Escambia County
Clerk's Original

11/4/2021 GMR I-6

Date: 11/9/2021 Verified By: KFisher
Ordinance only, not exhibits.

ORDINANCE NUMBER 2021-39

AN ORDINANCE OF ESCAMBIA COUNTY, FLORIDA, AMENDING PART III OF THE ESCAMBIA COUNTY CODE OF ORDINANCES, THE LAND DEVELOPMENT CODE OF ESCAMBIA COUNTY, FLORIDA, AS AMENDED, AMENDING CHAPTER 3, SECTION 3-1.3, "ZONING AND FUTURE LAND USE," TO INCORPORATE THE OLF-8 ZONING DISTRICTS AND TO ADOPT THE SUPPORTING DOCUMENTS FOR THE "OLF-8 MASTER PLAN AREA," WHICH IS LOCATED WITHIN SECTION 05, TOWNSHIP 1S, RANGE 31W, AND WHICH IS IDENTIFIED AS PARCEL ID NUMBER 05-1S-31-1101-000-000 TOTALING 539.1(+/-) ACRES, LOCATED ON FRANK REEDER ROAD AND NINE MILE ROAD/US HWY 90A/STATE ROAD 10; ESTABLISHING PERMITTED USE AND USE CONDITIONS AS WELL AS SITE AND BUILDING REQUIREMENTS FOR DEVELOPMENT WITHIN THE OLF-8 MASTER PLAN AREA; ADOPTING THE OLF-8 DESIGN CODE, MASTER PLAN MAP, REGULATING PLAN MAPS, DEVELOPMENT AREAS MAP, THOROUGHFARE CLASSIFICATION MAP, THOROUGHFARE HIERARCHY MAP, CIVIL AND ENVIRONMENTAL ANALYSIS DOCUMENT, GREEN INFRASTRUCTURE IMPLEMENTATION DOCUMENT, AND TRANSPORTATION REPORT DOCUMENT; PROVIDING FOR SEVERABILITY; PROVIDING FOR INCLUSION IN THE CODE; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Legislature of the State of Florida has, in Chapter 125, Florida Statutes, conferred upon local governments the authority to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Board of County Commissioners finds that ensuring orderly future development of the Outlying Landing Field 8 ("OLF-8") Master Plan Area better serves the public health, safety, and welfare of the citizens and tourists of the County; and

WHEREAS, the Board of County Commissioners previously directed staff to produce a Master Plan for OLF-8 in order to guide and implement the orderly future development of OLF-8.

NOW, THEREFORE, BE IT ORDAINED by the Board of County Commissioners of Escambia County that the following regulations are hereby adopted.

Section 1. Purpose.

The purpose of this ordinance is to adopt the Outlying Landing Field 8 ("OLF-8") Master Plan Area, which is implemented by the OLF-8 Design Code, the OLF-8 Maps, the OLF-8 Civil and Environmental Analysis Document, the OLF-8 Green Infrastructure Implementation Document, and the OLF-8 Transportation Report Document.

Section 2. Part III of the Escambia County Code of Ordinances, the Land Development Code of Escambia County, Chapter 3, Zoning Regulations, Article 1, General Provisions, Section 3-1.3, Zoning and future land use, is hereby amended as follows (words underlined are additions and words ~~stricken~~ are deletions):

Sec. 3-1.3 Zoning and future land use.

(a) *Generally.* Together the future land use (FLU) categories of the comprehensive plan and zoning districts of the LDC form the primary location-specific land use regulations of the county. Within each FLU, one or more zoning districts implement and further refine the distribution and extent of allowable land uses. The identification or classification of a use or activity as allowed by the applicable future land use category and zoning district does not constitute the required approval to carry out that use or activity. Consistency with FLU and zoning only indicates that, upon appropriate review and approval for compliance with the provisions of the LDC, the use or activity may be established, reestablished or expanded.

(b) *Official maps.* The areas of the county subject to each future land use category established within the comprehensive plan are recorded on the official future land use map of Escambia County. Similarly, the areas of each zoning district established in this chapter are recorded on the official zoning map of Escambia County. The zoning map is adopted and incorporated here by reference and declared to be part of the LDC. The information shown on the map has the same force and effect as the text of the LDC. Both official maps are represented and maintained digitally in the county's geographic information system (GIS) and shall be accessible to the public via the county's website, www.myescambia.com.

(c) *Boundary determinations.* If uncertainty exists regarding the boundary of any FLU category or zoning district, the boundary shall be determined by the planning official in consideration of the following:

(1) *Natural features.* A boundary that reflects a clear intent to follow a particular natural feature such as a stream or shoreline shall be understood to follow the feature as it actually exists and move with the feature should it move as a result of natural processes.

(2) *Manmade features.* A boundary shown on the official map as approximately following a right-of-way, parcel line, section line, or other readily identified manmade feature shall be understood to coincide with that feature.

(3) *Parallel or extension.* A boundary shown on the official map as approximately parallel to a natural or manmade feature shall be understood as being actually parallel to that feature; or if an apparent extension of such a feature, then understood as an actual extension.

(4) *Metes and bounds.* If a boundary splits an existing lot or parcel, any metes and bounds description used to establish the boundary shall be used to determine its location.

(5) *Scaling.* If the specific location of a boundary cannot otherwise be determined, it shall be determined by scaling the mapped boundary's distance from other features shown on the official map.

(d) *Split parcels.* The adopted zoning districts and FLU categories are parcel-based, but their boundaries are not prohibited from dividing a parcel. For parcels split by these boundaries, including overlay district boundaries, only that portion of a parcel within a district or category is subject to its requirements. Where a zoning district boundary divides a parcel that is ten acres or less in size and not part of a platted residential subdivision, the zoning district of the larger portion may be applied to the entire parcel if requested by the parcel owner, consistent with the applicable FLU category, and in compliance with the location criteria of the requested zoning. Zoning map amendment is otherwise required to apply a single district to a split-zoned parcel.

(e) *Land with no designations.* No zoning is adopted for military bases, state college and university campuses, and other such lands for which the regulations of the LDC are not intended. Public rights-of-way have no designated zoning or future land use, but where officially vacated right-of-way is added to abutting parcels the future land use categories and zoning districts applicable to the abutting parcels shall apply to their additions at the time of the vacation approval, with no further action required by the county.

Land that otherwise has no adopted zoning, and is not within an area determined by the county to be excluded from zoning, shall have zoning established by zoning map amendment. If the land also has no approved future land use category, one shall be adopted according to the process prescribed for such amendments prior to, or concurrently with, board of county commissioners (BCC) approval of the zoning.

(f) *Map amendment.* Changes to the boundaries of adopted FLU categories or zoning districts, whether owner initiated or county initiated, are amendments to the official county maps and are authorized only through the processes prescribed in chapter 2 for such amendments.

(g) *Future land use designations.* The future land use categories established within the comprehensive plan and referenced in the LDC are designated by the following abbreviations and names:

AG Agriculture

RC Rural community

MU-S Mixed-use suburban

MU-U Mixed-use urban

C Commercial

I Industrial

P Public

REC Recreation

CON Conservation

MU-PK Mixed-use - Perdido Key

MU-PB Mixed-use - Pensacola Beach

(h) *Zoning district designations.* The zoning districts established within this chapter are designated by the following groups, abbreviations and names:

(1) *Residential.* The purposes of the following districts are primary residential:

RR Rural residential

LDR Low density residential

MDR Medium density residential

HDR High density residential

LDR-PK Low density residential - Perdido Key

MDR-PK Medium density residential - Perdido Key

HDR-PK High density residential - Perdido Key

LDR-PB Low density residential - Pensacola Beach

MDR-PB Medium density residential - Pensacola Beach

HDR-PB High density residential - Pensacola Beach

(2) *Nonresidential.* The purposes of the following districts are primarily mixed-use and nonresidential:

a. *Mixed-use.* The mixed-use districts are:

RMU Rural mixed-use

LDMU Low density mixed-use

HDMU High density mixed-use

MDR/C-PB Medium density residential and commercial - Pensacola Beach

HDR/C-PB High density residential and commercial - Pensacola Beach

b. *Commercial and industrial.* The commercial and industrial districts are:

Com Commercial

Com-PK Commercial - Perdido Key

CC-PK Commercial core - Perdido Key

CG-PK Commercial gateway - Perdido Key

GR-PB General retail - Pensacola Beach

Rec/R-PB Recreation retail- Pensacola Beach

CH-PB Commercial hotel - Pensacola Beach

HC/LI Heavy commercial and light industrial

Ind Industrial

c. *Other.* The other nonresidential districts are:

Agr Agricultural

Rec Recreation

Con conservation

Pub Public

PR-PK Planned resort - Perdido Key

Rec-PK Recreation - Perdido Key

PR-PB Preservation - Pensacola Beach

Con/Rec-PB Conservation and recreation - Pensacola Beach

G/C-PB Government and civic - Pensacola Beach

(3) *Overlay*. The purposes of the following districts are to supplement requirements of the underlying zoning districts:

Barr-OL Barrancas Overlay
Brn-OL Brownsville Overlay
Eng-OL Englewood Overlay
Pfox-OL Palafox Overlay
SH-OL Scenic Highway Overlay
Warr-OL Warrington Overlay
PK-OL Perdido Key Towncenter Overlay

(4) *Outlying Landing Field 8 ("OLF-8") Master Plan Area*. Zoning districts specific to the OLF-8 Master Plan Area are established separately within the OLF-8 Design Code. The OLF-8 Design Code also establishes zoning district-based development standards that replace or supplement LDC standards.

a. *OLF-8 Maps*. The regulating and supporting maps of the OLF-8 Master Plan Area enumerated below are hereby adopted and incorporated herein by reference. The information shown on the maps has the same force and effect as the text of the LDC. The maps are represented and maintained digitally in the County's Geographic Information System (GIS) and shall be accessible to the public via the County's website, www.myescambia.com.

1. OLF-8 Master Plan Map dated August 27, 2021 (Exhibit "A" to Ord. No. 2021- **39**)

2. OLF-8 Regulating Plan Maps dated August 26, 2021 (Exhibit "B" to Ord. No. 2021- **39**)

3. OLF-8 Development Areas Map dated August 26, 2021 (Exhibit "C"

to Ord. No. 2021- 39)

4. OLF-8 Thoroughfare Classification Map dated August 27, 2021 (Exhibit "D" to Ord. No. 2021- 39)

5. OLF-8 Thoroughfare Hierarchy Map dated August 26, 2021 (Exhibit "E" to Ord. No. 2021- 39)

b. *OLF-8 Documents*. The regulating and supporting documents for the OLF-8 Master Plan Area enumerated below are hereby adopted and incorporated herein by reference. The information contained in the documents has the same force and effect as the text of the LDC. The documents shall be maintained by the Planning Official.

1. OLF-8 Design Code dated September 16, 2021 (Exhibit "F" to Ord. No. 2021- 39)

2. OLF-8 Civil and Environmental Analysis dated July 1, 2021 (Exhibit "G" to Ord. No. 2021- 39)

3. OLF-8 Green Infrastructure Implementation dated July 19, 2021 (Exhibit "H" to Ord. No. 2021- 39)

4. OLF-8 Transportation Report dated May 2021 (Exhibit "I" to Ord. No. 2021- 39)

Section 3. Severability.

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

Section 4. Inclusion in the code.

