



**Town of Surfside
PLANNING & ZONING BOARD
AGENDA**

October 24, 2019 – 6:00 p.m.

Town Hall Commission Chambers –
9293 Harding Ave, 2nd Floor, Surfside, FL 33154

Rule 7.05 Decorum. Any person making impertinent or slanderous remarks or who becomes boisterous while addressing the commission shall be barred from further appearance before the commission by the presiding officer, unless permission to continue or again address the commission is granted by the majority vote of the commission members present. No clapping, applauding, heckling or verbal outbursts in support or opposition to a speaker or his or her remarks shall be permitted. Signs or placards may be disallowed in the commission chamber by the presiding officer. Persons exiting the commission chambers shall do so quietly.

Any person who received compensation, remuneration or expenses for conducting lobbying activities is required to register as a lobbyist with the Town Clerk prior to engaging in lobbying activities per Town Code Sec. 2-235. "Lobbyist" specifically includes the principal, as defined in this section, as well as any agent, officer or employee of a principal, regardless of whether such lobbying activities fall within the normal scope of employment of such agent, officer or employee. The term "lobbyist" specifically excludes any person who only appears as a representative of a not-for-profit community-based organization for the purpose of requesting a grant without special compensation or reimbursement for the appearance; and any person who only appears as a representative of a neighborhood, homeowners or condominium association without compensation for the appearance, whether direct or indirect or contingent, to express support of or opposition to any item.

Per Miami Dade County Fire Marshal, the Commission Chambers has a maximum capacity of 99 people. Once reached this capacity, people will be asked to watch the meeting from the first floor.

1. Call to Order/Roll Call

2. Town Commission Liaison Report – Vice Mayor Gielchinsky

3. Approval of Minutes – September 26, 2019

4. Applications:

- A. 8955 Collins Avenue** - The applicant is requesting one (1) Permanent Wall Sign (Sign A) and one (1) Window Sign (Sign B). Sign A will reside on the building façade at 8955 Collins Avenue while Sign B will reside on the west building entrance glass door located at 8926 Collins Avenue.
- B. 9461 Harding Avenue** - The applicant is requesting one (1) Permanent Wall Sign and one (1) awning sign.

5. Quasi – Judicial Hearing - Local Planning Agency Items

- A. 8995 Collins Avenue** - Site plan to renovate an existing nine story tower by adding three additional stories while renovating both the interior and exterior of the tower.
- B. Limitations on Hotel Uses in H40** – Guillermo Olmedillo, Town Manager

AN ORDINANCE OF THE TOWN COMMISSION OF THE TOWN OF SURFSIDE, FLORIDA AMENDING THE TOWN OF SURFSIDE CODE OF ORDINANCES BY AMENDING SECTION 90-41, “REGULATED USES”, TO ESTABLISH LIMITATIONS ON HOTELS IN THE H-40 ZONING DISTRICT SOUTH OF 93RD STREET INCLUDING: A PROHIBITION ON BALLROOMS AND BANQUET FACILITIES AS HOTEL ACCESSORIES; PROVIDING DISTANCE SEPARATION STANDARDS BETWEEN HOTELS; PROVIDING LIMITATIONS ON EVENT AND/OR MEETING ROOM SPACE; PROHIBITING STRUCTURED PARKING FACILITIES, AND REQUIRING THAT PARKING STRUCTURES INCORPORATE HOTEL AND/OR ACCESSORY USES; CREATING EXEMPTIONS FOR EXISTING AND APPROVED DEVELOPMENTS, AND FOR HISTORICALLY DESIGNATED PROPERTIES; AND AMENDING SECTION 90-51 “MAXIMUM FRONTAGE OF BUILDINGS AND FAÇADE ARTICULATIONS” TO ESTABLISH CONTINUOUS WALL FRONTAGES FOR HOTELS IN THE H40 ZONING DISTRICT SOUTH OF 93RD STREET; PROVIDING FOR SEVERABILITY; PROVIDING FOR INCLUSION IN THE CODE; PROVIDING FOR CONFLICTS; AND PROVIDING FOR AN EFFECTIVE DATE.

6. Discussion Items:

- A. Climate Crisis Report**
- B. Setbacks Lots over 50 Feet in Width**
- C. H30A/H30B Upper story Massing**
- D. DVAC Request on window tint *[Verbal]***
- E. Future Agenda Items**

7. Adjournment

THIS MEETING IS OPEN TO THE PUBLIC. IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT OF 1990, ALL PERSONS THAT ARE DISABLED; WHO NEED SPECIAL ACCOMMODATIONS TO PARTICIPATE IN THIS MEETING BECAUSE OF THAT DISABILITY SHOULD CONTACT THE OFFICE OF THE TOWN CLERK AT 305-861-4863 EXT. 226 NO LATER THAN FOUR DAYS PRIOR TO SUCH PROCEEDING.

IN ACCORDANCE WITH THE PROVISIONS OF SECTION 286.0105, FLORIDA STATUTES, ANYONE WISHING TO APPEAL ANY DECISION MADE BY THE TOWN OF SURFSIDE COMMISSION, WITH RESPECT TO ANY MATTER CONSIDERED AT THIS MEETING OR HEARING, WILL NEED A RECORD OF THE PROCEEDINGS AND FOR SUCH PURPOSE, MAY NEED TO ENSURE THAT A VERBATIM RECORD OF THE PROCEEDINGS IS MADE WHICH RECORD SHALL INCLUDE THE TESTIMONY AND EVIDENCE UPON WHICH THE APPEAL IS TO BE BASED.

AGENDA ITEMS MAY BE VIEWED AT THE OFFICE OF THE TOWN CLERK, TOWN OF SURFSIDE TOWN HALL, 9293 HARDING AVENUE. ANYONE WISHING TO OBTAIN A COPY OF ANY AGENDA

ITEM SHOULD CONTACT THE TOWN CLERK AT 305-861-4863. A COMPLETE AGENDA PACKET IS ALSO AVAILABLE ON THE TOWN WEBSITE AT www.townofsurfsidefl.gov.

TWO OR MORE MEMBERS OF THE TOWN COMMISSION OR OTHER TOWN BOARDS MAY ATTEND THIS MEETING.

THESE MEETINGS MAY BE CONDUCTED BY MEANS OF OR IN CONJUNCTION WITH COMMUNICATIONS MEDIA TECHNOLOGY, SPECIFICALLY, A TELEPHONE CONFERENCE CALL. THE LOCATION 9293 HARDING AVENUE, SURFSIDE, FL 33154, WHICH IS OPEN TO THE PUBLIC, SHALL SERVE AS AN ACCESS POINT FOR SUCH COMMUNICATION.



**Town of Surfside
PLANNING & ZONING BOARD
MINUTES**

September 26, 2019 – 6:00 p.m.
Town Hall Commission Chambers –
9293 Harding Ave, 2nd Floor, Surfside, FL 33154

1. Call to Order/Roll Call

Chair Lindsey Lecour called the meeting to order at 6:02 p.m.

Present: Chair Lindsey Lecour, Vice Chair Judith Frankel, Board Member Jorge Garcia, Board Member Rochel Kramer and Board Member Rochel Kramer

*Vice Mayor Gielchinsky absent.

Absent: Board Member Peter Glynn, Board Member Marina Gershanovich and *Board Member Jorge Garcia.

2. Town Commission Liaison Report – Vice Mayor Gielchinsky

Town Planner Sinatra gave an update to the Board members from the last meeting.

Vice Mayor Gielchinsky stated that there was nothing further to add to what Town Planner Sinatra had already given in her update.

3. Approval of Minutes – August 29, 2019

A motion was made by Board Member Rochel Kramer to approve the August 29, 2019 minutes, motion received a second by Vice Chair Judith Frankel. Motion passed with a 4-0 vote.

4. Applications:

- A. 8818 Froude Avenue** - The applicant is requesting to enclose their carport to approximately 375 square feet of additional living space

Town Planner Sinatra introduced the item and gave the staff findings and requirements: Staff finds that the application meets the code requirements.

Vice Chair Judith Frankel asked regarding the landscaping requirements and if the applicant is aware of those requirements.

Town Planner Sinatra stated that the applicants are aware of the landscape requirements and they will meet those requirements.

A motion was made by Vice Chair Judith Frankel to approve the item with the conditions that the applicant will provide the appropriate landscaping, the motion received a second by Board Member Rochel Kramer. Motion passed with a 4-0 vote.

*Board Member Brian Roller entered at 6:11 p.m.

- B. 8866 Hawthorne Avenue** - The applicant is requesting fencing in the secondary frontage. A 6' foot high wood fence is proposed on the side of the property.

Town Planner Sinatra introduced the item and gave the staff findings and requirements.

Staff finds that the application does not meet the Code due to not providing the setback and landscaping as described below, however this requirement can be a condition of approval as follows:

- Provide a 3-foot setback between the fence and the property line. Per code section 90-56.5, shrubs shall be installed at the time the fence or wall is installed. Shrubs shall be planted a minimum of 36" in height and shall be placed a maximum of 24" on center and shall cover the exterior of the fence or wall within one year after the final inspection of the fence.

A motion was made by Board Member Jorge Garcia to approve the item with staff conditions, the motion received a second by Board Member Rochel Kramer. Motion passed with a 5-0 vote.

- C. 8900 Harding Avenue** - The applicant is requesting to upgrade/re-roof from their existing three-tab shingle roof to a new dimensional shingle roof.

Town Planner Sinatra introduced the item to the Board members with the following staff conditions.

- Although shingles are not a permitted roof material under the design guidelines, the zoning code permits an applicant to request approval of a different roof material by the Planning & Zoning Board if said material is approved by the Florida Building Code. Therefore, the applicant is requesting consideration by the Planning & Zoning Board to install dimensional shingles, which is an upgrade from the three-tab single roof material that has existed since 1993.

Juan Alvarez, Roofer for the owner/applicant, explained the material that is being used for the new roof.

Discussion among the Board members, staff and Mr. Alvarez continued regarding the roof materials.

A motion was made by Board Member Rochel Kramer to approve the item with staff conditions, the motion received a second by Board Member Brian Roller. Motion passed with a 5-0 vote.

D. 9264 Bay Drive - The applicant is requesting to build a 7,017 square foot two-story new home

Town Planner Sinatra introduced the item and gave the staff findings and requirements

Staff finds the application meets the Code with the following conditions of approval:

- 1) The approval of the first and second story setback variances.
- 2) Provide the required 50% minimum front setback permeability. Currently, the plans provide for 39% permeability. The applicant indicates that the required permeability is 30%, however per **Code Section 90.61** the required minimum front setback permeability is 50%.
- 3) Provide a 5 foot setback for the pool equipment.
- 4) The glass railing on the roof cannot exceed the maximum height of the parapet, which is no greater than 3 feet above the maximum height of the roof.

Note: the future stairs for the roof cannot exceed the 30 foot height limitation.

Discussion among the neighbors that came to speak continued regarding the size of the home, the side setbacks and the variance being requested.

After further discussion among the Board, the applicant, the applicant's architect and neighbors the Board made the following motion.

A motion was made by Board Member Brian Roller, seconded by Vice Chair Judith Frankel to table the item for 30 minutes in order to give the owner of the property, the architect for the owner and the neighbors to come to an agreement and for the owner to explain his project to the neighbors and then come back at 7:45 p.m. to the Board. Motion passed with a 5-0 vote.

The owner, the owner's architect and the neighbors came back and reached an agreement.

A motion was made by Board Member Brian Roller to approve the site plan with conditions presented by staff and for the owners/applicants to continue to work with their neighbors on any objections the neighbors might have. The motion received a second by Vice Chair Judith Frankel. Motion passed with a 5-0 vote.

E. 8810 Abbott Avenue - The applicant is requesting to convert the existing garage into an extension of the living room

Town Planner Sinatra introduced the item and gave the staff findings and requirements.

Staff finds the application meets the Code subject to the following:

- 1) Approval of the practical difficulty variance.
- 2) All elevations for single story additions to existing structures shall result in a zero percent net loss of wall openings including windows, doors or transitional spaces defined by porches, porticoes or colonnades. Demonstrate how the north elevation meets this requirement. (*Code Section 90.50*)
- 3) Provide landscaping along the base of where the garage is to be converted. Per code section 90-50.1 landscaping shall be provided along the base of the new exterior wall. Only when the installation of landscaping results in insufficient off-street parking can a landscaped planter be permitted in lieu of the required landscaping.
- 4) Move shed to subject property. It is currently encroaching onto the neighbor's rear lot.

The Board requested that part of the above conditions to include landscaping of the property.

A motion was made by Board Member Rochel Kramer to approve the item with the staff conditions stated along with the condition of landscaping to be addressed. The motion received a second by Vice Chair Judith Frankel. Motion passed with a 5-0 vote.

5. Quasi – Judicial Hearing Items

A. 9264 Bay Drive - The architect, Daniel Sorogon, on behalf of the owners Dr. David Krieger and Bella Tendler Krieger, is requesting two variances for side

setbacks for the first floor and upper story level from the Town of Surfside Zoning Code.

Town Planner Sinatra introduced the item and gave the Staff findings as follows:

Staff finds that the applicant has met the criteria for a variance.

A motion was made by Board Member Brian Roller to approve the site plan with conditions presented by staff and for the owners/applicants to continue to work with their neighbors on any objections the neighbors might have. The motion received a second by Vice Chair Judith Frankel. Motion passed with a 5-0 vote.

- B. 8810 Abbott Avenue** - The property owner, Samuel Front, is requesting a practical difficulty variance to permit 3% additional lot coverage for the home at 8810 Abbott Avenue. Mr. Front is proposing an addition and renovation to the existing one-story single-family home.

Town Planner Sinatra introduced the item and gave the staff findings and requirements:

Staff finds that the 3% lot coverage increase of 175 square feet is minimal and is not expected to impact the neighbors. Staff also finds that the applicant is providing the required pervious area and therefore the 3% increase of lot coverage will not negatively impact the required green space.

A motion was made by Vice Chair Judith Frankel to approve the variance with the conditions stated and to include landscaping as part of the requirements for approval. The motion received a second by Board Member Rochel Kramer. Motion passed with a 5-0 vote.

6. Discussion Items:

A. Reduction in Massing of Single Family Homes

Town Planner Sinatra presented the item and gave the calculations that were discussed. She also stated that she would give the Board graphics at the next meeting.

Discussion among the Board took place regarding the percentage on the calculations of the massing.

The Board gave a directive to design guidelines on pitched roofs and a visual on 64% and bring back to them.

B. Freeboard

George Kousoulas gave an update on the item.

Chair Lindsey Lecour requested to bring this item back at a future meeting agenda.

C. Prohibition of Subdivision of Aggregated Lots

Town Planner Sinatra introduced the item.

The Board as a whole decided to focus and concentrate on the massing for now.

Vice Mayor Gielchinsky left at 8:14 p.m.

D. Future Agenda Items

Town Planner Sinatra introduced the item and the Board members requested to continue discussing the massing issue.

The Board also requested to have as a future item the tinted of the window glass on businesses that was discussed and was a recommendation by the DVAC Committee.

7. Adjournment

A motion was made by Vice Chair Judith Frankel to adjourn the meeting without objection at 9:03 p.m. The motion received a second by Board Member Brian Roller. Motion passed 5-0.

Respectfully submitted,

Accepted this _____ day of _____, 2019.

Lindsay Lecour, Chair

Attest:

Sandra Novoa, MMC
Town Clerk



MEMORANDUM

To: Planning & Zoning Board
 Thru: Guillermo Olmedillo, Town Manager
 From: Sarah Sinatra Gould, AICP, Town Planner
 CC: Lillian Arango, Town Attorney
 Date: October 24, 2019
 Re: 8955 Collins Avenue/8926 Collins Avenue – ARTE

The subject property is located at two (2) locations: Location 1 is at 8955 Collins Avenue and is within the H120 zoning district; Location 2 is at 8926 Collins Avenue and is within the H40 zoning district. The applicant is requesting one (1) Permanent Wall Sign (Sign A) and one (1) Window Sign (Sign B). Sign A will reside on the building façade at 8955 Collins Avenue while Sign B will reside on the west building entrance glass door located at 8926 Collins Avenue.

Staff has reviewed the current application for consideration by the Planning & Zoning Board. In this report, Staff presents the following:

- Applicable Zoning Code regulations, along with the results of the review
- Staff Recommendation

STANDARDS / RESULTS

Town of Surfside Zoning Code, Applicable Requirements

Sec. 90-73

Signs	Permitted	Proposed
Area	<u>Wall Sign</u> In no case shall the total sign area on any single operating enterprise exceed 150 square feet and no single sign shall exceed 45 square feet.	<u>Wall Sign</u> 3.03 sq. ft.
Types	The following types of individually-mounted letter signs shall be permitted. No open face channel letters shall be permitted. <ol style="list-style-type: none"> i. Reverse channel letter. ii. Push-through letter. iii. Pan channel letter. 	Reverse Channel Letter



	iv. Raceway mounted letter. All exposed raceways must be painted to match finish of wall face of the building.	
Offset	Signs shall be off-set from the wall a minimum of one quarter inch to a maximum of two inches to permit rain water to flow down the wall face	Not offset.

Sec. 90-73

Signs	Permitted	Proposed
Area	<u>Window Signs</u> 20 percent of the area of the glass window or door in which the sign is displayed.	<u>Window Signs</u> 1. 5% of the door area
Location	With the exception of theater marquees and V-box signs, no sign shall be erected so that any portion thereof shall project over a dedicated street or sidewalk or so that any portion thereof shall project more than five feet from any main building wall.	<u>Window Signs</u> Signs do not project over the sidewalk or street
Permanent window sign	Lettering shall not exceed eighth inches in height. Acceptable materials include painted gold leaf or silver leaf, silk-screened, cut or polished metal, cut or frosted vinyl, and etched glass.	Lettering does not exceed eight inches in height. Materials include vinyl

RECOMMENDATION



Staff finds the application meets the Code requirements subject to the following;

SIGN A

- 1) Signs shall be off-set from the wall a minimum of one quarter inch to a maximum of two inches to permit rain water to flow down the wall face during a storm. **Code section 90-73**



DRB Meeting	___/___/20__
Application / Plans Due	___/___/20__

TOWN OF SURFSIDE
MULTI-FAMILY AND NON-RESIDENTIAL DESIGN REVIEW APPLICATION
 (Signs, awnings, store fronts, fences, and walls etc)

A complete submittal includes all items on the "Multi-family and Non-Residential Design Review Application Submission Checklist" document as well as completing this application in full. The owner and agent must sign the application with the appropriate supplemental documentation attached. Please print legibly in ink or type on this application form.

<u>PROJECT INFORMATION</u>	
OWNER'S NAME	ASSR SUZER 8955 LLC
PHONE / FAX	
AGENT'S NAME	
ADDRESS	261 Madison Ave 27 FLR New York NY 10016
PHONE / FAX	
PROPERTY ADDRESS	8955 Collins Ave. - Condominium / 8926 THE GARAGE
ZONING CATEGORY	5000 Hotel & Motel - General
DESCRIPTION OF PROPOSED WORK	Aluminium Flat Cut Letter with Tape Installed on Existing Wall - 8955 ✓ 2x2 L LETTER LOGO ON EXIST GLASS DOOR - 8926

<u>INTERNAL USE ONLY</u>			
Date Submitted	7/10/19	Project Number	16-602
Report Completed		Date	9/10/19
Fee Paid	\$ 200.		

<u>ZONING STANDARDS</u>	Required	Provided
Sign Area (if applicable)	_____	_____
Awning Size (if applicable)	_____	_____
Fence Height (if applicable)	_____	_____
Wall Height (if applicable)	_____	_____

SIGNATURE OF OWNER [Signature] DATE 8/23/19 SIGNATURE OF AGENT [Signature] DATE 09/10/2019



DRB Meeting	___/___/20__
Application / Plans Due	___/___/20__

TOWN OF SURFSIDE
MULTI-FAMILY AND NON-RESIDENTIAL DESIGN REVIEW APPLICATION
 (Signs, awnings, store fronts, fences, and walls etc)

A complete submittal includes all items on the "Multi-family and Non-Residential Design Review Application Submission Checklist" document as well as completing this application in full. The owner and agent must sign the application with the appropriate supplemental documentation attached. Please print legibly in ink or type on this application form.

PROJECT INFORMATION	
OWNER'S NAME	ASSR SUZER 8955 LLC
PHONE / FAX	
AGENT'S NAME	
ADDRESS	261 Madison Ave 27 FLR New York NY 10016
PHONE / FAX	
PROPERTY ADDRESS	8926 Collins Ave. <i>Gorge</i>
ZONING CATEGORY	3900 Multi-family - 38 - 62 UTH
DESCRIPTION OF PROPOSED WORK	Vinyl Letters and Logo on Existing Glass Door (8926)

INTERNAL USE ONLY	
Date Submitted	Project Number
Report Completed	Date
Fee Paid	\$

ZONING STANDARDS	Required	Provided
Sign Area (if applicable)	_____	_____
Awning Size (if applicable)	_____	_____
Fence Height (if applicable)	_____	_____
Wall Height (if applicable)	_____	_____

SIGNATURE OF OWNER	<i>[Signature]</i>	DATE	8/23/19
SIGNATURE OF AGENT	<i>[Signature]</i>	DATE	09/10/2019



TOWN OF SURFSIDE
MULTI-FAMILY AND NON-RESIDENTIAL DESIGN REVIEW
(Signs, awnings, store fronts, fences, and walls etc)

PLANNING AND ZONING BOARD Rules and Procedures (June 2002)

The Planning and Zoning Board shall generally meet the last Thursday of each month at 7:00 pm. at Town Hall.

Plans and completed applications (including all supporting documentation) must be submitted to the Building Department at least 21 days prior to the meeting, with the payment of applicable fees (example: \$200.00 for Plan Review for Zoning), at which time they will be considered. Incomplete plans and applications will not be processed.

The applicant or duly authorized agent (per ownership affidavit) must be present at the meeting. If there are no applications for consideration by the Planning and Zoning Board, the monthly meeting may be cancelled at the discretion of the Chairman of the Board.

Please advise the name of the Representative who will attend the hearing on behalf of this application:

NAME OF REPRESENTATIVE

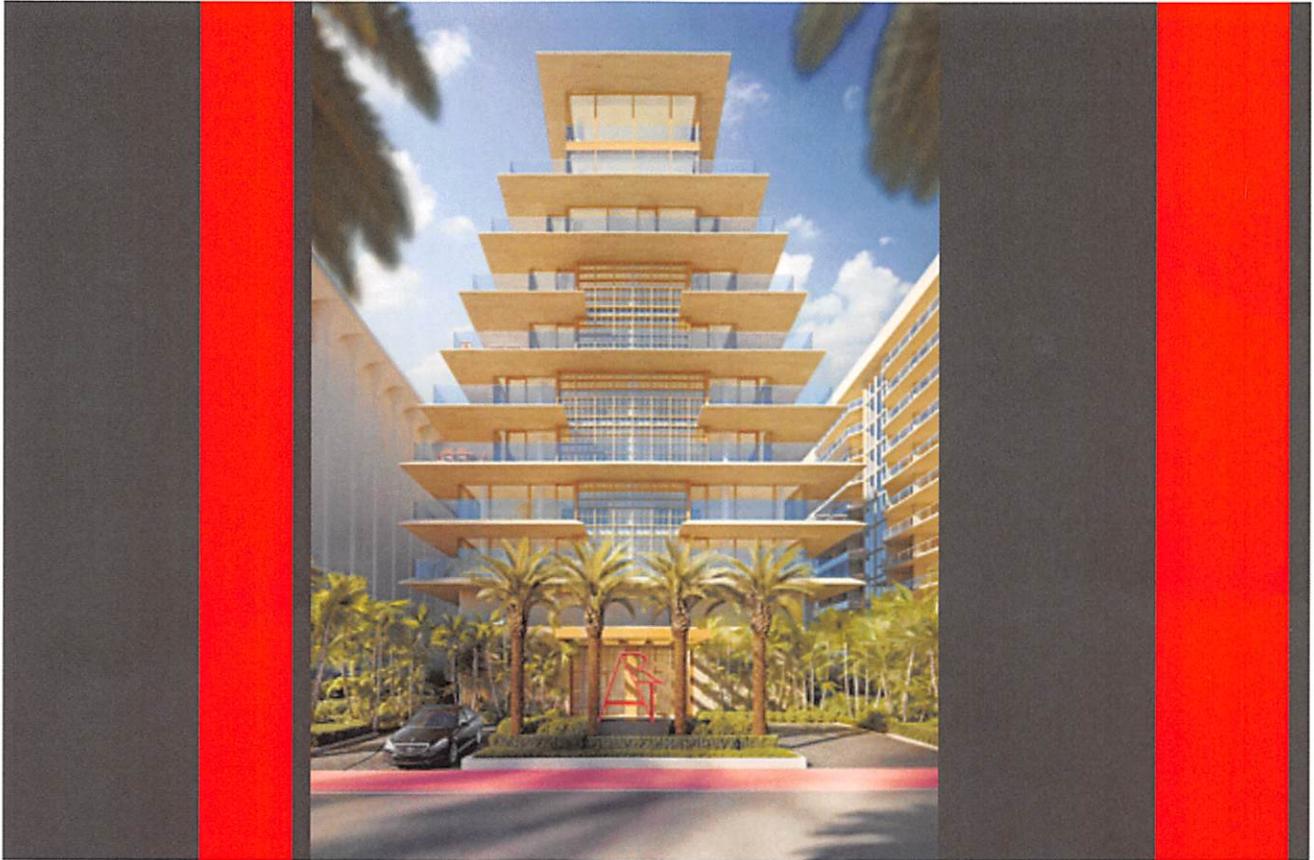
DATE

09/10/2019

ARTE – Letter of Intent

Exterior Signage

09 September 2019



Prepared for:

Planning and Zoning Board
Town of Surfside.
9293 Harding Avenue Surfside,
Miami FL, 33154

To Whom It May Concern

Submitted by:

Luis Rotunno
Operations Manager
Modulex Miami LLC
P. 305.833.9143
E. luis.rotunno@modulex.com

modulex

It is Modulex Miami LLC's intent to Design, Produce and Install the presented Building Identification for ARTE, located at the city of Surfside.

Arte Project

The Signage consists in two (2) items:

- A) Aluminum Flat Cut Logo and Letter Identification located at 8955 Collins Ave. Surfside, FL 33154: it is a set of Non-Illuminated Aluminum Logo and Letters with the intention of properly inform pedestrians and drivers alike the property. The finishes will match throughout the interior sign program as to maintain the style.

The Characters will be fabricated of anodized aluminum. Returns and Backs aluminum fabricated as per PE specifications. Face and sides painted to match PM41279 Pale Bronze METALLIC LRV 30.9, 1/4" thickness face UV resistant.

All surfaces will be covered with a Marine Grade Clear Coat withstand the elements, humidity and the Miami Sun.

This sign will be Located on the 8955 Collins Ave. elevation (WEST FAÇADE OF THE BUILDING), 67" AFF to the bottom of the sign. No demolition required.

This sign will measure: 15 inches in width by 21 inches in height (the logo) and 20" inches in width by 6" inches in height (the number) summing up a total of 3.02 Sq. Feet.

- B) Building Vinyl Logo and Letter Identification located at 8926 Collins Ave. Surfside, FL 33154: it is a set of Vinyl Letters with the intention of properly inform pedestrians and drivers alike the property. The finishes will match throughout the interior sign program as to maintain the style.

The Letters will be fabricated of Vinyl printed to match PM41279 Pale Bronze Metallic LRV 30.9 color applied on Glass.

This sign will be Located on the 8926 Collins Ave. elevation (EAST FAÇADE OF THE BUILDING), 67" AFF to the bottom of the sign. No demolition required.

This sign will measure: 4.3 inches in width by 6 inches in height (the logo) and 20" inches in width by 6" inches in height (the number) summing up a total of 1.01 Sq. Feet.

We hope you will find this application acceptable and will grant us the Referral to the Planning and Zoning Department as required.

Your input on this matter will be greatly appreciated, please feel free to contact me at 305.833.9143 with any questions you may have.

Thank you for your consideration.

Sincerely:



modulex

**COPIES OF SITE
PLANS ARE
AVAILABLE AT
THE TOWN
CLERK'S OFFICE.**

PLEASE CALL 305-861-4863 FOR MORE
INFORMATION OR EMAIL TOWN
CLERK SANDRA NOVOA AT
SNOVOA@TOWNOFSURFSIDEFL.GOV



MEMORANDUM

To: Design Review Board
 Thru: Guillermo Olmedillo, Town Manager
 From: Sarah Sinatra Gould, AICP, Town Planner
 CC: Lillian Arango, Town Attorney
 Date: October 11, 2019
 Re: 9461 Harding Avenue – Rita's

The subject property is located at 9461 Harding Avenue and is within the SD-B40 zoning district. The applicant is requesting one (1) Pemanent Wall Sign and one (1) awning sign.

Staff has reviewed the current application for consideration by the Design Review Board. In this report, Staff presents the following:

- Applicable Zoning Code regulations, along with the results of the review
- Staff Recommendation

STANDARDS / RESULTS

Town of Surfside Zoning Code, Applicable Requirements

Sec. 90-73

Signs	Permitted	Proposed
Area	<u>Wall Sign</u> For frontages less than 25 feet, a total sign area up to 25 square feet maximum shall be permitted	<u>Wall Sign</u> 24.6 square feet
Types	The following types of individually-mounted letter signs shall be permitted. No open face channel letters shall be permitted. i. Reverse channel letter. ii. Push-through letter. iii. Pan channel letter. iv. Raceway mounted letter. All exposed raceways must be painted to match finish of wall face of the building.	Raceway Mounted Letter. All exposed raceways match the finish of the wall face of the building.



<p>Offset</p>	<p>Signs shall be off-set from the wall a minimum of one quarter inch to a maximum of two inches to permit rain water to flow down the wall face</p>	<p>Offset 5 inches</p>
<p>Illumination</p>	<p>All signage, lettering, logos or trademarks shall be required to be lit with white illumination from dusk to dawn. The illumination may be either internal illumination or external illumination, however, all walls below the sign shall be illuminated with white wall wash LED lighting. It shall be located and directed solely at the sign. The light source shall not be visible from or cast into the right-of-way, or cause glare hazards to pedestrians, motorists, or adjacent properties. Lighting shall meet all applicable electrical codes. Intensities of illumination shall be approved by the building official of the town before issuance of a sign permit.</p>	<p>Illumination is white LED</p>

RECOMMENDATION

Staff finds the application meets the Code requirements subject to the following;

- 1) Awning signs or any sign printed on or attached to an awning or canopy is strictly prohibited. Please adjust accordingly. **Code section 90-75**

HEALTH ST. 10/10/08

2015-2016 HO 10/10/11

19-830



DRB Meeting	___/___/20__
Application / Plans Due	___/___/20__

TOWN OF SURFSIDE
MULTI-FAMILY AND NON-RESIDENTIAL DESIGN REVIEW APPLICATION

(Signs, awnings, store fronts, fences, and walls etc)

A complete submittal includes all items on the "Multi-family and Non-Residential Design Review Application Submission Checklist" document as well as completing this application in full. The owner and agent must sign the application with the appropriate supplemental documentation attached. Please print legibly in ink or type on this application form.

PROJECT INFORMATION	
OWNER'S NAME	Julius Goldstein
PHONE / FAX	
AGENT'S NAME	Egis Toledo / Economy Sign Co
ADDRESS	7220 NW 1st Court Miami, FL
PHONE / FAX	305-433-4800
PROPERTY ADDRESS	9461 Harding Ave.
ZONING CATEGORY	
DESCRIPTION OF PROPOSED WORK	Installation of Sign. "Peta's" on Marway and Awning.

INTERNAL USE ONLY	
Date Submitted	_____ Project Number _____
Report Completed	_____ Date _____
Fee Paid	\$ _____

ZONING STANDARDS	Required	Provided
Sign Area (if applicable)	_____	
Awning Size (if applicable)	_____	
Fence Height (if applicable)	_____	
Wall Height (if applicable)	_____	

SIGNATURE OF OWNER _____ DATE _____ SIGNATURE OF AGENT _____ DATE _____

**COPIES OF SITE
PLANS ARE
AVAILABLE AT
THE TOWN
CLERK'S OFFICE.**

PLEASE CALL 305-861-4863 FOR MORE
INFORMATION OR EMAIL TOWN
CLERK SANDRA NOVOA AT
SNOVOA@TOWNOFSURFSIDEFL.GOV

To: Members of the Planning & Zoning Board
From: Sarah Sinatra Gould, AICP, Town Planner
Date: October 24, 2019
Subject: 8995 Collins Site Plan

The agent, Graham Penn, Esq., for the owner, Surf House Condominium Association, is proposing a site plan to renovate an existing nine story tower by adding three additional stories while renovating both the interior and exterior of the tower, located at 8995 Collins Avenue. The existing building located at 8995 Collins Avenue was constructed in 1966 and is known as the Surf House Condominium. The building was designed by Robert Jerome Filer in the “International Style,” an architectural style that was one of the strains of the “MiMo – Miami Modern” movement of architecture. Three sides of the building contain a grid of repetitive window patterns in a structural concrete frame. The fourth (south side) is practically a blank wall that appears to have been designed that way in anticipation of a future adjacent building. The applicant is proposing to renovate the existing nine story building and add three additional stories while renovating both the interior and exterior. The proposed renovation and addition will include 34 condominium units. The existing 36 units will be demolished.

The applicant submitted an application to the Planning and Zoning Board on March 13, 2017 requesting the building to be designated Architecturally Significant. The application was heard on April 27, 2017 and was deemed significant. The applicant then submitted a site plan application on May 19, 2017. Staff confirmed that the package was complete and scheduled a Development Review Group (DRG) meeting for June 19, 2017. Comments were provided to the applicant at this meeting and the applicant revised the site plan. A second DRG meeting was held on August 24, 2017. Comments were provided to the applicant at that time. The plans were resubmitted and a final DRG was held on September 28, 2017. The application was heard by the Planning and Zoning Board on February 22, 2018. The Board voted to defer the application as it had concerns regarding traffic back up as a result from the triple stacked system and concerns as to how the application was meeting the architectural significance ordinance.

The application was resubmitted on March 29, 2018. The changes include adding a second parking lift, reducing the encroachment into the right-of-way and modifying the architecture. The application was heard on April 26, 2018. The Planning and Zoning Board indicated that there were still concerns regarding the traffic and deferred the application to the Planning and Zoning Board meeting of May 31, 2018. The application was deferred once again requesting that the applicant address the outstanding issues.

The application included three variance applications, a right-of-way encroachment agreement and a conditional use application. The applicant has reworked the site plan so it no longer has the need for any variances, the conditional use or the right-of-way encroachment. The applicant resubmitted the application on July 26, 2019. Staff reviewed the application and held a final DRG

meeting with the applicant on August 15, 2019. There were final comments to be addressed and revised plans were provided to the Town on September 19, 2019.

The total gross acreage of the site is 1.16 acres, which would permit 116 units. The code requires a 15% reduction in density for aggregated properties, meaning, if a property is split between more than one site and the owner wants the benefit of amalgamating that property, the property will be subject to a 15% overall density reduction. This results in the permitted density of 99 units. The applicant is requesting to provide 34 condominium units while demolishing the existing 36 units.

The applicant has proposed a total of \$736,050 in proffers to the Town. These include the following:

1. Enhancements to the 90th Street Beach Access & Promenade by beautifying 90th Street from Harding Avenue to the beach including a sidewalk between Collins and Harding Avenues and landscaping. Also proposed is an enhanced promenade at the beach entry with decorative paving, a planted coral stone gateway with signage, benches and a shower. The amount proffered is \$686,050. Staff's review of the proposal indicates there is a conflict with the proposed improvements already proffered by the Surf Club, which results in duplicative improvements and would need to be coordinated.
2. Two solar powered trashcans. The amount proffered is \$30,000.
3. Two diverter dunes at a location to be specified in the future. The amount proffered is \$20,000.

The project includes 34 condominium hotel units. The existing site has 36 units, resulting in two fewer units than currently exist on site. The property has a maximum density permitted of 99 units; therefore, based on the density alone, there are no negative impacts to level of service standards for traffic or public facilities within the Comprehensive Plan

Staff recommends that the Planning and Zoning Board recommend approval of the site plan application.

Reviewed by

Prepared by SSG

SITE PLAN REPORT

SITE PLAN INFORMATION:

Address	8995 Collins Avenue
General Location	East and west side of Collins Avenue, south of 90 th Street
Property Size	East Parcel: .83 gross acres West Parcel: .33 gross acres
Zoning District	East Parcel: H120 West Parcel: H40
Adjacent Zoning Districts	East Parcel: H120 to the north and south, H40 to the west West Parcel: H40 & H30 to the north, H40 to the south, H30C to the west, and H120 to the east
Future Land Use	East Parcel: High Density Residential/Tourist West Parcel: Moderate High Density Residential
Density Permitted	East Parcel: 109 units per acre = 90 units West Parcel: 79 units per acre = 26 units Total: 116 X 15% reduction = 99 units permitted
Number of units proposed	TOTAL: 34 units proposed, with 36 existing units being demolished
Number of parking spaces	TOTAL Provided: 72 spaces TOTAL Required: 70 spaces 100% mechanical lift parking proposed.

ZONING CODE, APPLICABLE REQUIREMENTS

Sec. 90.42

Minimum Unit Sizes	Minimum Required	Proposed
One-bedroom	800 square feet	N/A
Two-bedroom	950 square feet	1,443 square feet
Three-bedroom	1,150 square feet	2,076 square feet
Four-bedroom	N/A	2,648 square feet

Sec. 90.43

Maximum Building Heights	Maximum Required	Proposed
H120	120 feet maximum	120 feet
H40	40 feet maximum	0- lot to be sodded and fenced

Sec. 90.44

Modification of Height	Maximum Permitted	Proposed	Must be of high architectural quality integral to the design of the building
H120	20ft 30% of roof area	14 feet, 2 inches	The mechanical equipment, rooftop decks and parapet walls meet these criteria.

Sec. 90.45(b)

Setbacks	Minimum Required	Proposed	
H120	Front (Collins Avenue)	40 ft	26 ft, 11 inch – Per the project receiving architecturally significant designation
	Rear (Beach)	30ft	146 ft, 9 inches
	Setback from platted bulkhead line	20 ft	15 ft, – Per the project receiving architecturally significant designation
	Street Side	20 ft	10 ft – Per the project receiving architecturally significant designation
	Side	10 ft	10 ft
H40	Front (Collins Avenue)	20 ft	0 ft
	Side	10ft	0 ft
	Rear	10 ft	0 ft

Sec. 90.47

Yards generally, allowable projections	Required	Proposed
H120 - Projections of balconies features into required yards	Maximum 8 feet for front, secondary and rear and 5 feet for interior side	7 foot front encroachment and 7 foot 1 inch side encroachment – Per the project receiving architecturally significant designation

Sec. 90.49

Lot Standards	Required	Proposed
Minimum Lot width	50 feet	East Parcel: 73 ft West Parcel N/A – no development proposed
Minimum Pervious area	20%	East Parcel: 20% West Parcel: 100%

Sec. 90.50.1(2)

Architecture	Required	Proposed
All elevations for new structures and multi-story additions (additions greater than fifteen (15) feet in height)	Minimum of 10% wall openings including windows, doors or transitional spaces defined by porches, porticoes or colonnades.	East and west buildings both meet or exceed 10% wall openings
Roof materials are limited as follows:	<ul style="list-style-type: none"> a. Clay Tile; or b. White concrete tile; or c. Solid color cement tile which color is impregnated with the same color intensity throughout, provided said color if granted approval by the Design Review Board; d. Architecturally embellished metal if granted approval by the Design Review Board; or e. Other Florida Building Code approved roof material(s) if granted approval by the Design Review Board. 	Roof deck will include terraces for two private penthouses.

Sec. 90.50.2 (3)

Roof Deck Provisions	Required	Proposed
Roof Decks are limited to	a. Maximum 70% of the aggregate roof area;	62%
	b. Shall not exceed the maximum roof height required by any abutting property's zoning designation;	120 feet
	c. Minimum setback of 10 feet from the roofline on all sides	10 feet

Sec. 90.67.2

Underground utilities	Required	Proposed
	All utilities including telephone, cable, and electrical systems shall be installed underground.	The lines are installed underground.

Sec. 90.77(c)

	Minimum Required	Proposed
Off-Street Parking		
	70 Spaces	East Parcel: 72 West Parcel: 0 TOTAL: 72

Sec. 90.83

Off-Street Loading	Minimum Required	Proposed
	One	One

Sec. 90.91

Vegetative Provisions	Minimum Required	Proposed
Xeriscape in pervious area	50%	79%

Sec. 90.91.2

Buffers	
Landscape buffer adjacent to streets and abutting properties	Meets the requirements

Sec. 90.93

Open Space	
Landscaping along all buildings and structures, shrubs and trees required in open space	Meets the requirements

ARCHITECTURALLY SIGNIFICANT REPORT



Date: 02-08-2018
Project Name: 8995 Collins Avenue Condo-Hotel
Permit Number: 08-1763.26
Project Address: 8995 Collins Avenue, Surfside, FL 33154

The proposed development for the subject property has been reviewed for compliance with Section 90-33(3) of the Town Code. The following review comments are based on the contents of this section within the context of a historically significant structure.

Sec. 90-33. – Alterations or enlargement of non-conforming structures.

- (3) Alterations or additions to architecturally significant buildings on H120 zoned lots that are nonconforming as to setbacks may follow existing building lines as long as the alteration or addition maintains the architectural integrity of the existing building. The lesser of the current code-required setback or the existing building line shall be deemed to be the required setback line.

Any redevelopment project undertaken under this subsection must comply with the Town's minimum finished floor elevation requirements for all portions of the building and further must be designed and developed in accordance with Leadership in Energy & Environmental Design (LEED) or Florida Green Building Coalition (FGBC) building design and construction standards.

Redevelopment projects seeking to utilize the setback exception of this subsection shall be limited to a total height of no more than twice the number of existing floors in a building, up to a maximum of 120 feet.

REVIEW COMMENTS FOR 90-33(3):

1. *The proposed alterations and/or additions are not within the existing building lines:*
 - a. *The addition of balconies extend the typical floor footprint approximately 5'-6" on the North side, 5'-0" on the South side, 6'-4" on the West side and 8'-0" on the East side. Although the proposed balconies are not within the existing building lines, they maintain the integrity of the existing building and constitute a desirable element that complements the residential use.*
2. *The proposed alterations and/or additions maintain the architectural integrity of the existing building:*

- a. *The balconies emphasize the verticality of the original structure. The introduction of vertical bands with no balconies break up the horizontal bands of the new balconies thus emphasizing the original structure's vertical orientation and creating a rhythm similar in proportions to the original fenestration. The clear glass balcony rail allows for the original building's vertical structural elements and the tall vertical glazing to be more prominent.*
- b. *The replacement of all glazing and repetitive vertical fenestration at the openings between columns with full glass floor to floor sliders are now part of vertical elements separated by voids and secondary to the main vertical structural elements 9'-0" o.c.*
- c. *The proposed alterations maintain two very important and prominent elements that define the style of the existing building:*
 - i. *Arches*
The proposed alterations maintain the arches. The arches at the top of the building are one of the unique elements that characterize the original design. They culminate and unify the vertical structural elements. The combination of the arches and the horizontal roof line, similar in function to the entablature found in classical architecture above columns, bring together the arches and draw the eye to the top of the structure.
 - ii. *Plinth*
In the same manner that the arches are united by a horizontal element at the top of the structure, the plinth at the bottom brings together the base of the structural columns that support the arches and represents a transitional element that anchors the building façade to the ground.

REVIEW COMMENTS FOR 90-33(3)(a) Determination of Architectural Significance:

- a. *A request for a determination of architectural significance representative of the MiMo/ Miami Modern architectural style has been made and properly submitted.*
- b. *Staff has reviewed the analysis prepared by the property owner and has issued a recommendation stating that the building meets the town's standards of architectural significance.*
- c. *After a Public Hearing, the Design Review Board has issued a determination of architectural significance.*

REVIEW COMMENTS FOR 90-33(3)(b) Alterations to Architecturally Significant Buildings:

- a. *The revised proposed alteration or addition requires demolition or alteration in a manner that allows the building to remain architecturally significant; and*
- b. *The proposed alteration or addition is designed in a manner that is compatible with the existing building.*

REVIEW COMMENTS FOR 90-33(3)(c) Site Plan Review for Architecturally Significant Buildings:

- a. *The revised proposed alteration or addition requires demolition or alteration in a manner that allows the building to remain architecturally significant; and*
- b. *The proposed alteration or addition is designed in a manner that is compatible with the existing building.*

CONCLUSION / RECOMMENDATION

The proposed alterations to the architecturally significant building at 8995 Collins Avenue, Surfside, Florida comply with the requirements of Section 90-33(3) of the Code of Ordinances of the Town of Surfside, Florida.

Based on this review, approval is recommended.

Respectfully,



Manuel Synalovski, AIA, NCARB, LEED AP
Managing Principal

APPLICATION, LETTER OF INTENT AND APPENDIX

TOWN OF SURFSIDE

MAY 19 4:05 PM



DRB Meeting	___/___/20__
Application / Plans Due	___/___/20__

**TOWN OF SURFSIDE
MULTI-FAMILY AND NON-RESIDENTIAL SITE-PLAN APPLICATION**

A complete submittal includes all items on the "Multifamily and Non-Residential Site-Plan Application Submission Checklist" document as well as completing this application in full. The owner and agent must sign the application with the appropriate supplemental documentation attached. Please print legibly in ink or type on this application form.

PROJECT INFORMATION	
OWNER'S NAME	Surf House Condominium Association, Inc.
PHONE / FAX	see agent
AGENT'S NAME	Graham Penn
ADDRESS	200 S. Biscayne Blvd., Suite 850 Miami FL 33131
PHONE / FAX	305 377 6229
PROPERTY ADDRESS	8995 Collins Avenue
ZONING CATEGORY	H-120
DESCRIPTION OF PROPOSED WORK	Site plan approval for expansion to existing multi-family building.

INTERNAL USE ONLY	
Date Submitted	_____ Project Number _____
Report Completed	_____ Date _____
Fee Paid	\$ _____

ZONING STANDARDS	Required	Provided
Plot Size	X	X
Setbacks (F/R/S)	X	X
Lot Coverage	X	X
Height	X	X
Pervious Area	X	X

SIGNATURE OF OWNER 5/10/17
DATE

SIGNATURE OF AGENT 5/19/17
DATE

Vice President, Surf House
Condominium Association, Inc.

Affidavit of Ownership

I, Jason Halpern, am over the age of 21 and otherwise am *sui juris*, and being duly sworn, allege and state:

1. I am the Vice President of the Surf House Condominium Association, Inc.
2. Surf House Condominium Association, Inc. (the "Owner") owns the Common Areas of the "Surf House" site identified by Miami Dade County Folio Reference Number 14-2235-022-0001 (the "Property").
3. The Property is located at the northeast and southeast corners of the intersection of 90 Street and Collins Avenue within the Town of Surfside, specifically identified by the address 8995 Collins Avenue.
4. The proposed redevelopment includes an expansion to the existing building and the creation of a new parking structure.

FURTHER AFFIANT SAYETH NAUGHT.



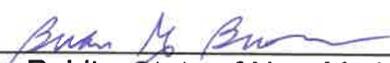
Jason Halpern, Vice President of Surf House Condominium Association, Inc.

STATE OF NEW YORK

COUNTY OF KINGS *Suffolk*

The foregoing instrument was acknowledged before me by Jason Halpern, Vice President of Surf House Condominium Association, Inc., who is personally known to me or has produced *Driver License* as identification.

My commission expires *8/14/18*



Notary Public, State of New York

BRIAN G. BROWN
Notary Public, State of New York
No. 01BR6151227
Qualified in Suffolk County
Commission Expires August 14, 20*18*



BERCOW RADELL FERNANDEZ & LARKIN
ZONING, LAND USE AND ENVIRONMENTAL LAW

DIRECT LINE: (305) 377-6229
E-MAIL: gpenn@brzoninglaw.com
www.brzoninglaw.com

July 24, 2019

VIA ELECTRONIC MAIL AND HAND DELIVERY

Sarah Sinatra, AICP
Town Planner
Town of Surfside
9293 Harding Avenue
Surfside, FL 33154

Re: Fourth Amended Letter of Intent for Site Plan Approval for 8995 Collins Avenue and Withdrawal of Unnecessary Requests.

Dear Ms. Sinatra:

Our firm represents Surf House Condominium Association (the "Applicant") in connection with the redevelopment of 8995 Collins Avenue (the "Property"). As you know, the Property is currently developed with the Miami Modern-designed Surf House condominium. The Applicant proposes to expand the building under the terms of the "architectural significance" criteria for existing buildings in H-120 zone.

Please consider this letter the Applicant's amended letter of intent in support of its application seeking site plan approval. As will be fully explained below, the Applicant has significantly reduced the impact of the project, which has allowed the Applicant to withdraw previously requested conditional use and variance approvals, as well as the request for Town approval of a vehicular access agreement.

The Property. The building was constructed in 1966 and was designed as the Surf House condominium by Robert Jerome Filer Architect in the "International Style," an architectural style that was one of the strains of the "MiMo" - Miami Modern movement. The building currently includes thirty-six (36) residential units. Three sides of the building contain a grid of repetitive window patterns in a structural concrete frame which is expressed on the exterior. The fourth or south facade is practically a blank wall. It appears to have been constructed to anticipate a future adjacent building height of at least the same

height and width as 8995 Collins Avenue. Parking for the building has been located in the basement and across the street on a surface lot. The surface lot is not a part of the instant application.

The Town's Design Review Board approved the building as the Town's first recognized "architecturally significant" building under the terms of Section 90-33(3). This section of the Town Code allows for expansions to existing buildings in the H-120 zone that rely on historic setbacks.

The building has been used as a residential condominium since its original construction. Vehicular access to the building has historically either been from drop off in the travel lane of 90th Street (where the main pedestrian entrance to the building is located) or through Collins Avenue (where the entrance to the underground parking area is located). The building has become surrounded by newer development in recent years - including the larger Surf Club project to the north and a new residential tower under construction at 8955 Collins Avenue to the south.

Amended Development Plan. The Applicant proposes to develop a condominium development of thirty-four (34) units on the Property, a reduction of two units from the current density on the site. The Applicant had previously requested approval of condominium-hotel. That request is hereby withdrawn and the revised development plan proposes only residential uses.

In response to comments from the Town's architectural consultant and the Design Review Board, the Applicant made several changes to the design and operation of the development plan. Despite the proposed reduction in density and intensity of use in the revised plan we are now submitted, these improvements have been retained in the revised design.

Specifically, the Applicant has: (1) retained the adjustments to the proposed new balconies and made other architectural revisions that reflect and emphasize the hallmark elements of the building's design; (2) retained a second vehicle elevator to provide access to the basement parking proposed for the building - even though the new traffic impact will be below that of the existing building; and (3) proposed an expanded and improved public pedestrian corridor along 90th Street, designed to provide access to the beach from Harding Avenue to the beachwalk. The Appendix attached hereto includes an analysis of the development's consistency with the requirements of Section 90-33(3) of the Town's regulations.

Architectural Improvements. In response to comments by the Design Review Board, the Applicant revised the design in two major ways. In areas where the earlier presentation may have not fully conveyed the positive attributes of the existing building's design, the team has provided additional enhancements to bring those elements to the fore. In response to the concerns of the Design Review Board regarding the original cornice of the building, we have redesigned elements of the façade to even more closely align with the observations of the Town's architectural consultant. Balconies and their respective gaps have been aligned to stress the verticality of the building and its columns, leading the eye to the powerful arches and vaults of the cornice. The balconies themselves have been deemphasized through the use of a low-iron glass balustrade free of metal supports (the ability of this ultra-clear glass, used in this manner, to recede from view can be seen on a recently completed building in the City of Sunny Isles Beach).

Amended Parking/Access. As with the previously submitted design, the building will provide a dedicated parking entrance and drop off area along 90th Street, limiting vehicular impacts on Collins Avenue. The loading area will need to be retained on Collins Avenue, but has been redesigned to limit its impacts by using turfblock and installing extensive landscaping. The density reduction and change from a proposed condominium-hotel to a pure residential use has resulted in a drop in total traffic generated by the site and has negated the need for a second loading space. The Applicant has also been able to bring the vehicular stacking completely within the Property's boundaries. The Applicant is no longer requesting to utilize the public right of way for access or stacking purposes.

Parking for the site will be provided underneath the building. Parking will be exclusively through a 24-hour valet service. The Applicant is proposing to access the subterranean parking through a car elevator system and provide the parking using vehicle lifts. The lifts will be completely subterranean and therefore will create no noise or vibration audible outside of the building. Thanks to the reduction in density and intensity under the new plan, the Applicant has been able to replace previously proposed "triple-stacker" lifts with more common two-vehicle tandem lifts. That change will reduce the time to park and retrieve vehicles.

Second Elevator for Improved Functionality and Safety. Even though the project's density has been reduced below the current number of units on the Property and the use has been revised to be exclusively residential, the Applicant has retained the two car elevators that will serve the subterranean parking system in the new design.

The second elevator has two major benefits: (1) it will provide additional capacity for the system in rare instances of high demand; and (2) it will allow for redundancy in the event of a mechanical issue with one of the elevators.

Expanded Proposed Pedestrian Corridor. As before, the Applicant is proposing improvements to the beachwalk (the area from the street-end to the hardpack) and the 90th Street Right of Way. The Applicant also remains committed to improvements between Harding and Collins in order to provide a superior pedestrian access by taking the recent one-way test of this block and makes it a new streetscaped feature of the Town.

Withdrawal of Parking Conditional Use Approval. As provided by Section 90-77(f), parking lifts are permitted in the Town subject to multiple operational conditions. The Code permits traditional two-vehicle tandem lifts “as of right,” but requires all other parking systems to obtain conditional use approval. The Applicant had sought a conditional use approval to allow for a system that allows for vertical stacking of three vehicles. As noted above, the reduced density and intensity of proposed development has allowed the Applicant to withdraw this request. The tandem stacking system will be operated in a manner consistent with the requirements of 90-77(f):

- (1) *A traffic queuing analysis shall be submitted by the owner of the building for parking areas using parking lifts, for review and approval by the Town Manager, to ensure efficient processing times and queue lengths. The number of parking lifts permitted to be counted as required parking spaces shall be determined by the approved queuing analysis; and*

The Applicant has submitted the required traffic analysis.

- (2) *All parking lifts shall be located within a fully enclosed parking garage and shall not be visible from exterior view. No outside parking lifts shall be permitted; and*

All lifts will be located in a subterranean garage structure and will not be visible from the exterior.

- (3) *Parking lifts shall be permitted only when operated by an attendant or a licensed and insured valet parking company on a 24-hour/seven-days-a-week basis, to be confirmed by restrictive covenant to be recorded by the owner/applicant prior to establishment of the use; and*

All parking for the building will be provided via 24-hour valet service.

- (4) *No resident, guest, patron or customer of the building shall be permitted to operate the parking lift. A physical barrier shall be placed in the parking area to prohibit access to the parking lift area by residents, guests, patrons or customers of the building; and*

No physical access to the basement will be available to residents or guests

- (5) *All parking lifts shall be maintained and kept in good working order; and*

The Applicant will be entering into a maintenance agreement with the manufacturer of the lifts prior to installation.

- (6) *The parking lift platform must be sealed and of a sufficient width and length to completely cover the bottom of the vehicle on the platform to prevent dripping liquids or debris onto the vehicle below; and*

The proposed lifts fully comply with this requirement.

- (6) *All lifts must be designed so that power is required to lift the car, but that no power is required to lower the car, in order to ensure that the lift can be lowered and the top vehicle can be accessed in the event of a power outage; and*

The proposed lifts fully comply with this requirement.

- (7) *All parking lifts must be designed to prevent lowering of the lift when a vehicle is parked below the lift; and*

The proposed lifts fully comply with this requirement.

- (8) *Ceiling heights of any parking level with parking lifts shall be a minimum of 14 feet 4 inches and sufficient to accommodate all types of passenger vehicles. Such required height shall be proposed in the traffic queuing study and approved by the town manager. There shall be no beams, plumbing, or sprinklers that lower or otherwise interfere with this clearance across the entire span of the parking space; and*

The height of the parking level meets and exceeds this requirement.

- (10) *Noise and vibration barriers shall be utilized to ensure that surrounding walls decrease sound and vibration emissions outside of the parking garage.*

Noise from the system will be minimized as it will be completely subterranean.

In sum, the proposed lifts meet all of the Town's requirements for a parking lift system. The location of the lifts below ground will render them invisible and inaudible from neighboring properties and the public right of way. The proposed system will allow for the provision of adequate parking within the constraints of the Property.

Operational Plan and Voluntary Additional Conditions Related to Parking and Loading. Attached to this letter is the Applicant's Valet Operational Plan, which includes narrative and illustrative descriptions of the proposed parking and valet system. The Operational Plan depicts the manner in which parking system will integrate within the existing development in the area. Special attention has been paid to the interaction of the proposed parking system with the Surf Club development, which shares 90th Street with the Property. As you will see from the Plan and the Applicant's associated traffic materials, we anticipate that the development will not create any issues with the functioning of 90th Street for both vehicular and pedestrian access. The Operational Plan also notes that the Applicant has agreed to the following additional conditions to be imposed on the operation:

- (1) The building owner or condominium association must maintain a service contract with the manufacturer or manufacturer-approved service company at all times to ensure continued operation of the lifts and car elevator. Proof of the service contract must be provided to the Town annually.
- (2) The parking system must be staffed by the number of personnel of a licensed and insured valet parking company adequate to accommodate demand at all times. Proof of the valet service contract must be provided to the Town annually.
- (3) Maintenance on the car elevators or lifts shall take not place between 7:00 AM and 7:00 PM on weekdays and between 9:00 AM and 7:00 PM on

Saturdays and Sundays.

