369	23		166			162	
Adjusted Saturation Flow Rate (s), veh/h/ln	926	1710	1449	1629	1710	1449		1471			1468	
Queue Service Time (g_s), s	0.5	10.5	3.4	3.7	6.0	0.4		0.1			0.0	
Cycle Queue Clearance Time (g_c), s	0.5	10.5	3.4	3.7	6.0	0.4		5.0			4.9	
Green Ratio (g/C)	0.31	0.31	0.31	0.47	0.55	0.55		0.16			0.16	
Capacity (c), veh/h	436	531	450	421	938	795		326			333	
Volume-to-Capacity Ratio (X)	0.029	0.771	0.302	0.490	0.394	0.029		0.510			0.487	
Back of Queue (Q), ft/ln (50 th percentile)	1.8	79.8	21.7	21.9	30.2	1.5		37.3			36.2	
Back of Queue (Q), veh/ln (50 th percentile)	0.1	3.2	0.9	0.9	1.2	0.1		1.5			1.4	
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00			0.00	
Uniform Delay (d_1), s/veh	11.7	15.1	12.7	9.9	6.3	5.0		19.3			19.2	
Incremental Delay (d_2), s/veh	0.0	0.9	0.1	0.3	0.1	0.0		0.5			0.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Control Delay (d), s/veh	11.7	16.0	12.8	10.3	6.4	5.0		19.8			19.7	
Level of Service (LOS)	B	B	B	B	A	A		B			B	
Approach Delay, s/veh / LOS	15.1	B		7.7	A		19.8	B		19.7	B	
Intersection Delay, s/veh / LOS	13.1						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.67	B		1.64	B		2.10	B		2.10	B	
Bicycle LOS Score / LOS	1.41	A		1.48	A		0.76	A		0.76	A	



Table 1 : Project Trip Generation

Integra Cocoa
Trip Generation Comparison Summary

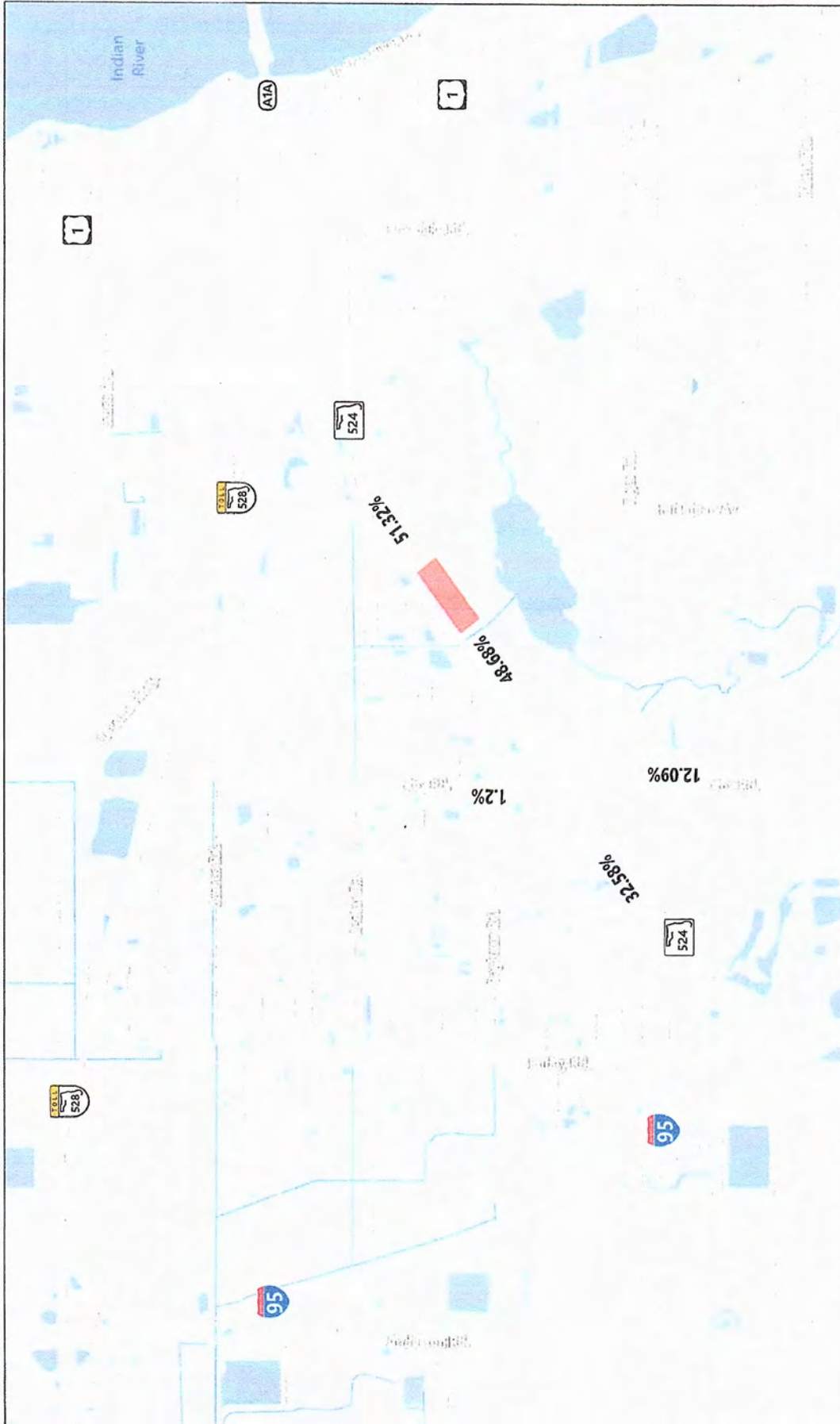
ITE Code	Land Use	Size / Units	Daily Trips	Total Trips					
				AM Peak Hour			PM Peak Hour		
				Total	Enter	Exit	Total	Enter	Exit
221	Multi Family (Mid-Rise)	249 / DU	1,356	90	23	67	110	67	43
Totals:				90	23	67	110	67	43

Apr-19

VHB

Notes:

*Trip generation rates/equations are based on the Institute of Transportation (ITE)
Trip Generation Manual 10th Edition.*



Project Location
AM (PM) Peak Hour Traffic Volumes

Vhb. **Figure 2**
Project Trip Distribution

Cocoa Landing -Link Analysis - AADT

Segment	From	To	Lanes (E+C)	Functional Class	LOS D MAV	Is Project Traffic More than 2% of Capacity?	2019 AADT	Growth Rate (Historic 3-Year)	2022 AADT	Integra Traffic Assignment	2022 AADT Growth + Integra	Cocoa Landing (project)	2022 Total AADT (existing+growth+Integra+Cocoa Landing)	Does Project Meet Concurrency?
SR-524	Cox Rd	Project Entrance	2L	Urban Minor Arterial	19470	no	13380	1.02	14199	660	14859	1313	16172	Yes
	Project Entrance	Industry Rd	2L	Urban Minor Arterial	19470	yes	13380	1.02	14199	660	14859	2335	17194	Yes

Source: (1) Space Coast TPO Traffic Counts 2019

1

Trips: 3648
Years Grown: 3



TRAFFIC ANALYSIS
FOR
COCOA LANDING

Prepared for:

Mr. Gabe Ehrenstein
Arbour Valley Communities

Prepared by:

O'Rourke Engineering & Planning
969 SE Federal Highway
Suite 402
Stuart, Florida 34994
(772) 781-7918

May 14, 2019

BR19041.0

Prepared by: O'Rourke Engineering & Planning Certificate of Authorization: #26869 969 SE Federal Highway, Ste. 402 Stuart, Florida 34994 (772) 781-7918	Susan E O'Rourke State of Florida, Professional Engineer, License No. 42684 This Document has been electronically signed and sealed by Susan E O'Rourke, PE on 5/14/2019 using a SHA authentication code. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.
--	---



O'ROURKE
ENGINEERING & PLANNING

May 14, 2019

Mr. Gabe Ehrenstein
Principal
Arbour Valley Communities
gabe@arbourvalley.com

Re: Cocoa Landing

Dear Mr. Ehrenstein:

O'Rourke Engineering & Planning has completed the analysis for the residential development on the southeast corner of SR-524 and Cox Road in the City of Cocoa, Brevard County. The steps in the analysis and the ensuing results are presented herein.

It has been a pleasure working with you. If you have any questions or comments, please give me a call.

Respectfully submitted,
O'ROURKE ENGINEERING & PLANNING

Susan E. O'Rourke, P.E.
Registered Civil Engineer – Traffic

C6 – Cocoa Landing – Concurrency

TABLE OF CONTENTS

INTRODUCTION	1
PROJECT DESCRIPTION	1
ROADWAY CONDITIONS	1
PROJECT TRAFFIC	3
PROJECT DISTRIBUTION/ASSIGNMENT/IMPACT	3
FUTURE ROADWAY CONDITIONS	3
INTERSECTION ANALYSIS	8
DRIVEWAY ANALYSIS	8
CONCLUSION	8

TABLES

TABLE 1: Project Trip Generation	4
TABLE 2: Project % Impact	6
TABLE 3: Link Analysis	7
TABLE 4: Intersection LOS	8

FIGURES

FIGURE 1: Project Location	2
FIGURE 2: Project Assignment	5
FIGURE 3: Driveway Volumes	9

APPENDIX

APPENDIX A: Site Plan	
APPENDIX B: Space Coast 2017 Traffic Counts Report / FDOT Quality LOS Tables	
APPENDIX C: Turning Movement Counts / HCS Analysis	

INTRODUCTION

O'Rourke Engineering & Planning was retained to prepare a traffic concurrency for the residential development to be located on the southeast corner of SR-524 and Cox Road in the City of Cocoa, Brevard County, Florida. The purpose of this report is to determine the project's impact on the surrounding roadway system.

In order to make the determination that the project complies with City and County Concurrency Guidelines, the following analytical steps were taken:

- ♦summary of the project,
- ♦summary of existing lane geometrics,
- ♦summary of maximum allowable service volumes,
- ♦assessment of project traffic,
- ♦determination of study area
- ♦summary of short term cumulative traffic volumes
- ♦summary of levels of service with the project traffic added

Each of these steps is outlined herein.

PROJECT DESCRIPTION

The Cocoa Landing project is a residential development with 310 apartments and 178 townhouses. The project has an expected buildout of 2022. The project is located on the southeast corner of SR-524 and Cox Road. The project location is shown in **Figure 1**.

Appendix A includes the project site plan.

ROADWAY CONDITIONS

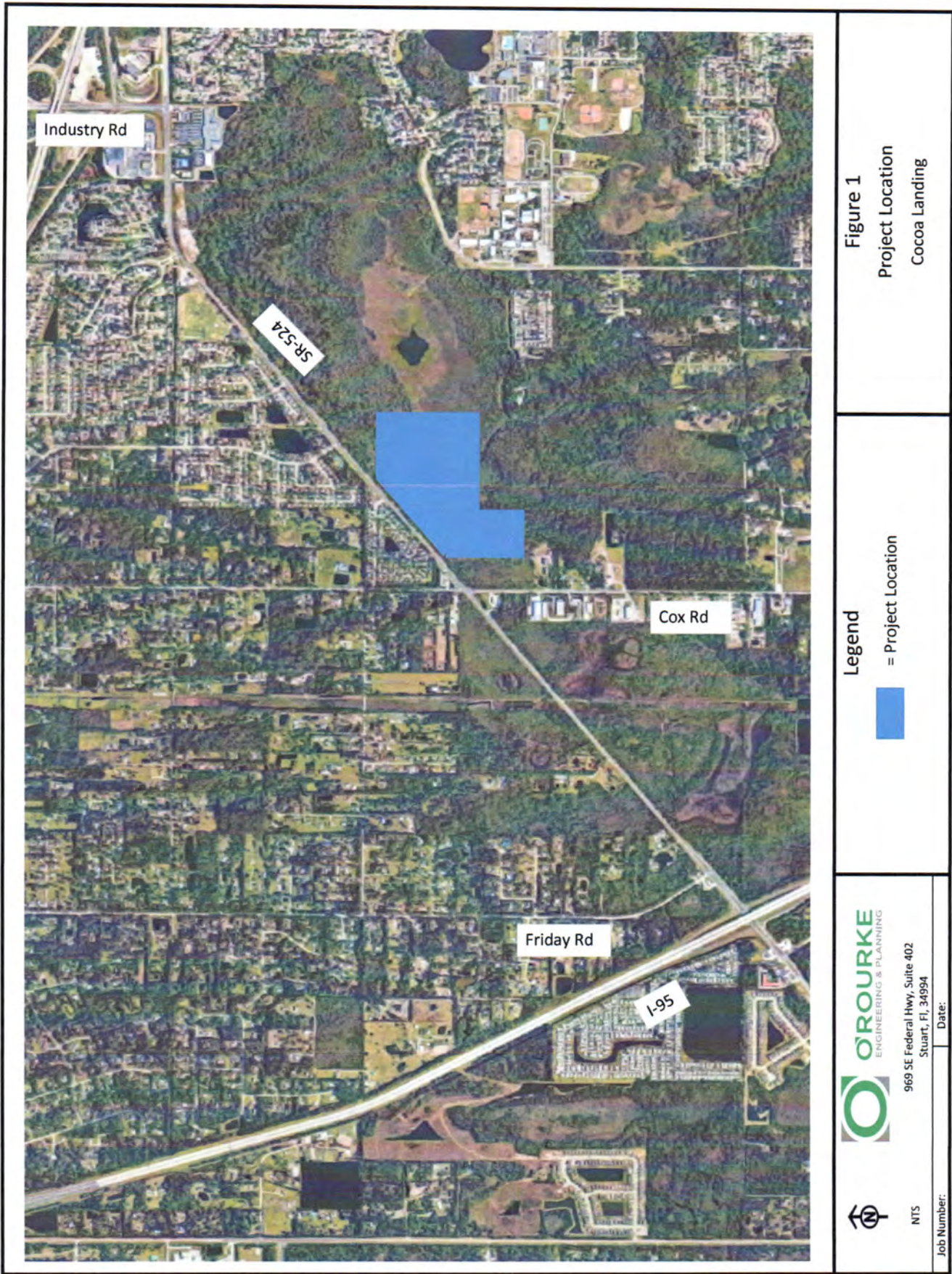
The study area is limited to a radius of 1.5 miles based on 0.5miles for every 100 peak hour trips. The study area roadways were defined in terms of existing lane geometrics and existing traffic volumes.

Existing/Committed Lane Geometrics

The study area was reviewed to determine the existing number and type of lanes along the roadway. Each roadway is described below.

- SR-524 is a two-lane arterial roadway with a northeast/southwest alignment.
- Cox Road is a two-lane collector roadway with a north/south alignment.
- Industry Road is a four-lane divided collector roadway with a north/south alignment.
- Friday Road is a two-lane collector roadway with a north/south alignment.

Analysis of the existing links are included in the link analysis for future roadway and traffic conditions. Existing intersection level of service is provided in the intersection component of this report.



C6 - Figures - Cocoa Landing

PROJECT TRAFFIC

To estimate traffic generated by the project, the ITE Trip Generation, 10th Edition trip rates were applied. These calculations provide an estimate of the typical generation. Trip generation for the project is shown in **Table 1**.

As shown, the project will generate 3,648 daily trips, 215 AM peak hour trips with 49 trips in and 166 trips out, and 242 PM peak hour trips with 152 trips in and 90 trips out.

PROJECT DISTRIBUTION/ASSIGNMENT/IMPACT

The project traffic was distributed using the original assignment from the previous Traffic Study conducted for the site in 2007. The previous assignment was generated using the FSUTMS Central Florida Regional Planning Model.

Distribution/Assignment – This general distribution led to an assignment of trips based on the anticipated ultimate destinations and the roadway paths used to reach those destinations. The project assignment is shown in **Figure 2**.

Study Area - The extent of the study area is determined by the peak hour project trips. The study area is determined as 0.5 miles per 100 peak hour trips rounded up to the nearest 100 trips. The project generates 242 peak hour trips, therefore, the study area is a 1.5 mile radius from the site.

Project Impact – Significance is defined as a project impact of 5% or greater of the Daily LOS capacity. **Tables 2** summarizes the project percent impact on the links within the study area for Daily traffic. As shown the project is significant on SR-524. The link analysis was performed on all significant links.

FUTURE ROADWAY AND TRAFFIC CONDITIONS

Future Volumes

Cocoa Landing is estimated to be completed by 2022. To estimate 2022 volumes for each link, the turning movement counts for the intersection were used to calculate current volumes. Growth was calculated using a 5-year historic growth rate from 2012 and 2017 AADT's. Since the historic growth rate is less than 2%, a 2% growth rate was used instead of the historic growth rate of 1.6%. The project traffic was then added to the grown volumes to estimate the 2022 future Total Traffic volumes. **Appendix B** provides the Space Coast 2017 Traffic Counts Report, growth rate calculation, and link volume calculations.

Tables 3a and 3b show the 2022 volumes for the AM and PM Peak Hours, respectively. As shown, all links will operate at an acceptable LOS at project buildout.

Table 1 - Trip Generation

Table 1a: Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Multifamily Housing (Low-Rise)	240	488	DU	$T = 7.56(X) - 40.86$	50%	50%	1,824	1,824	3,648

Source: ITE 10th Edition Trip Generation Rates

Table 1b: AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Multifamily Housing (Low-Rise)	240	488	DU	$Ln(T) = 0.95Ln(X) - 0.51$	23%	77%	49	166	215

Source: ITE 10th Edition Trip Generation Rates

Table 1c: PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Multifamily Housing (Low-Rise)	240	488	DU	$Ln(T) = 0.89Ln(X) - 0.02$	63%	37%	152	90	242

Source: ITE 10th Edition Trip Generation Rates

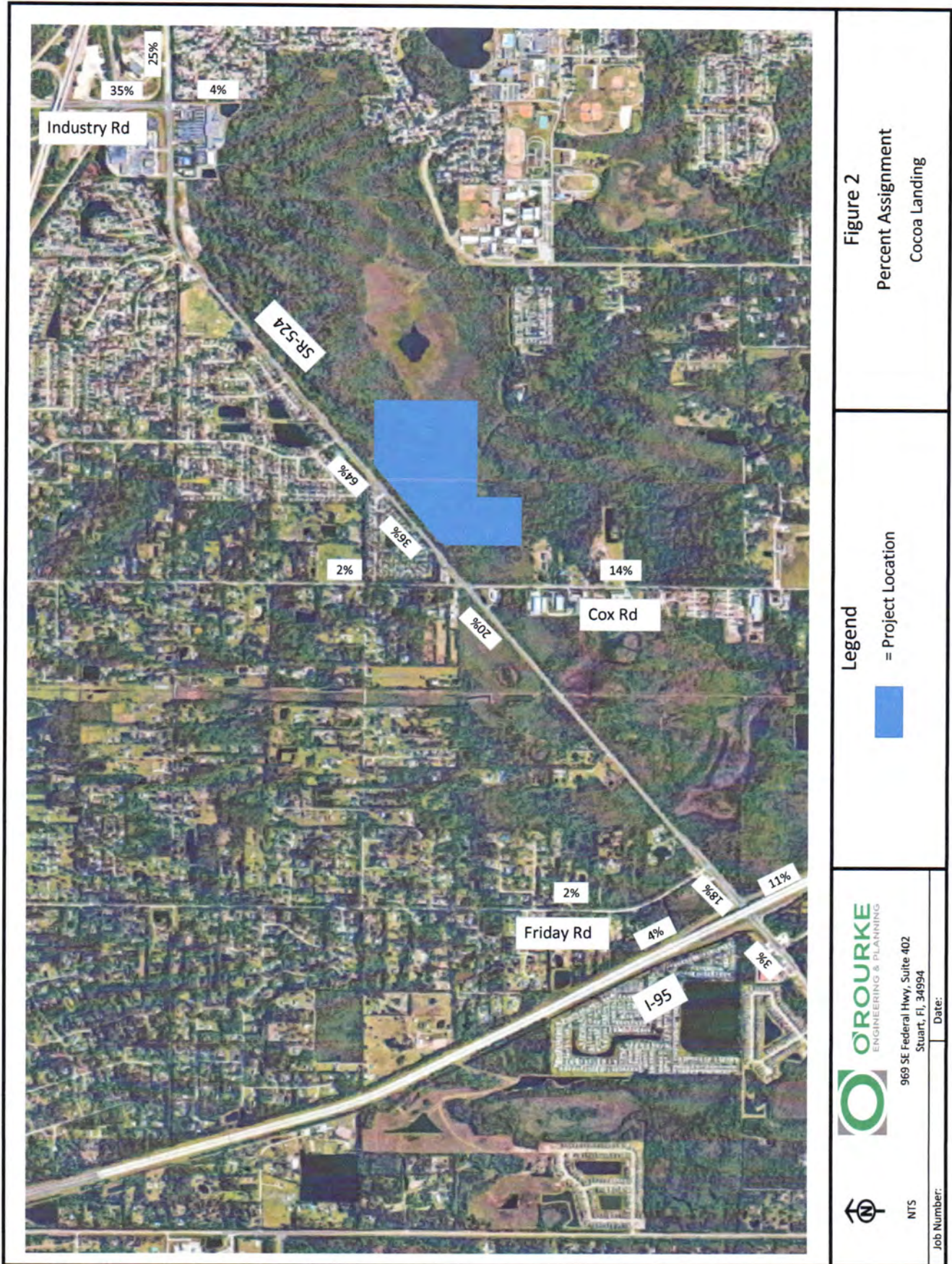


Table 2: Percent Impact - Daily

Segment	From	To	Direction		Lanes (E+C)	Is Project Traffic More than 5% of Capacity?	LOS Daily Capacity	Daily Project Volume	Project Percent Assignment	Percent Project of Capacity
SR-524	SR-520	I-95	EB/WB	IN/OUT	2L	no	24200	109	3%	0.45%
	I-95	Cox Rd	EB/WB	IN/OUT	2L	no	18590	730	20%	3.93%
	Cox Rd	Project Entrance	EB/WB	IN/OUT	2L	yes	19470	1313	36%	6.74%
	Project Entrance	Industry Rd	EB/WB	OUT/IN	2L	yes	19470	2335	64%	11.99%
Cox Rd	SR-520	Project Entrance	NB/SB	IN/OUT	2L	no	17700	511	14%	2.89%
	Project Entrance	SR-524	NB/SB	OUT/IN	2L	no	17700	511	14%	2.89%
	SR-524	James Rd	NB/SB	OUT/IN	2L	no	17700	73	2%	0.41%
Industry Rd	SR-524	Grissom Pkwy	NB/SB	OUT/IN	4LD	no	41790	1277	35%	3.06%
Friday Rd	SR-524	James Rd	NB/SB	OUT/IN	2L	no	17700	73	2%	0.41%

Source: Space Coast TPO Traffic Counts 2017

Daily: 3648

Table 3a: Link Analysis - AM Peak Hour

Segment	From	To	Direction	Lanes (E+C)	Is Project Traffic More than 2% of Capacity?	2012 AADT	2017 AADT	2019 Volume - Peak Hour Peak Direction	Growth Rate (Historic 5-Year)	2022 Peak Hour, Direct Volume	LOS D Directional Peak Hour (E+C)	Directional Peak Project Volume	2022 Total Volume Peak Hour Direct	Project Percent Assignment	Percent Project of Capacity	Is Total Traffic Less Than Capacity?
SR-524	Cox Rd	Project Entrance	EB	2L	no	11980	12960	452	1.02	522	880	18	540	36%	2.05%	Yes
	Cox Rd	Project Entrance	WB	2L	yes	11980	12960	455	1.02	493	880	60	543	36%	6.82%	Yes
	Project Entrance	Industry Rd	EB	2L	yes	11980	12960	452	1.02	522	880	106	628	64%	12.05%	Yes
	Project Entrance	Industry Rd	WB	2L	no	11980	12960	455	1.02	483	880	31	514	64%	3.52%	Yes

Source: Space Coast TPO Traffic Counts 2017

(1) From TMC at SR-524 & Cox Rd

IN: 49
OUT: 156
Years Grown: 3

Table 3b: Link Analysis - PM Peak Hour

Segment	From	To	Direction	Lanes	Is Project Traffic More than 2% of Capacity?	2012 AADT	2017 AADT	2019 Volume - Peak Hour Peak Direction	Growth Rate (Historic 5-Year)	2022 Peak Hour, Direct Volume	LOS D Directional Peak Hour	Directional Peak Project Volume	2022 Total Volume Peak Hour Direct	Project Percent Assignment	Directional Percent Project of Capacity	Is Total Traffic Less Than Capacity?
SR-524	Cox Rd	Project Entrance	EB	2L	yes	11980	12960	555	1.02	599	880	55	644	36%	6.25%	Yes
	Cox Rd	Project Entrance	WB	2L	no	11980	12960	684	1.02	726	880	32	758	36%	3.64%	Yes
	Project Entrance	Industry Rd	EB	2L	yes	11980	12960	555	1.02	599	880	58	647	64%	6.59%	Yes
	Project Entrance	Industry Rd	WB	2L	yes	11980	12960	684	1.02	726	880	97	823	64%	11.02%	Yes

Source: Space Coast TPO Traffic Counts 2017

(1) From TMC at SR-524 & Cox Rd

IN: 152
OUT: 90
Years Grown: 3

INTERSECTION ANALYSIS

Four intersections along SR-524 were analyzed within the study area. Counts were made in April 2019. The counts were factored up, using the Peak Season Adjustment Factor. Then the counts were grown out to 2022 and project traffic was added.

The intersections were analyzed first for existing conditions. The analysis was conducted using HCM software with existing volumes on the existing roadway network and existing timing. The 2022 with background growth was analyzed next on the existing network followed by 2022 with project traffic added. The results are summarized in **Table 4**.

The intersection volumes, HCS analyses worksheets and timing sheets are included in **Appendix C**.

Table 4: Intersection LOS

Intersection		2019 Existing		2022 Without Project Traffic		2022 With Project Traffic	
		LOS	Delay	LOS	Delay	LOS	Delay
SR-524 / Industry Rd	AM	C	29.6	C	33.6	D	35.4
	PM	D	37.4	D	43.2	D	50.8
SR-524 / Cox Rd	AM	B	12.4	B	12.8	B	13.0
	PM	B	14.2	B	14.8	B	15.8
SR-524 / I-95 NB	AM	B	15.2	B	15.5	B	15.7
	PM	B	16.0	B	16.3	B	16.7
SR-524 / I-95 SB	AM	C	25.2	C	26.0	C	26.9
	PM	B	17.9	B	18.2	B	18.5

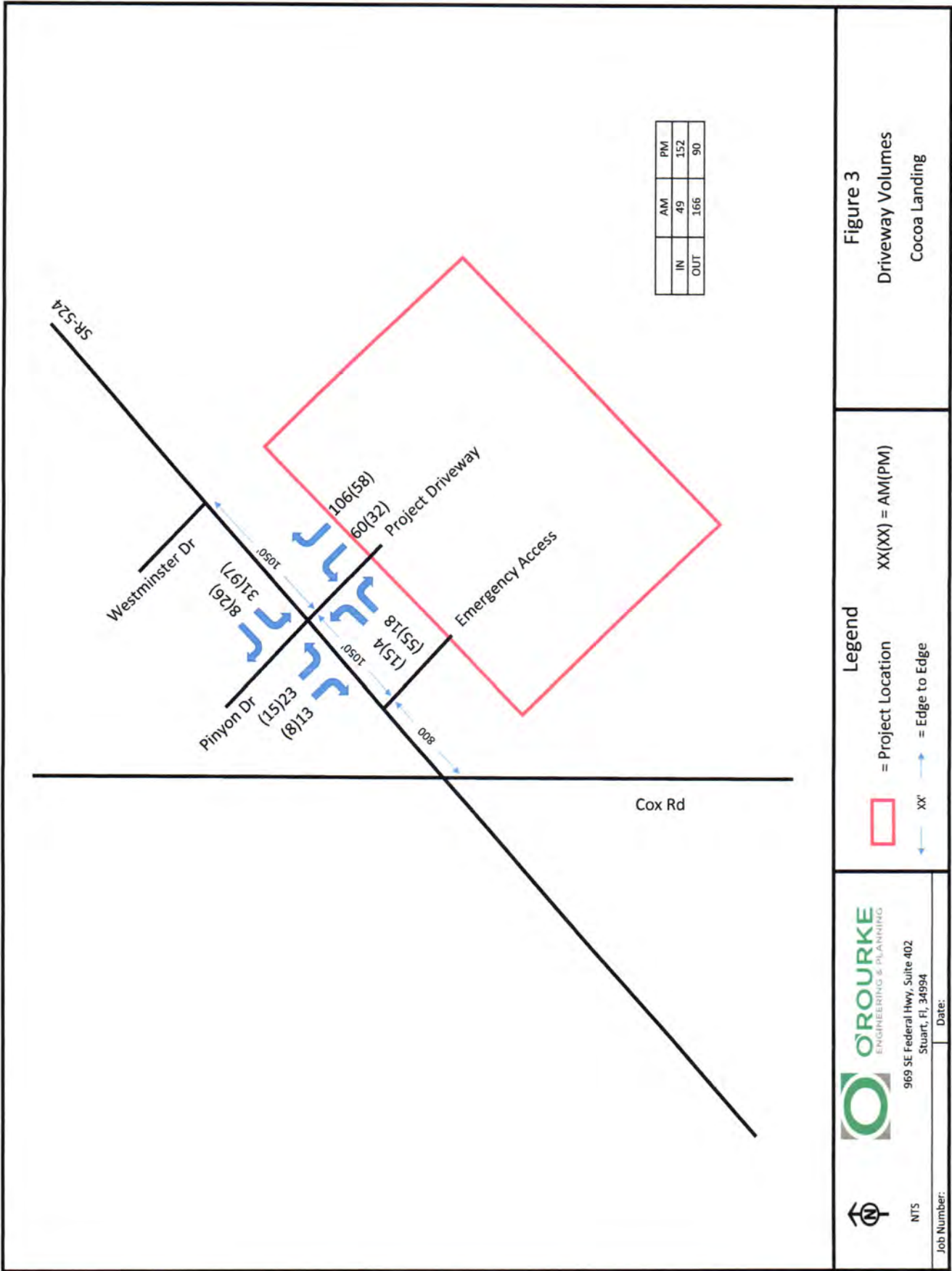
As shown, the intersections of SR-524/Industry Road; SR-524/Cox Road; SR-524/I-95 NB; and SR-524/I-95 SB all operate at a LOS D or better in all scenarios.

DRIVEWAY ANALYSIS

The project will have one full access driveway located on SR-524, which has a class 4 access classification and a speed limit of 55 mph. **Figure 3** illustrates the driveway volumes for the project. As shown, there will be 55 right-turning vehicles and 97 left-turning vehicles in the peak hour. With an eastbound approach volume of 644 with 55 right-turning vehicles, an eastbound right-turn lane is warranted at the project driveway. With a westbound approach volume of 823 and 97 left-turning vehicles in the peak hour, a westbound left-turn lane is warranted at the project driveway. The project driveway was analyzed for the AM and PM peak hours using HCS for unsignalized intersections. The driveway will operate at a LOS C in the AM peak hour and a LOS D in the PM peak hour. **Appendix D** includes the driveway analysis.

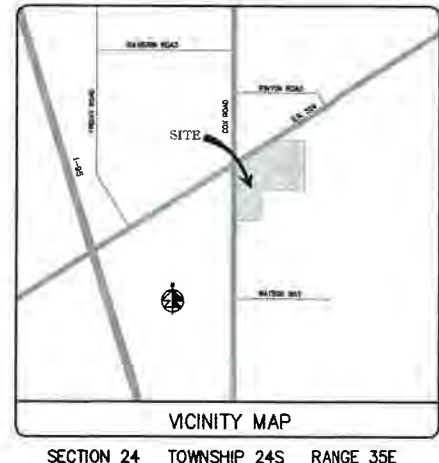
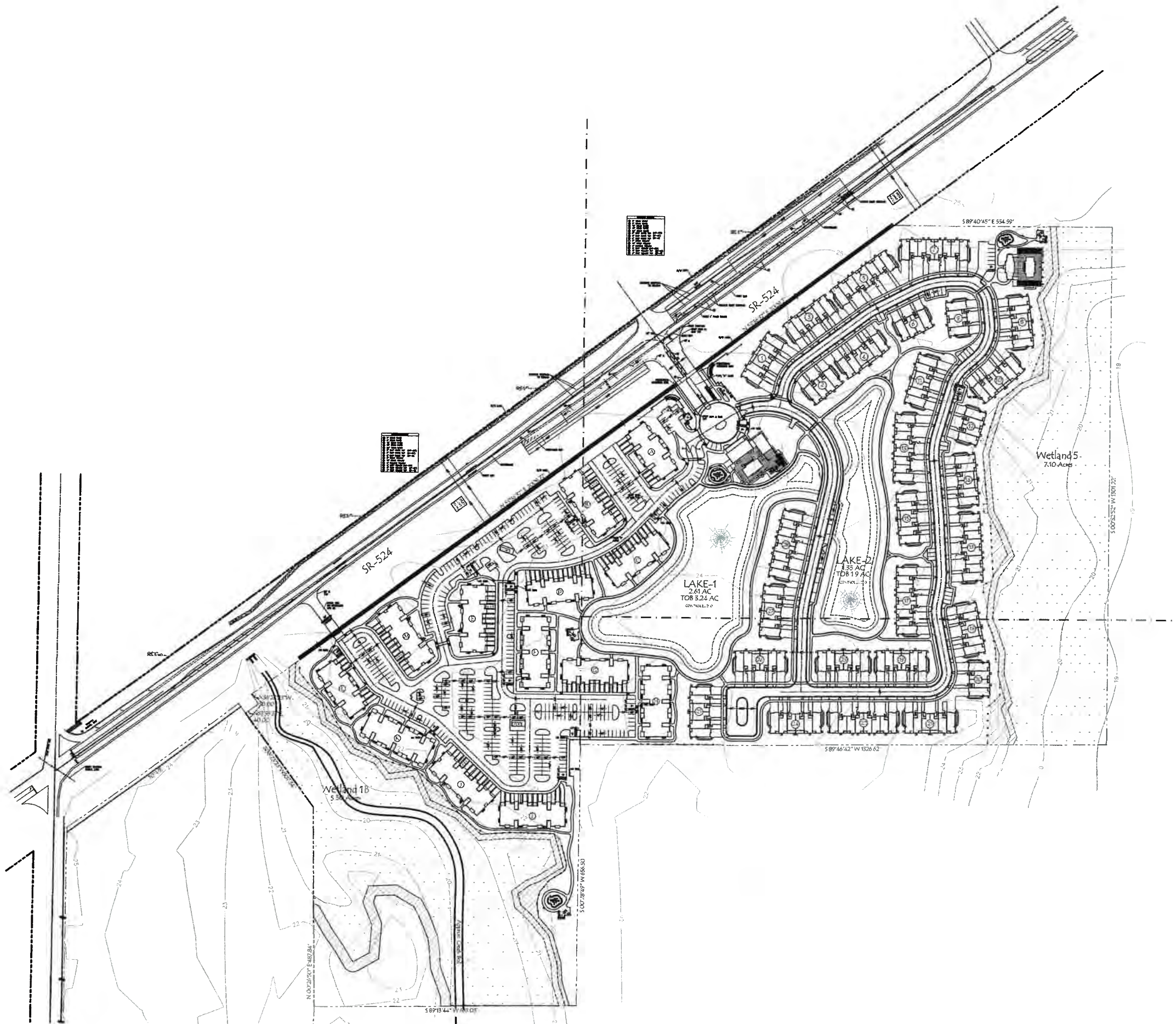
CONCLUSION

The Cocoa Landing project has a traffic impact of 3,648 daily trips with 215 AM peak hour trips and 242 PM peak hour trips. Based on the data and calculations presented herein, the project does not require additional analysis and is deemed to be consistent with transportation concurrency requirements.



APPENDIX A

Site Plan



LEGEND			
19.7	PROP PAVT EL		
EX	EXIST EL		
*	CONTRACTOR TO FIELD VERIFY		
INV EL	INVERT EL		
CB	CATCH BASIN		
YD	YARD DRAIN		
BC	BOTTOM OF CURB		
BE	BOTTOM EL		
TC	TOP OF CURB		
TE	TOP EL		
EXT	EXFILTRATION TRENCH		
WM	WATER MAIN		
FM	FORCE MAIN		
FM	FIRE MAIN		
WM	WASTEWATER GRAVITY		
FD	FIRE HYDRANT		
GV	GATE VALVE		
M	GATE VALVE		
SC	SIAMSESE CONN.		
CV	CHECK VALVE		
DD	DOUBLE DETECTOR		
CV	CHECK VALVE		
WM	WATER METER W/ REDUCED PRESSURE BACKFLOW PREV		
SP	SAMPLE POINT		
ME	METERED END SECTION		
F.F.EL	FIN FLOOR ELEV		
F.L.EL	FLOW LINE ELEV		
TOB	TOP OF BANK		
TOS	TOE OF SLOPE		
TOC	TOP OF CONCRETE		
TV	TAPPING VALVE		
CO	CLEANOUT		
B	BORING NO. AND LOCATION		

48 HOURS BEFORE DIGGING
CALL TOLL FREE
1-800-432-4770
CALL SUNSHINE
NOTIFICATION CENTER

REVISIONS

**Jeff H. Iravani, Inc.**
Consulting Engineers
1934 COMMERCE LANE, SUITE 5
JUPITER, FLORIDA 33458
TEL: (561) 575-6030
FAX: (561) 575-6088
jhi@bellsouth.net

Cocoa Landing

Cocoa, Florida

DATE	SCALE	DESIGNED BY	DRAWN BY
7/19/06	1"=100'	JHI	ZAK

SEAL
JEFF H. IRAVANI, PE FL REG # 33155 CDAN 406986 JOB NO. 0603-929 SHEET NO.

APPENDIX B

Space Coast 2017 Traffic Counts Report

FDOT Quality LOS Tables

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2008 - 2017

ID	ROAD	SEGMENT (Sections)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Current	Last Count	Functional Classification
AREA: MERRITT ISLAND															
603	SPACE COMMERCE WAY	SR 3-NASA CAUSEWAY													
	SR 520	HUMPHREY BR-S. BANANA	33,766	33,433	34,103	33,698	30,878	32,220	33,311	3,090	3,040	3,780	12,900	1/18/2017	Rural Principal Arterial Other
101	SR 520	Bridge-N. Tropical	46,840	46,790	46,750	46,850	NC	44,390	46,090	48,440	44,400	44,820	59,900	1/11/2017	Urban Principal Arterial-Other
148	SR 520	N. Tropical-SR 3	39,110	38,520	38,370	38,460	37,670	37,240	34,900	39,820	37,210	36,850	59,900	1/11/2017	Urban Principal Arterial-Other
97	SR 520	SR 3-Plaza ent	33,870	33,560	34,550	33,760	33,430	31,820	34,410	33,630	32,070	29,870	62,900	1/11/2017	Urban Principal Arterial-Other
98	SR 520	Plaza ent-Plumosa	33,660	33,650	34,430	33,940	30,530	31,860	34,130	33,790	31,800	29,940	62,900	1/11/2017	Urban Principal Arterial-Other
99	SR 520	Plumosa-Mall ent	33,380	34,710	33,970	32,810	32,560	30,560	32,780	32,140	31,640	28,750	62,900	1/11/2017	Urban Principal Arterial-Other
100	SR 520	Mall ent-SykesCkPkw	27,460	25,800	27,500	25,620	26,270	26,010	28,740	27,140	24,810	23,660	62,900	1/25/2017	Urban Principal Arterial-Other
149	SR 520	Sykes-Newfound HbDr	33,690	33,190	34,630	34,170	32,270	32,520	33,160	34,480	35,170	30,740	62,900	1/11/2017	Urban Principal Arterial-Other
150	SR 520	Newfound Hbr-N Banana	28,280	28,470	28,560	27,750	27,300	27,290	28,940	29,920	28,670	26,820	62,900	1/18/2017	Urban Principal Arterial-Other
151	SR 520	N Banana-S Banana	27,600	26,210	28,170	29,920	26,960	28,290	26,650	28,440	26,430	26,910	62,900	1/18/2017	Urban Principal Arterial-Other
	SR 528	US 1-SR 401	35,850	36,067	36,903	36,847	35,343	37,053	37,650	39,243	37,940	39,587			
128	SR 528	US 1-N COURTENAY	45,660	44,240	45,990	46,150	43,000	44,700	45,760	49,740	48,660	48,600	74,400	1/17/2017	Urban Principal Arterial-Other
129	SR 528	N Crtty-N Banana Rv Dr	32,750	32,710	33,710	33,920	32,770	33,630	36,360	32,570	31,070	36,810	74,400	1/17/2017	Urban Principal Arterial-Other
127	SR 528	N Banana Rv Dr-SR 401	29,140	31,250	31,010	30,470	30,260	32,830	31,430	35,420	34,090	33,350	74,400	1/17/2017	Urban Principal Arterial-Other
123	SYKES CREEK	FORTENBERRY-SR 520	6,650	5,980	5,630	5,530	5,490	5,610	NC	5,610	5,390	5,440	33,800	1/11/2017	Urban Major Collector
121	SYKES CREEK	SR 520-MERRITT	12,900	12,430	12,460	11,970	12,010	11,770	12,210	12,640	12,680	12,070	39,800	1/18/2017	Urban Major Collector
108	SYKES CREEK	MERRITT-N BANANA	10,180	10,040	9,880	9,670	9,700	9,890	NC	10,610	11,080	10,970	17,700	1/11/2017	Urban Major Collector
AREA: CENTRAL															
75	ADAMSON	PINE-SR 524	4,570	4,590	4,360	5,220	4,720	4,880	4,700	5,210	5,380	5,340	17,700	2/1/2017	Urban Minor Collector
	BARNES	FISKE-MURRELL	14,610	15,260	16,580	16,410	15,420	15,060	15,460	15,895	15,940	13,145			
77	BARNES	FISKE-THREE MEADOWS DRIVE	14,610	15,260	16,580	16,410	15,420	15,060	15,460	15,940	UC	13,440	17,700	2/1/2017	Urban Principal Arterial-Other
604	BARNES	THREE MEADOWS DRIVE-MURRELL								15,850	UC	12,850	17,700	2/1/2017	Urban Principal Arterial-Other
72	BARNES	MURRELL-US 1	10,370	10,890	10,930	NC	9,560	NC	9,720	9,910	8,800	9,560	17,700	2/1/2017	Urban Principal Arterial-Other
49	CLEARLAKE	PLUCKEBAUM-SR 520	5,480	5,940	6,380	5,640	5,130	5,400	4,800	5,050	4,590	4,750	15,600	2/1/2017	Urban Major Collector
	CLEARLAKE	SR 520-MICHIGAN	18,970	19,720	20,650	18,265	17,620	15,747	15,933	18,307	18,030	16,990			
29	CLEARLAKE	SR 520-Lake	13,220	13,770	16,580	13,250	12,650	11,550	11,640	14,160	13,400	12,810	39,800	2/15/2017	Urban Minor Arterial
30	CLEARLAKE	Lake-Dixon	18,230	19,300	19,470	17,740	17,010	16,010	16,210	19,620	19,120	18,200	39,800	2/8/2017	Urban Minor Arterial
31	CLEARLAKE	Dixon-Roseline	22,440	22,940	23,220	20,620	20,250	NC	19,950	NC	21,570	NC	39,800	2/3/2016	Urban Minor Arterial
32	CLEARLAKE	Roseline-Michigan	21,990	22,870	23,330	21,450	20,570	19,680	NC	21,140	NC	19,960	39,800	2/8/2017	Urban Minor Arterial
	CLEARLAKE	MICHIGAN-SR 524	19,927	20,200	20,023	19,460	18,100	17,233	17,727	19,817	19,927	18,193			
39	CLEARLAKE	Michigan-Otterbein	21,950	22,240	22,180	21,620	20,360	19,910	18,410	21,290	21,320	19,970	39,800	2/15/2017	Urban Minor Arterial
50	CLEARLAKE	Otterbein-N. Wal-Mart Ent.	17,170	17,360	17,100	16,580	14,920	14,120	15,520	16,960	16,090	14,810	41,790	2/1/2017	Urban Minor Arterial
95	CLEARLAKE	WAL-MART-SR 524	20,660	21,000	20,790	20,180	19,020	18,670	18,250	21,200	22,370	19,800	41,790	2/1/2017	Urban Minor Arterial
61	COX	SR 520-SR 524	4,850	4,780	4,400	4,180	3,210	4,260	4,100	4,560	4,810	4,240	17,700	2/1/2017	Urban Major Collector
69	COX	SR 524-JAMES	2,730	2,680	2,670	2,520	2,580	2,580	2,490	2,760	2,690	2,600	17,700	2/1/2017	Urban Major Collector
	DIXON	CLEARLAKE-US 1	12,483	12,095	12,173	11,320	10,970	9,855	9,630	10,160	10,415	10,303			
47	DIXON	Clearlake-Pineda St	13,320	12,920	12,740	11,740	11,490	10,280	10,320	11,360	11,290	10,920	39,800	2/8/2017	Urban Minor Arterial
51	DIXON	Pineda St-Fiske	12,480	12,080	11,820	11,250	10,760	9,590	9,420	10,260	10,130	10,240	39,800	2/8/2017	Urban Minor Arterial
46	DIXON	Fiske-Byrd Plaza ent	12,440	12,100	12,640	11,430	NC	10,140	9,800	10,220	10,760	10,560	39,800	2/8/2017	Urban Minor Arterial
45	DIXON	Byrd Plaza Ent-US 1	11,730	11,280	11,490	10,860	10,660	9,410	8,980	8,800	9,480	9,490	39,800	2/22/2017	Urban Minor Arterial
	FISKE	I-95-BARTON	20,580	21,855	23,645	21,390	20,990	21,360	21,805	23,125	23,310	22,190			
44	FISKE	I-95/Barnes-Eyster	19,570	20,480	23,210	21,050	21,060	21,880	22,160	24,690	25,080	24,190	41,790	2/1/2017	Urban Principal Arterial-Other
96	FISKE	Eyster-Barton	21,590	23,230	24,080	21,730	20,920	20,840	21,450	21,560	21,540	20,190	41,790	2/8/2017	Urban Principal Arterial-Other

B-1

*Note: 2016 AADT's Besches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted; UC=Under Construction

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2008 - 2017

ID	ROAD	SEGMENT (Sections)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2,017	Current	Last Count	Functional Classification
			AA	AD	AD	AD	AD	AD	AD	AD	AD	AD	MAV	Taken	
AREA: CENTRAL															
42	FISKE	BARTON-SR 520	22,520	23,975	24,613	22,435	20,600	20,578	20,465	21,915	20,000	20,118	41,790	2/8/2017	Urban Principal Arterial-Other
41	FISKE	Barton-St Andrews	25,370	27,300	27,910	25,190	23,480	23,250	24,240	24,150	24,200	22,660	41,790	2/1/2017	Urban Principal Arterial-Other
40	FISKE	St Andrews-Pluckebaum	26,100	27,410	28,010	25,980	23,650	23,370	22,620	25,300	23,490	23,080	41,790	2/27/2017	Urban Principal Arterial-Other
38	FISKE	Pluckebaum-Rosa Jones	20,030	21,340	21,950	20,030	18,360	18,700	18,130	19,860	18,210	18,920	41,790	2/1/2017	Urban Principal Arterial-Other
37	FISKE	Rosa Jones-SR 520	18,580	19,850	20,580	18,540	16,910	16,990	16,870	18,350	14,100	15,810	15,600	1/24/2017	Urban Minor Arterial
		SR 520-DIXON	9,220	9,350	9,240	8,440	8,000	7,125	6,665	7,025	6,710	6,910	15,600	1/24/2017	Urban Minor Arterial
55	FLORIDA	US 1-Rosa Jones	11,930	11,680	11,680	9,750	8,400	8,140	7,580	7,980	7,330	6,910	15,600	2/2/2016	Urban Minor Arterial
54	FLORIDA	Rosa Jones-SR 520	9,640	10,300	6,650	6,650	NC	6,110	5,750	6,070	6,090	UC	15,600		
	FORREST	SR 520-US1	10,525	11,380	11,380	10,490	9,890	11,090	9,240	8,630	7,880	8,585	15,600	2/8/2017	Urban Minor Arterial
52	FORREST	SR 520-Peachtree	10,360	11,220	10,290	10,690	NC	9,600	8,310	7,370	7,050	8,240	15,600	2/15/2017	Urban Minor Arterial
53	FORREST	Peachtree-US 1	10,690	11,480	1,170	1,150	1,220	1,390	1,390	1,390	1,390	1,500	15,600	2/1/2017	Urban Major Collector
67	FRIDAY	SR 524-JAMES	3,080	3,190	3,180	3,230	3,080	3,020	NC	3,290	NC	3,210	17,700	2/1/2017	Urban Local
64	FRIDAY	STAVISTOCK DRIVE-STADIUM	4,400	4,480	4,650	5,040	17,700	17,700	17,700	17,700	17,700	17,700	17,700	1/25/2017	Urban Local
593	JDG F JAMIESON	STADIUM-LAKE ANDREW	12,695	13,665	14,180	14,310	14,385	14,760	15,795	15,785	16,295	16,400	39,800	1/25/2017	Urban Minor Arterial
80	JDG F JAMIESON	Stadium-Govt Ctr./Sch. Bd. Main Entrance	12,460	13,310	13,660	13,800	13,810	14,310	14,780	15,380	15,970	16,190	39,800	1/25/2017	Urban Minor Arterial
78	JDG F JAMIESON	Govt Ctr./Sch. Bd. Entrance-Lake Andrew	12,930	14,020	14,700	14,820	14,960	15,210	16,810	16,190	16,620	16,610	39,800	1/25/2017	Urban Minor Arterial
	LAKE	COX-SR 520	4,243	4,270	4,460	3,797	3,293	3,190	3,133	3,767	4,033	3,870	17,700	2/1/2017	Urban Major Collector
85	LAKE	Cox-Range	3,610	3,680	NC	3,180	2,290	2,120	2,150	2,630	2,790	2,890	15,600	1/24/2017	Urban Major Collector
62	LAKE	Range-Clearlake	4,610	4,340	4,010	3,820	3,500	3,470	3,260	3,860	3,750	4,040	15,600	2/1/2017	Urban Major Collector
68	LAKE	Clearlake-SR 520	4,510	4,790	4,910	4,390	4,070	3,980	3,990	4,810	5,560	4,860	15,600	1/24/2017	Urban Major Collector
	LAKE ANDREW	WICKHAM-JAMIESON	14,985	15,540	16,395	16,445	16,625	16,555	17,085	17,900	17,350	17,130	39,800	2/15/2017	Urban Minor Arterial
81	LAKE ANDREW	Wickham-The Avenue Main Ent.	16,480	17,650	17,950	18,070	18,220	18,320	18,810	19,940	18,480	18,990	39,800	2/1/2017	Urban Minor Arterial
82	LAKE ANDREW	The Avenue Main Ent.-Jamieson	13,490	13,430	14,840	14,820	15,030	14,790	15,360	15,860	16,220	15,270	39,800	2/24/2016	Urban Major Collector
86	MICHIGAN	RANGE-CLEARLAKE	4,370	NC	5,170	NC	4,180	NC	3,930	NC	4,180	NC	15,600	2/8/2017	Urban Minor Arterial
48	MICHIGAN	CLEARLAKE-US 1	12,530	12,790	12,940	12,630	11,990	12,070	10,280	8,420	9,940	10,820	39,800	2/1/2017	Urban Minor Arterial
	MURRELL	WICKHAM-BARNES	17,298	17,913	17,863	17,495	17,275	16,630	16,070	17,400	16,978	16,493	33,800	2/1/2017	Urban Minor Arterial
528	MURRELL	Wickham-Spyglass	17,600	18,610	18,470	17,880	17,810	17,800	17,120	18,160	17,710	16,870	39,800	2/1/2017	Urban Minor Arterial
59	MURRELL	Spyglass-Viera	17,100	17,250	17,420	17,470	16,970	16,840	16,230	16,810	17,230	16,910	39,800	2/1/2017	Urban Minor Arterial
529	MURRELL	Viera-Club House Drive	18,430	19,140	19,250	18,370	18,210	16,830	16,310	18,310	17,430	16,510	39,800	2/1/2017	Urban Minor Arterial
57	MURRELL	Club House Drive-Barnes	16,060	16,650	16,310	16,260	16,110	15,050	14,620	16,320	15,540	15,680	39,800	1/8/2014	Urban Major Collector
592	PEACHTREE	Lake Dr-Fiske	4,623	4,593	4,720	4,685	4,590	4,543	4,458	4,808	4,928	5,088	15,600	2/1/2017	Urban Minor Collector
	PINEHURST/HOLIDAY SPRINGS	WICKHAM-VIERA BLVD	6,890	6,560	6,960	6,980	6,670	6,490	6,270	6,810	7,100	7,320	15,600	2/1/2017	Urban Minor Collector
17	PINEHURST	Wickham-Spyglass Hill	5,210	5,140	5,250	5,090	5,130	5,140	5,040	5,340	5,350	5,430	15,600	2/1/2017	Urban Minor Collector
530	PINEHURST	Spyglass Hill-Fargo	3,000	2,950	3,090	3,050	3,040	3,000	2,950	3,190	3,340	3,380	15,600	2/15/2017	Urban Minor Collector
16	PINEHURST	Fargo-Holiday Springs	3,400	3,620	3,580	3,620	3,520	3,540	3,570	3,890	3,920	4,220	15,600	2/27/2017	Urban Major Collector
94	HOLIDAY SPRINGS	PINEHURST-VIERA BLVD.	7,560	7,470	7,400	6,540	5,970	6,240	5,140	4,760	5,860	4,740	15,600	2/1/2017	Urban Major Collector
568	PLUCKBAUM	Clearlake-Fiske	4,415	3,440	UC	4,340	5,150	4,330	NC	4,760	NC	4,740	15,600	2/1/2017	Urban Major Collector
	RANGE	SR 520-MICHIGAN	3,350	3,440	UC	3,260	NC	4,330	NC	4,760	NC	4,740	15,600	2/1/2017	Urban Major Collector
531	RANGE	SR 520-Lake	5,480	NC	UC	5,420	5,150	NC	5,140	NC	5,860	NC	15,600	2/1/2017	Urban Major Collector
532	RANGE	Lake-Michigan			NC	2,850	2,680	NC	2,730	NC	NC	NC	15,600	2/1/2017	Urban Minor Collector
74	ROSETINE	RANGE-CLEARLAKE													

*Note: 2016 AADT's Beaches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted; UC=Under Construction

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2008 - 2017

ID	ROAD	SEGMENT (Sections)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Current	Last Count	Functional Classification
AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	MAV	Taken	
18	SPYGLASS HILL	MURRELL-PINEHURST	4,100	3,970	4,320	4,250	3,980	3,880	3,780	3,960	4,240	4,720	15,600	2/8/2017	Urban Minor Collector
534	SR 520	ORANGE CO.-I-95	12,297	15,050	14,937	16,157	14,740	15,090	15,167	17,220	16,670	16,637	40,300	2/27/2017	Rural Principal Arterial Other
1	SR 520	ORANGE CO.-SR 524	10,300	12,750	12,790	14,750	13,480	13,140	12,760	15,950	15,170	15,750	41,790	2/15/2017	Urban Principal Arterial-Other
84	SR 520	SR 524-Friday	11,560	14,340	14,110	15,180	13,290	14,050	13,980	15,720	14,880	14,320	41,790	2/27/2017	Urban Principal Arterial-Other
	SR 520	Friday-I-95	15,030	18,060	17,910	18,540	17,450	18,080	18,750	19,990	19,960	19,840	41,790	2/27/2017	Urban Principal Arterial-Other
	SR 520	I-95-CLEARLAKE	19,497	20,377	21,343	19,957	19,850	20,367	20,583	23,857	22,600	21,240	41,790	2/12/2017	Urban Principal Arterial-Other
2	SR 520	I-95-Burnett	18,700	19,820	20,710	19,420	19,910	20,200	21,440	24,190	22,600	21,780	41,790	2/12/2017	Urban Principal Arterial-Other
3	SR 520	Burnett-Range	18,990	20,190	21,640	20,040	20,350	19,980	19,680	24,180	22,970	21,040	41,790	2/12/2017	Urban Principal Arterial-Other
14	SR 520	Range-Clearlake	20,800	21,120	21,680	20,410	19,290	20,920	20,630	23,200	22,640	20,900	41,790	2/12/2017	Urban Principal Arterial-Other
	SR 520	CLEARLAKE-FISKE	22,345	23,020	22,115	21,390	20,045	20,815	21,385	24,880	24,575	22,915	39,800	2/8/2017	Urban Principal Arterial-Other
4	SR 520	Clearlake-Lake	20,770	20,710	19,950	19,630	18,380	19,160	19,560	22,860	22,870	20,200	39,800	1/18/2017	Urban Principal Arterial-Other
5	SR 520	Lake-Fiske	23,920	25,330	24,280	23,150	21,710	22,470	23,210	26,900	26,280	25,630	41,790	1/18/2017	Urban Principal Arterial-Other
6	SR 520	FISKE-US 1	24,905	25,100	25,505	25,210	23,390	23,775	25,160	28,120	28,250	26,600	41,790	1/18/2017	Urban Principal Arterial-Other
7	SR 520	Fiske-Blake	25,080	25,320	25,490	25,310	23,390	23,820	25,090	28,270	28,430	26,540	41,790	1/18/2017	Urban Principal Arterial-Other
	SR 520	Blake-US 1	24,730	24,880	25,520	25,110	NC	23,730	25,230	27,970	28,070	26,660	41,790	1/18/2017	Urban Principal Arterial-Other
	SR 520 (Eastbound)	US 1-CAUSEWAY (EB)	20,580	19,853	19,695	20,125	19,215	19,838	19,020	21,483	18,600	20,718	19,440	2/15/2017	Urban Principal Arterial-Other
8	SR 520	US 1-Forrest	15,360	13,920	13,790	15,200	14,530	15,570	17,090	18,210	13,820	16,750	19,440	2/15/2017	Urban Principal Arterial-Other
9	SR 520	Forrest-Brevard	21,570	21,190	21,780	21,710	20,280	21,020	19,560	21,850	19,620	22,460	19,440	2/15/2017	Urban Principal Arterial-Other
10	SR 520	Brevard-Delannoy	22,190	21,790	20,970	21,450	20,280	20,900	19,450	22,930	22,010	21,670	19,440	1/18/2017	Urban Principal Arterial-Other
11	SR 520	Delannoy-Riverview	23,200	22,510	22,240	22,140	21,770	21,860	19,980	22,940	18,950	21,980	19,440	1/18/2017	Urban Principal Arterial-Other
	SR 520 (Westbound)	CAUSEWAY-US 1 (WB)	20,193	21,385	20,790	21,085	20,205	20,770	20,643	21,703	20,098	21,220	19,440	2/15/2017	Urban Principal Arterial-Other
12	SR 520	Causeway-Delannoy	22,270	22,960	22,570	23,220	21,860	22,160	21,250	23,700	23,050	21,130	19,440	2/15/2017	Urban Principal Arterial-Other
13	SR 520	Delannoy-Brevard	23,610	24,920	24,230	24,360	23,150	23,970	23,100	23,460	21,900	24,290	19,440	1/18/2017	Urban Principal Arterial-Other
15	SR 520	Brevard-Forrest	20,770	22,980	21,790	21,530	21,080	21,220	21,560	22,400	18,690	21,810	19,440	1/11/2017	Urban Principal Arterial-Other
87	SR 520	Forrest-US 1	14,120	14,680	14,650	15,230	14,730	15,730	16,660	17,250	16,750	17,650	19,440	1/18/2017	Urban Principal Arterial-Other
66	SR 524	SR 520-I-95	4,140	4,090	4,680	4,650	4,400	4,670	4,530	5,690	5,300	5,890	24,200	2/12/2017	Urban Minor Arterial
	SR 524	I-95-INDUSTRY RD	10,495	11,125	11,490	11,180	10,795	11,220	10,880	12,765	12,605	11,710	18,590	2/12/2017	Urban Minor Arterial
73	SR 524	I-95-Cox	9,230	9,510	10,050	9,810	9,610	9,780	9,670	11,440	11,170	10,460	18,590	2/12/2017	Urban Minor Arterial
76	SR 524	Cox-Industry Rd	11,760	12,740	12,930	12,550	11,980	12,660	12,090	14,090	14,040	12,960	19,470	2/12/2017	Urban Minor Arterial
	SR 528	ORANGE CO.-I-95	28,520	27,170	26,750	28,240	26,205	27,835	28,320	34,205	31,740	33,780	43,000	2/27/2017	Rural Principal Arterial - Freeways & Expressways
91	SR 528	ORANGE CO.-SR 407	29,290	29,280	29,770	31,790	28,950	30,820	30,220	37,830	35,120	37,330	43,000	2/27/2017	Rural Principal Arterial - Freeways & Expressways
90	SR 528	SR 407-I-95	27,750	25,060	23,730	24,690	23,460	24,850	26,420	30,580	28,360	30,230	43,000	2/27/2017	Rural Principal Arterial - Freeways & Expressways
	SR 528	I-95-US 1	26,985	26,120	25,550	25,950	24,945	25,860	25,315	30,165	27,775	28,340	74,400	2/27/2017	Urban Principal Arterial - Freeways & Expressways
93	SR 528	I-95-INDUSTRY RD	22,500	22,730	20,820	21,360	20,720	21,000	23,050	23,030	22,810	23,290	74,400	2/27/2017	Urban Principal Arterial - Freeways & Expressways
92	SR 528	INDUSTRY RD-US 1	31,470	29,510	30,280	30,540	29,170	30,720	27,580	37,300	32,740	33,390	74,400	2/27/2017	Urban Principal Arterial - Freeways & Expressways
25	STADIUM PKWY	WICKHAM-JAMIESON	3,710	4,310	4,890	5,090	5,910	6,550	6,890	7,810	8,480	9,150	17,700	2/12/2017	Urban Minor Arterial
	STADIUM PKWY	JAMIESON-I-95	12,395	14,340	15,500	15,880	15,585	16,515	16,965	17,965	18,505	19,685	39,800	2/15/2017	Urban Minor Arterial
26	STADIUM PKWY	Jamieson-Viera Blvd	13,190	15,380	16,570	17,350	17,250	18,270	18,910	19,950	20,890	22,170	39,800	2/12/2017	Urban Minor Arterial
535	STADIUM PKWY	VIERA BLVD.-ROSEMOUNT DR	11,600	13,300	14,430	14,410	13,920	14,760	15,020	15,980	16,120	17,160	39,800	2/12/2017	Urban Minor Arterial
606	STADIUM PKWY	ROSEMOUNT DRIVE-I-95/FISKE								17,190	17,510	18,680	17,700	1/25/2017	Urban Local
607	TAVISTOCK	JAMIESON-VIERA BLVD								3,300	3,680	3,720	15,600	2/12/2017	Urban Local
608	TAVISTOCK	VIERA BLVD.-STADIUM PARKWAY								2,890	2,680	2,650	15,600	2/12/2017	Urban Local
	US 1	PINEDA-BARNES	33,395	32,957	32,480	33,950	27,120	29,530	31,853	32,577	32,687	30,737	41,790	2/22/2017	Urban Principal Arterial-Other
89	US 1	Pineda-Suntree Blvd	38,020	38,440	39,470	42,600	NC	33,100	37,580	37,310	38,750	34,340	41,790	2/22/2017	Urban Principal Arterial-Other
567	US 1	Suntree Blvd-Viera Blvd					28,680	28,770	31,550	32,650	31,520	30,670	41,790	2/12/2017	Urban Principal Arterial-Other
36	US 1	Viera Blvd-Barnes	28,770	28,260	27,230	28,090	25,560	26,720	26,430	27,770	27,790	27,200	41,790	2/12/2017	Urban Principal Arterial-Other
70	US 1	BARNES-EYSTER	27,480	27,810	24,700	25,800	23,920	26,150	25,690	25,980	26,300	25,060	41,790	2/22/2017	Urban Principal Arterial-Other

*Note: 2016 AADT's Beaches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted; UC=Under Construction

SPACE COAST TRANSPORTATION PLANNING ORGANIZATION TRAFFIC COUNTS: 2008 - 2017

ID	ROAD	SEGMENT (Sections)	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	2014 AADT	2015 AADT	2016 AADT	2017 AADT	Current MAV	Last Count Taken	Functional Classification
AREA: NORTH															
206	BARNA	SR 405-SR 50	5,430	5,740	5,470	5,200	4,770	4,770	4,930	5,160	5,540	5,920	15,600	12/12/2017	Urban Major Collector
521	CAMP	GRISSOM-US 1	2,820	2,920	2,800	2,850	2,450	2,290	2,370	2,150	2,670	2,730	15,600	12/13/2017	Urban Major Collector
	CANAVERAL GROVES	PINE-US 1	5,990	4,815	7,310	4,640	7,020	4,365	6,760	4,360	7,290	4,620			
522	CITRUS	PINE-LEE	NC	3,950	NC	3,710	NC	3,550	NC	3,380	NC	3,830	15,600	11/8/2017	Urban Major Collector
212	CANAVERAL GROVES	LEE-GRISSOM	NC	NC	7,310	NC	7,020	NC	6,760	NC	7,290	NC	15,600	12/6/2016	Urban Major Collector
213	CANAVERAL GROVES	GRISSOM-US 1	5,990	5,680	NC	5,570	NC	5,180	NC	5,340	NC	5,410	15,600	11/8/2017	Urban Major Collector
	CARPENTER	FOX LAKE-SR 46	4,637	4,763	4,637	4,687	4,377	4,483	4,390	4,455	4,557	4,437			
188	CARPENTER	FOX LAKE-GARDEN	3,630	3,770	3,740	3,800	3,450	3,560	3,540	3,520	3,480	3,690	15,600	11/8/2017	Urban Major Collector
184	CARPENTER	GARDEN-DAIRY	5,130	5,330	5,220	5,230	4,890	4,970	4,960	5,390	5,390	5,410	15,600	11/29/2017	Urban Major Collector
183	CARPENTER	DAIRY-SR 46	5,150	5,190	4,950	5,030	4,790	4,920	4,670	NC	4,800	4,210	15,600	11/7/2017	Urban Major Collector
	DAIRY	CARPENTER-US 1	6,475	6,090	5,925	5,900	5,850	5,660	5,795	5,475	7,760	6,060			
185	DAIRY	CARPENTER-HOLDER	NC	5,290	NC	5,300	NC	5,100	NC	4,820	NC	5,030	15,600	11/29/2017	Urban Major Collector
523	DAIRY	HOLDER-SINGLETON	6,760	NC	6,280	NC	6,180	NC	6,070	NC	7,760	NC	15,600	11/9/2016	Urban Major Collector
186	DAIRY	SINGLETON-OLD DIXIE	NC	6,890	NC	6,500	NC	6,220	NC	6,130	NC	6,930	15,600	11/8/2017	Urban Major Collector
187	DAIRY	OLD DIXIE-US 1	6,190	NC	5,570	NC	5,520	NC	5,520	NC	2,090	6,220	15,600	11/19/2014	Urban Major Collector
596	DEERING PARKWAY	I-95-US 1							1,870	1,720	2,090	2,470	14,200	12/13/2017	Rural Major Collector
	FAY	GOLFVIEW-GRISSOM	9,203	7,023	6,543	6,400	8,065	5,800	7,805	5,825	8,765	6,275			
549	FAY	GOLFVIEW-HOMESTEAD	2,580	2,770	2,660	2,740	NC	2,680	NC	2,880	NC	3,160	15,600	11/15/2017	Urban Major Collector
207	FAY	HOMESTEAD-DEER	7,490	7,900	7,250	6,990	6,780	NC	6,460	NC	6,640	NC	15,600	11/2/2016	Urban Major Collector
229	FAY	DEER-GRISSOM	17,540	10,400	9,720	9,470	9,350	8,920	9,150	8,770	10,890	9,390	15,600	12/6/2017	Urban Major Collector
	FAY	GRISSOM-US 1	13,380	15,595	14,555	14,965	13,975	13,730	13,670	13,590	14,465	14,280			
208	FAY	GRISSOM-AREQUIPPA	13,380	NC	12,830	NC	12,380	NC	12,830	13,400	13,590	NC	33,800	11/2/2016	Urban Major Collector
209	FAY	AREQUIPPA-CAROLE	NC	13,880	NC	13,410	NC	12,230	NC	12,350	NC	12,860	33,800	12/6/2017	Urban Major Collector
210	FAY	CAROLE-US 1	NC	17,310	16,280	16,520	15,570	15,230	14,510	15,020	15,340	15,700	17,700	11/8/2017	Urban Major Collector
235	FOX LAKE	CARPENTER-SOUTH	NC	NC	4,250	NC	3,870	NC	NC	3,920	NC	NC	17,700	11/18/2015	Urban Major Collector
	GRISSOM	INDUSTRY-PORT ST. JOHN PARKWAY	10,940	10,803	10,053	10,633	9,930	9,753	10,223	10,213	10,033	10,357			
197	GRISSOM	INDUSTRY-CANAVERAL GRVS	11,760	11,980	11,060	11,820	10,870	10,680	11,540	11,720	11,300	11,160	15,600	11/8/2017	Urban Minor Arterial
196	GRISSOM	CANAVERAL GRVS-CAMP	9,620	9,710	8,940	9,320	8,980	8,960	9,010	9,490	8,660	9,360	17,700	11/8/2017	Urban Minor Arterial
195	GRISSOM	CAMP-PORT ST. JOHN PARKWAY	11,440	10,720	10,160	10,760	9,940	9,620	10,120	9,430	10,140	10,550	17,700	11/8/2017	Urban Minor Arterial
	GRISSOM	PORT ST. JOHN PARKWAY-KINGS HWY	11,903	11,977	11,863	12,123	11,687	11,573	12,220	11,170	14,117	11,890			
194	GRISSOM	PORT ST. JOHN PARKWAY-BRIDGE	12,360	13,050	12,890	13,680	12,670	12,720	13,840	NC	14,940	13,920	17,700	11/15/2017	Urban Minor Arterial
193	GRISSOM	BRIDGE-FAY	11,390	11,800	11,290	11,750	11,380	12,130	12,390	12,740	13,700	12,070	17,700	11/15/2017	Urban Minor Arterial
192	GRISSOM	FAY-CURTIS	NC	11,080	NC	10,940	NC	9,870	NC	9,600	NC	9,680	15,600	11/15/2017	Urban Minor Arterial
191	GRISSOM	CURTIS-KINGS HIGHWAY	11,960	NC	11,410	NC	11,010	NC	10,430	NC	13,710	NC	15,600	11/2/2016	Urban Minor Arterial
	GRISSOM	KINGS HIGHWAY-SR 405	10,340	9,690	9,655	9,655	8,980	8,970	9,310	9,320	8,660	10,080			
190	GRISSOM	KINGS HIGHWAY-SHEPARD	UC	10,480	10,010	9,890	NC	8,970	NC	9,320	NC	10,080	30,400	11/28/2017	Rural Minor Arterial
189	GRISSOM	SHEPARD-SR 405	UC	10,200	9,370	9,420	8,980	NC	9,310	NC	8,620	NC	39,800	11/1/2016	Urban Major Collector
524	GOLFVIEW	PORT ST. JOHN PKWY-FAY	4,550	NC	4,640	NC	4,610	NC	4,830	NC	NC	5,570	15,600	11/15/2017	Urban Major Collector
526	HOLDER	DAIRY-SR 46	NC	2,550	NC	2,720	NC	2,670	NC	NC	NC	2,840	17,700	12/19/2017	Urban Major Collector
	HOPKINS	SR 50-GRACE					9,670	7,640	8,390	6,770	8,995	7,765			
583	HOPKINS	SR 50-KNOX MCRAE						6,970	7,130	NC	7,190	NC	15,600	11/9/2016	Urban Minor Arterial
584	HOPKINS	KNOX MCRAE-COUNTRY CLUB DR						9,640	NC	9,090	NC	10,710	15,600	11/29/2017	Urban Minor Arterial
577	HOPKINS	COUNTRY CLUB DR-HARRISON					9,670	9,400	9,650	NC	10,800	NC	15,600	11/9/2016	Urban Minor Arterial
586	HOPKINS	HARRISON-GRACE						4,550	NC	4,450	NC	4,820	15,600	11/29/2017	Urban Minor Arterial
198	INDUSTRY	SR 524-GRISSOM	17,790	16,840	15,940	16,170	15,900	16,040	18,530	18,030	18,430	17,560	41,790	12/13/2017	Urban Minor Arterial
594	INDUSTRY	GRISSOM-CIDCO RD	NC	4,940	NC	4,710	NC	4,300	NC	4,060	NC	4,700	15,600	11/8/2017	Urban Local
245	KINGS HWY	GRISSOM-US 1	NC	NC	NC	4,710	NC	4,300	NC	4,060	NC	5,060	15,600	11/28/2017	Urban Major Collector
223	NASA CSWY	US 1-SPACE COMMERCE WAY	15,710	15,790	13,870	12,060	11,200	10,520	11,110	10,170	12,070	12,260	30,400	11/28/2017	Rural Principal Arterial Other

*Note: 2016 AADT's Beaches area were counted twice in 2016 and the AADT listed is the average of the two counts.
NC=Not Counted, UC=Under Construction

Table II - 7: Existing Roadway Performance

ROAD NAME	FROM	TO	JURIS	CLASS	2006-2007 Counts					FDOT Class	Max. Serv. Vol.			LOS	
					LANES	ADT	K	D	Peak Dir.		Adopted LOS	C	D		E
Adamson Rd.	Coconut Av.	SR 524	County	UC	2	4,500	9.5%	55.0%	235	D	Major Non-State	738	792	792	C
Beachline Expressway (SR 528)	Interstate 95	E. Industry Rd.	State	LAH	4	25,790	9.5%	55.0%	1,348	D	Freeway >2 miles	3,020	3,720	4,020	C
	E. Industry Rd.	US 1	State	LAH	4	25,790	9.5%	55.0%	1,348	D	Freeway >2 miles	3,020	3,720	4,020	C
	US 1	East of US 1	State	LAH	4	36,720	9.5%	55.0%	1,919	D	Freeway >2 miles	3,020	3,720	4,020	C
Bennett Causeway (SR 524)	SR 520	Friday Rd.	State	UPA	2	5,080	9.5%	55.0%	265	D	I	820	880	880	C
	Friday Rd.	Interstate 95	State	UPA	2	5,080	9.5%	55.0%	265	D	I	820	880	880	C
	Interstate 95	Friday Rd.	State	UPA	2	11,720	9.5%	55.0%	612	D	I	820	880	880	C
	Friday Rd.	Cox Rd.	State	UPA	2	11,720	9.5%	55.0%	612	D	I	820	880	880	C
	Cox Rd.	E. Industry Rd.	State	UPA	2	11,720	9.5%	55.0%	612	D	I	820	880	880	C
	E. Industry Rd.	Clearlake Rd.	State	UPA	4	22,150	9.5%	55.0%	1,157	D	I	1,890	1,960	1,960	C
Clearlake Rd.	SR 524	Michigan Av.	State	UPA	4	20,160	9.5%	55.0%	1,053	D	I	1,890	1,960	1,960	C
	Michigan Av.	Dixon Blvd.	State	UPA	4	20,160	9.5%	55.0%	1,053	D	I	1,890	1,960	1,960	C
	Dixon Blvd.	Lake Dr.	State	UPA	4	19,220	9.5%	55.0%	1,004	D	I	1,890	1,960	1,960	C
	Lake Dr.	SR 520	State	UPA	4	19,220	9.5%	55.0%	1,004	D	I	1,890	1,960	1,960	C
	SR 520	Pluckebaum Rd.	State	UPA	2	5,390	9.5%	55.0%	282	D	I	820	880	880	C
Cocoa Blvd. (US 1)	Cidco Rd.	SR 528	State	UPA	4		9.5%	55.0%	0	D	I	1,890	1,960	1,960	C
	SR 528	Michigan Av.	State	UPA	4	33,710	9.5%	55.0%	1,761	D	I	1,890	1,960	1,960	C
	Michigan Av.	Dixon Blvd.	State	UPA	4	33,710	9.5%	55.0%	1,761	D	I	1,890	1,960	1,960	C
	Dixon Blvd.	Forrest Av.	State	UPA	4	24,540	9.5%	55.0%	1,282	D	I	1,890	1,960	1,960	C
	Forrest Av.	Peachtree St.	State	UPA	4		9.5%	55.0%	0	D	I	1,890	1,960	1,960	C
	Peachtree St.	SR 520	State	UPA	4		9.5%	55.0%	0	D	I	1,890	1,960	1,960	C