The Board of County Commissioners intends that the provisions of this ordinance will be codified as required by Section 125.68, Florida Statutes, and that the sections of this ordinance may be renumbered or relettered and the word "ordinance" may be changed to "section," "article," or such other appropriate word of phrase in order to accomplish its intentions.

<u>Section 5.</u> Effective date.

This ordinance shall become effective upon filling with the Department of State.

DONE AND ENACTED this 4th day of November, 2021.

BOARD OF COUNTY COMMISSIONERS
ESCAMBIA COUNTY, FLORIDA

By:
Robert Bender, Chairman

ATTEST: Pam Childers
Clerk of the Circuit Court

BY:
Deputy Clerk

Date Executed: 11/9/2021

(SEAL)

THE BOARD OF COUNTY COMMISSIONERS ESCAMBIA CO. FL SEAL

Approved as to form and legal sufficiency

By: Kim M. Johnson

Title: Assistant County Attorney

Date: September 23, 2021

ENACTED: November 4, 2021
FILED WITH THE DEPARTMENT OF STATE: November 9, 2021
EFFECTIVE DATE: November 9, 2021

DPZ
CODESIGN

PROJECT NAME
OLF8

PROJECT NUMBER
1916

PROJECT LOCATION
Beulah, Florida

MAP
Adopted Master Plan

EXHIBIT
A

ID
#1 of 8

DATE
08/27/2021

ORIENTATION

SCALE
0 200 400 800 1200 1600 2000 Feet

DPZ CODESIGN

PROJECT NAME
OLF8

PROJECT NUMBER
1916

PROJECT LOCATION
Beulah, Florida

MAP
Regulating Plan 1

EXHIBIT
B

ID
#2 of 8

DATE
8/26/2021

ORIENTATION

SCALE
0 200 400 800 1200 1600 2000 Feet

DPZ CODESIGN

PROJECT NAME
OLF8

PROJECT NUMBER
1916

PROJECT LOCATION
Beulah, Florida

MAP
Regulating Plan 2

ID
#3 of 8

DATE
8/26/2021

ORIENTATION

SCALE
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DPZ CODESIGN

PROJECT NAME
OLF8

PROJECT NUMBER
1916

PROJECT LOCATION
Beulah, Florida

MAP
Regulating Plan 3

ID
#4 of 8

DATE
8/26/2021

ORIENTATION

SCALE
0 200 400 800 1200 1600 2000 Feet

DPZ CoDESIGN

PROJECT NAME
OLF8

PROJECT NUMBER
1916

PROJECT LOCATION
Beulah, Florida

MAP
Regulating Plan 4

ID
#5 of 8

DATE
8/26/2021

ORIENTATION

SCALE
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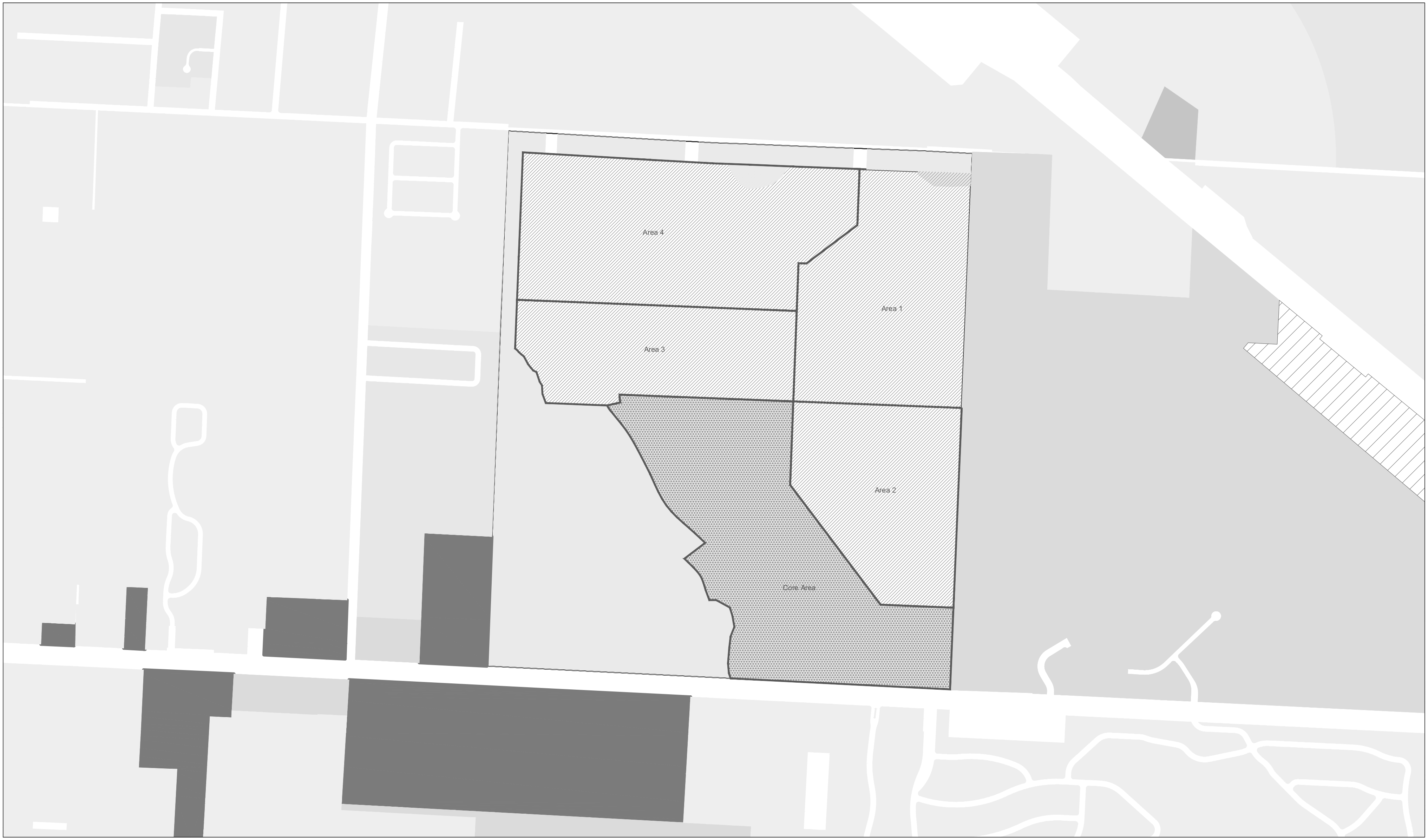

DPZ CODESIGN

PROJECT NAME
OLF8

PROJECT NUMBER
1916

PROJECT LOCATION
Beulah, Florida

MAP
Development Areas

EXHIBIT
C

ID
#6 of 8

DATE
8/26/2021

ORIENTATION

SCALE
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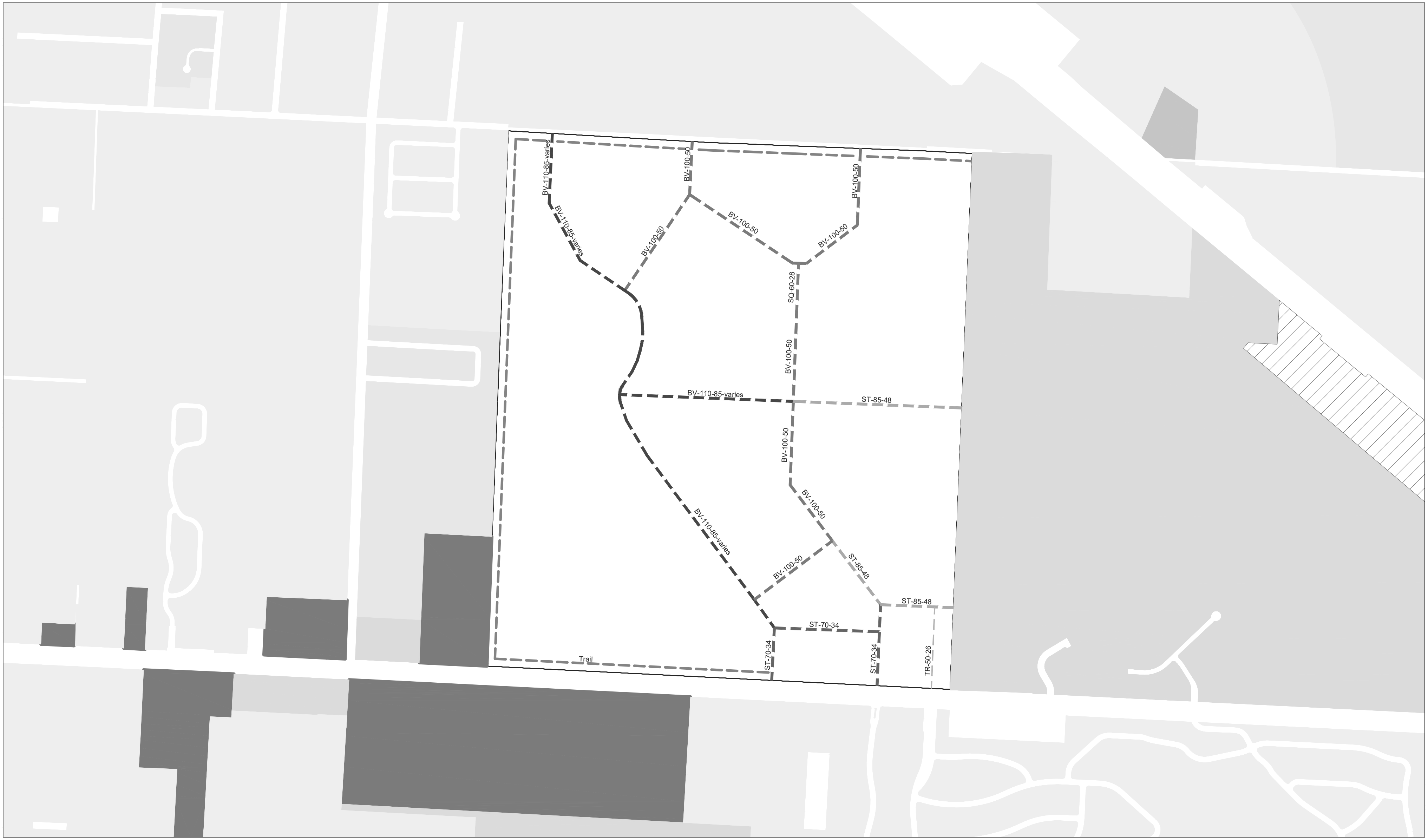

