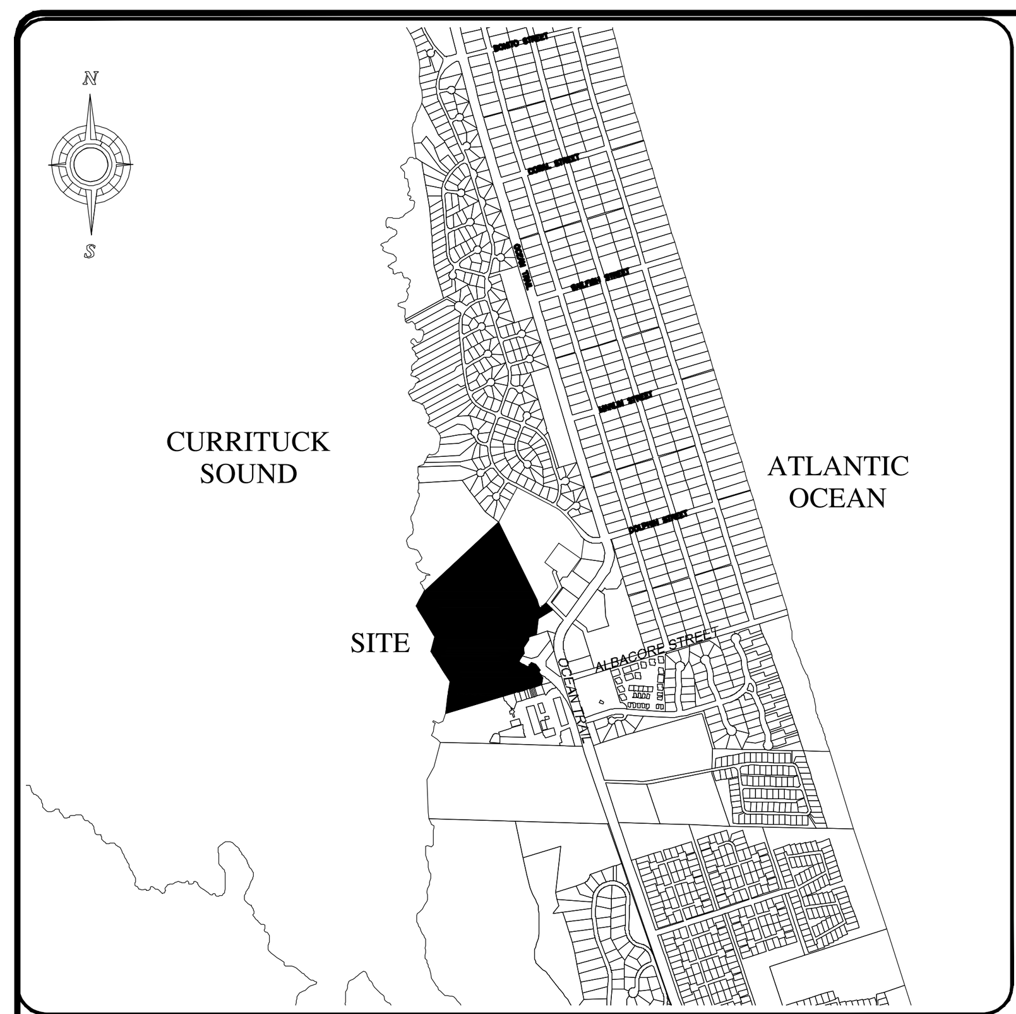

VICINITY MAP
SCALE: 1" = 1000'

GENERAL NOTES:
1. PROJECT NAME: MONTERAY SOUND SHORE

2. OWNER/APPLICANT: OUTER BANKS VENTURES, INC.
P.O. BOX 549
COROLLA, NC 27927

3. PROPERTY DATA:
PARCEL ID#: 0116-0000-010A-0000, 0116-0000-010B-0000 & 0116-0000-010C-0000
PRIMARY ADDRESS: MALIA DRIVE, COROLLA, NC
RECORDED REFERENCES: D.B. 1161, PG. 734, P.C. K, SL. 49
PROPERTY ZONING: SFO-PUD

5. F.I.R.M. DATA:
ZONES X, AE (3') AND SHADED X PER F.E.M.A. F.I.R.M. MAP NUMBER 3721803200 K, EFFECTIVE DATE DECEMBER 21, 2018. USE OF LAND WITHIN A FLOODWAY OR FLOOD PLAIN IS SUBSTANTIALLY RESTRICTED BY CHAPTER 7 OF THE CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE.

AMENDED SKETCH PLANS FOR

COROLLA BOAT CLUB

AMENDMENT FOR DEVELOPMENT OF PHASE 10
POPLAR BRANCH TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

LEGEND

	ROADWAY CENTERLINE
	RIGHT-OF-WAY
	PROPERTY BOUNDARY
	ADJOINING PROPERTY LINE
	EXISTING DITCH CENTERLINE
	EXISTING/PROP DITCH TOP OF BANK
	EXISTING WETLANDS
	EXISTING 404 BOUNDARY
	30' UNDISTURBED BUFFER (COUNTY)
6	EXISTING GRADE CONTOUR
6	PROPOSED GRADE CONTOUR
	EXISTING CULVERT
	PROPOSED CULVERT
	PROPOSED SIDEWALK

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Engineers, Planners, Surveyors and Environmental Specialists

COVER SHEET, DEVELOPMENT NOTES & SITE LOCATION

PROJECT:
COROLLA BOAT CLUB
POPLAR BRANCH TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA
PRELIMINARY ZERO LOT LINE PLAN

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	6/22/21	TRC COMMENTS	KFW
2	8/26/21	UPDATE 404 LINE/P.U.D. CALCS	KFW
3	9/22/21	TRC COMMENTS	KFW
4	9/27/23	DUPLEX PLAN	KFW
5	11/15/23	ARCHITECTURAL FOOTPRINTS	KFW

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

DATE: 6	SCALE: N/A
DESIGNED: BPG	CHECKED: MSB
DRAWN: KFW	APPROVED: BPG

SHEET: 1 OF 6
CAD FILE: 459600AS2
PROJECT NO: 4596

NC GRID NAD83
CURRITUCK SOUND
N/F
MONTERAY SHORES OWNERS ASSOCIATION
D.B. 343, PG. 323
P.C. D, SL. 54
404 WETLAND LIN (2017)
LOT 3
684296 S.F.
15.71 AC. TOTAL
(EXCLUDING SUBMERGED LAND)
629143 S.F.
14.44 AC. NET
CAMA AREA:
9.15 AC.±
NON-CAMA AREA:
27.04 AC.±
LOT 2
436036 S.F.
10.01 AC.
LOT 1
437957 S.F.
10.05 AC.
N/F
CAROLINA WATER SERVICES INC. OF NC & ROBERT R. DeGABRIELLE
D.B. 1024, PG. 31
P.C. K, SL. 49
CLUBHOUSE
EXISTING HERITAGE LIVE OAK
(TO BE PROTECTED)
EXISTING 24" HERITAGE OAK
(TO BE PROTECTED)
UTILITY EASEMENT
PER PC K, SL 50
CAROLINE CT.
(40' R/W)
EXISTING POND
TO BE REMOVED
N/F
G HOLDINGS LLC
D.B. 1128, PG. 943
P.C. L, SL. 109
COROLLA ADVENTURE GOLF
N/F
NC DEPT. OF TRANSPORTATION
D.B. 989, PG. 469
N/F
GOLASA HOLDINGS LLC
D.B. 1430, PG. 6
MALIA DR. (50' R/W)
N/F
B&B PARTNERS LLC
D.B. 1111, PG. 881
N/F
NC DEPT. OF TRANSPORTATION
D.B. 376, PG. 690
OCEAN TRAIL
SUNSET BLVD.
SANITARY FORCE MAIN VALVE BOX
CURRITUCK CO. STORMWATER EASEMENT
PER DB 1135, PG 302
TIMBUCK II SHOPPING CENTER
N/F
JOHN & CHRISTINE RZESZUT
DB 489, PG. 123
N/F
MARY & DENNIS UMBERGER
DB 519, PG. 778
N/F
JOHN & CHRISTINE RZESZUT
DB 937, PG. 920
N/F
PEACEFUL ENDEAVORS, LLC
DB 1235, PG. 357
N/F
WILD GOOSE WINE BAR, LLC
DB 1645, PG. 725
N/F
JOHN & CHRISTINE RZESZUT
DB 937, PG. 920
Cu
Os
CoB
NhC
CrB
GRAPHIC SCALE
1" = 80'

SOILS LEGEND

- - - -	SOILS LINE
CoB	COROLLA FINE SAND
CrB	COROLLA-DUCKSTON COMPLEX
Cu	CURRITUCK MUCKY PEAT
NhC	NEWHAN-COROLLA COMPLEX
Os	OSIER FINE SAND
W	WATER

LINE TABLE

LINE	LENGTH	BEARING
L1	57.93	N37° 34' [illegible]
L2	54.23	S65° 23' [illegible]
L3	72.84	S36° 53' [illegible]
L4	24.88	S24° 21' [illegible]

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Engineers, Planners, Surveyors and Environmental Specialists

EXISTING CONDITIONS & SITE FEATURES MAP

PROJECT

COROLLA BOAT CLUB

POPLAR BRANCH TOWNSHIP — CURRITUCK COUNTY — NORTH CAROLINA

PRELIMINARY ZERO LOT LINE PLAN

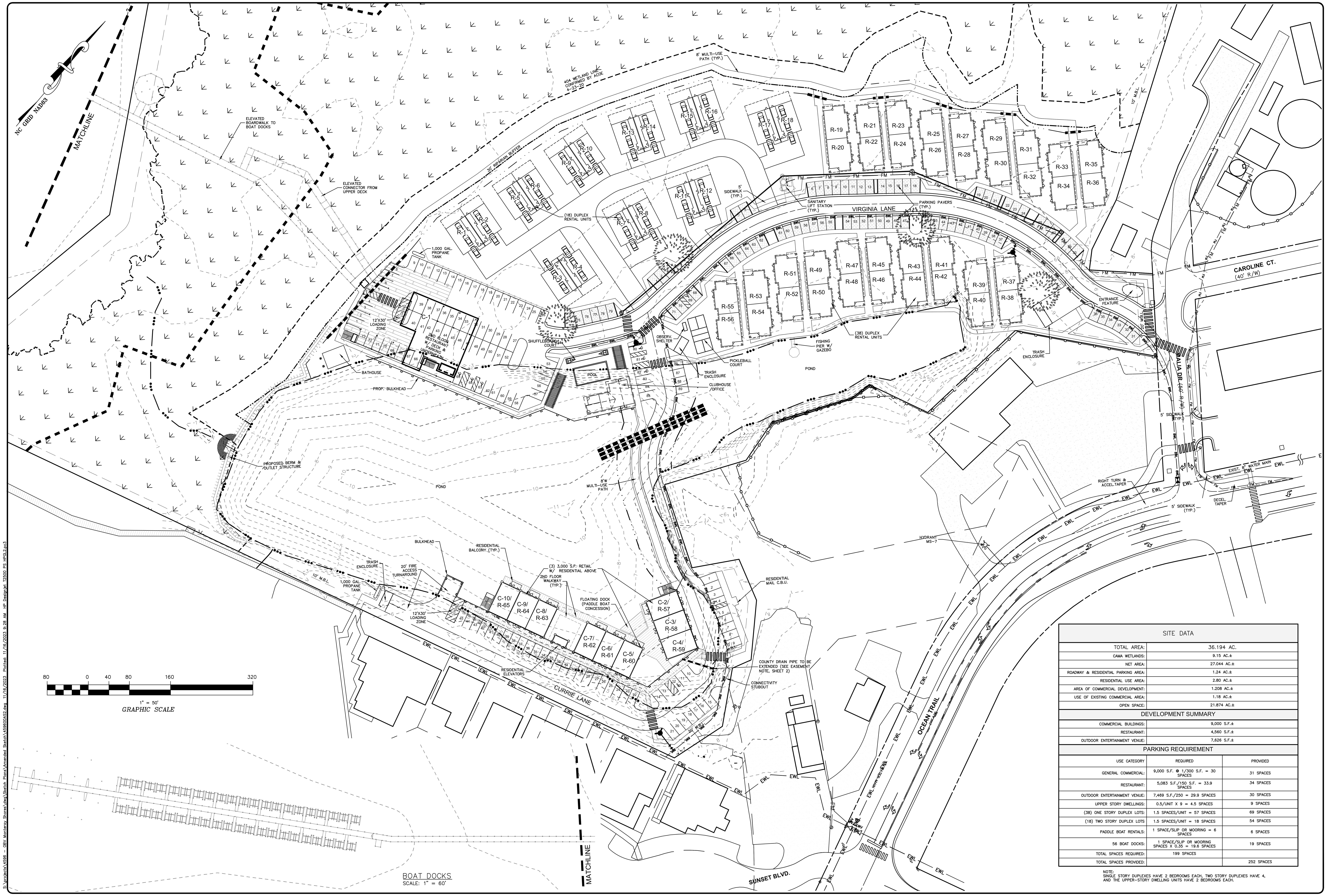
REVISIONS

NO.	DATE	DESCRIPTION	BY

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

DATE: 5-27-21	SCALE: 1"=80'
DESIGNED: BPG	CHECKED: MSB
DRAWN: KFW	APPROVED: BPG

SHEET: 2 OF 6
CAD FILE: 459600AS2
PROJECT NO: 4596



SITE DATA

TOTAL AREA:	36.194 AC.
CAMA WETLANDS:	9.15 AC.±
NET AREA:	27.044 AC.±
ROADWAY & RESIDENTIAL PARKING AREA:	1.24 AC.±
RESIDENTIAL USE AREA:	2.80 AC.±
AREA OF COMMERCIAL DEVELOPMENT:	1.208 AC.±
USE OF EXISTING COMMERCIAL AREA:	1.18 AC.±
OPEN SPACE:	21.874 AC.±

DEVELOPMENT SUMMARY

COMMERCIAL BUILDINGS:	9,000 S.F.±
RESTAURANT:	4,560 S.F.±
OUTDOOR ENTERTAINMENT VENUE:	7,626 S.F.±

PARKING REQUIREMENT

USE CATEGORY	REQUIRED	PROVIDED
GENERAL COMMERCIAL:	9,000 S.F. @ 1/300 S.F. = 30 SPACES	31 SPACES
RESTAURANT:	5,083 S.F./150 S.F. = 33.9 SPACES	34 SPACES
OUTDOOR ENTERTAINMENT VENUE:	7,469 S.F./250 = 29.9 SPACES	30 SPACES
UPPER STORY DWELLINGS:	0.5/UNIT X 9 = 4.5 SPACES	9 SPACES
(38) ONE STORY DUPLEX LOTS:	1.5 SPACES/UNIT = 57 SPACES	69 SPACES
(18) TWO STORY DUPLEX LOTS	1.5 SPACES/UNIT = 18 SPACES	54 SPACES
PADDLE BOAT RENTALS:	1 SPACE/SLIP OR MOORING = 6 SPACES	6 SPACES
56 BOAT DOCKS:	1 SPACE/SLIP OR MOORING SPACES X 0.35 = 19.6 SPACES	19 SPACES
TOTAL SPACES REQUIRED:	199 SPACES	
TOTAL SPACES PROVIDED:		252 SPACES

NOTE:
SINGLE STORY DUPLEXES HAVE 2 BEDROOMS EACH, TWO STORY DUPLEXES HAVE 4, AND THE UPPER-STORY DWELLING UNITS HAVE 2 BEDROOMS EACH.

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MIXED USE DEVELOPMENT
LAYOUT & CONCEPTUAL PLAN

PROJECT:
COROLLA BOAT CLUB
POPLAR BRANCH TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

PRELIMINARY ZERO LOT LINE PLAN

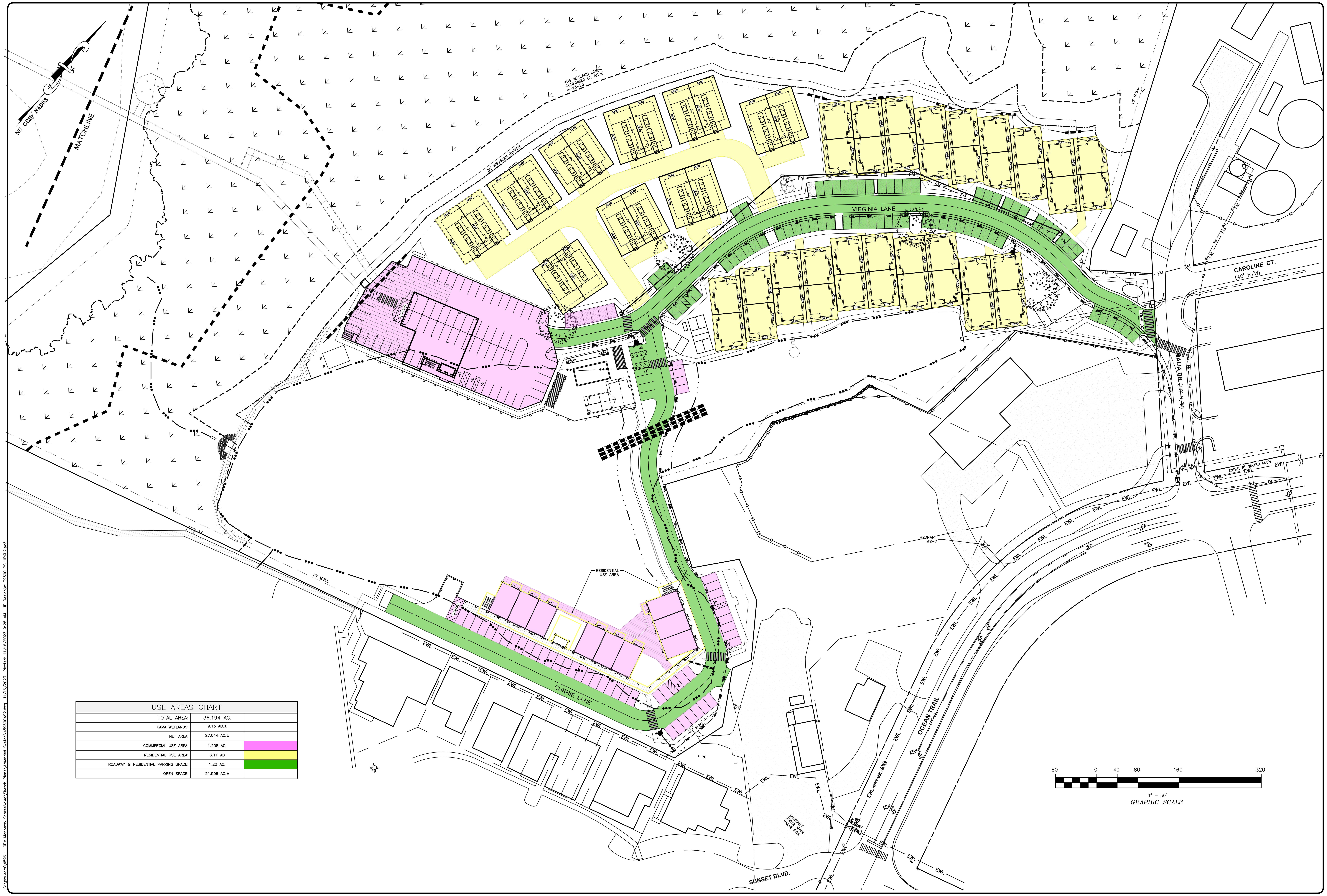
REVISIONS

NO.	DATE	DESCRIPTION	BY
1	6/22/21	TRC COMMENTS	KFW
2	7/22/21	REVISED 404 LINES & DOCKS	KFW
3	8/26/21	ADD TOWNHOME LOTS	KFW
4	9/22/21	TRC COMMENTS	KFW
5	8/12/22	TOWNHOME ARCHITECTURALS	KFW
6	9/21/23	DUPLEX PLAN	KFW
7	11/15/23	ARCHITECTURAL FOOTPRINTS	KFW

PRELIMINARY DO NOT USE FOR CONSTRUCTION

DATE: 5-27-21	SCALE: 1"=50'
DESIGNED: BPG	CHECKED: MSB
DRAWN: KFW	APPROVED: BPG

SHEET: 3 OF 6
CAD FILE: 459600AS2
PROJECT NO: 4596



USE AREAS CHART		
TOTAL AREA:	36.194 AC.	
CAMA WETLANDS:	9.15 AC.±	
NET AREA:	27.044 AC.±	
COMMERCIAL USE AREA:	1.208 AC.	
RESIDENTIAL USE AREA:	3.11 AC	
ROADWAY & RESIDENTIAL PARKING SPACE:	1.22 AC.	
OPEN SPACE:	21.506 AC.±	

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DEVELOPMENT USE

OVERVIEW PLAN

PROJECT:

COROLLA BOAT CLUB

POPLAR BRANCH TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

PRELIMINARY ZERO LOT LINE PLAN

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	6/22/21	TRC COMMENTS	KFW
2	8/26/21	TOWNHOME LOTS	KFW
3	9/22/21	TRC COMMENTS	KFW
4	9/21/23	DUPLEX PLAN	KFW
5	11/15/23	ARCHITECTURAL FOOTPRINTS	KFW

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

DATE: 5-27-21
SCALE: 1"=50'
DESIGNED: BPG
CHECKED: MSB
DRAWN: KFW
APPROVED: BPG
SHEET: 4 OF 6
CAD FILE: 459600AS2
PROJECT NO: 4596

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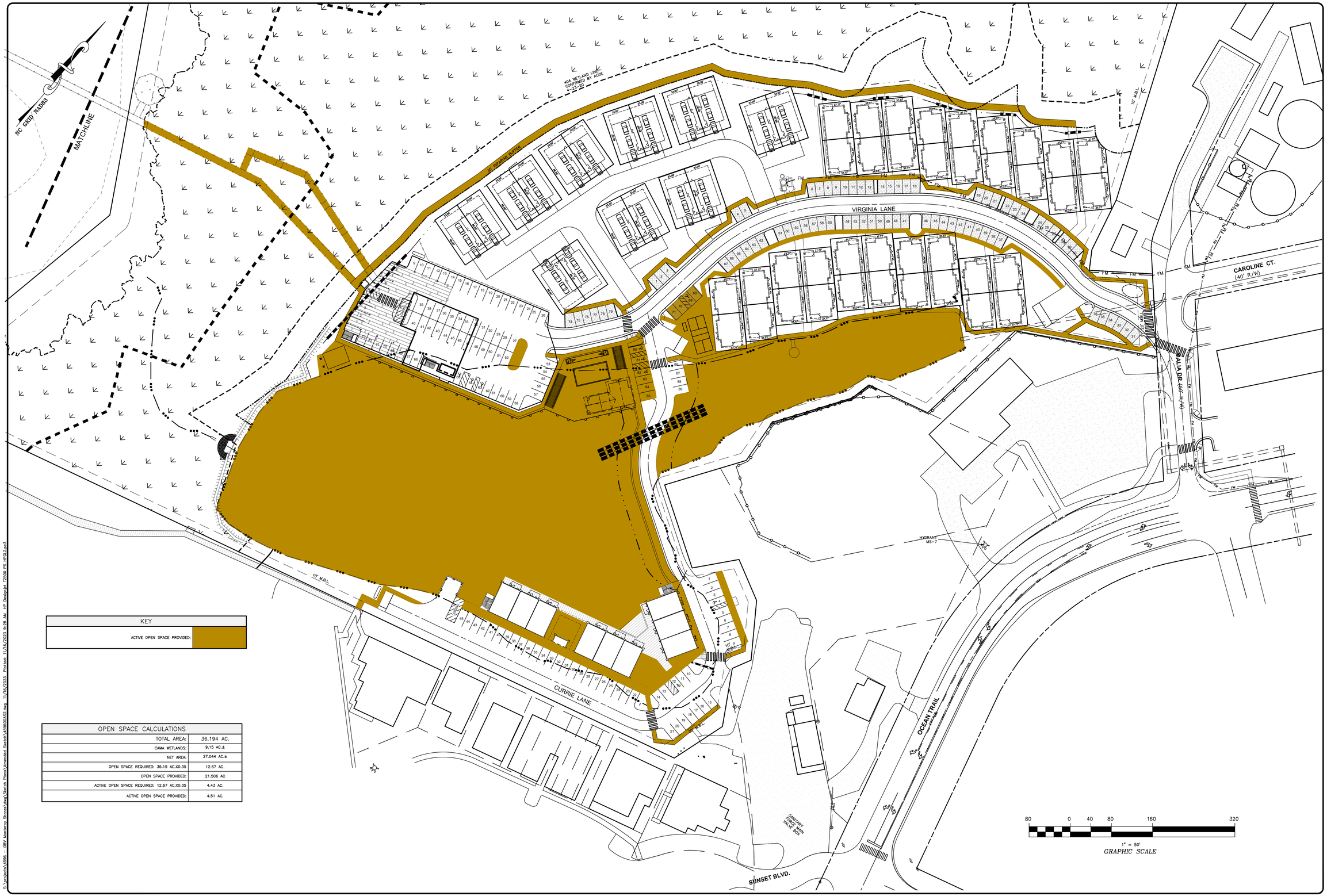

KEY	
ACTIVE OPEN SPACE PROVIDED:	

OPEN SPACE CALCULATIONS	
TOTAL AREA:	36.194 AC.
CAMA WETLANDS:	9.15 AC.±
NET AREA:	27.044 AC.±
OPEN SPACE REQUIRED: 36.19 AC.X0.35	12.67 AC.
OPEN SPACE PROVIDED:	21.506 AC
ACTIVE OPEN SPACE REQUIRED: 12.67 AC.X0.35	4.43 AC.
ACTIVE OPEN SPACE PROVIDED:	4.51 AC.

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DEVELOPMENT OPEN SPACE PLAN

PROJECT:
COROLLA BOAT CLUB
POPLAR BRANCH TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

PRELIMINARY ZERO LOT LINE PLAN

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	11/15/23	ARCHITECTURAL FOOTPRINTS	KFW

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

DATE: 9/21/23	SCALE: 1"=50'
DESIGNED: BPG	CHECKED: MSB
DRAWN: KFW	APPROVED: BPG
SHEET: 5 OF 6	
CAD FILE: 459600AS2	
PROJECT NO: 4596	

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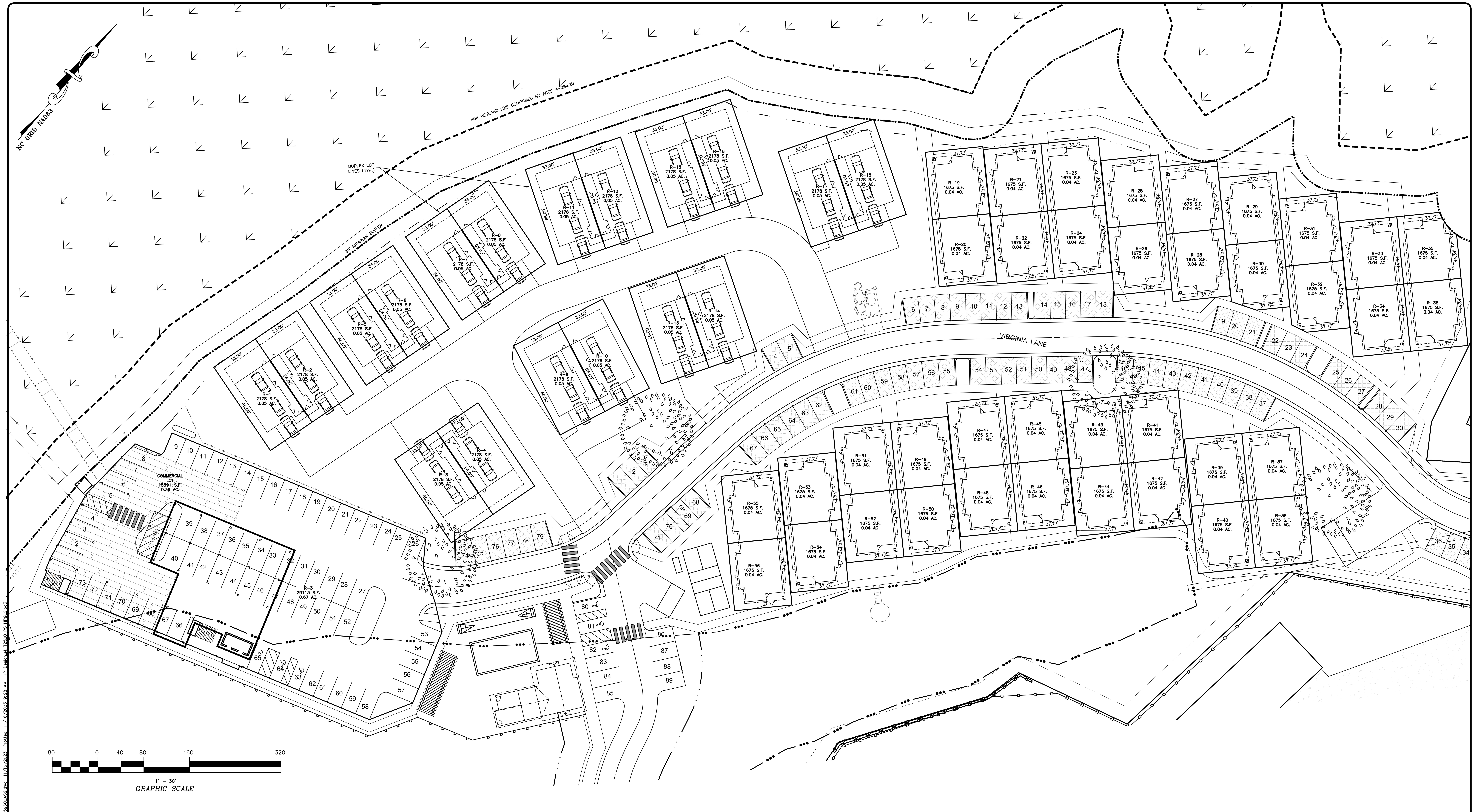

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MIXED USE DEVELOPMENT
DUPLEX LOTS PLAN

PROJECT:
COROLLA BOAT CLUB
POPLAR BRANCH TOWNSHIP | CURRITUCK COUNTY | NORTH CAROLINA

PRELIMINARY ZERO LOT LINE PLAN

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	11/15/23	ARCHITECTURAL FOOTPRINTS	KFW

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

DATE: 5-27-21	SCALE: 1"=30'
DESIGNED: BPG	CHECKED: MSB
DRAWN: KFW	APPROVED: BPG

SHEET: 6 OF 6
CAD FILE: 459600AS2
PROJECT NO: 4596

STORMWATER REVIEW

PROPOSED CONDITIONS OF APPROVAL

1. This pond is a regional device that accepts off-site drainage and pumped water from the surrounding area in addition to the proposed development. Previous failure of the pond dam has been documented by the County with the current outlet structure configuration installed as a repair. Flows from the pond are directed toward a coastal wetland, which will be negatively impacted by dam failure. Therefore, the following will be required as conditions of approval for this special use permit to minimize the risk of dam failure:
    a. The dam width shall be increased to at least 7 feet to allow for truck access for maintenance.
    b. Geotechnical specifications shall be provided for the modifications to the pond dam.
    c. Flows for the 10 and 25-year storms shall be contained to a hardened outlet structure.
    d. No greater than 1-foot of flow shall be allowed over the earthen portions of the dam in the 100-year storm.

Currituck County has already issued as construction apporval for this low berm as designed.

2. Treat areas with increased density with stormwater control measure (SCMs) that promote infiltration to reduce the flows to the existing pond.

While we do not disagree that this is a worthwhile consideration, the UDO does not mandate such measures, and modeling has been providedshowing that all water sources are accommodated.

GENERAL COMMENTS

3. Please note a complete copy of the Major Stormwater Plan Form SW-002 will be required for Major Subdivision approval when moving toward construction drawings.
4. Please note that the site is located in the Outer Banks Stormwater Management Zone and will need to comply with those requirements.
5. Please provide a copy of the CAMA Permit when received.
6. Please provide a copy of the NCDEQ approval of use of the existing pond as a sediment basin when moving toward construction drawings.
7. Portions of the site are located within the FEMA Zone AE. Documentation of the finished floor elevations and regulatory flood protection elevations and associated calculations will be required when moving toward construction drawings. Requirements are listed in Chapters 7.3 and 7.4 of the UDO.
8. Consider incorporating SCMs throughout the site that promote infiltration such as permeable pavement to reduce flows to the existing pond.
9. Sheet 5 – Amended Sketch Plans – Any associated permits for wetland and shoreline impacts for the boardwalk/gazebo should be provided prior to approval of construction drawings.
10. Sheet 5 – Amended Sketch Plans – Updates to the calculations for the pond analysis will be required when moving toward construction drawings. Calculations should include accounting for the loss of volume in the exiting pond due to the new proposed roadway that crosses the pond and sizing for the culverts under the proposed roadway.

All comments are acknowledged, and will be addressed at the next atage of the review process.

Currituck County
Department of Planning and Community Development
153 Courthouse Road, Suite 110
Currituck, North Carolina 27929
252-232-3055
FAX 252-232-3026

MEMORANDUM

To: Rick Willis, Outer Banks Ventures, Inc.
Mark Bissell, P.E. Bissell Professional Group

From: Jennie Turner, Senior Planner

Date: October 12, 2023 Response dated 11-16-23

Re: PB 87-56 Monteray Shores, Phase 10 – Corolla Boat Club
Amended Sketch Plan/Special Use Permit
Marina Special Use Permit

Planning, Jennie Turner 252-232-6031
Reviewed
The application is incomplete, provide architectural elevations for clubhouse, restaurant, commercial buildings over pond, multi-story duplex buildings and any other proposed buildings or structures.

The following comments were received at the October 11, 2023 TRC meeting. Please address all comments and resubmit a corrected plan as necessary. TRC comments are valid for six months from the date of the TRC meeting. To be considered for placement on the December 18, 2023 Board of Commissioners meeting agenda, please resubmit an updated plan and documents for application completeness by noon on October 26, 2023.

The requested Amended Sketch Plan/Special Use Permit application proposes uses that need special use permit approval in a Planned Unit Development. Based on the application, the marina special use permit is part of this application. Any additional outdoor recreation or outdoor tour operator uses (including paddle boat rentals and outdoor entertainment venue) will require subsequent special use permit approval prior to initiating the use.

1. The applicant is responsible for providing evidence that the application meets the four findings of fact required for the Board of Commissioners to approve a special use permit.
2. Please provide the traffic analysis referenced in the application. This is being submitted under separate cover.
3. Please provide any correspondence with NCDOT regarding use of the adjacent parcel/right of way.
4. Existing parcels may need to be recombined. This will be done prior to approval.
5. Description on sheet 1 of 7 of construction drawings states a 6-lot subdivision and 25-unit townhome development, please correct. Submitted paper plans show proposed townhomes. Electronic plans show the prior layout, please correct. The building mix has now been completely updated on the new plan set.
6. Amended Sketch Plan sheet 2 of 6 existing conditions plan appears to show proposed building footprints. This has been corrected.

7. Amended Sketch Plan sheet 1 of 1 shows prior approved layout. Please update to include proposed layout. The plan has been updated.
8. The application states that community compatibility standards will be adhered to, please describe what this means. Are you proposing that meeting community compatibility standards is a proposed condition of approval? The UDO does not require the project to meet the community compatibility standards. We will revise that proposed condition.
9. Please review non-residential design standards for multi-building development. Describe how the proposed development meets at least 2 of the required design elements. Please refer to the attached new architectural elevations.
10. For improved design and traffic flow, is it feasible to centralize the buildings to reduce the number of driveways and overall driveway/parking area? A new driveway has been added to improve flow to the multi-story duplexes.
11. Please shown the county's easement over the pond. *It is critical to the county that any proposed changes to the existing pond will not adversely affect the existing easement (including pond level rise) the county holds over the pond and stormwater pipe for the ground water that is directed to the pond.*
    As referenced in Deed Book 1135, Page 302 "(i) a perpetual right and easement to convey and discharge groundwater associated with the Whalehead Watershed Improvement District into the pond shown and more particularly described on that plat recorded at Plat Cabinet K, Slide 50 of the Currituck County Registry" The easement has been added.
12. Areas proposed for commercial designation should include any required supporting features (ex: drive aisles, paddle boat rental docks, decking, parking lot islands). All commercial activities must be located within areas designated as commercial on the sketch plan. According to the UDO, upper story dwelling units in PUDs are required to be in areas designated commercial, this includes required supporting features. An updated land use designation sheet has been provided.
13. Please provide a detailed phasing plan. The phasing is still being determined; would like to discuss further.
14. Provide architectural building elevations for clubhouse, restaurant, commercial buildings over pond, and multi-story duplex buildings. Please consider incorporating elements of the multi-family design standards and building placement standards for a more creative design. The original purpose of PUDs was to promote a more efficient use of the land, a higher level of amenities and more creative design than would otherwise be possible. New elevation drawings are included for all principal buildings..
15. Non-residential design standards apply to the commercial and mixed-use portions of the development. Acknowledged; we believe these have been addressed.
16. Provide additional information on number of bedrooms in each of the proposed duplexes and upper story dwelling units. A notation has been added (sheet 3).
17. Per Section 1.8.6.B.2 of the UDO a special use permit for outdoor recreation/entertainment uses (marina, paddle boat rental, outdoor entertainment venue) in PUDs. This amended sketch plan/special use permit request may result in relocation of permissible commercial development area; however, to establish outdoor recreation/entertainment uses, special use permit applications will be required. This is acknowledged.
18. If this project will be developed as a zero lot line development, major site plan approval is required. Please confirm if this is the proposed development method. Yes; this will be the development method.

19. Provide detailed plan and table clearly showing commercial, mixed-use, residential, and open space areas. Provide active recreation open space. New sheets and tabulations have been provided.
20. Please describe the entrance area feature. This is intended to be a waterfall; more detail will be provided at the site plan review.
21. Provide approved wetland delineation for CAMA and Army Corps regulated wetlands. These are being provided.
22. Provide information on wastewater availability. A new allocation is being provided.
23. Malia Drive must meet NCDOT construction standards. Agreed.
24. Heritage Tree and Tree Protection ordinance applies. No heritage tree removal is being proposed.
25. Show all proposed parking for residential units. Duplexes require 1.5 spaces per dwelling unit. A new parking allocation is included.
26. UDO Section 3.2.2.3 requires unified control for a zero-lot line development. Please submit documentation including association's bylaws, and all documents governing ownership, maintenance and use restrictions. These will be provided at the next stage of review.
27. Provide general parking schedule and review preferred parking locations. A new parking allocation is included.
28. A loading space is required, please label. Added to the plan.
29. Please label fire access turnaround. Label has been added.
30. Please confirm all proposed improvements and duplex lots are outside of the required riparian buffer and that any proposed development in the buffer is in accordance with UDO Section 7.6.5. We believe this plan is in compliance.
31. Staff suggests a scoping meeting with the Division of Coastal Management and other review agencies regarding the CAMA Major Permit needed for pier/boat slips/gazebo prior to this application being heard by the Board of Commissioners. Please provide an update on conversations with DCM regarding permitting of the proposed marina.
32. Please describe in detail the proposed operation of the marina, including whether it is transient or permanent. Where will boats launch? Are tour operations proposed from marina? If so, additional special use permits may be required. Where will bathrooms associated with this use be provided? Will all owners and guests of the site be afforded access to the pier and marina? Is it possible to add kayak launches? Additional information is forthcoming.
33. Are the physical dimensions and characteristics of the water body compatible with the size of marina and types of vessels it will house? Describe the types of boats that will use the facility. Additional information is forthcoming.
34. The marina narrative indicates no fueling – where will boats obtain fuel? Additional information is forthcoming.
35. What are the impacts of the marina on the adjacent shoreline, either developed or undeveloped? No impacts are foreseen.
36. Provide proposed timing of marina construction and operation and availability of facilities, including parking and bathrooms. Additional information is forthcoming.
37. Show proposed parking for the marina and any uses that may be proposed to be operated from the pier. Per the UDO, a marina requires one parking space per slip or mooring. The TIA suggests proposed parking at the rate of 0.35 space per slip.
38. Marinas are defined by the UDO as "Any publicly or privately owned dock, basin or wet boat storage facility constructed to accommodate more than ten boats and providing any of the following services: permanent or transient docking spaces, dry storage, fueling facilities, haul out facilities and repair service. Excluded from this definition are boat

ramp facilities allowing access only, temporary docking and none of the preceding services. Marinas for ten boats or less shall be classified as privately owned outdoor recreation facilities." The following specific standards of the UDO apply to marinas.

Marinas

Marinas shall be certified as a "clean marina" as part of the North Carolina Clean Marina Program, and shall comply with the following standards:

(a) **Location**

(i) Marinas shall be located in areas where there is a high rate of water "turnover" (the time required for tidal action or water flow to replace water of a boat basin with new water from another source).

(ii) Marinas in upland areas shall be encouraged.

(iii) Marina access channels shall be designed to maximize circulation and avoid dead-end spots.

(iv) Proposals for marina development shall be accompanied by a modeling study indicating expected flushing, where applicable.

(b) **Design**

(i) Marinas shall be planned in such a manner as to minimize the risk of water pollution.

(ii) Marina designs must incorporate facilities for the proper handling of sewage, waste, and refuse.

(iii) Marinas shall minimize alteration of existing shoreline configurations and disturbance of vital habitat areas.

(c) **Dredging**

(i) Dredging operations shall not occur during critical periods of fish migration and breeding.

(ii) The method of dredging shall be chosen that will have the least environmental impact, and all dredged materials shall be placed in a manner so as not to pollute surrounding areas.

Currituck County Building Inspections & Fire, Rick Godsey 252-232-6020

We would like to meet and further discuss these comments.

-Will need accessible boat lifts, number to be determined by total number of berths.
-Standpipe required for marina in accordance with NFPA 303.
-Phone or approved communication device to notify fire department required.
-Pier shall be provided with fire apparatus access road and hydrant.
Watch for needed turnaround for fire apparatus.
No parking signs required.
CMU must be on accessible route.
Accessible routes must be provided to all amenities.

Stormwater Review, (McAdams, Stormwater Consultant)
Reviewed
1. See attached.

Currituck County Soil & Stormwater, Dylan Lloyd 252-232-3360
Reviewed
1) Path of swale is too close to units R-21 and R-18 and could conflict with slope or cause foundation issues. Plan has been updated.
2) Show any pond shoreline changes more clearly – it appears to go underneath the foundation of R-42 This has been corrected.
3) Show where the existing county drain pipe is to be extended to. This is shown on sheet 3.
4) Outlet protection at west end of pond and show if fill will be used. This is also shown on sheet 3.

Currituck County Water & Wastewater, Will Rumsey 252-232-6065
Reviewed
Water plans are good.

Southern Outer Banks Water, Jim Williams, 252- 453-2620
No comment

Southern Outer Banks Water, Cody Edwards, 252- 453-2620
No comment

Albemarle Regional Health Services, Kevin Carver, 252-232-6603
No comments received.

US Army Corps of Engineers, Anthony Scarbraugh 919-251-4619
Reviewed
Any impacts to jurisdictional waters or wetlands of the US require prior approval from the US Army Corps of Engineers.