ROAD NAME	FROM	TO	JURIS	CLASS	2006-2007 Counts					FDOT Class	Max. Serv. Vol.			LOS
					LANES	ADT	K	D	Peak Dir.		C	D	E	
	SR 520	Rosa L. Jones Dr.	State	UPA	4	34,920	9.5%	55.0%	1,825	D	1,890	1,960	1,960	C
	Rosa L. Jones Dr.	South of Rosa L. Jones Dr.	State	UPA	4	34,920	9.5%	55.0%	1,825	D	1,890	1,960	1,960	C
Cox Rd.	SR 520	SR 524	County	UC	2	5,320	9.5%	55.0%	278	E	738	792	792	C
	SR 524	James Rd.	County	UC	2	5,320	9.5%	55.0%	278	E	738	792	792	C
Dixon Blvd.	Clearlake Rd.	Pineda St.	County	UMA	4	13,470	9.5%	55.0%	704	E	1,701	1,764	1,764	C
	Pineda St.	Fiske Blvd.	County	UMA	4	13,470	9.5%	55.0%	704	E	1,701	1,764	1,764	C
	Fiske Blvd.	US 1	County	UMA	4	13,470	9.5%	55.0%	704	E	1,701	1,764	1,764	C
Fiske Blvd.	Dixon Blvd.	SR 520	City	UC	2		9.5%	55.0%	0	E	738	792	792	C
	SR 520	Rosa L. Jones Dr.	State	UMA	4	23,060	9.5%	55.0%	1,205	D	1,330	1,770	1,870	C
	Rosa L. Jones Dr.	Pluckebaum Rd.	State	UMA	4	23,060	9.5%	55.0%	1,205	D	1,330	1,770	1,870	C
Forrest/Florida Av.	US 1	SR 520	City	UMA	2		9.5%	55.0%	0	E	738	792	792	C
	SR 520	Rosa L. Jones Dr.	City	UMA	2		9.5%	55.0%	0	E	738	792	792	C
	Rosa L. Jones Dr.	Bougainvillea Dr.	City	UMA	2		9.5%	55.0%	0	E	738	792	792	C
Friday Rd.	SR 520	SR 524	County	UC	2	1,541	9.5%	55.0%	81	E	738	792	792	C
	SR 524	James Rd.	County	UC	2	3,420	9.5%	55.0%	179	E	738	792	792	C
Grissom Pkwy.	Canaveral Groves Blvd.	Industry Rd.	County	UC	2	12,500	9.5%	55.0%	653	E	738	792	792	C
Indian River Dr.	SR 528	Dixon Blvd.	City	UMC	2		9.5%	55.0%	0	E	738	792	792	C
	Dixon Blvd.	SR 520	City	UMC	2		9.5%	55.0%	0	E	738	792	792	C
Industry Rd.	Grissom Pkwy.	SR 528	County	UC	4		9.5%	55.0%	0	E	1,701	1,764	1,764	C
	SR 528	SR 524	County	UC	4		9.5%	55.0%	0	E	1,701	1,764	1,764	C
Interstate 95	SR 528	SR 524	State	LAH	4	62,501	9.7%	55.0%	3,334	E	3,020	3,720	4,020	D
	SR 524	SR 520	State	LAH	4	84,001	9.7%	55.0%	4,481	E	3,020	3,720	4,020	F
	SR 520	Fiske Blvd.	State	LAH	4	59,001	9.7%	55.0%	3,148	E	3,020	3,720	4,020	D

APPENDIX C

Turning Movements Counts / HCS Analysis / Signal Timing

Station : 1036 - SR 524 & I 95 SB ramp (Standard File)

Phase [1.1.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk																
Ped Clearance																
Min Green		12			5	12		7								
Gap Ext		3			3	3		3								
Max1		45			15	45		30								
Max2		45			45	45		45								
Yellow Clr	4.8	4.8	3.5	4.8	4.8	4.8	4.8	4.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red Clr		2		3.4	2.9	2	3.4	3.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert																
Added Initial																
Max Initial																
Time Before Reduce																
Cars Before Reduce																
Time To Reduce																
Reduce By																
Min Gap																
Dynamic Max Limit																
Dynamic Max Step																
Auto Flash Entry								ON								
Auto Flash Exit		ON				ON										
Non-Actuated 1																
Non-Actuated 2																
Rest In Walk																

Phase Option [1.1.2]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable		ON			ON	ON		ON								
Lock Call																
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON				ON										
Sim Gap Enable		ON				ON										
Guar Passage																
Cond Service																
Add Init Calc																

Alternate Phase Program 1, Calls and Redirection [1.1.6.3]

Entry	Call Phases	From	To	From	To	From	To	From	To	Assigned Ph
1										
2										
3										
4										
5										
6										
7										
8										

Alternate Phase Program 2, Calls and Redirection [1.1.6.3]

Entry	Call Phases	From	To	From	To	From	To	From	To	Assigned Ph
1										
2										
3										
4										
5										
6										
7										
8										

Alternate Phase Program 1, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1							3.5	1.5		
2							3.5	1.5		
3							3.5	1.5		
4							3.5	1.5		
5							3.5	1.5		
6							3.5	1.5		
7							3.5	1.5		
8							3.5	1.5		

Alternate Phase Program 2, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1							3.5	1.5		
2							3.5	1.5		
3							3.5	1.5		
4							3.5	1.5		
5							3.5	1.5		
6							3.5	1.5		
7							3.5	1.5		
8							3.5	1.5		

Prepared By

Date Implemented

Reviewed By

Traffic Engineer

Station : 1036 - SR 524 & I 95 SB ramp (Standard File)

Unit Parameters [1.2.1]

Station : 1037 - SR 524 & I 95 NB ramp (Standard File)

Phase [1.1.1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk																
Ped Clearance																
Min Green	5	12		7		12										
Gap Ext	3	3		3		3										
Max1	15	45		30		45										
Max2	45	45		45		45										
Yellow Clr	4.7	4.7	3.5	3.2	3.5	4.7	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Red Clr	2.7	2		3.1		2.7			1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Red Revert																
Added Initial																
Max Initial																
Time Before Reduce																
Cars Before Reduce																
Time To Reduce																
Reduce By																
Min Gap																
Dynamic Max Limit																
Dynamic Max Step																
Auto Flash Entry																
Auto Flash Exit																
Non-Actuated 1																
Non-Actuated 2																
Rest In Walk																

Phase Option [1.1.2]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable	ON	ON		ON		ON				ON	ON	ON	ON	ON	ON	ON
Lock Call		ON				ON										
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON										
Sim Gap Enable																
Guar Passage																
Cond Service																
Add Init Calc																

Alternate Phase Program 1, Calls and Redirection [1.1.6.3]

Entry	From	To	From	To	From	To	From	To	Assigned Ph
1									
2									
3									
4									
5									
6									
7									
8									

Alternate Phase Program 2, Calls and Redirection [1.1.6.3]

Entry	From	To	From	To	From	To	From	To	Assigned Ph
1									
2									
3									
4									
5									
6									
7									
8									

Alternate Phase Program 1, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1							3.5	1.5		
2							3.5	1.5		
3							3.5	1.5		
4							3.5	1.5		
5							3.5	1.5		
6							3.5	1.5		
7							3.5	1.5		
8							3.5	1.5		

Alternate Phase Program 2, Interval Times [1.1.6.1]

Phase	Walk	Ped Clear	Min Green	Passage	Max1	Max2	Yellow	Red Clear	Assign Ph	Bike Clear
1							3.5	1.5		
2							3.5	1.5		
3							3.5	1.5		
4							3.5	1.5		
5							3.5	1.5		
6							3.5	1.5		
7							3.5	1.5		
8							3.5	1.5		

Prepared By

Date Implemented

Reviewed By

Traffic Engineer

Station : 1037 - SR 524 & I 95 NB ramp (Standard File)

Unit Parameters [1.2.1]

All changes directed by FDOT. See Clearance Timings sheet. 5-20-15

Phase Times [1.1.1]

	1	2	3	4	5	6	7	8
Min Green		15		6	5	15		6
Gap, Ext		3.5		3.5	3.5	3.5		3.5
Max 1		50		25	15	50		25
Max 2					15			
Yel Clearance		5.5		4.34	3.5	5.5		4.38
Red Clearance		2.50		2.50	2.4	2.50		2.50
Walk								
Ped Clearance								
Red Revert								
Add Initial								
Max Initial								
Time B4 Reduct								
Cars B4 Reduct								
Time To Reduce								
Reduce By								
Min Gap								
DyMaxLim								
Max Step								

Auto Flash Parms [1.4.1]

Flash Parameter	Clearance Time
Mode	VOT_MON Yellow 45
Auto Flash, Phases/Overlaps [1.4.2]	Red 30
Yel (phases)	2 6
Yel (overlaps)	

Sr 524 & COX Rd (ID 6185) (Standard File)

01/24/14

Phase Options [1.1.2]

	1	2	3	4	5	6	7	8
Enable		1		1	1	1		1
Min Recall		1				1		
Max Recall								
Ped Recall								
Soft Recall								
Lock Calls								
Auto Flash Entry				1				1
Auto Flash Exit		1				1		
Dual Entry		1		1		1		1
Enable Simul Gap		1				1		
Gaurant Passage								
Rest In Walk								
Condition Service								
Non-Actuated 1								
Non-Actuated 2								
Add Init Calc								

Phase Options+ [1.1.3]

	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Reservice								
Walk Thru Yel								
Skip Red No Call								
Red Rest								
Max II								
Conflicting Phase								
Conflicting Phase	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Omit Yellow								
Ped Out/Olap								
Start Yel, Next Ph								

Changed yellow & Red times per FDOT

Phase Times [1.1.1]

	1	2	3	4	5	6	7	8
Min Green	12	15	5	7	5	15	5	7
Gap, Ext	3	3	3	3	3	3	3	3
Max 1	70	50	55	25	25	60	20	40
Max 2								
Yel Clearance	5.2 4.8	5.1 4.8	3.9 4.5	3.4 4	5.1 4.7	5.3 4.8	3.4 4	3.7 4.5
Red Clearance	2.6	2	2.6	2.9	2.4	2	2.6	2
Walk		7				7		7
Ped Clearance		42				32		26
Red Revert								
Add Initial								
Max Initial								
Time B4 Reduct								
Cars B4 Reduct								
Time To Reduce								
Reduce By								
Min Gap								
DyMaxLim								
Max Step								

Auto Flash Parm's [1.4.1]

Flash Parameter	Clearance Time
Mode	VOT_MON
Yel (phases)	2 6
Yel (overlaps)	

Auto Flash, Phases/Overlaps [1.4.2]

Flash Parameter	Clearance Time
Mode	VOT_MON
Yel (phases)	2 6
Yel (overlaps)	

Phase Options [1.1.2]

	1	2	3	4	5	6	7	8
Enable	1	1	1	1	1	1	1	1
Min Recall		1				1		
Max Recall								
Ped Recall								
Soft Recall								
Lock Calls		1				1		
Auto Flash Entry				1				1
Auto Flash Exit		1				1		
Dual Entry		1		1		1		1
Enable Simul Gap		1				1		
Gaurant Passage								
Rest In Walk								
Condition Service								
Non-Actuated 1								
Non-Actuated 2								
Add Init Calc								

Phase Options+ [1.1.3]

	1	2	3	4	5	6	7	8
Reservice								
Walk Thru Yel								
Skip Red No Call								
Red Rest								
Max II								
Conflicting Phase								
Conflicting Phase	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Omit Yellow								
Ped Out/Overlap								
Start Yel, Next Ph								

SR 524 & Industry Rd- C018 -mlid# 386 (ID 1018) (Standard File

10/31/13

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: I-95 SB Ramp
 FILENAME: 4/30/2019
 COUNT DATE: 5/1/2019
 REPORT DATE: 5/1/2019
 DAY: Tuesday
 ANALYSIS YEAR: 2019
 E/W STREET: SR-524
 CITY: Cocoa
 INTERSECTION:
 CONTROL: TWSC

15 Min Period	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
7:00-7:15	0	0	0	127	0	22	0	78	48	81	26	0	382	1674		
7:15-7:30	0	0	0	129	0	21	0	64	62	104	29	0	409	1743		
7:30-7:45	0	0	0	91	0	42	0	105	74	91	44	0	447	1751		
7:45-8:00	0	0	0	74	0	19	0	108	77	106	52	0	436	1640		
8:00-8:15	0	0	0	99	0	45	0	80	67	100	60	0	451	1501		
8:15-8:30	0	0	0	106	0	30	0	78	67	78	58	0	417			
8:30-8:45	0	0	0	75	0	13	0	63	54	84	47	0	336			
8:45-9:00	0	0	0	69	0	10	0	57	48	77	36	0	297			

AM PEAK HOUR IS FROM: 7:30 AM TO 8:30 AM
 Volumes 0 0 0 370 0 136 0 371 285 375 214 0 1751
 Season Factor 0 0 0 407 0 150 0 408 314 413 235 0 1926
 Growth 0 0 0 407 0 150 0 408 314 413 235 0 1926
 In/Out - - - - - - - - - - - - -
 Percentage 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 PROJECT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Seasonal Factor: 1.1
 Trips In
 Trips Out
 Growth Rate: 1
 Years Grown:

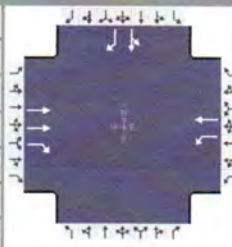
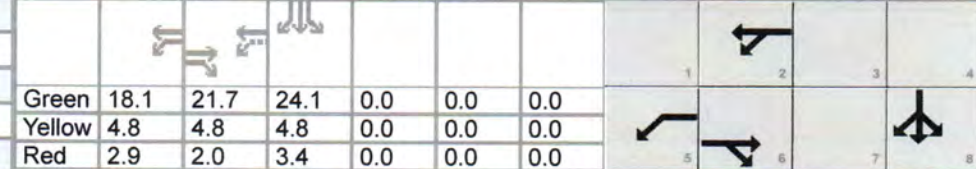
Total	0	0	0	407	0	150	0	408	314	413	235	0	1926			
-------	---	---	---	-----	---	-----	---	-----	-----	-----	-----	---	------	--	--	--

15 Min Period	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
4:00-4:15	0	0	0	92	0	30	0	60	29	69	107	0	387	1560		
4:15-4:30	0	0	0	62	0	50	0	66	28	86	107	0	399	1562		
4:30-4:45	0	0	0	92	0	31	0	58	26	55	93	0	355	1595		
4:45-5:00	0	0	0	88	0	25	0	76	38	76	116	0	419	1641		
5:00-5:15	0	0	0	65	0	27	0	69	31	71	126	0	389	1614		
5:15-5:30	0	0	0	78	0	37	0	67	36	90	124	0	432			
5:30-5:45	0	0	0	86	0	21	0	57	40	76	121	0	401			
5:45-6:00	0	0	0	98	0	17	0	66	27	88	96	0	392			

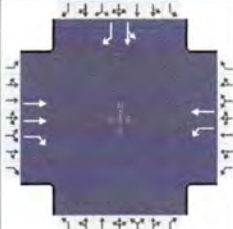
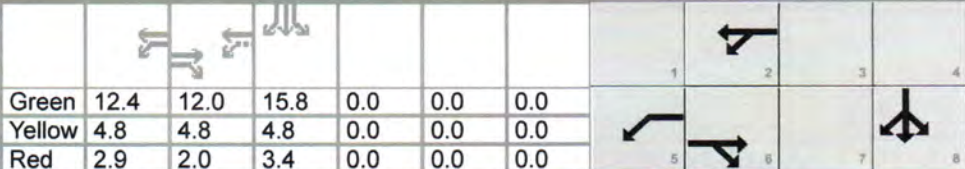
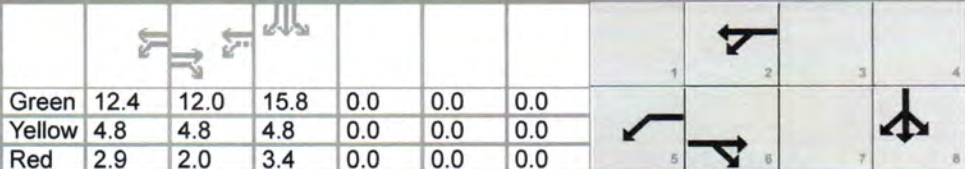
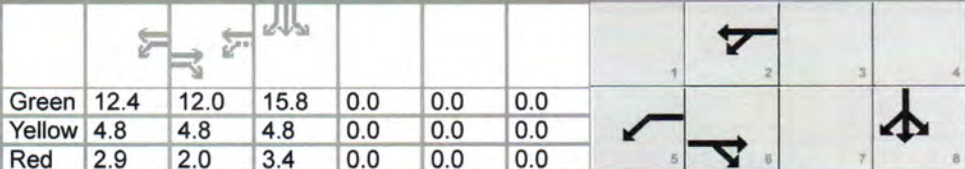
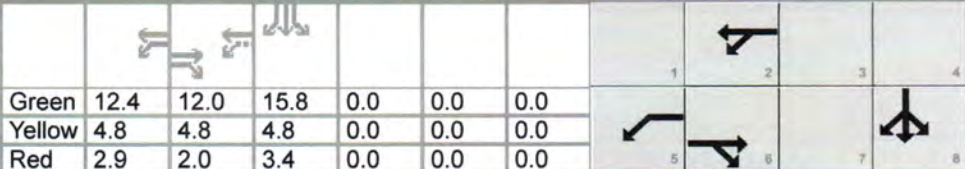
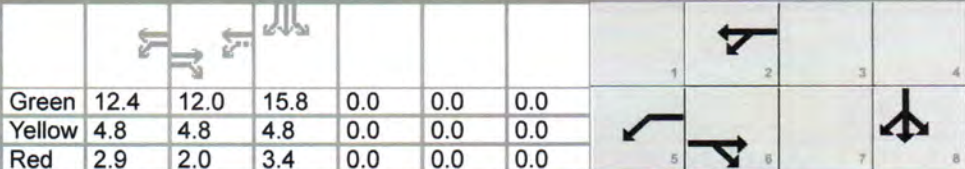
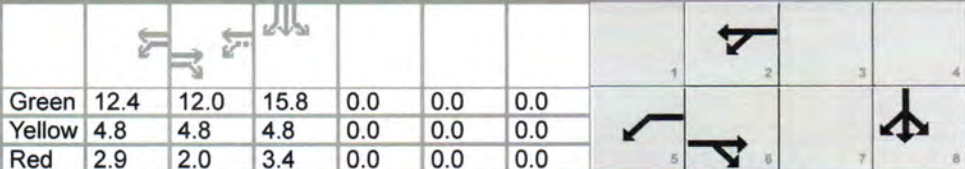
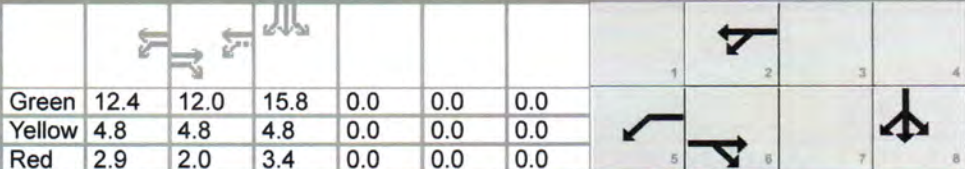
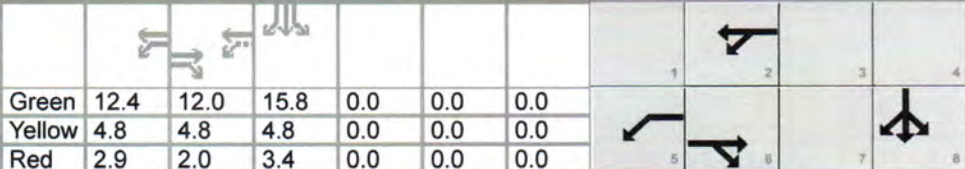
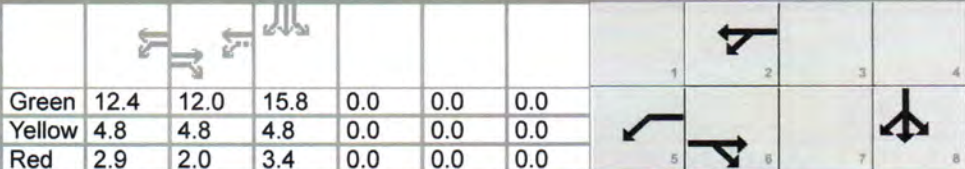
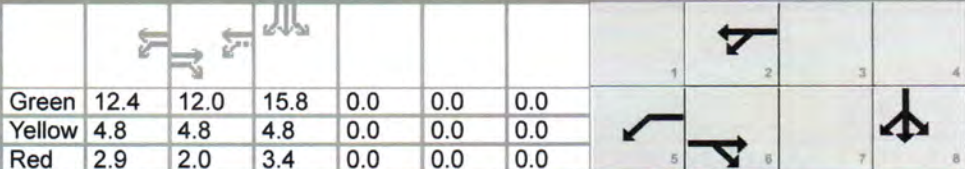
PM PEAK HOUR IS FROM: 4:45 PM TO 5:45 PM
 Volumes 0 0 0 317 0 110 0 269 145 313 487 0 1641
 Season Factor 0 0 0 349 0 121 0 296 160 344 536 0 1805
 Growth 0 0 0 349 0 121 0 296 160 344 536 0 1805
 In/Out - - - - - - - - - - - - -
 Percentage 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 PROJECT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 Seasonal Factor: 1.1
 Trips In
 Trips Out
 Growth Rate: 1
 Years Grown:

Total	0	0	0	349	0	121	0	296	160	344	536	0	1805			
-------	---	---	---	-----	---	-----	---	-----	-----	-----	-----	---	------	--	--	--

HCS7 Signalized Intersection Results Summary

General Information						Intersection Information																						
Agency		O'Rourke Engineering & Planning						Duration, h		0.25																		
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type		Other																		
Jurisdiction		Brevard County		Time Period		AM Peak Hour		PHF		0.92																		
Urban Street		SR-524		Analysis Year		2019		Analysis Period		1> 7:00																		
Intersection		I-95 SB		File Name		C6 - SR-524 & I-95 SB - AM Existing.xus																						
Project Description		Existing																										
Demand Information						EB			WB			NB			SB													
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R											
Demand (v), veh/h							408	314	413	235					407	0	150											
Signal Information																												
Cycle, s	86.7	Reference Phase	2																									
Offset, s	0	Reference Point	End																									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	18.1													21.7	24.1	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.8													4.8	4.8	0.0	0.0	0.0						
				Red	2.9	2.0	3.4	0.0	0.0	0.0																		
Timer Results						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT															
Assigned Phase							6	5	2				8															
Case Number							7.3	1.0	4.0				11.0															
Phase Duration, s							28.5	25.8	54.3				32.3															
Change Period, (Y+R c), s							6.8	7.7	6.8				8.2															
Max Allow Headway (MAH), s							3.0	3.0	3.0				3.1															
Queue Clearance Time (g s), s							19.9	17.2	8.2				22.8															
Green Extension Time (g e), s							1.6	0.8	2.2				1.1															
Phase Call Probability							1.00	1.00	1.00				1.00															
Max Out Probability							0.00	0.00	0.00				0.00															
Movement Group Results						EB			WB			NB			SB													
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R											
Assigned Movement							6	16	5	2				3	8	18												
Adjusted Flow Rate (v), veh/h							443	341	449	255					442	163												
Adjusted Saturation Flow Rate (s), veh/h/ln							1781	1585	1781	1870					1781	1585												
Queue Service Time (g s), s							9.3	17.9	15.2	6.2					20.8	7.2												
Cycle Queue Clearance Time (g c), s							9.3	17.9	15.2	6.2					20.8	7.2												
Green Ratio (g/C)							0.25	0.25	0.48	0.55					0.28	0.28												
Capacity (c), veh/h							895	398	594	1027					497	442												
Volume-to-Capacity Ratio (X)							0.496	0.857	0.756	0.249					0.890	0.369												
Back of Queue (Q), ft/ln (50 th percentile)							94.2	167	139.3	55.8					215.7	64.8												
Back of Queue (Q), veh/ln (50 th percentile)							3.7	6.6	5.5	2.2					8.5	2.5												
Queue Storage Ratio (RQ) (50 th percentile)							0.00	0.00	0.00	0.00					0.00	0.00												
Uniform Delay (d 1), s/veh							27.9	31.1	16.9	10.3					30.2	25.3												
Incremental Delay (d 2), s/veh							0.2	2.1	0.7	0.0					2.3	0.2												
Initial Queue Delay (d 3), s/veh							0.0	0.0	0.0	0.0					0.0	0.0												
Control Delay (d), s/veh							28.1	33.3	17.6	10.3					32.4	25.5												
Level of Service (LOS)							C	C	B	B					C	C												
Approach Delay, s/veh / LOS						30.3	C		15.0	B		0.0			30.5	C												
Intersection Delay, s/veh / LOS						25.2						C																
Multimodal Results						EB			WB			NB			SB													
Pedestrian LOS Score / LOS						1.41	A		1.66	B		2.14	B		2.15	B												
Bicycle LOS Score / LOS						1.14	A		1.65	B					1.49	A												

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information										
Agency		O'Rourke Engineering & Planning					Duration, h		0.25						
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type			Other				
Jurisdiction		Brevard County		Time Period		PM Peak Hour		PHF			0.92				
Urban Street		SR-524		Analysis Year		2019		Analysis Period			1> 7:00				
Intersection		I-95 SB		File Name		C6 - SR-524 & I-95 SB - PM Existing.xus									
Project Description		Existing													
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					296	160	344	536					349	0	121
Signal Information															
Cycle, s	62.9	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	Yes	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
Green	12.4	12.0	15.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.8	4.8	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	2.9	2.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					6	5	2				8				
Case Number					7.3	1.0	4.0				11.0				
Phase Duration, s					18.8	20.1	38.9				24.0				
Change Period, (Y+R), s					6.8	7.7	6.8				8.2				
Max Allow Headway (MAH), s					3.0	3.0	3.0				3.1				
Queue Clearance Time (g_s), s					8.3	11.7	15.9				14.8				
Green Extension Time (g_e), s					2.2	0.7	2.2				1.0				
Phase Call Probability					1.00	1.00	1.00				1.00				
Max Out Probability					0.00	0.00	0.00				0.00				
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					6	16	5	2				3	8	18	
Adjusted Flow Rate (v), veh/h					322	174	374	583					379	132	
Adjusted Saturation Flow Rate (s), veh/h/ln					1781	1585	1781	1870					1781	1585	
Queue Service Time (g_s), s					5.1	6.3	9.7	13.9					12.8	4.3	
Cycle Queue Clearance Time (g_c), s					5.1	6.3	9.7	13.9					12.8	4.3	
Green Ratio (g/C)					0.19	0.19	0.42	0.51					0.25	0.25	
Capacity (c), veh/h					679	302	582	955					447	398	
Volume-to-Capacity Ratio (X)					0.474	0.576	0.642	0.610					0.848	0.330	
Back of Queue (Q), ft/ln (50 th percentile)					48	54	80.4	109.2					122.4	35.3	
Back of Queue (Q), veh/ln (50 th percentile)					1.9	2.1	3.2	4.3					4.8	1.4	
Queue Storage Ratio (RQ) (50 th percentile)					0.00	0.00	0.00	0.00					0.00	0.00	
Uniform Delay (d_1), s/veh					22.7	23.2	14.0	11.0					22.4	19.3	
Incremental Delay (d_2), s/veh					0.2	0.6	0.4	0.2					1.8	0.2	
Initial Queue Delay (d_3), s/veh					0.0	0.0	0.0	0.0					0.0	0.0	
Control Delay (d), s/veh					22.9	23.8	14.5	11.2					24.2	19.4	
Level of Service (LOS)					C	C	B	B					C	B	
Approach Delay, s/veh / LOS				23.2	C		12.5	B		0.0			23.0	C	
Intersection Delay, s/veh / LOS				17.9						B					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				1.40	A		1.65	B		2.13	B		2.14	B	
Bicycle LOS Score / LOS				0.90	A		2.07	B					1.33	A	

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: I-95 SB RAMP
 FILENAME: 4/30/2019
 COUNT DATE: 5/1/2019
 REPORT DATE: 5/1/2019
 DAY: Tuesday
 ANALYSIS YEAR: 2022
 E/W STREET: SR-524
 CITY: Cocoa
 INTERSECTION:
 CONTROL: TWSC

15 Min Period	Northbound			Southbound				Eastbound			Westbound				ONE HOUR SUM	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL			
7:00-7:15	0	0	0	127	0	22	0	78	48	81	26	0	382	1674		
7:15-7:30	0	0	0	129	0	21	0	64	62	104	29	0	409	1743		
7:30-7:45	0	0	0	91	0	42	0	105	74	91	44	0	447	1751		
7:45-8:00	0	0	0	74	0	19	0	108	77	106	52	0	436	1640		
8:00-8:15	0	0	0	99	0	45	0	80	67	100	60	0	451	1501		
8:15-8:30	0	0	0	106	0	30	0	78	67	78	58	0	417			
8:30-8:45	0	0	0	75	0	13	0	63	54	84	47	0	336			
8:45-9:00	0	0	0	69	0	10	0	57	48	77	36	0	297			

157

0

428

↙

↘

↖

↗

0

429

330

↖

↗

↙

↘

AM

↖

↗

↙

↘

← 405

→ 759

← 682

→ 857

↖

↗

↙

↘

AM PEAK HOUR IS FROM: 7:30 AM TO 8:30 AM
 Volumes 0 0 0 370 0 136 0 371 285 375 214 0 1751
 Season Factor 0 0 0 407 0 150 0 408 314 413 235 0 1926
 Growth 0 0 0 428 0 157 0 429 330 434 248 0 2026
 In/Out - - - - - - - - - - - - -
 Percentage 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 PROJECT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Seasonal Factor: 1.1
 Trips In
 Trips Out
 Growth Rate: 1.017
 Years Grown: 3

C-8

15 Min Period lanes	Northbound			Southbound				Eastbound			Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM
4:00-4:15	0	0	0	92	0	30	0	60	29	69	107	0	387	1560
4:15-4:30	0	0	0	62	0	50	0	66	28	86	107	0	399	1562
4:30-4:45	0	0	0	92	0	31	0	58	26	55	93	0	355	1595
4:45-5:00	0	0	0	88	0	25	0	76	38	76	116	0	419	1641
5:00-5:15	0	0	0	65	0	27	0	69	31	71	126	0	389	1614
5:15-5:30	0	0	0	78	0	37	0	67	36	90	124	0	432	
5:30-5:45	0	0	0	86	0	21	0	57	40	76	121	0	401	
5:45-6:00	0	0	0	98	0	17	0	66	27	88	96	0	392	

← 691

0

→

← 926

0

→

← 563

PM

→ 362

← 678

→

127

0

367

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

←

→

0

0

0

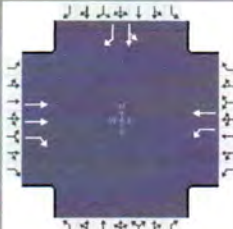
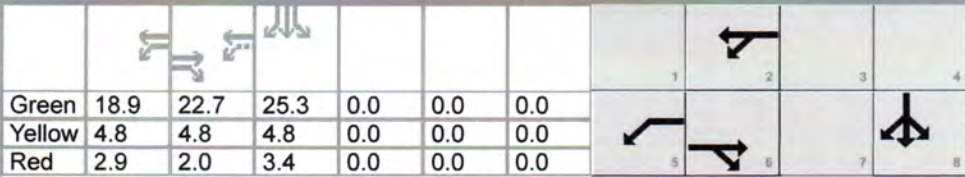
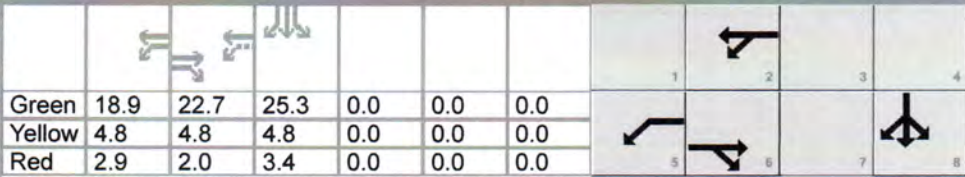
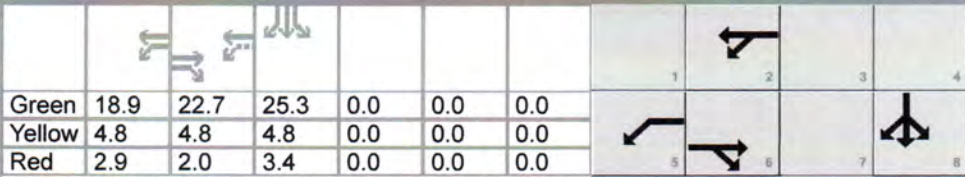
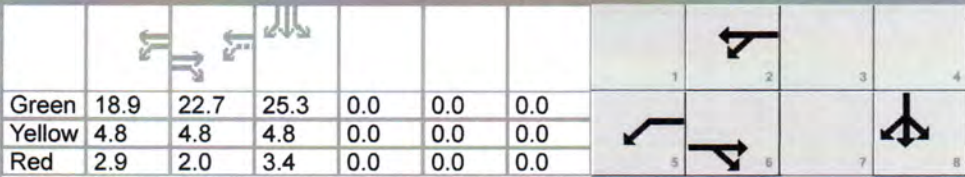
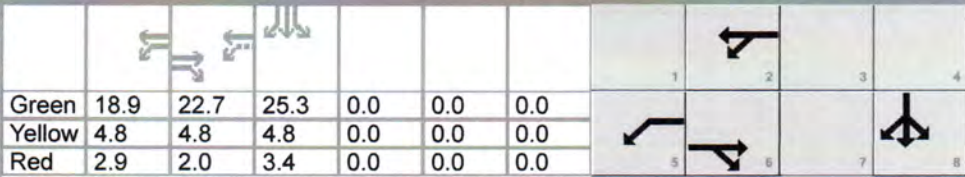
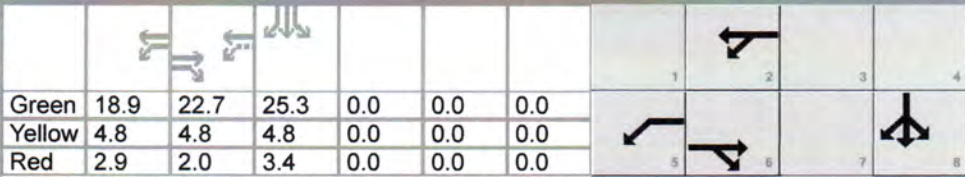
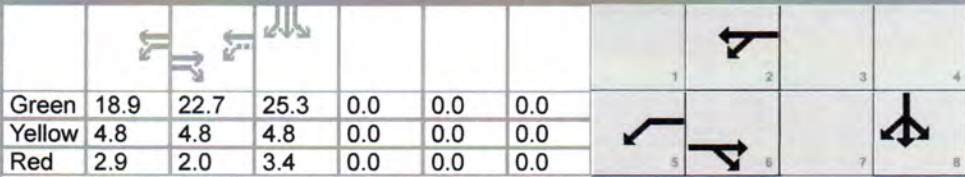
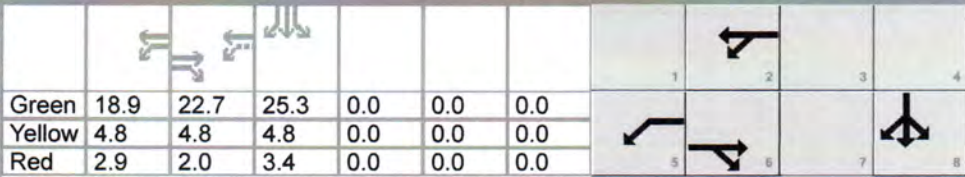
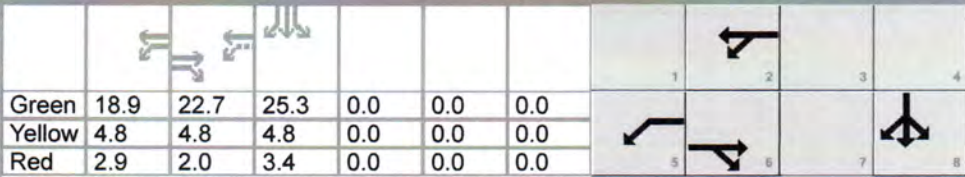
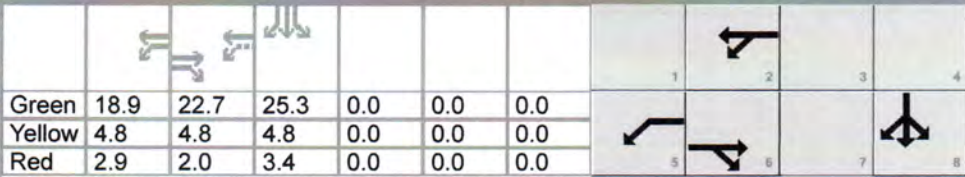
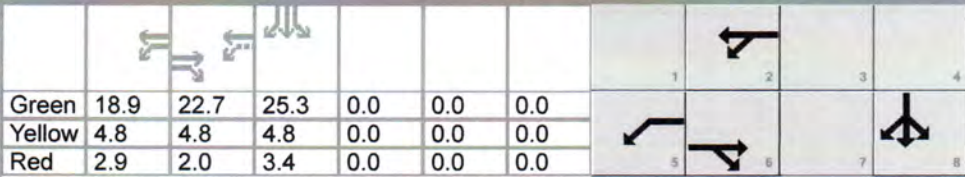
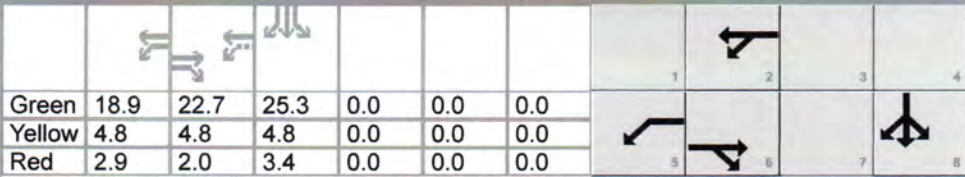
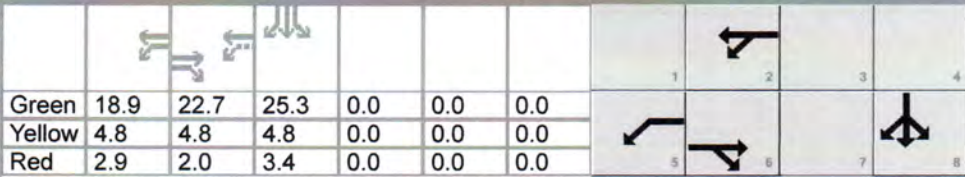
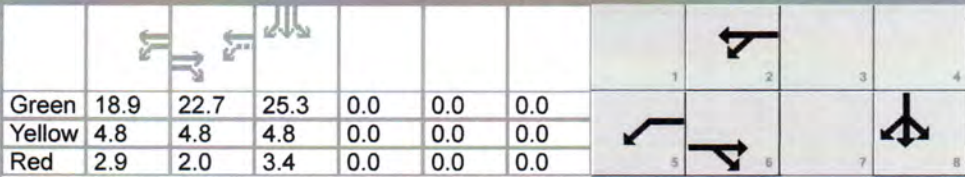
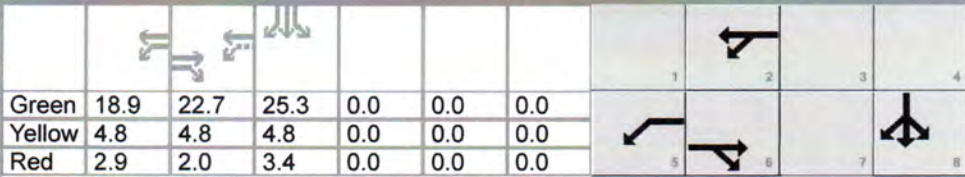
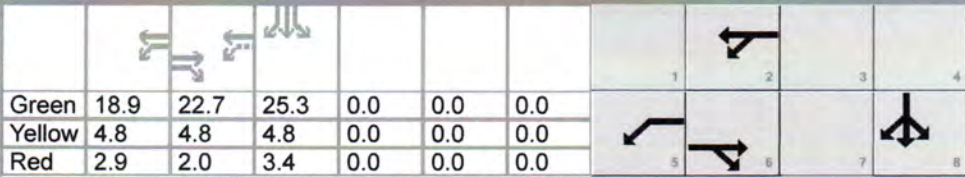
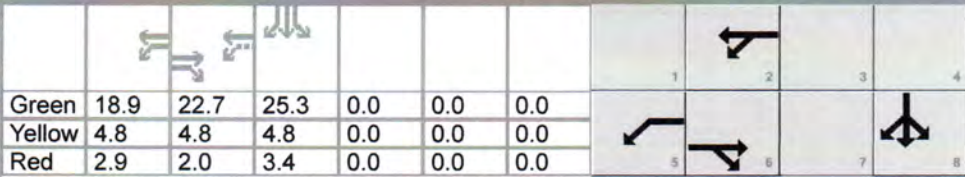
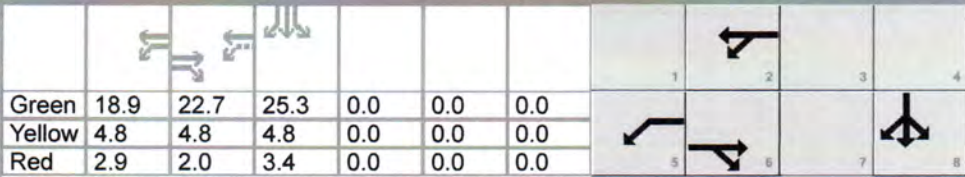
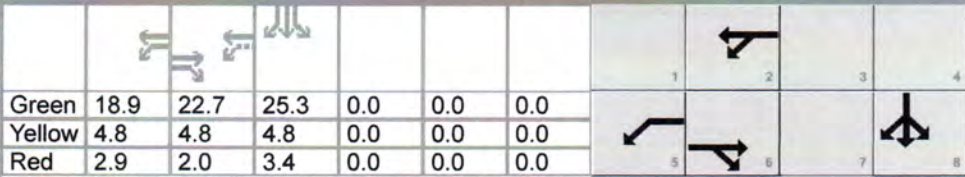
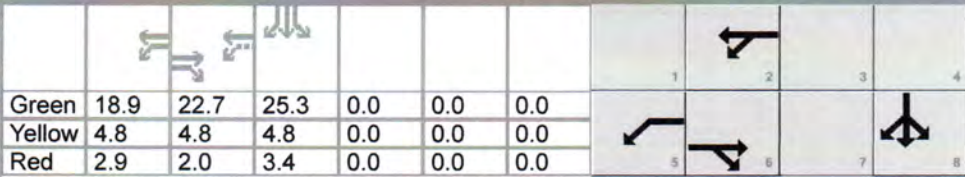
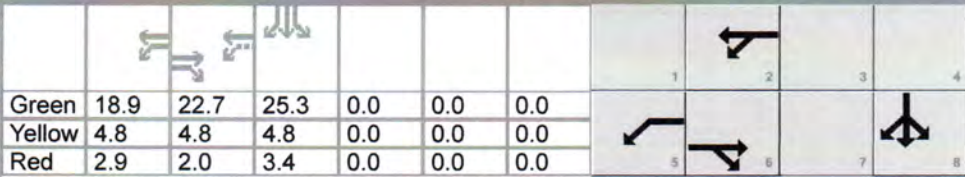
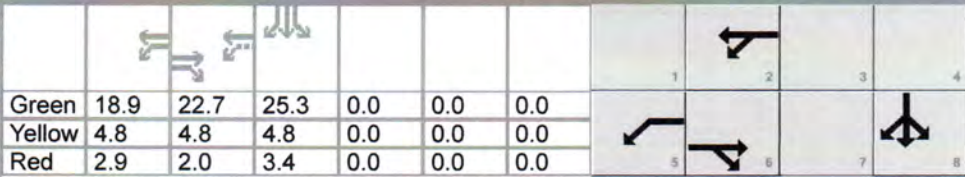
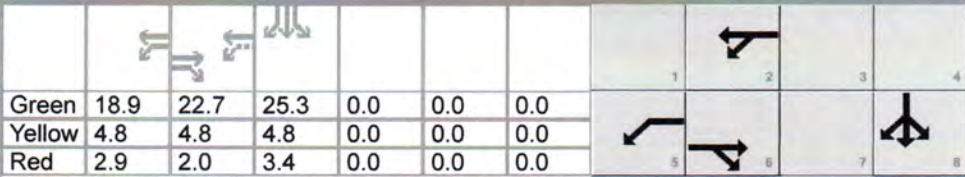
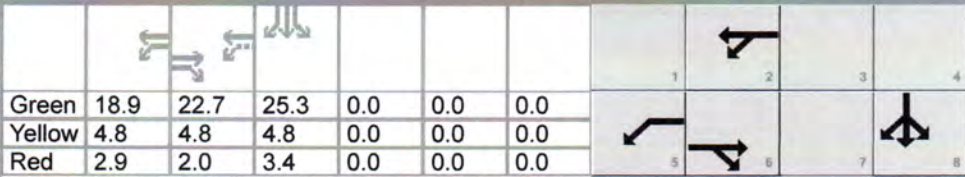
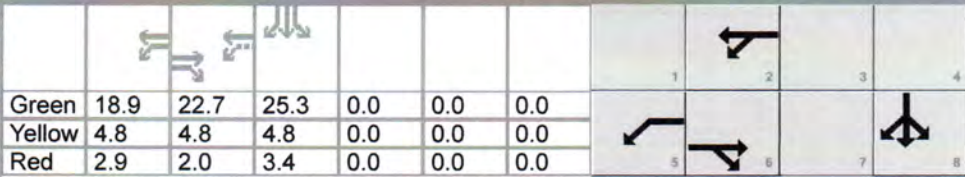
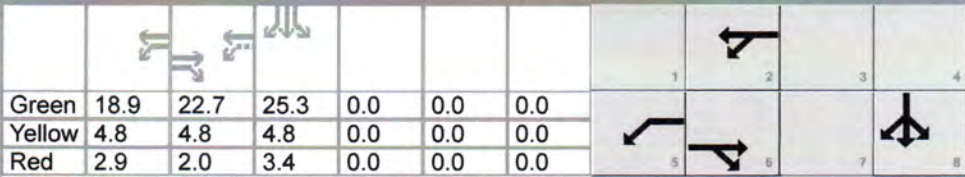
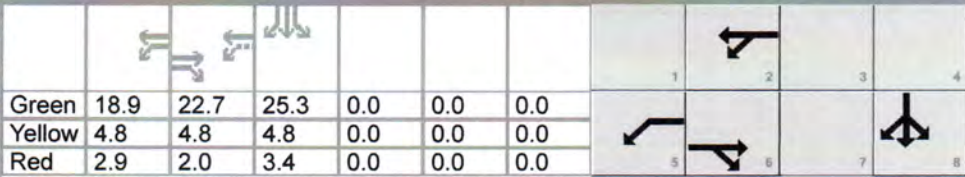
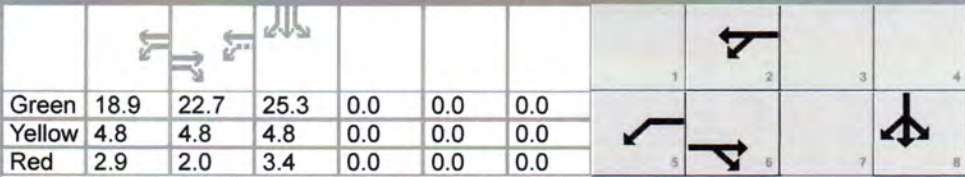
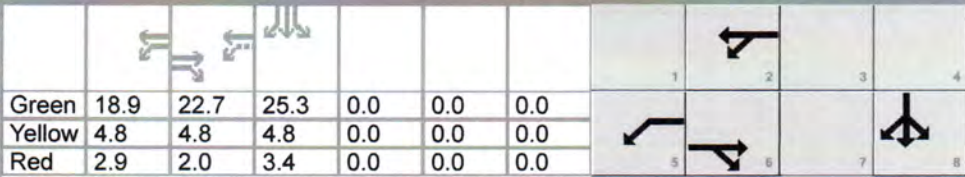
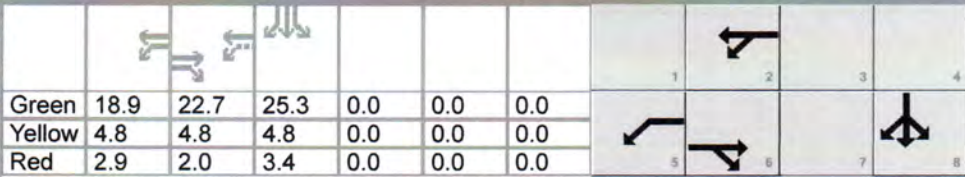
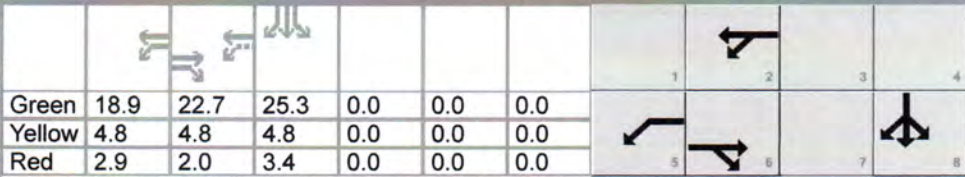
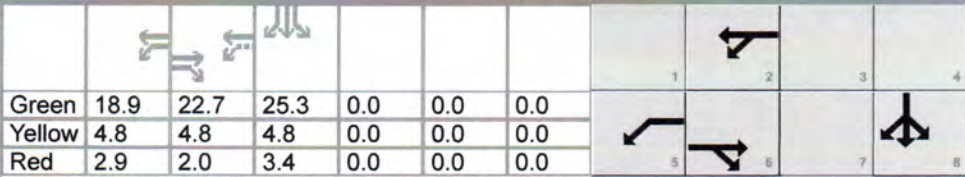
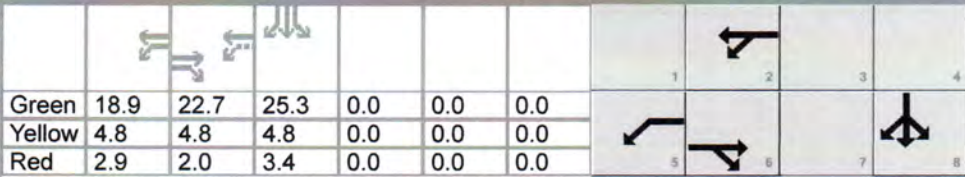
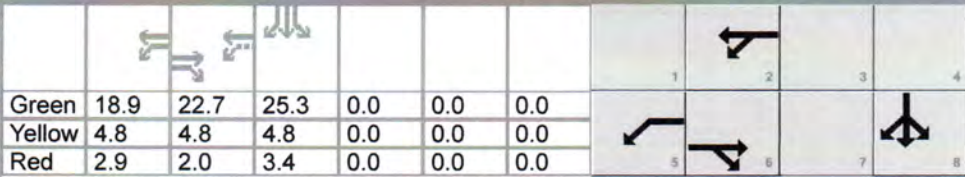
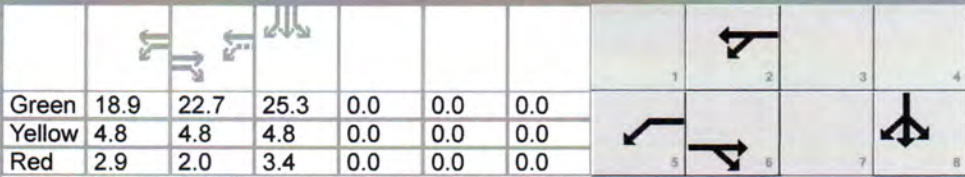
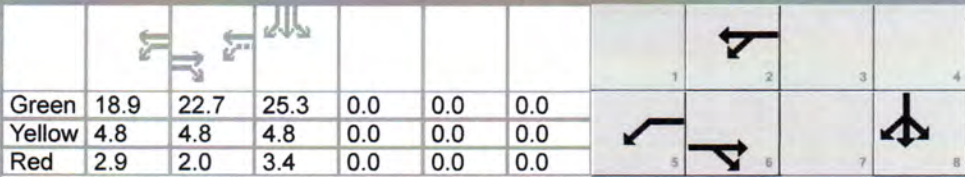
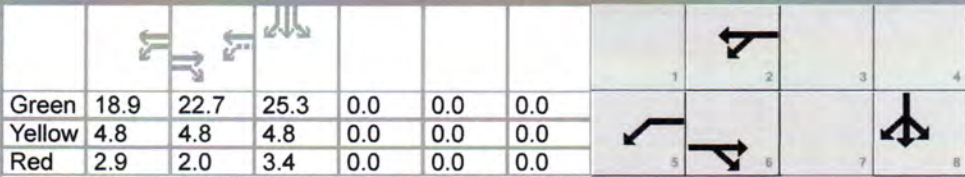
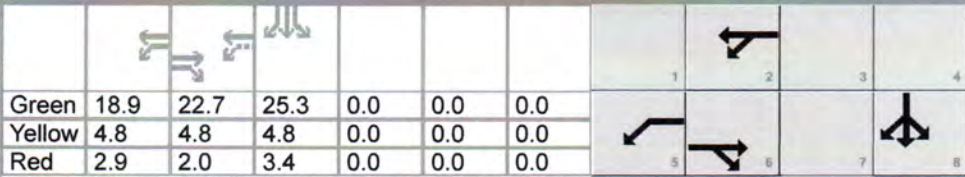
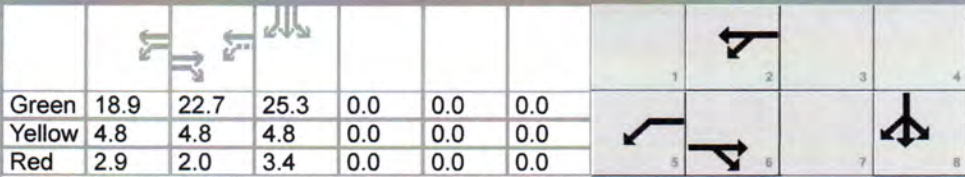
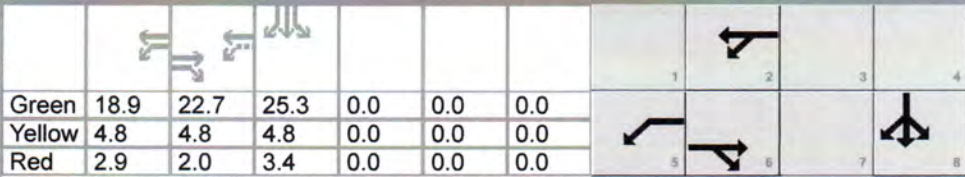
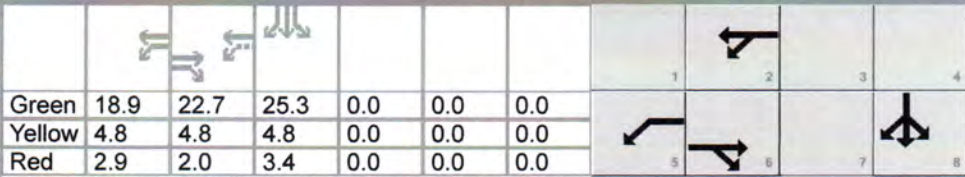
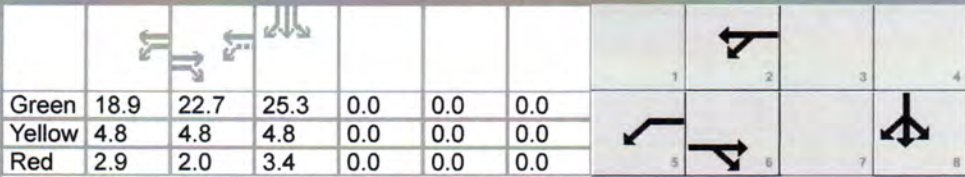
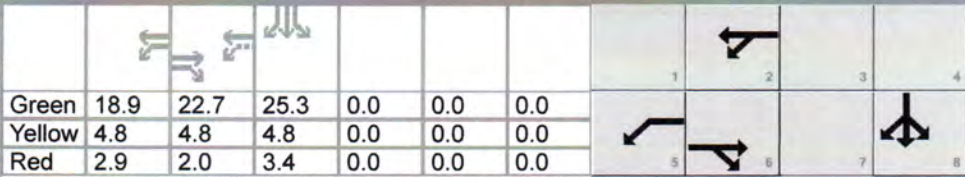
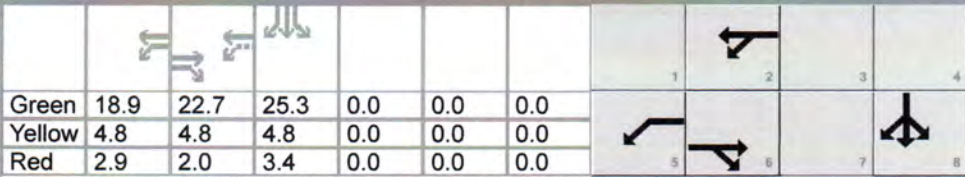
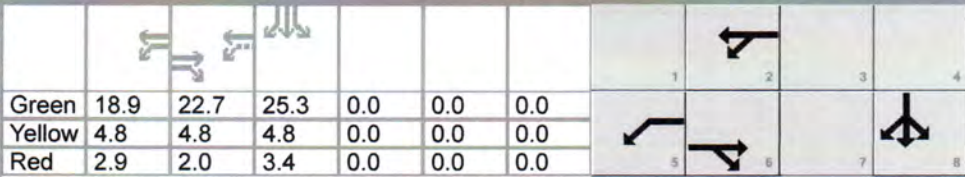
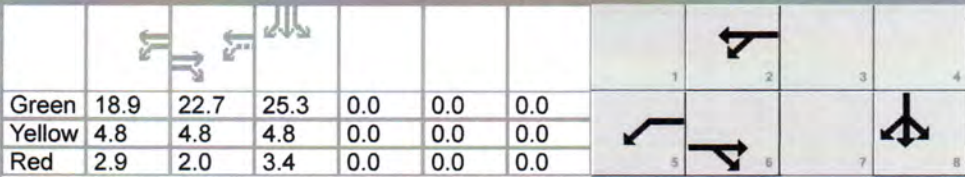
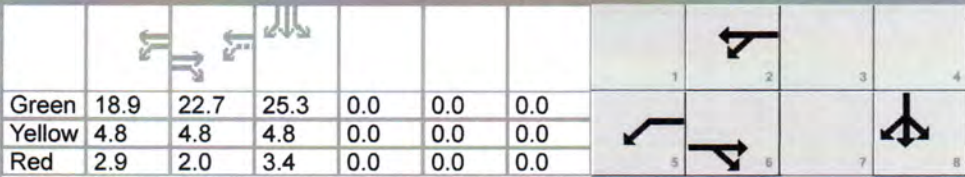
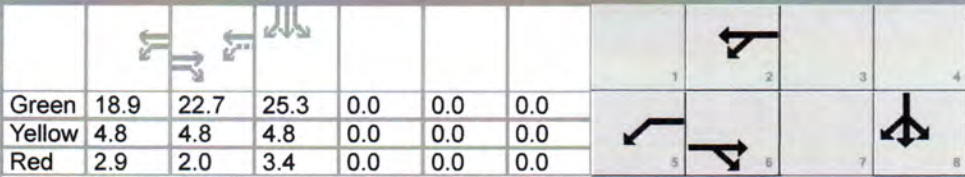
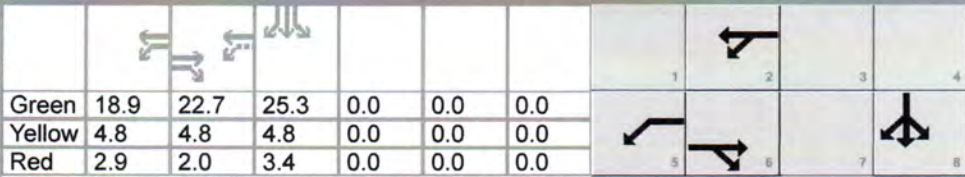
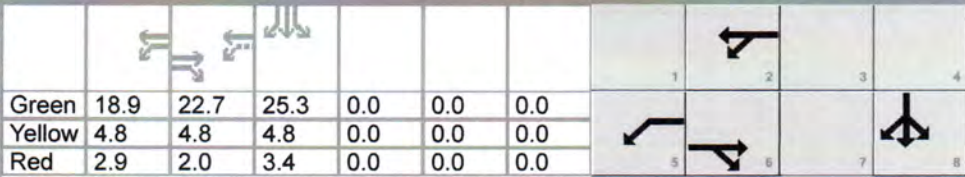
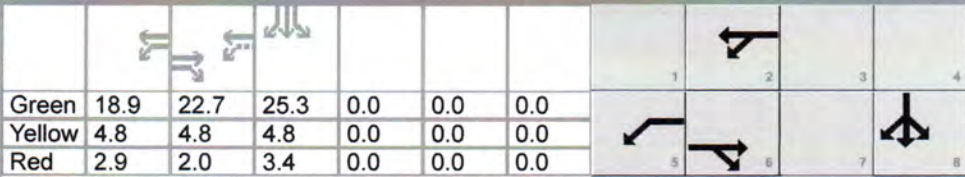
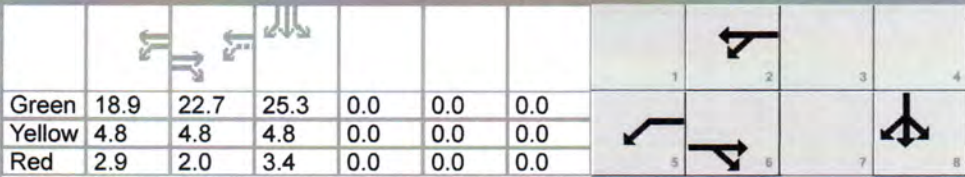
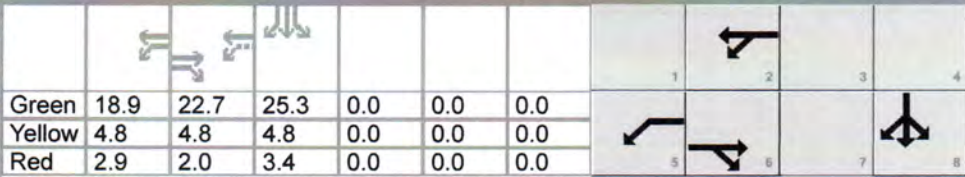
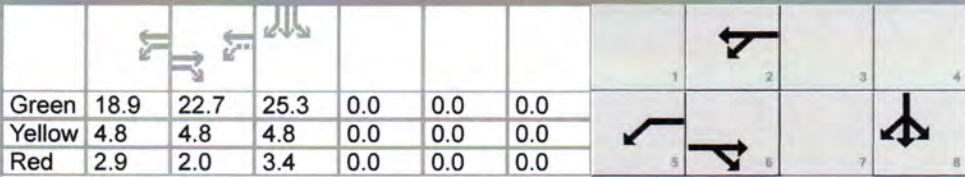
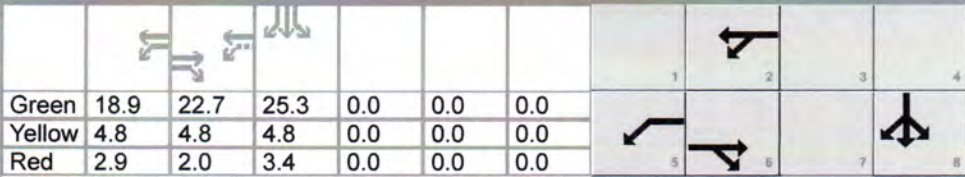
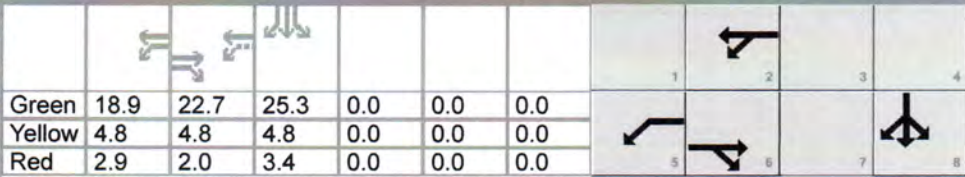
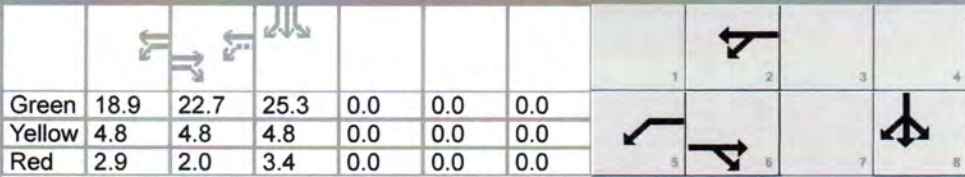
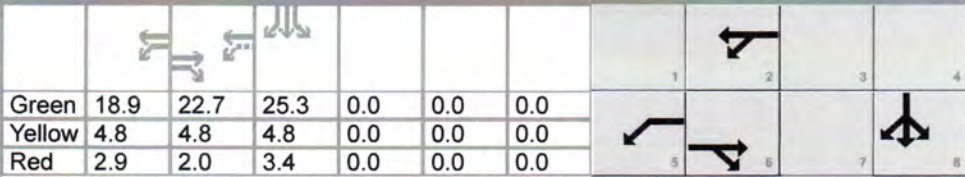
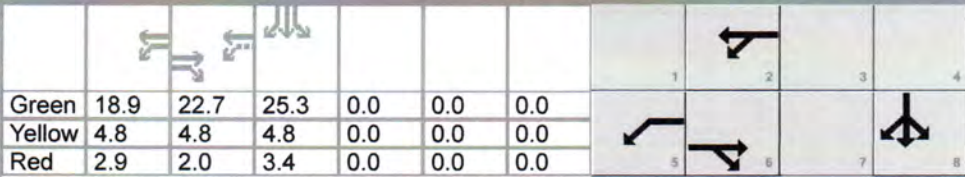
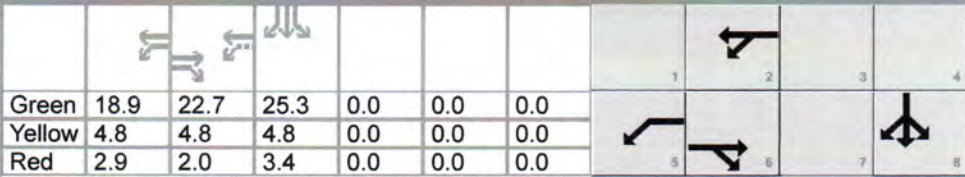
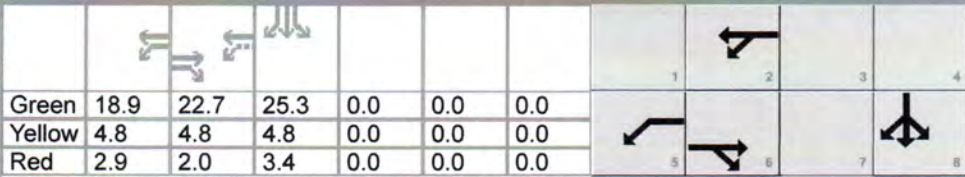
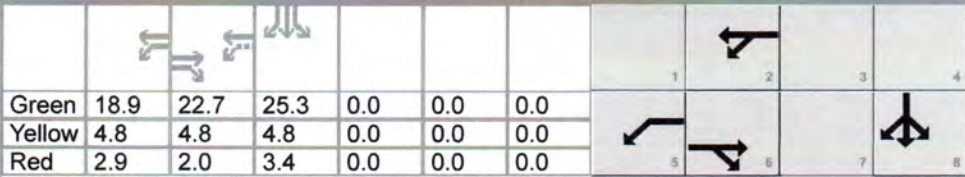
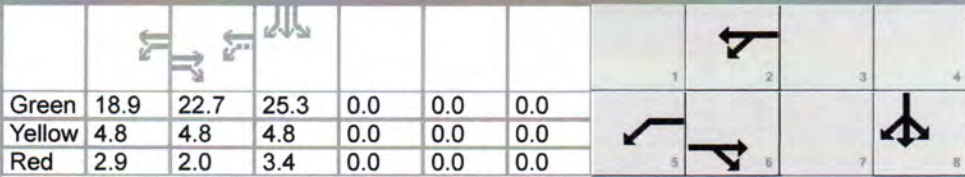
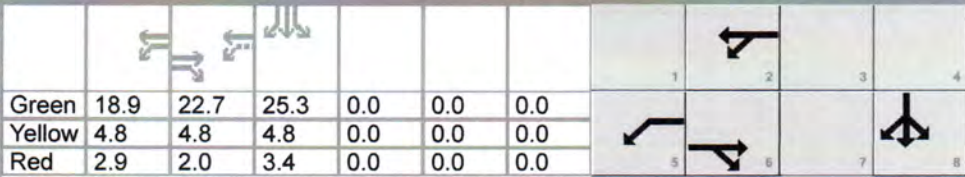
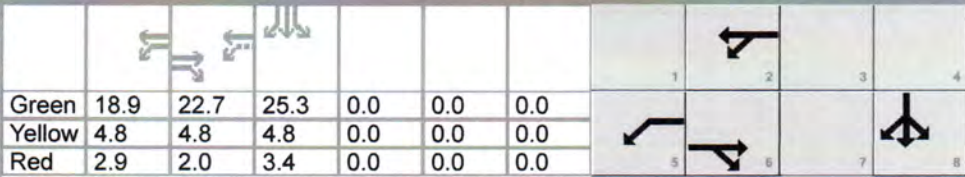
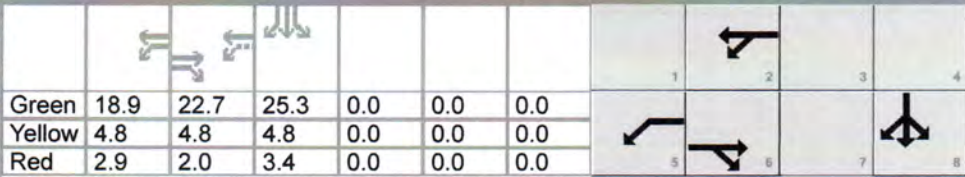
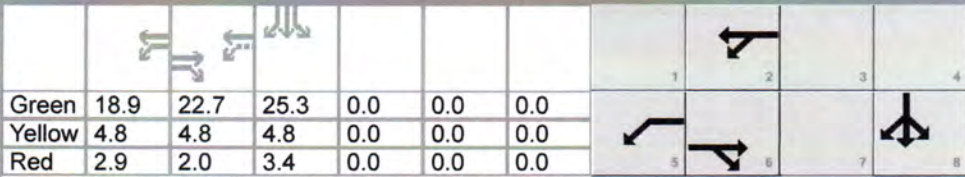
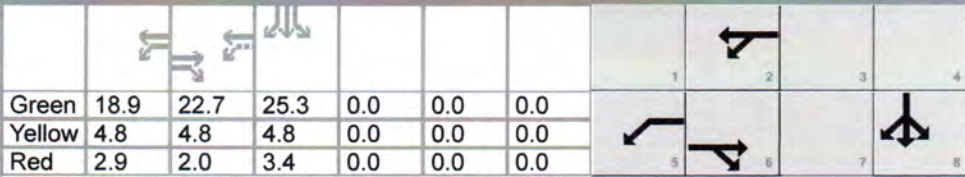
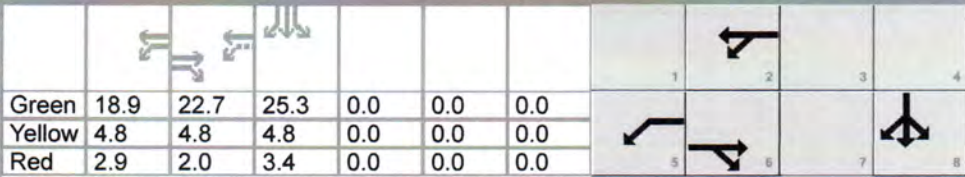
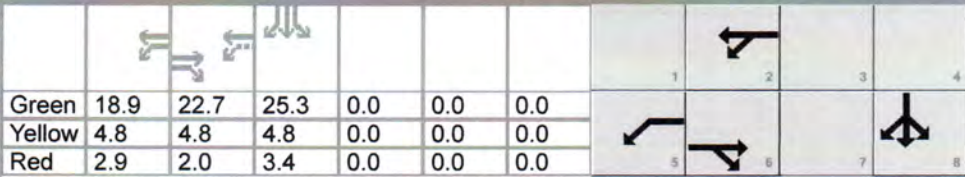
←

PM PEAK HOUR IS FROM: 4:45 PM TO 5:45 PM
 Volumes 0 0 0 317 0 110 0 269 145 313 487 0 1641
 Season Factor 0 0 0 349 0 121 0 296 160 344 536 0 1805
 Growth 0 0 0 367 0 127 0 311 168 362 563 0 1899
 In/Out - - - - - - - - - - - - -
 Percentage 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 PROJECT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Seasonal Factor: 1.1
 Trips In
 Trips Out
 Growth Rate: 1.017
 Years Grown: 3

Total	0	0	0	367	0	127	0	311	168	362	563	0	1899
-------	---	---	---	-----	---	-----	---	-----	-----	-----	-----	---	------

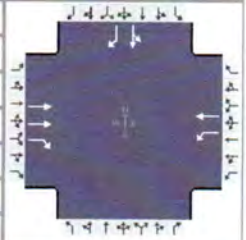
HCS7 Signalized Intersection Results Summary

General Information						Intersection Information																																																																				
Agency		O'Rourke Engineering & Planning				Duration, h		0.25																																																																		
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type		Other																																																																
Jurisdiction		Brevard County		Time Period		AM Peak Hour		PHF		0.95																																																																
Urban Street		SR-524		Analysis Year		2022		Analysis Period		1> 7:00																																																																
Intersection		I-95 SB		File Name		C6 - SR-524 & I-95 SB - AM 2022 Background.xus																																																																				
Project Description		2022 Background																																																																								
Demand Information				EB			WB			NB			SB																																																													
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R																																																											
Demand (v), veh/h					429	330	434	248					428	0	157																																																											
Signal Information																																																																										

HCS7 Signalized Intersection Results Summary

General Information

Agency	O'Rourke Engineering & Planning			Duration, h	0.25
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	Other
Jurisdiction	Brevard County	Time Period	PM Peak Hour	PHF	0.95
Urban Street	SR-524	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	I-95 SB	File Name	C6 - SR-524 & I-95 SB - PM 2022 Background.xus		
Project Description	2022 Background				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		311	168	362	563					367	0	127

Signal Information

Cycle, s	63.7	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	12.8	12.0	16.2	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.8	4.8	4.8	0.0	0.0	0.0		
				Red	2.9	2.0	3.4	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2				8
Case Number		7.3	1.0	4.0				11.0
Phase Duration, s		18.8	20.5	39.3				24.4
Change Period, (Y+R _c), s		6.8	7.7	6.8				8.2
Max Allow Headway (MAH), s		3.0	3.0	3.0				3.1
Queue Clearance Time (g _s), s		8.5	12.1	16.5				15.2
Green Extension Time (g _e), s		2.2	0.7	2.2				1.0
Phase Call Probability		1.00	1.00	1.00				1.00
Max Out Probability		0.00	0.00	0.00				0.00

Movement Group Results

Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2					3	8	18
Adjusted Flow Rate (v), veh/h		327	177	381	593						386	134
Adjusted Saturation Flow Rate (s), veh/h/ln		1781	1585	1781	1870						1781	1585
Queue Service Time (g_s), s		5.2	6.5	10.1	14.5						13.2	4.4
Cycle Queue Clearance Time (g_c), s		5.2	6.5	10.1	14.5						13.2	4.4
Green Ratio (g/C)		0.19	0.19	0.42	0.51						0.25	0.25
Capacity (c), veh/h		670	298	582	954						454	404
Volume-to-Capacity Ratio (X)		0.488	0.593	0.655	0.621						0.851	0.331
Back of Queue (Q), ft/ln (50 th percentile)		50	56.1	83.9	114.5						126.7	36.3
Back of Queue (Q), veh/ln (50 th percentile)		2.0	2.2	3.3	4.5						5.0	1.4
Queue Storage Ratio (RQ) (50 th percentile)		0.00	0.00	0.00	0.00						0.00	0.00
Uniform Delay (d_1), s/veh		23.1	23.7	14.3	11.2						22.6	19.3
Incremental Delay (d_2), s/veh		0.2	0.7	0.5	0.2						1.8	0.2
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0						0.0	0.0
Control Delay (d), s/veh		23.4	24.4	14.7	11.5						24.4	19.5
Level of Service (LOS)		C	C	B	B						C	B
Approach Delay, s/veh / LOS	23.7	C		12.7	B		0.0			23.1	C	
Intersection Delay, s/veh / LOS	18.2						B					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.40	A		1.65	B		2.13	B		2.14	B	
Bicycle LOS Score / LOS	0.90	A		2.09	B					1.35	A	

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: I-95 SB Ramp		E/W STREET: SR-524		CONTROL: TWSC										
FILENAME: 4/30/2019		CITY: Cocoa		INTERSECTION:										
COUNT DATE: 5/1/2019		DAY: Tuesday		ANALYSIS YEAR: 2022										
REPORT DATE:														
15 Min Period	Northbound			Southbound			Eastbound			Westbound				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM
	0	0	0	127	0	22	0	78	48	81	26	0	382	1674
	0	0	0	129	0	21	0	64	62	104	29	0	409	1743
	0	0	0	91	0	42	0	105	74	91	44	0	447	1751
	0	0	0	74	0	19	0	108	77	106	52	0	436	1640
	0	0	0	99	0	45	0	80	67	100	60	0	451	1501
	0	0	0	106	0	30	0	78	67	78	58	0	417	
	0	0	0	75	0	13	0	63	54	84	47	0	336	
	0	0	0	69	0	10	0	57	48	77	36	0	297	
7:00-7:15														
7:15-7:30														
7:30-7:45														
7:45-8:00														
8:00-8:15														
8:15-8:30														
8:30-8:45														
8:45-9:00														