- (4) The Applicant shall store replacement mechanical parts for the elevator system on the Property and shall retain a contract with an elevator repair company ensuring 24/7 service. Proof of the elevator service contract must be provided to the Town annually.
- (5) Within 365 days of the sale and/or lease of all of the units in the renovated building, the applicant shall provide the Manager with a report on the functioning of the parking system. If the report determines that the system is causing unacceptable negative impact on the safety of pedestrians and/or the reasonable flow of traffic on 90th Street because of the queuing of vehicles entering or exiting the system, the applicant shall be required to undertake modifications to the system or staffing to resolve the issue. These modifications may include the utilization of the existing parking lot at the NW corner of Collins Avenue and 90th Street for additional vehicular queuing. If the Town Manager determines, after reviewing the report, that no excessive vehicular queuing is occurring at the time of the report, no further reports will be required.
- (6) All mechanical parking lifts and/or the car elevators must be maintained and kept in good working order and must be inspected by a licensed mechanical engineer at least once annually.
- (7) No delivery or moving truck servicing the Property may be larger than a single unit truck.

Withdrawal of Proposed Vehicular Access Encroachment Agreement. The Applicant had proposed that the Town accept an agreement permitting the use of a small sliver of right of way for purposes of providing additional room for vehicle queuing and loading. Given the reduction in density and intensity in the revised plan, the Applicant has been able to keep all queuing and loading within the Property and therefore can now withdraw this request.

Variances. Retaining the existing building lines of the architectural significant building that sits on an atypically narrow 73-foot lot has come at some cost to the flexibility of design for the Property. The previous design required several variances to accommodate the modern loading and landscaping requirements of the Town on the site. The reduction in density and intensity of the revised design has allowed the Applicant to withdraw all of these variances. We believe that the project no longer requires any variances of the Town's standards.

Green Building. As contemplated by Section 90-33 of the Town’s regulations, the proposed redevelopment is being designed to meet the requirements of the “Florida Green High-Rise Residential Building Standard.” The Applicant’s worksheet is attached as Tab D.

Additional Off-Site Improvements. The Applicant has been in active discussions with the Town administration regarding a package of potential off-site improvements beyond the 90th Street pedestrian corridor. We expect those discussions to continue. At minimum, however, the Applicant has already committed to a value of improvements and direct financial mitigation to the Town exceeding \$700,000.

	Item	
1	Enhanced 90th Street Beach Access & Promenade *	
	<i>Applicant proposes to enhance the beach access by beautifying 90th street from Harding Ave to the beach. See Exhibit B of Appendix.</i>	\$686,050
2	Solar Trashcans	
	<i>Applicant will purchase and install two pair new solar powered trashcans</i>	\$30,000
3	Diverter Dunes	
	<i>Applicant will pay for and install two new diverter Dunes at locations to be specified.</i>	\$20,000
	Total	\$736,050

Conclusion. We are excited to present the Town with a revised

* This does not include the perpetual maintenance of all improvements in front of 8995 Collins, and the maintenance of the landscape between Harding and Collins which will also be paid for by the Applicant.

Sarah Sinatra, AICP
Town Planner
Town of Surfside
July 24, 2019
Page 9

development program that both retains the significant improvements contemplated for the Property and adjacent area and reduces the density and intensity of development in such a manner that we are able to withdraw all conditional use and variance requests. As now presented, we believe that the 8995 Collins development requires only site plan review and approval.

We look forward to your review. If you have any questions or concerns regarding this letter, please do not hesitate to phone my direct line at (305) 377-6229 or send me an email at gpenn@brzoninglaw.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'G. Penn', written over the typed name 'Graham Penn'.

Graham Penn

8995 Collins Avenue Traffic Impact Study (Revised)

Town of Surfside, Florida



Prepared for
SURF HOUSE OCEAN VIEWS, LLC

Prepared by
THOMAS A. HALL, INC.

September 17, 2019

8995 Collins Avenue Traffic Impact Study (Revised)

Town of Surfside, Florida

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Introduction

Surf House Ocean Views Development, LLC proposes to redevelop an existing 36-unit, multi-family residential development into a new, 34-unit Condominium in the Town of Surfside, Florida. The proposed project is located at 8995 Collins Avenue—and that is also the project’s name. 8995 Collins Avenue is expected to be built out in 2020.

The project was previously proposed as a 55-unit Condominium Hotel; however, the new, less intense land use has resulted in a need for this new traffic impact study.

Although access to the existing building is via a driveway connection to Collins Avenue immediately south of 90th Street, the proposed project will only use that driveway connection to serve as an on-site loading zone. Day-to-day traffic entering and exiting the site will be via new driveway connections to 90th Street.

Parking for 8995 Collins Avenue is to be provided in a 72-parking-space lot in the basement of the building. All parking is to be valet assisted. A drop-off/pick-up valet stand is proposed for the north side of the site along 90th Street east of Collins Avenue. It is expected that the outside, eastbound, second lane of 90th Street between the project’s entrance and exit driveways may serve as a drop-off for Uber, Lyft, FedEx, etc.

The purpose of this study is to analyze the impacts of trips generated by the proposed new development on the adjacent roadway network in accordance with the requirements of the Town of Surfside. The study area was defined in a May 18, 2017 study methodology letter to Mr. Eric Czerniejewski, P.E., the Town’s traffic consultant. The study area includes the following intersections:

- Collins Avenue at 90th Street
- Harding Avenue at 90th Street
- 90th Street at the Project Entrance

A copy of the Study Methodology Letter and project site plan may be found in **Appendix F – Site Plan and Study Methodology**.

Routes H, S and 120 – Beach Max Miami-Dade County Transit network runs along Collins Avenue directly in front of the 8995 Collins Avenue. Although the proposed site is well served by these local transit routes, as a conservative measure, all traffic oriented to/from the proposed development is assumed to be personal passenger vehicles.

Figure 1 – Site Location, shows the location of the proposed development.



Thomas A. Hall, Inc.

Figure 1 – Site Location
8995 Collins Avenue
Town of Surfside, Florida

Data Collection

Four-hour (7:00-9:00 a.m. and 4-6:00 p.m.), turning-movement counts were collected in June 2017 at the study area intersections of:

- Collins Avenue at 90th Street
- Harding Avenue at 90th Street

Copies of the traffic counts may be found in **Appendix A – Traffic Counts. Figure 2 – Permitted Intersection Movements** shows both the location of the studied intersections as well as the vehicular movements permitted at each intersection. Because the traffic counts were collected two years ago, a.m. turning-movement counts were collected at the studied intersections on June 26th and 27th of this year as a check of the earlier counts. The new traffic counts showed a significant reduction in traffic volumes at both intersections. Therefore, as a conservative measure, the original traffic counts were used for this analysis. Copies of the new counts are included in Appendix A.

The turning-movement counts were collected to provide a baseline of existing traffic operational conditions at the significant intersections within the study area.

A preliminary field review was conducted June 26, 2019 to obtain pertinent roadway geometry, pavement markings, signing, etc. In addition to the field review, aerial maps were consulted to verify intersection spacing, storage lane lengths and lane assignments. Existing traffic signal timing for the intersection of Collins Avenue at 90th Street was obtained from Miami-Dade County Public Works Department's online database.

A description of the studied roadways follows:

Collins Avenue is a three-lane, one-way (northbound), north-south major arterial highway. It has a posted speed limit of 30 mph.

Harding Avenue is a three-lane, one-way (southbound), north-south major arterial highway. The posted speed limit is 30 mph.

90th Avenue is an east-west, two-lane, undivided local roadway with a posted speed limit of 20 mph.



Figure 2 – Permitted Intersection Movements
8995 Collins Avenue
Town of Surfside, Florida

Analyses

Adjustment Factors

The June 2017 turning-movement counts were adjusted to peak season by the application of a Peak Season Conversion Factor (1.03) obtained from the Florida Department of Transportation's (FDOT) *2018 Peak Season Factor Category Report*. **Table 1 – Peak Hour Turning-Movement Counts** shows the adjusted peak season, morning and afternoon peak-hour traffic volumes within the study area.

An Annual Growth Factor was derived from historic Annual Average Daily Traffic (AADT) reports obtained from FDOT's *2018 Florida Online Traffic Information* for nearby count stations. A five-year growth analysis was conducted for the two nearby count stations. A review of the count data, and a comparison of 2013 volumes to 2018 volumes, revealed that there was a significant reduction in annual growth in traffic volumes in the study area. Nevertheless, in an effort to provide a conservative analysis, a 0.5 percent Annual Growth Factor was assumed. Copies of the annual growth rate worksheet and seasonal adjustment factors are provided in **Appendix B – Adjustment Factors**.

Existing Conditions

Synchro 10 intersection operations analysis software was used to construct a model of the existing roadway network in the study area. The model relied upon the peak-season, peak-hour, turning-movement counts shown in Table 1 and the geometric, pavement marking and signing information obtained from field reviews. In addition, traffic signal timing and phasing information was obtained from Miami-Dade County Public Works Department's online database for the signalized intersection of Collins Avenue at 90th Street. Copies of the Synchro reports for existing weekday peak-hour, peak-season conditions may be found in **Appendix C – Existing Conditions Analyses**. Note that two runs are provided for the signalized intersection: 1) A Highway Capacity Manual (HCM), 6th Edition output and, 2) Synchro's own intersection analysis. The HCM, 6th Edition method is the latest standard in intersection analyses, but the Synchro intersection analysis provides a more complete record of analysis inputs.

Table 2 – AM Peak-hour Queue Length, Level of Service and Delay Findings and **Table 3 – PM Peak-hour Queue Length, Level of Service and Delay Findings**, summarize the critical elements of the analyses. As Tables 2 and 3 show, the existing signalized intersection of Collins Avenue at 90th Street currently operates at Level of Service (LOS) A during both the morning and afternoon peak hour.

The unsignalized intersection of Harding Avenue at 90th Street also operates very well although the westbound lane operates at LOS E in the morning peak hour. In spite of the level of service, the actual westbound queue storage required is less than two vehicle lengths during the peak hour.

Table 2
AM Peak Hour Queue Length, Level of Service and Delay Summary
8995 Collins Avenue

Intersection	Existing Conditions				Background Traffic Conditions				Total Traffic Conditions				
	Turn Lane Length	Movement	LOS	Delay	Queue Length	Movement	LOS	Delay	Queue Length	Movement	LOS	Delay	Queue Length
Collins Avenue at 90th Street (Signalized)	N/A	Overall	A	7.0	N/A	Overall	A	7.0	N/A	Overall	A	6.9	N/A
	N/A	EBL	D	41.9	0.0	EBL	D	41.9	0.0	EBL	D	42.0	0.0
	N/A	EBT	A	0.0	3.6	EBT	A	0.0	3.6	EBT	A	0.0	3.6
	N/A	WBT	A	0.0	1.3	WBT	A	0.0	1.3	WBT	A	0.0	1.1
	N/A	WBR	D	38.5	0.0	WBR	D	38.5	0.0	WBR	D	38.6	0.0
	N/A	NBL	A	4.5	5.2	NBL	A	5.4	5.4	NBL	A	4.5	5.3
	N/A	NBT	A	4.3	4.2	NBT	A	4.3	4.3	NBT	A	4.3	4.2
	N/A	NBR	A	4.2	4.5	NBR	A	4.7	4.7	NBR	A	4.2	4.6
Harding Avenue at 90th Street (Stop Control)	N/A	Overall	N/A	1.2	N/A	Overall	N/A	1.2	N/A	Overall	N/A	1.2	N/A
	N/A	EBLTR	D	26.4	0.8	EBLTR	D	27.6	0.9	EBLTR	D	27.4	0.9
	N/A	WBLTR	E	37.4	1.2	WBLTR	E	40.6	1.4	WBLTR	E	40.0	1.3
	N/A	SBL	A	0.0	0.0	SBL	A	0.0	0.0	SBL	A	0.0	0.0
	N/A	SBT	A	0.0	0.0	SBT	A	0.0	0.0	SBT	A	0.0	0.0
	N/A	SBR	A	0.0	0.0	SBR	A	0.0	0.0	SBR	A	0.0	0.0
	N/A	Overall	N/A	N/A	N/A	Overall	N/A	N/A	N/A	Overall	N/A	1.0	N/A
	N/A	EBT	N/A	N/A	N/A	EBT	N/A	N/A	N/A	EBT	N/A	0.0	0.0
Project Drive at 90th Street (Stop Control)	100'	EBR	N/A	N/A	N/A	EBR	N/A	N/A	N/A	EBR	N/A	0.0	0.0
	N/A	WBT	N/A	N/A	N/A	WBT	N/A	N/A	N/A	WBT	N/A	0.0	0.0
	N/A	NBL	N/A	N/A	N/A	NBL	N/A	N/A	N/A	NBL	N/A	8.9	0.0
	N/A	NBR	N/A	N/A	N/A	NBR	N/A	N/A	N/A	NBR	N/A	8.9	0.0

Table 3
PM Peak Hour Queue Length, Level of Service and Delay Summary
8995 Collins Avenue

Intersection	Existing Conditions				Background Traffic Conditions				Total Traffic Conditions			
	Turn Lane Length	Movement	LOS	Delay	Queue Length	Movement	LOS	Delay	Queue Length	Movement	LOS	Delay
Collins Avenue at 90th Street (Signalized)	Overall	A	6.1	N/A	Overall	A	6.2	N/A	Overall	A	6.1	N/A
	EBL	D	42.3	0.0	EBL	D	42.3	0.0	EBL	D	42.4	0.0
	EBT	A	0.0	2.0	EBT	A	0.0	2.0	EBT	A	0.0	1.9
	WBT	A	0.0	0.4	WBT	A	0.0	0.4	WBT	A	0.0	0.4
	WBR	D	40.3	0.0	WBR	D	40.3	0.0	WBR	D	40.4	0.0
	NBL	A	5.6	8.2	NBL	A	5.8	8.5	NBL	A	5.7	8.3
	NBT	A	5.1	6.5	NBT	A	5.2	6.7	NBT	A	5.1	6.5
	NBR	A	4.9	7.0	NBR	A	5.0	7.2	NBR	A	5.0	7.1
	Overall	N/A	0.7	N/A	Overall	N/A	0.7	N/A	Overall	N/A	0.7	N/A
Harding Avenue at 90th Street (Stop Control)	EBL	D	32.8	0.4	EBL	D	34.9	0.5	EBL	D	34.9	0.5
	WBL	D	26.2	0.8	WBL	D	27.9	0.8	WBL	D	27.8	0.8
	SBL	A	0.0	0.0	SBL	A	0.0	0.0	SBL	A	0.0	0.0
	SBT	A	0.0	0.0	SBT	A	0.0	0.0	SBT	A	0.0	0.0
	SBR	A	0.0	0.0	SBR	A	0.0	0.0	SBR	A	0.0	0.0
	Overall	N/A	N/A	N/A	Overall	N/A	N/A	N/A	Overall	N/A	1.2	N/A
Project Drive at 90th Street (Stop Control)	EBT	N/A	N/A	N/A	EBT	N/A	N/A	N/A	EBT	N/A	0.0	0.0
	EBR	N/A	N/A	N/A	EBR	N/A	N/A	N/A	EBR	N/A	0.0	0.0
	WBT	N/A	N/A	N/A	WBT	N/A	N/A	N/A	WBT	N/A	0.0	0.0
	NBL	N/A	N/A	N/A	NBL	N/A	N/A	N/A	NBL	N/A	8.7	0.0

Background Traffic Conditions

Future 2020 build-out year (background) traffic volumes without the project were obtained by applying the 0.5 percent annual growth rate to the existing peak-season, turning-movement counts, which, of course, resulted in no change in traffic volumes. In addition to the application of the annual growth rate, committed development traffic information provided by the Town's traffic consultant, Mr. Eric Czerniejewski, P.E., was also reviewed. The approved, but not yet occupied, developments were:

- 8955 Collins Avenue
- Surf Club I and II
- Surf Club NW
- 9300 Collins Avenue
- 8800 Collins Avenue

As it happens, all of the committed developments were actually reducing trips on the area roadways. However, Surf Club I and II were under construction at the time of this report's data collection. Because this project was so large, it was assumed that it had reduced traffic volumes on the studied area roadways during the time of data collection. Therefore, the Surf Club I and II project trips were added to the background traffic. Table 1 shows the peak-season background traffic volumes expected during the future build-out year of 2020.

Appendix D – Background Traffic Conditions Analyses contains copies of the Synchro reports for the studied intersections. As a review of Tables 2 and 3 indicate, the existing level of service at the studied intersections is expected to continue in 2020.

Project Trip Generation

Table 4 – Daily Trip Generation, Table 5 – AM Peak-hour Trip Generation and Table 6 – PM Peak-hour Trip Generation depict the trip generation for the project site. Trip generation characteristics were obtained from the Institute of Transportation Engineers' (ITE) *Trip Generation* manual, 10th Edition. As the tables show, the proposed Multifamily Housing (High Rise) development is anticipated to generate -45 net new daily trips, -2 net new a.m. peak-hour trips and -4 net new p.m. peak-hour trips. As these negative numbers illustrate, the reduction in proposed dwelling units has resulted in a reduction in trips associated with the proposed project.

Project Distribution and Assignment

Cardinal distribution information was obtained from Miami-Dade County's *2040 Long Range Transportation Plan Direction Trip Distribution Report*. A copy of the cardinal trip distribution data for Traffic Analysis Zone (TAZ) 602 may be found in Appendix B. Project trips were assigned in accordance with the cardinal distribution and manual

adjustments required to reflect the fact that both Collins Avenue and Harding Avenue are one-way roadways. **Figure 3 – Project Traffic Distribution** shows the traffic distribution on study area roadways.

Figures 4 – Project Trip Assignment shows the peak-hour project trips assigned to the study area roadway network in accordance with the trip distribution and the permitted intersection movements shown in Figure 2.

Table 4
Daily Trip Generation
8995 Collins Avenue

Land Use	ITE Code	Intensity	Trip Generation Rate ⁽¹⁾	Total Trips		Internal Trips		Adjusted Trips		Pass-by Trips		New Trips	
				In	Out	In	Out	In	Out	In	Out	In	Out
Existing Use													
Multifamily Housing (Mid Rise)	221	36 du	T=5.44(X) (50/50)	98	98	0	0	98	98	0	0.00%	98	98
Proposed Use													
Multifamily Housing (High Rise)	222	34 du	T=4.45(X) (50/50)	76	75	0	0	76	75	0	0.00%	76	75
Net Difference				-22	-23	0	0	-22	-23	0		-22	-23

⁽¹⁾ Source: Institute of Transportation Engineers' Trip Generation manual, 10th Edition.

Table 5
AM Peak-hour Trip Generation
8995 Collins Avenue

Land Use	ITE Code	Intensity	Trip Generation Rate ⁽¹⁾	Total Trips		Internal Trips		Adjusted Trips		Pass-by Trips		New Trips	
				In	Out	In	Out	In	Out	In	Out	In	Out
Existing Use													
Multifamily Housing (Mid Rise)	221	36 du	T=0.36(X) (26/74)	3	10	0	0	3	10	0	0.00%	3	10
Proposed Use													
Multifamily Housing (High Rise)	222	34 du	T=0.31(X) (24/76)	3	8	0	0	3	8	0	0.00%	3	8
Net Difference				0	-2	0	0	0	-2	0		0	-2

⁽¹⁾ Source: Institute of Transportation Engineers' Trip Generation manual, 10th Edition.

Table 6
PM Peak-hour Trip Generation
8995 Collins Avenue

Land Use	ITE Code	Intensity	Trip Generation Rate ⁽¹⁾	Total Trips		Internal Trips		Adjusted Trips		Pass-by Trips		New Trips	
				In	Out	In	Out	In	Out	In	Out	In	Out
Existing Use													
Multifamily Housing (Mid Rise)	221	36 du	T=0.44(X) (61/39)	10	6	0	0	10	6	0	0.00%	10	6
Proposed Use													
Multifamily Housing (High Rise)	222	34 du	T=0.36(X) (61/39)	7	5	0	0	7	5	0	0.00%	7	5
Net Difference				-3	-1	0	0	-3	-1	0		-3	-1

⁽¹⁾ Source: Institute of Transportation Engineers' Trip Generation manual, 10th Edition.

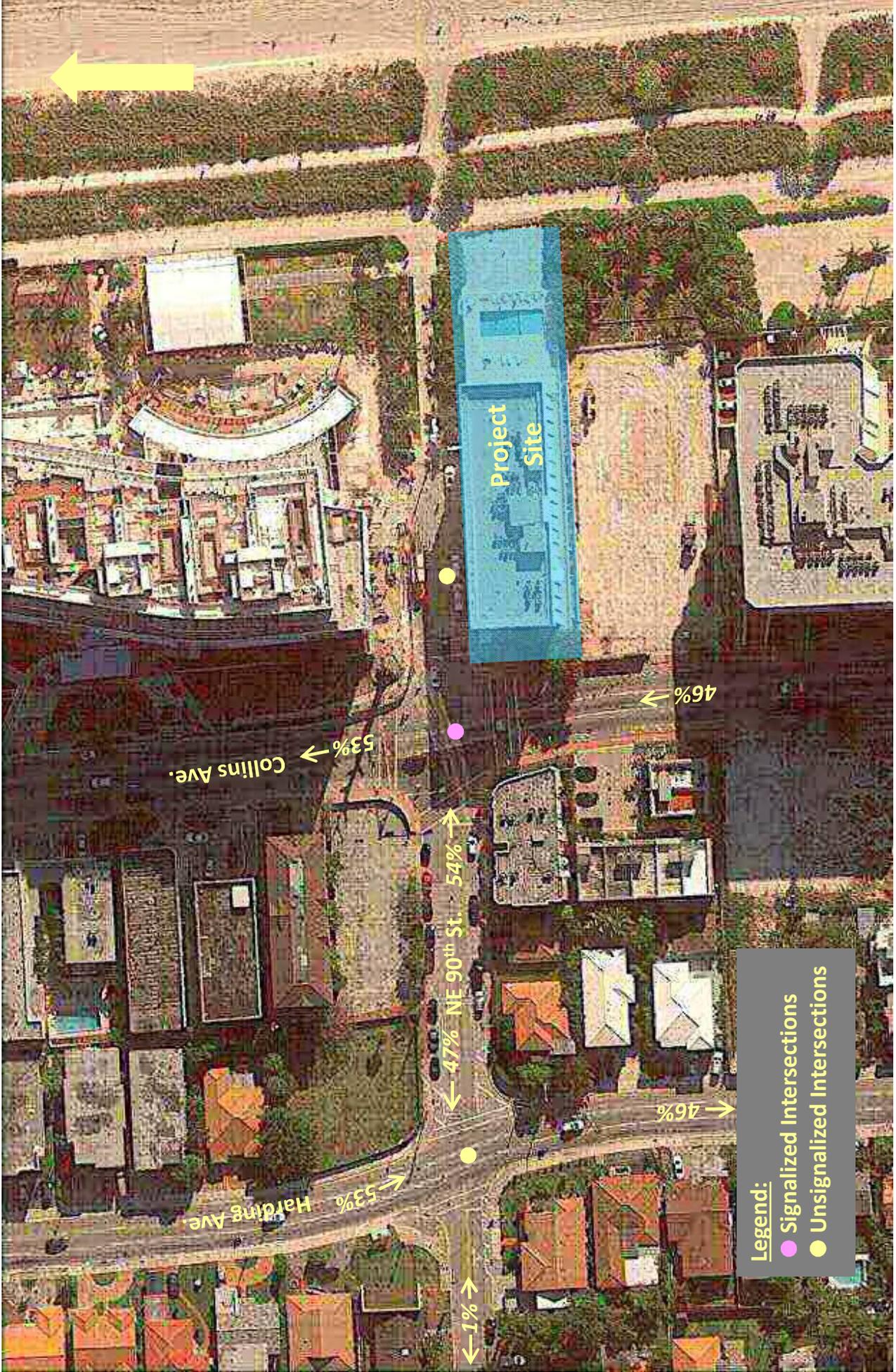


Figure 3 – Project Trip Distribution
8995 Collins Avenue
Town of Surferside, Florida

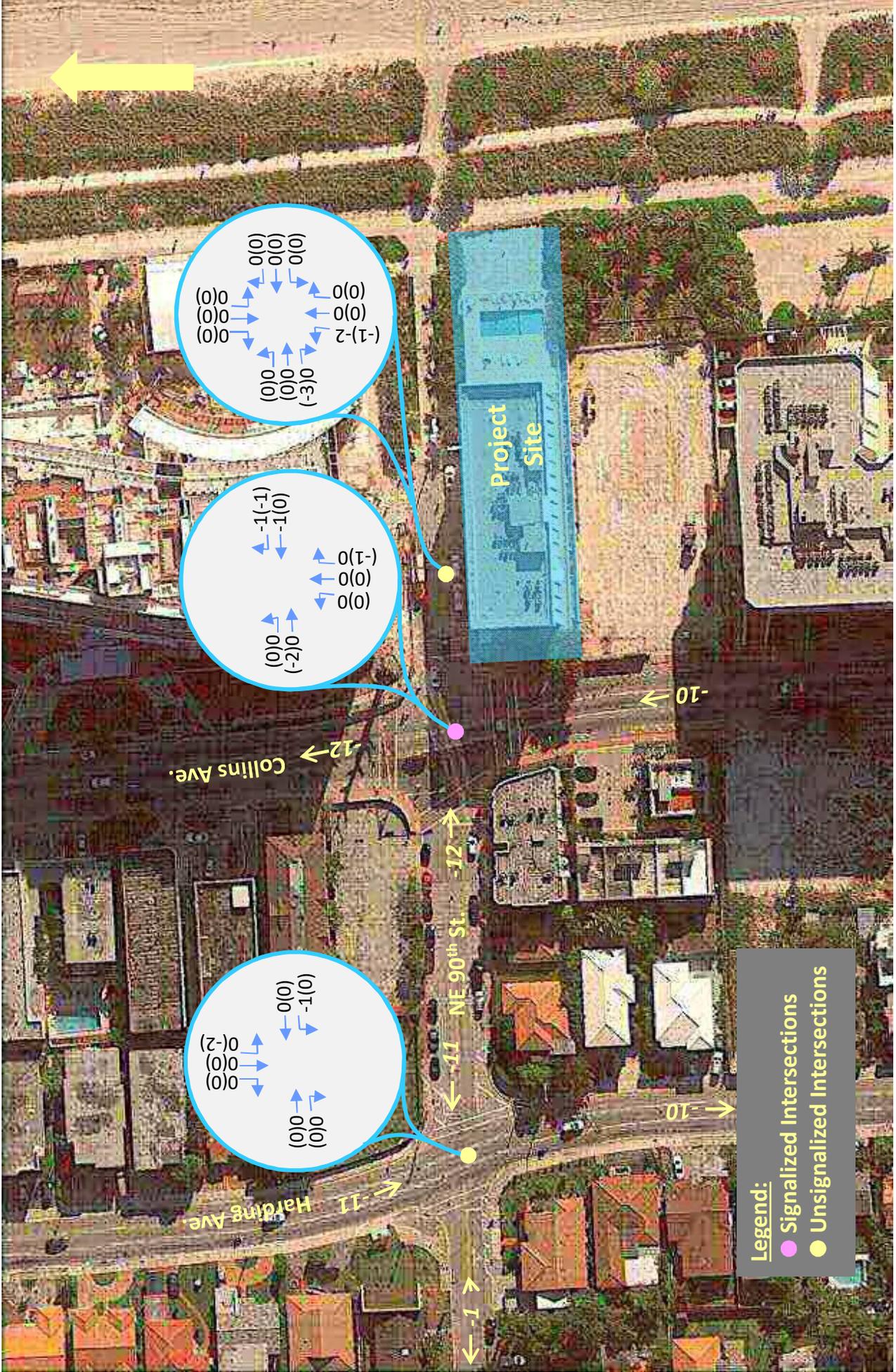


Figure 4 – Project Trip Assignment
8995 Collins Avenue
Town of Surfside, Florida

Total Traffic Conditions

Future total traffic volumes including project traffic were obtained by adding the 2020 background traffic volumes to the project traffic volumes shown in Figure 4. The resulting future total traffic volumes are also shown in **Table 1 – Peak Hour Turning-Movement Counts**.

Appendix E – Total Traffic Conditions Analyses contains copies of the Synchro reports for this third analysis condition. Tables 2 and 3 provide a summary of the critical elements of these analyses and demonstrate that the studied intersections remained at the same level of service as in the Background Conditions. Queue storage requirements increased by less than one car length for every movement at the studied intersections. All intersections are expected to continue to operate in the same manner as under Existing and Background Conditions.

Note that the project driveway on 90th Street is across from a new driveway serving the Surf Club. The Surf Club driveway was not analyzed as a part of this study because a) there were no traffic estimates provided in the Surf Club traffic impact study and, b) the driveway was still under construction when traffic data was collected.

Link Capacity Analysis

Table 7 – Daily Roadway Capacity Analysis provides a comparison of the expected daily traffic volumes in the 2020 build-out year for the study area roadway links. As the table shows, all studied roadways are expected to be well under the required level of service standards per the Town of Surfside Transportation Element, which, for State maintained roadways, is LOS E+20 and, for local roads, LOS D.

**Table 7
Daily Two-Way Roadway Capacity Analysis
8995 Collins Avenue**

Roadway	Current AADT	Annual Growth Factor	2020 AADT	Daily Project Traffic	2020 Total Daily Volume	LOS D Max Service Volume ⁽²⁾	LOS E+20 Max Service Volume ⁽²⁾	Over Capacity? Y/N
Collins Avenue	25,000	0.50%	25,125	-12	25,113	N/A	36,648	N
Harding Avenue	25,500	0.50%	25,628	-11	25,617	N/A	36,648	N
90th Street	656 ⁽¹⁾	0.50%	659	-23	636	14,800	N/A	N

⁽¹⁾AADT volume derived from p.m. peak-hour count and study area K factor of 9.

⁽²⁾LOS D and E+20 maximum service volumes obtained from the Florida Department of Transportation's 2013 *Quality/LOS Handbook*.

Site Circulation/Multi-Modal Travel

A review of the proposed project site plan, included in **Appendix F – Site Plan**, revealed that traffic accessing the 8995 Collins Avenue development will have excellent access from the local roadway network. One loading zone will rely upon the existing ingress/egress driveway connection to Collins Avenue, but, of course, will be used infrequently—perhaps once a week—while the outside eastbound lane on 90th Street may be used by Uber, Lyft, FedEx, etc. in the area between the project’s entrance and exit driveways.

The main project access driveways are proposed to be located on the north side of the property along 90th Street. All vehicles entering the site are expected to pull into the west driveway’s valet drop-off/pick-up lane. Once the valet attendant has received the vehicle, they will drive the vehicle into the vehicle transport system elevator that lowers the vehicle to the basement parking area.

The site plan permits vehicles to enter the west driveway and, if it is already occupied, then turn east and store in the two-vehicle queue storage lane. An analysis of the queue storage was completed using SimTraffic microscopic analysis software. SimTraffic examines the random arrival of individual vehicles in the model. A description of the queuing analysis follows:

Over the course of the afternoon peak hour, the highest volume hour of the day, a mere seven (7) vehicles are expected to arrive and five (5) vehicles are expected to depart from the valet drop-off/pick-up area. As shown on the enclosed site plan, a valet attendant will receive an arriving vehicle on the east side of the west driveway and a second valet attendant will deliver vehicles to departing drivers on the east side of the east driveway. Because some vehicles may be stored in the east-west vehicle storage queue area and, thus, may circle around and enter the west driveway again, the number of vehicles entering the western driveway, and exiting the eastern driveway, was increased in the analysis from seven and five vehicles, respectively, to 10 and 10.

The intersection of 90th Street at the project driveway/Surf Club driveway was treated as a signalized intersection with a 180-second-long north-south phase to simulate the 180 seconds assumed to be required to drop off a vehicle to the valet attendant and have that vehicle parked in the underground garage on a parking lift. The east-west phase was given a nominal 30 seconds for a total cycle length of 210 seconds, or 3.5 minutes. To simulate the storage within the project site, eastbound 90th Street was given a 75-foot-long right-turn lane (equivalent to three vehicle lengths of queue storage in Synchro). The eastbound right-turning vehicles were not permitted to turn right on red so that during the 180-second time that one vehicle was being parked, no other vehicle could leave the queue.

The Synchro network, including the new signal at the project entrance, was then imported into SimTraffic and four, hour-long runs were completed. A copy of both the Synchro

intersection report and the average of the four SimTraffic queue reports are enclosed in **Appendix G – Queuing Analysis**.

As can be seen from the enclosed four-run-average SimTraffic queue report, the maximum queue, which is the total queue, not a percentage of the queue, is 53 feet in length. SimTraffic considers one vehicle length to be 19.5 feet in its queuing analysis so the average maximum queue observed in the four runs, 53 feet, is equivalent to 2.72 vehicles, or for practical purposes, three vehicles. Note that the actual vehicle queue storage is well in excess of the maximum three vehicle demand:

The first arriving vehicle can simply be loaded onto the entry lift. Those vehicles that follow may be stored in the entrance and storage area. In effect, there is room in the east-west storage area for two vehicles with another vehicle stored in the entrance driveway for a combined total of four vehicles of storage (1 vehicle in the lift + 2 vehicles in the queue storage area + 1 vehicle in the entrance driveway = 4 vehicles) while still leaving the departure/vehicle pick-up area free to be used by a departing vehicle.

Of course, another method for avoiding the use of 90th Street that can be used on site is to bring vehicles stored in the east-west queue storage area forward into the eastside exit driveway and then back them into the second vehicle transport system elevator when it is not needed for exiting vehicles from the parking garage. This maneuver could substantially reduce the number of entering vehicles that must make a northbound-to-westbound left-turn maneuver into the site.

Pedestrian access is also well laid out with a sidewalk on the north, west and east sides of the building. There are also sidewalk connections proposed to the existing pedestrian path that connects the end of 90th Street to the beach.

There is an existing bicycle lane on the east side of Collins Avenue that facilitates bicycle travel through the Town of Surfside. The existing driveway connection to Collins Avenue requires motor vehicles to cross the bicycle lane to enter or exit the building. In the proposed new configuration, this driveway will only be used to provide access to a loading zone. Therefore, it is expected that the redevelopment of the project site will improve bicyclists' travel through the project area along Collins Avenue.

Valet Parking Analysis

Seventy-two (72) parking spaces are to be provided for 8995 Collins Avenue in the basement of the building. In order to have 72 parking spaces in the basement of the building, it is proposed that a vehicle lift system be used to store up to two (2) vehicles in each of 36 parking spaces. Two vehicle transport system elevators will be operated by the valet staff to bring vehicles to and from the basement parking area.

Vehicles parked in the basement will default to the top slot in the parking lifts, which will be collapsed to the floor until additional vehicles require parking. As more vehicles require parking, the first vehicle will be raised to the top position on the lift. The lift mechanism specifics are shown in Sheet A6.0 of the site plan package. That sheet may be found in **Appendix F – Site Plan**.

Based on field measurements at the nearby Cadillac Hotel in Miami Beach, which has a parking system from the same supplier, arriving vehicles are expected to require approximately 157 seconds to arrive, be handed over to the valet attendant, be lowered down the vehicle transport system elevator, and parked in an available parking space. Departing vehicles are expected to be turned over to the owners in approximately 142 seconds after a request for the vehicle is received by the valet attendants. At least one valet attendant is expected to be at the project entrance at all times while another valet attendant will be stationed in the basement parking area and another will deliver vehicles to departing drivers.

A queuing analysis was performed, as described previously, to determine whether the two vehicle queue storage available in the valet pick-up/drop-off area plus one vehicle storage in the entrance driveway and one vehicle storage in the entrance driveway elevator is sufficient to ensure that vehicles aren't backing up onto 90th Street. As a conservative measure, the 157 second parking time was increased to 180 seconds (three minutes). The queuing analysis relied upon Synchro and SimTraffic models. A copy of the queuing analysis worksheet is contained in **Appendix G – Queuing Analysis**.

As a review of the queuing analysis reveals, a maximum queue storage length of 53 feet is expected to be required during the p.m. peak hour of the day to accommodate vehicles waiting to be parked by the valet attendants. This is equivalent to slightly less than three vehicles, yet the available queue storage length is for four vehicles (1 vehicle in the lift + 2 vehicles in the queue storage area + 1 vehicle in the entrance driveway = 4 vehicles).

Note that departing vehicles will be queued in the basement parking garage and will be delivered one by one to their owners at the valet pick-up location on the east side of the eastern driveway.

Conclusions

Based on the results of this analysis, it is concluded that the proposed 8995 Collins Avenue development will not have a significant impact on the adjacent roadway network. All intersections will continue to operate at the same high levels of service after the project is completed as they do at present. With the extremely low volume of traffic anticipated to be generated by the development, the valet parking can be operated in such a manner that it requires no vehicle to be stored on 90th Street at the project entrance.

Appendix A – Traffic Counts

COLLINS AVENUE AT 90TH STREET
 DADE COUNTY, FLORIDA
 COUNTED BY:
 SIGNALIZED

THOMAS A. HALL, INC.
 1355 ADAMS STREET
 HOLLYWOOD, FL 33019
 954-288-4447

Site Code: 10031
 Start Date: 6/6/2017
 File I.D.: SURFSIDE
 Page: 1

ALL VEHICLES

Date	90TH STREET From West				90TH STREET From East				COLLINS AVENUE From South				COLLINS AVENUE From North				Total
	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	
6/6/2017																	
7:00	0	4	1	0	0	0	3	4	0	4	172	5	0	0	0	0	193
7:15	0	8	5	0	0	0	0	3	0	4	224	2	0	0	0	0	246
7:30	0	5	5	0	0	0	1	4	0	4	262	0	0	0	0	0	281
7:45	0	8	2	0	0	0	0	4	0	4	301	4	0	0	0	0	323
Hr Total	0	25	13	0	0	0	4	15	0	16	959	11	0	0	0	0	1043
8:00	0	8	4	0	0	0	1	7	0	5	340	3	0	0	0	0	368
8:15	0	6	5	0	0	0	0	4	0	5	384	0	0	0	0	0	404
8:30	0	17	5	0	0	0	1	4	0	6	327	0	0	0	0	0	360
8:45	0	6	0	0	0	0	1	2	0	5	382	1	0	0	0	0	397
Hr Total	0	37	14	0	0	0	3	17	0	21	1433	4	0	0	0	0	1529
* BREAK *																	
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* BREAK *																	
16:00	0	2	0	0	0	0	0	2	0	2	569	2	0	0	0	0	577
16:15	0	10	0	0	0	0	0	0	0	24	622	1	0	0	0	0	657
16:30	0	7	1	0	0	0	1	1	0	38	469	1	0	0	0	0	518
16:45	0	11	0	0	0	0	0	1	1	31	428	1	0	0	0	0	473
Hr Total	0	30	1	0	0	0	1	4	1	95	2088	5	0	0	0	0	2225
17:00	0	5	0	0	0	0	0	2	0	29	528	2	0	0	0	0	566
17:15	0	8	2	0	0	0	1	2	0	17	518	1	0	0	0	0	549
17:30	0	11	1	0	0	0	2	1	0	13	584	2	0	0	0	0	614
17:45	0	7	0	0	0	0	0	0	0	13	502	1	0	0	0	0	523
Hr Total	0	31	3	0	0	0	3	5	0	72	2132	6	0	0	0	0	2252
TOTAL	0	123	31	0	0	0	11	41	1	204	6612	26	0	0	0	0	7049

COLLINS AVENUE AT 90TH STREET
 DADE COUNTY, FLORIDA
 COUNTED BY:
 SIGNALIZED

THOMAS A. HALL, INC.
 1355 ADAMS STREET
 HOLLYWOOD, FL 33019
 954-288-4447

Site Code: 10031
 Start Date: 6/6/17
 File I.D.: SURFSIDE
 Page: 2

ALL VEHICLES

Date	90TH STREET From West				90TH STREET From East				COLLINS AVENUE From South				COLLINS AVENUE From North				Total
	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	
6/6/2017																	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 6/6/2017

Peak start	08:00				08:00				08:00				08:00				Total
Volume	0	37	14	0	0	0	3	17	0	21	1433	4	0	0	0	0	
Percent	0%	73%	27%	0%	0%	0%	15%	85%	0%	1%	98%	0%	#####	#####	#####	#####	
Pk total	51				20				1458				0				
Highest	8:30				8:00: AM				8:15				8:15				
Volume	0	17	5	0	0	0	1	7	0	5	384	0	0	0	0	0	
Hi total	22				8				389				0				
PHF	0.58				0.63				0.94				#####				

Peak Hour Analysis By Entire Intersection for the Period: 11:00 to 01:00 on 6/6/2017

Peak start	12:00				12:00				12:00				12:00				Total
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Percent	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	
Pk total	0				0				0				0				
Highest	12:15				12:45				12:15				12:30				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hi total	0				0				0				0				
PHF	#####				#####				#####				#####				

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 6/6/2017

Peak start	17:00				17:00				17:00				17:00				Total
Volume	0	31	3	0	0	0	3	5	0	72	2132	6	0	0	0	0	
Percent	0%	91%	9%	0%	0%	0%	38%	63%	0%	3%	96%	0%	#####	#####	#####	#####	
Pk total	34				8				2210				0				
Highest	17:30				17:30				17:30				17:45				
Volume	0	11	1	0	0	0	2	1	0	13	584	2	0	0	0	0	
Hi total	12				3				599				0				
PHF	0.71				0.67				0.92				#####				

HARDING AVENUE AT 90TH STREET
 DADE COUNTY, FLORIDA
 COUNTED BY:
 UNSIGNALIZED

THOMAS A. HALL, INC.
 1355 ADAMS STREET
 HOLLYWOOD, FL 33019
 954-288-4447

Site Code: 10031
 Start Date: 6/8/2017
 File I.D.: SURFSIDE
 Page: 3

ALL VEHICLES

Date	90TH STREET From West				90TH STREET From East				HARDING AVENUE From South				HARDING AVENUE From North				Total
	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	
6/8/2017																	
7:00	0	0	1	6	0	6	1	0	0	0	0	0	0	6	333	2	355
7:15	0	0	0	4	0	11	1	0	0	0	0	0	0	5	477	3	501
7:30	0	0	0	5	0	4	2	0	0	0	0	0	0	2	566	4	583
7:45	0	0	2	10	0	2	1	0	0	0	0	0	0	16	556	9	596
Hr Total	0	0	3	25	0	23	5	0	0	0	0	0	0	29	1932	18	2035
8:00	0	0	0	8	0	6	1	0	0	0	0	0	0	9	621	3	648
8:15	0	1	1	8	0	11	1	0	0	0	0	0	0	8	518	6	554
8:30	0	0	2	9	0	4	2	0	0	0	0	0	0	9	458	2	486
8:45	0	0	0	6	0	2	1	0	0	0	0	0	0	7	421	8	445
Hr Total	0	1	3	31	0	23	5	0	0	0	0	0	0	33	2018	19	2133
* BREAK *																	
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* BREAK *																	
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* BREAK *																	
16:00	0	0	2	7	1	3	1	0	0	0	0	0	0	4	397	3	418
16:15	0	0	3	2	0	1	2	0	0	0	0	0	0	9	423	9	449
16:30	0	0	4	5	0	1	4	0	0	0	0	0	0	6	482	4	506
16:45	0	1	6	4	0	2	4	0	0	0	0	0	0	8	485	4	514
Hr Total	0	1	15	18	1	7	11	0	0	0	0	0	0	27	1787	20	1887
17:00	1	0	2	2	0	7	1	0	0	0	0	0	0	4	514	9	540
17:15	0	0	1	4	0	10	1	0	0	0	0	0	0	15	457	8	496
17:30	0	0	1	4	0	3	0	0	0	0	0	0	0	8	564	2	582
17:45	0	0	0	2	0	2	1	0	0	0	0	0	0	3	603	4	615
Hr Total	1	0	4	12	0	22	3	0	0	0	0	0	0	30	2138	23	2233
TOTAL	1	2	25	86	1	75	24	0	0	0	0	0	0	119	7875	80	8288

HARDING AVENUE AT 90TH STREET
 DADE COUNTY, FLORIDA
 COUNTED BY:
 UNSIGNALIZED

THOMAS A. HALL, INC.
 1355 ADAMS STREET
 HOLLYWOOD, FL 33019
 954-288-4447

Site Code: 10031
 Start Date: 6/8/17
 File I.D.: SURFSIDE
 Page: 4

ALL VEHICLES

Date	90TH STREET From West				90TH STREET From East				HARDING AVENUE From South				HARDING AVENUE From North				Total
	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	
6/8/2017																	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 6/8/2017

Peak start	7:30				7:30				7:30				7:30				
Volume	0	1	3	31	0	23	5	0	0	0	0	0	0	35	2261	22	2381
Percent	0%	3%	9%	89%	0%	82%	18%	0%	#####	#####	#####	#####	0%	2%	98%	1%	
Pk total	35				28				0				2318				
Highest	7:45				8:15				8:00				8:00				
Volume	0	0	2	10	0	11	1	0	0	0	0	0	0	9	621	3	
Hi total	12				12				0				633				
PHF	0.73				0.58				#####				0.92				

Peak Hour Analysis By Entire Intersection for the Period: 11:00 to 01:00 on 6/8/2017

Peak start	12:00				12:00				12:00				12:00				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	
Pk total	0				0				0				0				
Highest	12:00				12:00				12:30				12:30				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hi total	0				0				0				0				
PHF	#####				#####				#####				#####				

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 6/8/2017

Peak start	17:00				17:00				17:00				17:00				
Volume	1	0	4	12	0	22	3	0	0	0	0	0	0	30	2138	23	2233
Percent	6%	0%	24%	71%	0%	88%	12%	0%	#####	#####	#####	#####	0%	1%	98%	1%	
Pk total	17				25				0				2191				
Highest	17:30				17:15				17:30				17:45				
Volume	0	0	1	4	0	10	1	0	0	0	0	0	0	3	603	4	
Hi total	5				11				0				610				
PHF	0.85				0.57				#####				0.90				

COLLINS AVE AT SE 90TH STREET
 MIAMI-DADE COUNTY, FLORIDA
 COUNTED BY:
 SIGNALIZED

THOMAS A. HALL, INC.
 1355 ADAMS STREET
 HOLLYWOOD, FL 33019
 954-288-4447

Site Code: 10071
 Start Date: 6/26/2019
 File I.D.: SURFSIDE
 Page: 1

ALL VEHICLES

Date	SE 90TH ST. From West				SE 90TH ST. From East				COLLINS AVE. From South				N/A From North				Total
	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	
6/26/2019																	
7:00	0	5	0	0	0	0	1	1	0	0	170	1	0	0	0	0	178
7:15	0	0	0	0	0	0	0	0	0	2	169	0	0	0	0	0	171
7:30	0	5	0	0	0	0	0	2	0	1	136	4	0	0	0	0	148
7:45	0	0	0	0	0	0	0	0	0	0	115	2	0	0	0	0	117
Hr Total	0	10	0	0	0	0	1	3	0	3	590	7	0	0	0	0	614
8:00	8	3	0	0	0	0	0	0	0	0	114	1	0	0	0	0	126
8:15	2	9	0	0	0	0	0	0	0	0	148	1	0	0	0	0	160
8:30	0	0	0	0	0	0	0	0	0	1	171	1	0	0	0	0	173
8:45	0	7	1	0	0	0	0	1	0	0	173	3	0	0	0	0	185
Hr Total	10	19	1	0	0	0	0	1	0	1	606	6	0	0	0	0	644
* BREAK *																	
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* BREAK *																	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	10	29	1	0	0	0	1	4	0	4	1196	13	0	0	0	0	1258

COLLINS AVE AT SE 90TH STREET
 MIAMI-DADE COUNTY, FLORIDA
 COUNTED BY:
 SIGNALIZED

THOMAS A. HALL, INC.
 1355 ADAMS STREET
 HOLLYWOOD, FL 33019
 954-288-4447

Site Code: 10071
 Start Date: 6/26/19
 File I.D.: SURFSIDE
 Page: 2

ALL VEHICLES

Date	SE 90TH ST. From West				SE 90TH ST. From East				COLLINS AVE. From South				N/A From North				Total
	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	
6/26/2019																	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 6/26/2019

Peak start	08:00				08:00				08:00				08:00				Total
Volume	10	19	1	0	0	0	0	1	0	1	606	6	0	0	0	0	
Percent	33%	63%	3%	0%	0%	0%	0%	100%	0%	0%	99%	1%	#####	#####	#####	#####	
Pk total	30				1				613				0				
Highest	8:15				8:45				8:45				8:30				
Volume	2	9	0	0	0	0	0	1	0	0	173	3	0	0	0	0	
Hi total	11				1				176				0				
PHF	0.68				0.25				0.87				#####				

Peak Hour Analysis By Entire Intersection for the Period: 11:00 to 01:00 on 6/26/2019

Peak start	12:00				12:00				12:00				12:00				Total
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Percent	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	
Pk total	0				0				0				0				
Highest	12:15				12:45				12:15				12:30				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hi total	0				0				0				0				
PHF	#####				#####				#####				#####				

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 6/26/2019

Peak start	17:00				17:00				17:00				17:00				Total
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Percent	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	
Pk total	0				0				0				0				
Highest	17:30				17:30				17:00				17:45				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hi total	0				0				0				0				
PHF	#####				#####				#####				#####				

HARDING AVE AT SE 90TH AVE
 MIAMI-DADE COUNTY, FLORIDA
 COUNTED BY:
 UNSIGNALIZED

THOMAS A. HALL, INC.
 1355 ADAMS STREET
 HOLLYWOOD, FL 33019
 954-288-4447

Site Code: 10071
 Start Date: 6/27/2019
 File I.D.: SURFSIDE
 Page: 3

ALL VEHICLES

Date	SE 90TH STREET From West				SE 90TH STREET From East				HARDING AVE From South				HARDING AVE From North				Total
	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	
6/27/2019																	
7:00	0	0	1	1	0	0	0	0	0	0	0	0	0	11	287	2	302
7:15	0	0	1	5	0	0	0	0	0	0	0	0	0	5	383	4	398
7:30	0	0	0	2	0	0	0	0	0	0	0	0	0	5	378	0	385
7:45	0	0	0	5	0	0	0	0	0	0	0	0	0	14	379	3	401
Hr Total	0	0	2	13	0	0	0	0	0	0	0	0	0	35	1427	9	1486
8:00	0	0	0	3	1	2	0	0	0	0	0	0	0	7	564	0	577
8:15	0	0	3	2	0	0	0	0	0	0	0	0	0	9	452	3	469
8:30	0	0	0	12	0	0	0	0	0	0	0	0	0	3	456	2	473
8:45	0	0	2	5	0	0	0	0	0	0	0	0	0	8	527	2	544
Hr Total	0	0	5	22	1	2	0	0	0	0	0	0	0	27	1999	7	2063
* BREAK *																	
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* BREAK *																	
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* BREAK *																	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hr Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	7	35	1	2	0	0	0	0	0	0	0	62	3426	16	3549

HARDING AVE AT SE 90TH AVE
 MIAMI-DADE COUNTY, FLORIDA
 COUNTED BY:
 UNSIGNALIZED

THOMAS A. HALL, INC.
 1355 ADAMS STREET
 HOLLYWOOD, FL 33019
 954-288-4447

Site Code: 10071
 Start Date: 6/27/19
 File I.D.: SURFSIDE
 Page: 4

ALL VEHICLES

Date	SE 90TH STREET From West				SE 90TH STREET From East				HARDING AVE From South				HARDING AVE From North				Total
	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	
6/27/2019																	

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 6/27/2019

Peak start	8:00				8:00				8:00				8:00				
Volume	0	0	5	22	1	2	0	0	0	0	0	0	0	27	1999	7	2063
Percent	0%	0%	19%	81%	33%	67%	0%	0%	#####	#####	#####	#####	0%	1%	98%	0%	
Pk total	27				3				0				2033				
Highest	8:30				8:00				8:00				8:00				
Volume	0	0	0	12	1	2	0	0	0	0	0	0	0	7	564	0	
Hi total	12				3				0				571				
PHF	0.56				0.25				#####				0.89				

Peak Hour Analysis By Entire Intersection for the Period: 11:00 to 01:00 on 6/27/2019

Peak start	12:00				12:00				12:00				12:00				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####
Pk total	0				0				0				0				
Highest	12:00				12:00				12:30				12:30				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hi total	0				0				0				0				
PHF	#####				#####				#####				#####				

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 6/27/2019

Peak start	17:00				17:00				17:00				17:00				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####
Pk total	0				0				0				0				
Highest	17:30				17:30				17:45				17:45				
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hi total	0				0				0				0				
PHF	#####				#####				#####				#####				

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2018 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 0525 - SR A1A/COLLINS AV/ONE-WAY PAIR NB, 100' N 87 ST

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2018	22000	C	0	9.00	99.90	5.60
2017	21000	C	0	9.00	99.90	5.30
2016	25000	C	0	9.00	99.90	7.80
2015	24500	C	0	9.00	99.90	4.60
2014	21500	C	0	9.00	99.90	5.10
2013	25000	C	0	9.00	99.90	6.10
2012	32500	C	0	9.00	99.90	8.40
2011	22000	C	0	9.00	99.90	7.50
2010	22500	C	0	8.98	99.99	8.80
2009	22500	C	0	8.99	99.99	8.40
2008	24500	C	0	9.09	99.99	5.30
2007	26000	C	0	8.01	99.99	4.90
2006	24000	C	0	7.97	99.99	2.20
2005	25000	C	S	8.80	99.90	5.50
2004	24000	C	S	9.00	99.90	8.20
2003	26500	C	S	8.80	99.90	4.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
 *K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2018 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 0520 - SR A1A/HARDING AV/ONE-WAY PAIR SB, 100' N 87 ST

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2018	25500 C	S 25500	0	9.00	99.90	4.90
2017	24500 C	S 24500	0	9.00	99.90	7.50
2016	27000 C	S 27000	0	9.00	99.90	9.10
2015	26500 C	S 26500	0	9.00	99.90	7.60
2014	26000 C	S 26000	0	9.00	99.90	5.40
2013	25500 C	S 25500	0	9.00	99.90	3.00
2012	26000 C	S 26000	0	9.00	99.90	3.80
2011	23500 C	S 23500	0	9.00	99.90	7.50
2010	24000 C	S 24000	0	8.98	99.99	8.80
2009	23000 C	S 23000	0	8.99	99.99	8.40
2008	24000 C	S 24000	0	9.09	99.99	5.30
2007	24000 C	S 24000	0	8.01	99.99	4.90
2006	24000 C	S 24000	0	7.97	99.99	2.20
2005	27000 C	S 27000	0	8.80	99.90	5.50
2004	27500 C	S 27500	0	9.00	99.90	8.20
2003	26000 C	S 26000	0	8.80	99.90	4.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
 *K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Appendix B – Adjustment Factors

2018 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: COUNTY
 CATEGORY: 8700 MIAMI-DADE NORTH

MOCF: 0.98

WEEK	DATES	SF	PSCF
1	01/01/2018 - 01/06/2018	1.03	1.05
2	01/07/2018 - 01/13/2018	1.03	1.05
3	01/14/2018 - 01/20/2018	1.04	1.06
4	01/21/2018 - 01/27/2018	1.02	1.04
5	01/28/2018 - 02/03/2018	1.01	1.03
* 6	02/04/2018 - 02/10/2018	0.99	1.01
* 7	02/11/2018 - 02/17/2018	0.98	1.00
* 8	02/18/2018 - 02/24/2018	0.98	1.00
* 9	02/25/2018 - 03/03/2018	0.98	1.00
*10	03/04/2018 - 03/10/2018	0.97	0.99
*11	03/11/2018 - 03/17/2018	0.97	0.99
*12	03/18/2018 - 03/24/2018	0.97	0.99
*13	03/25/2018 - 03/31/2018	0.97	0.99
*14	04/01/2018 - 04/07/2018	0.97	0.99
*15	04/08/2018 - 04/14/2018	0.97	0.99
*16	04/15/2018 - 04/21/2018	0.97	0.99
*17	04/22/2018 - 04/28/2018	0.98	1.00
*18	04/29/2018 - 05/05/2018	0.99	1.01
19	05/06/2018 - 05/12/2018	1.00	1.02
20	05/13/2018 - 05/19/2018	1.01	1.03
21	05/20/2018 - 05/26/2018	1.01	1.03
22	05/27/2018 - 06/02/2018	1.01	1.03
23	06/03/2018 - 06/09/2018	1.01	1.03
24	06/10/2018 - 06/16/2018	1.01	1.03
25	06/17/2018 - 06/23/2018	1.01	1.03
26	06/24/2018 - 06/30/2018	1.02	1.04
27	07/01/2018 - 07/07/2018	1.02	1.04
28	07/08/2018 - 07/14/2018	1.02	1.04
29	07/15/2018 - 07/21/2018	1.02	1.04
30	07/22/2018 - 07/28/2018	1.02	1.04
31	07/29/2018 - 08/04/2018	1.01	1.03
32	08/05/2018 - 08/11/2018	1.01	1.03
33	08/12/2018 - 08/18/2018	1.00	1.02
34	08/19/2018 - 08/25/2018	1.00	1.02
35	08/26/2018 - 09/01/2018	1.00	1.02
36	09/02/2018 - 09/08/2018	1.01	1.03
37	09/09/2018 - 09/15/2018	1.01	1.03
38	09/16/2018 - 09/22/2018	1.00	1.02
39	09/23/2018 - 09/29/2018	1.00	1.02
40	09/30/2018 - 10/06/2018	1.00	1.02
41	10/07/2018 - 10/13/2018	0.99	1.01
42	10/14/2018 - 10/20/2018	0.99	1.01
43	10/21/2018 - 10/27/2018	1.00	1.02
44	10/28/2018 - 11/03/2018	1.00	1.02
45	11/04/2018 - 11/10/2018	1.01	1.03
46	11/11/2018 - 11/17/2018	1.01	1.03
47	11/18/2018 - 11/24/2018	1.02	1.04
48	11/25/2018 - 12/01/2018	1.02	1.04
49	12/02/2018 - 12/08/2018	1.02	1.04
50	12/09/2018 - 12/15/2018	1.03	1.05
51	12/16/2018 - 12/22/2018	1.03	1.05
52	12/23/2018 - 12/29/2018	1.03	1.05
53	12/30/2018 - 12/31/2018	1.04	1.06

* PEAK SEASON

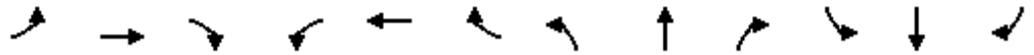
**Annual Growth Factor Worksheet
8995 Collins Avenue**

Count Station	2013 AADT	2018 AADT	Annual Compound Growth	Adjusted Annual Compound Growth
Site 870525 - Collins Ave. North of 87th Avenue	25000	22000	-2.52%	-2.52%
Site 870520 - Harding Ave. North of 87th Avenue	25500	25500	0.00%	0.00%
Assumed Annual Compound Growth Rate				-1.26%

Appendix C – Existing Conditions Analyses

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

07/02/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕↕				
Traffic Volume (vph)	38	14	0	0	3	18	22	1476	4	0	0	0
Future Volume (vph)	38	14	0	0	3	18	22	1476	4	0	0	0
Ideal Flow (vphp)	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	0.91	0.91	0.91	1.00	1.00	1.00
Fr t					0.885							
Flt Protected		0.965						0.999				
Satd. Flow (prot)	0	1798	0	0	1649	0	0	4935	0	0	0	0
Flt Permitted		0.762						0.999				
Satd. Flow (perm)	0	1419	0	0	1649	0	0	4935	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					25			1				
Link Speed (mph)		25			25			30				30
Link Distance (ft)		357			122			472				520
Travel Time (s)		9.7			3.3			10.7				11.8
Peak Hour Factor	0.58	0.58	0.58	0.63	0.63	0.63	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	66	24	0	0	5	29	23	1570	4	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	34	0	0	1597	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	30			30		20	30				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	30			30		20	30				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0		7.0	7.0				
Minimum Split (s)	29.4	29.4			29.4		24.3	24.3				
Total Split (s)	33.0	33.0			33.0		57.0	57.0				
Total Split (%)	36.7%	36.7%			36.7%		63.3%	63.3%				
Maximum Green (s)	26.6	26.6			26.6		50.7	50.7				

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

07/02/2019

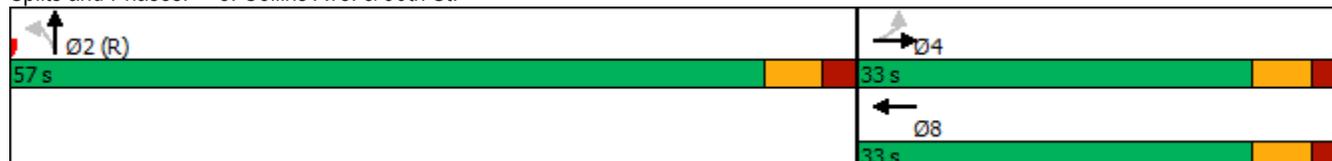


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	2.4	2.4			2.4		2.3	2.3				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		6.4			6.4			6.3				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5			2.5		1.0	1.0				
Recall Mode	None	None			None		C-Max	C-Max				
Walk Time (s)	5.0	5.0			5.0		7.0	7.0				
Flash Dont Walk (s)	18.0	18.0			18.0		9.0	9.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		10.7			10.7			70.5				
Actuated g/C Ratio		0.12			0.12			0.78				
v/c Ratio		0.53			0.16			0.41				
Control Delay		48.1			18.3			4.7				
Queue Delay		0.0			0.0			0.0				
Total Delay		48.1			18.3			4.7				
LOS		D			B			A				
Approach Delay		48.1			18.3			4.7				
Approach LOS		D			B			A				
Queue Length 50th (ft)		49			5			103				
Queue Length 95th (ft)		57			17			159				
Internal Link Dist (ft)		277			42			392			440	
Turn Bay Length (ft)												
Base Capacity (vph)		419			504			3867				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.21			0.07			0.41				

Intersection Summary

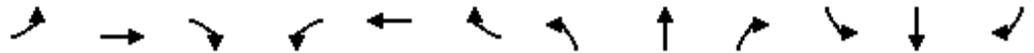
Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 66 (73%), Referenced to phase 2:NBTL and 6:, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 7.3
 Intersection Capacity Utilization 49.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 3: Collins Ave. & 90th St.