Currituck County GIS, Harry Lee 252-232-2034
Reviewed
Are Parcels 0116000010B0000 and 0116000010A0000 going to be recombined prior to development? Yes.
What is the name of the street accessing the retail units? Currie Lane
Addresses will be assigned by GIS during review of the final plat or major site plan whichever is required. Okay.

NC DEQ- Division of Coastal Management, Rachel A Love-Adrick, 252-515-5403
Reviewed
If the applicant has not already they will need to contact Martin Mitchell in the DCM Elizabeth City Office regarding the necessity of a CAMA permit.

NCDOT, Caitlin Spear, 252-331-4737
No comments received.

US Post Office
Contact the local post office for mail delivery requirements.

The following items are necessary for resubmittal:

- 2 - Full size copies of revised plans.
- 1- 8.5"x11" copy of all revised plans.
- 1- PDF digital copy of all revised documents and plans.

A special use permit hearing is an evidentiary hearing where the Board of Commissioners must make a Quasi-Judicial Decision.

- An evidentiary hearing will be held for the Board of Commissioners to gather competent, material and substantial evidence to establish the facts of the case.
- All testimony is made under oath.
- The applicant or opposing parties shall establish written findings of fact and conclusions of law.
- Parties with standing may participate fully in the evidentiary hearing, including presenting evidence, cross-examining witnesses, objecting to evidence, and making legal arguments.
- Non-parties may present competent, material, and substantial evidence that is not repetitive.

Typical Use Permit (Quasi-Judicial) Hearing at BOC

- Swearing in of witnesses/speakers
- Presentation by County Staff on Application
- Required Presentation by Applicant or Authorized Agent (20-25 minutes)
    - Applicant to Present Findings of Fact
- Public Comment Period (typically 3 minutes each)
- Applicant Rebuttal (typically 5 minutes)
- BOC Deliberation & Decision

October 9, 2023

Donna Voliva
Currituck Historic Courthouse
153 Courthouse Road
Suite 110
Currituck, North Carolina 27929

RE: Currituck County Stormwater Development Review - 0SPEC23074.00
Corolla Boat Club (Monteray Shores PUD) – Phase 10A
Parcel IDs: 0116-000-0010A-0000, 0116-000-0010B-0000, 0116-000-0010C-0000
Outer Banks Stormwater Management Zone
Major Subdivision – Amended Sketch Plan/Special Use Permit
Review 1

Dear Ms. Voliva,

McAdams has reviewed the above-referenced project that was received on October 1, 2023 and reviewed on October 9, 2023. The project has been reviewed for conformance with:

- The Currituck County Code of Ordinances
- Chapter 7.3 – Stormwater Management, Chapter 7.4 – Flood Damage Prevention, Chapter 7.6 – Riparian Buffers, and Chapter 7.7 – Protection of Significant Dunes of the Unified Development Ordinance
- The Currituck County Stormwater Manual

The project has been reviewed and proposed conditions of approval and stormwater comments are detailed on the following page. Markups to the amended sketch plan are attached.

Sincerely,
MCADAMS

Daniel Wiebke PE, CFM
Project Manager, Water Resources

Kathleen Balaze, EI
Assistant Project Manager, Water Resources

621 Hillsborough Street, Suite 500, Raleigh, NC 27603 / 919. 361. 5000

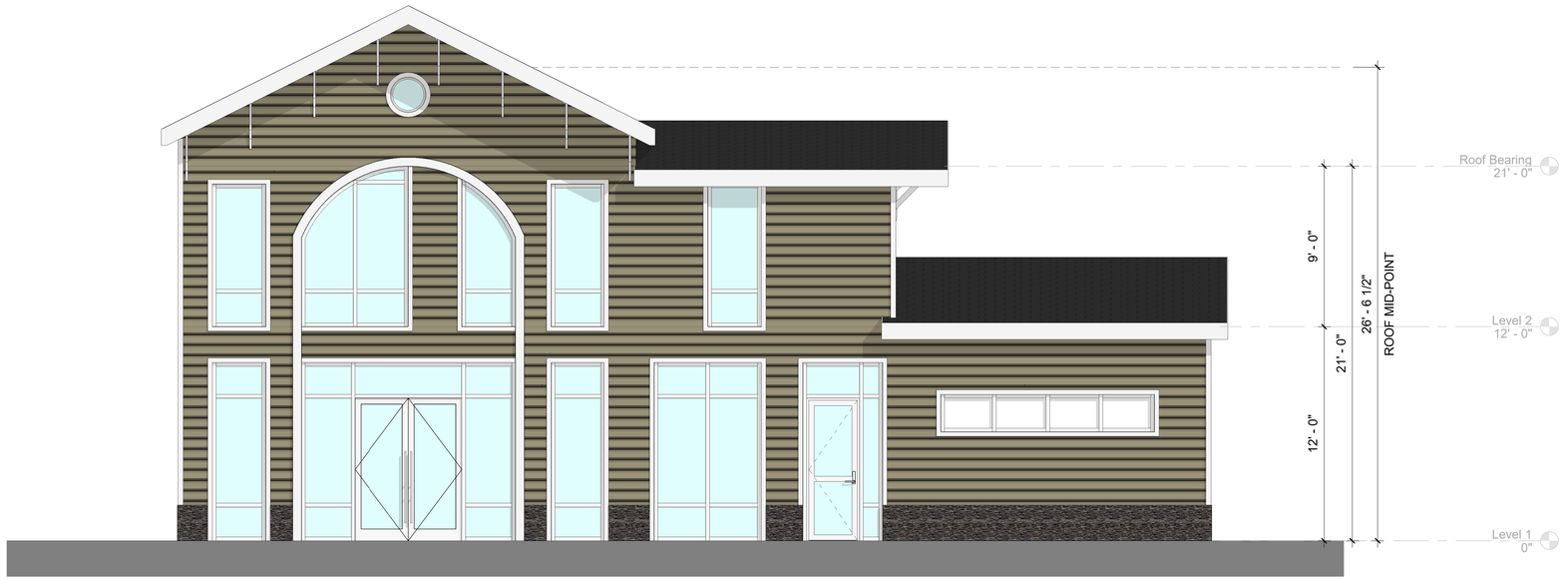
STORMWATER REVIEW

PROPOSED CONDITIONS OF APPROVAL

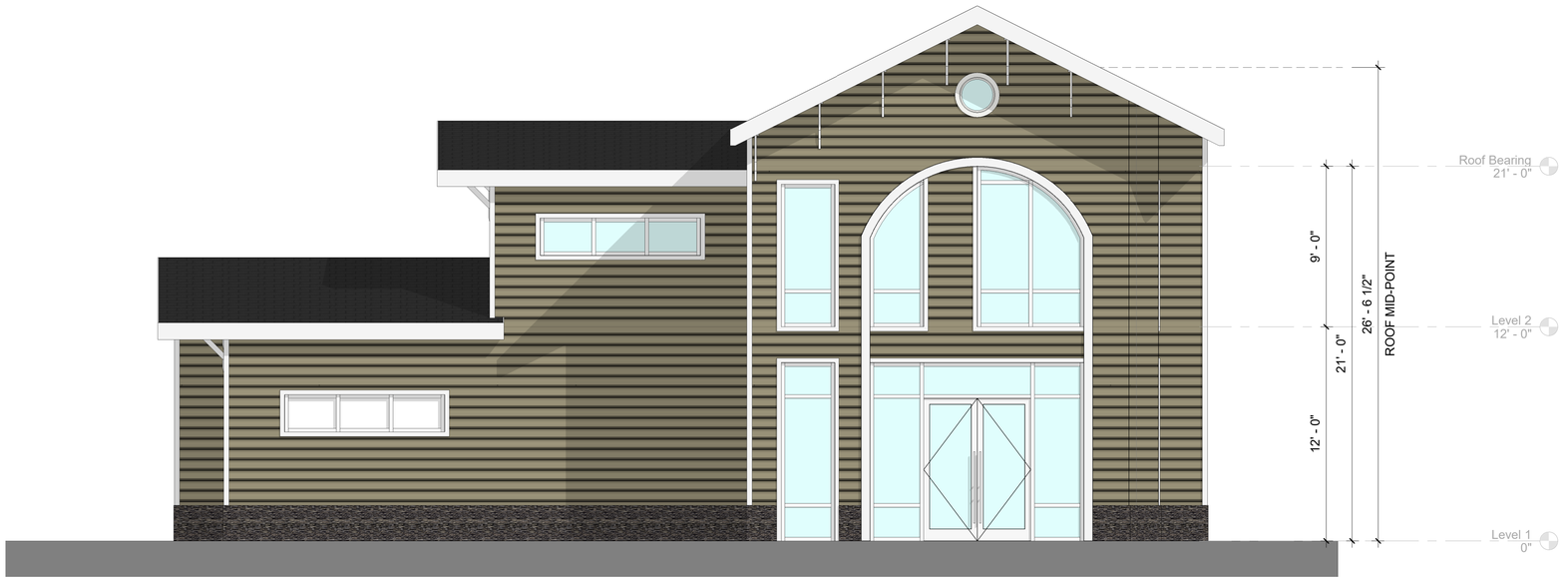
1. This pond is a regional device that accepts off-site drainage and pumped water from the surrounding area in addition to the proposed development. Previous failure of the pond dam has been documented by the County with the current outlet structure configuration installed as a repair. Flows from the pond are directed toward a coastal wetland, which will be negatively impacted by dam failure. Therefore, the following will be required as conditions of approval for this special use permit to minimize the risk of dam failure:
    a. The dam width shall be increased to at least 7 feet to allow for truck access for maintenance.
    b. Geotechnical specifications shall be provided for the modifications to the pond dam.
    c. Flows for the 10 and 25-year storms shall be contained to a hardened outlet structure.
    d. No greater than 1-foot of flow shall be allowed over the earthen portions of the dam in the 100-year storm.
2. Treat areas with increased density with stormwater control measure (SCMs) that promote infiltration to reduce the flows to the existing pond.

GENERAL COMMENTS

3. Please note a complete copy of the Major Stormwater Plan Form SW-002 will be required for Major Subdivision approval when moving toward construction drawings.
4. Please note that the site is located in the Outer Banks Stormwater Management Zone and will need to comply with those requirements.
5. Please provide a copy of the CAMA Permit when received.
6. Please provide a copy of the NCDEQ approval of use of the existing pond as a sediment basin when moving toward construction drawings.
7. Portions of the site are located within the FEMA Zone AE. Documentation of the finished floor elevations and regulatory flood protection elevations and associated calculations will be required when moving toward construction drawings. Requirements are listed in Chapters 7.3 and 7.4 of the UDO.
8. Consider incorporating SCMs throughout the site that promote infiltration such as permeable pavement to reduce flows to the existing pond.
9. Sheet 5 – Amended Sketch Plans – Any associated permits for wetland and shoreline impacts for the boardwalk/gazebo should be provided prior to approval of construction drawings.
10. Sheet 5 – Amended Sketch Plans – Updates to the calculations for the pond analysis will be required when moving toward construction drawings. Calculations should include accounting for the loss of volume in the exiting pond due to the new proposed roadway that crosses the pond and sizing for the culverts under the proposed roadway.



1 / A403 **South Elevation**
1/4" = 1'-0"



2 / A403 **North Elevation**
1/4" = 1'-0"

PLOT DATE: 11/15/2023 3:05:35 PM

No.	DESCRIPTION	DATE

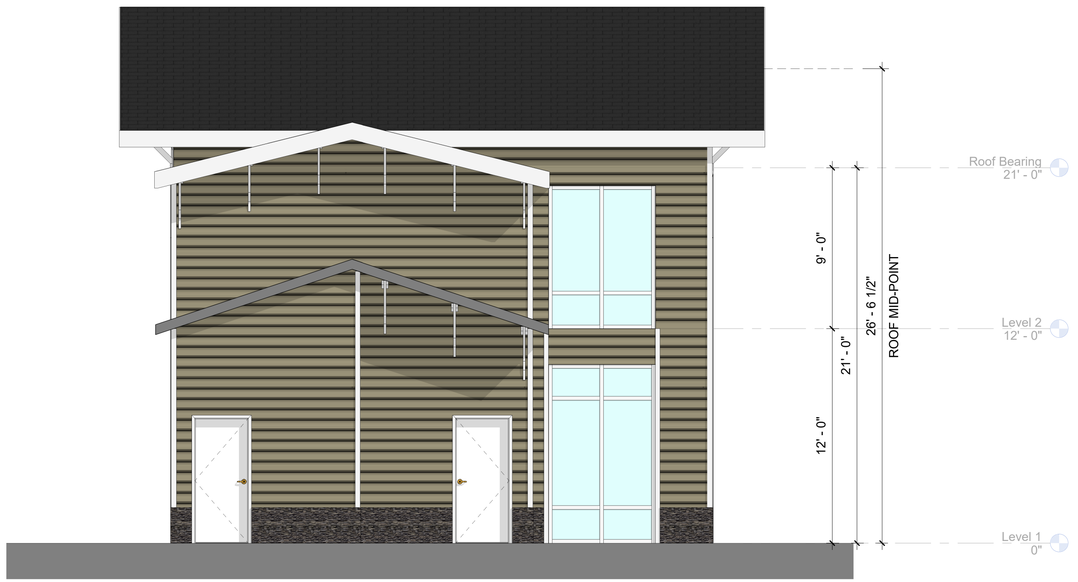
Corolla Boat Club
Clubhouse

Currituck County, NC

dlw architects
542 Douglas Avenue
Dunedin, FL 34698
727.736.6000
www.dlwarchitects.com
established 1981

DRAWN	PC / AS
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/4" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	**A403**

1 / A404 **West Elevation**
1/4" = 1'-0"



2 / A404 **East Elevation**
1/4" = 1'-0"

PLOT DATE: 11/15/2023 3:05:41 PM

No.	DESCRIPTION	DATE

Corolla Boat Club
Clubhouse

Currituck County, NC

dlw architects
542 Douglas Avenue
Dunedin, FL 34698
727.736.6000
www.dlwarchitects.com
established 1981

DRAWN	PC / AS
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/4" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	**A404**

Carolina Water Service
of North Carolina™

September 26, 2023

Re: Monteray Shores Phase 10, OBV
Corolla, Currituck County NC

To Whom It May Concern,

Carolina Water Service of North Carolina ("CWSNC") provides water and sanitary sewer service to the Monteray and Corolla Light Community which encompass the above referenced property. CWSNC is a franchised and regulated public utility company in the state of North Carolina.

CWSNC is willing and able to provide sanitary sewer utility needs for the above referenced property with a capacity not to exceed 32,150 gallons.

If you should have any questions, please do not hesitate to call me at 704-319-0523 or by email at Tony.Konsul@carolinawaterservicenc.com.

Thank you in advance for your attention.

Sincerely,

Tony Konsul

Digitally signed by Tony Konsul
DN: C=US, OU="Director, State Operations", O=Carolina Water Service of NC, CN=Tony Konsul, E=Tony.Konsul@carolinawaterservicenc.com
Reason: I am approving this document
Location: 5821 Fairview Rd, suite 401 Charlotte NC 28209
Date: 2023.09.26 20:08:56-04'00'
Foxit PDF Editor Version: 11.2.6

Tony Konsul
Director, State Operations

Field Notes Coastal Wetland Delineation May 12, 2022
Outer Banks Ventures Inc.
Sanders Bay, Currituck Sound, Corrolla, North Carolina

1 A403 **South Elevation**
1/4" = 1'-0"

2 A403 **North Elevation**
1/4" = 1'-0"

PLOT DATE: 11/15/2023 3:06:12 PM

No.	DESCRIPTION	DATE

Corolla Boat Club
Multi-Story Duplex

Currituck County, NC

dlw architects
542 Douglas Avenue
Dunedin, FL 34698
727.736.6000
www.dlwarchitects.com
established 1981

DRAWN	PC
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/4" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	**A403**

1 A404 **West Elevation**
1/4" = 1'-0"

2 A404 **East Elevation**
1/4" = 1'-0"

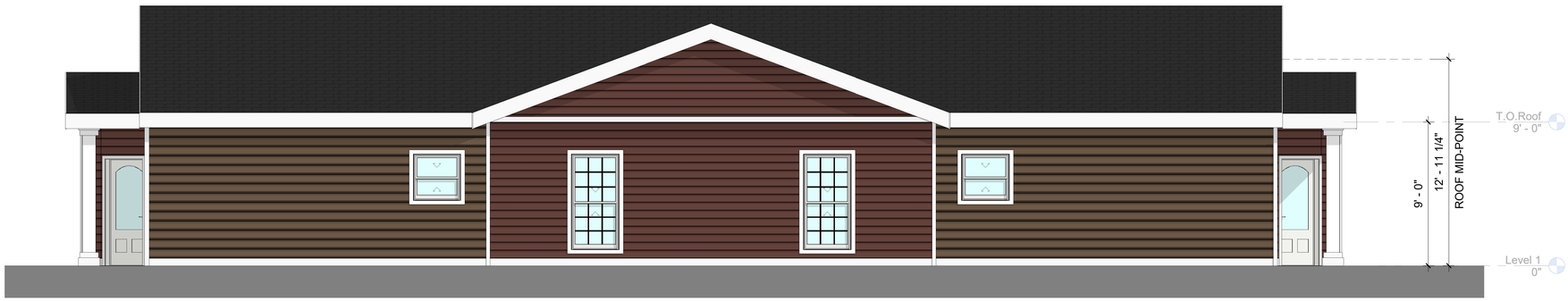
PLOT DATE: 11/15/2023 3:08:26 PM

No.	DESCRIPTION	DATE

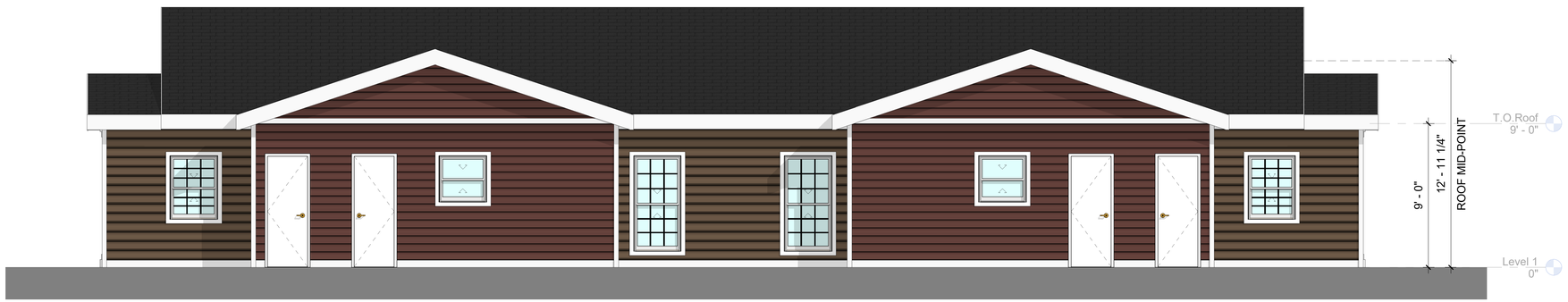
Corolla Boat Club
Multi-Story Duplex
Currituck County, NC

dlw architects
542 Douglas Avenue
Dunedin, FL 34698
727.736.6000
www.dlwarchitects.com
established 1981

DRAWN	Author
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/4" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	A404



1 / A403 **South Elevation**
1/4" = 1'-0"



2 / A403 **North Elevation**
1/4" = 1'-0"

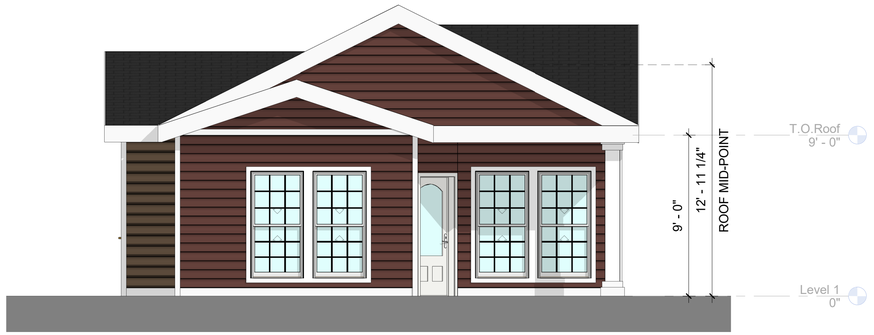
PLOT DATE: 11/15/2023 2:43:03 PM

No.	DESCRIPTION	DATE

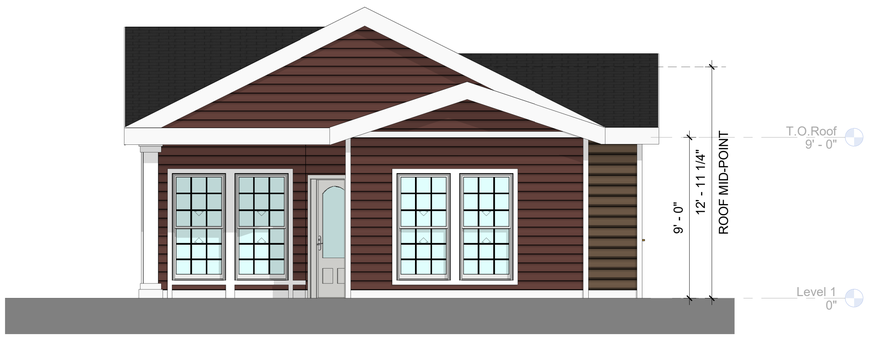
Corolla Boat Club
Single-Story Duplex
Currituck County, NC

dlw architects
542 Douglas Avenue
Dunedin, FL 34698
727.736.6000
www.dlwarchitects.com
established 1981

DRAWN	PC / AS
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/4" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	**A403**



1 / A404 **West Elevation**
1/4" = 1'-0"



2 / A404 **East Elevation**
1/4" = 1'-0"

PLOT DATE: 11/15/2023 2:43:15 PM

No.	DESCRIPTION	DATE

Corolla Boat Club
Single-Story Duplex
Currituck County, NC

dlw architects
542 Douglas Avenue
Dunedin, FL 34698
727.736.6000
www.dlwarchitects.com
established 1981

DRAWN	PC / AS
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/4" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	**A404**

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. SAW-2017-01236 County: Currituck U.S.G.S. Quad: Mossey Island

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Applicant: Outer Banks Ventures, Inc.
C/O Richard Willis
Address: Post Office Box 549
Corolla, North Carolina 27927
Telephone Number: 252-261-1760 A

Size (acres)	36.1 Acres	Nearest Town	Corolla
Nearest Waterway	Sanders Bay	River Basin	Currituck Sound
USGS HUC	03010205	Coordinates	Latitude: 36.327407 N
			Longitude: -75.819538 W

Location description: Property is located at Parcel 10 Monteray Shores P.U.D, off Malia Drive and Ocean Trail Highway, adjacent to a man-made pond and the Currituck Sound, near Sanders Bay, in Corolla, Currituck County, North Carolina. NC Parcel No. 9935-63-4485. Deed Book 1161. Page 734.

Indicate Which of the Following Apply:

A. Preliminary Determination

_ There are waters, including wetlands, on the above described project area, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The waters, including wetlands, have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

_ There are wetlands on the above described property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the waters, including wetlands, have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the waters, including wetlands, at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the waters of the U.S. on your property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

There are waters of the U.S., including wetlands, on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We recommend you have the waters of the U.S. on your property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

_ The waters of the U.S., including wetlands, on your project area have been delineated and the delineation has been verified by the Corps. If you wish to have the delineation surveyed, the Corps can review and verify the survey upon completion. Once verified, this survey will provide an accurate depiction of all areas subject to CWA and/or RHA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

RWB X The waters of the U.S., including wetlands, have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on April 23, 2020. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

RWB X The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Elizabeth City, NC 252-264-3901 to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Raleigh W. Bland, SPWS at (910) 251-4564 or Raleigh.w.bland@usace.army.mil**.

C. Basis For Determination: **This site meets all of the required wetland criteria as described in the 1987 Corps Wetland Delineation Manual and the Atlantic and Gulf Coastal Plain Interim Regional Supplement (Supplement) to the 1987 Wetland Delineation Manual. The waters and wetlands are part of a broad continium of wetlands connected to the Currituck Sound.**

D. Remarks: **A Department of the Army Permit is required for any work on this property in jurisdictional waters or wetlands.**

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information **(This information applies only to approved jurisdictional determinations as indicated in B. above)**

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **June 23, 2020**.

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Robert W. Bland, SPWS

Date: **April 23, 2020** Expiration Date: **April 23, 2025**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Copy Furnished: CESAW/RG-W/Bland

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: **Outer Banks Ventures, Inc.**	File Number: **SAW 2017-01236**	**Date: April 23, 2020**
Attached is:		See Section below
☐ INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
☐ PROFFERED PERMIT (Standard Permit or Letter of permission)		B
☐ PERMIT DENIAL		C
☒ APPROVED JURISDICTIONAL DETERMINATION		D
☐ PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division,** **Attn: Raleigh W. Bland, PWS** **2407 West 5th Street** **Washington, North Carolina 27889** **910-252-4558**	If you only have questions regarding the appeal process you may also contact: Mr. Jason Steele, Administrative Appeal Review Officer CESAD-PDO U.S. Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 10M15 Atlanta, Georgia 30303-8801 Phone: (404) 562-5137

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Raleigh W. Bland, PWS, 2407 West 5th Street
Washington, North Carolina 27889

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

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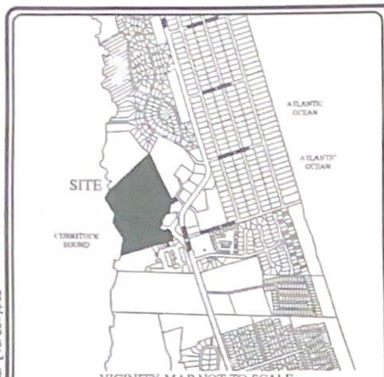


VICINITY MAP NOT TO SCALE

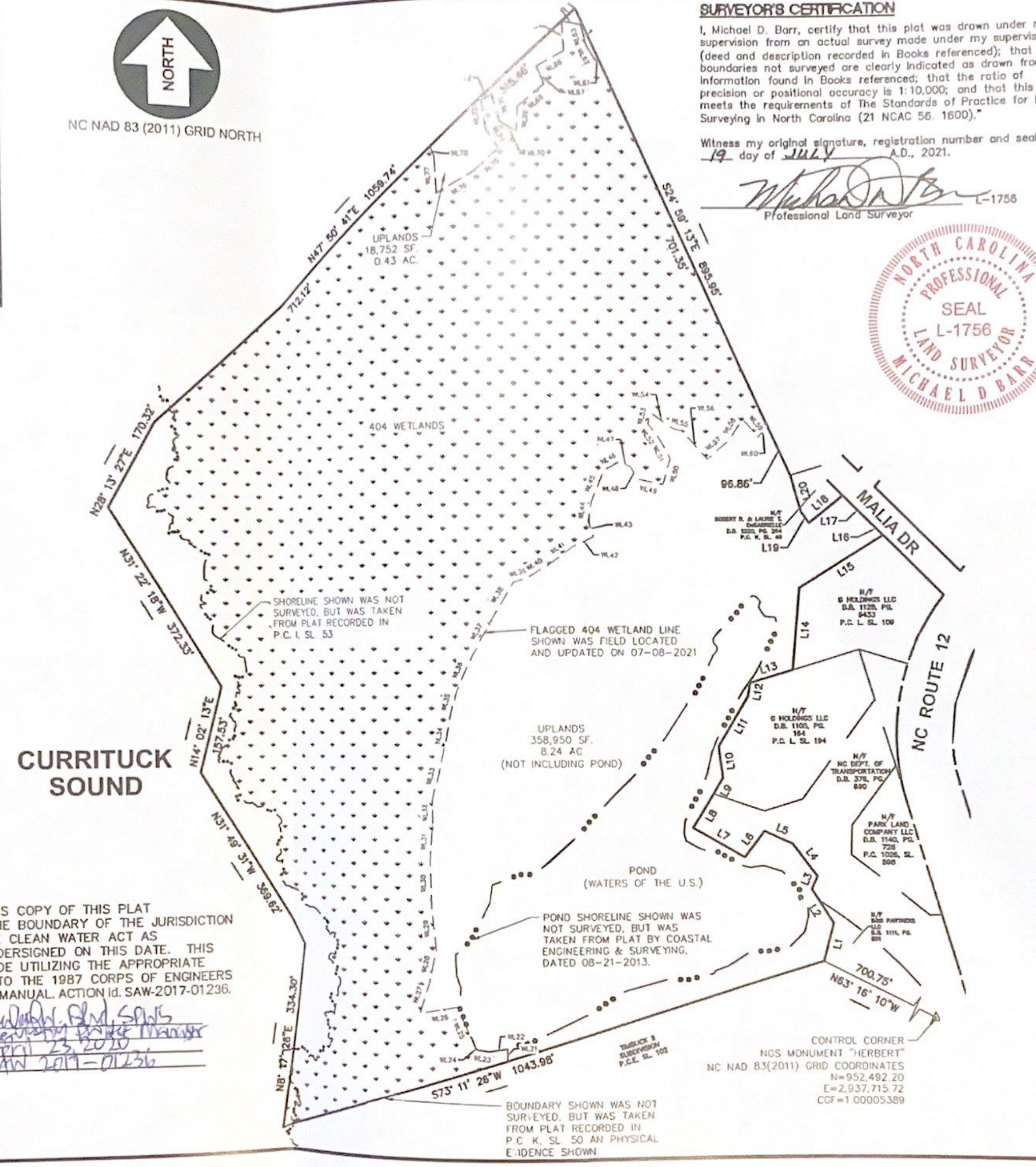
LEGEND	
	ROADWAY CENTERLINE
	RIGHT-OF-WAY
	PROPERTY BOUNDARY
	ADJOINING PROPERTY LINE
● ● ●	SHORELINE
☐	EXISTING CONCRETE MONUMENT
☐	SET CONCRETE MONUMENT
●	SET IRON ROD
○	EXISTING IRON ROD
O	EXISTING IRON PIPE
●	PINCHED PIPE
△	TELEPHONE PEDESTAL
"O"	UTILITY POLE
— OHE —	OVERHEAD UTILITY LINES
	GUY WIRE
+4.5'	EXISTING SPOT GROUND ELEVATION
	WATER METER
100	STREET ADDRESS
N.T.S.	NOT TO SCALE
P.C.	PLAT CABINET
D.B.	DEED BOOK
SL	SLIDE
SF / SQ.FT.	SQUARE FEET
AC	ACRES

NC NAD 83 (2011) GRID NORTH

WETLAND LINE TABLE		
LINE	LENGTH	BEARING
WL21	21.81'	N0° 38' 46"E
WL22	32.24'	S81° 25' 55"W
WL23	22.11'	N81° 48' 34"W
WL24	5.88'	N36° 32' 29"W
WL25	76.88'	N24° 51' 51"W
WL26	88.61'	S80° 51' 31"W
WL27	58.29'	N17° 30' 45"E
WL28	57.15'	N11° 58' 17"E
WL29	78.15'	N6° 08' 58"W
WL30	80.75'	N1° 38' 04"W
WL31	62.00'	N4° 57' 00"E
WL32	43.95'	N0° 45' 52"W
WL33	82.37'	N13° 37' 49"E
WL34	66.65'	N10° 41' 48"E
WL35	51.15'	N14° 31' 52"E
WL36	67.25'	N25° 12' 15"E
WL37	80.94'	N28° 56' 39"E
WL38	68.58'	N30° 47' 21"E
WL39	23.70'	N74° 08' 40"E
WL40	49.09'	N58° 21' 51"E
WL41	51.55'	N53° 24' 40"E
WL42	38.70'	N63° 30' 27"E
WL43	29.57'	N17° 34' 01"W
WL44	31.62'	N8° 06' 32"E
WL45	61.71'	N21° 36' 32"E
WL46	32.29'	N61° 29' 00"E
WL47	22.72'	S82° 26' 45"E
WL48	22.89'	S27° 48' 44"E
WL49	46.45'	S78° 06' 10"E

WETLAND LINE TABLE		
LINE	LENGTH	BEARING
WL50	46.79'	N17° 05' 18"E
WL51	37.23'	N28° 19' 01"W
WL52	36.24'	N36° 46' 28"W
WL53	19.76'	N13° 59' 55"E
WL54	47.18'	S54° 42' 20"E
WL55	18.71'	S73° 18' 11"E
WL56	64.97'	S41° 04' 55"E
WL57	51.76'	N51° 02' 32"E
WL58	44.52'	N32° 57' 19"E
WL59	42.37'	S41° 50' 18"E
WL60	25.03'	N35° 01' 51"E
WL61	7.01'	N83° 42' 05"W
WL62	29.81'	N31° 13' 17"W
WL63	36.85'	N15° 15' 09"W
WL64	33.42'	N81° 03' 55"W
WL65	50.82'	S3° 53' 23"E
WL66	54.31'	S61° 25' 41"W
WL67	33.24'	S22° 39' 54"E
WL68	60.65'	S50° 18' 53"W
WL69	41.52'	S3° 01' 46"W
WL70	34.06'	N60° 23' 49"W
WL71	48.19'	N15° 50' 11"W
WL72	21.17'	S80° 18' 12"W
WL73	48.82'	S8° 59' 03"E
WL74	40.95'	S33° 02' 00"E
WL75	57.29'	S48° 30' 41"W
WL76	78.28'	S61° 02' 49"W
WL77	64.44'	N3° 42' 09"W
WL78	18.50'	N21° 27' 21"W

LINE TABLE		
LINE	LENGTH	BEARING
L1	69.81'	S14° 36' 25"W
L2	71.75'	S32° 26' 53"E
L3	24.88'	S24° 21' 21"W
L4	72.84'	S36° 53' 44"E
L5	54.23'	S65° 23' 21"E
L6	57.93'	N37° 34' 20"E
L7	106.34'	S60° 26' 58"E
L8	70.75'	S31° 08' 08"W
L9	32.69'	S31° 14' 41"W
L10	58.14'	S7° 52' 57"E
L11	101.58'	S30° 51' 08"W
L12	25.83'	S10° 18' 28"W
L13	78.87'	S73° 11' 21"W
L14	145.59'	S4° 43' 46"W
L15	175.00'	S58° 09' 22"W
L16	30.17'	S45° 13' 47"E
L17	70.44'	S45° 13' 47"E
L18	76.92'	N51° 11' 37"E
L19	25.28'	S34° 57' 06"E
L20	67.05'	S15° 57' 18"E



THIS CERTIFIES THAT THIS COPY OF THIS PLAT ACCURATELY DEPICTS THE BOUNDARY OF THE JURISDICTION OF SECTION 404 OF THE CLEAN WATER ACT AS DETERMINED BY THE UNDERSIGNED ON THIS DATE. THIS DETERMINATION WAS MADE UTILIZING THE APPROPRIATE REGIONAL SUPPLEMENT TO THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. ACTION Id. SAW-2017-01236.

REGULATORY OFFICIAL: [signature]
TITLE: Regulatory Project Manager
DATE: April 23, 2020
USACE ACTION ID: SAW 2017-01236

200 0 100 200 400

1"=200'

GRAPHIC SCALE

SURVEYOR'S CERTIFICATION

I, Michael D. Barr, certify that this plat was drawn under my supervision from an actual survey made under my supervision (deed and description recorded in Books referenced); that the boundaries not surveyed are clearly indicated as drawn from information found in Books referenced; that the ratio of precision or positional accuracy is 1:10,000; and that this map meets the requirements of The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56. 1600)."

Witness my original signature, registration number and seal this 19 day of JULY A.D., 2021.

[signature] L-1756

Professional Land Surveyor

NORTH CAROLINA PROFESSIONAL SEAL L-1756 LAND SURVEYOR MICHAEL D BARR

BISSELL PROFESSIONAL GROUP

Engineers, Planners, Surveyors and Environmental Specialists

Bissell Professional Group
Firm License # C-956
3512 North Croatan Highway
P.O. Box 1068
Kitty Hawk, North Carolina 27949
(252) 261-3266
FAX (252) 261-1760

PROJECT: OUTER BANKS VENTURES, INC
PARCEL 10 MONTERAY SHORES P.U.D.
POPLAR BRANCH BCH. CURRITUCK COUNTY NORTH CAROLINA
404 WETLAND PLAT

REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: 07-19-2021	SCALE: 1"=200'
DESIGNED:	CHECKED: WCY
DRAWN: MDB	APPROVED: BPG
SHEET: 1 OF 1	
CAD FILE: 459600WL2	
PROJECT NO: 4596	

Corolla Boat Club

(Monteray Shores Phase 10)

Community Meeting Minutes

September 25, 2023

Scheduled Time/Place: 6:00 PM, on site off Malia Drive, Corolla, NC. The meetings started at 6:00 pm and ended at about 7:20 PM. Several residents stayed later for informal discussions.

Attendees: (See attached sign-in sheets) there were more present than those who signed in

The approval process was outlined, and the differences between the development plan that was already approved and the new plan were outlined. The principal differences are:

- Single family lots are being replaced with zero-lot line duplex lots
- Townhomes are being replaced with zero-lot line duplex lots
- Pool and clubhouse are being relocated to adjacent to the restaurant and amenities of shuffleboard and cabanas have been added
- Two pickleball courts have been added
- Entrance area has a feature added plus additional dumpster capacity has been added
- Boat slips are being increased from 10 to 56 and a gazebo has been added
- Commercial adjacent to TimBuck II is increasing slightly from 2,500 sq ft buildings to 3,000 sq ft buildings, and access is being reconfigured so as to not rely on use of the NCDOT parcel (future connectivity is still proposed there).
- Upper story dwellings are increasing from 6 to 9 (3 per commercial building).
- Paddleboat rental is relocated and incorporated into the commercial building area.
- Overall density will increase from 36 to 65 dwelling units, but total bedroom count decreases from 180+/- to 166.
- Pedestrian connectivity remains and is being enhanced with additional multi-use paths; also providing connectivity to TimBuck II and the seafood market.

The commercial use area will remain at 1.208 acres.

This table does not indicate the number or length of comments & questions on particular issues but these were the top concerns generating the most discussion:

- **Traffic**
- **Parking**
- **Noise**
- **Worker housing**

Comments from the Community	How Addressed
Concerned about traffic increasing to TimBuck II.	There is no longer any vehicular connectivity, pedestrian connectivity only is being provided.
How are water and sewer being handled? Can the systems handle it?	Central water and sewer are being provided and capacity is available.
What about emergency situations and who maintains?	Stand by power is being provided, as well as dual pumps. The systems will be operated by Carolina Water Service.
What is zero lot line development, are there easements?	Zero lot line is a style of development. Lot lines can be either at the wall or some distance outside to provide space for air handlers and patios.
What about existing setbacks from existing properties?	A 10-foot set back is provided to TimBuck II.
What about the entertainment venue size? There is concern about the size and impact.	It is expected to be a wedding venue which will be governed by a separate special use permit.
Will units be owned or rented?	It is uncertain at this time and will depend on financing.
Will units be market rate?	Yes, although prices have not yet been determined. GIVEN CURRENT MARKET RENTS IN COROLLA, THIS MEANS THAT THE UNITS WILL NOT, AS A PRACTICAL MATTER, BE ACCESSIBLE TO LOCALS & WORKERS, NOTE THAT 800 SQ FT UNITS IN THE BEACH CLUB ARE CURRENTLY SELLING FOR OVER $500K. MONTHLY RENTS ARE TYPICALLY 1.1% OF REAL ESTATE FMV. AS THE BOAT CLUB UNITS LOOK LIKE THEY WILL BE COMPARABLE TO THE BEACH CLUB, THIS MEANS THAT MONTLY RENTS COULD BE ABOUT $5,500, OR $66,000 PER YEAR. THERE AREN'T TOO MANY JOBS IN COROLLA PAYING THAT MUCH…AND FORGET ABOUT BEING ABLE TO BUY FOOD.
How will traffic work in the space next to TimBuck II?	A small amount of the pond will be filled along the shoreline and buildings will be placed on piles over the water. POND WILL BE RE-ENGINEERED SO IT CAN HANDLE THE EXISTING DRAINAGE/RUNOFF FROM MONTEREY PLAZA, TIMBUCK II, SOUTH END OF WHALEHEAD STORMWATER DISTRICT IN ADDITION TO DEVELOPMENT HERE?
Where will employerEs live?	To be determined (an employee housing project is being planned on a separate parcel). UNLESS EMPLOYEE HOUSING PROJECT

	SOMEHOW TIED TO THIS, WHERE WILL THE EMPLOYEES NEEDED TO RUN THIS COMPLEX LIVE?
How many commercial buildings are there?	Three at 3,000 sq. ft.
Don't you need a second exit?	We are providing truck turnarounds and a stub for POSSIBLE future connectivity to the DOT parcel.CONNECTING THROUGH THE DOT PARCEL WOULD FURTHER EXACERBATE AN ALREADY UNTENABLE TRAFFIC CHOKE POINT AT THE FARM STAND, TIMBUCK II, AND TRAFFIC LIGHT
Is a traffic study required?	No, but one is being provided anyway.HOW WILL IT BE USEFUL IF IT'S DONE OFF-SEASON, WITH AM & PM RUSH HOUR COUNTS WHICH ARE IRRELEVANT IN COROLLA. PLEASE INCLUDE THE MONTEREY PINES CONDOS IN THE TRAFFIC COUNTS (THEY WERE OMITTED LAST TIME)
Why develop, why not just sell the land?	I love it here.
There are too many people and too much development in Corolla	Many people have expressed support for the project as well. Many?; there were only two people at the meeting who expressed support for the project, and these were suspected to be developer "plants". The rest attending appeared to be vehemently opposed.
Year-round rentals can produce more income than seasonal rentals.	We are hoping the community will support it when the affordable housing project is brought forward. THIS COMMENT IS MEANINGLESS UNLESS THE PROJECTS ARE TIED TOGETHER & THE DEVELOPER STATED THAT THE HOUSING PROJECT WOULD ONLY HAVE ENOUGH SPACE FOR THE WORKERS NEEDED IN RESTAURANT/BAR/ENTERTAINENT VENUE. THUS, THIS DOESN'T MITIGATE THE CURRENT EMPLOYEE HOUSING CRISIS IN COROLLA; IT JUST DOESN'T ADD TO IT -- ASSUMING IT ACTUALLY HAPPENS.
Why do people think they cannot make it without being given something?	Good question. One person said this & no one asked to be given anything
What is the total occupancy for the restaurant and venue?	This will be based on fire code, health dept. waste water allocation, etc. Approximately 200 are expected to be accommodated by the venue.
How many people will be on site with full occupancy?	With 2 per bedroom, approximately 332 (about 30-40 less than the previous plan
There is a concern about traffic	NCDOT and the traffic consultant have stated that the traffic can be accommodated. THIS WILL BE A TRAFFIC NIGHTMARE COMING OUT OF MALIA DRIVE AS IT

	DOESN'T LINE UP WITH THE EXIT FROM MONTEREY PLAZA & THERE IS A PEDESTRIAN CROSSWALK 20' NORTH OF MALIA DRIVE
Will there be a stoplight?	This is probably not warranted based on the number of trips that will be generated.
I like the project, why is it up to the developer to provide affordable housing?	ONE PERSON MADE THIS COMMENT
Is it up to the government to solve employee housing?	THERE IS NO AVAILABLE EMPLOYEE HOUSING NOW IN COROLLA
How many parking spaces are near the stores?	41 for 9000sq. ft. of retail.
What is the point of the meeting? Is there any lee-way to make changes?	The point is to listen to suggestions and to try to improve on the plan if possible.
Where is visitor overflow parking and what prevents people from parking on nearby streets?	We have provided more parking than the ordinance requires and are looking at the
	possibility of increasing areas for overflow parking. Much needed
We do not want TimBuck II or Caroline Court to become overflow parking	We are also concerned about Corolla Boat Club becoming overflow parking for TimBuck II, but will provide as much parking as practicable.
Is there only one vehicle turn around?	No, there is also a provision for vehicles including trucks being able to circulate through the parking area at the restaurant. THE BIG FOOD SERVICE & BEER TRUCKS (MANY WITH 36' TRAILERS) WILL NOT BE ABLE TO GET THROUGH THAT PARKING LOT; ADDITIONALLY, THE RESIDENTIAL UNITS ALONG THAT STREET WILL NOT BE HAPPY WITH THE HEAVY LARGE TRUCK TRAFFIC – ARE POTENTIAL BUYERS BEING NOTIFIED? A RESTAURANT FACILITY THAT SIZE WILL NEED TO HAVE MULTIPLE DELIVERIES PER VENDOR PER WEEK IN HIGH SEASON.
Where will people access the beach?	A multi-use path is being provided for people to be able to access by foot, we also plan to have a trolley.WHERE IS THE PATH & WHERE WILL THE TROLLEY PICK UP & DROP OFF?
There is concern about noise from the venue, how will this be controlled and how will sound be directed?	The county has a noise ordinance. The venue will require a separate special use permit to establish noise criteria, but sound in general will be directed toward the sound to the west.SOUND BOUNCES AROUND OFF THE WATER SO EVEN IF DIRECTED AT THE SOUND IT WILL AFFECT THE SURROUNDING RESIDENTIAL PROPERTIES – BOTH EXISTING & NEW
Corolla Light Phase 10 prohibited sales to year-round residence, will you open it for year-round residence sales?	Probably.