DPZ CODESIGN

PROJECT NAME
OLF8

PROJECT NUMBER
1916

PROJECT LOCATION
Beulah, Florida

MAP
Thoroughfare Classification

EXHIBIT
D

ID
#7 of 8

DATE
8/27/2021

ORIENTATION

SCALE
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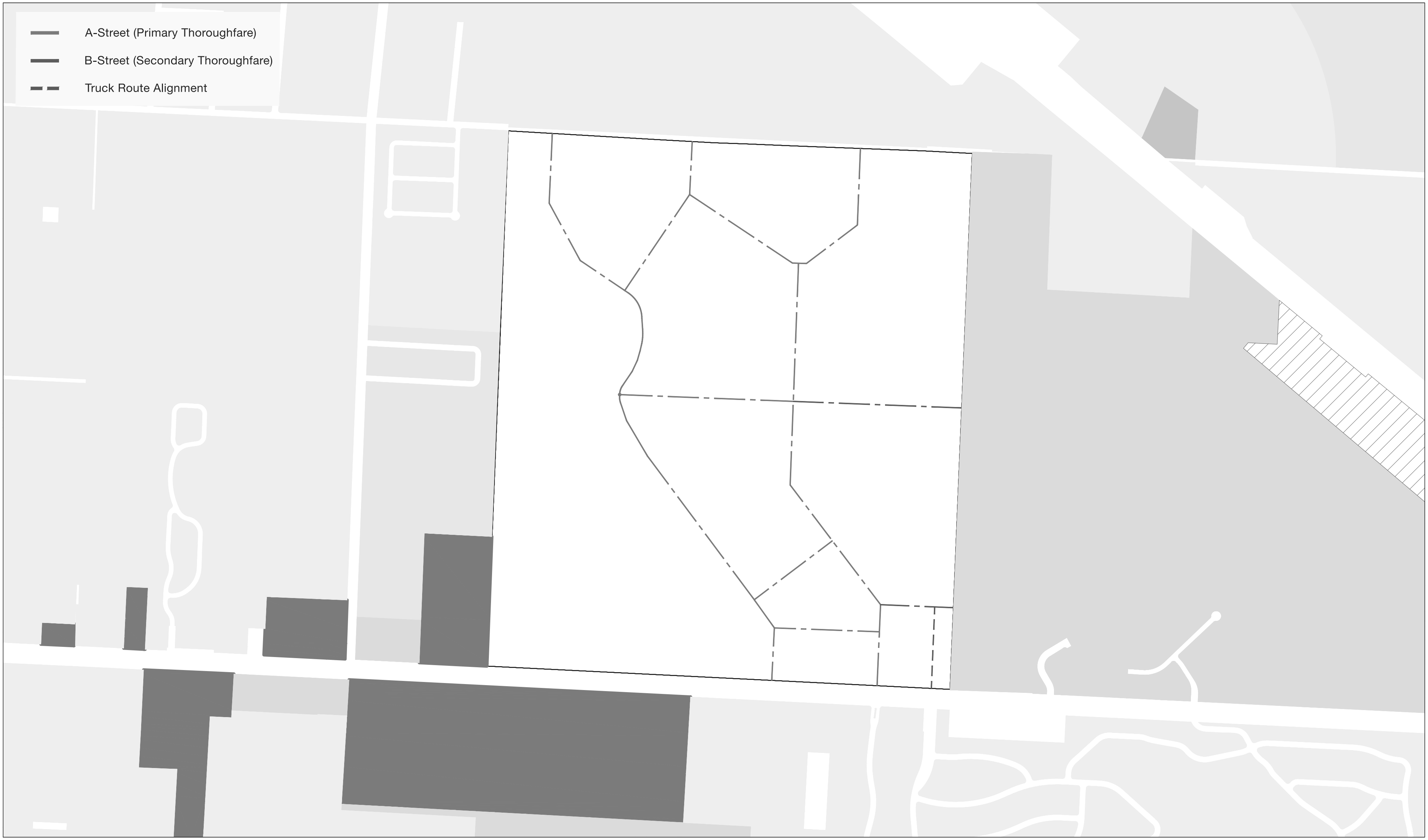

DPZ CODESIGN

PROJECT NAME
OLF8

PROJECT NUMBER
1916

PROJECT LOCATION
Beulah, Florida

MAP
Thoroughfare Hierarchy

EXHIBIT
E

ID
#8 of 8

DATE
8/26/2021

ORIENTATION

SCALE
0 200 400 800 1200 1600 2000 Feet

DPZ
CODESIGN

OLF-8 Design Code

SEPTEMBER 16, 2021

EXHIBIT
F

OLF-8 Design Code

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Article 1: General Provisions

OLF-8 Design Code

Sec. DC-1.1 Intent

(a) The purpose of the OLF-8 Design Code is to provide a predictable framework for development and context-based zoning regulations to guide the placement, form and use of private and public buildings within the OLF-8 Master Plan Area.

(b) The intent of the OLF-8 zoning regulations is to:

(1) Support the goals, objectives and policies of Escambia County's Comprehensive Plan and the specific established goals for the OLF-8 Master Plan Area.

(2) Support the future and sustainable growth of Beulah in a way that creates a robust economic base, and increases the County's economic vitality by attracting new investment.

(3) Capitalize on opportunities to create a regional destination by attracting and growing a variety of commerce, office, retail and civic establishments that serve county-wide and local needs.

(4) Promote small, compact and incremental development, alongside larger development.

(5) Encourage mixed-use development within the town center in support of viable and diverse businesses and civic institutions.

(6) Enable a mix of moderate density residential buildings that provides a broad range of housing options that meets the needs of present and future Beulah residents.

(7) Enable a safe, walkable and pleasant streetscape and predictable small-town urban character.

(8) Coordinate the scale, placement, orientation and design of buildings to encourage a coherent, and pedestrian-friendly public realm.

(9) Encourage a healthy neighborhood by providing public amenities in the form of a green infrastructure network of interconnected recreational areas and trails.

(10) Encourage development of a connected transportation network that considers all modes of transportation, and streets that are context-sensitive.

Sec. DC-1.2 Zoning Districts

(a) The boundaries for the OLF-8 Zoning Districts is shown on the Regulating Plan.

(b) Development is regulated according to the intensity of use permitted on each parcel, according to the following zoning districts:

(1) **Z1: High Intensity Mixed-Use:** A high intensity mixed-use district, consisting of residential, commercial and institutional uses. Blocks should be laid out on a network of streets with wide sidewalks, steady street tree planting and buildings set close to the sidewalk.

(2) **Z2: Medium Intensity Mixed-Use**: A medium intensity mixed-use district, consisting of residential, commercial and institutional uses. Blocks should be laid out on a network of streets with wide sidewalks, steady street tree planting and buildings set close to the sidewalk.

(3) **Z3: Commerce District:** A medium intensity commerce district, consisting of commercial uses only, and in particular retail uses. Buildings should be set close to the sidewalk and parking should be screened from public frontages.

(4) **Z4: Light Industrial District**: A medium intensity district, consisting of light industrial and commercial/office uses. Residential uses are prohibited in this district. Buildings should be set close to the sidewalk and parking and servicing should be screened from public frontages.

(5) **Z5: General Intensity Mixed-Use:** A medium intensity, predominantly residential district, consisting of single-family attached housing, multi-family housing and live-work units. Blocks should be laid out on a regular network of streets with sidewalks, and steady street tree planting. Setbacks and landscaping are variable.

(6) **Z6: Low Intensity Residential:** A low intensity residential district, consisting of single-family attached and detached housing. Blocks should be laid out on a regular network of streets with sidewalks, and steady street tree planting. Setbacks and landscaping are variable.

(7) **CZ: Civic Zone District:** A civic zoning district, consisting of civic government owned buildings serving the public, which may include: post office, schools, library, fire station, police station, etc.. There are fewer standards applied to this zone.

Sec. DC-1.3 Applicability

(a) These standards shall apply to all new construction within the OLF-8 Master Plan Area.

(b) This Design Code Section shall replace all prior regulatory documents for the OLF-8 Master Plan. Where a conflict exists between this Design Code and other land development regulations, this Design Code shall prevail in matters of building design and uses.

(c) Generally applicable provisions that are not specifically modified in this Design Code Section, shall continue to apply to all land, buildings, structures and uses within the OLF-8 Master Plan Area.

(d) Standards, activated by “shall”, are regulatory. Deviations from these standards shall only be permitted by an administrative variance through the devlopement review process.

(e) Guidelines, activated by “should”, are encouraged and recommended, but not mandatory. Developments subject to this District are encouraged to incorporate them as appropriate in order to enhance and complement the built and natural environment. The intent of the guidelines is to encourage a high level of design quality while providing the needed flexibility for creative site design.

(f) Proposed development, and the framework of blocks, streets, and open spaces should follow the guidance provided in the approved OLF-8 Master Plan. Deviations from the approved Master Plan shall only be permitted by Variance, and shall meet the intent of this Design Code, “Table 1.1: Variance Criteria”.

(g) The following items which are not permitted a variance:
(1) Road cross-section standards for A-Streets are not permitted a variance;
(2) Height; and
(3) Density.

(h) The use of this Design Code may be expanded to other portions of Escambia County, so long as their boundaries are supported by the Board of County Commissioners [BoCC] and mapped.

TABLE 1.1: VARIANCE CRITERIA

Relief Type	Required Criteria	Allowed relief
Site Development		
Block perimeter	Topographic constraints or adjacent ownership limit the ability to create an interconnected network of streets and blocks.	20% max.
Lot dimensions		
Lot width greater than the maximum permitted width	An existing parcel can be developed following the intent of the district and meet all other applicable standards of the district.	20% max.
A decrease in the minimum required parcel width.	An existing parcel can be developed following the intent of the zoning district and meet all other applicable standards of the zoning district.	10% max.
Parking location		
Parking location setback from building facades	The lot is wider than 35 feet; The lot is sloped more than 10% uphill away from the sidewalk; The ground floor of the main building is no more than 6 feet above sidewalk grade; Parking is proposed to be entirely enclosed under the main building; The proposed garage door is 9 feet wide or less. Prohibited along A-Streets.	Reduction in the parking location setback from building facades to equal the main building front setback.

TABLE 1.1: VARIANCE CRITERIA		
Relief Type	**Required Criteria**	**Allowed relief**
Setbacks		
A decrease of the minimum setback or increase to the maximum setback.	Existing development on adjacent parcels on the same block face is more similar to the proposed setback than the required setback; The modulation will allow the proposed building to blend in with the adjacent buildings.	5’ or 40% max., whichever is greater.
Allow buildings to be placed closer or further from a parcel line due to existing site features, such as trees, watercourses or topographical changes.	Existing site features would be negatively impacted if buildings follow the required setback, or The constraint of existing site features would not allow for construction of habitable spaces within buildings.	20% max.
Building Placement		
A relaxation in the amount of the lot width building facades must occupy.	The proposal does not expose additional parking towards sidewalks; The lot is greater than 100 feet wide.	5% max.
A relaxation in the orientation a building facades must meet according to “Sec. DC-3.5 Building Orientation”	Civic uses; Buildings on corner lots; Buildings fronting directly on to open space.	30 degrees from parrallel
Building Entries		
A relaxation in the spacing of entries along the primary frontage.	The building layout and design makes it unable to provide entry doors every 100 feet;	20 ft. max.
Zoning Boundaries		
Allow uses to encroach beyond the depth of their zoning district.	The use within a lot, along A-streets, may extend beyond the depth of the zoning district. Only for zoning districts Z2 and Z3	25% max.
Streets		
Allow deviations from standards in “Table 2.6: Road Cross-Sections”	Permitted only along B-streets and discretionary streets for the following elements: sidewalks, furnishing zone, and median widths.	Up to 2’ or 20% whichever is greater, so long as the minimum sidewalk and furnishing zone is not less than 6 feet for each.

Sec. DC-1.4 Regulating Plan

(a) The Regulating Plan shall include the following plan elements:

(1) Required road assignment;

(2) Road hierarchy;
   - a. A-Streets; and
   - b. B-Streets.