HCM 6th Signalized Intersection Summary
 3: Collins Ave. & 90th St.

07/02/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗↘				
Traffic Volume (veh/h)	38	14	0	0	3	18	22	1476	4	0	0	0
Future Volume (veh/h)	38	14	0	0	3	18	22	1476	4	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1900	1826	1900			
Adj Flow Rate, veh/h	66	24	0	0	5	29	23	1570	4			
Peak Hour Factor	0.58	0.58	0.58	0.63	0.63	0.63	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	0	5	0			
Cap, veh/h	147	39	0	0	22	126	55	4008	11			
Arrive On Green	0.09	0.09	0.00	0.00	0.09	0.09	0.77	0.77	0.77			
Sat Flow, veh/h	853	431	0	0	238	1383	72	5222	14			
Grp Volume(v), veh/h	90	0	0	0	0	34	583	484	531			
Grp Sat Flow(s),veh/h/ln	1284	0	0	0	0	1621	1822	1662	1823			
Q Serve(g_s), s	4.7	0.0	0.0	0.0	0.0	1.8	9.8	8.6	8.6			
Cycle Q Clear(g_c), s	6.5	0.0	0.0	0.0	0.0	1.8	9.8	8.6	8.6			
Prop In Lane	0.73		0.00	0.00		0.85	0.04		0.01			
Lane Grp Cap(c), veh/h	187	0	0	0	0	148	1399	1275	1400			
V/C Ratio(X)	0.48	0.00	0.00	0.00	0.00	0.23	0.42	0.38	0.38			
Avail Cap(c_a), veh/h	489	0	0	0	0	479	1399	1275	1400			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	40.5	0.0	0.0	0.0	0.0	38.0	3.6	3.4	3.4			
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.0	0.6	0.9	0.9	0.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	3.6	0.0	0.0	0.0	0.0	1.3	5.2	4.2	4.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	0.0	0.0	0.0	0.0	38.5	4.5	4.3	4.2			
LnGrp LOS	D	A	A	A	A	D	A	A	A			
Approach Vol, veh/h		90			34			1597				
Approach Delay, s/veh		41.9			38.5			4.3				
Approach LOS		D			D			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		75.4		14.6				14.6				
Change Period (Y+Rc), s		* 6.3		6.4				6.4				
Max Green Setting (Gmax), s		* 51		26.6				26.6				
Max Q Clear Time (g_c+I1), s		11.8		8.5				3.8				
Green Ext Time (p_c), s		0.9		0.2				0.1				
Intersection Summary												
HCM 6th Ctrl Delay				7.0								
HCM 6th LOS				A								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th TWSC
6: Harding Ave. & 90th St.

07/02/2019

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻					↻↻↻		
Traffic Vol, veh/h	0	3	32	24	5	0	0	0	0	36	2329	23
Future Vol, veh/h	0	3	32	24	5	0	0	0	0	36	2329	23
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	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	58	58	58	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	5	5	5
Mvmt Flow	0	4	44	41	9	0	0	0	0	39	2532	25

Major/Minor	Minor2		Minor1			Major2			
Conflicting Flow All	-	2623	1279	1093	2635	-	0	0	0
Stage 1	-	2623	-	0	0	-	-	-	-
Stage 2	-	0	-	1093	2635	-	-	-	-
Critical Hdwy	-	5.5	5	5	5.5	-	5.4	-	-
Critical Hdwy Stg 1	-	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.74	5.54	-	-	-	-
Follow-up Hdwy	-	4.02	3.3	3.5	4.02	-	3.15	-	-
Pot Cap-1 Maneuver	0	50	314	366	50	0	-	-	-
Stage 1	0	49	-	-	-	0	-	-	-
Stage 2	0	-	-	216	48	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	50	314	295	50	-	-	-	-
Mov Cap-2 Maneuver	-	50	-	295	50	-	-	-	-
Stage 1	-	49	-	-	-	-	-	-	-
Stage 2	-	-	-	170	48	-	-	-	-

Approach	EB		WB		SB	
HCM Control Delay, s	26.4		37.4			
HCM LOS	D		E			

Minor Lane/Major Mvmt	EBLn1WBLn1		SBL	SBT	SBR
Capacity (veh/h)	216	160	-	-	-
HCM Lane V/C Ratio	0.222	0.313	-	-	-
HCM Control Delay (s)	26.4	37.4	-	-	-
HCM Lane LOS	D	E	-	-	-
HCM 95th %tile Q(veh)	0.8	1.2	-	-	-

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

07/02/2019

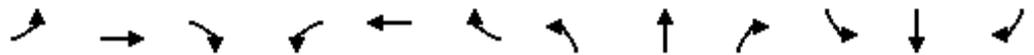


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕↕				
Traffic Volume (vph)	32	3	0	0	3	5	74	2196	6	0	0	0
Future Volume (vph)	32	3	0	0	3	5	74	2196	6	0	0	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Fr t					0.914							
Flt Protected		0.956						0.998				
Satd. Flow (prot)	0	1781	0	0	1703	0	0	4930	0	0	0	0
Flt Permitted		0.736						0.998				
Satd. Flow (perm)	0	1371	0	0	1703	0	0	4930	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4			1				
Link Speed (mph)		25			25			30				30
Link Distance (ft)		357			122			472				520
Travel Time (s)		9.7			3.3			10.7				11.8
Peak Hour Factor	0.71	0.71	0.71	0.67	0.67	0.67	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	45	4	0	0	4	7	80	2387	7	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	11	0	0	2474	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	30			30		20	30				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	30			30		20	30				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0		7.0	7.0				
Minimum Split (s)	29.4	29.4			29.4		24.3	24.3				
Total Split (s)	29.6	29.6			29.6		60.4	60.4				
Total Split (%)	32.9%	32.9%			32.9%		67.1%	67.1%				
Maximum Green (s)	23.2	23.2			23.2		54.1	54.1				

HCM 6th Signalized Intersection Summary

3: Collins Ave. & 90th St.

07/02/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗↘				
Traffic Volume (veh/h)	32	3	0	0	3	5	74	2196	6	0	0	0
Future Volume (veh/h)	32	3	0	0	3	5	74	2196	6	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1900	1826	1900			
Adj Flow Rate, veh/h	45	4	0	0	4	7	80	2387	7			
Peak Hour Factor	0.71	0.71	0.71	0.67	0.67	0.67	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	5	0			
Cap, veh/h	148	10	0	0	37	65	129	4093	12			
Arrive On Green	0.06	0.06	0.00	0.00	0.06	0.06	0.80	0.80	0.80			
Sat Flow, veh/h	1181	158	0	0	610	1068	161	5126	16			
Grp Volume(v), veh/h	49	0	0	0	0	11	902	749	822			
Grp Sat Flow(s),veh/h/ln	1339	0	0	0	0	1678	1818	1662	1823			
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.6	17.9	14.9	14.9			
Cycle Q Clear(g_c), s	3.4	0.0	0.0	0.0	0.0	0.6	17.9	14.9	14.9			
Prop In Lane	0.92		0.00	0.00		0.64	0.09		0.01			
Lane Grp Cap(c), veh/h	158	0	0	0	0	101	1451	1327	1456			
V/C Ratio(X)	0.31	0.00	0.00	0.00	0.00	0.11	0.62	0.56	0.57			
Avail Cap(c_a), veh/h	440	0	0	0	0	433	1451	1327	1456			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.5	0.0	0.0	0.0	0.0	40.0	3.6	3.3	3.3			
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.3	2.0	1.7	1.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	2.0	0.0	0.0	0.0	0.0	0.4	8.2	6.5	7.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	0.0	0.0	0.0	0.0	40.3	5.6	5.1	4.9			
LnGrp LOS	D	A	A	A	A	D	A	A	A			
Approach Vol, veh/h		49			11			2474				
Approach Delay, s/veh		42.3			40.3			5.2				
Approach LOS		D			D			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		78.2		11.8				11.8				
Change Period (Y+Rc), s		* 6.3		6.4				6.4				
Max Green Setting (Gmax), s		* 54		23.2				23.2				
Max Q Clear Time (g_c+I1), s		19.9		5.4				2.6				
Green Ext Time (p_c), s		1.5		0.1				0.0				
Intersection Summary												
HCM 6th Ctrl Delay				6.1								
HCM 6th LOS				A								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th TWSC
6: Harding Ave. & 90th St.

07/02/2019

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻					↻↻↻		
Traffic Vol, veh/h	0	4	12	23	3	0	0	0	0	31	2202	24
Future Vol, veh/h	0	4	12	23	3	0	0	0	0	31	2202	24
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	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	57	57	57	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	5	5	5
Mvmt Flow	0	5	14	40	5	0	0	0	0	34	2447	27

Major/Minor	Minor2		Minor1				Major2			
Conflicting Flow All	-	2529	1237	1049	2542	-	-	0	0	0
Stage 1	-	2529	-	0	0	-	-	-	-	-
Stage 2	-	0	-	1049	2542	-	-	-	-	-
Critical Hdwy	-	5.5	5	5	5.5	-	-	5.4	-	-
Critical Hdwy Stg 1	-	5.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.74	5.54	-	-	-	-	-
Follow-up Hdwy	-	4.02	3.3	3.5	4.02	-	-	3.15	-	-
Pot Cap-1 Maneuver	0	56	327	382	56	0	-	-	-	-
Stage 1	0	55	-	-	-	0	-	-	-	-
Stage 2	0	-	-	230	54	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	56	327	342	56	-	-	-	-	-
Mov Cap-2 Maneuver	-	56	-	342	56	-	-	-	-	-
Stage 1	-	55	-	-	-	-	-	-	-	-
Stage 2	-	-	-	201	54	-	-	-	-	-

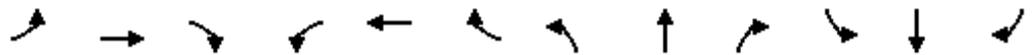
Approach	EB		WB		SB	
HCM Control Delay, s	32.8		26.2			
HCM LOS	D		D			

Minor Lane/Major Mvmt	EBLn1WBLn1		SBL	SBT	SBR
Capacity (veh/h)	148	215	-	-	-
HCM Lane V/C Ratio	0.127	0.212	-	-	-
HCM Control Delay (s)	32.8	26.2	-	-	-
HCM Lane LOS	D	D	-	-	-
HCM 95th %tile Q(veh)	0.4	0.8	-	-	-

Appendix D – Background Traffic Conditions Analyses

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

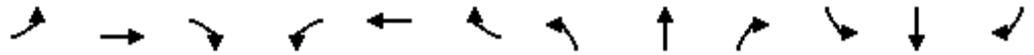
09/17/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕↕				
Traffic Volume (vph)	38	14	0	0	3	18	22	1519	4	0	0	0
Future Volume (vph)	38	14	0	0	3	18	22	1519	4	0	0	0
Ideal Flow (vphp)	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	0.91	0.91	0.91	1.00	1.00	1.00
Fr t					0.885							
Flt Protected		0.965						0.999				
Satd. Flow (prot)	0	1798	0	0	1649	0	0	4935	0	0	0	0
Flt Permitted		0.762						0.999				
Satd. Flow (perm)	0	1419	0	0	1649	0	0	4935	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					22			1				
Link Speed (mph)		25			25			30				30
Link Distance (ft)		357			122			472				520
Travel Time (s)		9.7			3.3			10.7				11.8
Peak Hour Factor	0.58	0.58	0.58	0.63	0.63	0.63	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	66	24	0	0	5	29	23	1616	4	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	34	0	0	1643	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	30			30		20	30				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	30			30		20	30				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0		7.0	7.0				
Minimum Split (s)	29.4	29.4			29.4		24.3	24.3				
Total Split (s)	33.0	33.0			33.0		57.0	57.0				
Total Split (%)	36.7%	36.7%			36.7%		63.3%	63.3%				
Maximum Green (s)	26.6	26.6			26.6		50.7	50.7				

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

09/17/2019

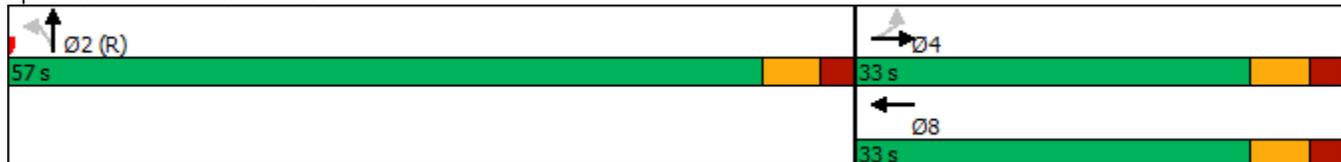


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	2.4	2.4			2.4		2.3	2.3				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		6.4			6.4			6.3				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5			2.5		1.0	1.0				
Recall Mode	None	None			None		C-Max	C-Max				
Walk Time (s)	5.0	5.0			5.0		7.0	7.0				
Flash Dont Walk (s)	18.0	18.0			18.0		9.0	9.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		10.7			10.7			70.5				
Actuated g/C Ratio		0.12			0.12			0.78				
v/c Ratio		0.53			0.16			0.42				
Control Delay		48.1			20.0			4.8				
Queue Delay		0.0			0.0			0.0				
Total Delay		48.1			20.0			4.8				
LOS		D			C			A				
Approach Delay		48.1			20.0			4.8				
Approach LOS		D			C			A				
Queue Length 50th (ft)		49			6			108				
Queue Length 95th (ft)		57			19			166				
Internal Link Dist (ft)		277			42			392			440	
Turn Bay Length (ft)												
Base Capacity (vph)		419			502			3867				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.21			0.07			0.42				

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 66 (73%), Referenced to phase 2:NBTL and 6:, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 7.3
 Intersection Capacity Utilization 50.0%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 3: Collins Ave. & 90th St.



HCM 6th Signalized Intersection Summary

3: Collins Ave. & 90th St.

09/17/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗↘				
Traffic Volume (veh/h)	38	14	0	0	3	18	22	1519	4	0	0	0
Future Volume (veh/h)	38	14	0	0	3	18	22	1519	4	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1900	1826	1900			
Adj Flow Rate, veh/h	66	24	0	0	5	29	23	1616	4			
Peak Hour Factor	0.58	0.58	0.58	0.63	0.63	0.63	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	0	5	0			
Cap, veh/h	147	39	0	0	22	126	54	4010	10			
Arrive On Green	0.09	0.09	0.00	0.00	0.09	0.09	0.77	0.77	0.77			
Sat Flow, veh/h	853	431	0	0	238	1383	70	5224	13			
Grp Volume(v), veh/h	90	0	0	0	0	34	600	497	546			
Grp Sat Flow(s),veh/h/ln	1284	0	0	0	0	1621	1822	1662	1823			
Q Serve(g_s), s	4.7	0.0	0.0	0.0	0.0	1.8	10.3	8.9	8.9			
Cycle Q Clear(g_c), s	6.5	0.0	0.0	0.0	0.0	1.8	10.3	8.9	8.9			
Prop In Lane	0.73		0.00	0.00		0.85	0.04		0.01			
Lane Grp Cap(c), veh/h	187	0	0	0	0	148	1399	1275	1400			
V/C Ratio(X)	0.48	0.00	0.00	0.00	0.00	0.23	0.43	0.39	0.39			
Avail Cap(c_a), veh/h	489	0	0	0	0	479	1399	1275	1400			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	40.5	0.0	0.0	0.0	0.0	38.0	3.6	3.5	3.5			
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.0	0.6	1.0	0.9	0.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	3.6	0.0	0.0	0.0	0.0	1.3	5.4	4.3	4.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	0.0	0.0	0.0	0.0	38.5	4.6	4.4	4.3			
LnGrp LOS	D	A	A	A	A	D	A	A	A			
Approach Vol, veh/h		90			34			1643				
Approach Delay, s/veh		41.9			38.5			4.4				
Approach LOS		D			D			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		75.4		14.6				14.6				
Change Period (Y+Rc), s		* 6.3		6.4				6.4				
Max Green Setting (Gmax), s		* 51		26.6				26.6				
Max Q Clear Time (g_c+I1), s		12.3		8.5				3.8				
Green Ext Time (p_c), s		0.9		0.2				0.1				

Intersection Summary

HCM 6th Ctrl Delay	7.0
HCM 6th LOS	A

Notes

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

HCM 6th TWSC
6: Harding Ave. & 90th St.

09/17/2019

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻					↻↻↻		
Traffic Vol, veh/h	0	3	32	24	5	0	0	0	0	36	2386	23
Future Vol, veh/h	0	3	32	24	5	0	0	0	0	36	2386	23
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	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	58	58	58	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	5	5	5
Mvmt Flow	0	4	44	41	9	0	0	0	0	39	2593	25

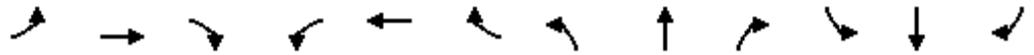
Major/Minor	Minor2		Minor1			Major2			
Conflicting Flow All	-	2684	1309	1117	2696	-	0	0	0
Stage 1	-	2684	-	0	0	-	-	-	-
Stage 2	-	0	-	1117	2696	-	-	-	-
Critical Hdwy	-	5.5	5	5	5.5	-	5.4	-	-
Critical Hdwy Stg 1	-	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.74	5.54	-	-	-	-
Follow-up Hdwy	-	4.02	3.3	3.5	4.02	-	3.15	-	-
Pot Cap-1 Maneuver	0	47	304	357	46	0	-	-	-
Stage 1	0	45	-	-	-	0	-	-	-
Stage 2	0	-	-	208	45	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	47	304	285	46	-	-	-	-
Mov Cap-2 Maneuver	-	47	-	285	46	-	-	-	-
Stage 1	-	45	-	-	-	-	-	-	-
Stage 2	-	-	-	162	45	-	-	-	-

Approach	EB		WB		SB	
HCM Control Delay, s	27.6		40.6			
HCM LOS	D		E			

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	207	150	-	-	-
HCM Lane V/C Ratio	0.232	0.333	-	-	-
HCM Control Delay (s)	27.6	40.6	-	-	-
HCM Lane LOS	D	E	-	-	-
HCM 95th %tile Q(veh)	0.9	1.4	-	-	-

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

09/17/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕↕				
Traffic Volume (vph)	32	3	0	0	3	5	74	2239	6	0	0	0
Future Volume (vph)	32	3	0	0	3	5	74	2239	6	0	0	0
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	0.91	0.91	0.91	1.00	1.00	1.00
Frt					0.914							
Flt Protected		0.956						0.998				
Satd. Flow (prot)	0	1781	0	0	1703	0	0	4930	0	0	0	0
Flt Permitted		0.736						0.998				
Satd. Flow (perm)	0	1371	0	0	1703	0	0	4930	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4			1				
Link Speed (mph)		25			25			30				30
Link Distance (ft)		357			122			472				520
Travel Time (s)		9.7			3.3			10.7				11.8
Peak Hour Factor	0.71	0.71	0.71	0.67	0.67	0.67	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	45	4	0	0	4	7	80	2434	7	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	11	0	0	2521	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	30			30		20	30				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	30			30		20	30				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0		7.0	7.0				
Minimum Split (s)	29.4	29.4			29.4		24.3	24.3				
Total Split (s)	29.6	29.6			29.6		60.4	60.4				
Total Split (%)	32.9%	32.9%			32.9%		67.1%	67.1%				
Maximum Green (s)	23.2	23.2			23.2		54.1	54.1				

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

09/17/2019

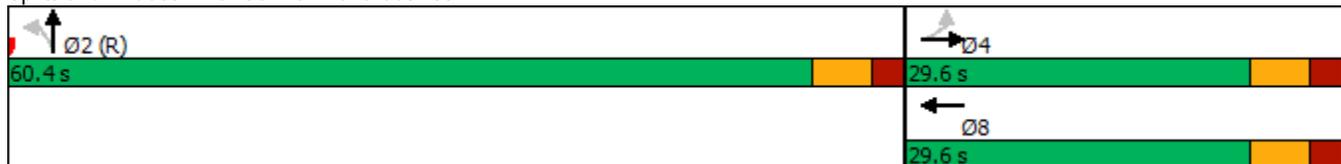


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	2.4	2.4			2.4		2.3	2.3				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		6.4			6.4			6.3				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5			2.5		1.0	1.0				
Recall Mode	None	None			None		C-Max	C-Max				
Walk Time (s)	5.0	5.0			5.0		7.0	7.0				
Flash Dont Walk (s)	18.0	18.0			18.0		9.0	9.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		8.6			8.6			76.6				
Actuated g/C Ratio		0.10			0.10			0.85				
v/c Ratio		0.38			0.07			0.60				
Control Delay		42.2			30.4			4.7				
Queue Delay		0.0			0.0			0.0				
Total Delay		42.2			30.4			4.7				
LOS		D			C			A				
Approach Delay		42.2			30.4			4.7				
Approach LOS		D			C			A				
Queue Length 50th (ft)		27			4			193				
Queue Length 95th (ft)		m45			14			286				
Internal Link Dist (ft)		277			42			392			440	
Turn Bay Length (ft)												
Base Capacity (vph)		353			441			4196				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.14			0.02			0.60				

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 1 (1%), Referenced to phase 2:NBTL and 6:, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 5.6
 Intersection LOS: A
 Intersection Capacity Utilization 64.1%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

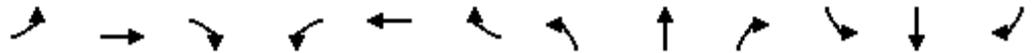
Splits and Phases: 3: Collins Ave. & 90th St.



HCM 6th Signalized Intersection Summary

3: Collins Ave. & 90th St.

09/17/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕↕				
Traffic Volume (veh/h)	32	3	0	0	3	5	74	2239	6	0	0	0
Future Volume (veh/h)	32	3	0	0	3	5	74	2239	6	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1900	1826	1900			
Adj Flow Rate, veh/h	45	4	0	0	4	7	80	2434	7			
Peak Hour Factor	0.71	0.71	0.71	0.67	0.67	0.67	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	5	0			
Cap, veh/h	148	10	0	0	37	65	126	4096	12			
Arrive On Green	0.06	0.06	0.00	0.00	0.06	0.06	0.80	0.80	0.80			
Sat Flow, veh/h	1181	158	0	0	610	1068	158	5129	15			
Grp Volume(v), veh/h	49	0	0	0	0	11	920	763	838			
Grp Sat Flow(s),veh/h/ln	1339	0	0	0	0	1678	1818	1662	1823			
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.6	18.6	15.4	15.4			
Cycle Q Clear(g_c), s	3.4	0.0	0.0	0.0	0.0	0.6	18.6	15.4	15.4			
Prop In Lane	0.92		0.00	0.00		0.64	0.09		0.01			
Lane Grp Cap(c), veh/h	158	0	0	0	0	101	1452	1327	1456			
V/C Ratio(X)	0.31	0.00	0.00	0.00	0.00	0.11	0.63	0.58	0.58			
Avail Cap(c_a), veh/h	440	0	0	0	0	433	1452	1327	1456			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.5	0.0	0.0	0.0	0.0	40.0	3.7	3.4	3.4			
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.3	2.1	1.8	1.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	2.0	0.0	0.0	0.0	0.0	0.4	8.5	6.7	7.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	0.0	0.0	0.0	0.0	40.3	5.8	5.2	5.0			
LnGrp LOS	D	A	A	A	A	D	A	A	A			
Approach Vol, veh/h		49			11			2521				
Approach Delay, s/veh		42.3			40.3			5.4				
Approach LOS		D			D			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		78.2		11.8				11.8				
Change Period (Y+Rc), s		* 6.3		6.4				6.4				
Max Green Setting (Gmax), s		* 54		23.2				23.2				
Max Q Clear Time (g_c+I1), s		20.6		5.4				2.6				
Green Ext Time (p_c), s		1.5		0.1				0.0				

Intersection Summary

HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Notes

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

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔					↔↔↔		
Traffic Vol, veh/h	0	4	12	23	3	0	0	0	0	31	2268	24
Future Vol, veh/h	0	4	12	23	3	0	0	0	0	31	2268	24
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	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	57	57	57	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	5	5	5
Mvmt Flow	0	5	14	40	5	0	0	0	0	34	2520	27

Major/Minor	Minor2		Minor1				Major2			
Conflicting Flow All	-	2602	1274	1079	2615	-	-	0	0	0
Stage 1	-	2602	-	0	0	-	-	-	-	-
Stage 2	-	0	-	1079	2615	-	-	-	-	-
Critical Hdwy	-	5.5	5	5	5.5	-	-	5.4	-	-
Critical Hdwy Stg 1	-	5.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.74	5.54	-	-	-	-	-
Follow-up Hdwy	-	4.02	3.3	3.5	4.02	-	-	3.15	-	-
Pot Cap-1 Maneuver	0	52	315	371	51	0	-	-	-	-
Stage 1	0	50	-	-	-	0	-	-	-	-
Stage 2	0	-	-	220	49	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	52	315	330	51	-	-	-	-	-
Mov Cap-2 Maneuver	-	52	-	330	51	-	-	-	-	-
Stage 1	-	50	-	-	-	-	-	-	-	-
Stage 2	-	-	-	190	49	-	-	-	-	-

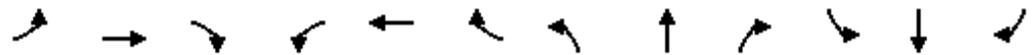
Approach	EB		WB				SB		
HCM Control Delay, s	34.9		27.9						
HCM LOS	D		D						

Minor Lane/Major Mvmt	EBLn1WBLn1		SBL	SBT	SBR
Capacity (veh/h)	139	202	-	-	-
HCM Lane V/C Ratio	0.135	0.226	-	-	-
HCM Control Delay (s)	34.9	27.9	-	-	-
HCM Lane LOS	D	D	-	-	-
HCM 95th %tile Q(veh)	0.5	0.8	-	-	-

Appendix E – Total Traffic Conditions Analyses

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

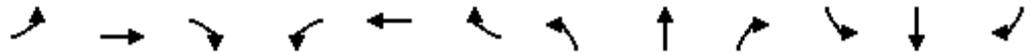
09/17/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕↕				
Traffic Volume (vph)	38	14	0	0	2	17	22	1512	4	0	0	0
Future Volume (vph)	38	14	0	0	2	17	22	1512	4	0	0	0
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	0.91	0.91	0.91	1.00	1.00	1.00
Fr t					0.878							
Flt Protected		0.965						0.999				
Satd. Flow (prot)	0	1798	0	0	1635	0	0	4935	0	0	0	0
Flt Permitted		0.764						0.999				
Satd. Flow (perm)	0	1423	0	0	1635	0	0	4935	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					23			1				
Link Speed (mph)		25			25			30				30
Link Distance (ft)		357			130			472				520
Travel Time (s)		9.7			3.5			10.7				11.8
Peak Hour Factor	0.58	0.58	0.58	0.63	0.63	0.63	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	66	24	0	0	3	27	23	1609	4	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	30	0	0	1636	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	30			30		20	30				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	30			30		20	30				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0		7.0	7.0				
Minimum Split (s)	29.4	29.4			29.4		24.3	24.3				
Total Split (s)	33.0	33.0			33.0		57.0	57.0				
Total Split (%)	36.7%	36.7%			36.7%		63.3%	63.3%				
Maximum Green (s)	26.6	26.6			26.6		50.7	50.7				

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

09/17/2019

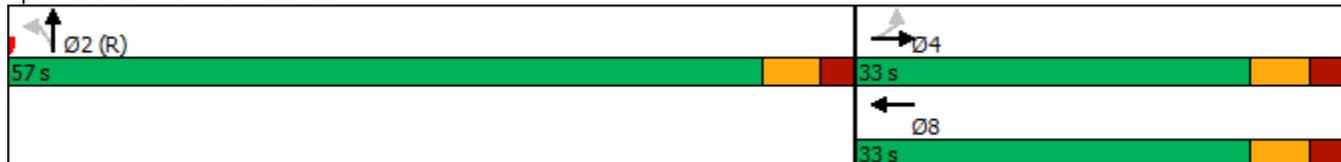


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	2.4	2.4			2.4		2.3	2.3				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		6.4			6.4			6.3				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5			2.5		1.0	1.0				
Recall Mode	None	None			None		C-Max	C-Max				
Walk Time (s)	5.0	5.0			5.0		7.0	7.0				
Flash Dont Walk (s)	18.0	18.0			18.0		9.0	9.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		10.7			10.7			70.5				
Actuated g/C Ratio		0.12			0.12			0.78				
v/c Ratio		0.53			0.14			0.42				
Control Delay		48.1			18.0			4.8				
Queue Delay		0.0			0.0			0.0				
Total Delay		48.1			18.0			4.8				
LOS		D			B			A				
Approach Delay		48.1			18.0			4.8				
Approach LOS		D			B			A				
Queue Length 50th (ft)		49			4			106				
Queue Length 95th (ft)		57			16			164				
Internal Link Dist (ft)		277			50			392			440	
Turn Bay Length (ft)												
Base Capacity (vph)		420			499			3868				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.21			0.06			0.42				

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 66 (73%), Referenced to phase 2:NBTL and 6:, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 7.2
 Intersection Capacity Utilization 49.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 3: Collins Ave. & 90th St.



HCM 6th Signalized Intersection Summary

3: Collins Ave. & 90th St.

09/17/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗↘				
Traffic Volume (veh/h)	38	14	0	0	2	17	22	1512	4	0	0	0
Future Volume (veh/h)	38	14	0	0	2	17	22	1512	4	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1900	1826	1900			
Adj Flow Rate, veh/h	66	24	0	0	3	27	23	1609	4			
Peak Hour Factor	0.58	0.58	0.58	0.63	0.63	0.63	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	0	5	0			
Cap, veh/h	148	38	0	0	14	129	54	4020	10			
Arrive On Green	0.09	0.09	0.00	0.00	0.09	0.09	0.77	0.77	0.77			
Sat Flow, veh/h	877	430	0	0	161	1449	70	5224	13			
Grp Volume(v), veh/h	90	0	0	0	0	30	597	495	544			
Grp Sat Flow(s),veh/h/ln	1307	0	0	0	0	1610	1822	1662	1823			
Q Serve(g_s), s	4.8	0.0	0.0	0.0	0.0	1.6	10.1	8.8	8.8			
Cycle Q Clear(g_c), s	6.3	0.0	0.0	0.0	0.0	1.6	10.1	8.8	8.8			
Prop In Lane	0.73		0.00	0.00		0.90	0.04		0.01			
Lane Grp Cap(c), veh/h	186	0	0	0	0	144	1402	1279	1403			
V/C Ratio(X)	0.48	0.00	0.00	0.00	0.00	0.21	0.43	0.39	0.39			
Avail Cap(c_a), veh/h	492	0	0	0	0	476	1402	1279	1403			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	40.5	0.0	0.0	0.0	0.0	38.0	3.6	3.4	3.4			
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.0	0.5	0.9	0.9	0.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	3.6	0.0	0.0	0.0	0.0	1.1	5.3	4.2	4.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	0.0	0.0	0.0	0.0	38.6	4.5	4.3	4.2			
LnGrp LOS	D	A	A	A	A	D	A	A	A			
Approach Vol, veh/h		90			30			1636				
Approach Delay, s/veh		42.0			38.6			4.3				
Approach LOS		D			D			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		75.6		14.4				14.4				
Change Period (Y+Rc), s		* 6.3		6.4				6.4				
Max Green Setting (Gmax), s		* 51		26.6				26.6				
Max Q Clear Time (g_c+I1), s		12.1		8.3				3.6				
Green Ext Time (p_c), s		0.9		0.2				0.0				
Intersection Summary												
HCM 6th Ctrl Delay				6.9								
HCM 6th LOS				A								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th TWSC
6: Harding Ave. & 90th St.

09/17/2019

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻						↻↻↻	
Traffic Vol, veh/h	0	3	32	23	5	0	0	0	0	36	2375	23
Future Vol, veh/h	0	3	32	23	5	0	0	0	0	36	2375	23
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	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	58	58	58	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	5	5	5
Mvmt Flow	0	4	44	40	9	0	0	0	0	39	2582	25

Major/Minor	Minor2		Minor1			Major2			
Conflicting Flow All	-	2673	1304	1113	2685	-	0	0	0
Stage 1	-	2673	-	0	0	-	-	-	-
Stage 2	-	0	-	1113	2685	-	-	-	-
Critical Hdwy	-	5.5	5	5	5.5	-	5.4	-	-
Critical Hdwy Stg 1	-	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.74	5.54	-	-	-	-
Follow-up Hdwy	-	4.02	3.3	3.5	4.02	-	3.15	-	-
Pot Cap-1 Maneuver	0	47	306	359	47	0	-	-	-
Stage 1	0	46	-	-	-	0	-	-	-
Stage 2	0	-	-	210	45	0	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	-	47	306	287	47	-	-	-	-
Mov Cap-2 Maneuver	-	47	-	287	47	-	-	-	-
Stage 1	-	46	-	-	-	-	-	-	-
Stage 2	-	-	-	164	45	-	-	-	-

Approach	EB		WB		SB	
HCM Control Delay, s	27.4		40			
HCM LOS	D		E			

Minor Lane/Major Mvmt	EBLn1WBLn1		SBL	SBT	SBR
Capacity (veh/h)	208	150	-	-	-
HCM Lane V/C Ratio	0.231	0.322	-	-	-
HCM Control Delay (s)	27.4	40	-	-	-
HCM Lane LOS	D	E	-	-	-
HCM 95th %tile Q(veh)	0.9	1.3	-	-	-

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑	↔	
Traffic Vol, veh/h	19	3	0	21	8	0
Future Vol, veh/h	19	3	0	21	8	0
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	58	58	63	63	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	5	0	33	9	0

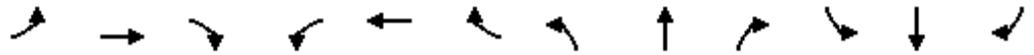
Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	69
Stage 1	-	-	-	-	36
Stage 2	-	-	-	-	33
Critical Hdwy	-	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	-	-	3.518
Pot Cap-1 Maneuver	-	-	0	-	936
Stage 1	-	-	0	-	986
Stage 2	-	-	0	-	989
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	936
Mov Cap-2 Maneuver	-	-	-	-	936
Stage 1	-	-	-	-	986
Stage 2	-	-	-	-	989

Approach	EB	WB	NB
HCM Control Delay, s	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	936	-	-	-
HCM Lane V/C Ratio	0.009	-	-	-
HCM Control Delay (s)	8.9	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Lanes, Volumes, Timings
3: Collins Ave. & 90th St.

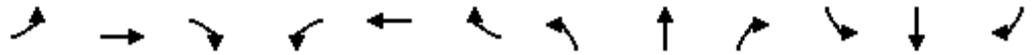
09/17/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕↕				
Traffic Volume (vph)	32	1	0	0	3	4	75	2239	5	0	0	0
Future Volume (vph)	32	1	0	0	3	4	75	2239	5	0	0	0
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	0.91	0.91	0.91	1.00	1.00	1.00
Frt					0.919							
Flt Protected		0.953						0.998				
Satd. Flow (prot)	0	1775	0	0	1712	0	0	4930	0	0	0	0
Flt Permitted		0.724						0.998				
Satd. Flow (perm)	0	1349	0	0	1712	0	0	4930	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4			1				
Link Speed (mph)		25			25			30				30
Link Distance (ft)		357			140			472				520
Travel Time (s)		9.7			3.8			10.7				11.8
Peak Hour Factor	0.71	0.71	0.71	0.67	0.67	0.67	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	45	1	0	0	4	6	82	2434	5	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	10	0	0	2521	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (ft)	20	30			30		20	30				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	20	30			30		20	30				
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0		7.0	7.0				
Minimum Split (s)	29.4	29.4			29.4		24.3	24.3				
Total Split (s)	29.6	29.6			29.6		60.4	60.4				
Total Split (%)	32.9%	32.9%			32.9%		67.1%	67.1%				
Maximum Green (s)	23.2	23.2			23.2		54.1	54.1				

HCM 6th Signalized Intersection Summary
 3: Collins Ave. & 90th St.

09/17/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗↘				
Traffic Volume (veh/h)	32	1	0	0	3	4	75	2239	5	0	0	0
Future Volume (veh/h)	32	1	0	0	3	4	75	2239	5	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1900	1826	1900			
Adj Flow Rate, veh/h	45	1	0	0	4	6	82	2434	5			
Peak Hour Factor	0.71	0.71	0.71	0.67	0.67	0.67	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	0	5	0			
Cap, veh/h	152	3	0	0	40	59	130	4106	9			
Arrive On Green	0.06	0.06	0.00	0.00	0.06	0.06	0.80	0.80	0.80			
Sat Flow, veh/h	1249	44	0	0	675	1013	162	5130	11			
Grp Volume(v), veh/h	46	0	0	0	0	10	920	763	838			
Grp Sat Flow(s),veh/h/ln	1293	0	0	0	0	1688	1818	1662	1824			
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.5	18.4	15.3	15.3			
Cycle Q Clear(g_c), s	3.3	0.0	0.0	0.0	0.0	0.5	18.4	15.3	15.3			
Prop In Lane	0.98		0.00	0.00		0.60	0.09		0.01			
Lane Grp Cap(c), veh/h	155	0	0	0	0	99	1455	1330	1460			
V/C Ratio(X)	0.30	0.00	0.00	0.00	0.00	0.10	0.63	0.57	0.57			
Avail Cap(c_a), veh/h	436	0	0	0	0	435	1455	1330	1460			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.6	0.0	0.0	0.0	0.0	40.1	3.6	3.3	3.3			
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.3	2.1	1.8	1.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	1.9	0.0	0.0	0.0	0.0	0.4	8.3	6.5	7.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	0.0	0.0	0.0	0.0	40.4	5.7	5.1	5.0			
LnGrp LOS	D	A	A	A	A	D	A	A	A			
Approach Vol, veh/h		46			10			2521				
Approach Delay, s/veh		42.4			40.4			5.3				
Approach LOS		D			D			A				
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		78.3		11.7				11.7				
Change Period (Y+Rc), s		* 6.3		6.4				6.4				
Max Green Setting (Gmax), s		* 54		23.2				23.2				
Max Q Clear Time (g_c+l1), s		20.4		5.3				2.5				
Green Ext Time (p_c), s		1.5		0.1				0.0				
Intersection Summary												
HCM 6th Ctrl Delay				6.1								
HCM 6th LOS				A								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th TWSC
6: Harding Ave. & 90th St.

09/17/2019

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻					↻↻↻		
Traffic Vol, veh/h	0	4	12	23	3	0	0	0	0	29	2268	24
Future Vol, veh/h	0	4	12	23	3	0	0	0	0	29	2268	24
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	-	-	16974	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	57	57	57	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	5	5	5
Mvmt Flow	0	5	14	40	5	0	0	0	0	32	2520	27

Major/Minor	Minor2		Minor1			Major2			
Conflicting Flow All	-	2598	1274	1075	2611	-	0	0	0
Stage 1	-	2598	-	0	0	-	-	-	-
Stage 2	-	0	-	1075	2611	-	-	-	-
Critical Hdwy	-	5.5	5	5	5.5	-	5.4	-	-
Critical Hdwy Stg 1	-	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.74	5.54	-	-	-	-
Follow-up Hdwy	-	4.02	3.3	3.5	4.02	-	3.15	-	-
Pot Cap-1 Maneuver	0	52	315	373	51	0	-	-	-
Stage 1	0	50	-	-	-	0	-	-	-
Stage 2	0	-	-	222	50	0	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	52	315	332	51	-	-	-	-
Mov Cap-2 Maneuver	-	52	-	332	51	-	-	-	-
Stage 1	-	50	-	-	-	-	-	-	-
Stage 2	-	-	-	192	50	-	-	-	-

Approach	EB		WB		SB	
HCM Control Delay, s	34.9		27.8			
HCM LOS	D		D			

Minor Lane/Major Mvmt	EBLn1WBLn1		SBL	SBT	SBR
Capacity (veh/h)	139	203	-	-	-
HCM Lane V/C Ratio	0.135	0.225	-	-	-
HCM Control Delay (s)	34.9	27.8	-	-	-
HCM Lane LOS	D	D	-	-	-
HCM 95th %tile Q(veh)	0.5	0.8	-	-	-

HCM 6th TWSC
12: Project Drive & 90th St.

07/02/2019

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↑		↙					↗
Traffic Vol, veh/h	0	9	7	0	8	0	5	0	0	0	0	0
Future Vol, veh/h	0	9	7	0	8	0	5	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	0	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	71	71	67	67	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	13	10	0	12	0	5	0	0	0	0	0

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	12	0	0	30
Stage 1	-	-	-	18
Stage 2	-	-	-	12
Critical Hdwy	4.12	-	-	7.12
Critical Hdwy Stg 1	-	-	-	6.12
Critical Hdwy Stg 2	-	-	-	6.12
Follow-up Hdwy	2.218	-	-	3.518
Pot Cap-1 Maneuver	1607	-	0	979
Stage 1	-	-	0	1001
Stage 2	-	-	0	1009
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1607	-	-	979
Mov Cap-2 Maneuver	-	-	-	979
Stage 1	-	-	-	1001
Stage 2	-	-	-	1009

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	8.7	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBT	SBLn1
Capacity (veh/h)	979	1607	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-	-
HCM Control Delay (s)	8.7	0	-	-	-	0
HCM Lane LOS	A	A	-	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	-	-

Appendix F – Site Plan

Appendix G – Queuing Analysis

Lanes, Volumes, Timings
12: Project Drive & 90th St.

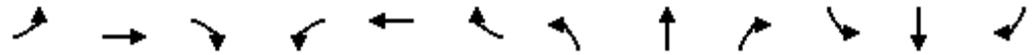
07/02/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (vph)	20	0	10	5	1	0	10	0	0	0	0	23
Future Volume (vph)	20	0	10	5	1	0	10	0	0	0	0	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		75	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850									0.865
Flt Protected		0.950			0.958			0.950				
Satd. Flow (prot)	0	1770	1583	0	1785	0	0	1770	0	0	1611	0
Flt Permitted		0.752			0.852			0.741				
Satd. Flow (perm)	0	1401	1583	0	1587	0	0	1380	0	0	1611	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)												1080
Link Speed (mph)		25			25			25				30
Link Distance (ft)		140			30			123				156
Travel Time (s)		3.8			0.8			3.4				3.5
Peak Hour Factor	0.92	0.71	0.71	0.67	0.67	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	0	14	7	1	0	11	0	0	0	0	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	14	0	8	0	0	11	0	0	25	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA				NA
Protected Phases		2			6			8				4
Permitted Phases	2		2	6			8			4		
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	30.0	30.0	30.0	30.0	30.0		180.0	180.0		180.0	180.0	
Total Split (%)	14.3%	14.3%	14.3%	14.3%	14.3%		85.7%	85.7%		85.7%	85.7%	
Maximum Green (s)	25.5	25.5	25.5	25.5	25.5		175.5	175.5		175.5	175.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	
Total Lost Time (s)		4.5	4.5		4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		25.5	25.5		25.5			175.5			175.5	
Actuated g/C Ratio		0.12	0.12		0.12			0.84			0.84	
v/c Ratio		0.13	0.07		0.04			0.01			0.02	

Lanes, Volumes, Timings
 12: Project Drive & 90th St.

07/02/2019

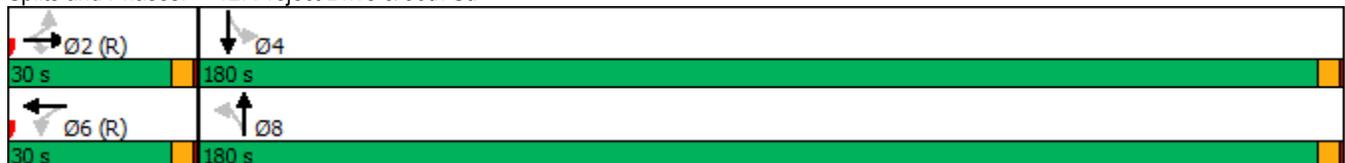


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		84.7	83.1		82.4			2.9			0.0	
Queue Delay		18.9	9.0		0.0			0.0			0.0	
Total Delay		103.5	92.1		82.4			2.9			0.0	
LOS		F	F		F			A			A	
Approach Delay		99.1			82.4			2.9				
Approach LOS		F			F			A				
Queue Length 50th (ft)		28	18		10			2			0	
Queue Length 95th (ft)		48	35		23			6			0	
Internal Link Dist (ft)		60			1			43			76	
Turn Bay Length (ft)			75									
Base Capacity (vph)		170	192		192			1153			1523	
Starvation Cap Reductn		133	156		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.59	0.39		0.04			0.01			0.02	

Intersection Summary

Area Type: Other
 Cycle Length: 210
 Actuated Cycle Length: 210
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 45
 Control Type: Pretimed
 Maximum v/c Ratio: 0.13
 Intersection Signal Delay: 53.2
 Intersection Capacity Utilization 23.8%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service A

Splits and Phases: 12: Project Drive & 90th St.



Queuing and Blocking Report
Baseline

07/02/2019

Intersection: 3: Collins Ave. & 90th St.

Movement	EB	WB	NB	NB	NB
Directions Served	LT	TR	LT	T	TR
Maximum Queue (ft)	94	53	262	244	147
Average Queue (ft)	30	14	106	74	39
95th Queue (ft)	72	46	244	183	109
Link Distance (ft)	325	59	443	443	443
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Harding Ave. & 90th St.

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	32	72
Average Queue (ft)	15	24
95th Queue (ft)	38	55
Link Distance (ft)	316	325
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Harding Ave.

Movement	EB	WB	SB	SB	SB
Directions Served	LTR	LT	LT	T	TR
Maximum Queue (ft)	52	89	260	212	137
Average Queue (ft)	14	29	121	72	39
95th Queue (ft)	43	67	269	178	115
Link Distance (ft)	288	180	197	197	197
Upstream Blk Time (%)			2	0	
Queuing Penalty (veh)			0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: Project Drive & 90th St.

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	72	53	17	22	31
Average Queue (ft)	23	17	2	2	2
95th Queue (ft)	62	46	12	12	14
Link Distance (ft)	59		2	81	128
Upstream Blk Time (%)	0	0	0		
Queuing Penalty (veh)	0	0	0		
Storage Bay Dist (ft)		75			
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	0	0			

Network Summary

Network wide Queuing Penalty: 0

**COPIES OF SITE
PLANS ARE
AVAILABLE AT
THE TOWN
CLERK'S OFFICE.**

PLEASE CALL 305-861-4863 FOR MORE
INFORMATION OR EMAIL TOWN
CLERK SANDRA NOVOA AT
SNOVOA@TOWNOFSURFSIDEFL.GOV

To: Members of the Planning & Zoning Board
From: Sarah Sinatra Gould, AICP, Town Planner
Date: October 24, 2019
Subject: Limitations on Hotel Uses in H40

The Town Commission directed staff to prepare an ordinance limiting hotels in the H40 district south of 93rd Street. The attached ordinance does the following:

1. Prohibits ballrooms and banquet facilities.
2. Requires hotels to have 300 feet of separation between hotels.
3. Limits meeting or event rooms to 15 square feet per the number of hotel rooms with a capacity of no more than 100 people.
4. Exempts properties with previous approvals and those with Historic Designation per Miami-Dade County except relating to wall frontage along Collins Avenue.
5. Requires continuous wall frontage to be no greater than 150 feet in length without exceptions.
6. Prohibits parking as a standalone structure.

The commission also requested a definition of a boutique hotel. Staff attempted to create a new use of a boutique hotel; however, it was challenging to allow this new use while prohibiting the existing hotel use within one zoning district. The issue is that since north and south of 93rd Street are all within the H40 district, the allowance of a primary use in one portion of the district but not the other was not easily understandable. Instead, staff followed the existing format of the code, which provides footnotes for uses and limitations. The limitations described in the ordinance function as a boutique hotel due to the limitations on ballrooms, the separation of hotels, the limits on event space and the maximum wall frontage.

This ordinance was approved on first reading by the Town Commission.

ORDINANCE NO. 19 - _____

AN ORDINANCE OF THE TOWN COMMISSION OF THE TOWN OF SURFSIDE, FLORIDA AMENDING THE TOWN OF SURFSIDE CODE OF ORDINANCES BY AMENDING SECTION 90-41, “REGULATED USES”, TO ESTABLISH LIMITATIONS ON HOTELS IN THE H-40 ZONING DISTRICT SOUTH OF 93RD STREET INCLUDING: A PROHIBITION ON BALLROOMS AND BANQUET FACILITIES AS HOTEL ACCESSORIES; PROVIDING DISTANCE SEPARATION STANDARDS BETWEEN HOTELS; PROVIDING LIMITATIONS ON EVENT AND/OR MEETING ROOM SPACE; PROHIBITING STRUCTURED PARKING FACILITIES, AND REQUIRING THAT PARKING STRUCTURES INCORPORATE HOTEL AND/OR ACCESSORY USES; CREATING EXEMPTIONS FOR EXISTING AND APPROVED DEVELOPMENTS, AND FOR HISTORICALLY DESIGNATED PROPERTIES; AND AMENDING SECTION 90-51 “MAXIMUM FRONTAGE OF BUILDINGS AND FAÇADE ARTICULATIONS” TO ESTABLISH CONTINUOUS WALL FRONTAGES FOR HOTELS IN THE H40 ZONING DISTRICT SOUTH OF 93 STREET; PROVIDING FOR SEVERABILITY; PROVIDING FOR INCLUSION IN THE CODE; PROVIDING FOR CONFLICTS; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Article VIII, Section 2 of the Florida Constitution, and Chapter 166, Florida Statutes, provide municipalities the authority to exercise any power for municipal purposes, except where prohibited by law, and to adopt ordinances in furtherance of such authority; and

WHEREAS, the Town Commission of the Town of Surfside (“Town Commission”) finds it periodically necessary to amend its Code of Ordinances and Land Development Code (“Code”) in order to update regulations and procedures for maintain consistency with state law and to implement municipal goals and objectives; and

WHEREAS, at a joint special meeting of the Town Commission and Planning & Zoning Board held on September 19, 2019, and in order to address impacts from large-scale hotels with certain accessory uses utilized by the general public, the Town Commission directed staff to evaluate and prepare an ordinance establishing limitations on hotels within the H40 District south of 93rd Street and to address continuous wall frontages of such hotels ; and

WHEREAS, the Planning and Zoning Board, as the local planning agency for the Town, held its hearing on the proposed amendment on _____, 2019 with due public notice and input; and

WHEREAS, the Town Commission held its first public hearing on October 10, 2019 and recommended _____ of the proposed amendments to the Code of Ordinances having complied with the notice requirements by the Florida Statutes; and

WHEREAS, the Town Commission has conducted a second duly noticed public hearing on these regulations as required by law on _____, 2019 and further finds the proposed change to the Code necessary and in the best interest of the community.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COMMISSION OF THE TOWN OF SURFSIDE, FLORIDA¹:

Section 1. Recitals. The above Recitals are true and correct and are incorporated herein by this reference:

Section 2. Town Code Amended. Section 90-41. – “Regulated Uses” of the Surfside Town Code of Ordinances is hereby amended and shall read as follows¹:

Sec. 90-41. Regulated uses.

Applicability and validity of tables. Nothing shall be used to misconstrue or reinterpret the provisions, limitations and allowances made here in.

- (a) *Purpose.* Permitted uses are considered to be fundamentally appropriate within the district in which they are located and are deemed to be consistent with the comprehensive plan. These uses are permitted as of right, subject to the required permits and procedures described in this section. Permitted uses require final site plan review and approval for compliance with the standards applicable to a particular permitted use as provided in this zoning code.
- (b) *Permits required.* Except as explicitly provided herein, no use designated as a permitted use in this chapter shall be established until after the person proposing such use has applied for and received all required development permits.
- (c) *Table—Regulated uses.*

	H30A	H30B	H30C	H40	H120	SD-B40
Lodging uses						
Hotel	-	-		P(7, <u>31, 32, 33, 34</u>)	P(7)	-

Coding: ~~Strikethrough words~~ are deletions to the existing words. Underlined words are additions to the existing words. Changes between first and second reading are indicated with highlighted double strikethrough and double underline.

Suite-Hotel	-	-		P(7, <u>31, 32, 33, 34</u>)	P(7)	-
Retail & General Commercial Uses						
Structured parking facility	-	-	CU(23)	CU(23)	CU(23)	-
Accessory Uses						
Structured parking facility				<u>P(35)</u>		

Key: P: Permitted Blank: Not Permitted (#): Refer to Notes CU: Conditional Use

(d) *Uses table notes.*

* * *

(31) H40 hotel properties south of 93rd Street: may provide a beauty/personal services, restaurant, coffee shop, bar or lounge, gift and sundry shops and health spas provided, however, that such facilities may be entered only from the inside of the structure and there shall be no window or evidence of such facilities from outside the hotel. Ballrooms and banquet facilities shall be prohibited.

(32) H40 hotel properties south of 93rd Street: Hotels shall be separated from other hotels by a minimum of 300 feet measured from property line to property line.

(33) Meeting rooms in hotels on H40 properties south of 93rd Street: event and/or meeting room space shall be based on no greater than 15 square feet per the total number of rooms of the hotel and shall have a capacity of no greater than 100 people.

~~(35)~~(34) H40 hotel properties south of 93rd Street: Standalone structured parking facilities shall be prohibited. Accessory uses shall be integrated into the parking facility.