Are you building it or is someone else>	Rick Willis will be the developer but someone else will be the builder.
Something needs to be done to help the area.	Corolla is geared to resort business, but does need employee housing SO NEW & EXISTING BUSINESSES CAN SUCCEED!
Some of the land was cleared after dark which seems suspicious.	We have no knowledge of that. Permits were in place for all development activities that have taken place.
What are the county parking requirements for residential?	One half space per bedroom for the first 4 bedrooms, one space per bedroom for the next 5-10 bedrooms, and one-half space per bedroom for the 11th and additional bedrooms.
Who will dictate how the development will be done?	Rick Willis is the developer and will control how it is developed.
Where will boat trailers park?	There is parking at Poplar Branch and at other locations on the mainland. So even owners in the development will be unable to launch a boat? Are potential buyers being informed that the maximum (average?) depth of the sound is 4 feet, which greatly limits the type of boats that can operate in the sound. (or is this 4 feet at the docks?)
Where are you in the permitting process?	We have applied for a CAMA major permit and working through the process. We have had meetings with various agencies so that they are not surprised. It will take a few months to finish the permitting process.
How many boat slips will there be?	We have requested 56 slips plus a gazebo.
Are houses going to be on pilings?	No, parking will be under a portion of the 4-bedroom homes and the 2-bedroom homes will be envisioned to be slab on grade.
Is the pond an out fall for the stormwater?	Yes, in fact there is already an out fall in place, which will be improved and formalized. Currituck County has an easement to pump groundwater from Whalehead into the pond, which has been modeled and the outlet

	structure sized to handle the groundwater, stormwater from offsite and onsite, etc.
Do boat slips go with the units? Will they be deeded?	No. 10 transient boat slips will be provided and the remainder will be reserved so that the dwelling units have priority. They will either be leased or part of the dues structure. Will the public be able to launch kayaks & paddleboars here?
How many employees do you need?	The restaurant could require 40-50, three are budgeted for the boat club.
Are you subcontracting the restaurant and venue?	Discussions are taking place for an operator for the facility.

We heard this will be the largest venue on the east coast.	No, a much larger venue was anticipated when we were proposing a 12,000 sq. ft. indoor conference center, but that is no longer part of the plan.
There is concern about controlling sound from bands.	This will be studied and addressed with the SUP for that part of the facility.
Are you in communication with Saga since they are building something similar?	We have reached out to Saga, but theirs is a different kind of facility.
People want housing to be affordable, but housing is not and conditions are not conducive to that.	There is a plan to build a 50-unit affordable housing development coming. Will this housing be a condition of approval for this project?
It would be a gesture of good will have to have employee targeted residential development.	An agreement is close to being finalized.
Elected officials need to get involved in the housing problem.	ABSOLUTELY!!
If you do 50 units you will be a good steward by taking care of employees for this project.	That is the intent. Make it part of the project approval
I would rather have employee housing next door than weekly rentals. They are good neighbors.	

The community is not opposed to more commercial/retail facilities (there's plenty of business for all) but there is not enough parking or workers for what we have NOW & the traffic is becoming untenable particularly in this area. If the residential units become short term rentals, who will clean & maintain them? Again, there are NOT enough workers or service people now.

Please make sure the developer/builder is required to work with adjacent property owners/businesses with regard to parking & pedestrian circulation.

It is hoped that Fire & EMS are engaged to look closely at the stub by the retail buildings that the developer says will accommodate fire engine turn around. Particularly, since this is a grass area which is subject to getting muddy, it does not appear, at first glance, tenable that a pumper engine (let alone an aerial/ladder truck) could safely navigate this area.

What about the osprey & eagles' nests that were destroyed by the clear cutting? This is potentially an environmental violation and disaster.

Is there a plan to replace heritage trees?

TRAFFIC IMPACT ANALYSIS

Monteray Shores Development

Corolla, North Carolina

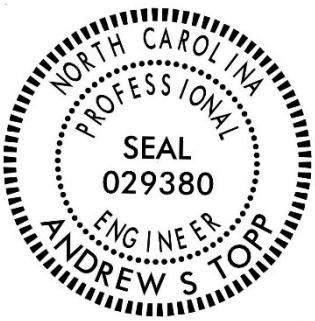
PREPARED FOR

Richard Willis
Outer Banks Ventures
215 Brooks Ave #1001
Norfolk, Virginia 23510
757.286.2859

PREPARED BY

VHB Engineering NC, P.C. (C-3075)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
919.829.0328

11/16/2023



11/16/2023

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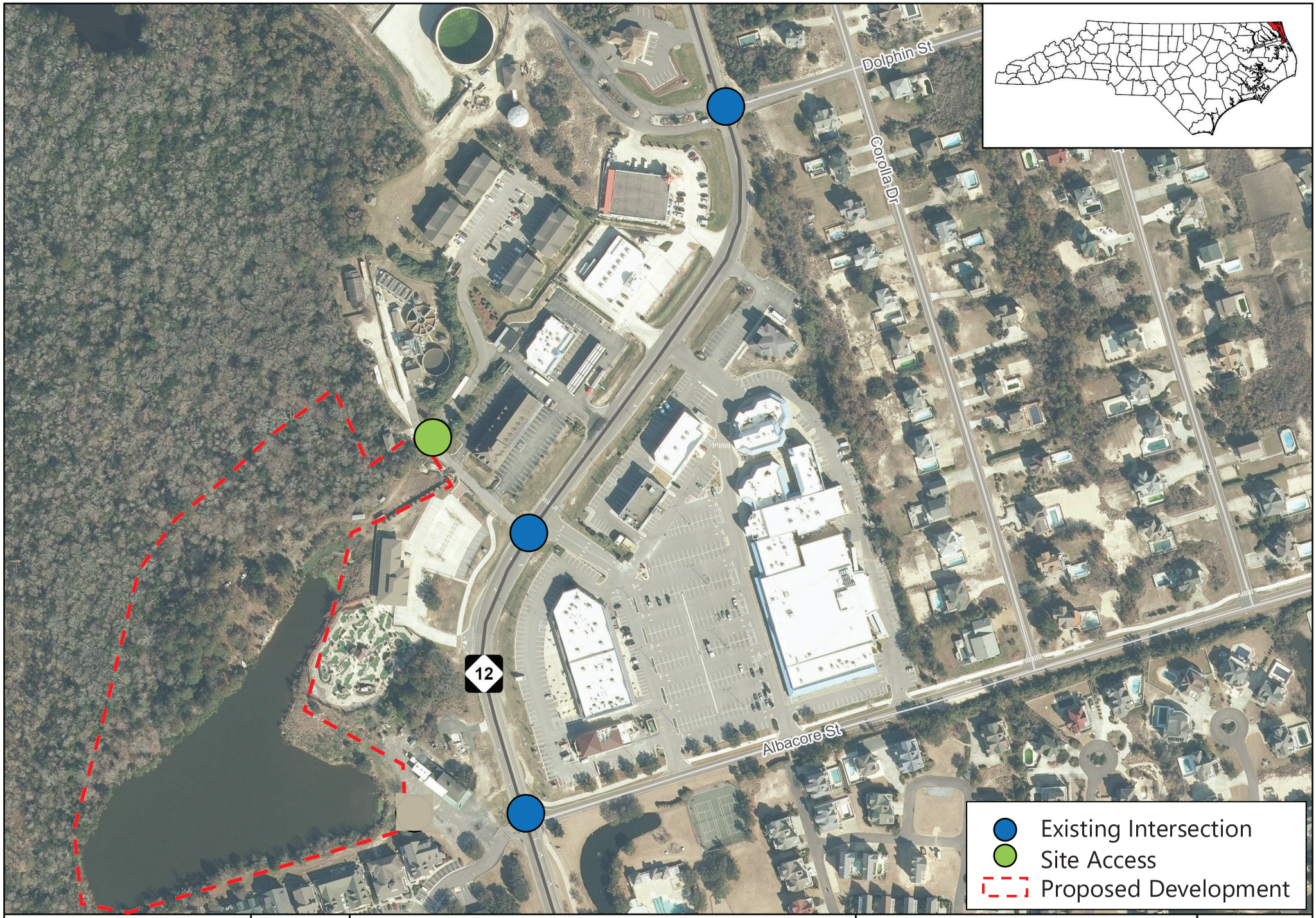
1

Introduction

The multi-use development in Corolla, North Carolina is planned to be constructed near the intersection of Ocean Trail (NC 12) and Malia Drive (Figure 1). The development includes 9,000 square feet of retail space, 9 multi-family dwellings, 56 duplex units, and a 5,083 square foot restaurant with an expected completion year of 2026. This TIA is an update of a previous TIA conducted for this site. The analysis relies on the previously collected counts and study assumptions, but reflects updated land uses and eliminates the originally proposed access to the south.

Project Background

Error! Not a valid link.VHB Engineering NC, P.C. (VHB) was retained by Outer Banks Ventures to analyze the potential traffic impacts of the proposed development and to identify any necessary roadway improvements. This Traffic Impact Analysis (TIA) summarizes trip generation, distribution, and traffic capacity analysis for the proposed development. A summary of the key assumptions made within this traffic study was sent to NCDOT staff for review and comment prior to the completion of the TIA. These assumptions are provided within the NCDOT TIA Checklist attached within Appendix A.

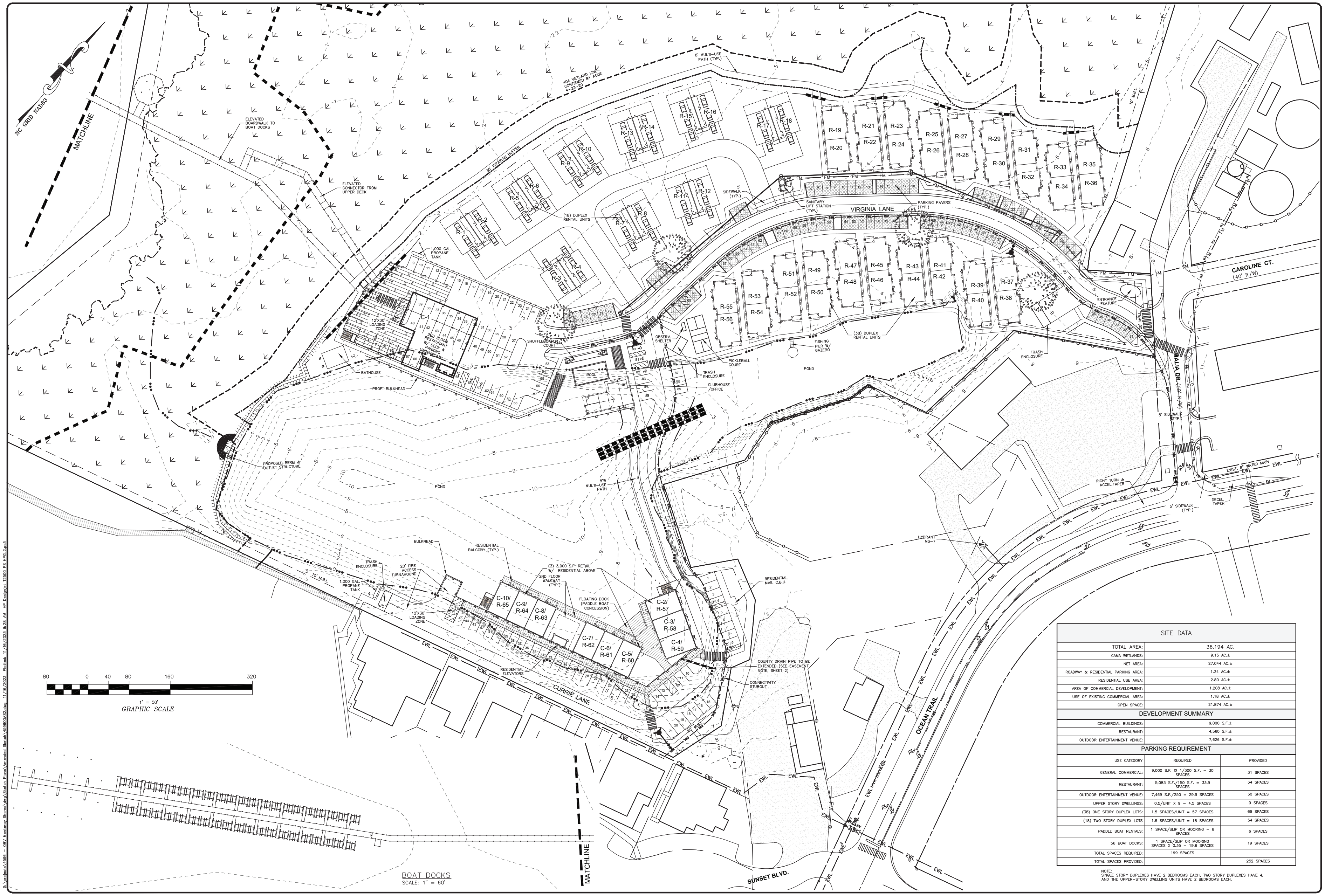


Scale
0 125 250
Feet

Figure 1:
Vicinity Map

Monteray Shores Development
Traffic Impact Analysis
Corolla, NC

vhb



SITE DATA

TOTAL AREA:	36.194 AC.
CAMA WETLANDS:	9.15 AC.±
NET AREA:	27.044 AC.±
ROADWAY & RESIDENTIAL PARKING AREA:	1.24 AC.±
RESIDENTIAL USE AREA:	2.80 AC.±
AREA OF COMMERCIAL DEVELOPMENT:	1.208 AC.±
USE OF EXISTING COMMERCIAL AREA:	1.18 AC.±
OPEN SPACE:	21.874 AC.±

DEVELOPMENT SUMMARY

COMMERCIAL BUILDINGS:	9,000 S.F.±
RESTAURANT:	4,560 S.F.±
OUTDOOR ENTERTAINMENT VENUE:	7,626 S.F.±

PARKING REQUIREMENT

USE CATEGORY	REQUIRED	PROVIDED
GENERAL COMMERCIAL:	9,000 S.F. @ 1/300 S.F. = 30 SPACES	31 SPACES
RESTAURANT:	5,083 S.F./150 S.F. = 33.9 SPACES	34 SPACES
OUTDOOR ENTERTAINMENT VENUE:	7,469 S.F./250 = 29.9 SPACES	30 SPACES
UPPER STORY DWELLINGS:	0.5/UNIT X 9 = 4.5 SPACES	9 SPACES
(38) ONE STORY DUPLEX LOTS:	1.5 SPACES/UNIT = 57 SPACES	69 SPACES
(18) TWO STORY DUPLEX LOTS	1.5 SPACES/UNIT = 18 SPACES	54 SPACES
PADDLE BOAT RENTALS:	1 SPACE/SLIP OR MOORING = 6 SPACES	6 SPACES
56 BOAT DOCKS:	1 SPACE/SLIP OR MOORING SPACES X 0.35 = 19.6 SPACES	19 SPACES
TOTAL SPACES REQUIRED:	199 SPACES	
TOTAL SPACES PROVIDED:		252 SPACES

NOTE:
SINGLE STORY DUPLEXES HAVE 2 BEDROOMS EACH, TWO STORY DUPLEXES HAVE 4, AND THE UPPER-STORY DWELLING UNITS HAVE 2 BEDROOMS EACH.

BISSELL PROFESSIONAL GROUP
Engineers, Planners, Surveyors and Environmental Specialists

MIXED USE DEVELOPMENT
LAYOUT & CONCEPTUAL PLAN

PROJECT:
COROLLA BOAT CLUB
POPLAR BRANCH TOWNSHIP — CURRITUCK COUNTY — NORTH CAROLINA
PRELIMINARY ZERO LOT LINE PLAN

REVISIONS

NO.	DATE	DESCRIPTION	BY
1	6/22/21	TRC COMMENTS	KFW
2	7/22/21	REVISED 404 LINES & DOCKS	KFW
3	8/26/21	ADD TOWNHOME LOTS	KFW
4	9/22/21	TRC COMMENTS	KFW
5	8/12/22	TOWNHOME ARCHITECTURALS	KFW
6	9/21/23	DUPLEX PLAN	KFW
7	11/15/23	ARCHITECTURAL FOOTPRINTS	KFW

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

DATE: 5-27-21	SCALE: 1"=50'
DESIGNED: BPG	CHECKED: MSB
DRAWN: KFW	APPROVED: BPG

SHEET: 3 OF 6
CAD FILE: 459600AS2
PROJECT NO: 4596

2

Existing (2021) Conditions

This section describes the existing roadways in the vicinity of the proposed development. Annual Average Daily Traffic (AADT) data for the surrounding network of roadway was obtained from the NCDOT, where available.

Ocean Trail (NC 12)

- Within the study area limits, Ocean Trail (NC 12) is a two-lane undivided roadway with a posted speed limit of 35miles per hour (mph). There is a two-way left-turn lane present between Albacore Street (SR 1402)/Sunset Boulevard and Malia Drive.
- The land uses along Ocean Trail are primarily commercial within the study area.
- The 2019 AADT along Ocean Trail was 4,800 vehicles per day (vpd) through the study area.

Albacore Street (SR 1402)

- Within the study area limits, Albacore Street is a two-lane undivided roadway with a posted speed limit of 25 mph.
- The land uses along Albacore Street are primarily commercial and residential within the study area limits.
- There is no AADT data available along Albacore Street.

Sunset Boulevard

- Within the study area limits, Sunset Boulevard is a two-lane undivided roadway providing access from Ocean Trail to the TimBuck II shopping plaza.
- There is no posted speed limit along Sunset Boulevard.
- The land uses along Sunset Boulevard are primarily commercial within the study area limits.

- There is no AADT data available along Sunset Boulevard.

Malia Drive

- Within the study area limits, Malia Drive is a two-lane undivided roadway with no posted speed limit.
- The land uses along Malia Drive are primarily commercial within the study area limits.
- There is no AADT data available along Malia Drive.

Dolphin Street (SR 1458)

- Within the study area limits, Dolphin Street is a two-lane undivided roadway with a posted speed limit of 25 mph.
- The land uses along Dolphin Street are primarily residential within the study area limits.
- There is no AADT data available along Dolphin Street.

Monteray Drive

- Within the study area limits, Monteray Drive is a two-lane undivided roadway with a posted speed limit of 20 mph.
- The land uses along Monteray Drive are primarily commercial and residential within the study area limits.
- There is no AADT data available along Monteray Drive.

Figure 3 provides a schematic diagram of the existing roadways near the proposed development, including the intersection geometrics.

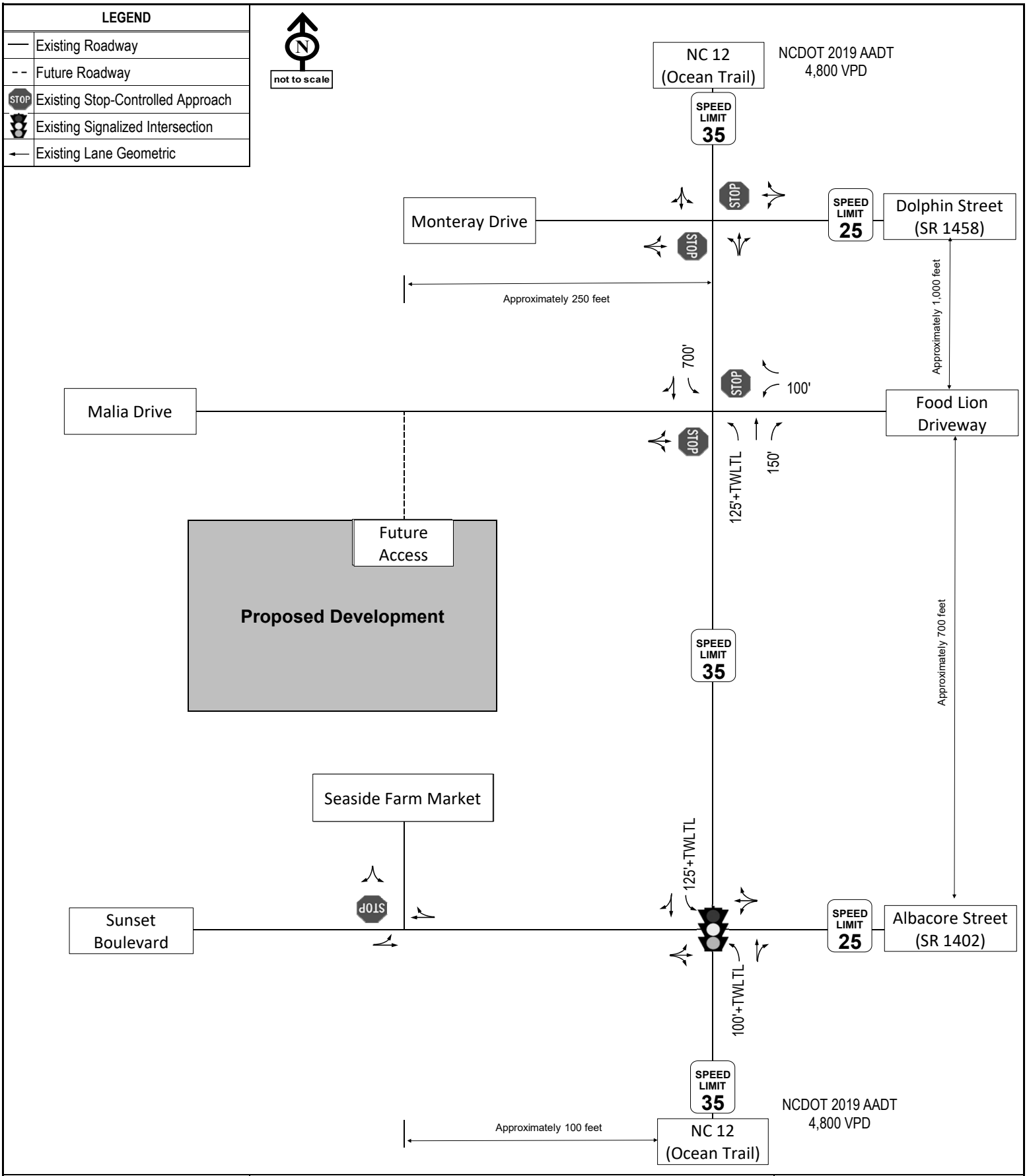


Figure 3
Existing (2021) Lane Geometrics and Traffic Control

Monteray Shores TIA
Corolla, NC

Existing Turning Movement Data

VHB Engineering NC, P.C. collected weekday AM and PM peak hour intersection turning movement counts on September 1st, 2021. The day was selected to best represent the busier summer conditions of the area, where weekday volumes are expected to be higher than in the other off-peak seasons. Table 1 summarizes the schedule used to obtain the turning movement data. The video collected for the intersection of Ocean Trail and Albacore Street/Sunset Boulevard was also studied manually to find the turning movement volumes at the intersection of Sunset Boulevard and the Seaside Market driveway. No volume balancing adjustments were deemed necessary due to minor volume variations between intersections along the corridor. A minimum of four vehicles per hour was added to several movements based on NCDOT Congestion Management guidance. A detailed summary of the traffic counts can be found in Appendix B. The existing peak hour turning movement volumes are shown in Figure 4.

Table 1 Turning Movement Count Schedule

Intersection	Time Period	Data Collection Date
Ocean Trail (NC 12) at Albacore Street (SR 1402)/Sunset Boulevard	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Wednesday September 1, 2021
Ocean Trail (NC 12) at Malia Drive/Food Lion Driveway	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Wednesday September 1, 2021
Ocean Trail (NC 12) at Dolphin Street (SR 1458)/Monteray Drive	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Wednesday September 1, 2021

Level of Service Criteria

Peak hour level of service (LOS) measures the adequacy of the intersection geometrics and traffic controls of a particular intersection or approach for the given turning volumes. Levels of service range from A through F, based on the average control delay experienced by vehicles traveling through the intersection during the peak hour. Control delay represents the portion of total delay attributed to traffic control devices (e.g., signals or stop signs). The engineering professional generally accepts LOS D as an acceptable operating condition for signalized intersections in urban areas and LOS C for rural areas.

At unsignalized intersections, LOS E is generally considered acceptable only if the side street encounters the delay. Nevertheless, side streets sometimes function at LOS F during peak traffic periods; however, the traffic volume often does not warrant a traffic signal to assist side street traffic. Table 2 provides a general description of various levels of service categories and delay ranges.

Table 2 Level of Service Description for Intersections

Level of Service	Description	Signalized Intersection	Unsignalized Intersection
A	Little or no delay	<= 10 sec.	<= 10 sec.
B	Short traffic delay	10-20 sec.	10-15 sec.
C	Average traffic delay	20-35 sec.	15-25 sec.
D	Long traffic delay	35-55 sec.	25-35 sec.
E	Very long traffic delay	55-80 sec.	35-50 sec.
F	Unacceptable delay	> 80 sec.	> 50 sec.

Level of Service Analysis

Intersection levels of service analyses were performed for the typical weekday AM and PM peak hour using *Synchro/SimTraffic Professional Version 10*. The turning movement volumes analyzed in the Existing (2021) scenario are displayed in Figure 4. The existing signal plans provided by the NCDOT were utilized in the analysis and are included in Appendix C. A summary of the findings for the Existing (2021) scenario LOS analysis can be found in Table 3, and the full *Synchro* output can be found in Appendix D.

As reported in Table 3, the signalized intersection within the study area operates at an overall acceptable level of service (LOS D or better) during both peak hours. The stop-controlled approaches operate at acceptable levels of service except the westbound approach at the intersection of Ocean Trail (NC 12) and Dolphin Street/Monteray Drive, which operates at LOS E during the PM peak hour.

Table 3 Existing (2021) LOS Results

ID	Intersection and Approach	Traffic Control	Existing (2021)	
			AM	PM
1	**NC 12 (Ocean Trail) at Albacore Street (SR 1402)/Sunset Boulevard**	Signalized	**A (9.4)**	**C (21.3)**
	Eastbound		B-16.3	C-32.9
	Westbound		B-17.1	D-38.5
	Northbound		A-8.2	B-13.0
	Southbound		A-8.7	C-21.7
2	**NC 12 (Ocean Trail) at Malia Drive/Food Lion Driveway**	Unsignalized	-	-
	Eastbound		B-12.5	C-19.9
	Westbound		B-11.6	C-22.7
3	**NC 12 (Ocean Trail) at Dolphin Street (SR 1458)/Monteray Drive**	Unsignalized	-	-
	Eastbound		B-10.9	C-19.1
	Westbound		C-15.0	E-48.0
4	**Sunset Boulevard at Seaside Farm Market/Future Access #2**	Unsignalized	-	-
	Southbound		A-8.6	B-10.6
5	**Malia Drive at Future Access #1**	Unsignalized	-	-
	Northbound		-	-

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay

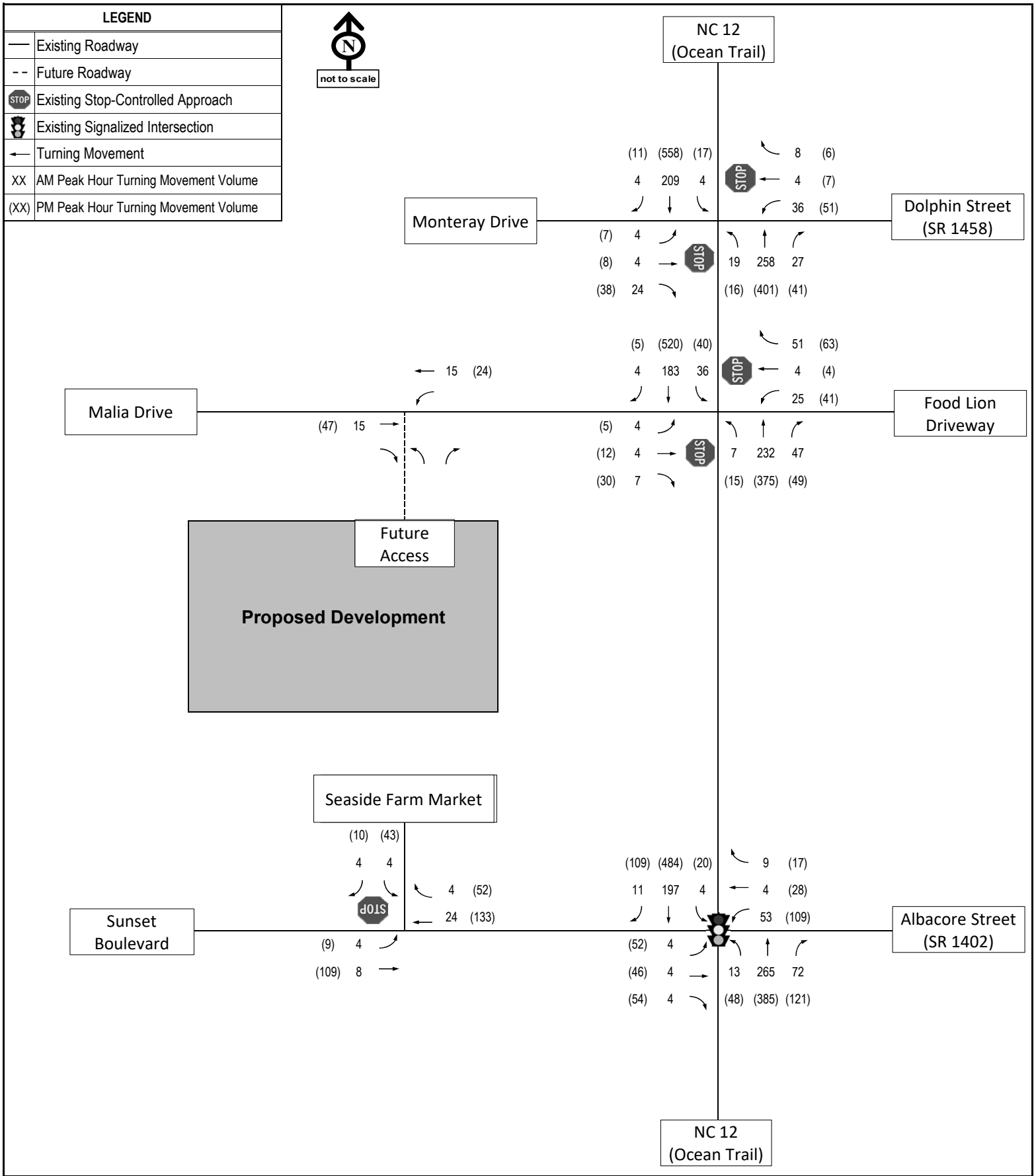


Figure 4
Existing (2021) AM and PM Peak Hour Volumes

Monteray Shores TIA
Corolla, NC

3

No-Build (2026) Conditions

Background Growth Calculations

The Existing (2021) peak hour volumes were grown to the year (2026) using an annual growth rate of two percent (2%) to calculate the expected background growth within the study area. There were no background developments or roadway improvements identified for inclusion in the study area. Therefore, no additional background trips were included in the No-Build (2026) scenario, and the network layout matches the Existing (2021) conditions.

Level of Service Analysis

Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 11*. The calculated No-Build (2026) peak hour turning movements are displayed in Figure 5. A summary of the findings for the No-Build (2026) LOS analysis can be found in Table 4 and the full Synchro outputs can be found in Appendix D.

As reported in Table 4, the signalized intersection within the study area is expected to continue to operate at an acceptable level of service during both peak hours. The stop-controlled westbound approach at the intersection of Ocean Trail (NC 12) and Dolphin Street/Monteray Drive is projected to degrade to a LOS F during the PM peak hour.

Table 4 No-Build (2026) LOS Results

ID	Intersection and Approach	Traffic Control	No-Build (2026)	
			AM	PM
1	**NC 12 (Ocean Trail) at Albacore Street (SR 1402)/Sunset Boulevard**	Signalized	**B (10.5)**	**C (23.6)**
	Eastbound		B-17.0	D-35.1
	Westbound		B-18.9	D-45.6
	Northbound		A-9.4	B-13.9
	Southbound		A-9.4	C-24.0
2	**NC 12 (Ocean Trail) at Malia Drive/Food Lion Driveway**	Unsignalized	-	-
	Eastbound		B-13.0	C-23.9
	Westbound		B-12.0	D-29.2
3	**NC 12 (Ocean Trail) at Dolphin Street (SR 1458)/Monteray Drive**	Unsignalized	-	-
	Eastbound		B-11.2	C-22.7
	Westbound		C-16.3	F-78.4
4	**Sunset Boulevard at Seaside Farm Market/Future Access #2**	Unsignalized	-	-
	Southbound		A-8.6	B-10.9
5	**Malia Drive at Future Access #1**	Unsignalized	-	-
	Northbound		-	-

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay

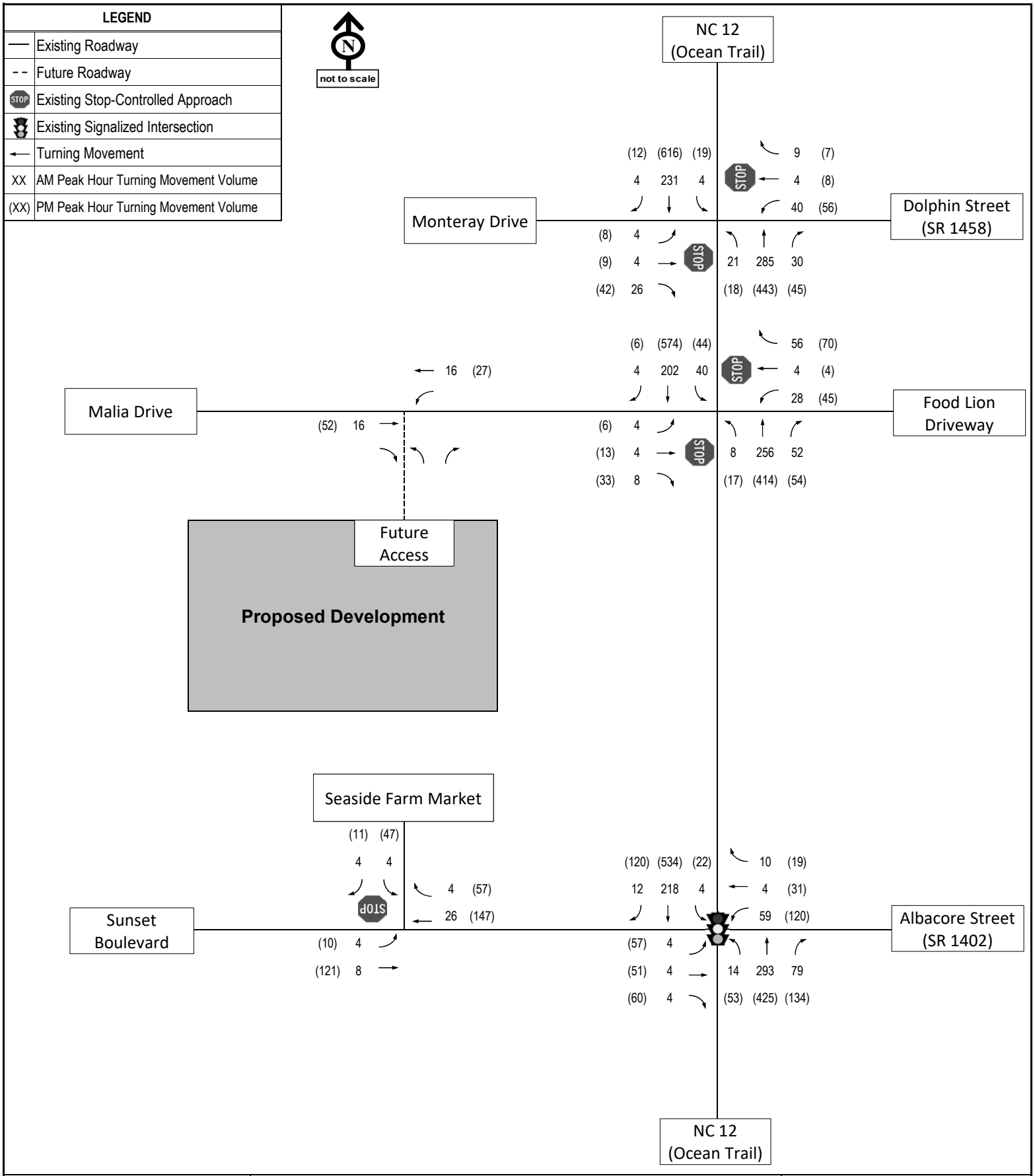


Figure 5
No-Build (2026) AM and PM Peak Hour Volumes

Monteray Shores TIA
Corolla, NC

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Build (2026) Conditions

The multi-use development in Corolla, North Carolina is planned to be constructed near the intersection of Ocean Trail (NC 12) and Malia Drive (Figure 1). The development includes 9,502 square feet of retail space, 9 multi-family dwellings, 56 dwelling units of duplexes, and a 5,083 square foot restaurant with an expected completion year of 2026.

Trip Generation

Trip generation was conducted based on the most appropriate corresponding trip generation codes included in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition* and the suggested method of calculation in the NCDOT's *"Rate vs. Equation" Spreadsheet*. of the proposed development is to consist of 9,502 square feet of retail space, 9 multi-family upper story dwellings, 56 dwelling units of duplexes, and a 5,083 square foot restaurant. ITE Land Use Code (LUC) 822 (General Retail), LUC 220 (Multi-Family Housing, Low-Rise), LUC 215 (Single-Family Attached Housing), and LUC 931 (Quality Restaurant) were used based on available NCDOT guidance. The entertainment space will likely be operated for evening concerts or special events, likely occurring outside of the peak hour periods, however, to be conservative, land use 435 was applied to provide some peak hour trips to this use. Similarly, the boat slips are also not expected to generate much if any traffic, but to be conservative, a marina use was used in the event that some vehicular traffic is generated by the use.

Table 5 summarizes the assumed trip generation of the proposed development for typical weekday AM and PM peak hours. The proposed development is projected to generate 1,616 daily weekday site trips, with 61 trips (25 entering, 36 exiting) occurring in the AM peak hour and 179 trips (103 entering, 76 exiting) occurring in the PM peak hour. After reductions to account for internal capture

the proposed development is expected to generate 58 external non-pass-by trips (24 entering, 34 exiting) occurring in the AM peak hour, and 93 trips (60 entering, 33 exiting) occurring in the PM peak hour. The generated site trips were distributed in accordance with the existing turning movement counts and land uses.

Table 5 Trip Generation Rates (Vehicle Trips)

Land Use Code[1]	Land Use	Unit	ADT	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Total Site Trips[2]									
215	Single-Family Attached Housing	56 du	376	6	17	23	18	12	30
220	Multifamily Housing (Low-Rise)	9 du	27	1	4	5	4	3	7
420	Marina	56 slips	135	1	3	4	7	5	12
435	Multipurpose Recreational Facility	7,626 sf	135	2	1	3	15	12	27
822	Strip Retail Plaza (<40k)	9,502 sf	517	13	9	22	32	31	63
931	Quality Restaurant	5,083 sf	426	2	2	4	27	13	40
Development Total			*1,616*	*25*	*36*	*61*	*103*	*76*	*179*
Trip Reduction Due to Internal Capture[3]									
215	Single-Family Attached Housing	56 du	63	0	0	0	7	2	9
220	Multifamily Housing (Low-Rise)	9 du	5	0	0	0	1	1	2
420	Marina	56 du	33	0	0	0	2	2	4
435	Multipurpose Recreational Facility	7,626 sf	38	0	0	0	3	5	8
822	Strip Retail Plaza (<40k)	9,502 sf	128	0	1	1	7	13	20
931	Quality Restaurant	5,083 sf	213	1	1	2	12	8	20
Development Total			*480*	*1*	*2*	*3*	*32*	*31*	*63*
Total External Site Trips									
215	Single-Family Attached Housing	56 du	313	6	17	23	11	10	21
220	Multifamily Housing (Low-Rise)	9 du	22	1	4	5	3	2	5
420	Marina	56 du	102	1	3	4	5	3	8
435	Multipurpose Recreational Facility	7,626 sf	97	2	1	3	12	7	19
822	Strip Retail Plaza (<40k)	9,502 sf	389	13	8	21	25	18	43
931	Quality Restaurant	5,083 sf	213	1	1	2	15	5	20
Development Total			*1,136*	*24*	*34*	*58*	*71*	*45*	*116*
Pass-by Site Trips[4]									
215	Single-Family Attached Housing	56 du		0	0	0	0	0	0
220	Multifamily Housing (Low-Rise)	9 du		0	0	0	0	0	0
420	Marina	56 du		0	0	0	0	0	0
435	Multipurpose Recreational Facility	7,626 sf		0	0	0	0	0	0
822	Strip Retail Plaza (<40k)	9,502 sf		0	0	0	7	8	15
931	Quality Restaurant	5,083 sf		0	0	0	4	5	9
Development Total				*0*	*0*	*0*	*11*	*12*	*23*
Non-Pass-by Site Trips									
215	Single-Family Attached Housing	56 du		6	17	23	11	10	21
220	Multifamily Housing (Low-Rise)	9 du		1	4	5	3	2	5
420	Marina	56 du		1	3	4	5	3	8
435	Multipurpose Recreational Facility	7,626 sf		2	1	3	12	7	19
822	Strip Retail Plaza (<40k)	9,502 sf		13	8	21	18	10	28
931	Quality Restaurant	5,083 sf		1	1	2	11	0	11
Development Total				*24*	*34*	*58*	*60*	*33*	*93*

Notes:

1. Land Use Code and trip generation rates are determined based on *ITE Trip Generation, 10th Edition*, rates for 820 based on subset of smaller retail sites (50,000 sf or less)
2. Total site trips are determined based on the suggested method in the NCDOT Rate vs Equation Spreadsheet
3. Internal capture was based on NCHRP 684 method and NCDOT IC calculation spreadsheet, with 1,500 ft spacing between uses
4. Unconstrained pass-by trips are calculated based on *ITE Trip Generation Handbook, 3rd Edition.* The final projections are not expected to exceed 10% of adjacent street volumes.