AM PEAK HOUR IS FROM: 7:30 AM TO 8:30AM													
Volumes	0	0	0	370	0	136	0	371	285	375	214	0	1751
Season Factor	0	0	0	407	0	150	0	408	314	413	235	0	1926
Growth	0	0	0	428	0	157	0	429	330	434	248	0	2026
In/Out	-	-	-	IN	-	-	-	IN	-	OUT	OUT	-	-
Percentage	0%	0%	0%	4%	0%	0%	0%	3%	0%	11%	3%	0%	0%
PROJECT	0	0	0	2	0	0	0	1	0	18	5	0	0
Seasonal Factor: 1.1													
Trips In 49													
Trips Out 166													
Growth Rate: 1.017													
Years Grown: 3													

Seasonal Factor: 1.1
Trips In: 49
Trips Out: 166
Growth Rate: 1.017
Years Grown: 3

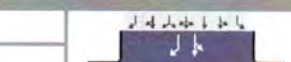
Total	0	0	0	430	0	157	0	431	330	452	253	0	2053
-------	---	---	---	-----	---	-----	---	-----	-----	-----	-----	---	------

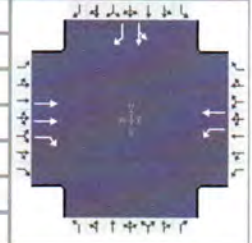
15 Min period lanes	Northbound				Southbound				Eastbound				Westbound						
	NBL	NBT	NBR		SBL	SBT	SBR		EBL	EBT	EBR		WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
	0	0	0	0	92	0	30	0	0	60	29	69	107	0	387	1560			
	0	0	0	0	62	0	50	0	0	66	28	86	107	0	399	1562			
	0	0	0	0	92	0	31	0	0	58	26	55	93	0	355	1595			
	0	0	0	0	88	0	25	0	0	76	38	76	116	0	419	1641			
	0	0	0	0	65	0	27	0	0	69	31	71	126	0	389	1614			
	0	0	0	0	78	0	37	0	0	67	36	90	124	0	432				
	0	0	0	0	86	0	21	0	0	57	40	76	121	0	401				
	0	0	0	0	98	0	17	0	0	66	27	88	96	0	392				
	4:00-4:15																		
	4:15-4:30																		
	4:30-4:45																		
	4:45-5:00																		
	5:00-5:15																		
5:15-5:30																			
5:30-5:45																			
5:45-6:00																			
PM																			

Seasonal Factor: 1.1
Trips In: 152
Trips Out: 90
Growth Rate: 1.017
Years Grown: 3

Total	0	0	0	373	0	127	0	316	168	372	566	0	1922
-------	---	---	---	-----	---	-----	---	-----	-----	-----	-----	---	------

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	O'Rourke Engineering & Planning			Duration, h	0.25	
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	Other	
Jurisdiction	Brevard County	Time Period	AM Peak Hour	PHF	0.95	
Urban Street	SR-524	Analysis Year	2022	Analysis Period	1> 7:00	
Intersection	I-95 SB	File Name	C6 - SR-524 & I-95 SB - AM 2022 with Project.xus			
Project Description	2022 with Project					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		431	330	452	253					430	0	157

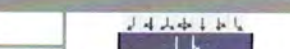
Signal Information											
Cycle, s	92.2	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	20.1	23.3	26.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.8	4.8	4.8	0.0	0.0	0.0	
				Red	2.9	2.0	3.4	0.0	0.0	0.0	

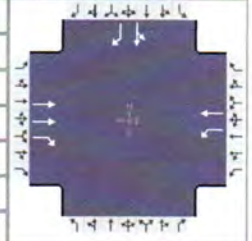
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2				8
Case Number		7.3	1.0	4.0				11.0
Phase Duration, s		30.1	27.8	57.9				34.2
Change Period, (Y+R _c), s		6.8	7.7	6.8				8.2
Max Allow Headway (MAH), s		3.0	3.0	3.0				3.1
Queue Clearance Time (g _s), s		21.4	19.1	8.9				24.7
Green Extension Time (g _e), s		1.7	0.9	2.2				1.2
Phase Call Probability		1.00	1.00	1.00				1.00
Max Out Probability		0.00	0.00	0.00				0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2					3	8	18
Adjusted Flow Rate (v), veh/h		454	347	476	266						453	165
Adjusted Saturation Flow Rate (s), veh/h/ln		1781	1585	1781	1870						1781	1585
Queue Service Time (g_s), s		10.1	19.4	17.1	6.9						22.7	7.7
Cycle Queue Clearance Time (g_c), s		10.1	19.4	17.1	6.9						22.7	7.7
Green Ratio (g/C)		0.25	0.25	0.50	0.55						0.28	0.28
Capacity (c), veh/h		902	401	604	1038						504	449
Volume-to-Capacity Ratio (X)		0.503	0.865	0.788	0.256						0.898	0.368
Back of Queue (Q), ft/ln (50 th percentile)		103.9	183.3	159.8	62.5						242.7	70.4
Back of Queue (Q), veh/ln (50 th percentile)		4.1	7.2	6.3	2.5						9.6	2.8
Queue Storage Ratio (RQ) (50 th percentile)		0.00	0.00	0.00	0.00						0.00	0.00
Uniform Delay (d_1), s/veh		29.6	33.1	17.8	10.7						32.0	26.6
Incremental Delay (d_2), s/veh		0.2	2.2	0.9	0.0						3.6	0.2
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0						0.0	0.0
Control Delay (d), s/veh		29.8	35.3	18.7	10.7						35.6	26.8
Level of Service (LOS)		C	D	B	B						D	C
Approach Delay, s/veh / LOS	32.2	C		15.8	B		0.0			33.2	C	
Intersection Delay, s/veh / LOS	26.9						C					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.41	A		1.66	B		2.15	B		2.15	B	
Bicycle LOS Score / LOS	1.15	A		1.71	B					1.51	B	

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	O'Rourke Engineering & Planning			Duration, h	0.25	
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	Other	
Jurisdiction	Brevard County	Time Period	PM Peak Hour	PHF	0.95	
Urban Street	SR-524	Analysis Year	2022	Analysis Period	1> 7:00	
Intersection	I-95 SB	File Name	C6 - SR-524 & I-95 SB - PM 2022 with Project.xus			
Project Description	2022 with Project					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		316	168	372	566					373	0	127

Signal Information											
Cycle, s	64.6	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	13.3	12.0	16.6	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.8	4.8	4.8	0.0	0.0	0.0	
				Red	2.9	2.0	3.4	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2				8
Case Number		7.3	1.0	4.0				11.0
Phase Duration, s		18.8	21.0	39.8				24.8
Change Period, (Y+R _c), s		6.8	7.7	6.8				8.2
Max Allow Headway (MAH), s		3.0	3.0	3.0				3.1
Queue Clearance Time (g _s), s		8.6	12.5	16.8				15.6
Green Extension Time (g _e), s		2.2	0.7	2.2				1.0
Phase Call Probability		1.00	1.00	1.00				1.00
Max Out Probability		0.00	0.00	0.00				0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		6	16	5	2					3	8	18
Adjusted Flow Rate (v), veh/h		333	177	392	596						393	134
Adjusted Saturation Flow Rate (s), veh/h/ln		1781	1585	1781	1870						1781	1585
Queue Service Time (g_s), s		5.4	6.6	10.5	14.8						13.6	4.4
Cycle Queue Clearance Time (g_c), s		5.4	6.6	10.5	14.8						13.6	4.4
Green Ratio (g/C)		0.19	0.19	0.42	0.51						0.26	0.26
Capacity (c), veh/h		660	294	584	955						459	409
Volume-to-Capacity Ratio (X)		0.504	0.602	0.671	0.624						0.855	0.327
Back of Queue (Q), ft/ln (50 th percentile)		52.1	57.6	88.3	117.7						130.8	36.7
Back of Queue (Q), veh/ln (50 th percentile)		2.1	2.3	3.5	4.6						5.1	1.4
Queue Storage Ratio (RQ) (50 th percentile)		0.00	0.00	0.00	0.00						0.00	0.00
Uniform Delay (d_1), s/veh		23.7	24.2	14.5	11.4						22.9	19.5
Incremental Delay (d_2), s/veh		0.2	0.7	0.5	0.3						1.8	0.2
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0						0.0	0.0
Control Delay (d), s/veh		23.9	24.9	15.0	11.6						24.7	19.6
Level of Service (LOS)		C	C	B	B						C	B
Approach Delay, s/veh / LOS	24.3	C		13.0	B		0.0			23.4	C	
Intersection Delay, s/veh / LOS	18.5						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.40	A		1.65	B		2.13	B		2.14	B	
Bicycle LOS Score / LOS	0.91	A		2.12	B					1.36	A	

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: I-95 NB Ramp
 FILENAME: SR-524
 COUNT DATE: 4/30/2019
 REPORT DATE: 5/1/2019

E/W STREET: SR-524
 CITY: Cocoa
 INTERSECTION:

CONTROL: TWSC

15 Min Period	Northbound				Southbound				Eastbound				Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	WBL	WBT	WBR	
7:00-7:15	14	0	50	0	0	0	36	142	0	0	93	27	362	0	0	0	1614
7:15-7:30	8	0	56	0	0	0	25	132	0	0	110	26	357	0	0	0	1713
7:30-7:45	22	0	74	0	0	0	33	168	0	0	130	20	447	0	0	0	1741
7:45-8:00	25	0	71	0	0	0	22	160	0	0	133	37	448	0	0	0	1648
8:00-8:15	22	0	72	0	0	0	27	152	0	0	138	50	461	0	0	0	1547
8:15-8:30	16	0	46	0	0	0	25	159	0	0	120	19	385	0	0	0	354
8:30-8:45	28	0	50	0	0	0	30	108	0	0	103	35	354	0	0	0	347
8:45-9:00	18	0	43	0	0	0	21	126	0	0	113	26	347	0	0	0	347

AM PEAK HOUR IS FROM: 7:30 AM TO 8:30 AM

Volumes: 85 0 263 0 0 0 107 639 0 0 521 126 1741
 Season Factor: 1.1
 Growth: 94 0 289 0 0 0 118 703 0 0 573 139 1915
 In/Out: - - - - -
 Percentage: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 PROJECT: 0 0 0 0 0 0 0 0 0 0 0 0 0

Total 94 0 289 0 0 0 118 703 0 0 573 139 1916

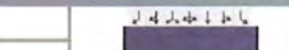
15 Min Period	Northbound				Southbound				Eastbound				Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	WBL	WBT	WBR	
4:00-4:15	36	0	54	0	0	0	12	140	0	0	140	35	417	0	0	0	1695
4:15-4:30	42	0	50	0	0	0	17	111	0	0	151	46	417	0	0	0	1696
4:30-4:45	34	0	82	0	0	0	17	133	0	0	114	21	401	0	0	0	1763
4:45-5:00	39	0	70	0	0	0	15	149	0	0	153	34	460	0	0	0	1799
5:00-5:15	52	0	55	0	0	0	18	116	0	0	145	32	418	0	0	0	1766
5:15-5:30	52	0	90	0	0	0	18	127	0	0	162	35	484	0	0	0	484
5:30-5:45	39	0	76	0	0	0	13	130	0	0	158	21	437	0	0	0	437
5:45-6:00	31	0	55	0	0	0	18	146	0	0	153	24	427	0	0	0	427

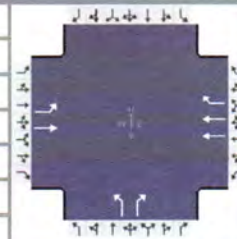
PM PEAK HOUR IS FROM: 4:45 PM TO 5:45 PM

Volumes: 182 0 291 0 0 0 64 522 0 0 618 122 1799
 Season Factor: 1.1
 Growth: 200 0 320 0 0 0 70 574 0 0 680 134 1979
 In/Out: - - - - -
 Percentage: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 PROJECT: 0 0 0 0 0 0 0 0 0 0 0 0 0

Total 200 0 320 0 0 0 70 574 0 0 680 134 1979

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	O'Rourke Engineering & Planning			Duration, h	0.25	
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	Other	
Jurisdiction	Brevard County	Time Period	AM Peak Hour	PHF	0.92	
Urban Street	SR-524	Analysis Year	2019	Analysis Period	1> 7:00	
Intersection	I-95 NB Ramp	File Name	C6 - SR-524 & I-95 NB - AM Existing.xus			
Project Description	Existing					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	118	703			573	139	94		289			

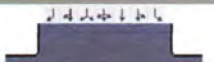
Signal Information											
Cycle, s	51.4	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								

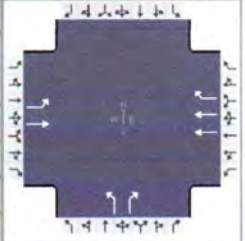
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2		4		
Case Number	1.0	4.0		7.3		9.0		
Phase Duration, s	11.6	32.6		21.0		18.8		
Change Period, (Y+R _c), s	7.4	7.4		7.4		6.3		
Max Allow Headway (MAH), s	3.0	3.0		3.0		3.2		
Queue Clearance Time (g _s), s	4.5	20.2		10.0		11.6		
Green Extension Time (g _e), s	0.2	3.4		3.5		0.8		
Phase Call Probability	0.84	1.00		1.00		1.00		
Max Out Probability	0.00	0.01		0.00		0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6			2	12	7		14			
Adjusted Flow Rate (v), veh/h	128	764			623	151	102		314			
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870			1781	1585	1781		1585			
Queue Service Time (g _s), s	2.5	18.2			8.0	4.0	2.4		9.6			
Cycle Queue Clearance Time (g _c), s	2.5	18.2			8.0	4.0	2.4		9.6			
Green Ratio (g/C)	0.39	0.49			0.26	0.26	0.24		0.24			
Capacity (c), veh/h	374	917			942	419	435		387			
Volume-to-Capacity Ratio (X)	0.343	0.834			0.661	0.360	0.235		0.812			
Back of Queue (Q), ft/ln (50 th percentile)	18.8	127.4			67.8	30.1	20.2		76.4			
Back of Queue (Q), veh/ln (50 th percentile)	0.7	5.0			2.7	1.2	0.8		3.0			
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00			0.00	0.00	0.00		0.00			
Uniform Delay (d ₁), s/veh	11.6	11.3			16.9	15.4	15.6		18.4			
Incremental Delay (d ₂), s/veh	0.2	0.8			0.3	0.2	0.1		1.6			
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay (d), s/veh	11.8	12.1			17.2	15.6	15.7		20.0			
Level of Service (LOS)	B	B			B	B	B		B			
Approach Delay, s/veh / LOS	12.1		B		16.9		B		18.9		B	
Intersection Delay, s/veh / LOS	15.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.65	B	1.38	A	2.13	B	2.13	B
Bicycle LOS Score / LOS	1.96	B	1.13	A		F		

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	O'Rourke Engineering & Planning			Duration, h	0.25	
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	Other	
Jurisdiction	Brevard County	Time Period	PM Peak Hour	PHF	0.92	
Urban Street	SR-524	Analysis Year	2019	Analysis Period	1> 7:00	
Intersection	I-95 NB Ramp	File Name	C6 - SR-524 & I-95 NB - PM Existing.xus			
Project Description	Existing					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	70	574			680	134	200		320			

Signal Information											
Cycle, s	54.7	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	3.4	16.4	14.5	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.7	4.7	3.2	0.0	0.0	0.0	
				Red	2.7	2.0	3.1	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2		4		
Case Number	1.0	4.0		7.3		9.0		
Phase Duration, s	10.8	33.9		23.1		20.8		
Change Period, (Y+R _c), s	7.4	7.4		7.4		6.3		
Max Allow Headway (MAH), s	3.0	3.0		3.0		3.2		
Queue Clearance Time (g _s), s	3.5	16.2		12.3		13.3		
Green Extension Time (g _e), s	0.1	3.3		3.4		1.1		
Phase Call Probability	0.69	1.00		1.00		1.00		
Max Out Probability	0.00	0.00		0.00		0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6			2	12	7		14			
Adjusted Flow Rate (v), veh/h	76	624			739	146	217		348			
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870			1781	1585	1781		1585			
Queue Service Time (g _s), s	1.5	14.2			10.3	4.0	5.6		11.3			
Cycle Queue Clearance Time (g _c), s	1.5	14.2			10.3	4.0	5.6		11.3			
Green Ratio (g/C)	0.39	0.48			0.29	0.29	0.27		0.27			
Capacity (c), veh/h	316	906			1021	454	473		421			
Volume-to-Capacity Ratio (X)	0.241	0.688			0.724	0.321	0.459		0.826			
Back of Queue (Q), ft/ln (50 th percentile)	12	104.2			88.1	30.3	48.8		91			
Back of Queue (Q), veh/ln (50 th percentile)	0.5	4.1			3.5	1.2	1.9		3.6			
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00			0.00	0.00	0.00		0.00			
Uniform Delay (d ₁), s/veh	12.3	10.9			17.6	15.4	16.8		19.0			
Incremental Delay (d ₂), s/veh	0.1	0.4			0.4	0.1	0.3		1.6			
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay (d), s/veh	12.5	11.3			18.0	15.5	17.1		20.5			
Level of Service (LOS)	B	B			B	B	B		C			
Approach Delay, s/veh / LOS	11.4		B		17.6		B		19.2		B	
Intersection Delay, s/veh / LOS	16.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.65	B	1.38	A	2.13	B	2.13	B
Bicycle LOS Score / LOS	1.64	B	1.22	A		F		

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: I-95 NB Ramp E/W STREET: SR-524 CONTROL: TWSC

FILENAME: 4/30/2019 DAY: Tuesday CITY: Cocoa INTERSECTION: 7:00-7:15
COUNT DATE: 5/1/2019 ANALYSIS YEAR: 2022
REPORT DATE: 5/1/2019

15 Min Period	Northbound			Southbound			Eastbound			Westbound			ONE HOUR SUM	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		TOTAL
7:00-7:15	14	0	50	0	0	0	36	142	0	0	93	27	362	1614
7:15-7:30	8	0	56	0	0	0	25	132	0	0	110	26	357	1713
7:30-7:45	22	0	74	0	0	0	33	168	0	0	130	20	447	1741
7:45-8:00	25	0	71	0	0	0	22	160	0	0	133	37	448	1648
8:00-8:15	22	0	72	0	0	0	27	152	0	0	138	50	461	1547
8:15-8:30	16	0	46	0	0	0	25	159	0	0	120	19	385	
8:30-8:45	28	0	50	0	0	0	30	108	0	0	103	35	354	
8:45-9:00	18	0	43	0	0	0	21	126	0	0	113	26	347	

← 701	124	↕	749	←
↕	739	↕	603	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕	0	↕	0	←
↕				

AM PEAK HOUR IS FROM: 7:30 AM TO 8:30 AM
 Volumes 85 0 263 0 0 0 107 639 0 0 521 126 1741
 Season Factor 94 0 289 0 0 0 118 703 0 0 573 139 1915
 Growth 98 0 304 0 0 0 124 739 0 0 603 146 2014
 In/Out - - - - - - - - - - - - -
 Percentage 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 PROJECT 0 0 0 0 0 0 0 0 0 0 0 0 0

Total	98	0	304	0	0	0	124	739	0	0	603	146	2015				
-------	----	---	-----	---	---	---	-----	-----	---	---	-----	-----	------	--	--	--	--

15 Min Period lanes	Northbound			Southbound			Eastbound			Westbound				ONE HOUR SUM	
	NBL	NBT	NBR	SRL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL		
	36	0	54	0	0	0	12	140	0	0	140	35	417		1695
	42	0	50	0	0	0	17	111	0	0	151	46	417		1696
	34	0	82	0	0	0	17	133	0	0	114	21	401		1763
	39	0	70	0	0	0	15	149	0	0	153	34	460		1799
	52	0	55	0	0	0	18	116	0	0	145	32	418		1766
	52	0	90	0	0	0	18	127	0	0	162	35	484		
	39	0	76	0	0	0	13	130	0	0	158	21	437		
	31	0	55	0	0	0	18	146	0	0	153	24	427		
← 926 74 PM 141 ← 856 678 → 0 715 941 → 0 ← 0 0															

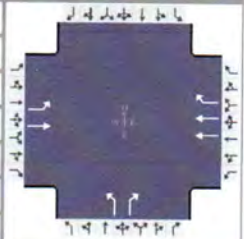
PM PEAK HOUR IS FROM: 4:45 PM TO 5:45 PM
 Volumes 182 0 291 0 0 0 64 522 0 0 618 122 1799
 Season Factor 200 0 320 0 0 0 70 574 0 0 680 134 1979
 Growth 211 0 337 0 0 0 74 604 0 0 715 141 2082
 In/Out - - - - - - - - - - - - -
 Percentage 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 PROJECT 0 0 0 0 0 0 0 0 0 0 0 0 0

Total	211	0	337	0	0	0	74	604	0	0	715	141	2082				
-------	-----	---	-----	---	---	---	----	-----	---	---	-----	-----	------	--	--	--	--

HCS7 Signalized Intersection Results Summary

General Information

Agency	O'Rourke Engineering & Planning			Intersection Information	
Analyst	James Kemp	Analysis Date	5/7/2019	Duration, h	0.25
Jurisdiction	Brevard County	Time Period	AM Peak Hour	Area Type	Other
Urban Street	SR-524	Analysis Year	2022	PHF	0.95
Intersection	I-95 NB Ramp	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	I-95 NB Ramp	File Name	C6 - SR-524 & I-95 NB - AM 2022 Background.xus		
Project Description	2022 Background				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	124	739			603	146	98		304			

Signal Information

Cycle, s	52.2	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	4.3	14.7	12.9	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.7	4.7	3.2	0.0	0.0	0.0		
				Red	2.7	2.0	3.1	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2		4		
Case Number	1.0	4.0		7.3		9.0		
Phase Duration, s	11.7	33.0		21.4		19.2		
Change Period, (Y+R _c), s	7.4	7.4		7.4		6.3		
Max Allow Headway (MAH), s	3.0	3.0		3.0		3.2		
Queue Clearance Time (g _s), s	4.5	21.0		10.3		12.0		
Green Extension Time (g _e), s	0.2	3.5		3.6		0.9		
Phase Call Probability	0.85	1.00		1.00		1.00		
Max Out Probability	0.00	0.01		0.00		0.00		

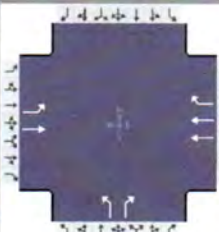
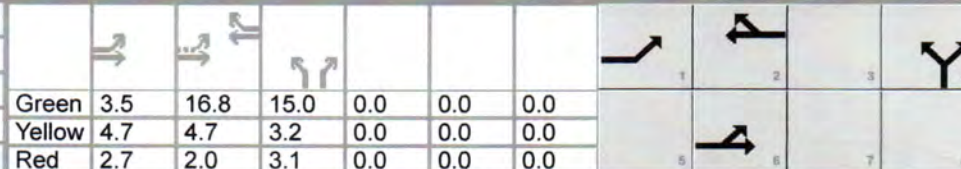
Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6			2	12	7		14			
Adjusted Flow Rate (v), veh/h	131	778			635	154	103		320			
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870			1781	1585	1781		1585			
Queue Service Time (g _s), s	2.5	19.0			8.3	4.1	2.4		10.0			
Cycle Queue Clearance Time (g _c), s	2.5	19.0			8.3	4.1	2.4		10.0			
Green Ratio (g/C)	0.39	0.49			0.27	0.27	0.25		0.25			
Capacity (c), veh/h	371	918			954	425	441		392			
Volume-to-Capacity Ratio (X)	0.352	0.847			0.666	0.362	0.234		0.816			
Back of Queue (Q), ft/ln (50 th percentile)	19.5	135.5			70.6	31.2	20.9		79.8			
Back of Queue (Q), veh/ln (50 th percentile)	0.8	5.3			2.8	1.2	0.8		3.1			
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00			0.00	0.00	0.00		0.00			
Uniform Delay (d ₁), s/veh	11.8	11.6			17.1	15.5	15.7		18.6			
Incremental Delay (d ₂), s/veh	0.2	0.9			0.3	0.2	0.1		1.6			
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay (d), s/veh	12.0	12.5			17.4	15.7	15.8		20.2			
Level of Service (LOS)	B	B			B	B	B		C			
Approach Delay, s/veh / LOS	12.4	B		17.1	B		19.1	B		0.0		
Intersection Delay, s/veh / LOS	15.5						B					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.65	B		1.39	A		2.13	B		2.13	B	
Bicycle LOS Score / LOS	1.99	B		1.14	A			F				

HCS7 Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		O'Rourke Engineering & Planning				Duration, h		0.25											
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type		Other									
Jurisdiction		Brevard County		Time Period		PM Peak Hour		PHF		0.95									
Urban Street		SR-524		Analysis Year		2022		Analysis Period		1> 7:00									
Intersection		I-95 NB Ramp		File Name		C6 - SR-524 & I-95 NB - PM 2022 Background.xus													
Project Description		2022 with Project																	
Demand Information						EB			WB			NB			SB				
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R		
Demand (v), veh/h						74	604			715	141	211		337					
Signal Information																			
Cycle, s		55.8	Reference Phase		2														
Offset, s		0	Reference Point		End														
Uncoordinated		Yes	Simult. Gap E/W		On														
Force Mode		Fixed	Simult. Gap N/S		On														
						Green	3.5	16.8	15.0	0.0	0.0	0.0							
						Yellow	4.7	4.7	3.2	0.0	0.0	0.0							
						Red	2.7	2.0	3.1	0.0	0.0	0.0							
Timer Results						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT						
Assigned Phase						1	6		2		4								
Case Number						1.0	4.0		7.3		9.0								
Phase Duration, s						10.9	34.5		23.5		21.3								
Change Period, (Y+R _c), s						7.4	7.4		7.4		6.3								
Max Allow Headway (MAH), s						3.0	3.0		3.0		3.2								
Queue Clearance Time (g _s), s						3.6	16.8		12.6		13.8								
Green Extension Time (g _e), s						0.1	3.4		3.4		1.2								
Phase Call Probability						0.70	1.00		1.00		1.00								
Max Out Probability						0.00	0.00		0.00		0.00								
Movement Group Results						EB			WB			NB			SB				
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R		
Assigned Movement						1	6			2	12	7		14					
Adjusted Flow Rate (v), veh/h						78	636			753	148	222		355					
Adjusted Saturation Flow Rate (s), veh/h/ln						1781	1870			1781	1585	1781		1585					
Queue Service Time (g _s), s						1.6	14.8			10.6	4.1	5.8		11.8					
Cycle Queue Clearance Time (g _c), s						1.6	14.8			10.6	4.1	5.8		11.8					
Green Ratio (g/C)						0.39	0.49			0.29	0.29	0.27		0.27					
Capacity (c), veh/h						313	908			1033	460	480		427					
Volume-to-Capacity Ratio (X)						0.249	0.700			0.729	0.323	0.463		0.831					
Back of Queue (Q), ft/ln (50 th percentile)						12.5	110.5			91.6	31.4	51		95.2					
Back of Queue (Q), veh/ln (50 th percentile)						0.5	4.3			3.6	1.2	2.0		3.7					
Queue Storage Ratio (RQ) (50 th percentile)						0.00	0.00			0.00	0.00	0.00		0.00					
Uniform Delay (d ₁), s/veh						12.5	11.2			17.9	15.6	17.0		19.2					
Incremental Delay (d ₂), s/veh						0.2	0.4			0.4	0.1	0.3		1.6					
Initial Queue Delay (d ₃), s/veh						0.0	0.0			0.0	0.0	0.0		0.0					
Control Delay (d), s/veh						12.7	11.6			18.2	15.7	17.3		20.8					
Level of Service (LOS)						B	B			B	B	B		C					
Approach Delay, s/veh / LOS						11.7		B	17.8		B	19.5		B	0.0				
Intersection Delay, s/veh / LOS						16.3						B							
Multimodal Results						EB			WB			NB			SB				
Pedestrian LOS Score / LOS						1.65		B	1.39		A	2.13		B	2.13		B		
Bicycle LOS Score / LOS						1.67		B	1.23		A			F					

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: I-95 NB Ramp
 FILENAME: 4/30/2019
 COUNT DATE: 4/30/2019
 REPORT DATE: 5/1/2019
 DAY: Tuesday
 ANALYSIS YEAR: 2022
 E/W STREET: SR-524
 CITY: Cocoa
 INTERSECTION:
 CONTROL: TWSC

15 Min Period	Northbound				Southbound				Eastbound				Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBR	SBT	SBL	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL			
7:00-7:15 7:15-7:30 7:30-7:45 7:45-8:00 8:00-8:15	14	0	50	0	0	0	0	36	142	0	0	93	27	362	1614		
	8	0	56	0	0	0	0	25	132	0	0	110	26	357	1713		
	22	0	74	0	0	0	0	33	168	0	0	130	20	447	1741		
	25	0	71	0	0	0	0	22	160	0	0	133	37	448	1648		
	22	0	72	0	0	0	0	27	152	0	0	138	50	461	1547		
8:15-8:30	16	0	46	0	0	0	0	25	159	0	0	120	19	385			
8:30-8:45	28	0	50	0	0	0	0	30	108	0	0	103	35	354			
8:45-9:00	18	0	43	0	0	0	0	21	126	0	0	113	26	347			

AM PEAK HOUR IS FROM:

7:30 AM TO 8:30 AM

Volumes	85	0	263	0	0	0	0	107	639	0	0	521	126	1741
Season Factor	94	0	289	0	0	0	0	118	703	0	0	573	139	1915
Growth	98	0	304	0	0	0	0	124	739	0	0	603	146	2014
In/Out	-	-	IN	-	-	-	-	-	IN	-	-	OUT	OUT	-
Percentage	0%	0%	11%	0%	0%	0%	0%	0%	7%	0%	0%	14%	4%	0%
PROJECT	0	0	5	0	0	0	0	0	3	0	0	23	7	0

Seasonal Factor: 1.1

Trips In: 49

Trips Out: 166

Growth Rate: 1.017

Years Grown: 3

AM

724 ←

152 ↑

626 ←

778 ←

743 →

867 →

1052 →

98 ←

310 →

408 ↑

C-20

15 Min Period lanes	Northbound				Southbound				Eastbound				Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBR	SBT	SBL	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL			
4:00-4:15	36	0	54	0	0	0	0	12	140	0	0	140	35	417	1695		
4:15-4:30	42	0	50	0	0	0	0	17	111	0	0	151	46	417	1696		
4:30-4:45	34	0	82	0	0	0	0	17	133	0	0	114	21	401	1763		
4:45-5:00	39	0	70	0	0	0	0	15	149	0	0	153	34	460	1799		
5:00-5:15	52	0	55	0	0	0	0	18	116	0	0	145	32	418	1766		
5:15-5:30	52	0	90	0	0	0	0	18	127	0	0	162	35	484			
5:30-5:45	39	0	76	0	0	0	0	13	130	0	0	158	21	437			
5:45-6:00	31	0	55	0	0	0	0	18	146	0	0	153	24	427			

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

← 938

74

← 872

← 968

615

← 728

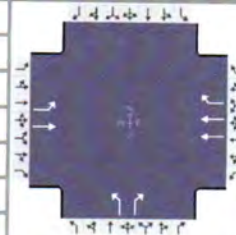
← 938

Total	211	0	353	0	0	0	0	74	615	0	0	728	145	2125
-------	-----	---	-----	---	---	---	---	----	-----	---	---	-----	-----	------

HCS7 Signalized Intersection Results Summary

General Information

Agency	O'Rourke Engineering & Planning			Intersection Information	
Analyst	James Kemp	Analysis Date	5/7/2019	Duration, h	0.25
Jurisdiction	Brevard County	Time Period	AM Peak Hour	Area Type	Other
Urban Street	SR-524	Analysis Year	2022	PHF	0.95
Intersection	I-95 NB Ramp	Analysis Period	1> 7:00	File Name	C6 - SR-524 & I-95 NB - AM 2022 with Project.xus
Project Description	2022 with Project				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	124	743			626	152	98		310			

Signal Information

Cycle, s	53.3	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	4.3	15.3	13.3	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.7	4.7	3.2	0.0	0.0	0.0		
				Red	2.7	2.0	3.1	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2		4		
Case Number	1.0	4.0		7.3		9.0		
Phase Duration, s	11.7	33.7		22.0		19.6		
Change Period, (Y+R _c), s	7.4	7.4		7.4		6.3		
Max Allow Headway (MAH), s	3.0	3.0		3.0		3.2		
Queue Clearance Time (g _s), s	4.6	21.5		10.8		12.4		
Green Extension Time (g _e), s	0.2	3.6		3.7		0.9		
Phase Call Probability	0.86	1.00		1.00		1.00		
Max Out Probability	0.00	0.01		0.00		0.00		

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6			2	12	7		14			
Adjusted Flow Rate (v), veh/h	131	782			659	160	103		326			
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870			1781	1585	1781		1585			
Queue Service Time (g _s), s	2.6	19.5			8.8	4.4	2.5		10.4			
Cycle Queue Clearance Time (g _c), s	2.6	19.5			8.8	4.4	2.5		10.4			
Green Ratio (g/C)	0.39	0.49			0.27	0.27	0.25		0.25			
Capacity (c), veh/h	364	922			975	434	447		397			
Volume-to-Capacity Ratio (X)	0.358	0.848			0.676	0.369	0.231		0.821			
Back of Queue (Q), ft/ln (50 th percentile)	20	141.4			75.2	33.2	21.3		83.3			
Back of Queue (Q), veh/ln (50 th percentile)	0.8	5.6			3.0	1.3	0.8		3.3			
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00			0.00	0.00	0.00		0.00			
Uniform Delay (d ₁), s/veh	12.0	11.8			17.3	15.7	15.9		18.9			
Incremental Delay (d ₂), s/veh	0.2	0.9			0.3	0.2	0.1		1.6			
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay (d), s/veh	12.2	12.7			17.6	15.9	16.0		20.5			
Level of Service (LOS)	B	B			B	B	B		C			
Approach Delay, s/veh / LOS	12.6	B		17.3	B		19.4	B		0.0		
Intersection Delay, s/veh / LOS	15.7						B					

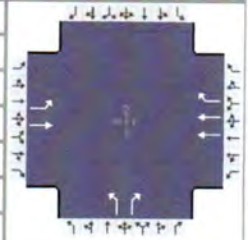
Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.65	B		1.39	A		2.13	B		2.13	B	
Bicycle LOS Score / LOS	1.99	B		1.16	A			F				

HCS7 Signalized Intersection Results Summary

General Information

Agency	O'Rourke Engineering & Planning			Intersection Information	
Analyst	James Kemp	Analysis Date	5/7/2019	Duration, h	0.25
Jurisdiction	Brevard County	Time Period	PM Peak Hour	Area Type	Other
Urban Street	SR-524	Time Period	PM Peak Hour	PHF	0.95
Intersection	I-95 NB Ramp	Analysis Year	2022	Analysis Period	1> 7:00
Project Description	2022 Background				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	74	615			728	145	211		353			

Signal Information

Cycle, s	57.4	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	3.6	17.5	16.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.7	4.7	3.2	0.0	0.0	0.0		
				Red	2.7	2.0	3.1	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6		2		4		
Case Number	1.0	4.0		7.3		9.0		
Phase Duration, s	11.0	35.2		24.2		22.3		
Change Period, (Y+R _c), s	7.4	7.4		7.4		6.3		
Max Allow Headway (MAH), s	3.0	3.0		3.0		3.2		
Queue Clearance Time (g _s), s	3.6	17.8		13.2		14.7		
Green Extension Time (g _e), s	0.1	3.5		3.5		1.2		
Phase Call Probability	0.71	1.00		1.00		1.00		
Max Out Probability	0.00	0.00		0.00		0.00		

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6			2	12	7		14			
Adjusted Flow Rate (v), veh/h	78	647			766	153	222		372			
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870			1781	1585	1781		1585			
Queue Service Time (g _s), s	1.6	15.8			11.2	4.3	5.9		12.7			
Cycle Queue Clearance Time (g _c), s	1.6	15.8			11.2	4.3	5.9		12.7			
Green Ratio (g/C)	0.39	0.48			0.29	0.29	0.28		0.28			
Capacity (c), veh/h	305	904			1042	464	497		442			
Volume-to-Capacity Ratio (X)	0.255	0.716			0.736	0.329	0.447		0.841			
Back of Queue (Q), ft/ln (50 th percentile)	13.2	120.9			97.7	33.8	52.4		103.8			
Back of Queue (Q), veh/ln (50 th percentile)	0.5	4.8			3.8	1.3	2.1		4.1			
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00			0.00	0.00	0.00		0.00			
Uniform Delay (d ₁), s/veh	12.9	11.8			18.4	16.0	17.1		19.6			
Incremental Delay (d ₂), s/veh	0.2	0.4			0.4	0.2	0.2		1.7			
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0	0.0		0.0			
Control Delay (d), s/veh	13.1	12.2			18.8	16.1	17.3		21.2			
Level of Service (LOS)	B	B			B	B	B		C			
Approach Delay, s/veh / LOS	12.3		B		18.3		B		19.8		B	
Intersection Delay, s/veh / LOS	16.7						B					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.65		B	1.39		A	2.13		B	2.13		B
Bicycle LOS Score / LOS	1.68		B	1.25		A			F			

TURNING MOVEMENT VOLUME COUNTS

CONTROL: Signalized

E/W STREET: SR-524

INTERSECTION:

CITY: Cocoa

N/S STREET: Cox Rd

FILENAME:

COUNT DATE: 4/25/2019

REPORT DATE: 5/7/2019

DAY: Thursday

ANALYSIS YEAR: 2019

15 Min Period	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
7:00-7:15	12	4	21	7	8	8	6	76	14	23	47	0	226	1103		
7:15-7:30	5	1	13	14	12	6	2	73	27	34	71	2	260	1149		
7:30-7:45	5	2	14	14	15	7	1	79	45	45	69	8	304	1129		
7:45-8:00	16	4	25	10	17	5	5	83	37	49	58	2	311	1095		
8:00-8:15	17	6	24	15	13	7	3	96	6	18	65	4	274	1036		
8:15-8:30	6	6	16	6	9	4	6	84	9	18	73	3	240			
8:30-8:45	7	7	30	11	13	4	2	78	18	25	73	2	270			
8:45-9:00	9	8	18	13	14	6	2	75	12	18	72	5	252			

AM PEAK HOUR IS FROM:

7:15AM TO 8:15AM

Volumes	43	13	76	53	57	25	11	331	115	146	263	16	1149
Season Factor	46	14	81	57	61	27	12	354	123	156	281	17	1229
Growth	-	-	-	-	-	-	-	-	-	-	-	-	-
In/Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percentage	0	0	0	0	0	0	0	0	0	0	0	0	0
PROJECT													

Seasonal Factor: 1.07
Trips In: 1
Trips Out: 1
Growth Rate: 1
Years Grown:

Total	46	14	81	57	61	27	12	354	123	156	281	17	1229
-------	----	----	----	----	----	----	----	-----	-----	-----	-----	----	------

15 Min Period lanes	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
4:00-4:15	30	14	67	22	6	4	12	72	6	19	123	16	391	1401		
4:15-4:30	17	9	25	9	11	6	10	100	9	30	120	16	362	1380		
4:30-4:45	8	14	30	6	2	6	10	90	16	32	124	22	360	1345		
4:45-5:00	6	14	28	10	5	9	4	60	15	22	105	10	288	1295		
5:00-5:15	34	9	36	12	7	5	10	98	10	29	103	17	370	1303		
5:15-5:30	9	22	28	8	10	1	11	79	9	30	103	17	327			
5:30-5:45	15	14	37	7	4	7	7	95	8	22	81	13	310			
5:45-6:00	7	12	23	5	4	4	8	79	13	36	92	13	296			

PM PEAK HOUR IS FROM:

4:00PM TO 5:00PM

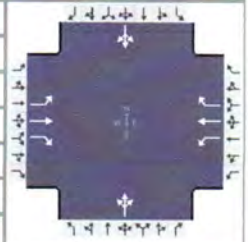
Volumes	61	51	150	47	24	25	36	322	46	103	472	64	1401
Season Factor	65	55	161	50	26	27	39	345	49	110	505	68	1499
Growth	-	-	-	-	-	-	-	-	-	-	-	-	-
In/Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percentage	0	0	0	0	0	0	0	0	0	0	0	0	0
PROJECT													

Seasonal Factor: 1.07
Trips In: 1
Trips Out: 1
Growth Rate: 1
Years Grown:

Total	65	55	161	50	26	27	39	345	49	110	505	68	1499
-------	----	----	-----	----	----	----	----	-----	----	-----	-----	----	------

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	O'Rourke Engineering & Planning			Duration, h	0.25	
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	CBD	
Jurisdiction	Brevard County	Time Period	AM Peak Hour	PHF	0.95	
Urban Street	SR-524	Analysis Year	2019	Analysis Period	1 > 7:00	
Intersection	Cox Rd	File Name	C6 - SR-524 & Cox Rd - AM Existing.xus			
Project Description	Existing					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	12	354	123	156	281	17	46	14	81	57	61	27

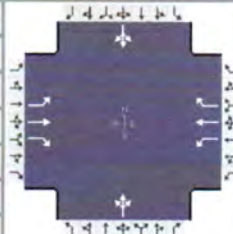
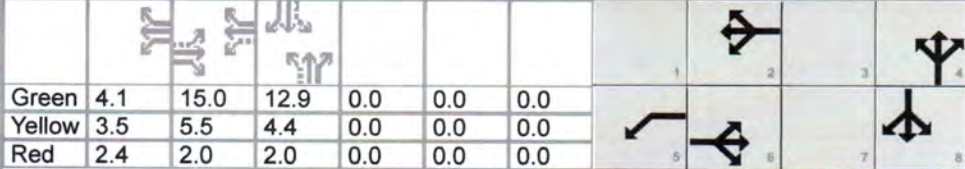
Signal Information											
Cycle, s	46.4	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	4.4	15.0	7.2	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	5.5	4.4	0.0	0.0	0.0	
				Red	2.4	2.0	2.0	0.0	0.0	0.0	

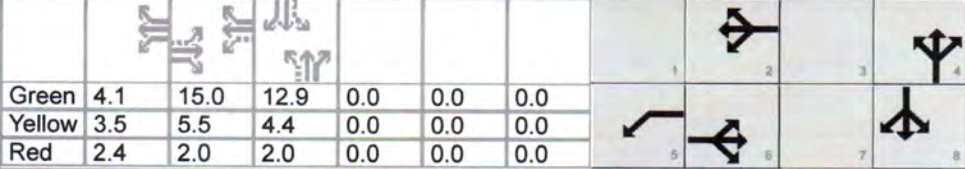
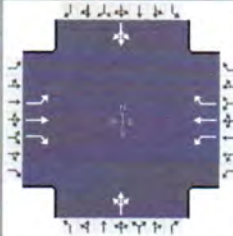
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		8
Case Number		5.3	1.0	3.0		8.0		8.0
Phase Duration, s		22.5	10.3	32.8		13.6		13.6
Change Period, (Y+R _c), s		7.5	5.9	7.5		6.8		6.8
Max Allow Headway (MAH), s		3.0	3.0	3.0		3.1		3.1
Queue Clearance Time (g _s), s		10.8	4.8	6.4		6.3		6.4
Green Extension Time (g _e), s		1.5	0.2	1.5		0.5		0.5
Phase Call Probability		1.00	0.88	1.00		0.98		0.98
Max Out Probability		0.00	0.00	0.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	13	373	129	164	296	18		148			153	
Adjusted Saturation Flow Rate (s), veh/h/ln	991	1710	1449	1629	1710	1449		1466			1478	
Queue Service Time (g _s), s	0.4	8.8	3.1	2.8	4.4	0.3		0.0			0.2	
Cycle Queue Clearance Time (g _c), s	0.4	8.8	3.1	2.8	4.4	0.3		4.3			4.4	
Green Ratio (g/C)	0.32	0.32	0.32	0.46	0.54	0.54		0.15			0.15	
Capacity (c), veh/h	475	552	468	433	932	790		318			325	
Volume-to-Capacity Ratio (X)	0.027	0.675	0.277	0.379	0.317	0.023		0.466			0.469	
Back of Queue (Q), ft/ln (50 th percentile)	1.7	63.7	18.7	15.9	21	1.1		31.4			32.4	
Back of Queue (Q), veh/ln (50 th percentile)	0.1	2.5	0.7	0.6	0.8	0.0		1.3			1.3	
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00			0.00	
Uniform Delay (d ₁), s/veh	10.8	13.6	11.7	9.0	5.8	4.9		18.7			18.7	
Incremental Delay (d ₂), s/veh	0.0	0.5	0.1	0.2	0.1	0.0		0.4			0.4	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Control Delay (d), s/veh	10.8	14.1	11.8	9.2	5.9	4.9		19.1			19.1	
Level of Service (LOS)	B	B	B	A	A	A		B			B	
Approach Delay, s/veh / LOS	13.5		B	7.0		A	19.1		B	19.1		B
Intersection Delay, s/veh / LOS	12.4						B					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.67		B	1.64		B	2.10		B	2.10		B
Bicycle LOS Score / LOS	1.34		A	1.28		A	0.73		A	0.74		A

HCS7 Signalized Intersection Results Summary

General Information						Intersection Information																
Agency		O'Rourke Engineering & Planning				Duration, h		0.25														
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type		CBD												
Jurisdiction		Brevard County		Time Period		PM Peak Hour		PHF		0.95												
Urban Street		SR-524		Analysis Year		2019		Analysis Period		1> 7:00												
Intersection		Cox Rd		File Name		C6 - SR-524 & Cox Rd - PM Existing.xus																
Project Description		Existing																				
Demand Information						EB			WB			NB			SB							
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R					
Demand (v), veh/h						39	345	49	110	505	68	65	55	161	50	26	27					
Signal Information																						
Cycle, s	51.8	Reference Phase	2																			
Offset, s	0	Reference Point	End																			
Uncoordinated	Yes	Simult. Gap E/W	On	Green	4.1													15.0	12.9	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5													5.5	4.4	0.0	0.0	0.0
						Red	2.4	2.0	2.0	0.0	0.0	0.0										
Timer Results						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT									
Assigned Phase							6	5	2		4		8									
Case Number							5.3	1.0	3.0		8.0		8.0									
Phase Duration, s							22.5	10.0	32.5		19.3		19.3									
Change Period, (Y+R _c), s							7.5	5.9	7.5		6.8		6.8									
Max Allow Headway (MAH), s							3.0	3.0	3.0		3.2		3.2									
Queue Clearance Time (g _s), s							11.9	4.4	14.1		11.9		5.1									
Green Extension Time (g _e), s							2.0	0.1	2.0		0.7		0.8									
Phase Call Probability							1.00	0.81	1.00		1.00		1.00									
Max Out Probability							0.00	0.00	0.00		0.00		0.00									
Movement Group Results						EB			WB			NB			SB							
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R					
Assigned Movement						1	6	16	5	2	12	7	4	14	3	8	18					
Adjusted Flow Rate (v), veh/h						41	363	52	116	532	72	296			108							
Adjusted Saturation Flow Rate (s), veh/h/ln						797	1710	1449	1629	1710	1449	1465			1288							
Queue Service Time (g _s), s						2.1	9.9	1.4	2.4	12.1	1.4	6.5			0.0							
Cycle Queue Clearance Time (g _c), s						4.3	9.9	1.4	2.4	12.1	1.4	9.9			3.1							
Green Ratio (g/C)						0.29	0.29	0.29	0.41	0.48	0.48	0.24			0.24							
Capacity (c), veh/h						337	495	420	358	824	698	440			415							
Volume-to-Capacity Ratio (X)						0.122	0.733	0.123	0.324	0.645	0.103	0.672			0.261							
Back of Queue (Q), ft/ln (50 th percentile)						8	79.4	9	15.8	76.8	7.4	69.4			21.6							
Back of Queue (Q), veh/ln (50 th percentile)						0.3	3.2	0.4	0.6	3.1	0.3	2.8			0.9							
Queue Storage Ratio (RQ) (50 th percentile)						0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00							
Uniform Delay (d ₁), s/veh						15.5	16.6	13.6	11.4	10.1	7.3	18.5			16.0							
Incremental Delay (d ₂), s/veh						0.1	0.8	0.0	0.2	0.3	0.0	0.7			0.1							
Initial Queue Delay (d ₃), s/veh						0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0							
Control Delay (d), s/veh						15.5	17.4	13.6	11.6	10.4	7.3	19.2			16.1							
Level of Service (LOS)						B	B	B	B	B	A	B			B							
Approach Delay, s/veh / LOS						16.8	B		10.3	B		19.2	B		16.1	B						
Intersection Delay, s/veh / LOS						14.2						B										
Multimodal Results						EB			WB			NB			SB							
Pedestrian LOS Score / LOS						1.68	B		1.65	B		2.10	B		2.10	B						
Bicycle LOS Score / LOS						1.24	A		1.67	B		0.98	A		0.67	A						



TURNING MOVEMENT VOLUME COUNTS

N/S STREET: SR-524 E/W STREET: SR-524 CONTROL: Signalized

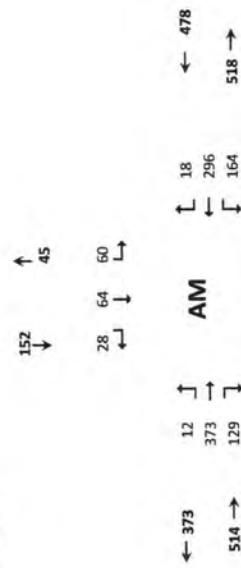
FILENAME: 4/25/2019 DAY: Thursday CITY: Cocoa INTERSECTION:

COUNT DATE: 5/1/2019 ANALYSIS YEAR: 2022

15 Min Period	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
7:00-7:15	12	4	21	7	8	8	6	76	14	23	47	0	226	1101		
7:15-7:30	5	1	13	14	12	6	2	73	27	34	71	2	260	1149		
7:30-7:45	5	2	14	14	15	7	1	79	45	45	69	8	304	1129		
7:45-8:00	16	4	25	10	17	5	5	83	37	49	58	2	311	1095		
8:00-8:15	17	6	24	15	13	7	3	96	6	18	65	4	274	1036		
8:15-8:30	6	6	16	6	9	4	6	84	9	18	73	3	240			
8:30-8:45	7	7	30	11	13	4	2	78	18	25	73	2	270			
8:45-9:00	9	8	18	13	14	6	2	75	12	18	72	5	252			

AM PEAK HOUR IS FROM: 7:15AM TO 8:15AM																
Volumes	43	13	76	53	57	25	11	331	115	146	263	16	1149			
Season Factor	46	14	81	57	61	27	12	354	123	156	281	17	1229			
Growth	48	15	86	60	64	28	12	373	129	164	296	18	1293			
In/Out	-	-	-	-	-	-	-	-	-	-	-	-	-			
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0			

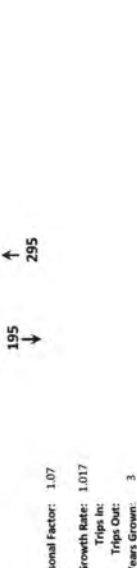
Seasonal Factor: 1.07
Trips In: 1017
Growth Rate: 1.017
Years Grown: 3



C-26

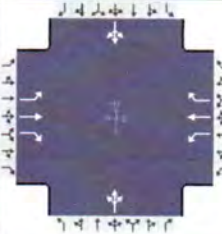
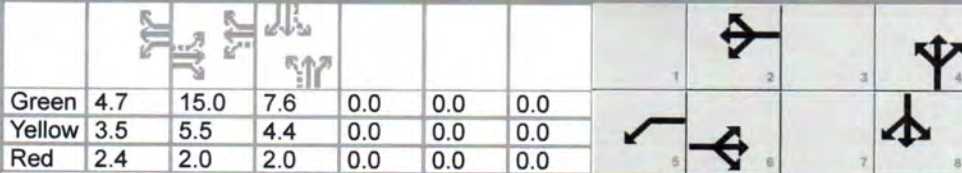
15 Min Period lanes	Northbound				Southbound				Eastbound				Westbound			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM		
4:00-4:15	30	14	67	22	6	4	12	72	6	19	123	16	391	1401		
4:15-4:30	17	9	25	9	11	6	10	100	9	30	120	16	362	1380		
4:30-4:45	8	14	30	6	2	6	10	90	16	32	124	22	360	1345		
4:45-5:00	6	14	28	10	5	9	4	60	15	22	105	10	288	1295		
5:00-5:15	34	9	36	12	7	5	10	98	10	29	103	17	370	1303		
5:15-5:30	9	22	28	8	10	1	11	79	9	30	103	13	327			
5:30-5:45	15	14	37	7	4	7	7	95	8	22	81	13	310			
5:45-6:00	7	12	23	5	4	4	8	79	13	36	92	13	296			

Seasonal Factor: 1.07
Growth Rate: 1.017
Trips In: 1401
Trips Out: 0
Years Grown: 3

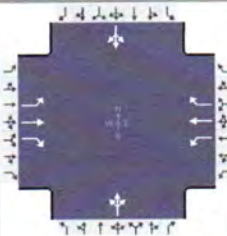
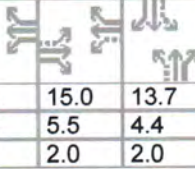
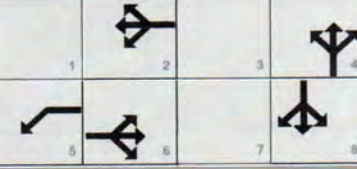


Total 69 57 169 53 27 28 41 362 52 116 531 72 1577

HCS7 Signalized Intersection Results Summary

General Information						Intersection Information									
Agency		O'Rourke Engineering & Planning				Duration, h		0.25							
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type		CBD					
Jurisdiction		Brevard County		Time Period		AM Peak Hour		PHF		0.95					
Urban Street		SR-524		Analysis Year		2022		Analysis Period		1> 7:00					
Intersection		Cox Rd		File Name		C6 - SR-524 & Cox Rd - AM 2022 Background.xus									
Project Description		2022 Background													
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				12	373	129	164	296	18	48	15	86	60	64	28
Signal Information															
Cycle, s	47.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	Yes	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On	Green	4.7	15.0	7.6	0.0	0.0	0.0					
				Yellow	3.5	5.5	4.4	0.0	0.0	0.0					
				Red	2.4	2.0	2.0	0.0	0.0	0.0					
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					6	5	2		4		8				
Case Number					5.3	1.0	3.0		8.0		8.0				
Phase Duration, s					22.5	10.6	33.1		14.0		14.0				
Change Period, (Y+R _c), s					7.5	5.9	7.5		6.8		6.8				
Max Allow Headway (MAH), s					3.0	3.0	3.0		3.1		3.1				
Queue Clearance Time (g _s), s					11.6	5.0	6.8		6.6		6.7				
Green Extension Time (g _e), s					1.6	0.2	1.6		0.5		0.5				
Phase Call Probability					1.00	0.90	1.00		0.98		0.98				
Max Out Probability					0.00	0.00	0.00		0.00		0.00				
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h				13	393	136	173	312	19		157			160	
Adjusted Saturation Flow Rate (s), veh/h/ln				976	1710	1449	1629	1710	1449		1467			1475	
Queue Service Time (g _s), s				0.4	9.6	3.3	3.0	4.8	0.3		0.0			0.2	
Cycle Queue Clearance Time (g _c), s				0.4	9.6	3.3	3.0	4.8	0.3		4.6			4.7	
Green Ratio (g/C)				0.32	0.32	0.32	0.46	0.54	0.54		0.15			0.15	
Capacity (c), veh/h				464	545	462	419	929	788		325			332	
Volume-to-Capacity Ratio (X)				0.027	0.720	0.294	0.412	0.335	0.024		0.483			0.482	
Back of Queue (Q), ft/ln (50 th percentile)				1.7	70.5	20.3	17.2	23.2	1.2		33.7			34.4	
Back of Queue (Q), veh/ln (50 th percentile)				0.1	2.8	0.8	0.7	0.9	0.0		1.3			1.4	
Queue Storage Ratio (RQ) (50 th percentile)				0.00	0.00	0.00	0.00	0.00	0.00		0.00			0.00	
Uniform Delay (d ₁), s/veh				11.1	14.2	12.0	9.4	6.0	5.0		18.8			18.8	
Incremental Delay (d ₂), s/veh				0.0	0.7	0.1	0.2	0.1	0.0		0.4			0.4	
Initial Queue Delay (d ₃), s/veh				0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Control Delay (d), s/veh				11.1	14.8	12.2	9.7	6.1	5.0		19.2			19.2	
Level of Service (LOS)				B	B	B	A	A	A		B			B	
Approach Delay, s/veh / LOS				14.1		B	7.3		A	19.2		B	19.2		B
Intersection Delay, s/veh / LOS				12.8						B					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				1.67		B	1.64		B	2.10		B	2.10		B
Bicycle LOS Score / LOS				1.38		A	1.32		A	0.75		A	0.75		A

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information										
Agency		O'Rourke Engineering & Planning			Duration, h		0.25								
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type			CBD				
Jurisdiction		Brevard County		Time Period		PM Peak Hour		PHF			0.95				
Urban Street		SR-524		Analysis Year		2019		Analysis Period			1> 7:00				
Intersection		Cox Rd		File Name		C6 - SR-524 & Cox Rd - PM 2022 Background.xus									
Project Description		Existing													
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				41	362	52	116	531	72	69	57	169	53	27	28
Signal Information															
Cycle, s	52.7	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	Yes	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
				Green	4.2	15.0	13.7	0.0	0.0	0.0					
				Yellow	3.5	5.5	4.4	0.0	0.0	0.0					
				Red	2.4	2.0	2.0	0.0	0.0	0.0					
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					6	5	2		4		8				
Case Number					5.3	1.0	3.0		8.0		8.0				
Phase Duration, s					22.5	10.1	32.6		20.1		20.1				
Change Period, (Y+R c), s					7.5	5.9	7.5		6.8		6.8				
Max Allow Headway (MAH), s					3.0	3.0	3.0		3.2		3.2				
Queue Clearance Time (g s), s					12.8	4.6	15.4		12.6		5.4				
Green Extension Time (g e), s					2.2	0.1	2.2		0.7		0.8				
Phase Call Probability					1.00	0.83	1.00		1.00		1.00				
Max Out Probability					0.00	0.00	0.00		0.00		0.00				
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h				43	381	55	122	559	76		311			114	
Adjusted Saturation Flow Rate (s), veh/h/ln				778	1710	1449	1629	1710	1449		1462			1247	
Queue Service Time (g s), s				2.4	10.8	1.5	2.6	13.4	1.5		7.1			0.0	
Cycle Queue Clearance Time (g c), s				5.7	10.8	1.5	2.6	13.4	1.5		10.6			3.4	
Green Ratio (g/C)				0.29	0.29	0.29	0.40	0.48	0.48		0.25			0.25	
Capacity (c), veh/h				309	488	413	340	815	690		453			417	
Volume-to-Capacity Ratio (X)				0.139	0.781	0.132	0.360	0.686	0.110		0.685			0.273	
Back of Queue (Q), ft/ln (50 th percentile)				9.1	88	9.9	17.6	87.6	8.3		74.4			22.9	
Back of Queue (Q), veh/ln (50 th percentile)				0.4	3.5	0.4	0.7	3.5	0.3		3.0			0.9	
Queue Storage Ratio (RQ) (50 th percentile)				0.00	0.00	0.00	0.00	0.00	0.00		0.00			0.00	
Uniform Delay (d 1), s/veh				16.9	17.3	14.0	12.0	10.7	7.6		18.6			15.9	
Incremental Delay (d 2), s/veh				0.1	1.0	0.1	0.2	0.4	0.0		0.7			0.1	
Initial Queue Delay (d 3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Control Delay (d), s/veh				17.0	18.4	14.1	12.2	11.1	7.7		19.3			16.0	
Level of Service (LOS)				B	B	B	B	B	A		B			B	
Approach Delay, s/veh / LOS				17.8		B	11.0		B	19.3		B	16.0		B
Intersection Delay, s/veh / LOS				14.8						B					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				1.68		B	1.65		B	2.10		B	2.10		B
Bicycle LOS Score / LOS				1.28		A	1.74		B	1.00		A	0.68		A

TURNING MOVEMENT VOLUME COUNTS

CONTROL: Signalized

E/W STREET: SR-524

INTERSECTION:

CITY: Cocoa

DAY: Thursday

N/S STREET: Cox Rd

FILENAME: 4/25/2019

COUNT DATE: 5/1/2019

REPORT DATE: 2022

ANALYSIS YEAR: 2022

15 Min Period	Northbound				Southbound				Eastbound				Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	WBL	WBT	WBR	TOTAL	
7:00-7:15	12	4	21	7	8	6	76	14	23	47	0	226	1101				
7:15-7:30	5	1	13	14	6	2	73	27	34	71	2	260	1149				
7:30-7:45	5	2	14	14	15	7	79	45	45	69	8	304	1129				
7:45-8:00	16	4	25	10	17	5	83	37	49	58	2	311	1095				
8:00-8:15	17	6	24	15	13	7	96	6	18	65	4	274	1036				
8:15-8:30	6	6	16	6	9	4	84	9	18	73	3	240					
8:30-8:45	7	7	30	11	13	4	78	18	25	73	2	270					
8:45-9:00	9	8	18	13	14	6	75	12	18	72	5	252					

AM PEAK HOUR IS FROM:

7:15AM TO 8:15AM

Volumes	43	13	76	53	57	25	11	331	115	146	263	16	1149
Season Factor	46	14	81	57	61	27	12	354	123	156	281	17	1229
Growth	48	15	86	60	64	28	12	373	129	164	296	18	1293
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	-	-
Percentage	0%	0%	14%	2%	0%	0%	0%	20%	0%	14%	20%	2%	0%
PROJECT	0	0	7	1	0	0	0	10	0	23	33	3	0

Seasonal Factor: 1.07
Trips In: 49
Trips Out: 166
Growth Rate: 1.017
Years Grown: 3

C-29

15 Min Period	Northbound				Southbound				Eastbound				Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	WBL	WBT	WBR	TOTAL	
4:00-4:15	30	14	67	22	6	4	12	72	6	19	123	16	391				
4:15-4:30	17	9	25	9	11	6	10	100	9	30	120	16	362				
4:30-4:45	8	14	30	6	2	6	10	90	16	32	124	22	360				
4:45-5:00	6	14	28	10	5	9	4	60	15	22	105	10	288				
5:00-5:15	34	9	36	12	7	5	10	98	10	29	103	17	370				
5:15-5:30	9	22	28	8	10	1	11	79	9	30	103	17	327				
5:30-5:45	15	14	37	7	4	7	7	95	8	22	81	13	310				
5:45-6:00	7	12	23	5	4	4	8	79	13	36	92	13	296				

PM PEAK HOUR IS FROM:

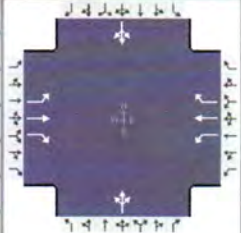
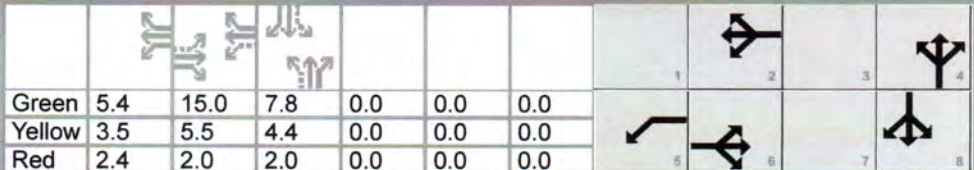
4:00PM TO 5:00PM

Volumes	61	51	150	47	24	25	36	322	46	103	472	64	1401
Season Factor	65	55	161	50	26	27	39	345	49	110	505	68	1499
Growth	69	57	169	53	27	28	41	362	52	116	531	72	1577
In/Out	-	-	IN	IN	-	-	-	IN	-	OUT	OUT	-	-
Percentage	0%	0%	14%	2%	0%	0%	0%	20%	0%	14%	20%	2%	0%
PROJECT	0	0	21	3	0	0	0	30	0	13	18	2	0

Seasonal Factor: 1.07
Growth Rate: 1.017
Trips In: 152
Trips Out: 90
Years Grown: 3

Total	69	57	190	56	27	28	41	393	52	129	549	74	1664
-------	----	----	-----	----	----	----	----	-----	----	-----	-----	----	------

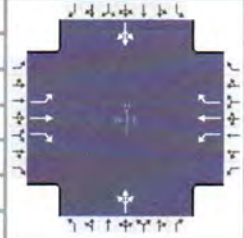
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information											
Agency		O'Rourke Engineering & Planning				Duration, h		0.25							
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type					CBD		
Jurisdiction		Brevard County		Time Period		AM Peak Hour		PHF					0.95		
Urban Street		SR-524		Analysis Year		2022		Analysis Period					1> 7:00		
Intersection		Cox Rd		File Name		C6 - SR-524 & Cox Rd - AM 2022 with Project.xus									
Project Description		2022 with Project													
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				12	382	129	188	329	21	48	15	92	61	64	28
Signal Information															
Cycle, s	47.9	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	Yes	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
				Green	5.4	15.0	7.8	0.0	0.0	0.0					
				Yellow	3.5	5.5	4.4	0.0	0.0	0.0					
				Red	2.4	2.0	2.0	0.0	0.0	0.0					
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					6	5	2		4		8				
Case Number					5.3	1.0	3.0		8.0		8.0				
Phase Duration, s					22.5	11.3	33.8		14.2		14.2				
Change Period, (Y+R _c), s					7.5	5.9	7.5		6.8		6.8				
Max Allow Headway (MAH), s					3.0	3.0	3.0		3.1		3.1				
Queue Clearance Time (g _s), s					12.1	5.5	7.5		6.9		6.9				
Green Extension Time (g _e), s					1.6	0.2	1.6		0.6		0.6				
Phase Call Probability					1.00	0.93	1.00		0.99		0.99				
Max Out Probability					0.00	0.00	0.00		0.00		0.00				
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h				13	402	136	198	346	22	163			161		
Adjusted Saturation Flow Rate (s), veh/h/ln				946	1710	1449	1629	1710	1449	1470			1471		
Queue Service Time (g _s), s				0.4	10.1	3.4	3.5	5.5	0.3	0.1			0.0		
Cycle Queue Clearance Time (g _c), s				0.4	10.1	3.4	3.5	5.5	0.3	4.9			4.9		
Green Ratio (g/C)				0.31	0.31	0.31	0.47	0.55	0.55	0.15			0.15		
Capacity (c), veh/h				446	535	454	423	937	794	324			331		
Volume-to-Capacity Ratio (X)				0.028	0.751	0.299	0.467	0.370	0.028	0.503			0.486		
Back of Queue (Q), ft/ln (50 th percentile)				1.8	76.4	21.3	20.5	27	1.4	36.1			35.5		
Back of Queue (Q), veh/ln (50 th percentile)				0.1	3.1	0.9	0.8	1.1	0.1	1.4			1.4		
Queue Storage Ratio (RQ) (50 th percentile)				0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00		
Uniform Delay (d ₁), s/veh				11.5	14.8	12.5	9.7	6.1	5.0	19.2			19.2		
Incremental Delay (d ₂), s/veh				0.0	0.8	0.1	0.3	0.1	0.0	0.4			0.4		
Initial Queue Delay (d ₃), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0		
Control Delay (d), s/veh				11.5	15.6	12.6	10.0	6.2	5.0	19.7			19.6		
Level of Service (LOS)				B	B	B	B	A	A	B			B		
Approach Delay, s/veh / LOS				14.8	B		7.5	A		19.7	B		19.6	B	
Intersection Delay, s/veh / LOS				13.0						B					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				1.67	B		1.64	B		2.10	B		2.10	B	
Bicycle LOS Score / LOS				1.40	A		1.42	A		0.76	A		0.75	A	

HCS7 Signalized Intersection Results Summary

General Information

Agency	O'Rourke Engineering & Planning			Duration, h	0.25
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	CBD
Jurisdiction	Brevard County	Time Period	PM Peak Hour	PHF	0.95
Urban Street	SR-524	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Cox Rd	File Name	C6 - SR-524 & Cox Rd - PM 2022 with Project.xus		
Project Description	2022 with Project				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	41	393	52	129	549	74	69	57	190	56	27	28

Signal Information

Cycle, s	56.9	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	4.6	17.1	15.5	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	5.5	4.4	0.0	0.0	0.0		
				Red	2.4	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		6	5	2		4		8
Case Number		5.3	1.0	3.0		8.0		8.0
Phase Duration, s		24.6	10.5	35.1		21.9		21.9
Change Period, (Y+R _c), s		7.5	5.9	7.5		6.8		6.8
Max Allow Headway (MAH), s		3.0	3.0	3.0		3.2		3.2
Queue Clearance Time (g _s), s		14.7	5.0	17.0		14.3		6.1
Green Extension Time (g _e), s		2.3	0.1	2.3		0.7		0.9
Phase Call Probability		1.00	0.88	1.00		1.00		1.00
Max Out Probability		0.00	0.00	0.00		0.01		0.00

Movement Group Results

Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	43	414	55	136	578	78		333			117	
Adjusted Saturation Flow Rate (s), veh/h/ln	764	1710	1449	1629	1710	1449		1462			1145	
Queue Service Time (g_s), s	2.7	12.7	1.6	3.0	15.0	1.7		8.3			0.0	
Cycle Queue Clearance Time (g_c), s	7.1	12.7	1.6	3.0	15.0	1.7		12.3			4.1	
Green Ratio (g/C)	0.30	0.30	0.30	0.42	0.48	0.48		0.26			0.26	
Capacity (c), veh/h	296	514	435	326	828	702		464			398	
Volume-to-Capacity Ratio (X)	0.146	0.805	0.126	0.416	0.698	0.111		0.717			0.293	
Back of Queue (Q), ft/ln (95 th percentile)	18.3	190.9	19.4	39	185.5	17.3		159.6			46.8	
Back of Queue (Q), veh/ln (95 th percentile)	0.7	7.6	0.8	1.6	7.4	0.7		6.4			1.9	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00			0.00	
Uniform Delay (d_1), s/veh	18.3	18.4	14.5	12.8	11.4	8.0		19.8			16.7	
Incremental Delay (d_2), s/veh	0.1	1.1	0.0	0.3	0.4	0.0		0.8			0.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0			0.0	
Control Delay (d), s/veh	18.4	19.6	14.5	13.2	11.8	8.0		20.6			16.9	
Level of Service (LOS)	B	B	B	B	B	A		C			B	
Approach Delay, s/veh / LOS	18.9	B		11.7	B		20.6	C		16.9	B	
Intersection Delay, s/veh / LOS	15.8						B					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.68	B		1.65	B		2.10	B		2.10	B	
Bicycle LOS Score / LOS	1.33	A		1.79	B		1.04	A		0.68	A	

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: Industry Rd
 FILENAME: 4/30/2019
 COUNT DATE: 5/1/2019
 REPORT DATE: 5/1/2019

E/W STREET: SR-524
 CITY: Cocoa
 DAY: Tuesday
 ANALYSIS YEAR: 2019

CONTROL: Signalized

INTERSECTION:

15 Min Period	Northbound			Southbound			Eastbound			Westbound			ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
7:00-7:15	2	16	9	58	13	66	161	63	8	7	29	43	475
7:15-7:30	2	16	4	59	12	85	175	91	6	9	22	51	532
7:30-7:45	2	11	10	101	19	96	181	84	2	16	36	92	650
7:45-8:00	2	7	17	101	14	90	159	86	3	19	28	58	584
8:00-8:15	11	10	12	105	13	95	145	76	1	8	57	66	601
8:15-8:30	3	13	12	97	15	79	166	94	4	20	36	57	596
8:30-8:45	8	15	13	91	26	84	100	64	5	22	42	54	524
8:45-9:00	3	6	9	62	9	44	73	47	4	13	22	35	327

AM PEAK HOUR IS FROM:

7:30 AM TO 8:30 AM

Volumes	18	41	51	404	61	360	651	340	10	63	157	275	2431
Season Factor	20	45	56	444	67	396	716	374	11	69	173	303	2674
Growth	20	45	56	444	67	396	716	374	11	69	173	303	2674
In/Out	-	-	-	-	-	-	-	-	-	-	-	-	-
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0

Seasonal Factor: 1.1
 Trips In: 1.1
 Trips Out: 1.1
 Growth Rate: 1
 Years Grown: 1

Total	20	45	56	444	67	396	716	374	11	69	173	303	2675
-------	----	----	----	-----	----	-----	-----	-----	----	----	-----	-----	------

15 Min Period lanes	Northbound			Southbound			Eastbound			Westbound			ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
4:00-4:15	15	23	10	128	28	115	94	100	4	31	140	150	838
4:15-4:30	5	18	17	133	26	128	67	90	2	75	94	110	765
4:30-4:45	5	19	12	117	30	138	106	89	4	52	135	151	858
4:45-5:00	12	31	8	110	26	145	112	97	1	44	155	117	858
5:00-5:15	8	14	7	138	36	140	105	93	3	53	130	119	846
5:15-5:30	12	28	10	134	16	133	103	84	3	56	112	112	803
5:30-5:45	22	35	24	125	19	135	122	111	2	60	95	110	860
5:45-6:00	4	49	2	95	22	88	94	72	9	74	117	112	738

PM PEAK HOUR IS FROM:

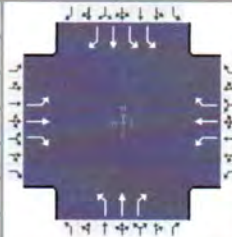
4:45 PM TO 5:45 PM

Volumes	54	108	49	507	97	553	442	385	9	213	492	458	3367
Season Factor	59	119	54	558	107	608	486	424	10	234	541	504	3704
Growth	59	119	54	558	107	608	486	424	10	234	541	504	3704
In/Out	-	-	-	-	-	-	-	-	-	-	-	-	-
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0

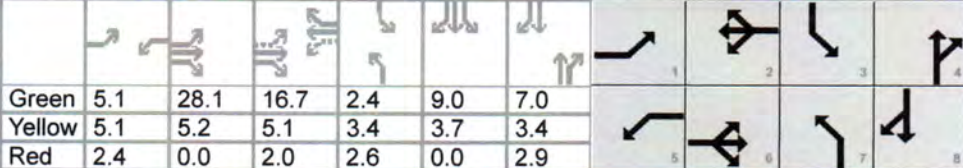
Seasonal Factor: 1.1
 Trips In: 1.1
 Trips Out: 1.1
 Growth Rate: 1
 Years Grown: 1

Total	59	119	54	558	107	608	486	424	10	234	541	504	3704
-------	----	-----	----	-----	-----	-----	-----	-----	----	-----	-----	-----	------

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	O'Rourke Engineering & Planning			Duration, h	0.25	
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	Other	
Jurisdiction	Brevard County	Time Period	AM Peak Hour	PHF	0.92	
Urban Street	SR-524	Analysis Year	2019	Analysis Period	1> 7:00	
Intersection	Industry Rd	File Name	C6 - SR-524 & Industry - AM Existing - 5.13.19.xus			
Project Description	Existing					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	716	374	11	69	173	303	20	45	56	444	67	396

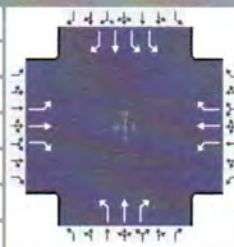
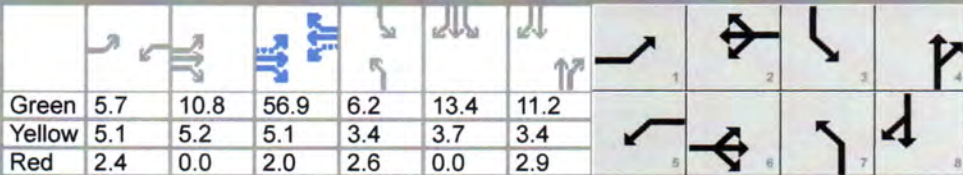
Signal Information												
Cycle, s	104.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	5.1	28.1	16.7	2.4	9.0	7.0		
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	5.1	5.2	5.1	3.4	3.7	3.4		
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.4	0.0	2.0	2.6	0.0	2.9		
												