~~(34)~~(35) H40 hotel properties south of 93rd Street: Exemptions:

All properties designated by the Miami-Dade County Historic and Preservation Board and all properties that legally received Development Orders and development rights as of the date of adoption of this ordinance (November __, 2019) shall be are exempt from the

Coding: ~~Strikethrough words~~ are deletions to the existing words. Underlined words are additions to the existing words. Changes between first and second reading are indicated with highlighted double strikethrough and double underline.

~~requirements and restrictions in (31) to (34) of this section. this ordinance and remain in full effect.~~

Section 3. Town Code Amended. Section 90-51. – “Maximum frontage of buildings and façade articulations” of the Surfside Town Code of Ordinances is hereby amended and shall read as follows¹:

Sec. 90-51. - Maximum frontage of buildings and facade articulations.

90-51.1 Continuous wall frontages shall not exceed 150 feet in the H120 district. Continuous wall frontages in the H40 and H30C district shall be articulated as follows:

- (1) Continuous wall frontages in the H120 district shall not exceed 150 feet in length.
- (2) Continuous wall frontages in the H30C zoning district shall not exceed 90 feet in length subject to the following:
 - a. There shall be a minimum building separation of 12 feet between buildings on the same property.
 - b. The building facades facing each side of the separation area shall provide a minimum of ten percent wall openings per façade and a minimum two-foot area for plantings along each façade.
 - c. Buildings may have a one-story (fifteen feet in height or less) connecting floor or breezeway provided such connection is set back a minimum of:
 1. Fifteen feet from the front building line if located on the ground floor;
 2. Twenty-five feet from the front building line if located on the second floor; or
 3. Thirty-five feet from the front building line if located on the third floor.
- (3) Continuous wall frontages in the H40 zoning district shall not exceed 150 feet in length, subject to the following:
 - a. There shall be a minimum building separation of 17 feet between buildings on the same property.
 - b. The building facades facing each side of the separation area shall provide a minimum of ten percent wall openings per façade and a minimum two-foot area for plantings along each façade.
 - c. Buildings may have a one-story (15 feet in height or less) connecting floor or breezeway provided such connection is set back a minimum of:
 1. Fifteen feet from the front building line if located on the ground floor;
 2. Twenty-five feet from the front building line if located on the second floor; or
 3. Thirty-five feet from the front building line if located on the third floor.

Coding: ~~Strikethrough words~~ are deletions to the existing words. Underlined words are additions to the existing words. Changes between first and second reading are indicated with highlighted double strikethrough and double underline.

d. This subsection (3) shall not be applicable to hotels in the H40 zoning district south of 93rd Street, which shall be governed by subsection (8) below.

- (4) In the event property is developed with more than 150 linear feet of lot frontage facing Harding Avenue and an equal or greater lot frontage facing Collins Avenue, no wall frontage facing Harding Avenue or Collins Avenue shall exceed 150 feet in length, subject to the following:
- a. There shall be a minimum building separation of 17 feet between buildings on the same property and the building separation shall run from Harding Avenue directly through to Collins Avenue.
 - b. The building facades facing each side of the separation area shall provide a minimum of ten percent wall openings per façade and a minimum two-foot area for plantings along each façade.
 - c. Buildings may have a one-story (15 feet in height or less) connecting floor or breezeway provided such connection is set back a minimum of:
 1. Fifteen feet from the front building line if located on the ground floor;
 2. Twenty-five feet from the front building line if located on the 2nd floor; or
 3. Thirty-five feet from the front building line if located on the third floor.
- (5) In lieu of providing all building separations required in the H30C and H40 districts, a building may provide one or more building separation equivalency areas as follows:
- a. The total sum of the provided building separation equivalency areas shall not be less than the sum of the total building separation areas that would be required if the separations required in subsections (2), (3), or (4) above, as applicable, were instituted.
 - b. Building separation equivalency areas shall be no more than 250 feet apart.
 - c. Any building separation for a property with more than 150 linear feet of lot frontage on both Harding Avenue and Collins Avenue shall run from Harding Avenue directly through to Collins Avenue.
 - d. The building facades facing each side of the separation area shall provide a minimum of ten percent wall openings per façade and a minimum four-foot area for plantings along each façade.
 - e. Buildings may have a one-story (15 feet in height or less) connecting floor or breezeway provided such connection is set back a minimum of:
 1. Fifteen feet from the front building line if located on the ground floor;
 2. Twenty-five feet from the front building line if located on the second floor; or
 3. Thirty-five feet from the front building line if located on the third floor.

Coding: ~~Strikethrough words~~ are deletions to the existing words. Underlined words are additions to the existing words. Changes between first and second reading are indicated with highlighted double strikethrough and double underline.

- (6) Structured parking garages: see section 90-49.4.
- (7) Buildings within a district designated as a historic district per Miami-Dade County shall be excluded from these requirements.
- (8) Continuous wall frontage for hotels in the H40 zoning district south of 93rd Street shall not exceed 150 feet in length.

* * *

Section 4. Severability. If any section, sentence, clause or phrase of this ordinance is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way affect the validity of the remaining portions of this ordinance.

Section 5. Inclusion in the Code. It is the intention of the Town Commission, and it is hereby ordained that the provisions of this Ordinance shall become and made a part of the Town of Surfside Code of Ordinances, that the sections of this Ordinance may be renumbered or re-lettered to accomplish such intentions; and the word “Ordinance” may be changed to “Section” or other appropriate word.

Section 6. Conflicts. Any and all Ordinances and Resolutions or parts of Ordinances or Resolutions in conflict herewith are hereby repealed.

Section 7. Effective Date. This ordinance shall become effective upon adoption.

PASSED and ADOPTED on first reading this 10th day of October, 2019.

PASSED and ADOPTED on second reading this _____ day of _____, 2019.

On Final Reading Moved by: _____

On Final Reading Second by: _____

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FINAL VOTE ON ADOPTION:

Commissioner Barry Cohen _____
Commissioner Michael Karukin _____
Commissioner Tina Paul _____
Vice Mayor Daniel Gielchinsky _____
Mayor Daniel Dietch _____

Daniel Dietch, Mayor

ATTEST:

Sandra Novoa, MMC, Town Clerk

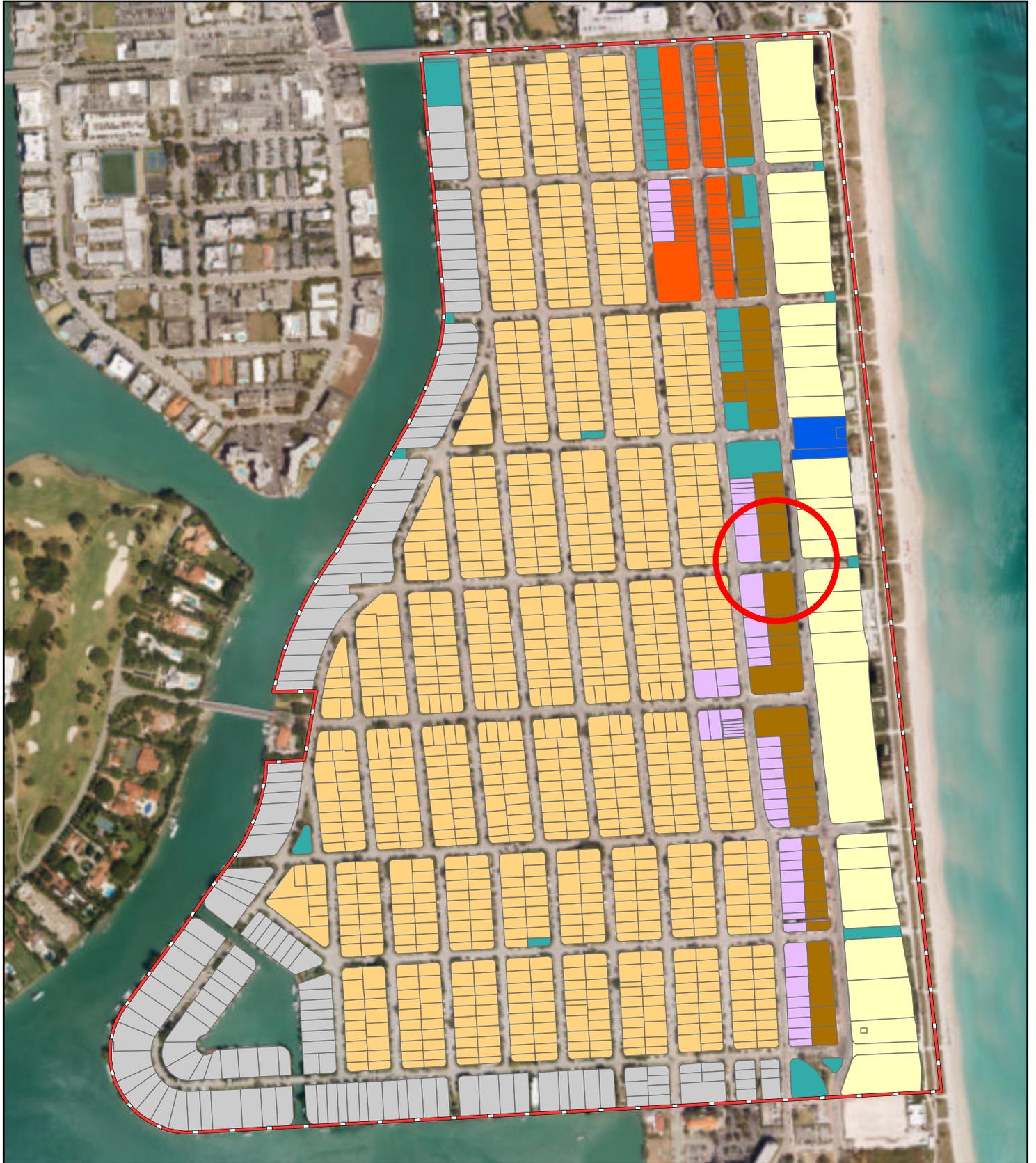
**APPROVED AS TO FORM AND LEGALITY FOR THE USE
AND BENEFIT OF THE TOWN OF SURFSIDE ONLY:**

Weiss Serota Helfman Cole and Bierman, P.A.
Town Attorney

Coding: ~~Strikethrough words~~ are deletions to the existing words. Underlined words are additions to the existing words. Changes between first and second reading are indicated with highlighted double strikethrough and double underline.



Town of Surfside Zoning Map



Legend

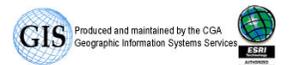
-  City Boundary
-  Community Facilities (CF)
-  Height Restriction 30ft (H30A)
-  Height Restriction 30ft (H30B)
-  Height Restriction 30ft (H30C)
-  Height Restriction 40ft (H40)
-  Height Restriction 120ft (H120)
-  Special District - Height Restriction 40ft (SD-B40)
-  Municipal Use (MU)
-  Hotel Restriction 300ft



0 150 300 600 900 1,200 Feet

1 inch = 660 feet

Print Date : September 2019





TOWN OF SURFSIDE CLIMATE CRISIS

OVERVIEW, ACTIONS TAKEN + NEXT STEPS

FIRST EDITION | SEPTEMBER 2019

TEAM

DEVELOPMENT TEAM

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INCLUDED EXHIBITS

SE.1	RESILIENT 305-SURFSIDE
SE.2	SURFSIDE-CLIMATE ACTION PLAN
SE.3	BEACH DUNE REPORT
SE.4	RESILIENCE ORDINANCES AND RESOLUTIONS LOG
SE.5	COMMUNITY ADAPTATION TOOLKIT

CALL TO ACTION

“In the short term, sea level rise is projected to be 6 to 10 inches by 2030 and 14 to 26 inches by 2060 (above the 1992 mean sea level). Sea level has risen 3 inches from 1992 to 2015. In the long term, sea level rise is projected to be 31 to 61 inches by 2100.” These are the projections of the Southeast Florida Regional Climate Change Compact’s Unified Sea Level Rise Projection for Southeast Florida.

“Human Influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gasses are the highest in history. Recent climate changes have had widespread impacts on human and natural systems.” That is the headline statement from the Synthesis Report (SYR) of the Intergovernmental Panel on Climate Change (IPCC) fifth assessment report (AR5). Climate, generally defined as the weather conditions prevailing in an area in general or over a long period, is not static and is not anticipated to be. However, it is the rapidity in the change in climate that is now creating global shocks and stresses. It is the rapidity in the change in climate that has now created a global climate crisis.

There is consensus in the global scientific data that greenhouse gas (GHG) emissions are the causal factor in the current rapidly occurring changes to the climate. The principal GHGs are Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), and fluorinated gasses such as Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. These gasses received the name ‘greenhouse gasses’ because they trap heat in the atmosphere. Global impacts will only increase in frequency and / or intensity over time if effective actions are not identified to reduce GHG levels in the atmosphere.

LEXICON OF TERMS

- Adaptation_** the process of changing to suit different conditions
- BFE_** base flood elevation
- Climate Change_** a change in global or regional climate patterns, in particular a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels
- Comprehensive Transportation_** The distribution of mobility– personal, services and goods– through a comprehensive transportation approach reduces pressure on roadway networks. A comprehensive transportation approach includes small-scale short distance services through shared bike and scooter services, public mass transient methods and adaptability to new or developing services.
- Dry Floodproofing_** for non-residential buildings, a flood mitigation technique that results in the building resisting penetration of flood water, with walls substantially impermeable to the passage of water and structural components having the capacity to resist specified loads
- Freeboarding_** in the design of a structure, the additional height that the structure is protected from flood waters above the BFE is called the freeboard.
- Mitigation_** the act of reducing how harmful, unpleasant, or bad something is
- NAVD 88_** North American Vertical Datum, 1988
- Resilience_** the capacity to recover quickly from difficulties; toughness

Retreat_ an act or process of withdrawing especially from what is difficult, dangerous, or disagreeable

Shocks_ acute, sudden, intense events that threaten a community, such as a hurricane

Sea Level Rise [SLR]_ an increase in sea level caused by a change in the volume of the world's oceans due to temperature increase, deglaciation (uncovering of glaciated land because of melting of the glacier), and ice melt.

Storm Surge_ a rising of the sea as a result of atmospheric pressure changes and wind associated with a storm

Stresses_ pressures that weaken the fabric of a community over time, such as recurrent flooding, or overtaxed or inefficient transportation or other infrastructure systems

Tidal Flooding_ the consistent occurrence of coastal saline waters collecting and impacting land areas that had historically been dry land areas, often during high tides or king tides

Wet Flood-proofing_ a flood mitigation technique designed to permit parts of the structure to intentionally flood, by equalizing hydrostatic pressures and by relying on the use of flood damage-resistant materials.

3.0 CLIMATE ASSESSMENT

REGIONAL OVERVIEW

Florida is the third largest state by population. The southeast region is recognized as the fourth largest urban area in the country (projected to be 6.5 M by 2030), is one of fastest growing regions, and is characterized by:

- Dense urban coastal development with 140 miles of shoreline,
- Flat and low-lying topography,
- Porous geology,
- Active flood management, and
- Fragile natural resources.

These characteristics create challenges in that the porous geology does not allow for protection from sea level rise just through the use of levees or seawalls, the relatively flat topography increases the area prone to flooding and subject to surge, the dense urban development limits open space and green infrastructure options, and the protections provided by offshore reefs and other marine systems are degrading due to ocean acidification.



Dredging of Tamiami Trail, 1921.

Large scale systems such as regional water storage, protection of the aquifer and potable water source, functionality of the Central and South Florida flood control system, regional beach sediment management, protection of the offshore reef system, and regional transportation and infrastructure systems require a collaborated and cooperative regional approach; which the Town is actively doing and will continue to do. Effecting changes in the building code to ensure structural integrity of the built environment to projected increases in storm strength is a state-wide and larger cooperative effort. And reducing carbon emissions is an effort to be addressed at the local, regional, state, federal and global levels.

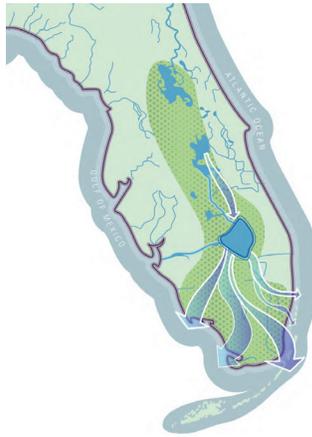
The Town does not have its own well-field, water or wastewater treatment facilities. The Town continues to coordinate with Miami-Dade on the production and transport of potable water to the Town and on the transport and treatment of wastewater



View of intricate water system providing drainage and water supply throughout southern Florida.

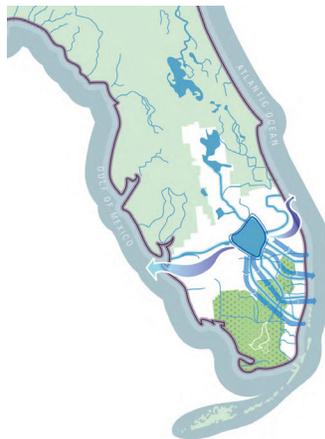
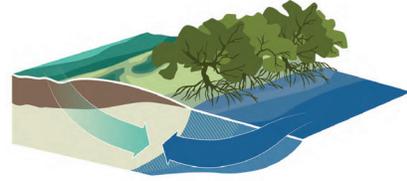
Created in 2013 the 100 Resilient Cities (100RC) program, pioneered by the Rockefeller Foundation, is dedicated to helping cities around the world become more resilient to the physical, social and economic challenges that are a growing part of the 21st century. In December of 2013 the Greater Miami and the Beaches (GM&B) area was selected in the first group of 32 cities to participate in this program. The program reference to the Greater Miami and the Beaches (GM&B), encompasses not only the Cities of Miami and Miami Beach but also includes the metropolitan areas of Miami-Dade County inclusive of Surfside. On July 8, 2019, The Rockefeller Foundation announced an \$8 million commitment to continue supporting the work of Chief Resilience Officers and member cities within the 100RC Network. GM&B recognizes the following as their regional 21st century shocks and stresses:

- Coastal / Tidal Flooding
- Hurricanes / Extreme weather events
- Inadequate Public Transportation Systems
- Infrastructure Failure
- Lack of Affordable Housing
- Poverty
- Rainfall Flooding
- Sea Level Rise / Coastal Erosion



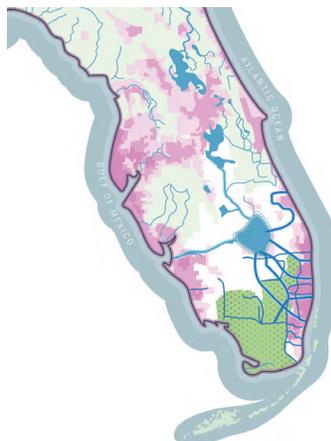
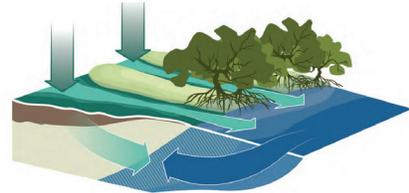
HISTORICAL FLOW

The landmass that forms Miami-Dade County was originally a flat coastal ridge bounded by the dense mangrove forests along Biscayne Bay and the broad flat expanses of Everglades wetlands. The line between land and water was blurry and in constant flux.



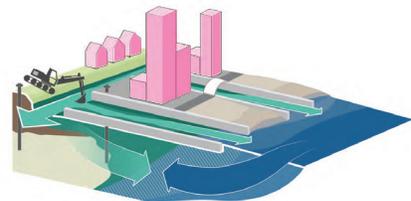
1899 -1927: DRAINING THE EVERGLADES

The US Army Corps of Engineers is given authority to regulate the navigable waterways and construction of obstructions such as dams. Approximately 225 miles of canals are dug over the next seven years to attract farm settlement and to accommodate steamboats for commerce. Later, six large drainage canals and 440 miles of smaller canals, including 47 miles of levees and 16 locks and dams are constructed to further drain the swampland, significantly lowering groundwater levels.



1970s-Present: DENSE DEVELOPMENT

The canal system effectively drained much of the wetlands in the western part of Miami-Dade County to allow population growth and infrastructure development. However, alterations in the water system have also led to a decline in water quality. Because our drinking water comes from the aquifer just below the land surface, and because a clean environment is vital to our tourism-based economy, it is essential we find ways to protect our water resources. Additionally, because so much is built so close to the water and just a few feet above sea level, there is a substantial risk of flooding.



Miami's History: *Living With Water* map series by Miami Dade County Resiliency Team, 2019.

REGIONAL OVERVIEW [cont.]

As a part of the 100 Resilient Cities initiative, the Resilient 305 Strategy (named after the highly recognized area code) was developed; this is identified as **“a living document to address resilience challenges and encourage the 305 community (GM&B) to work together to better prepare for an increasing occurrence of shocks, such as hurricanes, and infrastructure failures, as well as better mitigate stresses, such as sea level rise and sunny day flooding, crippling traffic and severe economic inequities.”** The Resilient 305 report states that “over 50 actions have been identified, developed and organized for the Resilient 305 Strategy into three overarching goal areas: Places, People, and Pathways.”

The Resilient 305 program, also referred to as R305, met with the Town and produced a document specific to Surfside identifying tools and opportunities for the Town within the framework of the R305 Strategy. On June 11, 2019 through Resolution 19-2597 the Town pledged to join, collaborate and support the implementation of the Resilient 305 strategy. The Resilient 305 Surfside document is included as an exhibit to the Climate Crisis Plan.



305 Resiliency Plan: City of Miami, Miami Beach + Miami Dade County, 2019.

3.0 CLIMATE ASSESSMENT

LOCAL IMPACT

Climate change is a global issue with regional and localized specific impacts. Due to the geophysical location and characteristics of the Town, sea level rise alone has the potential to be disruptive and destructive both physically and economically. Climate change also includes public health and socio-economic impacts. Outlined below are the projected local impacts.

3.1 Locally the changing climate:

- Will bring varying precipitation patterns increasing the potentials for drought or flood;
- Has the potential to increased storm and hurricane intensity;
- Will cause prolonged periods of high temperatures threatening vulnerable members of the community and greatly increase energy use;
- Increases sea temperatures and ocean acidification compromising the viability of the offshore protective reef systems;
- Creates conditions to introduce and increase the presence of tropical diseases that have not historically been concerns; and
- Is causing rising sea levels.

Image of historic Miami and natural ecology.





3.2 Local sea level rise challenges include:

- Intrusion into the freshwater source for potable water;
- Increases in storm surges;
- Decreasing functionality of the storm-water drainage systems;
- Intrusion into storm-water and sewer system infrastructure;
- Flooding in neighborhoods and roadways;
- Releases of contaminants, debris, or hazardous materials associated with flooding; and
- Rising ground water elevations.

3.3 Local socio-economic impacts include:

- Displacement;
- Decrease in property values and tax base;
- Increased costs to harden or replace infrastructure;
- Increases in insurance costs; and
- Loss of services and impaired access to infrastructure.

Historic images of natural barrier islands and future Miami Beach from 1919.



3.0 CLIMATE ASSESSMENT

PROJECTED SEA LEVEL RISE



Per the IPCC, Florida is one of the more vulnerable areas in the U.S. to climate change impacts. In recognition of these impacts Broward, Palm Beach, Miami-Dade and Monroe Counties formed the Southeast Florida Regional Climate Change Compact (Compact) in 2009. The Compact coordinates mitigation and adaptation activities; provides valuable resources and data; and provides a substantive voice to jointly advocate for state and federal policies and funding. The Compact has developed the Regional Climate Action Plan (RCAP) and has defined regional climate and community indicators based on local, state, and federally produced data. The Compact produced the 2015 update of the Unified Sea Level Rise Projection for the Southeast Florida compact counties inclusive of Surfside.

Percentage of adults per county who are at least somewhat worried about global warming

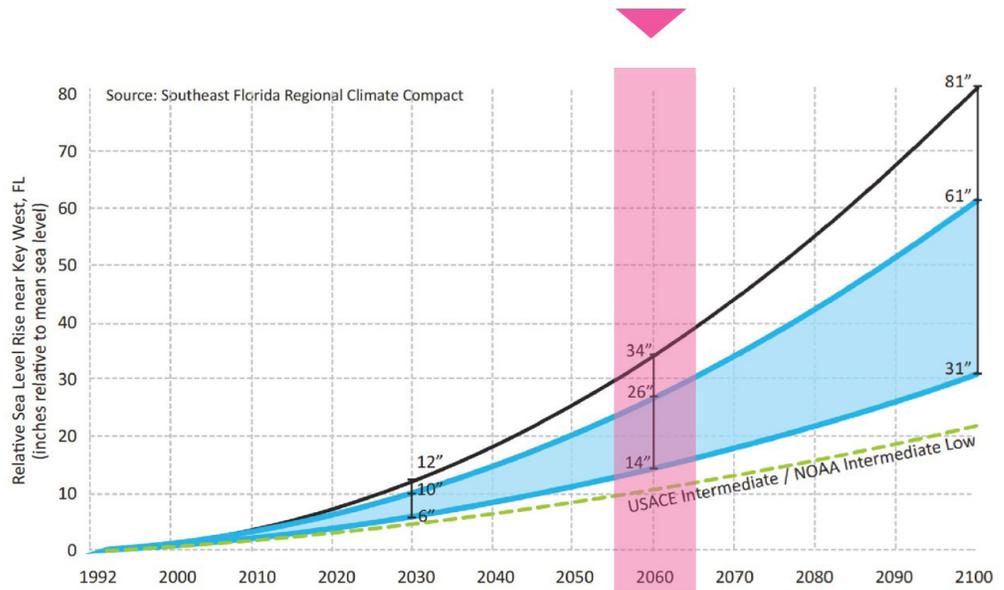


Sea Level Rise and Global Warning awareness mapped by Southeast Florida Regional Compact.

The updated report restated that the “objective of the unified sea level rise projection is for use by the Climate Compact Counties and partners for planning purposes to aid in understanding of potential vulnerabilities and to provide a basis for developing risk informed adaptation strategies for the region.” The unified sea level rise projection includes three curves, in descending order, the National Aeronautics and Space Administration (NOAA) High Curve, the U.S. Army Corps of Engineers (USACE) High Curve and a curve corresponding to the median of the IPCC Fifth Assessment Report. For critical infrastructure projects with design lives in excess of 50 years, use of the upper curve is recommended. The NOAA Jet Propulsion Laboratory (2015) has reported the average global sea level has risen almost 3 inches between 1992 and 2015 based on satellite measurements. Sea level rise in South Florida has been of similar magnitude over the same period (NOAA, 2015) but is anticipated to outpace the global average due to ongoing variations in the Florida currents and Gulf Stream.

To restate the report findings, **“In the short term, sea level rise is projected to be 6 to 10 inches by 2030 and 14 to 26 inches by 2060 (above the 1992 mean sea level). Sea level has risen 3 inches from 1992 to 2015. In the long term, sea level rise is projected to be 31 to 61 inches by 2100.”**

We will be dealing with 2 feet of sea level rise by approximately 2060



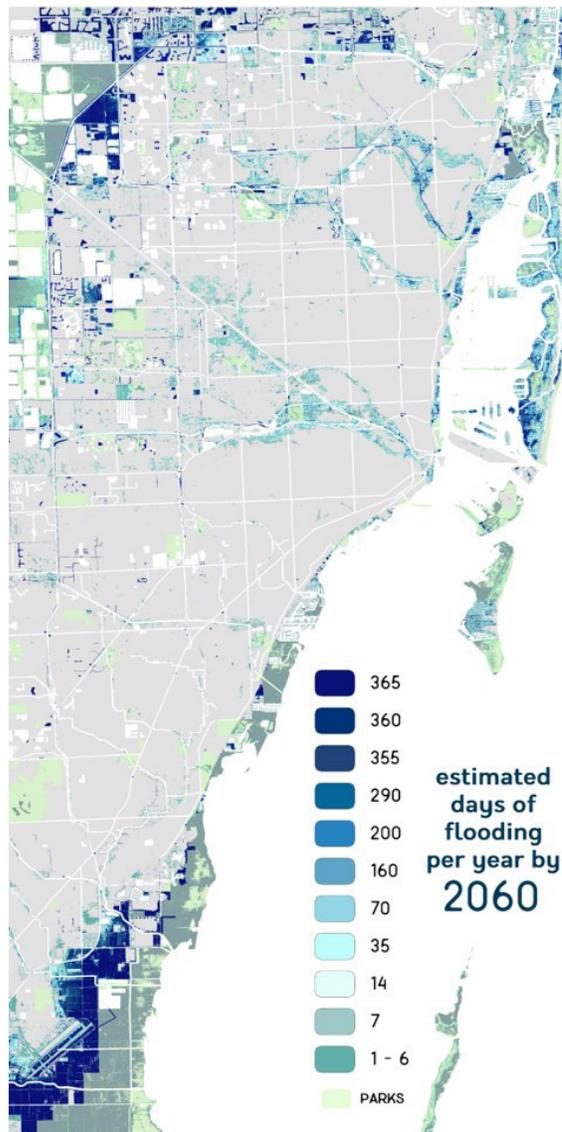
Southeast Florida Regional Compact Projections of Sea Level Rise.

It is the intent of the Compact to update the sea level rise projections every five to seven years, to continuously aid the Counties and the Cities of the Southeast region in preparation, mitigation and adaptation planning.

3.0 CLIMATE ASSESSMENT

PROJECTED SEA LEVEL RISE [cont.]

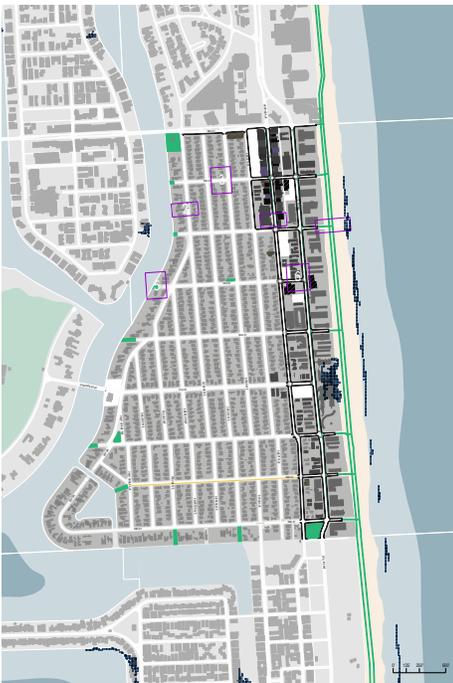
Estimated days of flooding per year by 2060 show increased frequency and severity of King Tides will cause frequent flooding. Provided by Miami Dade County, analysis completed by Arcadis Inc.



PROJECTED SEA LEVEL RISE

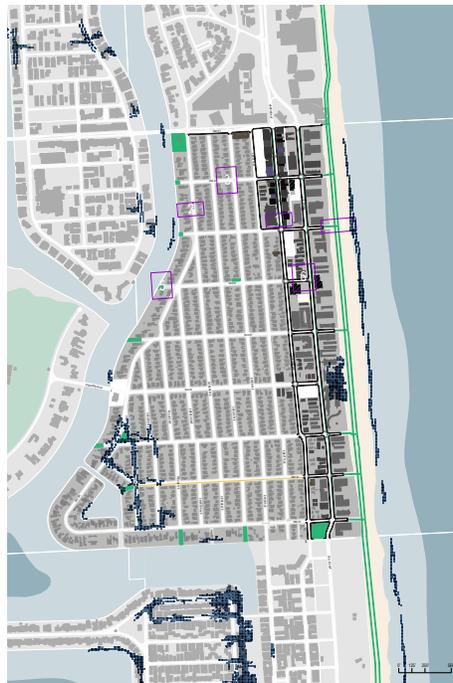
Below are maps of Surfside shown under the high NOAA, sea level projection curve for the years 2040, 2060 and 2080. Very limited impacts are projected for 2040, but the impacts increase for 2060 and significantly more for 2080, providing long range guidance under the high projection curve scenario.

2040



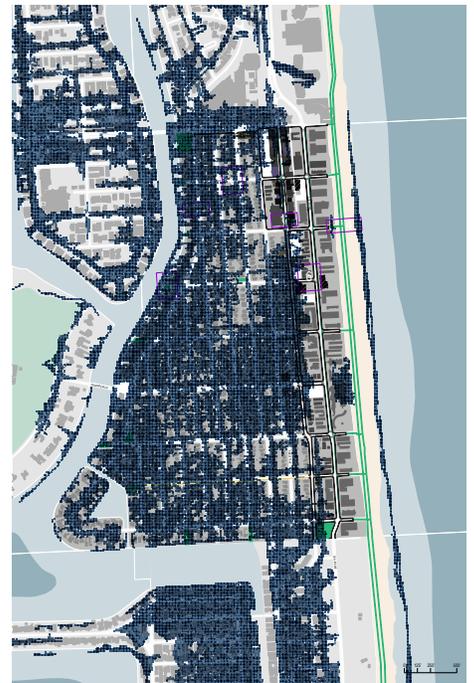
Estimated flood inundation by 2040. Data based on: <https://sls.geoplan.ufl.edu/#about>. Scenario NOAA, high projection curve.

2060



Estimated flood inundation by 2060. Data based on: <https://sls.geoplan.ufl.edu/#about>. Scenario NOAA, high projection curve.

2080



Estimated flood inundation by 2080. Data based on: <https://sls.geoplan.ufl.edu/#about>. Scenario NOAA, high projection curve.

3.0 CLIMATE ASSESSMENT

SURFSIDE GREENHOUSE GAS EMISSIONS INVENTORY

The Town is a participating member in ICLEI-Local Governments for Sustainability. ICLEI is “a global network of cities, towns and regions committed to building a sustainable future.” ICLEI provides technical assistance in many regards but in particular in conducting carbon emission inventories; and they provide access to ClearPath™ a leading online software platform for completing greenhouse gas inventories. The Town is in the process of compiling the data necessary to enter into the ClearPath software to complete an emissions inventory specific to the Town, and to establish a baseline for the Town to be able to determine what emissions reductions they may be able to move forward with. Establishing the carbon emissions for a community informs climate action planning, demonstrates accountability and leadership, and enables aggregation of GHG emission data across regions, among other benefits.

4.0 COMMUNICATION + COMMUNITY

Effective communication helps civic and government partners, and citizens understand their community’s capacities, strengths, weaknesses, and risks in a comprehensive way. Public information and outreach are essential components in the resilience toolkit. Effective communication facilitates cohesion, a sense of community and civic buy-in.

The Resilient Cities, Resilient Lives Learning from the 100RC Network Abridged Version July, 2019 document states that the “business-as-usual models of reactive planning and siloed decision-making will not generate the fundamental strength and flexibility essential for us to thrive in the face of the shocks and stresses of the 21st century.” Resilience planning requires forward thinking; without a cohesive sense of community, residents will not feel invested in forward thinking outcomes. Civic buy-in for needed resilience measures is impeded without a shared sense of investment.

From a superficial look at just bold headlines, addressing climate impacts seems daunting; however, the stresses are incremental and are more and more being defined and refined. The impacts are not unexpectedly occurring and can be planned for. In the local context, communicating the following manageable incremental steps to increase resilience aids in capacity building.

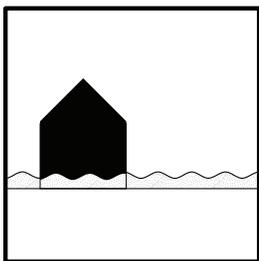
- **Understand the local impacts,**
- **Identify the local vulnerabilities,**
- **Prioritize the local vulnerabilities, and**
- **Implement the best resiliency strategy for the priority vulnerabilities.**

4.0 COMMUNICATION + COMMUNITY

Strategic resilience options include but are not limited to protection, accommodation, managed retreat, or avoidance. Through emissions reductions, preparedness, mitigation and adaptation, the Town can increase resilience and reduce the current and projected adverse impacts from the changing climate. Strategic resilience options also require the development and implementation of an effective public information program. Effective communication increases understanding of these options and the outcomes.

5.0 VULNERABILITIES + RISKS [cont.]

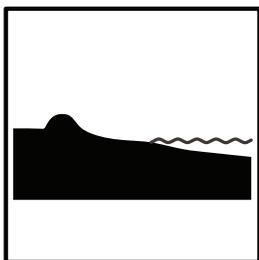
Although communities can be at risk to a variety of shock events such as terrorist attacks, biohazards, hacking of computer systems, disruptions to communication, transportation or other infrastructure systems, or to widespread disease outbreaks, and are subject to a variety of stressors that may be transportation or socio-economic in nature, the focus of this report is climate and this section will focus on the most prominent climate related vulnerabilities and risks.



INUNDATION

Inundation – sea level rise puts the Town at risk of inundation. In 2012 the Compact and the individual Compact Counties completed a region-wide and county-wide sea level rise inundation vulnerability assessment. The assessment ran inundation scenarios at 1, 2 and 3 feet of sea level rise. The report produced countywide Maps at 1, 2, and 3 Foot Sea Level Rise highlighting Possible and More Likely Impacts. The maps did not show any impacts for the Town at 1 and 2 foot of sea level rise but did show impacts at the 3-foot level. The report can be found at: <http://www.southeastfloridaclimatecompact.org//wp-content/uploads/2014/09/vulnerability-assessment.pdf>.

The University of Florida GeoPlan Center provides the Sea Level Scenario Sketch Planning Tool. The tool helps to identify transportation infrastructure vulnerable to current and future flood risks using sea level rise (SLR) scenarios from the U.S. Army Corps of Engineers (USACE) and the National Oceanic and Atmospheric Administration (NOAA) / National Climate Assessment. This tool is found at <https://sls.geoplan.ufl.edu/#about>. **[SEE MAPS IN SEA LEVEL RISE SECTION]**

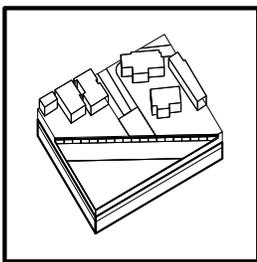


BEACH AND DUNES

Beach and dunes – this protective natural system is by nature unstable. The Town recognizes the protective value of the beach and dune system, particularly to the Town’s main thorough fairs that are also main thorough fairs for the entire barrier island. The Town also recognizes that beaches and dunes are constantly subject to erosional forces and are not stable systems. The Town obtained beach dune

5.0 VULNERABILITIES + RISKS [cont.]

height topographic survey information with a grid of cross section elevations traversing from the ocean Bulkhead line to the edge-of-water along the Atlantic coastline and compiled a Beach Dune Report to understand the conditions, ownership, responsibility designations, and the applicable regulatory structure of the beach and dune system to guide future decisions on the management and protection of this protective coastal system. An U.S. Army Corps of Engineers (USACE) driven project is placing 330,000 cubic yards of sand along the beach front of Surfside. Work on this beach renourishment project began in mid-August of 2019. The Town is an active partner with the USACE and Miami-Dade County in this project. The Town has provided surveying services and provided the permit processing services for this project. See Exhibit 8.2 Beach and Dune Report.

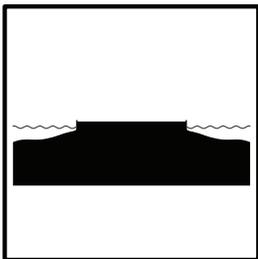


BAYSIDE EDGE

Bayside Shorelines / Seawalls – not all seawall heights within the Town provide protection from storm surge, nuisance and seasonal high tide flooding, and short-term elevated water levels. Although the porous geology of south Florida does not allow for protection from sea level rise just through the use of levees or seawalls; seawalls can however provide a level of protection from storm surge, nuisance and seasonal high tide flooding, and short-term elevated water levels. The Town obtained two Florida Inland Navigation District (FIND) grants to financially assist in replacing and elevating all Town owned seawalls and has raised all Town owned seawalls. At the time the Town replaced and elevated the Town owned seawalls, the Town residents and businesses were provided a very competitive rate to replace seawalls their seawalls through the contractor working on the Town project. No residents took advantage of that opportunity. The Town also adopted an ordinance that specifically requires the following: “The elevation for the top of shore end of all groins or other shore protective work shall be plus five feet above mean low water; the elevation for the top of seaward end of all groins and other shore protective work shall be +2.5 feet above mean low water; and the elevation of the top of all seawalls fronting on the waters of

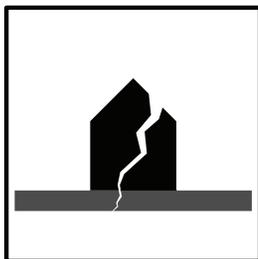
5.0 VULNERABILITIES + RISKS [cont.]

Biscayne Bay, Indian Creek and Point Lake shall be plus five feet above mean low water.” This ordinance provides for an initial, and for an ever-increasing height as the mean low water line increases. Unfortunately, until all seawalls are uniformly elevated to a specified protective height, flood protection is limited.



BATHYMETRY
TOPOGRAPHY

Topography – the low elevation of the Town places it at risk of inundation from sea level rise, storm surge and hinders effective stormwater management. The Town is relatively flat and has very low elevation, particularly on the west side making the Town very vulnerable to sea level rise, storm surge and stormwater ponding. In the Town’s ongoing efforts to develop accurate, effective and comprehensive flood reduction strategies, in 2018 the Town obtained elevation data at all street centerline intersections of the public rights-of-way within the Town. The street intersection data will produce specific and accurate information on the lowest locations within the Town. This data will be incorporated into the Town’s GIS database to cross reference FEMA Flood Insurance Rate Maps (FIRM) data, infrastructure data, historic site data and all other data layers the Town has developed. The analysis of this data will enable the Town to direct planning efforts and strategies toward the infrastructure, critical facilities and adjacent properties in specific locations; direct Capital Improvements funds most effectively; and assist the Town in assessing and developing effective freeboard criteria as needs arise.

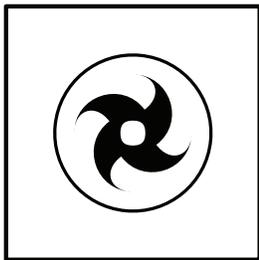


AGING
INFRASTRUCTURE

Aging Infrastructure - inefficiencies and failures increase with aging systems. The Town of Surfside is an older, built-out community. The Town was founded in 1935. Much of the infrastructure in the Town is old, not only Town owned and controlled infrastructure but the infrastructure in place through FDOT, FPL, TECO, Miami-Dade County or other service providers. The older stormwater drainage system designed for lower sea levels, lower ground water levels, lower rainfall patterns and less pervious surfaces is less efficient. The Town Hall that houses

5.0 VULNERABILITIES + RISKS [cont.]

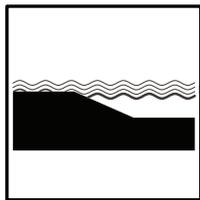
the Emergency Operations Center (EOC) is an older building constructed before the Florida Building Code was updated to enhance storm protection, and before increased elevations were required for vital facilities.



STORM EVENT

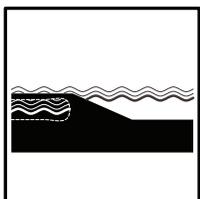
Shocks and Stresses – hurricanes and chronic flooding are the most prominent.

Shocks: The most significant natural disaster threat the Town needs to plan for is the event of a hurricane; tornadoes may accompany these extreme weather events. Hurricanes have the potential to cause widespread property and infrastructure destruction and damage from wind and water, and can incapacitate water, sewer, communication and transportation systems and the capacity for police and emergency responders to function. The changing climate is projected to increase storm and hurricane intensity.



RISING SEAS

Stresses: The most persistent stressor in the Town is chronic flooding. Rising seas, increased rainfall and rising ground water elevations will only exacerbate this problem with time.



RISING
GROUND WATER

6.0 ACTIONS TAKEN

Global, national, state and regional agencies and actions are necessary in addressing the impacts of climate change and are vital partners to cities, but cities are the key to effective climate actions. The vast majority of people and assets on the planet are in cities. Cities are uniquely positioned, and often are the only entity, to identify, prioritize and implement the best strategies for local conditions. The Town has taken an early and aggressive leadership position in addressing resilience and in forming effective alliances and partnerships. Resilience is a commitment by the Town and continues to be. Below is a brief overview of the Town's climate leadership actions.

6.1 FEDERAL + STATE INCENTIVES

The Town cannot take federal or state actions but does influence those actions by establishing relationships and effective communications to relay the needs of and the views of the Town on state and federal legislative matters. Below are several matters the Town has taken an active position on.

- Urged the U.S. Congress to pass the Energy Innovation and Carbon Dividend Act (H.R. 763) Resolution No. 19 – 2572
- Opposing Federal considerations for Offshore Drilling Including Seismic Airgun Blasting, Resolution 18-2528
- Urged the US Congress to establish a Fund to Financially Assist and Support Local Governments, such as the Town of Surfside, Florida in Developing and Implementing Solutions to Sea Level Rise and Related Impacts, Resolution 16-Z-2360
- Urging Expedition and Completion of the Biscayne Bay Coast Wetlands Project, Resolution 17-2413
- Urged the Florida Legislature to allocate \$300 Million of the Funds in the Land Acquisition Trust Fund Annually Toward Land Acquisition, Resolution 16-2351

6.0 ACTIONS TAKEN [cont.]

- Supporting the Central Everglades Planning Project, Resolution 12-2105 and Resolution 14-2222
- Encouraging the return or recycle of all beverage containers and other recyclable materials, Resolution 11-2011
- The Town supported the Active Design Miami: Design and Policy Strategies for Healthier Communities implemented by the Miami Center for Architecture & Design (MCAD) as part of a contract with the Florida Department of Health, funded through the Centers for Disease Control.
- Urging the US Congress to Fund the Study of Foreign Sand Use in Beach Nourishment Projects in Miami-Dade County, Resolution 18-2486
- Urging The United States Congress to Support Language In The FY 2018 Federal Appropriations Bill and the 2018 Disaster Recovery Supplemental Providing For 100 Percent Federal Funding of the South Atlantic Coastal Study Authorized In Section 1204 of the Water Infrastructure Improvements For The Nation Act, With The Necessary Language And Funding To Ensure Inclusion of the Previously Authorized Central and South Florida Flood Control Project and Its Area as Part of This Study
- Urging the Florida Legislature and the FL Public Service Commission to require expedited conversion of overhead electric distribution facilities to underground facilities. Resolution 17-2473

6.2 STRATEGIC ALLIANCES

Strategic alliances with like-minded organizations amplify your voice and your efforts. The Town has effectively sought out and established alliances with organizations that amplify the Town's resilience efforts. Below is a list of a few of the Town's effective alliances.

- Southeast Florida Regional Climate Change Compact. The Town of

6.0 ACTIONS TAKEN [cont.]

Surfside early on endorsed the ‘Mayor’s Climate Action Pledge’ on May 5, 2013, in support of the Southeast Florida Regional Climate Change Compact and the Regional Climate Action Plan.

- **Mayor’s Beach Alliance.** This is a coalition of the Miami-Dade barrier Island municipalities to create a unified voice to urge the County, State and Federal governments to develop long term solutions to beach erosion and restoration.
- **Compact of Mayors.** This is the largest global alliance for city climate leadership, partners to the Compact of Mayors include C40, ICLEI, UCLG and UN Habitat.
- **American Flood Coalition.** This is a nonpartisan group of political, military, business, and local leaders that have come together to drive adaptation to the reality of higher seas, stronger storms, and more frequent flooding.
- **Resilient 305.** This is a Greater Miami and the Beaches coalition working together to prepare for 21st century shocks and stresses and implement unified resiliency strategies.
- **Youth Environmental Alliance.** The Town is providing logistical support for the Youth Environmental Alliance (YEA) in connection with the Miami-Dade County environmental enhancement and education grant program for environmental education funding. The Town also had partnered with YEA on a Town sea oats dune planting project. YEA is instrumental in delivering hands-on educational programs focusing on Florida’s fragile ecology and restoration and recreational opportunities, their programs target underserved communities.
- **Florida International University (FIU).** The Town has engaged the FIU’s Lehman Center for Transportation Research (LCTR) to study the Town’s and neighboring municipalities’ transportation systems.

6.0 ACTIONS TAKEN [cont.]

- **University of Miami.** The Town is currently working with the University School of Architecture, Littoral Urbanism (LU_Lab) on a the development of a comprehensive urban resilient strategy.
- **Environment America’s “Mayors for Solar Energy”.** This organization is building a broad, bipartisan community of mayors and providing tools they need to advance solar.
- **Solar United Neighbors.** This organization is a community of people building a new energy system with rooftop solar as the cornerstone. They help people go solar. The Town is supporting their efforts.
- **ICLEI-Local Governments for Sustainability.** ICLEI is “a global network of cities, towns and regions committed to building a sustainable future”. The Town is a participating member.
- **Climate Leadership Engagement Opportunities (CLEO) Institute.** This is a Miami-based grassroots organization that works with front-line communities to build climate literacy and resilience. They provide training to simply climate science to aid in more effective communication. In 2015 the Town’s Mayor, Daniel Dietch, was inducted into the CLEO Institute Leadership Circle that honors Miami’s top climate activists for their extensive efforts in advancing climate awareness.
- **Surf/Bal/Bay Plan.** Continue the ongoing efforts to implement the Surf/ Bal/Bay plan to development a coordination program with Bal Harbour Village and Bay Harbor Isles.

6.3 LOCAL LEGISLATION

One of the strongest tools local leaders have is enacting local legislation. The Town has given careful consideration to the regulatory tools needed to enhance resilience. Below is a list of some of the Town’s adopted resilience measures.

6.0 ACTIONS TAKEN [cont.]

- Zero Emission/Clean Energy Buses by **2025**.
- **Green Building Requirements.** The Town code requires all development other than single family residential be developed in accordance with Leadership in Energy & Environmental Design (LEED) or Florida Green Building Coalition (FGBC) building design and construction standards to ensure the incorporation of green development practices. In 2019 the Four Seasons Hotel at The Surf Club was honored to achieve the Leadership in Energy & Environmental Design, LEED Silver Certification.
- **Zoning Code Updates.** The Town updated its zoning ordinance in 2007 and has continually updated the code as needed since that time. Some significant ordinances include a requirement to provide charging stations for electric vehicles in multifamily and hotel buildings, requiring one additional foot of freeboard to create flood resiliency and providing language to remove any barriers relating to rooftop photovoltaic solar systems.
- **Architecturally Significant Designation.** This provides an option to retain existing structures that could otherwise be torn down. With this program, an architect would perform a study to determine if a structure had architectural significance, which is a set of criteria in the code. If so, the structure can be expanded utilizing the same setbacks, with the intention of preserving buildings.
- **Improved Floodplain Management Program.** Requiring additional freeboard. Adopting the model ordinance as prepared by the State to remove conflicts with the Florida Building Code.
- **Sea Turtle lighting ordinance** to protect hatchlings from disorientation and females from distractions and false crawls.
- **Coastal Corridor Property Assessed Clean Energy (PACE) District.** Surfside was a founding community.

6.0 ACTIONS TAKEN [cont.]

- **Seawall Height.** This ordinance specifically requires: “The elevation for the top of shore end of all groins or other shore protective work shall be plus five feet above mean low water; the elevation for the top of seaward end of all groins and other shore protective work shall be plus 2&half feet above mean low water; and the elevation of the top of all seawalls fronting on the waters of Biscayne Bay, Indian Creek and Point Lake shall be plus five feet above mean low water.” This ordinance provides for an initial, and for an ever-increasing height as the mean low water line increases.
- Require commercial properties to install conduit for electric vehicle charging stations.
- Incorporated Sustainability segments into the Goals, Objectives and Policies, as well as the Data Inventory and Analysis sections of the Town’s Comprehensive Plan.
- Established Resiliency Fund to Aid in Future Planned Relocation. Creation of a fund for new development to pay into for potential relocation due to sea level rise.
- Solar and Other Sustainability Incentives e.g., waive permit fees and expedite review.
- **Prohibited Styrofoam, plastic straws and looking into potential to prohibit point to sale single-use plastic bags.**
- Updating the landscape code requirements to adopting Florida Friendly Landscape requirements.

6.4 ORDINANCES + RESOLUTIONS

A log of resilience related Resolutions and Ordinances adopted since 2011 is attached as Exhibit 9.4 Resilience Ordinances and Resolutions.

6.0 ACTIONS TAKEN [cont.]

Local Initiatives to maintain and strengthening community bonds. The Town residents and leaders have always taken great pride in their distinctive community. Below is a list of some of the actions the Town has taken to maintain and continue to strengthen the strong sense of community and pride within the Town.

- Rain Barrel Workshop
- Community Garden (and Best Mango Contest)
- Community Volunteer opportunities
- Community Boards and Committee opportunities
- Community Dog Park
- Piano on Parade
- Town Sea Turtle Sculptures designed by local artist
- Art in Public Places
- Town Tree Give-Away Program
- Butterfly Garden at the Community Center
- Town Earth Day Activities
- Sea Level Awareness Program (SLAP) Poles
- Household Hazardous Waste Roundups
- Community Shuttle Bus
- Bike Racks at Street Ends and Surface Parking Lots
- Monthly Coffee with the Cops meetings
- Little Free Library
- Park and Recreation Department Youth Programs and Senior Programs
- BigBelly Solar Inc. solar powered trash/recycle compaction containers

Local Initiatives to adapt, mitigate and conserve. Below are actions that the Town has implemented that conserve resources or mitigate or adapt to the changing climate.

6.0 ACTIONS TAKEN [cont.]

- Tree City USA. The Town has maintained a Tree City designation for the past three years. Tree City is a nationwide movement, under the Arbor Day Foundation, that provides the framework necessary for communities to manage and expand their public trees. Urban tree canopy reduces the heat Island effect, enhances air quality and absorbs carbon emissions.
- LED Lightbulbs in Municipal-Owned Lights. The Town switched out older less efficient bulbs in all municipal-owned lights to reduce energy use.
- Coordinated with FPL to have FPL convert all residential streetlights to LED bulbs.
- Elevated public seawalls. The Town obtained two Florida Inland Navigation District (FIND) grants to financially assist in replacing and elevating all Town owned seawalls. This project was completed by the end of 2017.
- Wyland National Mayors Water Conservation Challenge. This is an annual competition between cities to conserve water. The Town declares April as water conservation month and urges and inspires residents to participate by making on-line pledges to reduce their impact on the environment.
- The Town is a participating member in the Community Rating System (CRS). This is a voluntary program through the FEMA National Flood Insurance Program (NFIP) to aid communities in reducing flood damage risks. Through community actions the Town was able to obtain a CRS rating of 7 that provides for a 15% reduction in flood insurance costs for properties that fall within the Special Flood Hazard Area (non X flood zones) and rate reduction of 5% for properties outside the Special Flood Hazard Areas (X flood zones).
- Landscape improvement in municipal parking lots. The Town installed trees, shrubs and ground covers in the various Town parking lots to

6.0 ACTIONS TAKEN [cont.]

- increase tree canopy and combat heat island effect.
- Implemented bike-share program. There are four Citi Bike rental docking locations in the Town to facilitate access to bike sharing opportunity and aid in reducing vehicle miles travelled.
- Water Conservation Rate Structure. As of October 1, 2017, utility rates were increased in order to assist the Town in recovering the cost of providing utility services, promote equity in utility rates, encourage water conservation, improve the Town's water and sewer capital infrastructure, and enable the Town to secure funding for capital improvement debt service costs. This utility rate increase was the first increase to take place in seven years.
- Water, Sewer and Stormwater Improvements. The most significant efforts the Town has undertaken relate to water, sewer and stormwater Improvements. By the end of 2009 the Town completed hydrologic and hydrologic modeling to determine immediate stormwater improvement needs that meet FDEP water quality and water quantity requirements. The modelling and report included the best approach to reduce or eliminate pollutant discharge loadings into Biscayne Bay and targeted improvements in hydraulic performance of the Town's drainage system to reduce stormwater flooding. The report informed the actions of the significant drainage system improvements the Town then undertook in 2013.

The drainage improvements were a part of an overall utility rehabilitation project that included the sanitary sewer and potable water systems. This was a significant project that consisted of the replacement of over 32,000 linear feet of water main, 1,587 water services, 1,278 new water meters and 46 additional fire hydrants. The sanitary sewer upgrades included over 50,000 linear feet of

6.0 ACTIONS TAKEN [cont.]

sanitary sewer main being lined or replaced, two (2) sewage pump stations being completely rebuilt with updated and more efficient pumps including SCADA controls, the force mains from the pump stations to the shared transmission main being replaced, and placing full dish gaskets on all manhole openings.

The stormwater system was upgraded to include 3 SCADA controlled pump stations, 9 shallow injection drainage wells, 20 control structures and the required pipeline to interconnect the existing gravity drainage system with the newly installed pumped well system. It also included the installation of over 45,000 linear feet of curb and 167,000 square yards of asphalt roadway resurfacing, sealing all stormwater manholes and installing back flow preventers on outfalls. The Town searched for and obtained funding assistance for this project from multiple sources.

In 2015, the Town completed drainage improvements for Biscaya Island along 88th Street. The Town constructed new check valves to prevent back flow into the existing roadways and upsized one 12" outfall to a 24" diameter outfall.

In 2018 the Town authorized a drainage study for Abbott Avenue to make recommendations on reducing flooding issues in this location. The Town is currently reviewing the recommendations to determine best next steps and funding sources for these steps.

To continue these efforts, in 2019, the Town is proposing to update the Stormwater Mater Plan and create inundation maps and provide updated stormwater and flood control recommendations.

6.0 ACTIONS TAKEN [cont.]

6.5 LOCAL DATA AND DEVELOPMENT TOOLS

The Town has taken the following steps to create locally specific data and locally effective tools.