(3) Required Open Space;

(4) Terminated Vistas; and

(5) Zoning Districts Allocations.
   - a. Areas shall be zoned according to the regulating plan and the following:
     1. Regulating Plan 1 will remain in effect starting the date of adoption by the BCC and will remain in effect for 5 years, when Regulating Plan 2 comes into effect.
     2. Regulating Plan 2 will remain in effect from starting at the expiration of Regulating Plan 1 and will remain in effect for 5 years, when Regulating Plan 3 comes into effect.
     3. Regulating Plan 3 will remain in effect from starting at the expiration of Regulating Plan 2 and will remain in effect for 5 years, when Regulating Plan 4 comes into effect.
     4. Regulating Plan 4 will remain in effect at the expiration of Regulating Plan 3, onward.
   - b. The time frame associated with each Regulating Plan may be modified as determined by the BoCC.
   - c. Ongoing applications
     1. Applications under permit review shall be permitted under the prior regulating plan.
     2. Applications which have a signed letter of intent prior to the expiration of a regulating plan shall have an additional 12 months to gain development order, before the said property expires with the regulating plan.

(6) Order of development shall be as follows:
   - a. Development Areas 1 through 4, according to the Development Area Map, shall be developed in sequence and shall require development permits on a minimum 80% of the development area before the next development area is open for development. Exceptions may be granted upon documentation of following:
     1. Projects with an initial project application and associated fees, that exceeds the remaining size; and
     2. Projects shall demonstrate the inability to fit a portion of the development within the current and remaining development area.

Sec. DC-1.5 Maps

(a) The following maps which are part of the overall regulating plan shall be available and remains solely the property of Escambia County.

(1) Adopted Master Plan

(2) Regulating Plan
   - a. Map 1: Zoning Phase 1
   - b. Map 2: Zoning Phase 2
   - c. Map 3: Zoning Phase 3
   - d. Map 4: Zoning Phase 4

(3) Development Areas

(4) Road Classification

(5) Road Hierarchy

Sec. DC-1.6 Submission Requirements

(a) The following submission requirements shall be in addition to the Escambia County Development Review Process Application requirements.

(b) General to all Plan Submittals

(1) All plan submittals shall be dated and shall include the following information.

(2) The Development Review Application, completed, dated and signed.

(3) Existing zoning of all abutting properties.

(4) Statement as to how the Plan is consistent with the OLF-8 master plan and goals.

(c) Pre-Application Site Plan

(1) In addition to the requirements in "(a) The following submission requirements shall be in addition to the Escambia County Development Review Process Application requirements.", a Site Plan shall include:

a. General location and acreage of each zoning district.
b. General location of non-residential, residential, or civic buildings.
c. General location of civic spaces and public facilities, if any.
d. Location of existing and planned roads, trails and other transportation modes.
e. Location of potential and required connections to other parcels on OLF-8.
f. Overall proposed development program.
g. General compliance with the Regulating Plan.

(d) Master Plan / Preliminary Plat

(1) In addition to the requirements in "(a) The following submission requirements shall be in addition to the Escambia County Development Review Process Application requirements.", a Master Plan shall include:

a. Final location and boundaries of each zoning district.
b. Zoning district location and net developable land area for the project site and for each zoning district.
c. Location of existing and planned roads, trails and other transportation modes.
d. Location of potential and required connections to other parcels on OLF-8.
e. Location of all proposed blocks, and their size,
f. Location of all existing and proposed streets.
g. Location of cross block passages or pedestrian/bike connections proposed to meet block standards.
h. Street type designation and a cross section for each street type, that includes pedestrian / bicycle facility standards.
i. Location of natural features, including preserved/conserved lands, soils, topography and natural water bodies, including wetlands.
j. Location of community facilities, if any.
k. Location, size and types of civic and open spaces.
l. Location of stormwater ponds and other green infrastructure systems.
m. Landscape and streetscape requirements and their proposed maintenance responsibility.
n. Traffic study per the direction of the Transportation Manager.

(e) Initial DRC Application Submittal

(1) In addition to the requirements in "(a) General to all Plan Submittals", a Final Plan shall include:

a. All property lines;
b. An Existing Conditions Plan, including the location of existing buildings and structures, existing

easements, existing utilities, existing topography at a maximum of 2-ft contours, and other existing pertinent features, either man-made or natural that may influence the design of the site.

(2) Proposed development, to include:

a. Location, widths and names of all existing improved and unimproved streets an alleys.

b. Tabulation of acreages and development program to include:

1. Total site acreage.
2. Accurate acreage and location of each zoning district.
3. Accurate acreage and location of civic spaces and areas reserved for common use.
4. Total residential units by type, including the number of each lot in each zoning district.
5. Total square footage of all non-residential uses in each zoning district.
6. Compliance with building form standards for each applicable zoning district, including lot occupation, building height, setbacks, etc…
7. Outbuilding information, including size, height, and use.
8. Building configuration, including frontage yard type, described frontage elements, and encroachments, if any.
9. Building facades, indicating glazing percentage, and with information sufficient to demonstrate compliance with the Design Code.
10. A Landscape and Fencing Plan, with information sufficient to demonstrate compliance with the Design Code.
11. A Signage Plan, with information sufficient to demonstrate compliance with the Design Code.
12. A Parking and Service Plan, including the location of proposed parking areas, access driveways and loading/service areas, if any.
13. For multi-family and non-residential development, the location of dumpster areas for waste disposal with necessary screening enclosures.
14. Demonstrated compliance with architectural standards and guidelines.

c. Site improvements, to include:

1. Grading plans indicating proposed topography showing proposed buildings, driveways, parking lots and utilities.
2. Location, width and cross-sections of proposed streets and alleys.
3. A Street Tree and Landscape Plan.
4. A Stormwater Plan.
5. A Lighting Plan.
6. A Trip Generation Table, if needed.

(f) Final Plat

(1) In addition to the requirements in “(a) The following submission requirements shall be in addition to the Escambia County Development Review Process Application requirements.”, a Final Plat shall include the following, submitted prior to the Final Plat Meeting:

a. Covenants & Restrictions (Executed).
b. By Laws (Executed).
c. LLC Articles of Organization on file with The State of Florida.
d. Core Samples.
e. Density Info.
f. Developer has received the Punch List from the County Inspector.
g. Boundary monuments with 3 referenced as GPS control points, lot corners, and PCP’s SET. This allows for an adequate amount of time for any corrections or updates.
h. Title Opinion, with Legal EXACTLY Matching the Legal Description on the Plat (Title no older than 6 months).
i. Signed and Sealed Boundary Survey.
j. Completed and Signed Infrastructure Maintenance Disclosure Form.
k. As-Built Surveyed Drawings and As-Builts Certification from the Engineer of Record.
l. Two-Year Warranty (Executed).
m. Street Name Approval Letter Approved by Public Safety.
n. Utility Addendums.
o. Mortgage Joinder (If a separate document).
p. Hold Harmless Agreement (Executed) (If Applicable).
q. Conservation Easement (Executed) (If Applicable).
r. Avigation Easement (Executed) (If Applicable).

(g) Final DRC

(1) The following shall be provided prior to the Final DRC meeting:

a. ECUA Final Acceptance Letter
b. ERP Pond Compliance Letter
c. 2 Year Warranty Agreement (Either with, or without Surety) approved by Legal.
d. Punch list from the County Inspector Completed.
e. “EXECUTED” Covenants & Restrictions, By Laws, and LLC Articles of Organization.
f. Disposition Sign Off from All Reviewers.

(h) Site improvements, to include:

(1) Grading plans indicating proposed topography showing proposed buildings, driveways, parking lots and utilities.
(2) Location, width and cross-sections of proposed streets and alleys.
(3) A Street Tree and Landscape Plan.
(4) A Stormwater Plan
(5) A Lighting Plan
(6) A Trip Generation Table, if needed.

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Article 2: Subdivision Standards

Sec. DC-2.1 Intent

(a) The intent of this Article is to provide site development standards that direct the overall form of development to ensure walkable urbanism that controls block size, zoning districts, streets, and open space.

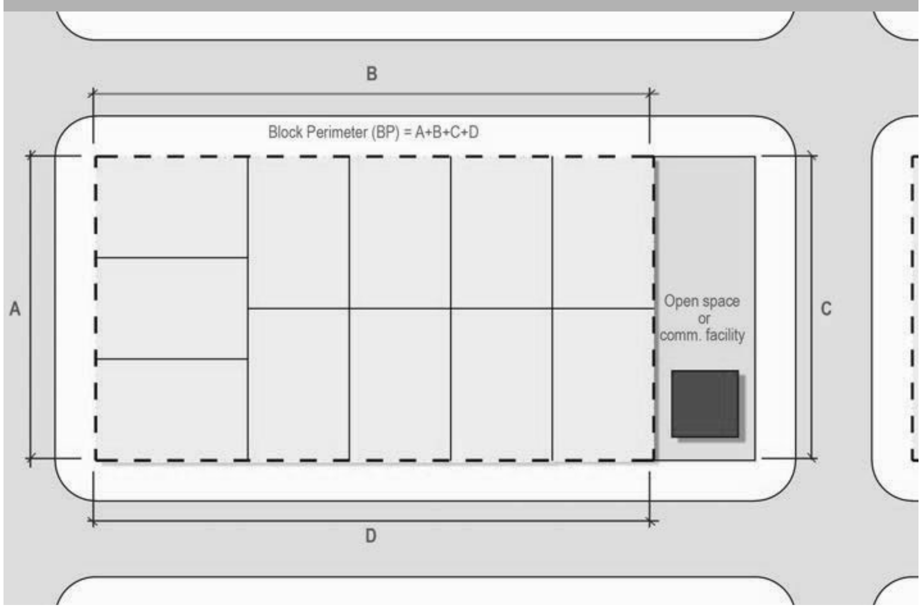
Sec. DC-2.2 Block Standards

(a) All developable land shall be divided into blocks, according to this section and lots according to “Sec. DC-2.4 Platting Standards”, except CZ District (CZ).

(b) Block perimeters are defined by rights-of-way, or pedestrian ways, which shall follow the standards of “Table 2.4: Civic Space Types”.

(c) Block perimeter is determined by adding each of side of the block together, according to “Figure 2.1: Measuring Block Perimeter”.

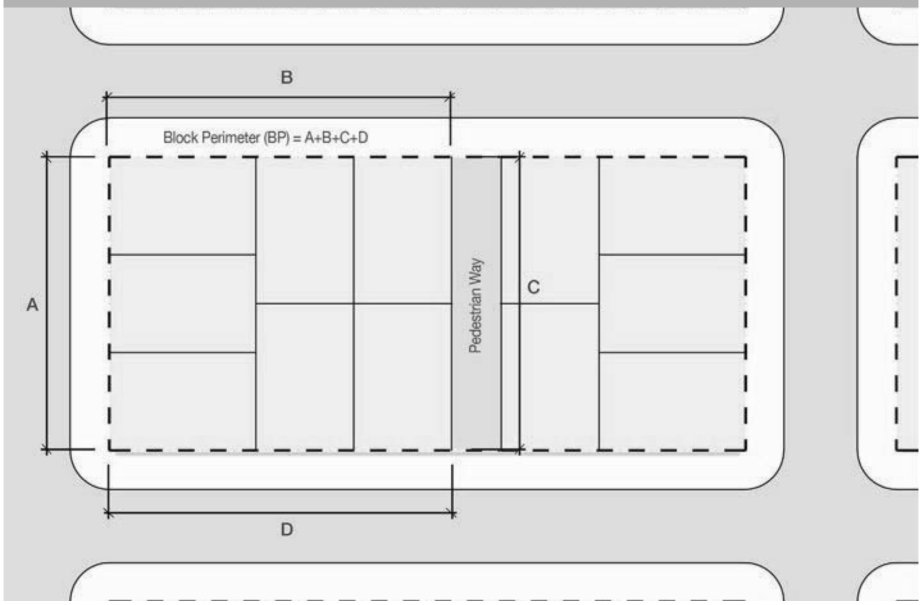
FIGURE 2.1: MEASURING BLOCK PERIMETER



(d) Block perimeter is limited by zoning district as follows:
(1) Z1, Z2, and Z3: maximum 2,000 feet in length.
(2) Z4: maximum 4,000 feet in length.
(3) Z5 and Z6: maximum 1,500 feet in length.
(4) Exceptions include:
a. Blocks abutting natural water ways, open space, and slopes greater than 10%
b. Blocks containing more than 50% Civic Open Space are exempt.