Trip Distribution and Assignment

The proposed development will be accessed via one full-movement driveway along Malia Drive. The generated site trips were distributed in accordance with the existing traffic patterns and land uses in the vicinity of the study area as follows:

- Ocean Trail (NC 12) from/to the north – 30%
- Ocean Trail (NC 12) from/to the south – 50%
- Albacore Street (SR 1402) from/to the east – 5%
- Sunset Boulevard from/to the west – 2%
- Food Lion Driveway from/to the east – 5%
- Dolphin Street from/to the east – 3%
- Monteray Drive from/to the west – 5%

Pass-by trips for the commercial uses were distributed along Ocean Trail with a 60/40 split between the northbound and southbound directions respectively.

The non-pass-by distribution percentages and resulting site trips for Build (2026) are shown in Figure 6 and Figure 7. The pass-by distribution percentages and resulting site trips for Build (2026) are shown in Figure 8 and Figure 9. The total combined site trips for Build (2026) are shown in Figure 10.

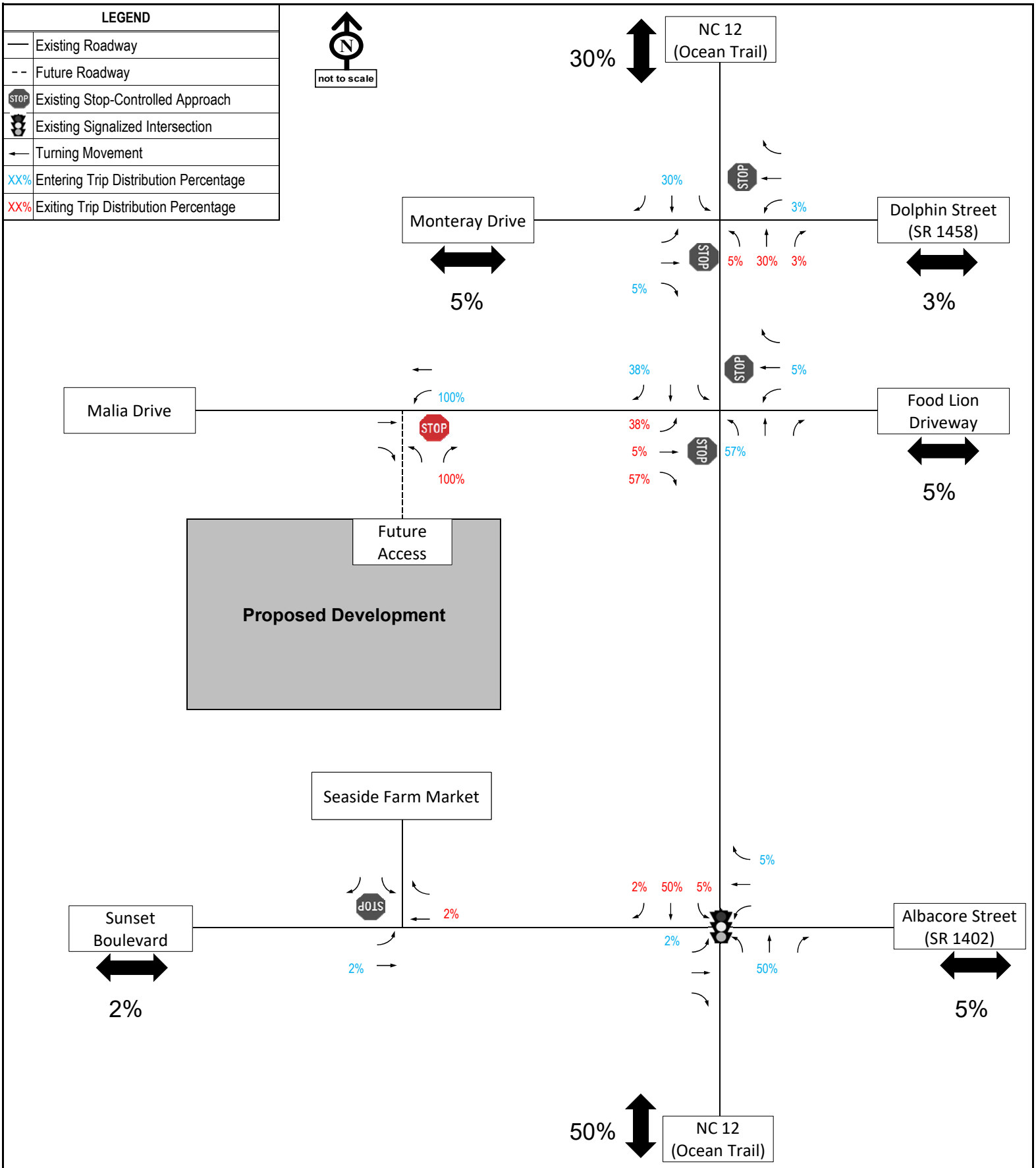

Figure 6
Build (2026) Non-Pass-By Site Trip Distribution

Monteray Shores TIA
Corolla, NC

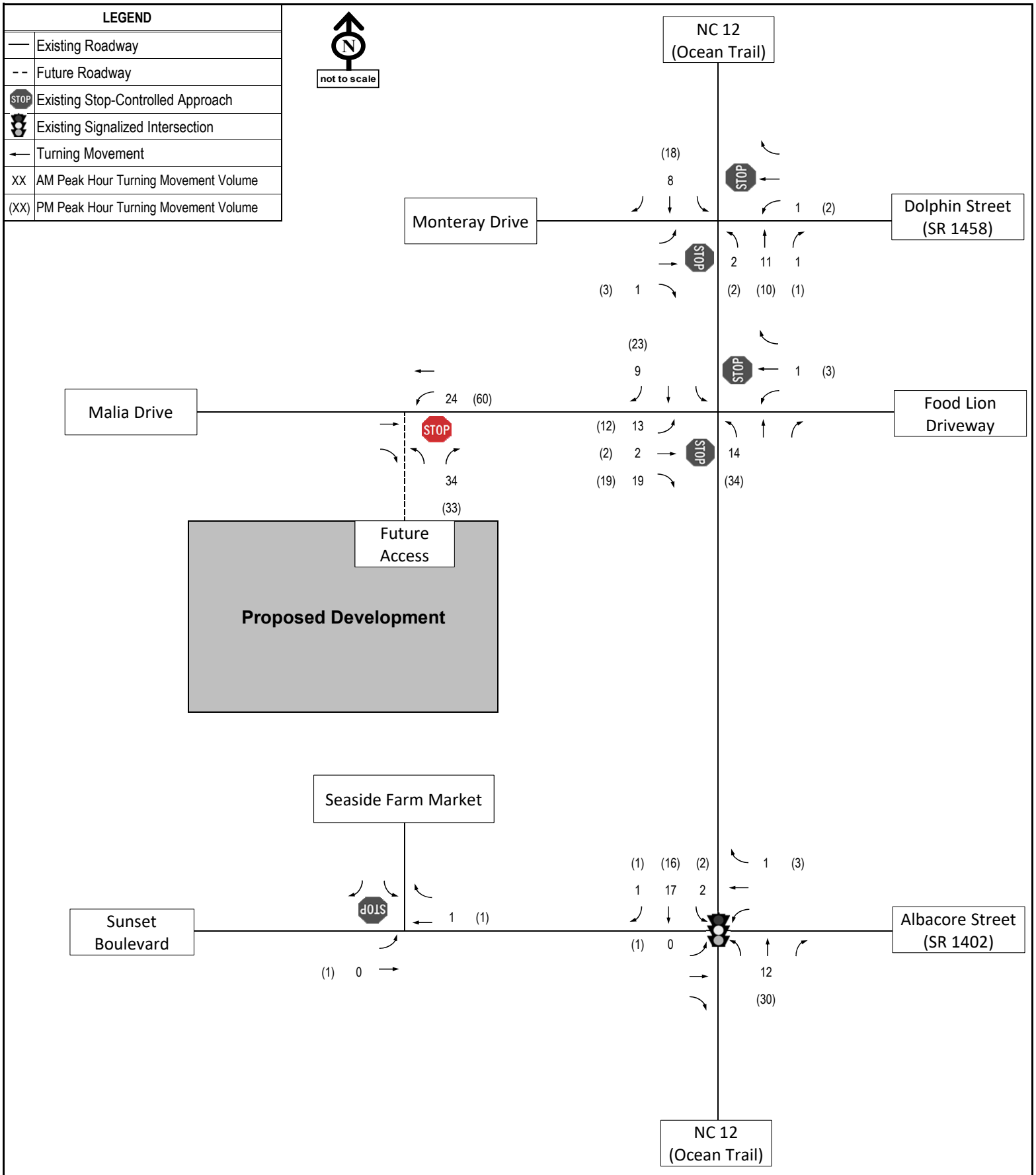

Figure 7
Build (2026) Peak Hour Site Generated Non-Pass-By Trips

Monteray Shores TIA
Corolla, NC

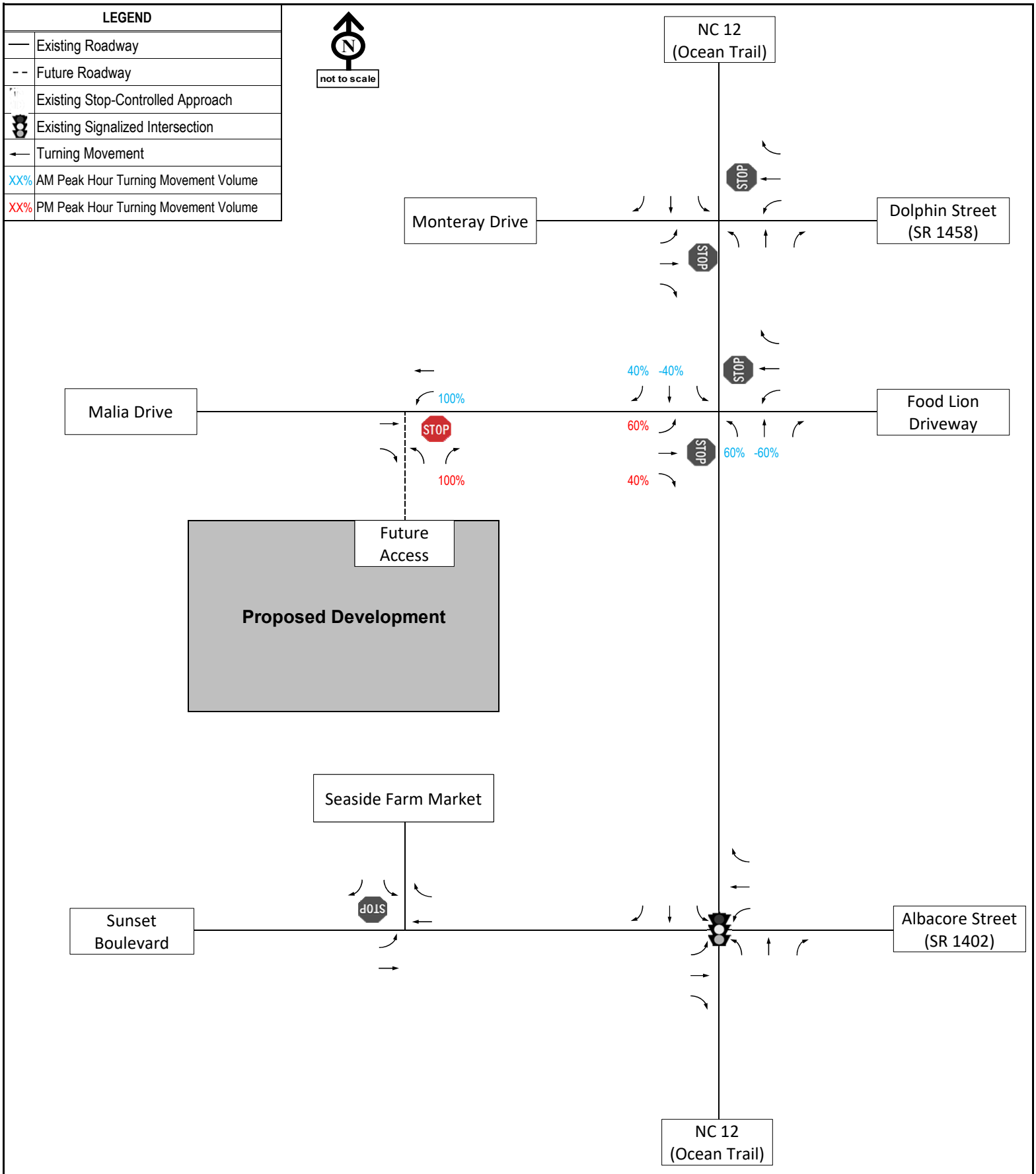

Figure 8
Build (2026) Pass-By Site Trip Distribution

Monteray Shores TIA
Corolla, NC

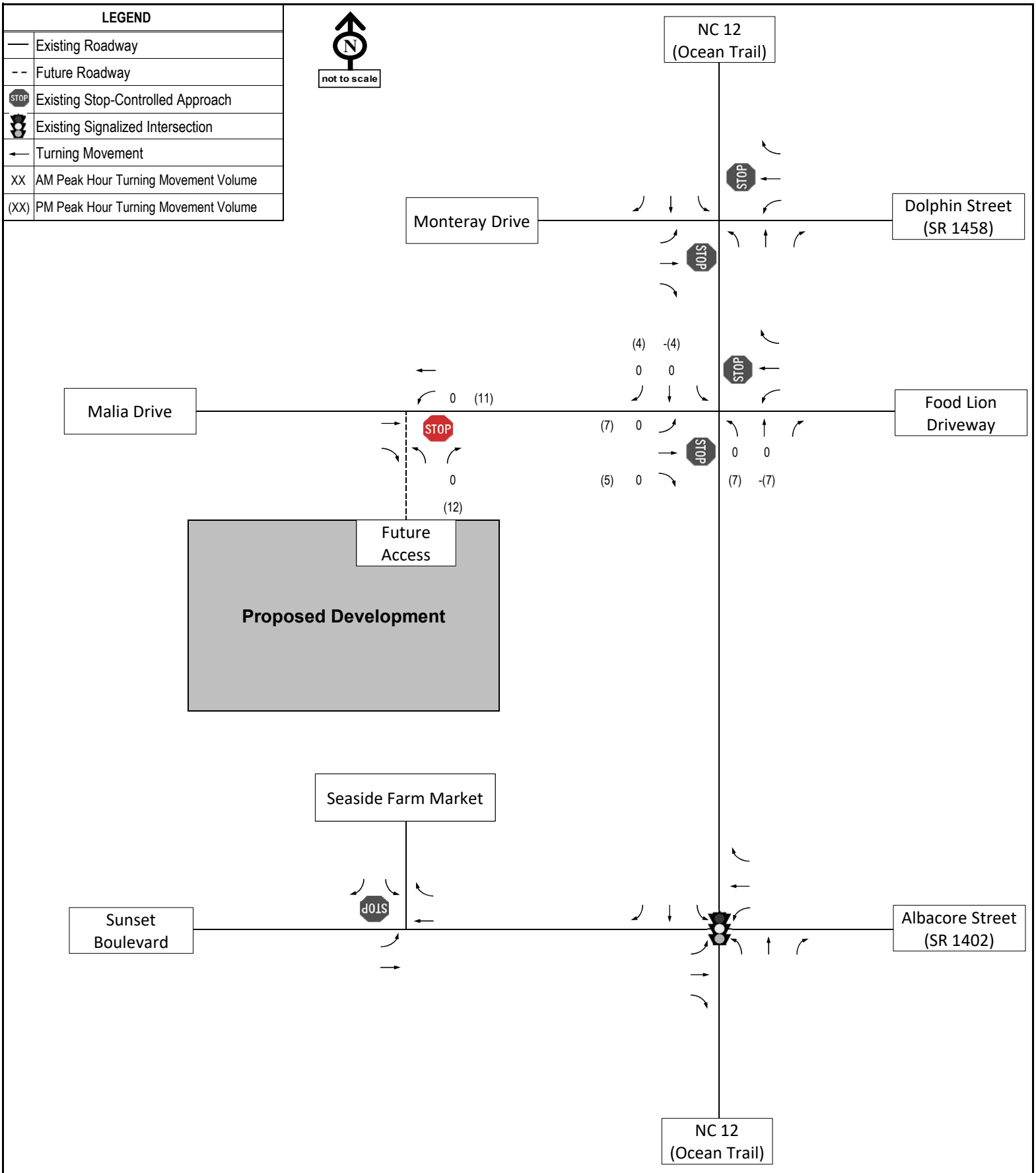

Figure 9
Build (2026) Peak Hour Site Generated Pass-By Trips

Monteray Shores TIA
Corolla, NC

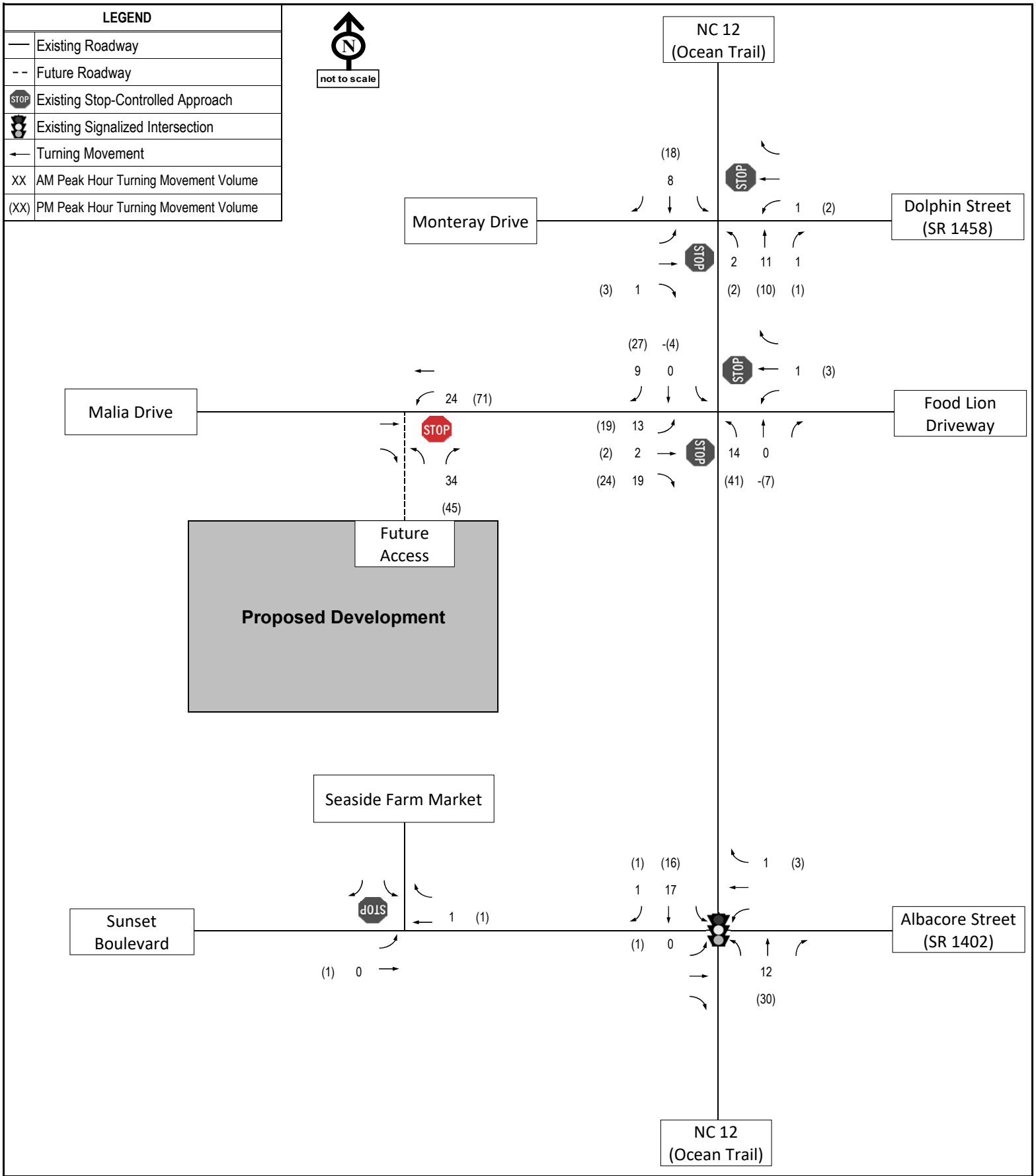

Figure 10
Build (2026) Total Peak Hour Site Generated Trips

Monteray Shores TIA
Corolla, NC

Level of Service Analysis

The Build (2026) analysis scenario includes the No-Build (2026) traffic and site-generated trips from the proposed development as described previously. The network geometry matches the Existing (2021) scenario with the addition of the one driveway along Malia Drive. Figure 11 depicts the turning movement volumes used in the Build (2026) scenario analysis. Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 11*. Table 6 summarizes the findings of the LOS analysis, and Appendix D contains the full Synchro reports.

As reported in Table 6, with the addition of site trips, the signalized intersection continues to operate at overall acceptable levels of service during both peak hours. The stop-controlled westbound and eastbound approaches at the intersection of Ocean Trail (NC 12) and Malia Drive/Food Lion Driveway are both projected to operate at LOS E during the PM peak hour. The stop-controlled westbound approach at the intersection of Ocean Trail (NC 12) and Dolphin Street/Monteray Drive is projected to continue operating at a LOS F during the PM peak hour.

Table 6 Build (2026) LOS Results

ID	Intersection and Approach	Traffic Control	Build (2026)	
			AM	PM
1	**NC 12 (Ocean Trail) at Albacore Street (SR 1402)/Sunset Boulevard**	Signalized	**B (10.5)**	**C (24.2)**
	Eastbound		B-17.5	D-35.6
	Westbound		B-19.4	D-46.9
	Northbound		A-9.4	B-14.6
	Southbound		A-9.4	C-24.8
2	**NC 12 (Ocean Trail) at Malia Drive/Food Lion Driveway**	Unsignalized	-	-
	Eastbound		B-14.1	E-48.5
	Westbound		B-12.6	E-43.0
3	**NC 12 (Ocean Trail) at Dolphin Street (SR 1458)/Monteray Drive**	Unsignalized	-	-
	Eastbound		B-11.4	C-23.6
	Westbound		C-17.1	F-94.8
4	**Sunset Boulevard at Seaside Farm Market/Future Access #2**	Unsignalized	-	-
	Southbound		A-8.6	B-11.0
5	**Malia Drive at Future Access #1**	Unsignalized	-	-
	Northbound		A-8.5	A-8.8

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay

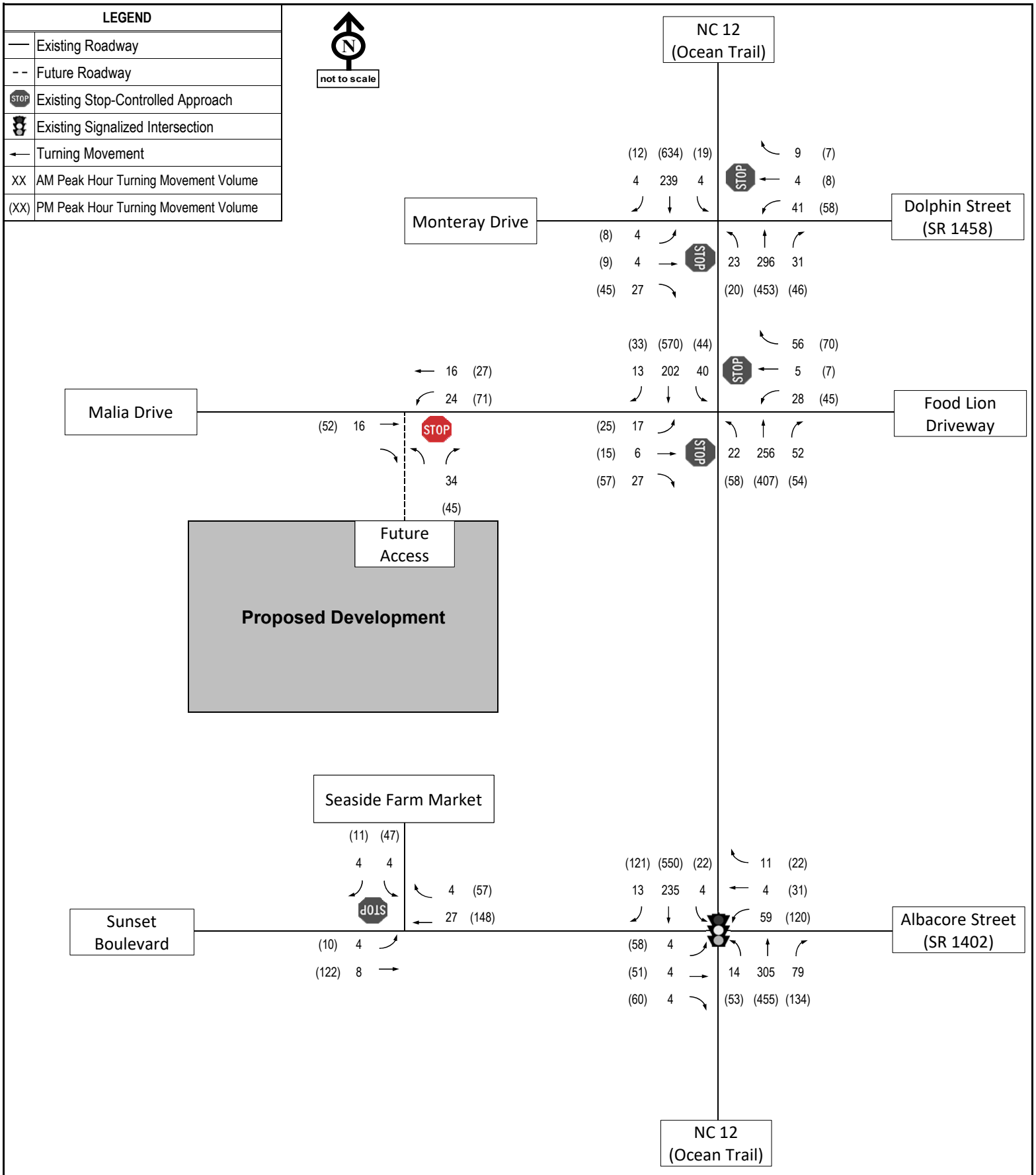

Figure 11
Build (2026) AM and PM Peak Hour Volumes

Monteray Shores TIA
Corolla, NC

Roadway Improvement Recommendations

As indicated in the traffic operations analyses, the proposed development is projected to have a minimal impact on the traffic operations within the study area.

The following configurations are recommended for the site access driveways:

Malia Drive and Future Access #1 (unsignalized)

The stop-controlled driveway is expected to operate at LOS A during both the AM and PM peak hours under Build (2026) conditions. The following lane configurations are recommended for the new driveway connection:

› Construct driveway with one ingress lane and one egress lane and full movement access.

Figure 12 provides a schematic diagram of the roadways near the proposed development, including the intersection geometrics with the proposed Build (2026) improvements applied.

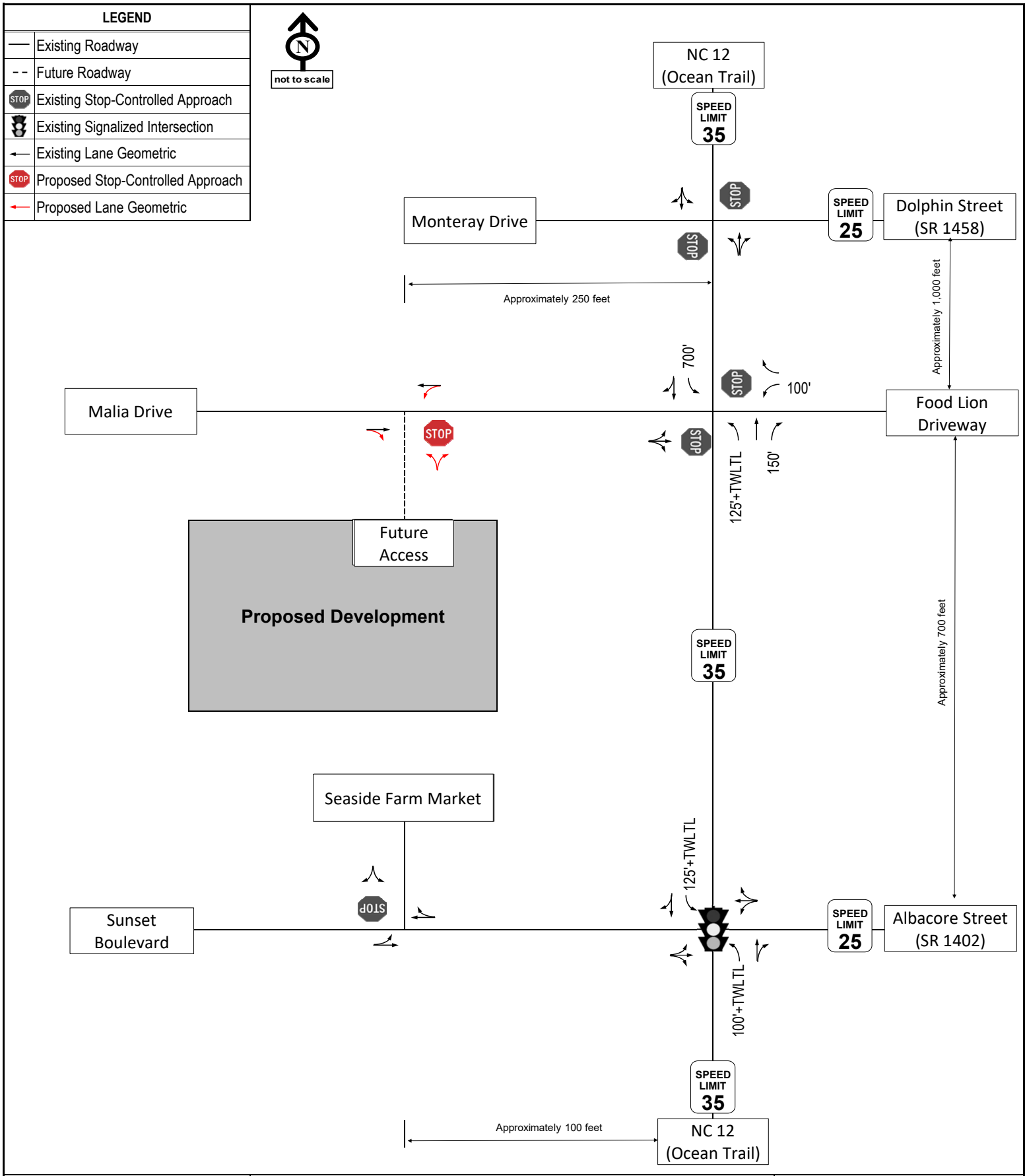

Figure 12
Build (2026) Lane Geometrics and Traffic Control

Monteray Shores TIA
Corolla, NC

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Build (2026) Conditions with Improvements

Level of Service Analysis

The Build (2026) with Improvements analysis scenario includes the No-Build (2026) traffic and site-generated trips from the proposed development as described previously. The network geometry matches the Build (2026) scenario with the addition of an EB right-turn lane along Malia Drive at NC 12 and tapers on NC 12. Figure 11 depicts the turning movement volumes used in the Build (2026) scenario analysis. Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 11*. Table 7 summarizes the findings of the LOS analysis, and Appendix D contains the full Synchro reports.

As reported in Table 7, with the addition of site trips, the signalized intersection continues to operate at overall acceptable levels of service during both peak hours. The stop-controlled westbound and eastbound approaches at the intersection of Ocean Trail (NC 12) and Malia Drive/Food Lion Driveway are both projected to operate at LOS E during the PM peak hour. The stop-controlled westbound approach at the intersection of Ocean Trail (NC 12) and Dolphin Street/Monteray Drive is projected to continue operating at a LOS F during the PM peak hour. The future lane configurations and traffic control at the study area intersections, with the development in place, are presented in Figure 13.

Table 7 Build (2026) with Improvements LOS Results

ID	Intersection and Approach	Traffic Control	Build (2026) with Improvements	
			AM	PM
1	**NC 12 (Ocean Trail) at Albacore Street (SR 1402)/Sunset Boulevard**	Signalized	**B (10.5)**	**C (24.2)**
	Eastbound		B-17.5	D-35.6
	Westbound		B-19.4	D-46.9
	Northbound		A-9.4	B-14.6
	Southbound		A-9.4	C-24.8
2	**NC 12 (Ocean Trail) at Malia Drive/Food Lion Driveway**	Unsignalized	-	-
	Eastbound		B-13.5	E-36.2
	Westbound		B-12.6	E-43.0
3	**NC 12 (Ocean Trail) at Dolphin Street (SR 1458)/Monteray Drive**	Unsignalized	-	-
	Eastbound		B-11.4	C-23.6
	Westbound		C-17.1	F-94.8
4	**Sunset Boulevard at Seaside Farm Market/Future Access #2**	Unsignalized	-	-
	Southbound		A-8.6	B-11.0
5	**Malia Drive at Future Access #1**	Unsignalized	-	-
	Northbound		A-8.5	A-8.8

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay

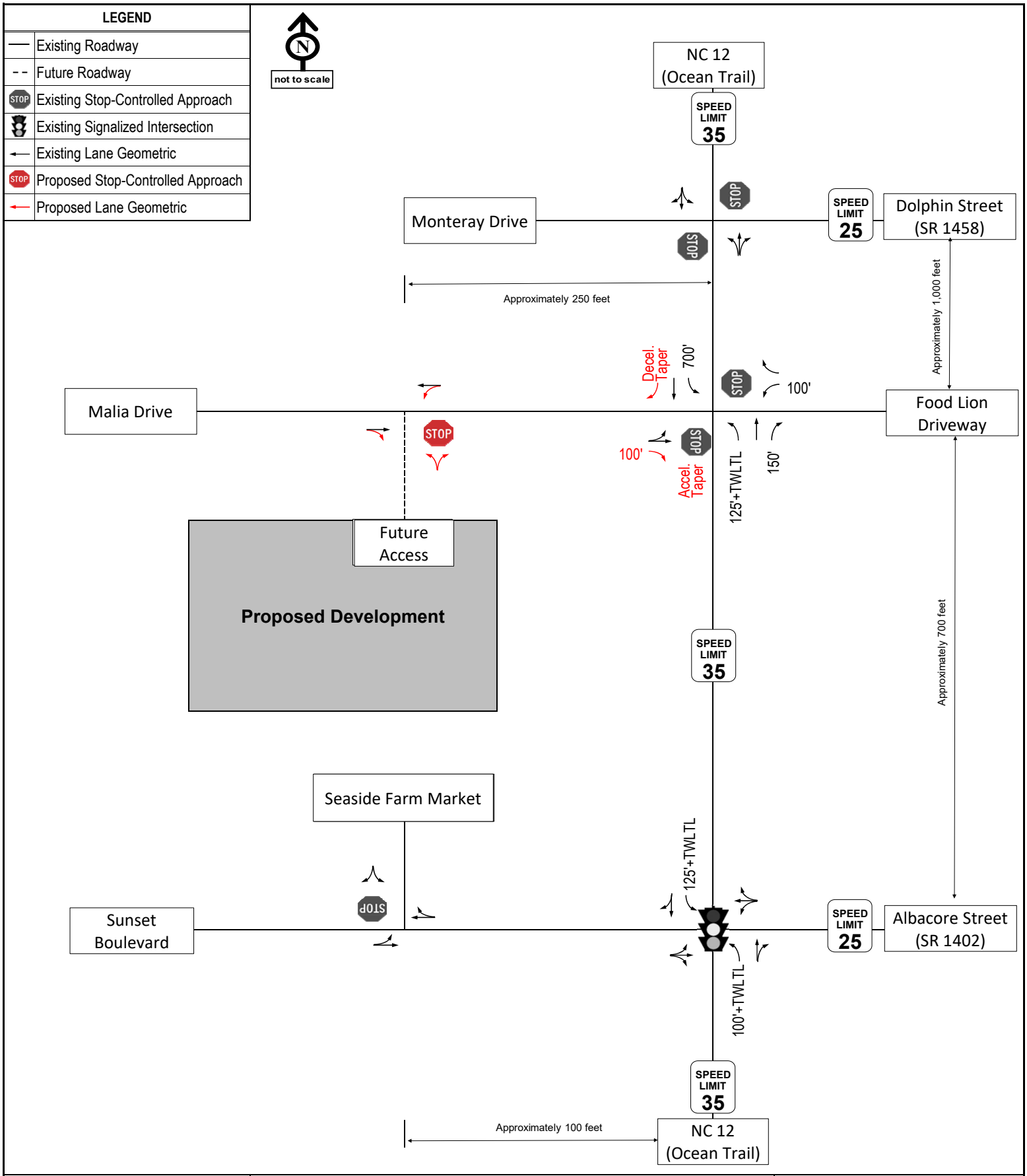


Figure 13
Build (2026) with Improvements
Lane Geometrics and Traffic Control

Monteray Shores TIA
Corolla, NC

6

Findings and Conclusions

As indicated in the traffic operations analyses, the proposed development is projected to have a minimal impact on the traffic operations for multiple intersections within the study area. Therefore, the following offsite roadway improvements are recommended as a result of the additional site traffic that this development will generate.

Roadway Improvement Recommendations

As indicated in the traffic operations analyses, the proposed development is projected to have a minimal impact on the traffic operations within the study area.

The following configurations are recommended for the site access driveways:

Malia Drive and Future Access #1 (unsignalized)

The stop-controlled driveway is expected to operate at LOS A during the AM peak hour and LOS A during the PM peak hour under Build (2026) conditions. The following lane configurations are recommended for the new driveway connection:

- Construct driveway with one ingress lane and one egress lane and full movement access.

Ocean Trail (NC 12) and Malia Drive/Commercial Driveway (unsignalized)

The stop-controlled driveway is expected to operate at LOS B during the AM peak hour and LOS E during the PM peak hour under Build (2026) conditions with improvements. The following lane configurations are recommended for the new driveway connection:

- Construct an exclusive eastbound right-turn with at least 100' of storage and the appropriate taper, as space allows.
- Construct a SB right-turn deceleration taper on NC 12 for vehicles turning right onto Malia Drive.
- Construct a SB right-turn acceleration taper on NC 12 for vehicles turning right from Malia Drive.

The summary LOS results are shown in Table 8 and the future lane configurations and traffic control at the study area intersections, with the development in place, are presented in Figure 13. With the addition of the improvements identified as part of this TIA, all the intersections are projected to operate at improved or acceptable levels of service or there are minimal delay increases projected at the study area intersections.

Table 8 Summary of LOS Results

ID	Intersection and Approach	Traffic Control	Existing (2021)		No-Build (2026)		Build (2026)		Build (2026) with Improvements	
			AM	PM	AM	PM	AM	PM	AM	PM
1	**NC 12 (Ocean Trail) at Albacore Street (SR 1402)/Sunset Boulevard**	Signalized	**A (9.4)**	**C (21.3)**	**B (10.5)**	**C (23.6)**	**B (10.5)**	**C (24.2)**	**B (10.5)**	**C (24.2)**
	Eastbound		B-16.3	C-32.9	B-17.0	D-35.1	B-17.5	D-35.6	B-17.5	D-35.6
	Westbound		B-17.1	D-38.5	B-18.9	D-45.6	B-19.4	D-46.9	B-19.4	D-46.9
	Northbound		A-8.2	B-13.0	A-9.4	B-13.9	A-9.4	B-14.6	A-9.4	B-14.6
	Southbound		A-8.7	C-21.7	A-9.4	C-24.0	A-9.4	C-24.8	A-9.4	C-24.8
2	**NC 12 (Ocean Trail) at Malia Drive/Food Lion Driveway**	Unsignalized	-	-	-	-	-	-	-	-
	Eastbound		B-12.5	C-19.9	B-13.0	C-23.9	B-14.1	E-48.5	B-13.5	E-36.2
	Westbound		B-11.6	C-22.7	B-12.0	D-29.2	B-12.6	E-43.0	B-12.6	E-43.0
3	**NC 12 (Ocean Trail) at Dolphin Street (SR 1458)/Monteray Drive**	Unsignalized	-	-	-	-	-	-	-	-
	Eastbound		B-10.9	C-19.1	B-11.2	C-22.7	B-11.4	C-23.6	B-11.4	C-23.6
	Westbound		C-15.0	E-48.0	C-16.3	F-78.4	C-17.1	F-94.8	C-17.1	F-94.8
4	**Sunset Boulevard at Seaside Farm Market/Future Access #2**	Unsignalized	-	-	-	-	-	-	-	-
	Southbound		A-8.6	B-10.6	A-8.6	B-10.9	A-8.6	B-11.0	A-8.6	B-11.0
5	**Malia Drive at Future Access #1**	Unsignalized	-	-	-	-	-	-	-	-
	Northbound		-	-	-	-	A-8.5	A-8.8	A-8.5	A-8.8

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay

Appendices

A

Memorandum of Understanding

NCDOT Traffic Impact Analysis Need Screening / Scoping Request

TIA Need Screening → TIA Scoping → TIA Submittal

A Traffic Impact Analysis (TIA) may be required for developments based on the site trip generation estimates, site context, or at the discretion of the NCDOT District Engineer. The Applicant or the TIA Consultant shall submit this form along with the site plan to the District Engineer to determine the TIA need and, if a TIA is required, initiate the TIA scoping process. Without an approved scope, the TIA is incomplete and will be rejected until the study is revised to conform to NCDOT's TIA requirements.

Project Monterary Shores Development **Previous Name:** If Applicable

Location: Corolla, NC **County:** Currituck **Municipality:** Corolla

Project Description: Construction of 8,002 sq ft of retail, 4,502 sq ft of restaurant, 5 single family homes and 31 multifamily dwelling units

Project Contact:	Applicant	TIA Consultant
Company Name	Outer Banks Ventures	VHB Engineering NC, P.C.
Contact Person	Richard Willis	Andrew Topp, PE, PTOE
Phone Number	(757) 286-2859	(919) 334-5620
Email	rcwillis@outerbanksventures.com	atopp@vhb.com
Mailing Address	215 Brooks Ave #1001 Norfolk, Virginia 23510	940 Main Campus Drive, Ste. 500 Raleigh, NC 27606

Site Plan Prepared Bissell Professional Group **Site Plan Date:** 5/27/2021

See site plan/vicinity map requirements on page 2.

Parcel Size: 36.1 Acre(s) **Anticipated Build-Out Year:** Early 2023

Weekday Site Trip Generation - Do NOT adjust for mode split, pass-by, internal capture, or diverted trips.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
210	Single Family	5	du	66	Adj. Street	2	6	8	4	2	6	ITE Equation
220	Multi-Family	31	du	194	Adj. Street	4	12	16	13	8	21	ITE Equation
820	General Retail	8002	sf	1079	Adj. Street	27	16	43	31	34	65	ITE Equation
932	Quality Restaurant	4502	sf	377	Generator	2	1	3	23	12	35	ITE Rate
Total				1716		35	35	70	71	56	127	

Refer to the current *NCDOT Congestion Management Capacity Analysis Guidelines* for acceptable trip calculation methods and data sources.