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	1.1	3.0	1.1	3.0	2.0	3.0	2.0	3.0
Phase Duration, s	45.9	57.1	12.6	23.8	8.4	13.3	21.0	26.0
Change Period, (Y+R _c), s	5.2	7.2	7.5	7.2	6.0	6.3	3.7	6.3
Max Allow Headway (MAH), s	3.0	3.0	3.0	3.0	3.0	3.1	3.0	3.1
Queue Clearance Time (g _s), s	38.8	13.5	5.6	15.1	3.3	4.6	16.1	11.4
Green Extension Time (g _e), s	1.7	1.4	0.1	1.4	0.0	0.5	1.1	0.6
Phase Call Probability	1.00	1.00	0.89	1.00	0.47	1.00	1.00	1.00
Max Out Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	778	407	0	75	188	209	22	49	34	483	73	159
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1730	1870	1585
Queue Service Time (g_s), s	36.8	11.5	0.0	3.6	9.5	13.1	1.3	2.6	2.1	14.1	3.4	9.4
Cycle Queue Clearance Time (g_c), s	36.8	11.5	0.0	3.6	9.5	13.1	1.3	2.6	2.1	14.1	3.4	9.4
Green Ratio (g/C)	0.57	0.48	0.48	0.21	0.16	0.16	0.02	0.07	0.07	0.17	0.19	0.19
Capacity (c), veh/h	849	899	762	313	300	254	40	125	106	577	354	300
Volume-to-Capacity Ratio (X)	0.916	0.452	0.000	0.239	0.628	0.822	0.539	0.390	0.317	0.837	0.206	0.529
Back of Queue (Q), ft/ln (50 th percentile)	264.4	97.5	0	38.1	104.2	122.2	15	30.6	21	149.2	38.6	90.3
Back of Queue (Q), veh/ln (50 th percentile)	10.4	3.8	0.0	1.5	4.1	4.8	0.6	1.2	0.8	5.9	1.5	3.6
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	14.7	11.8	0.0	33.5	38.2	39.6	50.5	46.6	46.4	42.1	35.7	38.1
Incremental Delay (d_2), s/veh	4.6	0.1	0.0	0.1	0.8	2.5	4.1	0.7	0.6	1.3	0.1	0.5
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	19.3	11.9	0.0	33.6	39.0	42.2	54.6	47.4	47.0	43.4	35.8	38.7
Level of Service (LOS)	B	B		C	D	D	D	D	D	D	D	D
Approach Delay, s/veh / LOS	16.8	B		39.6	D		48.8	D		41.6	D	
Intersection Delay, s/veh / LOS	29.6						C					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.13	B		2.66	C		2.47	B		2.15	B	
Bicycle LOS Score / LOS	2.44	B		1.27	A		0.66	A		1.67	B	

HCS7 Signalized Intersection Results Summary

General Information					Intersection Information											
Agency	O'Rourke Engineering & Planning					Duration, h	0.25									
Analyst	James Kemp	Analysis Date	5/7/2019		Area Type	Other										
Jurisdiction	Brevard County	Time Period	PM Peak Hour		PHF	0.95										
Urban Street	SR-524	Analysis Year	2019		Analysis Period	1> 7:00										
Intersection	Industry Rd	File Name	C6 - SR-524 & Industry - PM Existing.xus													
Project Description	Existing															
Demand Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					486	424	10	234	541	504	59	119	54	558	107	608
Signal Information																
Cycle, s	140.0	Reference Phase	2													
Offset, s	0	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On													
Force Mode	Fixed	Simult. Gap N/S	On													
					Green	5.7	10.8	56.9	6.2	13.4	11.2					
					Yellow	5.1	5.2	5.1	3.4	3.7	3.4					
					Red	2.4	0.0	2.0	2.6	0.0	2.9					
Timer Results					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					1	6	5	2	7	4	3	8				
Case Number					1.1	3.0	1.1	3.0	2.0	3.0	2.0	3.0				
Phase Duration, s					29.2	80.0	13.2	64.0	12.2	17.5	29.3	34.6				
Change Period, (Y+R _c), s					5.2	7.2	7.5	7.2	6.0	6.3	3.7	6.3				
Max Allow Headway (MAH), s					3.0	0.0	3.0	0.0	3.0	3.0	3.0	3.0				
Queue Clearance Time (g _s), s					23.7		10.8		6.8	11.1	25.0	11.7				
Green Extension Time (g _e), s					0.3	0.0	0.0	0.0	0.0	0.0	0.6	0.6				
Phase Call Probability					1.00		1.00		0.91	1.00	1.00	1.00				
Max Out Probability					1.00		1.00		1.00	1.00	0.86	0.00				
Movement Group Results					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h					512	446	11	246	569	237	62	125	0	587	113	128
Adjusted Saturation Flow Rate (s), veh/h/ln					1781	1870	1427	1781	1870	1585	1781	1870	1585	1730	1870	1585
Queue Service Time (g _s), s					21.7	13.5	0.3	8.8	30.8	11.2	4.8	9.1	0.0	23.0	7.0	9.7
Cycle Queue Clearance Time (g _c), s					21.7	13.5	0.3	8.8	30.8	11.2	4.8	9.1	0.0	23.0	7.0	9.7
Green Ratio (g/C)					0.64	0.54	0.54	0.49	0.43	0.43	0.05	0.09	0.09	0.20	0.21	0.21
Capacity (c), veh/h					573	1015	774	546	800	678	97	168	142	675	401	340
Volume-to-Capacity Ratio (X)					0.892	0.440	0.014	0.451	0.712	0.349	0.643	0.746	0.000	0.870	0.281	0.378
Back of Queue (Q), ft/ln (95 th percentile)					357.6	215.6	4.5	215.9	469.8	183.5	101	218.1	0	408	148.6	173.5
Back of Queue (Q), veh/ln (95 th percentile)					14.1	8.5	0.2	8.5	18.5	7.2	4.0	8.6	0.0	16.1	5.9	6.8
Queue Storage Ratio (RQ) (95 th percentile)					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh					19.7	11.2	8.9	21.5	24.8	19.6	64.9	62.8	0.0	54.6	46.7	47.0
Incremental Delay (d ₂), s/veh					14.6	1.4	0.0	0.2	5.3	1.4	2.7	14.2	0.0	9.5	0.1	0.3
Initial Queue Delay (d ₃), s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh					34.3	12.6	8.9	21.7	30.1	21.0	67.5	77.1	0.0	64.2	46.8	47.3
Level of Service (LOS)					C	B	A	C	C	C	E	E		E	D	D
Approach Delay, s/veh / LOS					24.0		C	26.1		C	73.9		E	59.2		E
Intersection Delay, s/veh / LOS					37.4						D					
Multimodal Results					EB			WB			NB			SB		
Pedestrian LOS Score / LOS					2.18		B	2.98		C	2.72		C	2.14		B
Bicycle LOS Score / LOS					2.09		B	2.22		B	0.80		A	1.85		B

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: Industry Rd
 FILENAME: 4/30/2019
 COUNT DATE: 5/1/2019
 REPORT DATE: 5/1/2019
 E/W STREET: SR-524
 CITY: Cocoa
 INTERSECTION:
 CONTROL: Signalized
 DAY: Tuesday
 ANALYSIS YEAR: 2022

15 Min Period	Northbound				Southbound				Eastbound				Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	WBL	WBT	WBR	
7:00-7:15	2	16	9	58	13	66	161	63	8	7	29	43	475	2241			2241
7:15-7:30	2	16	4	59	12	85	175	91	6	9	22	51	532	2367			2367
7:30-7:45	2	11	10	101	19	96	181	84	2	16	36	92	650	2431			2431
7:45-8:00	2	7	17	101	14	90	159	86	3	19	28	58	584	2305			2305
8:00-8:15	11	10	12	105	13	95	145	76	1	8	57	68	601	2048			2048
8:15-8:30	3	13	12	97	15	79	166	94	4	20	36	57	596				
8:30-8:45	8	15	13	91	26	84	100	64	5	22	42	54	524				
8:45-9:00	3	6	9	62	9	44	73	47	4	13	22	35	327				

AM PEAK HOUR IS FROM:
 Volumes 18 41 51 404 61 360 651 340 10 63 157 275 2431
 Season Factor 20 45 56 444 67 396 716 374 11 69 173 303 2674
 Growth 21 47 59 467 71 417 753 393 12 73 182 318 2813
 In/Out -
 Percentage 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 PROJECT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

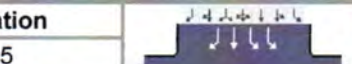
Total	21	47	59	467	71	417	753	393	12	73	182	318	2813				
-------	----	----	----	-----	----	-----	-----	-----	----	----	-----	-----	------	--	--	--	--

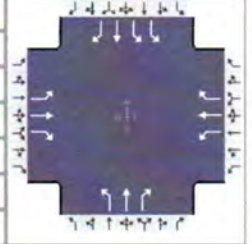
15 Min Period lanes	Northbound				Southbound				Eastbound				Westbound				ONE HOUR SUM
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	WBL	WBT	WBR	
4:00-4:15	15	23	10	128	28	115	94	100	4	31	140	150	838	3319			3319
4:15-4:30	5	18	17	113	26	128	67	90	2	75	94	110	765	3327			3327
4:30-4:45	5	19	12	117	30	138	106	89	4	52	135	151	858	3365			3365
4:45-5:00	12	31	8	110	26	145	112	97	1	44	155	117	858	3367			3367
5:00-5:15	8	14	7	138	36	140	105	93	3	53	130	119	846	3247			3247
5:15-5:30	12	28	10	134	16	133	103	84	3	56	112	112	803				
5:30-5:45	22	35	24	125	19	135	122	111	2	60	95	110	860				
5:45-6:00	4	49	2	95	22	88	94	72	9	74	117	112	738				

PM PEAK HOUR IS FROM:
 Volumes 54 108 49 507 97 553 442 385 9 213 402 458 3367
 Season Factor 59 119 54 558 107 608 486 424 10 234 541 504 3704
 Growth 62 125 57 587 112 640 511 445 10 246 569 530 3896
 In/Out 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
 Percentage 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 PROJECT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Total	62	125	57	587	112	640	511	445	10	246	569	530	3896				
-------	----	-----	----	-----	-----	-----	-----	-----	----	-----	-----	-----	------	--	--	--	--

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	O'Rourke Engineering & Planning			Duration, h	0.25	
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	Other	
Jurisdiction	Brevard County	Time Period	AM Peak Hour	PHF	0.92	
Urban Street	SR-524	Analysis Year	2022	Analysis Period	1> 7:00	
Intersection	Industry Rd	File Name	C6 - SR-524 & Industry - AM 2022 Background - ...			
Project Description	2022 Background					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	753	393	12	73	182	318	21	47	59	467	71	417

Signal Information														
Cycle, s	115.9	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	Yes	Simult. Gap E/W	On	Green	5.9	33.9	19.5	2.6	11.2	7.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.1	5.2	5.1	3.4	3.7	3.4				
				Red	2.4	0.0	2.0	2.6	0.0	2.9				

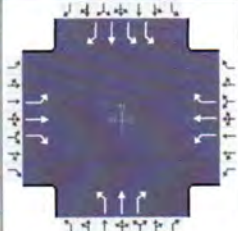
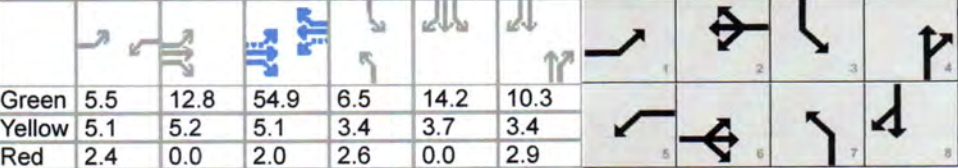
													
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	1.1	3.0	1.1	3.0	2.0	3.0	2.0	3.0
Phase Duration, s	52.4	65.7	13.4	26.6	8.6	13.3	23.5	28.2
Change Period, (Y+R), s	5.2	7.2	7.5	7.2	6.0	6.3	3.7	6.3
Max Allow Headway (MAH), s	3.0	3.0	3.0	3.0	3.0	3.1	3.0	3.1
Queue Clearance Time (g _s), s	45.3	14.5	6.2	17.8	3.5	5.1	18.6	14.2
Green Extension Time (g _e), s	1.8	1.5	0.1	1.5	0.0	0.6	1.2	0.6
Phase Call Probability	1.00	1.00	0.92	1.00	0.52	1.00	1.00	1.00
Max Out Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	818	427	1	79	198	225	23	51	37	508	77	182
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1730	1870	1585
Queue Service Time (g_s), s	43.3	12.5	0.0	4.2	11.1	15.8	1.5	3.1	2.6	16.6	4.1	12.2
Cycle Queue Clearance Time (g_c), s	43.3	12.5	0.0	4.2	11.1	15.8	1.5	3.1	2.6	16.6	4.1	12.2
Green Ratio (g/C)	0.59	0.50	0.50	0.22	0.17	0.17	0.02	0.06	0.06	0.17	0.19	0.19
Capacity (c), veh/h	874	945	801	313	314	266	40	113	95	593	354	300
Volume-to-Capacity Ratio (X)	0.936	0.452	0.001	0.253	0.630	0.846	0.566	0.454	0.387	0.856	0.218	0.605
Back of Queue (Q), ft/ln (50 th percentile)	342.8	105.4	0.2	45.1	122.9	148.7	17.8	36.6	26.4	178.2	46.6	119.4
Back of Queue (Q), veh/ln (50 th percentile)	13.5	4.2	0.0	1.8	4.8	5.9	0.7	1.4	1.0	7.0	1.8	4.7
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	15.3	11.4	9.4	36.5	41.9	43.7	56.3	52.8	52.6	46.8	39.9	43.2
Incremental Delay (d_2), s/veh	9.0	0.1	0.0	0.2	0.8	2.9	4.6	1.1	1.0	1.4	0.1	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	24.3	11.6	9.4	36.6	42.6	46.5	60.8	53.8	53.5	48.2	40.0	43.9
Level of Service (LOS)	C	B	A	D	D	D	E	D	D	D	D	D
Approach Delay, s/veh / LOS	20.0	B		43.4	D		55.2	E		46.3	D	
Intersection Delay, s/veh / LOS	33.6						C					

Multimodal Results	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.13	B		2.66	C		2.47	B		2.15	B	
Bicycle LOS Score / LOS	2.54	C		1.32	A		0.67	A		1.75	B	

HCS7 Signalized Intersection Results Summary

General Information						Intersection Information													
Agency		O'Rourke Engineering & Planning				Duration, h		0.25											
Analyst		James Kemp		Analysis Date		5/7/2019		Area Type		Other									
Jurisdiction		Brevard County		Time Period		PM Peak Hour		PHF		0.95									
Urban Street		SR-524		Analysis Year		2022		Analysis Period		1> 7:00									
Intersection		Industry Rd		File Name		C6 - SR-524 & Industry - PM 2022 Background -...													
Project Description		2022 Background																	
Demand Information				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h				511	445	10	246	569	530	62	125	57	587	112	640				
Signal Information																			
Cycle, s	140.0	Reference Phase	2																
Offset, s	0	Reference Point	End																
Uncoordinated	No	Simult. Gap E/W	On																
Force Mode				Fixed	Simult. Gap N/S	On	Green	5.5	12.8	54.9	6.5	14.2	10.3						
				Yellow	5.1	5.2	5.1	3.4	3.7	3.4									
				Red	2.4	0.0	2.0	2.6	0.0	2.9									
Timer Results				EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase				1		6		5		2		7		4		3		8	
Case Number				1.1		3.0		1.1		3.0		2.0		3.0		2.0		3.0	
Phase Duration, s				31.0		80.0		13.0		62.0		12.5		16.6		30.4		34.5	
Change Period, (Y+R c), s				5.2		7.2		7.5		7.2		6.0		6.3		3.7		6.3	
Max Allow Headway (MAH), s				3.0		0.0		3.0		0.0		3.0		3.0		3.0		3.0	
Queue Clearance Time (g s), s				28.8				10.6				7.0		11.7		26.3		12.3	
Green Extension Time (g e), s				0.0		0.0		0.0		0.0		0.0		0.0		0.4		0.6	
Phase Call Probability				1.00				1.00				0.92		1.00		1.00		1.00	
Max Out Probability				1.00				1.00				1.00		1.00		1.00		0.00	
Movement Group Results				EB			WB			NB			SB						
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement				1	6	16	5	2	12	7	4	14	3	8	18				
Adjusted Flow Rate (v), veh/h				538	468	0	259	599	249	65	132	0	618	118	136				
Adjusted Saturation Flow Rate (s), veh/h/ln				1781	1870	1427	1781	1870	1585	1781	1870	1585	1730	1870	1585				
Queue Service Time (g s), s				26.8	14.5	0.0	8.6	35.1	12.5	5.0	9.7	0.0	24.3	7.4	10.3				
Cycle Queue Clearance Time (g c), s				26.8	14.5	0.0	8.6	35.1	12.5	5.0	9.7	0.0	24.3	7.4	10.3				
Green Ratio (g/C)				0.64	0.54	0.54	0.47	0.41	0.41	0.06	0.08	0.08	0.20	0.21	0.21				
Capacity (c), veh/h				554	1015	774	523	773	655	100	157	133	701	400	339				
Volume-to-Capacity Ratio (X)				0.970	0.461	0.000	0.495	0.774	0.381	0.651	0.840	0.000	0.881	0.295	0.401				
Back of Queue (Q), ft/ln (95 th percentile)				502.6	225.9	0	61.1	538.9	201.9	106	249.3	0	430.2	156	184.7				
Back of Queue (Q), veh/ln (95 th percentile)				19.8	8.9	0.0	2.4	21.2	7.9	4.2	9.8	0.0	16.9	6.1	7.3				
Queue Storage Ratio (RQ) (95 th percentile)				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Uniform Delay (d 1), s/veh				24.8	11.3	0.0	23.4	27.3	21.2	64.7	63.9	0.0	54.2	46.9	47.3				
Incremental Delay (d 2), s/veh				30.5	1.5	0.0	0.3	7.4	1.7	2.6	30.1	0.0	11.0	0.2	0.3				
Initial Queue Delay (d 3), s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh				55.4	12.8	0.0	23.7	34.8	22.9	67.4	94.0	0.0	65.1	47.0	47.6				
Level of Service (LOS)				E	B		C	C	C	E	F		E	D	D				
Approach Delay, s/veh / LOS				35.6		D	29.5		C	85.2		F	60.0		E				
Intersection Delay, s/veh / LOS				43.2						D									
Multimodal Results				EB			WB			NB			SB						
Pedestrian LOS Score / LOS				2.18		B	3.01		C	2.74		C	2.15		B				
Bicycle LOS Score / LOS				2.15		B	2.31		B	0.81		A	1.93		B				

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: Industry Rd
FILENAME: 4/30/2019
COUNT DATE: 5/1/2019
REPORT DATE:

E/W STREET: SR-524

CONTROL: Signalized

INTERSECTION:

15 Min Period	Northbound			Southbound			Eastbound			Westbound			ONE HOUR SUM	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
7:00-7:15	2	16	9	58	13	66	161	63	8	7	29	43	475	2241
7:15-7:30	2	16	4	59	12	85	175	91	6	9	22	51	532	2367
7:30-7:45	2	11	10	101	19	96	181	84	2	16	36	92	650	2431
7:45-8:00	2	7	17	101	14	90	159	86	3	19	28	58	584	2305
8:00-8:15	11	10	12	105	13	95	145	76	1	8	57	68	601	2048
8:15-8:30	3	13	12	97	15	79	166	94	4	20	36	57	596	
8:30-8:45	8	15	13	91	26	84	100	64	5	22	42	54	524	
8:45-9:00	3	6	9	62	9	44	73	47	4	13	22	35	327	

434	71	467	↕																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
-----	----	-----	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

AM PEAK HOUR IS FROM:
7:30 AM TO 8:30AM

Seasonal Factor:	1.1
Trips In	49
Trips Out	166
Growth Rate:	1.017
Years Grown:	3

Total	23	47	59	467	71	434	811	435	18	73	194	318	3950
-------	----	----	----	-----	----	-----	-----	-----	----	----	-----	-----	------

C-38

15 Min Period lanes	Northbound			Southbound			Eastbound			Westbound				
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	ONE HOUR SUM
4:00-4:15	15	23	10	128	28	115	94	100	4	31	140	150	838	3319
4:15-4:30	5	18	17	133	26	128	67	90	2	75	94	110	765	3327
4:30-4:45	5	19	12	117	30	138	106	89	4	52	135	151	858	3365
4:45-5:00	12	31	8	110	26	145	112	97	1	44	155	117	858	3367
5:00-5:15	8	14	7	138	36	140	105	93	3	53	130	119	846	3247
5:15-5:30	12	28	10	134	16	133	103	84	3	56	112	112	803	
5:30-5:45	21	35	24	125	19	135	122	111	2	60	95	110	860	
5:45-6:00	4	49	2	95	22	88	94	72	9	74	117	112	738	

← 1369

543

← 1384

530

PM

607

246

1111 →

693

112

587

69

125

57

1025 →

14

SEEKING LIQUID IS COMMON

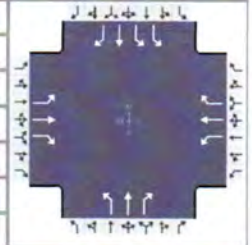
Seasonal Factor:	1.1
Growth Rate:	1.017
Trips In:	152
Trips Out:	90
Years Grown:	3

	69	125	57	587	112	693	543	468	14	246	607	530	4051
Total	69	125	57	587	112	693	543	468	14	246	607	530	4051

HCS7 Signalized Intersection Results Summary

General Information

Agency	O'Rourke Engineering & Planning			Duration, h	0.25
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	Other
Jurisdiction	Brevard County	Time Period	AM Peak Hour	PHF	0.95
Urban Street	SR-524	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Industry Rd	File Name	C6 - SR-524 & Industry - AM 2022 with Project - 5...		
Project Description	2022 with Project				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	811	435	18	73	194	318	23	47	59	467	71	434

Signal Information

Cycle, s	118.8	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	5.9	37.6	18.8	2.8	10.9	7.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.1	5.2	5.1	3.4	3.7	3.4		
				Red	2.4	0.0	2.0	2.6	0.0	2.9		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	1.1	3.0	1.1	3.0	2.0	3.0	2.0	3.0
Phase Duration, s	56.2	68.7	13.4	25.9	8.8	13.3	23.4	27.9
Change Period, (Y+R _c), s	5.2	7.2	7.5	7.2	6.0	6.3	3.7	6.3
Max Allow Headway (MAH), s	3.0	3.0	3.0	3.0	3.0	3.1	3.0	3.1
Queue Clearance Time (g _s), s	48.9	15.4	6.3	17.9	3.6	5.0	18.5	15.6
Green Extension Time (g _e), s	1.9	1.6	0.1	0.7	0.0	0.6	1.1	0.6
Phase Call Probability	1.00	1.00	0.92	1.00	0.55	1.00	1.00	1.00
Max Out Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Movement Group Results

Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	854	458	7	77	204	218	24	49	36	492	75	194
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1730	1870	1585
Queue Service Time (g_s), s	46.9	13.4	0.2	4.3	12.0	15.9	1.6	3.0	2.6	16.5	4.1	13.6
Cycle Queue Clearance Time (g_c), s	46.9	13.4	0.2	4.3	12.0	15.9	1.6	3.0	2.6	16.5	4.1	13.6
Green Ratio (g/C)	0.60	0.52	0.52	0.21	0.16	0.16	0.02	0.06	0.06	0.17	0.18	0.18
Capacity (c), veh/h	893	970	822	296	295	250	42	110	93	575	341	289
Volume-to-Capacity Ratio (X)	0.956	0.472	0.009	0.260	0.693	0.872	0.582	0.450	0.385	0.855	0.219	0.671
Back of Queue (Q), ft/ln (50 th percentile)	387.1	110.5	1.5	45.8	134.1	151.5	19.3	36.5	26.3	177.9	46.7	133.8
Back of Queue (Q), veh/ln (50 th percentile)	15.2	4.4	0.1	1.8	5.3	6.0	0.8	1.4	1.0	7.0	1.8	5.3
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	15.0	10.9	8.9	38.5	44.4	45.9	57.6	54.3	54.0	48.3	41.5	45.4
Incremental Delay (d_2), s/veh	13.1	0.1	0.0	0.2	1.1	3.7	4.7	1.1	1.0	1.5	0.1	1.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	28.2	11.1	8.9	38.6	45.5	49.6	62.4	55.3	55.0	49.8	41.6	46.4
Level of Service (LOS)	C	B	A	D	D	D	E	E	E	D	D	D
Approach Delay, s/veh / LOS	22.1	C		46.3	D		56.8	E		48.1	D	
Intersection Delay, s/veh / LOS	35.4						D					

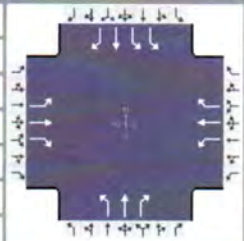
Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.13	B		2.66	C		2.47	B		2.15	B	
Bicycle LOS Score / LOS	2.66	C		1.31	A		0.67	A		1.74	B	

HCS7 Signalized Intersection Results Summary

General Information

Agency	O'Rourke Engineering & Planning			Duration, h	0.25
Analyst	James Kemp	Analysis Date	5/7/2019	Area Type	Other
Jurisdiction	Brevard County	Time Period	PM Peak Hour	PHF	0.95
Urban Street	SR-524	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Industry Rd	File Name	C6 - SR-524 & Industry - PM 2022 with Project - ...		
Project Description	2022 with Project				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	543	468	14	246	607	530	69	125	57	587	112	693

Signal Information

Cycle, s	140.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	5.5	12.8	54.9	7.1	13.5	10.3		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	5.1	5.2	5.1	3.4	3.7	3.4		
				Red	2.4	0.0	2.0	2.6	0.0	2.9		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	1.1	3.0	1.1	3.0	2.0	3.0	2.0	3.0
Phase Duration, s	31.0	80.0	13.0	62.0	13.1	16.6	30.4	33.9
Change Period, (Y+R _c), s	5.2	7.2	7.5	7.2	6.0	6.3	3.7	6.3
Max Allow Headway (MAH), s	3.0	0.0	3.0	0.0	3.0	3.1	3.0	3.1
Queue Clearance Time (g _s), s	31.0		10.6		7.6	11.7	26.3	17.2
Green Extension Time (g _e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.6
Phase Call Probability	1.00		1.00		0.94	1.00	1.00	1.00
Max Out Probability	1.00		1.00		1.00	1.00	1.00	0.01

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	572	493	4	259	639	249	73	132	0	618	118	192
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1427	1781	1870	1585	1781	1870	1585	1730	1870	1585
Queue Service Time (g _s), s	29.0	15.7	0.1	8.6	39.4	12.5	5.6	9.7	0.0	24.3	7.5	15.2
Cycle Queue Clearance Time (g _c), s	29.0	15.7	0.1	8.6	39.4	12.5	5.6	9.7	0.0	24.3	7.5	15.2
Green Ratio (g/C)	0.64	0.54	0.54	0.47	0.41	0.41	0.06	0.08	0.08	0.20	0.21	0.21
Capacity (c), veh/h	525	1015	774	515	773	655	109	157	133	701	391	331
Volume-to-Capacity Ratio (X)	1.088	0.485	0.005	0.503	0.826	0.381	0.668	0.840	0.000	0.881	0.302	0.578
Back of Queue (Q), ft/ln (95 th percentile)	911	237.5	1.8	62.2	604.1	201.9	121.7	249.3	0	430.2	157.1	257.1
Back of Queue (Q), veh/ln (95 th percentile)	35.9	9.4	0.1	2.4	23.8	7.9	4.8	9.8	0.0	16.9	6.2	10.1
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	29.3	11.5	8.9	23.4	28.4	21.2	64.3	63.9	0.0	54.2	47.4	49.8
Incremental Delay (d ₂), s/veh	65.4	1.7	0.0	0.3	9.8	1.7	5.5	30.1	0.0	11.0	0.2	1.7
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	94.7	13.2	8.9	23.8	38.2	22.9	69.8	94.0	0.0	65.1	47.6	51.5
Level of Service (LOS)	F	B	A	C	D	C	E	F		E	D	D
Approach Delay, s/veh / LOS	56.8		E	31.6		C	85.4		F	60.1		E
Intersection Delay, s/veh / LOS	50.8						D					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.18		B	3.01		C	2.74		C	2.15		B
Bicycle LOS Score / LOS	2.25		B	2.38		B	0.82		A	2.02		B

APPENDIX D

Driveway Analysis

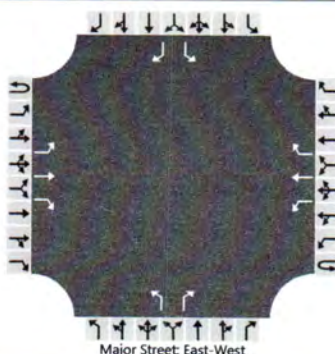
HCS7 Two-Way Stop-Control Report

General Information

Analyst	James Kemp	Intersection	SR-524 & Driveway
Agency/Co.	O'Rourke Engineering	Jurisdiction	Brevard County
Date Performed	5/13/2019	East/West Street	SR-524
Analysis Year	2022	North/South Street	Project Driveway
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Cocoa Landing		

Site Information

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	1	0	1	1	1		1	0	1		1	0	1
Configuration		L	T	R		L	T	R		L		R		L		R
Volume (veh/h)		4	522	18		31	483	8		60		106		23		13
Percent Heavy Vehicles (%)		3				3				3		3		3		3
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized	No				No				No				No			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1		6.2		7.1		6.2
Critical Headway (sec)		4.13				4.13				7.13		6.23		7.13		6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3
Follow-Up Headway (sec)		2.23				2.23				3.53		3.33		3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		4				33				63		112		24		14
Capacity, c (veh/h)		1044				999				167		533		125		563
v/c Ratio		0.00				0.03				0.38		0.21		0.19		0.02
95% Queue Length, Q ₉₅ (veh)		0.0				0.1				1.6		0.8		0.7		0.1
Control Delay (s/veh)		8.5				8.7				39.0		13.5		40.8		11.6
Level of Service (LOS)		A				A				E		B		E		B
Approach Delay (s/veh)	0.1				0.5				22.7				30.2			
Approach LOS									C				D			

HCS7 Two-Way Stop-Control Report

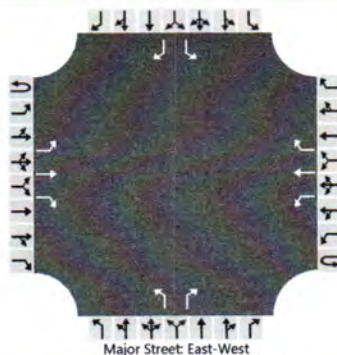
General Information

Analyst	James Kemp
Agency/Co.	O'Rourke Engineering
Date Performed	5/13/2019
Analysis Year	2022
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	Cocoa Landing

Site Information

Intersection	SR-524 & Driveway
Jurisdiction	Brevard County
East/West Street	SR-524
North/South Street	Project Driveway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	1	0	1	1	1		1	0	1		1	0	1
Configuration		L	T	R		L	T	R		L		R		L		R
Volume (veh/h)		15	574	55		97	718	26		32		58		15		8
Percent Heavy Vehicles (%)		3				3				3		3		3		3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		No				No				No				No		
Median Type Storage						Left Only						1				

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1		6.2		7.1		6.2
Critical Headway (sec)		4.13				4.13				7.13		6.23		7.13		6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5		3.3		3.5		3.3
Follow-Up Headway (sec)		2.23				2.23				3.53		3.33		3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16				102				34		61		16		8
Capacity, c (veh/h)		831				922				175		496		152		407
v/c Ratio		0.02				0.11				0.19		0.12		0.10		0.02
95% Queue Length, Q ₉₅ (veh)		0.1				0.4				0.7		0.4		0.3		0.1
Control Delay (s/veh)		9.4				9.4				30.3		13.3		31.5		14.0
Level of Service (LOS)		A				A				D		B		D		B
Approach Delay (s/veh)		0.2				1.1				19.3				25.4		
Approach LOS										C				D		

DRAFT

Figure 2: Left Turn Lane Warrants

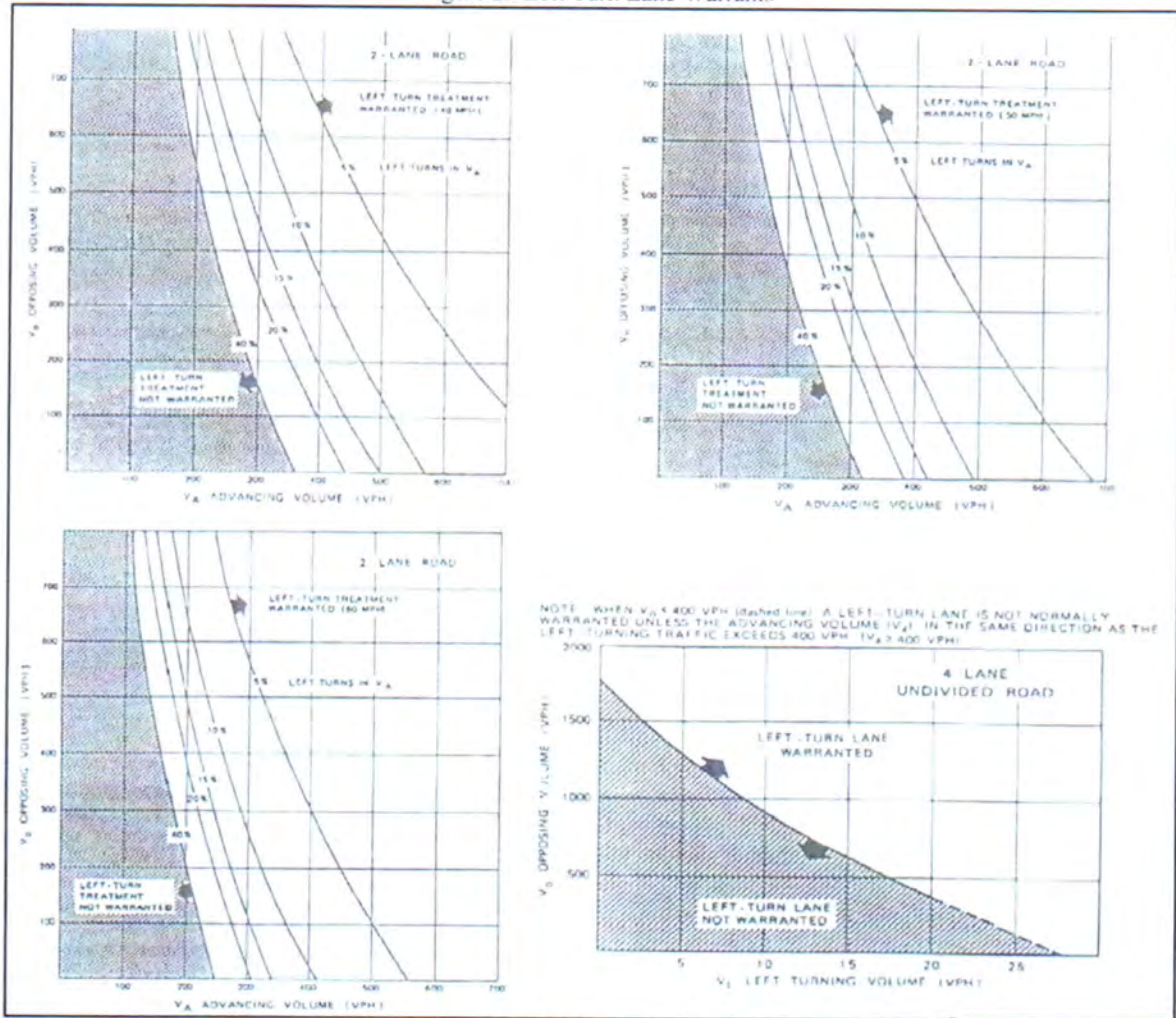
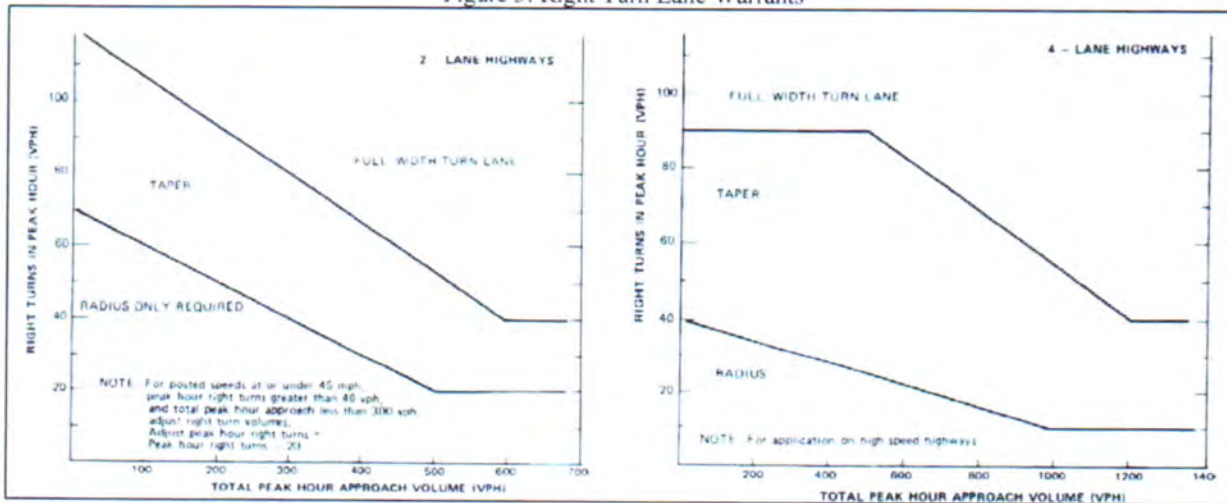


Figure 3: Right Turn Lane Warrants



Trip Generation - Cocoa Pines

Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Single Family Detached	210	83	DU	$\ln(T)=0.92\ln(X)+2.71$	50%	50%	438	438	876

Source: ITE 10th Edition Trip Generation Rates

AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Single Family Detached	210	83	DU	$T=0.71(X)+4.80$	25%	75%	16	48	64

Source: ITE 10th Edition Trip Generation Rates

PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Single Family Detached	210	83	DU	$\ln(T)=0.96\ln(X)+0.20$	63%	37%	54	31	85

Source: ITE 10th Edition Trip Generation Rates



August 8, 2021

Response Memo: SR 524 Level of Service (LOS) Updated Table

Dollar General Location: SR 524 at Westminster Drive, Cocoa, Brevard County, FL [MPH 21-04]

Project Description:

MPH is providing this response memo to the City of Cocoa request for an updated level of service (LOS) report for the SR 524 roadway segment impacted by the proposed project. Concept Development, Inc. has proposed a 10,640 sf Variety Retail Store on SR 524 at Westminster Drive, Cocoa, Brevard County, Florida. The project is a new development on a vacant parcel on the south side of SR 524 as displayed in Figure 1. City of Cocoa staff has provided traffic studies for four (4) other projects that have been approved on the same segment. They requested that the LOS analysis provided in the project traffic study dated 4/19/2021 be updated to include the trip impacts of these four projects.

ITE 10th Edition Trip Generation:

All four projects used the latest version of ITE Trip generation to produce daily and p.m. peak hour project trip estimates. MPH used Land Use Code 814 Variety Retail Store is used to estimate project trip impacts for the proposed Dollar General. These volumes are identified on the attached Figure 1 for each project.

Trip Distribution:

Trip distribution was extracted from each of the project's reports as provided by City of Cocoa. PM peak hour trip assignments are provided at the driveway connection to SR 524 for each project. The Daily trip volume was extracted from each separate report based on that which was provided in the reports and approved by the City and FDOT for their respective connection permits.

Proposed Growth Rate:

None. No additional growth rate was added to that already associated with the four projects. Dollar General is normally constructed and open for business within 150-180 days of permit approvals. No increase in adjacent street traffic is anticipated within the next 6 months of 2021. It is unlikely that any of these other projects will have anything other than construction traffic over the next 6-12 months.

Traffic Counts:

The latest existing counts available from the *Space Coast TPO Annual Traffic Report* were used in the LOS analysis.

Level of Service Analysis

The original Table 3: Level of Service (LOS) provided in the traffic study has been updated with the data extracted from the four traffic studies provided by the City of Cocoa. Based on each individual project distribution the directional traffic that would impact the center point of the SR 524 roadway segment is recorded in the revised table and detailed on Figure 1.

TABLE 3: Roadway Level of Service (LOS)
Variety Retail_10,640 SF Store

Cocoa, Florida

Roadway	Segment #/Description	Period	Capacity	Traffic	Res'vd.	Project	V/C	LOS
SR 524	#76 Cox to Industry Rd.	Daily	19,470	13,380	3,671	280	0.89	D

Source:	558	Cirrus
SC-TPO LOS Report; Capacity = daily maximum service volume at LOS D Std.	101	Retreat
Existing (2020) Traffic Volumes = daily volume from FDOT Count Station	2334	Coca Landing
Reserved tips from SR 524 approved projects	678	Integra
Project trips = highest daily trips (net new) from Table 2	3671	Total Res'vd.

Roadway	Segment #/Description	Period	Capacity	Traffic	Res'vd.	Project	V/C	LOS
SR 524	#76 Cox to Industry Rd.	Pk. Hr. Dir.	880	639	153	19	0.92	D

Source:	19	Cirrus
Capacity from FDOT QLOS Table 7 Class 1 Arterial LOS D = 880.	3	Retreat
Existing (2021) Traffic Volume from MPH TMC Count on 4/7/2021.	97	Coca Landing
Reserved tips from SR 524 approved projects	34	Integra
Project Trips from Table 2	153	Total Res'vd.

If further consultation or modification to any of the items above is required, please call me at (850) 510-6461 anytime during normal business hours to discuss.

Sincerely,

Mike Hemmen

Mike Hemmen, AICP – President
Certificate # 012190
MPH Transportation Planning, Inc.

Responsible Transportation Engineer of Traffic Study:

Angela Garland

Angela Garland, P.E., P.T.O.E.
FLA License # 55387
Pennoni

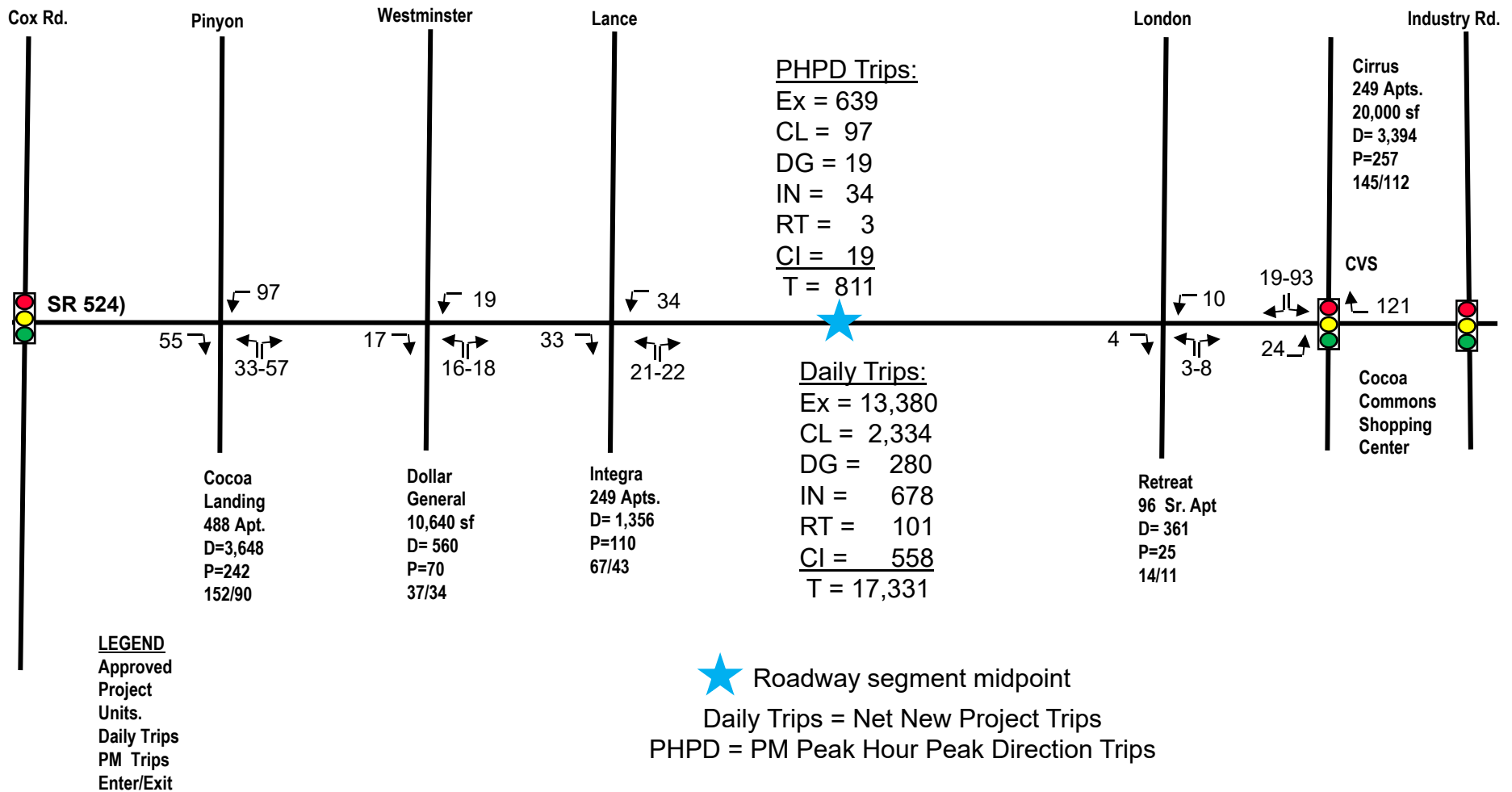
Copies distributed electronically to:

Bryant Smith	City of Cocoa Public Works
Al Tilly, P.E.	Concept Companies - Project Engineer
Travis Hastay, P.E.	CHW Engineering

bsmith@cocoafl.org
atilly@conceptcompanies.net
travish@chw-inc.com

Attachments: Figure 1: Daily & PM Project Impacts

SC-TPO Segment # 76 SR 524 from Cox to Industry 1.8 Miles



Distribution based on Traffic Studies for 5 different developments provided by City of Cocoa & MPH
 Existing peak hour volume (639) from MPH TMC data 4/7/2021

MPH

MPH 21-04 8/8/21

SR 524 Multi-project – Cocoa, FL Daily & PM Peak Hour Impacts

Figure 1
Page 3

APPENDIX I

Proportionate Fair Share Facility Cost Estimate

FDOT Long Range Estimating System - Production					
R4: Project Details Composite Report					
By Version					
Project: WURA24-R-21-BB			Letting Date: 01/2099		
Description: Widen Existing 2 Lane Arterial to 4 Lanes Undivided; Add 1 Lane to Each Side; 7' Paved Shoulders					
District: 09	County: 99 DISTRICT/STATE WIDE				
Project Manager: Cost-Per-Mile Model					
Version 17-P Project Grand Total				\$3,259,629.45	
Description: October 2022 Update					
Pay Items					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
102-1	MAINTENANCE OF TRAFFIC	10.00			\$265,258.63
101-1	MOBILIZATION	10.00			\$291,784.50
104-10-3	SEDIMENT BARRIER	12,144.00	LF	\$1.70	\$20,644.80
104-11	FLOATING TURBIDITY BARRIER	100.00	LF	\$12.00	\$1,200.00
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	100.00	LF	\$6.70	\$670.00
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$2,600.00	\$2,600.00
107-1	LITTER REMOVAL	1.20	AC	\$30.00	\$36.00
107-2	MOWING	1.20	AC	\$46.00	\$55.20
110-1-1	CLEARING & GRUBBING	9.71	AC	\$23,000.00	\$223,330.00
120-1	REGULAR EXCAVATION	4,840.00	CY	\$9.50	\$45,980.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	24,733.87	CY	\$22.00	\$544,145.14
160-4	TYPE B STABILIZATION	25,813.33	SY	\$5.90	\$152,298.65
285-704	OPTIONAL BASE,BASE GROUP 04	6,253.87	SY	\$17.00	\$106,315.79
285-709	OPTIONAL BASE,BASE GROUP 09	14,467.20	SY	\$20.00	\$289,344.00
327-70-15	MILLING EXIST ASPH PAVT,2 3/4" AVG DEPTH	14,080.00	SY	\$2.70	\$38,016.00
334-1-53	SUPERPAVE ASPH CONC, TRAF C, PG76-22	5,743.47	TN	\$120.00	\$689,216.40
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	1,157.38	TN	\$160.00	\$185,180.80
425-1-541	INLETS, DT BOT, TYPE D,	1.00	EA	\$6,200.00	\$6,200.00
425-2-71	MANHOLES, J-7,	1.00	EA	\$10,000.00	\$10,000.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	152.00	LF	\$150.00	\$22,800.00
430-175-130	PIPE CULV, OPT MATL, ROUND, 30"S/CD	64.00	LF	\$180.00	\$11,520.00
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	56.00	LF	\$280.00	\$15,680.00
430-175-154	PIPE CULV, OPT MATL, ROUND, 54"S/CD	200.00	LF	\$470.00	\$94,000.00

FDOT Long Range Estimating System - Production					
R4: Project Details Composite Report					
By Version					
Project: WURA24-R-21-BB			Letting Date: 01/2099		
Description: Widen Existing 2 Lane Arterial to 4 Lanes Undivided; Add 1 Lane to Each Side; 7' Paved Shoulders					
District: 09	County: 99 DISTRICT/STATE WIDE				
Project Manager: Cost-Per-Mile Model					
Version 17-P Project Grand Total				\$3,259,629.45	
Description: October 2022 Update					
Pay Items					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
430-530-100	STRAIGHT CONC ENDW 30", SINGLE, 0 ROUND	2.00	EA	\$6,400.00	\$12,800.00
430-542-100	STRAIGHT CONC ENDW 42", SINGLE, 0 ROUND	2.00	EA	\$10,000.00	\$20,000.00
430-554-100	STRAIGHT CONC ENDW 54", SINGLE, 0 ROUND	2.00	EA	\$10,000.00	\$20,000.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	10.00	EA	\$2,500.00	\$25,000.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	2.00	GM	\$1,200.00	\$2,400.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	600.00	LF	\$30.00	\$18,000.00
550-60-234	FENCE GATE,TYP B,SLIDE/CANT,18.1-20'OPEN	1.00	EA	\$5,700.00	\$5,700.00
570-1-2	PERFORMANCE TURF, SOD	8,690.67	SY	\$2.30	\$19,988.54
700-1-11	SINGLE POST SIGN, F&I GM,	2.00	AS	\$440.00	\$880.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	20.00	AS	\$1,400.00	\$28,000.00
700-1-50	SINGLE POST SIGN, RELOCATE	2.00	AS	\$260.00	\$520.00
700-1-60	SINGLE POST SIGN, REMOVE	20.00	AS	\$43.00	\$860.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	2.00	AS	\$5,800.00	\$11,600.00
700-2-60	MULTI- POST SIGN, REMOVE	2.00	AS	\$910.00	\$1,820.00
706-1-3	RAISED PAVMT MARK, TYPE B	675.00	EA	\$3.80	\$2,565.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	4.00	GM	\$1,100.00	\$4,400.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	6.00	GM	\$520.00	\$3,120.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	2.00	GM	\$5,300.00	\$10,600.00
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	3.00	GM	\$1,700.00	\$5,100.00
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)	1.00	LS	\$50,000.00	\$50,000.00
Project Unknowns			0.00 %		\$0.00

FDOT Long Range Estimating System - Production					
R4: Project Details Composite Report					
By Version					
Project: WURA24-R-21-BB			Letting Date: 01/2099		
Description: Widen Existing 2 Lane Arterial to 4 Lanes Undivided; Add 1 Lane to Each Side; 7' Paved Shoulders					
District: 09	County: 99 DISTRICT/STATE WIDE				
Project Manager: Cost-Per-Mile Model					
Version 17-P Project Grand Total				\$3,259,629.45	
Description: October 2022 Update					
Pay Items					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
Design/Build			0.00 %		\$0.00
Version 17-P Project Grand Total				\$3,259,629.45	

APPENDIX J

Synchro Analysis – Future Conditions

Future AM Peak Hour
1: SR 524 & Cox Rd

01/15/2023

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	46	9	157	146	53	41	15	459	115	149	360	27
Future Volume (veh/h)	46	9	157	146	53	41	15	459	115	149	360	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No			No			No	
Adj Sat Flow, veh/h/ln	1455	1278	1767	1811	1693	1826	1752	1722	1870	1870	1663	1633
Adj Flow Rate, veh/h	49	10	145	155	56	25	16	488	0	159	383	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	30	42	9	6	14	5	10	12	2	2	16	18
Cap, veh/h	62	16	136	95	24	11	1162	2097		1172	2132	
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	1.00	1.00	0.00	0.02	1.00	0.00
Sat Flow, veh/h	235	94	807	388	140	63	937	1722	1585	1781	1663	1384
Grp Volume(v), veh/h	204	0	0	236	0	0	16	488	0	159	383	0
Grp Sat Flow(s),veh/h/ln	1135	0	0	590	0	0	937	1722	1585	1781	1663	1384
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	33.6	0.0	0.0	33.6	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.24		0.71	0.66		0.11	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	213	0	0	129	0	0	1162	2097		1172	2132	
V/C Ratio(X)	0.96	0.00	0.00	1.83	0.00	0.00	0.01	0.23		0.14	0.18	
Avail Cap(c_a), veh/h	213	0	0	129	0	0	1162	2097		1226	2132	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.72	0.72	0.00
Uniform Delay (d), s/veh	84.3	0.0	0.0	87.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Incr Delay (d2), s/veh	49.7	0.0	0.0	401.8	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	19.6	0.0	0.0	35.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	134.0	0.0	0.0	488.9	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.0
LnGrp LOS	F	A	A	F	A	A	A	A		A	A	
Approach Vol, veh/h	204			236			504			542		
Approach Delay, s/veh	134.0			488.9			0.3			0.1		
Approach LOS	F			F			A			A		
Timer - Assigned Phs	2		4		5		6		8			
Phs Duration (G+Y+Rc), s	267.6		43.2		12.9		254.7		43.2			
Change Period (Y+Rc), s	8.0		* 9.6		7.9		* 8		9.6			
Max Green Setting (Gmax), s	152.0		* 34		11.1		* 1.3E2		30.4			
Max Q Clear Time (g_c+I1), s	2.0		35.6		2.0		5.2		35.6			
Green Ext Time (p_c), s	2.7		0.0		0.3		3.7		0.0			
Intersection Summary												
HCM 6th Ctrl Delay	96.2											
HCM 6th LOS	F											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NER, SWR] is excluded from calculations of the approach delay and intersection delay.												

Future AM Peak Hour
2: SR 524 & London Blvd

01/15/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	483	269	29	47	326	239	219	56	47	249	68	519
Future Volume (veh/h)	483	269	29	47	326	239	219	56	47	249	68	519
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1737	1870	1870	1722	1856	1870	1870	1870	1870	1870	1781
Adj Flow Rate, veh/h	514	286	32	51	347	0	238	61	51	265	74	552
Peak Hour Factor	0.94	0.94	0.92	0.92	0.94	0.94	0.92	0.92	0.92	0.94	0.92	0.94
Percent Heavy Veh, %	2	11	2	2	12	3	2	2	2	2	2	8
Cap, veh/h	620	1139	1039	664	994		115	128	107	296	35	260
Arrive On Green	0.05	0.66	0.66	0.58	0.58	0.00	0.04	0.14	0.14	0.08	0.18	0.18
Sat Flow, veh/h	1781	1737	1585	1062	1722	1572	1781	942	787	1781	191	1423
Grp Volume(v), veh/h	514	286	32	51	347	0	238	0	112	265	0	626
Grp Sat Flow(s),veh/h/ln	1781	1737	1585	1062	1722	1572	1781	0	1729	1781	0	1614
Q Serve(g_s), s	6.5	9.5	1.0	3.0	14.9	0.0	5.0	0.0	8.4	11.5	0.0	25.6
Cycle Q Clear(g_c), s	6.5	9.5	1.0	3.0	14.9	0.0	5.0	0.0	8.4	11.5	0.0	25.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		0.88
Lane Grp Cap(c), veh/h	620	1139	1039	664	994		115	0	236	296	0	295
V/C Ratio(X)	0.83	0.25	0.03	0.08	0.35		2.07	0.00	0.47	0.90	0.00	2.12
Avail Cap(c_a), veh/h	620	1139	1039	665	995		115	0	247	296	0	295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.8	9.9	8.5	13.1	15.7	0.0	58.1	0.0	55.8	53.2	0.0	57.2
Incr Delay (d2), s/veh	8.4	0.5	0.1	0.1	0.3	0.0	509.5	0.0	1.5	27.5	0.0	515.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	17.4	6.0	0.6	1.2	9.3	0.0	28.5	0.0	6.8	10.2	0.0	82.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	10.4	8.5	13.2	16.0	0.0	567.6	0.0	57.3	80.7	0.0	572.9
LnGrp LOS	C	B	A	B	B		F	A	E	F	A	F
Approach Vol, veh/h		832			398			350			891	
Approach Delay, s/veh		25.0			15.6			404.3			426.5	
Approach LOS		C			B			F			F	
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		99.5	9.5	31.0	11.0	88.5	16.0	24.5				
Change Period (Y+Rc), s		7.7	4.5	5.4	4.5	* 7.7	4.5	* 5.4				
Max Green Setting (Gmax), s		82.3	5.0	25.6	6.5	* 81	11.5	* 20				
Max Q Clear Time (g_c+I1), s		11.5	7.0	27.6	8.5	16.9	13.5	10.4				
Green Ext Time (p_c), s		2.0	0.0	0.0	0.0	3.3	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			222.0									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Future AM Peak Hour
3: Veterinary Entrance/CVS Entrance & SR 524

01/15/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	586	22	256	423	7	58	2	211	36	199	5
Future Volume (veh/h)	24	586	22	256	423	7	58	2	211	36	199	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1737	1826	1589	1737	1693	1826	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h	25	617	19	269	445	5	61	2	221	38	209	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	11	5	21	11	14	5	2	2	6	2	2
Cap, veh/h	726	900	802	381	900	743	166	3	347	59	252	4
Arrive On Green	0.10	0.52	0.52	0.20	1.00	1.00	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1781	1737	1547	1513	1737	1434	1141	14	1573	109	1140	20
Grp Volume(v), veh/h	25	617	19	269	445	5	61	0	223	251	0	0
Grp Sat Flow(s),veh/h/ln	1781	1737	1547	1513	1737	1434	1141	0	1587	1269	0	0
Q Serve(g_s), s	0.0	31.8	0.7	0.0	0.0	0.0	0.0	0.0	15.3	8.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	31.8	0.7	0.0	0.0	0.0	16.1	0.0	15.3	24.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.99	0.15		0.02
Lane Grp Cap(c), veh/h	726	900	802	381	900	743	166	0	351	315	0	0
V/C Ratio(X)	0.03	0.69	0.02	0.71	0.49	0.01	0.37	0.00	0.64	0.80	0.00	0.00
Avail Cap(c_a), veh/h	726	900	802	381	900	743	193	0	388	355	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.17	0.17	0.17	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.0	21.6	14.1	33.6	0.0	0.0	42.7	0.0	42.4	45.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.2	0.1	1.0	0.3	0.0	1.4	0.0	2.9	10.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	18.4	0.4	8.0	0.1	0.0	3.1	0.0	10.4	13.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	25.8	14.1	34.6	0.3	0.0	44.1	0.0	45.3	56.6	0.0	0.0
LnGrp LOS	A	C	B	C	A	A	D	A	D	E	A	A
Approach Vol, veh/h		661			719			284			251	
Approach Delay, s/veh		24.8			13.2			45.1			56.6	
Approach LOS		C			B			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.8	69.0		32.2	18.8	69.0		32.2				
Change Period (Y+Rc), s	6.8	6.8		* 5.7	6.8	6.8		* 5.7				
Max Green Setting (Gmax), s	9.2	62.2		* 29	9.2	62.2		* 29				
Max Q Clear Time (g_c+I1), s	2.0	2.0		18.1	2.0	33.8		26.1				
Green Ext Time (p_c), s	0.0	2.6		1.2	0.4	3.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				27.6								
HCM 6th LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Future AM Peak Hour
4: Industry Rd & SR 524

01/15/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	483	269	29	47	326	239	219	56	47	249	68	519
Future Volume (veh/h)	483	269	29	47	326	239	219	56	47	249	68	519
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1885	1870	1870	1870	1856	1826	1841	1870	1870	1870	1663
Adj Flow Rate, veh/h	508	283	19	49	343	0	231	59	38	262	72	489
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	12	1	2	2	2	3	5	4	2	2	2	16
Cap, veh/h	432	709	596	314	337		145	489	421	336	528	717
Arrive On Green	0.23	0.38	0.38	0.03	0.18	0.00	0.08	0.27	0.27	0.10	0.28	0.28
Sat Flow, veh/h	1640	1885	1585	1781	1870	1572	1739	1841	1585	3456	1870	1409
Grp Volume(v), veh/h	508	283	19	49	343	0	231	59	38	262	72	489
Grp Sat Flow(s),veh/h/ln	1640	1885	1585	1781	1870	1572	1739	1841	1585	1728	1870	1409
Q Serve(g_s), s	27.2	13.2	0.9	2.7	21.6	0.0	10.0	2.9	2.2	8.9	3.4	31.3
Cycle Q Clear(g_c), s	27.2	13.2	0.9	2.7	21.6	0.0	10.0	2.9	2.2	8.9	3.4	31.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	432	709	596	314	337		145	489	421	336	528	717
V/C Ratio(X)	1.18	0.40	0.03	0.16	1.02		1.59	0.12	0.09	0.78	0.14	0.68
Avail Cap(c_a), veh/h	432	709	596	381	337		145	489	421	769	550	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	27.5	23.6	38.1	49.2	0.0	55.0	33.4	33.1	52.9	32.2	22.2
Incr Delay (d2), s/veh	96.2	1.2	0.1	0.2	53.3	0.0	297.3	0.1	0.1	3.9	0.1	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	30.7	9.2	0.6	2.0	21.0	0.0	26.3	2.4	1.5	7.3	2.9	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	131.1	28.7	23.7	38.4	102.4	0.0	352.3	33.5	33.2	56.9	32.3	24.7
LnGrp LOS	F	C	C	D	F		F	C	C	E	C	C
Approach Vol, veh/h		810			392			328			823	
Approach Delay, s/veh		92.8			94.4			258.0			35.6	
Approach LOS		F			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.0	28.8	18.0	38.2	11.5	52.3	16.0	40.2				
Change Period (Y+Rc), s	* 7.8	* 7.2	* 6.3	6.3	7.5	7.2	6.0	* 6.3				
Max Green Setting (Gmax), s	* 27	* 21	* 27	17.7	8.5	39.8	10.0	* 35				
Max Q Clear Time (g_c+I1), s	29.2	23.6	10.9	4.9	4.7	15.2	12.0	33.3				
Green Ext Time (p_c), s	0.0	0.0	0.8	0.3	0.0	1.4	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			96.1									
HCM 6th LOS			F									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

Future AM Peak Hour

Synchro 11 Report
Page 4

HCM 6th Signalized Intersection Summary

1: SR 524 & Cox Rd

01/16/2023

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	53	52	218	87	36	31	35	577	45	147	557	87
Future Volume (veh/h)	53	52	218	87	36	31	35	577	45	147	557	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1752	1752	1767	1752	1826	1722	1826	1826	1811
Adj Flow Rate, veh/h	56	55	204	93	38	13	37	614	0	156	593	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	3	10	10	9	10	5	12	5	5	6
Cap, veh/h	66	56	185	84	30	8	964	2225		1028	2343	
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	1.00	1.00	0.00	0.02	1.00	0.00
Sat Flow, veh/h	269	331	1102	326	180	50	772	1826	1459	1739	1826	1535
Grp Volume(v), veh/h	315	0	0	144	0	0	37	614	0	156	593	0
Grp Sat Flow(s),veh/h/ln	1701	0	0	556	0	0	772	1826	1459	1739	1826	1535
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	33.6	0.0	0.0	33.6	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.18		0.65	0.65		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	307	0	0	123	0	0	964	2225		1028	2343	
V/C Ratio(X)	1.03	0.00	0.00	1.17	0.00	0.00	0.04	0.28		0.15	0.25	
Avail Cap(c_a), veh/h	307	0	0	123	0	0	964	2225		1081	2343	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.81	0.81	0.00
Uniform Delay (d), s/veh	84.4	0.0	0.0	86.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Incr Delay (d2), s/veh	58.3	0.0	0.0	134.3	0.0	0.0	0.1	0.3	0.0	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	28.9	0.0	0.0	17.6	0.0	0.0	0.0	0.3	0.0	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	142.6	0.0	0.0	220.8	0.0	0.0	0.1	0.3	0.0	0.1	0.2	0.0
LnGrp LOS	F	A	A	F	A	A	A	A		A	A	
Approach Vol, veh/h	315		144			651			749			
Approach Delay, s/veh	142.6		220.8			0.3			0.2			
Approach LOS	F		F			A			A			
Timer - Assigned Phs	2		4		5	6	8					
Phs Duration (G+Y+Rc), s	267.8		43.2		12.9	254.9	43.2					
Change Period (Y+Rc), s	8.0		* 9.6		7.9	* 8	9.6					
Max Green Setting (Gmax), s	152.0		* 34		11.1	* 1.3E2	30.4					
Max Q Clear Time (g_c+I1), s	2.0		35.6		2.0	5.3	35.6					
Green Ext Time (p_c), s	4.7		0.0		0.3	5.3	0.0					
Intersection Summary												
HCM 6th Ctrl Delay	41.5											
HCM 6th LOS	D											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NER, SWR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

2: Project Entrance/London Blvd & SR 524

01/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	622	154	234	653	104	46	1	18	89	62	64
Future Volume (veh/h)	67	622	154	234	653	104	46	1	18	89	62	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1841	1870	1870	1841	1856	1870	1870	1870	1856	1870	1826
Adj Flow Rate, veh/h	71	662	167	254	695	0	50	1	20	95	67	45
Peak Hour Factor	0.94	0.94	0.92	0.92	0.94	0.94	0.92	0.92	0.92	0.94	0.92	0.94
Percent Heavy Veh, %	5	4	2	2	4	3	2	2	2	3	2	5
Cap, veh/h	205	712	614	673	1302		124	5	98	195	80	54
Arrive On Green	0.03	0.39	0.39	0.34	0.71	0.00	0.03	0.06	0.06	0.04	0.08	0.08
Sat Flow, veh/h	1739	1841	1585	1781	1841	1572	1781	76	1521	1767	1043	701
Grp Volume(v), veh/h	71	662	167	254	695	0	50	0	21	95	0	112
Grp Sat Flow(s),veh/h/ln	1739	1841	1585	1781	1841	1572	1781	0	1597	1767	0	1744
Q Serve(g_s), s	4.3	55.1	9.4	10.7	28.4	0.0	4.2	0.0	2.0	7.1	0.0	10.1
Cycle Q Clear(g_c), s	4.3	55.1	9.4	10.7	28.4	0.0	4.2	0.0	2.0	7.1	0.0	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.40
Lane Grp Cap(c), veh/h	205	712	614	673	1302		124	0	103	195	0	134
V/C Ratio(X)	0.35	0.93	0.27	0.38	0.53		0.40	0.00	0.20	0.49	0.00	0.84
Avail Cap(c_a), veh/h	205	1179	1015	673	1302		164	0	180	195	0	174
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.8	46.9	22.3	36.7	11.0	0.0	67.1	0.0	71.0	67.4	0.0	72.9
Incr Delay (d2), s/veh	0.9	18.0	0.9	0.4	0.4	0.0	2.1	0.0	1.0	1.9	0.0	22.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.3	35.5	6.7	11.4	15.5	0.0	3.6	0.0	1.5	6.9	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.7	64.9	23.2	37.1	11.4	0.0	69.2	0.0	71.9	69.3	0.0	95.8
LnGrp LOS	D	E	C	D	B		E	A	E	E	A	F
Approach Vol, veh/h		900			949			71			207	
Approach Delay, s/veh		55.0			18.3			70.0			83.6	
Approach LOS		E			B			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	61.7	69.1	11.0	18.2	10.5	120.3	13.0	16.2				
Change Period (Y+Rc), s	7.1	* 7.2	5.5	5.9	5.5	7.1	5.9	* 5.9				
Max Green Setting (Gmax), s	7.9	* 1E2	9.1	16.0	5.0	105.9	7.1	* 18				
Max Q Clear Time (g_c+I1), s	12.7	57.1	6.2	12.1	6.3	30.4	9.1	4.0				
Green Ext Time (p_c), s	0.0	4.9	0.0	0.2	0.0	4.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			41.9									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

3: Veterinary Entrance/CVS Entrance & SR 524

01/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	601	90	244	697	136	188	13	162	59	156	119
Future Volume (veh/h)	59	601	90	244	697	136	188	13	162	59	156	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1870	1811	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	633	78	257	734	136	198	14	160	62	164	118
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	3	2	6	2	2	2	2	2	2	2	2
Cap, veh/h	533	1063	908	416	1071	908	143	29	330	68	141	93
Arrive On Green	0.07	0.57	0.57	0.13	1.00	1.00	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1781	1856	1585	1725	1870	1585	1097	129	1476	168	629	416
Grp Volume(v), veh/h	62	633	78	257	734	136	198	0	174	344	0	0
Grp Sat Flow(s),veh/h/ln	1781	1856	1585	1725	1870	1585	1097	0	1605	1214	0	0
Q Serve(g_s), s	0.0	31.0	3.1	0.0	0.0	0.0	0.0	0.0	13.2	18.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	31.0	3.1	0.0	0.0	0.0	31.3	0.0	13.2	31.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.92	0.18		0.34
Lane Grp Cap(c), veh/h	533	1063	908	416	1071	908	143	0	359	302	0	0
V/C Ratio(X)	0.12	0.60	0.09	0.62	0.69	0.15	1.38	0.00	0.48	1.14	0.00	0.00
Avail Cap(c_a), veh/h	533	1063	908	416	1071	908	143	0	359	302	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.1	19.4	13.4	33.2	0.0	0.0	60.0	0.0	47.3	57.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.5	0.2	0.3	0.3	0.0	210.0	0.0	1.0	95.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	19.3	2.0	8.2	0.2	0.0	22.5	0.0	9.2	27.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.2	21.8	13.6	33.4	0.3	0.0	270.0	0.0	48.3	153.0	0.0	0.0
LnGrp LOS	B	C	B	C	A	A	F	A	D	F	A	A
Approach Vol, veh/h		773			1127			372			344	
Approach Delay, s/veh		20.1			7.8			166.3			153.0	
Approach LOS		C			A			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.0	87.0		37.0	16.0	87.0		37.0				
Change Period (Y+Rc), s	6.8	6.8		* 5.7	6.8	6.8		* 5.7				
Max Green Setting (Gmax), s	9.2	80.2		* 31	9.2	80.2		* 31				
Max Q Clear Time (g_c+I1), s	2.0	2.0		33.3	2.0	33.0		33.3				
Green Ext Time (p_c), s	0.1	6.0		0.0	0.4	4.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			53.1									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

4: Industry Rd & SR 524

01/16/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	519	394	63	229	564	403	230	99	178	324	115	628
Future Volume (veh/h)	519	394	63	229	564	403	230	99	178	324	115	628
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856
Adj Flow Rate, veh/h	546	415	51	241	594	0	242	104	153	341	121	572
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	2	2	2	2	2	2	2	2	2	2	3
Cap, veh/h	542	1109	940	594	895		153	380	322	409	445	646
Arrive On Green	0.17	0.59	0.59	0.06	0.48	0.00	0.09	0.20	0.20	0.12	0.24	0.24
Sat Flow, veh/h	1767	1870	1585	1781	1870	1585	1781	1870	1585	3456	1870	1572
Grp Volume(v), veh/h	546	415	51	241	594	0	242	104	153	341	121	572
Grp Sat Flow(s),veh/h/ln	1767	1870	1585	1781	1870	1585	1781	1870	1585	1728	1870	1572
Q Serve(g_s), s	24.2	16.3	1.9	8.5	34.0	0.0	12.0	6.6	11.9	13.5	7.4	33.3
Cycle Q Clear(g_c), s	24.2	16.3	1.9	8.5	34.0	0.0	12.0	6.6	11.9	13.5	7.4	33.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	542	1109	940	594	895		153	380	322	409	445	646
V/C Ratio(X)	1.01	0.37	0.05	0.41	0.66		1.58	0.27	0.48	0.83	0.27	0.89
Avail Cap(c_a), veh/h	542	1109	940	594	895		153	380	322	782	445	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.77	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	14.9	12.0	17.4	27.9	0.0	64.0	47.1	49.2	60.3	43.5	38.2
Incr Delay (d2), s/veh	35.9	0.7	0.1	0.4	3.9	0.0	292.0	0.4	1.1	4.5	0.3	13.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.7	11.0	1.3	7.3	22.0	0.0	28.5	5.6	8.5	10.3	6.3	27.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	15.7	12.1	17.8	31.8	0.0	356.0	47.5	50.3	64.8	43.8	52.1
LnGrp LOS	F	B	B	B	C		F	D	D	E	D	D
Approach Vol, veh/h	1012			835			499			1034		
Approach Delay, s/veh	40.9			27.7			198.0			55.3		
Approach LOS	D			C			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.0	74.9	22.9	34.7	16.0	90.9	18.0	39.6				
Change Period (Y+Rc), s	* 7.8	* 7.2	* 6.3	6.3	7.5	7.2	6.0	* 6.3				
Max Green Setting (Gmax), s	* 24	* 44	* 32	12.7	8.5	59.8	12.0	* 33				
Max Q Clear Time (g_c+I1), s	26.2	36.0	15.5	13.9	10.5	18.3	14.0	35.3				
Green Ext Time (p_c), s	0.0	2.5	1.1	0.0	0.0	3.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 65.2

HCM 6th LOS E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX K
NCHRP Report 457 Data

can also indirectly reduce the delay to the left-turn or through movements by lessening their need to compete for service with the right-turn movement.

One disadvantage of adding a lane to the minor-road approach is that it may require reallocating the existing pavement or widening of the approach cross section. Sometimes the pavement width needed for the additional lane is available within the existing roadway cross section. In this instance, the only impact is a reallocation of the paved surface through modification of the pavement markings. However, in downtown settings this reallocation may require the removal of some curb parking stalls and can affect adjacent business significantly. Occasionally, the cross section must be widened to provide for the additional lane. If the needed lane width can be provided within the available right-of-way, the cost may be limited to that of construction. However, if additional right-of-way is needed, the costs of acquiring this property in urban settings can be high.

Guidance. The literature does not offer guidance regarding conditions where a second approach lane would benefit from the operation of a minor-road approach. However, the procedures in Chapter 17 of the *Highway Capacity Manual 2000* (15) can be used to identify major- and minor-road volume combinations that would benefit operationally from the provision of a second approach lane or bay. Bonneson and Fontaine (20) developed Figure 2-4 using these procedures and an assumed upper limit of 0.7 for the shared-lane, minor-road volume-to-capacity ratio.

Application. Figure 2-4 indicates the conditions that may justify the use of two approach lanes. Use of the information in this figure requires two types of data:

1. Major-road approach volume for the peak hour of the average day and
2. Minor-road turn movement volume for the peak hour of the average day (used to compute right-turn percentage).

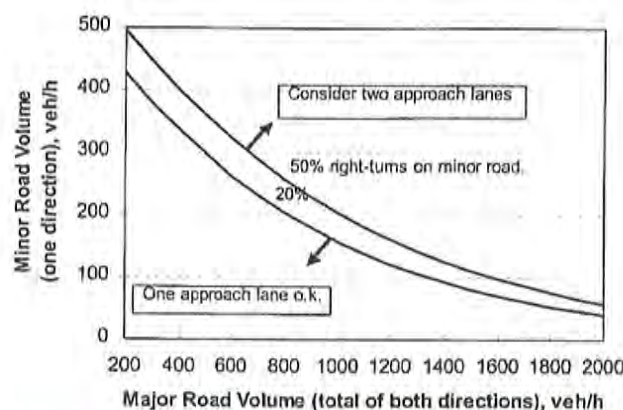


Figure 2-4. Guideline for determining minor-road approach geometry at two-way stop-controlled intersections.

Figure 2-4 would be used once for each minor-road approach to the intersection. The appropriate trend line would be identified on the basis of the percentage of right-turns on the subject minor-road approach. If the volume combination for the major and minor roads intersects above or to the right of this trend line, a second traffic lane should be considered for the subject minor-road approach. If a bay is selected for addition to the intersection, it should be long enough to store vehicles 95 percent of the time (i.e., the bay should not overflow more than 5 percent of the time). Techniques for estimating the 95th percentile storage length are provided in the section, [Increase the Length of the Turn Bay](#).

Add a Left-Turn Bay on the Major Road

Introduction. Provision of a left-turn bay on the major road to a two-way stop-controlled intersection can significantly improve operations and safety at the intersection. A left-turn bay effectively separates those vehicles that are slowing or stopped to turn from those vehicles in through traffic lanes. This separation minimizes turn-related crashes and eliminates unnecessary delay to through vehicles. Data reported by Neuman (21) indicate that the crash rate for unsignalized intersections can be reduced by 35 to 75 percent through the provision of a left-turn bay.

One disadvantage of adding a bay to the major-road approach is that it may require reallocating the existing pavement or widening of the approach cross section. Sometimes the pavement width needed for the additional lane is available within the existing roadway cross section. However, in downtown settings this reallocation may require the removal of some curb parking stalls and can affect adjacent business significantly. Occasionally, the cross section must be widened to provide for the turn bay. If the needed width can be provided within the available right-of-way, the cost may be limited to that of construction. However, if additional right-of-way is needed, the costs of acquiring this property in urban settings can be high.