- **Climate Action Plan.** In 2019 the Town contracted the creation of a Town specific “Climate Action Plan” to outline Objectives and Actions to build resiliency into the community from the projected impacts of climate change. Attached is the Town Climate Action Plan, First Edition reflective of the Compact’s Regional Climate Action plan and the recommendations of the Resilient 305 Surfside report. See Exhibit SE.2 Climate Action Plan.
- **Topographic Data.** In the Town’s ongoing efforts to develop accurate, effective and comprehensive flood reduction strategies, in 2018 the Town obtained elevation data at all street centerline intersections of the public rights-of-way within the Town. The street intersection data will produce specific and accurate information on the lowest locations within the Town. This data will be incorporated into the Town’s GIS database to cross reference FIRM data, infrastructure data, historic site data and all other data layers the Town has developed. The analysis of this data will enable the Town to direct planning efforts and strategies toward the infrastructure, critical facilities and adjacent properties in specific locations; direct Capital Improvements funds most effectively; and assist the Town in assessing and developing effective freeboard criteria as needs arise.
- **Beach and Dune Management.** The Town recognizes the protective value of the beach and dune system. The Town obtained beach dune height topographic survey information with a grid of cross section elevations traversing from the ocean Bulkhead line to the edge-of-water along the Atlantic coastline and compiled a Beach Dune Report to understand the conditions, ownership, responsibility designations, and the applicable

6.0 ACTIONS TAKEN [cont.]

regulatory structure of the beach and dune system to guide future decisions on the management and protection of this protective coastal system.

- **Sustainability Committee.** Reflective of recommendations of the Southeast Florida Regional Climate Change Compact's Regional Climate Action Plan, in April of 2016, the Town Commission officially formed the Sustainability Subcommittee of the Planning and Zoning Board. The purpose of the Subcommittee was to study and recommend policies and programs that strengthen the resiliency of the community. The Subcommittee's goals included:
 1. Adapting and mitigating to climate change and sea level rise;
 2. Promoting green and sustainable building, construction and operations;
 3. Protecting, restoring, optimizing and creating green spaces;
 4. Improving alternative transportation and mobility; and
 5. Increased environmental awareness and stewardship of our treasured ecosystems.
- In 2018 the Sustainability subcommittee of the Planning and Zoning Board was sunsetted and established in its place the Town Sustainability and Resiliency Committee to study and recommend policies to the Town Commission was established.
- Property Assessed Clean Energy (PACE) Program. In 2013 the Town created a PACE Program and in 2018 the Town approved PACE Programs with The Florida Green Finance Authority, The Florida Resiliency and Energy District, and The Florida Pace Funding Agency.
- Carbon Emission Inventory. The Town will be completing a GHG emissions inventory in 2019 and establishing an emissions baseline.

7.0 RESOURCES + TOOLS

Climate change is not a new topic, it has been on the forefront of public discourse and investigation for well over a decade. This crucial subject is critically being examined and data is consistently being updated and predictions are being refined. There is an overwhelming amount of information available varying from detailed scientific literature to generalized non-specific overviews. Outlined below are some, although by no means all, valuable information resources to assist the Town in continuing to understand climate impacts and making informed decisions.

7.1 MIAMI-DADE COUNTY

The County has had a significant focus on climate change since 2008, and through their participation in the 100 Resilient Cities network and the Resilient 305-Greater Miami and the Beaches (GM&B) program. The County produced the GreenPrint Design for Sustainable Development and a Climate Change Action Plan that, along with other documents can be found at <https://www.miamidade.gov/green/climate-change.asp>

7.2 SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT

Broward, Palm Beach, Miami-Dade and Monroe Counties formed the Southeast Regional Climate Change Compact (Compact) in 2009. The Compact has been widely acknowledged to be an innovative leader in addressing climate change on a regional level. The Compact works with many collaborative partners. The Compact has held numerous workshops and provides helpful documents on their website at <http://www.southeastfloridaclimatecompact.org/> Major resources from the Compact include:

- The annual Regional Summit to report on progress, to educate, and to identify emerging issues; the first summit was held in 2009,
- The Regional Climate Action Plan (RCAP), defined as “a set of recommendations, guidelines for implementation, and shared best practices for local entities to act in-line with the regional agenda”,

7.0 RESOURCES + TOOLS [cont.]

- The Unified Sea Level Rise Projections for South Florida, and
- A unified legislative agenda for the region.

7.3 SOUTH FLORIDA REGIONAL PLANNING COUNCIL [SFRPC]

The Coastal Resiliency program within the SFRPC provides various resiliency reports, tool kits and guides that can be found at <http://sfrpc.org/programs/coastal-resilience/>

7.4 SEA LEVEL SCENARIO SKETCH PLANNING TOOL

This tool is offered through the University of Florida GeoPlan Center to help identify transportation infrastructure vulnerable to current and future flood risks. As stated on their website - the tool analyzes and visualizes current flood risks (100-year and 500-year floodplains and hurricane storm surge zones) as well as future flood risks using sea level rise (SLR) scenarios from the U.S. Army Corps of Engineers (USACE) and the National Oceanic and Atmospheric Administration (NOAA)/ National Climate Assessment. The Tool includes (1) a map viewer to help visualize vulnerable infrastructure to flooding, (2) GIS data layers available for download, and (3) an ArcGIS calculator tool for creating GIS layers of SLR inundation. This tool is found at <https://sls.geoplan.ufl.edu/#about>

7.5 FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION [FDEP]

FDEP runs the Florida Resilient Coastlines Program offering resilience resources at <https://floridadep.gov/fco/florida-resilient-coastlines-program/> FDEP also publishes Climate Change and Sea-Level Rise in Florida an Update of the Effects of Climate Change on Florida's Ocean and Coastal Resources, this can be found at <https://floridadep.gov/fco/fco/documents/climate-change-and-sea-level-rise-update>

7.0 RESOURCES + TOOLS [cont.]

7.6 FLORIDA CLIMATE INSTITUTE [FCI]

The FCI is a multi-disciplinary network of national and international research and public organizations, scientists, and individuals concerned with achieving a better understanding of climate variability and change. The FCI has ten member universities – Florida A&M University (FAMU); Florida Atlantic University (FAU); the Florida Institute of Technology (FIT); Florida International University (FIU); Florida State University (FSU); Nova Southeastern University (NSU); the University of Central Florida (UCF); the University of Florida (UF); the University of Miami (UM); and the University of South Florida (USF) – and is supported by relevant colleges, centers, and programs at these universities. UF and FSU initiated the FCI in 2010; FAU, UCF, UM, and USF formally joined in 2012; FIU formally joined in 2013; FAMU formally joined in 2014; FIT formally joined in 2015; and NSU formally joined in 2017. Information is found at <https://floridaclimateinstitute.org/>

7.7 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY [EPA]

The scientific arm of the EPA updates and publishes Climate Change Indicators in the United States compiling a key set of indicators relating to the causes and effects of climate change. Current updates can be found at <https://www.epa.gov/climate-indicators/downloads-indicators-report>

7.8 U.S. NATIONAL OCEANIC + ATMOSPHERIC ADMINISTRATION [NOAA]

NOAA runs the Digital Coast interactive website. The website provides coastal data, tools, mapping and training. Data sets range from economic data to satellite imagery and contain visualization tools, predictive tools, and tools that make data easier to find and use. This resource can be found at <https://coast.noaa.gov/digitalcoast/>

7.9 INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE [IPCC]

The IPCC is the United Nations body assessing science related to climate change.

7.0 RESOURCES + TOOLS [cont.]

As stated on their website “The IPCC prepares comprehensive Assessment Reports about the state of scientific, technical and socio-economic knowledge on climate change, its impacts and future risks, and options for reducing the rate at which climate change is taking place. It also produces Special Reports on topics agreed to by its member governments, as well as Methodology Reports that provide guidelines for the preparation of greenhouse gas inventories.” Reports and data can be found on their website at <https://www.ipcc.ch/>

7.10 AMERICAN PLANNING ASSOCIATION [APA]

The APA Knowledge Center provides various helpful climate related guides and policy documents at <https://planning.org/resources/climatechange/>

7.11 ICLEI LOCAL GOVERNMENTS FOR SUSTAINABILITY

ICLEI is described as “a global network of cities, towns and regions committed to building a sustainable future”. ICLEI aids cities in particular as it relates to carbon emissions inventories. Information is found at <https://iclei.org/>

7.12 RESILIENT 305

Developed to enable Greater Miami and the Beaches (GM&B) area to more effectively tackle emerging global challenges and trends such as urbanization, globalization and climate change. Information is found at <http://resilient305.com/>

7.13 UNIVERSITY OF MIAMI SCHOOL OF ARCHITECTURE LU_LAB

The town of Surfside is collaborating with the University of Miami School of Architecture’s LU_lab to develop a set of adaptation strategies that work to support a Comprehensive Urban Resilience. These strategies are an integral part of the currently developing Surfside Climate Action Plan. The strategies will be shared through a Community Adaptation Toolkit, an illustrative series of diagrams that works to identify urban vulnerabilities and adaptation strategies to address these conditions.

8.0 STRATEGIC NEXT STEPS

Like a GHG emissions inventory and establishment of an emissions base line, this document is the inventory of the initial resilience steps the Town has implemented and the **'base line'** of where they are at relating to the unfolding climate crisis. **This document is intended to be a functional tool and foundation for the next steps the Town will take to continue to increase resilience.**

Below are some next steps in this ongoing process:

8.1 RESILIENT 305 SURFSIDE [see attached exhibit SE.1]

ACTIONS

- Send Your Boss to Bootcamp: resilience training for newly elected officials in the
305 ACTION: Send elected officials to trainings
- Provide Resilience Training for All Employees: internal staff resilience training - what is resilience, project specific
305 ACTION: Send staff to trainings
- Enable Community Resilience Through CERT: government training for neighborhood emergency volunteers
305 ACTION: Augment current hurricane preparedness program
- Complete and Implement the SLR Strategy: countywide effort to analyze SLR models, projections and develop capital projects
305 ACTION: Share information
- Prepare Your Property: online guidance for homeowner adaptation
305 ACTION: Share and promote tools

8.0 STRATEGIC NEXT STEPS [cont.]

- Design a Better Bus Network: ongoing effort to reconfigure bus routes based on effectiveness of route
305 ACTION: Support outreach, workshops + coordinate with Trolley system
- Building Efficiency 305: evaluate facilities over 20,000 SF for energy efficiency
305 ACTION: Evaluate and upgrade

TOOLS

- Property Adaptation Tools – Online guidance + outreach events for homeowner adaptation
- Expanded CERT Training – Government training for neighborhood emergency volunteers
- Resilient 305 ArcGIS Hub – Online platform for 35 governments to access+ upload resilience data
- Pre-Planning for Post-Disaster Toolkit – Recovery resource to help local governments preplan for post-recovery organization and finance tools
- 5-Step Guide to Innovative Disaster Recovery Financing - “Five Step” finance resource to help governments preplan for post-recovery and understand all recovery financing available
- Resilience Financing Decisions Toolkit - Will serve as a resource and guide for municipalities that are evaluating prioritization of, and funding options for, resilience-related projects
- Financing a Resilient Future – Reference materials and training to assist governments with resilient budgeting
- Development Review Checklist – This checklist will help develop consistent standards, use of consistent information, best practices for projects, and facilitate decision making
- Sea Level Rise Checklist for Capital Projects - Ensure that new infrastructure is built to withstand future floods and storms and integrate a consistent approach across departments

8.0 STRATEGIC NEXT STEPS [cont.]

8.2 SURFSIDE CLIMATE ACTION PLAN [see attached exhibit SE.2]

Upon finalization of the document, establish a program to implement the actions contained within the Town's Climate Action Plan.

REVIEW SEAWALL STRATEGY

- Update the seawall height ordinance. Continue ongoing efforts to increase seawall height on all seawalls.

MITIGATE FLOODING THROUGH FREEBOARDING + HYPER-LOCAL STRATEGIES

- Continue ongoing efforts to address localized stormwater flooding. Continue steps to update freeboard and base flood elevations as needed. Identify those impacts that are unavoidable and develop retreat or relocation strategies.

STORMWATER MASTER PLAN DEVELOPMENT

- Move forward with updates in stormwater modeling that will include locating and prioritizing flooding problems under various storm design events and inundation maps for 1, 2 and 3 feet of sea level rise with recommendations for potential improvements.

8.3 HEALTHY BEACH ECOLOGY

BEACH RENOURISHMENT

- An Army Corps of Engineers (ACOE) driven project in conjunction with Miami-Dade County is placing 330,000 cubic yards of sand along the beach front of Surfside. Work began in mid-August 2019. The Town is an active partner with the ACOE and Miami-Dade County in this project. The Town should continue effective state, federal and regional collaboration on the management of the beach to ensure this resource continues to provide protective functions for the Town.

8.0 STRATEGIC NEXT STEPS [cont.]

DUNE MANAGEMENT

- Build on the Beach and Dune report to establish a Dune Management Plan for the Town. Continue to construct 'diverter dunes' at the oceanside openings of the beach access points.

AMERICAN FLOOD COALITION

- Coordinate with the American Flood Coalition to facilitate the completion of the Flood Adaptation Assessment that was awarded to the Town by a grant from the American Flood Coalition. The Coalition also selected the neighboring City of Sunny Isles Beach and will utilize this opportunity to turn this project into a micro-regional effort.

8.4 CONTINUED DEVELOPMENT OF A COMPREHENSIVE RESILIENT URBAN NETWORK

- Continue to coordinate with the University of Miami School of Architecture Littoral Urbanism LU_Lab on their walkability study and report.
- Implement the recommendations of the report to develop comprehensive resilient network.
- Enhance walkability by completing the Surfside Boulevard project in conjunction with Indian Creek Village, the 96th Street beach end project in conjunction with Bal Harbour Village. The LU_lab in coordination with a series of studies and a public workshop will develop a proposal identifying and prioritizing sites for intervention.
- Additionally, the LU_lab will continue to explore and implement actions to utilize the street ends that terminate at the bay side or the beach dune system for effective public access and purposes.

8.0 STRATEGIC NEXT STEPS [cont.]

8.5 GREENHOUSE GAS EMISSION

ZERO EMISSION | CLEAN ENERGY BUSES

- Continue to move forward with the plan for the replacement of buses that are Town-owned and/or continuously or regularly used by the Town to be zero emission/clean energy buses with a goal of conversion by 2025, Resolution 18-2483. The Town should consider that transition to zero emission/clean energy for other Town-owned vehicles.
- Complete a facilities assessment of the Town Hall that serves at the Town Emergency Operations Center (EOC).
- Upon completion of the Town GHG emissions inventory set target GHG reductions and time frames and establish the steps to reach the target reductions.

DEVELOP + IMPLEMENT SOLAR STRATEGIES

- Install a photo-voltaic solar system on the Community Center. Explore other opportunities for solar charging with battery storage and other renewable options to benefit and improve resilience and to facilitate recovery after shocks.

8.6 BUDGET REVIEW + IMPLEMENTATION

- Organize the Town budget around the four dimensions of the 100 Resilient Cities' City Resilience Framework, which are Health and Well-being, Leadership and Strategy, Planning and Finance, and Infrastructure and Ecosystems. Move forward with the current budget initiatives of funding the Resilient 305 recommendation, the ULI initiative and the Town resiliency Fund mechanism.
- Research and identify future financial risk as it relates to climate change, in particular as this would relate to loan and mortgage opportunities and to insurance costs and coverage.

8.0 STRATEGIC NEXT STEPS [cont.]

- Research and identify future funding sources for climate adaptation, mitigation or relocation.

8.7 CLIMATE COMMUNICATION DEVELOPMENT

Develop effective climate communication messages and strategies, including the dedication of a climate page on the Town website. Ensure resources are allocated to continue to update the webpage and implement the communication strategy. Establish a communication schedule including updates to the climate website.

TRACK + REPORT RESILIENT MEASURES

- Track resilience measures. Develop a process to track implementation of these strategic next steps and to update as new steps are required.

TOWN OF SURFSIDE MAPPING + DOCUMENTATION

- Assess the current GIS program and determine what additional tools and data sets may be needed to be able to create the layers needed to aid in climate impact assessment and decision making.

LIST OF EXHIBITS

SE.1 RESILIENT 305-SURFSIDE

SE.2 CLIMATE ACTION PLAN

SE.3 BEACH DUNE REPORT

SE.4 RESILIENCE ORDINANCES AND RESOLUTIONS LOG

SE.5 COMMUNITY ADAPTATION TOOLKIT

305 RESILIENT-SURFSIDE

EXHIBIT SE. 1



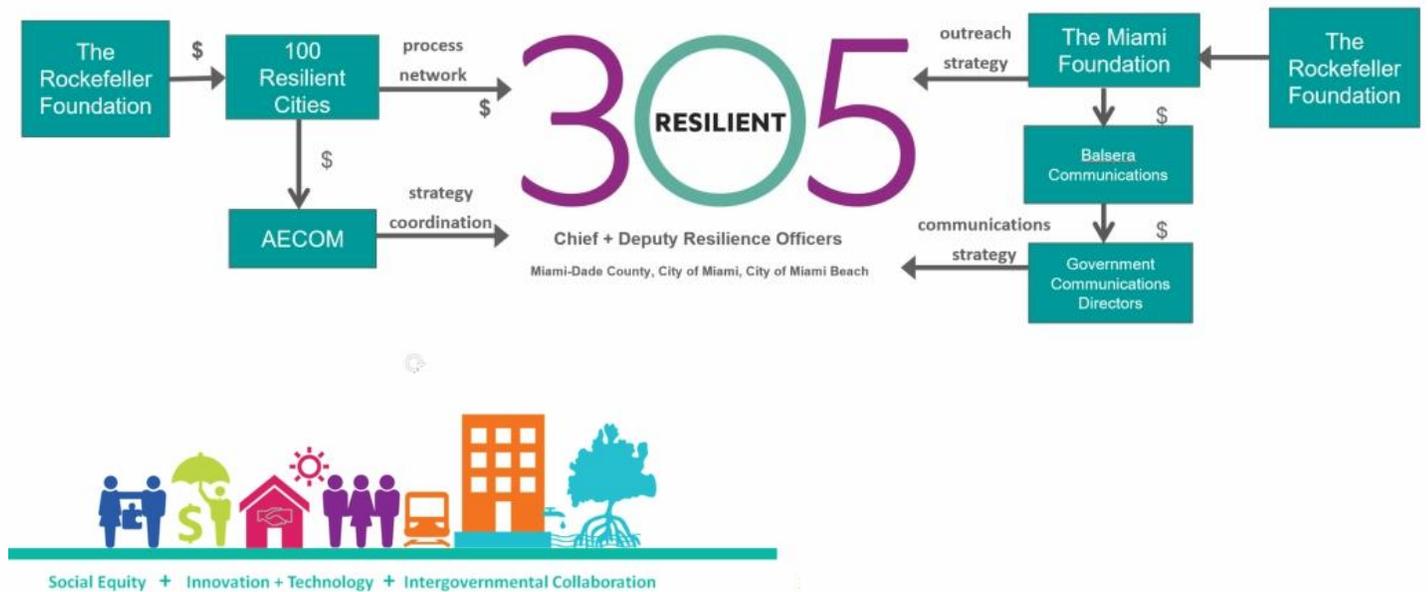
Surfside

URBAN RESILIENCE

100RC defines urban resilience as “the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.”



Who We Are



Timeline



Shocks



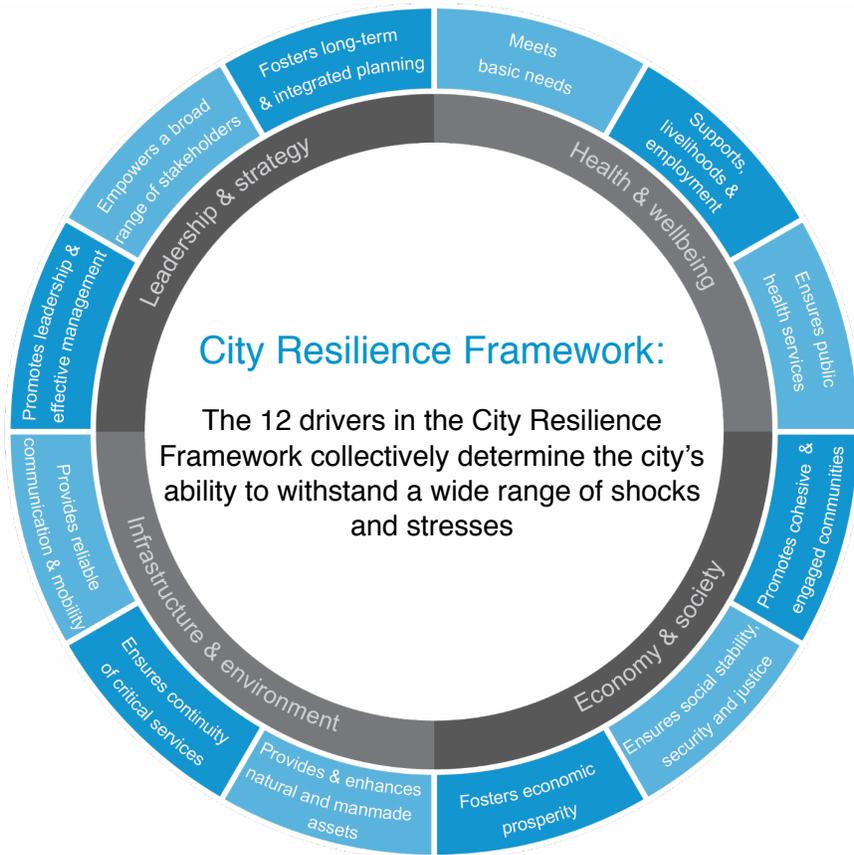
305
RESILIENT



Stresses



305
RESILIENT



Discovery Areas



What We Heard From You in 2017

Surfside

Areas of Strength:

Surfside was developed as a walkable community

Doing Well But Can Improve:

the importance of people and social cohesion is most important to be resilient, sea level vulnerability, erosion, water, wastewater, stormwater (seawall infrastructure)

Most Proud Of:

moved to a quasi form-based code to help properties and people interact with one another

Greater Miami + the Beaches

Doing Well But Can Improve:

emergency management, evacuation approach

Needs To Do Better:

affordable housing is a serious issue, transient populations, city services



Interviewees: Mayor Daniel Dietch + City Manager Guillermo Olmadillo



Resilient305 *DRAFT* Strategy

How can **Surfside** participate?



R305 Tools for Surfside

Property Adaptation Tools	Online guidance + outreach events for homeowner adaptation
Expanded CERT Training	Government training for neighborhood emergency volunteers
Resilient 305 ArcGIS Hub	Online platform for 35 governments to access + upload resilience data
Pre-Planning for Post-Disaster Toolkit	Recovery resource to help local governments preplan for post-recovery organization and finance tools
5-Step Guide to Innovative Disaster Recovery Financing	“Five Step” finance resource to help governments preplan for post-recovery and understand all recovery financing available
Resilience Financing Decisions Toolkit	Will serve as a resource and guide for municipalities that are evaluating prioritization of, and funding options for, resilience-related projects
Financing a Resilient Future	Reference materials and training to assist governments with resilient budgeting
Development Review Checklist	This checklist will help develop consistent standards, use of consistent information, best practices for projects, and facilitate decision making
Sea Level Rise Checklist for Capital Projects	Ensure that new infrastructure is built to withstand future floods and storms and integrate a consistent approach across departments



R305 Opportunities for Surfside

- 1. Send Your Boss to Bootcamp!**: resilience training for newly elected officials in the 305
Action: Send elected officials to trainings
- 2. Provide Resilience Training for All Employees**: internal staff resilience training - what is resilience, project specific
Action: Send staff to trainings
- 3. Enable Community Resilience Through CERT**: government training for neighborhood emergency volunteers
Action: Augment current hurricane preparedness program
- 4. Complete and Implement the SLR Strategy**: countywide effort to analyze SLR models, projections and develop capital projects
Action: Share information
- 5. Prepare Your Property**: online guidance for homeowner adaptation
Action: Share and promote tools
- 6. Design a Better Bus Network**: ongoing effort to refigure bus routes based on effectiveness of route
Action: Support outreach, workshops + coordinate with Trolley system
- 7. Building Efficiency 305**: evaluate facilities over 20,000 SF for energy efficiency
Action: Evaluate and upgrade



Complete Set: R305 Objectives + Actions

GOAL 1. PLACES
<i>Enhance Natural Systems</i>
Preserve and Restore Biscayne Bay
Build Reef Biodiversity and Defenses
Bolster Our Beaches
Nature-Based Infrastructure - More Than Just Habitat!
Integrate Resilience into Park + Open Space Design
<i>Safeguard Urban Systems</i>
Reduce "Back Bay" Flooding
Implement Sea Level Rise Strategy
Develop a Sea Level Rise Checklist for Capital Projects
Create Development Review Checklist
Strengthen Resilience Planning
Maximize Opportunity Zones
<i>Create Mobility Options</i>
Develop Mobility Hubs in the 305
Design a Better Bus Network
Drive into the Future!
It's Electric
<i>Increase Energy Efficiency</i>
Expand Renewable Energy
Building Efficiency 305
<i>Enhance Housing Options</i>
Stay and Live in the 305
Redeveloping Resilient Public Housing
Adapting at Home Too

GOAL 2. PEOPLE
<i>Cultivate Financial Stability</i>
Build an Inclusive Economy
Let's Build
Back to Work
Buy Local
Be Counted
Re-establish + Support MDC Financial Capability Collaborative
It's Time to Save Kids
Expand Youth Career Opportunity Programs
<i>Advance Public Health Priorities</i>
Unite to Break the Cycle of Youth Violence
Respecting Older Adults
Update Miami-Dade County's Social Services Master Plan
Build Capacity to Address Mental Health Challenges
Pilot an Arrest Diversion Program for Opioid Users
Accelerate Progress of HIV/AIDS Strategy
Advance Pandemics Communication
<i>Strengthen Community Response</i>
Increase Community Resilience through CERT
Time to Volunteer or Get Involved!
Prepare Your Property
Support Resilience Hubs
<i>Communicate the Concept of Resilience</i>
Get the 311 on Resilience in the 305
Create and Implement a K-12 Plan for Resilience Literacy
See It to Believe It!

GOAL 3. PATHWAYS
<i>Pre-Plan for Post-Recovery</i>
Pre-Planning for Post-Disaster Toolkit
Roll-Out 5-Step Guide to Innovative Disaster Recovery Financing
Bounce Forward 305 - Resilient Urban Land Use Essentials Guide
<i>Cultivate Resilience Expertise</i>
Send Your Boss to Bootcamp!
Resilient 35 in the 305 Network
Provide Resilience Training for all Employees
RISE to the Rescue
<i>Leverage our Experience</i>
Collaborative with Universities
Create an Actionable Science Advisory Panel
Resilience Accelerator Workshops
<i>Develop Shared Resources</i>
Create Resilient 305 ArcGIS Hub
Share Bold Integrated Water Models
Implement the One Water Approach
Plan Efficiently + Effectively Together
<i>Leverage Our Dollars</i>
Financing a Resilient Future
The Power of Purchasing
Pilot Resilience Financing Decisions Toolkit
Demonstrate the Costs and Benefits of Resilience Investments



#Resilient305

WWW.RESILIENT305.COM

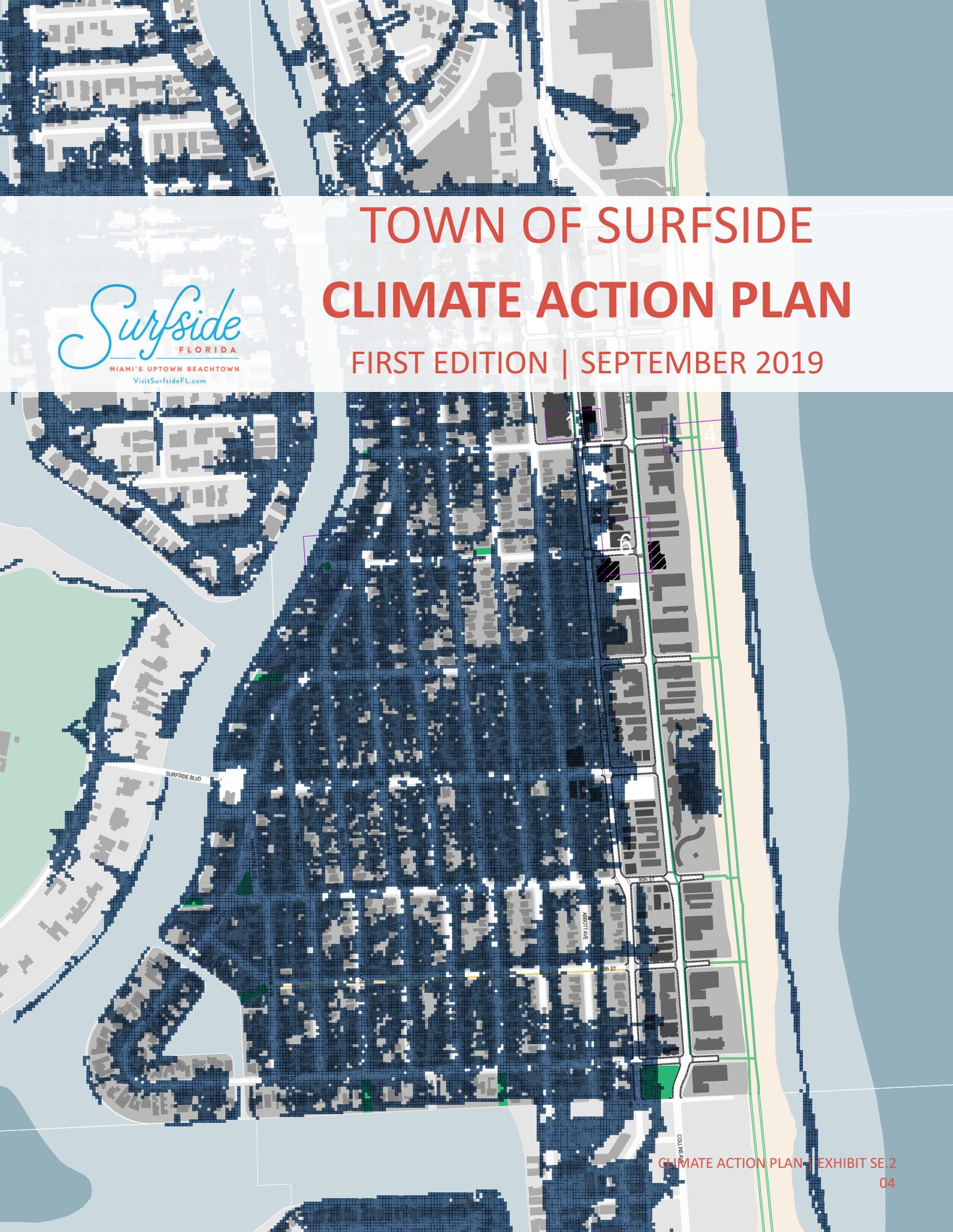


@Resilient305



CLIMATE ACTION PLAN

EXHIBIT SE. 2



TOWN OF SURFSIDE CLIMATE ACTION PLAN

FIRST EDITION | SEPTEMBER 2019



TEAM

DEVELOPMENT TEAM

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REVIEWERS

SUSTAINABILITY + RESILIENCE COMMITTEE
COMMISSIONERS

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1.0 TOWN OVERVIEW

Surfside is an Atlantic Ocean coastal community located on a barrier island along the southeast coast of Florida. The barrier island is separated from the mainland by the north end of the Biscayne Bay estuary containing the Intracoastal Waterway. The natural conditions of the barrier island have been highly altered. Founded in 1935, the Town is nearly built out with only a few remaining vacant lots. The entirety of the Town's Bayside shoreline has been significantly altered and is bulkheaded, and the adjacent nearshore waters have been dredged. The one-mile length of beach and dune along the Town's ocean frontage is created from a beach renourishment program. The beach is monitored and managed in accordance with Florida's Department of Environmental Protection's Strategic Beach Management Plan (SBMP) for the Southeast Atlantic Coast Region.

The nearest access to the mainland is provided from the north edge of the Town at 96th Street/the Broad Causeway and to the south of the Town via the 79th Street Causeway. Harding Avenue and Collins Avenue provide the main north/south roadways to the adjacent Communities on the Barrier Island. The Town is predominately residential with the commercial corridor running along Harding Avenue. There are nearly 6,000 residents in the community. This is a small community in area measuring roughly one mile in length (north to South) and 0.80 miles in width (east to west) at its widest point and less than 0.50 miles in width at its narrowest point. Other than the Coastal dune created through a beach nourishment program the Town is relatively flat and low in elevation. Due to the geophysical location and characteristics the Town is highly vulnerable to the impacts of climate change.

For the past decade the Town has been addressing resiliency concerns on an ongoing basis and continues to build on these efforts. The compilation of this document is another step in this ongoing process.



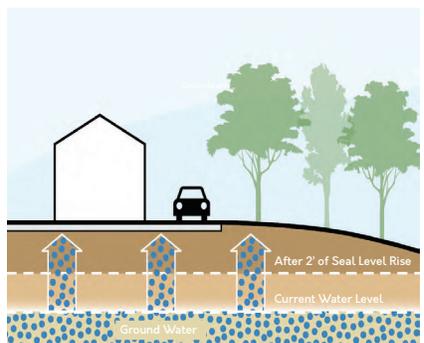
SEA LEVEL RISE



STORMWATER



STORM SURGE



GROUNDWATER

KEY

- Surge below 3.3 ft (existing)
- Surge 3.3 to 6.6 ft (existing)
- Surge 6.6 to 7.5 ft (after 2' of Sea Level Rise) Surge 7.5 to 12.5 ft
- After 2' of Sea Level Rise
- Estimated Storm Surge Levels after 2' of Sea Level Rise

**Note these surge levels indicate wave height. In some cases, the land elevation may exceed surge and remain dry. This is a simulated storm with maximum winds of 120 mph.

Provided by Miami Dade County, analysis completed by Arcadis Inc.

2.0 INTRODUCTION TO CLIMATE RESILIENCE

Of the many factors challenging resilience, climate change is a critical force. Climate change is a global issue with regionally specific impacts. Climate related impacts may seem daunting and unrelenting, but they are incremental and are more and more being defined and refined; they are not unexpectedly occurring.

Resiliency strategy options to climate change may include, but are not limited to protection, accommodation, managed retreat, or avoidance. Through emissions reductions, preparedness, and strategic action, the Town can increase resiliency and reduce the current and projected adverse impacts from the changing climate and prepare for those impacts that cannot be avoided. Effective public information and outreach to build support for the implementation of selected adaption strategies is also a component of an effective resiliency toolkit.



Resiliency planning must be taken in a regional and local context. Large scale systems such as regional water storage, protection of the aquifer and potable water source, functionality of the Central and South Florida flood control system, regional beach sediment management, protection of the offshore reef system, and regional transportation and infrastructure systems require a collaborated and cooperative regional approach. Effecting changes in the building code to ensure structural integrity of the built environment to projected increases in storm strength is a state-wide and larger cooperative effort. Reducing carbon emissions is an effort to be addressed at the local, regional, state, federal and global levels. The Town continues to collaborate with its regional partners on these issues.

Provided by Miami Dade County, analysis completed by Arcadis Inc.

Climate related impacts may seem daunting and unrelenting, but they are incremental and are more and more being defined and refined; they are not unexpectedly occurring and can be planned for. In the local context, the following manageable steps can be taken to increase resiliency:

- Understand the local impacts,
- Identify the local vulnerabilities,
- Prioritize the local vulnerabilities, and
- Implement the best resiliency strategy for the priority vulnerabilities.

With a goal to build resilience to the impacts of a changing climate, the following document outlines objectives and actions for the Town.

GOAL:

Build URBAN RESILIENCE to the impacts of a changing climate.

3.0 LEXICON: CONDITIONS + STRATEGIES



AGING
INFRASTRUCTURE

Aging Infrastructure_ The degradation of infrastructures is a common and an expected condition. Infrastructures must have scheduled inspections and planned maintenance if they are expected to perform their intended tasks consistently.



BAYSIDE EDGE

Bayside Seawalls_ Structural strategies focused on controlling a static edge between Biscayne Bay and the city.



BATHYMETRY
TOPOGRAPHY

Bathymetry/ Topography_ Specifically the description of the undulations and formal characteristics of the ground plane above the waterline– Topography– and below the waterline–Bathymetry. These landform characteristics are informative to how rising waters, storm surges and general inundation of flood events will occur.



COMPREHENSIVE
TRANSPORTATION

Comprehensive Transportation_ The distribution of mobility– personal, services and goods– through a comprehensive transportation approach reduces pressure on roadway networks. A comprehensive transportation approach includes small-scale short distance services through shared bike and scooter services, public mass transient methods and adaptability to new or developing services.



DATA, TOOLS
+ STRATEGIES

Data, Tools and Strategies_ Comprehensive approaches to policy, planning and interventions regarding urban resilience and walkability.



ELECTRICAL VEHICLE
INFRASTRUCTURE

Electric Vehicle Infrastructure_ Implementation of public EV charging stations and dedicated parking spaces for a diverse group of mobility vehicles.



GREEN ROOFS

Green Roofs_ The implementation of flat or low sloped roof conditions for planting native grasses and small-scale vegetation. Green roof systems can reduce Urban Heat Island effect, buffer solar heat gain of buildings and mitigate surface run off pertaining to water management strategies.



INUNDATION

Inundation_ Recognizing the potential for the surrounding waters of the Atlantic Ocean the Biscayne Bay to infiltrate and inundate the buildings and public spaces.



HIGH EMISSIVITY SURFACES

Low Absorption High Emissivity Surface_ The implementation of white or light colored surfaces for building roofs, road surfaces, pedestrian walkways and parking surfaces can reduce Urban Heat Island effect and reduce localized urban temperatures.



MANAGED RETREAT

Managed Retreat_ As increasing environmental pressures become overwhelming to urbanism forcing inhabitants to retreat to higher ground, exploring the range of options and subsequent impacts will be important for a safe and productive exit. Managed retreat requires exploring many possibilities to understand what the best option will be for the specific circumstance.



PERVIOUS PAVING

Pervious Paving_ a method of paving vehicular and pedestrian pathways to enable infiltration of stormwater runoff



POLICY ADAPTATION

Policy Adaptation_ Urbanism, ecological and human needs are in a constant state of change requiring policies to be flexible. The changing state must also recognize shorter needs and longer term trajectories to provide a balanced and resilient future.



URBAN TREE CANOPY

Urban Tree Canopy_ An urban tree canopy is a distributed network of trees within an urban setting with enough density to create a continuous canopy above the ground plane. Extending the urban tree canopy provides urbanism the opportunity to mitigate surface water management, Urban Heat Island effect, and resiliency to erosion and storm systems.



URBAN HEAT ISLANDS

Urban Heat Islands_ Urban Heat Islands [UHI] are described as urban settings which are hotter than the nearby rural areas. UHIs are caused by the exposure to insolation and the subsequent storage of large quantities of heat energy.

4.0 ACTION PLAN: GOALS + OBJECTIVES



1.0 DATA, TOOLS + STRATEGIES

OBJECTIVE:

Increase community resiliency through utilization of the best available data, tools and strategies.



POLICY PLANNING:

The Town shall incorporate strategies to reduce risk and economic losses associated with sea level rise and flooding into the Town's comprehensive plan, building standards, zoning, and land development regulations.

The Town shall recognize adaptation strategy options may include, but are not limited to, protection, accommodation, managed retreat, avoidance, and/or other options.

The Town shall incorporate the Southeast Florida Regional Climate Change Compact (Compact) unified sea level rise projections, by reference, into the Town comprehensive, transportation, and other infrastructure plans, and capital improvement plans.

The Town shall maintain or establish processes to assure coordination and communication with other governmental and non-governmental entities for the purpose of increasing resiliency to the impacts of climate change and making resiliency efforts more impactful.

The Town shall strive to make sustainability and climate resiliency decisions based on the most current, applicable and credible information available, including the Compact's Unified Sea Level Rise Projection to inform planning, prioritizing, and annual funding.

ACTION ITEMS:

- The Town shall develop and manage a process for tracking resiliency implementation strategies.
- The Town shall provide informational training for staff and for newly elected officials on climate change and resiliency issues.
- The Town shall use social media for climate, resiliency planning, emergency, public health, and tidal flooding messaging.
- The Town shall routinely review and update plans to identify gaps, and to integrate mitigation, sea level rise, and climate change adaptation, and strive for consistency among:
 - a. Strategic plans,
 - b. Disaster recovery and redevelopment plans,
 - c. Comprehensive plans,
 - d. Long-range transportation plans,
 - e. Comprehensive emergency management plans,
 - f. Capital improvement plans,
 - g. Economic development plans,
 - h. Local mitigation strategies,
 - i. Climate change action plans or resilience strategies,
 - j. Future land use plans, and
 - k. Threat and hazard identification and risk assessments.
- The Town shall continue to actively monitor the activities and recommendations of the Southeast Florida Regional Climate Change Compact and coordinate with neighboring municipalities to share technical expertise, assess regional vulnerabilities, and identify and advance agreed upon mitigation and adaptation strategies and develop policies and programs.

ACTION PLAN: GOALS + OBJECTIVES [cont.]



BAYSIDE EDGE

2.0 LAND USE + BUILT ENVIRONMENT

OBJECTIVE:

Increase community resiliency through sustainable land use and built environment regulations.



POLICY ADAPTATION

POLICY PLANNING:

The Town shall review current land development regulations to assess capacity to adapt to, or mitigate for the following projected climate impacts:

- a. Higher temperatures,
- b. Extreme rain events,
- c. Increased storm surge,
- d. Saltwater intrusion, and
- e. Sea level rise.

The Town shall review and evaluate the zoning code and land development regulations to identify and reduce obstacles for enabling urban agriculture, gardening, and other front and backyard agricultural practices.

The Town shall review and evaluate the land development code and make recommendations and updates to adopt climate resilient construction practices to enhance design specifications to increase resistance to more frequent and/or intense storm events.

The Town shall review and evaluate the zoning code and land development regulations to identify and reduce obstacles for enabling renewable energy and to better accommodate energy efficient practices; and develop programs and tools to support the expansion and the use of solar energy systems on all new construction, retrofitting of existing buildings or use on vacant land.

The Town shall develop policies requiring certain new properties to be solar ready or include a minimum amount of solar energy production per property.

The Town shall review and evaluate the zoning code and land development regulations to ensure urban heat island and urban tree canopy considerations are incorporated.

The Town shall develop policies to require new commercial and multi-residential properties to have electric vehicle-ready electrical infrastructure and dedicate a minimum amount of parking spaces for electric vehicle parking.

ACTION PLANNING:

- The Town shall create incentives for developers to maintain and expand existing tree canopy on development sites, specifically areas of community use or with limited tree canopy.
- The Town shall review and evaluate the zoning code and land development regulations to identify and reduce obstacles for enabling green roofs, white roofs, and white pavement.
- The Town shall review and evaluate the zoning code and land development regulations to identify and reduce obstacles to and to promote the use of electric vehicles (EV).
- The Town shall develop and adopt standards to increase designated bike parking facilities at office and retail developments.
- The Town shall review and evaluate the zoning code and land development regulations to identify and remove obstacles to implementing green

ACTION PLAN: GOALS + OBJECTIVES [cont.]

infrastructure, grey infrastructure and low-impact development practices in development and redevelopment projects.

- The Town, shall review and update the zoning code, and land development regulations according to sustainable community development practices, such as those defined in Section 255.253(7) of the Florida Statutes or those outlined in the criteria recommended by the United States Green Building Council's Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) certification, the Smart Growth Principals developed by Smart Growth America, the case studies of the Urban Land Institute, or by application of a national rating system for local governments, such as the STAR Community Index™ (STAR) and make recommendations on feasible revisions for incorporating increased sustainability.
- The Town shall maintain a Property Assessed Clean Energy (PACE) program.
- The Town shall promote and expand programs that reduce long-term energy need, such as weatherization assistance programs.
- The Town shall develop policies to regularly audit, benchmark, and/or retro-commission government buildings.
- Town shall encourage and support personnel within the Planning and Zoning, Building, Public Works or other Departments, to obtain and maintain LEED Green Associate certification; energy audit training or other energy or green building education or certifications.
- The Town shall develop a resiliency review checklist.



03.00 TRANSPORTATION

OBJECTIVE:

Increase community resiliency through sustainable transportation and transportation infrastructure decisions.



POLICY PLANNING:

The Town shall continue to collaborate on the implementation of a system of Complete Streets that is context sensitive and safely serves the transportation needs of transportation system users of all ages and abilities, including pedestrians, bicyclists, transit riders, motorists, and freight handlers.

The Town shall continue to support the existing Miami-Dade County Transit bus routes that service the Town and shall coordinate with them on ensuring effectiveness and efficiency of routes.

The Town shall strive to reduce crashes and encourage non-motorized modes of transportation through coordinated engineering, education, evaluation, and enforcement solutions.

The Town shall encourage transit agencies to reduce greenhouse gas emissions by procuring renewable fuel and electric buses.

The Town shall pro-actively plan for future deployment of autonomous vehicles and determine what step the Town should begin to take to prepare for this technology, particularly as it relates to:

- a. Shared ownership/private ownership and public transit,
- b. Convenient drop-off locations,
- c. Communication networks, and
- d. Signage and street markings.

ACTION PLAN: GOALS + OBJECTIVES [cont.]

The Town shall pro-actively plan for future deployment of aerial and ground drone delivery systems and determine what steps the Town should begin to take to prepare for this technology.

ACTION PLANNING:

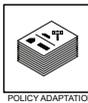
- The Town shall identify and expand electric vehicle (EV) charging infrastructure, including supporting a regional framework for locating public EV charging stations and expanding EV opportunities at multifamily buildings, workplaces, and commercial and retail centers.
- The Town shall pro-actively plan for deployment of scooter services and establish parameters to ensure safe and effective deployment specifically as it relates to:
 - a. pick-up/drop off locations, and
 - b. sidewalk safety of pedestrians.
- The Town shall, where possible, increase bicycle and pedestrian connections between residential areas and public/civic areas and transit access, and enhance street networks for greater connectivity and multi-modal use in order to:
 - a. Reduce motor vehicle traffic,
 - b. Reduce greenhouse gas emissions, and
 - c. Increase neighborhood health and safety.
- The Town shall increase bike racks and bike storage facilities to increase bike utilization through the development review and capital improvements review processes.



04.00 WATER RESOURCES

OBJECTIVE:

Increase resiliency of existing and future water resources, and wastewater and storm water systems and infrastructure through review and implementation of improvement projects and adopted standards.



POLICY PLANNING:

The Town shall review and evaluate the zoning code and land development regulations to identify feasible regulations that require new construction, redevelopment, additions, retrofits or modifications of property to incorporate porous materials, reduce total impervious area, and employ other techniques to reduce run-off, capture and reuse rain water, and recharge the Biscayne Aquifer.

The Town shall encourage and remove obstacles to the use of green infrastructure and shall review and amend the land development code to provide accommodation for green infrastructure.

The Town shall work with Miami-Dade County to evaluate infiltration and inflow programs to strategically reduce the flow of groundwater and stormwater to wastewater collection and treatment facilities.

The Town shall coordinate with Miami-Dade County to assess the adequacy of water supply and water/wastewater facilities and infrastructure to effectively capture, store, treat, and distribute potable water and reuse under variable climate conditions, including changes in rainfall patterns, sea level rise, and flooding, with potential water quality and quantity impacts.

ACTION PLAN: GOALS + OBJECTIVES [cont.]

The Town shall work with South Florida Water Management District to develop water demand projection scenarios that account for potential changes in demands if temperatures increase and drought conditions become more frequent or persistent.

The Town shall coordinate with Miami-Dade County and other appropriate agencies in the implementation of adaptive management strategies to improve the resiliency of water and wastewater transmission, disposal and treatment systems, and infrastructure resources.

ACTION PLANNING:

- The Town shall installation back-flow preventers on drainage systems that discharge to the Biscayne in coordination with the appropriate agencies.
- The Town shall evaluate the potential impacts of changes in groundwater levels on wastewater and stormwater systems with consideration of water quantity and quality-including public health-related metrics.
- The Town shall conduct an assessment to identify public investments and infrastructure at risk from sea level rise and other climate change related impacts and update this assessment every five (5) years. The assessment shall include including but not be limited to:
 - a. Buildings,
 - b. Water and wastewater infrastructure,
 - c. Transmission lines and pumping stations,
 - d. Stormwater systems,
 - e. Roads, bridges, and all transportation and transit infrastructure,
 - f. Power generation facilities and power transmission infrastructure,
 - g. Critical facilities such as Town Hall, police and fire stations.

- The Town shall maintain and improve land development and other regulations that include:
 - a. Water conservation-based irrigation requirements,
 - b. Water conservation-based plant species requirements derived from the South Florida Water Management District’s list of native species and other appropriate sources,
 - c. Lawn watering restrictions,
 - d. Mandatory use of high-efficiency water saving devices for substantial rehabilitation and new construction, and
 - e. Other water conservation measures, as feasible.

ACTION PLAN: GOALS + OBJECTIVES [cont.]



PERVIOUS PAVING



GREEN ROOFS

05.00 OPEN SPACE + PROTECTIVE NATURAL RESOURCES

OBJECTIVE:

Increase community resiliency by conserving open space and protective natural resources.



POLICY ADAPTATION

POLICY PLANNING:

The Town shall encourage current citizen-driven programs, such as the Florida-Friendly Landscaping program and the Florida Yards and Neighborhoods Homeowner program.

The Town shall support and advocate for continued implementation and funding on the state and federal levels for the Comprehensive Everglades Restoration Plan (CERP).

The Town shall continue to collaborate with the federal, state, and local governments on long-term, sustainable, regional solutions to protect the Biscayne aquifer.

The Town shall support the efforts of state environmental and planning agencies to jointly develop, assess, and recommend a suite of planning tools and climate change adaptation strategies for local municipalities to maximize opportunities to protect the coastal resources and assets from the impacts of sea level rise.

The Town shall cooperate with federal and State agencies on canal or shoreline protection programs to enhance coastal resiliency and storm protection.

The Town shall continue to collaborate with the federal, state, and local governments on long-term, sustainable, regional solutions to beach erosion and sediment supply.

The Town shall align local beach erosion prevention efforts with Florida’s Department of Environmental Protection’s Strategic Beach Management Plan (SBMP) for the Southeast Atlantic Coast Region.

The Town shall support the Florida Department of Environmental Protection’s efforts to enforce the Coastal Construction Control Line program and to educate the general public about its importance.

The Town shall support and advocate for coral reef protection, restoration, and sustainable-use initiatives to help Florida’s reefs adapt to the changing climate and ocean acidification.

The Town shall support efforts and regulations that reduce negative human impacts on coral reefs, to include efforts to:

- a. Reduce pollution and runoff,
- b. Reduce the use of pesticides and lawn fertilizers,
- c. Dispose of trash properly,
- d. Promote responsible boating, snorkeling, and diving practices,
- e. Promote sustainable, low-impact fishing practices, and
- f. Increase the installation of mooring buoys.

ACTION PLANNING:

- The Town shall review the Land Development Code to identify means to reduce the amount of impervious coverage and increase the permeability of surface drainage and amend the code where feasible.
- To reduce heat island effect and encourage carbon sequestration, the Town shall continue to maintain and enhance its tree canopy through such efforts as implementation and periodic updates of the zoning code and land development regulations, urban forestry grants, and other actions.

ACTION PLAN: GOALS + OBJECTIVES [cont.]



06.00 COORDINATION, COOPERATION + COMMUNICATION

OBJECTIVE:

Increase community resiliency through effective coordination, cooperation and communication.



POLICY PLANNING:

The Town shall continue to coordinate with local, County, regional, State and federal agencies and other non-governmental entities and academic institutions in the ongoing assessment of climate change and sea level rise and shall continue to collaborate in the identification and implementation of appropriate mitigation, protection, accommodation and adaptation strategies.

The Town shall aid in advancing resiliency measures by fostering collaboration among elected officials and local government staff.

The Town shall continue to coordinate with the Municipalities and Counties in the Southeast Florida Regional Climate Change Compact, in the identification of modeling resources and development of locally effective initiatives and goals to address climate change.

The Town shall continue to coordinate with State, federal and regional partners to ensure consistency in efforts to map saltwater intrusion across the region to create better information and improve management decisions for protecting the regional freshwater aquifer.

The Town shall recognize the regional indicators as identified by the Southeast Florida Regional Climate Change Compact, and as applicable, contribute local data.

The Town shall seek and support cooperative efforts to engage the support of federal agencies, such as National Oceanic and Atmospheric Administration, U.S. Geological Survey, Federal Emergency Management Agency, Environmental Protection Agency, the U.S. Department of Interior, U.S. Department of Energy, and the U.S. Army Corps of Engineers, that can provide technological and logistical support to further state, regional, county, and local planning efforts in the assessment of climate change vulnerabilities and adaptation strategies.

The Town shall continue to advocate for federal and state funding for applied monitoring and climate-related science, conducted in partnership with the Compact and the Florida Climate Institute.

The Town shall encourage the South Florida Water Management District to integrate potential future climate conditions, sea level rise scenarios, and potential impacts to water quality and supply into the regional water management models used to support the Lower East Coast Water Supply Plan, environmental resource permitting, and consumptive use permitting. The Town shall continue to collaborate with the Southeast Florida Regional Climate Change Compact to strengthen advocacy by the Compact in Tallahassee and Washington.

ACTION PLANNING:

- The Town shall continue to collaborate with the Southeast Florida Regional Climate Change Compact to advance and promote a Southeast Florida resilience strategy that includes regionally coordinated resilience standards as the basis for planning, development, and infrastructure investments to proactively address flood risk associated with sea level rise and predicted changes in coastal water levels, groundwater tables, flood elevations, and storm surge.

ACTION PLAN: GOALS + OBJECTIVES [cont.]

- The Town shall assist in coordinating transportation-related adaptation policies across jurisdictional boundaries and ensure consistency among broader planning and plan implementation efforts. Specifically, strategies for preparing for sea level rise, such as increasing road surface elevation standards, subsurface stabilization, stormwater management and drainage, and adjustment of bridge heights to allow for navigation, should be collaboratively assessed and implemented.
- The Town shall share data and encourage the use of common approaches to vulnerability analysis and, ultimately, the development of adaptation strategies that will be complementary across sectors and result in a cohesive, resilient built environment.
- The Town will continue to share information about effective climate policies and implementation successes among counties, municipalities, school districts, and other units of government through platforms like the Regional Climate Action Plan.
- The Town shall advocate for state laws and programs that expand all opportunities for solar or other renewable energy deployment statewide.



07.00 PUBLIC OUTREACH

OBJECTIVE:

Increase community resiliency through effective public outreach.



POLICY PLANNING:

The Town shall partner with local governments, NGOs, academic institutions, libraries, faith-based organizations, advocacy organizations and community groups to disseminate local and regional resiliency messages and to deploy communication projects.

The Town shall facilitate the availability of climate related data sets produced by federal, state, and local government; academic research; and Compact participatory research.

The Town shall effectively use social media to promote public awareness and understanding of climate impacts and resiliency matters.

To enhance resiliency message coverage, the Town shall incorporate non-internet public communication alternatives, such as:

- a. Community boards at public spaces,
- b. Flyers,
- c. Local and neighborhood papers and newsletters.

ACTION PLANNING:

- The Town's resiliency messaging shall include information on citizen's personal actions available to respond to climate change as well as public policy options.

ACTION PLAN: GOALS + OBJECTIVES [cont.]

- The Town shall provide educational materials on home energy and water use reduction strategies; on the environmental effects of automobile idling; and on placement of landscape materials to reduce energy consumption.
- The Town shall provide information to the public and community stakeholders about the current and potential impacts of climate change and sea level rise, as well as mitigation, protection, accommodation and adaptation strategies.
- The Town shall continue to support public education and outreach programs addressing issues including, but not limited to:
 - a. Energy efficiency,
 - b. Water conservation,
 - c. Solid waste reduction and recycling,
 - d. Urban forests and native landscaping,
 - e. Air quality,
 - f. Greenhouse gas reduction, and
 - g. Climate change adaptation and response planning.



08.00 COMMITMENT TO FUNDING

OBJECTIVE:

Increase community resiliency through the commitment to fund climate change adaptation and mitigation measures.



POLICY PLANNING:

The Town shall use vulnerability and risk assessment analyses and tools to assist in identifying priorities for resilience investments.

The Town shall prioritize climate adaptation improvement projects pertaining to water supply, wastewater systems, stormwater management, and flood protection as part of capital improvement planning.

The Town shall explore opportunities for and pursue external governmental or NGO funding mechanisms to implement adaptation and resiliency projects.

The Town shall evaluate the costs and benefits of adaptation alternatives in the location and design of new infrastructure as well as the fortification or retrofitting of existing infrastructure.

Capital improvement cost-benefit analyses shall consider investments into natural systems, traditional infrastructure, green infrastructure and hybrid green/gray approaches.

The Town shall give high investment priority to local, state, and federal transportation infrastructure investments, programs, and services that will reduce GHG emissions and increase resilience and adaptability to climate change.

ACTION PLAN: GOALS + OBJECTIVES [cont.]

ACTION PLANNING:

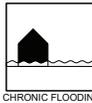
- The Town shall commit funding to climate change adaptation and resiliency projects and shall use the best available data, models, and resources, including the Southeast Florida Regional Climate Change Compact's Unified Sea Level Rise Projection, to inform planning and prioritizing annual funding.
- The Town shall develop a sea level rise checklist for capital projects.
- The Town shall center the budget on resilience and fund for planned retreat.



STORM EVENT



RISING SEAS



CHRONIC FLOODING

09.00 IDENTIFY VULNERABILITIES

OBJECTIVE:

Increase community resiliency through identification of vulnerabilities created by climate change impacts.

POLICY PLANNING:



POLICY ADAPTATION

The Town shall continue to review updated mapping studies to aid in identifying areas of the Town most vulnerable to sea level rise, tidal flooding, compromised drainage, and other impacts of climate change.

The Town shall identify areas that are at increased risk of flooding due to, or exacerbated by, sea level rise as projected for the next 40 years, and work to make these areas more climate resilient through the implementation of adaptation and mitigation strategies.

The Town shall identify and map at-risk historic and archaeological resources (i.e., resources susceptible to sea level rise and the effects of natural disasters) and continue to update these maps as more data become available and scientific projections are refined.