**Explain local or other data sources, if used:

☐ The estimated site trips meet NCDOT's TIA trip threshold of 3,000 daily trips.

☐ The estimated site trips meet the municipal TIA trip threshold of

☐ This project is located in a known STIP and/ or local CIP project #

☐ This project includes a rezoning request.

☐ The proposed site access is located within 1,000 feet of an interchange.

☐ The Applicant requests for a new or modified control-of-access break.

☐ The Applicant requests for a new or modified median break.

Applicant's Signature	Print Name	Date

Site Plan/Vicinity Map Requirement for TIA Need Screening: While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Monterary Shores Development **Project Reference Number:** _____

☐ **A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.

☐ **A TIA is Required by NCDOT,** per the *Policy on Street and Driveway Access to North Carolina Highways*.

If either or both of the boxes above are checked, the Applicant/TIA Consultant is hereby requested to fill out as much as possible of the following TIA scoping checklist, and return it along with the supporting documents to NCDOT prior to the scoping meeting.

☐ **A TIA is NOT required**. This decision is based on the development information presented above. Changes in the development plan will require re-evaluation of the TIA need, and may necessitate a TIA. The Applicant should inform the District Engineer of any significant changes in a timely fashion to avoid delays or rejections of the driveway permit / encroachment agreement applications.

Additional Comments:

The TIA need decision is made by the NCDOT Division ____ District____ on _____.

_____ _____

NCDOT District Representative's Signature | Print Name

Email concurrence may be used in lieu of the signature.

NCDOT TIA Scoping Checklist

TIA Need Screening → TIA Scoping → TIA Submittal

Project Name: Montera Monterary Shores Development **TIA Scoping Date:** 9/24/2021

☒ **TIA Need Screening Forms are Attached.** Project Reference #: _____ Decision Date: _____

☒ **Site Plan and Access**

☒ Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.
Refer to NCDOT's *Policy on Street and Driveway Access to North Carolina Highways* pages 14 and 15 for site plan requirements.

☒ Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Sunset Boulevard	Conventional Full-Mvmt	2-Way Stop	100	West	NC 12
Access B	Malia Drive	Conventional Full-Mvmt	2-Way Stop	250	West	NC 12
Access C						
Access D						
Access E						
Access F						
Access G						
Access H						

Existing Access	Existing Intersection of		Access Modification	**Proposed Interconnectivity** (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1			Please Select	Connector 1		
Access 2				Connector 2		
Access 3				Connector 3		
Access 4				Connector 4		

☐ Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).

☐ There will be two access scenarios evaluated in the TIA. One will include both the Malia Drive access and the Sunset Blvd access. The second scenario will included only the Malia Drive access.

Proposed K-12 School Site

☐ NCDOT MSTA School Traffic Calculator for Select School Type shall be used.

☐ Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).

☐ Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.

☐ Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).

☒ Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current *NCDOT Congestion Management Capacity Analysis Guidelines*, and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
210	Single Family	5	du	66	Adj. Street	2	6	8	4	2	6	ITE Equation
220	Multi Family	31	du	194	Adj. Street	4	12	16	13	8	21	ITE Equation
820	General Retail	8002	sf	1079	Adj. Street	27	16	43	31	34	65	ITE Equation
931	Quality Restaurant	4502	sf	377	Generator	2	1	3	23	12	35	ITE Rate
Unadjusted Site Trips				1716		35	35	70	71	56	127	
Internal Capture Trips (Attach Calculation Sheets)				430		1	1	2	23	24	47	NCHRP 684
Internal Capture % of Unadjusted Site Trips				%		%			%			
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
820	General Retail	Yes - Adjust External Trips		%		0 %			34 %			ITE Rate
932	Restaurant	Yes - Adjust External Trips		%		0 %			44 %			ITE Rate
				%		%			%			
				%		%			%			
				%		%			%			
Pass-By Trips (Attach Calculation Sheets)						0	0	0	12	12	24	
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips						34	34	68	36	20	56	
Diverted Trips, if Applicable and Justifiable												Please Select

**Explain local or other data sources, if used:

Once counts are process, pass-by trips may be adjusted downward if they exceed 10% of the adjacent street volume.

☐ Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
					Please Select							Please Select
Total Existing Site Trips												

☒ **Trip Distribution**

☐ Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).

☒ Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

Trip distribution will be determined once counts are obtained

If required by the District Engineer, the following additional diagrams shall also be submitted:

☐ Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)

☐ Inter-Development Trips (if 'internal" trips cross public streets)

☐ Pass-By Trips

☐ Diverted Trips

☐ Each Analysis Period

☐ **Mode Split**

☐ Provide Data Source and Justification

Mode / Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

☐ Identify proper infrastructure and accommodation for other modes of travel.

☒ **Analysis Peak Periods:**

☒ Weekday AM Peak _____

☒ Weekday PM Peak _____

☐ Weekday Midday Peak _____

☐ Weekday PM School Peak _____

☐ Weekend _____ Peak _____

☐ Other _____

☒ Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under "Site Plan and Access" on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	NC 12	Albacore Street	Signal	Require New Counts	9/1/2021		
#2	NC 12	Malia Drive	2-Way Stop	Require New Counts	9/1/2021		
#3	NC 12	Dolphin Street	2-Way Stop	Require New Counts	9/1/2021		
#4							
#5							
#6							
#7							
#8							
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101			Please Select	Please Select		Please Select	
#102							
#103							
#104							
#105							

The following data will be collected:

☒ New traffic turning movement counts in ☒ 15-min intervals ☐ 5-min intervals (near schools)
Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.

☐ To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:

intersections numbered: _____

and access points numbered: _____

☐ Traffic Forecast Data for TIP: _____

☒ Roadway/Intersection Configuration & Traffic Control

☒ Traffic Signal Phasing & Timing Data

☐ Crash Data: _____ Period: _____

☐ Other:

☒ **Future Year Conditions**

☒ Project Build-Out Year: Early 2023

☒ Future Analysis Year(s): 2023

☐ Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description	Year Complete

Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements

☒ Annual Growth Factor: 2 %

Justification/Data Source: NCDOT 2020-2030 growth rate = 1.4%

☐ **Local Comprehensive Transportation Plan Compliance**

☐ Identify Applicable Local Transportation Planning Documents

☐ Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #

☒ Study Method

The traffic analysis shall follow the current *NCDOT Congestion Management Capacity Analysis Guidelines*, *Policy on Street and Driveway Access to North Carolina Highways*, and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:

☐ 5. TIP Design Year Analysis _____

☐ 6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

☐ Signal Warrant Analysis for accesses/intersections _____
☐ Multi-Modal Level of Service Analysis
☐ School Loading Zone Traffic Simulation
☐ Phasing Analysis (scope separately as needed)
☐ Safety/Crash Analysis
☐ Control-of-Access Modification Justification
☐ Median Break / Modification Justification
☐ Other _____

☒ Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS). To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

☐ Div. Traffic Engr ☐ Regional Traffic Engr ☐ Congestion Management ☐ Other _____

Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required		Please Select	
Draft TIA Report	Required			
Final Sealed TIA Report	Required			

☐ **Additional Comments** (municipal TIA requirements, approved variations from NCDOT guidelines)

Agreement by All Parties

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire ____ months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

APPLICANT

_____	_____	_____
Signature	Print Name	Date

TIA CONSULTANT

_____	_____	_____
Signature	Print Name	Date

LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

_____	_____	_____
Signature	Print Name	Date

Email concurrence may be used in lieu of the signature.

NCDOT DISTRICT REPRESENTATIVE

Reviewed and approved by the NCDOT Division ____ District ____ on _____.

_____	_____
Signature	Print Name

Email concurrence may be used in lieu of the signature.

NCDOT TIA Submittal Checklist

TIA Need Screening → TIA Scoping → TIA Submittal

Submittal: Please Select **Document Date:** _____

Project _____ **Previous Name:** If Applicable _____

NCDOT Division: _____ **District:** _____ **County:** _____ **Municipality:** _____

TIA Consultant: _____ Submitted By: _____

Phone Number: _____ Email: _____

TIA Scoping Checklist Approval Date: _____ **Unadjusted Daily Site Trips:** _____

☒ The approved TIA Scoping Checklist is included in this submittal.

☒ LOS D or better is expected at all study intersections after proposed mitigations.

☒ The study report is sealed by a NC Professional Engineer with expertise in traffic engineering.

☒ This study has identified all known deficiencies with and without the proposed development.

☒ This study has identified mitigation measures to adequately accommodate the site trips.

Explain here if any of the boxes above are unchecked:

The undersigned affirms that, except for the deviations noted below, the TIA submittal conforms to the current *NCDOT Congestion Management Capacity Analysis Guidelines*, *Policy on Street and Driveway Access to North Carolina Highways*, and the TIA Scoping Checklist approved by the NCDOT District Office. The undersigned also acknowledges that the TIA will be rejected if the deviations and justifications are not properly documented and approved by NCDOT.

Deviations and Justifications (e.g., changes in site plan, development schedule, site trip and off-site trip estimates, study area, data collection, analysis period and method. Attached separate sheets if needed.)

NCDOT TIA Submittal Checklist

TIA Need Screening → TIA Scoping → TIA Submittal

TIA Consultant's Signature (Professional Engineer of TIA Record)	Print Name	Date

B

Turning Movement Counts

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC12@AlbacoreStreet
Site Code :
Start Date : 9/1/2021
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	NC 12 Southbound				Albacore Street Westbound				NC 12 Northbound				Sunset Boulevard Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	26	2	0	9	0	1	5	1	23	8	0	1	0	0	0	5	72	77
07:15 AM	0	48	2	1	9	0	0	1	1	46	11	0	0	0	0	0	2	117	119
07:30 AM	0	30	4	1	8	1	1	8	1	63	12	0	0	0	0	0	9	120	129
07:45 AM	0	44	1	0	9	1	2	8	3	73	12	0	0	0	0	0	8	145	153
Total	1	148	9	2	35	2	4	22	6	205	43	0	1	0	0	0	24	454	478
08:00 AM	2	41	1	0	9	1	1	11	4	45	14	0	2	0	0	0	11	120	131
08:15 AM	2	42	6	3	9	0	3	7	4	75	12	0	0	3	0	1	11	156	167
08:30 AM	1	49	0	0	20	2	2	15	0	72	19	0	1	1	0	0	15	167	182
08:45 AM	1	65	4	0	15	1	3	3	5	73	27	0	1	0	0	0	3	195	198
Total	6	197	11	3	53	4	9	36	13	265	72	0	4	4	0	1	40	638	678
*** BREAK ***																			
04:00 PM	3	101	29	3	20	9	5	5	10	100	26	0	15	14	15	0	8	347	355
04:15 PM	6	139	25	2	23	8	4	1	5	86	29	0	9	9	19	0	3	362	365
04:30 PM	7	130	30	4	36	4	2	10	20	106	34	0	11	7	7	0	14	394	408
04:45 PM	4	114	25	1	30	7	6	1	13	93	32	0	17	16	13	0	2	370	372
Total	20	484	109	10	109	28	17	17	48	385	121	0	52	46	54	0	27	1473	1500
05:00 PM	3	97	17	5	35	11	1	0	18	86	22	0	8	7	12	0	5	317	322
05:15 PM	2	83	37	4	26	11	1	6	13	89	33	0	14	12	12	0	10	333	343
05:30 PM	2	78	30	4	21	14	9	4	8	80	24	2	13	7	12	1	11	298	309
05:45 PM	5	72	17	6	21	7	7	2	13	72	27	0	9	9	9	0	8	268	276
Total	12	330	101	19	103	43	18	12	52	327	106	2	44	35	45	1	34	1216	1250
Grand Total	39	1159	230	34	300	77	48	87	119	1182	342	2	101	85	99	2	125	3781	3906
Apprch %	2.7	81.2	16.1		70.6	18.1	11.3		7.2	71.9	20.8		35.4	29.8	34.7				
Total %	1	30.7	6.1		7.9	2	1.3		3.1	31.3	9		2.7	2.2	2.6		3.2	96.8	
Motorcycles	0	0	0		3	1	0		0	1	0		0	0	0		0	0	5
% Motorcycles	0	0	0	0	1	1.3	0	0	0	0.1	0	0	0	0	0	0	0	0	0.1
Cars & Light Goods	39	1129	227		289	75	46		119	1150	328		100	85	98		0	0	3685
% Cars & Light Goods	100	97.4	98.7	0	96.3	97.4	95.8	0	100	97.3	95.9	0	99	100	99	0	0	0	94.3
Buses	0	3	0		2	0	0		0	2	0		0	0	0		0	0	7
% Buses	0	0.3	0	0	0.7	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0.2
Single-Unit Trucks	0	22	0		2	0	0		0	22	5		0	0	1		0	0	52
% Single-Unit Trucks	0	1.9	0	0	0.7	0	0	0	0	1.9	1.5	0	0	0	1	0	0	0	1.3
Articulated Trucks	0	3	0		2	0	0		0	1	3		1	0	0		0	0	10
% Articulated Trucks	0	0.3	0	0	0.7	0	0	0	0	0.1	0.9	0	1	0	0	0	0	0	0.3
Bicycles on Road	0	2	3		2	1	2		0	6	6		0	0	0		0	0	22
% Bicycles on Road	0	0.2	1.3	0	0.7	1.3	4.2	0	0	0.5	1.8	0	0	0	0	0	0	0	0.6
Bicycles on Crosswalk																			
% Bicycles on Crosswalk	0	0	0	14.7	0	0	0	49.4	0	0	0	100	0	0	0	50	0	0	1.3
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	74
% Pedestrians	0	0	0	85.3	0	0	0	50.6	0	0	0	0	0	0	0	50	0	0	1.9

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

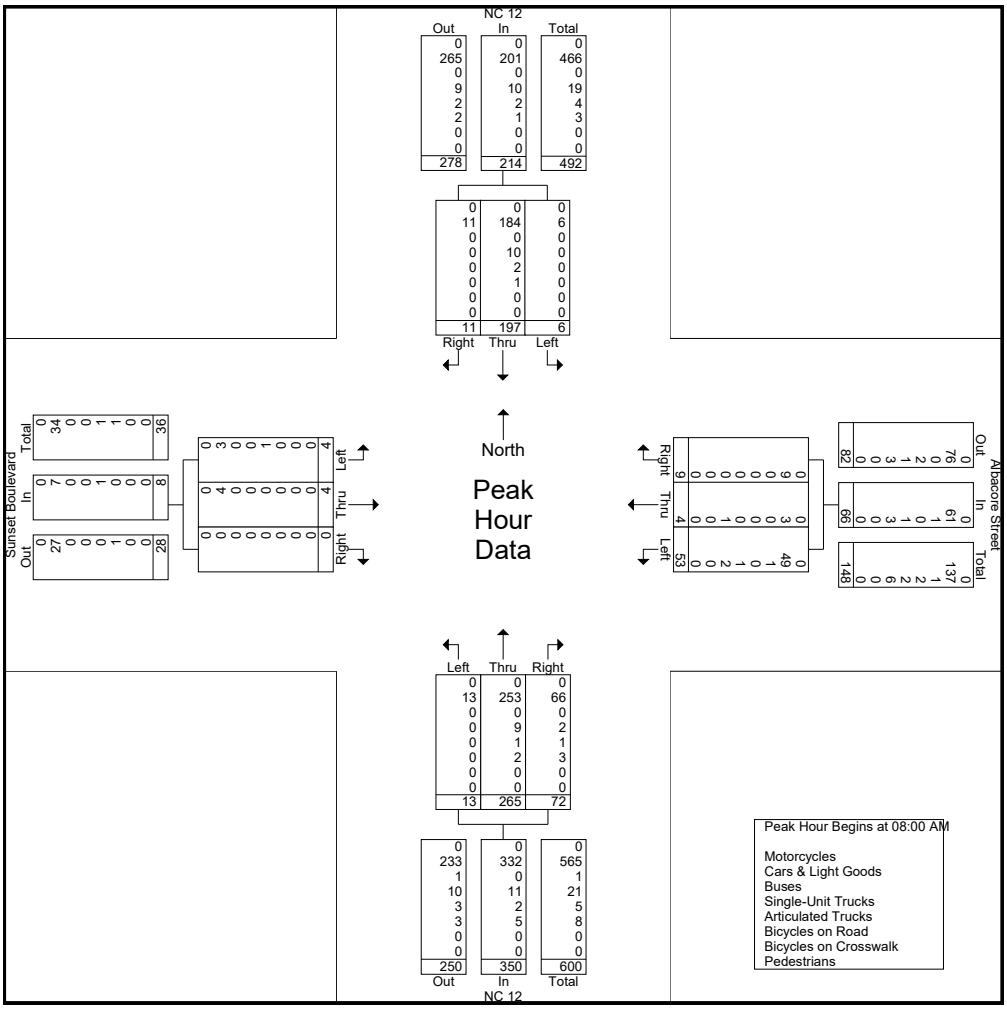
File Name : NC12@AlbacoreStreet
Site Code :
Start Date : 9/1/2021
Page No : 2

	NC 12 Southbound				Albacore Street Westbound				NC 12 Northbound				Sunset Boulevard 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
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	2	41	1	44	9	1	1	11	4	45	14	63	2	0	0	2	120
08:15 AM	2	42	6	50	9	0	3	12	4	75	12	91	0	3	0	3	156
08:30 AM	1	49	0	50	20	2	2	24	0	72	19	91	1	1	0	2	167
08:45 AM	1	65	4	70	15	1	3	19	5	73	27	105	1	0	0	1	195
Total Volume	6	197	11	214	53	4	9	66	13	265	72	350	4	4	0	8	638
% App. Total	2.8	92.1	5.1		80.3	6.1	13.6		3.7	75.7	20.6		50	50	0		
PHF	.750	.758	.458	.764	.663	.500	.750	.688	.650	.883	.667	.833	.500	.333	.000	.667	.818
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars & Light Goods	6	184	11	201	49	3	9	61	13	253	66	332	3	4	0	7	601
% Cars & Light Goods	100	93.4	100	93.9	92.5	75.0	100	92.4	100	95.5	91.7	94.9	75.0	100	0	87.5	94.2
Buses	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
% Buses	0	0	0	0	1.9	0	0	1.5	0	0	0	0	0	0	0	0	0.2
Single-Unit Trucks	0	10	0	10	0	0	0	0	0	9	2	11	0	0	0	0	21
% Single-Unit Trucks	0	5.1	0	4.7	0	0	0	0	0	3.4	2.8	3.1	0	0	0	0	3.3
Articulated Trucks	0	2	0	2	1	0	0	1	0	1	1	2	1	0	0	1	6
% Articulated Trucks	0	1.0	0	0.9	1.9	0	0	1.5	0	0.4	1.4	0.6	25.0	0	0	12.5	0.9
Bicycles on Road	0	1	0	1	2	1	0	3	0	2	3	5	0	0	0	0	9
% Bicycles on Road	0	0.5	0	0.5	3.8	25.0	0	4.5	0	0.8	4.2	1.4	0	0	0	0	1.4
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC12@AlbacoreStreet
Site Code :
Start Date : 9/1/2021
Page No : 3



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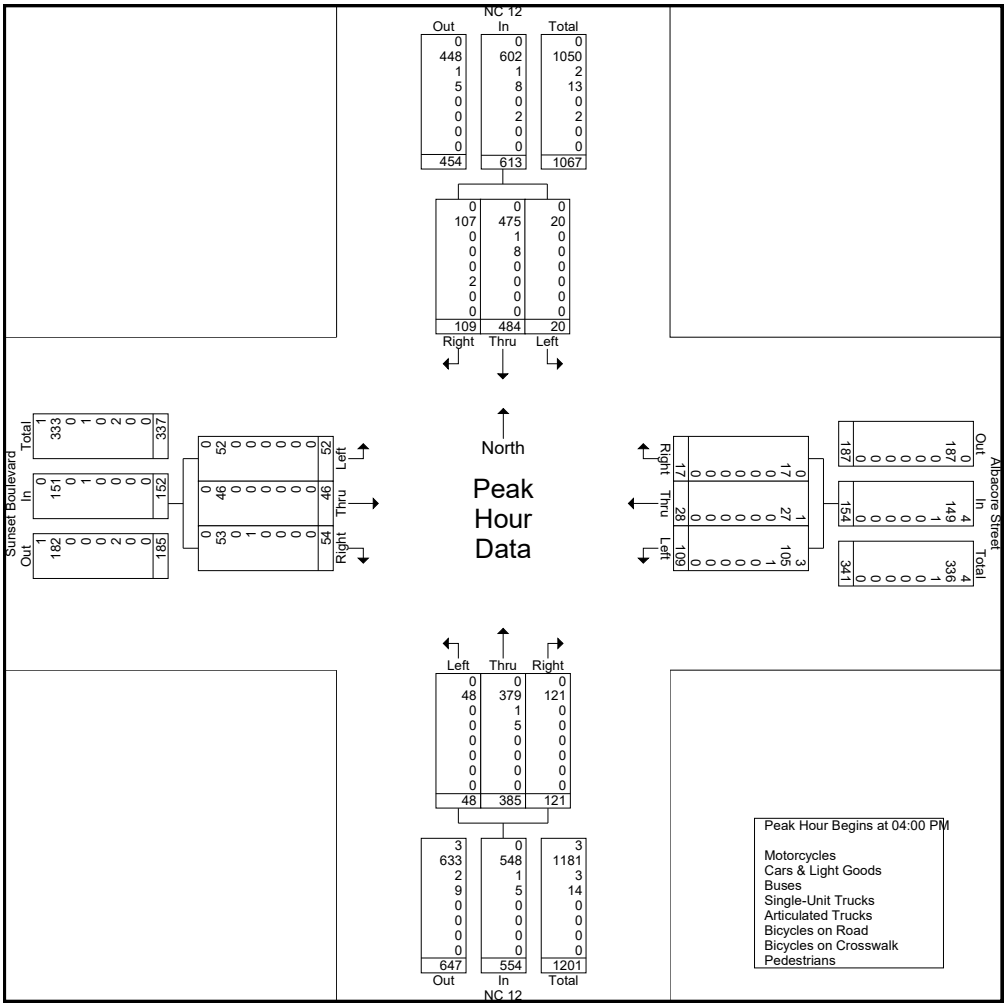
Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC12@AlbacoreStreet
Site Code :
Start Date : 9/1/2021
Page No : 4

	NC 12 Southbound				Albacore Street Westbound				NC 12 Northbound				Sunset Boulevard 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
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	3	101	29	133	20	9	5	34	10	100	26	136	15	14	15	44	347
04:15 PM	6	139	25	170	23	8	4	35	5	86	29	120	9	9	19	37	362
04:30 PM	7	130	30	167	36	4	2	42	20	106	34	160	11	7	7	25	394
04:45 PM	4	114	25	143	30	7	6	43	13	93	32	138	17	16	13	46	370
Total Volume	20	484	109	613	109	28	17	154	48	385	121	554	52	46	54	152	1473
% App. Total	3.3	79	17.8		70.8	18.2	11		8.7	69.5	21.8		34.2	30.3	35.5		
PHF	.714	.871	.908	.901	.757	.778	.708	.895	.600	.908	.890	.866	.765	.719	.711	.826	.935
Motorcycles	0	0	0	0	3	1	0	4	0	0	0	0	0	0	0	0	4
% Motorcycles	0	0	0	0	2.8	3.6	0	2.6	0	0	0	0	0	0	0	0	0.3
Cars & Light Goods	20	475	107	602	105	27	17	149	48	379	121	548	52	46	53	151	1450
% Cars & Light Goods	100	98.1	98.2	98.2	96.3	96.4	100	96.8	100	98.4	100	98.9	100	100	98.1	99.3	98.4
Buses	0	1	0	1	1	0	0	1	0	1	0	1	0	0	0	0	3
% Buses	0	0.2	0	0.2	0.9	0	0	0.6	0	0.3	0	0.2	0	0	0	0	0.2
Single-Unit Trucks	0	8	0	8	0	0	0	0	0	5	0	5	0	0	1	1	14
% Single-Unit Trucks	0	1.7	0	1.3	0	0	0	0	0	1.3	0	0.9	0	0	1.9	0.7	1.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% Bicycles on Road	0	0	1.8	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC12@DolphinStreet_MonterayDrive
Site Code :
Start Date : 9/1/2021
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	NC 12 Southbound				Dolphin Street Westbound				NC 12 Northbound				Monteray Drive Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	26	0	3	5	0	0	0	1	33	2	0	0	0	4	0	3	71	74
07:15 AM	1	38	0	0	7	0	3	0	3	38	5	0	0	1	5	0	0	101	101
07:30 AM	0	47	1	0	5	0	1	0	0	58	4	0	1	1	1	0	0	119	119
07:45 AM	1	45	0	0	3	0	1	0	2	65	1	0	0	0	2	1	1	120	121
Total	2	156	1	3	20	0	5	0	6	194	12	0	1	2	12	1	4	411	415
08:00 AM	0	33	0	4	12	0	2	1	4	50	3	1	0	0	3	1	7	107	114
08:15 AM	0	53	1	2	11	0	2	2	4	67	9	1	1	0	3	2	7	151	158
08:30 AM	0	53	1	4	2	0	3	1	6	73	6	0	1	1	10	3	8	156	164
08:45 AM	3	70	1	0	11	0	1	0	5	68	9	1	2	0	8	0	1	178	179
Total	3	209	3	10	36	0	8	4	19	258	27	3	4	1	24	6	23	592	615
*** BREAK ***																			
04:00 PM	0	136	3	0	7	5	0	0	5	105	12	0	4	2	11	0	0	290	290
04:15 PM	6	181	2	0	12	0	2	0	2	94	6	0	1	5	8	1	1	319	320
04:30 PM	7	126	1	1	14	0	2	0	4	114	11	0	1	0	11	1	2	291	293
04:45 PM	4	115	5	4	18	2	2	0	5	88	12	0	1	1	8	0	4	261	265
Total	17	558	11	5	51	7	6	0	16	401	41	0	7	8	38	2	7	1161	1168
05:00 PM	0	120	7	0	9	0	1	0	11	98	12	0	2	2	10	0	0	272	272
05:15 PM	0	108	0	0	8	1	0	0	9	89	8	0	0	1	8	0	0	232	232
05:30 PM	1	97	1	0	20	1	1	0	7	105	14	0	1	0	8	0	0	256	256
05:45 PM	0	75	2	5	7	5	2	0	7	81	13	0	4	3	8	1	6	207	213
Total	1	400	10	5	44	7	4	0	34	373	47	0	7	6	34	1	6	967	973
Grand Total	23	1323	25	23	151	14	23	4	75	1226	127	3	19	17	108	10	40	3131	3171
Apprch %	1.7	96.5	1.8		80.3	7.4	12.2		5.3	85.9	8.9		13.2	11.8	75				
Total %	0.7	42.3	0.8		4.8	0.4	0.7		2.4	39.2	4.1		0.6	0.5	3.4		1.3	98.7	
Motorcycles	0	1	0		0	0	0		0	1	2		0	0	0		0	0	4
% Motorcycles	0	0.1	0	0	0	0	0	0	0	0.1	1.6	0	0	0	0	0	0	0	0.1
Cars & Light Goods	22	1297	25		145	13	20		73	1192	122		19	16	106		0	0	3050
% Cars & Light Goods	95.7	98	100	0	96	92.9	87	0	97.3	97.2	96.1	0	100	94.1	98.1	0	0	0	96.2
Buses	0	2	0		0	0	0		0	1	0		0	0	0		0	0	3
% Buses	0	0.2	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0.1
Single-Unit Trucks	1	16	0		5	0	3		1	22	2		0	0	2		0	0	52
% Single-Unit Trucks	4.3	1.2	0	0	3.3	0	13	0	1.3	1.8	1.6	0	0	0	1.9	0	0	0	1.6
Articulated Trucks	0	1	0		0	0	0		1	2	0		0	0	0		0	0	4
% Articulated Trucks	0	0.1	0	0	0	0	0	0	1.3	0.2	0	0	0	0	0	0	0	0	0.1
Bicycles on Road	0	6	0		1	1	0		0	8	1		0	1	0		0	0	18
% Bicycles on Road	0	0.5	0	0	0.7	7.1	0	0	0	0.7	0.8	0	0	5.9	0	0	0	0	0.6
Bicycles on Crosswalk																			
% Bicycles on Crosswalk	0	0	0	39.1	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0.3
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	30
% Pedestrians	0	0	0	60.9	0	0	0	100	0	0	0	100	0	0	0	90	0	0	0.9

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

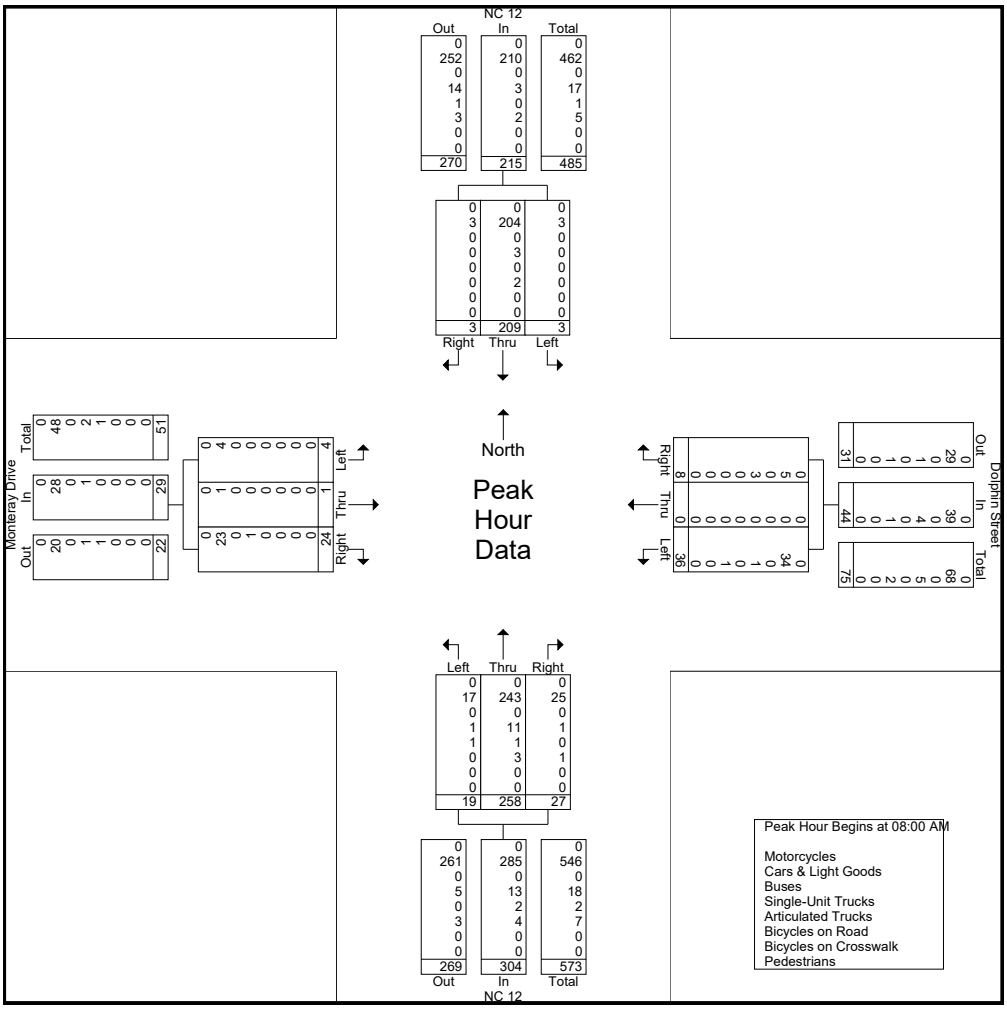
File Name : NC12@DolphinStreet_MonterayDrive
Site Code :
Start Date : 9/1/2021
Page No : 2

	NC 12 Southbound				Dolphin Street Westbound				NC 12 Northbound				Monteray Drive 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
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	33	0	33	12	0	2	14	4	50	3	57	0	0	3	3	107
08:15 AM	0	53	1	54	11	0	2	13	4	67	9	80	1	0	3	4	151
08:30 AM	0	53	1	54	2	0	3	5	6	73	6	85	1	1	10	12	156
08:45 AM	3	70	1	74	11	0	1	12	5	68	9	82	2	0	8	10	178
Total Volume	3	209	3	215	36	0	8	44	19	258	27	304	4	1	24	29	592
% App. Total	1.4	97.2	1.4		81.8	0	18.2		6.2	84.9	8.9		13.8	3.4	82.8		
PHF	.250	.746	.750	.726	.750	.000	.667	.786	.792	.884	.750	.894	.500	.250	.600	.604	.831
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars & Light Goods	3	204	3	210	34	0	5	39	17	243	25	285	4	1	23	28	562
% Cars & Light Goods	100	97.6	100	97.7	94.4	0	62.5	88.6	89.5	94.2	92.6	93.8	100	100	95.8	96.6	94.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	3	0	3	1	0	3	4	1	11	1	13	0	0	1	1	21
% Single-Unit Trucks	0	1.4	0	1.4	2.8	0	37.5	9.1	5.3	4.3	3.7	4.3	0	0	4.2	3.4	3.5
Articulated Trucks	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	2
% Articulated Trucks	0	0	0	0	0	0	0	0	5.3	0.4	0	0.7	0	0	0	0	0.3
Bicycles on Road	0	2	0	2	1	0	0	1	0	3	1	4	0	0	0	0	7
% Bicycles on Road	0	1.0	0	0.9	2.8	0	0	2.3	0	1.2	3.7	1.3	0	0	0	0	1.2
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC12@DolphinStreet_MonterayDrive
Site Code :
Start Date : 9/1/2021
Page No : 3

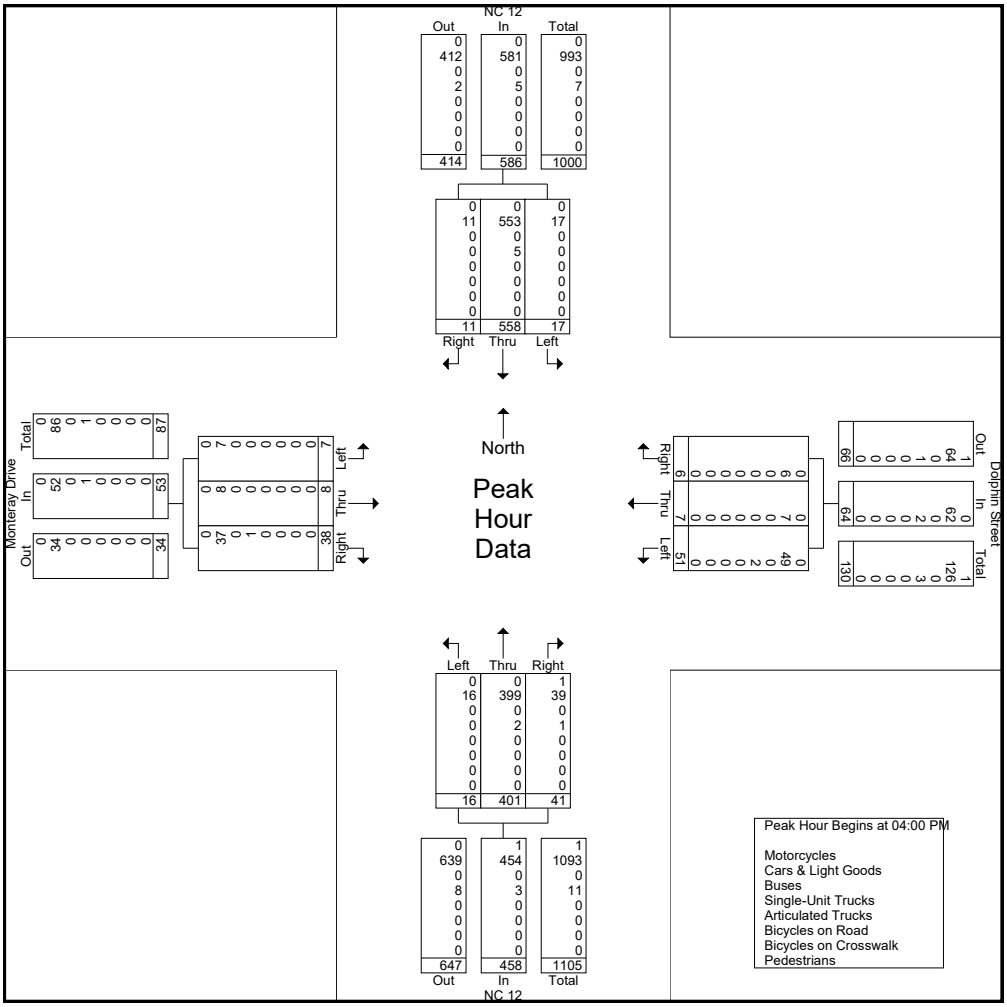


VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC12@DolphinStreet_MonterayDrive
Site Code :
Start Date : 9/1/2021
Page No : 4

	NC 12 Southbound				Dolphin Street Westbound				NC 12 Northbound				Monteray Drive 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
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	136	3	139	7	5	0	12	5	105	12	122	4	2	11	17	290
04:15 PM	6	181	2	189	12	0	2	14	2	94	6	102	1	5	8	14	319
04:30 PM	7	126	1	134	14	0	2	16	4	114	11	129	1	0	11	12	291
04:45 PM	4	115	5	124	18	2	2	22	5	88	12	105	1	1	8	10	261
Total Volume	17	558	11	586	51	7	6	64	16	401	41	458	7	8	38	53	1161
% App. Total	2.9	95.2	1.9		79.7	10.9	9.4		3.5	87.6	9		13.2	15.1	71.7		
PHF	.607	.771	.550	.775	.708	.350	.750	.727	.800	.879	.854	.888	.438	.400	.864	.779	.910
Motorcycles	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% Motorcycles	0	0	0	0	0	0	0	0	0	0	2.4	0.2	0	0	0	0	0.1
Cars & Light Goods	17	553	11	581	49	7	6	62	16	399	39	454	7	8	37	52	1149
% Cars & Light Goods	100	99.1	100	99.1	96.1	100	100	96.9	100	99.5	95.1	99.1	100	100	97.4	98.1	99.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	5	0	5	2	0	0	2	0	2	1	3	0	0	1	1	11
% Single-Unit Trucks	0	0.9	0	0.9	3.9	0	0	3.1	0	0.5	2.4	0.7	0	0	2.6	1.9	0.9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC12@MaliaDrive
Site Code :
Start Date : 9/1/2021
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	NC 12 Southbound				Monterey Plaza Westbound				NC 12 Northbound				Malia Drive Eastbound						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	2	27	0	0	6	1	8	0	0	26	2	0	0	0	0	0	0	72	72
07:15 AM	1	45	0	0	5	0	4	0	0	40	8	0	0	0	0	0	0	103	103
07:30 AM	4	34	0	1	3	0	5	0	1	57	7	0	1	0	1	0	1	113	114
07:45 AM	9	35	0	0	8	0	11	0	3	57	11	0	0	0	1	0	0	135	135
Total	16	141	0	1	22	1	28	0	4	180	28	0	1	0	2	0	1	423	424
08:00 AM	9	32	0	4	7	0	10	0	0	44	14	0	1	1	3	1	5	121	126
08:15 AM	10	40	0	0	6	0	13	1	1	63	11	0	0	0	0	3	4	144	148
08:30 AM	8	48	0	0	4	0	19	0	1	60	13	1	0	0	1	0	1	154	155
08:45 AM	9	63	1	0	8	0	9	0	5	65	9	0	0	0	3	0	0	172	172
Total	36	183	1	4	25	0	51	1	7	232	47	1	1	1	7	4	10	591	601
*** BREAK ***																			
04:00 PM	10	117	1	3	7	0	19	0	3	97	18	0	2	2	6	0	3	282	285
04:15 PM	14	152	2	2	8	0	14	0	2	82	9	0	2	8	14	0	2	307	309
04:30 PM	10	128	1	0	14	2	18	0	6	108	11	0	0	1	7	0	0	306	306
04:45 PM	6	123	1	0	12	0	12	0	4	88	11	0	1	1	3	0	0	262	262
Total	40	520	5	5	41	2	63	0	15	375	49	0	5	12	30	0	5	1157	1162
05:00 PM	6	99	2	1	11	1	25	0	3	80	17	0	2	2	5	0	1	253	254
05:15 PM	6	106	0	0	5	1	12	0	3	88	17	0	3	5	5	0	0	251	251
05:30 PM	10	85	0	0	11	0	23	0	4	86	5	1	0	0	10	0	1	234	235
05:45 PM	8	81	0	1	9	1	14	0	1	76	8	0	1	2	2	0	1	203	204
Total	30	371	2	2	36	3	74	0	11	330	47	1	6	9	22	0	3	941	944
Grand Total	122	1215	8	12	124	6	216	1	37	1117	171	2	13	22	61	4	19	3112	3131
Apprch %	9.1	90.3	0.6		35.8	1.7	62.4		2.8	84.3	12.9		13.5	22.9	63.5				
Total %	3.9	39	0.3		4	0.2	6.9		1.2	35.9	5.5		0.4	0.7	2		0.6	99.4	
Motorcycles	1	0	0		0	0	1		0	1	0		0	0	0		0	0	3
% Motorcycles	0.8	0	0	0	0	0	0.5	0	0	0.1	0	0	0	0	0	0	0	0	0.1
Cars & Light Goods	120	1192	8		123	4	209		35	1077	167		12	20	58		0	0	3025
% Cars & Light Goods	98.4	98.1	100	0	99.2	66.7	96.8	0	94.6	96.4	97.7	0	92.3	90.9	95.1	0	0	0	96.6
Buses	0	2	0		0	0	0		0	2	0		0	0	0		0	0	4
% Buses	0	0.2	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0.1
Single-Unit Trucks	0	14	0		1	0	5		0	26	2		1	0	2		0	0	51
% Single-Unit Trucks	0	1.2	0	0	0.8	0	2.3	0	0	2.3	1.2	0	7.7	0	3.3	0	0	0	1.6
Articulated Trucks	0	2	0		0	0	0		0	3	1		0	0	0		0	0	6
% Articulated Trucks	0	0.2	0	0	0	0	0	0	0	0.3	0.6	0	0	0	0	0	0	0	0.2
Bicycles on Road	1	5	0		0	2	1		2	8	1		0	2	1		0	0	23
% Bicycles on Road	0.8	0.4	0	0	0	33.3	0.5	0	5.4	0.7	0.6	0	0	9.1	1.6	0	0	0	0.7
Bicycles on Crosswalk																			
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	19
% Pedestrians	0	0	0	100	0	0	0	100	0	0	0	100	0	0	0	100	0	0	0.6