Guidance. Neuman (21) suggests that the following guidelines should be used to determine when to provide a left-turn bay on the major road of a two-way stop-controlled intersection:

1. A left-turn lane should be considered at any median crossover on a divided, high-speed road.
2. A left-turn lane should be provided on the unstopped approach of a high-speed rural highway when it intersects with other arterials or collectors.
3. A left-turn lane is recommended on the unstopped approach of any intersection when the combination of intersection volumes intersect above or to the right of the appropriate trend line shown in Figure 2-5.

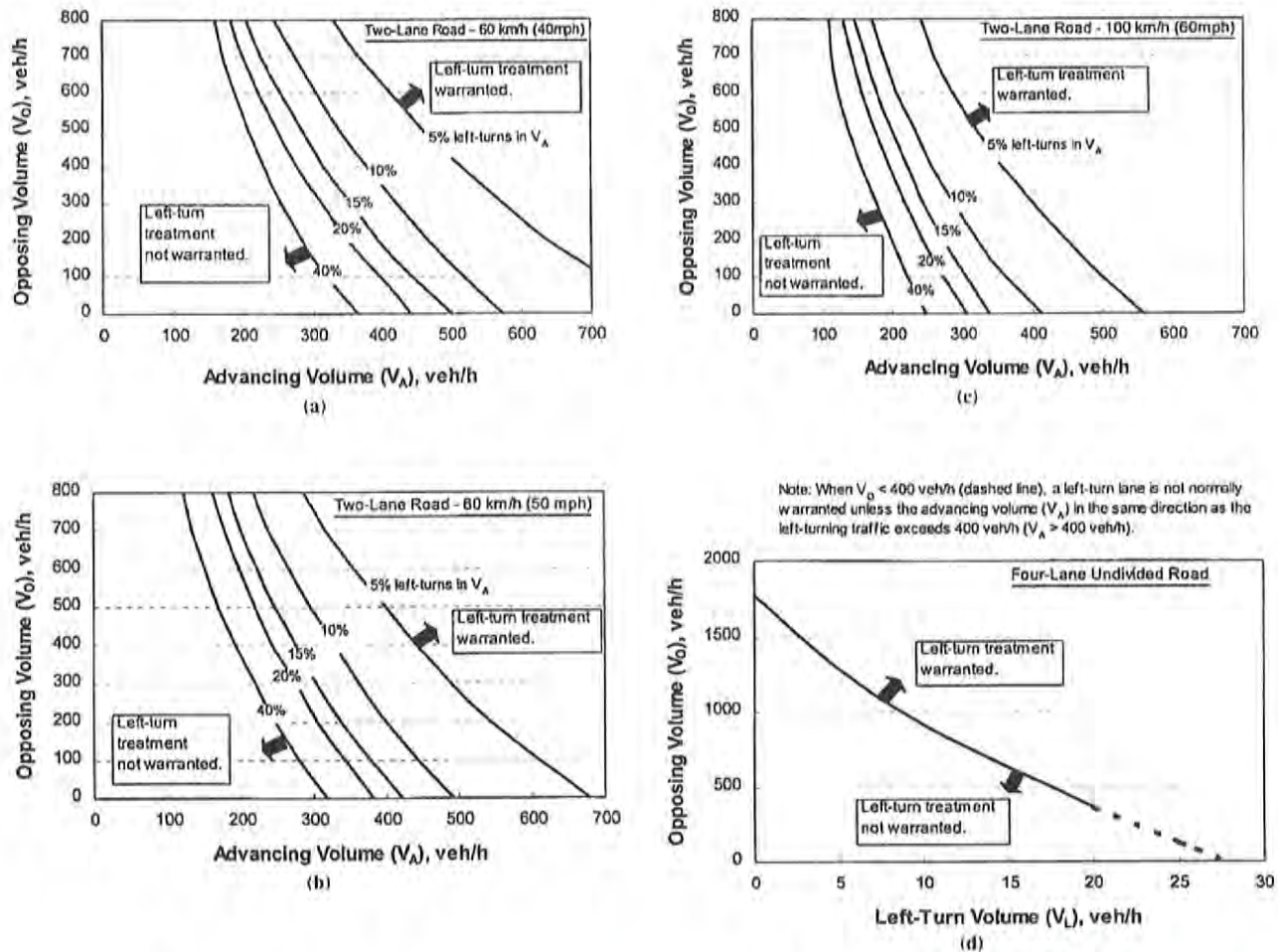


Figure 2-5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

Application. The guidance stated in the preceding section defines the conditions that may justify the provision of a left-turn bay. Application of this guidance requires two types of data:

1. Major-road turn movement volume for the peak hour of the average day
2. Major-road 85th percentile speed (posted speed can be substituted if data are unavailable).

Use of Figure 2-5 requires determination of the opposing volume, the advancing volume, and the operating speed. The opposing volume should include only the right-turn and through movements on the approach across from (and heading in the opposite direction of) the subject major-road approach. The advancing volume should include the left-turn, right-turn, and through movements on the subject approach. The operating speed can be estimated as the 85th percentile speed. If the operating speed does not coincide with 60, 80, or 100 km/h (i.e., 40, 50, or 60 mph), then interpolation can

be used or, as a more conservative approach, the operating speed can be rounded up to the nearest speed for which a figure is provided.

In application, Figure 2-5 is used once for each major-road approach to the intersection. The appropriate trend line is identified on the basis of the percentage of left-turns on the subject major-road approach. If the advancing and opposing volume combination intersects above or to the right of this trend line, a left-turn bay should be considered for the subject approach. If a bay is included at the intersection, it should be long enough to store left-turn vehicles 99.5 percent of the time (i.e., the bay should not overflow more than 0.5 percent of the time). Techniques for estimating this storage length are provided in the section, [Increase the Length of the Turn Bay](#).

Add a Right-Turn Bay on the Major Road

Introduction. Provision of a right-turn bay on the major road to a two-way stop-controlled intersection can signifi-

cantly improve operations and safety at the intersection. A right-turn bay effectively separates those vehicles that are slowing or stopped to turn from those vehicles in the through traffic lanes. This separation minimizes turn-related collisions (e.g., angle, rear-end, and same-direction-sideswipe) and eliminates unnecessary delay to through vehicles.

One disadvantage of adding a bay to the major-road approach is that it may require reallocating the existing pavement or widening of the approach cross section. Sometimes the pavement width needed for the additional lane is available within the existing roadway cross section. However, in downtown settings this reallocation may require the removal of some curb parking stalls and can affect adjacent business significantly. Occasionally, the cross section must be widened to provide for the turn bay. If the needed width can be provided within the available right-of-way, the cost may be limited to that of construction. However, if additional right-of-way is needed, the costs of acquiring this property in urban settings can be high.

Guidance. Hasan and Stokes (22) developed guidelines for determining when to provide a right-turn bay on the major road of a two-way stop-controlled intersection. These guidelines were based on an evaluation of the operating and collision costs associated with the right-turn maneuver relative to the cost of constructing a right-turn bay. The operating costs included those of road-user fuel and delay. Separate guidelines were developed for two-lane and four-lane roadways. These guidelines are shown in Figure 2-6.

Application. The guidance described in the preceding section defines conditions that may justify the provision of a right-turn bay. Application of this guidance requires two types of data:

1. Major-road turn movement volume for the peak hour of the average day and
2. Major-road 85th percentile speed (posted speed can be substituted if data are unavailable).

Figure 2-6 should be consulted once for each major-road approach. If the combination of major-road approach volume and right-turn volume intersects above or to the right of the trend line corresponding to the major-road operating speed, then a right-turn bay is a viable alternative.

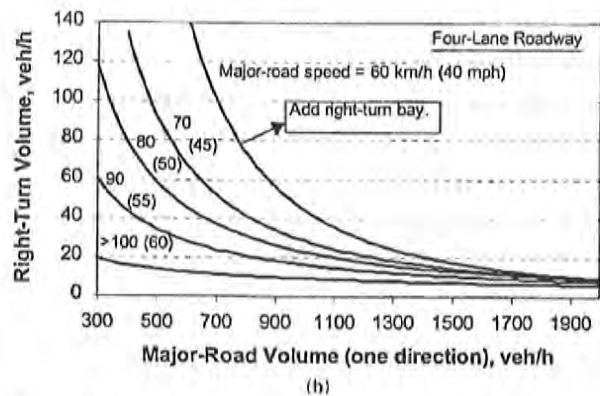
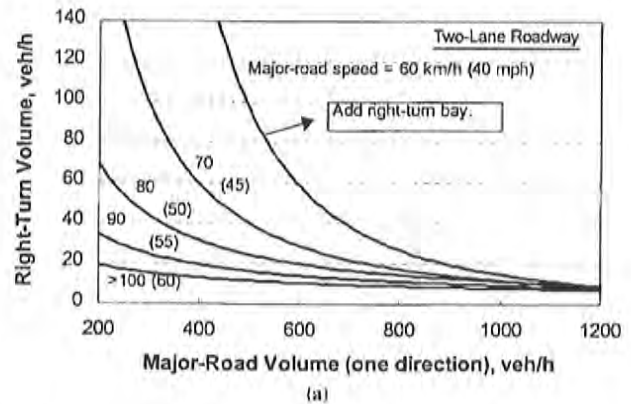


Figure 2-6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection

Increase Length of Turn Bay

Introduction. Turn bay length can affect the safety and operation of the intersection approach significantly. This effect becomes more negative as the frequency with which vehicles exceed the available storage increases. Also, for unstopped approaches, this effect becomes more negative as more of the turning vehicle's deceleration occurs in the through lane, prior to the bay. The need to provide adequate storage length, deceleration length, or both is dependent on the type of approach control used and whether the vehicle is turning left or right. Table 2-13 identifies the appropriate bay

TABLE 2-13 Turn-bay length components at unsignalized intersections

Approach Control	Length Components	
	Left-Turn Bay	Right-Turn Bay
Unstopped	Storage Length + Deceleration Length	Deceleration Length
Stopped	Storage Length	Storage Length

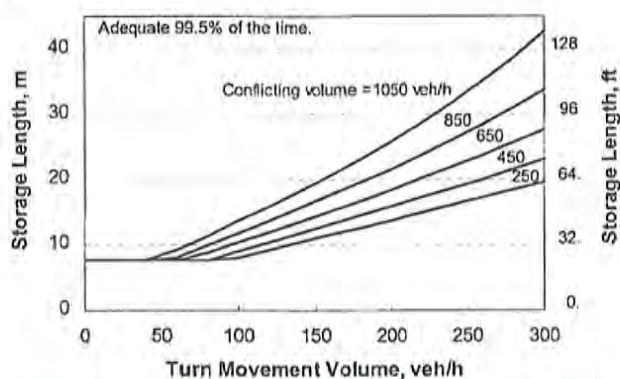


Figure 2-7. Guideline for determining if the bay storage length for an unstopped approach is adequate.

length components for typical combinations of approach control and turn movement.

Guidance. A turn bay should be long enough to store waiting vehicles almost all of the time and, in doing so, prevent conflict between the through and turning movements. A bay equal in length to the 95th percentile queue (which allows for a 5-percent probability of overflow) is typically used for most stop- or signal-controlled approaches. A bay length corresponding to a 0.5-percent probability of overflow is recommended by Harmelink (23) for unstopped approaches in recognition of the greater speed differential between through and turning movements.

Figures 2-7 and 2-8 illustrate the combination of volume and storage length that limit overflows to 0.5 and 5 percent, respectively. The trends in these figures are based on the queue length equation reported by Harmelink (23). The capacity needed for this equation was estimated using the procedures in Chapter 17 of the *Highway Capacity Manual 2000* (15). The development of Figures 2-7 and 2-8 is described elsewhere by Bonneson and Fontaine (20). A practical minimum storage length of 8 m (25 ft) is reflected in both figures.

As indicated in Table 2-13, a bay on the unstopped approach to an intersection should also provide sufficient length for the turning vehicle to decelerate once it is clear of the adjacent through traffic lane. A report by Koepke (24) provides an indication of the bay length needed for turn vehicle deceleration. However, the lengths cited by Koepke include both deceleration length and bay taper length. Subtraction of the taper length [estimated at 35 m (120 ft)] from the reported lengths leaves a conservative estimate of the length of full-width turn bay needed to facilitate the deceleration process. This length is shown in Figure 2-9.

Application. The guidelines described in the preceding section can be used to determine when turn-bay length may

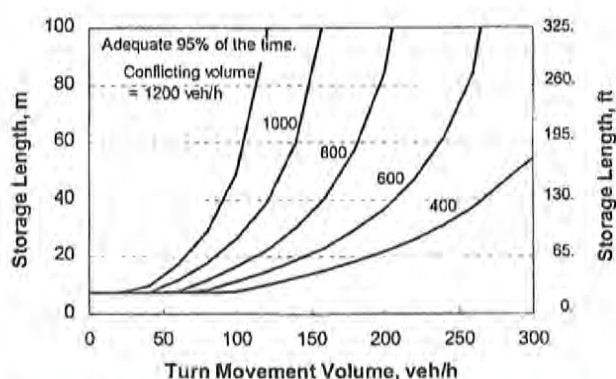


Figure 2-8. Guideline for determining if the bay storage length for a stopped approach is adequate.

need to be increased to minimize operational or safety problems associated with short turn bays. Application of this guideline requires three types of data:

1. Major- and minor-road turn movement volumes for the peak hour of the average day;
2. Major-road 85th percentile speed (posted speed can be substituted if data are unavailable); and
3. Major- and minor-road bay lengths (taper length should be excluded).

In application, each turn movement is considered separately. Table 2-13 is consulted first to determine if storage length, deceleration length, or both should be provided within the bay for the subject approach. Next, Figures 2-7, 2-8, and 2-9 are consulted. The subject movement volume and conflicting volumes should be used to determine the minimum length(s) needed from the appropriate figure(s). The operat-

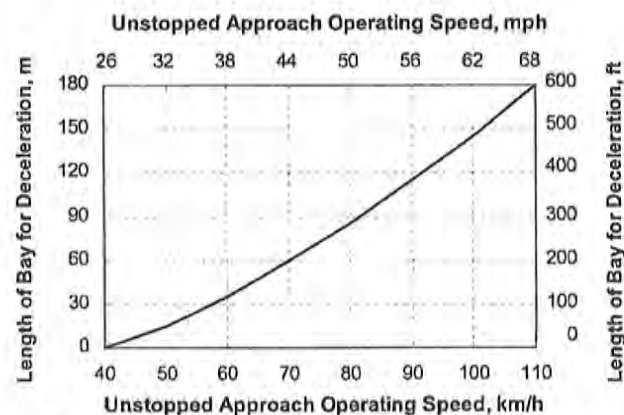


Figure 2-9. Guideline for determining if the deceleration length component of a bay is adequate.

LONDON COVE
Sanitary Sewer Demands Estimate

U

Peak Hourly Flow = 4.00 x Avg. Daily Flow

Max. Day Flow = 1.43 x Avg. Daily Flow

Future Development		ERC (unit)	ADF (gal/day/unit)	Total ADF (gal/day)	PHF (gal/min)	MDF (gal/min)
Southern Parcel		61	250	15250	42.4	15.1
Commercial Lot 1:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	20600	1	250	5150	14.3	5.1
Commercial Lot 2:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	14200	1	250	3550	9.9	3.5
Commercial Lot 3:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	15500	1	250	3875	10.8	3.8
Commercial Lot 4:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	12300	1	250	3075	8.5	3.1
Commercial Lot 5:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	20200	1	250	5050	14.0	5.0
Commercial Lot 6:	Size (sf)	ERC (unit / 1000 sf)	ADF (gal/day/unit)	Total ADF (gal/day)	PF (gal/min)	MDF (gal/min)
Commercial Area	24000	1	250	6000	16.7	6.0
Total Estimated Demand		67	1750	41950	117	42

November 1, 2021

Dave Schmitt
Dave Schmitt Engineering, Inc.
12301 Lake Underhill Road
Suite 241
Orlando, FL 32789

Proj: London Cove Site – Brevard County, Florida
Sections 13 & 18, Township 24 South, Ranges 35 & 36 East
(BTC File #451-09)
Re: Environmental Assessment Report

Dear Mr. Schmitt,

During October of 2021, Bio-Tech Consulting, Inc. (BTC) conducted an updated environmental assessment of the approximately 20.5-acre London Cove Site. This property is located on the south side of State Road. 524, within Sections 13 and 18; Township 24 South; Ranges 35 and 36 East; in Brevard County, Florida (Figures 1, 2 & 3). This environmental assessment included the following elements:

- Review of soil types mapped within the site boundaries;
- Evaluation of land use types/vegetative communities present;
- Field review for occurrence of protected flora and fauna; and,
- A review of environmental constraints.

SOILS

According to the Soil Survey of Brevard County, Florida, prepared by the U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), five (5) soil types exist within the subject parcel (Figure 4). These soil types include the following:

Orlando: Main Office
3025 East South Street
Orlando, FL 32803

Vero Beach Office
4445 N A1A
Suite 221
Vero Beach, FL 32963

Jacksonville Office
1157 Beach Boulevard
Jacksonville Beach, FL 32250

Tampa Office
6011 Benjamin Road
Suite 101 B
Tampa, FL 33634

Key West Office
1107 Key Plaza
Suite 259
Key West, FL 33040

Aquatic & Land
Management Operations
3825 Rouse Road
Orlando, FL 32817

407.894.5969
877.894.5969
407.894.5970 fax

- **Immokalee sand, 0 to 2 percent slopes (#28)**
- **Paola fine sand, 0 to 5 percent slopes (#43)**
- **St. Johns soils, depressionnal (#55)**
- **St. Lucie fine sand, 0 to 5 percent slopes (#56)**
- **Terra Ceia muck, frequently flooded (#64)**

The following presents a brief description of each of the soil types mapped for the subject parcel:

Immokalee sand, 0 to 2 percent slopes (#28) is a nearly level, poorly drained sandy soil on broad areas on the flatwoods, on low ridges between sloughs, and in low narrow areas between sand ridges and lakes and ponds. The surface layer of this soil type consists of very dark gray and dark gray sand about 11 inches thick. During most years, the water table for this soil type is within a depth of 10 inches of the surface for 1 to 2 months and between 10 and 40 inches of the surface for more than half the time and during short, dry periods below 40 inches. The permeability of this soil type is moderate to moderately rapid in the weakly cemented layers and rapid in all other layers.

Paola fine sand, 0 to 5 percent slopes (#43) is a nearly level to strongly sloping, excessively drained soils on the tops and sides of ridges. The surface layer is dark gray fine sand about 5 inches thick. Permeability is very rapid, and the available water capacity is very low.

St. Johns soils, depressionnal (#55) is a nearly level, poorly drained sandy soil on broad low ridges on the flatwoods. The surface layer of this soil type consists of black sand about 11 inches thick. During most years, the water table for this soil type is within a depth of 10 inches of the surface for 2 to 6 months and between 10 and 40 inches of the surface for the rest of the time. The permeability of this soil type is moderate in the weakly cemented layers and rapid in all other layers.

St. Lucie fine sand, 0 to 5 percent slopes (#56) is nearly level to strongly sloping, excessively drained sandy soil on high, dunelike ridges and isolated knolls. The surface layer is gray fine sand about 3 inches thick. Below this, to a depth of 120 inches, is white fine sand. Permeability is very rapid throughout. The available water capacity is very low in all layers.

Terra Ceia muck, frequently flooded (#64) is a nearly level, very poorly drained, well-decomposed organic soil in broad flat marshes and small depressions. The water table is within a depth of 10 inches for 9 to 12 months in most years, and water stands on the surface for more than 6 months. The profile of the soil is black muck a depth of 54 inches. Below this to a depth of about 70 inches is very dark brown muck. These layers contain small amount of decomposed plant fibers. Permeability is rapid and available water capacity is very high throughout the profile. Organic-matter content is very high, and natural fertility is high.

The Florida Association of Environmental Soil Scientists (FAESS) considers the main component of the St. Johns soils, depressional (#55) and Terra Ceia muck, frequently flooded (#64) soil types to be hydric. The Association also considers inclusions present within the Immokalee sand, 0 to 2 percent slopes (#28) soil type to be hydric. This information can be found in the Hydric Soils of Florida Handbook, Third Edition, March 2000.

LAND USE TYPES/VEGETATIVE COMMUNITIES

The London Cove Site currently supports four (4) land use types/vegetative communities. These land use types/vegetative communities were identified utilizing the Florida Land Use, Cover and Forms Classification System, Level III (FLUCFCS, FDOT, January 2004) (Figure 5). The on-site upland land use types/vegetative communities are classified as Open Lands (190) and Sand Pine (413). The on-site wetland/surface water land use types/vegetative communities are classified as Streams and Waterways (510) and Wetland Forested Mixed (630). The following provides a brief description of the on-site land use types/vegetative communities:

Uplands:

190 – Open Lands

The subject site's road frontage is most consistent with the Open Lands (190) FLUCFCS classification. The vegetative species identified within this community includes nutsedge (*Cyperus esculentus*), crow's footgrass (*Eleusine indica*), bermudagrass (*Cynodon dactylon*), field sandspur (*Cenchrus incertus*), common ragweed (*Ambrosia artemisiifolia*), dogfennel (*Eupatorium capillifolium*), sensitive pea (*Chamaecrista nictitans*), guineagrass (*Panicum maximum*), broomsedge (*Andropogon virginicus*), hairy indigo (*Indigofera hirsuta*), shiny blueberry (*Vaccinium myrsinites*), caesarweed (*Urena lobata*), chickweed (*Stellaria media*), blackroot (*Pterocaulon pycnostachyum*), Virginia creeper (*Parthenocissus quinquefolia*), and muscadine grapevine (*Vitis rotundifolia*).

413 – Sand Pine

The native upland habitat within the site is most consistent with the Sand Pine (413) FLUCFCS classification. A portion of this community indicates a recent wildfire within the eastern half of the site. The vegetative species identified within this community includes sand pine (*Pinus clausa*), slash pine (*Pinus elliottii*), sand live oak (*Quercus geminata*), Chapman's oak (*Quercus chapmanii*), myrtle oak (*Quercus myrtifolia*), live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), gallberry (*Ilex glabra*), winged sumac (*Rhus copallinum*), saw palmetto (*Serenoa repens*), fetterbush (*Lyonia lucida*), tarflower (*Bejaria racemosa*), shiny blueberry (*Vaccinium myrsinites*), slender goldentop (*Solidago microcephala*), bracken fern (*Pteridium aquilinum* var. *pseudocaudatum*), gopher apple (*Licania michauxii*), pricklypear cactus (*Opuntia humifusa*), wiregrass (*Aristida stricta*), beggarticks (*Bidens alba*), Virginia pepperweed (*Lepidium virginicum*), skunkvine (*Paederia foetida*), Virginia creeper (*Parthenocissus quinquefolia*), greenbriar (*Smilax* spp.), blackberry (*Rubus cuneifolius*), and muscadine grapevine (*Vitis rotundifolia*).

Wetlands/Surface Waters:

510 – Streams and Waterways

An excavated ditch extends from the forested wetland north to the roadside swale. This ditch is most consistent with the Streams and Waterways (510) FLUCFCS classification. Vegetative species present within the waterways include Peruvian primrose willow (*Ludwigia peruviana*), hairy smartweed (*Polygonum hirsutum*), marsh pennywort (*Hydrocotyle verticillata*), soft rush (*Juncus effusus*), wild taro (*Colocasia esculenta*), torpedograss (*Panicum repens*), blue maidencane (*Amphicarpum muehlenbergianum*), and water spangles (*Salvinia minima*).

630 – Wetland Forested Mixed

The on-site wetland is most consistent with the Wetland Forested Mixed (630) FLUCFCS classification. This large forested system extends off-site to the south and west. Vegetation observed includes red maple (*Acer rubrum*), wax myrtle (*Myrica cerifera*), pond pine (*Pinus serotina*), sweetbay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), cabbage palm (*Sabal palmetto*), Chinese tallowtree (*Triadica sebifera*), wild taro (*Colocasia esculenta*), sawgrass (*Cladium jamaicense*), soft rush (*Juncus effusus*), nutsedge (*Cyperus esculentus*), lizard's tail (*Saururus cernuus*), savanna iris (*Iris savannarum*), coinwort (*Centella asiatica*), marsh pennywort (*Hydrocotyle umbellata*), royal fern (*Osmunda regalis*), netted chain fern (*Woodwardia areolata*), Virginia chain fern (*Woodwardia virginica*), Brazilian pepper (*Schinus terebinthifolia*), Peruvian primrosewillow (*Ludwigia peruviana*), Virginia creeper (*Parthenocissus*

quinquefolia), greenbriar (*Smilax* spp.), blackberry (*Rubus cuneifolius*), and muscadine grapevine (*Vitis rotundifolia*).

PROTECTED SPECIES

Using methodologies outlined in the Florida's Fragile Wildlife (Wood, 2001); Measuring and Monitoring Biological Diversity Standard Methods for Mammals (Wilson, et al., 1996); and Florida Fish and Wildlife Conservation Commission's (FFWCC) Gopher Tortoise Permitting Guidelines (April 2008 - revised January 2017); an assessment for "listed" floral and faunal species was conducted at the parcel in October 2021. This assessment included both direct observations and indirect evidence, such as tracks, burrows, tree markings and birdcalls that indicated the presence of species observed. The assessment focused on species that are "listed" by the FFWCC's Official Lists - Florida's Endangered Species, Threatened Species and Species of Special Concern (May 2017) that have the potential to occur in Brevard County (Table 1).

Reptiles and Amphibians

brown anole (*Norops sagrei*)
Cuban tree frog (*Osteopilus septentrionalis*)
eastern racer (*Coluber constrictor*)
gopher tortoise (*Gopherus polyphemus*)
pig frog (*Lithobates grylio*)
southern leopard frog (*Rana utricularia*)

Birds

American Crow (*Corvus caurinus*)
Black Vulture (*Coragyps atratus*)
Red-shouldered Hawk (*Buteo lineatus*)

Mammals

marsh rabbit (*Sylvilagus palustris*)
nine-banded armadillo (*Dasypus novemcinctus*)
northern raccoon (*Procyon lotor*)
Virginia opossum (*Didelphis virginiana*)
white-tailed deer (*Odocoileus virginianus*)

One (1) of the above wildlife species, the gopher tortoise (*Gopherus polyphemus*), is identified in the FFWCC's Official Lists - Florida's Endangered Species, Threatened Species and Species of Special Concern (May 2017). The following provides brief description of wildlife species as they relate to the development of the site.

Gopher Tortoise (*Gopherus polyphemus*)

State Listed as “Threatened” by FFWCC

Gopher tortoises (*Gopherus polyphemus*) have been identified within the on-site upland community, predominately within the Sand Pine community. Currently the gopher tortoise (*Gopherus polyphemus*) is classified as a “Category 2 Candidate Species” by USFWS, and as of September 2007, is now classified as “Threatened” by FFWCC, and as “Threatened” by FCREPA. The basis of the “Threatened” classification by the FFWCC for the gopher tortoise is due to habitat loss and destruction of burrows.

Gopher tortoises are commonly found in areas with well-drained soils associated with xeric pine-oak hammock, scrub, pine flatwoods, pastures and abandoned citrus groves. Several other protected species known to occur in Orange County have a possibility of occurring in this area, as they are gopher tortoise commensal species. These species include the eastern indigo snake (*Drymarchon corais couperi*), Florida mouse (*Peromyscus floridanus*), and the gopher frog (*Rana capito*). However, none of these species were observed during the cursory survey conducted.

The FFWCC provides three (3) options for developers that have gopher tortoises on their property. These options include: 1) avoidance (i.e., 25-foot buffer around burrow), 2) preservation of habitat, and 3) off-site relocation. As such, resolution of the gopher tortoise issue will need to be permitted through FFWCC prior to any construction activities.

Bald Eagle (*Haliaeetus leucocephalus*)

State protected by F.A.C. 68A-16.002 and federally protected by both the Migratory Bird Treaty Act (1918) and the Bald and Golden Eagle Protection Act (1940)

In August of 2007, the US Fish and Wildlife Service (USFWS) removed the Bald Eagle from the list of federally endangered and threatened species. Additionally, the Bald Eagle was removed from FFWCC’s imperiled species list in April of 2008. Although the Bald Eagle is no longer protected under the Endangered Species Act, it is still protected under the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and FFWCC’s Bald Eagle rule (Florida Administrative Code 68A-16.002 Bald Eagle (*Haliaeetus Leucocephalus*)).

In May of 2007, the USFWS issued the National Bald Eagle Management Guidelines. In April of 2008, the FFWCC adopted a new Bald Eagle Management Plan that was written to closely follow the federal guidelines. In November of 2017, the FFWCC issued “A Species Action Plan for the Bald Eagle” in response to the sunset of the 2008 Bald Eagle Management Plan. Under the USFWS’s management plans, buffer zones are recommended based on the nature and magnitude of the project or activity. The recommended protective buffer zone is 660 feet or less from the nest tree, depending on what activities or structures are already near the nest. As provided within the

above referenced Species Action Plan, the USFWS is the regulating body responsible for issuing permits for Bald Eagles. In 2017, the need to obtain a State permit (FFWCC) for the take of Bald Eagles or their nests in Florida was eliminated following revisions to Rule 68A-16.002, F.A.C.. A USFWS Bald Eagle “Non-Purposeful Take Permit” is not needed for any activity occurring outside of the 660-foot buffer zone. No activities are permitted within 330 feet of a nest without a USFWS permit.

In addition to the on-site evaluation for “listed” species, BTC conducted a review for any FFWCC recorded Bald Eagle nests on or in the vicinity of the property. This review revealed that there are no Bald Eagle nest within one (1.0) mile of the London Cove Site. No further action is required with respect to Bald Eagles.

USFWS CONSULTATION AREAS

The U.S. Fish and Wildlife Service has established “consultation areas” for certain listed species. Generally, these consultation areas only become an issue if USFWS consultation is required, which is usually associated with permitting through the U.S. Army Corps of Engineers. The reader should be aware that species presence and need for additional review are often determined to be unnecessary early in the permit review process due to lack of appropriate habitat or other conditions. However, the USFWS makes the final determination.

Consultation areas are typically very regional in size, often spanning multiple counties where the species in question is known to exist. Consultation areas by themselves do not indicate the presence of a listed species. They only indicate an area where there is a potential for a listed species to occur and that additional review might be necessary to confirm or rule-out the presence of the species. The additional review typically includes the application of species-specific criteria to rule-out or confirm the presence of the species in question. Such criteria might consist of a simple review for critical habitat types. In other cases, the review might include the need for species-specific surveys using established methodologies that have been approved by the USFWS.

The following paragraphs include a brief description of the respective USFWS Consultation Areas specific to the subject site along with a brief discussion of on-site habitat and potential for additional review:

Audubon’s Crested Caracara (*Polyborus plancus audubonii*) *Federally Listed as “Threatened” by USFWS*

The subject site falls within the USFWS Consultation Areas for the species Audubon’s Crested Caracara (*Polyborus planeus audubonii*). Currently the Audubon’s Crested Caracara is listed as threatened by the USFWS due primarily to habitat loss. The Audubon’s Crested Caracara

commonly occurs in dry or wet prairie areas with scattered cabbage palms, lightly wooded areas with saw palmetto, scrub oaks and cypress. The Audubon's Crested Caracara also uses improved or semi-improved pasture with seasonal wetlands. Audubon's Crested Caracaras construct new nests each nesting season, often in the same tree as the previous year.

Although the subject site falls within the USFWS Audubon's Crested Caracara consultation area, no Crested Caracaras were observed and no suitable habitat for this species exists within the project boundaries. No further action should be required pertaining to Crested Caracaras.

Everglade Snail Kite (Rostrhamus sociabilis)
Federally Listed as "Endangered" by USFWS

The subject site falls within the USFWS Consultation Area for the Everglade Snail Kite. Currently the Snail Kite is listed as "Endangered" by the USFWS. Snail Kites are similar in size to Red-shouldered Hawks. All Snail Kites have deep red eyes and a white rump patch. Males are slate gray, and females and juveniles vary in amounts of white, light brown, and dark brown, but the females always have white on their chin. Kites vocalize mainly during courtship and nesting. They may occur in nearly all of the wetlands of central and southern Florida. They regularly occur in lake shallows along the shores and islands of many major lakes, including Lakes Okeechobee, Kissimmee, Tohopekaliga (Toho) and East Toho. They also regularly occur in the expansive marshes of southern Florida such as Water Conservation Areas 1, 2, and 3, Everglades National Park, the upper St. John's River marshes and Grassy Waters Preserve.

No Snail Kites were observed within the subject site during the wildlife survey conducted by BTC and no suitable habitat exists. A formal survey should not be required by the USFWS or another agency to determine if any Snail Kites utilize the site.

Florida Scrub-Jay (Aphelocoma coerulescens)
Federally Listed as "Threatened" by USFWS

Currently the Florida Scrub-Jay is listed as threatened by the USFWS. Florida Scrub Jays are largely restricted to scattered, often small and isolated patches of sand pine scrub, xeric oak, scrubby flatwoods, and scrubby coastal stands in peninsular Florida (Woolfenden 1978a, Fitzpatrick et al. 1991). They avoid wetlands and forests, including canopied sand pine stands. Optimal Scrub-Jay habitat is dominated by shrubby scrub, live oaks, myrtle oaks, or scrub oaks from 1 to 3 m (3 to 10 ft.) tall, covering 50% to 90 % of the area; bare ground or sparse vegetation less than 15 cm (6 in) tall covering 10% to 50% of the area; and scattered trees with no more than 20% canopy cover (Fitzpatrick et al. 1991).

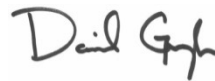
No Scrub Jays were observed on the project site during the cursory survey conducted by BTC. The subject site's uplands that are proposed for development do not contain suitable habitat for foraging. As such, a formal survey will not be required by the USFWS or another agency in order to determine if the Florida Scrub-Jay utilizes and portion of the site.

The environmental limitations described in this document are based on observations and technical information available on the date of the on-site evaluation. This report is for general planning purposes only. The limits of any on-site wetlands/surface waters can only be determined and verified through field delineation and/or on-site review by the pertinent regulatory agencies. The wildlife surveys conducted within the subject property boundaries do not preclude the potential for any listed species, as noted on Table 1 (attached), currently or in the future. Should you have any questions or require any additional information, please do not hesitate to contact our office at (407) 894-5969. Thank you.

Regards,

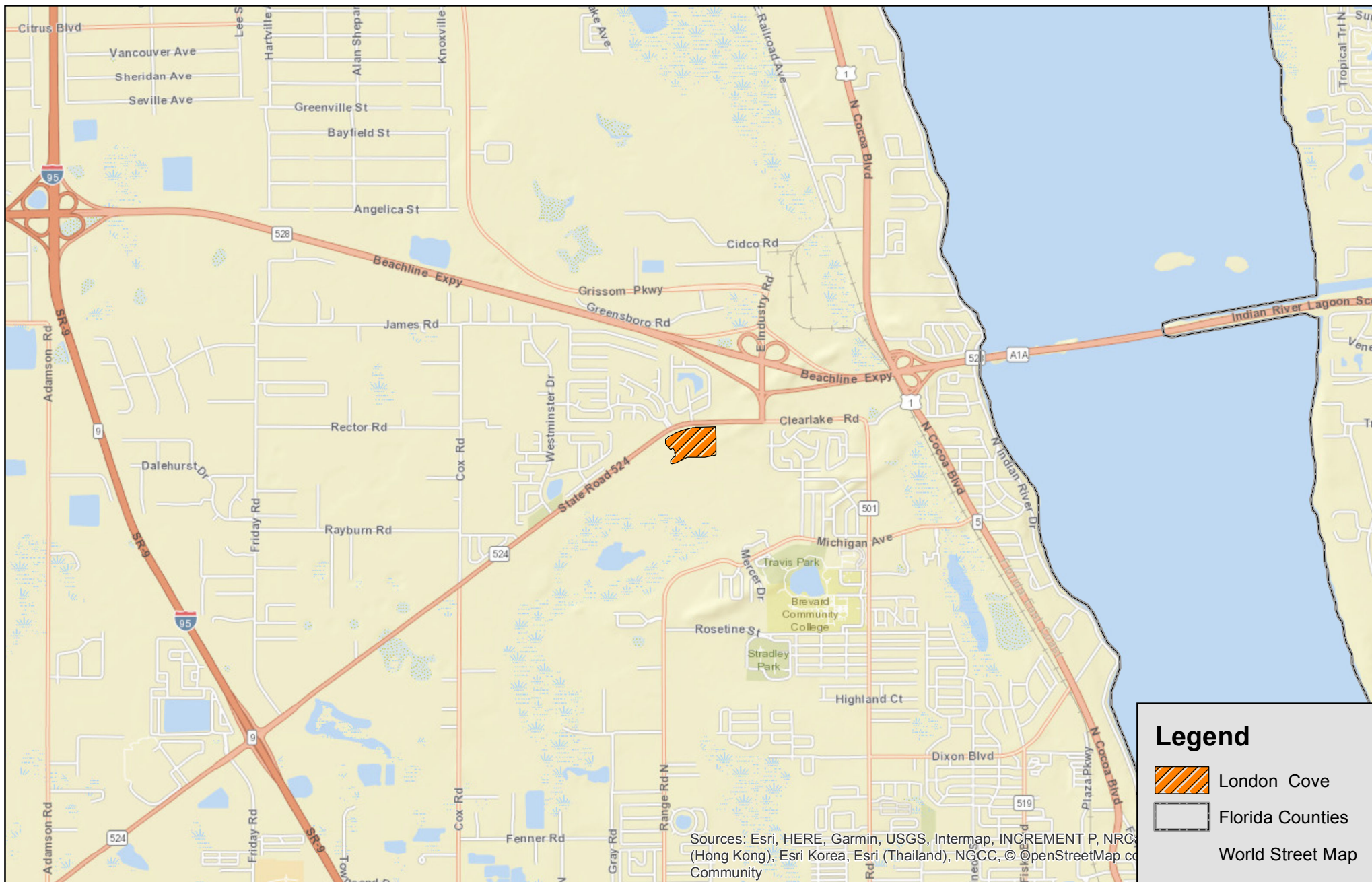


Spencer Clark
Field Biologist



Daniel Gough
Project Manager

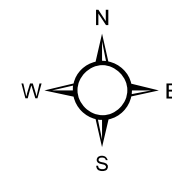
Attachments

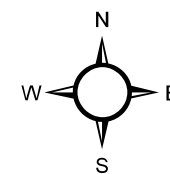
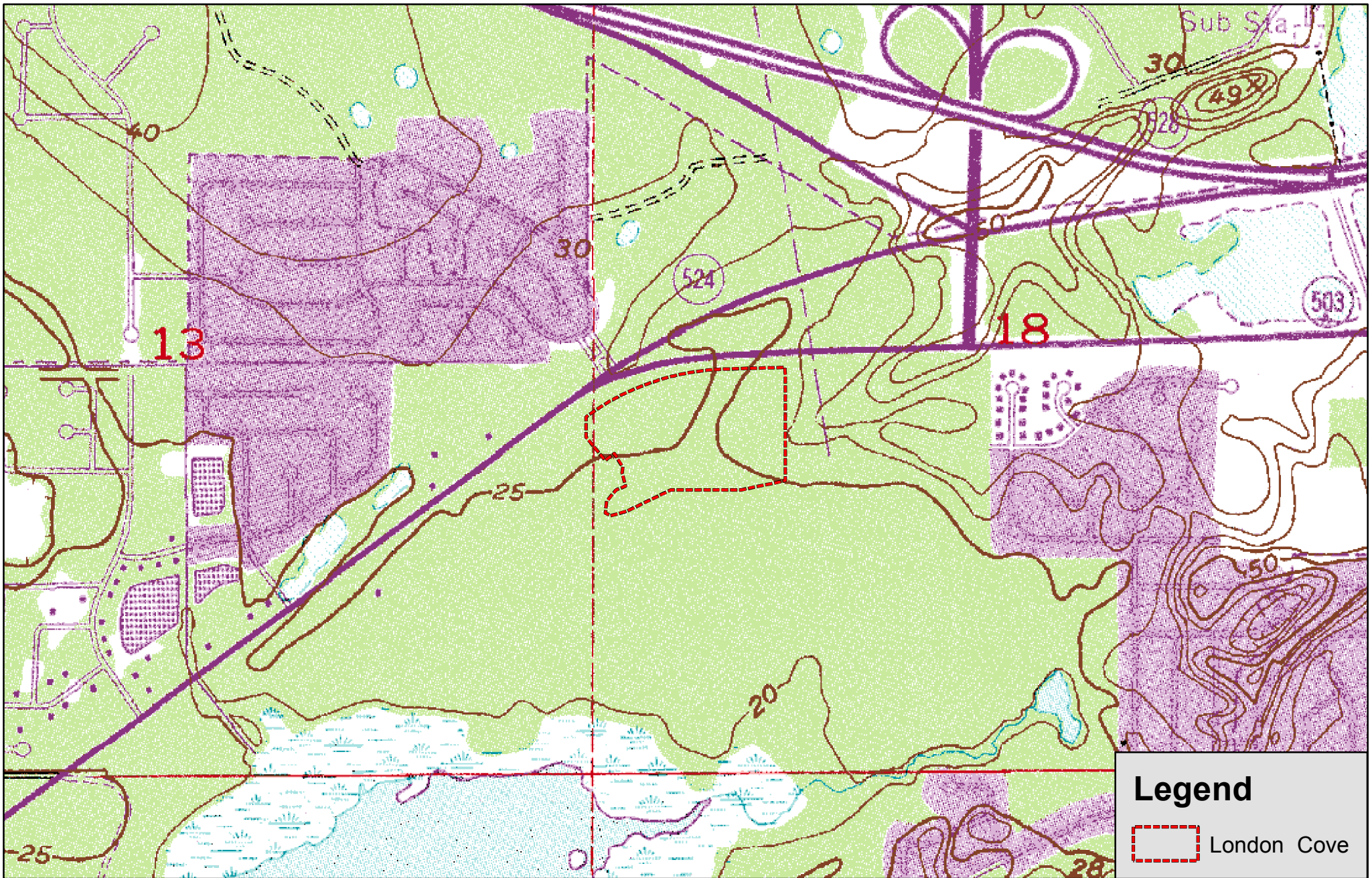


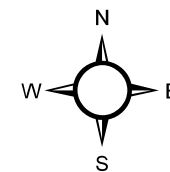
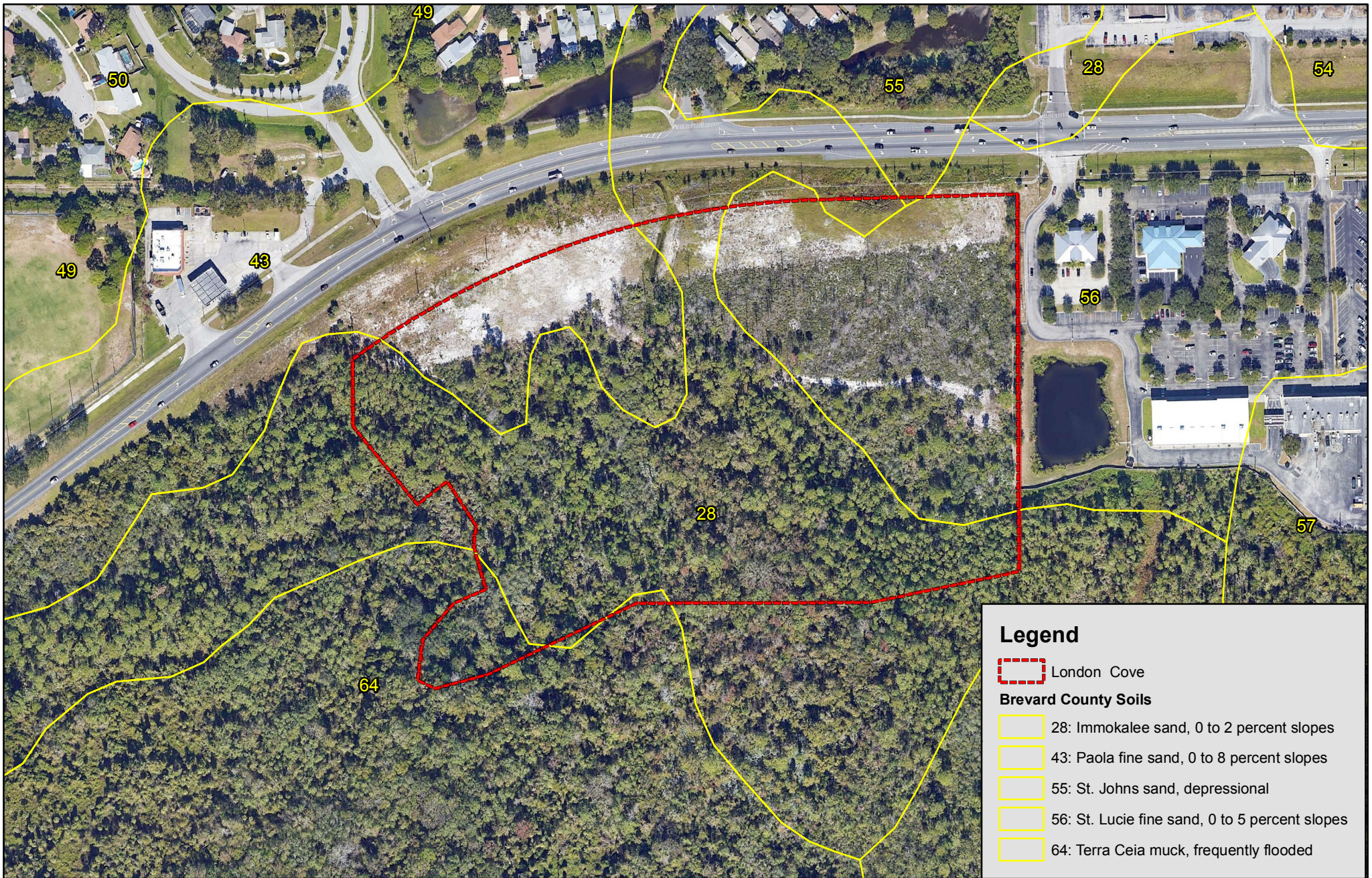


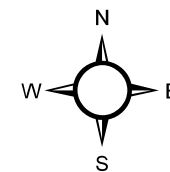
Legend

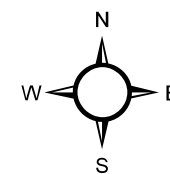
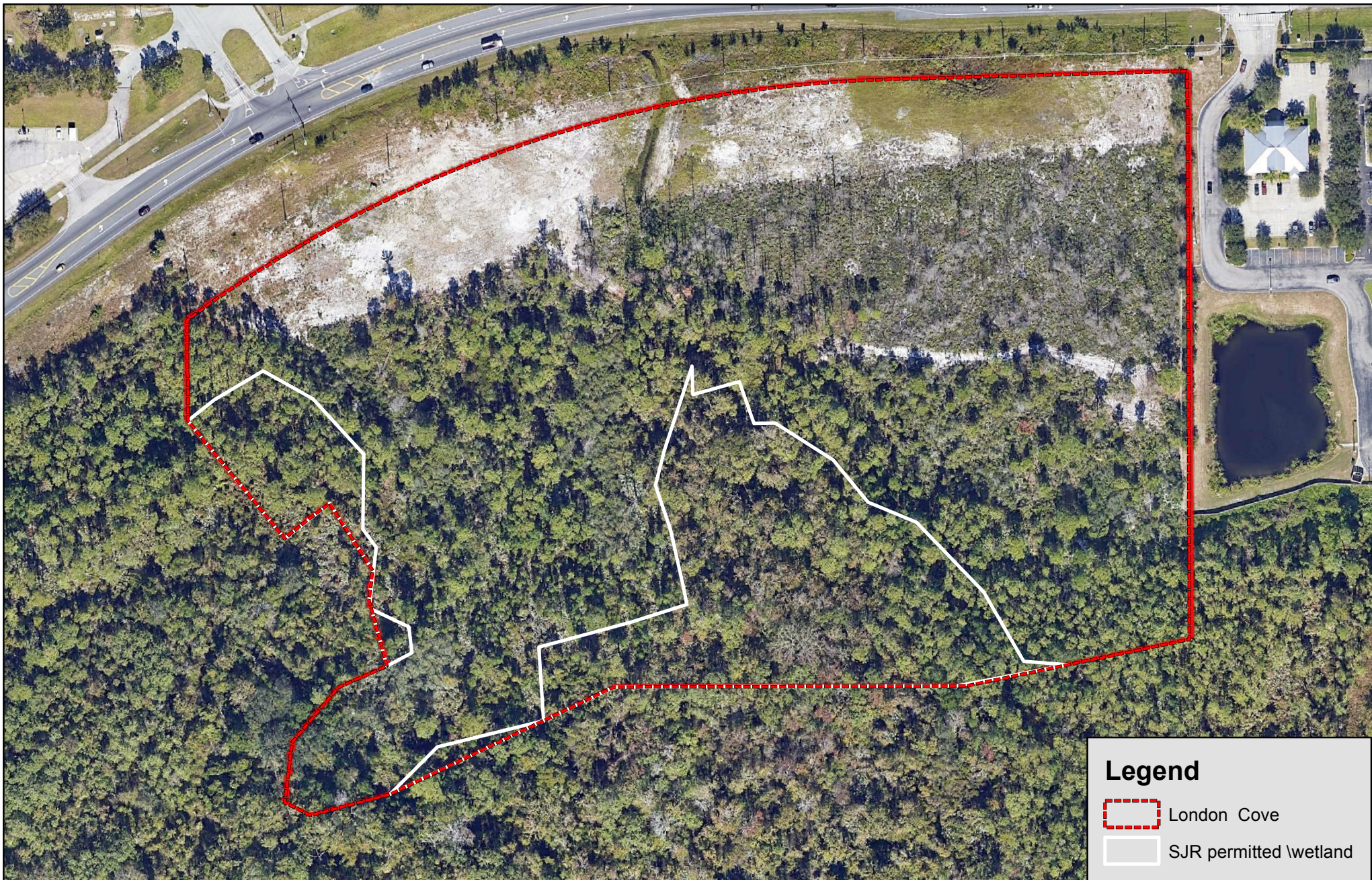
 London Cove









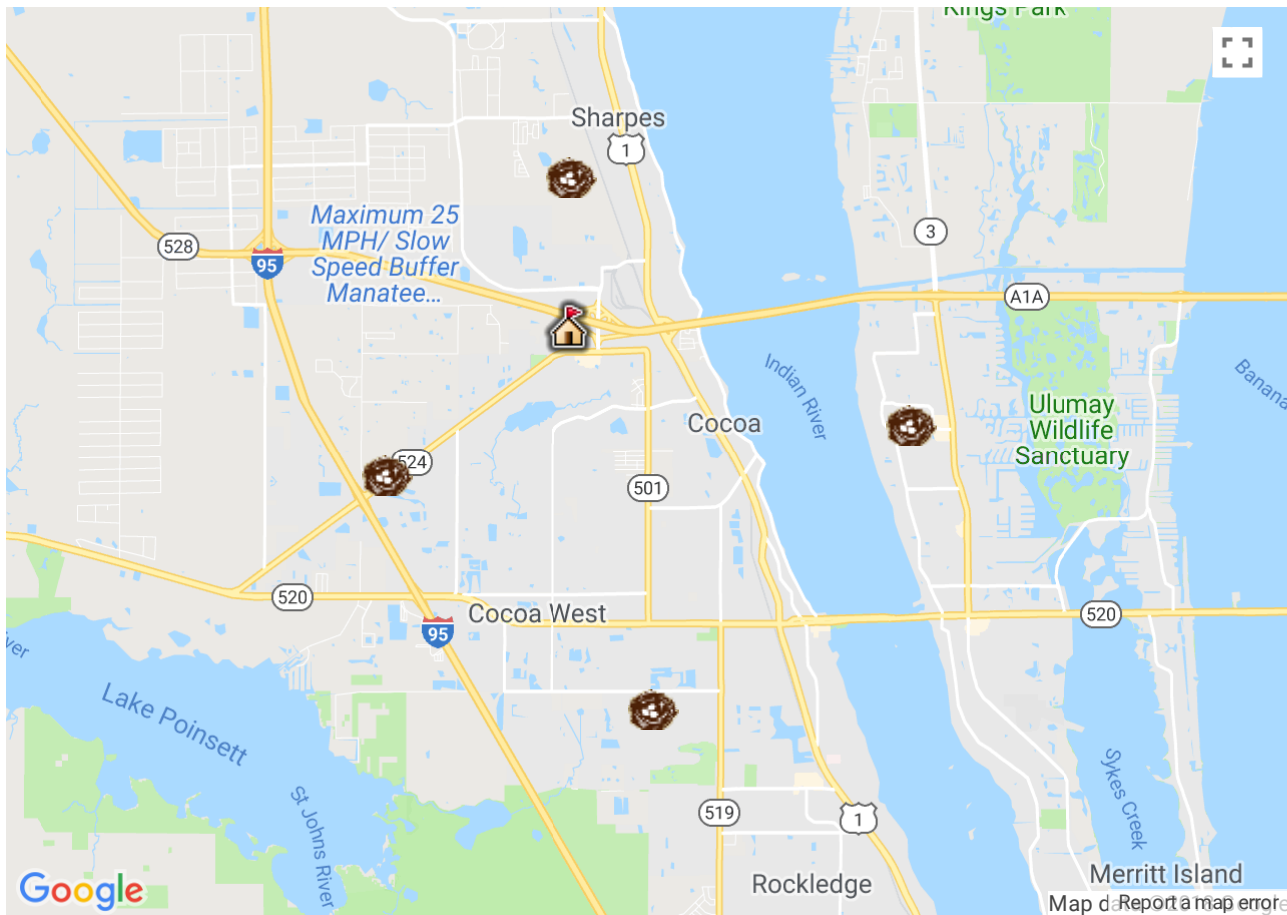


This report was generated using the bald eagle nest locator at
<https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx> on 8/9/2018 3:43:28 PM.

Search Entered: Within 5 miles of latitude 28.3952777777778 and longitude -80.7688888888889; All Search Results

4 record(s) were found; 4 record(s) are shown

Bald Eagle Nest Map:



Bald Eagle Nest Data Search Results:

Results per page:

All ▼

Nest ID	County	Latitude	Longitude	Township	Range	Section	Gaz Page	Last Known Active	Last Surveyed	Act 13	Act 14	Act 15	Act 16	Act 17	Dist. (Mi)
BE021	Brevard	28 25.21	80 46.11	24S	36E	06	87	2016	2016	Y	*	*	*	Y	1.72
BE036	Brevard	28 20.39	80 45.26	25S	36E	05	87	2016	2016	Y	*	*	*	Y	3.93
BE047	Brevard	28 22.97	80 42.61	24S	36E	22	88	2012	2016	Y	*	*	*	U	3.67
BE082	Brevard	28 22.50	80 48.00	24S	35E	23	87	2016	2016	*	*	*	Y	Y	2.36

"Y" denotes an active nest

"U" denotes a nest that was visited but status was undetermined

"N" denotes an inactive nest

"*" denotes a nest that was not surveyed

"-" denotes an unobserved nest

Table 1:

**Potentially Occurring Listed Wildlife and Plant Species in
Brevard County, Florida**

Scientific Name	Common Name	Federal Status	State Status	Occurrence Status
<u>FISH</u>				
<i>Acipenser oxyrinchus</i>	Atlantic sturgeon	LE	FE	C
<u>REPTILES</u>				
<i>Alligator mississippiensis</i>	American alligator	T(S/A)	FT(S/A)	C
<i>Caretta caretta</i>	loggerhead sea turtle	LT	FT	C
<i>Chelonia mydas</i>	green sea turtle	LT	FT	C
<i>Dermochelys coriacea</i>	leatherback sea turtle	LE	FE	C
<i>Drymarchon corais couperi</i>	eastern indigo snake	LT	FT	C
<i>Gopherus polyphemus</i>	gopher tortoise	C	ST	C
<i>Lepidochelys kempii</i>	Kemp's ridley sea turtle	LE	FE	P
<i>Pituophis melanoleucus mugitus</i>	Florida pine snake	N	ST	C
<u>BIRDS</u>				
<i>Platalea ajaja</i>	roseate spoonbill	N	ST	C
<i>Aphelocoma coerulescens</i>	Florida scrub-jay	LT	FT	C
<i>Polyborus plancus audubonii</i>	Audubon's crested caracara	LT	FT	C
<i>Charadrius melodus</i>	piping plover	LT	FT	P
<i>Egretta caerulea</i>	little blue heron	N	ST	C
<i>Egretta rufescens</i>	reddish egret	N	ST	C
<i>Egretta tricolor</i>	tricolored heron	N	ST	C
<i>Falco sparverius paulus</i>	southeastern American kestrel	N	ST	P
<i>Grus canadensis pratensis</i>	Florida sandhill crane	N	ST	C
<i>Haematopus palliatus</i>	American oystercatcher	N	ST	P
<i>Haliaeetus leucocephalus</i>	bald eagle	N	**	C
<i>Mycteria americana</i>	wood stork	LT	FT	C
<i>Pandion haliaetus</i>	osprey	N	SSC*	C
<i>Picoides borealis</i>	red-cockaded woodpecker	LE	FE	C
<i>Rynchops niger</i>	black skimmer	N	ST	C
<i>Athene cunicularia</i>	burrowing owl	N	ST	P
<i>Sterna antillarum</i>	least tern	N	ST	C
<u>MAMMALS</u>				
<i>Eubalaena glacialis</i>	North Atlantic right whale	LE	FE	C
<i>Peromyscus polionotus niveiventris</i>	southeastern beach mouse	LT	FT	C
<i>Sciurus niger shermani</i>	Sherman's fox squirrel	N	SSC	P
<i>Trichechus manatus (Trichechus manatus latirostris)</i>	West Indian manatee (Florida manatee)	E, PT	FE	C

** See Rank and Status Explanations and Definitions, Special Animal Listings - Federal and State Status

County Occurrence Status

Vertebrates and Invertebrates:

C = (Confirmed) Occurrence status derived from a documented record in the FNAI data base.

P = (Potential) Occurrence status derived from a reported occurrence for the county or the occurrence lies within the published range of the taxon.

N = (Nesting) For sea turtles only; occurrence status derived from documented nesting occurrences.



Florida

PO Box 631244 Cincinnati, OH 45263-1244

GANNETT

AFFIDAVIT OF PUBLICATION

Lucilene Ribeiro
Monica Arsenault
Cocoa City Hall
65 Stone Street
Cocoa FL 32922

STATE OF WISCONSIN, COUNTY OF BROWN

Before the undersigned authority personally appeared, who on oath says that he or she is the Legal Advertising Representative of the Florida Today, a daily newspaper published in Brevard County, Florida; that the attached copy of advertisement, being a Legal Ad in the matter of Public Notices, was published on the publicly accessible website of Brevard County, Florida, or in a newspaper by print in the issues of, on:

02/26/2025

Affiant further says that the website or newspaper complies with all legal requirements for publication in chapter 50, Florida Statutes.

Subscribed and sworn to before me, by the legal clerk, who is personally known to me, on 02/26/2025

Legal Clerk

Notary, State of WI, County of Brown

My commission expires

Publication Cost: \$215.21

Tax Amount: \$0.00

Payment Cost: \$215.21

Order No: 11071294

Customer No: 1127247

PO #:

of Copies:

1

THIS IS NOT AN INVOICE!

Please do not use this form for payment remittance.

NANCY HEYRMAN
Notary Public
State of Wisconsin

Ad#11071294 2/26/2025
CITY OF COCOA
NOTICE OF PUBLIC HEARING,
SITE PLAN APPROVAL
NOTICE IS HEREBY GIVEN
THAT

THE PLANNING & ZONING
BOARD/LOCAL PLANNING
AGENCY WILL CONSIDER THE
FOLLOWING:
PZ-20-0010004 - LARGE SCALE
SITE PLAN APPROVAL (London
Cove)

Consideration of a Large-Scale Site
Plan, pursuant to Appendix A,
Zoning, Article XII, Sec. 1(D) of
the Cocoa City Code, for the
construction of common
infrastructure for six (6)
commercial lots, and a multi-family
development, on two parcels of real
property, totaling 11.5 +/- acres. The
property is located along SR 524,
west of the Cocoa Commons
Shopping Center and approximately
1/4 mile south of SR 528. Tax Parcel
ID numbers: 24-36-18-00-502 and 24-
36-18-00-500.1.

PLANNING & ZONING BOARD/
LOCAL PLANNING AGENCY
PUBLIC HEARING WILL BE
HELD ON:

March 5, 2025
ALL HEARINGS WILL TAKE
PLACE AT 6:00 P.M. OR SOON
THEREAFTER IN THE
COCOA CITY HALL COUNCIL
CHAMBERS LOCATED AT
65 STONE STREET, COCOA, FL
General Notice Information:

This is a public meeting. Interested
parties are hereby advised that they
may appear at said meeting and be
heard. The facility wherein this
public meeting will be held is
accessible to the physically
handicapped. In accordance with the
Americans With Disabilities Act,
persons needing assistance to
participate in any of these
proceedings should contact the City
Clerk, Monica Arsenault, at least 48
hours prior to the meeting by
telephone at (321) 433-8484 or via
email at m.arsenault@cocoafl.org.
The City hereby advises the public
that if a person decides to appeal
any decision made by the BOA, P&Z
Board/LPA or City Council with
respect to any matter considered of
its meeting or hearing, that person
will need a record of the
proceedings and, for such purpose,
affected persons may need to assure
that a verbatim record of the
proceedings is made, and such
record shall include the testimony
and evidence upon which the appeal
is to be based. This notice does not
constitute consent by the City for the
introduction or admission into
evidence of otherwise inadmissible
or irrelevant evidence, nor does it
authorize challenges or appeals
otherwise not allowed by law.

The BOA, PZ Board/LPA and City
Council reserve the right to continue
or postpone hearings to a date
certain without re-advertising.
Public Participation Information:
The public may inspect the agenda
items, ordinances, and supporting
documents at the Community
Services Department, between 8:00
a.m. and 5:00 p.m., Monday through
Friday, or by phoning (321) 433-8481,
or on the City's website at the
following link prior to the meeting:
<https://www.cocoafl.gov/291/2023/02/26/20230226-v-Meetings>

Interested persons may submit their
written comments or questions prior
to the meeting through Email at
meetings@cocoafl.org.
Viewing in Real Time. Interested
persons may view and listen to the
hearings live at the following
internal address:
<https://www.cocoafl.gov/291/2023/02/26/20230226-v-Meetings>. The City is not
responsible for technical difficulties
that may occur while viewing or
listening online.



Drainage Calculations

London Cove
Cocoa, Florida

(DSE Job No.: DB-3)

Prepared By
Dave Schmitt Engineering, Inc.

Prepared For
Demetree Builders

November 2016
September 2018
February 2019
April 2019
August 2020
November 2020
December 2020
February 2021
Revised April 2021

State of Florida Board of Professional Engineers
Certification of Authorization #27471

Drainage Calculations

London Cove Cocoa, Florida



Prepared For
Demetree Builders

Prepared By
Dave Schmitt Engineering, Inc.

Dave Schmitt, P.E
Fl. Reg. #48274

November 2016
September 2018
February 2019
April 2019
August 2020
November 2020
December 2020
February 2021
Revised April 2021

12301 Lake Underhill –Suite 241, Orlando, Florida 32828 (407) 207-9088
State of Florida Board of Professional Engineers
Certification of Authorization #27471

Drainage Calculations
London Cove
Cocoa, Florida

Table of Contents

Summary.....	1
Site Information.....	2
Pre-Development Calculations.....	3
Drainage Area Calculations and Map	
Basin Area, Curve Number, and Tc Summary	
Basin Area Summary	
Basin Curve Number Calculations	
Time of Concentration Calculations	
Pre-Development Routings	
Simulation Input Data.....	4
Simulation Results	
Post-Development Calculations	5
Basin Area, Curve Number, and Tc Summary	
Basin Area Summary	
Basin Impervious Area Calculations	
Basin Curve Number Calculations	
Stage-Storage Calculations	
Orifice Calculations	
Permanent Pool Calculations	
Post-Development Routings	6
Simulation Input Data	
Simulation Results	
Recover ICPR.....	7
Geotechnical Report.....	8

Drainage Summary

The London Cove site was previously permitted by St. John's River Water Management District (SJRWMD) under permit #: 4-009-91298-1 by a different engineering firm. Dave Schmitt Engineering has now become the engineer of record.

The project site is located on the south side of SR 524 just west of Industry Road in Cocoa, Florida and lies in Section 7, Township 21 South and Range 31 East as well as Section 13, Township 24 South and Range 35 East. The site is approximately 75 acres of which approximately 20.81 acres are to be developed.

The project includes approximately 8.92 ac of future commercial development and 10.63 ac residential development in addition to 0.34 ac of comp. storage and 0.92 ac of conservation area.

The site is currently undeveloped and wooded with heavy vegetation. The flow across the site is generally north to south with roughly 6 feet of fall. The 100-year base flood elevation per FEMA firm panel 12009C0320G dated March 17, 2014 is 20.7 feet NAVD88. Currently runoff from SR 524 passes through the site via a swale. This runoff will be bypassed through the site after development via storm pipes and will be under a drainage easement to the FDOT.

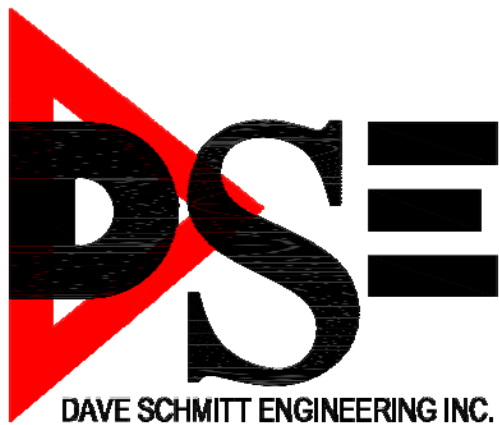
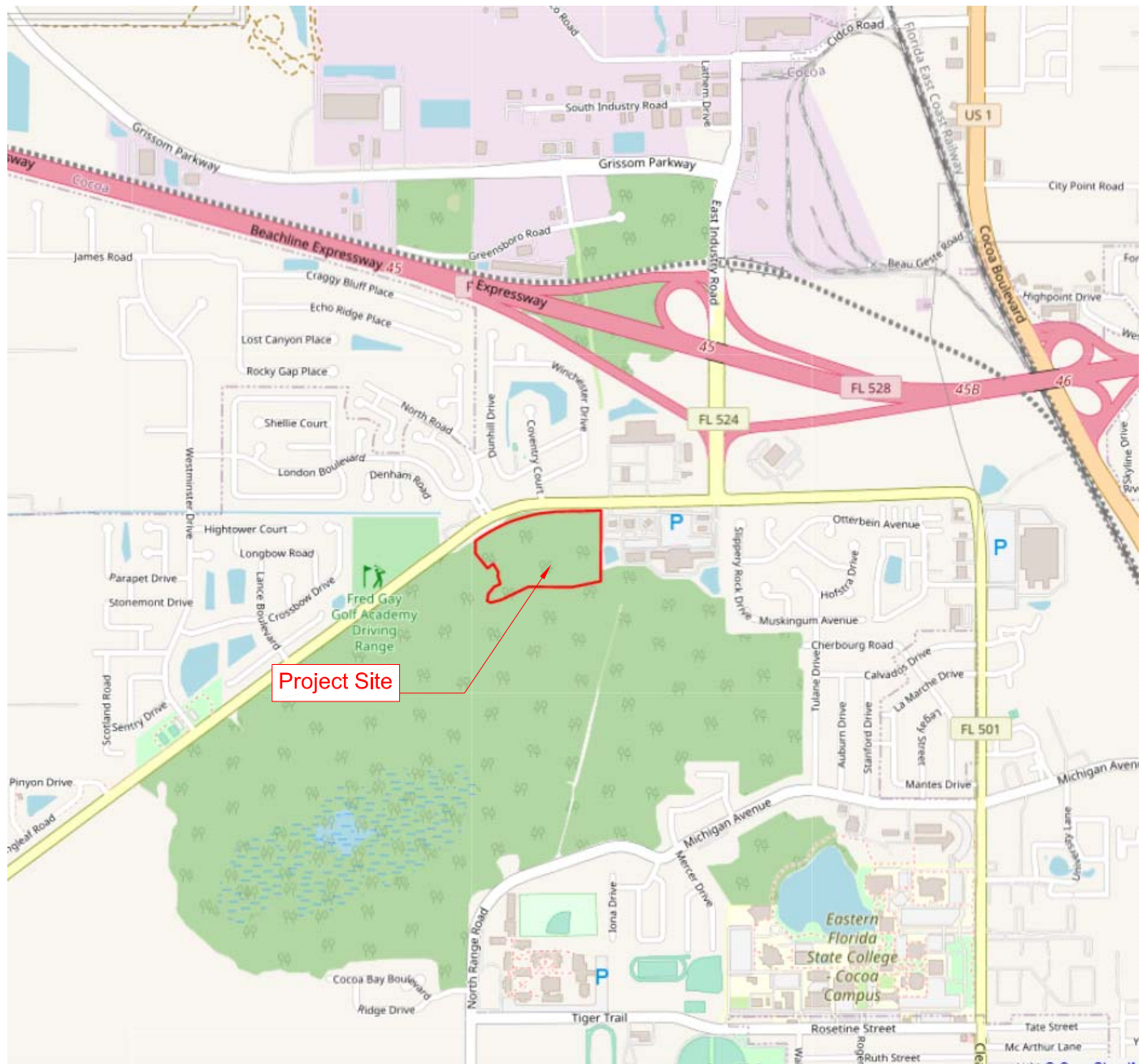
The wet detention ponds will treat and attenuate the stormwater according to SJRWMD criteria before discharging to the adjacent wetlands and ultimately to Mud Lake. Mud Lake is not an OFW or an impaired water body. The tailwater stage in the wetland is based on 100-year floodplain elevation and is the same as was previously permitted by SJRWMD. As previously agreed upon the normal water level (NWL) for the wet detention pond was set at elevation 23.0. The soils report submitted for permit #: 4-009-91298-1 indicates that the seasonal high-water table (SHWT) was at ground and the boring is shown at elevation 22.

The water quality and recovery requirements have been met for the SJRWMD. The wet detention pond will have side slopes of 2:1 from two feet below the seasonal low water table (SLWT) to the bottom of the pond and 4:1 side slope from two feet below NWL to the top of bank.