(e) Blocks with a perimeter exceeding 2,000 feet shall include a pedestrian passage traversing the block from the frontage of greatest length, according to “Figure 2.2: Blocks with a Pedestrian passage”.

FIGURE 2.2: BLOCKS WITH A PEDESTRIAN PASSAGE



Sec. DC-2.3 Zoning Standards

(a) Zoning Districts are mapped to the property lines of major rights-of-way.

(b) Transitions between zoning districts should occur at the rear line of the lot, and not across rights-of-ways, however where zoning district transitions occur across rights-of-ways, they shall transition according to “Table 2.1: Permitted Transitions”.

TABLE 2.1: PERMITTED TRANSITIONS

	Z1	Z2	Z3	Z4	Z5	Z6
Z1	■	■	■			
Z2	■	■	■		■	■
Z3	■	■	■	■	■	
Z4			■	■		
Z5		■	■		■	■
Z6		■			■	■

■ Permitted

Sec. DC-2.4 Platting Standards

(a) All blocks shall be further subdivided into lots.

(b) All lots shall have at least one property line along a right-of-way or pedestrian way.

(c) Lots with property lines along more than one right-of-way shall specify a primary and secondary frontage.

(d) Lot widths shall be according to “Article 3: Site & Building Standards” and “Table 3.8: Building Form Standards”.

(e) Lots containing only Public and Civil Uses as permitted in CZ, according to “Table 4.1: Permitted Uses” shall be limited by the maximum lot size of the adjacent zoning district. If two or more zoning districts occur, the least restrictive will be used to determine the maximum lot size.

Sec. DC-2.5 Road Standards

(a) Roads shall be configured according to the following Maps:
- (1) Regulating Plan which specifies primary streets which shall be mandatory; and
- (2) Adopted Master Plan assigns discretionary streets, which are recommended and may be realigned up to 100 feet in any direction.

(b) Design Speed
- (1) Roadways shall be designed in accordance with the design speeds specified in “Table 2.6: Road Cross-Sections”.
- (2) Posted speed should match design speed.

(c) All roads shall be selected from “Table 2.6: Road Cross-Sections”.

(d) Additional roads or deviations to road cross-sections shall demonstrate compliance with “Table 2.6: Road Cross-Sections”, Escambia County road construction specifications, and the following:
- (1) Lane widths shall not exceed 11 feet for dedicated bus lanes in outer lanes, and 10 feet for inner lanes;
- (2) Lane width shall not exceed 10 feet for all other travels lanes;
- (3) Bicycle lanes shall be a minimum 5 feet per direction of travel.
- (4) Parking lanes shall not exceed 8 feet in width.

(e) Automobile Travel Lanes (link table back to here for exceptions)
- (1) The number of automobile travel lanes is limited according to “Table 2.6: Road Cross-Sections”.
- (2) The width of automobile travel lanes is limited according to “Table 2.6: Road Cross-Sections” except as follows:
  - a. Along bus routes, outside curb or parking adjacent lanes shall be a minimum of 11 feet;
  - b. Travel lanes adjacent to 45-degree on-street parking shall be a minimum of 12 feet in width; and
  - c. Travel lanes adjacent to 60-degree on-street parking shall be a minimum of 14 feet in width.
- (3) Continuous left turn lanes are prohibited.
- (4) Automobile travel lanes, according to “Table 2.6: Road Cross-Sections”, are measured to the edge of pavement.

(f) On-street Parking Lanes
- (1) On-street parking shall be according to the assemblies in “Table 2.6: Road Cross-Sections”.
- (2) On-street parking lanes shall be parallel. Exceptions may be permitted for commercial streets in Z3, and Z4 zoning districts.
- (3) Angled parking lanes shall be 18 feet or less in width.

(4) On-street parking lanes are measured to the face of the curb or to the edge of the pavement where no curb exists.

(g) Medians
(1) Medians are required to be bioswales.
(2) Streets with medians shall utilize an inverted crown to provide drainage into the bio-swale.
(3) Medians shall be a minimum width, according to “Table 2.6: Road Cross-Sections”.

(h) Rights-of-ways
(1) Rights-of-ways shall be available for public use at all times.
(2) Rights-of-ways that intersect state owned roadways require coordination with Florida Department of Transportation.

(i) Cross-Sections:
(1) Road cross-sections shall be configured according to “Table 2.6: Road Cross-Sections”.
(2) Road cross-sections shall comply with the underlying zoning district.
(3) Where the zoning district differs to either side:
a. The design of the public frontage shall match the standards of the zoning district it is adjacent to.
b. The design of the roadway shall match the most intense zoning district it is adjacent to.

(j) Curbs
(1) Curb type shall be according to “Table 2.6: Road Cross-Sections”.
(2) Where automobile travel lanes are not directly adjacent to curbs, the minimum curb return radius is determined as follows:
a. The minimum curb return radius specified in “Table 2.2: Curb Return Radius”(a) is reduced by accounting for the actual path of vehicle tracking;
b. The minimum curb return radius shall not be reduced below the radii specified in “Table 2.2: Curb Return Radius”(b) and (c);
c. Where on-street parking or bike lanes are on only one leg of an intersection quadrant, the minimum curb return radius is reduced according to the formula in “Table 2.2: Curb Return Radius”(d);
d. Where on-street parking or bike lanes are on both legs of an intersection quadrant in a symmetric configuration, the minimum curb return radius is reduced according to the formula in “Table 2.2: Curb Return Radius”(e); and
e. Where on-street parking or bike lanes are on both legs of an intersection quadrant in an asymmetric configuration, the minimum curb return radius is reduced according to the formula in “Table 2.2: Curb Return Radius”(f).

(k) Lane Measurements
(1) Travel lanes
a. Travel lanes are measured to the centerline of striping where striping is shared between two travel lanes, a travel lane and a parking lane or bicycle lane, and where striping indicates a shoulder in swale conditions;
b. Travel lanes are measured to the face of curb or edge of pavement where no gutter exists;
c. Travel lanes are measured to the edge of the pavement when adjacent to a gutter.
(2) Parking Lanes
a. Parking lanes are measured to the centerline of striping shared between a travel lane and a parking lane or bicycle lane.
b. Parking lanes are measured to the face of curb, including gutters.

TABLE 2.2: CURB RETURN RADIUS

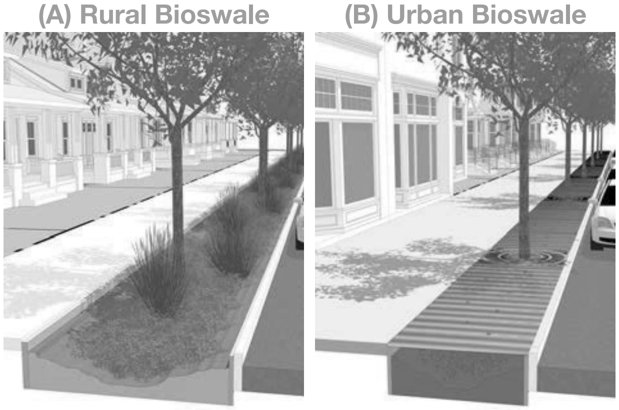
	(a) Min. Effective Radius	Min. Radius Limit		Radius Reduction Formulae		
		(b) Curbed	(c) No Curb	(d) 1 Leg	(e) 2 Legs, Symmetric	(f) 2 Legs, Asymmetric
Rural Road / Truck Route	50 ft.	15 ft.	20 ft.	**reduced radius** = minimum effective radius - (parking lane width + bike lane width)	**reduced radius** = minimum effective radius - 3 x (parking lane width + bike lane width)	**reduced radius** = minimum effective radius - 3 x (average width of combined parking and bike lanes on both legs)
Neighborhood Street	25 ft.	5 ft.	15 ft.			
Commercial Street	35 ft.	5 ft.	15 ft.			
Drive	35 ft.	5 ft.	15 ft.			
Avenue	25 ft.	5 ft.	15 ft.			
Boulevard	50 ft.	10 ft.	20 ft.			

(l) Bicycle Facilities
(1) Continuity shall be provided for bicycle facilities.
(2) Bicycle facilities shall be configured by facility type according to “Table 2.6: Road Cross-Sections”.

(m) Public Frontage Requirements
(1) Public frontage consist of sidewalks, planting, and furnishing areas, and the roadway edge.
(2) Sidewalks
a. Sidewalks shall be according to the assemblies in “Table 2.6: Road Cross-Sections”
b. At intersections, sidewalks shall connect to 2 separate ramps per intersection quadrant.
(3) Planting and Furnishing Area
a. Planting and furnishing areas shall be according to the assemblies in “Table 2.6: Road Cross-Sections”.
b. Bioswales shall be designed according their zoning district and “Figure 2.3: Bioswale Types”, and the following:
1. Zoning Districts Z1, Z2, and Z3 shall be type B.
2. Zoning Districts Z4, Z5, and Z6 may be Type A or B, and shall be according to “Table 2.6: Road Cross-Sections”.