The Town shall establish a ranking of at-risk regional historic and archaeological resources based on a matrix of vulnerability, historical significance, scientific and economic value, and other criteria as determined by the appropriate historic preservation entities and prioritize adaptive preservation and mitigation strategies to increase the resilience of these resources against sea level rise and natural disasters.

ACTION PLAN: GOALS + OBJECTIVES [cont.]

The Town shall continue to identify existing under-performing infrastructure and implement infrastructure improvement strategies that facilitate targeted investments, allow managed performance, and achieve greater flexibility in system operations.

ACTION PLANNING:

- The Town shall identify vulnerable roadways and bridges using the Florida Department of Transportation Sea Level Scenario Sketch Planning Tool.
- The Town shall continue to update their Stormwater Master Plan as updated data and groundwater and sea level projections become available.
- The Town shall identify and quantify infrastructure and populations at risk to sea level rise and storm surge.



10.00 DISASTER RESPONSE PREPARATION

OBJECTIVE:

Increase community resiliency through disaster response preparation in the context of climate change to promote rapid recovery.



POLICY PLANNING:

The Town shall continue to communicate and collaboratively plan with other local, regional, state and federal agencies on emergency preparedness and disaster management strategies including incorporating climate change impacts into updates of local mitigation plans, water supply and management plans, shelter placement and capacity, review of major traffic-ways and evacuation routes, and cost analysis of post disaster redevelopment strategies.

ACTION PLANNING:

- The Town shall examine and determine the resilience of evacuation routes by mapping them against projected climate impacts, and collaboratively plan for the redesign of any evacuation routes that are threatened by climate impacts.
- The Town shall provide emergency and disaster training for Town Staff, including for flooding scenarios and extreme heat wave events.
- In assessing expenditures the Town shall prioritize renewable and distributed energy technologies power at emergency command centers and disaster recovery functions.
- The Town share regional tools and templates on preparing business recovery plans and home adaptation plans and encourage individual small businesses

ACTION PLAN: GOALS + OBJECTIVES [cont.]

and homeowners to develop personal recovery plans.

- The Town shall designate solar charging with battery storage and other renewable options to benefit and improve the community's emergency management preparedness in times of power outages.
- Encourage community members to obtain Community Emergency Response Training (CERT) and provide information on training opportunities.



11.00 NATIONAL FLOOD INSURANCE AND COMMUNITY RATING SYSTEM PROGRAMS

OBJECTIVE:

Increase community resiliency through continued participation in the National Flood Insurance Program (NFIP) and Community Rating System program to promote flood damage reduction.



POLICY PLANNING:

The Town shall collaborate with regional partners to advocate for regional long-term affordability and sustainability of flood insurance coverage and options within the National Flood Insurance Program (NFIP), and for private insurers that properly credit communities and individual policyholders for investments in resilience.

The Town shall continue to identify site development techniques and best practices that may reduce losses due to flooding and claims made under flood insurance policies and implement these techniques and best practices through the land development code and Community Rating System.

ACTION PLANNING:

- The Town shall evaluate the FEMA FIRM Map special flood hazard areas periodically against local water level data.

ACTION PLAN: GOALS + OBJECTIVES [cont.]

- The Town shall review and evaluate the Town's Floodplain Management regulations to evaluate and make recommendations and updates to adopt climate resilient practices such as:
 - a. Increased finish floor elevation standards with respect to projected sea level rise scenarios and flooding potential,
 - b. Enhanced cumulative tracking standards for substantial improvement projects
 - c. Establishment of a minimum Base Flood Elevation if warranted.



12.00 PUBLIC HEALTH

OBJECTIVE:

Increase community resiliency through identification of and preparation for public health risks associated with climate change.



POLICY PLANNING:

The Town shall consider the public health consequences of climate change, such as extreme temperatures and vector-borne diseases, and take steps to build capacity to respond to or support other agency responders.

The Town shall ensure the availability of, and access to, public cooling centers during extreme heat events.

ACTION PLANNING:

The Town shall continue to coordinate with its County and State Public health partners to stay informed of emerging diseases associated with climate change impacts, and current gaps in health data that would support the monitoring of climate change health impacts.

BEACH DUNE REPORT

EXHIBIT SE. 3

Town of Surfside

9293 Harding Avenue

Surfside, FL 33154

Beach and Dune Report

W.A. 110

CGA Project number: 18-9942

Prepared By: **Calvin, Giordano & Associates, Inc.**
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BEACH CREATION AND STATUS

The approximate one mile length of public beach and dune along the Town of Surfside's (Town or Surfside) ocean frontage was created from a beach renourishment program. The federally-authorized Dade County Shore Protection Project, which included Surfside, began in 1978 and was completed in January 1982 using sand from offshore borrow sites. This project included creation of a 20 foot wide dune at elevation +10.7 foot NGVD and a 50 foot wide level storm protection berm at elevation +8.2 foot NGVD. Additional fill material, equivalent to ten years of advance nourishment, was placed seaward of the design berm with this initial program. The Miami-Dade (County) *Erosion Control Master Plan* (Plan) reports that an additionally 590,000 cubic yards of sand was placed in Surfside again in 1999. The attached aerial photographs of Surfside in 1970 and 1984 demonstrate the initial beach renourishment effort and the 1999 aerial photographs (February and December) demonstrate the follow-up project. See [Exhibit A. Aerial photograph of Surfside 1970 and 1984 and 1999](#).

The December 2017, *Critically Eroded Beaches in Florida*, report from the Florida Department of Environmental Protection (FDEP) states that most of the County's barrier island coast north of Cape Florida is critically eroded. FDEP, pursuant to rule 62B-36.002(5), Florida Administrative Code (F.A.C.), defines a critically eroded shoreline as, "a segment of the shoreline where natural processes or human activity have caused or contributed to erosion and recession of the beach or dune system to such a degree that upland development, recreational interests, wildlife habitat, or important cultural resources are threatened or lost. Critically eroded shorelines may also include peripheral segments or gaps between identified critically eroded areas which, although they may be stable or slightly erosional now, their inclusion is necessary for continuity of management of the coastal system or for the design integrity of adjacent beach management projects." The report identifies three critically eroded areas (17.0 miles), two non-critically eroded areas (1.4 miles) and one non-critically eroded inlet shoreline area (0.3 mile) in the County. Between Bakers Haulover Inlet and Government Cut (R27 – R74.4) are 9.4 miles of critical erosion, which threaten development and recreational interests along Bal Harbour, Surfside and Miami Beach. See [Exhibit B. Critically Eroded Beaches Map](#).

The Town is approximately 0.85 miles south of Bakers Haulover Inlet. The Plan states that "areas immediately south of most inlets typically experience erosion due to sand being lost, creating a deficit on the downdrift side. At Bakers Haulover Inlet, sand is lost due to high current velocities, which tend to jet sand coming into the inlet either offshore, or into Biscayne Bay, where it accumulates in ebb and flood shoals, respectively. While these shoals are periodically dredged and the sand placed on the beach, there are inherent losses which create erosional conditions. In addition to the direct effects of the inlet, the curved jetty structure on the south side of the inlet can result in wave refraction under certain weather conditions that can accelerate the loss of sand from the beach in the vicinity of the jetty." Although Bal Harbour, which lies immediately south of the jetty and to the north of Surfside, is most strongly affected by the inlet, the lack of downdrift sand also impacts the Town and the beaches to the south, by depletion of the sand source that naturally should drift south. Inlets throughout Florida are studied, monitored and managed in accordance with their adopted Inlet Management plans; *The Baker Haulover Inlet Management and Implementation Plan* was jointly developed by FDEP and the County. Ongoing is a *Baker Haulover Inlet Feasibility Study* that is funded by FDEP with the County leading this project. A Technical Advisory Group comprised of Surfside, Bal Harbour, Sunny Isles Beach, the County, FDEP and the Florida Inland Navigation District, has been meeting over this past year to collaboratively work with the firm of Moffat & Nichol to finalize the report that is evaluating and investigating improvements to sand bypassing at the inlet. It is anticipated the report will be completed in the spring of



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2019. FDEP will then review and utilize the report to update the inlet management plan. The FDEP process may take an additional year.

Beaches and dunes are not discrete units confined by municipal limits; they are components of a larger ecosystem. The beach and dune system along Surfside is a part of the larger managed beach dune system along the County's Barrier Islands. An upcoming United States Army Corps of Engineers (ACOE) driven project proposes to place 300,000 cubic yards of sand along the beach front of Surfside from coastal range monument 31.5 to 36.5 (the entire length of the Town). This project is in the final stages of permit processing and it is anticipated work will begin in mid-2019. The proposed renourishment will have a typical berm crest of 6.1', a berm width of 240' and a construction slope of 1 vertical to 10 horizontal. The Town is an active partner with the ACOE and the County in this project. The Town is providing surveying services and permit processing services for this project. The State is reviewing the project and will be issuing a joint coastal permit through the Beaches, Inlets and Ports Program that falls within the FDEP. The County and the ACOE are co-permittees on this project and will also be issuing permits. For the Surfside project sand will be hauled to the site from approved inland sand mines sources.

The Town beach renourishment project is a component of an overall ACOE driven project in the County that also includes the Bal Harbour beach and the inlet. The Bal Harbour component involves inlet dredging as well as sand placement on the beach. It is anticipated work will begin in mid-2020 on this component. Other components of the overall County project include Sunny Isles Beach and segments of Miami Beach. These other components will run through 2020. Beach monitoring and renourishment throughout the County is a monitored and managed project with the ACOE and the County taking lead roles.

BEACH OWNERSHIP, FEATURES AND REGULATORY STRUCTURE

To understand ownership, responsibility and the applicable regulatory structure of the beach and dune system there are three distinct delineations that must be understood; these are: 1) the erosion control line (ECL), 2) the ocean bulkhead line and 3) the coastal construction control line (CCCL). These are shown on [Exhibit C. Beach Aerial with ECL, Bulkhead and CCCL Delineations](#)

1) Erosion Control Line: The ECL is defined in F.A.C. 62B-41.002(15) as "the line determined in accordance with the provisions of sections 161.141-.211, Florida Statute (F.S.) and recorded pursuant to section 161.181, F.S., in connection with beach restoration projects. Where established, an erosion control line represents the landward extent of the claims of the state in its capacity as sovereign title holder of the submerged bottoms and shores of the Atlantic Ocean, the Gulf of Mexico, the Straits of Florida and the bays, lagoons and other tidal reaches thereof."

The Plan describes the ECL as follows "Under Florida law, all land located seaward of the Mean High Water Line (MHWL) (with certain exceptions) is the property of the State of Florida. In implementing a beach nourishment or other activity that will artificially move the MHWL seaward, the State requires, pursuant to Chapter 161, F.S., that the project sponsor establish an ECL in order to allow the State to maintain ownership of these previously submerged areas. Prior to the establishment of an ECL, a riparian owner's seaward property line is the MHWL and is subject to fluctuation based on naturally occurring erosion or accretion. The establishment of an ECL occurs by surveying the location of the pre-project MHWL prior to the project using established survey procedures. This surveyed shoreline position then becomes a fixed property line known as the ECL. Once established, this line remains the seaward extent of the riparian owner, regardless of the change on the MHWL by fill placement or other means. In most cases, any new beach established seaward of the ECL is under State ownership and is available as public beach."



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Within the Town the ECL runs roughly along the crest of the storm protection dune (slightly landward of the footpath that runs along the crest of the dune). Everything seaward of the ECL is owned by the State and is open for public recreation. See [Exhibit C. Beach Aerial with ECL, Bulkhead and CCCL Delineations](#). This line identifies the shoreline prior to the beach renourishment completed in 1982. Although not owned by the Town, the beach area east of the ECL does fall within the corporate limits of the Town. Other than one lifeguard station, there are no piers, cabanas, marinas or other structures on the public beach.

The beach and associated dune system seaward of the footpath is maintained through agreement and on behalf of the State by the County Park and Recreation Department. The beach is maintained in a natural condition. The County specifically mechanically and manually cleans the beach, removes seaweed, empties the trash cans and removes/levels any escarpments that form. The Town Commission recently approved and adopted in the 2018-2019 budget for additional mechanical beach raking to supplement that done by the County, the Town is working on implementing this raking program. The Town maintains the walking path on the crest of the dune.

Unless an extremely significant storm event would occur to move the MHWL landward of the existing ECL and a subsequent publically funded renourishment program would trigger the necessity for a new ECL survey, the ECL will remain static in the Town.

2) Ocean Bulkhead Line: The Town has established an ocean bulkhead line that falls within and applies to the privately owned beach front properties east of Collins Avenue; this line is also shown on Exhibit C. [Beach Aerial with ECL, Bulkhead and CCCL Delineations](#). The Town zoning code prohibits development or redevelopment seaward of the ocean bulkhead line. Seaward of this bulkhead line there are approximately 19 acres that lie adjacent to the State owned beach. Within this ocean bulkhead setback area, along the landward side of the dune, there is an unimproved maintenance path that is utilized by the State, the County and the Town that runs the entire length of the Town. This maintenance path is and has historically been, a popular public walking and biking path. This maintenance path, which is also utilized for emergency vehicles, is maintained by the Town. Any commercial use of the maintenance path, for construction or special events, etc., requires a Police Department Escort permit. Nearly all of the property owners have provided landscape improvements in the area between the bulkhead line and maintenance path. The maintenance path, also referred to as the 'Hardpack' is defined in Sec. 34-3 of the Town code as "The sand road west of the Erosion Control Line used by public safety and other authorized vehicles, pursuant to section 90-60.1(5) of the Town Code of Ordinances."

Relating to the ocean bulkhead line, Article IV, Division 2 of the Town Code specifically states the following within Section 14:

Sec. 14-87. - Construction east of line. It shall be unlawful for any person to construct any groin, bulkhead, seawall, jetty, breakwater or other protective work or to place any permanent or temporary structure of any nature whatsoever east of the ocean bulkhead line. It shall also be unlawful for any person to repair, extend, alter or replace any existing structure lying east of the ocean bulkhead line.

Sec. 14-88. - Construction west of line. Except as provided in section 90-187 no structure of any nature whatsoever may be erected within 20 feet west of the ocean bulkhead line and it shall be unlawful to repair, extend, alter or replace any existing structure lying within 20 feet west of the ocean bulkhead line which is not permitted under the provisions of section 90-187.

Sec. 14-89. - Vehicles east of line. It shall be unlawful for any person to drive, park, store or leave unattended any vehicle east of the ocean bulkhead line. In case of an emergency, the Town manager may



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grant temporary permission for vehicular access, upon such terms and conditions as he shall deem appropriate.

Additionally, Sec. 90-60 of the Town code addresses construction adjacent to the ocean bulkhead line and states the following:

90-60.1 Ocean bulkhead lines are established in section 14-86 and the following regulations shall control construction adjacent thereto:

- (1) No permit shall be issued for the construction of any habitable, fully-enclosed structure east of the ocean bulkhead line.
- (2) No permit shall be issued for the repair, extension, alteration or replacement of any habitable, fully-enclosed structure east of the ocean bulkhead line.
- (3) No permit shall be issued for the construction of any habitable, fully enclosed structure closer than 20 feet to the west of the ocean bulkhead line.
- (4) No permit shall be issued for the repair, extension, alteration or replacement of any habitable, fully enclosed structure lying within 20 feet to the west of the ocean bulkhead line.
- (5) All properties east of Collins Avenue which upon redevelopment or expansion of habitable, fully enclosed structures require a permit from the town shall be required to provide an access easement to the town granting the perpetual use of the hardpack to the public, provided that the development creates an impact on public safety and the need for the easement is proportional to the impact created. The hardpack is defined as the sand road west of the Erosion Control Line used by public safety vehicles. Each access easement agreement shall be in a form acceptable to the town manager and approved as to legal sufficiency by the town attorney and shall contain a signed and sealed boundary survey and legal description of the easement area.

3) Coastal Construction Control Line: The CCCL Program is an integral component of the state's Beach and Shore Preservation Act pursuant to Part I of Chapter 161, F.S. Per FDEP, the program regulates and protects Florida's beaches and dunes from imprudent construction that could jeopardize the beach/dune system, accelerate erosion, threaten upland structures and property and interfere with public beach access while allowing reasonable use of private property. The CCCL program is administered through the FDEP. Other than a few limited exceptions, all development seaward of the CCCL requires a permit from FDEP. The CCCL permitting criteria is contained in F.A.C. 62B-26 through 56. Within the Town the CCCL runs roughly through the middle of the developable portions of the properties that fall east of Collins Avenue, this line is also shown on Exhibit C. Beach Aerial with ECL, Bulkhead and CCCL Delineations.

As stated on the FDEP website "the Coastal Construction Control Line defines that portion of the beach and dune system subject to severe fluctuations based on a 100-year storm event and establishes the landward limit of jurisdiction of the Department of Environmental Protection along sandy beaches of the state which front on the Gulf of Mexico, the Atlantic Ocean and the Straits of Florida. Unless otherwise exempt; a permit is required from FDEP for construction and excavation activities seaward of the CCCL. The CCCL is not a seaward limit for construction of upland structures (as in a setback line), but is an area where special siting and design considerations are necessary to protect the beach and dune system, proposed or existing structures, adjacent properties, public beach access, native salt-tolerant coastal vegetation and marine turtles."



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There are seven platted right of ways that run east to the ECL, these are 96th, 95th, 94th, 92nd, 90th, 89th and 88th streets. The improved roadways end near the ocean bulkhead line with unimproved paths that continue and crossover the dune and provide public access to the beach. To limit impacts to the dune and dune vegetation, there are a total of sixteen dune cross-over pathway locations that have been established within the Town, seven of these cross-overs correspond to the termination of the platted public right-of-ways referenced above and another one is in front of the Town Community Center providing public access to the beach. Although the remaining cross-overs begin on private properties, the established 'hardpack' maintenance path provides public access to the beach on these cross-overs as well. Creation or relocation of a dune cross-over requires a CCCL permit from the FDEP and notification to the Town.

In addition to the Hardpack maintenance path there is also a narrower walking path along the crest of the dune. This foot path has a coquina crushed shell base and post and rope edging to protect adjacent vegetation from foot traffic. This post and rope fencing also abuts the established maintenance path to block foot traffic from entering into the vegetated dune. The post and rope fencing is maintained by the Town.

To summarize, development on the properties east of Collins Avenue is subject to the FDEP CCCL permitting program, development within these properties adjacent to and east of the ocean bulkhead line is highly restricted through the Town code –the landward side of the dune and the public maintenance path falls within this area-and eastward of the ECL the dune and beach system is state owned and maintained by the County.

BEACH AND DUNE FUNCTIONS

In addition to the recreational functions, the beach and dune system protects upland properties from storm damage and provides habitat for plants and animals. Dunes block storm surge and absorb wave energy; vegetated dunes minimize erosion and accrete sand and enhance beautification. Impacts to dunes and dune vegetation are regulated by the State of Florida through the CCCL program. The CCCL program directs development away from the dunes, protects dune vegetation and regulates the relocation of sand within the permitted project area. The CCCL program also ensures that any relocated sand or imported sand is compatible with the existing beach sand.

The following definitions are contained in F.A.C. 62B-55.002:

- (2) "Beach" means the zone of unconsolidated material that extends landward from the mean low water line to the place where there is a marked change in material or physiographic form, or to the line of permanent vegetation, usually the effective limit of storm waves.
- (9) "Dune" means a mound or ridge of loose sediments, usually sand-sized, lying landward of the beach and deposited by any natural or artificial mechanism.
- (10) "Frontal dune" means the first natural or man-made mound or bluff of sand which is located landward of the beach and which has sufficient vegetation, height, continuity and configuration to offer protective value.

To strengthen protection for the beach and dune system, Sec. 34-2 of the Town Code states "It is hereby declared and determined that preserving and enhancing the quality of the Town's beaches is essential to serve and benefit the town's residents and visitors. The chemical and physical composition of beach sand must not interfere with the health, safety or welfare of the public." The Town has also installed 'diverter' dunes at the ocean-side ends of the beach access pathways at 96th street and the cross-over located between 90th and 92nd street (adjacent to the Surfclub development). Diverter dunes



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are small triangular shaped dunes structures created within the seaward side openings of the beach access paths designed to impede and slow the velocity of the storm surge entering the access way opening. The Town is exploring opportunities to install additional diverter dunes at other access pathway openings.

FDEP also administers the Beaches, Inlets and Ports Program (BIPP). The BIPP program permits beach renourishment projects and piers and per FDEP, “projects that generally are below the mean high water line and extend into the sovereign submerged lands and are likely to affect the distribution of sand along the beach.”

FLORA AND FAUNA CONSIDERATIONS

Florida’s sandy beaches are nesting sites for several species of threatened or endangered marine turtles. Turtle nesting season runs from May 1 to October 31 in the County. Activities that interfere with the movement of turtles up or along the beach, result in a change in the basic character of the beach itself, or result in improper lighting, can inhibit the successful nesting of turtles. The marine turtles listed below in Table 1. Protected Marine Turtle Species in Florida; are protected under the Federal Endangered Species Act of 1973 and Florida's Marine Turtle Protection Act, F.S. 379.2431.

Florida Statutes restrict the take, possession, disturbance, mutilation, destruction, selling, transference, molestation, and harassment of marine turtles, nests or eggs. Protection is also afforded to marine turtle habitat. Additionally, specific authorization from the Florida Fish and Wildlife Conservation Commission (FWC) staff is required to conduct scientific, conservation, or educational activities that directly involve marine turtles in or collected from Florida, their nests, hatchlings or parts thereof, regardless of applicant's possession of any federal permit.

Table 1. Protected Marine Turtle Species in Florida

Green sea turtle	<i>Chelonia mydas</i>	Federally-designated Threatened
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Federally-designated Endangered
Kemp’s ridley sea turtle	<i>Lepidochelys kempii</i>	Federally-designated Endangered
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Federally-designated Endangered
Loggerhead sea turtle	<i>Caretta caretta</i>	Federally-designated Threatened

Historically hatchling turtles were guided to the ocean by an instinct to travel away from the dark silhouettes of the dune vegetation and toward the brightest horizon which was the light from the sky reflecting off the ocean. Many coastal areas are highly populated with artificial lights near the beach that can deter females from nesting and disorient hatchling sea turtles. When disoriented, the hatchlings travel inland toward the artificial lights where they often die from dehydration, entrapment predation, or sometimes crawling onto roads where they are run over by cars.

FDEP and FWC dually review permits under the CCCL program for coastal construction under Chapter 62B, F.A.C. for affects to marine turtles. FDEP also regulates mechanized beach cleaning under the Florida Beach and Shore Preservation Act, F. S. 161. In order for beach cleaning to occur during nesting season, FWC and FDEP have developed special conditions to protect marine turtles, their nests and hatchlings.

To protect turtle hatchlings from disorientation the Town code established lighting standards for new and existing development in Sec. 34-84. - *Lighting Standards for Coastal Construction Activities*, which states the following:



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- (a) *Lighting standards for new development.* It is the policy of the Town of Surfside that no artificial light shall illuminate within direct line-of-sight of the beach that has potential to interfere with turtle nesting. To meet this intent, new development construction within line-of-sight of the beach shall comply with the following:
- (1) Exterior artificial light fixtures shall be designed and positioned so that:
 - a. The point source of light or any reflective surface of the light fixture is not directly visible from the beach;
 - b. Areas seaward of the frontal dune are not directly or indirectly illuminated; and
 - c. Areas seaward of the frontal dune are not cumulatively illuminated.
 - (2) Exterior artificial light fixtures within direct line-of-sight of the beach are considered appropriately designed if:
 - a. Completely shielded downlight only fixtures or recessed fixtures having low wattage (i.e., 50 watts or less) bug type bulbs and non-reflective interior surfaces are used. Other fixtures that have appropriate shields, louvers, or cut-off features may also be used if they are in compliance with subsection (a)(1)a.—c. above; and
 - b. All fixtures are mounted as low in elevation as possible through use of low-mounted wall fixtures, low bollards, and ground-level fixtures.
 - (3) Floodlights, uplights or spotlights for decorative and accent purposes that are directly visible from the beach, or which indirectly or cumulatively illuminate the beach, shall not be used.
 - (4) Exterior lights used expressly for safety or security purposes shall be limited to the minimum number and configuration required to achieve their functional role(s). The use of motion detector switches that keep lights off except when approached and that switch lights on for the minimum duration possible are preferred.
 - (5) Only low intensity lighting shall be used in parking areas within line-of-sight of the beach. Such lighting shall be:
 - a. Set on a base which raises the source of light no higher than 48 inches off the ground or higher if necessary to conform with life safety codes; and
 - b. Positioned or shielded so that the light is cast downward and the source of light or any reflective surface of the light fixture is not visible from the beach and does not directly or indirectly illuminate the beach.
 - (6) Parking areas and roadways, including any paved or unpaved areas upon which motorized vehicles will park or operated, shall be designed and located to prevent vehicular headlights from directly or indirectly illuminating the beach.
 - (7) Vehicular lighting, parking area lighting, and roadways lighting shall be shielded from the beach through the use of ground-level barriers. Ground-level barriers must not interfere with marine turtle nesting or hatchling emergence, or cause short-or long-term damage to the beach/dune system.
 - (8) Tinted glass shall be installed on all windows and glass doors of single and multi-story structures within line-of-sight of the beach.
 - (9) Use of appropriately shielded low pressure sodium vapor lamps and fixtures shall be preferred for high-intensity lighting applications such as lighting parking areas and roadways, providing security, and similar applications.
 - (10) Temporary lighting of construction sites during the marine turtle nesting season shall be restricted to the minimal amount necessary and shall incorporate all of the standards of this section.
 - (11) Properties that abut the beach which have signage facing the beach or in the line-of-sight of the beach, including building identification signs, shall not be illuminated during the nighttime hours of the nesting season. Properties that face the beach but do not abut the beach which have signage visible from the beach shall be properly shielded with downward facing fixtures where the chosen background does not reflect the light source and signs that are lit internally must illuminate only the text and have the appropriate shielding, and not reflect the light source.



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- (b) *Lighting standards for existing development.* It is the policy of the Town of Surfside that no artificial light shall illuminate any area within direct line-of-sight of the beach that has the potential to interfere with turtle nesting. To meet this intent, within 12 months of the effective date of this article or when an existing development has begun renovations exceeding 50 percent of the tax assessed value of the structure as determined by the building official, an existing development shall be in compliance with the following:
- (1) Existing artificial light fixtures shall be repositioned, modified, or removed so that:
 - a. The point source of light or any reflective surface of the light fixture is not directly visible from the beach;
 - b. Areas seaward of the frontal dune are not directly or indirectly illuminated; and
 - c. Areas seaward of the frontal dune are not cumulatively illuminated.
 - (2) The following measures shall be taken to reduce or eliminate the negative effects of existing exterior artificial lighting:
 - a. Reposition fixtures so that the point source of light or any reflective surface of the light fixture is no longer visible from the beach;
 - b. Replace fixtures having an exposed light source with fixtures containing recessed light sources or shields;
 - c. Replace traditional light bulbs with bug type bulbs not exceeding 50 watts or any alternative lighting source as defined herein;
 - d. Replace nondirectional fixtures with directional fixtures that point down and away from the beach;
 - e. Replace fixtures having transparent or translucent coverings with fixtures having opaque shields covering an arc of at least 180 degrees and extending an appropriate distance below the bottom edge of the fixture on the seaward side so that the light source or any reflective surface of the light fixture is not visible from the beach;
 - f. Replace pole lamps with low-profile, low-level luminaries so that the light source or any reflective surface of the light fixture is not visible from the beach;
 - g. Replace incandescent, fluorescent, and high intensity lighting with the lowest wattage low pressure sodium vapor lighting possible for the specific application or an alternative lighting source;
 - h. Plan or improve vegetation buffers between the light source and the beach to screen light from the beach;
 - i. Construct a ground level barrier to shield light sources from the beach. Ground-level barriers must not interfere with marine turtle nesting or hatchling emergence, or cause short- or long-term damage to the beach-dune system;
 - j. Permanently remove or permanently disable any fixture that cannot be brought into compliance with the provisions of these standards.
 - (3) Properties that abut the beach which have signage facing the beach or in the line-of-sight of the beach, including building identification signs, shall not be illuminated during the nighttime hours of the nesting season. Properties that face the beach but do not abut the beach which have signage visible from the beach shall be properly shielded with downward facing fixtures where the chosen background does not reflect the light source and signs that are lit internally must illuminate only the text and have the appropriate shielding, and not reflect the light source.
 - (4) One or more of the following measures shall be taken to reduce or eliminate the negative effects of interior light emanating from doors and windows within line-of-sight of the beach:
 - a. Apply window tint or film that meets the standards in the definition of "tinted or filmed glass";
 - b. Rearrange lamps and other moveable fixtures away from windows;
 - c. Use window treatments (e.g., blinds, curtains) to shield interior lights from the beach; and/or
 - d. Turn off unnecessary lights.



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Additionally, Sec. 34-83. - *Prohibited Activities Disruptive to Marine Turtles*, includes the following provisions:

(a) *Prohibited activities*. The following activities involving direct illumination of portions of the beach are prohibited on the beach at nighttime during the nesting season for the protection of nesting marine turtle females, nests and hatchlings:

- (1) The operation of all motorized vehicles, except emergency and law enforcement, or emergency beach maintenance vehicles or those permitted on the beach for marine turtle's conservation and/or research.
- (2) The building of campfires or bonfires.
- (3) Fireworks displays, except those that have town special event permits and, if applicable, a FDEP permit; however, nothing in this article shall prohibit the town's July 4th fireworks display.
- (4) Special events pursuant to chapter 35, article 1, of the town Code, unless allowed first by permit issued by FDEP.

The Town also affords protection for turtle nesting and hatchlings through the following Town codes: Sec. 86-30. - *Limitations on Beach Furniture* and Sec. 86-31. - *Beach Furniture Permit Requirements*, specifying that beach furniture shall not inhibit access to the public beach, nor obstruct reasonable access on the beach for pedestrians and emergency vehicles, nor impact native vegetation, nor affect sea turtles or other wildlife; and requiring a hotel beach furniture operator to procure a local business tax receipt and comply with the regulations of section 70-41 of the Town of Surfside Code and all required licenses or permits from the County, the State of Florida and federal entities.

Predation or destruction of nests can occur by raccoons or uncontrolled dogs. A comprehensive beach maintenance program should include the control of these animals. The Town does not allow dogs on the public beach as specified in Code Sec. 10-33 stating "No dog, whether on a leash or without a leash, muzzled or unmuzzled, shall be permitted at any time on any public beach in the town. Nothing in this section shall be construed to apply to any deaf or hard of hearing person, totally or partially disabled person, or physically disabled person accompanied by a guide dog or service dog specially trained for the purpose."

Throughout Florida a multitude of citizen volunteers walk beaches during nesting season to report on crawls, nesting activity and nest locations. FWC's Fish and Wildlife Research Institute (FWRI) coordinates nesting beach survey programs around the state and the FWRI staff members coordinate the Florida Sea Turtle Stranding and Salvage Network (FLSTSSN), which is responsible for gathering data on dead or debilitated (i.e., stranded) sea turtles found in Florida. The beach survey program is administered on behalf of FWRI locally by the County and the Town's Park and Recreation Depart staff maintain communication with the County staff.

Sea Oats (*Uniola paniculata*) and Seagrapes (*Coccolobis uvifera*) are considered the most common dune vegetation. These are protected under F.S. 161.242 which states "Harvesting of sea oats and sea grapes prohibited; possession prima facie evidence of violation.

- (1) The purpose of this section is to protect the beaches and shores of the state from erosion by preserving natural vegetative cover to bind the sand.
- (2) It is unlawful for any purpose to cut, harvest, remove, or eradicate any of the grass commonly known as sea oats or *Uniola paniculata* and *Coccolobis uvifera* commonly known as sea grapes from any public land or from



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any private land without consent of the owner of such land or person having lawful possession thereof. Possession of either *Uniola paniculata* or *Coccolobis uvifera* by other than the owner of such land shall constitute prima facie evidence of violation of this section. However, licensed, certified nurserymen who grow any of the native plants listed in this section from seeds or by vegetative propagation are specifically permitted to sell these commercially grown plants and shall not be in violation of this section of the law if they do so, as it is the intent of the law to preserve and encourage the growth of these native plants which are rapidly disappearing from the state.”

The FDEP has established *Sea Grape Trimming Guidelines* for maintenance trimming of sea grapes, any trimming outside the established guidelines, or the need to remove a tree, will require a permit from the FDEP.

There are several listed plant species that may make their home in the sandy dune habitat of south Florida. These include but are not limited to the plants listed below in Table 2. Listed Dune Plant Species

Table 2. Listed Dune Plant Species

Scientific name	Common Name	Status
<i>Coccothrinax argentata</i>	Florida Silver Palm	Threatened-State
<i>Ernodea cokeri</i>	Coker's Beach Creeper	Endangered-State
<i>Heliotropium gnaphalodes</i>	Sea Rosemary; Sea Lavender	Endangered-State
<i>Leucothrinax morrisii</i>	Brittle Thatch Palm	Threatened-State
<i>Okenia hypogaea</i>	Beach Peanut	Endangered-State
<i>Scaevola plumieri</i>	Beachberry; Inkberry; Gullfeed	Threatened-State

There are several aggressive invasive plant species that can flourish in the sandy dune habitat and disrupt native vegetative communities. In particular the Hawaiian half-flower or beach naupaka (*Scaevola taccada*) is a common invasive exotic dune plant plaguing south Florida beaches. The plant's shallow roots and fragile stems are easily destroyed in high winds or storms making it far less effective in dune stabilization than sea oats and other native species. This aggressive plant will colonize and block out native vegetation. Brazilian-pepper trees (*Schinus terebinthifolius*) and Australian-pine trees (*Casuarina equisetifolia*) can also infest and disrupt dune vegetative communities. All three of these species are recognized as Category I invasive species by the Florida Exotic Pest Plant Council. A Category I species is defined as “Invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives.”

For the landward side of the dune on the private properties, when these properties pursue development permits the Town code in Section 90-90.3 states “As a condition of approval, the property owner shall remove all invasive exotic species from the property prior to final approval.” The Town also regulates native vegetation through the following codes: Sec. 90-86 “All buildings, structures, new developments, redevelopment and changes of use requiring a permit shall require submittal of a landscape and irrigation plan”; and Sec. 90-97 “Tree removal/relocation permits and native plant community vegetation removal permits are required prior to the removal/relocation of trees, specimen trees, or any vegetation, pursuant to section 24-60 of the County Code. Also, tree abuse including hack racking is prohibited within the town. Tree protection barriers are required during site development to preserve existing and relocated trees. The County Department of



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Environmental Resources Management (DERM) is responsible for administering and enforcing these provisions.” As a component of a project specific CCCL permit the FDEP may require dune plantings and the removal of invasive vegetation on the dune system adjacent to a development project.

The Town partnered with the not-for-profit Youth Environmental Alliance (YEA), on a one-time dune planting project along with the removal of the invasive Scaevola plant.

RECOMMENDATIONS

The Town’s capacity to directly manage or impact the beach and dune system activity is limited due to their limited ownership; however, below are some best management practices (BMPs) that the Town can pursue to provide protection for sea turtles and the dune system.

Control Light Pollution: Turning out unnecessary lights is the simplest, most effective and most energy efficient solution to avoid negative impacts to wildlife from light pollution. However, this is not a feasible solution where lighting is required for safety and security. The FWC wildlife lighting criteria specifies that a fixture, lamp, or community lighting must be able to satisfy three (3) conditions. These conditions are: 1) keep it low, 2) keep it shielded and 3) keep it long. These are described as follows:

- “Keep it low” means that the fixtures must be able to be mounted as low as possible and still be appropriate for the needed purpose, must be able to accept lamps that produce only the lumens necessary for the needed purpose and bulb must produce the lowest lumens necessary for the needed purpose.
- “Keep it shielded” means that the: fixture must meet or exceed full cut-off (meaning the fixture blocks light from shining at an upward angle), must be able to shield the bulb, lamp, or glowing lens from the beach, wildlife corridor, or protected natural area (when mounted appropriately) and that the bulb must be able to be used in an FWC approved fixture.
- “Keep it long” means that the fixture must accept long wavelength bulbs. The acceptable long wavelength light is 560 nanometers (nm) while anything below 560 nm would be unacceptable.

The site plan review, CCCL and Town building permit processes ensure that new oceanfront lighting complies with the FDEP and FWC lighting criteria, the Town code compliance process can ensure that lighting remains in compliance. Lighting Surveys of beach facing properties can be conducted to identify any existing lighting that may need to be brought into compliance.

Provide Public Education: Many visitors to the Town are unfamiliar with beach and dune habitat and marine turtles. Educational signage at public beach access points can inform visitors. Information on the Town website and in the Surfside Gazette can reach and inform residents and visitors alike. The Town can utilize useful education material on turtles from <http://myfwc.com/education/wildlife/sea-turtle/>. The Town can publicize the FWC Wildlife Alert phone number (1-888-404-FWCC) to inform people where to report information on injured or stranded turtles.

Beach Furniture Compliance: The Town code compliance process can ensure that beach furniture placement remains in compliance and that any hotel or condominium that plans to put beach furniture on the beach obtain the required Town permit.



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Protect Native Dune Vegetation: Native dune species help to trap and hold sand and inhibit erosion. Invasive dune species can crowd out and impede the growth of native species and often have shallow roots and fragile stems that are easily destroyed in high winds or storms making them ineffective in dune stabilization. The removal of invasive species and installation of native dune species restores the dune's natural functions and biodiversity. The following measures protect and enhance native dune vegetation and the dune structure:

- Remove invasive vegetation. Coordinate with the County to ensure invasive/aggressive vegetation is removed from the state owned portions of the dune. Conduct the follow-up inspection on private properties to ensure invasive species are completely removed when required through the issuance of a Town development permit. On the platted right of ways and Town-owned properties all invasive vegetation should be removed with a routine inspection and follow-up eradication program established.
- Do not leave removed invasive vegetation on-site. Removed invasive exotic vegetation shall be completely removed (including root systems) and properly disposed of; do not shred or chip and leave on site.
- Protect native vegetation during exotic plant removal. To ensure native species are not collaterally damaged during the removal of non-natives, barriers should be installed prior to the removal of invasives.
- Immediately replant cleared areas. To impede re-infestation of aggressive non-native vegetation, any cleared dune area should immediately get installed with diverse native materials. See attached DEP brochure for a list of native dune species. Exhibit D. Recommended Florida Native Beach and Dune Plants for Beachfront Properties and Dune Restoration.
- Sea oats planting. Coordinate with FDEP and the County and support sea oat planting programs and sponsor a Town planting program.
- Limit dune crossovers. Coordinate with FDEP when CCCL permits are sought to ensure no additional dune crossovers are permitted and constructed.
- Maintain the rope and post sand fencing. To impede foot traffic into the dune and the creation of additional unpermitted dune crossovers of convenience, routinely inspect and conduct or coordinate any needed repairs to the rope and post fencing system.

Dune Management: Develop a Town Dune Management program addressing vegetation, wildlife, lighting, maintenance and interagency coordination. Include information on which public and/or private entities currently conduct any beach or dune maintenance activities and what these are.

Code Review: Review the Town code to determine if amendments are needed to provide definitions or to strengthen beach and dune protection measures.

Control Raccoons and Feral Cats: The raccoon is a native species with a year-round hunting and trapping season in Florida. Raccoons are known to carry a wide variety of diseases and parasites and they destroy marine turtle nests. Per Florida Rule 68A-9.010 if a raccoon is a nuisance, it can be captured or taken as a nuisance animal using legal and humane methods. The best way to avoid raccoons is to not attract them, do not feed raccoons. Per F.A.C.68A-4.001, placing food outside attracts wild animals and intentional feeding of raccoons is illegal. Ensure trash cans and dumpsters are not accessible to raccoons and are frequently emptied. When raccoons are reported as frequenting the beach, professional firms can be hired that lawfully remove them. Large populations of feral cats can impact native dune wildlife species, management plans should



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implement spay and neutering programs for feral cats to ensure population levels are maintained. Professional firms can be hired that can humanly capture injured or unhealthy cats for appropriate treatment and adoption if feasible.

Maintain Interagency Communication: Multiple agencies play roles in the ownership, management, maintenance, protection and restoration of the beach and dune. The Town does and should continue to maintain effective communication with these agencies to facilitate effective management.

FWC's Fish and Wildlife Research Institute (FWRI) coordinates nesting beach survey programs around the state, volunteers ensure crawls are identified and nests are marked as soon as they are established. The Town maintains communication with the local ongoing beach survey program to best understand local nesting activity, locations and beach conditions.

The County conducts beach maintenance including trash and debris removal. In addition to being unsightly, trash on the beach can entrap, entangle or be ingested by marine turtles and be detrimental. The beach maintenance program should ensure debris does not easily escape from trash receptacles and that loose debris is picked-up. On occasion tar washes onto the beach; this can be detrimental to hatchlings. The beach maintenance program should include removal and proper disposal of any tar that has washed ashore. Compacting beach sand can also be detrimental to marine turtle nesting, the County ensures beach cleaning firms adhere to FWC requirements relating to tire pressure. Other than for life safety, vehicles should be prohibited from the beach. The Town coordinates with the County to designated established access points for emergency and other vehicles to prohibit vehicles from destroying the structure of the existing dunes in other locations. When applicable, mobi-mats should be used for beach access for other special purpose needs.

FDEP produces the annual critically eroded beaches report and administers the CCCL permitting program. Coordinate with FDEP when CCCL permits are sought to ensure no additional dune crossovers are permitted and constructed.

Beach renourishment is a region-wide multi-agency program including Federal, State, County and Local agencies with the Army Corps of engineers taking the lead role. The Town maintains contact with the Corps and with the County to ensure they are apprised of all proposed or pending activities and to ensure the Town's needs and concerns are considered in project planning and implementation.



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ATTACHMENTS

Exhibit A. Aerial photograph of Surfside 1970 and 1984 and 1999

Exhibit B. Critically Eroded Beaches Map

Exhibit C. Beach Aerial with ECL, Ocean Bulkhead Line and CCCL Delineations

Exhibit D. Recommended Florida Native Beach and Dune Plants for Beachfront Properties and Dune Restoration



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Exhibit A. 1970, 1984, and 1999 Aerial photographs of Surfside

1970 Aerial photo of Surfside from the University of Florida Map and Imagery Library (before beach renourishment)



1984 Aerial Photo of Surfside from the University of Florida Map and Imagery Library (after beach renourishment)



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February 1999

December 1999

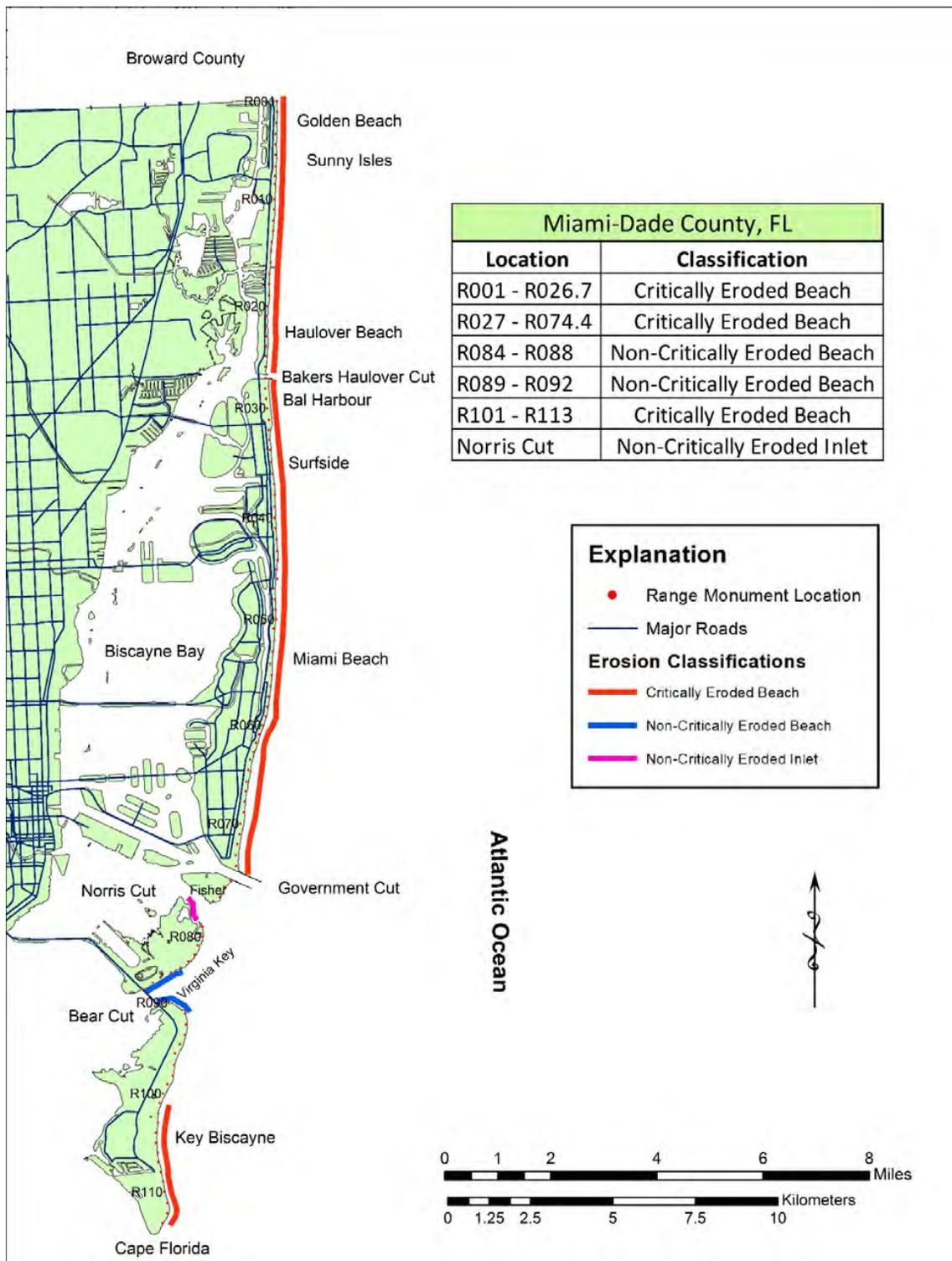


Aerial Photos of Surfside from Google Earth



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Exhibit B. Critically Eroded Beaches Map



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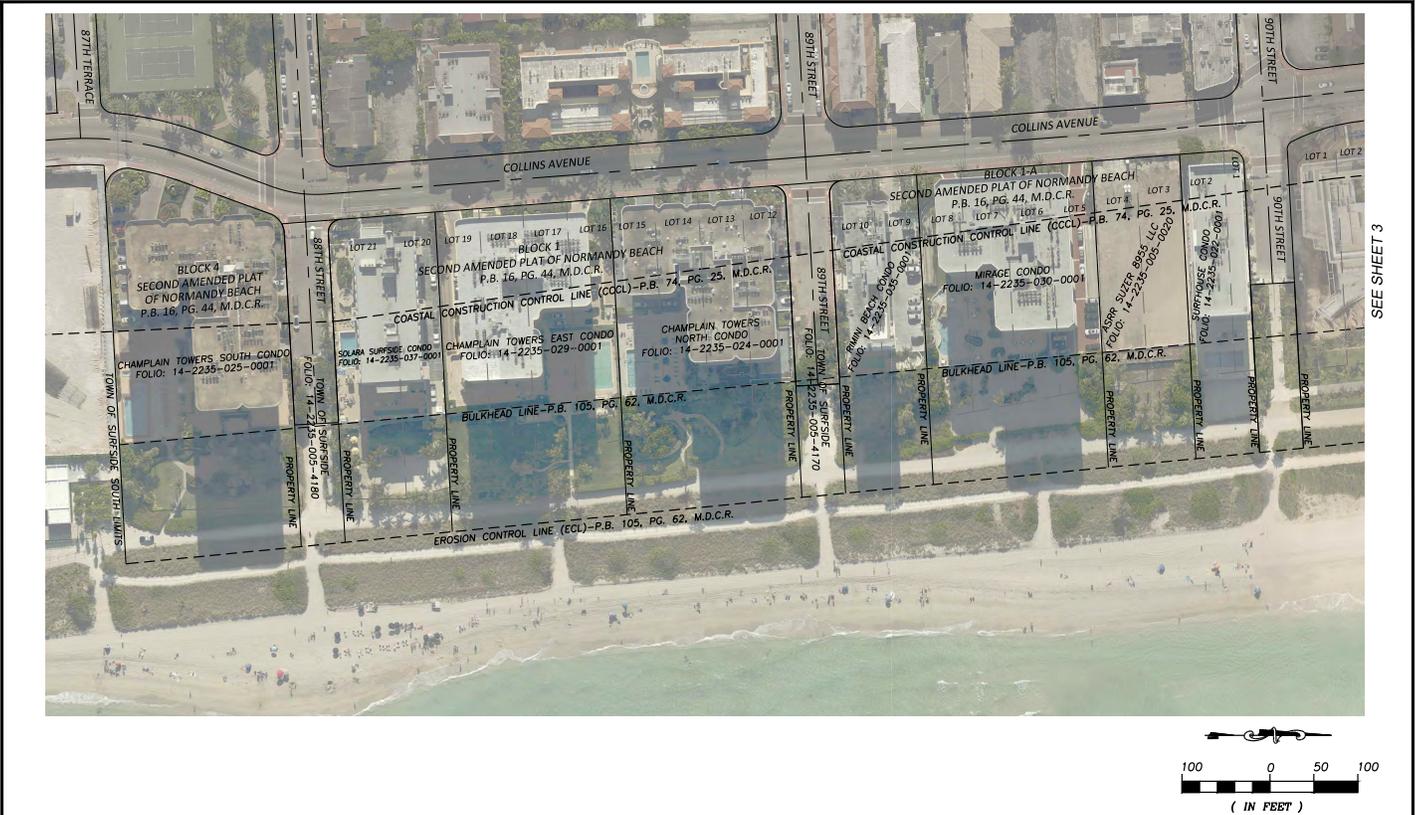


LOCATION & KEY MAP

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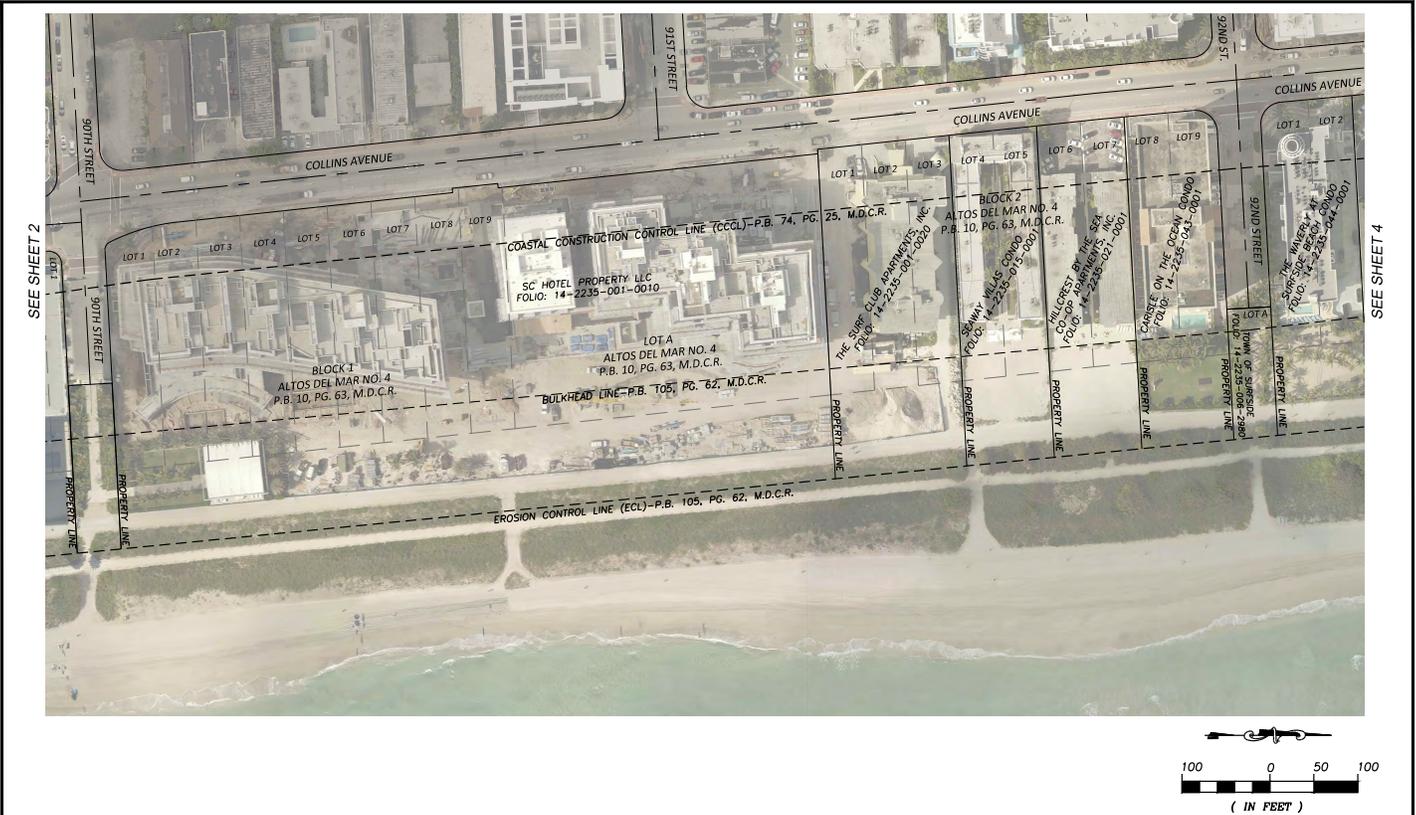
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		PAGE				PROJECT NO.	18-9942	
		DRAWN: SMV				WORK AUTHORIZATION NO.	110	
		DATE: 8/15/2018						
NO	DATE	REVISION	BY	CHECKED:	DATE			

Exhibit C. Beach Aerial with ECL, Bulkhead Line and CCCL Delineations



SEE SHEET 3

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SEE SHEET 2

SEE SHEET 4

FIELD BOOK:			Calvin, Giordano & Associates, Inc. EXCEPTIONAL SOLUTIONS 1800 Eller Drive, Suite 600, Fort Lauderdale, Florida 33316 Phone: 954.921.7791 • Fax: 954.921.8807	DUNE SURVEY & BEACH MANAGEMENT PLAN		BEACH FRONT PROPERTY MAP	
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Recommended Florida Native Beach and Dune Plants for Beachfront Properties and Dune Restoration

Notes:

1. Salt tolerance: high (tolerant of heavy and frequent salt spray, salt water flooding); moderate (tolerant of salt spray but subject to leaf burn from heavy salt spray or root damage from flooding); low (tolerant of salt laden air and short duration, infrequent salt water flooding but usually in protected areas).
2. Region: NW = northwest Florida Panhandle; SW = Pinellas to Collier counties; NE = Nassau to Volusia counties; SE = Brevard to Dade counties; Keys = restricted to the Florida Keys and adjacent Dade and Monroe County islands. Regions have primarily been determined by the historic distribution of the plant in Florida’s coastal upland natural communities, not necessarily by the range of areas or habitats where the plant could survive.
3. Soil Moisture: moist (subject to flooding as within low dune swales); moderate (not subject to frequent flooding but not adapted to deepest sands or driest conditions); dry (adapted to deep sands, dune ridges, or well drained rocky soils); and variations for plants adapted across a range of conditions.

References:

1. Nelson, Gil. 2003. Florida’s Best Native Landscape Plants: 200 readily available species for homeowners and professionals. Florida Association of Native Nurseries. University Presses of Florida.
2. Williams, M.J. 2007. Native Plants for Coastal Dune Resotration: what, when and how for Florida. USDA, NRCS, Brooksville Plant Materials Center, Brooksville, Florida.
3. Wunderlin, Richard P., etal. Plant Atlas. University of South Florida (www.plantatlas.usf.edu).