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

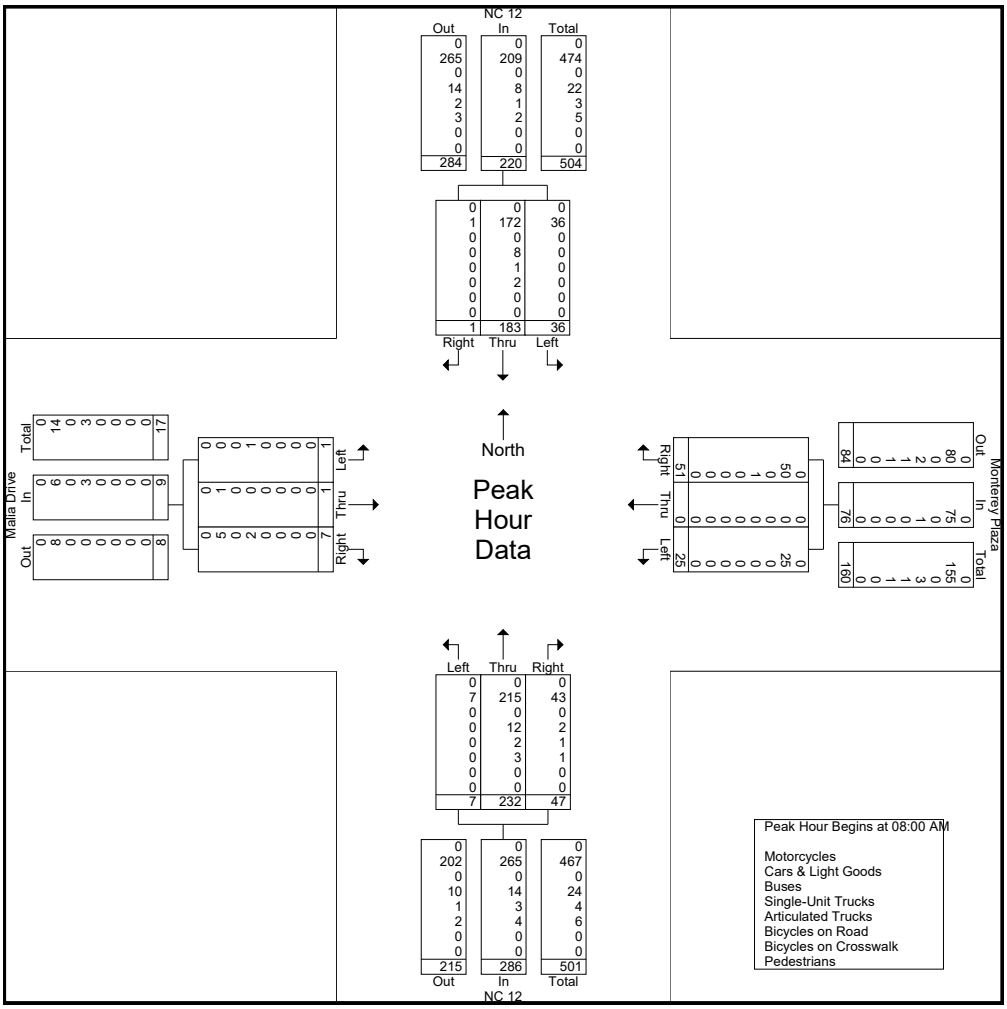
File Name : NC12@MaliaDrive
Site Code :
Start Date : 9/1/2021
Page No : 2

	NC 12 Southbound				Monterey Plaza Westbound				NC 12 Northbound				Malia Drive 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
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	9	32	0	41	7	0	10	17	0	44	14	58	1	1	3	5	121
08:15 AM	10	40	0	50	6	0	13	19	1	63	11	75	0	0	0	0	144
08:30 AM	8	48	0	56	4	0	19	23	1	60	13	74	0	0	1	1	154
08:45 AM	9	63	1	73	8	0	9	17	5	65	9	79	0	0	3	3	172
Total Volume	36	183	1	220	25	0	51	76	7	232	47	286	1	1	7	9	591
% App. Total	16.4	83.2	0.5		32.9	0	67.1		2.4	81.1	16.4		11.1	11.1	77.8		
PHF	.900	.726	.250	.753	.781	.000	.671	.826	.350	.892	.839	.905	.250	.250	.583	.450	.859
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars & Light Goods	36	172	1	209	25	0	50	75	7	215	43	265	0	1	5	6	555
% Cars & Light Goods	100	94.0	100	95.0	100	0	98.0	98.7	100	92.7	91.5	92.7	0	100	71.4	66.7	93.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	8	0	8	0	0	1	1	0	12	2	14	1	0	2	3	26
% Single-Unit Trucks	0	4.4	0	3.6	0	0	2.0	1.3	0	5.2	4.3	4.9	100	0	28.6	33.3	4.4
Articulated Trucks	0	1	0	1	0	0	0	0	0	2	1	3	0	0	0	0	4
% Articulated Trucks	0	0.5	0	0.5	0	0	0	0	0	0.9	2.1	1.0	0	0	0	0	0.7
Bicycles on Road	0	2	0	2	0	0	0	0	0	3	1	4	0	0	0	0	6
% Bicycles on Road	0	1.1	0	0.9	0	0	0	0	0	1.3	2.1	1.4	0	0	0	0	1.0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC12@MaliaDrive
Site Code :
Start Date : 9/1/2021
Page No : 3

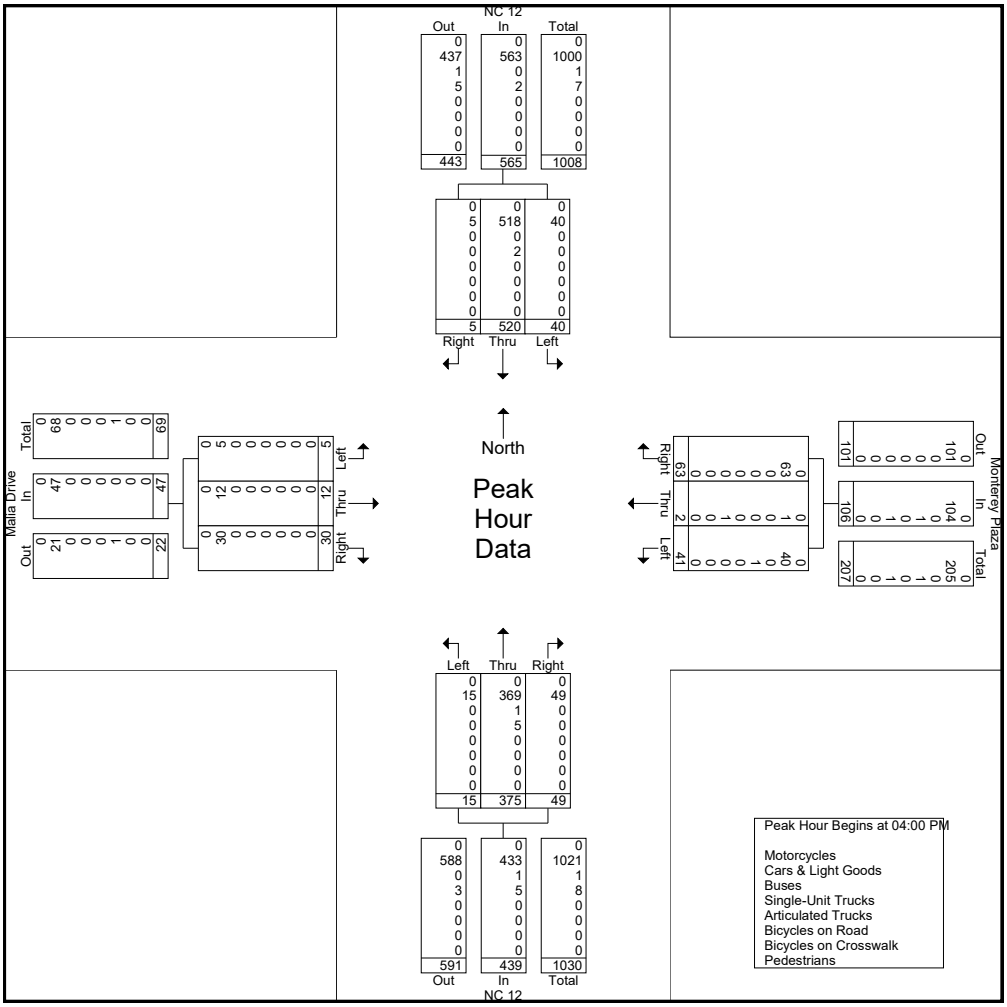


VHB Engineering NC, P.C.

Venture I
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
p: 919.829.0328 f: 919.833.0034

File Name : NC12@MaliaDrive
Site Code :
Start Date : 9/1/2021
Page No : 4

	NC 12 Southbound				Monterey Plaza Westbound				NC 12 Northbound				Malia Drive 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
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	10	117	1	128	7	0	19	26	3	97	18	118	2	2	6	10	282
04:15 PM	14	152	2	168	8	0	14	22	2	82	9	93	2	8	14	24	307
04:30 PM	10	128	1	139	14	2	18	34	6	108	11	125	0	1	7	8	306
04:45 PM	6	123	1	130	12	0	12	24	4	88	11	103	1	1	3	5	262
Total Volume	40	520	5	565	41	2	63	106	15	375	49	439	5	12	30	47	1157
% App. Total	7.1	92	0.9		38.7	1.9	59.4		3.4	85.4	11.2		10.6	25.5	63.8		
PHF	.714	.855	.625	.841	.732	.250	.829	.779	.625	.868	.681	.878	.625	.375	.536	.490	.942
Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars & Light Goods	40	518	5	563	40	1	63	104	15	369	49	433	5	12	30	47	1147
% Cars & Light Goods	100	99.6	100	99.6	97.6	50.0	100	98.1	100	98.4	100	98.6	100	100	100	100	99.1
Buses	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% Buses	0	0	0	0	0	0	0	0	0	0.3	0	0.2	0	0	0	0	0.1
Single-Unit Trucks	0	2	0	2	1	0	0	1	0	5	0	5	0	0	0	0	8
% Single-Unit Trucks	0	0.4	0	0.4	2.4	0	0	0.9	0	1.3	0	1.1	0	0	0	0	0.7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% Bicycles on Road	0	0	0	0	0	50.0	0	0.9	0	0	0	0	0	0	0	0	0.1
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

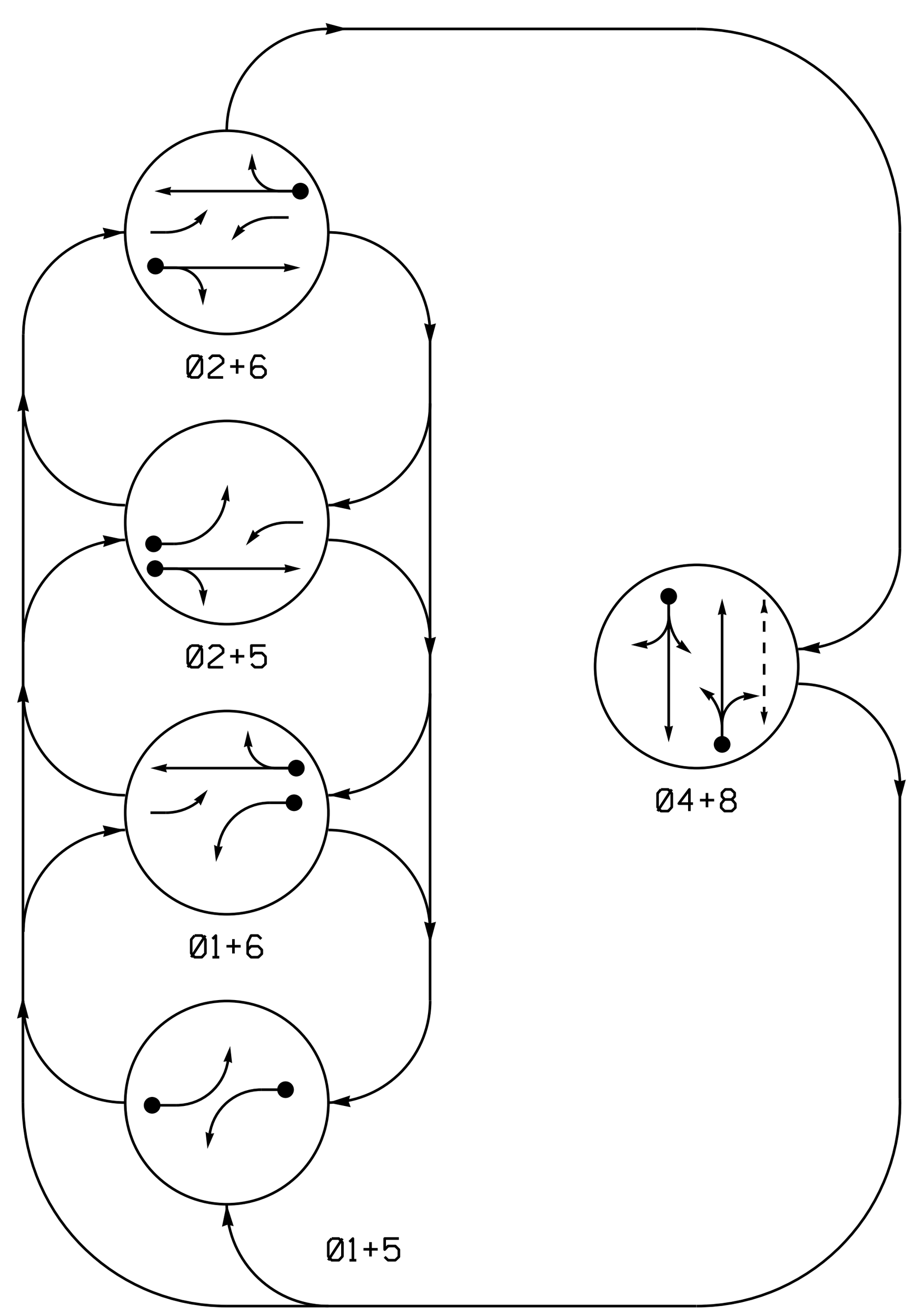


C

Traffic Signal Plans

PROJECT REFERENCE NO.	SHEET NO.
N/A	Sig. 1.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

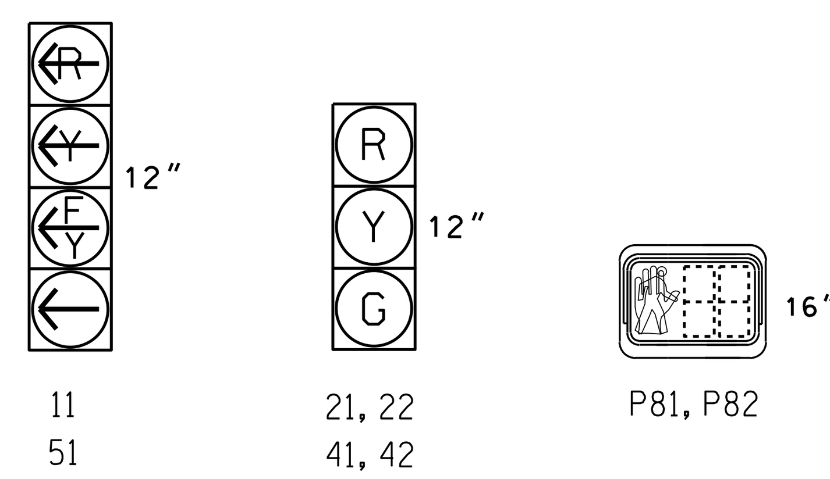
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	F/Y ←	F/Y ←	←R	←Y
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	←	F/Y ←	←	F/Y ←	←R	←Y
61,62	R	G	R	G	R	Y
81,82	R	R	R	R	G	R
P81,P82	DW	DW	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



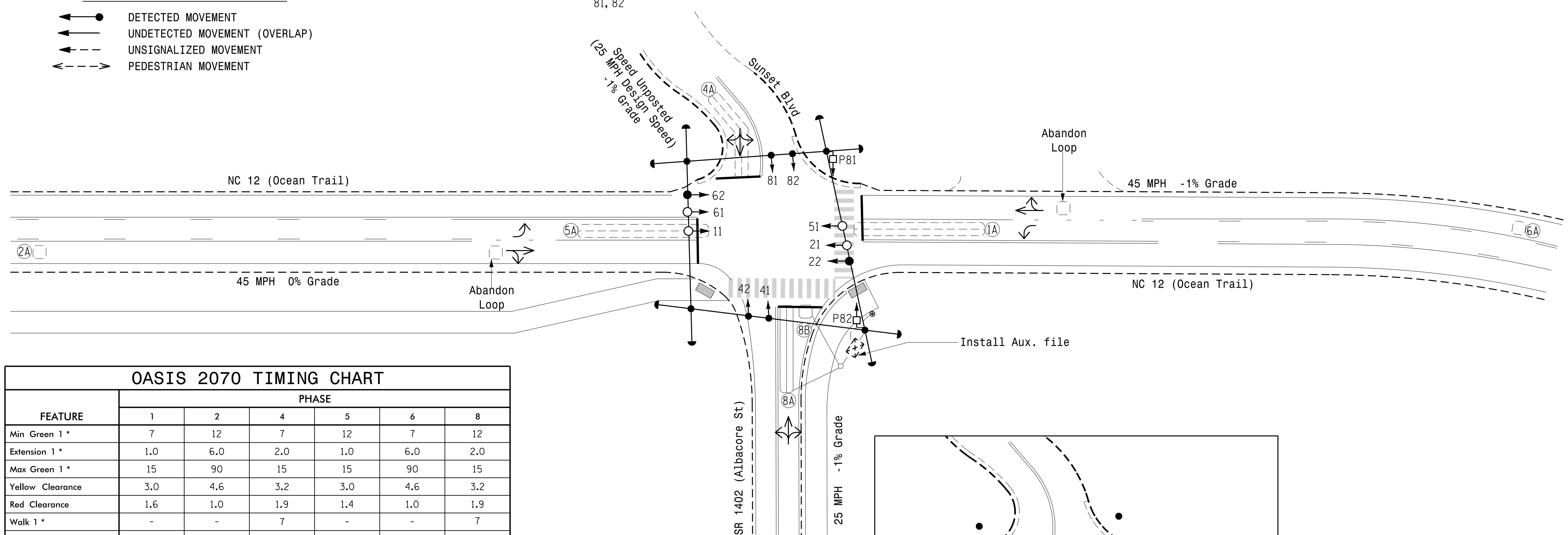
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING: PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X60	+5	2-4-2	-	1	Y	Y	-	-	15	-	-
					6	Y	Y	Y	-	3	-	-
2A	6X6	300	4	-	2	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	-
5A	6X60	+5	2-4-2	-	5	Y	Y	-	-	15	-	-
					2	Y	Y	Y	-	3	-	-
6A	6X6	300	4	-	6	Y	Y	-	-	-	-	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-	-
8B	6X6	0	3	Y	8	Y	Y	-	-	15	-	-

5 Phase
Fully Actuated
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Reposition existing signal heads numbered 22 and 62.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Phase 4 ped is dummy ped to enable phase 8 leading ped interval.



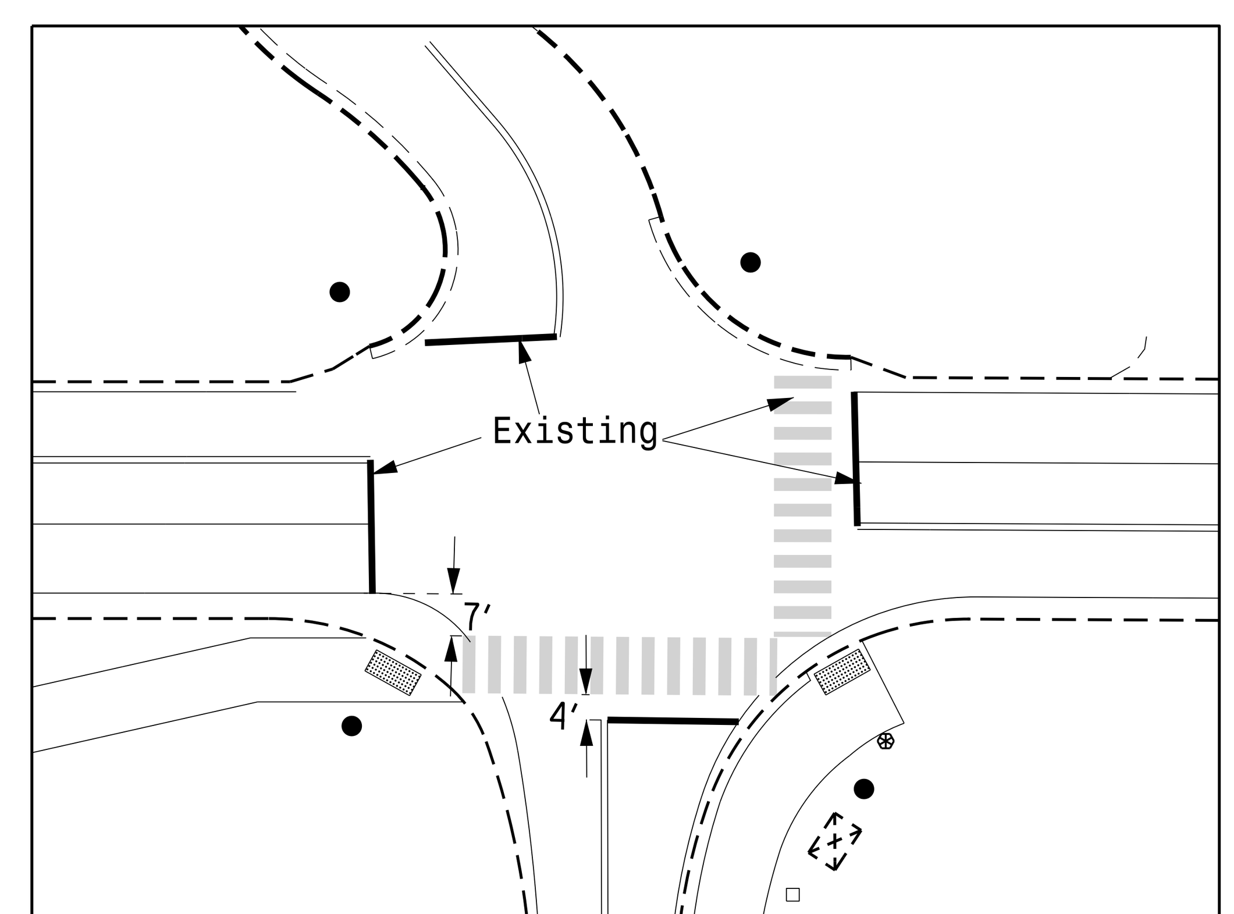
LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type I Pushbutton Post	
	High Visibility Crosswalk	
N/A	Wheel Chair Ramp	

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	12	7	12
Extension 1 *	1.0	6.0	2.0	1.0	6.0	2.0
Max Green 1 *	15	90	15	15	90	15
Yellow Clearance	3.0	4.6	3.2	3.0	4.6	3.2
Red Clearance	1.6	1.0	1.9	1.4	1.0	1.9
Walk 1 *	-	-	7	-	-	7
Don't Walk 1	-	-	12	-	-	12
Advance Walk	-	-	7	-	-	7
Seconds Per Actuation *	-	2.5	-	-	2.5	-
Max Variable Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



Proposed Stopbar and Crosswalk

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared In the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 12 (Ocean Trail)
at
SR 1402 (Albacore St)/
Sunset Blvd.

Divsion 1	Currituck County	Corolla
PLAN DATE: May 2016	REVIEWED BY: JPG, PE	
PREPARED BY: EM Minshew	REVIEWED BY:	

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL 029904
ENGINEER
JASON P. GALLOWAY

DocuSigned by: Jason P. Galloway 6/15/2016
DATE

SIG. INVENTORY NO. 01-0634

15-JUN-2016 12:09
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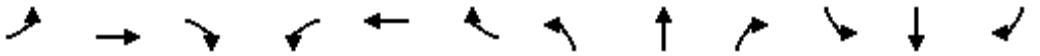
emminshew

D

Intersection Capacity Analysis

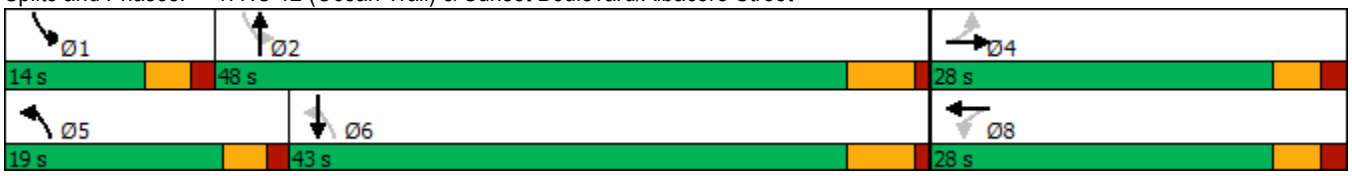


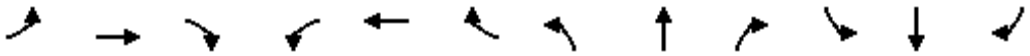
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	53	4	9	13	265	72	4	197	11
Future Volume (vph)	4	4	4	53	4	9	13	265	72	4	197	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
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		0.955			0.982			0.968			0.992	
Flt Protected		0.984			0.961		0.950			0.950		
Satd. Flow (prot)	0	1636	0	0	1679	0	1770	1754	0	1778	1775	0
Flt Permitted		0.874			0.759		0.615			0.522		
Satd. Flow (perm)	0	1453	0	0	1326	0	1146	1754	0	977	1775	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		111			563			628			669	
Travel Time (s)		3.0			15.4			12.2			13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	25%	2%	2%	7%	25%	2%	2%	4%	8%	2%	7%	2%
Adj. Flow (vph)	4	4	4	59	4	10	14	294	80	4	219	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	73	0	14	374	0	4	231	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		12.0	12.0		12.0	12.0		7.0	7.0	
Minimum Split (s)	24.1	24.1		24.1	24.1		19.0	19.0		14.0	14.0	
Total Split (s)	28.0	28.0		28.0	28.0		19.0	48.0		14.0	43.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%		21.1%	53.3%		15.6%	47.8%	
Maximum Green (s)	22.9	22.9		22.9	22.9		14.6	42.4		9.4	37.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.0		1.6	1.0	
Lost Time Adjust (s)		-0.1			-0.1		0.6	-0.6		0.6	-0.6	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.2	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		10.2			12.7		27.8	29.5		27.6	28.8	
Actuated g/C Ratio		0.24			0.30		0.65	0.69		0.64	0.67	
v/c Ratio		0.03			0.19		0.02	0.31		0.01	0.19	
Control Delay		16.3			17.1		5.1	8.3		5.0	8.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		16.3			17.1		5.1	8.3		5.0	8.8	
LOS		B			B		A	A		A	A	
Approach Delay		16.3			17.1			8.2			8.7	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		2			14		2	53		1	30	
Queue Length 95th (ft)		16			56		6	156		3	109	
Internal Link Dist (ft)		31			483			548			589	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		817			746		965	1634		806	1555	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.01			0.10		0.01	0.23		0.00	0.15	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 43			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.31			
Intersection Signal Delay: 9.4		Intersection LOS: A	
Intersection Capacity Utilization 36.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: NC 12 (Ocean Trail) & Sunset Boulevard/Albacore Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	7	25	4	51	7	232	47	36	183	4
Future Volume (vph)	4	4	7	25	4	51	7	232	47	36	183	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	125		150	700		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			50			50			75		
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		0.932			0.860				0.850		0.997	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1515	0	1770	1602	0	1770	1776	1495	1770	1788	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1515	0	1770	1602	0	1770	1776	1495	1770	1788	0
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		263			533			669			1035	
Travel Time (s)		7.2			24.2			13.0			20.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	29%	2%	2%	2%	2%	7%	8%	2%	6%	2%
Adj. Flow (vph)	4	4	8	28	4	57	8	258	52	40	203	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	28	61	0	8	258	52	40	207	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.9%		ICU Level of Service A	
Analysis Period (min) 15			

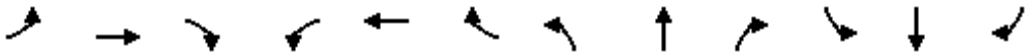
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	7	25	4	51	7	232	47	36	183	4
Future Vol, veh/h	4	4	7	25	4	51	7	232	47	36	183	4
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	-	-	-	100	-	-	125	-	150	700	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	29	2	2	2	2	7	8	2	6	2
Mvmt Flow	4	4	8	28	4	57	8	258	52	40	203	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	616	611	205	565	561	258	207	0	0	310	0	0
Stage 1	285	285	-	274	274	-	-	-	-	-	-	-
Stage 2	331	326	-	291	287	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.49	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	3.561	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	403	409	772	436	436	781	1364	-	-	1250	-	-
Stage 1	722	676	-	732	683	-	-	-	-	-	-	-
Stage 2	682	648	-	717	674	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	360	393	772	416	419	781	1364	-	-	1250	-	-
Mov Cap-2 Maneuver	360	393	-	416	419	-	-	-	-	-	-	-
Stage 1	718	654	-	728	679	-	-	-	-	-	-	-
Stage 2	625	644	-	682	652	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	11.6	0.2	1.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1364	-	-	494	416	735	1250	-	-
HCM Lane V/C Ratio	0.006	-	-	0.034	0.067	0.083	0.032	-	-
HCM Control Delay (s)	7.7	-	-	12.5	14.3	10.3	8	-	-
HCM Lane LOS	A	-	-	B	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.3	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	24	36	4	8	19	258	27	4	209	4
Future Volume (vph)	4	4	24	36	4	8	19	258	27	4	209	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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		0.896			0.977			0.988			0.998	
Flt Protected		0.994			0.964			0.997			0.999	
Satd. Flow (prot)	0	1655	0	0	1623	0	0	1760	0	0	1857	0
Flt Permitted		0.994			0.964			0.997			0.999	
Satd. Flow (perm)	0	1655	0	0	1623	0	0	1760	0	0	1857	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1233			1053			1035			650	
Travel Time (s)		33.6			28.7			20.2			12.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	6%	2%	33%	10%	6%	7%	2%	2%	2%
Adj. Flow (vph)	4	4	27	40	4	9	21	287	30	4	232	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	0	53	0	0	338	0	0	240	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.6%		ICU Level of Service A	
Analysis Period (min) 15			

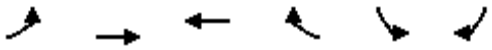
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	24	36	4	8	19	258	27	4	209	4
Future Vol, veh/h	4	4	24	36	4	8	19	258	27	4	209	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	2	2	6	2	33	10	6	7	2	2	2
Mvmt Flow	4	4	27	40	4	9	21	287	30	4	232	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	593	601	234	602	588	302	236	0	0	317	0	0
Stage 1	242	242	-	344	344	-	-	-	-	-	-	-
Stage 2	351	359	-	258	244	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.52	6.22	7.16	6.52	6.53	4.2	-	-	4.12	-	-
Critical Hdwy Stg 1	6.14	5.52	-	6.16	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.52	-	6.16	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.018	3.318	3.554	4.018	3.597	2.29	-	-	2.218	-	-
Pot Cap-1 Maneuver	414	414	805	406	421	670	1286	-	-	1243	-	-
Stage 1	757	705	-	663	637	-	-	-	-	-	-	-
Stage 2	661	627	-	738	704	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	398	404	805	382	411	670	1286	-	-	1243	-	-
Mov Cap-2 Maneuver	398	404	-	382	411	-	-	-	-	-	-	-
Stage 1	742	702	-	650	624	-	-	-	-	-	-	-
Stage 2	635	614	-	706	701	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	15	0.5	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1286	-	-	643	414	1243	-	-
HCM Lane V/C Ratio	0.016	-	-	0.055	0.129	0.004	-	-
HCM Control Delay (s)	7.8	0	-	10.9	15	7.9	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.4	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	8	24	4	4	4
Future Volume (vph)	4	8	24	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.983		0.932	
Flt Protected		0.985			0.976	
Satd. Flow (prot)	0	1798	1785	0	1694	0
Flt Permitted		0.985			0.976	
Satd. Flow (perm)	0	1798	1785	0	1694	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		606	111		270	
Travel Time (s)		16.5	3.0		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%
Adj. Flow (vph)	4	9	27	4	4	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	13	31	0	8	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.0%		ICU Level of Service A	
Analysis Period (min) 15			

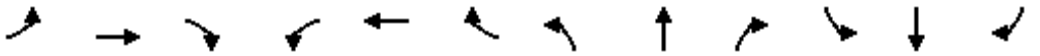
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	8	24	4	4	4
Future Vol, veh/h	4	8	24	4	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	5	5	2	2	2
Mvmt Flow	4	9	27	4	4	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	31	0	-	0	46	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	17	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1582	-	-	-	964	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1582	-	-	-	961	1046
Mov Cap-2 Maneuver	-	-	-	-	961	-
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	1006	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1582	-	-	-	1002
HCM Lane V/C Ratio	0.003	-	-	-	0.009
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0



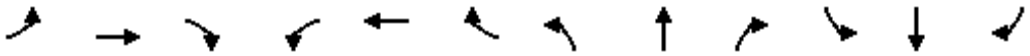
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	46	54	109	28	17	48	385	121	20	484	109
Future Volume (vph)	52	46	54	109	28	17	48	385	121	20	484	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
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		0.952			0.985			0.964			0.972	
Flt Protected		0.983			0.966		0.950			0.950		
Satd. Flow (prot)	0	1752	0	0	1751	0	1770	1796	0	1778	1820	0
Flt Permitted		0.856			0.677		0.215			0.329		
Satd. Flow (perm)	0	1526	0	0	1227	0	400	1796	0	616	1820	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		111			563			628			669	
Travel Time (s)		3.0			15.4			12.2			13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	4%	4%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	58	51	60	121	31	19	53	428	134	22	538	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	169	0	0	171	0	53	562	0	22	659	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		12.0	12.0		12.0	12.0		7.0	7.0	
Minimum Split (s)	24.1	24.1		24.1	24.1		19.0	19.0		14.0	14.0	
Total Split (s)	24.1	24.1		24.1	24.1		19.0	51.9		14.0	46.9	
Total Split (%)	26.8%	26.8%		26.8%	26.8%		21.1%	57.7%		15.6%	52.1%	
Maximum Green (s)	19.0	19.0		19.0	19.0		14.6	46.3		9.4	41.3	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.0		1.6	1.0	
Lost Time Adjust (s)		-0.1			-0.1		0.6	-0.6		0.6	-0.6	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.2	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		16.6			16.6		39.7	38.4		40.2	34.2	
Actuated g/C Ratio		0.24			0.24		0.57	0.55		0.58	0.49	
v/c Ratio		0.47			0.59		0.11	0.57		0.05	0.74	
Control Delay		32.9			38.5		5.7	13.7		5.3	22.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		32.9			38.5		5.7	13.7		5.3	22.2	
LOS		C			D		A	B		A	C	
Approach Delay		32.9			38.5			13.0			21.7	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)		82			85		8	123		3	273	
Queue Length 95th (ft)		145			#167		20	297		11	425	
Internal Link Dist (ft)		31			483			548			589	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		464			373		540	1344		524	1214	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.36			0.46		0.10	0.42		0.04	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 69.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 21.3 Intersection LOS: C
Intersection Capacity Utilization 63.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NC 12 (Ocean Trail) & Sunset Boulevard/Albacore Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	12	30	41	4	63	15	375	49	40	520	5
Future Volume (vph)	5	12	30	41	4	63	15	375	49	40	520	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	125		150	700		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			50			50			75		
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		0.914			0.858				0.850		0.998	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1714	0	1770	1559	0	1770	1863	1583	1770	1859	0
Flt Permitted		0.994		0.950			0.950			0.950		
Satd. Flow (perm)	0	1714	0	1770	1559	0	1770	1863	1583	1770	1859	0
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		263			533			669			1035	
Travel Time (s)		7.2			24.2			13.0			20.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	0%	2%	50%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	6	13	33	46	4	70	17	417	54	44	578	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	0	46	74	0	17	417	54	44	584	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			

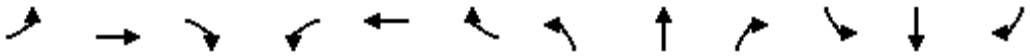
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	12	30	41	4	63	15	375	49	40	520	5
Future Vol, veh/h	5	12	30	41	4	63	15	375	49	40	520	5
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	-	-	-	100	-	-	125	-	150	700	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	0	2	50	2	2	2	2	2	2	2
Mvmt Flow	6	13	33	46	4	70	17	417	54	44	578	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1184	1174	581	1143	1123	417	584	0	0	471	0	0
Stage 1	669	669	-	451	451	-	-	-	-	-	-	-
Stage 2	515	505	-	692	672	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.2	7.12	7	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.3	3.518	4.45	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	166	192	517	177	169	636	991	-	-	1091	-	-
Stage 1	447	456	-	588	498	-	-	-	-	-	-	-
Stage 2	543	540	-	434	389	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	138	181	517	150	160	636	991	-	-	1091	-	-
Mov Cap-2 Maneuver	138	181	-	150	160	-	-	-	-	-	-	-
Stage 1	439	438	-	578	490	-	-	-	-	-	-	-
Stage 2	471	531	-	378	373	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.9	22.7	0.3	0.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	991	-	-	293	150	540	1091	-	-
HCM Lane V/C Ratio	0.017	-	-	0.178	0.304	0.138	0.041	-	-
HCM Control Delay (s)	8.7	-	-	19.9	39.1	12.7	8.4	-	-
HCM Lane LOS	A	-	-	C	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	1.2	0.5	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	8	38	51	7	6	16	401	41	17	558	11
Future Volume (vph)	7	8	38	51	7	6	16	401	41	17	558	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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		0.904			0.987			0.988			0.998	
Flt Protected		0.993			0.962			0.998			0.999	
Satd. Flow (prot)	0	1661	0	0	1745	0	0	1832	0	0	1857	0
Flt Permitted		0.993			0.962			0.998			0.999	
Satd. Flow (perm)	0	1661	0	0	1745	0	0	1832	0	0	1857	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1233			1053			1035			650	
Travel Time (s)		33.6			28.7			20.2			12.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	4%	2%	0%	2%	2%	5%	2%	2%	2%
Adj. Flow (vph)	8	9	42	57	8	7	18	446	46	19	620	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	72	0	0	510	0	0	651	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.8%		ICU Level of Service A	
Analysis Period (min) 15			

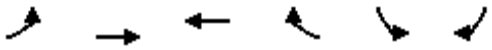
Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	8	38	51	7	6	16	401	41	17	558	11
Future Vol, veh/h	7	8	38	51	7	6	16	401	41	17	558	11
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	3	4	2	0	2	2	5	2	2	2
Mvmt Flow	8	9	42	57	8	7	18	446	46	19	620	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1177	1192	626	1195	1175	469	632	0	0	492	0	0
Stage 1	664	664	-	505	505	-	-	-	-	-	-	-
Stage 2	513	528	-	690	670	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.23	7.14	6.52	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.14	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.14	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.327	3.536	4.018	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	168	187	482	162	192	598	951	-	-	1071	-	-
Stage 1	450	458	-	546	540	-	-	-	-	-	-	-
Stage 2	544	528	-	432	455	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	154	177	482	137	182	598	951	-	-	1071	-	-
Mov Cap-2 Maneuver	154	177	-	137	182	-	-	-	-	-	-	-
Stage 1	438	446	-	532	526	-	-	-	-	-	-	-
Stage 2	516	514	-	376	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.1	48	0.3	0.2
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	951	-	-	313	152	1071	-	-
HCM Lane V/C Ratio	0.019	-	-	0.188	0.468	0.018	-	-
HCM Control Delay (s)	8.9	0	-	19.1	48	8.4	0	-
HCM Lane LOS	A	A	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	2.2	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	9	109	133	52	43	10
Future Volume (vph)	9	109	133	52	43	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962		0.975	
Flt Protected		0.996			0.961	
Satd. Flow (prot)	0	1855	1792	0	1745	0
Flt Permitted		0.996			0.961	
Satd. Flow (perm)	0	1855	1792	0	1745	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		606	111		270	
Travel Time (s)		16.5	3.0		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	121	148	58	48	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	131	206	0	59	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.2%		ICU Level of Service A	
Analysis Period (min) 15			

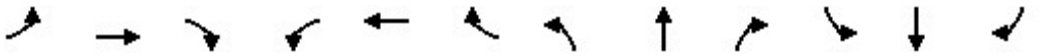
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	109	133	52	43	10
Future Vol, veh/h	9	109	133	52	43	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	121	148	58	48	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	206	0	-	0	318	177
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1365	-	-	-	675	866
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	886	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1365	-	-	-	670	866
Mov Cap-2 Maneuver	-	-	-	-	670	-
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	886	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1365	-	-	-	700
HCM Lane V/C Ratio	0.007	-	-	-	0.084
HCM Control Delay (s)	7.7	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

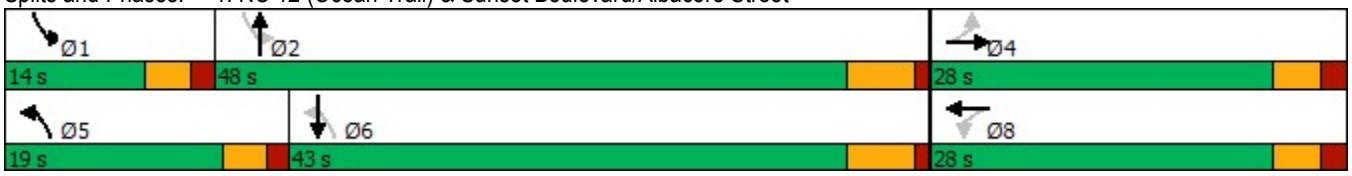


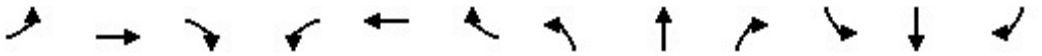
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	59	4	10	14	293	79	4	218	12
Future Volume (vph)	4	4	4	59	4	10	14	293	79	4	218	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
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		0.955			0.982			0.968			0.992	
Flt Protected		0.984			0.961		0.950			0.950		
Satd. Flow (prot)	0	1636	0	0	1681	0	1770	1754	0	1778	1775	0
Flt Permitted		0.903			0.757		0.601			0.471		
Satd. Flow (perm)	0	1502	0	0	1324	0	1120	1754	0	882	1775	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		111			563			628			669	
Travel Time (s)		3.0			15.4			12.2			13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	25%	2%	2%	7%	25%	2%	2%	4%	8%	2%	7%	2%
Adj. Flow (vph)	4	4	4	66	4	11	16	326	88	4	242	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	81	0	16	414	0	4	255	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		12.0	12.0		12.0	12.0		7.0	7.0	
Minimum Split (s)	24.1	24.1		24.1	24.1		19.0	19.0		14.0	14.0	
Total Split (s)	28.0	28.0		28.0	28.0		19.0	48.0		14.0	43.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%		21.1%	53.3%		15.6%	47.8%	
Maximum Green (s)	22.9	22.9		22.9	22.9		14.6	42.4		9.4	37.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.0		1.6	1.0	
Lost Time Adjust (s)		-0.1			-0.1		0.6	-0.6		0.6	-0.6	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.2	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		11.3			12.8		28.2	28.7		28.0	28.0	
Actuated g/C Ratio		0.24			0.27		0.60	0.61		0.59	0.59	
v/c Ratio		0.03			0.23		0.02	0.39		0.01	0.24	
Control Delay		17.0			18.9		5.0	9.6		5.0	9.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		17.0			18.9		5.0	9.6		5.0	9.5	
LOS		B			B		A	A		A	A	
Approach Delay		17.0			18.9			9.4			9.4	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		2			15		2	61		1	33	
Queue Length 95th (ft)		17			64		7	176		3	120	
Internal Link Dist (ft)		31			483			548			589	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		769			678		879	1566		703	1444	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.02			0.12		0.02	0.26		0.01	0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 47.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 38.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: NC 12 (Ocean Trail) & Sunset Boulevard/Albacore Street