LONDON COVE
STORMWATER ANALYSIS
Peak Discharge Summary Table

PRE-POST*		MAX POST STAGE FOR		
PEAK DISCHARGE		NODE	NODE	
		99	D-21	PONDS 1
				PONDS 2
	Pre-Development	Post Development	Post Development	Post Development
Storm Frequency	Flow	Flow	*Max Stage	*Max Stage
MEANFL	7.09	1.31	24.35	24.35
10Y24H	24.30	3.17	25.37	25.36
25Y24HFL	38.29	6.67	25.83	25.82
100Y24H	50.31	10.25	26.21	26.18
TOP OF BANK			27.8	27.8

(*) Considering Pre UH 256 and Post UH323 (Res) and UH484 (Com)



Demetree Builders London Cove Location Map

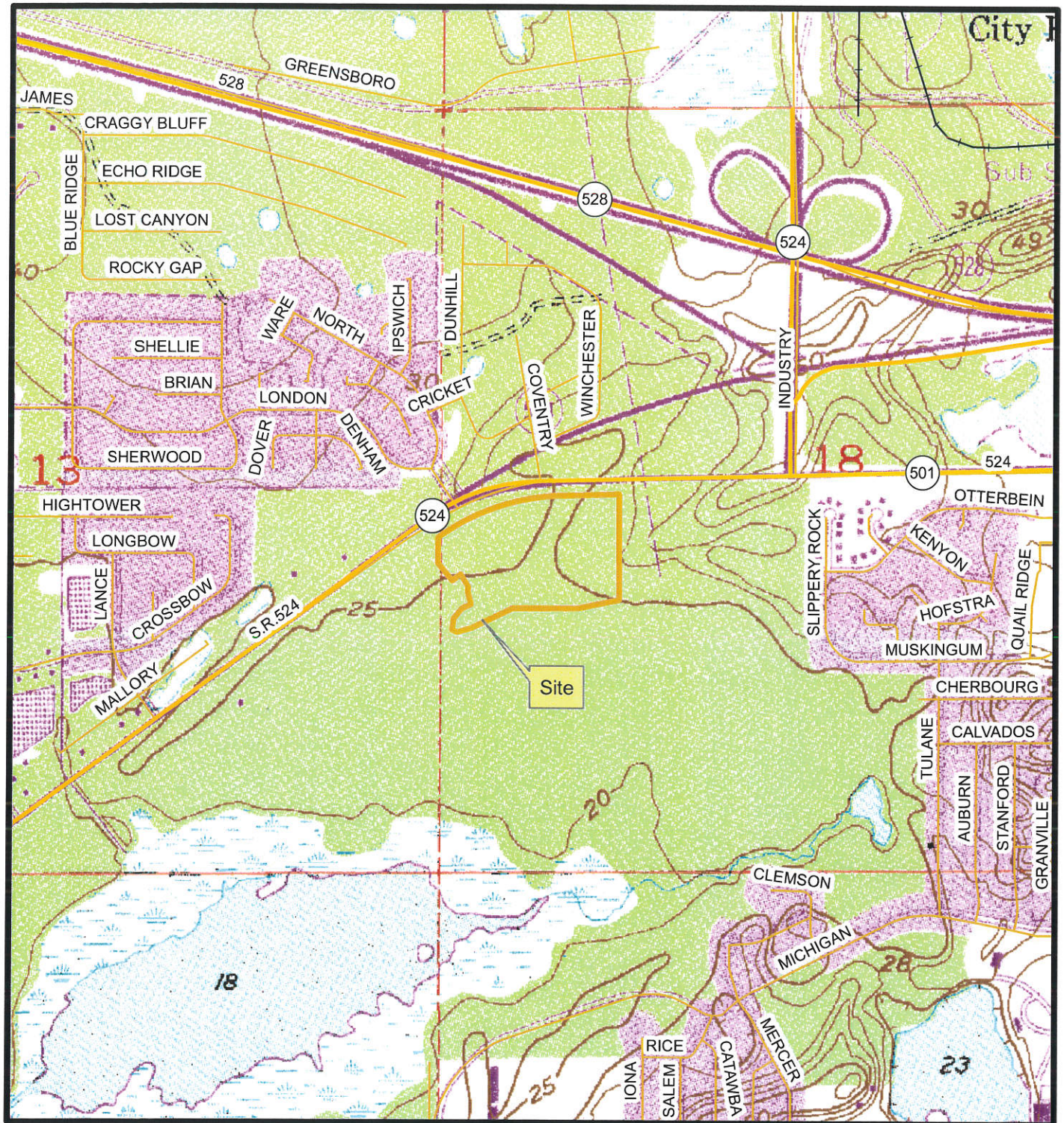


0 150 300 Feet



Demetree Builders
London Cove

Aerial Map



0 500 1,000 Feet



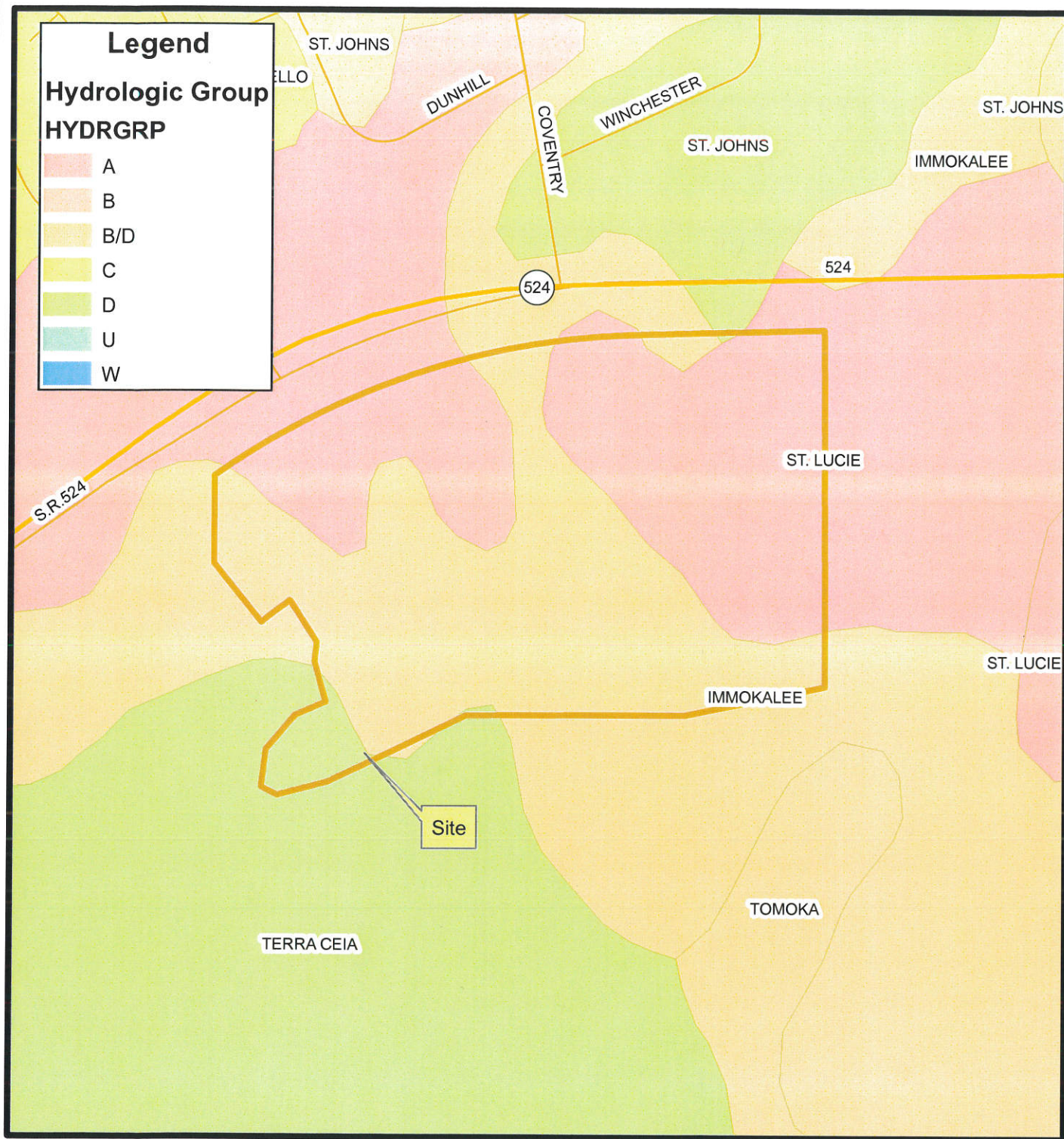
Demetree Builders
London Cove
USGS Quadrangle Map
Sharpes, FL 1989

Legend

Hydrologic Group

HYDRGRP

- A
- B
- B/D
- C
- D
- U
- W

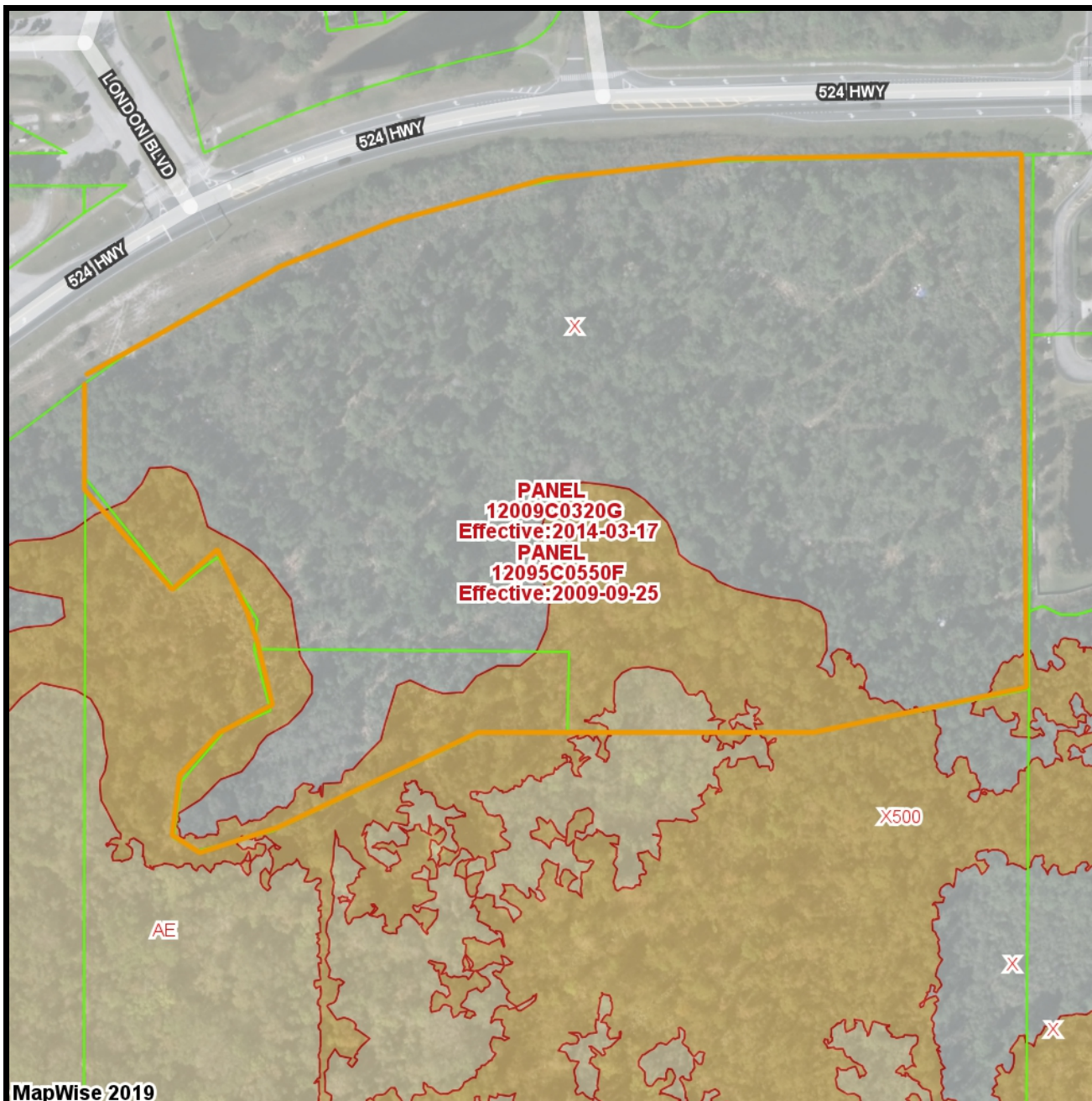


0 150 300 Feet



Demetree Builders
London Cove

Soils Map



London Cove FEMA

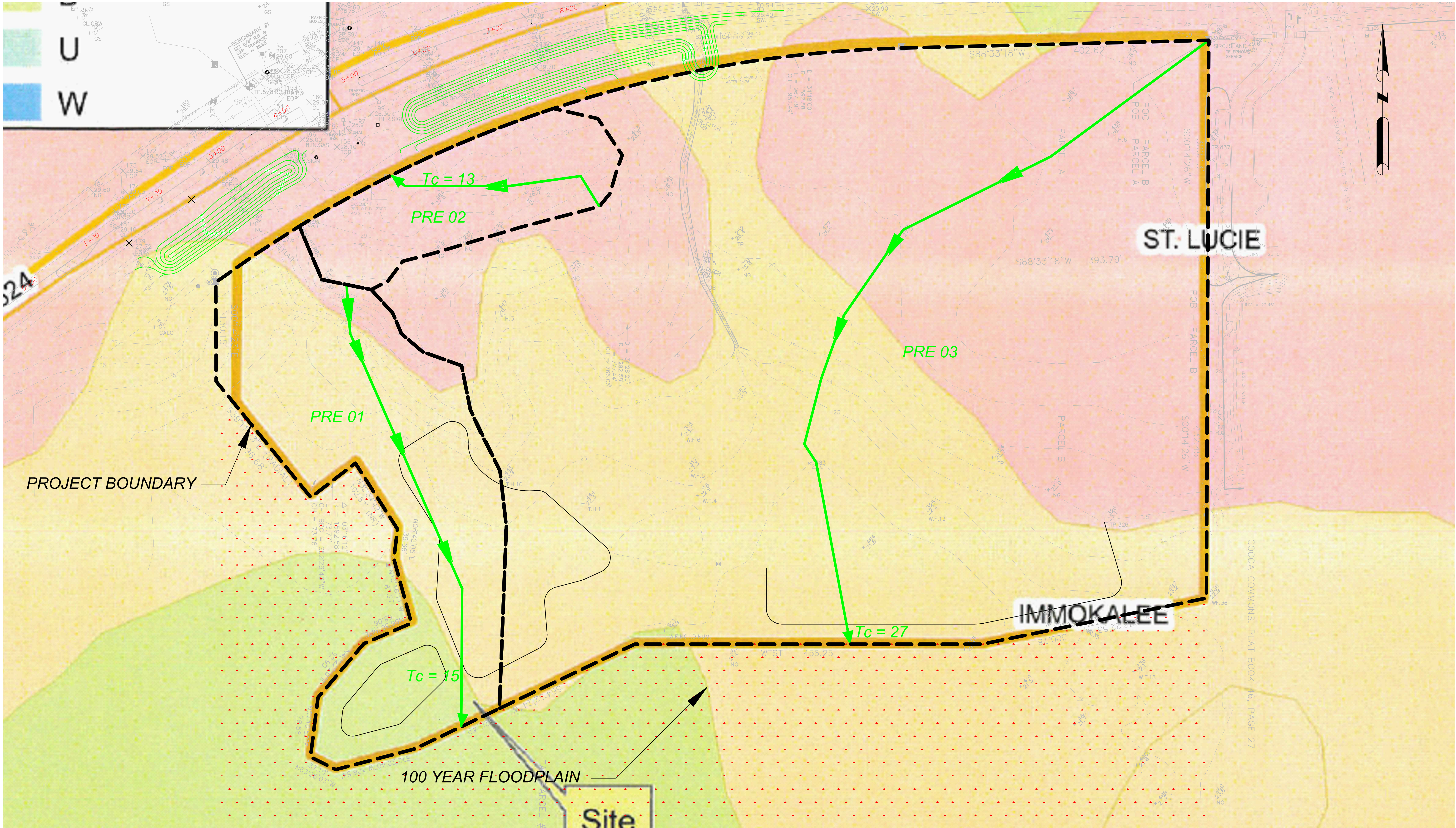
- Labels Drawing
- Points Drawing
- Lines Drawing
- Polygons Drawing
- Selected Custom Parcels
- Streets MapWise
- County Boundaries
- Parcel Outlines
- FEMA DFIRM Panels
- V - 100-year, wave action, BFE no
- VE - 100-year, wave action, BFE yes
- A - 100-year, BFE no
- AE - 100-year, BFE yes
- AH - 100-year, ponding, BFE yes
- AO - 100-year, sheet flow, BFE yes
- X500 - 500-year
- D - Undetermined, possible hazard
- ANI - Area Not Included
- X - Outside any floodplains



MapWise 2019

Copyright 2017 MapWise, Inc. All rights reserved. www.mapwise.com. This map is informational only. No representation is made or warranty given as to its content. User assumes all risk of use. MapWise and its suppliers assume no responsibility for any losses resulting from such use.

F:\DB3\Drainage\New Layout 08.10.2020\Pre_Post Drainage Map 02.01.19.dwg,2/5/2021 11:01:27 AM



**DAVE SCHMITT
ENGINEERING, INC.**
3680 AVALON PARK E. BLVD SUITE 310
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

CONTRACTOR "AS-BUILTS"

I hereby state that these "As-Built's" were furnished to me by the contractor listed below, I, or an employee under my direct supervision have reviewed these "As-Built's" and believe them to be in compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction.

Contractor _____ Engineer _____
Not valid without the signature and the original raised seal of a Florida Registered Engineer.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

PRE-DEVELOPMENT BASIN MAP
LONDON COVE
COCOA, FL

DATE: MARCH 2010
PROJECT NO.: DB-3
DRAWN BY: BRW
CHECKED BY: TFS
SCALE: NTS
SHEET: 1 OF 1

LONDON COVE
PRE-DEVELOPMENT - STORMWATER ANALYSIS
Basin Area, Curve Number, and Tc Summary

BASIN #	AREA (ac)	CN	TC (min)
PRE 01	3.17	73	15
PRE 02	1.16	30	13
PRE 03	16.48	56	27
TOTAL	20.81		

LONDON COVE
PRE-DEVELOPMENT - STORMWATER ANALYSIS
Basin Area Summary

Basin	Onsite Area (ac)	Offsite Area (ac)	Total Area (ac)
PRE 01	3.17	0.00	3.17
PRE 02	1.16	0.00	1.16
PRE 03	16.48	0.00	16.48
Total	20.81	0.00	20.81

LONDON COVE
PRE-DEVELOPMENT - STORMWATER ANALYSIS
Curve Number Calculations

Basin ID : PRE 01
 Total Acres: 3.17

Soil Class	Cover Type	Percent Cover	CN	% Area	Area	Factor		
A	Woods	Good: > 75%	30	8.8%	0.28	8		
D	Woods	Good: > 75%	77	91.2%	2.89	223		
						100.0%	3.17	
						Composite CN:		73

Basin ID : PRE 02
 Total Acres: 1.16

Soil Class	Cover Type	Percent Cover	CN	% Area	Area	Factor		
A	Woods	Good: > 75%	30	100.0%	1.16	35		
D	Woods	Good: > 75%	77	0.0%	0.00	0		
						100.0%	1.16	
						Composite CN:		30

Basin ID : PRE 03
 Total Acres: 16.48

Soil Class	Cover Type	Percent Cover	CN	% Area	Area	Factor		
A	Woods	Good: > 75%	30	43.1%	7.10	213		
D	Woods	Good: > 75%	77	56.1%	9.25	712		
						99.2%	16.35	
						Composite CN:		56

LONDON COVE
PRE-DEVELOPMENT - STORMWATER ANALYSIS
Time of Concentration Calculations

BASIN	Sheet Flow Slope (ft/ft)	Sheet Flow Length (ft)	Manning's n	Sheet Flow Tt (min)	Shallow Concentrated Flow Slope (ft/ft)	Shallow Concentrated Flow Length (ft)	Paved / Unpaved	Shallow Concentrated Flow Tt (min)	Pipe Flow Length (ft)	Pipe Flow Tt (min)	Tc (min)
PRE 01	0.075	100	0.22	7	0.004	512	U	8	0	0	15
PRE 02	0.030	100	0.30	11	0.010	201	U	2	0	0	13
PRE 03	0.006	100	0.24	16	0.008	959	U	11	0	0	27

Kinematic Wave Equation (Sheet Flow), Shallow Conc. Flow & Pipe Flow (SCS TR-55):

$$t = 0.93 \cdot L^{0.6} \cdot n^{0.6} / I^{0.4} \cdot s^{0.3} + L / 60 \cdot V + L / 60 \cdot V$$

t = overland flow travel time (minutes)

L = overland flow length (ft.)

n = mannings roughness coefficient

I = rainfall intensity (4.50 in./hr.)

s = average slope (ft./ft.)

V = average velocity:

paved surface $V = 20.3282 \cdot s^{0.5}$

unpaved surface $V = 16.1345 \cdot s^{0.5}$

60=conversion factor from seconds to minutes

Nodes

A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins

O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links

P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench

T: 99

U: PRE 01
U: PRE 02
U: PRE 03

=====
Basins
=====

Name: PRE 01 Node: 99 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 15.00
Area(ac): 3.170 Time Shift(hrs): 0.00
Curve Number: 73.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: PRE 02 Node: 99 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 13.00
Area(ac): 1.160 Time Shift(hrs): 0.00
Curve Number: 30.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: PRE 03 Node: 99 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 27.00
Area(ac): 16.480 Time Shift(hrs): 0.00
Curve Number: 56.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

=====
Nodes
=====

Name: 99 Base Flow(cfs): 0.000 Init Stage(ft): 22.000
Group: BASE Warn Stage(ft): 23.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	22.000
336.00	22.000

=====
Hydrology Simulations
=====

Name: 100Y24H
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\100Y24H.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 11.10

Time(hrs)	Print Inc(min)
30.000	15.00

Name: 10Y24H
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\10Y24H.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 7.50

Time(hrs)	Print Inc(min)
-----------	----------------

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\Pre 08.28.2020.ICP

30.000 15.00

Name: 25Y24HFL
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\25Y24HFL.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 9.50

Time(hrs) Print Inc(min)

30.000 15.00

Name: MEANFL
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\MEANFL.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 4.50

Time(hrs) Print Inc(min)

30.000 15.00

==== Routing Simulations =====

Name: 100Y24H Hydrology Sim: 100Y24H
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\100Y24H.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.05000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 30.00
Min Calc Time(sec): 2.0000 Max Calc Time(sec): 5.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

30.000 15.000

Group Run

BASE Yes

Name: 10Y24H Hydrology Sim: 10Y24H
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\10Y24H.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.05000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 30.00
Min Calc Time(sec): 2.0000 Max Calc Time(sec): 5.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

30.000 15.000

Group Run

BASE Yes

Name: 25Y24HFL Hydrology Sim: 25Y24HFL
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\25Y24HFL.I32

Execute: Yes Restart: No Patch: No
Alternative: No

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\Pre 08.28.2020.ICP

Max Delta Z(ft): 1.00	Delta Z Factor: 0.05000
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 30.00
Min Calc Time(sec): 2.0000	Max Calc Time(sec): 5.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
30.000	15.000

Group	Run
BASE	Yes

Name: MEANFL Hydrology Sim: MEANFL
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Pre\MEANFL.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00	Delta Z Factor: 0.05000
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 30.00
Min Calc Time(sec): 2.0000	Max Calc Time(sec): 5.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
30.000	15.000

Group	Run
BASE	Yes

LONDON COVE - DB-3
PRE-DEVELOPMENT Basin Summary Report
02-05-2021

Name: PRE 01	PRE 02	PRE 03	PRE 01	PRE 02
Group: BASE	BASE	BASE	BASE	BASE
Simulation: 100Y24H	100Y24H	100Y24H	10Y24H	10Y24H
Node: 99	99	99	99	99
Type: SCS	SCS	SCS	SCS	SCS
Unit Hydrograph: Uh256	Uh256	Uh256	Uh256	Uh256
Peaking Factor: 256.0	256.0	256.0	256.0	256.0
Spec Time Inc(min): 2.00	1.73	3.60	2.00	1.73
Comp Time Inc(min): 2.00	1.73	3.60	2.00	1.73
Rain File: Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in): 11.100	11.100	11.100	7.500	7.500
Duration(hrs): 24.00	24.00	24.00	24.00	24.00
Status: Onsite	Onsite	Onsite	Onsite	Onsite
TC(min): 15.00	13.00	27.00	15.00	13.00
Time Shift(hrs): 0.00	0.00	0.00	0.00	0.00
Area(ac): 3.170	1.160	16.480	3.170	1.160
Vol of Unit Hyd(in): 1.000	1.000	1.000	1.000	1.000
Curve Num: 73.000	30.000	56.000	73.000	30.000
DCIA(%): 0.000	0.000	0.000	0.000	0.000
Time Max(hrs): 12.10	12.31	12.24	12.10	12.83
Flow Max(cfs): 14.329	0.626	37.228	8.238	0.048
Runoff Volume(in): 7.632	1.389	5.221	4.368	0.306
Runoff Volume(ft3): 87823.306	5848.679	312304.960	50264.434	1289.946

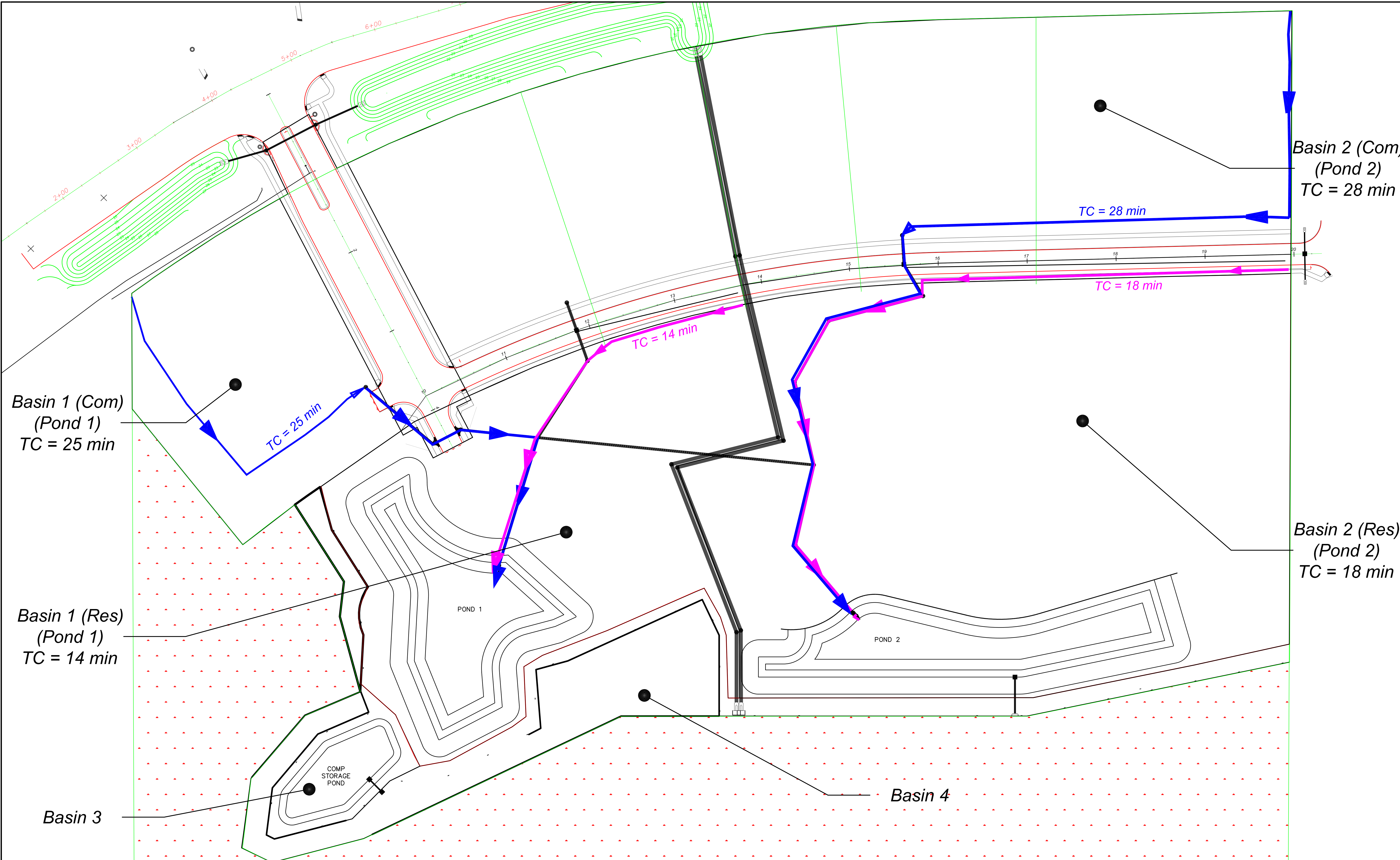
Name: PRE 03	PRE 01	PRE 02	PRE 03	PRE 01
Group: BASE	BASE	BASE	BASE	BASE
Simulation: 10Y24H	25Y24HFL	25Y24HFL	25Y24HFL	MEANFL
Node: 99	99	99	99	99
Type: SCS	SCS	SCS	SCS	SCS
Unit Hydrograph: Uh256	Uh256	Uh256	Uh256	Uh256
Peaking Factor: 256.0	256.0	256.0	256.0	256.0
Spec Time Inc(min): 3.60	2.00	1.73	3.60	2.00
Comp Time Inc(min): 3.60	2.00	1.73	3.60	2.00
Rain File: Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in): 7.500	9.500	9.500	9.500	4.500
Duration(hrs): 24.00	24.00	24.00	24.00	24.00
Status: Onsite	Onsite	Onsite	Onsite	Onsite
TC(min): 27.00	15.00	13.00	27.00	15.00
Time Shift(hrs): 0.00	0.00	0.00	0.00	0.00
Area(ac): 16.480	3.170	1.160	16.480	3.170
Vol of Unit Hyd(in): 1.000	1.000	1.000	1.000	1.000
Curve Num: 56.000	73.000	30.000	56.000	73.000
DCIA(%): 0.000	0.000	0.000	0.000	0.000
Time Max(hrs): 12.30	12.10	12.34	12.30	12.10
Flow Max(cfs): 17.155	11.603	0.295	27.911	3.468
Runoff Volume(in): 2.549	6.158	0.828	3.981	1.895
Runoff Volume(ft3): 152470.528	70855.597	3488.372	238144.859	21806.280

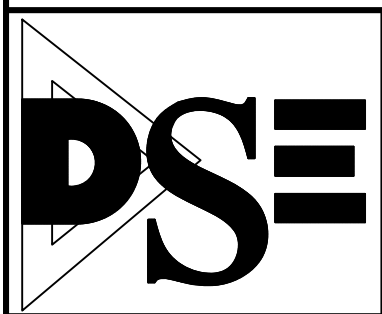
Name: PRE 02	PRE 03
Group: BASE	BASE
Simulation: MEANFL	MEANFL
Node: 99	99
Type: SCS	SCS
Unit Hydrograph: Uh256	Uh256
Peaking Factor: 256.0	256.0
Spec Time Inc(min): 1.73	3.60
Comp Time Inc(min): 1.73	3.60
Rain File: Flmod	Flmod
Rain Amount(in): 4.500	4.500
Duration(hrs): 24.00	24.00
Status: Onsite	Onsite
TC(min): 13.00	27.00
Time Shift(hrs): 0.00	0.00
Area(ac): 1.160	16.480
Vol of Unit Hyd(in): 1.000	1.000
Curve Num: 30.000	56.000
DCIA(%): 0.000	0.000
Time Max(hrs): 0.00	12.42
Flow Max(cfs): 0.000	4.273
Runoff Volume(in): 0.000	0.795
Runoff Volume(ft3): 0.000	47552.795

LONDON COVE - DB-3
PRE-DEVELOPMENT Node Min Max Report
02-05-2021

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
99	BASE	100Y24H	0.00	22.000	23.000	0.0000	0	12.25	50.314	0.00	0.000
99	BASE	10Y24H	0.00	22.000	23.000	0.0000	0	12.25	24.302	0.00	0.000
99	BASE	25Y24HFL	0.00	22.000	23.000	0.0000	0	12.25	38.294	0.00	0.000
99	BASE	MEANFL	0.00	22.000	23.000	0.0000	0	12.25	7.087	0.00	0.000

F:\DB3\Drainage\New Layout 08.10.2020\Review 04-03-2021\db3_final_dsebase.dwg, 4/22/2021 11:18:47 AM



	DAVE SCHMITT ENGINEERING, INC. 12301 LAKE UNDERHILL RD. SUITE 241 ORLANDO, FL 32828 407-207-9088 FAX 407-207-9089 Certification of Authorization #27471	CONTRACTOR "AS-BUILTS" I hereby state that these "As-Builts" were furnished to me by the contractor listed below. I, or an employee under my direct supervision have reviewed these "As-Builts" and believe them to be in compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction. Contractor _____ Engineer _____ Not valid without the signature and the original raised seal of a Florida Registered Engineer.	REVISIONS					Basin Exhibit LONDON COVE CITY OF COCOA, FLORIDA	DATE: August 2020
			DATE	BY	DESCRIPTION	DATE			BY
								DRAWN BY: DSE	
								CHECKED BY: DSE	
								SCALE: N/A	
								SHEET: 1 OF 1	

LONDON COVE
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Area, Curve Number, and Tc Summary

Basin	Area (ac)	CN	Tc (min)
BASIN 1 (Commercial) Pond 1	4.79	88	25
BASIN 1 (Residential) Pond 1	3.68	93	14
BASIN 2 (Commercial) Pond 2	4.14	86	28
BASIN 2 (Residential) Pond 2	6.95	89	18
BASIN 3 (Comp. Storage)	0.34		
Basin 4 (Conservation Area)	0.92		
Total	20.81		

LONDON COVE
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Area Summary

Basin	Onsite Area (ac)	Offsite Area (ac)	Total Area (ac)
BASIN 1 (Commercial) Pond 1	4.79	0.00	4.79
BASIN 2 (Commercial) Pond 2	4.14	0.00	4.14
BASIN 1 (Residential) Pond 1	3.68	0.00	3.68
BASIN 2 (Residential) Pond 2	6.95	0.00	6.95
BASIN 3 (Comp. Storage)	0.34	0.00	0.34
Basin 4 (Conservation Area)	0.92	0.00	0.92
Total	20.81	0.00	20.81

LONDON COVE
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Impervious Area Calculations

Basin	Clubhouse and Future Residential Development ¹ (ac)	Commercial Area ² (ac)	Subtotal Impervious (ac)	Pond Surface Area (ac)	Total Impervious (ac)
BASIN 1 (Commercial) Pond 1		3.83	3.83		3.83
BASIN 2 (Commercial) Pond 2		3.31	3.31		3.31
BASIN 1 (Residential) Pond 1	2.21		2.21	0.66	2.87
BASIN 2 (Residential) Pond 2	4.17		4.17	0.74	4.91
BASIN 3 (Comp. Storage)					
Basin 4 (Conservation Area)					
Total	6.38	7.14	13.52	1.40	14.92

NOTES: 1. Future development is assumed to be 4 and 5 unit townhomes at a max. 60% impervious.
2. Commercial area is assumed to be 80% impervious.

LONDON COVE
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Curve Number Calculations

Basin	CN=98		CN=100		CN=77	CN=30		
	Impervious Area	Impervious Area	Pond Area	Pervious Area	Soil Type D	Soil Type A	Total Area	Composite CN
	(ac)	(% of Total)	(ac)	(ac)	(ac)	(ac)	(ac)	
BASIN 1 (Commercial) Pond 1	3.83	80.00%	0.00	0.96	0.39	0.57	4.79	88
BASIN 2 (Commercial) Pond 2	3.31	80.00%	0.00	0.83	0.13	0.70	4.14	86
BASIN 1 (Residential) Pond 1	2.21	60.00%	0.66	0.81	0.77	0.04	3.68	93
BASIN 2 (Residential) Pond 2	4.17	60.00%	0.74	2.04	1.54	0.50	6.95	89
BASIN 3 (Comp. Storage)								
Basin 4 (Conservation Area)								

NOTES: 1. Impervious CN = 98
2. Pond CN = 100
3. Pervious CN value is based pre-development CN.

LONDON COVE
POST-DEVELOPMENT STORMWATER ANALYSIS
Time of Concentration Calculations

Basin	Sheet Flow Slope (ft/ft)	Sheet Flow Length (ft)	Manning's n	Sheet Flow Tt (min)	Shallow Conc. Flow Slope (ft/ft)	Shallow Conc. Flow Length (ft)	Paved / Unpaved	Shallow Conc. Flow Tt (min)	Pipe Flow Length (ft)	Pipe Flow Tt (min)	Tc (min)
BASIN 1 (Commercial) Pond 1	0.001	100.0	0.120	18.0	0.005	304	P	4	377	2.8	25
BASIN 2 (Commercial) Pond 2	0.001	100.0	0.120	18.0	0.007	572	P	6	548	4.0	28
BASIN 1 (Residential) Pond 1	0.005	100.0	0.120	11.1	0.005	90	P	1	259	1.9	14
BASIN 2 (Residential) Pond 2	0.005	100.0	0.120	11.1	0.006	328	P	3	473	3.5	18

Kinematic Wave Equation (Sheet Flow), Shallow Conc. Flow & Pipe Flow (SCS TR-55):

$$t = 0.93 \cdot L^{0.6} \cdot n^{0.6} / (I^{0.4} \cdot s^{0.3}) + L/60 \cdot V + L/60 \cdot V$$

t = overland flow travel time (min)

L = overland flow length (ft)

n = manning's roughness coefficient

I = rainfall intensity (4.50 in/hr)

s = average slope (ft/ft)

V = average velocity:

paved surface $V = 20.3282 \cdot s^{0.5}$

unpaved surface $V = 16.1345 \cdot s^{0.5}$

60 = conversion factor from seconds to minutes

LONDON COVE
POST-DEVELOPMENT STORMWATER ANALYSIS
Water Quality Calculations

Basin	Total Area	Impervious Area	1 in x Area	2.5 in x Impervious Area	Normal WQ Required	Normal WQ Required	Water Quality Provided
	(ac)	(ac)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
BASIN 1 (Commercial) Pond 1	4.79	3.83	0.40	0.80	0.80	3.11	3.12
BASIN 1 (Residential) Pond 1	3.68	2.87	0.31	0.60	0.60		
BASIN 2 (Commercial) Pond 2	4.14	3.31	0.34	0.69	0.69		
BASIN 2 (Residential) Pond 2	6.95	4.91	0.58	1.02	1.02		
BASIN 3 (Comp. Storage)	0.34						
Basin 4 (Conservation Area)	0.92						
Total:	20.81						

LONDON COVE
POST-DEVELOPMENT STORMWATER ANALYSIS
Stage - Storage Calculations
POND 1 & 2

Elevation (ft)	Area (ac)	Average Area (ac)	Depth (ft)	Storage (ac-ft)	Cumulative Storage (ac-ft)
23.00	1.42				0.00
		1.49	1.00	1.49	
24.00	1.56				1.49
		1.63	1.00	1.63	
25.00	1.70				3.12
		1.78	1.00	1.78	
26.00	1.85				4.90
		1.93	1.00	1.93	
27.00	2.00				6.82
		2.04	0.80	1.63	
27.80	2.08				8.45

Required Treatment Volume =	3.11	(ac-ft)
Required Weir Elevation =	24.99	(ft)
Actual Weir Elevation =	25.00	(ft)
Actual Treatment Volume =	3.12	(ac-ft)
1/2 TV =	1.55	Ac-ft
Elevation at which 1/2 TV has recovered (h2) =	24.04	feet

LONDON COVE

POST-DEVELOPMENT STORMWATER ANALYSIS

Permanent Pool Calculations

POND 1

BASIN AREA 8.46 ACRES

IMPERVIOUS AREA 6.69 ACRES

AVG RAINFALL 32 INCHES (JUNE-OCTOBER)

WET SEASON 153 DAYS

C - FACTOR 0.79

		AVG.	INC.	INC.	CUM.
ELEV	AREA	AREA	DEPTH	STORAGE	TORAGE
(FEET)	(ACRES)	(ACRES)	(FEET)	(AC-FT)	(AC-FT)
15.00	0.31	-	-	-	0.00
21.00	0.51	0.41	6.00	2.46	2.46
23.00	1.42	0.97	2.00	1.93	4.39

PERMANENT POOL AVAIL.= 4.39 AC-FT

AVERAGE DAILY RUNOFF VOLUME (USING 153 DAY RAINFALL PERIOD) =
 (TOTAL AREA*C)(31"/153 DAYS)(1'/12") =
 = 0.12 AC-FT

RESIDENCE TIME = $\frac{\text{PERMANENT VOLUME AVAILABLE}}{\text{AVERAGE DAILY RUNOFF VOLUME}}$ 37.5 DAYS

RESIDENCE TIME = 37.5 > 21.0 DAYS O.K.
 Mean Depth 3.09 feet

LONDON COVE

POST-DEVELOPMENT STORMWATER ANALYSIS

Permanent Pool Calculations

POND 2

BASIN AREA 11.09 ACRES

IMPERVIOUS AREA 8.22 ACRES

AVG RAINFALL 32 INCHES (JUNE-OCTOBER)

WET SEASON 153 DAYS

C - FACTOR 0.76

ELEV (FEET)	AREA (ACRES)	AVG. AREA (ACRES)	INC. DEPTH (FEET)	INC. STORAGE (AC-FT)	CUM. TORAGE (AC-FT)
15.00	0.28	-	-	-	0.00
21.00	0.52	0.40	6.00	2.40	2.40
23.00	0.72	0.62	2.00	1.24	3.64

PERMANENT POOL AVAIL.= 3.64 AC-FT

AVERAGE DAILY RUNOFF VOLUME (USING 153 DAY RAINFALL PERIOD) =
 (TOTAL AREA*C)(31"/153 DAYS)(1'/12") =
 = 0.15 AC-FT

RESIDENCE TIME = $\frac{\text{PERMANENT VOLUME AVAILABLE}}{\text{AVERAGE DAILY RUNOFF VOLUME}}$ 24.9 DAYS

RESIDENCE TIME = 24.9 > 21.0 DAYS O.K.
 Mean Depth 5.06 feet

LONDON COVE
STORMWATER ANALYSIS
Peak Discharge Summary Table

PRE-POST* PEAK DISCHARGE	NODE 99	NODE D-21	MAX POST STAGE FOR	
	Pre-Development	Post Development	PONDS 1	PONDS 2
Storm Frequency	Flow	Flow	*Max Stage	*Max Stage
MEANFL	7.09	1.31	24.35	24.35
10Y24H	24.30	3.17	25.37	25.36
25Y24HFL	38.29	6.67	25.83	25.82
100Y24H	50.31	10.25	26.21	26.18
TOP OF BANK			27.8	27.8

(*) Considering Pre UH 256 and Post UH323 (Res) and UH484 (Com)

LONDON COVE
POST-DEVELOPMENT STORMWATER ANALYSIS
100 YEAR COMPENSATING STORAGE CALCS

Impact

Elevation (ft)	Area (ac)	Average Area (ac)	Depth (ft)	Storage (ac-ft)	Cumulative Impact (ac-ft)
21.80	0.27	0.28	0.20	0.06	0.00
22.00	0.29				0.06

Compensating Storage

Elevation (ft)	Area (ac)	Average Area (ac)	Depth (ft)	Storage (ac-ft)	Cumulative Storage (ac-ft)
21.00	0.15	0.16	1.00	0.16	0.00
22.00	0.18				0.16

Nodes

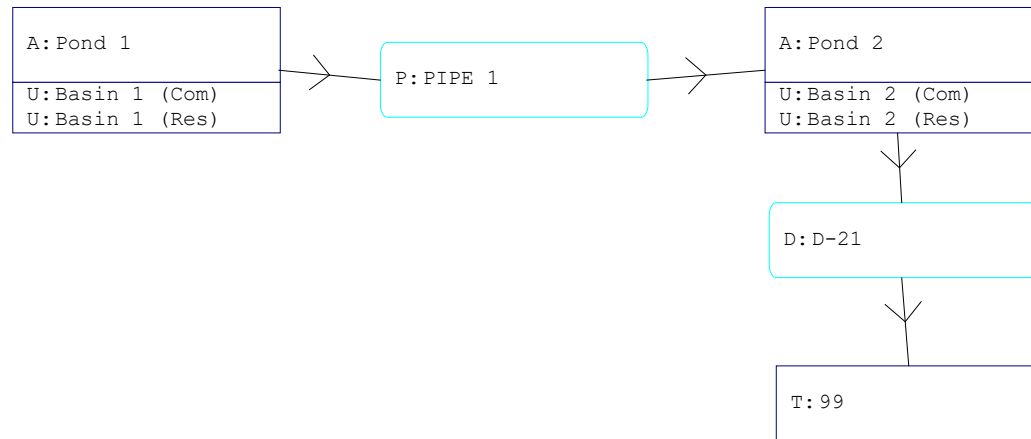
A Stage/Area
 V Stage/Volume
 T Time/Stage
 M Manhole

Basins

O Overland Flow
 U SCS Unit CN
 S SBUH CN
 Y SCS Unit GA
 Z SBUH GA

Links

P Pipe
 W Weir
 C Channel
 D Drop Structure
 B Bridge
 R Rating Curve
 H Breach
 E Percolation
 F Filter
 X Exfil Trench



=====
Basins
=====

Name: Basin 1 (Com) Node: Pond 1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 25.00
Area(ac): 4.790 Time Shift(hrs): 0.00
Curve Number: 88.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 1 (Res) Node: Pond 1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 14.00
Area(ac): 3.680 Time Shift(hrs): 0.00
Curve Number: 93.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 2 (Com) Node: Pond 2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 28.00
Area(ac): 4.140 Time Shift(hrs): 0.00
Curve Number: 86.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 2 (Res) Node: Pond 2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 18.00
Area(ac): 6.950 Time Shift(hrs): 0.00
Curve Number: 89.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

=====
Nodes
=====

Name: 99 Base Flow(cfs): 0.000 Init Stage(ft): 22.000
Group: BASE Warn Stage(ft): 23.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	22.000
336.00	22.000

Name: Pond 1 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 27.800
Type: Stage/Area

Stage(ft)	Area(ac)
23.000	1.4200
24.000	1.5600
25.000	1.7000
26.000	1.8500
27.000	2.0000
27.800	2.0800

Name: Pond 2 Base Flow(cfs): 0.000 Init Stage(ft): 23.000
Group: BASE Warn Stage(ft): 27.800
Type: Stage/Area

Stage(ft)	Area(ac)
23.000	1.4200
24.000	1.5600
25.000	1.7000
26.000	1.8500
27.000	2.0000
27.800	2.0800

==== Pipes =====

Name: PIPE 1	From Node: Pond 1	Length(ft): 656.00
Group: BASE	To Node: Pond 2	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 36.00	36.00	Flow: Both
Rise(in): 36.00	36.00	Entrance Loss Coef: 0.00
Invert(ft): 16.000	16.000	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

==== Drop Structures =====

Name: D-21	From Node: Pond 2	Length(ft): 40.00
Group: BASE	To Node: 99	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 24.00	24.00	Flow: Both
Rise(in): 24.00	24.00	Entrance Loss Coef: 0.000
Invert(ft): 21.000	21.000	Exit Loss Coef: 1.000
Manning's N: 0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000	0.000	Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure D-21 ***

Count: 3	Bottom Clip(in): 0.000	TABLE
Type: Vertical: Mavis	Top Clip(in): 0.000	
Flow: Both	Weir Disc Coef: 3.200	
Geometry: Circular	Orifice Disc Coef: 0.600	
Span(in): 3.90	Invert(ft): 23.000	
Rise(in): 3.90	Control Elev(ft): 23.000	

*** Weir 2 of 3 for Drop Structure D-21 ***

Count: 1	Bottom Clip(in): 0.000	TABLE
Type: Vertical: Mavis	Top Clip(in): 0.000	
Flow: Both	Weir Disc Coef: 3.200	
Geometry: Rectangular	Orifice Disc Coef: 0.600	
Span(in): 24.00	Invert(ft): 25.000	
Rise(in): 21.60	Control Elev(ft): 25.000	

*** Weir 3 of 3 for Drop Structure D-21 ***

TABLE

Count: 1	Bottom Clip(in): 0.000
Type: Horizontal	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Rectangular	Orifice Disc Coef: 0.600
Span(in): 58.00	Invert(ft): 26.800
Rise(in): 46.00	Control Elev(ft): 26.800

==== Hydrology Simulations =====

Name: 100Y-24H
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\100Y-24H.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 11.10

Time(hrs)	Print Inc(min)
30.000	15.00

Name: 10Y24H
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\10Y24H.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 7.50

Time(hrs)	Print Inc(min)
30.000	15.00

Name: 25Y24HFL
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\25Y24HFL.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 9.50

Time(hrs)	Print Inc(min)
30.000	15.00

Name: MEANFL
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\MEANFL.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 4.50

Time(hrs)	Print Inc(min)
30.000	15.00

==== Routing Simulations =====

Name: 100Y-24H Hydrology Sim: 100Y-24H
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\100Y-24H.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00	Delta Z Factor: 0.50000
Time Step Optimizer: 10.000	
Start Time(hrs): 0.000	End Time(hrs): 30.00
Min Calc Time(sec): 2.0000	Max Calc Time(sec): 5.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
-----------	----------------

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\Post.ICP

30.000 15.000

Group Run

BASE Yes

Name: 10Y24H Hydrology Sim: 10Y24H
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\10Y24H.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.05000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 30.00
Min Calc Time(sec): 2.0000 Max Calc Time(sec): 5.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

30.000 15.000

Group Run

BASE Yes

Name: 25Y24HFL Hydrology Sim: 25Y24HFL
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\25Y24HFL.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.50000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 30.00
Min Calc Time(sec): 2.0000 Max Calc Time(sec): 5.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

30.000 15.000

Group Run

BASE Yes

Name: MEANFL Hydrology Sim: MEANFL
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\MEANFL.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.50000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 30.00
Min Calc Time(sec): 2.0000 Max Calc Time(sec): 5.0000
Boundary Stages: Boundary Flows:

Time(hrs) Print Inc(min)

30.000 15.000

Group Run

BASE Yes

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Post\Post.ICP

LONDON COVE - DB-3
POST-DEVELOPMENT -Basin Summary Report
04/22/2021

Name: Basin 1 (Com)	Basin 1 (Res)	Basin 2 (Com)	Basin 2 (Res)	Basin 1 (Com)
Group: BASE	BASE	BASE	BASE	BASE
Simulation: 100Y-24H	100Y-24H	100Y-24H	100Y-24H	100Y-24H
Node: Pond 1	Pond 1	Pond 2	Pond 2	Pond 1
Type: SCS	SCS	SCS	SCS	SCS
Unit Hydrograph: Uh484	Uh323	Uh484	Uh323	Uh484
Peaking Factor: 484.0	323.0	484.0	323.0	484.0
Spec Time Inc(min): 3.33	1.87	3.73	2.40	3.33
Comp Time Inc(min): 3.33	1.87	3.73	2.40	3.33
Rain File: Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in): 11.100	11.100	11.100	11.100	7.500
Duration(hrs): 24.00	24.00	24.00	24.00	24.00
Status: Onsite	Onsite	Onsite	Onsite	Onsite
TC(min): 25.00	14.00	28.00	18.00	25.00
Time Shift(hrs): 0.00	0.00	0.00	0.00	0.00
Area(ac): 4.790	3.680	4.140	6.950	4.790
Vol of Unit Hyd(in): 1.001	1.001	1.001	1.001	1.001
Curve Num: 88.000	93.000	86.000	89.000	88.000
DCIA(%): 0.000	0.000	0.000	0.000	0.000
Time Max(hrs): 12.11	12.07	12.20	12.08	12.11
Flow Max(cfs): 30.101	23.738	24.406	39.749	19.469
Runoff Volume(in): 9.603	10.248	9.343	9.747	6.072
Runoff Volume(ft3): 166979.760	136897.927	140406.125	245911.439	105577.500

Name: Basin 1 (Res)	Basin 2 (Com)	Basin 2 (Res)	Basin 1 (Com)	Basin 1 (Res)
Group: BASE	BASE	BASE	BASE	BASE
Simulation: 10Y24H	10Y24H	10Y24H	25Y24HFL	25Y24HFL
Node: Pond 1	Pond 2	Pond 2	Pond 1	Pond 1
Type: SCS	SCS	SCS	SCS	SCS
Unit Hydrograph: Uh323	Uh484	Uh323	Uh484	Uh323
Peaking Factor: 323.0	484.0	323.0	484.0	323.0
Spec Time Inc(min): 1.87	3.73	2.40	3.33	1.87
Comp Time Inc(min): 1.87	3.73	2.40	3.33	1.87
Rain File: Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in): 7.500	7.500	7.500	9.500	9.500
Duration(hrs): 24.00	24.00	24.00	24.00	24.00
Status: Onsite	Onsite	Onsite	Onsite	Onsite
TC(min): 14.00	28.00	18.00	25.00	14.00
Time Shift(hrs): 0.00	0.00	0.00	0.00	0.00
Area(ac): 3.680	4.140	6.950	4.790	3.680
Vol of Unit Hyd(in): 1.001	1.001	1.001	1.001	1.001
Curve Num: 93.000	86.000	89.000	88.000	93.000
DCIA(%): 0.000	0.000	0.000	0.000	0.000
Time Max(hrs): 12.07	12.20	12.12	12.11	12.07
Flow Max(cfs): 15.776	15.630	25.852	25.394	20.208
Runoff Volume(in): 6.669	5.837	6.199	8.028	8.655
Runoff Volume(ft3): 89081.105	87712.835	156402.677	139596.712	115620.708

Name: Basin 2 (Com)	Basin 2 (Res)	Basin 1 (Com)	Basin 1 (Res)	Basin 2 (Com)
Group: BASE	BASE	BASE	BASE	BASE
Simulation: 25Y24HFL	25Y24HFL	MEANFL	MEANFL	MEANFL
Node: Pond 2	Pond 2	Pond 1	Pond 1	Pond 2
Type: SCS	SCS	SCS	SCS	SCS
Unit Hydrograph: Uh484	Uh323	Uh484	Uh323	Uh484
Peaking Factor: 484.0	323.0	484.0	323.0	484.0
Spec Time Inc(min): 3.73	2.40	3.33	1.87	3.73
Comp Time Inc(min): 3.73	2.40	3.33	1.87	3.73
Rain File: Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in): 9.500	9.500	4.500	4.500	4.500
Duration(hrs): 24.00	24.00	24.00	24.00	24.00
Status: Onsite	Onsite	Onsite	Onsite	Onsite
TC(min): 28.00	18.00	25.00	14.00	28.00
Time Shift(hrs): 0.00	0.00	0.00	0.00	0.00
Area(ac): 4.140	6.950	4.790	3.680	4.140
Vol of Unit Hyd(in): 1.001	1.001	1.001	1.001	1.001
Curve Num: 86.000	89.000	88.000	93.000	86.000
DCIA(%): 0.000	0.000	0.000	0.000	0.000
Time Max(hrs): 12.20	12.08	12.17	12.07	12.20
Flow Max(cfs): 20.520	33.591	10.516	9.052	8.240
Runoff Volume(in): 7.777	8.166	3.192	3.709	2.997
Runoff Volume(ft3): 116878.930	206015.140	55500.820	49543.684	45045.282

Name: Basin 2 (Res)
Group: BASE
Simulation: MEANFL
Node: Pond 2
Type: SCS
Unit Hydrograph: Uh323
Peaking Factor: 323.0
Spec Time Inc(min): 2.40
Comp Time Inc(min): 2.40
Rain File: Flmod
Rain Amount(in): 4.500

LONDON COVE - DB-3
POST-DEVELOPMENT -Basin Summary Report
04/22/2021

Duration(hrs): 24.00
Status: Onsite
TC(min): 18.00
Time Shift(hrs): 0.00
Area(ac): 6.950
Vol of Unit Hyd(in): 1.001
Curve Num: 89.000
DCIA(%): 0.000
Time Max(hrs): 12.12
Flow Max(cfs): 14.141
Runoff Volume(in): 3.297
Runoff Volume(ft3): 83167.389

LONDON COVE - DB-3
POST-DEVELOPMENT - Node Min Max Report
04/22/2021

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
99	BASE	100Y-24H	0.00	22.000	23.000	0.0000	0	13.90	10.254	0.00	0.000
99	BASE	10Y24H	0.00	22.000	23.000	0.0000	0	17.43	3.171	0.00	0.000
99	BASE	25Y24HFL	0.00	22.000	23.000	0.0000	0	14.70	6.671	0.00	0.000
99	BASE	MEANFL	0.00	22.000	23.000	0.0000	0	20.17	1.305	0.00	0.000
Pond 1	BASE	100Y-24H	14.00	26.210	27.800	0.0035	82009	12.00	48.472	14.72	4.455
Pond 1	BASE	10Y24H	17.47	25.365	27.800	0.0024	76489	12.00	31.596	18.16	1.390
Pond 1	BASE	25Y24HFL	14.74	25.831	27.800	0.0031	79529	12.00	40.997	15.45	2.908
Pond 1	BASE	MEANFL	20.18	24.350	27.800	0.0014	70139	12.00	17.354	25.27	0.637
Pond 2	BASE	100Y-24H	13.90	26.178	27.800	0.0036	81797	12.00	53.708	13.90	10.254
Pond 2	BASE	10Y24H	17.43	25.362	27.800	0.0025	76467	12.05	34.607	17.43	3.171
Pond 2	BASE	25Y24HFL	14.70	25.816	27.800	0.0031	79435	12.00	45.231	14.70	6.671
Pond 2	BASE	MEANFL	20.17	24.350	27.800	0.0014	70135	12.25	18.978	20.17	1.305

LONDON COVE - DB-3
POST-DEVELOPMENT - Link Min Max Report
04/22/2021

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
D-21	BASE	100Y-24H	13.90	10.254	0.020	13.90	26.178	0.00	22.000
D-21	BASE	10Y24H	17.43	3.171	0.002	17.43	25.362	0.00	22.000
D-21	BASE	25Y24HFL	14.70	6.671	0.010	14.70	25.816	0.00	22.000
D-21	BASE	MEANFL	20.17	1.305	0.002	20.17	24.350	0.00	22.000

=====
Basins
=====

Name: Basin 1 (Com) Node: Pond 1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 25.00
Area(ac): 4.790 Time Shift(hrs): 0.00
Curve Number: 88.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 1 (Res) Node: Pond 1 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 14.00
Area(ac): 3.680 Time Shift(hrs): 0.00
Curve Number: 93.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 2 (Com) Node: Pond 2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh484 Peaking Factor: 484.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 28.00
Area(ac): 4.140 Time Shift(hrs): 0.00
Curve Number: 86.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin 2 (Res) Node: Pond 2 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 18.00
Area(ac): 6.950 Time Shift(hrs): 0.00
Curve Number: 89.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

=====
Nodes
=====

Name: 99 Base Flow(cfs): 0.000 Init Stage(ft): 22.000
Group: BASE Warn Stage(ft): 23.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	22.000
336.00	22.000

Name: Pond 1 Base Flow(cfs): 0.000 Init Stage(ft): 25.000
Group: BASE Warn Stage(ft): 27.500
Type: Stage/Area

Stage(ft)	Area(ac)
23.000	1.4200
24.000	1.5600
25.000	1.7000
26.000	1.8500
27.000	2.0000
27.500	2.0800

*** Weir 3 of 3 for Drop Structure D-21 ***

TABLE

Count: 1	Bottom Clip(in): 0.000
Type: Horizontal	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Rectangular	Orifice Disc Coef: 0.600
Span(in): 58.00	Invert(ft): 26.800
Rise(in): 46.00	Control Elev(ft): 26.800

==== Hydrology Simulations =====

Name:
Filename:

Override Defaults: Yes
Storm Duration(hrs): 0.00
Rainfall File:
Rainfall Amount(in): 0.00

Time(hrs)	Print Inc(min)
30.000	5.00

==== Routing Simulations =====

Name: Recovery Hydrology Sim:
Filename: F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.01000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 120.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 10.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
120.000	15.000

Group	Run
BASE	Yes

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 1	BASE	0.00	25.000	27.500	74101	0.000	0.000	0.00	0.00
Recovery	Pond 1	BASE	0.25	24.991	27.500	74045	0.000	0.810	0.00	0.01
Recovery	Pond 1	BASE	0.50	24.981	27.500	73985	0.000	0.807	0.00	0.03
Recovery	Pond 1	BASE	0.75	24.971	27.500	73925	0.000	0.805	0.00	0.04
Recovery	Pond 1	BASE	1.00	24.961	27.500	73865	0.000	0.803	0.00	0.06
Recovery	Pond 1	BASE	1.25	24.952	27.500	73806	0.000	0.801	0.00	0.07
Recovery	Pond 1	BASE	1.50	24.942	27.500	73746	0.000	0.799	0.00	0.09
Recovery	Pond 1	BASE	1.75	24.932	27.500	73687	0.000	0.797	0.00	0.11
Recovery	Pond 1	BASE	2.00	24.922	27.500	73627	0.000	0.794	0.00	0.12
Recovery	Pond 1	BASE	2.25	24.913	27.500	73568	0.000	0.792	0.00	0.14
Recovery	Pond 1	BASE	2.50	24.903	27.500	73509	0.000	0.790	0.00	0.16
Recovery	Pond 1	BASE	2.75	24.893	27.500	73450	0.000	0.788	0.00	0.17
Recovery	Pond 1	BASE	3.00	24.884	27.500	73391	0.000	0.786	0.00	0.19
Recovery	Pond 1	BASE	3.25	24.874	27.500	73333	0.000	0.783	0.00	0.21
Recovery	Pond 1	BASE	3.50	24.864	27.500	73274	0.000	0.781	0.00	0.22
Recovery	Pond 1	BASE	3.75	24.855	27.500	73216	0.000	0.779	0.00	0.24
Recovery	Pond 1	BASE	4.00	24.845	27.500	73157	0.000	0.777	0.00	0.25
Recovery	Pond 1	BASE	4.25	24.836	27.500	73099	0.000	0.775	0.00	0.27
Recovery	Pond 1	BASE	4.50	24.826	27.500	73041	0.000	0.772	0.00	0.29
Recovery	Pond 1	BASE	4.75	24.817	27.500	72983	0.000	0.770	0.00	0.30
Recovery	Pond 1	BASE	5.00	24.807	27.500	72925	0.000	0.768	0.00	0.32
Recovery	Pond 1	BASE	5.25	24.798	27.500	72867	0.000	0.766	0.00	0.33
Recovery	Pond 1	BASE	5.50	24.788	27.500	72810	0.000	0.764	0.00	0.35
Recovery	Pond 1	BASE	5.75	24.779	27.500	72752	0.000	0.761	0.00	0.37
Recovery	Pond 1	BASE	6.00	24.769	27.500	72695	0.000	0.759	0.00	0.38
Recovery	Pond 1	BASE	6.25	24.760	27.500	72638	0.000	0.757	0.00	0.40
Recovery	Pond 1	BASE	6.50	24.751	27.500	72581	0.000	0.755	0.00	0.41
Recovery	Pond 1	BASE	6.75	24.741	27.500	72524	0.000	0.752	0.00	0.43
Recovery	Pond 1	BASE	7.00	24.732	27.500	72467	0.000	0.750	0.00	0.44
Recovery	Pond 1	BASE	7.25	24.723	27.500	72410	0.000	0.748	0.00	0.46
Recovery	Pond 1	BASE	7.50	24.713	27.500	72353	0.000	0.746	0.00	0.47
Recovery	Pond 1	BASE	7.75	24.704	27.500	72297	0.000	0.743	0.00	0.49
Recovery	Pond 1	BASE	8.00	24.695	27.500	72240	0.000	0.741	0.00	0.51
Recovery	Pond 1	BASE	8.25	24.686	27.500	72184	0.000	0.739	0.00	0.52
Recovery	Pond 1	BASE	8.50	24.676	27.500	72128	0.000	0.737	0.00	0.54
Recovery	Pond 1	BASE	8.75	24.667	27.500	72072	0.000	0.735	0.00	0.55
Recovery	Pond 1	BASE	9.00	24.658	27.500	72016	0.000	0.732	0.00	0.57
Recovery	Pond 1	BASE	9.25	24.649	27.500	71960	0.000	0.730	0.00	0.58
Recovery	Pond 1	BASE	9.50	24.640	27.500	71905	0.000	0.728	0.00	0.60
Recovery	Pond 1	BASE	9.75	24.631	27.500	71849	0.000	0.726	0.00	0.61
Recovery	Pond 1	BASE	10.00	24.622	27.500	71794	0.000	0.723	0.00	0.63
Recovery	Pond 1	BASE	10.25	24.613	27.500	71739	0.000	0.721	0.00	0.64
Recovery	Pond 1	BASE	10.50	24.604	27.500	71684	0.000	0.719	0.00	0.66
Recovery	Pond 1	BASE	10.75	24.595	27.500	71629	0.000	0.717	0.00	0.67
Recovery	Pond 1	BASE	11.00	24.586	27.500	71574	0.000	0.714	0.00	0.69
Recovery	Pond 1	BASE	11.25	24.577	27.500	71519	0.000	0.712	0.00	0.70
Recovery	Pond 1	BASE	11.50	24.568	27.500	71465	0.000	0.710	0.00	0.72
Recovery	Pond 1	BASE	11.75	24.559	27.500	71410	0.000	0.708	0.00	0.73
Recovery	Pond 1	BASE	12.00	24.550	27.500	71356	0.000	0.705	0.00	0.74
Recovery	Pond 1	BASE	12.25	24.541	27.500	71302	0.000	0.703	0.00	0.76
Recovery	Pond 1	BASE	12.50	24.532	27.500	71248	0.000	0.701	0.00	0.77
Recovery	Pond 1	BASE	12.75	24.523	27.500	71194	0.000	0.699	0.00	0.79
Recovery	Pond 1	BASE	13.00	24.514	27.500	71140	0.000	0.696	0.00	0.80
Recovery	Pond 1	BASE	13.25	24.506	27.500	71086	0.000	0.694	0.00	0.82
Recovery	Pond 1	BASE	13.50	24.497	27.500	71033	0.000	0.692	0.00	0.83
Recovery	Pond 1	BASE	13.75	24.488	27.500	70979	0.000	0.689	0.00	0.85
Recovery	Pond 1	BASE	14.00	24.479	27.500	70926	0.000	0.687	0.00	0.86
Recovery	Pond 1	BASE	14.25	24.471	27.500	70873	0.000	0.685	0.00	0.87
Recovery	Pond 1	BASE	14.50	24.462	27.500	70820	0.000	0.683	0.00	0.89
Recovery	Pond 1	BASE	14.75	24.453	27.500	70767	0.000	0.680	0.00	0.90
Recovery	Pond 1	BASE	15.00	24.445	27.500	70714	0.000	0.678	0.00	0.92
Recovery	Pond 1	BASE	15.25	24.436	27.500	70662	0.000	0.676	0.00	0.93
Recovery	Pond 1	BASE	15.50	24.427	27.500	70609	0.000	0.673	0.00	0.94
Recovery	Pond 1	BASE	15.75	24.419	27.500	70557	0.000	0.671	0.00	0.96
Recovery	Pond 1	BASE	16.00	24.410	27.500	70505	0.000	0.669	0.00	0.97
Recovery	Pond 1	BASE	16.25	24.402	27.500	70453	0.000	0.667	0.00	0.99
Recovery	Pond 1	BASE	16.50	24.393	27.500	70401	0.000	0.664	0.00	1.00
Recovery	Pond 1	BASE	16.75	24.385	27.500	70349	0.000	0.662	0.00	1.01
Recovery	Pond 1	BASE	17.00	24.376	27.500	70298	0.000	0.660	0.00	1.03
Recovery	Pond 1	BASE	17.25	24.368	27.500	70246	0.000	0.657	0.00	1.04
Recovery	Pond 1	BASE	17.50	24.359	27.500	70195	0.000	0.655	0.00	1.05
Recovery	Pond 1	BASE	17.75	24.351	27.500	70144	0.000	0.653	0.00	1.07
Recovery	Pond 1	BASE	18.00	24.343	27.500	70093	0.000	0.651	0.00	1.08
Recovery	Pond 1	BASE	18.25	24.334	27.500	70042	0.000	0.648	0.00	1.09
Recovery	Pond 1	BASE	18.50	24.326	27.500	69991	0.000	0.646	0.00	1.11
Recovery	Pond 1	BASE	18.75	24.318	27.500	69941	0.000	0.644	0.00	1.12
Recovery	Pond 1	BASE	19.00	24.310	27.500	69890	0.000	0.641	0.00	1.13
Recovery	Pond 1	BASE	19.25	24.301	27.500	69840	0.000	0.639	0.00	1.15
Recovery	Pond 1	BASE	19.50	24.293	27.500	69790	0.000	0.637	0.00	1.16
Recovery	Pond 1	BASE	19.75	24.285	27.500	69740	0.000	0.634	0.00	1.17
Recovery	Pond 1	BASE	20.00	24.277	27.500	69690	0.000	0.632	0.00	1.19
Recovery	Pond 1	BASE	20.25	24.269	27.500	69640	0.000	0.630	0.00	1.20
Recovery	Pond 1	BASE	20.50	24.260	27.500	69591	0.000	0.627	0.00	1.21

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 1	BASE	20.75	24.252	27.500	69541	0.000	0.625	0.00	1.23
Recovery	Pond 1	BASE	21.00	24.244	27.500	69492	0.000	0.623	0.00	1.24
Recovery	Pond 1	BASE	21.25	24.236	27.500	69443	0.000	0.620	0.00	1.25
Recovery	Pond 1	BASE	21.50	24.228	27.500	69394	0.000	0.618	0.00	1.26
Recovery	Pond 1	BASE	21.75	24.220	27.500	69345	0.000	0.616	0.00	1.28
Recovery	Pond 1	BASE	22.00	24.212	27.500	69297	0.000	0.613	0.00	1.29
Recovery	Pond 1	BASE	22.25	24.204	27.500	69248	0.000	0.611	0.00	1.30
Recovery	Pond 1	BASE	22.50	24.196	27.500	69200	0.000	0.609	0.00	1.31
Recovery	Pond 1	BASE	22.75	24.188	27.500	69151	0.000	0.606	0.00	1.33
Recovery	Pond 1	BASE	23.00	24.180	27.500	69103	0.000	0.604	0.00	1.34
Recovery	Pond 1	BASE	23.25	24.173	27.500	69055	0.000	0.602	0.00	1.35
Recovery	Pond 1	BASE	23.50	24.165	27.500	69008	0.000	0.599	0.00	1.36
Recovery	Pond 1	BASE	23.75	24.157	27.500	68960	0.000	0.597	0.00	1.38
Recovery	Pond 1	BASE	24.00	24.149	27.500	68913	0.000	0.595	0.00	1.39
Recovery	Pond 1	BASE	24.25	24.141	27.500	68865	0.000	0.592	0.00	1.40
Recovery	Pond 1	BASE	24.50	24.134	27.500	68818	0.000	0.590	0.00	1.41
Recovery	Pond 1	BASE	24.75	24.126	27.500	68771	0.000	0.588	0.00	1.43
Recovery	Pond 1	BASE	25.00	24.118	27.500	68724	0.000	0.585	0.00	1.44
Recovery	Pond 1	BASE	25.25	24.111	27.500	68678	0.000	0.583	0.00	1.45
Recovery	Pond 1	BASE	25.50	24.103	27.500	68631	0.000	0.581	0.00	1.46
Recovery	Pond 1	BASE	25.75	24.095	27.500	68585	0.000	0.578	0.00	1.47
Recovery	Pond 1	BASE	26.00	24.088	27.500	68539	0.000	0.576	0.00	1.49
Recovery	Pond 1	BASE	26.25	24.080	27.500	68493	0.000	0.574	0.00	1.50
Recovery	Pond 1	BASE	26.50	24.073	27.500	68447	0.000	0.571	0.00	1.51
Recovery	Pond 1	BASE	26.75	24.065	27.500	68401	0.000	0.569	0.00	1.52
Recovery	Pond 1	BASE	27.00	24.058	27.500	68355	0.000	0.567	0.00	1.53
Recovery	Pond 1	BASE	27.25	24.050	27.500	68310	0.000	0.564	0.00	1.54
Recovery	Pond 1	BASE	27.50	24.043	27.500	68265	0.000	0.562	0.00	1.56
Recovery	Pond 1	BASE	27.75	24.036	27.500	68220	0.000	0.560	0.00	1.57
Recovery	Pond 1	BASE	28.00	24.028	27.500	68175	0.000	0.557	0.00	1.58
Recovery	Pond 1	BASE	28.25	24.021	27.500	68130	0.000	0.555	0.00	1.59
Recovery	Pond 1	BASE	28.50	24.014	27.500	68085	0.000	0.552	0.00	1.60
Recovery	Pond 1	BASE	28.75	24.006	27.500	68041	0.000	0.550	0.00	1.61
Recovery	Pond 1	BASE	29.00	23.999	27.500	67997	0.000	0.548	0.00	1.63
Recovery	Pond 1	BASE	29.25	23.992	27.500	67952	0.000	0.545	0.00	1.64
Recovery	Pond 1	BASE	29.50	23.985	27.500	67908	0.000	0.543	0.00	1.65
Recovery	Pond 1	BASE	29.75	23.977	27.500	67865	0.000	0.541	0.00	1.66
Recovery	Pond 1	BASE	30.00	23.970	27.500	67821	0.000	0.538	0.00	1.67
Recovery	Pond 1	BASE	30.25	23.963	27.500	67778	0.000	0.536	0.00	1.68
Recovery	Pond 1	BASE	30.50	23.956	27.500	67734	0.000	0.533	0.00	1.69
Recovery	Pond 1	BASE	30.75	23.949	27.500	67691	0.000	0.531	0.00	1.70
Recovery	Pond 1	BASE	31.00	23.942	27.500	67648	0.000	0.529	0.00	1.71
Recovery	Pond 1	BASE	31.25	23.935	27.500	67605	0.000	0.526	0.00	1.73
Recovery	Pond 1	BASE	31.50	23.928	27.500	67563	0.000	0.524	0.00	1.74
Recovery	Pond 1	BASE	31.75	23.921	27.500	67520	0.000	0.521	0.00	1.75
Recovery	Pond 1	BASE	32.00	23.914	27.500	67478	0.000	0.519	0.00	1.76
Recovery	Pond 1	BASE	32.25	23.907	27.500	67436	0.000	0.517	0.00	1.77
Recovery	Pond 1	BASE	32.50	23.900	27.500	67394	0.000	0.514	0.00	1.78
Recovery	Pond 1	BASE	32.75	23.893	27.500	67352	0.000	0.512	0.00	1.79
Recovery	Pond 1	BASE	33.00	23.886	27.500	67310	0.000	0.509	0.00	1.80
Recovery	Pond 1	BASE	33.25	23.880	27.500	67269	0.000	0.507	0.00	1.81
Recovery	Pond 1	BASE	33.50	23.873	27.500	67228	0.000	0.505	0.00	1.82
Recovery	Pond 1	BASE	33.75	23.866	27.500	67187	0.000	0.502	0.00	1.83
Recovery	Pond 1	BASE	34.00	23.859	27.500	67146	0.000	0.500	0.00	1.84
Recovery	Pond 1	BASE	34.25	23.853	27.500	67105	0.000	0.497	0.00	1.85
Recovery	Pond 1	BASE	34.50	23.846	27.500	67064	0.000	0.495	0.00	1.86
Recovery	Pond 1	BASE	34.75	23.839	27.500	67024	0.000	0.493	0.00	1.87
Recovery	Pond 1	BASE	35.00	23.833	27.500	66984	0.000	0.490	0.00	1.88
Recovery	Pond 1	BASE	35.25	23.826	27.500	66943	0.000	0.488	0.00	1.89
Recovery	Pond 1	BASE	35.50	23.820	27.500	66904	0.000	0.485	0.00	1.90
Recovery	Pond 1	BASE	35.75	23.813	27.500	66864	0.000	0.483	0.00	1.91
Recovery	Pond 1	BASE	36.00	23.807	27.500	66824	0.000	0.481	0.00	1.92
Recovery	Pond 1	BASE	36.25	23.800	27.500	66785	0.000	0.478	0.00	1.93
Recovery	Pond 1	BASE	36.50	23.794	27.500	66746	0.000	0.476	0.00	1.94
Recovery	Pond 1	BASE	36.75	23.787	27.500	66707	0.000	0.473	0.00	1.95
Recovery	Pond 1	BASE	37.00	23.781	27.500	66668	0.000	0.471	0.00	1.96
Recovery	Pond 1	BASE	37.25	23.775	27.500	66629	0.000	0.469	0.00	1.97
Recovery	Pond 1	BASE	37.50	23.768	27.500	66591	0.000	0.466	0.00	1.98
Recovery	Pond 1	BASE	37.75	23.762	27.500	66552	0.000	0.464	0.00	1.99
Recovery	Pond 1	BASE	38.00	23.756	27.500	66514	0.000	0.461	0.00	2.00
Recovery	Pond 1	BASE	38.25	23.750	27.500	66476	0.000	0.459	0.00	2.01
Recovery	Pond 1	BASE	38.50	23.743	27.500	66438	0.000	0.456	0.00	2.02
Recovery	Pond 1	BASE	38.75	23.737	27.500	66401	0.000	0.454	0.00	2.03
Recovery	Pond 1	BASE	39.00	23.731	27.500	66363	0.000	0.452	0.00	2.04
Recovery	Pond 1	BASE	39.25	23.725	27.500	66326	0.000	0.449	0.00	2.05
Recovery	Pond 1	BASE	39.50	23.719	27.500	66289	0.000	0.447	0.00	2.06
Recovery	Pond 1	BASE	39.75	23.713	27.500	66252	0.000	0.444	0.00	2.07
Recovery	Pond 1	BASE	40.00	23.707	27.500	66215	0.000	0.442	0.00	2.08
Recovery	Pond 1	BASE	40.25	23.701	27.500	66179	0.000	0.439	0.00	2.08
Recovery	Pond 1	BASE	40.50	23.695	27.500	66142	0.000	0.437	0.00	2.09
Recovery	Pond 1	BASE	40.75	23.689	27.500	66106	0.000	0.434	0.00	2.10
Recovery	Pond 1	BASE	41.00	23.683	27.500	66070	0.000	0.432	0.00	2.11
Recovery	Pond 1	BASE	41.25	23.677	27.500	66034	0.000	0.430	0.00	2.12

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 1	BASE	41.50	23.671	27.500	65999	0.000	0.427	0.00	2.13
Recovery	Pond 1	BASE	41.75	23.666	27.500	65963	0.000	0.425	0.00	2.14
Recovery	Pond 1	BASE	42.00	23.660	27.500	65928	0.000	0.422	0.00	2.15
Recovery	Pond 1	BASE	42.25	23.654	27.500	65893	0.000	0.420	0.00	2.16
Recovery	Pond 1	BASE	42.50	23.648	27.500	65858	0.000	0.417	0.00	2.16
Recovery	Pond 1	BASE	42.75	23.643	27.500	65824	0.000	0.415	0.00	2.17
Recovery	Pond 1	BASE	43.00	23.637	27.500	65789	0.000	0.412	0.00	2.18
Recovery	Pond 1	BASE	43.25	23.631	27.500	65755	0.000	0.410	0.00	2.19
Recovery	Pond 1	BASE	43.50	23.626	27.500	65721	0.000	0.408	0.00	2.20
Recovery	Pond 1	BASE	43.75	23.620	27.500	65687	0.000	0.405	0.00	2.21
Recovery	Pond 1	BASE	44.00	23.615	27.500	65653	0.000	0.403	0.00	2.21
Recovery	Pond 1	BASE	44.25	23.609	27.500	65619	0.000	0.400	0.00	2.22
Recovery	Pond 1	BASE	44.50	23.604	27.500	65586	0.000	0.398	0.00	2.23
Recovery	Pond 1	BASE	44.75	23.598	27.500	65553	0.000	0.395	0.00	2.24
Recovery	Pond 1	BASE	45.00	23.593	27.500	65520	0.000	0.393	0.00	2.25
Recovery	Pond 1	BASE	45.25	23.587	27.500	65487	0.000	0.390	0.00	2.26
Recovery	Pond 1	BASE	45.50	23.582	27.500	65454	0.000	0.388	0.00	2.26
Recovery	Pond 1	BASE	45.75	23.577	27.500	65422	0.000	0.385	0.00	2.27
Recovery	Pond 1	BASE	46.00	23.571	27.500	65390	0.000	0.383	0.00	2.28
Recovery	Pond 1	BASE	46.25	23.566	27.500	65358	0.000	0.380	0.00	2.29
Recovery	Pond 1	BASE	46.50	23.561	27.500	65326	0.000	0.378	0.00	2.30
Recovery	Pond 1	BASE	46.75	23.556	27.500	65294	0.000	0.376	0.00	2.30
Recovery	Pond 1	BASE	47.00	23.551	27.500	65263	0.000	0.373	0.00	2.31
Recovery	Pond 1	BASE	47.25	23.546	27.500	65231	0.000	0.371	0.00	2.32
Recovery	Pond 1	BASE	47.50	23.540	27.500	65200	0.000	0.368	0.00	2.33
Recovery	Pond 1	BASE	47.75	23.535	27.500	65169	0.000	0.366	0.00	2.33
Recovery	Pond 1	BASE	48.00	23.530	27.500	65139	0.000	0.363	0.00	2.34
Recovery	Pond 1	BASE	48.25	23.525	27.500	65108	0.000	0.361	0.00	2.35
Recovery	Pond 1	BASE	48.50	23.520	27.500	65078	0.000	0.358	0.00	2.36
Recovery	Pond 1	BASE	48.75	23.515	27.500	65048	0.000	0.356	0.00	2.36
Recovery	Pond 1	BASE	49.00	23.511	27.500	65018	0.000	0.353	0.00	2.37
Recovery	Pond 1	BASE	49.25	23.506	27.500	64988	0.000	0.351	0.00	2.38
Recovery	Pond 1	BASE	49.50	23.501	27.500	64959	0.000	0.348	0.00	2.39
Recovery	Pond 1	BASE	49.75	23.496	27.500	64929	0.000	0.346	0.00	2.39
Recovery	Pond 1	BASE	50.00	23.491	27.500	64900	0.000	0.343	0.00	2.40
Recovery	Pond 1	BASE	50.25	23.486	27.500	64871	0.000	0.341	0.00	2.41
Recovery	Pond 1	BASE	50.50	23.482	27.500	64842	0.000	0.338	0.00	2.41
Recovery	Pond 1	BASE	50.75	23.477	27.500	64814	0.000	0.336	0.00	2.42
Recovery	Pond 1	BASE	51.00	23.472	27.500	64786	0.000	0.333	0.00	2.43
Recovery	Pond 1	BASE	51.25	23.468	27.500	64757	0.000	0.331	0.00	2.43
Recovery	Pond 1	BASE	51.50	23.463	27.500	64729	0.000	0.328	0.00	2.44
Recovery	Pond 1	BASE	51.75	23.459	27.500	64702	0.000	0.326	0.00	2.45
Recovery	Pond 1	BASE	52.00	23.454	27.500	64674	0.000	0.323	0.00	2.45
Recovery	Pond 1	BASE	52.25	23.450	27.500	64647	0.000	0.321	0.00	2.46
Recovery	Pond 1	BASE	52.50	23.445	27.500	64620	0.000	0.318	0.00	2.47
Recovery	Pond 1	BASE	52.75	23.441	27.500	64593	0.000	0.316	0.00	2.47
Recovery	Pond 1	BASE	53.00	23.436	27.500	64566	0.000	0.313	0.00	2.48
Recovery	Pond 1	BASE	53.25	23.432	27.500	64539	0.000	0.311	0.00	2.49
Recovery	Pond 1	BASE	53.50	23.428	27.500	64513	0.000	0.308	0.00	2.49
Recovery	Pond 1	BASE	53.75	23.423	27.500	64487	0.000	0.306	0.00	2.50
Recovery	Pond 1	BASE	54.00	23.419	27.500	64461	0.000	0.303	0.00	2.51
Recovery	Pond 1	BASE	54.25	23.415	27.500	64435	0.000	0.301	0.00	2.51
Recovery	Pond 1	BASE	54.50	23.411	27.500	64410	0.000	0.298	0.00	2.52
Recovery	Pond 1	BASE	54.75	23.407	27.500	64384	0.000	0.296	0.00	2.53
Recovery	Pond 1	BASE	55.00	23.403	27.500	64359	0.000	0.293	0.00	2.53
Recovery	Pond 1	BASE	55.25	23.398	27.500	64334	0.000	0.291	0.00	2.54
Recovery	Pond 1	BASE	55.50	23.394	27.500	64310	0.000	0.288	0.00	2.54
Recovery	Pond 1	BASE	55.75	23.390	27.500	64285	0.000	0.286	0.00	2.55
Recovery	Pond 1	BASE	56.00	23.386	27.500	64261	0.000	0.282	0.00	2.56
Recovery	Pond 1	BASE	56.25	23.383	27.500	64237	0.000	0.277	0.00	2.56
Recovery	Pond 1	BASE	56.50	23.379	27.500	64214	0.000	0.273	0.00	2.57
Recovery	Pond 1	BASE	56.75	23.375	27.500	64190	0.000	0.269	0.00	2.57
Recovery	Pond 1	BASE	57.00	23.371	27.500	64168	0.000	0.265	0.00	2.58
Recovery	Pond 1	BASE	57.25	23.367	27.500	64145	0.000	0.261	0.00	2.58
Recovery	Pond 1	BASE	57.50	23.364	27.500	64123	0.000	0.257	0.00	2.59
Recovery	Pond 1	BASE	57.75	23.360	27.500	64101	0.000	0.253	0.00	2.59
Recovery	Pond 1	BASE	58.00	23.357	27.500	64079	0.000	0.249	0.00	2.60
Recovery	Pond 1	BASE	58.25	23.353	27.500	64058	0.000	0.245	0.00	2.60
Recovery	Pond 1	BASE	58.50	23.350	27.500	64037	0.000	0.242	0.00	2.61
Recovery	Pond 1	BASE	58.75	23.346	27.500	64017	0.000	0.238	0.00	2.61
Recovery	Pond 1	BASE	59.00	23.343	27.500	63997	0.000	0.234	0.00	2.62
Recovery	Pond 1	BASE	59.25	23.340	27.500	63977	0.000	0.231	0.00	2.62
Recovery	Pond 1	BASE	59.50	23.337	27.500	63957	0.000	0.227	0.00	2.63
Recovery	Pond 1	BASE	59.75	23.333	27.500	63938	0.000	0.224	0.00	2.63
Recovery	Pond 1	BASE	60.00	23.330	27.500	63919	0.000	0.220	0.00	2.64
Recovery	Pond 1	BASE	60.25	23.327	27.500	63900	0.000	0.217	0.00	2.64
Recovery	Pond 1	BASE	60.50	23.324	27.500	63881	0.000	0.214	0.00	2.65
Recovery	Pond 1	BASE	60.75	23.321	27.500	63863	0.000	0.213	0.00	2.65
Recovery	Pond 1	BASE	61.00	23.318	27.500	63845	0.000	0.212	0.00	2.66
Recovery	Pond 1	BASE	61.25	23.315	27.500	63826	0.000	0.210	0.00	2.66
Recovery	Pond 1	BASE	61.50	23.312	27.500	63808	0.000	0.208	0.00	2.66
Recovery	Pond 1	BASE	61.75	23.309	27.500	63791	0.000	0.206	0.00	2.67
Recovery	Pond 1	BASE	62.00	23.306	27.500	63773	0.000	0.204	0.00	2.67