Scientific Name	Common Name	Salt tolerance	Region (NW/SW/NE/SE/Keys)	Soil Moisture
Dune Grasses				
<i>Distichlis spicata</i>	salt grass	high	all	moist
<i>Muhlenbergia capillaris</i> var. <i>filipes</i>	Gulf hairawn muhly grass	moderate	all	moderate
<i>Panicum amarum</i>	bitter panic grass	high	all	dry
<i>Panicum vaginatum</i>	seashore paspalum	high	all	moderate
<i>Schizachyrium scoparium</i>	coastal bluestem	high	all	moderate
<i>Spartina patens</i>	marshhay	high	all	moderate
<i>Sporobolus virginicus</i>	seashore dropseed	high	all	moist
<i>Uniola paniculata</i>	sea oats	high	all	dry

Scientific Name	Common Name	Salt tolerance	Region (NW/SW/NE/SE/Keys)	Soil Moisture
Groundcovers				
<i>Borrichia arborescens</i>	sea oxeye	high	SW, SE, Keys	moist
<i>Borrichia frutescens</i>	sea oxeye	high	all	moist
<i>Ernodea littoralis</i>	golden beach creeper	high	SW, SE, Keys	moderate - dry
<i>Gaillardia pulchella</i>	blanket flower	moderate	all	dry
<i>Helianthus debilis</i>	East Coast dune sunflower	high	NE, SE, Keys	dry
<i>Helianthus debilis</i> spp. <i>cucumerifolius</i>	cucumber leaf dune sunflower	high	NW, SW	dry
<i>Helianthus debilis</i> ssp. <i>vestitus</i>	West Coast dune sunflower	high	SW	dry
<i>Hymenocallis latifolia</i>	beach spider lily	high	SW, NE, SE, Keys	moist - dry
<i>Ipomoea imperati</i>	beach morning glory	high	all	moderate - dry
<i>Ipomoea pes-caprae</i>	railroad vine	high	all	moderate - dry
<i>Iva imbricata</i>	beach elder	high	all	moist – dry
<i>Sesuvium portulacastrum</i>	sea purslane	high	all	moist - moderate
<i>Solidago sempervirens</i>	seaside goldenrod	high	NW, SW, NE, SE	moist – moderate
<i>Yucca filamentosa</i>	Adam’s needle	moderate	NW, SW, NE, SE	dry
Shrubs				
<i>Ardisia escallonioides</i>	marlberry	moderate	SW, SE, Keys	moderate
<i>Argusia gnaphalodes</i>	sea lavender	high	SE, Keys	dry
<i>Chrysobalanus icaco</i>	coco plum	moderate	SW, SE, Keys	moderate - dry
<i>Erythrina herbacea</i>	coral bean	low	all	moderate - dry
<i>Eugenia axillaris</i>	white stopper	low	SW, SE, Keys	moderate
<i>Eugenia foetida</i>	Spanish stopper	low	SW, SE, Keys	moderate
<i>Forestiera segregata</i>	Florida privet	low	SW, NE, SE, Keys	moist -moderate

Scientific Name	Common Name	Salt tolerance	Region (NW/SW/NE/SE/Keys)	Soil Moisture
Shrubs (continued)				
<i>Ilex vomitoria</i>	yaupon	moderate	SW, NE, SE, Keys	moderate - dry
<i>Myrica cerifera</i>	wax myrtle	moderate	all	moist - moderate
<i>Quercus geminata</i>	sand live oak	moderate	NW, SW, NE, SE	dry
<i>Quercus myrtifolia</i>	myrtle oak	moderate	NW, SW, NE, SE	dry
<i>Rapanea punctata</i>	myrsine	moderate	SW, SE, Keys	moist - dry
<i>Serenoa repens</i>	saw palmetto	high	all	moist - dry
<i>Suriana maritima</i>	bay cedar	high	SW, SE, Keys	dry
<i>Zamia pumila</i>	coontie	moderate	SW, NE, SE, Keys	dry
Thorn/Scrub Plants				
<i>Agave decipiens</i>	false sisal	high	SW, SE, Keys	dry
<i>Caesalpinia bonduc</i>	gray nickerbean	moderate	SW, SE, Keys	moderate - dry
<i>Erythrina herbacea</i>	coral bean	low	all	dry
<i>Opuntia spp.</i>	prickly pears	high	all	moderate - dry
<i>Serenoa repens</i>	saw palmetto	high	all	moist - dry
<i>Sideroxylon tenax</i>	tough bully	low	NE, SE	dry
<i>Smilax auriculata</i>	earleaf catbrier	moderate	all	dry
<i>Ximenia Americana</i>	hog plum	low	NE, SE	dry
<i>Yucca aloifolia</i>	Spanish bayonet	high	all	dry
<i>Yucca filamentosa</i>	Adam's needle	moderate	NW, SW, NE, SE	dry
<i>Yucca gloriosa</i>	Moundlily yucca	moderate	NW, SW, NE	dry
<i>Zanthoxylum clava-hercules</i>	Hercules' club	moderate	NW, SW, NE, SE	dry
<i>Zanthoxylum fagara</i>	wild lime	moderate	SW, NE, SE, Keys	moderate - dry

Exhibit D.

Scientific Name	Common Name	Salt tolerance	Region (NW/SW/NE/SE/Keys)	Soil Moisture
Trees				
Acacia farnesiana	sweet acacia	moderate	all	moist - dry
Baccharis halimifolia	salt bush	high	all	moist - moderate
Bursera simauruba	gumbo limbo	moderate	SW, SE, Keys	moderate - dry
Capparis cynophallophora	Jamaica caper	moderate	SW, SE, Keys	dry
Celtis laevigata	hackberry	low	NW, SW, NE, SE	moist - moderate
Chrysophyllum oliviforme	satinleaf	moderate	SE, Keys	moderate - dry
Citharexylum spinosum	fiddleleaf	moderate	SE, Keys	dry
Coccoloba diversifolia	pigeon plum	high	SW, SE, Keys	moderate - dry
Coccoloba uvifera	sea grape	high	SW, SE, Keys	moderate - dry
Conocarpus ererctus	buttonwood	high	SW, SE, Keys	moist - moderate
Cordia sebestana	Geiger tree	moderate	SW, SE, Keys	moderate - dry
Ficus aurea	golden fig	moderate	SW, SE, Keys	moderate
Ilex x. attenuata	East Palatka holly	low	NW, SW, NE, SE	moderate
Ilex cassine	dahoon holly	low	NW, SW, NE, SE	moist - moderate
Ilex opaca	American holly	low	NW, SW, NE, SE	moderate
Ilex vomitoria	yaupon holly	moderate	NW, SW, NE, SE	moderate - dry
Juniperus silicicola	southern red dedar	moderate	NW, SW, NE, SE	moderate
Laguncularia racemosa	white mangrove	high	SW, SE, Keys	moist - moderate
Magnolia grandiflora	southern magnolia	moderate	NW, SW, NE	moderate
Persea borbonia	redbay	moderate	NW, SW, NE, SE	moderate

Exhibit D.

Scientific Name	Common Name	Salt tolerance	Region (NW/SW/NE/SE/Keys)	Soil Moisture
Trees continued				
Persea humilis	silkbay	moderate	SW, NE, SE	moderate - dry
Pinus clausa	sand pine	moderate	NW, SW, NE, SE	dry
Pinus elliotii	slash pine	moderate	NW, SW, NE, SE, Keys	moist - moderate
Quercus geminata	sand live oak	moderate	NW, SW, NE, SE	moderate - dry
Quercus virginiana	live oak	moderate	NW, SW, NE, SE, Keys	moderate - dry
Sideroxylon foetidissimum	mastic	moderate	SW, SE, Keys	moderate
Palms				
Acoelorrhapha wrightii	paurotis palm	moderate	SW, SE, Keys	moist - moderate
Coccothrinax argentata	silver palm	high	SE, Keys	dry
Sabal palmetto	cabbage palm	high	all	moist - moderate
Serenoa repens	saw palmetto	high	all	moist - dry
Thrinax morrissii	brittle thatch palm	moderate	Keys	dry
Thrinax radiata	Florida thatch palm	moderate	Keys	dry

Fritz Wettstein
Coastal Construction Control Line Program
Division of Water Resource Management
Florida Department of Environmental Protection
2600 Blair Stone Road, Mail Station 3522
Tallahassee, Florida 32399
850/245-7672
john.wettstein@dep.state.fl.us
www.floridadep.org/beaches

RESILIENCE ORDINANCES AND RESOLUTIONS LOG

EXHIBIT SE. 4

Exhibit 9.4 Resilience Ordinances and Resolution Log

Column1	Column2
	Resiliency Resolutions & Ordinances 2011 to 2019
Ordinance No. 19-1698	Amending Section 4 34-11, "Prohibition on Distribution, Sale or Use of Plastic Straws" Of The Town's Code of Ordinances by Amending the Title to Be "Prohibition On Distribution, Sale Or Use Of Single-Use Plastics," Providing For Definitions For Single-Use Plastics, and Regulating Single-Use Plastics
Ordinance No. 19-1697	Repealing and Replacing Chapter 42 "Floods" Relating To The Town's Floodplain Management Regulations, Including Adopting Procedures and Criteria for Development in Flood Hazard Areas; To Adopt Flood Hazard Maps; To Designate a Flood Plain Administrator
Ordinance No. 19-1696	Amending Article VIII, "Landscape Requirements," of Chapter 90 "Zoning," Of The Town's Code of Ordinances by Establishing Florida-Friendly Landscape Requirements
Resolution No. 19-2604	Approving Work Authorization No. 117 for Engineering Services for a Design-Build Photovoltaic System at the Surfside Community Center
Resolution No. 19-2602	Approving the Purchase and Installation of an Emergency Generator for Town Hall
Resolution No. 19-2598	Approving an Agreement with CRS Max Consultants, Inc. for Community Rating System Consultant Services
Resolution No. 19-2597	Support of Resilient305 Strategy and Participation and Collaboration on Implementation of Local and Regional Resilience Strategies
Resolution No. 19-2589	Waiving Town Building Permit Fees and Requiring Expedited Development and Review Processes for Sustainability Projects
Resolution No. 19-2588	Approving Logistical Support for The Youth Environmental Alliance (Yea) In Connection With the Miami-Dade County Environmental Enhancement and Education Grant Program for Environmental Education Funding
Resolution No. 19-2585	Agreement Between the Town of Surfside and Bigbelly Solar, Inc. for Additional Solar Powered Trash/Recycle Compaction Containers
Resolution No. 19-2583	Urging the Miami-Dade County League of Cities to Create a Committee Dedicated to the Protection and Conservation of The Biscayne Bay Ecosystem, To Address and Formulate Comprehensive Policies on Regional Issues Impacting Biscayne Bay
Resolution No. 19-2580	Approving an Expenditure For Purchase of Trees From Luke's Landscaping In Connection With The Town's Tree Giveaway Program
Resolution No. 19 - 2573	Approving Work Authorization No. 113 with Calvin Giordano & Associates, Inc. for Resiliency Planning Support
Resolution No. 19 - 2572	Urging the United States Congress to Pass the Energy Innovation and Carbon Dividend Act (H.R. 763) to Levy an Annually Increasing Revenue-Neutral Fee on the Carbon in Fossil Fuels at the Point of Production or Importation and Return a Dividend to All Americans
Resolution No. 19 - 2566	Declaring April as Water Conservation Month in the Town of Surfside, Florida, and Supporting The National "Wyland Mayor's Challenge For Water Conservation"
Resolution No. 18-2560A	Approving a Temporary Easement Agreement with Miami-Dade County For Equipment Staging In Connection With Beach Renourishment, Erosion Control and Hurricane Protection Project
Resolution No. 18-2552	Approving a Temporary Easement Agreement With Miami-Dade County for Beach Renourishment, Erosion Control and Hurricane Protection Project
Resolution No. 18-2543	Approving An Agreement With Waste Management Inc. Of Florida For Recycling Services; Finding That The Services Are Exempt From Competitive Procurement Pursuant To Section 3-13(3) Of The Town Code Of Ordinances

Resolution No. 18-2528	Opposing Offshore Drilling Activities, Including Seismic Air Gun Blasting
Resolution No. 18-2524	Relating To Solid Waste Management Services, Including Collection, Disposal And Recycling of Residential Solid Waste In The Town Of Surfside, Florida; Describing The Method Of Assessing Solid Waste Costs Against Assessed Property Located Within The Town Of Surfside; Determining The Solid Waste Cost And The Initial Solid Waste Service Assessments; Directing The Preparation Of An Assessment Roll
Resolution No. 18-2522	Approving Property Assessed Clean Energy (Pace) Programs With The Florida Green Finance Authority, The Florida Resiliency And Energy District, And The Florida Pace Funding Agency
Resolution No. 18-2521	Approving The Proposal And Work Authorization With Calvin Giordano & Associates, Inc. To Perform A Dune Survey And Beach Management Plan
Resolution No. 18-2519	Sunsetting and Abolishing The Town Of Surfside Sustainability Subcommittee Of The Planning And Zoning Board
Resolution No. 18-2518	Establishing The Town Of Surfside Sustainability And Resiliency Committee To Study And Recommend Policies To The Town Commission
Resolution No. 18-2509	Approving A Work Authorization To Calvin Giordano & Associates, Inc. To Perform A Drainage Study For Abbott Avenue
Resolution No. 18-2501	Ratifying And Approving A Donation To The Pelican Harbor Seabird Station In Support And Sponsorship Of Their Programs
Resolution No. 18-2498	Adopting A Proclamation Honoring The Importance Of Trees For The Town Of Surfside's Community And Environment And Encouraging The Planting Of Trees; Proclaiming April 17, 2018 In The Town Of Surfside As "Arbor Day"
Resolution No. 18-2497	Amending The Town's Schedule Of Civil Penalties And Administrative Fees To Be Assessed For Violations Of Section 34- 11, "Prohibition On Distribution, Sale Or Use Of Plastic Straws"
Resolution No. 18-2493	Urging Concerted Local Actions To Take Steps Necessary To Retain The NOAA Fisheries Headquarters On Virginia Key
Resolution No. 18-2492	Waiving All Town Building Permit Fees And Requiring Expedited Development And Review Processes For Photovoltaic Solar System Installations
Resolution No. 18-2490	Calling On The State Of Florida, Governor Rick Scott, President Donald Trump, And The Federal Government To Reduce Gun Violence In America And Help Prevent Future Shootings By Requiring Universal Background Checks For Every Firearm Sale; Supporting The Passage Of A Red Flag Law; Supporting Raising The Age For Legal Purchase Of Firearms, Magazines And Ammunition To 21; Supporting The Passage Of Legislation That Would Keep Military-Style Weapons And High-Capacity Magazines Away From Our Schools
Resolution No. 18-2486	Urging The United States Congress To Fund The Study Of Foreign Sand Use In Beach Nourishment Projects In Miami-Dade County
Resolution No. 18-2484	Urging The United States Congress To Support Language In The FY 2018 Federal Appropriations Bill And The 2018 Disaster Recovery Supplemental Providing For 100 Percent Federal Funding Of The South Atlantic Coastal Study Authorized In Section 1204 Of The Water Infrastructure Improvements For The Nation Act, With The Necessary Language And Funding To Ensure Inclusion Of The Previously Authorized Central And South Florida Flood Control Project And Its Area As Part Of This Study
Resolution No. 18-2483	Setting A Goal For All Town Buses To Be Zero-Emission And Powered By Clean Energy By 2025; Urging Miami-Dade County And All Municipalities In The County To Adopt The Same Goal

Resolution No. 18-2482	Declaring April As Water Conservation Month In The Town Of Surfside, Florida, And Supporting The National "Wyland Mayor's Challenge For Water Conservation" In The Town Of Surfside
Ordinance No. 18-1690	Amending Section 34-11, "Prohibition on Distribution, Sale or Use of Plastic Straws"
Ordinance No. 18-1688	Amending The Town Code By Creating Article Vi, "Lighting Regulations For Marine Turtle Protection" Of Chapter 34 "Environment"
Ordinance No. 18-1680	Amending The Town Of Surfside Code Of Ordinances By Amending Article III, Property Maintenance Standards, Of Chapter 14, Buildings And Building Regulations, And Chapter 90, Zoning, To Prohibit Use Of Mulch In The Right-Of-Way And Address Property Owner Maintenance Responsibilities For Public Right-Of-Way Adjacent To Private Property
Ordinance No. 18-1676	Amending Chapter 34 "Environment" Of The Town's Code Of Ordinances To Create Section 34-11, "Prohibition On Distribution, Sale Or Use Of Plastic Straws"
Ordinance No. 18-1674	Amending Chapter 42 "Floods" Section 42-92 "Specific Standards" to address lowest Floor Elevation Requirements for Single Family Residential Structures
Ordinance No. 18-1673	Amending Chapter 90 "Zoning," Section 90-2 "Definitions," To Revise The Measurement Of Roof Height
Resolution No. 17-2477	Approving The Memorandum Of Understanding ("MOU") With The Village Of Bal Harbour And The Town Of Bay Harbor Islands To Retain The Lehman Center For Transportation Research At Florida International University (FIU LCTR) To Assess Shuttle Bus Services; Authorizing The Town To Enter Into An Agreement With FIU LCTR For Such Services
Resolution No. 17-2475	Providing For The Town To Join The Seawall Coalition And Supporting Its Policies; Authorizing The Town Manager To Transmit This Resolution To The Seawall Coalition
Resolution No. 17-2473	Urging The Florida Legislature And The Florida Public Service Commission To Require The Expedient Conversion Of Overhead Electric Distribution Facilities To Underground Facilities; Further Urging The Florida Public Service Commission To Condition Any Hurricane Irma Cost Recovery Sought By The State's Power Companies On Such Companies' Required Conversion Of Their Overhead Electric Distribution Facilities To Underground Facilities
Resolution No. 17-2459	Urging The Florida Public Service Commission To Require Florida Power & Light To Improve Safety, Reliability And Service Of Its Electric Facilities Within The Town Of Surfside, Including Hurricane Preparedness And Restoration Efforts
Resolution No. 17-2445	Urging The Florida Legislature To Appropriate Funds For Beach Renourishment Projects; Supporting Senate Bill 174 Endorsing And Supporting The Expansion Of The New Starts Transit Program (NSTP) To Facilitate Funding For The Strategic Miami Area Rapid Transit (Smart) Plan
Resolution No. 17-2434	Approving The Renewal Of The Interlocal Agreement Between Co- Permittees Named In National Pollutant Discharge Elimination System Permit No. Fls000003 And Miami-Dade County; And Also Between All Co-Permittees; Providing For Identification And Control Of Pollutant Discharges In Shared Municipal Separate Storm Sewer Systems
Resolution No. 17-2430	Adopting the Current Miami-Dade County Multi -Hazard Local Mitigation Strategy, As Amended, In Accordance With The National Flood Insurance Program Community Rating System Requirements

Resolution No. 17-2420	Supporting United States Congressional Bills .279 And H.B. 833 To Amend Section 935 of the Water Resources Development Act Of 1986 to Facilitate the Use of Foreign Offshore Sand in Beach Nourishment Projects; Urging the United States Congress To Expedite And Fund The Study To Allow Foreign Sand To Be Used In Beach Nourishment Projects In Miami-Dade CPIMTU
Resolution No. 17 - 2419	Supporting the Implementation of Active Design Miami; Design and Policy Strategies for Healthier Communities as Developed by The Miami Center for Architecture and Design (MCAD)
Resolution No. 17-2414	Waiving the Bid Process Pursuant to Section 3-13(6) Of the Town of Surfside Code Of Ordinances; Authorizing The Town Manager To Enter Into A Sole Source Connect Services Agreement With Big Belly Solar, Inc. For a Term Of Five (5) Years Effective April 1, 2017 With Subsequent One (1) Year Renewal Terms For The Service, Including Software, Equipment, Equipment Delivery, Installation, Customer Service And Equipment Maintenance, Warranty For Defective Part Replacement And Repair , Set Up And Training For Twelve Solar Trash And Recycling Compaction Containers; Approving And Authorizing The Expenditure Of Funds In The Amount Of \$15,040 From The Fiscal Year 2016/2017 Solid Waste Fund Account No. 403- 4000-534-4403
Resolution No. 17-2413	Urging The U.S. Army Corps Of Engineers, The Florida Department Of Environmental Protection And The South Florida Water Management District To Take All Steps Necessary To Expedite And Complete The Construction Of Phase I Of The Biscayne Bay Coastal Wetlands ("BBCW") Project; Further Urging The U.S. Army Corps Of Engineers, The Florida Department Of Environmental Protection And The South Florida Water Management District To Take All Steps Necessary To Expedite The Planning Of Phase II Of The BBCW Project Prior To The Current Scheduled Date Of 2021
Resolution No. 16-2405	Urging Bal Harbour Village to Work Cooperatively to Address Impacts Identified by The Town of Surfside in Development Related to Bal Harbour Shops Expansion
Resolution No. 16-2402	Urging the U.S. Environmental Protection Agency to Adhere to Stricter Standards and To Continue to Maximize Opportunities For The Protection of Public Health and The Environment in their Consideration of Florida's Proposed Human Health-Based Water Quality Criteria
Resolution No. 16 - 2384	Approving Work Authorization No. 98 Seawall Grant Application and Management for the Surfside Seawall Replacement Project Phase II
Resolution No. 16 - 2383	Awarding a Contract to Pac Comm, Inc. For The Surfside Seawall Replacement Project Phase II
Resolution No. 16 - 2378	Establishing the Town of Surfside Sustainability Subcommittee of the Planning and Zoning Board to Meet on a Periodic Basis
Resolution No. 16 - 2369	Supporting the National "Wyland Mayor's Challenge for Water Conservation" in the Town of Surfside
Resolution No. 16-2368	Supporting and Endorsing the Miami-Dade Parks and Open Space Master Plan
Resolution No. 16-Z-2360	A Resolution of The Town of Surfside, Florida Planning And Zoning Board; Recommending to the Town of Surfside Commission pursuant to Section 90-15(8) of the Town of Surfside Code of Ordinances to Appropriate Resources from the General Fund to the Planning and Zoning Board as Requested to Provide for the Consultation, Implementation and Study Related to Sea Level Rise Solutions in the Town of Surfside

Resolution No. 16 - 2355	Urging the United States Congress to Establish a Fund to Financially Assist and Support Local Governments, such as the Town of Surfside, Florida in Developing and Implementing Solutions to Sea Level Rise and Related Impacts
Resolution No. 16 - 2354	Adopting a Proclamation Honoring the Importance of Trees for the Town of Surfside's Community and Environment; Proclaiming April 17 in the Town of Surfside as "Arbor Day"
Resolution No. 16 - 2351	Urging the Florida Legislature to Allocate \$300 Million of the Funds in the Land Acquisition Trust Fund Annually Toward Land Acquisition
Resolution No. 15 - 2320	Supporting the Dade County Beach Erosion Control and Hurricane Protection Project, and Urging Miami-Dade County, the State of Florida, and the United States Army Corps of Engineers to Provide Recurring Appropriations to Advance Beach Renourishment in Surfside and Miami-Dade County On Or Ahead of Schedule
Resolution No. 15 - 2313	Supporting the Creation of the South Florida Mayors' Beach Alliance
Resolution No. 15 - 2309	Urging the Florida Legislature to Remove Barriers to Customer- Sited Solar Power and Expressing Support for the Floridians For Solar Choice Ballot Petition
Resolution No. 15 - 2308	Establishing the Town of Surfside Coastal Issues Committee
Resolution No. 15 - 2298	Approving Assistance under the Florida Inland Navigation District Waterways Assistance Program
Resolution No. 15 - 2291	Declaring April As Water Conservation Month In The Town Of Surfside, Florida, And Supporting The National "Wyland Mayor's Challenge For Water Conservation" in The Town of Surfside
Resolution No. 15 - 2288	Awarding Request for Proposal No. 2014-003 ("RFP No. 2014-003") to Pac Comm, Inc. for the Surfside Seawall Replacement
Resolution No. 15 - 2282	Urging the State of Florida Legislature and the Florida Department of Environmental Protection to Establish Chemical Testing Standards Prior to Issuing a Coastal Construction Control Line Permit ("CCCL") which Authorizes the Transfer and Placement of Excavated Sand Seaward of the CCCL onto a Public Beach; Recommending Additional Chemical Testing Standards
Ordinance No. 15 - 1639	Prohibitions Regarding the Sale or Use of Expanded Polystyrene Food Service Articles by Food Service Providers and Stores
Ordinance No. 15 - 1631	Beach Sand Regulations
Ordinance No. 15 - 1641	Amending the Town's Water Supply Facilities Work Plan and Applicable Elements within the Town's Comprehensive Plan Relating to Water Supply Planning
Ordinance No. 15 - 1630	Prohibition Regarding Sale or Use of Expanded Polystyrene (Styrofoam) Food Service Articles
Ordinance No. 14 - 1623	Rooftop Photovoltaic Solar Systems
Ordinance No. 14 - 1617	Electric Vehicle Car Charging Station
Resolution No. 14 - 2222	Supporting the Central Everglades Planning Project
Resolution No. 15 - 2280	Supporting the Miami-Dade Sea Level Rise Task Force Recommendations
Ordinance No. 13 - 1607	Amending Chapter 90 Section 90-60 "Construction Adjacent to Bulkhead Lines"
Resolution No. 13 - 2152	Endorsing the Mayor's Climate Action Pledge
Resolution No. 13 - 2170	Creating a Property Assessed Clean Energy Program and Creating the Clean Energy Coastal Corridor Program through an Interlocal Agreement
Resolution No. 13 - 2192	Supporting Florida Water and Land Conservation Amendment which would dedicate funds to acquire and restore Florida Conservation and Recreation Lands
Resolution No. 13 - 2203	National Flood Insurance Program
Resolution No. 13 - 2207	Biscaya Drainage Improvement
Resolution No. 13 - 2211	Supporting Beach Dune Restoration & January 1st Renourish Beach Day

Resolution No. 13 - 2212	Agreement With Florida Inland Navigational District (FIND)
Resolution No. 13 - 2214	Restricting The Use of Plastic Shopping Bags
Resolution No. 12 - 2066	Urging the Florida Legislature to reject any and all gambling expansions in Florida
Resolution No. 12 - 2103	Assistance from the Florida Inland Navigation District Waterways Assistance program for structural repairs to bulkhead
Resolution No. 12 - 2098	Renewal of Interlocal Agreement between all co-permittees in National Pollutant Discharge Elimination System and MDC
Resolution No. 12 - 2105	Supporting the Central Everglades Planning Project
Resolution No. 11-2011	Encouraging the return or recycle of all beverage containers and other recyclable materials
Resolution No. 2011-2021	Earth Day Proclamation for April 22, 2011
Resolution No. 11- 2050	Agreement with Urban Gardeners
Ordinance No. 11 - 1582	Amending Chapter 42 "Floods"
Ordinance No. 11 - 1581	Prohibiting of Litter

COMMUNITY ADAPTATION TOOLKIT

EXHIBIT SE. 5

CONTENTS

COMMUNITY ADAPTATION TOOLKIT**

1.0	BEACH SIDE STRATEGIES	05
2.0	COMMERCIAL STRATEGIES	07
3.0	RESIDENTIAL STRATEGIES	09
4.0	BAY SIDE STRATEGIES	11

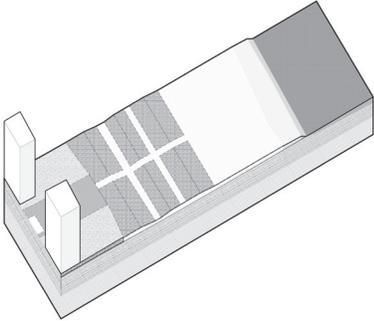
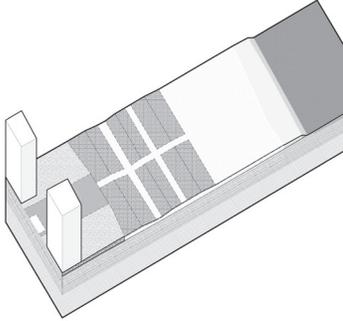
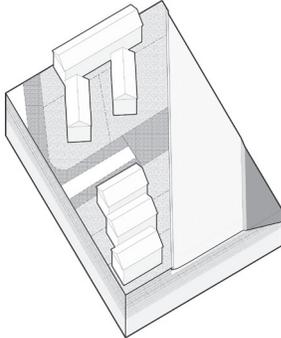
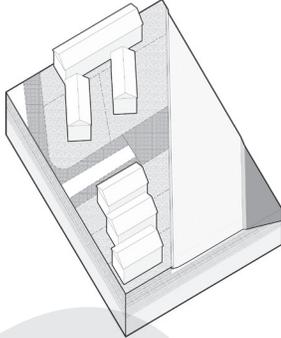
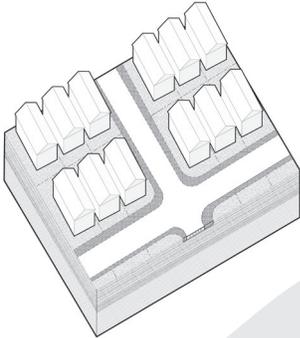
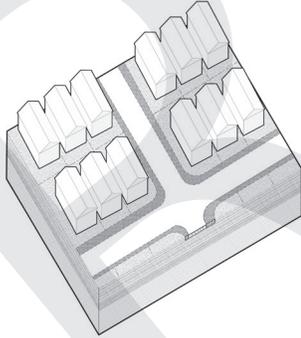
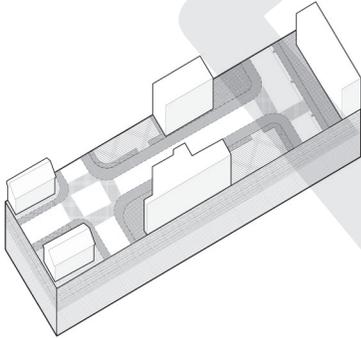
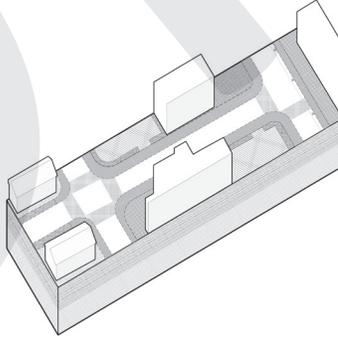
***EXHIBIT SE.5 IS IN THE DEVELOPMENT STAGES, BUT WAS INCLUDED TO PROVIDE INSIGHT ON THE INTENTION OF THE SECTION*

COMMUNITY ADAPTATION TOOLKIT

ENERGY

ENVIRONMENT

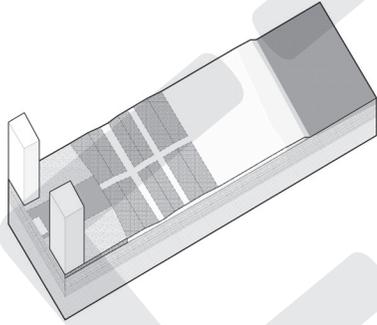
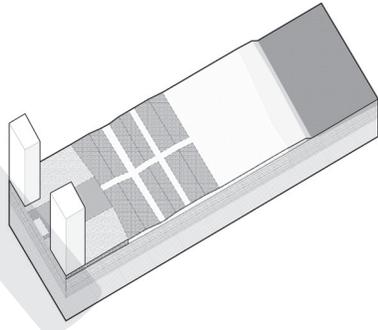
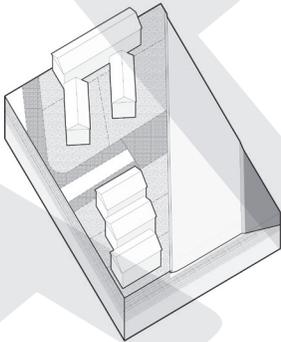
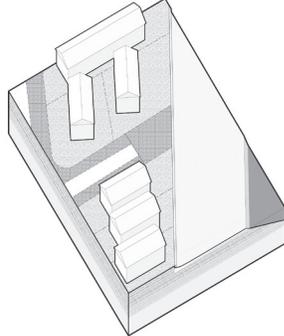
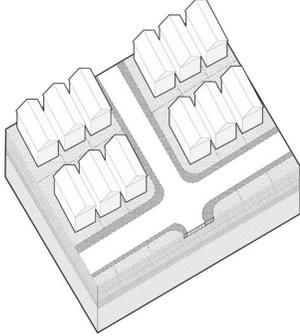
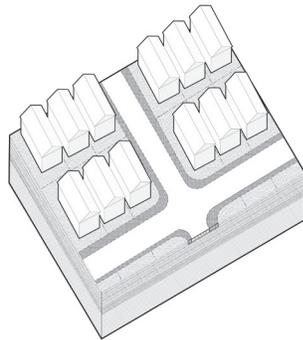
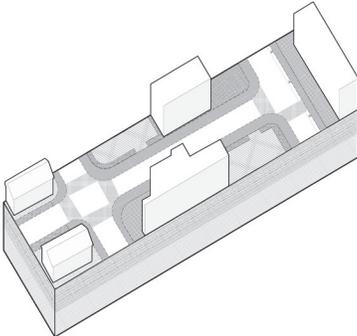
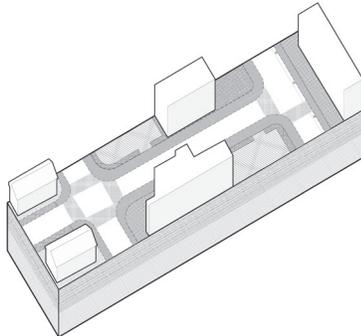
COMPREHENSIVE URBAN RESILIENCE STRATEGY

BEACH SIDE		
BAYSIDE		
RESIDENTAIL		
COMMERCIAL		

ENT

POLICY

INFRASTRUCTURE
+ TECHNOLOGY

COMMUNITY ADAPTATION TOOLKIT

BEACH SIDE STRATEGIES

COMPREHENSIVE URBAN RESILIENCE STRATEGIES



SAFE

COMMUNITY ADAPTATION TOOLKIT

BAY SIDE STRATEGIES

COMPREHENSIVE URBAN RESILIENCE STRATEGIES

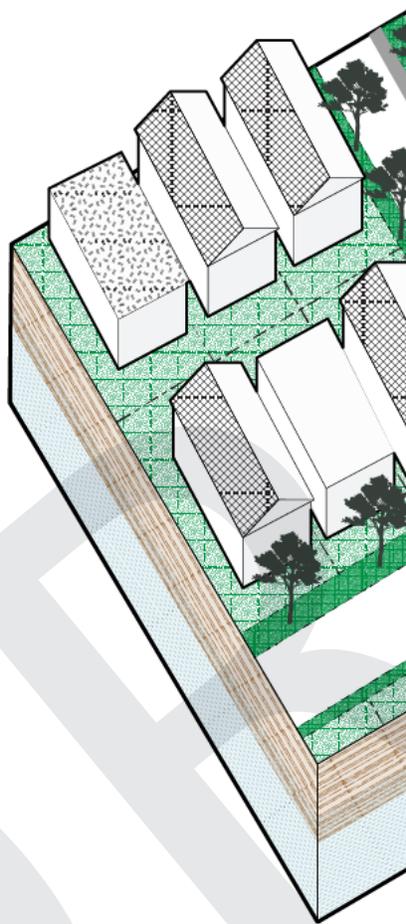
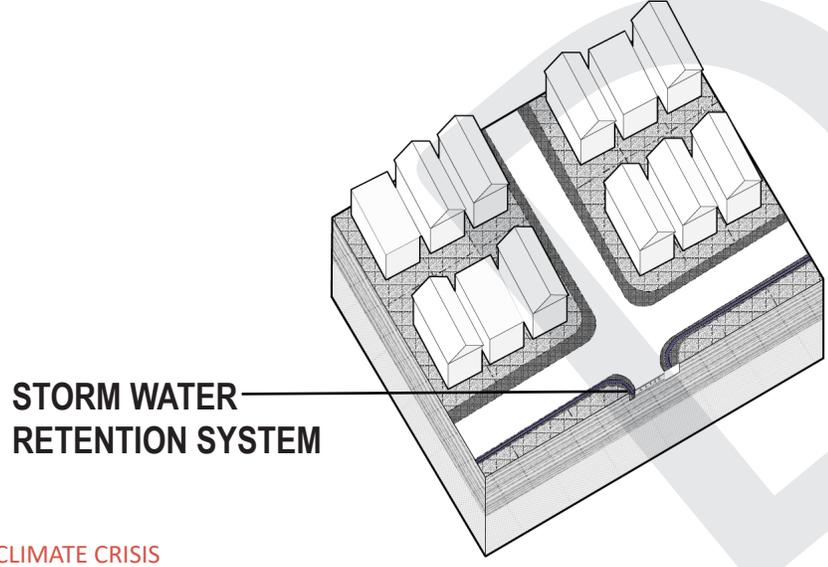
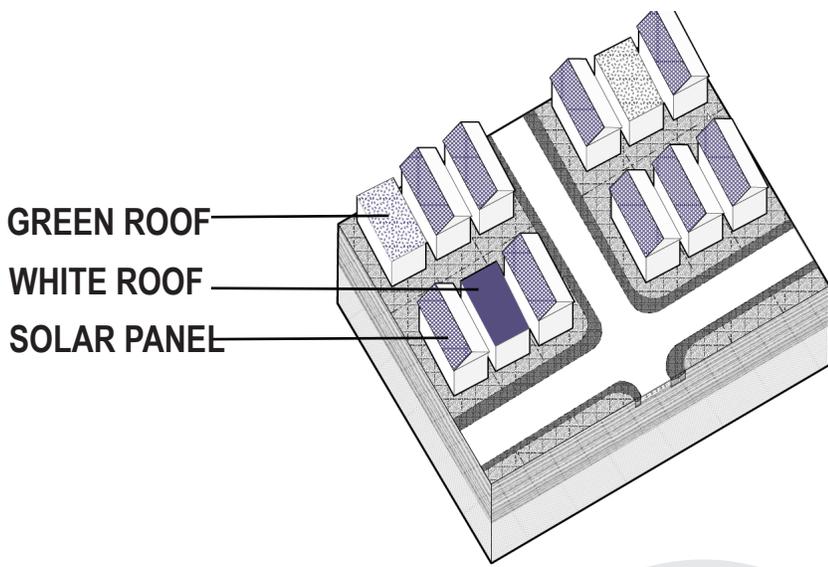
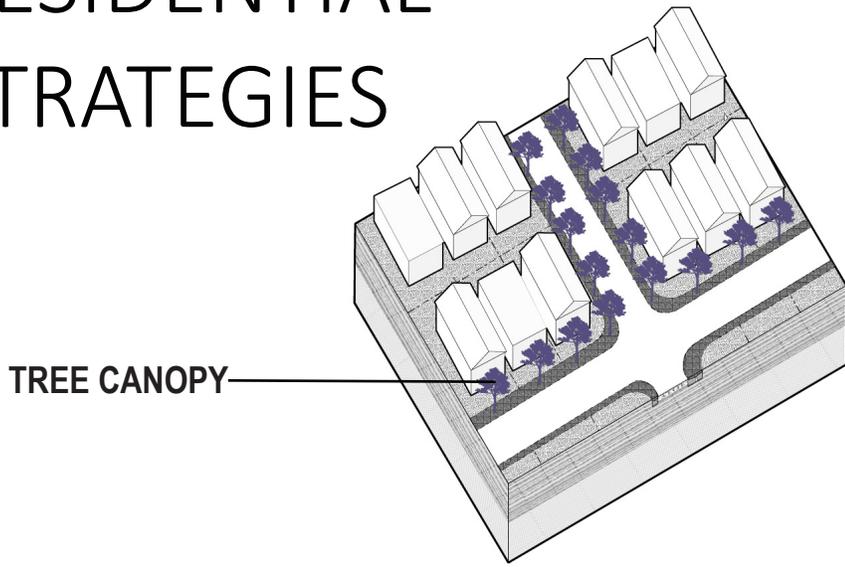


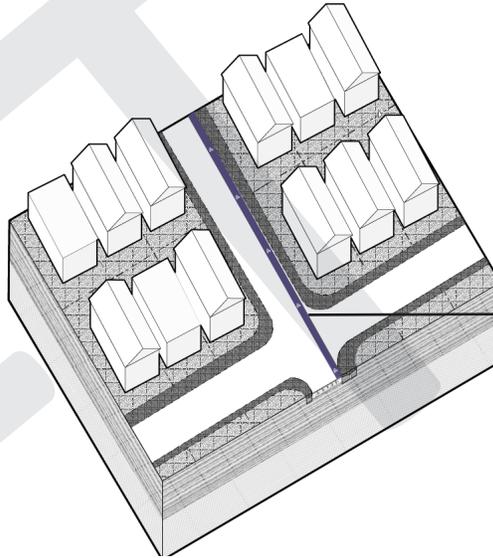
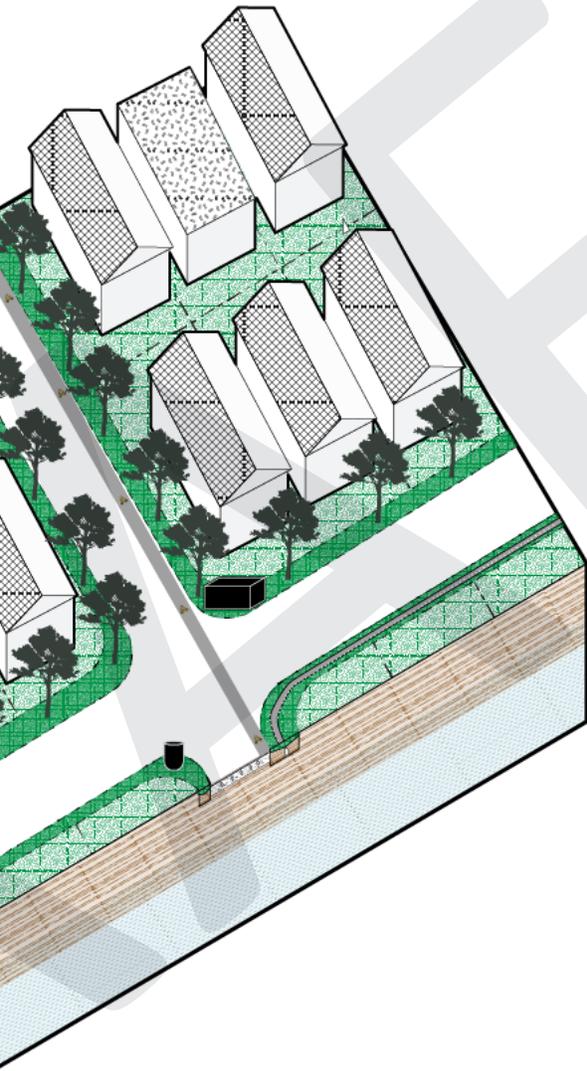
SAFE

COMMUNITY ADAPTATION TOOLKIT

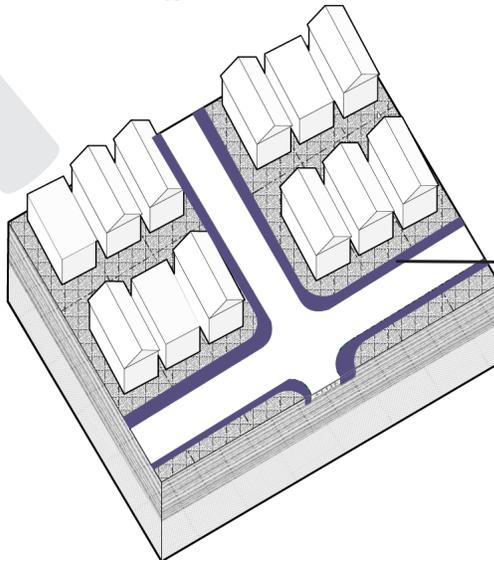
RESIDENTIAL STRATEGIES

COMPREHENSIVE URBAN RESILIENCE STRATEGIES

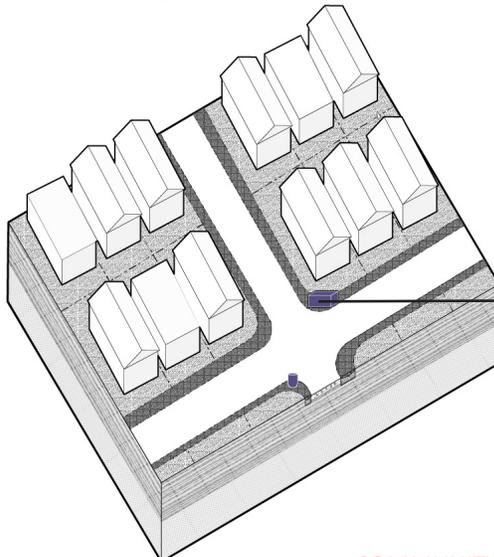




BIKE LANE



DRAINAGE SWAIL



IDENTITY OBJECTS

COMMUNITY ADAPTATION TOOLKIT

COMMERCIAL STRATEGIES

COMPREHENSIVE URBAN RESILIENCE STRATEGIES

DRAFT

SAFE



Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS™



To: Members of the Planning & Zoning Board
From: Sarah Sinatra Gould, AICP, Town Planner
Date: October 24, 2019
Subject: Setbacks Lots over 50 feet in width

The Town Commission previously directed staff to prepare an ordinance modifying the zoning code to address the effects of aggregation of single family lots. This ordinance was adopted in 2018.

The change required aggregated lots to have setbacks of 20 feet or 20%, whichever was greater, regardless of the width of the lot. Therefore, an aggregated lot that is 65 feet in width would have a house that is 25 feet in width, while non-aggregated lot that is 50 feet in width could have a house that is 40 feet in width. A house on an aggregated lot of less than 80 feet in width would be required to build a house smaller than on a lot that is 50 feet in width.

The Planning and Zoning Board requested a proposed scaled approach based on lot width. The formula is as follows and the attached graphic indicates an example of the results of the formula on the setbacks: $\text{Setback} = .3 (\text{lot width}) - 10$. The second story setback remains an average setback, however the setback will be from the first floor, not the property line. The setback proposed is a 7.5 foot average side setback from the first floor. The proposed amendment also changes the measurement of the frontage to the setback line rather than from the property line. This provides greater equity for lots that have curves, arcs or are pie shaped.

This would be applicable to all lots exceeding 50 feet in width, not only aggregated lots. The following is the proposed language.

Sec. 90-2. - Definitions.

Frontage, lot: The distance for which the front lot line and street line are coincident for multifamily and non-residential properties. For single-family and two-family properties, it is the location of the front setback line.

Lot, front: Shall be construed to be the portion nearest the street, except for measurement of frontage for single-family properties. For purposes of measuring frontage for single-family properties is the location of the front setback line. For corner lots, the lot front shall be the narrowest portion abutting the street.

Sec. 90-45. - Setbacks.

(a) *Massing:*

- (1) *Required massing—Generally.* The development of new single-family structures and additions to existing single-family structures shall abide by height and massing regulations.

Massing regulations are based on the height of the structure and are delineated between (a) single and multi-story structures (b) new structures or additions to existing structures and (c) the ratio of area of the first story to the area of the upper stories.

- (2) *Required Massing—*New single-story structures and single-story additions to single-story structures in H30A and H30B districts. The following table shall be utilized for new single-story structures and single-story additions to existing single-story structures (up to 15 feet in height) in both the H30A and 30B districts.

H30A and H30B (SINGLE-STORY STRUCTURES UP TO 15 FEET IN HEIGHT)	PERCENTAGE
Maximum Lot Coverage	40%
SINGLE STORY STRUCTURES	MINIMUM SETBACK
Primary frontage	20 FT
Interior side (lots equal to or less than 50 feet in width)	5 FT
Interior side (lots over 50 feet in width)	$10\% \text{ of the frontage} + \frac{.3 (\text{lot width}) - 10}{\text{Setback}}$
Interior side (when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)	20 FT or 20% of the frontage whichever is greater
Rear	20 FT
Secondary frontage (Corner only)	10 FT
Secondary frontage (corner only for lots greater to 50 feet in width) (when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)	$\frac{.3 (\text{lot width}) - 10}{\text{Setback}}$ 20 FT or 20% of the frontage whichever is greater

- (3) Required Massing—Single-family homes within the H30A and H30B districts. For single-family homes within the H30A and H30B districts, the following table shall be utilized for new multi-story structures or multi-story additions (additions greater than 15 feet in height) to existing single-story structures where the upper-story floor area is less than 50 percent of first-story floor area. Where provided both the minimum and average setback shall be utilized.

H30A AND H30B UPPER STORY FLOOR AREA IS LESS THAN 50% OF FIRST STORY FLOOR AREA	PERCENTAGE
Maximum Lot Coverage	40%
FIRST STORY (UP TO 15 FT IN HEIGHT)	SETBACK
Primary frontage	Minimum 20 FT
Interior side (lots equal to or less than 50 feet in width)	Minimum 5 FT
Interior side (lots over 50 feet in width)	Minimum 10% of the frontage <u>.3(lot width) - 10 = Setback</u>
Interior side (when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)	20 FT or 20% of the frontage whichever is greater
Rear	Minimum 20 FT
Secondary frontage (Corner only)	Minimum 10 FT
Secondary frontage (corner only for lots over 50 feet in width)(when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)	<u>.3 (lot width) - 10 = Setback</u> 20 FT or 20% of the frontage whichever is greater
UPPER STORY OR WALL PLANES GREATER THAN 15 FT IN HEIGHT	SETBACK
Primary frontage	Minimum 20 FT
	Average 22.5 FT
Interior side (lots equal to or less than 50 feet in width)	Minimum 5 FT
	Average n/a
Interior side (lots greater than 50 feet in width)	<u>Average 7.5 feet measured from first floor</u> Minimum 10% of lot frontage
	Average n/a
Interior side (when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)	20 FT or 20% of the frontage whichever is greater

	Average n/a
Rear	Minimum 20 FT
	Average n/a
Secondary frontage (corner only)	Minimum 10FT
	Average 12.5 FT
Secondary frontage (corner only <u>for lots over 50 feet in width</u>) (when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)	20 FT or 20% of the frontage whichever is greater Average 7.5 feet measured from first floor
	Average 20 FT or 20% of the frontage whichever is greater, plus 5 FT

- (4) Required massing—New multi-story structures or multi-story additions. For single-family homes within the H30A and H30B districts, the following table shall be utilized for new multi-story structures or multi-story additions (additions greater than 15 feet in height) to existing single-story structures where the upper-story floor area is 50 percent to 64 percent of first-story floor area. Where provided, both the minimum and average setbacks shall be utilized.

H30A AND H30B UPPER STORY FLOOR AREA IS 50% TO 64% OF FIRST STORY AREA	PERCENTAGE
Maximum Lot Coverage	40%
FIRST STORY (UP TO 15 FT IN HEIGHT)	SETBACK
Primary frontage	Minimum 20 FT
Interior side (lots equal to or less than 50 feet in width)	Minimum 5 FT
Interior side (lots over 50 feet in width)	$.3(\text{lot width}) - 10 =$ <u>Setback</u> Minimum 10% of the frontage
Interior side (when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)	20 FT or 20% of the frontage whichever is greater
Secondary frontage (corner only)	Minimum 10 FT
Rear	Minimum 20 FT
Secondary frontage (corner only <u>for lots over 50 feet in width</u>) (when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)	20 FT or 20% of the frontage whichever is greater

		$.3(\text{lot width}) - 10 =$ <u>Setback</u>
UPPER STORY OR WALL PLANES GREATER THAN 15 FT IN HEIGHT		SETBACK
Primary frontage		Minimum 20 FT
		Average 25 FT
Interior side (lots equal to or less than 50 feet in width)	H30A - Wall length is equal to or less than 20% of the lot depth	Minimum 5 FT
		Average n/a
	H30A - Wall length is greater than 20% of the lot depth	Minimum 5 FT
		Average 7.5 FT
	H30B - Wall length is equal to or less than 25% of the lot depth	Minimum 5 FT
		Average n/a
	H30B - Wall length is greater than 25% of the lot depth	Minimum 5 FT
		Average 7.5 FT
Interior side (lots greater than 50 feet in width)	H30A - Wall length is equal to or less than 20% of the lot depth	$.3(\text{lot width}) - 10 =$ Setback <u>Minimum 10% of</u> lot frontage
		Average n/a
	H30A - Wall length is greater than 20% of the lot depth	$.3(\text{lot width}) - 10 =$ Setback <u>Minimum 10% of</u> lot frontage
		<u>Average 7.5 feet measured</u> <u>from first floor</u> Average 15% of the frontage
	H30B - Wall length is equal to or less than 25% of the lot depth	<u>Average 7.5 feet measured</u> <u>from first floor</u> Minimum 10% of the frontage
		Average n/a
	H30B - Wall length is greater than 25% of the lot depth	<u>Average 7.5 feet measured</u> <u>from first floor</u> Minimum 10% of lot frontage

		<u>Average 7.5 feet measured from first floor</u> Average 15% of the frontage
Interior sides (when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)	H30A or H30B	20 FT or 20% of the frontage whichever is greater
		Average 20 FT or 20% of the frontage whichever is greater, plus 5 FT
Rear		Minimum 20 FT
		Average n/a
Secondary frontage (corner only)		Minimum 10 FT
		Average 15 FT
Secondary frontage (corner only for lots greater than 50 feet in width) (when the site consists of more than one lot of record, as shown on plats in effect on November 13, 2018)		20 FT or 20% of the frontage whichever is greater
		<u>Average 7.5 feet measured from first floor</u> Average 20 FT or 20% of the frontage whichever is greater, plus 5 FT

To: Members of the Planning and Zoning Board
From: Sarah Sinatra Gould, AICP, Town Planner
Date: October 24, 2019
Subject: H30A/H30B Upper Story Massing

The Planning and Zoning Board has requested staff to explore options in reducing the mass of new two-story structures. Staff analyzed four scenarios which limit the second story on all lots to no greater than 64% of the first floor. The first two scenarios represent the addition of a garage and terrace. If the garage and terrace are inline with the second floor, they would count towards the floor area, but if they extend out, they would not count towards the floor area. The third and fourth scenario focus on a newly proposed side setback formula.

Option 1

The first scenario represents a typical 5,600 square foot lot (50'x112') with an attached garage and terrace, which are inline (underneath) the second floor. The attached garage and terrace count towards the floor area and are taken into account when calculating the second floor 64% coverage. The 40% max lot coverage totals 2,240 square feet with an upper floor area totaling 1,432 square feet (64%) for a total livable space of 3,672 square feet. *See exhibit 1 for proposed limit of no greater than 64% on the second floor.*

Option 2

The second scenario represents a typical 5,600 square foot lot (50'x112') with a garage and terrace that extend out of the primary structure. In this scenario, staff modeled the graphic but not counting the extended-out garage and terrace towards the floor area, which does not permit the option to utilize this square footage when calculating the second floor 64% coverage. The 40% max lot coverage totals 2,240 square feet with an upper floor area totaling 819 square feet (64%) for a total livable space of 3,059 square feet. *See exhibit 2 for proposed limit of no greater than 64% on the second floor, not counting the extruded garage and terrace towards available square footage towards the second floor.*

Additional scenarios based on Option 1 with sliding scale setbacks

The third scenario represents an aggregated 8,400 square foot lot (75'x112') utilizing the newly proposed side setback formula: **Setback = .3(lot width) – 10**. The 40% max lot coverage totals 3,360 square feet with an upper floor area totaling 2,177 square feet (64%) for a total livable space of 5,537 square feet. *See exhibit 3 for proposed limit of no greater than 64% on the second floor with proposed sliding scale setback.*

The fourth scenario represents an aggregated 11,200 square foot lot (100'x112') utilizing the newly proposed side setback formula: **Setback = .3(lot width) -10**. In this scenario the setbacks

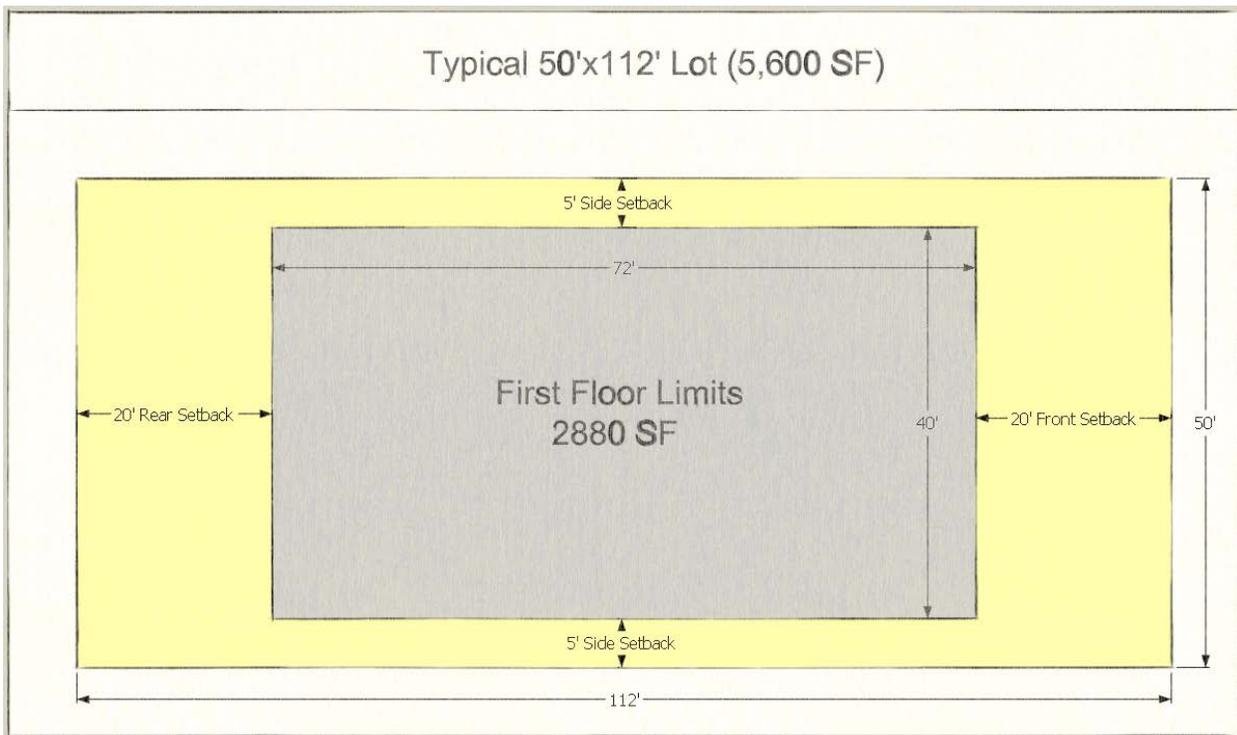
restrict the structure from maxing out the 40% coverage and can only manage 38% coverage. This 38% coverage totals 4,320 square feet with an upper floor area totaling 2,762 square feet (64%) for a total livable space of 7,083 square feet. *See exhibit 4 for proposed limit of no greater than 64% on the second floor with sliding scale setback.*

Recommendation

If the intention is to increase light and air while reducing massing on the second floor, the first option of a second story no greater than 64% of the first story and should be considered, along with the proposed sliding scale setback formula (as described in the additional scenarios).

Proposed ordinance language to limit to 64% and the formula for the second story setbacks is provided in this memorandum. Also included as *exhibit 5*, is a graphic demonstrating the options for square footage in the existing code, to provide a comparison.