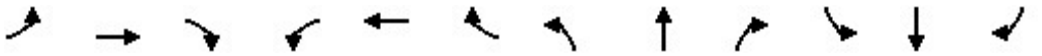
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	4	59	4	10	14	293	79	4	218	12
Future Volume (veh/h)	4	4	4	59	4	10	14	293	79	4	218	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1564	1909	1909	1834	1564	1909	1870	1841	1781	1909	1834	1909
Adj Flow Rate, veh/h	4	4	4	66	4	11	16	326	88	4	242	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	25	2	2	7	25	2	2	4	8	2	7	2
Cap, veh/h	192	154	111	352	24	33	531	589	159	403	665	36
Arrive On Green	0.25	0.20	0.25	0.25	0.20	0.25	0.03	0.42	0.46	0.00	0.39	0.42
Sat Flow, veh/h	349	777	563	940	119	166	1781	1396	377	1818	1725	93
Grp Volume(v), veh/h	12	0	0	81	0	0	16	0	414	4	0	255
Grp Sat Flow(s),veh/h/ln	1690	0	0	1225	0	0	1781	0	1773	1818	0	1818
Q Serve(g_s), s	0.0	0.0	0.0	1.5	0.0	0.0	0.2	0.0	6.8	0.1	0.0	3.9
Cycle Q Clear(g_c), s	0.2	0.0	0.0	2.0	0.0	0.0	0.2	0.0	6.8	0.1	0.0	3.9
Prop In Lane	0.33		0.33	0.81		0.14	1.00		0.21	1.00		0.05
Lane Grp Cap(c), veh/h	539	0	0	468	0	0	531	0	748	403	0	701
V/C Ratio(X)	0.02	0.00	0.00	0.17	0.00	0.00	0.03	0.00	0.55	0.01	0.00	0.36
Avail Cap(c_a), veh/h	1173	0	0	940	0	0	1108	0	1947	807	0	1764
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	0.0	0.0	12.6	0.0	0.0	7.6	0.0	8.4	7.8	0.0	8.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	2.3	0.0	0.0	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(50%),veh/ln	0.1	0.0	0.0	0.5	0.0	0.0	0.1	0.0	2.2	0.0	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.2	0.0	0.0	12.7	0.0	0.0	7.6	0.0	10.7	7.8	0.0	9.7
LnGrp LOS	B	A	A	B	A	A	A	A	B	A	A	A
Approach Vol, veh/h		12			81			430			259	
Approach Delay, s/veh		12.2			12.7			10.6			9.7	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	21.5		12.7	6.3	20.1		12.7				
Change Period (Y+Rc), s	* 4.6	5.6		* 5.1	* 4.4	5.6		* 5.1				
Max Green Setting (Gmax), s	* 9.4	42.4		* 23	* 15	37.4		* 23				
Max Q Clear Time (g_c+I1), s	2.1	8.8		2.2	2.2	5.9		4.0				
Green Ext Time (p_c), s	0.0	7.1		0.0	0.0	3.8		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	8	26	4	56	8	256	52	40	202	4
Future Volume (vph)	4	4	8	26	4	56	8	256	52	40	202	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	125		150	700		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			50			50			75		
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		0.929			0.859				0.850		0.997	
Flt Protected		0.988		0.950			0.950			0.950		
Satd. Flow (prot)	0	1500	0	1770	1600	0	1770	1776	1495	1770	1788	0
Flt Permitted		0.988		0.950			0.950			0.950		
Satd. Flow (perm)	0	1500	0	1770	1600	0	1770	1776	1495	1770	1788	0
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		263			533			669			1035	
Travel Time (s)		7.2			24.2			13.0			20.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	29%	2%	2%	2%	2%	7%	8%	2%	6%	2%
Adj. Flow (vph)	4	4	9	29	4	62	9	284	58	44	224	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	29	66	0	9	284	58	44	228	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.4%		ICU Level of Service A	
Analysis Period (min) 15			

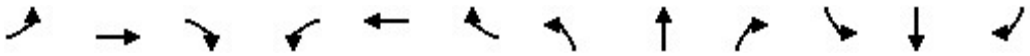
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	8	26	4	56	8	256	52	40	202	4
Future Vol, veh/h	4	4	8	26	4	56	8	256	52	40	202	4
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	-	-	-	100	-	-	125	-	150	700	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	29	2	2	2	2	7	8	2	6	2
Mvmt Flow	4	4	9	29	4	62	9	284	58	44	224	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	678	674	226	623	618	284	228	0	0	342	0	0
Stage 1	314	314	-	302	302	-	-	-	-	-	-	-
Stage 2	364	360	-	321	316	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.49	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	3.561	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	366	376	751	398	405	755	1340	-	-	1217	-	-
Stage 1	697	656	-	707	664	-	-	-	-	-	-	-
Stage 2	655	626	-	691	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	322	360	751	377	388	755	1340	-	-	1217	-	-
Mov Cap-2 Maneuver	322	360	-	377	388	-	-	-	-	-	-	-
Stage 1	692	632	-	702	659	-	-	-	-	-	-	-
Stage 2	593	622	-	654	631	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13	12	0.2	1.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1340	-	-	468	377	710	1217	-	-
HCM Lane V/C Ratio	0.007	-	-	0.038	0.077	0.094	0.037	-	-
HCM Control Delay (s)	7.7	-	-	13	15.3	10.6	8.1	-	-
HCM Lane LOS	A	-	-	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.3	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	26	40	4	9	21	285	30	4	231	4
Future Volume (vph)	4	4	26	40	4	9	21	285	30	4	231	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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		0.894			0.977			0.988			0.998	
Flt Protected		0.995			0.963			0.997			0.999	
Satd. Flow (prot)	0	1653	0	0	1620	0	0	1760	0	0	1857	0
Flt Permitted		0.995			0.963			0.997			0.999	
Satd. Flow (perm)	0	1653	0	0	1620	0	0	1760	0	0	1857	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1233			1053			1035			650	
Travel Time (s)		33.6			28.7			20.2			12.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	6%	2%	33%	10%	6%	7%	2%	2%	2%
Adj. Flow (vph)	4	4	29	44	4	10	23	317	33	4	257	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	37	0	0	58	0	0	373	0	0	265	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.0%		ICU Level of Service A	
Analysis Period (min) 15			

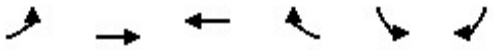
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	26	40	4	9	21	285	30	4	231	4
Future Vol, veh/h	4	4	26	40	4	9	21	285	30	4	231	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	2	2	6	2	33	10	6	7	2	2	2
Mvmt Flow	4	4	29	44	4	10	23	317	33	4	257	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	654	663	259	664	649	334	261	0	0	350	0	0
Stage 1	267	267	-	380	380	-	-	-	-	-	-	-
Stage 2	387	396	-	284	269	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.52	6.22	7.16	6.52	6.53	4.2	-	-	4.12	-	-
Critical Hdwy Stg 1	6.14	5.52	-	6.16	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.52	-	6.16	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.018	3.318	3.554	4.018	3.597	2.29	-	-	2.218	-	-
Pot Cap-1 Maneuver	377	382	780	369	389	642	1258	-	-	1209	-	-
Stage 1	734	688	-	634	614	-	-	-	-	-	-	-
Stage 2	633	604	-	714	687	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	360	372	780	345	378	642	1258	-	-	1209	-	-
Mov Cap-2 Maneuver	360	372	-	345	378	-	-	-	-	-	-	-
Stage 1	717	685	-	619	600	-	-	-	-	-	-	-
Stage 2	604	590	-	680	684	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	16.3	0.5	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1258	-	-	616	377	1209	-	-
HCM Lane V/C Ratio	0.019	-	-	0.061	0.156	0.004	-	-
HCM Control Delay (s)	7.9	0	-	11.2	16.3	8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.5	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	8	26	4	4	4
Future Volume (vph)	4	8	26	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.984		0.932	
Flt Protected		0.985			0.976	
Satd. Flow (prot)	0	1798	1787	0	1694	0
Flt Permitted		0.985			0.976	
Satd. Flow (perm)	0	1798	1787	0	1694	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		606	111		270	
Travel Time (s)		16.5	3.0		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%
Adj. Flow (vph)	4	9	29	4	4	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	13	33	0	8	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	8	26	4	4	4
Future Vol, veh/h	4	8	26	4	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	5	5	2	2	2
Mvmt Flow	4	9	29	4	4	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	33	0	-	0	48	31
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	17	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1579	-	-	-	962	1043
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1579	-	-	-	959	1043
Mov Cap-2 Maneuver	-	-	-	-	959	-
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	1006	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	999
HCM Lane V/C Ratio	0.003	-	-	-	0.009
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

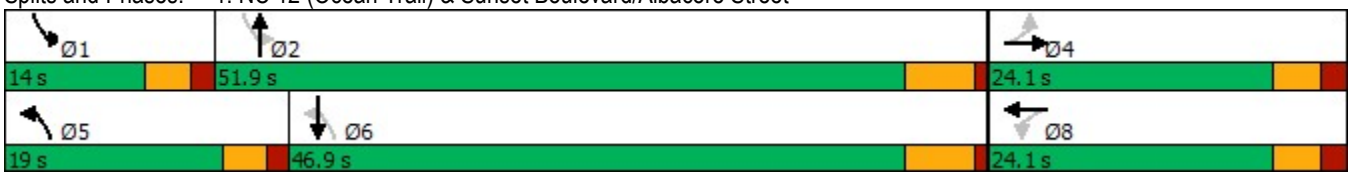
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	51	60	120	31	19	53	425	134	22	534	120
Future Volume (vph)	57	51	60	120	31	19	53	425	134	22	534	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
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		0.952			0.985			0.964			0.973	
Flt Protected		0.983			0.966		0.950			0.950		
Satd. Flow (prot)	0	1752	0	0	1751	0	1770	1796	0	1778	1822	0
Flt Permitted		0.849			0.641		0.175			0.293		
Satd. Flow (perm)	0	1513	0	0	1162	0	326	1796	0	549	1822	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		111			563			628			669	
Travel Time (s)		3.0			15.4			12.2			13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	4%	4%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	63	57	67	133	34	21	59	472	149	24	593	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	187	0	0	188	0	59	621	0	24	726	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		12.0	12.0		12.0	12.0		7.0	7.0	
Minimum Split (s)	24.1	24.1		24.1	24.1		19.0	19.0		14.0	14.0	
Total Split (s)	24.1	24.1		24.1	24.1		19.0	51.9		14.0	46.9	
Total Split (%)	26.8%	26.8%		26.8%	26.8%		21.1%	57.7%		15.6%	52.1%	
Maximum Green (s)	19.0	19.0		19.0	19.0		14.6	46.3		9.4	41.3	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.0		1.6	1.0	
Lost Time Adjust (s)		-0.1			-0.1		0.6	-0.6		0.6	-0.6	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.2	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		17.6			17.6		44.1	42.7		44.7	38.2	
Actuated g/C Ratio		0.23			0.23		0.59	0.57		0.60	0.51	
v/c Ratio		0.53			0.69		0.14	0.61		0.05	0.78	
Control Delay		35.1			45.6		6.0	14.7		5.4	24.6	

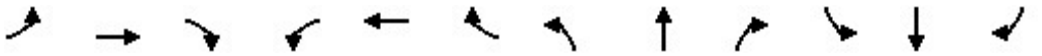
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		35.1			45.6		6.0	14.7		5.4	24.6	
LOS		D			D		A	B		A	C	
Approach Delay		35.1			45.6			13.9			24.0	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)		92			97		10	153		4	331	
Queue Length 95th (ft)		161			#201		22	345		12	#547	
Internal Link Dist (ft)		31			483			548			589	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		411			316		485	1236		487	1088	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.45			0.59		0.12	0.50		0.05	0.67	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 74.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 68.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NC 12 (Ocean Trail) & Sunset Boulevard/Albacore Street





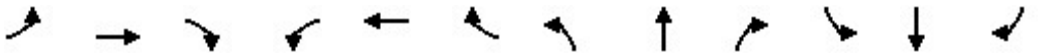
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	51	60	120	31	19	53	425	134	22	534	120
Future Volume (veh/h)	57	51	60	120	31	19	53	425	134	22	534	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1909	1909	1909	1879	1879	1909	1870	1870	1870	1909	1909	1909
Adj Flow Rate, veh/h	63	57	67	133	34	21	59	472	149	24	593	133
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	4	4	2	2	2	2	2	2	2
Cap, veh/h	151	110	107	255	54	28	414	786	248	432	754	169
Arrive On Green	0.20	0.17	0.20	0.20	0.17	0.20	0.11	0.58	0.60	0.03	0.50	0.52
Sat Flow, veh/h	466	631	612	951	306	158	1781	1363	430	1818	1510	339
Grp Volume(v), veh/h	187	0	0	188	0	0	59	0	621	24	0	726
Grp Sat Flow(s),veh/h/ln	1708	0	0	1416	0	0	1781	0	1793	1818	0	1848
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	1.0	0.0	15.4	0.4	0.0	22.3
Cycle Q Clear(g_c), s	6.5	0.0	0.0	8.3	0.0	0.0	1.0	0.0	15.4	0.4	0.0	22.3
Prop In Lane	0.34		0.36	0.71		0.11	1.00		0.24	1.00		0.18
Lane Grp Cap(c), veh/h	415	0	0	375	0	0	414	0	1034	432	0	923
V/C Ratio(X)	0.45	0.00	0.00	0.50	0.00	0.00	0.14	0.00	0.60	0.06	0.00	0.79
Avail Cap(c_a), veh/h	577	0	0	516	0	0	580	0	1216	611	0	1120
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.6	0.0	0.0	26.2	0.0	0.0	9.9	0.0	9.3	7.7	0.0	14.2
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.1	0.0	2.0	0.0	0.0	5.8
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(50%),veh/ln	2.6	0.0	0.0	2.7	0.0	0.0	0.3	0.0	5.3	0.1	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	0.0	0.0	26.5	0.0	0.0	10.0	0.0	11.4	7.7	0.0	19.9
LnGrp LOS	C	A	A	C	A	A	A	A	B	A	A	B
Approach Vol, veh/h		187			188			680			750	
Approach Delay, s/veh		25.9			26.5			11.3			19.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	44.9		17.1	12.5	39.5		17.1				
Change Period (Y+Rc), s	* 4.6	5.6		* 5.1	* 4.4	5.6		* 5.1				
Max Green Setting (Gmax), s	* 9.4	46.3		* 19	* 15	41.3		* 19				
Max Q Clear Time (g_c+I1), s	2.4	17.4		8.5	3.0	24.3		10.3				
Green Ext Time (p_c), s	0.0	11.1		0.5	0.0	9.6		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		17.8	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	13	33	45	4	70	17	414	54	44	574	6
Future Volume (vph)	6	13	33	45	4	70	17	414	54	44	574	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	125		150	700		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			50			50			75		
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		0.914			0.857				0.850		0.998	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1714	0	1770	1561	0	1770	1863	1583	1770	1859	0
Flt Permitted		0.994		0.950			0.950			0.950		
Satd. Flow (perm)	0	1714	0	1770	1561	0	1770	1863	1583	1770	1859	0
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		263			533			669			1035	
Travel Time (s)		7.2			24.2			13.0			20.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	0%	2%	50%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	7	14	37	50	4	78	19	460	60	49	638	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	0	50	82	0	19	460	60	49	645	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

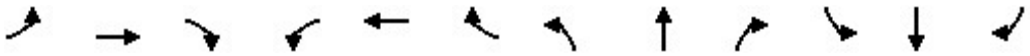
Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	13	33	45	4	70	17	414	54	44	574	6
Future Vol, veh/h	6	13	33	45	4	70	17	414	54	44	574	6
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	-	-	-	100	-	-	125	-	150	700	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	0	2	50	2	2	2	2	2	2	2
Mvmt Flow	7	14	37	50	4	78	19	460	60	49	638	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1309	1298	642	1263	1241	460	645	0	0	520	0	0
Stage 1	740	740	-	498	498	-	-	-	-	-	-	-
Stage 2	569	558	-	765	743	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.2	7.12	7	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.3	3.518	4.45	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	136	162	478	147	142	601	940	-	-	1046	-	-
Stage 1	409	423	-	554	472	-	-	-	-	-	-	-
Stage 2	507	512	-	396	358	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	110	151	478	120	133	601	940	-	-	1046	-	-
Mov Cap-2 Maneuver	110	151	-	120	133	-	-	-	-	-	-	-
Stage 1	401	403	-	543	463	-	-	-	-	-	-	-
Stage 2	428	502	-	336	341	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.9	29.2	0.3	0.6
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	940	-	-	248	120	505	1046	-	-
HCM Lane V/C Ratio	0.02	-	-	0.233	0.417	0.163	0.047	-	-
HCM Control Delay (s)	8.9	-	-	23.9	54.9	13.5	8.6	-	-
HCM Lane LOS	A	-	-	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	1.8	0.6	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	9	42	56	8	7	18	443	45	19	616	12
Future Volume (vph)	8	9	42	56	8	7	18	443	45	19	616	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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		0.904			0.986			0.988			0.998	
Flt Protected		0.993			0.962			0.998			0.999	
Satd. Flow (prot)	0	1661	0	0	1744	0	0	1832	0	0	1857	0
Flt Permitted		0.993			0.962			0.998			0.999	
Satd. Flow (perm)	0	1661	0	0	1744	0	0	1832	0	0	1857	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1233			1053			1035			650	
Travel Time (s)		33.6			28.7			20.2			12.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	4%	2%	0%	2%	2%	5%	2%	2%	2%
Adj. Flow (vph)	9	10	47	62	9	8	20	492	50	21	684	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	0	79	0	0	562	0	0	718	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			

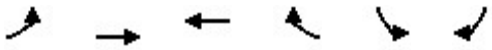
Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	9	42	56	8	7	18	443	45	19	616	12
Future Vol, veh/h	8	9	42	56	8	7	18	443	45	19	616	12
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	3	4	2	0	2	2	5	2	2	2
Mvmt Flow	9	10	47	62	9	8	20	492	50	21	684	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1299	1315	691	1318	1296	517	697	0	0	542	0	0
Stage 1	733	733	-	557	557	-	-	-	-	-	-	-
Stage 2	566	582	-	761	739	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.23	7.14	6.52	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.14	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.14	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.327	3.536	4.018	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	138	158	443	133	162	562	899	-	-	1027	-	-
Stage 1	412	426	-	511	512	-	-	-	-	-	-	-
Stage 2	509	499	-	395	424	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	124	148	443	107	152	562	899	-	-	1027	-	-
Mov Cap-2 Maneuver	124	148	-	107	152	-	-	-	-	-	-	-
Stage 1	399	412	-	495	496	-	-	-	-	-	-	-
Stage 2	477	483	-	333	410	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.7	78.4	0.3	0.3
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	899	-	-	268	121	1027	-	-
HCM Lane V/C Ratio	0.022	-	-	0.245	0.652	0.021	-	-
HCM Control Delay (s)	9.1	0	-	22.7	78.4	8.6	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	3.4	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	121	147	57	47	11
Future Volume (vph)	10	121	147	57	47	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962		0.975	
Flt Protected		0.996			0.961	
Satd. Flow (prot)	0	1855	1792	0	1745	0
Flt Permitted		0.996			0.961	
Satd. Flow (perm)	0	1855	1792	0	1745	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		606	111		270	
Travel Time (s)		16.5	3.0		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	134	163	63	52	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	145	226	0	64	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.6%		ICU Level of Service A	
Analysis Period (min) 15			

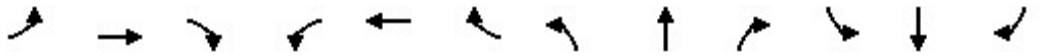
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	121	147	57	47	11
Future Vol, veh/h	10	121	147	57	47	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	134	163	63	52	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	226	0	-	0	351	195
Stage 1	-	-	-	-	195	-
Stage 2	-	-	-	-	156	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1342	-	-	-	646	846
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	872	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1342	-	-	-	640	846
Mov Cap-2 Maneuver	-	-	-	-	640	-
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	872	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1342	-	-	-	671
HCM Lane V/C Ratio	0.008	-	-	-	0.096
HCM Control Delay (s)	7.7	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

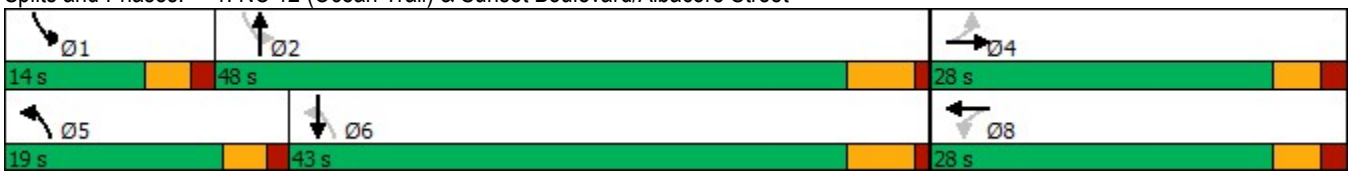


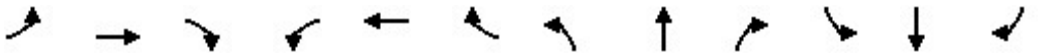
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	59	4	11	14	305	79	4	235	13
Future Volume (vph)	4	4	4	59	4	11	14	305	79	4	235	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
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		0.955			0.980			0.969			0.992	
Flt Protected		0.984			0.961		0.950			0.950		
Satd. Flow (prot)	0	1636	0	0	1678	0	1770	1756	0	1778	1775	0
Flt Permitted		0.902			0.760		0.590			0.461		
Satd. Flow (perm)	0	1500	0	0	1327	0	1099	1756	0	863	1775	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		111			563			628			669	
Travel Time (s)		3.0			15.4			12.2			13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	25%	2%	2%	7%	25%	2%	2%	4%	8%	2%	7%	2%
Adj. Flow (vph)	4	4	4	66	4	12	16	339	88	4	261	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	82	0	16	427	0	4	275	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		12.0	12.0		12.0	12.0		7.0	7.0	
Minimum Split (s)	24.1	24.1		24.1	24.1		19.0	19.0		14.0	14.0	
Total Split (s)	28.0	28.0		28.0	28.0		19.0	48.0		14.0	43.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%		21.1%	53.3%		15.6%	47.8%	
Maximum Green (s)	22.9	22.9		22.9	22.9		14.6	42.4		9.4	37.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.0		1.6	1.0	
Lost Time Adjust (s)		-0.1			-0.1		0.6	-0.6		0.6	-0.6	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.2	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		11.4			12.9		29.0	29.5		28.7	28.8	
Actuated g/C Ratio		0.24			0.27		0.60	0.61		0.60	0.60	
v/c Ratio		0.03			0.23		0.02	0.40		0.01	0.26	
Control Delay		17.5			19.4		4.9	9.6		4.8	9.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		17.5			19.4		4.9	9.6		4.8	9.4	
LOS		B			B		A	A		A	A	
Approach Delay		17.5			19.4			9.4			9.4	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		2			16		2	63		1	36	
Queue Length 95th (ft)		17			66		7	182		3	129	
Internal Link Dist (ft)		31			483			548			589	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		759			671		877	1549		698	1425	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.02			0.12		0.02	0.28		0.01	0.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 48.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 39.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: NC 12 (Ocean Trail) & Sunset Boulevard/Albacore Street





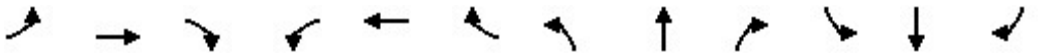
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	4	59	4	11	14	305	79	4	235	13
Future Volume (veh/h)	4	4	4	59	4	11	14	305	79	4	235	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1564	1909	1909	1834	1564	1909	1870	1841	1781	1909	1834	1909
Adj Flow Rate, veh/h	4	4	4	66	4	12	16	339	88	4	261	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	25	2	2	7	25	2	2	4	8	2	7	2
Cap, veh/h	190	153	111	346	24	35	522	604	157	400	677	36
Arrive On Green	0.24	0.20	0.24	0.24	0.20	0.24	0.03	0.43	0.46	0.00	0.39	0.43
Sat Flow, veh/h	351	775	563	927	121	180	1781	1409	366	1818	1725	93
Grp Volume(v), veh/h	12	0	0	82	0	0	16	0	427	4	0	275
Grp Sat Flow(s),veh/h/ln	1689	0	0	1227	0	0	1781	0	1775	1818	0	1818
Q Serve(g_s), s	0.0	0.0	0.0	1.6	0.0	0.0	0.2	0.0	7.2	0.1	0.0	4.3
Cycle Q Clear(g_c), s	0.2	0.0	0.0	2.1	0.0	0.0	0.2	0.0	7.2	0.1	0.0	4.3
Prop In Lane	0.33		0.33	0.80		0.15	1.00		0.21	1.00		0.05
Lane Grp Cap(c), veh/h	534	0	0	464	0	0	522	0	761	400	0	713
V/C Ratio(X)	0.02	0.00	0.00	0.18	0.00	0.00	0.03	0.00	0.56	0.01	0.00	0.39
Avail Cap(c_a), veh/h	1153	0	0	924	0	0	1087	0	1915	797	0	1733
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	12.9	0.0	0.0	7.6	0.0	8.4	7.8	0.0	8.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	2.4	0.0	0.0	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(50%),veh/ln	0.1	0.0	0.0	0.5	0.0	0.0	0.1	0.0	2.3	0.0	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	0.0	0.0	12.9	0.0	0.0	7.6	0.0	10.8	7.8	0.0	9.9
LnGrp LOS	B	A	A	B	A	A	A	A	B	A	A	A
Approach Vol, veh/h		12			82			443			279	
Approach Delay, s/veh		12.4			12.9			10.7			9.8	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	22.1		12.9	6.3	20.6		12.9				
Change Period (Y+Rc), s	* 4.6	5.6		* 5.1	* 4.4	5.6		* 5.1				
Max Green Setting (Gmax), s	* 9.4	42.4		* 23	* 15	37.4		* 23				
Max Q Clear Time (g_c+I1), s	2.1	9.2		2.2	2.2	6.3		4.1				
Green Ext Time (p_c), s	0.0	7.3		0.0	0.0	4.2		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		10.6	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	6	27	28	5	56	22	256	52	40	202	13
Future Volume (vph)	17	6	27	28	5	56	22	256	52	40	202	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	125		150	700		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			50			50			75		
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		0.928			0.863				0.850		0.991	
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1488	0	1770	1608	0	1770	1776	1495	1770	1780	0
Flt Permitted		0.983		0.950			0.950			0.950		
Satd. Flow (perm)	0	1488	0	1770	1608	0	1770	1776	1495	1770	1780	0
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		263			533			669			1035	
Travel Time (s)		7.2			24.2			13.0			20.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	29%	2%	2%	2%	2%	7%	8%	2%	6%	2%
Adj. Flow (vph)	19	7	30	31	6	62	24	284	58	44	224	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	56	0	31	68	0	24	284	58	44	238	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.4%		ICU Level of Service A	
Analysis Period (min) 15			

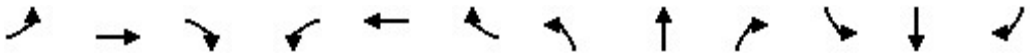
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	6	27	28	5	56	22	256	52	40	202	13
Future Vol, veh/h	17	6	27	28	5	56	22	256	52	40	202	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	-	-	-	100	-	-	125	-	150	700	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	29	2	2	2	2	7	8	2	6	2
Mvmt Flow	19	7	30	31	6	62	24	284	58	44	224	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	714	709	231	670	658	284	238	0	0	342	0	0
Stage 1	319	319	-	332	332	-	-	-	-	-	-	-
Stage 2	395	390	-	338	326	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.49	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	3.561	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	346	359	746	371	384	755	1329	-	-	1217	-	-
Stage 1	693	653	-	681	644	-	-	-	-	-	-	-
Stage 2	630	608	-	676	648	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	301	340	746	336	364	755	1329	-	-	1217	-	-
Mov Cap-2 Maneuver	301	340	-	336	364	-	-	-	-	-	-	-
Stage 1	681	629	-	669	632	-	-	-	-	-	-	-
Stage 2	563	597	-	619	625	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.1	12.6	0.5	1.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1329	-	-	453	336	694	1217	-	-
HCM Lane V/C Ratio	0.018	-	-	0.123	0.093	0.098	0.037	-	-
HCM Control Delay (s)	7.8	-	-	14.1	16.8	10.7	8.1	-	-
HCM Lane LOS	A	-	-	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.3	0.3	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	27	41	4	9	24	296	31	4	239	4
Future Volume (vph)	4	4	27	41	4	9	24	296	31	4	239	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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		0.893			0.977			0.988			0.998	
Flt Protected		0.995			0.963			0.997			0.999	
Satd. Flow (prot)	0	1652	0	0	1622	0	0	1760	0	0	1857	0
Flt Permitted		0.995			0.963			0.997			0.999	
Satd. Flow (perm)	0	1652	0	0	1622	0	0	1760	0	0	1857	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1233			1053			1035			650	
Travel Time (s)		33.6			28.7			20.2			12.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	6%	2%	33%	10%	6%	7%	2%	2%	2%
Adj. Flow (vph)	4	4	30	46	4	10	27	329	34	4	266	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	0	0	60	0	0	390	0	0	274	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.6%		ICU Level of Service A	
Analysis Period (min) 15			

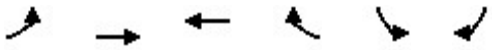
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	27	41	4	9	24	296	31	4	239	4
Future Vol, veh/h	4	4	27	41	4	9	24	296	31	4	239	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	2	2	6	2	33	10	6	7	2	2	2
Mvmt Flow	4	4	30	46	4	10	27	329	34	4	266	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	683	693	268	693	678	346	270	0	0	363	0	0
Stage 1	276	276	-	400	400	-	-	-	-	-	-	-
Stage 2	407	417	-	293	278	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.52	6.22	7.16	6.52	6.53	4.2	-	-	4.12	-	-
Critical Hdwy Stg 1	6.14	5.52	-	6.16	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.52	-	6.16	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.018	3.318	3.554	4.018	3.597	2.29	-	-	2.218	-	-
Pot Cap-1 Maneuver	361	367	771	352	374	632	1249	-	-	1196	-	-
Stage 1	726	682	-	618	602	-	-	-	-	-	-	-
Stage 2	617	591	-	707	680	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	344	356	771	327	362	632	1249	-	-	1196	-	-
Mov Cap-2 Maneuver	344	356	-	327	362	-	-	-	-	-	-	-
Stage 1	706	679	-	601	586	-	-	-	-	-	-	-
Stage 2	586	575	-	672	677	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	17.1	0.5	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1249	-	-	605	358	1196	-	-
HCM Lane V/C Ratio	0.021	-	-	0.064	0.168	0.004	-	-
HCM Control Delay (s)	7.9	0	-	11.4	17.1	8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.6	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	8	27	4	4	4
Future Volume (vph)	4	8	27	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.984		0.932	
Flt Protected		0.985			0.976	
Satd. Flow (prot)	0	1798	1787	0	1694	0
Flt Permitted		0.985			0.976	
Satd. Flow (perm)	0	1798	1787	0	1694	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		606	111		270	
Travel Time (s)		16.5	3.0		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%
Adj. Flow (vph)	4	9	30	4	4	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	13	34	0	8	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	8	27	4	4	4
Future Vol, veh/h	4	8	27	4	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	5	5	2	2	2
Mvmt Flow	4	9	30	4	4	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	34	0	-	0	49	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	17	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1578	-	-	-	960	1042
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1578	-	-	-	957	1042
Mov Cap-2 Maneuver	-	-	-	-	957	-
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	1006	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1578	-	-	-	998
HCM Lane V/C Ratio	0.003	-	-	-	0.009
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	16	0	24	16	0	34
Future Volume (vph)	16	0	24	16	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.971		
Satd. Flow (prot)	1863	0	0	1809	1611	0
Flt Permitted				0.971		
Satd. Flow (perm)	1863	0	0	1809	1611	0
Link Speed (mph)	25			25	15	
Link Distance (ft)	441			263	339	
Travel Time (s)	12.0			7.2	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	0	27	18	0	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	45	38	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.8%		ICU Level of Service A	
Analysis Period (min) 15			

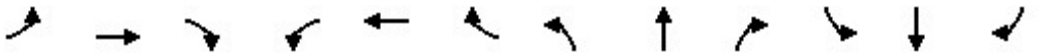
Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	16	0	24	16	0	34
Future Vol, veh/h	16	0	24	16	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	0	27	18	0	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	18	0	90	18
Stage 1	-	-	-	-	18	-
Stage 2	-	-	-	-	72	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1599	-	910	1061
Stage 1	-	-	-	-	1005	-
Stage 2	-	-	-	-	951	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1599	-	895	1061
Mov Cap-2 Maneuver	-	-	-	-	895	-
Stage 1	-	-	-	-	1005	-
Stage 2	-	-	-	-	935	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.4	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1061	-	-	1599	-
HCM Lane V/C Ratio	0.036	-	-	0.017	-
HCM Control Delay (s)	8.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-



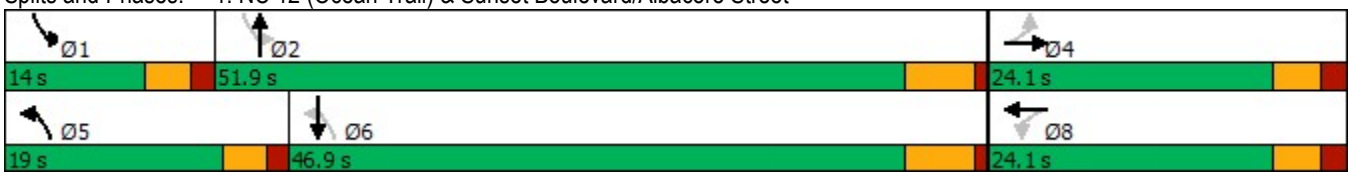
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	51	60	120	31	22	53	455	134	22	550	121
Future Volume (vph)	58	51	60	120	31	22	53	455	134	22	550	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
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		0.952			0.983			0.966			0.973	
Flt Protected		0.983			0.966		0.950			0.950		
Satd. Flow (prot)	0	1752	0	0	1748	0	1770	1799	0	1778	1822	0
Flt Permitted		0.845			0.642		0.165			0.270		
Satd. Flow (perm)	0	1506	0	0	1162	0	307	1799	0	505	1822	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		111			563			628			669	
Travel Time (s)		3.0			15.4			12.2			13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	4%	4%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	64	57	67	133	34	24	59	506	149	24	611	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	188	0	0	191	0	59	655	0	24	745	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		12.0	12.0		12.0	12.0		7.0	7.0	
Minimum Split (s)	24.1	24.1		24.1	24.1		19.0	19.0		14.0	14.0	
Total Split (s)	24.1	24.1		24.1	24.1		19.0	51.9		14.0	46.9	
Total Split (%)	26.8%	26.8%		26.8%	26.8%		21.1%	57.7%		15.6%	52.1%	
Maximum Green (s)	19.0	19.0		19.0	19.0		14.6	46.3		9.4	41.3	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.0		1.6	1.0	
Lost Time Adjust (s)		-0.1			-0.1		0.6	-0.6		0.6	-0.6	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.2	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		17.6			17.6		44.9	43.5		45.5	39.0	
Actuated g/C Ratio		0.23			0.23		0.59	0.57		0.60	0.52	
v/c Ratio		0.54			0.71		0.14	0.63		0.06	0.80	
Control Delay		35.6			46.9		6.0	15.3		5.5	25.4	

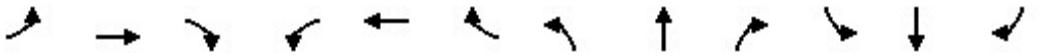
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		35.6			46.9		6.0	15.3		5.5	25.4	
LOS		D			D		A	B		A	C	
Approach Delay		35.6			46.9			14.6			24.8	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)		93			99		10	165		4	346	
Queue Length 95th (ft)		163			#205		22	374		12	#572	
Internal Link Dist (ft)		31			483			548			589	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		403			311		474	1230		465	1071	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.47			0.61		0.12	0.53		0.05	0.70	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 68.7%		ICU Level of Service C	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NC 12 (Ocean Trail) & Sunset Boulevard/Albacore Street





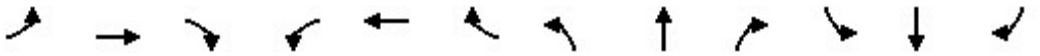
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	51	60	120	31	22	53	455	134	22	550	121
Future Volume (veh/h)	58	51	60	120	31	22	53	455	134	22	550	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1909	1909	1909	1879	1879	1909	1870	1870	1870	1909	1909	1909
Adj Flow Rate, veh/h	64	57	67	133	34	24	59	506	149	24	611	134
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	4	4	2	2	2	2	2	2	2
Cap, veh/h	150	108	105	248	51	31	406	807	238	414	766	168
Arrive On Green	0.20	0.17	0.20	0.20	0.17	0.20	0.11	0.58	0.60	0.03	0.50	0.52
Sat Flow, veh/h	472	624	607	933	297	177	1781	1388	409	1818	1517	333
Grp Volume(v), veh/h	188	0	0	191	0	0	59	0	655	24	0	745
Grp Sat Flow(s),veh/h/ln	1702	0	0	1407	0	0	1781	0	1797	1818	0	1849
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	1.0	0.0	16.7	0.4	0.0	23.3
Cycle Q Clear(g_c), s	6.7	0.0	0.0	8.7	0.0	0.0	1.0	0.0	16.7	0.4	0.0	23.3
Prop In Lane	0.34		0.36	0.70		0.13	1.00		0.23	1.00		0.18
Lane Grp Cap(c), veh/h	409	0	0	368	0	0	406	0	1045	414	0	934
V/C Ratio(X)	0.46	0.00	0.00	0.52	0.00	0.00	0.15	0.00	0.63	0.06	0.00	0.80
Avail Cap(c_a), veh/h	569	0	0	507	0	0	569	0	1203	590	0	1106
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	0.0	26.8	0.0	0.0	10.1	0.0	9.5	7.9	0.0	14.3
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.1	0.0	2.3	0.0	0.0	6.1
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(50%),veh/ln	2.7	0.0	0.0	2.8	0.0	0.0	0.3	0.0	5.8	0.1	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	0.0	0.0	27.2	0.0	0.0	10.2	0.0	11.8	7.9	0.0	20.4
LnGrp LOS	C	A	A	C	A	A	B	A	B	A	A	C
Approach Vol, veh/h		188			191			714			769	
Approach Delay, s/veh		26.4			27.2			11.7			20.0	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	45.7		17.1	12.6	40.4		17.1				
Change Period (Y+Rc), s	* 4.6	5.6		* 5.1	* 4.4	5.6		* 5.1				
Max Green Setting (Gmax), s	* 9.4	46.3		* 19	* 15	41.3		* 19				
Max Q Clear Time (g_c+I1), s	2.4	18.7		8.7	3.0	25.3		10.7				
Green Ext Time (p_c), s	0.0	11.6		0.5	0.0	9.4		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	15	57	45	7	70	58	407	54	44	570	33
Future Volume (vph)	25	15	57	45	7	70	58	407	54	44	570	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	100		0	125		150	700		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			50			50			75		
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		0.921			0.864				0.850		0.992	
Flt Protected		0.987		0.950			0.950			0.950		
Satd. Flow (prot)	0	1713	0	1770	1542	0	1770	1863	1583	1770	1848	0
Flt Permitted		0.987		0.950			0.950			0.950		
Satd. Flow (perm)	0	1713	0	1770	1542	0	1770	1863	1583	1770	1848	0
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		263			533			669			1035	
Travel Time (s)		7.2			24.2			13.0			20.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	0%	2%	50%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	28	17	63	50	8	78	64	452	60	49	633	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	0	50	86	0	64	452	60	49	670	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.7%		ICU Level of Service B	
Analysis Period (min) 15			

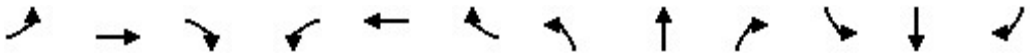
Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	15	57	45	7	70	58	407	54	44	570	33
Future Vol, veh/h	25	15	57	45	7	70	58	407	54	44	570	33
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	-	-	-	100	-	-	125	-	150	700	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	0	2	50	2	2	2	2	2	2	2
Mvmt Flow	28	17	63	50	8	78	64	452	60	49	633	37

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1403	1390	652	1370	1348	452	670	0	0	512	0	0
Stage 1	750	750	-	580	580	-	-	-	-	-	-	-
Stage 2	653	640	-	790	768	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.2	7.12	7	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.3	3.518	4.45	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	117	142	471	124	121	608	920	-	-	1053	-	-
Stage 1	403	419	-	500	431	-	-	-	-	-	-	-
Stage 2	456	470	-	383	348	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	88	126	471	88	107	608	920	-	-	1053	-	-
Mov Cap-2 Maneuver	88	126	-	88	107	-	-	-	-	-	-	-
Stage 1	375	399	-	465	401	-	-	-	-	-	-	-
Stage 2	363	437	-	303	332	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	48.5	43	1	0.6
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	920	-	-	185	88	426	1053	-	-
HCM Lane V/C Ratio	0.07	-	-	0.583	0.568	0.201	0.046	-	-
HCM Control Delay (s)	9.2	-	-	48.5	89.8	15.6	8.6	-	-
HCM Lane LOS	A	-	-	E	F	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	3.2	2.6	0.7	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	9	45	58	8	7	20	453	46	19	634	12
Future Volume (vph)	8	9	45	58	8	7	20	453	46	19	634	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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		0.902			0.987			0.988			0.998	
Flt Protected		0.994			0.962			0.998			0.999	
Satd. Flow (prot)	0	1658	0	0	1745	0	0	1832	0	0	1857	0
Flt Permitted		0.994			0.962			0.998			0.999	
Satd. Flow (perm)	0	1658	0	0	1745	0	0	1832	0	0	1857	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1233			1053			1035			650	
Travel Time (s)		33.6			28.7			20.2			12.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	4%	2%	0%	2%	2%	5%	2%	2%	2%
Adj. Flow (vph)	9	10	50	64	9	8	22	503	51	21	704	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	69	0	0	81	0	0	576	0	0	738	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.7%		ICU Level of Service B	
Analysis Period (min) 15			