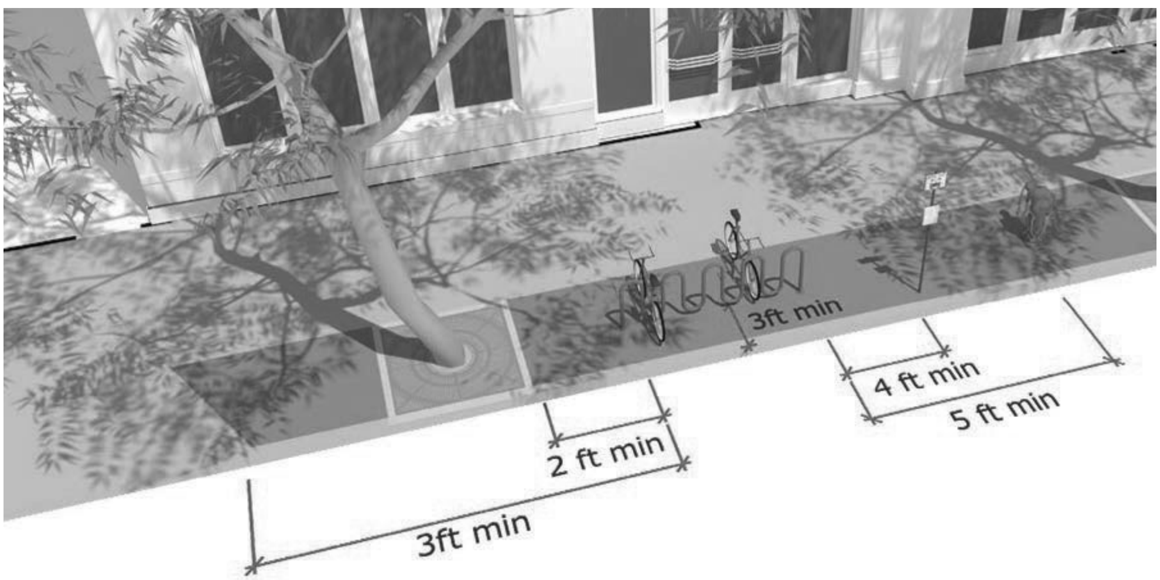
FIGURE 2.3: BIOSWALE TYPES

(A) Rural Bioswale (B) Urban Bioswale



(4) Bicycle racks within public rights-of-way shall meet the following requirements:
   a. Bicycle racks shall be configured to provide two points of contact for locking bicycles.
   b. Bicycle racks may not be located within the following areas:
      1. Within 5 feet of fire hydrants;
      2. Within 4 feet of loading zones and bus stop markers;
      3. Within 3 feet of driveways and manholes; and
      4. Within 2 feet of utility meters and tree boxes.
   c. Bicycle rack placement shall not reduce the pedestrian sidewalk path to less than 5 feet accounting for a 56cm / 22 inch bicycle properly locked to the rack.
   d. Bicycle racks installed parallel to the curb shall be a minimum 3 feet from the curb.
   e. Bicycle racks installed perpendicular to the curb shall be a minimum 2 feet from the curb and a 56cm bicycle properly locked to the rack.
   f. Bicycle parking and location requirements see "Sec. DC-5.9 Bicycle Parking".

FIGURE 2.4: BICYCLE RACK LOCATION REQUIREMENTS



(n) Alleys
(1) Alleys are rights-of-way that provide access to properties from within a block.
(2) Alleys are required to provide access to all properties within OLF-8, except where a single property occupies a full block.
(3) In Z1, Z2, Z3, and Z4, alleys shall be configured according to "Table 2.6: Road Cross-Sections" and the following:
   a. Alleys shall be paved up to 12 feet for residential alleys and up to 20 feet for commercial uses; and
   b. Drainage should be provided through inverted crown or sheet flow.
(4) In Z5 and Z6, alleys shall be configured according to "Table 2.6: Road Cross-Sections" and the following:
   a. Alleys shall be paved up to 12 feet wide; and
   b. Drainage should be provided through swales, inverted crown, or sheet flow.
(5) Alleys are prohibited from intersecting with A-streets.

Sec. DC-2.6 Lighting Standards for Roads and Parking

(a) Roads and parking lots shall be illuminated in accordance with the Florida Department of Transportation (FDOT) Greenbook and Florida Design Manual (FDM).

(b) Lighting shall be LED with Correlated Color Temperature (CCT) between 2,500 Kelvin and 3,500 Kelvin.

(c) Illumination levels specified in the FDOT Greenbook and FDM correlate to the zoning districts of this Design Code as follows:
- (1) Commercial standards apply to Z1, Z2, Z3, and Z4;
- (2) Intermediate standards apply to Z5;
- (3) Residential standards apply to Z6;

(d) Light poles should be located within the planting and furnishing zone, or parking islands.

(e) Pedestrian lighting accommodations should be provided in accordance with “Table 2.3: Permitted Lighting”.

TABLE 2.3: PERMITTED LIGHTING

Light Design	Zoning District							Horizontal Layout		Pole Height
	Z1	Z2	Z3	Z4	Z5	Z6	CZ	Spacing Pattern	Spacing Distance	
cobra head 	Not Permitted within OLF-8							N/A	N/A	N/A
pipe 			P	P	P	P	P	regular or alternating	60 - 150 ft. min. 1 per intersection	Z3, Z4 & CZ: 14 - 18 feet Z5, Z6: 10 - 14 feet
post 					P	P	P	regular or alternating	60 - 150 ft. min. 1 per intersection	10 - 14 feet
column 	P	P	P	P	P		P	regular	40 - 80 ft. min. 1 per intersection + each pedestrian crossing	Z1-Z4 & CZ: 14 - 18 feet Z5, Z6: 10 - 14 feet
double column 	P	P	P				P	regular	40 - 80 ft. min. 1 per intersection + each pedestrian crossing	14 - 18 feet

Sec. DC-2.7 Civic Open Space Standards

(a) Civic Open Space shall be provided according to the following:

(1) Open space, shall be provided within 100 feet of the location identified on the regulating plan, and selected from “Table 2.4: Civic Space Types”.

(2) Development Areas 1 through 4 shall provide a minimum 5% dedicated open space, selected from “Table 2.4: Civic Space Types”. The location of each open space shall be defined as part of the subdivision plan and should follow the Adopted Master Plan.

(b) Open space shall selected for all parks and recreation within Z1 to Z6 and CZ, according to “Table 2.4: Civic Space Types” and the following:

(1) Open spaces indicated with a ‘P’ are permitted within the indicated zoning district.

(2) A blank cell indicates the the open space type is prohibited from that particular zoning district.

(c) Permitted planting within Open Space shall be according to Civic Zoning District standards in “Table 7.3: Permitted Trees”.

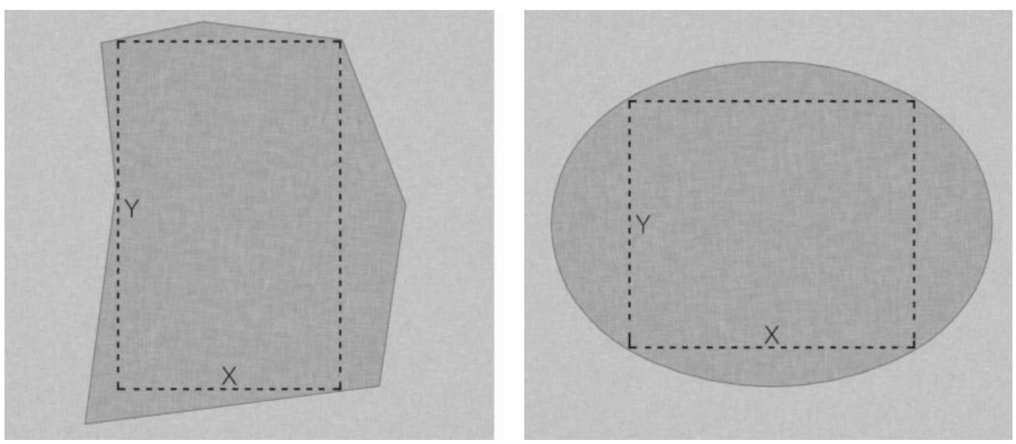
(d) Civic Open Space types shall be configured according to “Table 2.4: Civic Space Types”, and as follows:

(1) Dimensions and proportion standards shall be maintained throughout the civic space.

(2) For triangular spaces, proportion is the ratio of the shortest edge length to the longest edge length.

(3) For irregular spaces, proportion is measured using an inscribed rectangle, according to figure “Figure 2.5: Measuring Irregular Open Space”.

FIGURE 2.5: MEASURING IRREGULAR OPEN SPACE



(4) Building coverage includes covered and enclosed structures.

(5) Minimum landscape excludes stormwater management areas.

(6) Stormwater management and Low Intensity Development (LID) infrastructure may be integrated into civic space design where indicated in “Table 2.4: Civic Space Types”.

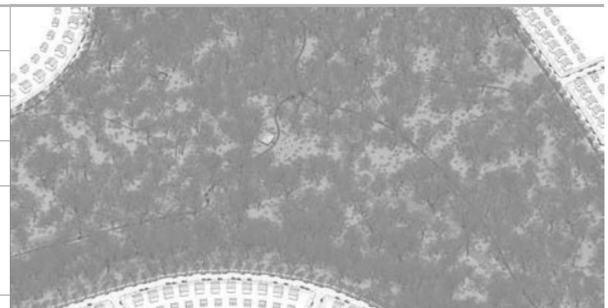
(7) Stormwater management areas shall be shared use where possible, according to “Table 2.4: Civic Space Types”.

(8) Where civic open space abuts existing or planned pedestrian or bicycle trails, pedestrian and bicycle trails shall be continued through the civic open space.

TABLE 2.4: CIVIC SPACE TYPES

CONSERVATION PARK (CP)

Zoning district	CZ
Size in acres	8 min.
Proportion	N/A
Edge condition	Right-of-way required on 1 side.
Surface	Planted, pervious paths and maintenance roads. 10% impervious surface max.
Buildings	Pavilions, picnic areas



PARK (PK)

Zoning district	Z5, Z6, CZ
Size in acres	5 min.
Proportion	N/A
Edge condition	Rights-of-way required on all sides in Z5, and Z6.
Surface	Planted, pervious and non-pervious paths, paved gathering spaces, sports facilities
Buildings	Pavilions, picnic areas, storage, rest rooms, food service. 1% max.

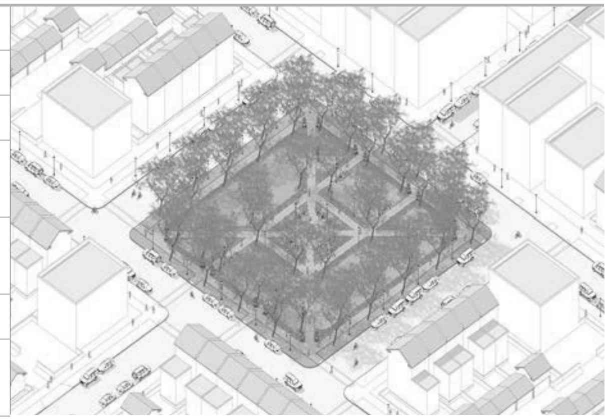
GREEN (GN)

Zoning district	Z4, Z5, Z6, CZ
Size in acres	1/2 min., 4 max.
Proportion	N/A
Edge condition	Right-of-way required on at least one side
Surface	Planted, paved 15% max., pervious paving recommended
Buildings	Pavilions, picnic areas, storage, rest rooms, food service. 2% max.

TABLE 2.4: CIVIC SPACE TYPES

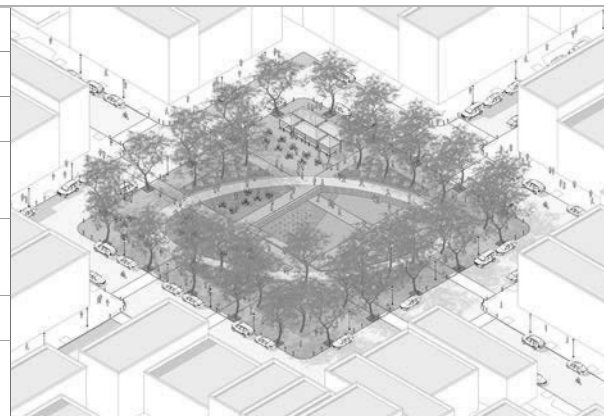
SQUARE (SQ)

Zoning district	Z1, Z2, Z3, Z4, Z5, CZ
Size in acres	1/4 min., 3 max.
Proportion	1:5 max.
Edge condition	Rights-of-way required on two sides, min.
Surface	Paved 60% max., pervious paving recommended
Landscape	30% mature canopy required
Buildings	Pavilions, storage, rest rooms, food service, vending. 5% max.