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 1	BASE	62.25	23.304	27.500	63755	0.000	0.202	0.00	2.68
Recovery	Pond 1	BASE	62.50	23.301	27.500	63738	0.000	0.200	0.00	2.68
Recovery	Pond 1	BASE	62.75	23.298	27.500	63721	0.000	0.197	0.00	2.69
Recovery	Pond 1	BASE	63.00	23.295	27.500	63704	0.000	0.195	0.00	2.69
Recovery	Pond 1	BASE	63.25	23.292	27.500	63687	0.000	0.193	0.00	2.69
Recovery	Pond 1	BASE	63.50	23.290	27.500	63671	0.000	0.190	0.00	2.70
Recovery	Pond 1	BASE	63.75	23.287	27.500	63655	0.000	0.188	0.00	2.70
Recovery	Pond 1	BASE	64.00	23.284	27.500	63639	0.000	0.186	0.00	2.71
Recovery	Pond 1	BASE	64.25	23.282	27.500	63623	0.000	0.183	0.00	2.71
Recovery	Pond 1	BASE	64.50	23.279	27.500	63607	0.000	0.181	0.00	2.71
Recovery	Pond 1	BASE	64.75	23.277	27.500	63591	0.000	0.179	0.00	2.72
Recovery	Pond 1	BASE	65.00	23.274	27.500	63576	0.000	0.176	0.00	2.72
Recovery	Pond 1	BASE	65.25	23.272	27.500	63561	0.000	0.174	0.00	2.72
Recovery	Pond 1	BASE	65.50	23.269	27.500	63546	0.000	0.172	0.00	2.73
Recovery	Pond 1	BASE	65.75	23.267	27.500	63531	0.000	0.169	0.00	2.73
Recovery	Pond 1	BASE	66.00	23.264	27.500	63517	0.000	0.167	0.00	2.73
Recovery	Pond 1	BASE	66.25	23.262	27.500	63502	0.000	0.165	0.00	2.74
Recovery	Pond 1	BASE	66.50	23.260	27.500	63488	0.000	0.163	0.00	2.74
Recovery	Pond 1	BASE	66.75	23.257	27.500	63474	0.000	0.160	0.00	2.74
Recovery	Pond 1	BASE	67.00	23.255	27.500	63461	0.000	0.158	0.00	2.75
Recovery	Pond 1	BASE	67.25	23.253	27.500	63447	0.000	0.156	0.00	2.75
Recovery	Pond 1	BASE	67.50	23.251	27.500	63434	0.000	0.154	0.00	2.75
Recovery	Pond 1	BASE	67.75	23.249	27.500	63420	0.000	0.152	0.00	2.76
Recovery	Pond 1	BASE	68.00	23.246	27.500	63407	0.000	0.150	0.00	2.76
Recovery	Pond 1	BASE	68.25	23.244	27.500	63394	0.000	0.148	0.00	2.76
Recovery	Pond 1	BASE	68.50	23.242	27.500	63382	0.000	0.146	0.00	2.77
Recovery	Pond 1	BASE	68.75	23.240	27.500	63369	0.000	0.144	0.00	2.77
Recovery	Pond 1	BASE	69.00	23.238	27.500	63357	0.000	0.142	0.00	2.77
Recovery	Pond 1	BASE	69.25	23.236	27.500	63345	0.000	0.140	0.00	2.78
Recovery	Pond 1	BASE	69.50	23.234	27.500	63333	0.000	0.138	0.00	2.78
Recovery	Pond 1	BASE	69.75	23.232	27.500	63321	0.000	0.136	0.00	2.78
Recovery	Pond 1	BASE	70.00	23.230	27.500	63309	0.000	0.134	0.00	2.78
Recovery	Pond 1	BASE	70.25	23.228	27.500	63298	0.000	0.132	0.00	2.79
Recovery	Pond 1	BASE	70.50	23.227	27.500	63286	0.000	0.130	0.00	2.79
Recovery	Pond 1	BASE	70.75	23.225	27.500	63275	0.000	0.129	0.00	2.79
Recovery	Pond 1	BASE	71.00	23.223	27.500	63264	0.000	0.127	0.00	2.79
Recovery	Pond 1	BASE	71.25	23.221	27.500	63253	0.000	0.125	0.00	2.80
Recovery	Pond 1	BASE	71.50	23.219	27.500	63242	0.000	0.123	0.00	2.80
Recovery	Pond 1	BASE	71.75	23.218	27.500	63232	0.000	0.122	0.00	2.80
Recovery	Pond 1	BASE	72.00	23.216	27.500	63221	0.000	0.120	0.00	2.80
Recovery	Pond 1	BASE	72.25	23.214	27.500	63211	0.000	0.118	0.00	2.81
Recovery	Pond 1	BASE	72.50	23.213	27.500	63201	0.000	0.117	0.00	2.81
Recovery	Pond 1	BASE	72.75	23.211	27.500	63190	0.000	0.115	0.00	2.81
Recovery	Pond 1	BASE	73.00	23.209	27.500	63180	0.000	0.114	0.00	2.81
Recovery	Pond 1	BASE	73.25	23.208	27.500	63171	0.000	0.112	0.00	2.82
Recovery	Pond 1	BASE	73.50	23.206	27.500	63161	0.000	0.111	0.00	2.82
Recovery	Pond 1	BASE	73.75	23.204	27.500	63151	0.000	0.109	0.00	2.82
Recovery	Pond 1	BASE	74.00	23.203	27.500	63142	0.000	0.108	0.00	2.82
Recovery	Pond 1	BASE	74.25	23.201	27.500	63133	0.000	0.106	0.00	2.83
Recovery	Pond 1	BASE	74.50	23.200	27.500	63124	0.000	0.105	0.00	2.83
Recovery	Pond 1	BASE	74.75	23.198	27.500	63114	0.000	0.104	0.00	2.83
Recovery	Pond 1	BASE	75.00	23.197	27.500	63106	0.000	0.102	0.00	2.83
Recovery	Pond 1	BASE	75.25	23.196	27.500	63097	0.000	0.101	0.00	2.83
Recovery	Pond 1	BASE	75.50	23.194	27.500	63088	0.000	0.100	0.00	2.84
Recovery	Pond 1	BASE	75.75	23.193	27.500	63079	0.000	0.098	0.00	2.84
Recovery	Pond 1	BASE	76.00	23.191	27.500	63071	0.000	0.097	0.00	2.84
Recovery	Pond 1	BASE	76.25	23.190	27.500	63062	0.000	0.096	0.00	2.84
Recovery	Pond 1	BASE	76.50	23.189	27.500	63054	0.000	0.095	0.00	2.84
Recovery	Pond 1	BASE	76.75	23.187	27.500	63046	0.000	0.093	0.00	2.85
Recovery	Pond 1	BASE	77.00	23.186	27.500	63038	0.000	0.092	0.00	2.85
Recovery	Pond 1	BASE	77.25	23.185	27.500	63030	0.000	0.091	0.00	2.85
Recovery	Pond 1	BASE	77.50	23.183	27.500	63022	0.000	0.090	0.00	2.85
Recovery	Pond 1	BASE	77.75	23.182	27.500	63014	0.000	0.089	0.00	2.85
Recovery	Pond 1	BASE	78.00	23.181	27.500	63007	0.000	0.088	0.00	2.86
Recovery	Pond 1	BASE	78.25	23.179	27.500	62999	0.000	0.087	0.00	2.86
Recovery	Pond 1	BASE	78.50	23.178	27.500	62992	0.000	0.085	0.00	2.86
Recovery	Pond 1	BASE	78.75	23.177	27.500	62984	0.000	0.084	0.00	2.86
Recovery	Pond 1	BASE	79.00	23.176	27.500	62977	0.000	0.083	0.00	2.86
Recovery	Pond 1	BASE	79.25	23.175	27.500	62970	0.000	0.082	0.00	2.86
Recovery	Pond 1	BASE	79.50	23.174	27.500	62963	0.000	0.081	0.00	2.87
Recovery	Pond 1	BASE	79.75	23.172	27.500	62955	0.000	0.080	0.00	2.87
Recovery	Pond 1	BASE	80.00	23.171	27.500	62949	0.000	0.079	0.00	2.87
Recovery	Pond 1	BASE	80.25	23.170	27.500	62942	0.000	0.078	0.00	2.87
Recovery	Pond 1	BASE	80.50	23.169	27.500	62935	0.000	0.077	0.00	2.87
Recovery	Pond 1	BASE	80.75	23.168	27.500	62928	0.000	0.077	0.00	2.87
Recovery	Pond 1	BASE	81.00	23.167	27.500	62921	0.000	0.076	0.00	2.88
Recovery	Pond 1	BASE	81.25	23.166	27.500	62915	0.000	0.111	0.00	2.88
Recovery	Pond 1	BASE	81.50	23.165	27.500	62908	0.000	0.076	0.00	2.88
Recovery	Pond 1	BASE	81.75	23.164	27.500	62902	0.000	0.075	0.00	2.88
Recovery	Pond 1	BASE	82.00	23.163	27.500	62896	0.000	0.082	0.00	2.88
Recovery	Pond 1	BASE	82.25	23.162	27.500	62889	0.000	0.081	0.00	2.88
Recovery	Pond 1	BASE	82.50	23.161	27.500	62883	0.000	0.075	0.00	2.89
Recovery	Pond 1	BASE	82.75	23.160	27.500	62877	0.000	0.091	0.00	2.89

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time	Stage	Warning	Surface	Total	Total	Total	Total
			hrs	ft	Stage	Area	Inflow	Outflow	Vol In	Vol Out
					ft	ft2	cfs	cfs	af	af
Recovery	Pond 1	BASE	83.00	23.159	27.500	62871	0.000	0.090	0.00	2.89
Recovery	Pond 1	BASE	83.25	23.158	27.500	62865	0.000	0.089	0.00	2.89
Recovery	Pond 1	BASE	83.50	23.157	27.500	62859	0.000	0.088	0.00	2.89
Recovery	Pond 1	BASE	83.75	23.156	27.500	62853	0.000	0.087	0.00	2.90
Recovery	Pond 1	BASE	84.00	23.155	27.500	62848	0.000	0.104	0.00	2.90
Recovery	Pond 1	BASE	84.25	23.154	27.500	62842	0.000	0.075	0.00	2.90
Recovery	Pond 1	BASE	84.50	23.153	27.500	62836	0.000	0.087	0.00	2.90
Recovery	Pond 1	BASE	84.75	23.152	27.500	62831	0.000	0.086	0.00	2.90
Recovery	Pond 1	BASE	85.00	23.151	27.500	62825	0.000	0.085	0.00	2.90
Recovery	Pond 1	BASE	85.25	23.150	27.500	62820	0.000	0.084	0.00	2.91
Recovery	Pond 1	BASE	85.50	23.149	27.500	62814	0.000	0.082	0.00	2.91
Recovery	Pond 1	BASE	85.75	23.148	27.500	62809	0.000	0.081	0.00	2.91
Recovery	Pond 1	BASE	86.00	23.147	27.500	62804	0.000	0.080	0.00	2.91
Recovery	Pond 1	BASE	86.25	23.147	27.500	62798	0.000	0.079	0.00	2.91
Recovery	Pond 1	BASE	86.50	23.146	27.500	62793	0.000	0.078	0.00	2.91
Recovery	Pond 1	BASE	86.75	23.145	27.500	62788	0.000	0.077	0.00	2.92
Recovery	Pond 1	BASE	87.00	23.144	27.500	62783	0.000	0.076	0.00	2.92
Recovery	Pond 1	BASE	87.25	23.143	27.500	62778	0.000	0.075	0.00	2.92
Recovery	Pond 1	BASE	87.50	23.142	27.500	62773	0.000	0.000	0.00	2.92
Recovery	Pond 1	BASE	87.75	23.142	27.500	62768	0.000	0.094	0.00	2.92
Recovery	Pond 1	BASE	88.00	23.141	27.500	62763	0.000	0.000	0.00	2.92
Recovery	Pond 1	BASE	88.25	23.140	27.500	62759	0.000	0.000	0.00	2.92
Recovery	Pond 1	BASE	88.50	23.139	27.500	62754	0.000	0.000	0.00	2.92
Recovery	Pond 1	BASE	88.75	23.139	27.500	62749	0.000	0.000	0.00	2.92
Recovery	Pond 1	BASE	89.00	23.138	27.500	62744	0.000	0.000	0.00	2.92
Recovery	Pond 1	BASE	89.25	23.137	27.500	62740	0.000	0.092	0.00	2.92
Recovery	Pond 1	BASE	89.50	23.136	27.500	62735	0.000	0.075	0.00	2.92
Recovery	Pond 1	BASE	89.75	23.136	27.500	62731	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	90.00	23.135	27.500	62726	0.000	0.101	0.00	2.93
Recovery	Pond 1	BASE	90.25	23.134	27.500	62722	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	90.50	23.133	27.500	62717	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	90.75	23.133	27.500	62713	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	91.00	23.132	27.500	62709	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	91.25	23.131	27.500	62705	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	91.50	23.131	27.500	62700	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	91.75	23.130	27.500	62696	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	92.00	23.129	27.500	62692	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	92.25	23.129	27.500	62688	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	92.50	23.128	27.500	62684	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	92.75	23.127	27.500	62680	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	93.00	23.127	27.500	62676	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	93.25	23.126	27.500	62672	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	93.50	23.125	27.500	62668	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	93.75	23.125	27.500	62664	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	94.00	23.124	27.500	62661	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	94.25	23.123	27.500	62657	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	94.50	23.123	27.500	62653	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	94.75	23.122	27.500	62649	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	95.00	23.122	27.500	62646	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	95.25	23.121	27.500	62642	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	95.50	23.120	27.500	62638	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	95.75	23.120	27.500	62635	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	96.00	23.119	27.500	62631	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	96.25	23.119	27.500	62628	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	96.50	23.118	27.500	62624	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	96.75	23.117	27.500	62621	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	97.00	23.117	27.500	62618	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	97.25	23.116	27.500	62614	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	97.50	23.116	27.500	62611	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	97.75	23.115	27.500	62607	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	98.00	23.115	27.500	62604	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	98.25	23.114	27.500	62601	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	98.50	23.114	27.500	62598	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	98.75	23.113	27.500	62594	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	99.00	23.113	27.500	62591	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	99.25	23.112	27.500	62588	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	99.50	23.112	27.500	62585	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	99.75	23.111	27.500	62582	0.000	0.000	0.00	2.93
Recovery	Pond 1	BASE	100.00	23.111	27.500	62579	0.000	0.093	0.00	2.93
Recovery	Pond 1	BASE	100.25	23.110	27.500	62576	0.000	0.092	0.00	2.93
Recovery	Pond 1	BASE	100.50	23.110	27.500	62573	0.000	0.091	0.00	2.93
Recovery	Pond 1	BASE	100.75	23.109	27.500	62570	0.000	0.091	0.00	2.93
Recovery	Pond 1	BASE	101.00	23.109	27.500	62567	0.000	0.090	0.00	2.94
Recovery	Pond 1	BASE	101.25	23.108	27.500	62564	0.000	0.089	0.00	2.94
Recovery	Pond 1	BASE	101.50	23.108	27.500	62561	0.000	0.089	0.00	2.94
Recovery	Pond 1	BASE	101.75	23.107	27.500	62558	0.000	0.088	0.00	2.94
Recovery	Pond 1	BASE	102.00	23.107	27.500	62555	0.000	0.087	0.00	2.94
Recovery	Pond 1	BASE	102.25	23.106	27.500	62553	0.000	0.000	0.00	2.94
Recovery	Pond 1	BASE	102.50	23.106	27.500	62550	0.000	0.000	0.00	2.94
Recovery	Pond 1	BASE	102.75	23.105	27.500	62547	0.000	0.000	0.00	2.94
Recovery	Pond 1	BASE	103.00	23.105	27.500	62544	0.000	0.000	0.00	2.94
Recovery	Pond 1	BASE	103.25	23.104	27.500	62541	0.000	0.076	0.00	2.94
Recovery	Pond 1	BASE	103.50	23.104	27.500	62539	0.000	0.000	0.00	2.95

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 1	BASE	103.75	23.104	27.500	62536	0.000	0.075	0.00	2.95
Recovery	Pond 1	BASE	104.00	23.103	27.500	62533	0.000	0.091	0.00	2.95
Recovery	Pond 1	BASE	104.25	23.103	27.500	62531	0.000	0.090	0.00	2.95
Recovery	Pond 1	BASE	104.50	23.102	27.500	62528	0.000	0.090	0.00	2.95
Recovery	Pond 1	BASE	104.75	23.102	27.500	62525	0.000	0.089	0.00	2.95
Recovery	Pond 1	BASE	105.00	23.101	27.500	62523	0.000	0.088	0.00	2.96
Recovery	Pond 1	BASE	105.25	23.101	27.500	62520	0.000	0.087	0.00	2.96
Recovery	Pond 1	BASE	105.50	23.101	27.500	62518	0.000	0.087	0.00	2.96
Recovery	Pond 1	BASE	105.75	23.100	27.500	62515	0.000	0.086	0.00	2.96
Recovery	Pond 1	BASE	106.00	23.100	27.500	62513	0.000	0.085	0.00	2.96
Recovery	Pond 1	BASE	106.25	23.099	27.500	62510	0.000	0.085	0.00	2.96
Recovery	Pond 1	BASE	106.50	23.099	27.500	62508	0.000	0.084	0.00	2.97
Recovery	Pond 1	BASE	106.75	23.099	27.500	62505	0.000	0.083	0.00	2.97
Recovery	Pond 1	BASE	107.00	23.098	27.500	62503	0.000	0.083	0.00	2.97
Recovery	Pond 1	BASE	107.25	23.098	27.500	62500	0.000	0.082	0.00	2.97
Recovery	Pond 1	BASE	107.50	23.097	27.500	62498	0.000	0.081	0.00	2.97
Recovery	Pond 1	BASE	107.75	23.097	27.500	62496	0.000	0.081	0.00	2.97
Recovery	Pond 1	BASE	108.00	23.097	27.500	62493	0.000	0.080	0.00	2.97
Recovery	Pond 1	BASE	108.25	23.096	27.500	62491	0.000	0.079	0.00	2.98
Recovery	Pond 1	BASE	108.50	23.096	27.500	62489	0.000	0.079	0.00	2.98
Recovery	Pond 1	BASE	108.75	23.095	27.500	62486	0.000	0.078	0.00	2.98
Recovery	Pond 1	BASE	109.00	23.095	27.500	62484	0.000	0.078	0.00	2.98
Recovery	Pond 1	BASE	109.25	23.095	27.500	62482	0.000	0.077	0.00	2.98
Recovery	Pond 1	BASE	109.50	23.094	27.500	62480	0.000	0.076	0.00	2.99
Recovery	Pond 1	BASE	109.75	23.094	27.500	62477	0.000	0.076	0.00	2.99
Recovery	Pond 1	BASE	110.00	23.094	27.500	62475	0.000	0.075	0.00	2.99
Recovery	Pond 1	BASE	110.25	23.093	27.500	62473	0.000	0.088	0.00	2.99
Recovery	Pond 1	BASE	110.50	23.093	27.500	62471	0.000	0.081	0.00	2.99
Recovery	Pond 1	BASE	110.75	23.093	27.500	62469	0.000	0.000	0.00	2.99
Recovery	Pond 1	BASE	111.00	23.092	27.500	62466	0.000	0.000	0.00	2.99
Recovery	Pond 1	BASE	111.25	23.092	27.500	62464	0.000	0.000	0.00	2.99
Recovery	Pond 1	BASE	111.50	23.091	27.500	62462	0.000	0.079	0.00	2.99
Recovery	Pond 1	BASE	111.75	23.091	27.500	62460	0.000	0.088	0.00	3.00
Recovery	Pond 1	BASE	112.00	23.091	27.500	62458	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	112.25	23.090	27.500	62456	0.000	0.078	0.00	3.00
Recovery	Pond 1	BASE	112.50	23.090	27.500	62454	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	112.75	23.090	27.500	62452	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	113.00	23.089	27.500	62450	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	113.25	23.089	27.500	62448	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	113.50	23.089	27.500	62446	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	113.75	23.088	27.500	62444	0.000	0.087	0.00	3.00
Recovery	Pond 1	BASE	114.00	23.088	27.500	62442	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	114.25	23.088	27.500	62440	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	114.50	23.088	27.500	62438	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	114.75	23.087	27.500	62436	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	115.00	23.087	27.500	62434	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	115.25	23.087	27.500	62432	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	115.50	23.086	27.500	62430	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	115.75	23.086	27.500	62429	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	116.00	23.086	27.500	62427	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	116.25	23.085	27.500	62425	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	116.50	23.085	27.500	62423	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	116.75	23.085	27.500	62421	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	117.00	23.084	27.500	62419	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	117.25	23.084	27.500	62418	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	117.50	23.084	27.500	62416	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	117.75	23.084	27.500	62414	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	118.00	23.083	27.500	62412	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	118.25	23.083	27.500	62411	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	118.50	23.083	27.500	62409	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	118.75	23.082	27.500	62407	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	119.00	23.082	27.500	62405	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	119.25	23.082	27.500	62404	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	119.50	23.082	27.500	62402	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	119.75	23.081	27.500	62400	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	120.00	23.081	27.500	62399	0.000	0.000	0.00	3.00
Recovery	Pond 1	BASE	120.00	23.081	27.500	62399	0.000	0.000	0.00	3.00
Recovery	Pond 2	BASE	0.00	25.000	27.500	74101	0.000	1.623	0.00	0.00
Recovery	Pond 2	BASE	0.25	24.990	27.500	74038	0.810	1.619	0.01	0.03
Recovery	Pond 2	BASE	0.50	24.980	27.500	73978	0.807	1.614	0.03	0.07
Recovery	Pond 2	BASE	0.75	24.970	27.500	73918	0.805	1.610	0.04	0.10
Recovery	Pond 2	BASE	1.00	24.960	27.500	73858	0.803	1.606	0.06	0.13
Recovery	Pond 2	BASE	1.25	24.950	27.500	73799	0.801	1.601	0.07	0.17
Recovery	Pond 2	BASE	1.50	24.941	27.500	73739	0.799	1.597	0.09	0.20
Recovery	Pond 2	BASE	1.75	24.931	27.500	73680	0.797	1.593	0.11	0.23
Recovery	Pond 2	BASE	2.00	24.921	27.500	73620	0.794	1.588	0.12	0.27
Recovery	Pond 2	BASE	2.25	24.911	27.500	73561	0.792	1.584	0.14	0.30
Recovery	Pond 2	BASE	2.50	24.902	27.500	73502	0.790	1.579	0.16	0.33
Recovery	Pond 2	BASE	2.75	24.892	27.500	73443	0.788	1.575	0.17	0.36
Recovery	Pond 2	BASE	3.00	24.883	27.500	73385	0.786	1.571	0.19	0.40
Recovery	Pond 2	BASE	3.25	24.873	27.500	73326	0.783	1.566	0.21	0.43
Recovery	Pond 2	BASE	3.50	24.863	27.500	73268	0.781	1.562	0.22	0.46

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time	Stage	Warning	Surface	Total	Total	Total	Total
			hrs	ft	Stage	Area	Inflow	Outflow	Vol In	Vol Out
					ft	ft2	cfs	cfs	af	af
Recovery	Pond 2	BASE	3.75	24.854	27.500	73209	0.779	1.557	0.24	0.49
Recovery	Pond 2	BASE	4.00	24.844	27.500	73151	0.777	1.553	0.25	0.53
Recovery	Pond 2	BASE	4.25	24.835	27.500	73093	0.775	1.549	0.27	0.56
Recovery	Pond 2	BASE	4.50	24.825	27.500	73035	0.772	1.544	0.29	0.59
Recovery	Pond 2	BASE	4.75	24.816	27.500	72977	0.770	1.540	0.30	0.62
Recovery	Pond 2	BASE	5.00	24.806	27.500	72919	0.768	1.535	0.32	0.65
Recovery	Pond 2	BASE	5.25	24.797	27.500	72861	0.766	1.531	0.33	0.68
Recovery	Pond 2	BASE	5.50	24.787	27.500	72804	0.764	1.526	0.35	0.72
Recovery	Pond 2	BASE	5.75	24.778	27.500	72746	0.761	1.522	0.37	0.75
Recovery	Pond 2	BASE	6.00	24.768	27.500	72689	0.759	1.518	0.38	0.78
Recovery	Pond 2	BASE	6.25	24.759	27.500	72632	0.757	1.513	0.40	0.81
Recovery	Pond 2	BASE	6.50	24.750	27.500	72574	0.755	1.509	0.41	0.84
Recovery	Pond 2	BASE	6.75	24.740	27.500	72517	0.752	1.504	0.43	0.87
Recovery	Pond 2	BASE	7.00	24.731	27.500	72461	0.750	1.500	0.44	0.90
Recovery	Pond 2	BASE	7.25	24.722	27.500	72404	0.748	1.495	0.46	0.93
Recovery	Pond 2	BASE	7.50	24.712	27.500	72347	0.746	1.491	0.47	0.97
Recovery	Pond 2	BASE	7.75	24.703	27.500	72291	0.743	1.486	0.49	1.00
Recovery	Pond 2	BASE	8.00	24.694	27.500	72234	0.741	1.482	0.51	1.03
Recovery	Pond 2	BASE	8.25	24.685	27.500	72178	0.739	1.478	0.52	1.06
Recovery	Pond 2	BASE	8.50	24.675	27.500	72122	0.737	1.473	0.54	1.09
Recovery	Pond 2	BASE	8.75	24.666	27.500	72066	0.735	1.469	0.55	1.12
Recovery	Pond 2	BASE	9.00	24.657	27.500	72010	0.732	1.464	0.57	1.15
Recovery	Pond 2	BASE	9.25	24.648	27.500	71955	0.730	1.460	0.58	1.18
Recovery	Pond 2	BASE	9.50	24.639	27.500	71899	0.728	1.455	0.60	1.21
Recovery	Pond 2	BASE	9.75	24.630	27.500	71844	0.726	1.451	0.61	1.24
Recovery	Pond 2	BASE	10.00	24.621	27.500	71788	0.723	1.446	0.63	1.27
Recovery	Pond 2	BASE	10.25	24.612	27.500	71733	0.721	1.442	0.64	1.30
Recovery	Pond 2	BASE	10.50	24.603	27.500	71678	0.719	1.437	0.66	1.33
Recovery	Pond 2	BASE	10.75	24.594	27.500	71623	0.717	1.433	0.67	1.36
Recovery	Pond 2	BASE	11.00	24.585	27.500	71568	0.714	1.428	0.69	1.39
Recovery	Pond 2	BASE	11.25	24.576	27.500	71514	0.712	1.424	0.70	1.42
Recovery	Pond 2	BASE	11.50	24.567	27.500	71459	0.710	1.419	0.72	1.45
Recovery	Pond 2	BASE	11.75	24.558	27.500	71405	0.708	1.415	0.73	1.48
Recovery	Pond 2	BASE	12.00	24.549	27.500	71350	0.705	1.410	0.74	1.50
Recovery	Pond 2	BASE	12.25	24.540	27.500	71296	0.703	1.406	0.76	1.53
Recovery	Pond 2	BASE	12.50	24.531	27.500	71242	0.701	1.401	0.77	1.56
Recovery	Pond 2	BASE	12.75	24.522	27.500	71188	0.699	1.397	0.79	1.59
Recovery	Pond 2	BASE	13.00	24.514	27.500	71135	0.696	1.392	0.80	1.62
Recovery	Pond 2	BASE	13.25	24.505	27.500	71081	0.694	1.387	0.82	1.65
Recovery	Pond 2	BASE	13.50	24.496	27.500	71027	0.692	1.383	0.83	1.68
Recovery	Pond 2	BASE	13.75	24.487	27.500	70974	0.689	1.378	0.85	1.71
Recovery	Pond 2	BASE	14.00	24.478	27.500	70921	0.687	1.374	0.86	1.73
Recovery	Pond 2	BASE	14.25	24.470	27.500	70868	0.685	1.369	0.87	1.76
Recovery	Pond 2	BASE	14.50	24.461	27.500	70815	0.683	1.365	0.89	1.79
Recovery	Pond 2	BASE	14.75	24.452	27.500	70762	0.680	1.360	0.90	1.82
Recovery	Pond 2	BASE	15.00	24.444	27.500	70709	0.678	1.356	0.92	1.85
Recovery	Pond 2	BASE	15.25	24.435	27.500	70657	0.676	1.351	0.93	1.88
Recovery	Pond 2	BASE	15.50	24.427	27.500	70604	0.673	1.346	0.94	1.90
Recovery	Pond 2	BASE	15.75	24.418	27.500	70552	0.671	1.342	0.96	1.93
Recovery	Pond 2	BASE	16.00	24.410	27.500	70500	0.669	1.337	0.97	1.96
Recovery	Pond 2	BASE	16.25	24.401	27.500	70448	0.667	1.333	0.99	1.99
Recovery	Pond 2	BASE	16.50	24.392	27.500	70396	0.664	1.328	1.00	2.01
Recovery	Pond 2	BASE	16.75	24.384	27.500	70345	0.662	1.324	1.01	2.04
Recovery	Pond 2	BASE	17.00	24.376	27.500	70293	0.660	1.319	1.03	2.07
Recovery	Pond 2	BASE	17.25	24.367	27.500	70242	0.657	1.314	1.04	2.10
Recovery	Pond 2	BASE	17.50	24.359	27.500	70190	0.655	1.310	1.05	2.12
Recovery	Pond 2	BASE	17.75	24.350	27.500	70139	0.653	1.305	1.07	2.15
Recovery	Pond 2	BASE	18.00	24.342	27.500	70088	0.651	1.301	1.08	2.18
Recovery	Pond 2	BASE	18.25	24.334	27.500	70038	0.648	1.296	1.09	2.20
Recovery	Pond 2	BASE	18.50	24.325	27.500	69987	0.646	1.291	1.11	2.23
Recovery	Pond 2	BASE	18.75	24.317	27.500	69936	0.644	1.287	1.12	2.26
Recovery	Pond 2	BASE	19.00	24.309	27.500	69886	0.641	1.282	1.13	2.28
Recovery	Pond 2	BASE	19.25	24.301	27.500	69836	0.639	1.278	1.15	2.31
Recovery	Pond 2	BASE	19.50	24.292	27.500	69785	0.637	1.273	1.16	2.34
Recovery	Pond 2	BASE	19.75	24.284	27.500	69736	0.634	1.268	1.17	2.36
Recovery	Pond 2	BASE	20.00	24.276	27.500	69686	0.632	1.264	1.19	2.39
Recovery	Pond 2	BASE	20.25	24.268	27.500	69636	0.630	1.259	1.20	2.41
Recovery	Pond 2	BASE	20.50	24.260	27.500	69586	0.627	1.254	1.21	2.44
Recovery	Pond 2	BASE	20.75	24.252	27.500	69537	0.625	1.250	1.23	2.47
Recovery	Pond 2	BASE	21.00	24.244	27.500	69488	0.623	1.245	1.24	2.49
Recovery	Pond 2	BASE	21.25	24.235	27.500	69439	0.620	1.241	1.25	2.52
Recovery	Pond 2	BASE	21.50	24.227	27.500	69390	0.618	1.236	1.26	2.54
Recovery	Pond 2	BASE	21.75	24.219	27.500	69341	0.616	1.231	1.28	2.57
Recovery	Pond 2	BASE	22.00	24.211	27.500	69292	0.613	1.227	1.29	2.59
Recovery	Pond 2	BASE	22.25	24.204	27.500	69244	0.611	1.222	1.30	2.62
Recovery	Pond 2	BASE	22.50	24.196	27.500	69196	0.609	1.217	1.31	2.65
Recovery	Pond 2	BASE	22.75	24.188	27.500	69147	0.606	1.213	1.33	2.67
Recovery	Pond 2	BASE	23.00	24.180	27.500	69099	0.604	1.208	1.34	2.70
Recovery	Pond 2	BASE	23.25	24.172	27.500	69052	0.602	1.203	1.35	2.72
Recovery	Pond 2	BASE	23.50	24.164	27.500	69004	0.599	1.199	1.36	2.74
Recovery	Pond 2	BASE	23.75	24.156	27.500	68956	0.597	1.194	1.38	2.77
Recovery	Pond 2	BASE	24.00	24.149	27.500	68909	0.595	1.189	1.39	2.79
Recovery	Pond 2	BASE	24.25	24.141	27.500	68862	0.592	1.185	1.40	2.82

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time	Stage	Warning	Surface	Total	Total	Total	Total
			hrs	ft	Stage	Area	Inflow	Outflow	Vol In	Vol Out
					ft	ft2	cfs	cfs	af	af
Recovery	Pond 2	BASE	24.50	24.133	27.500	68814	0.590	1.180	1.41	2.84
Recovery	Pond 2	BASE	24.75	24.125	27.500	68767	0.588	1.175	1.43	2.87
Recovery	Pond 2	BASE	25.00	24.118	27.500	68721	0.585	1.170	1.44	2.89
Recovery	Pond 2	BASE	25.25	24.110	27.500	68674	0.583	1.166	1.45	2.92
Recovery	Pond 2	BASE	25.50	24.102	27.500	68628	0.581	1.161	1.46	2.94
Recovery	Pond 2	BASE	25.75	24.095	27.500	68581	0.578	1.156	1.47	2.96
Recovery	Pond 2	BASE	26.00	24.087	27.500	68535	0.576	1.152	1.49	2.99
Recovery	Pond 2	BASE	26.25	24.080	27.500	68489	0.574	1.147	1.50	3.01
Recovery	Pond 2	BASE	26.50	24.072	27.500	68443	0.571	1.142	1.51	3.04
Recovery	Pond 2	BASE	26.75	24.065	27.500	68397	0.569	1.138	1.52	3.06
Recovery	Pond 2	BASE	27.00	24.057	27.500	68352	0.567	1.133	1.53	3.08
Recovery	Pond 2	BASE	27.25	24.050	27.500	68307	0.564	1.128	1.54	3.11
Recovery	Pond 2	BASE	27.50	24.042	27.500	68261	0.562	1.123	1.56	3.13
Recovery	Pond 2	BASE	27.75	24.035	27.500	68216	0.560	1.119	1.57	3.15
Recovery	Pond 2	BASE	28.00	24.028	27.500	68171	0.557	1.114	1.58	3.17
Recovery	Pond 2	BASE	28.25	24.020	27.500	68127	0.555	1.109	1.59	3.20
Recovery	Pond 2	BASE	28.50	24.013	27.500	68082	0.552	1.104	1.60	3.22
Recovery	Pond 2	BASE	28.75	24.006	27.500	68038	0.550	1.100	1.61	3.24
Recovery	Pond 2	BASE	29.00	23.998	27.500	67993	0.548	1.095	1.63	3.27
Recovery	Pond 2	BASE	29.25	23.991	27.500	67949	0.545	1.090	1.64	3.29
Recovery	Pond 2	BASE	29.50	23.984	27.500	67905	0.543	1.085	1.65	3.31
Recovery	Pond 2	BASE	29.75	23.977	27.500	67861	0.541	1.081	1.66	3.33
Recovery	Pond 2	BASE	30.00	23.970	27.500	67818	0.538	1.076	1.67	3.36
Recovery	Pond 2	BASE	30.25	23.963	27.500	67774	0.536	1.071	1.68	3.38
Recovery	Pond 2	BASE	30.50	23.955	27.500	67731	0.533	1.066	1.69	3.40
Recovery	Pond 2	BASE	30.75	23.948	27.500	67688	0.531	1.062	1.70	3.42
Recovery	Pond 2	BASE	31.00	23.941	27.500	67645	0.529	1.057	1.71	3.44
Recovery	Pond 2	BASE	31.25	23.934	27.500	67602	0.526	1.052	1.73	3.47
Recovery	Pond 2	BASE	31.50	23.927	27.500	67560	0.524	1.047	1.74	3.49
Recovery	Pond 2	BASE	31.75	23.920	27.500	67517	0.521	1.043	1.75	3.51
Recovery	Pond 2	BASE	32.00	23.913	27.500	67475	0.519	1.038	1.76	3.53
Recovery	Pond 2	BASE	32.25	23.907	27.500	67433	0.517	1.033	1.77	3.55
Recovery	Pond 2	BASE	32.50	23.900	27.500	67391	0.514	1.028	1.78	3.57
Recovery	Pond 2	BASE	32.75	23.893	27.500	67349	0.512	1.023	1.79	3.59
Recovery	Pond 2	BASE	33.00	23.886	27.500	67308	0.509	1.019	1.80	3.62
Recovery	Pond 2	BASE	33.25	23.879	27.500	67266	0.507	1.014	1.81	3.64
Recovery	Pond 2	BASE	33.50	23.872	27.500	67225	0.505	1.009	1.82	3.66
Recovery	Pond 2	BASE	33.75	23.866	27.500	67184	0.502	1.004	1.83	3.68
Recovery	Pond 2	BASE	34.00	23.859	27.500	67143	0.500	0.999	1.84	3.70
Recovery	Pond 2	BASE	34.25	23.852	27.500	67102	0.497	0.995	1.85	3.72
Recovery	Pond 2	BASE	34.50	23.846	27.500	67062	0.495	0.990	1.86	3.74
Recovery	Pond 2	BASE	34.75	23.839	27.500	67021	0.493	0.985	1.87	3.76
Recovery	Pond 2	BASE	35.00	23.832	27.500	66981	0.490	0.980	1.88	3.78
Recovery	Pond 2	BASE	35.25	23.826	27.500	66941	0.488	0.975	1.89	3.80
Recovery	Pond 2	BASE	35.50	23.819	27.500	66901	0.485	0.971	1.90	3.82
Recovery	Pond 2	BASE	35.75	23.813	27.500	66861	0.483	0.966	1.91	3.84
Recovery	Pond 2	BASE	36.00	23.806	27.500	66822	0.481	0.961	1.92	3.86
Recovery	Pond 2	BASE	36.25	23.800	27.500	66782	0.478	0.956	1.93	3.88
Recovery	Pond 2	BASE	36.50	23.793	27.500	66743	0.476	0.951	1.94	3.90
Recovery	Pond 2	BASE	36.75	23.787	27.500	66704	0.473	0.946	1.95	3.92
Recovery	Pond 2	BASE	37.00	23.781	27.500	66665	0.471	0.942	1.96	3.94
Recovery	Pond 2	BASE	37.25	23.774	27.500	66627	0.469	0.937	1.97	3.96
Recovery	Pond 2	BASE	37.50	23.768	27.500	66588	0.466	0.932	1.98	3.98
Recovery	Pond 2	BASE	37.75	23.762	27.500	66550	0.464	0.927	1.99	4.00
Recovery	Pond 2	BASE	38.00	23.755	27.500	66512	0.461	0.922	2.00	4.02
Recovery	Pond 2	BASE	38.25	23.749	27.500	66474	0.459	0.917	2.01	4.04
Recovery	Pond 2	BASE	38.50	23.743	27.500	66436	0.456	0.913	2.02	4.05
Recovery	Pond 2	BASE	38.75	23.737	27.500	66398	0.454	0.908	2.03	4.07
Recovery	Pond 2	BASE	39.00	23.731	27.500	66361	0.452	0.903	2.04	4.09
Recovery	Pond 2	BASE	39.25	23.725	27.500	66324	0.449	0.898	2.05	4.11
Recovery	Pond 2	BASE	39.50	23.719	27.500	66287	0.447	0.893	2.06	4.13
Recovery	Pond 2	BASE	39.75	23.713	27.500	66250	0.444	0.888	2.07	4.15
Recovery	Pond 2	BASE	40.00	23.707	27.500	66213	0.442	0.883	2.08	4.17
Recovery	Pond 2	BASE	40.25	23.701	27.500	66177	0.439	0.878	2.08	4.18
Recovery	Pond 2	BASE	40.50	23.695	27.500	66140	0.437	0.874	2.09	4.20
Recovery	Pond 2	BASE	40.75	23.689	27.500	66104	0.434	0.869	2.10	4.22
Recovery	Pond 2	BASE	41.00	23.683	27.500	66068	0.432	0.864	2.11	4.24
Recovery	Pond 2	BASE	41.25	23.677	27.500	66032	0.430	0.859	2.12	4.26
Recovery	Pond 2	BASE	41.50	23.671	27.500	65997	0.427	0.854	2.13	4.27
Recovery	Pond 2	BASE	41.75	23.665	27.500	65961	0.425	0.849	2.14	4.29
Recovery	Pond 2	BASE	42.00	23.659	27.500	65926	0.422	0.844	2.15	4.31
Recovery	Pond 2	BASE	42.25	23.654	27.500	65891	0.420	0.839	2.16	4.33
Recovery	Pond 2	BASE	42.50	23.648	27.500	65856	0.417	0.834	2.16	4.34
Recovery	Pond 2	BASE	42.75	23.642	27.500	65822	0.415	0.830	2.17	4.36
Recovery	Pond 2	BASE	43.00	23.637	27.500	65787	0.412	0.825	2.18	4.38
Recovery	Pond 2	BASE	43.25	23.631	27.500	65753	0.410	0.820	2.19	4.39
Recovery	Pond 2	BASE	43.50	23.625	27.500	65719	0.408	0.815	2.20	4.41
Recovery	Pond 2	BASE	43.75	23.620	27.500	65685	0.405	0.810	2.21	4.43
Recovery	Pond 2	BASE	44.00	23.614	27.500	65651	0.403	0.805	2.21	4.44
Recovery	Pond 2	BASE	44.25	23.609	27.500	65618	0.400	0.800	2.22	4.46
Recovery	Pond 2	BASE	44.50	23.603	27.500	65584	0.398	0.795	2.23	4.48
Recovery	Pond 2	BASE	44.75	23.598	27.500	65551	0.395	0.790	2.24	4.49
Recovery	Pond 2	BASE	45.00	23.593	27.500	65518	0.393	0.785	2.25	4.51

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 2	BASE	45.25	23.587	27.500	65485	0.390	0.780	2.26	4.53
Recovery	Pond 2	BASE	45.50	23.582	27.500	65453	0.388	0.776	2.26	4.54
Recovery	Pond 2	BASE	45.75	23.577	27.500	65420	0.385	0.771	2.27	4.56
Recovery	Pond 2	BASE	46.00	23.571	27.500	65388	0.383	0.766	2.28	4.57
Recovery	Pond 2	BASE	46.25	23.566	27.500	65356	0.380	0.761	2.29	4.59
Recovery	Pond 2	BASE	46.50	23.561	27.500	65324	0.378	0.756	2.30	4.61
Recovery	Pond 2	BASE	46.75	23.556	27.500	65293	0.376	0.751	2.30	4.62
Recovery	Pond 2	BASE	47.00	23.550	27.500	65261	0.373	0.746	2.31	4.64
Recovery	Pond 2	BASE	47.25	23.545	27.500	65230	0.371	0.741	2.32	4.65
Recovery	Pond 2	BASE	47.50	23.540	27.500	65199	0.368	0.736	2.33	4.67
Recovery	Pond 2	BASE	47.75	23.535	27.500	65168	0.366	0.731	2.33	4.68
Recovery	Pond 2	BASE	48.00	23.530	27.500	65137	0.363	0.726	2.34	4.70
Recovery	Pond 2	BASE	48.25	23.525	27.500	65107	0.361	0.721	2.35	4.71
Recovery	Pond 2	BASE	48.50	23.520	27.500	65076	0.358	0.716	2.36	4.73
Recovery	Pond 2	BASE	48.75	23.515	27.500	65046	0.356	0.711	2.36	4.74
Recovery	Pond 2	BASE	49.00	23.510	27.500	65016	0.353	0.706	2.37	4.76
Recovery	Pond 2	BASE	49.25	23.505	27.500	64987	0.351	0.701	2.38	4.77
Recovery	Pond 2	BASE	49.50	23.501	27.500	64957	0.348	0.696	2.39	4.79
Recovery	Pond 2	BASE	49.75	23.496	27.500	64928	0.346	0.691	2.39	4.80
Recovery	Pond 2	BASE	50.00	23.491	27.500	64899	0.343	0.686	2.40	4.81
Recovery	Pond 2	BASE	50.25	23.486	27.500	64870	0.341	0.681	2.41	4.83
Recovery	Pond 2	BASE	50.50	23.482	27.500	64841	0.338	0.676	2.41	4.84
Recovery	Pond 2	BASE	50.75	23.477	27.500	64813	0.336	0.671	2.42	4.86
Recovery	Pond 2	BASE	51.00	23.472	27.500	64784	0.333	0.667	2.43	4.87
Recovery	Pond 2	BASE	51.25	23.468	27.500	64756	0.331	0.662	2.43	4.88
Recovery	Pond 2	BASE	51.50	23.463	27.500	64728	0.328	0.657	2.44	4.90
Recovery	Pond 2	BASE	51.75	23.459	27.500	64701	0.326	0.652	2.45	4.91
Recovery	Pond 2	BASE	52.00	23.454	27.500	64673	0.323	0.647	2.45	4.92
Recovery	Pond 2	BASE	52.25	23.450	27.500	64646	0.321	0.642	2.46	4.94
Recovery	Pond 2	BASE	52.50	23.445	27.500	64619	0.318	0.637	2.47	4.95
Recovery	Pond 2	BASE	52.75	23.441	27.500	64592	0.316	0.632	2.47	4.96
Recovery	Pond 2	BASE	53.00	23.436	27.500	64565	0.313	0.627	2.48	4.98
Recovery	Pond 2	BASE	53.25	23.432	27.500	64538	0.311	0.622	2.49	4.99
Recovery	Pond 2	BASE	53.50	23.428	27.500	64512	0.308	0.617	2.49	5.00
Recovery	Pond 2	BASE	53.75	23.423	27.500	64486	0.306	0.612	2.50	5.02
Recovery	Pond 2	BASE	54.00	23.419	27.500	64460	0.303	0.607	2.51	5.03
Recovery	Pond 2	BASE	54.25	23.415	27.500	64434	0.301	0.602	2.51	5.04
Recovery	Pond 2	BASE	54.50	23.411	27.500	64409	0.298	0.597	2.52	5.05
Recovery	Pond 2	BASE	54.75	23.407	27.500	64383	0.296	0.592	2.53	5.07
Recovery	Pond 2	BASE	55.00	23.402	27.500	64358	0.293	0.587	2.53	5.08
Recovery	Pond 2	BASE	55.25	23.398	27.500	64333	0.291	0.582	2.54	5.09
Recovery	Pond 2	BASE	55.50	23.394	27.500	64309	0.288	0.577	2.54	5.10
Recovery	Pond 2	BASE	55.75	23.390	27.500	64284	0.286	0.572	2.55	5.11
Recovery	Pond 2	BASE	56.00	23.386	27.500	64260	0.282	0.563	2.56	5.13
Recovery	Pond 2	BASE	56.25	23.382	27.500	64236	0.277	0.555	2.56	5.14
Recovery	Pond 2	BASE	56.50	23.379	27.500	64213	0.273	0.546	2.57	5.15
Recovery	Pond 2	BASE	56.75	23.375	27.500	64190	0.269	0.538	2.57	5.16
Recovery	Pond 2	BASE	57.00	23.371	27.500	64167	0.265	0.530	2.58	5.17
Recovery	Pond 2	BASE	57.25	23.367	27.500	64144	0.261	0.522	2.58	5.18
Recovery	Pond 2	BASE	57.50	23.364	27.500	64122	0.257	0.514	2.59	5.19
Recovery	Pond 2	BASE	57.75	23.360	27.500	64100	0.253	0.506	2.59	5.20
Recovery	Pond 2	BASE	58.00	23.357	27.500	64079	0.249	0.498	2.60	5.21
Recovery	Pond 2	BASE	58.25	23.353	27.500	64058	0.245	0.491	2.60	5.22
Recovery	Pond 2	BASE	58.50	23.350	27.500	64037	0.242	0.483	2.61	5.23
Recovery	Pond 2	BASE	58.75	23.346	27.500	64016	0.238	0.476	2.61	5.24
Recovery	Pond 2	BASE	59.00	23.343	27.500	63996	0.234	0.469	2.62	5.25
Recovery	Pond 2	BASE	59.25	23.340	27.500	63976	0.231	0.462	2.62	5.26
Recovery	Pond 2	BASE	59.50	23.336	27.500	63956	0.227	0.455	2.63	5.27
Recovery	Pond 2	BASE	59.75	23.333	27.500	63937	0.224	0.448	2.63	5.28
Recovery	Pond 2	BASE	60.00	23.330	27.500	63918	0.220	0.441	2.64	5.29
Recovery	Pond 2	BASE	60.25	23.327	27.500	63899	0.217	0.434	2.64	5.30
Recovery	Pond 2	BASE	60.50	23.324	27.500	63881	0.214	0.429	2.65	5.31
Recovery	Pond 2	BASE	60.75	23.321	27.500	63862	0.213	0.427	2.65	5.32
Recovery	Pond 2	BASE	61.00	23.318	27.500	63844	0.212	0.424	2.66	5.33
Recovery	Pond 2	BASE	61.25	23.315	27.500	63826	0.210	0.421	2.66	5.33
Recovery	Pond 2	BASE	61.50	23.312	27.500	63808	0.208	0.416	2.66	5.34
Recovery	Pond 2	BASE	61.75	23.309	27.500	63790	0.206	0.412	2.67	5.35
Recovery	Pond 2	BASE	62.00	23.306	27.500	63772	0.204	0.408	2.67	5.36
Recovery	Pond 2	BASE	62.25	23.303	27.500	63755	0.202	0.404	2.68	5.37
Recovery	Pond 2	BASE	62.50	23.301	27.500	63738	0.200	0.399	2.68	5.38
Recovery	Pond 2	BASE	62.75	23.298	27.500	63721	0.197	0.395	2.69	5.39
Recovery	Pond 2	BASE	63.00	23.295	27.500	63704	0.195	0.390	2.69	5.39
Recovery	Pond 2	BASE	63.25	23.292	27.500	63687	0.193	0.385	2.69	5.40
Recovery	Pond 2	BASE	63.50	23.290	27.500	63671	0.190	0.380	2.70	5.41
Recovery	Pond 2	BASE	63.75	23.287	27.500	63654	0.188	0.376	2.70	5.42
Recovery	Pond 2	BASE	64.00	23.284	27.500	63638	0.186	0.371	2.71	5.43
Recovery	Pond 2	BASE	64.25	23.282	27.500	63622	0.183	0.366	2.71	5.43
Recovery	Pond 2	BASE	64.50	23.279	27.500	63607	0.181	0.362	2.71	5.44
Recovery	Pond 2	BASE	64.75	23.277	27.500	63591	0.179	0.357	2.72	5.45
Recovery	Pond 2	BASE	65.00	23.274	27.500	63576	0.176	0.352	2.72	5.45
Recovery	Pond 2	BASE	65.25	23.272	27.500	63561	0.174	0.348	2.72	5.46
Recovery	Pond 2	BASE	65.50	23.269	27.500	63546	0.172	0.343	2.73	5.47
Recovery	Pond 2	BASE	65.75	23.267	27.500	63531	0.169	0.339	2.73	5.48

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 2	BASE	66.00	23.264	27.500	63516	0.167	0.334	2.73	5.48
Recovery	Pond 2	BASE	66.25	23.262	27.500	63502	0.165	0.329	2.74	5.49
Recovery	Pond 2	BASE	66.50	23.260	27.500	63488	0.163	0.325	2.74	5.50
Recovery	Pond 2	BASE	66.75	23.257	27.500	63474	0.160	0.321	2.74	5.50
Recovery	Pond 2	BASE	67.00	23.255	27.500	63460	0.158	0.316	2.75	5.51
Recovery	Pond 2	BASE	67.25	23.253	27.500	63447	0.156	0.312	2.75	5.52
Recovery	Pond 2	BASE	67.50	23.251	27.500	63433	0.154	0.308	2.75	5.52
Recovery	Pond 2	BASE	67.75	23.249	27.500	63420	0.152	0.303	2.76	5.53
Recovery	Pond 2	BASE	68.00	23.246	27.500	63407	0.150	0.299	2.76	5.54
Recovery	Pond 2	BASE	68.25	23.244	27.500	63394	0.148	0.295	2.76	5.54
Recovery	Pond 2	BASE	68.50	23.242	27.500	63382	0.146	0.291	2.77	5.55
Recovery	Pond 2	BASE	68.75	23.240	27.500	63369	0.144	0.287	2.77	5.55
Recovery	Pond 2	BASE	69.00	23.238	27.500	63357	0.142	0.283	2.77	5.56
Recovery	Pond 2	BASE	69.25	23.236	27.500	63344	0.140	0.279	2.78	5.57
Recovery	Pond 2	BASE	69.50	23.234	27.500	63332	0.138	0.275	2.78	5.57
Recovery	Pond 2	BASE	69.75	23.232	27.500	63321	0.136	0.272	2.78	5.58
Recovery	Pond 2	BASE	70.00	23.230	27.500	63309	0.134	0.268	2.78	5.58
Recovery	Pond 2	BASE	70.25	23.228	27.500	63297	0.132	0.264	2.79	5.59
Recovery	Pond 2	BASE	70.50	23.227	27.500	63286	0.130	0.261	2.79	5.59
Recovery	Pond 2	BASE	70.75	23.225	27.500	63275	0.129	0.257	2.79	5.60
Recovery	Pond 2	BASE	71.00	23.223	27.500	63264	0.127	0.253	2.79	5.60
Recovery	Pond 2	BASE	71.25	23.221	27.500	63253	0.125	0.250	2.80	5.61
Recovery	Pond 2	BASE	71.50	23.219	27.500	63242	0.123	0.247	2.80	5.61
Recovery	Pond 2	BASE	71.75	23.218	27.500	63231	0.122	0.243	2.80	5.62
Recovery	Pond 2	BASE	72.00	23.216	27.500	63221	0.120	0.240	2.80	5.62
Recovery	Pond 2	BASE	72.25	23.214	27.500	63211	0.118	0.237	2.81	5.63
Recovery	Pond 2	BASE	72.50	23.213	27.500	63200	0.117	0.234	2.81	5.63
Recovery	Pond 2	BASE	72.75	23.211	27.500	63190	0.115	0.230	2.81	5.64
Recovery	Pond 2	BASE	73.00	23.209	27.500	63180	0.114	0.227	2.81	5.64
Recovery	Pond 2	BASE	73.25	23.208	27.500	63171	0.112	0.224	2.82	5.65
Recovery	Pond 2	BASE	73.50	23.206	27.500	63161	0.111	0.221	2.82	5.65
Recovery	Pond 2	BASE	73.75	23.204	27.500	63151	0.109	0.218	2.82	5.66
Recovery	Pond 2	BASE	74.00	23.203	27.500	63142	0.108	0.215	2.82	5.66
Recovery	Pond 2	BASE	74.25	23.201	27.500	63133	0.106	0.213	2.83	5.67
Recovery	Pond 2	BASE	74.50	23.200	27.500	63123	0.105	0.210	2.83	5.67
Recovery	Pond 2	BASE	74.75	23.198	27.500	63114	0.104	0.207	2.83	5.68
Recovery	Pond 2	BASE	75.00	23.197	27.500	63105	0.102	0.204	2.83	5.68
Recovery	Pond 2	BASE	75.25	23.195	27.500	63097	0.101	0.202	2.83	5.68
Recovery	Pond 2	BASE	75.50	23.194	27.500	63088	0.100	0.199	2.84	5.69
Recovery	Pond 2	BASE	75.75	23.193	27.500	63079	0.098	0.197	2.84	5.69
Recovery	Pond 2	BASE	76.00	23.191	27.500	63071	0.097	0.194	2.84	5.70
Recovery	Pond 2	BASE	76.25	23.190	27.500	63062	0.096	0.191	2.84	5.70
Recovery	Pond 2	BASE	76.50	23.189	27.500	63054	0.095	0.189	2.84	5.70
Recovery	Pond 2	BASE	76.75	23.187	27.500	63046	0.093	0.187	2.85	5.71
Recovery	Pond 2	BASE	77.00	23.186	27.500	63038	0.092	0.184	2.85	5.71
Recovery	Pond 2	BASE	77.25	23.185	27.500	63030	0.091	0.182	2.85	5.72
Recovery	Pond 2	BASE	77.50	23.183	27.500	63022	0.090	0.180	2.85	5.72
Recovery	Pond 2	BASE	77.75	23.182	27.500	63014	0.089	0.177	2.85	5.72
Recovery	Pond 2	BASE	78.00	23.181	27.500	63007	0.088	0.175	2.86	5.73
Recovery	Pond 2	BASE	78.25	23.179	27.500	62999	0.087	0.173	2.86	5.73
Recovery	Pond 2	BASE	78.50	23.178	27.500	62991	0.085	0.171	2.86	5.73
Recovery	Pond 2	BASE	78.75	23.177	27.500	62984	0.084	0.169	2.86	5.74
Recovery	Pond 2	BASE	79.00	23.176	27.500	62977	0.083	0.167	2.86	5.74
Recovery	Pond 2	BASE	79.25	23.175	27.500	62970	0.082	0.165	2.86	5.74
Recovery	Pond 2	BASE	79.50	23.173	27.500	62962	0.081	0.163	2.87	5.75
Recovery	Pond 2	BASE	79.75	23.172	27.500	62955	0.080	0.161	2.87	5.75
Recovery	Pond 2	BASE	80.00	23.171	27.500	62948	0.079	0.159	2.87	5.75
Recovery	Pond 2	BASE	80.25	23.170	27.500	62942	0.078	0.157	2.87	5.76
Recovery	Pond 2	BASE	80.50	23.169	27.500	62935	0.077	0.155	2.87	5.76
Recovery	Pond 2	BASE	80.75	23.168	27.500	62928	0.077	0.153	2.87	5.76
Recovery	Pond 2	BASE	81.00	23.167	27.500	62921	0.076	0.151	2.88	5.77
Recovery	Pond 2	BASE	81.25	23.166	27.500	62915	0.111	0.149	2.88	5.77
Recovery	Pond 2	BASE	81.50	23.165	27.500	62908	0.076	0.148	2.88	5.77
Recovery	Pond 2	BASE	81.75	23.164	27.500	62902	0.075	0.146	2.88	5.78
Recovery	Pond 2	BASE	82.00	23.163	27.500	62896	0.082	0.144	2.88	5.78
Recovery	Pond 2	BASE	82.25	23.162	27.500	62889	0.081	0.143	2.88	5.78
Recovery	Pond 2	BASE	82.50	23.161	27.500	62883	0.075	0.141	2.89	5.78
Recovery	Pond 2	BASE	82.75	23.159	27.500	62877	0.091	0.139	2.89	5.79
Recovery	Pond 2	BASE	83.00	23.159	27.500	62871	0.090	0.138	2.89	5.79
Recovery	Pond 2	BASE	83.25	23.158	27.500	62865	0.089	0.136	2.89	5.79
Recovery	Pond 2	BASE	83.50	23.157	27.500	62859	0.088	0.135	2.89	5.80
Recovery	Pond 2	BASE	83.75	23.156	27.500	62853	0.087	0.133	2.90	5.80
Recovery	Pond 2	BASE	84.00	23.155	27.500	62848	0.104	0.132	2.90	5.80
Recovery	Pond 2	BASE	84.25	23.154	27.500	62842	0.075	0.130	2.90	5.80
Recovery	Pond 2	BASE	84.50	23.153	27.500	62836	0.087	0.129	2.90	5.81
Recovery	Pond 2	BASE	84.75	23.152	27.500	62831	0.086	0.127	2.90	5.81
Recovery	Pond 2	BASE	85.00	23.151	27.500	62825	0.085	0.126	2.90	5.81
Recovery	Pond 2	BASE	85.25	23.150	27.500	62820	0.084	0.124	2.91	5.81
Recovery	Pond 2	BASE	85.50	23.149	27.500	62814	0.082	0.123	2.91	5.82
Recovery	Pond 2	BASE	85.75	23.148	27.500	62809	0.081	0.122	2.91	5.82
Recovery	Pond 2	BASE	86.00	23.147	27.500	62804	0.080	0.120	2.91	5.82
Recovery	Pond 2	BASE	86.25	23.147	27.500	62798	0.079	0.119	2.91	5.82
Recovery	Pond 2	BASE	86.50	23.146	27.500	62793	0.078	0.118	2.91	5.83

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

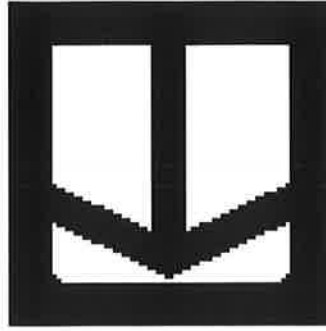
LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time	Stage	Warning	Surface	Total	Total	Total	Total
			hrs	ft	Stage	Area	Inflow	Outflow	Vol In	Vol Out
					ft	ft2	cfs	cfs	af	af
Recovery	Pond 2	BASE	86.75	23.145	27.500	62788	0.077	0.116	2.92	5.83
Recovery	Pond 2	BASE	87.00	23.144	27.500	62783	0.076	0.115	2.92	5.83
Recovery	Pond 2	BASE	87.25	23.143	27.500	62778	0.075	0.114	2.92	5.83
Recovery	Pond 2	BASE	87.50	23.142	27.500	62773	0.000	0.113	2.92	5.84
Recovery	Pond 2	BASE	87.75	23.142	27.500	62768	0.094	0.112	2.92	5.84
Recovery	Pond 2	BASE	88.00	23.141	27.500	62763	0.000	0.110	2.92	5.84
Recovery	Pond 2	BASE	88.25	23.140	27.500	62758	0.000	0.109	2.92	5.84
Recovery	Pond 2	BASE	88.50	23.139	27.500	62754	0.000	0.108	2.92	5.85
Recovery	Pond 2	BASE	88.75	23.139	27.500	62749	0.000	0.107	2.92	5.85
Recovery	Pond 2	BASE	89.00	23.138	27.500	62744	0.000	0.106	2.92	5.85
Recovery	Pond 2	BASE	89.25	23.137	27.500	62740	0.092	0.105	2.92	5.85
Recovery	Pond 2	BASE	89.50	23.136	27.500	62735	0.075	0.104	2.92	5.85
Recovery	Pond 2	BASE	89.75	23.135	27.500	62731	0.000	0.103	2.93	5.86
Recovery	Pond 2	BASE	90.00	23.135	27.500	62726	0.101	0.102	2.93	5.86
Recovery	Pond 2	BASE	90.25	23.134	27.500	62722	0.000	0.101	2.93	5.86
Recovery	Pond 2	BASE	90.50	23.133	27.500	62717	0.000	0.099	2.93	5.86
Recovery	Pond 2	BASE	90.75	23.133	27.500	62713	0.000	0.098	2.93	5.87
Recovery	Pond 2	BASE	91.00	23.132	27.500	62709	0.000	0.098	2.93	5.87
Recovery	Pond 2	BASE	91.25	23.131	27.500	62705	0.000	0.097	2.93	5.87
Recovery	Pond 2	BASE	91.50	23.131	27.500	62700	0.000	0.096	2.93	5.87
Recovery	Pond 2	BASE	91.75	23.130	27.500	62696	0.000	0.095	2.93	5.87
Recovery	Pond 2	BASE	92.00	23.129	27.500	62692	0.000	0.094	2.93	5.87
Recovery	Pond 2	BASE	92.25	23.128	27.500	62688	0.000	0.093	2.93	5.88
Recovery	Pond 2	BASE	92.50	23.128	27.500	62684	0.000	0.092	2.93	5.88
Recovery	Pond 2	BASE	92.75	23.127	27.500	62680	0.000	0.091	2.93	5.88
Recovery	Pond 2	BASE	93.00	23.127	27.500	62676	0.000	0.090	2.93	5.88
Recovery	Pond 2	BASE	93.25	23.126	27.500	62672	0.000	0.089	2.93	5.88
Recovery	Pond 2	BASE	93.50	23.125	27.500	62668	0.000	0.088	2.93	5.89
Recovery	Pond 2	BASE	93.75	23.125	27.500	62664	0.000	0.087	2.93	5.89
Recovery	Pond 2	BASE	94.00	23.124	27.500	62661	0.000	0.087	2.93	5.89
Recovery	Pond 2	BASE	94.25	23.123	27.500	62657	0.000	0.086	2.93	5.89
Recovery	Pond 2	BASE	94.50	23.123	27.500	62653	0.000	0.085	2.93	5.89
Recovery	Pond 2	BASE	94.75	23.122	27.500	62649	0.000	0.084	2.93	5.90
Recovery	Pond 2	BASE	95.00	23.122	27.500	62646	0.000	0.083	2.93	5.90
Recovery	Pond 2	BASE	95.25	23.121	27.500	62642	0.000	0.083	2.93	5.90
Recovery	Pond 2	BASE	95.50	23.120	27.500	62638	0.000	0.082	2.93	5.90
Recovery	Pond 2	BASE	95.75	23.120	27.500	62635	0.000	0.081	2.93	5.90
Recovery	Pond 2	BASE	96.00	23.119	27.500	62631	0.000	0.080	2.93	5.90
Recovery	Pond 2	BASE	96.25	23.119	27.500	62628	0.000	0.080	2.93	5.91
Recovery	Pond 2	BASE	96.50	23.118	27.500	62624	0.000	0.079	2.93	5.91
Recovery	Pond 2	BASE	96.75	23.117	27.500	62621	0.000	0.078	2.93	5.91
Recovery	Pond 2	BASE	97.00	23.117	27.500	62617	0.000	0.077	2.93	5.91
Recovery	Pond 2	BASE	97.25	23.116	27.500	62614	0.000	0.077	2.93	5.91
Recovery	Pond 2	BASE	97.50	23.116	27.500	62611	0.000	0.076	2.93	5.91
Recovery	Pond 2	BASE	97.75	23.115	27.500	62607	0.000	0.075	2.93	5.91
Recovery	Pond 2	BASE	98.00	23.115	27.500	62604	0.000	0.075	2.93	5.92
Recovery	Pond 2	BASE	98.25	23.114	27.500	62601	0.000	0.074	2.93	5.92
Recovery	Pond 2	BASE	98.50	23.114	27.500	62598	0.000	0.073	2.93	5.92
Recovery	Pond 2	BASE	98.75	23.113	27.500	62594	0.000	0.073	2.93	5.92
Recovery	Pond 2	BASE	99.00	23.113	27.500	62591	0.000	0.072	2.93	5.92
Recovery	Pond 2	BASE	99.25	23.112	27.500	62588	0.000	0.071	2.93	5.92
Recovery	Pond 2	BASE	99.50	23.112	27.500	62585	0.000	0.071	2.93	5.93
Recovery	Pond 2	BASE	99.75	23.111	27.500	62582	0.000	0.070	2.93	5.93
Recovery	Pond 2	BASE	100.00	23.111	27.500	62579	0.093	0.070	2.93	5.93
Recovery	Pond 2	BASE	100.25	23.110	27.500	62576	0.092	0.069	2.93	5.93
Recovery	Pond 2	BASE	100.50	23.110	27.500	62573	0.091	0.068	2.93	5.93
Recovery	Pond 2	BASE	100.75	23.109	27.500	62570	0.091	0.068	2.93	5.93
Recovery	Pond 2	BASE	101.00	23.109	27.500	62567	0.090	0.067	2.94	5.93
Recovery	Pond 2	BASE	101.25	23.108	27.500	62564	0.089	0.067	2.94	5.94
Recovery	Pond 2	BASE	101.50	23.108	27.500	62561	0.089	0.066	2.94	5.94
Recovery	Pond 2	BASE	101.75	23.107	27.500	62558	0.088	0.065	2.94	5.94
Recovery	Pond 2	BASE	102.00	23.107	27.500	62555	0.087	0.065	2.94	5.94
Recovery	Pond 2	BASE	102.25	23.106	27.500	62552	0.000	0.064	2.94	5.94
Recovery	Pond 2	BASE	102.50	23.106	27.500	62550	0.000	0.064	2.94	5.94
Recovery	Pond 2	BASE	102.75	23.105	27.500	62547	0.000	0.063	2.94	5.94
Recovery	Pond 2	BASE	103.00	23.105	27.500	62544	0.000	0.063	2.94	5.94
Recovery	Pond 2	BASE	103.25	23.104	27.500	62541	0.076	0.062	2.94	5.95
Recovery	Pond 2	BASE	103.50	23.104	27.500	62539	0.000	0.062	2.95	5.95
Recovery	Pond 2	BASE	103.75	23.104	27.500	62536	0.075	0.061	2.95	5.95
Recovery	Pond 2	BASE	104.00	23.103	27.500	62533	0.091	0.061	2.95	5.95
Recovery	Pond 2	BASE	104.25	23.103	27.500	62531	0.090	0.060	2.95	5.95
Recovery	Pond 2	BASE	104.50	23.102	27.500	62528	0.090	0.060	2.95	5.95
Recovery	Pond 2	BASE	104.75	23.102	27.500	62525	0.089	0.059	2.95	5.95
Recovery	Pond 2	BASE	105.00	23.101	27.500	62523	0.088	0.059	2.96	5.95
Recovery	Pond 2	BASE	105.25	23.101	27.500	62520	0.087	0.058	2.96	5.96
Recovery	Pond 2	BASE	105.50	23.101	27.500	62518	0.087	0.058	2.96	5.96
Recovery	Pond 2	BASE	105.75	23.100	27.500	62515	0.086	0.057	2.96	5.96
Recovery	Pond 2	BASE	106.00	23.100	27.500	62513	0.085	0.057	2.96	5.96
Recovery	Pond 2	BASE	106.25	23.099	27.500	62510	0.085	0.056	2.96	5.96
Recovery	Pond 2	BASE	106.50	23.099	27.500	62508	0.084	0.056	2.97	5.96
Recovery	Pond 2	BASE	106.75	23.099	27.500	62505	0.083	0.056	2.97	5.96
Recovery	Pond 2	BASE	107.00	23.098	27.500	62503	0.083	0.055	2.97	5.96
Recovery	Pond 2	BASE	107.25	23.098	27.500	62500	0.082	0.055	2.97	5.97

F:\DB3\Drainage\ICPR\New Layout 08.11.2020\Recovery\Recovery 02-05-2021.ICP

LONDON COVE - DB-3
Recovery - Node Time Serie Report
04/22/2021

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 2	BASE	107.50	23.097	27.500	62498	0.081	0.054	2.97	5.97
Recovery	Pond 2	BASE	107.75	23.097	27.500	62496	0.081	0.054	2.97	5.97
Recovery	Pond 2	BASE	108.00	23.097	27.500	62493	0.080	0.053	2.98	5.97
Recovery	Pond 2	BASE	108.25	23.096	27.500	62491	0.079	0.053	2.98	5.97
Recovery	Pond 2	BASE	108.50	23.096	27.500	62489	0.079	0.053	2.98	5.97
Recovery	Pond 2	BASE	108.75	23.095	27.500	62486	0.078	0.052	2.98	5.97
Recovery	Pond 2	BASE	109.00	23.095	27.500	62484	0.078	0.052	2.98	5.97
Recovery	Pond 2	BASE	109.25	23.095	27.500	62482	0.077	0.051	2.98	5.97
Recovery	Pond 2	BASE	109.50	23.094	27.500	62480	0.076	0.051	2.99	5.98
Recovery	Pond 2	BASE	109.75	23.094	27.500	62477	0.076	0.051	2.99	5.98
Recovery	Pond 2	BASE	110.00	23.094	27.500	62475	0.075	0.050	2.99	5.98
Recovery	Pond 2	BASE	110.25	23.093	27.500	62473	0.088	0.050	2.99	5.98
Recovery	Pond 2	BASE	110.50	23.093	27.500	62471	0.081	0.049	2.99	5.98
Recovery	Pond 2	BASE	110.75	23.093	27.500	62469	0.000	0.049	2.99	5.98
Recovery	Pond 2	BASE	111.00	23.092	27.500	62466	0.000	0.049	2.99	5.98
Recovery	Pond 2	BASE	111.25	23.092	27.500	62464	0.000	0.048	2.99	5.98
Recovery	Pond 2	BASE	111.50	23.091	27.500	62462	0.079	0.048	2.99	5.98
Recovery	Pond 2	BASE	111.75	23.091	27.500	62460	0.088	0.048	3.00	5.98
Recovery	Pond 2	BASE	112.00	23.091	27.500	62458	0.000	0.047	3.00	5.99
Recovery	Pond 2	BASE	112.25	23.090	27.500	62456	0.078	0.047	3.00	5.99
Recovery	Pond 2	BASE	112.50	23.090	27.500	62454	0.000	0.047	3.00	5.99
Recovery	Pond 2	BASE	112.75	23.090	27.500	62452	0.000	0.046	3.00	5.99
Recovery	Pond 2	BASE	113.00	23.089	27.500	62450	0.000	0.046	3.00	5.99
Recovery	Pond 2	BASE	113.25	23.089	27.500	62448	0.000	0.046	3.00	5.99
Recovery	Pond 2	BASE	113.50	23.089	27.500	62446	0.000	0.045	3.00	5.99
Recovery	Pond 2	BASE	113.75	23.088	27.500	62444	0.087	0.045	3.00	5.99
Recovery	Pond 2	BASE	114.00	23.088	27.500	62442	0.000	0.045	3.00	5.99
Recovery	Pond 2	BASE	114.25	23.088	27.500	62440	0.000	0.044	3.00	5.99
Recovery	Pond 2	BASE	114.50	23.087	27.500	62438	0.000	0.044	3.00	5.99
Recovery	Pond 2	BASE	114.75	23.087	27.500	62436	0.000	0.044	3.00	6.00
Recovery	Pond 2	BASE	115.00	23.087	27.500	62434	0.000	0.043	3.00	6.00
Recovery	Pond 2	BASE	115.25	23.087	27.500	62432	0.000	0.043	3.00	6.00
Recovery	Pond 2	BASE	115.50	23.086	27.500	62430	0.000	0.043	3.00	6.00
Recovery	Pond 2	BASE	115.75	23.086	27.500	62429	0.000	0.042	3.00	6.00
Recovery	Pond 2	BASE	116.00	23.086	27.500	62427	0.000	0.042	3.00	6.00
Recovery	Pond 2	BASE	116.25	23.085	27.500	62425	0.000	0.042	3.00	6.00
Recovery	Pond 2	BASE	116.50	23.085	27.500	62423	0.000	0.042	3.00	6.00
Recovery	Pond 2	BASE	116.75	23.085	27.500	62421	0.000	0.041	3.00	6.00
Recovery	Pond 2	BASE	117.00	23.084	27.500	62419	0.000	0.041	3.00	6.00
Recovery	Pond 2	BASE	117.25	23.084	27.500	62418	0.000	0.041	3.00	6.00
Recovery	Pond 2	BASE	117.50	23.084	27.500	62416	0.000	0.040	3.00	6.01
Recovery	Pond 2	BASE	117.75	23.084	27.500	62414	0.000	0.040	3.00	6.01
Recovery	Pond 2	BASE	118.00	23.083	27.500	62412	0.000	0.040	3.00	6.01
Recovery	Pond 2	BASE	118.25	23.083	27.500	62411	0.000	0.040	3.00	6.01
Recovery	Pond 2	BASE	118.50	23.083	27.500	62409	0.000	0.039	3.00	6.01
Recovery	Pond 2	BASE	118.75	23.082	27.500	62407	0.000	0.039	3.00	6.01
Recovery	Pond 2	BASE	119.00	23.082	27.500	62405	0.000	0.039	3.00	6.01
Recovery	Pond 2	BASE	119.25	23.082	27.500	62404	0.000	0.038	3.00	6.01
Recovery	Pond 2	BASE	119.50	23.082	27.500	62402	0.000	0.038	3.00	6.01
Recovery	Pond 2	BASE	119.75	23.081	27.500	62400	0.000	0.038	3.00	6.01
Recovery	Pond 2	BASE	120.00	23.081	27.500	62399	0.000	0.038	3.00	6.01
Recovery	Pond 2	BASE	120.00	23.081	27.500	62399	0.000	0.038	3.00	6.01



UNIVERSAL ENGINEERING SCIENCES

SUBSURFACE EXPLORATION

Proposed London Cove Commercial & Residential Subdivision

SR 524

Cocoa, Brevard County, Florida

Universal Project No. 0330.1500003.0000

February 20, 2015

PREPARED FOR:

SR 524 Cocoa II, LLC
c/o Demetree Global
1350 Orange Avenue, Suite 100
Winter Park, Florida 32955

PREPARED BY:

Universal Engineering Sciences, Inc.
820 Brevard Avenue
Rockledge, Florida 32955
(321) 638-0808

Consultants in: Geotechnical Engineering • Environmental Sciences • Construction Materials Testing • Threshold Inspection
Offices in: Orlando • Daytona Beach • Fort Myers • Gainesville • Jacksonville • Ocala • Palm Coast • Rockledge • Sarasota •
Miami • Panama City • Pensacola • Fort Pierce • Tampa • West Palm Beach • Atlanta, GA • Tifton, GA



UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

LOCATIONS:

- Atlanta
- Daytona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Kissimmee
- Leesburg
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- Tampa
- West Palm Beach

SR 524 Cocoa II, LLC
c/o Demetree Global
1350 Orange Avenue, Suite 100
Winter Park, Florida 32789

February 20, 2015

Attention: Mr. Eric S. Peisner

Reference: **Subsurface Exploration**
Proposed London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Brevard County, Florida
Universal Project No. 0330.1500003.0000

Dear Mr. Peisner:

Universal Engineering Sciences, Inc. (Universal) has completed a subsurface exploration at the above referenced site in Brevard County, Florida. Our exploration was authorized by Ms Mary L. Demetree, with Demetree Global and was conducted as outlined in Universal's Proposal No. 0330.1115.00001. This exploration was performed in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

The following report presents the results of our field exploration together with a geotechnical engineering interpretation of those results with respect to the project characteristics as such were provided to us. We have included general engineering recommendations concerning site preparation procedures, foundation and pavement design parameters, and our estimates of the typical wet season high groundwater levels at the boring locations.