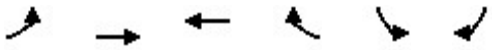
Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	9	45	58	8	7	20	453	46	19	634	12
Future Vol, veh/h	8	9	45	58	8	7	20	453	46	19	634	12
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	3	4	2	0	2	2	5	2	2	2
Mvmt Flow	9	10	50	64	9	8	22	503	51	21	704	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1334	1351	711	1356	1332	529	717	0	0	554	0	0
Stage 1	753	753	-	573	573	-	-	-	-	-	-	-
Stage 2	581	598	-	783	759	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.23	7.14	6.52	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.14	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.14	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.327	3.536	4.018	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	131	150	431	125	154	554	884	-	-	1016	-	-
Stage 1	402	417	-	501	504	-	-	-	-	-	-	-
Stage 2	499	491	-	384	415	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	117	140	431	99	143	554	884	-	-	1016	-	-
Mov Cap-2 Maneuver	117	140	-	99	143	-	-	-	-	-	-	-
Stage 1	388	403	-	483	486	-	-	-	-	-	-	-
Stage 2	466	473	-	320	401	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.6	94.8	0.4	0.2
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	884	-	-	262	112	1016	-	-
HCM Lane V/C Ratio	0.025	-	-	0.263	0.724	0.021	-	-
HCM Control Delay (s)	9.2	0	-	23.6	94.8	8.6	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1	3.9	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	122	148	57	47	11
Future Volume (vph)	10	122	148	57	47	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.963		0.975	
Flt Protected		0.996			0.961	
Satd. Flow (prot)	0	1855	1794	0	1745	0
Flt Permitted		0.996			0.961	
Satd. Flow (perm)	0	1855	1794	0	1745	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		606	111		270	
Travel Time (s)		16.5	3.0		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	136	164	63	52	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	147	227	0	64	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	122	148	57	47	11
Future Vol, veh/h	10	122	148	57	47	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	136	164	63	52	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	227	0	-	0	354	196
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	158	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1341	-	-	-	644	845
Stage 1	-	-	-	-	837	-
Stage 2	-	-	-	-	871	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1341	-	-	-	638	845
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	871	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1341	-	-	-	669
HCM Lane V/C Ratio	0.008	-	-	-	0.096
HCM Control Delay (s)	7.7	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	52	0	71	27	0	45
Future Volume (vph)	52	0	71	27	0	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.965		
Satd. Flow (prot)	1863	0	0	1798	1611	0
Flt Permitted				0.965		
Satd. Flow (perm)	1863	0	0	1798	1611	0
Link Speed (mph)	25			25	15	
Link Distance (ft)	441			263	352	
Travel Time (s)	12.0			7.2	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	0	79	30	0	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	0	109	50	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.0%		ICU Level of Service A	
Analysis Period (min) 15			

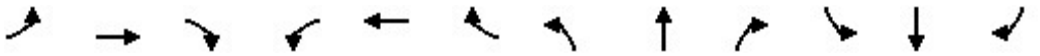
Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	0	71	27	0	45
Future Vol, veh/h	52	0	71	27	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	0	79	30	0	50

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	58	0	246	58
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	188	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1546	-	742	1008
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	844	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1546	-	703	1008
Mov Cap-2 Maneuver	-	-	-	-	703	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	800	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.4	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1008	-	-	1546	-
HCM Lane V/C Ratio	0.05	-	-	0.051	-
HCM Control Delay (s)	8.8	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

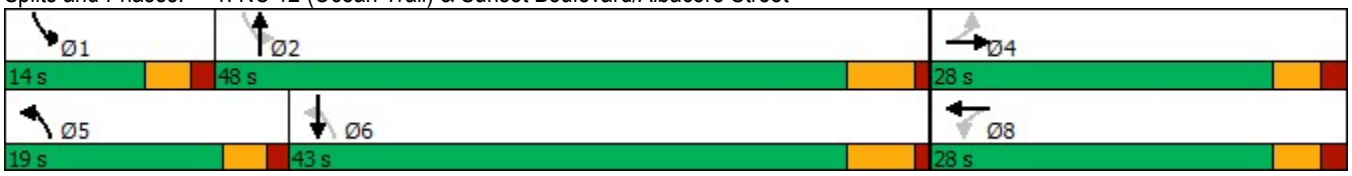


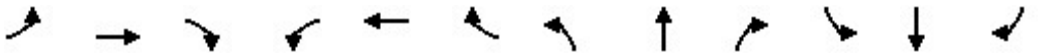
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	59	4	11	14	305	79	4	235	13
Future Volume (vph)	4	4	4	59	4	11	14	305	79	4	235	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
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		0.955			0.980			0.969			0.992	
Flt Protected		0.984			0.961		0.950			0.950		
Satd. Flow (prot)	0	1636	0	0	1678	0	1770	1756	0	1778	1775	0
Flt Permitted		0.902			0.760		0.590			0.461		
Satd. Flow (perm)	0	1500	0	0	1327	0	1099	1756	0	863	1775	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		111			563			628			669	
Travel Time (s)		3.0			15.4			12.2			13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	25%	2%	2%	7%	25%	2%	2%	4%	8%	2%	7%	2%
Adj. Flow (vph)	4	4	4	66	4	12	16	339	88	4	261	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	82	0	16	427	0	4	275	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		12.0	12.0		12.0	12.0		7.0	7.0	
Minimum Split (s)	24.1	24.1		24.1	24.1		19.0	19.0		14.0	14.0	
Total Split (s)	28.0	28.0		28.0	28.0		19.0	48.0		14.0	43.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%		21.1%	53.3%		15.6%	47.8%	
Maximum Green (s)	22.9	22.9		22.9	22.9		14.6	42.4		9.4	37.4	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.0		1.6	1.0	
Lost Time Adjust (s)		-0.1			-0.1		0.6	-0.6		0.6	-0.6	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.2	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		11.4			12.9		29.0	29.5		28.7	28.8	
Actuated g/C Ratio		0.24			0.27		0.60	0.61		0.60	0.60	
v/c Ratio		0.03			0.23		0.02	0.40		0.01	0.26	
Control Delay		17.5			19.4		4.9	9.6		4.8	9.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		17.5			19.4		4.9	9.6		4.8	9.4	
LOS		B			B		A	A		A	A	
Approach Delay		17.5			19.4			9.4			9.4	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		2			16		2	63		1	36	
Queue Length 95th (ft)		17			66		7	182		3	129	
Internal Link Dist (ft)		31			483			548			589	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		759			671		877	1549		698	1425	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.02			0.12		0.02	0.28		0.01	0.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 48.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 39.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: NC 12 (Ocean Trail) & Sunset Boulevard/Albacore Street





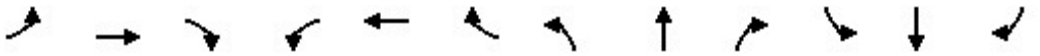
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	4	4	59	4	11	14	305	79	4	235	13
Future Volume (veh/h)	4	4	4	59	4	11	14	305	79	4	235	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1564	1909	1909	1834	1564	1909	1870	1841	1781	1909	1834	1909
Adj Flow Rate, veh/h	4	4	4	66	4	12	16	339	88	4	261	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	25	2	2	7	25	2	2	4	8	2	7	2
Cap, veh/h	190	153	111	346	24	35	522	604	157	400	677	36
Arrive On Green	0.24	0.20	0.24	0.24	0.20	0.24	0.03	0.43	0.46	0.00	0.39	0.43
Sat Flow, veh/h	351	775	563	927	121	180	1781	1409	366	1818	1725	93
Grp Volume(v), veh/h	12	0	0	82	0	0	16	0	427	4	0	275
Grp Sat Flow(s),veh/h/ln	1689	0	0	1227	0	0	1781	0	1775	1818	0	1818
Q Serve(g_s), s	0.0	0.0	0.0	1.6	0.0	0.0	0.2	0.0	7.2	0.1	0.0	4.3
Cycle Q Clear(g_c), s	0.2	0.0	0.0	2.1	0.0	0.0	0.2	0.0	7.2	0.1	0.0	4.3
Prop In Lane	0.33		0.33	0.80		0.15	1.00		0.21	1.00		0.05
Lane Grp Cap(c), veh/h	534	0	0	464	0	0	522	0	761	400	0	713
V/C Ratio(X)	0.02	0.00	0.00	0.18	0.00	0.00	0.03	0.00	0.56	0.01	0.00	0.39
Avail Cap(c_a), veh/h	1153	0	0	924	0	0	1087	0	1915	797	0	1733
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	12.9	0.0	0.0	7.6	0.0	8.4	7.8	0.0	8.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	2.4	0.0	0.0	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(50%),veh/ln	0.1	0.0	0.0	0.5	0.0	0.0	0.1	0.0	2.3	0.0	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	0.0	0.0	12.9	0.0	0.0	7.6	0.0	10.8	7.8	0.0	9.9
LnGrp LOS	B	A	A	B	A	A	A	A	B	A	A	A
Approach Vol, veh/h		12			82			443			279	
Approach Delay, s/veh		12.4			12.9			10.7			9.8	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	22.1		12.9	6.3	20.6		12.9				
Change Period (Y+Rc), s	* 4.6	5.6		* 5.1	* 4.4	5.6		* 5.1				
Max Green Setting (Gmax), s	* 9.4	42.4		* 23	* 15	37.4		* 23				
Max Q Clear Time (g_c+I1), s	2.1	9.2		2.2	2.2	6.3		4.1				
Green Ext Time (p_c), s	0.0	7.3		0.0	0.0	4.2		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	6	27	28	5	56	22	256	52	40	202	13
Future Volume (vph)	17	6	27	28	5	56	22	256	52	40	202	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	100		0	125		150	700		0
Storage Lanes	0		1	1		0	1		1	1		0
Taper Length (ft)	25			50			50			75		
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		0.863				0.850		0.991	
Flt Protected		0.965		0.950			0.950			0.950		
Satd. Flow (prot)	0	1798	1252	1770	1608	0	1770	1776	1495	1770	1780	0
Flt Permitted		0.965		0.950			0.950			0.950		
Satd. Flow (perm)	0	1798	1252	1770	1608	0	1770	1776	1495	1770	1780	0
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		263			533			669			1035	
Travel Time (s)		7.2			24.2			13.0			20.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	29%	2%	2%	2%	2%	7%	8%	2%	6%	2%
Adj. Flow (vph)	19	7	30	31	6	62	24	284	58	44	224	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	30	31	68	0	24	284	58	44	238	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.0%		ICU Level of Service A	
Analysis Period (min) 15			

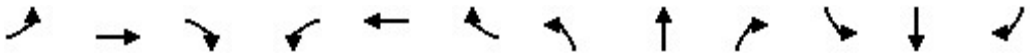
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	6	27	28	5	56	22	256	52	40	202	13
Future Vol, veh/h	17	6	27	28	5	56	22	256	52	40	202	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	-	-	100	100	-	-	125	-	150	700	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	29	2	2	2	2	7	8	2	6	2
Mvmt Flow	19	7	30	31	6	62	24	284	58	44	224	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	714	709	231	670	658	284	238	0	0	342	0	0
Stage 1	319	319	-	332	332	-	-	-	-	-	-	-
Stage 2	395	390	-	338	326	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.49	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	3.561	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	346	359	746	371	384	755	1329	-	-	1217	-	-
Stage 1	693	653	-	681	644	-	-	-	-	-	-	-
Stage 2	630	608	-	676	648	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	301	340	746	336	364	755	1329	-	-	1217	-	-
Mov Cap-2 Maneuver	301	340	-	336	364	-	-	-	-	-	-	-
Stage 1	681	629	-	669	632	-	-	-	-	-	-	-
Stage 2	563	597	-	619	625	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.5	12.6	0.5	1.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1329	-	-	310	746	336	694	1217	-	-
HCM Lane V/C Ratio	0.018	-	-	0.082	0.04	0.093	0.098	0.037	-	-
HCM Control Delay (s)	7.8	-	-	17.7	10	16.8	10.7	8.1	-	-
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0.3	0.3	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	27	41	4	9	24	296	31	4	239	4
Future Volume (vph)	4	4	27	41	4	9	24	296	31	4	239	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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		0.893			0.977			0.988			0.998	
Flt Protected		0.995			0.963			0.997			0.999	
Satd. Flow (prot)	0	1652	0	0	1622	0	0	1760	0	0	1857	0
Flt Permitted		0.995			0.963			0.997			0.999	
Satd. Flow (perm)	0	1652	0	0	1622	0	0	1760	0	0	1857	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1233			1053			1035			650	
Travel Time (s)		33.6			28.7			20.2			12.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	6%	2%	33%	10%	6%	7%	2%	2%	2%
Adj. Flow (vph)	4	4	30	46	4	10	27	329	34	4	266	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	0	0	60	0	0	390	0	0	274	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.6%		ICU Level of Service A	
Analysis Period (min) 15			

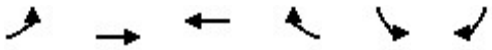
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	27	41	4	9	24	296	31	4	239	4
Future Vol, veh/h	4	4	27	41	4	9	24	296	31	4	239	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	2	2	6	2	33	10	6	7	2	2	2
Mvmt Flow	4	4	30	46	4	10	27	329	34	4	266	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	683	693	268	693	678	346	270	0	0	363	0	0
Stage 1	276	276	-	400	400	-	-	-	-	-	-	-
Stage 2	407	417	-	293	278	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.52	6.22	7.16	6.52	6.53	4.2	-	-	4.12	-	-
Critical Hdwy Stg 1	6.14	5.52	-	6.16	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.52	-	6.16	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.018	3.318	3.554	4.018	3.597	2.29	-	-	2.218	-	-
Pot Cap-1 Maneuver	361	367	771	352	374	632	1249	-	-	1196	-	-
Stage 1	726	682	-	618	602	-	-	-	-	-	-	-
Stage 2	617	591	-	707	680	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	344	356	771	327	362	632	1249	-	-	1196	-	-
Mov Cap-2 Maneuver	344	356	-	327	362	-	-	-	-	-	-	-
Stage 1	706	679	-	601	586	-	-	-	-	-	-	-
Stage 2	586	575	-	672	677	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	17.1	0.5	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1249	-	-	605	358	1196	-	-
HCM Lane V/C Ratio	0.021	-	-	0.064	0.168	0.004	-	-
HCM Control Delay (s)	7.9	0	-	11.4	17.1	8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.6	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	8	27	4	4	4
Future Volume (vph)	4	8	27	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.984		0.932	
Flt Protected		0.985			0.976	
Satd. Flow (prot)	0	1798	1787	0	1694	0
Flt Permitted		0.985			0.976	
Satd. Flow (perm)	0	1798	1787	0	1694	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		606	111		270	
Travel Time (s)		16.5	3.0		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	5%	2%	2%	2%
Adj. Flow (vph)	4	9	30	4	4	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	13	34	0	8	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	8	27	4	4	4
Future Vol, veh/h	4	8	27	4	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	5	5	2	2	2
Mvmt Flow	4	9	30	4	4	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	34	0	-	0	49	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	17	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1578	-	-	-	960	1042
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1578	-	-	-	957	1042
Mov Cap-2 Maneuver	-	-	-	-	957	-
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	1006	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1578	-	-	-	998
HCM Lane V/C Ratio	0.003	-	-	-	0.009
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	16	0	24	16	0	34
Future Volume (vph)	16	0	24	16	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.971		
Satd. Flow (prot)	1863	0	0	1809	1611	0
Flt Permitted				0.971		
Satd. Flow (perm)	1863	0	0	1809	1611	0
Link Speed (mph)	25			25	15	
Link Distance (ft)	441			263	339	
Travel Time (s)	12.0			7.2	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	0	27	18	0	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	45	38	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.8%		ICU Level of Service A	
Analysis Period (min) 15			

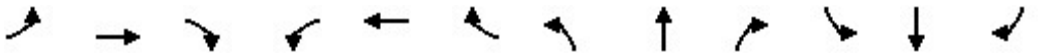
Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	16	0	24	16	0	34
Future Vol, veh/h	16	0	24	16	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	0	27	18	0	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	18	0	90	18
Stage 1	-	-	-	-	18	-
Stage 2	-	-	-	-	72	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1599	-	910	1061
Stage 1	-	-	-	-	1005	-
Stage 2	-	-	-	-	951	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1599	-	895	1061
Mov Cap-2 Maneuver	-	-	-	-	895	-
Stage 1	-	-	-	-	1005	-
Stage 2	-	-	-	-	935	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.4	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1061	-	-	1599	-
HCM Lane V/C Ratio	0.036	-	-	0.017	-
HCM Control Delay (s)	8.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-



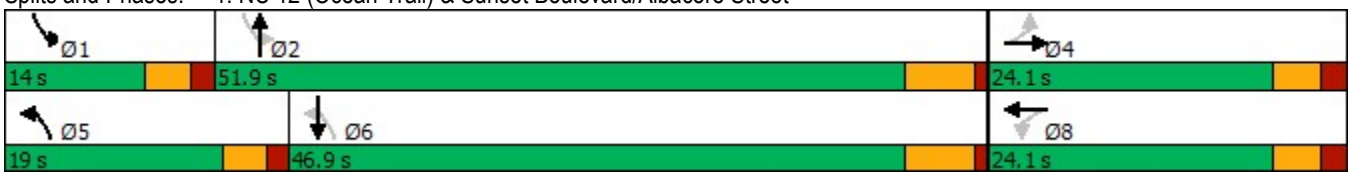
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	51	60	120	31	22	53	455	134	22	550	121
Future Volume (vph)	58	51	60	120	31	22	53	455	134	22	550	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	100		0	125		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			50			50		
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		0.952			0.983			0.966			0.973	
Flt Protected		0.983			0.966		0.950			0.950		
Satd. Flow (prot)	0	1752	0	0	1748	0	1770	1799	0	1778	1822	0
Flt Permitted		0.845			0.642		0.165			0.270		
Satd. Flow (perm)	0	1506	0	0	1162	0	307	1799	0	505	1822	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		111			563			628			669	
Travel Time (s)		3.0			15.4			12.2			13.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	4%	4%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	64	57	67	133	34	24	59	506	149	24	611	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	188	0	0	191	0	59	655	0	24	745	0
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		12.0	12.0		12.0	12.0		7.0	7.0	
Minimum Split (s)	24.1	24.1		24.1	24.1		19.0	19.0		14.0	14.0	
Total Split (s)	24.1	24.1		24.1	24.1		19.0	51.9		14.0	46.9	
Total Split (%)	26.8%	26.8%		26.8%	26.8%		21.1%	57.7%		15.6%	52.1%	
Maximum Green (s)	19.0	19.0		19.0	19.0		14.6	46.3		9.4	41.3	
Yellow Time (s)	3.2	3.2		3.2	3.2		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.0		1.6	1.0	
Lost Time Adjust (s)		-0.1			-0.1		0.6	-0.6		0.6	-0.6	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.2	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	6.0		1.0	6.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		17.6			17.6		44.9	43.5		45.5	39.0	
Actuated g/C Ratio		0.23			0.23		0.59	0.57		0.60	0.52	
v/c Ratio		0.54			0.71		0.14	0.63		0.06	0.80	
Control Delay		35.6			46.9		6.0	15.3		5.5	25.4	

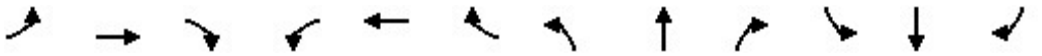
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		35.6			46.9		6.0	15.3		5.5	25.4	
LOS		D			D		A	B		A	C	
Approach Delay		35.6			46.9			14.6			24.8	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)		93			99		10	165		4	346	
Queue Length 95th (ft)		163			#205		22	374		12	#572	
Internal Link Dist (ft)		31			483			548			589	
Turn Bay Length (ft)							100			125		
Base Capacity (vph)		403			311		474	1230		465	1071	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.47			0.61		0.12	0.53		0.05	0.70	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 75.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 24.2 Intersection LOS: C
Intersection Capacity Utilization 68.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NC 12 (Ocean Trail) & Sunset Boulevard/Albacore Street





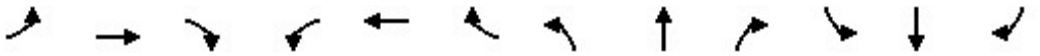
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	51	60	120	31	22	53	455	134	22	550	121
Future Volume (veh/h)	58	51	60	120	31	22	53	455	134	22	550	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1909	1909	1909	1879	1879	1909	1870	1870	1870	1909	1909	1909
Adj Flow Rate, veh/h	64	57	67	133	34	24	59	506	149	24	611	134
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	4	4	2	2	2	2	2	2	2
Cap, veh/h	150	108	105	248	51	31	406	807	238	414	766	168
Arrive On Green	0.20	0.17	0.20	0.20	0.17	0.20	0.11	0.58	0.60	0.03	0.50	0.52
Sat Flow, veh/h	472	624	607	933	297	177	1781	1388	409	1818	1517	333
Grp Volume(v), veh/h	188	0	0	191	0	0	59	0	655	24	0	745
Grp Sat Flow(s),veh/h/ln	1702	0	0	1407	0	0	1781	0	1797	1818	0	1849
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	1.0	0.0	16.7	0.4	0.0	23.3
Cycle Q Clear(g_c), s	6.7	0.0	0.0	8.7	0.0	0.0	1.0	0.0	16.7	0.4	0.0	23.3
Prop In Lane	0.34		0.36	0.70		0.13	1.00		0.23	1.00		0.18
Lane Grp Cap(c), veh/h	409	0	0	368	0	0	406	0	1045	414	0	934
V/C Ratio(X)	0.46	0.00	0.00	0.52	0.00	0.00	0.15	0.00	0.63	0.06	0.00	0.80
Avail Cap(c_a), veh/h	569	0	0	507	0	0	569	0	1203	590	0	1106
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	0.0	26.8	0.0	0.0	10.1	0.0	9.5	7.9	0.0	14.3
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.1	0.0	2.3	0.0	0.0	6.1
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(50%),veh/ln	2.7	0.0	0.0	2.8	0.0	0.0	0.3	0.0	5.8	0.1	0.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	0.0	0.0	27.2	0.0	0.0	10.2	0.0	11.8	7.9	0.0	20.4
LnGrp LOS	C	A	A	C	A	A	B	A	B	A	A	C
Approach Vol, veh/h		188			191			714			769	
Approach Delay, s/veh		26.4			27.2			11.7			20.0	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	45.7		17.1	12.6	40.4		17.1				
Change Period (Y+Rc), s	* 4.6	5.6		* 5.1	* 4.4	5.6		* 5.1				
Max Green Setting (Gmax), s	* 9.4	46.3		* 19	* 15	41.3		* 19				
Max Q Clear Time (g_c+I1), s	2.4	18.7		8.7	3.0	25.3		10.7				
Green Ext Time (p_c), s	0.0	11.6		0.5	0.0	9.4		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	15	57	45	7	70	58	407	54	44	570	33
Future Volume (vph)	25	15	57	45	7	70	58	407	54	44	570	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		100	100		0	125		150	700		0
Storage Lanes	0		1	1		0	1		1	1		0
Taper Length (ft)	25			50			50			75		
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		0.864				0.850		0.992	
Flt Protected		0.970		0.950			0.950			0.950		
Satd. Flow (prot)	0	1807	1615	1770	1542	0	1770	1863	1583	1770	1848	0
Flt Permitted		0.970		0.950			0.950			0.950		
Satd. Flow (perm)	0	1807	1615	1770	1542	0	1770	1863	1583	1770	1848	0
Link Speed (mph)		25			15			35			35	
Link Distance (ft)		263			533			669			1035	
Travel Time (s)		7.2			24.2			13.0			20.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	0%	2%	50%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	28	17	63	50	8	78	64	452	60	49	633	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	45	63	50	86	0	64	452	60	49	670	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.5%		ICU Level of Service A	
Analysis Period (min) 15			

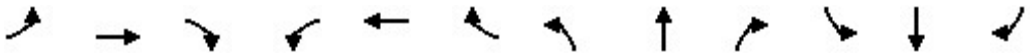
Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	15	57	45	7	70	58	407	54	44	570	33
Future Vol, veh/h	25	15	57	45	7	70	58	407	54	44	570	33
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	-	-	100	100	-	-	125	-	150	700	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	0	2	50	2	2	2	2	2	2	2
Mvmt Flow	28	17	63	50	8	78	64	452	60	49	633	37

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1403	1390	652	1370	1348	452	670	0	0	512	0	0
Stage 1	750	750	-	580	580	-	-	-	-	-	-	-
Stage 2	653	640	-	790	768	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.2	7.12	7	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.3	3.518	4.45	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	117	142	471	124	121	608	920	-	-	1053	-	-
Stage 1	403	419	-	500	431	-	-	-	-	-	-	-
Stage 2	456	470	-	383	348	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	88	126	471	88	107	608	920	-	-	1053	-	-
Mov Cap-2 Maneuver	88	126	-	88	107	-	-	-	-	-	-	-
Stage 1	375	399	-	465	401	-	-	-	-	-	-	-
Stage 2	363	437	-	303	332	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	36.2	43	1	0.6
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	920	-	-	99	471	88	426	1053	-	-
HCM Lane V/C Ratio	0.07	-	-	0.449	0.134	0.568	0.201	0.046	-	-
HCM Control Delay (s)	9.2	-	-	68.1	13.8	89.8	15.6	8.6	-	-
HCM Lane LOS	A	-	-	F	B	F	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.9	0.5	2.6	0.7	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	9	45	58	8	7	20	453	46	19	634	12
Future Volume (vph)	8	9	45	58	8	7	20	453	46	19	634	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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		0.902			0.987			0.988			0.998	
Flt Protected		0.994			0.962			0.998			0.999	
Satd. Flow (prot)	0	1658	0	0	1745	0	0	1832	0	0	1857	0
Flt Permitted		0.994			0.962			0.998			0.999	
Satd. Flow (perm)	0	1658	0	0	1745	0	0	1832	0	0	1857	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1233			1053			1035			650	
Travel Time (s)		33.6			28.7			20.2			12.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	3%	4%	2%	0%	2%	2%	5%	2%	2%	2%
Adj. Flow (vph)	9	10	50	64	9	8	22	503	51	21	704	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	69	0	0	81	0	0	576	0	0	738	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.7%		ICU Level of Service B	
Analysis Period (min) 15			

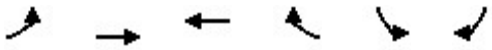
Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	9	45	58	8	7	20	453	46	19	634	12
Future Vol, veh/h	8	9	45	58	8	7	20	453	46	19	634	12
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	3	4	2	0	2	2	5	2	2	2
Mvmt Flow	9	10	50	64	9	8	22	503	51	21	704	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1334	1351	711	1356	1332	529	717	0	0	554	0	0
Stage 1	753	753	-	573	573	-	-	-	-	-	-	-
Stage 2	581	598	-	783	759	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.23	7.14	6.52	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.14	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.14	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.327	3.536	4.018	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	131	150	431	125	154	554	884	-	-	1016	-	-
Stage 1	402	417	-	501	504	-	-	-	-	-	-	-
Stage 2	499	491	-	384	415	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	117	140	431	99	143	554	884	-	-	1016	-	-
Mov Cap-2 Maneuver	117	140	-	99	143	-	-	-	-	-	-	-
Stage 1	388	403	-	483	486	-	-	-	-	-	-	-
Stage 2	466	473	-	320	401	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.6	94.8	0.4	0.2
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	884	-	-	262	112	1016	-	-
HCM Lane V/C Ratio	0.025	-	-	0.263	0.724	0.021	-	-
HCM Control Delay (s)	9.2	0	-	23.6	94.8	8.6	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1	3.9	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	122	148	57	47	11
Future Volume (vph)	10	122	148	57	47	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.963		0.975	
Flt Protected		0.996			0.961	
Satd. Flow (prot)	0	1855	1794	0	1745	0
Flt Permitted		0.996			0.961	
Satd. Flow (perm)	0	1855	1794	0	1745	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		606	111		270	
Travel Time (s)		16.5	3.0		12.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	136	164	63	52	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	147	227	0	64	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	122	148	57	47	11
Future Vol, veh/h	10	122	148	57	47	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	136	164	63	52	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	227	0	-	0	354	196
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	158	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1341	-	-	-	644	845
Stage 1	-	-	-	-	837	-
Stage 2	-	-	-	-	871	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1341	-	-	-	638	845
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	871	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1341	-	-	-	669
HCM Lane V/C Ratio	0.008	-	-	-	0.096
HCM Control Delay (s)	7.7	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	52	0	71	27	0	45
Future Volume (vph)	52	0	71	27	0	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.965		
Satd. Flow (prot)	1863	0	0	1798	1611	0
Flt Permitted				0.965		
Satd. Flow (perm)	1863	0	0	1798	1611	0
Link Speed (mph)	25			25	15	
Link Distance (ft)	441			263	352	
Travel Time (s)	12.0			7.2	16.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	0	79	30	0	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	0	109	50	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	0	71	27	0	45
Future Vol, veh/h	52	0	71	27	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	0	79	30	0	50

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	58	0	246	58
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	188	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1546	-	742	1008
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	844	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1546	-	703	1008
Mov Cap-2 Maneuver	-	-	-	-	703	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	800	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.4	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1008	-	-	1546	-
HCM Lane V/C Ratio	0.05	-	-	0.051	-
HCM Control Delay (s)	8.8	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

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№ 00542

N.C. DIVISION OF COASTAL MANAGEMENT
NOTIFICATION OF COASTAL WETLAND DETERMINATION

Pursuant to NCGS 113-229(n)(3), and 15A NCAC 07H.0205(a)

(A) B C D

Property Owner: Outer Banks Ventures Inc. Mailing Address: PO Box 549
Corolla, NC 27927

Site Address: Parcel # 0116 000001 000000
Malia Drive, Corolla, N.C. 27927

Project Location: County Currituck US/NC/SR # off of NC SR 12
River Basin Pasquotank Adj. Water Body Sanders Bay of Currituck Sound

Indicate Which of the Following Apply:

___ Coastal Wetlands have been identified on the above described property. The project (as currently proposed) may impact these wetlands but no official delineation was performed. The Division of Coastal Management suggests that you request a formal delineation by this Division to evaluate potential impacts to Coastal Wetlands and project design alternatives.

✓ Coastal Wetlands have been identified on the above described property. At your request, an official Coastal Wetland delineation was performed by the Division of Coastal Management. The Division of Coastal Management suggests that you have the delineation surveyed. The Division will verify the surveyed line, which will then remain valid for a period not to exceed 12 months from the delineation.

* Previously Surveyed, Survey Approved by DCM may 12th 2022

Coastal Wetlands species identified on-site:

___ Spartina alterniflora	✓ Juncus roemerianus	___ Salicornia spp.
___ Distichlis spp.	___ Limonium spp.	___ Scirpus spp.
___ Cladium jamaicense	✓ Typha spp.	___ Spartina patens
✓ Spartina cynosuroides		

Check any field indicators that apply to establish regular or occasional flooding:

✓ tidal water observed on-site (do not check if during or following Tropical Storm/Hurricane)

___ crabs/holes ___ wrack lines ___ staining ___ tidal water connection

___ periwinkle ✓ elevation changes ___ other (please describe) _____

DCM Official Robert Corbett Title Field Rep

Date 5-27-22

In the event you ~~wish to appeal~~ disagree with this jurisdictional call, you may request a second opinion by contacting my supervisor, Ron Renaldi (DCM District Manager) at Elizabeth City.

Visit our website at www.nccoastalmanagement.com

Memorandum

To: Currituck County Planning & Zoning
153 Courthouse Rd, Suite 110
Currituck, NC 27929

Date: November 16, 2023

Project #: 34755.00

From: Andrew Topp, PE, PTOE

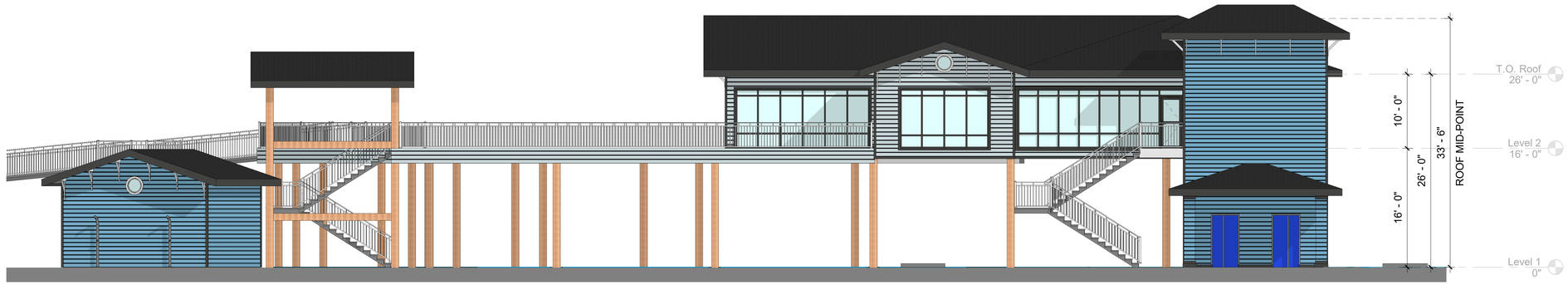
Re: Corolla Boat Club Parking Demand Assessment – Corolla, North Carolina

Parking Demand

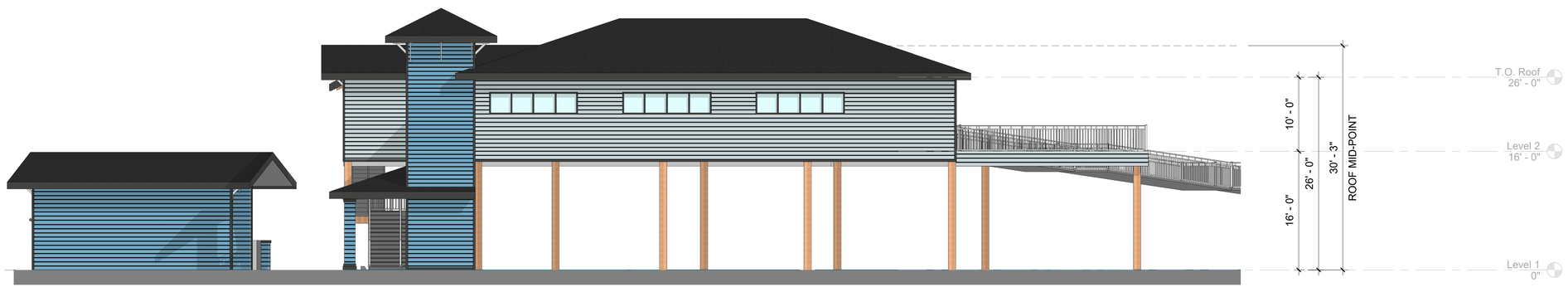
Monteray Shores includes the construction of a residential and commercial development in Corolla, North Carolina. As part of the development, the Corolla Boat Club is proposing the construction of 56 boat docks on site. Based on the Currituck County Unified Development Ordinance (UDO), Subsection 5.1.3: Off-Street Parking Standards, a Marina requires at least one (1) parking spot per slip or mooring. However, the Institute of Transportation Engineers (ITE) Parking Generation identifies an average rate of 0.35 for each individual berth on site at a Marina (Land Use Code 420). Using the ITE Parking Generation average rate of 0.35 per berth, the applicant has provided adequate parking for the proposed number of boat slips on site.

The Corolla Boat Club will not include an on-site boat ramp; therefore, a majority of marina users are expected to be residents of the multi-use development or originating from another off-site location. The minimum parking requirement outlined in the UDO would result in an overestimation of the parking needed for this use. Additionally, the parking associated with the other residential and commercial uses included in this development are accounted for separately from the boat slip. Therefore, using the ITE Parking Generation average rate will reduce the chance for potential double counting at this location. Due to the unique arrangement of the multi-use development, it is recommended that the ITE Parking Generation average rate can be used as a conservative parking estimate for this development to avoid an overestimation of parking spaces and double counting.

Venture I, 940 Main Campus Drive, Suite 500, Raleigh, North Carolina 27606
P 919.829.0328 **F** 919.833.0034 www.vhb.com



1 / A403 **North Elevation**
1/8" = 1'-0"



2 / A403 **East Elevation**
1/8" = 1'-0"

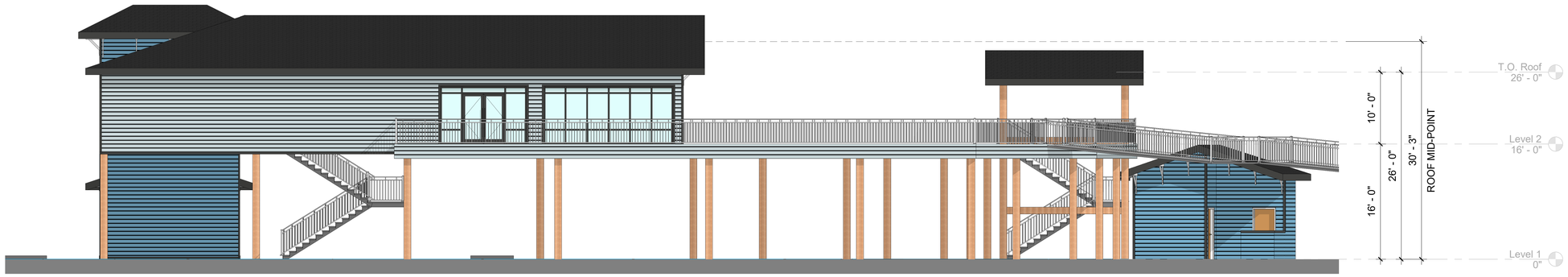
PLOT DATE: 11/15/2023 4:50:50 PM

No.	DESCRIPTION	DATE

Corolla Boat Club
Restaurant
Currituck County, NC

dlw architects
542 Douglas Avenue
Dunedin, FL 34698
727.736.6000
www.dlwarchitects.com
established 1981

DRAWN	PC
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/8" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	**A403**



1 / A404 **South Elevation**
1/8" = 1'-0"

2 / A404 **West Elevation**
1/8" = 1'-0"

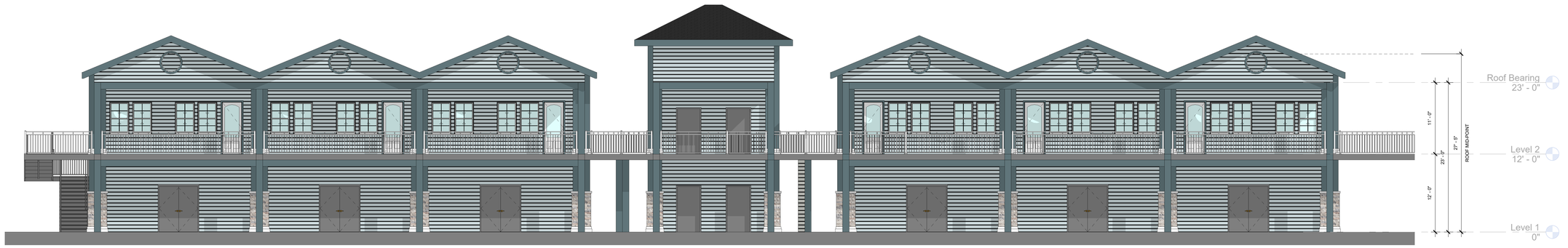
PLOT DATE: 11/15/2023 4:50:56 PM

No.	DESCRIPTION	DATE

Corolla Boat Club
Restaurant
Currituck County, NC

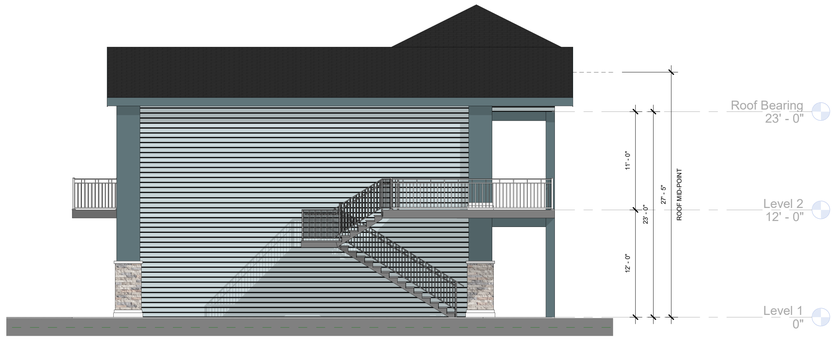
dlw architects
542 Douglas Avenue
Dunedin, FL 34698
727.736.6000
www.dlwarchitects.com
established 1981

DRAWN	PC
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/8" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	**A404**

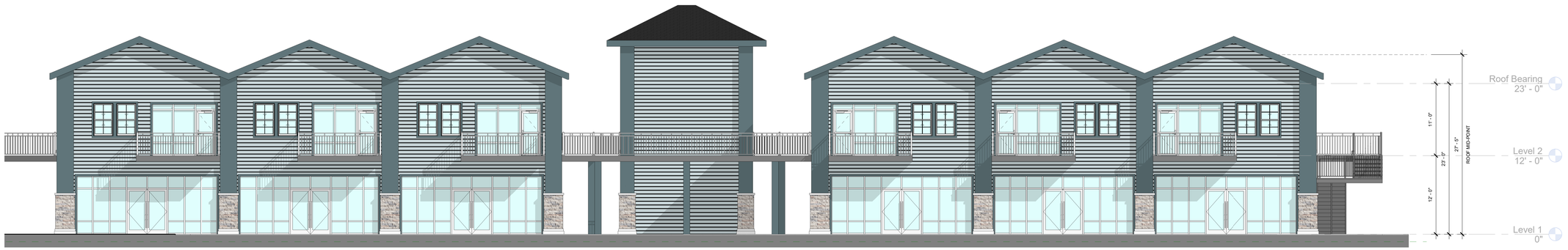


1 A403 **North Elevation**
1/8" = 1'-0"

2 A403 **East Elevation**
1/8" = 1'-0"



3 A403 **West Elevation**
1/8" = 1'-0"



4 A403 **South Elevation**
1/8" = 1'-0"

PLOT DATE: 11/15/2023 2:34:19 PM

No.	DESCRIPTION	DATE

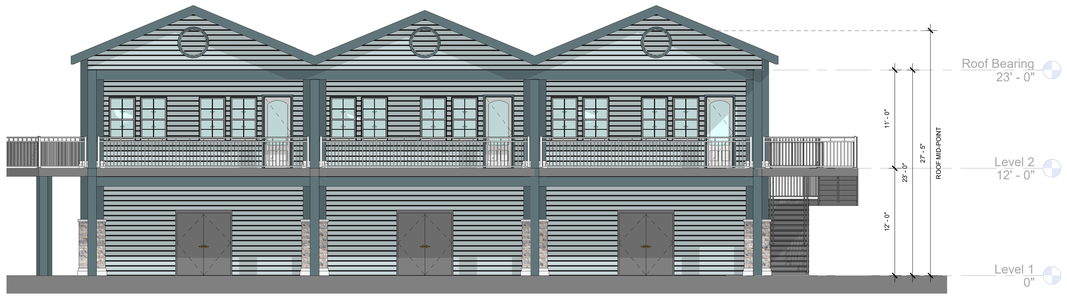
Corolla Boat Club

Retail and Apartments

Currituck County, NC

dlw architects
542 Douglas Avenue
Dunedin, FL 34698
727.736.6000
www.dlwarchitects.com
established 1981

DRAWN	PC / AS
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/8" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	**A403**



1 / A404 **North Elevation**
1/8" = 1'-0"

2 / A404 **South Elevation**
1/8" = 1'-0"

3 / A404 **East Elevation**
1/8" = 1'-0"

4 / A404 **West Elevation**
1/8" = 1'-0"

No.	DESCRIPTION	DATE

Corolla Boat Club
Retail and Apartments
Currituck County, NC

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DRAWN	PC / AS
PROTOTYPE VERSION	
ISSUE DATE	11/16/2023
SCALE	1/8" = 1'-0"
JOB NUMBER	23-026
PROJECT STATUS	SD
SHEET NAME	Color Building Elevations
LOCATION / INN CODE	
SHEET NUMBER	A404

PLOT DATE: 11/15/2023 2:34:32 PM