PLAZA (PZ)

Zoning district	Z1, Z2, Z3, Z4, Z5, CZ
Size in acres	1/8 min., 3 max.
Proportion	1:4 max.
Edge condition	Rights-of-way required on one side, min.
Surface	Paved 70% min., pervious paving recommended
Landscape	20% mature canopy required
Buildings	Pavilions, storage, rest rooms, food service, vending. 5% max.



NEIGHBORHOOD MULTIPURPOSE FIELD (MF)

Zoning district	Z4, Z5, Z6, CZ
Size in acres	3 min., 10 max.
Proportion	1:5 max.
Edge condition	Rights-of-way required on two sides, min.
Surface	Planted, sports fields and courts, paved 20% max.
Landscape	20 foot landscape zone at perimeter, canopy trees required. Fields may serve secondary purpose as stormwater management.
Buildings	Pavilions, storage, rest rooms, food service, vending. 5% max.

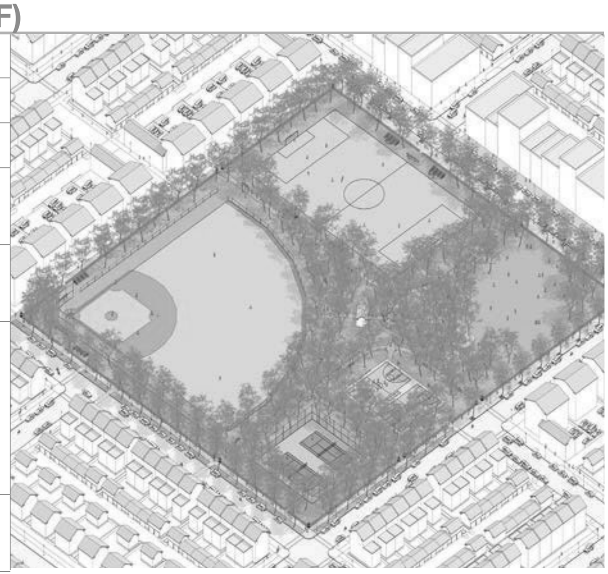
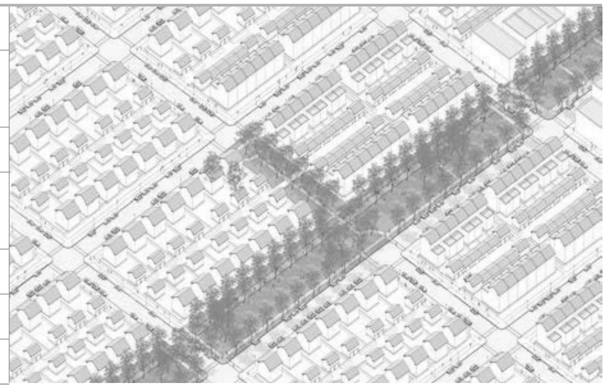


TABLE 2.4: CIVIC SPACE TYPES

GREENWAY (GW)

Zoning district	Z2, Z3, Z4, Z5, CZ
Size in feet	50 min. in width, 1,000 min. in length
Proportion	N/A
Edge condition	Rights-of-way or pedestrian way required on one side, min.
Surface	Lawn, paved 20% max.
Landscape	20% mature canopy required
Buildings	N/A



POCKET PARK (PP)

Zoning district	Z1, Z2, Z3, Z4, Z5, Z6, CZ
Size in square feet	2,000 min., 8,000 max.
Proportion	1:5 max.
Edge condition	Rights-of-way or pedestrian way required on one side, min.
Surface	Planted, play equipment, paved 30% max.
Landscape	40% mature canopy required
Buildings	N/A

COMMUNITY GARDEN (CG)

Zoning district	Z1, Z2, Z3, Z4, Z5, Z6, CZ
Size in acres	N/A
Proportion	Min. width 24 ft.
Edge condition	Rights-of-way or pedestrian way required on one side, min.
Special requirement	Water supply required
Landscape	Min. 4 hour solar exposure
Buildings	Storage. 5% max.

TABLE 2.4: CIVIC SPACE TYPES

PEDESTRIAN PASSAGE (PA)

Zoning district	Z1, Z2, Z3, Z4, Z5, Z6, CZ
Size in acres	N/A
Width	8 ft. min.
Surface	Continuous paved walkway required, seating and gathering places encouraged, planted opportunistically
Buildings	N/A

(e) Civic Open Space [OS] types shall be programmed according to the following:
(1) Programming shall be guided by “Table 2.5: Open Space Uses”.
(2) Permitted elements are denoted with a ‘P’.
(3) Blank cells are elements not permitted within that particular Open Space type.
(4) Each civic space shall include a minimum number of program elements, in addition to requirement elements, specified with ‘R’, “Table 2.5: Open Space Uses”.
(5) Other uses are permitted, so long as they are in keeping with the use, level of intensity, general character, and do not conflict with the elements listed in “Table 2.5: Open Space Uses”.

TABLE 2.5: OPEN SPACE USES										
Program Elements	**CP**	**PK**	**GN**	**SQ**	**PZ**	**MF**	**GW**	**PP**	**CG**	**PA**
Min. number of program elements per OS type in addition to 'R'	4	4	2	2	2	2	2	2	1	1
Formal Garden	P	P		P			P	P	P	
Community Garden	P	P	P				P	P	R	
Playground	P	P	P	P		P	P	P	P	P
Dog Park	P	P					P	P		
Skate Park	P	P	P							
Exercise Equipment	P	P	P	P		P	P	P	P	
Athletic Fields (structured)		P				R				
Athletic Fields (unstructured)	P	P	P	P		P		P		
Paths (walking)	R	R	R	R	R	R	R	R	R	R
Paths (cycling)	R	R	P				P		P	P
Paths (riding)	R	R								
Performance Space	P	P	P	P	P	P				
Outdoor Dining		P		P	P	P	P			P
Open Air Market	P	P	P	P	P	P	P		P	P
Conservation Area	R	P								
Restroom Facilities	R	R		P	P	R				

Sec. DC-2.8 Regulating Plan Requirements

(a) Applications shall adhere to the Regulating Plan and the following:

(1) Road assignment

a. The location and road assignment shall be according to the Regulating Plan and “Table 2.6: Road Cross-Sections”.

b. New discretionary streets, according to the Adopted Master Plan, shall be selected from “Table 2.6: Road Cross-Sections”.

(2) Road hierarchy

a. Shall be available through Escambia County GIS.

b. A-Streets and any frontage facing onto a Civic Open Space shall be designated a Primary Frontage, according to the following:

1. They shall form a continuous network, uninterrupted by B-streets.
2. They shall prohibit entries to surface parking, and structured parking.
3. They shall prohibit curb cuts for alleys.
4. They shall prohibit utility boxes of any kind, when their location elsewhere is possible.

c. B-Streets shall be designated a Secondary Frontage. The following standards apply:

1. They may be interrupted by A-streets
2. They shall not be interrupted or connected by service lanes, or alleys.
3. They may provide access to parking and alleys, according to “Article 5: Parking Standards”.

(3) Open Space shall be provided as specified in section Sec. DC-2.7.

(4) Where streets aim prominently at a building facade, a terminated vista shall be established and shall be held to higher urban design and architectural standards. Additionally, the following are prohibited at terminated vistas:

a. Curb cuts for alley access, driveways, parking access, and loading;

b. Trash enclosures; and

c. Parking, either surface or structure.

TABLE 2.6: ROAD CROSS-SECTIONS

BOULEVARD: 112-72

see “Sec. DC-2.5 Road Standards” for exceptions

Right-of-Way	115 ft.	**Design Speed**	25 - 30 mph
Zoning districts	Z2, Z3, Z4, Z5*	**Movement**	2-way Slow
Sidewalk	9 ft. min.	**Travel Lanes**	4, 10 ft. inner / 11 ft. outer
Planting & Furnishing	6 ft. min., Tree Grate / *Planter Strip	**Parking Lanes**	2, 7 ft. max. Parallel
Curb	Vertical	**Median**	Min. 10 ft. (14 ft. at intersections)
		Bike Facility	2, 5 ft. + 3 ft. buffer, Dedicated

BOULEVARD: 100-50

see “Sec. DC-2.5 Road Standards” for exceptions

Right-of-Way	100 ft.	**Design Speed**	20 - 25 mph
Zoning districts	Z1, Z2, Z3, Z5*, Z6*	**Movement**	2-way Slow
Sidewalk	10 ft. min.	**Travel Lanes**	2, 10 ft. each
Planting & Furnishing	7 ft. min., Tree Grate / *Planter Strip	**Parking Lanes**	2, 7 ft. parallel
Curb	Vertical	**Median**	16 ft. min.
		Bike Facility	2, 5 ft. + 3 ft. buffer, Dedicated

** Planter strip shall be used in place of tree grate in zoning districts Z5 and Z6*

TABLE 2.6: ROAD CROSS-SECTIONS

COMMERCIAL STREET: 70-34

see "Sec. DC-2.5 Road Standards" for exceptions

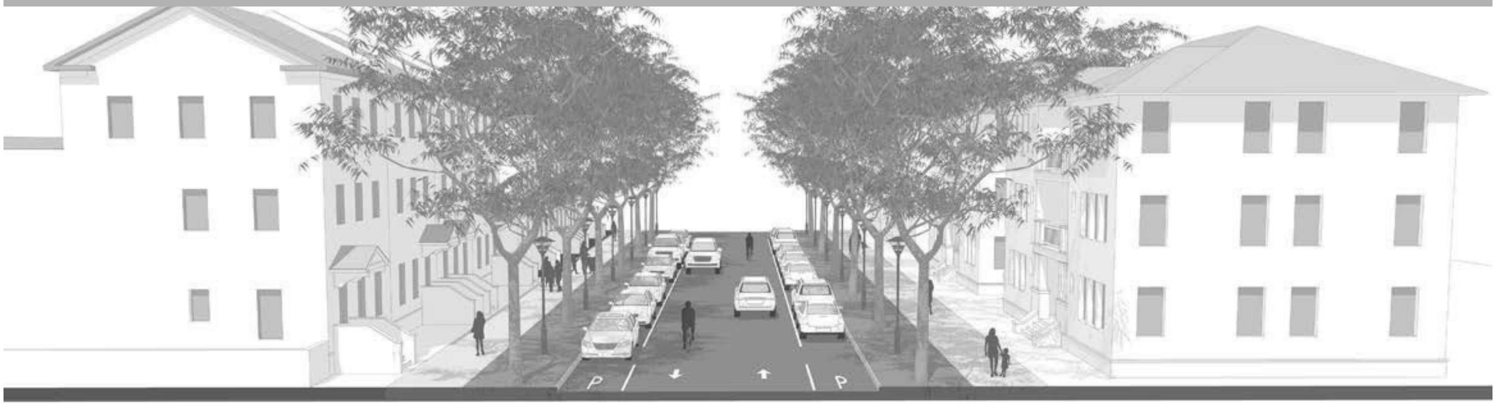
Right-of-Way	70 ft.	**Design Speed**	15 - 20 mph
Zoning districts	Z1, Z2, Z3, Z4	**Movement**	2-way Slow
Sidewalk	12 ft. min.	**Travel Lanes**	2, 10 ft. each
Planting & Furnishing	6 ft. min., Tree Grate	**Parking Lanes**	2, 7 ft. parallel
Curb	Vertical	**Median**	None
		Bike Facility	Shared lane