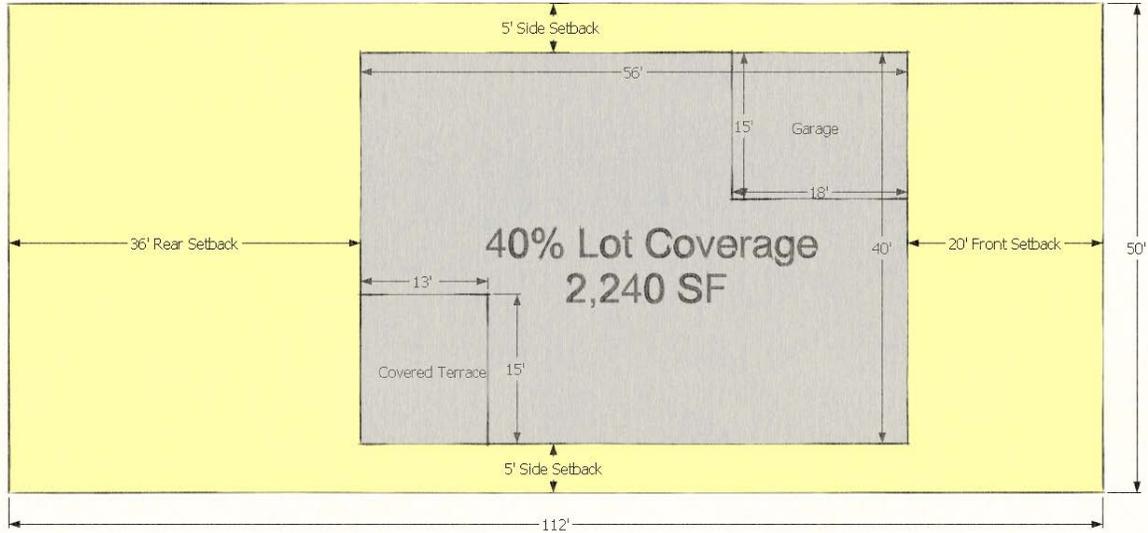
Exhibit 1.



1st Floor Limits | Typical Lot (50'x112') | 5,600 SF Site

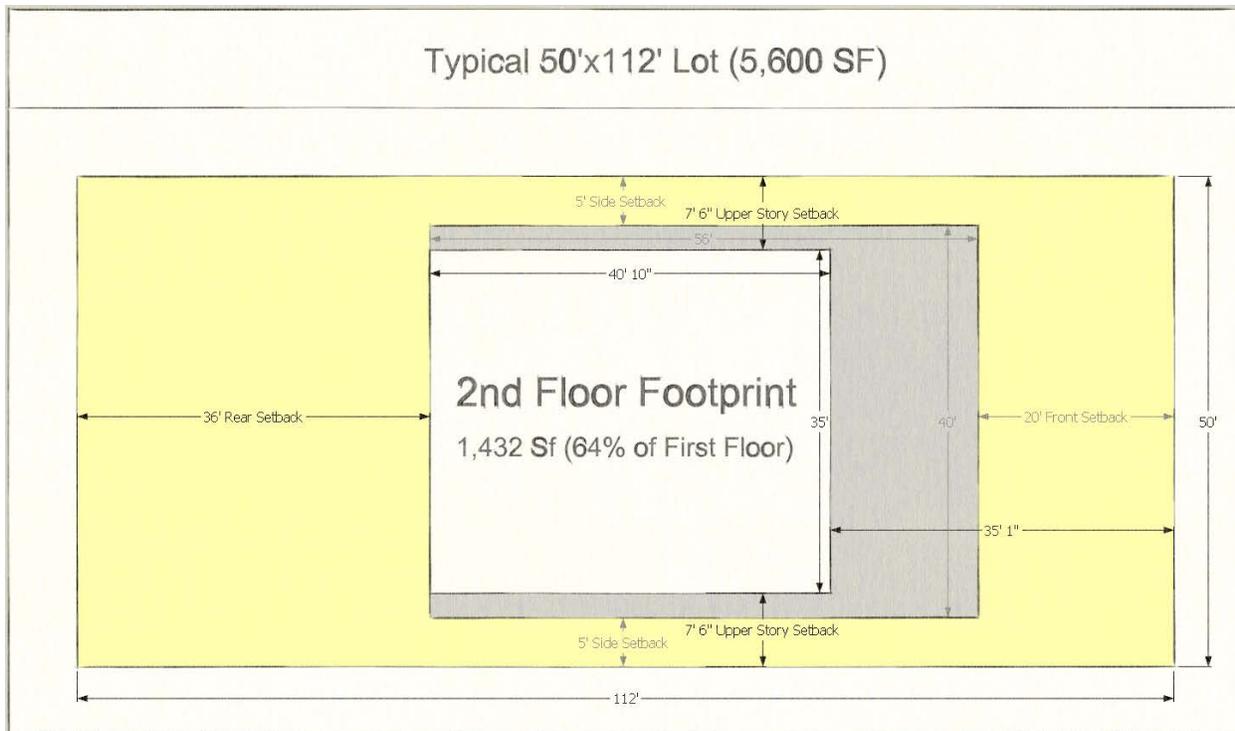
- Required Side Setbacks: 5' | **Proposed: 5'**
- Required Rear Setback: 20' | **Proposed: 20'**
- Required Front Setback: 20' | **Proposed: 20'**
- First Floor Building Footprint Limit: **2,880 SF**

Typical 50'x112' Lot (5,600 SF)



Lot Coverage | Typical Lot (50'x112') | 5,600 SF Site | 1st Floor

- Required Side Setbacks: 5' | **Proposed: 5'**
- Required Rear Setback: 20' | **Proposed: 20'**
- Required Front Setback: 20' | **Proposed: 20'**
- Max Lot Coverage (40%): 2,240 SF | **Proposed 2,240 SF**



Upper Story | Typical Lot (50'x112') | 5,600 SF Site

- Required Upper Story Average Side Setback: 7'6" from P/L | **Proposed: 7'6"**
- Required Average Upper Story Rear Setback: 20' | **Proposed: 36'**
- Required Average Upper Story Front Setback: 25' | **Proposed: 35'1"**
- Max Upper Story Floor Area: 64% of First Story | **Proposed: 1,432 SF (64%)**

- **Total Livable Space: 3,672 Square Feet**

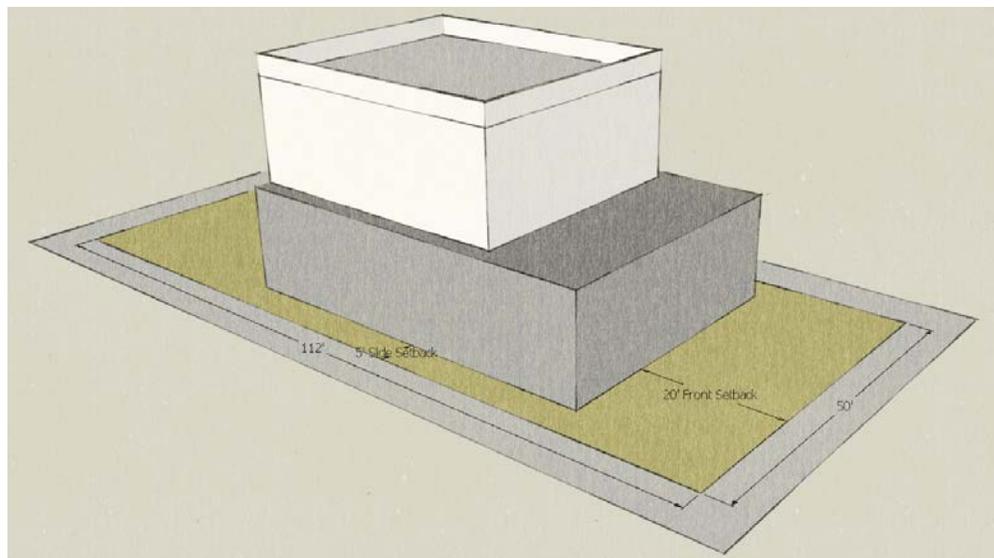
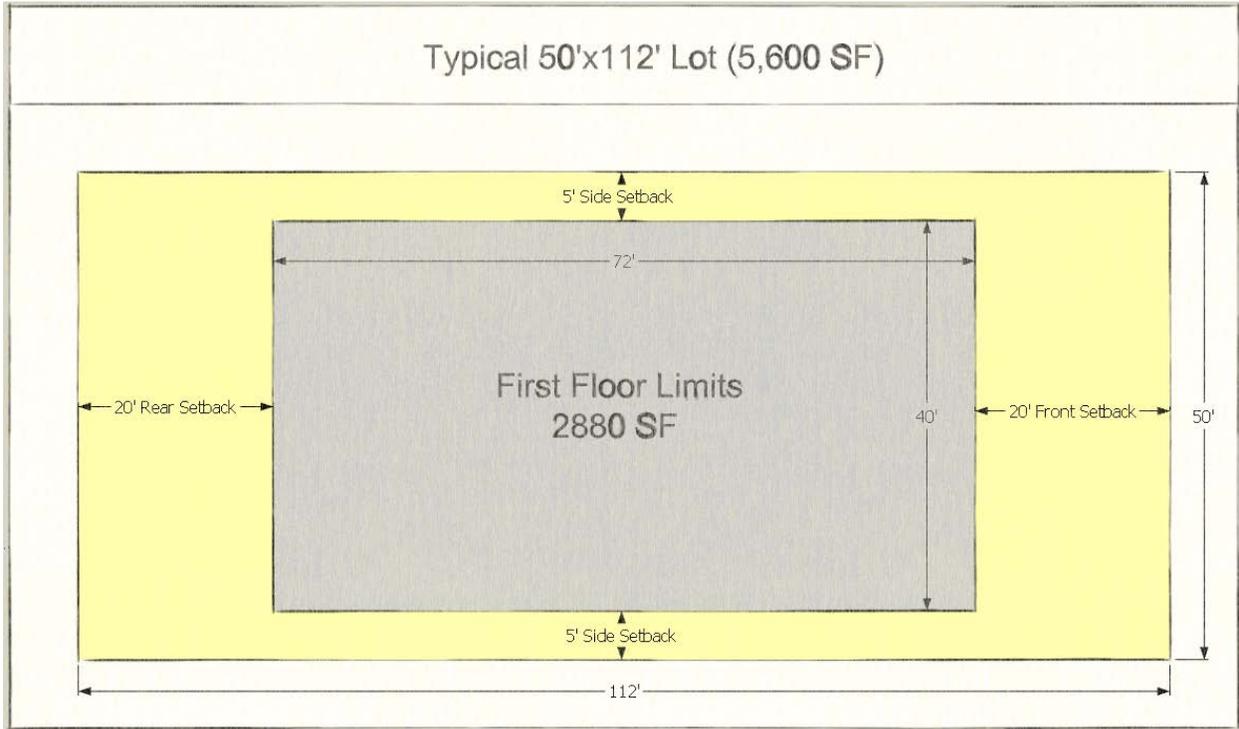
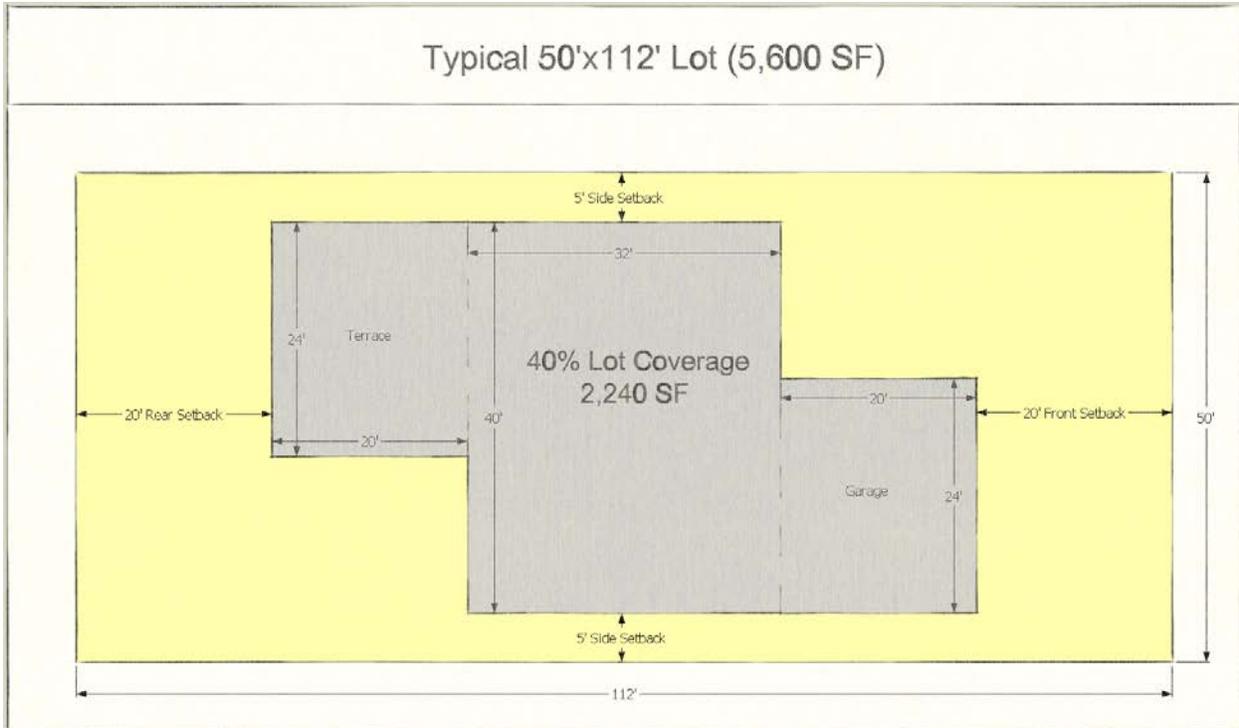


Exhibit 2



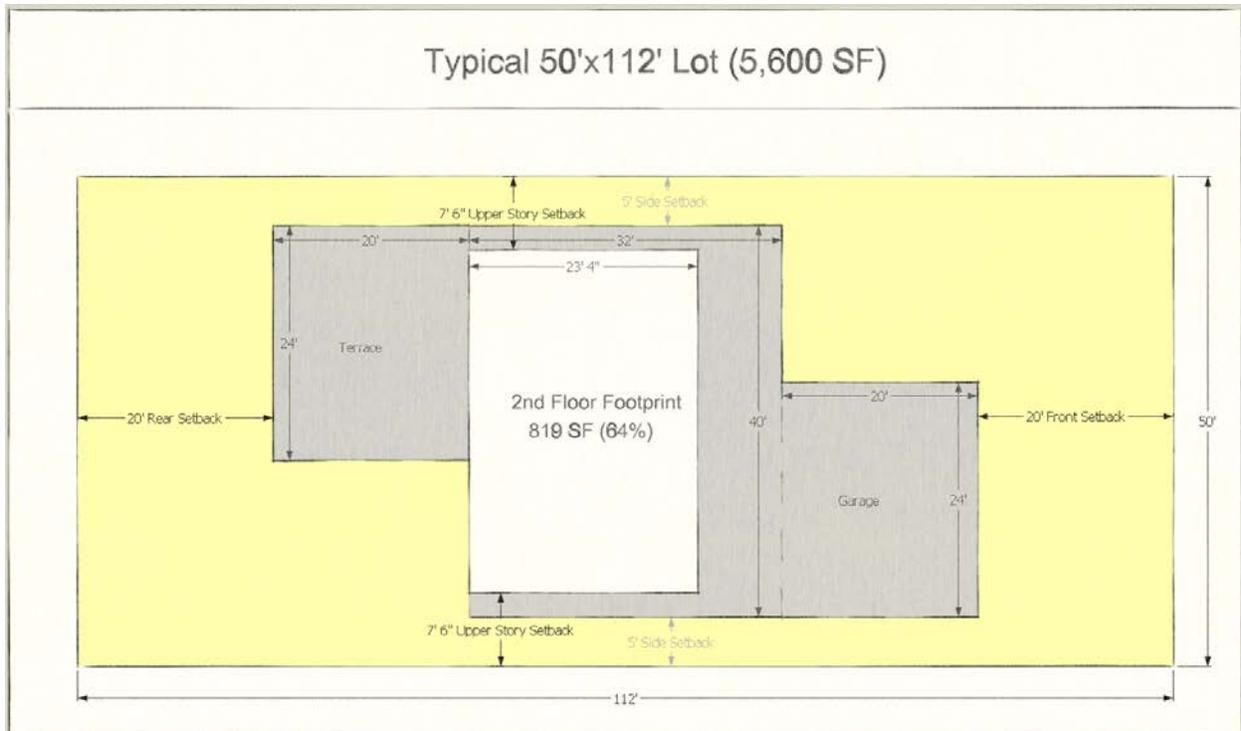
1st Floor Limits | Typical Lot (50'x112') | 5,600 SF Site

- Required Side Setbacks: 5' | **Proposed: 5'**
- Required Rear Setback: 20' | **Proposed: 20'**
- Required Front Setback: 20' | **Proposed: 20'**
- First Floor Building Footprint Limit: **2,880 SF**



Lot Coverage | Typical Lot (50'x112') | 5,600 SF Site | 1st Floor

- Required Side Setbacks: 5' | **Proposed: 5'**
- Required Rear Setback: 20' | **Proposed: 20'**
- Required Front Setback: 20' | **Proposed: 20'**
- Max Lot Coverage (40%): 2,240 SF | **Proposed 2,240 SF**



Upper Story | Typical Lot (50'x112') | 5,600 SF Site

- Required Upper Story Average Side Setback: 7'6" from P/L | **Proposed: 7'6"**
- Required Average Upper Story Rear Setback: 20' | **Proposed: 40'**
- Required Average Upper Story Front Setback: 25' | **Proposed: 48'6"**
- Max Upper Story Floor Area: 64% of the 1st floor area minus the garage & terrace | **Proposed: 819 SF (64%)**

- **Total Livable Space: 3,059 Square Feet**

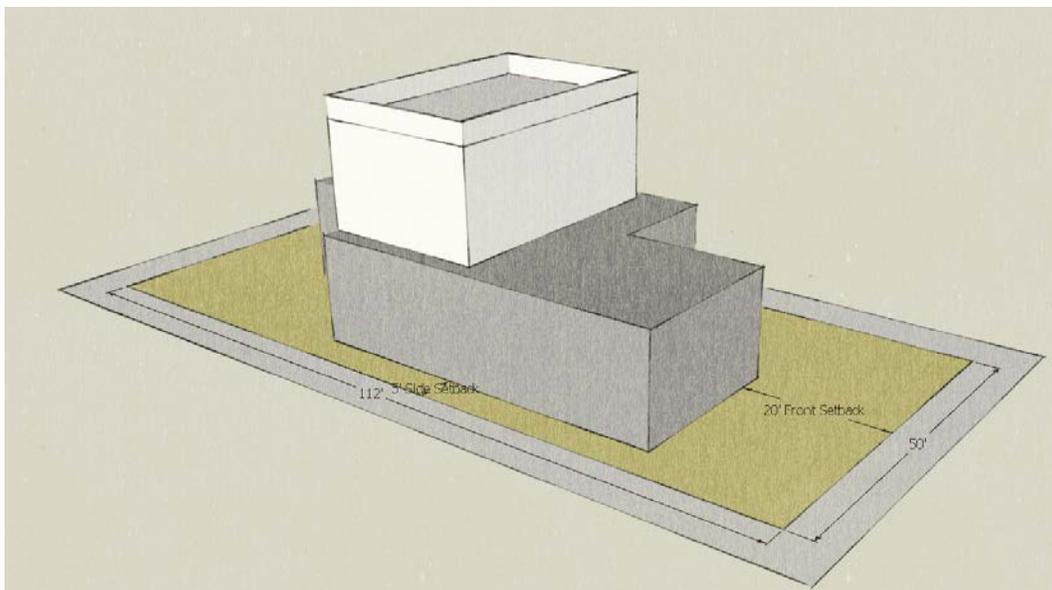
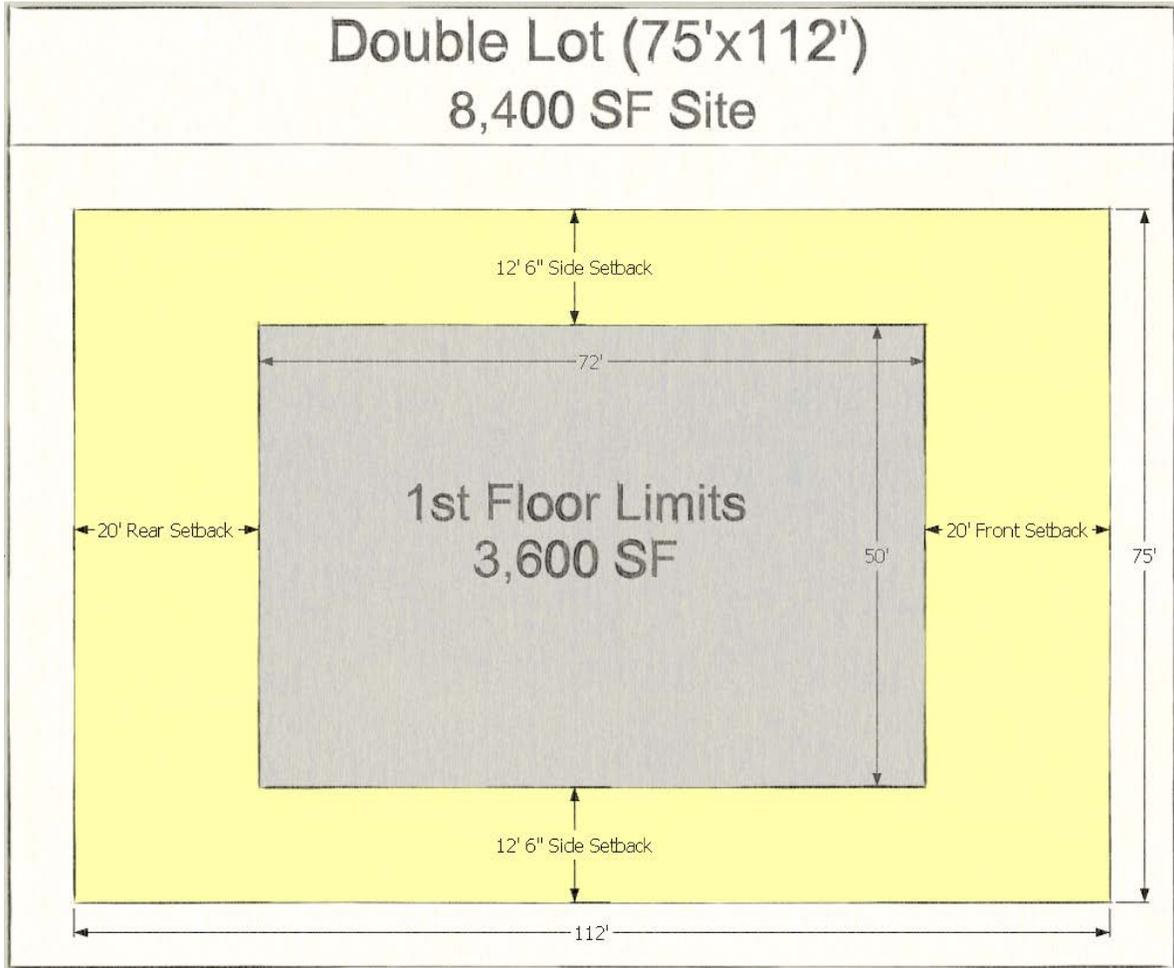


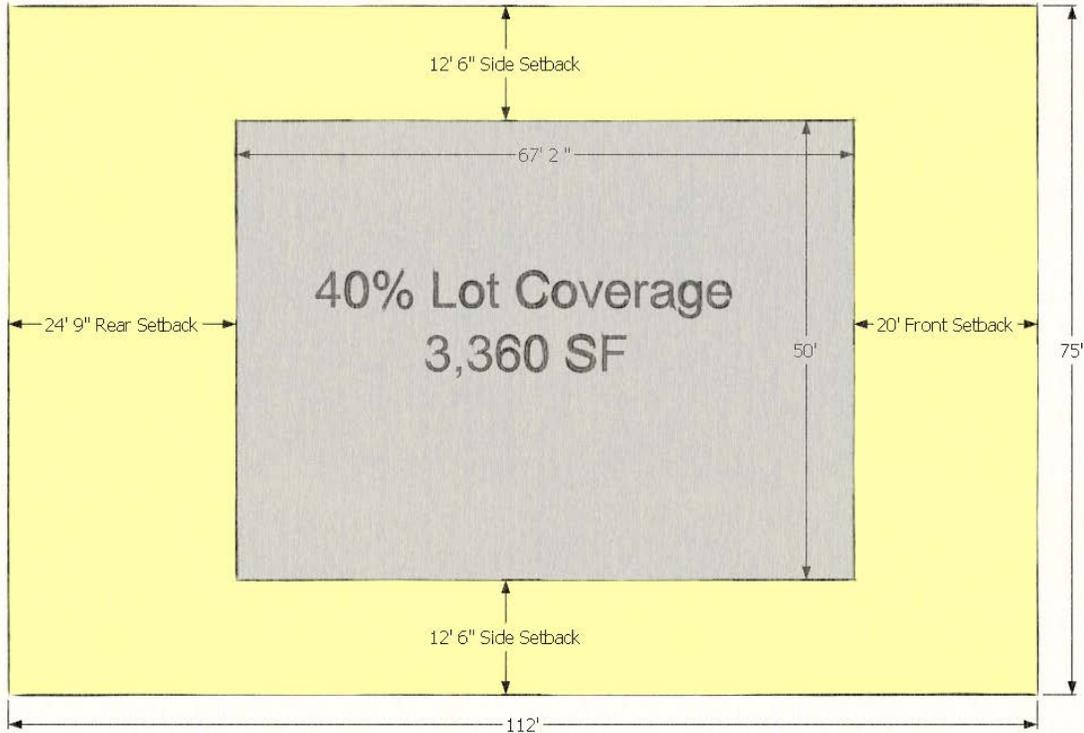
Exhibit 3



1st Floor Limits | Double Lot (75'x112') | 8,400 SF Site

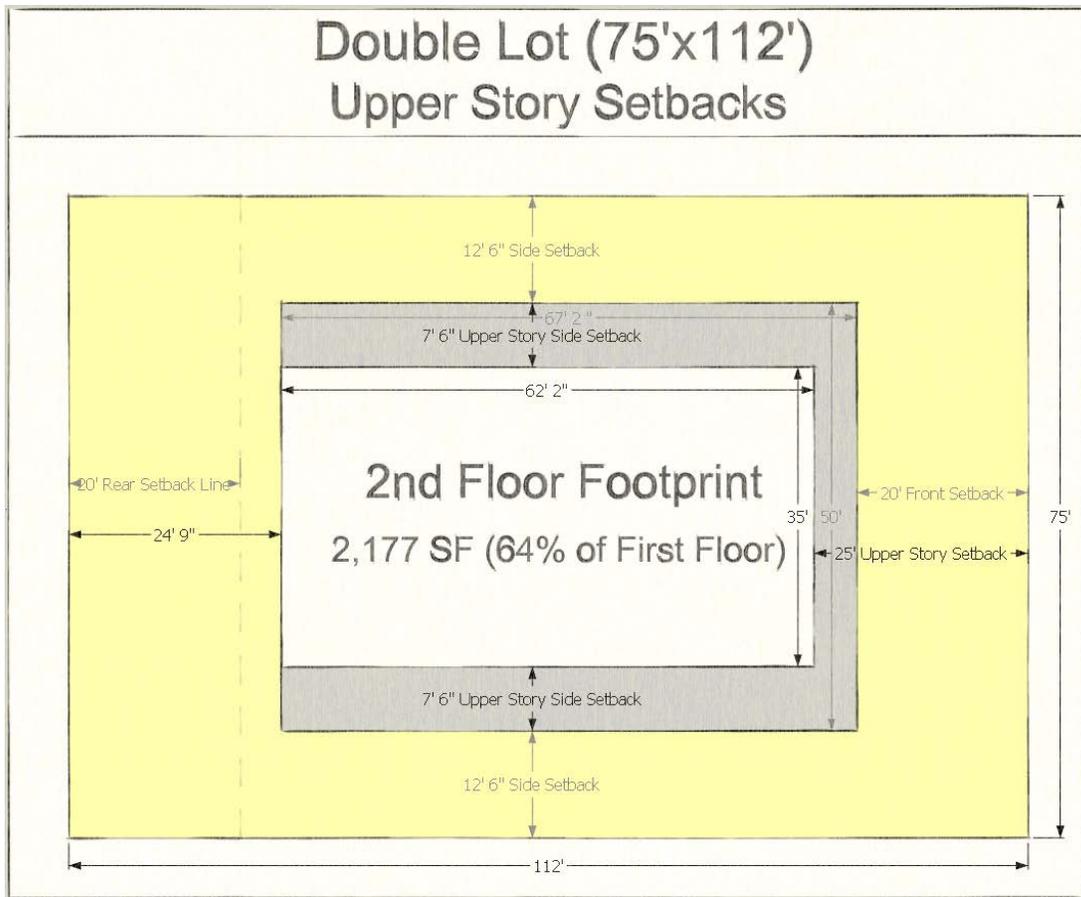
- Required Side Setbacks [Setback = $.3(\text{lot width})-10$]: $.3(75)-10=12.5'$ | **Proposed: 12.5'**
- Required Rear Setback: 20' | **Proposed: 20'**
- Required Front Setback: 20' | **Proposed: 20'**
- First Floor Building Footprint Limit: 3,600 SF

Double Lot (75'x112')
40% Lot Coverage = 3,360 SF



Lot Coverage | Double Lot (75'x112') | 8,400 SF Site | 1st Floor

- Required Side Setbacks [**Setback = .3(lot width)-10**]: $.3(75)-10=12.5'$ | **Proposed: 12.5'**
- Required Rear Setback: 20' | **Proposed: 20'**
- Required Front Setback: 20' | **Proposed: 20'**
- Max Lot Coverage (40%): 3,360 SF | **Proposed 3,360 SF**



Upper Story | Double Lot (75'x112') | 8,400 SF Site

- Required Upper Story Side Setbacks: 7'6" from edge of first floor | **Proposed: 7'6"**
- Required Average Upper Story Rear Setback: 20' | **Proposed: 24'9"**
- Required Average Upper Story Front Setback: 25' | **Proposed: 25'**
- Max Upper Story Floor Area: 64% of First Story | **Proposed: 2,177 SF (64%)**

- **Total Livable Space: 5,537 Square Feet**

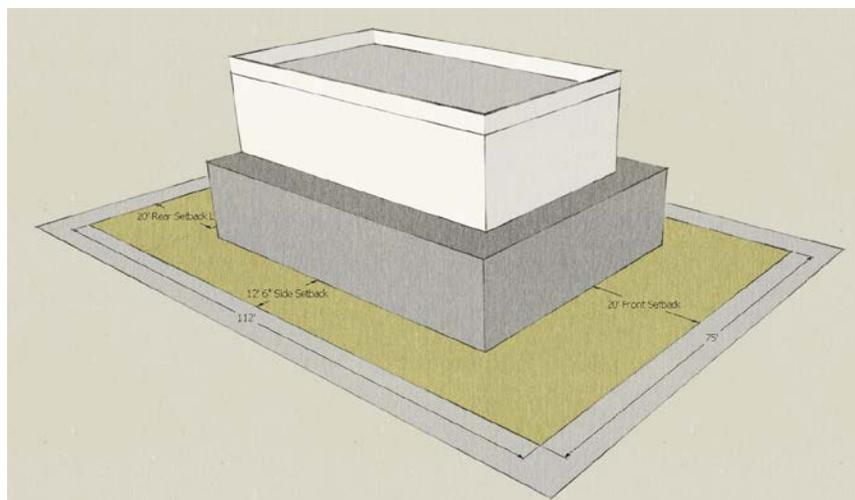
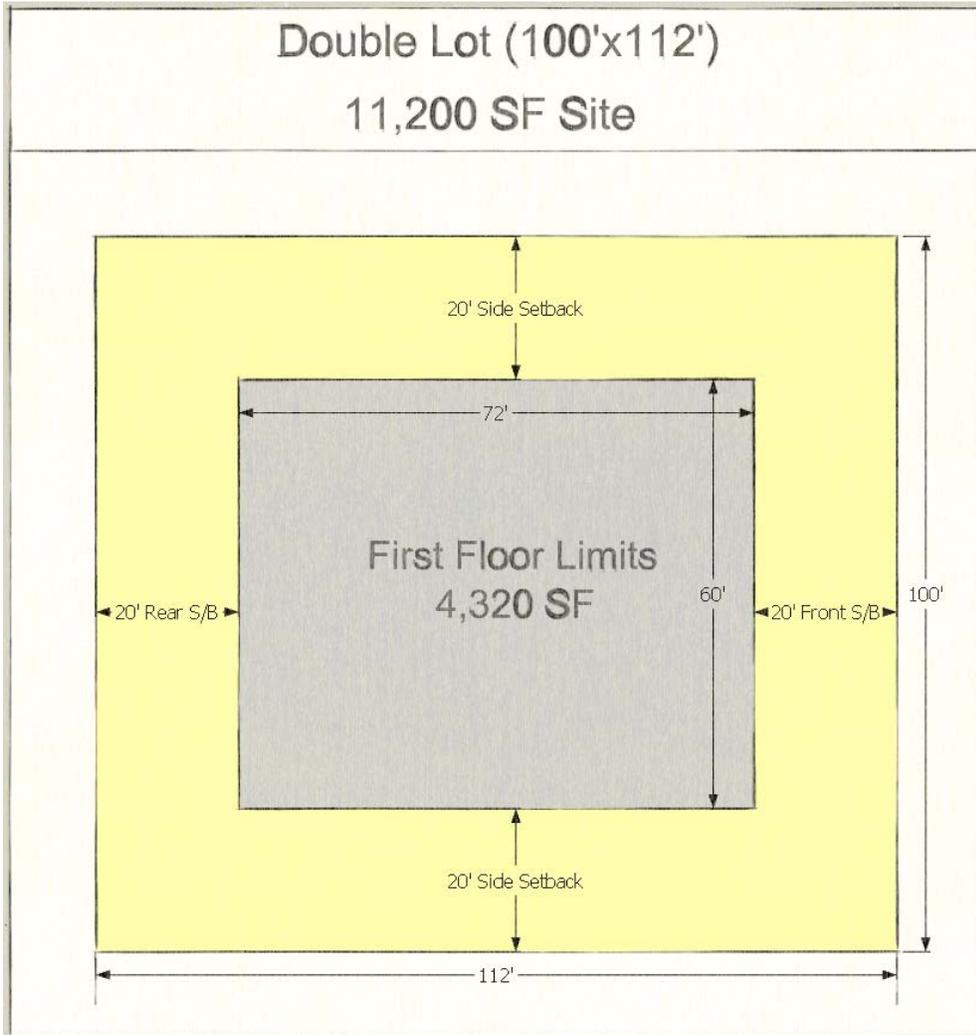
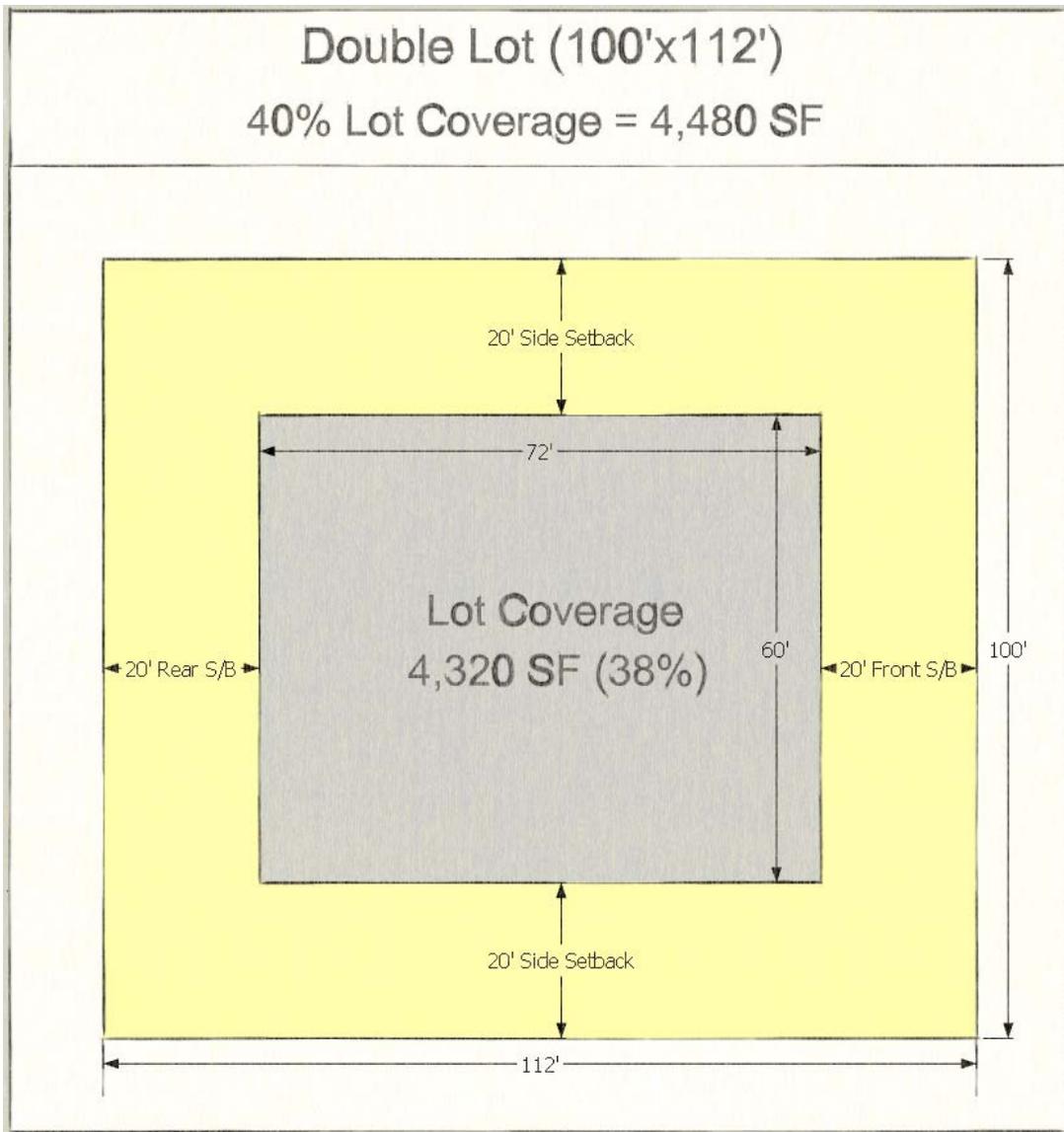


Exhibit 4



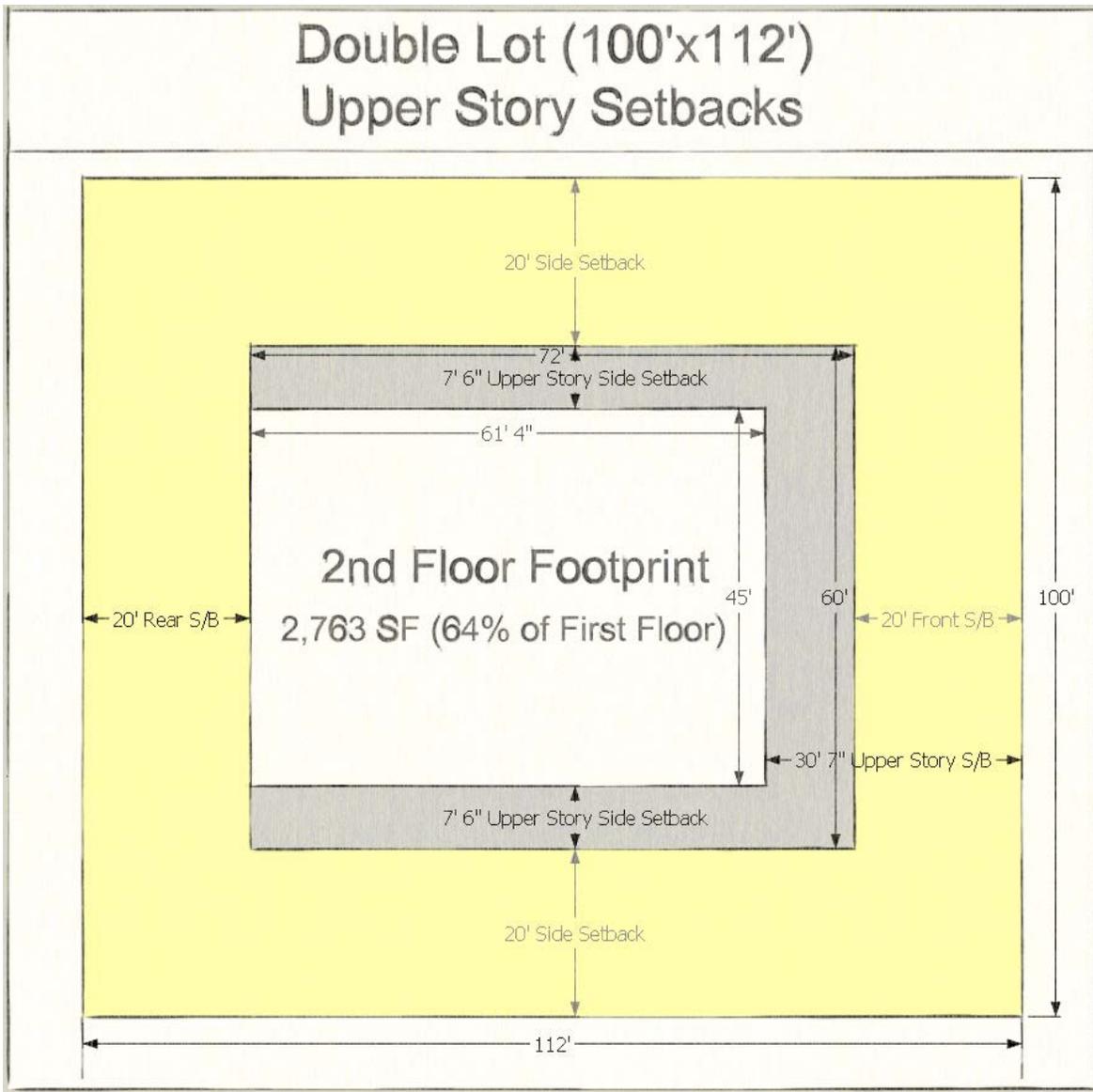
1st Floor Limits | Double Lot (100'x112') | 11,200 SF Site

- Required Side Setbacks [Setback = $.3(\text{lot width}) - 10$]: $.3(100) - 10 = 20'$ | **Proposed: 20'**
- Required Rear Setback: 20' | **Proposed: 20'**
- Required Front Setback: 20' | **Proposed: 20'**
- First Floor Building Footprint Limit: 4,320 SF



Lot Coverage | Double Lot (75'x112') | 8,400 SF Site | 1st Floor

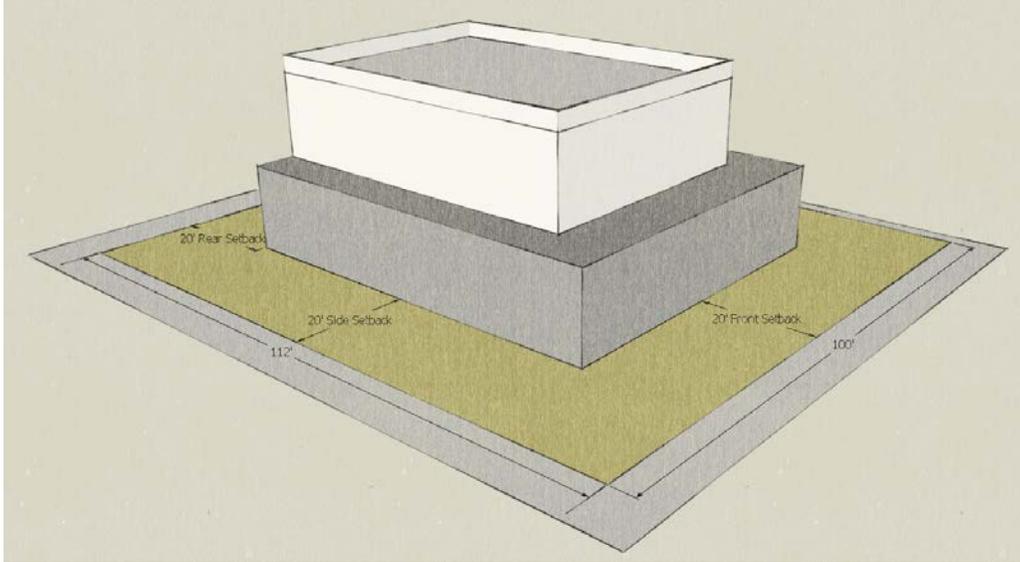
- Required Side Setbacks [**Setback = .3(lot width)-10**]: .3(100)-10=20' | **Proposed: 20'**
- Required Rear Setback: 20' | **Proposed: 20'**
- Required Front Setback: 20' | **Proposed: 20'**
- Max Lot Coverage (40%): 4,480 SF | **Proposed 4,320 SF** (Cannot max out the lot coverage with the required setbacks)



Upper Story | Double Lot (75'x112') | 8,400 SF Site

- Required Upper Story Side Setbacks: 7'6" from edge of first floor | **Proposed: 7'6"**
- Required Average Upper Story Rear Setback: 20' | **Proposed: 20'**
- Required Average Upper Story Front Setback: 25' | **Proposed: 30'7"**
- Max Upper Story Floor Area: 64% of First Story | **Proposed: 2,763 SF (64%)**

- **Total Livable Space: 7,083 Square Feet**



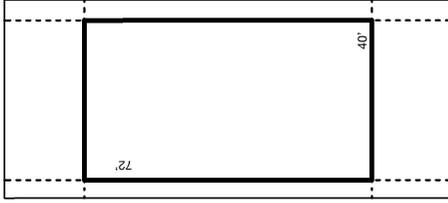
Site Parameters



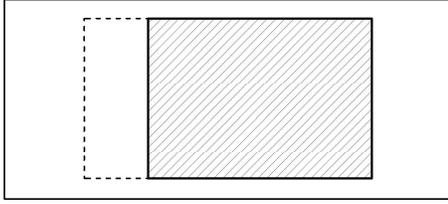
1. Site
5600 SF



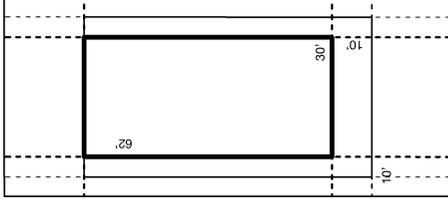
2. Setbacks



3. 1st Floor Limits
2880 SF

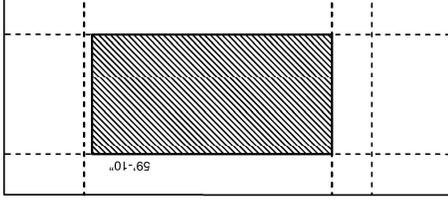


4. 40% Lot Coverage
2240 SF



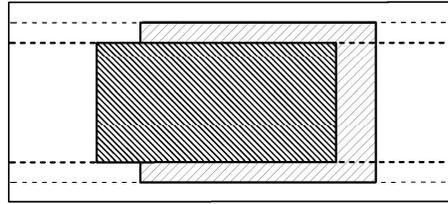
5. 2nd Floor Limits
1860 SF

2nd Floor setbacks are averages

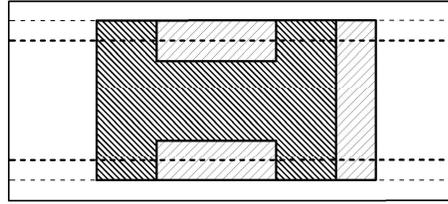


6. 80% Coverage
1792 SF

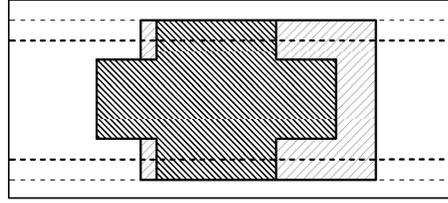
Possible Houses



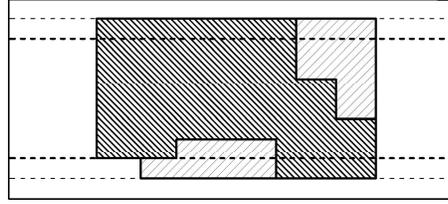
7A.
2240 SF - 1st
1792 SF - 2nd
4032 SF - total



7B.
2240 SF - 1st
1792 SF - 2nd
4032 SF - total

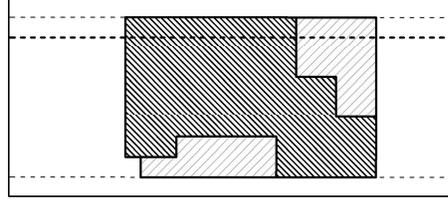


7C.
2240 SF - 1st
1792 SF - 2nd
4032 SF - total

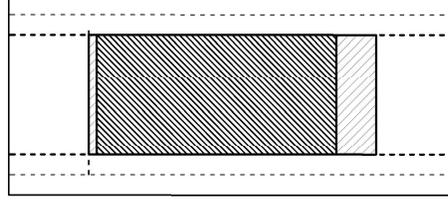


8A.
2240 SF - 1st
2050 SF - 2nd
4290 SF - total

This house meets setbacks but exceeds the 80% requirement.



8B.
2240 SF - 1st
1792 SF - 2nd
4032 SF - total



9.
2160 SF - 1st
1728 SF - 2nd
3880 SF - total

1st Floor



2nd Floor



Surfside H30A Zone

ITEM	OUTCOME	NEXT STEPS	TENTATIVE SCHEDULE	COMPLETE
FUTURE PZ DISCUSSION ITEMS				
Update to sign code	Need to make revisions to the sign code including limiting the overall allowances for window signage to one window or door rather than multiple	Staff to prepare	Future PZ	
Stepback discussion	Commission has requested the PZ board analyze this requirement	Prepare visual and calculation of volume, how much square footage does this equate to	Future PZ	
Reduce the allowable area of a 2 nd story to no greater than 64% of the 1 st story	PZ Requests discussion including side setbacks	Provide text to PZ	October PZ	
Tint of glass in Business District	DVAC requested PZ analyze the current code	Provide text to PZ	December PZ	
Increasing Freeboard			Future PZ	
ON FUTURE COMMISSION AGENDA				
Aggregated Lots	PZ requested discussion analyzing impacts on lots		November Commission	
Landscaping in front of fences	PZ requested fences along a ROW to have landscaping	Propose code amendment to propose landscaping	Future Commission	
Circulation pattern	PZ discussion on pedestrian safety and walkability	Pilot project	Ongoing	Ongoing
Impact fee discussion		Town is requesting a proposal from a consultant to do the impact fee analysis.	Working with consultant on proposal	
COMPLETED				
Freeboard & Height	PZ requests discussion on additional freeboard & height	Joint meeting with Commission on 8-26-19	No action	No action
Parking needs	Evaluate if parking code requirements are expected to be	Commission gave direction not to move		No action

<p>Fences & Hedges in the front of single-family residences</p>	<p>status-quo based on current ride sharing trends or if the need will be reduced</p> <p>Discussion on hedge height in the front</p>		<p>forward with any action</p>	<p>Fences & Hedges in the front of single family residences</p>	<p>Approved</p>
<p>Landscape Plans</p>	<p>Require landscape plans for large scale renovations (renovations affecting more than 50% of the square footage of the house)</p>	<p>Requested Ross to attend meeting to discuss requirements for landscape plans as well as the drainage review process</p>	<p>November PZ</p>	<p>Ross provided details. No further action requested.</p>	
<p>Sidewalk aesthetics</p>	<p>Prepare discussion item to determine if walkability can be improved.</p>	<p>Prepare graphics depicting 8 ft wide sidewalk & landscape buffer</p>	<p>November PZ</p>	<p>Sidewalk aesthetics</p>	<p>No action</p>
<p>Aggregation of Single Family</p>	<p>Requested by the Town Commission</p>	<p>Discuss limitations on building length relating to single family</p>	<p>August Commission – First Reading, November second reading</p>		<p>Adopted</p>

Resiliency Strategy	PZ has requested staff to prepare a discussion item was to improve sustainability	lots, if aggregated. Invite Betsy Wheaton from Miami Beach to discuss what improvements Miami Beach has implemented	Future PZ or Sustainability Committee	Move to sustainability
Parking in Single Family	In order to increase pervious areas, evaluate if two vehicles on a driveway are needed.		October PZ	No action
Update on business district	Follow up with PZ to notify the board of who is working on strategies & any improvements to the business district	Discussion of reinstating DVAC on October 9 th commission agenda	October PZ	Completed
Ways to increase pervious area of lots	Place on PZ agenda for discussion. Provide PZ with current standards		September PZ	No action
Limitation on building length in H40 & H30C	Revisit building limitations as well as green walls to soften the breaks in the building.	PZ Review. Commission heard on first reading, March 13	April PZ	Completed
H40, H30 & SDB40 Architecturally Significant ordinance	Review with PZ options for architecturally significant ordinance for other zoning districts.	PZ discussion	March PZ	No action
Green Roofs	Requested by the Town Commission		February PZ	No action
Photovoltaic Incentives	Requested by the Town Commission	Discuss requiring	February PZ	No action

Average side setback /Massing	Modify ordinance for additional side setbacks on upper floors for single family homes	Direction if this is necessary. The Town has already modified the code to prohibit covered balconies counted towards setbacks.	Average side setback /Massing	Modify ordinance for additional side setbacks on upper floors for single family homes	The Town has already modified the code to prohibit covered balconies counted towards setbacks.
Satellite dishes	Further review by staff	Direction if this is necessary. This issue has not come up as a problem and it is not clear if this is still desired to be regulated.	Satellite dishes	Further review by staff	This issue has not come up as a problem and it is not clear if this is still desired to be regulated.
Commercial waste and recycling container screening	Screening for containers, green screen, vegetation, include pictures from Commissioner Kligman	Draft code amendment			Did not move forward
Driveway material regulations	Modify code to allow stamped concrete and concrete slabs with decorative rock or grass in between	Draft code amendment			Did not move forward
Painting of commercial structures	Town Staff to prepare ordinance	Prepare ordinance for commission			Did not move forward

Residential or commercial wind turbine regulations	Prepare ordinance regulating wind turbines including hurricane precautions, noise regulations, insurance considerations	Residential or commercial wind turbine regulations	Direction if this is necessary: This issue has not come up as a problem and it is not clear if this is still desired to be regulated.	Prepare ordinance regulating wind turbines including hurricane precautions, noise regulations, insurance considerations	This issue has not come up as a problem and it is not clear if this is still desired to be regulated.
Setback for parapet above 30 feet on single family homes	Prepare ordinance to require additional setback	Setback for parapet above 30 feet on single family homes	Direction if this is still necessary as the code could be modified to encourage pitched roofs.	Prepare ordinance to require additional setback	Direction if this is still necessary as the code could be modified to encourage pitched roofs.
Final Zoning Inspections	Town Manager will analyze	Final Zoning Inspections	Building performs inspections based on conditions on the plans: Need direction if anything further is necessary	Town Manager will analyze	Building performs inspections based on conditions on the plans.
Requiring noticing for demolition of houses	Research option and place on agenda for discussion				Yes

Sign-Definitions	Modify sign definitions for monument and sign area	Drafted code amendment			
Carpets	Require improved surface on frame	Addressed in Code		September PZ	Yes
Provide summary on construction hours and noise ordinance	Place update on PZ agenda.			September PZ	Yes
Workforce housing update				September PZ	Yes
Add requirement for licensed architect for DRB submittals	Reviewing entire section relating to DRB	Draft code amendment			May Commission Agenda Complete
Corridor Analysis	Study corridor between Collins & Harding	Prepare code amendments	Work authorization to be approved in NOVEMBER	January Commission	Complete
Single Family Paint Colors	Discussion with the Planning & Zoning Board to determine if a color palette is appropriate for single family homes and what colors/criteria should be included	Place on future Planning and Zoning agenda for discussion	In contract	Will add to Joint Meeting with PZ/Commission.	Complete
Parking Trust Fund	Discussion with the Planning & Zoning Board to provide a cap for payment into the fund	Ordinance on July PZ agenda	In contract	July Commission for 1 st reading, July PZ August Commission for 2 nd reading	Complete
Turtle Lighting	Town Staff to prepare review	No ordinance necessary. Turtle lighting already required in code.	COMPLETE	Turtle Lighting	Town Staff to prepare review

Downtown Color Palette	Discussion with the Planning & Zoning Board to determine if a color palette is appropriate and what colors/criteria should be included	Place on future Planning and Zoning agenda for discussion	In contract	Replaced with repainting of structures.	Complete
Bay Drive & 96 th Street	Open Bay Drive off 96 th Street	Staff will research	Police and Building to research	No change. Police Chief cited safety concerns	COMPLETE
Sign/awning code	Discussed at Joint Meeting	Staff beginning to work on draft	Work Authorization approved	July Commission August Commission	COMPLETE
As-built reviews for residential projects	Discuss increasing canopy in town, street trees, what can be planted in ROW	Research and prepare report for discussion and possible code amendment	In contract	March PZ	COMPLETE Added a program modification to FY2015 budget
Interpretation of base flood elevation for the H120 district	No change	No further action needed		N/A	COMPLETE
Solar panel regulations	Prepare ordinance regulating solar panels	Draft code amendment	In contract	March PZ	COMPLETE
Car charging station regulations	Prepare ordinance regulating car charging stations requiring them in new multi-family, research what other communities are doing	Draft code amendment	In contract	December PZ	COMPLETE
Pyramiding effects of stepbacks in the H120 district	No action necessary since Planning and Zoning Board currently reviewing stepbacks as part of wall frontage modifications			N/A	
Garage door clarification	Modify code to remove requirement for two separate garage doors	Draft code amendment	In contract	November PZ	COMPLETE

10%-window opening requirement per story	Discussion with the Planning & Zoning Board	Prepare ordinance for commission	In contract	June PZ	November Commission for first reading
Landscaping in front of converted garage	Determine if landscaping planter is sufficient versus requiring landscaping.	Reviewed code and determined that planter is only permitted in cases where the driveway would be too short.	In contract	No further modification necessary	Yes
Sheds	Modify ordinance to increase square footage, but reduce height and add landscape requirements.	Draft code amendment	In contract	Discussed at March meeting.	Commission 1st reading in May. PZ in May