Please note that deleterious organic (muck) soils were encountered at several of the boring locations within the southern sections of the site. These organic (muck) soils are completely unacceptable for pavement & foundation support and will require removal and replacement with select compacted backfill.

We appreciate the opportunity to have worked with you on this project and look forward to a continued association. Please do not hesitate to contact us if you should have any questions, or if we may further assist you as your plans proceed.

Sincerely yours,

UNIVERSAL ENGINEERING SCIENCES, INC.

Certificate of Authorization No. 549



Jose R. Benitez Jr., E.I.
Staff Engineer



2-20-2015

Brad Faucett, M.S. P.E.
Regional Engineer
Florida Professional Engineer No. 33123

2 – Client

1 – Dave Schmitt, P.E., Dave Schmitt Engineering, Inc. (by e-mail) UES DOCS No.: 1197987

820 Brevard Avenue, Rockledge, Florida 32955 (321) 638-0808 Fax (321) 638-0978
www.UniversalEngineering.com

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	PROJECT DESCRIPTION	1
3.0	PURPOSE	1
4.0	SITE DESCRIPTION	2
4.1	SOIL SURVEY	2
4.2	TOPOGRAPHY	2
5.0	SCOPE OF SERVICES	3
6.0	LIMITATIONS	3
7.0	FIELD METHODOLOGIES	4
7.1	STANDARD PENETRATION TEST BORINGS	4
7.2	AUGER BORINGS	4
8.0	LABORATORY METHODOLOGIES	5
8.1	PARTICLE SIZE ANALYSIS	5
8.2	ORGANIC CONTENT TESTS	5
9.0	SOIL STRATIGRAPHY	5
10.0	GROUNDWATER CONDITIONS	6
10.1	EXISTING GROUNDWATER CONDITIONS	6
10.2	TYPICAL WET SEASON HIGH GROUNDWATER LEVELS	6
11.0	LABORATORY RESULTS	7
11.1	PARTICLE SIZE ANALYSIS	7
11.2	ORGANIC CONTENT TESTS	7
12.0	PROPOSED TOWNHOME BUILDINGS	7
12.1	ANALYSIS	7
12.2	RECOMMENDATIONS – TOWNHOME BUILDINGS	8
12.3	SITE PREPARATION PROCEDURES – TOWNHOME BUILDINGS	9
12.3.1	<i>Building Areas Underlain by Organic Laden Soils</i>	<i>9</i>
12.3.2	<i>Building Areas Not Underlain by Organic Laden Soils</i>	<i>10</i>
13.0	PAVEMENTS	11
13.1	ANALYSIS	11
13.2	RECOMMENDATIONS	12
13.2.1	<i>Asphaltic (Flexible) Pavements</i>	<i>12</i>
13.2.2	<i>Concrete (Rigid) Pavements</i>	<i>13</i>
14.0	PROPOSED RETENTION BASIN	14
14.1	INFILTRATION CHARACTERISTICS	14
14.2	SUITABILITY OF THE SITE SOILS FOR USE AS FILL MATERIALS	15
15.0	SEWER AND UTILITY LINES	16

15.1	GENERAL RECOMMENDATIONS	16
15.2	SITE PREPARATION PROCEDURES	16
16.0	OUTPARCEL COMMERCIAL STRUCTURES - GENERAL COMMENTS	17
17.0	DEWATERING	17
18.0	EXCAVATIONS.....	18
19.0	CLOSURE	18

LIST OF TABLES

Table I:	BCSS Designated Soil Types	2
Table II:	Generalized Soil Profile	6
Table III:	Organic Content Test Results	7
Table IV:	Minimum Standard Duty Asphalt/Limerock Pavement	12
Table V:	Minimum Heavy Duty Asphalt/Limerock Pavement.....	12
Table VI:	Minimum Standard Duty (Unreinforced) Concrete Pavement	14
Table VII:	Minimum Heavy Duty (Unreinforced) Concrete Pavement.....	14

FIGURES

Brevard County Soil Survey	Figure No. 1
USGS Topographic Survey.....	Figure No. 2
Boring Location Plan.....	Figure No. 3

APPENDICES

Key to Boring Logs	Appendix A
Boring Logs	Appendix A

EXHIBITS

ASFE Document.....	Exhibit 1
--------------------	-----------

1.0 INTRODUCTION

Universal Engineering Sciences, Inc. (Universal) has completed a subsurface exploration for the proposed London Cove Commercial and Residential Subdivision in Cocoa, Brevard County, Florida. Our exploration was authorized by Ms Mary L. Demetree, Manager for Demetree Global and was conducted as outlined in Universal's Proposal No. 0330.1115.00001. This exploration was performed in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made.

2.0 PROJECT DESCRIPTION

It is Universal's understanding, based on review of a conceptual site plan provided by Dave Schmitt Engineering, Inc., the project civil engineers, that the proposed project will include the construction of a multi-family residential townhome and commercial subdivision in Cocoa, Florida, as shown on the attached Figure 3. The proposed subdivision will consist of approximately sixty-one (61) two-story multi-residential townhome units, within a total of twelve (12) individual buildings, and associated parking/drive areas.

In addition, it is Universal's understanding that six (6) outparcel lots totaling approximately 9.2 acres are intended for commercial usage.

The stormwater runoff from the new impervious surfaces will be retained within a proposed "wet" retention basin to be located on the south side of the project area.

We assume that the construction of the proposed townhome structures will consist of a combination of reinforced concrete, masonry and timber framing. Specific structural details are not yet available; however, based on our previous work with similar structures, we assume that maximum loading conditions for the proposed buildings will be on the order of 75 kips per column, 4 kips per lineal foot for structural walls, and 100 pounds per square foot for on grade floor slabs. We assume that the finished first floor levels of the proposed buildings will be approximately 2 to 4 feet above existing grades.

If any of the above information is incorrect or changes prior to construction, please contact Universal immediately so that we may revise the recommendations contained in this report, as necessary. In order to verify that our recommendations are properly interpreted and implemented, Universal should be allowed to review the final design and specifications prior to the start of construction.

3.0 PURPOSE

The purposes of this exploration were:

- to explore and evaluate the subsurface conditions at the site with special attention to potential problems that may hinder the proposed development,
- to provide our estimates of the typical wet high season groundwater levels at the boring locations,

- to provide general comments concerning the anticipated infiltration characteristics of the retention basin subsoils, and
- to provide geotechnical engineering recommendations for site preparation procedures, foundation and pavement design parameters.

4.0 SITE DESCRIPTION

The subject site is located within Section 18, Township 24 South, Range 36 East in Brevard County, Florida. More specifically, the site is an approximate 20.7 acre tract located on the south side of SR 524 approximately 0.2 miles west of the interchange of SR 524 with East Industry Road in Cocoa, Florida. A PNC bank and retention basin, as part of an overall shopping center complex; adjoin the site on its east. Directly north across SR 524 is a Sunoco gas station and convenience store, along with the Cocoa North Subdivision. At the time of this exploration portions of the site were heavy wooded with thick dense trees and brush, requiring a considerable amount of hand clearing of trails for drill rig access.

4.1 SOIL SURVEY

There are four primary soil types (pre-development) within the area of the project according to the Brevard County Soil Survey (BCSS), dated 1974. A brief description of these soils is shown below in Table I.

TABLE I
BCSS DESIGNATED SOIL TYPES

Soil Type (Map Symbol)	Brief Description
St. Johns, ponded (Sc)	Soils in sloughs, poorly defined drainageways, and shallow intermittent ponds in the flatwoods.
St. Lucie fine sand (SfB)	Excessively drained sandy soil on high dunelike ridges and isolated knolls.
Paola fine sand (PfB)	An excessively drained soil on ridges.
Terra Ceia muck (Tc)	Nearly level, very poorly drained muck soils in broad flat marsh areas and small depressions.
Immokalee sand (Im)	Nearly level, poorly drained sandy soil in broad areas in the flatwoods, on low ridges between sloughs, and in low, narrow areas between sand ridges and lakes and ponds.

4.2 TOPOGRAPHY

According to information obtained from the United States Geological Survey (USGS) Sharpes, Florida 7.5-minute topographic quadrangle map (dated 1949 and photorevised 1988), ground surface elevation across the site area varies from approximately +30 feet National Geodetic Vertical Datum (NGVD) near the eastern side and the northwest corner of the property to between +20 & +25 feet NGVD along the southern boundary of the tract. The portion of the USGS map with coverage of the site is included as Figure No. 2 of this report.

5.0 SCOPE OF SERVICES

The services completed by Universal for our subsurface exploration program were as follows:

- Drill five (4) Standard Penetration Test (SPT) borings along the proposed roadway to a depth of 10 feet below the existing land surface (bls).
- Drill two (2) auger borings within the proposed wet retention basin footprint to depths of 7 to 8 feet below the existing land surface (bls).
- Drill six (6) Standard Penetration Test (SPT) borings within the proposed commercial lot areas to a depth of 20 feet below the existing land surface (bls), as a "spot check" of the subsoil conditions.
- Drill fifteen (15) Standard Penetration Test (SPT) borings within the proposed residential townhome lot areas to depths of 5 to 15 feet below the existing land surface (bls).
- Secure samples of representative soils encountered in the soil borings for review, laboratory analysis and classification by a Geotechnical Engineer.
- Measure the existing site groundwater levels and provide an estimate of the typical wet season high groundwater levels at the boring locations.
- Conduct soil gradation & organic content tests on selected soil samples obtained in the field to help determine their engineering properties.
- Assess the existing soil conditions with respect to the proposed construction.
- Prepare a report which documents the results of our subsurface exploration and analysis with geotechnical engineering recommendations.

6.0 LIMITATIONS

This report has been prepared in order to aid the client/engineer in the design of the proposed London Cove Commercial and Residential Subdivision in Cocoa, Florida. The scope is limited to the specific project and locations described herein. Our description of the project's design parameters represents our understanding of the significant aspects relevant to soil and foundation characteristics. In the event that any changes in the design or location of the structures as outlined in this report are planned, we should be informed so the changes can be reviewed and the conclusions of this report modified, if required, and approved in writing by Universal.

The recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated on the Boring Location Plan and from other information as referenced. This report does not reflect any variations which may occur between the boring locations. The nature and extent of such variations may not become evident until the course of construction. If variations become evident, it will then be necessary for a re-evaluation of the recommendations of this report after performing on-site observations during the construction period and noting the characteristics of the variations. Please note that this report

does not reflect the full horizontal and vertical extent of deleterious organic (muck) soils encountered at this site, and therefore, should not be used for estimating such items as cut and fill quantities.

Borings for a typical geotechnical report are widely spaced and generally not sufficient for reliably detecting the presence of isolated, anomalous surface or subsurface conditions, or reliably estimating unsuitable or suitable material quantities. Accordingly, Universal does not recommend relying on our boring information to negate presence of anomalous materials or for estimation of material quantities unless our contracted services **specifically** include sufficient exploration for such purpose(s) and within the report we so state that the level of exploration provided should be sufficient to detect such anomalous conditions or estimate such quantities. Therefore, Universal will not be responsible for any extrapolation or use of our data by others beyond the purpose(s) for which it is applicable or intended.

All users of this report are cautioned that there was no requirement for Universal to attempt to locate any man-made buried objects or identify any other potentially hazardous conditions that may exist at the site during the course of this exploration. Therefore no attempt was made by Universal to locate or identify such concerns. Universal cannot be responsible for any buried man-made objects or environmental hazards which may be subsequently encountered during construction that are not discussed within the text of this report. We can provide this service if requested.

For a further description of the scope and limitations of this report please review the document attached within Exhibit 1, "Important Information About Your Geotechnical Engineering Report", prepared by ASFE/ The Geoprofessional Business Association.

7.0 FIELD METHODOLOGIES

7.1 STANDARD PENETRATION TEST BORINGS

The twenty-five (25) Standard Penetration Test (SPT) borings, designated B1 through B10 and B13 through B27 on the attached Figure No. 3, were performed in general accordance with the procedures of ASTM D 1586 (Standard Method for Penetration Test and Split-Barrel Sampling of Soils). The SPT drilling technique involves driving a standard split-barrel sampler into the soil by a 140 pound hammer, free falling 30 inches. The number of blows required to drive the sampler 1 foot, after an initial seating of 6 inches, is designated the penetration resistance, or N-value, an index to soil strength and consistency. The soil samples recovered from the split-barrel sampler were visually inspected and classified in general accordance with the guidelines of ASTM D 2487 (Standard Classification of Soils for Engineering Purposes [Unified Soil Classification System]).

7.2 AUGER BORINGS

The two (2) auger borings, designated B11 & B12 on the attached Figure 3, were drilled in general accordance with the procedures of ASTM D 1452 (Standard Practice for Soil Investigation and Sampling by Auger Borings). The auger drilling technique involves advancing a slender, solid-stem, bucket auger into the soil to the required depth. The soil types encountered were also evaluated by visually classifying the cuttings recovered from the auger bucket in accordance with ASTM D 2487 guidelines.

The SPT soil borings were performed with a CME 45 ATV mounted drilling rig. The shallower auger borings were performed by experienced technicians using hand equipment. The boring locations were determined in the field using the provided site plan and a Garmin GPS receiver. No survey control was provided on-site, and our boring locations should be considered only as accurate as implied by the methods of measurement used. The approximate boring locations are shown on the attached Figure No. 3.

8.0 LABORATORY METHODOLOGIES

8.1 PARTICLE SIZE ANALYSIS

We completed #200 sieve particle size analyses on eight (8) representative soil samples. These samples were tested according to the procedures listed ASTM D 1140 (Standard Test Method for Amount of Material in Soils Finer than the No. 200 Sieve). The percentage of materials passing the #200 sieve is shown on the attached boring logs.

8.2 ORGANIC CONTENT TESTS

We also performed five (5) organic content tests in accordance with ASTM D 2974 (Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils). These samples were obtained from various boring locations at depths ranging from approximately 1 to 2 feet bls. The results of these tests are found in the laboratory results section of this report.

9.0 SOIL STRATIGRAPHY

The results of our field exploration and laboratory analysis, together with pertinent information obtained from the SPT and auger borings, such as soil profiles, penetration resistance and stabilized groundwater levels are shown on the boring logs included in Appendix A. The Key to Boring Logs, Soil Classification Chart is also included in Appendix A. The soil profiles were prepared from field logs after the recovered soil samples were examined by a Geotechnical Engineer. The stratification lines shown on the boring logs represent the approximate boundaries between soil types, and may not depict exact subsurface soil conditions. The actual soil boundaries may be more transitional than depicted.

A generalized profile of the soils encountered at our boring locations is presented in Table II on the ensuing page. For more detailed soil profiles, please refer to the attached boring logs.

**TABLE II
GENERALIZED SOIL PROFILE**

Depth Encountered (feet, bls)	Approximate Thickness (feet)	Soil Description
Surface	1 to 6	Fine sands [SP], loose to medium dense. At boring locations B1 & B2 the strata is overlain by (topsoil) fine sands with silt and roots [SP-SM]. <u>At boring locations B11, B12, B13, B15, B20, B21, B22, & B23 there is a surficial layer of organic silty fine sand with root mats [OH] (muck) to a depth of 1 to 5 feet.</u>
1 to 6	2+ to 17+	Fine sands with silt [SP-SM], loose to dense. Portions of these strata are partially cemented with iron oxide & organic salts and are locally known as hardpan.

NOTE: [] denotes Unified Soil Classification system designation.
+ indicates strata encountered at boring termination, total thickness undetermined.

10.0 GROUNDWATER CONDITIONS

10.1 EXISTING GROUNDWATER CONDITIONS

We measured the water levels in the boreholes on February 9, 2015 after the groundwater was allowed to stabilize. The groundwater levels are shown on the attached boring logs. The groundwater level depths ranged from 0.0 feet bls to 4.8 feet bls. Fluctuations in groundwater levels should be anticipated throughout the year, primarily due to seasonal variations in rainfall, surface runoff, and other factors that may vary from the time the borings were conducted.

10.2 TYPICAL WET SEASON HIGH GROUNDWATER LEVELS

The typical wet season high groundwater level is defined as the highest groundwater level sustained for a period of 2 to 4 weeks during the "wet" season of the year, for existing site conditions, in a year with average normal rainfall amounts. Based on historical data, the rainy season in Brevard County, Florida is between June and October of the year. In order to estimate the wet season high water level at the boring locations, many factors are examined, including the following:

- Measured groundwater level
- Drainage characteristics of existing soil types
- Season of the year (wet/dry season)
- Current & historical rainfall data (recent and year-to-date)
- Natural relief points (such as lakes, rivers, swamp areas, etc.)
- Man-made drainage systems (ditches, canals, etc.)
- Distances to relief points and man-made drainage systems
- On-site types of vegetation
- Area topography (ground surface elevations)

Groundwater level readings were taken on February 9, 2015. According to data from the Southeast Regional Climate Center and the National Weather Service, the total rainfall in the previous month of January for Central Brevard County was 2.5 inches, approximately at the

normal for January. The rainfall for the 2014 calendar year was 56.9 inches, roughly 4½ inches above normal. The year to date rainfall through February 9, 2015 was 2.3 inches, approximately 1½ inches above normal levels.

Based on this information and factors listed above, we estimate that the typical wet season high groundwater levels at the boring locations will be approximately 1 foot above the existing measured levels. Please note, however, that peak stage elevations immediately following various intense storm events, may be somewhat higher than the estimated typical wet season levels.

11.0 LABORATORY RESULTS

11.1 PARTICLE SIZE ANALYSIS

The soil samples submitted for analysis were classified as fine sands [SP] and fine sands with silt [SP-SM]. The percentage of soil sizes passing the #200 sieve size are shown on the boring logs at the approximate depth sampled.

11.2 ORGANIC CONTENT TESTS

The results of the organic content tests are displayed below in Table III.

TABLE III
ORGANIC CONTENT TEST RESULTS

Boring/Probe Location	Approximate Sample Depth (feet, bls)	Moisture Content (%)	Organic Content (%)
B11	2	461.0	87.2
B12	1	567.0	78.8
B13	1	192.9	30.6
B21	1	156.5	26.1
B22	1	374.0	72.8

12.0 PROPOSED TOWNHOME BUILDINGS

12.1 ANALYSIS

The majority of the near surface soils within the southeastern & central sections of the site appear to be loose to medium dense fine sands [SP] and fine sands with silt [SP-SM]. However, organic laden (muck) soils were encountered to depths of up to 5 feet bls at the boring locations within the remainder of the property. Such deleterious materials are completely unacceptable for building foundation & pavement support.

To help preclude problems with long term settlements, we recommend that the organic muck strata be completely removed from all building pavement areas under the full time observation of Universal personnel, as described in section 12.3.1 in this report. Thereafter, the building areas can be filled to final grade with select backfill placed and compacted in lifts as

recommended. This will create a natural mat capable of dissipating foundation loads over any loose strata which might remain at depth.

Within the building areas not underlain by the organic laden soils, the removal of existing vegetation, topsoils and root mats will further loosen site soils to various depths. To provide a homogeneous, compacted, sandy soil system underneath the proposed foundations and floor slabs, densification of the surficial, loose soils and subsequent structural fill is necessary. This will create a soil mat capable of dissipating the building loads over any remaining loose strata at depth. This can be effectively accomplished by compacting the site surface with a large static roller or medium sized vibratory rollers, then filling to grade in compacted lifts as recommended in section 12.3.2 of this report.

The following recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction, and experience with similar projects and subsurface conditions. If the structural loadings, building locations or grading plans change from those discussed previously, we request the opportunity to review and possibly amend our recommendations with respect to those changes.

12.2 RECOMMENDATIONS – TOWNHOME BUILDINGS

Provided our suggested site preparation procedures are followed, we recommend designing conventional, shallow spread footings foundations for a maximum allowable soil-contact pressure of 2,500 pounds per square foot (psf). Even though computed soil-contact pressures may not warrant it, strip and square footings should have minimum widths of at least 18 and 24 inches, respectively to prevent "shear punch" deformations. The base of all footings should be at least 18 inches below finished grade elevation, with the exception of a thickened-edge slab foundation system for which a minimum depth of 14 inches is acceptable.

Assuming existing soils and added structural fill soils are prepared and footings are designed according to our recommendations, we estimate maximum total vertical settlements of the structure will be less than 1 inch and maximum differential settlements will be less than ½ inch. Almost all of the expected settlement will take place as soon as the soil fill and structural loads have been applied to the densified existing sandy soil (and overlying sandy soil fill).

We recommend using a sheet vapor barrier, such as visqueen, beneath the building slab-on-grade to help control moisture migration through the slab. Floor slabs can be supported upon the compacted fill and should be structurally isolated from other foundations elements or adequately reinforced to prevent distress due to differential movements. We recommend a minimum thickness of at least 5 inches be maintained for the concrete floor slab where heavy loads are anticipated. In lightly loaded pedestrian walk areas, we recommend a minimum thickness of at least 4 inches be maintained.

12.3 SITE PREPARATION PROCEDURES – TOWNHOME BUILDINGS

12.3.1 Building Areas Underlain by Organic Laden Soils

Following is a list of our recommended site preparation procedures to prepare the townhome building areas that are underlain by organic laden soils.

1. Excavate the deleterious organic muck soils, under the observation of Universal personnel, in their entirety from beneath the footprints of the proposed buildings, plus a horizontal margin of at least ten feet beyond foundation lines. In addition, any areas of future construction and/or auxiliary structures which cannot tolerate substantial settlements (e.g. exterior equipment pads, pavements, sidewalks, etc.) should also be demucked.

The contractor should be prepared to over-excavate localized pockets of deleterious materials to their full depth and width as indicated by Universal personnel. Please note that portions of the excavations may occur below the groundwater table. Dewatering will probably be necessary to assure complete removal of the compressible soils and to aid subsequent compactive efforts. Please note that deeper and/or thicker zones of deleterious materials than those shown on the attached boring logs may exist between boring locations and within unexplored areas at the site.

2. After approval of the excavated surface, backfill to proposed grades with select backfill placed in 12 inch loose lifts with each lift compacted to at least 95 percent of the Modified Proctor Test maximum dry density (ASTM D 1557). We recommend using sandy soils with less than 10% passing the #200 sieve size [SP, SP-SM, or SP-SC]. During this compactive effort each lift of fill should be tested and approved before the placement of subsequent lifts. Dewatering will probably be necessary during the placement of initial lifts of fill in order to aid compactive efforts.
3. For vibratory equipment used on-site, we recommend using vibratory compactors which weigh less than 1 ton within 20 feet of existing structures, less than 2 tons between distances of 20 and 40 feet, less than 6 tons between 40 to 100 feet, and up to 10 tons beyond 100 feet. The use of heavier equipment may damage existing neighboring structures.
4. Footing and utility excavations and other construction activities frequently disturb compacted subsoils to various depths; therefore, compaction beneath all floor slabs and footings should be verified for a depth of 1 foot immediately prior to the placement of reinforcing steel and concrete, and should meet at least 95 percent of the Modified Proctor Test maximum dry density of the soil (ASTM D 1557).
5. Field density tests should be performed by Universal at appropriate times during earthwork operations in order to verify that the compaction requirements have been satisfied. These tests should be performed after compaction in the existing soils, after placement of each lift of structural fill, within all footing excavations, and beneath all concrete slab-on-grade locations. Compaction tests should be performed at a frequency of not less than one test per 2,000 square feet per each foot of compacted increment as specified herein. In addition, we recommend that at least every other column footing be tested with at least one test per every 50 linear feet of wall footing.

12.3.2 Building Areas Not Underlain by Organic Laden Soils

Following is a list of our recommended site preparation procedures to prepare the remaining portions of the site for the proposed construction.

1. Strip the footprint of the proposed buildings, plus a minimum margin of at least ten feet beyond foundation lines, of existing vegetation, root mats, organic topsoils, rubble, muck, etc. Any collapsible or leak prone utilities should be completely removed from within the location of the proposed building & canopy.

It has been our experience that the subsoils adjacent to previously developed areas sometimes contain pockets of buried rubble, muck, debris or other deleterious materials. Therefore, we strongly recommend that the stripped surface be observed and probed by representatives of Universal. Any deleterious matter remaining should be removed and replaced with clean fine sands [SP] as recommended below.

2. Subsurface soils including the ten feet margin should be densified to at least 95 percent of the Modified Proctor test maximum dry density (ASTM D 1557, Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³))) to at least 12 inches below the stripped surface.
3. For vibratory equipment used on-site, we recommend using vibratory compactors which weigh less than 1 ton within 20 feet of existing structures, less than 2 tons between distances of 20 and 40 feet and less than 6 tons between 40 to 100 feet, and up to 10 tons beyond 100 feet. The use of heavier equipment may damage existing neighboring structures.
4. Proof-roll the exposed subsurface soils with a heavy, rubber tired piece of equipment (such as a fully loaded tandem axle dump truck) under the observation of Universal, to help locate any unforeseen soft areas of unsuitable soils. Each pass should overlap the proceeding pass by roughly 30 percent to insure complete coverage. If deemed necessary by Universal, in areas that continue to "yield", remove any deleterious materials and replace with a clean, compacted sand backfill.
5. Depending upon weather conditions, or other factors, the addition or removal (dewatering) of water may be necessary to aid compactive efforts. Additional passes with compaction equipment or over excavation and replacement in compacted layers may be necessary if the minimum density requirements are not achieved by the recommended equipment.
6. Within all of the building areas, fill to floor slab grade as necessary with select fill, placed in maximum 12 inch loose lifts. We recommend using sandy soils with less than 10% passing the #200 sieve size [SP, SP-SM, or SP-SC]. Each lift of structural fill should be densified to at least 95 percent of the Modified Proctor test maximum dry density of the soil (ASTM D 1557) and tested for compaction and approved before the placement of subsequent lifts.
7. See Item Nos. 4 and 5 from section 12.3.1 on the previous page.

13.0 PAVEMENTS

For the perimeter access drive and associated parking areas on this project, we recommend using either a rigid concrete pavement or a flexible asphaltic pavement section. Flexible pavements combine the strength and durability of several layer components to produce an appropriate and cost-effective combination of locally available construction materials. Concrete pavement is a rigid pavement that transfers much lighter wheel loads to the subgrade soils than a flexible asphalt pavement; therefore, requiring less subgrade preparation than a comparable flexible pavement section.

13.1 ANALYSIS

Densification of the loose surficial sands will be required in all parking and drive areas, in order to both increase subgrade capacity and to limit subsequent settlements due to traffic vibrations. Within the parking/drive areas we recommend that the surficial soils be proof rolled with a heavy piece of equipment, such as a fully-loaded rubber tired dump truck, under the observation of Universal personnel. Any areas which exhibit instability under rolling should be examined by Universal for possible removal and replacement with compacted approved fill.

All pavement subgrade soils should be compacted to at least 95 percent of the Modified Proctor test maximum dry density (ASTM D 1557) to a depth of at least 2 feet below bottom of base course levels, or the full depth of fill and the top 12 inches of existing subgrade soils, whichever is greater.

Please note that portions of the near surface soils at this project contains varying amounts of silt. These soil types tend to readily hold moisture and may require more compactive efforts than the clean fine sand [SP] soils found elsewhere at the site. Soil density testing to verify the uniformity of compactive efforts should be performed at a frequency of one test per 10,000 square feet, one per each foot of compacted increment, as specified herein, or at a minimum of three test locations, whichever is greater.

All existing root mats, organic topsoils, vegetation, ditch bottom sediments, muck, debris, etc. should be completely removed from the proposed pavement areas. Any collapsible or leak prone utility lines remaining within the new pavement areas should either be completely removed or grouted closed.

All pavement area fill should be placed in 12 inch lifts with each lift compacted to at least 95 percent of the Modified Proctor test maximum dry density (ASTM D 1557). If vibratory equipment is used to compact fill, subgrade and base courses, then we recommend using vibratory rollers as described previously. Depending on weather conditions and other factors, the addition or removal (dewatering) of water may be necessary to aid compactive efforts.

All pavement area fill should consist of clean select fill, consisting of sandy soils with less than 10% passing the #200 sieve size [SP, SP-SM, or SP-SC], placed in 12 inch lifts with each lift compacted to at least 95 percent of the Modified Proctor test maximum dry density (ASTM D 1557).

If vibratory equipment is used to compact fill, subgrade and base courses, then we recommend using vibratory rollers weighing less than 1 ton within 20 feet of existing structures, less than 2

tons within distances of 20 to 40 feet, less than 6 tons from 40 feet to 100 feet and up to 10 tons beyond 100 feet. The use of heavier equipment may damage existing neighboring structures.

13.2 RECOMMENDATIONS

13.2.1 Asphaltic (Flexible) Pavements

Standard duty pavement areas are defined as having car and pickup truck loading conditions. Heavy duty areas are defined as having delivery, storage, and garbage truck loading conditions along with service drives. Assuming a) the subgrade soils are compacted to 95 percent of Modified Proctor test maximum dry density (ASTM D 1557) with a design LBR value of 40 (after stabilization), b) a 20 year design life, c) terminal serviceability index (P_t) of 2, d) reliability of 90 percent, and e) total equivalent 18 kip single axle loads ($E_{18}SAL$) of 50,000, we recommend the minimum design shown in the following Table IV, for a standard duty asphalt pavement.

TABLE IV
MINIMUM STANDARD DUTY ASPHALT/LIMEROCK PAVEMENT

Pavement Layer	Thickness	Minimum Requirements
Asphalt Wearing Surface FDOT Type S-I (SP-12.5) or S-III (SP-9.5)	1.5 Inch Minimum	95% Laboratory Marshall Density, Mix to be approved by Universal. If an SP mix is used, it should be compacted to at least 92% of the maximum theoretical density.
Limerock, Cemented Coquina, or Recycled Concrete Base	6 Inch Minimum	98% Modified Proctor test maximum dry density, Limerock Bearing Ratio (LBR) of at least 100.
Stabilized Subbase Course	8 Inch Minimum	98% Modified Proctor test maximum dry density, stabilized to a Limerock Bearing Ratio (LBR) of at least 40.

Assuming the above factors for standard duty pavements apply to heavy duty pavements where heavy trucks such as delivery & refuse collection vehicles would traverse (i.e. loadings of up to 150,000 $E_{18}SALs$), we recommend using the following design in Table V below for minimum heavy duty pavement areas.

TABLE V
MINIMUM HEAVY DUTY ASPHALT/LIMEROCK PAVEMENT

Pavement Layer	Thickness	Minimum Requirements
Asphalt Wearing Surface FDOT Type S-I (SP-12.5) or S-III (SP-9.5)	2 Inch Minimum	95% Laboratory Marshall Density, Mix to be approved by Universal. If an SP mix is used, it should be compacted to at least 92% of the maximum theoretical density.
Limerock, Cemented Coquina, or Recycled Concrete Base	8 Inch Minimum	98% Modified Proctor test maximum dry density, Limerock Bearing Ratio (LBR) of at least 100.
Stabilized Subbase Course	8 Inch Minimum	98% Modified Proctor test maximum dry density, stabilized to a Limerock Bearing Ratio (LBR) of at least 40.

We recommend designing asphaltic pavements with at least 18 inches of clearance between the bottom of the pavement base course and the estimated typical wet season groundwater level. A thorough testing and inspection program should be incorporated during the pavement construction.

Stabilized subgrade can be imported materials or a blend of on-site and imported materials. If a blend is proposed, we recommend that the contractor perform a mix design to find the optimum mix proportions. Compaction testing of the stabilized subgrade, and the subsequent limerock base course material should be performed to full depth at a minimum of at least ten test locations. After placement and field compaction, the wearing surface should be cored to evaluate material thickness and to perform laboratory densities of the asphaltic surfacing.

In parking lots, for extended life expectancy of the surface course, we recommend applying a coal tar emulsion sealer at least six months after placement of the surface course. The seal coat will help patch cracks and voids, and protect the surface from damaging ultraviolet light and automobile liquid spillage. Please note that applying the seal coat prior to six months after placement may hinder the "curing" of the surface course, leading to its early deterioration.

We recommend that all materials used in pavement construction comply with the latest edition of the Florida Department of Transportation, Standard Specifications For Road and Bridge Construction. Universal should be allowed to review and comment on the final asphalt pavement design.

13.2.2 Concrete (Rigid) Pavements

Concrete pavement is a rigid pavement that transfers much lighter wheel loads to the subgrade soils than a flexible asphalt pavement. We recommend using the existing surficial sands or select fill [SP, SP-SM, or SP-SC], densified to at least 95 percent of Modified Proctor test maximum dry density (ASTM D 1557) without additional stabilization, with the following stipulations.

1. Subgrade soils must be densified to at least 95 percent of Modified Proctor test maximum dry density (ASTM D 1557) for a depth of at least 2 feet, or the full depth of fill, whichever is greater, prior to placement of concrete.
2. The surface of the subgrade soils must be smooth, and any disturbances or wheel rutting corrected prior to placement of concrete.
3. The subgrade soils must be moistened prior to placement of concrete.
4. Concrete pavement thickness should be uniform throughout, with exception to the thickened edges (curb or footing).
5. The bottom of the pavement should be separated from the estimated typical wet season groundwater level by at least 1 foot.

Based on slab thickness for standard duty concrete pavements are based on the subgrade soils densified to 95 percent of Modified Proctor test maximum dry density we recommend using the design shown in the following Table VI for standard duty (loadings of up to 50,000 E₁₈SALs) concrete pavements.

TABLE VI
MINIMUM STANDARD DUTY (UNREINFORCED) CONCRETE PAVEMENT

Minimum Pavement Thickness	Maximum Control Joint Spacing	Minimum Saw Cut Depth
6 Inches	10 Feet x 10 Feet	1-1/4 Inches

Our recommendations on slab thickness for heavy duty concrete pavements (loadings of up to 150,000 E₁₈SALs) are based on the same factors as above. Our recommended minimum design for heavy duty concrete pavement is shown in Table VII below.

TABLE VII
MINIMUM HEAVY DUTY (UNREINFORCED) CONCRETE PAVEMENT

Minimum Pavement Thickness	Maximum Control Joint Spacing	Minimum Saw Cut Depth
7 Inches	14 Feet x 14 Feet	1-3/4 Inches

We recommend using concrete with a minimum 28-day compressive strength of at least 4000 pounds per square inch. Layout of the Saw cut control joints should form square panels, and the depth of Saw cut joints should be at least ¼ of the concrete slab thickness.

We recommend allowing Universal to review and comment on the final concrete pavement design, including section and joint details (type of joints, joint spacing, etc.), prior to the start of construction.

For further details on concrete pavement construction, please reference the "Guide to Jointing of Non-Reinforced Concrete Pavements" published by the Florida Concrete and Products Association, Inc., and "Building Quality Concrete Parking Areas", published by the Portland Cement Association.

Compaction testing of the subgrade soils should be performed to the full depths recommended herein at a minimum of at least three locations. Cylinder specimens to verify the compressive strength of the pavement concrete should be obtained for at least every 50 cubic yards, or at least one set for each day's placement, whichever is greater.

14.0 PROPOSED RETENTION BASIN

14.1 INFILTRATION CHARACTERISTICS

We understand that the stormwater runoff from the new construction will be retained on-site within a proposed "wet" retention pond to be located within the southern portion of the proposed subdivision.

The hydraulic capacity of stormwater retention areas is principally a function of the ability of the surface soil to receive and percolate the storm water runoff. Upon reaching the groundwater table or a restrictive layer, the stormwater runoff begins to mound. The amount and rate of rise in the recharge mound depends on several factors, including the thickness and permeability of

the receiving stratum, the elevation of the groundwater table, and the geometry of the loaded area.

The majority of the near surface soils at the proposed retention basin locations (B11 & B12), to depths of approximately 5 feet bls, appear to be organic silty fine sand with root mats [OH] (muck). The muck layer is then underlain by a layer of fine sands with silt [SP-SM]. Both the surficial muck and the underlying fine sands with silt [SP-SM] are slowly permeable and should be considered aquicludes in retention pond design. Depending upon the final depth of the proposed basin, and other factors, the presence of these impermeable layers could have a strong influence on such factors as the background groundwater seepage through the pond bottoms during periods of low pond water levels.

The actual infiltration rate of retention pond subsoils is influenced by the coefficient of permeability as well as several factors, including the elevation of the pond bottom, water level in the pond, the elevation of the wet season water table, and the confining layer. These factors must be accounted for in an appropriate groundwater model to determine the infiltration rate of a given soil stratum. We recommend the designer use a commercial software program such as "Ponds" or "Modret" in order to evaluate this pond. Universal would be pleased to perform a storm water infiltration study at your request.

After the configuration of the proposed retention basin is further defined, Universal should be allowed to review the proposed plans, so that recommendations for any necessary additional borings and/or laboratory testing can be formulated.

14.2 SUITABILITY OF THE SITE SOILS FOR USE AS FILL MATERIALS

Structural fill should be densified to at least 95 percent of the Modified Proctor test maximum dry density of the soil (ASTM D 1557) and tested for compaction and approved before the placement of subsequent lifts. A discussion of the types of soil typically encountered within the general area of the site and their requirements for reuse as fill is provided below. Please note that the soil type designations listed below (e.g. A, B, C, D, E) are based on guidelines developed by Universal and should not be confused with similar type designators used by other entities.

TYPE A - "Clean" fine sands [SP] which have less than 5 percent soil fines are the most desirable for as engineered fill because they drain freely when excavated from beneath the groundwater table, and they are not as susceptible to moisture related instability. These soils may be placed and compacted as structural fill for support of any proposed foundations, floor slabs, or pavement areas. Please note that considerable raking of these materials may be necessary in many areas to remove roots, stumps and other deleterious matter.

TYPE B - Fine sands with silt/clay [SP-SM, SP-SC] which contain between 5 and 12 percent fines, including hardpan, are good sources of engineered fill, but require some extra care during placement and compaction. The moisture content of these soils should not be higher than optimum during placement and compaction in order to avoid problems caused by moisture related instability. These soils drain fairly well, but may require dewatering prior to excavation or some stockpiling and aeration time when excavated from below the groundwater level. These soils may be placed and compacted similarly to "clean" fine sands.

TYPE C – Clayey/silty fine sands [SC, SM] which contain between 12 and 35 percent fines may also be used as structural fill, however, when encountered below the water table, these soils are very difficult to use due to their extreme sensitivity to water. Extensive/excessive efforts may be required to dry these materials to near optimum moisture content, as determined by the modified proctor test (ASTM D-1557), prior to compactive efforts becoming effective. Moisture control and densification is typically very difficult when using these soils; therefore, alternate methods may be necessary to achieve the required compaction.

TYPE D – Clays [SC-CH], silts [SM-MH], clayey fine sands [SC], and silty fine sands [SM] which contain over 35 percent fines are not recommended for use as structural fill in this geographical region. If desired, special considerations can be made if use of these soils is absolutely necessary.

TYPE E – Organic (muck) [OH] soils are not recommended for structural fill due to their compressibility and extreme sensitivity to high moisture conditions. However, these materials might be useful as fill in non-structural areas and as “topsoils” within landscaping areas after being adjusted for pH and other factors.

If materials at this site are to be used as sources of borrow fill, then we recommend that the existing layers of Type A soils be stockpiled for later use as structural fill in areas that are difficult to compact or require a higher permeability rate. The Type B & C soils can also be used as structural fill but may require considerable drying before use. Such materials are much more moisture sensitive and much less permeable than clean fine sands and will also require a more rigid monitoring and testing program during placement and compaction.

The majority of the subsoils typically encountered from the surface to the maximum depth drilled of approximately 20 feet bls were Type A and Type B soils at the boring locations. However, please note that surficial organic muck soils (Type E) were encountered to depths of up to 5 feet bls at the boring locations within the southern & southwestern portions of the property.

15.0 SEWER AND UTILITY LINES

15.1 GENERAL RECOMMENDATIONS

We assume that proposed sewer and other utility lines at the site may have invert elevations roughly 2 to 4 feet below existing grades. Based on the results of the soil borings and our general knowledge of the area, we believe there may be occasional soft/deleterious pockets at this invert level. If encountered, such layers should be over excavated and replaced with approved backfill or open graded gravel.

15.2 SITE PREPARATION PROCEDURES

The following is our recommended procedure to prepare the site soils for construction of the proposed utility lines.

1. Install a dewatering system capable of maintaining a groundwater level at least 2 feet below bottom of pipe level.

2. Excavate and install the proposed utility lines. Any deleterious soils encountered at pipe bedding level should be examined by representatives of Universal for possible removal and replacement with approved backfill as previously discussed. All replacement soils should consist of clean fine sands [SP] compacted to at least 98 percent of the Modified Proctor test maximum dry density (ASTM D1557) with small vibratory plates or rollers.
3. Backfill to grade with approved fill [SP, SP-SM, or SP-SC] placed in 12 inch loose lifts with each lift compacted, with vibratory rollers or plates weighing less than 4 tons, to at least 98 percent of the Modified Proctor test maximum dry density (ASTM D 1557).

Backfill above and around thrust blocks should be compacted at least 98 percent of Modified Proctor test maximum dry density (ASTM D1557). For a design criteria, we recommend using an allowable passive earth pressure coefficient of $K_p=3.0$.

16.0 OUTPARCEL COMMERCIAL STRUCTURES - GENERAL COMMENTS

Universal assumes that the six (6) outparcel lots along the northern side of the property will be developed with one to two story commercial/retail buildings.

Six (6) SPT borings (one within each outparcel lot) were performed as a "spot check" of the subsoil conditions. The results of these borings indicate the surficial soils consist primarily of surficial loose to medium dense fine sands [SP] underlain by medium dense fine sand with silt [SP-SM] (hardpan) strata.

The removal of site vegetation and roots, along with other construction activities, will further loosen surficial soils to various depths. To provide a homogeneous, compacted, sandy soil system underneath the proposed foundations and floor slabs for the proposed residences, densification of at least the upper 2 feet of the existing surficial, loose soils and subsequent additional fill soils will be necessary. This should create a soil mat capable of dissipating the building loads over any remaining loose strata at depth.

Assuming that such procedures are properly performed, we anticipate that conventional, shallow spread footing foundations may be used to support conventional one to two story commercial construction.

Once site/building configurations are better established, additional test borings will need to be performed within the building footprints so that specific recommendations for foundation design parameters can be formulated.

17.0 DEWATERING

Based on the water level conditions encountered, control of the groundwater will probably be required to achieve the necessary excavation, construction, backfilling and compaction requirements presented in the preceding sections. Regardless of the method(s) used, we suggest drawing down the water level at least 2 to 3 feet below the bottom of the excavations to preclude "pumping" and/or compaction-related problems with the foundation and/or subgrade soils. The actual method(s) of dewatering should be determined by the contractor.

Dewatering should be accomplished with the knowledge that the permeability of soils decreases with increasing silt [ML] and/or clay [CL] content. Therefore, a silty fine sand [SM] is less

permeable than a fine sand [SP]. The fine sand, fine sand with silt and silty fine sand [SP, SP-SM and SM] soil types can usually be dewatered by well pointing.

It should be noted that the typical wet season high groundwater levels previously listed may be temporarily exceeded during any given year in the future. Should impediments to surface water drainage exist on the site, or should rainfall intensity and duration, or total rainfall quantities exceed the normally anticipated rainfall quantities, groundwater levels may exceed our seasonal high estimates. We recommend positive drainage be established and maintained on the site during construction. We further recommend permanent measures be constructed to maintain positive drainage from the site throughout the life of the project. We recommend that the contract documents provide for determining the depth to the groundwater table just prior to construction, and for any required remedial dewatering.

18.0 EXCAVATIONS

Excavations should be sloped as necessary to prevent slope failure and to allow backfilling. As a minimum, temporary excavations below 4-foot depth should be sloped in accordance with OSHA regulations (29 CFR Par 1926) dated October 31, 1989. Where lateral confinement will not permit slopes to be laid back, the excavation should be shored in accordance with OSHA requirements. During excavation, excavated material should not be stockpiled at the top of the slope within a horizontal distance equal to the excavation depth. Provisions for maintaining workman safety within excavations is the sole responsibility of the contractor.

19.0 CLOSURE

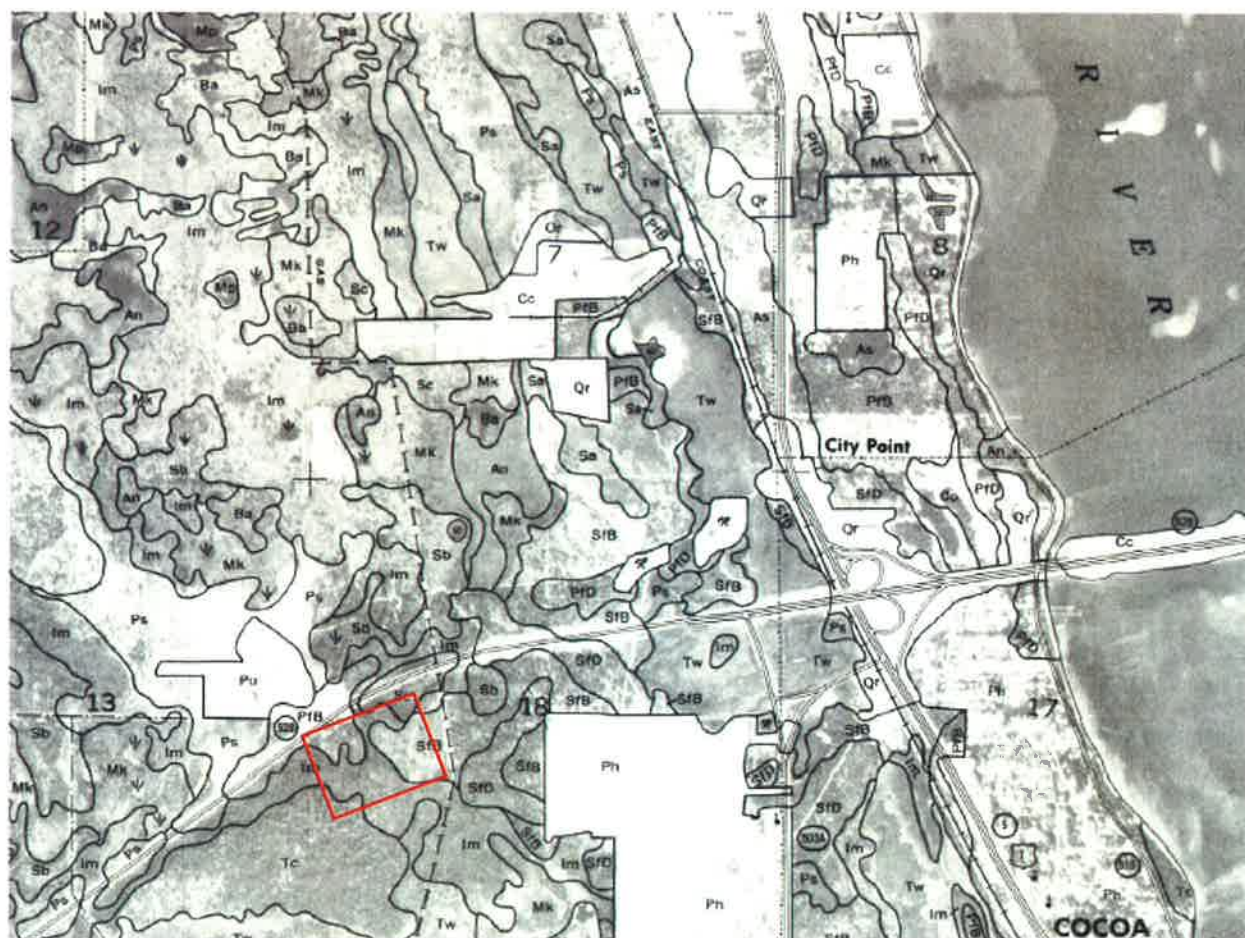
The soil and groundwater conditions encountered during our subsurface exploration of the property encountered deleterious organic muck soils within the southern/southwestern portions of the property. These deleterious soils are unsuitable for foundation/placement support and will require removal & replacement with select compacted fill. However, standard methods of surficial stripping, de-mucking excavation, proof rolling, compaction and backfilling should adequately prepare the site.

The geotechnical engineering design does not end with the advertisement of the construction documents. The design is an on-going process throughout construction. Because of our familiarity with the site conditions and the intent of the engineering design, we are most qualified to address site problems or construction changes, which may arise during construction, in a timely and cost-effective manner.

We recommend the owner retain the Universal Rockledge office to provide inspection services during the site preparation procedures for confirmation of the adequacy of the earthwork operations. Field tests and observations include verification of foundation and pavement subgrades by monitoring proof-rolling operations and performing quality assurance tests of the placement of compacted structural fill and pavement courses.

* * * * *

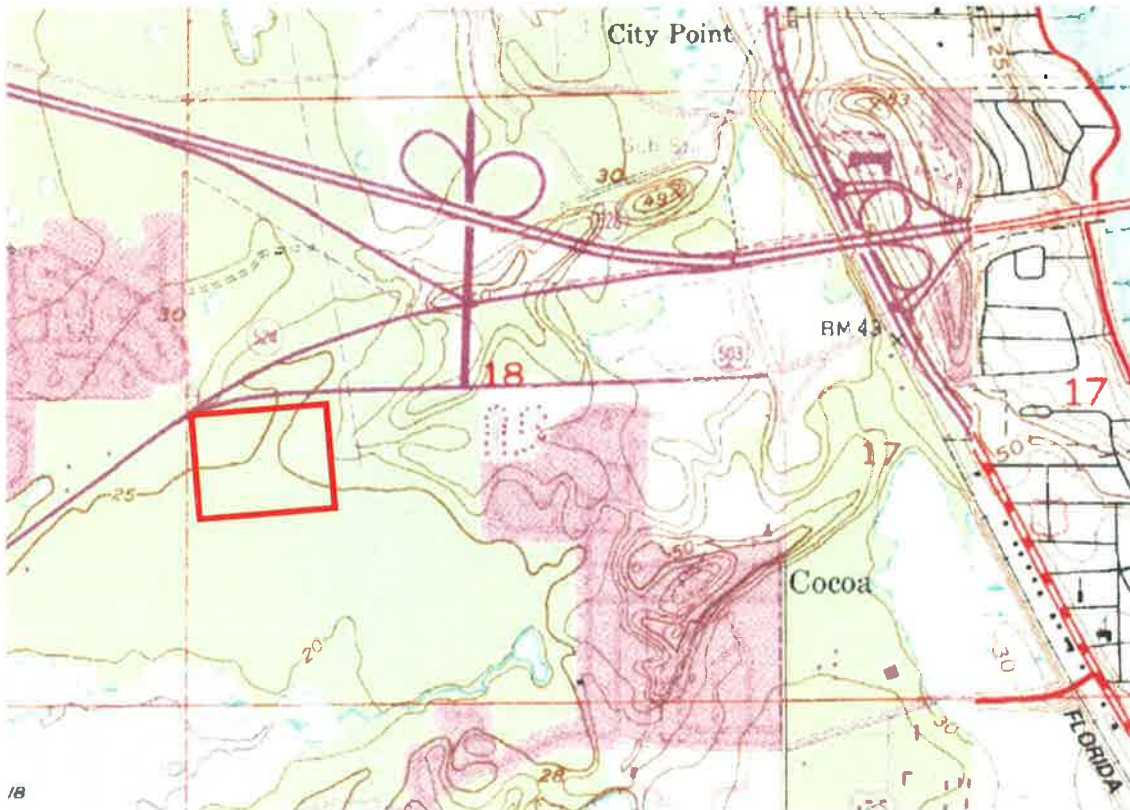
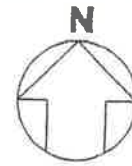
Figures



☐ **Approximate Project Location**



PAGE NO: **Figure No.: 1**



Source: USGS Sharpes, Florida
7.5 Minute Topographic Quadrangle
(1949); photorevised (1988)

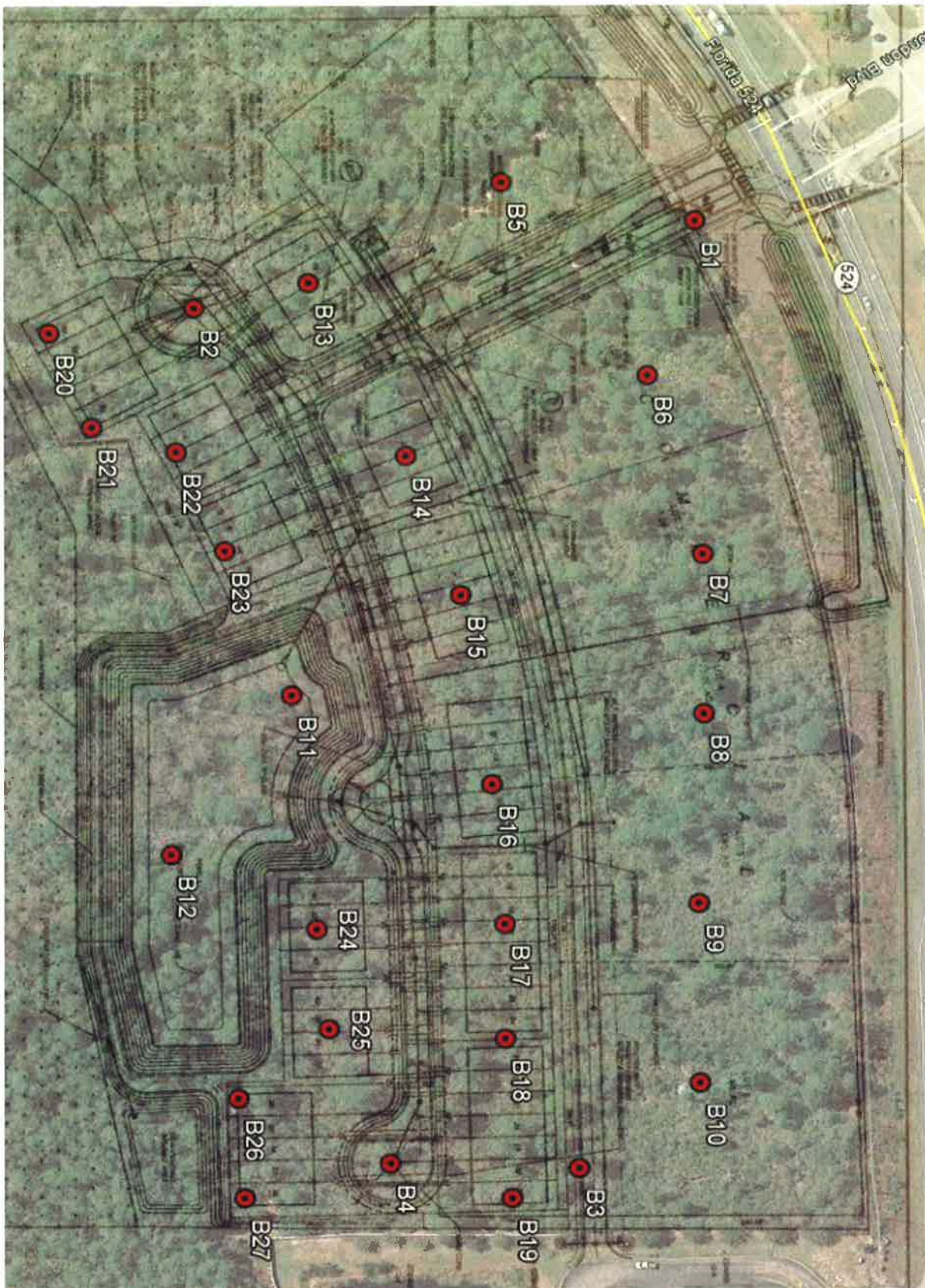
 **Approximate Project Location**



LONDON COVE TOWNHOMES
SR 524
COCOA, FLORIDA

USGS TOPOGRAPHIC SURVEY

DRAWN BY: JRB	DATE: January 27, 2015	CHECKED BY: BF	DATE: January 27, 2015
SCALE: NTS	PROJECT NO: 0330.1500003.0000	REPORT NO:	PAGE NO: Figure No.: 2



 UNIVERSAL ENGINEERING SCIENCES Figure 3	SUBSURFACE EXPLORATION		PROPOSED LONDON COVE TOWNHOMES SR 524 COCOA, BREVARD COUNTY, FLORIDA			
	PROPOSED DEVELOPMENT		Drawn By:	Brandon Selph	Date:	January 28, 2015
			Date:	January 28, 2015		
			Project No:	0330 1500003.0000	Scale:	1"=100'

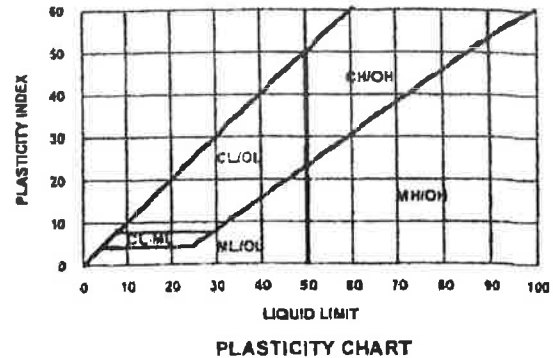
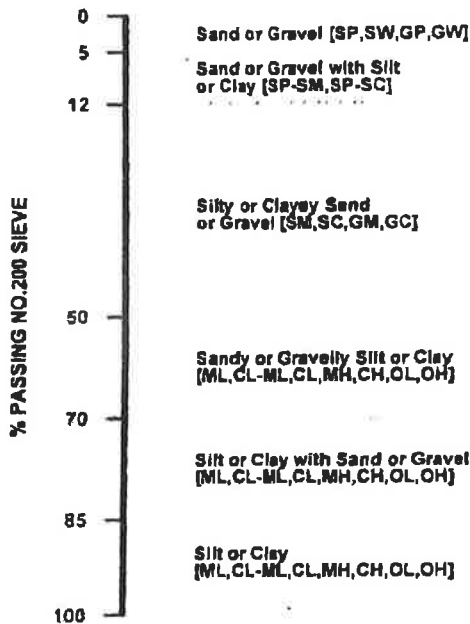
Appendix A

KEY TO BORING LOGS

SOIL CLASSIFICATION CHART*

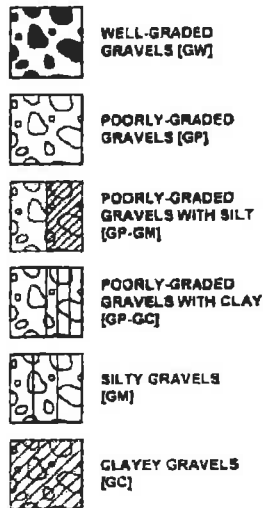
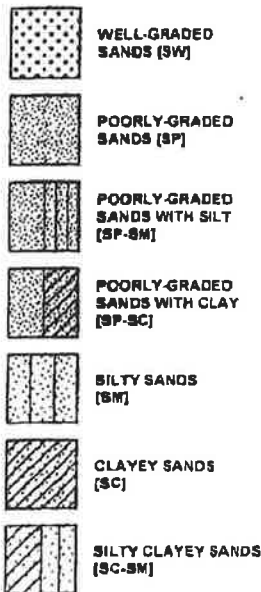


**UNIVERSAL
ENGINEERING
SCIENCES, INC.**

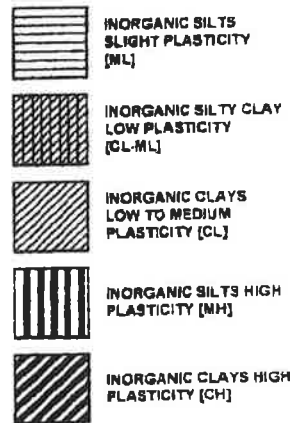


GROUP NAME AND SYMBOL

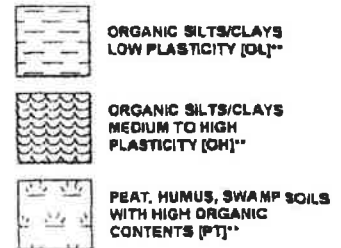
COARSE GRAINED SOILS



FINE GRAINED SOILS



HIGHLY ORGANIC SOILS



RELATIVE DENSITY (SAND AND GRAVEL)

VERY LOOSE - 0 to 4 Blows/ft.
LOOSE - 5 to 10 Blows/ft.
MEDIUM DENSE - 11 to 30 Blows/ft.
DENSE - 31 to 50 Blows/ft.
VERY DENSE - more than 50 Blows/ft.

CONSISTENCY (SILT AND CLAY)

VERY SOFT - 0 to 2 Blows/ft.
SOFT - 3 to 4 Blows/ft.
FIRM - 5 to 8 Blows/ft.
STIFF - 9 to 15 Blows/ft.
VERY STIFF - 17 to 30 Blows/ft.
HARD - more than 30 Blows/ft.

* IN ACCORDANCE WITH ASTM D 2487 - UNIFIED SOIL CLASSIFICATION SYSTEM

** LOCALLY MAY BE KNOWN AS MUCK.

NOTES:

B* - DENOTES DYNAMIC CONE PENETROMETER (DCP) VALUE.
R - DENOTES REFUSAL TO PENETRATION.
P - DENOTES PENETRATION WITH ONLY WEIGHT OF DRIVE HAMMER.
N/E - DENOTES GROUNDWATER TABLE NOT ENCOUNTERED.

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

APPENDIX A.1



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B1**
SECTION:

TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:

G.S. ELEVATION (ft):

DATE STARTED: 1/15/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 1.5

DATE FINISHED: 1/15/15

REMARKS:

DATE OF READING: 2/9/2015

DRILLED BY: PM, AD

EST. W.S.W.T. (ft):

TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG CONT. (%)
									LL	PI		
0						fine SAND with silt and roots (Topsoil), dark brown, [SP-SM]						
		3-3-4	7	▼		fine SAND, grey, [SP]	0.9	20.4				
		3-5-6	11									
		10-13-17	30			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
5		11-14-16	30									
		12-16-19	35									
		11-12-16	28									
10						BORING TERMINATED AT 10'						
15												
20												



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B3**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 3.4
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 2/3/15
DATE FINISHED: 2/3/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
1-2-3		5										
3-3-4		7					1.3	3.8				
4-4-4		8										
5												
6-8-9		17				fine SAND with silt, dark brown, (hardpan) [SP-SM]						
11-9-13		22										
10-11-12		23										
10						BORING TERMINATED AT 10'						
15												
20												



PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION:
SECTION:

B4

SHEET: 1 of 1
RANGE:

CLIENT: _____
LOCATION: SEE BORING LOCATION PLAN
REMARKS: _____

G.S. ELEVATION (ft):

DATE STARTED: 2/5/15

WATER TABLE (ft): 3.5

DATE FINISHED: 2/5/15

DATE OF READING: 2/9/2015

DRILLED BY: PM, AD

EST. W.S.W.T. (ft):

TYPE OF SAMPLING:

[illegible]



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B5**
SECTION:

TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 4.8
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 1/15/15
DATE FINISHED: 1/15/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		1-2-3	5									
		2-3-5	8									
		5-5-7	12									
5							1.7	24.7				
		6-12-22	34			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
		23-35-51	86									
		16-34-47	81									
10												
		3-4-6	10									
15												
		7-10-14	24									
20						BORING TERMINATED AT 20'						



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B6**
SECTION:

TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):

DATE STARTED: 1/15/15

WATER TABLE (ft): 2.4

DATE FINISHED: 1/15/15

DATE OF READING: 2/9/2015

DRILLED BY: PM, AD

EST. W.S.W.T. (ft):

TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT / DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		2-2-3	5									
		4-6-8	14									
		6-8-15	23									
5		16-12-9	21			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
		4-5-6	11									
		5-6-8	14									
10												
						fine SAND, brown, [SP]						
		7-12-15	27									
15												
		5-6-8	14									
20						BORING TERMINATED AT 20'						

BL3



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B7**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 3.3
DATE STARTED: 1/15/15
DATE FINISHED: 1/15/15
DATE OF READING: 2/9/2015
DRILLED BY: PM, AD
EST. W.S.W.T. (ft):
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		1-1-2	3									
		2-3-3	6									
		2-4-6	10									
5		8-18-27	35									
		10-10-13	23			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
		8-9-13	22				6.3	18.4				
10												
		5-7-9	16									
15												
		6-8-12	20			fine SAND, brown, [SP]						
20						BORING TERMINATED AT 20'						



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B8**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 1.8
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 1/19/15
DATE FINISHED: 1/19/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		2-3-5	8									
		4-6-7	13									
		8-8-13	21			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
5		12-24-30	54									
		10-17-21	38									
		15-20-23	43									
10												
		7-8-12	20									
15												
		8-14-18	32									
20						BORING TERMINATED AT 20'						



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B9**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 1.7
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 1/19/15
DATE FINISHED: 1/19/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		2-2-3	5									
		3-4-4	8									
		4-4-8	12									
5		5-6-14	20			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
		7-8-24	32									
		10-21-21	42									
10												
		7-13-17	30									
15												
		13-13-16	29									
20						BORING TERMINATED AT 20'						



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B10**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 2.3
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 1/19/15
DATE FINISHED: 1/19/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		2-1-2	3									
		2-2-3	5									
		5-4-5	9									
5		6-7-12	19			fine SAND with silt, dark brown, (hardpan) [SP-SM]	8.5	30.2				
		7-15-20	35									
		18-19-20	39									
10												
		6-8-12	20									
15												
		8-15-20	35									
20						BORING TERMINATED AT 20'						



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B11**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 0
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 2/6/15
DATE FINISHED: 2/6/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						organic silty fine SAND with root mats, dark brown, (muck) [OH]						
5						fine SAND with silt, dark brown, [SP-SM]						
						BORING TERMINATED AT 7'						
10												
15												
20												

BL3



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B12**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 0
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 2/6/15
DATE FINISHED: 2/6/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						organic silty fine SAND with root mats, dark brown, (muck) [OH]						
5						fine SAND with silt, brown, [SP-SM]						
10						BORING TERMINATED AT 8'						
15												
20												



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B15**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 0.7
DATE STARTED: 1/26/15
DATE FINISHED: 1/26/15
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						organic silty fine SAND with root mats, dark brown, (muck) [OH]						
		1-1-3	4			fine SAND, brown, [SP]						
		4-7-10	17									
		9-16-16	32			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
5		9-9-9	18									
		6-7-8	15									
		8-8-11	19									
10												
		5-16-17	33									
15						BORING TERMINATED AT 15'						
20												



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B16**
SECTION:

TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):

DATE STARTED: 2/3/15

WATER TABLE (ft): 2.0

DATE FINISHED: 2/3/15

DATE OF READING: 2/9/2015

DRILLED BY: PM, AD

EST. W.S.W.T. (ft):

TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		2-2-3	5									
		3-5-5	10									
		2-4-6	10									
5		6-8-10	18									
		8-21-25	46			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
		10-12-21	43									
10												
		9-13-16	29									
15						BORING TERMINATED AT 15'						
20												



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B18**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:

G.S. ELEVATION (ft):

DATE STARTED: 2/3/15

LOCATION: SEE BORING LOCATION PLAN

WATER TABLE (ft): 4.3

DATE FINISHED: 2/3/15

REMARKS:

DATE OF READING: 2/9/2015

DRILLED BY: PM, AD

EST. W.S.W.T. (ft):

TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		1-2-3	5									
		4-4-5	9									
		2-2-3	5	▼								
5		3-5-8	13									
						fine SAND with silt, dark brown, (hardpan) [SP-SM]						
		7-9-9	18									
		10-12-21	33									
10												
		8-10-12	22									
15						BORING TERMINATED AT 15'						
20												

BL3



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, FloridaBORING DESIGNATION: **B19**
SECTION: TOWNSHIP:SHEET: **1 of 1**
RANGE:CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:G.S. ELEVATION (ft):
WATER TABLE (ft): 4.0
DATE STARTED: 2/3/15
DATE FINISHED: 2/3/15
DATE OF READING: 2/9/2015
DRILLED BY: PM, AD
EST. W.S.W.T. (ft):
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		1-2-3	5									
		2-3-4	7									
		1-4-4	8									
5		4-9-9	18				4.3	22.9				
		6-8-9	17			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
		8-10-20	30									
10												
		7-11-13	24									
15						BORING TERMINATED AT 15'						
20												

BL3



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B20**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 1.5
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 1/27/15
DATE FINISHED: 1/27/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT / DAY)	ORG. CONT. (%)
									LL	PI		
0						organic silty fine SAND with root mats, dark brown, (muck) [OH]						
2-3-5		8				fine SAND, grey, [SP]						
4-5-9		14										
4-10-13		23				fine SAND with silt, dark brown, (hardpan) [SP-SM]	3.1	30.5				
9-14-17		31										
13-14-16		30				fine SAND with silt, brown, [SP-SM]						
13-13-15		28										
6-10-13		23				fine SAND with silt, dark brown, (hardpan) [SP-SM]						
15						BORING TERMINATED AT 15'						
20												



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B21**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 0.3
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 1/26/15
DATE FINISHED: 1/26/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						organic silty fine SAND with root mats, dark brown, (muck) [OH]						
1-3-8		11										
10-15-16		31				fine SAND with silt, dark brown, (hardpan) [SP-SM]						
9-13-16		29										
5						BORING TERMINATED AT 5.5'						
10												
15												
20												



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B22**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 0.3
DATE STARTED: 1/27/15
DATE FINISHED: 1/27/15
DATE OF READING: 2/9/2015
DRILLED BY: PM, AD
EST. W.S.W.T. (ft):
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						organic silty fine SAND with root mats, dark brown, (muck) [OH]						
		1-P-P	P									
		2-3-4	7									
						fine SAND with silt, brown, [SP-SM]						
		4-6-7	13			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
5		6-6-8	14									
		6-6-7	13			fine SAND with silt, brown, [SP-SM]						
		5-8-10	18									
						fine SAND with silt, dark brown, (hardpan) [SP-SM]						
10												
		10-14-16	30									
15												
						BORING TERMINATED AT 15' P - DENOTES PENETRATION WITH ONLY THE WEIGHT OF THE DRIVE HAMMER.						
20												

BL3



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B23**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 1.2
DATE STARTED: 1/27/15
DATE FINISHED: 1/27/15
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						organic silty fine SAND with root mats, dark brown, (muck) [OH]						
		2-4-8	12									
		16-17-17	34			fine SAND, grey, [SP]						
		15-15-18	33			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
5		8-10-11	21			fine SAND with silt, brown, [SP-SM]						
		9-9-11	20									
		14-14-14	28			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
10												
		10-11-15	26									
15						BORING TERMINATED AT 15'						
20												



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B24**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 2.4
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 2/6/15
DATE FINISHED: 2/6/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		3-3-3	6									
		3-6-9	15									
		8-16-17	33			fine SAND with silt, dark brown, (hardpan) [SP-SM]						
5		13-14-16	30									
		8-15-15	30									
		13-15-16	31									
10												
		11-18-21	39									
15						BORING TERMINATED AT 15'						
20												



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330.1500003.0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B25**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 3.3
DATE STARTED: 2/5/15
DATE FINISHED: 2/5/15
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT./ DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND, grey, [SP]						
		1-2-2	4									
		3-2-3	5									
						fine SAND with silt, dark brown, (hardpan) [SP-SM]						
		6-8-10	18									
5												
		11-14-16	30									
		13-15-15	30									
		9-14-21	35									
10												
		11-16-20	36									
15						BORING TERMINATED AT 15'						
20												



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0330,1500003,0000

REPORT NO.:

APPENDIX: A

PROJECT: London Cove Commercial & Residential Subdivision
SR 524
Cocoa, Florida

BORING DESIGNATION: **B26**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT:
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 2.5
DATE OF READING: 2/9/2015
EST. W.S.W.T. (ft):
DATE STARTED: 2/6/15
DATE FINISHED: 2/6/15
DRILLED BY: PM, AD
TYPE OF SAMPLING:

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		K (FT. / DAY)	ORG. CONT. (%)
									LL	PI		
0						fine SAND with silt, dark brown, [SP-SM]						
						fine SAND, grey, [SP]						
						fine SAND with silt, dark brown, (hardpan) [SP-SM]						
5						BORING TERMINATED AT 5'						
10												
15												
20												

BL3

EXHIBIT 1

Important Information about Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one—not even you—should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report whose adequacy may have been affected by:* the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/THE BEST PEOPLE ON EARTH exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE THE GEOPROFESSIONAL BUSINESS ASSOCIATION

8811 Colesville Road/Suite G106, Silver Spring, MD 20910

Telephone: 301/565-2733 Facsimile: 301/589-2017

e-mail: info@asfe.org www.asfe.org

Copyright 2012 by ASFE, Inc. Duplication, reproduction, or copying of this document, in whole or in part, by any means whatsoever, is strictly prohibited, except with ASFE's specific written permission. Excerpting, quoting, or otherwise extracting wording from this document is permitted only with the express written permission of ASFE, and only for purposes of scholarly research or book review. Only members of ASFE may use this document as a complement to or as an element of a geotechnical engineering report. Any other firm, individual, or other entity that so uses this document without being an ASFE member could be committing negligent or intentional (fraudulent) misrepresentation.

11GER03135.DMRP