COMMERCIAL STREET + BIKE LANE: 85-48

see "Sec. DC-2.5 Road Standards" for exceptions

Right-of-Way	85 ft.	**Design Speed**	15 - 20 mph
Zoning districts	Z1, Z2, Z3, Z4	**Movement**	2-way Slow
Sidewalk	12 ft. min.	**Travel Lanes**	2, 10 ft. each
Planting & Furnishing	6 ft. min., Tree Grate	**Parking Lanes**	2, 7 ft. parallel
Curb	Vertical	**Median**	None
		Bike Facility	2, 5 ft. + 2.5 ft. buffer, Dedicated

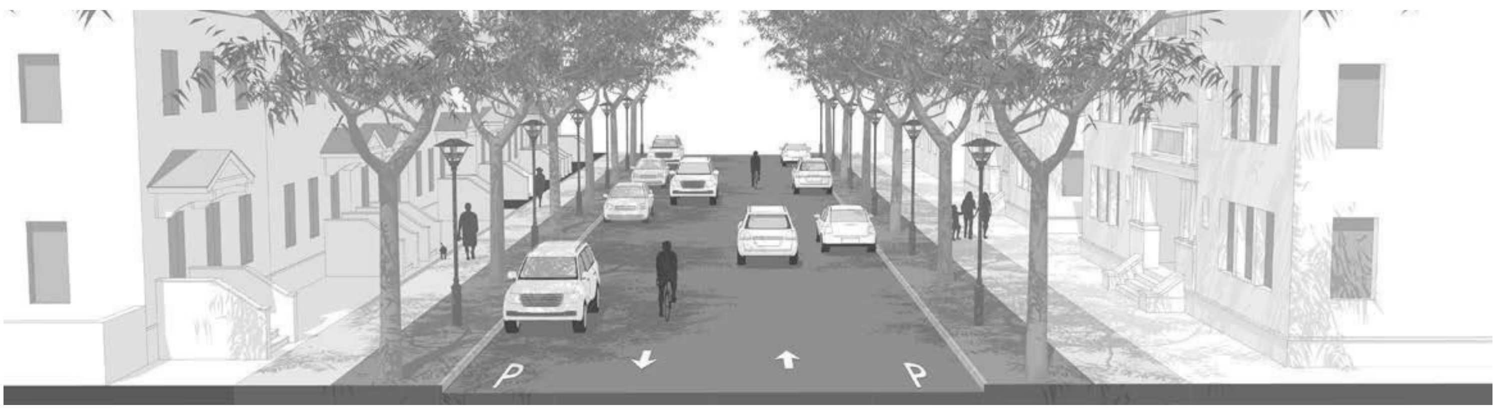
TABLE 2.6: ROAD CROSS-SECTIONS



NEIGHBORHOOD STREET: 70-34

see "Sec. DC-2.5 Road Standards" for exceptions

Right-of-Way	70 ft.	**Design Speed**	15 - 20 mph
Zoning districts	Z2, Z5, Z6	**Movement**	2-way Slow
Sidewalk	8 ft. min.	**Travel Lanes**	2, 10 ft. each
Planting & Furnishing	10 ft. min., Planter Strip	**Parking Lanes**	2, 7 ft. parallel
Curb	Vertical	**Median**	None
		Bike Facility	Shared lane



NEIGHBORHOOD STREET: 60-34

see "Sec. DC-2.5 Road Standards" for exceptions

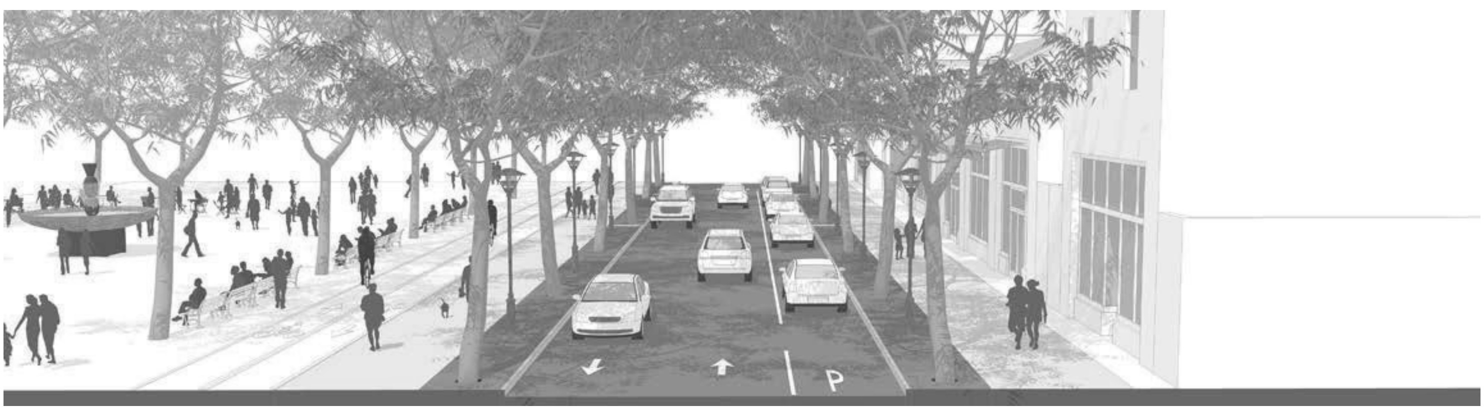
Right-of-Way	60 ft.	**Design Speed**	15 - 20 mph
Zoning districts	Z5, Z6	**Movement**	2-way Slow
Sidewalk	6 ft. min.	**Travel Lanes**	2, 10 ft. max. each
Planting & Furnishing	7 ft. min., Planter Strip	**Parking Lanes**	2, 7 ft. parallel each
Curb	Vertical	**Median**	None
		Bike Facility	Shared lane

TABLE 2.6: ROAD CROSS-SECTIONS

NEIGHBORHOOD STREET: 60-30

see “Sec. DC-2.5 Road Standards” for exceptions

Right-of-Way	60 ft.	**Design Speed**	10 - 15 mph
Zoning districts	Z5, Z6	**Movement**	2-way Yield
Sidewalk	6 ft. min.	**Travel Lanes**	2, 10 ft. each
Planting & Furnishing	9 ft. min., Planter Strip	**Parking Lanes**	2, 8 ft. parallel
Curb	Vertical	**Median**	None
		Bike Facility	Shared lane



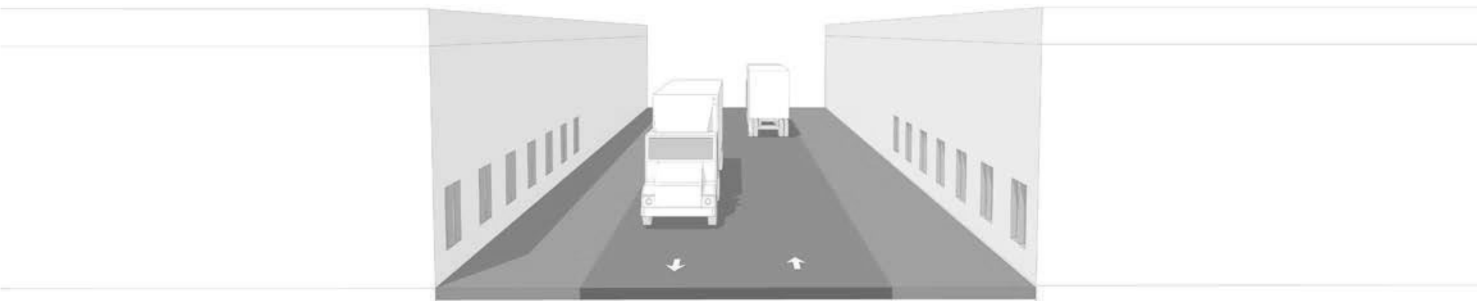
NEIGHBORHOOD STREET: 60-28

see “Sec. DC-2.5 Road Standards” for exceptions

Right-of-Way	60 ft.	**Design Speed**	15 - 20 mph
Zoning districts	Z1, Z2, Z3, Z5*, Z6*	**Movement**	2-way Slow
Sidewalk	10 ft. min.	**Travel Lanes**	2, 10 ft. max. each
Planting & Furnishing	6 ft. min., Tree Grate / *Planter Strip	**Parking Lanes**	1, 8 ft. max. parallel
Curb	Vertical	**Median**	None
		Bike Facility	Shared lane

** Planter strip shall be used in place of tree grate in zoning districts Z5 and Z6*

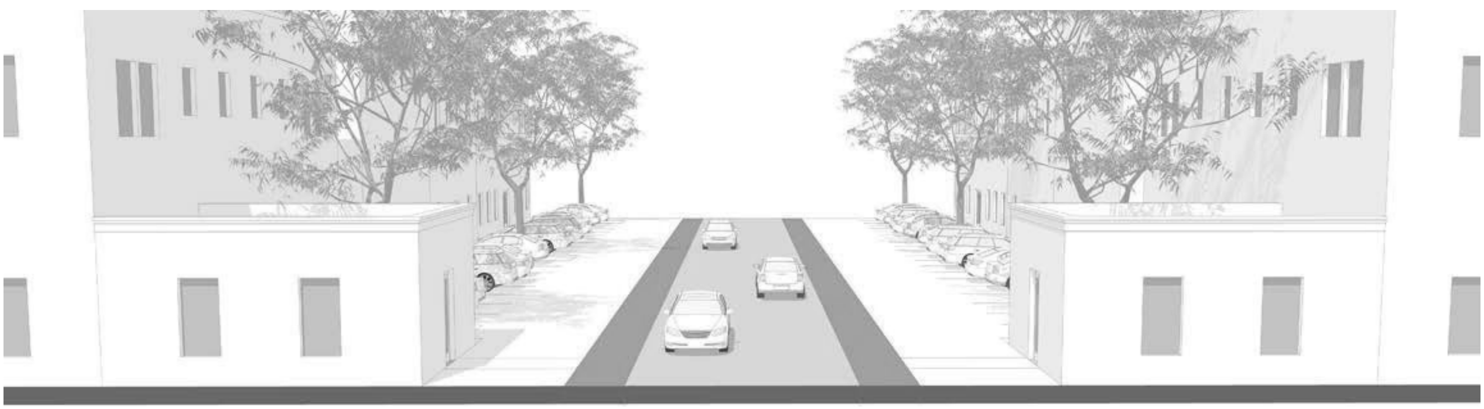
TABLE 2.6: ROAD CROSS-SECTIONS



TRUCK ROUTE: 50-26

see “Sec. DC-2.5 Road Standards” for exceptions

Right-of-Way	50 ft.	**Design Speed**	25 - 30 mph
Zoning districts	Z4 or per Regulating Plan	**Movement**	2-way Free
Sidewalk	none	**Travel Lanes**	2, 13 ft. each
Planting & Furnishing	12 ft. min., Planter Strip or Swale	**Parking Lanes**	None
Curb	Vertical	**Median**	None
		Bike Facility	None

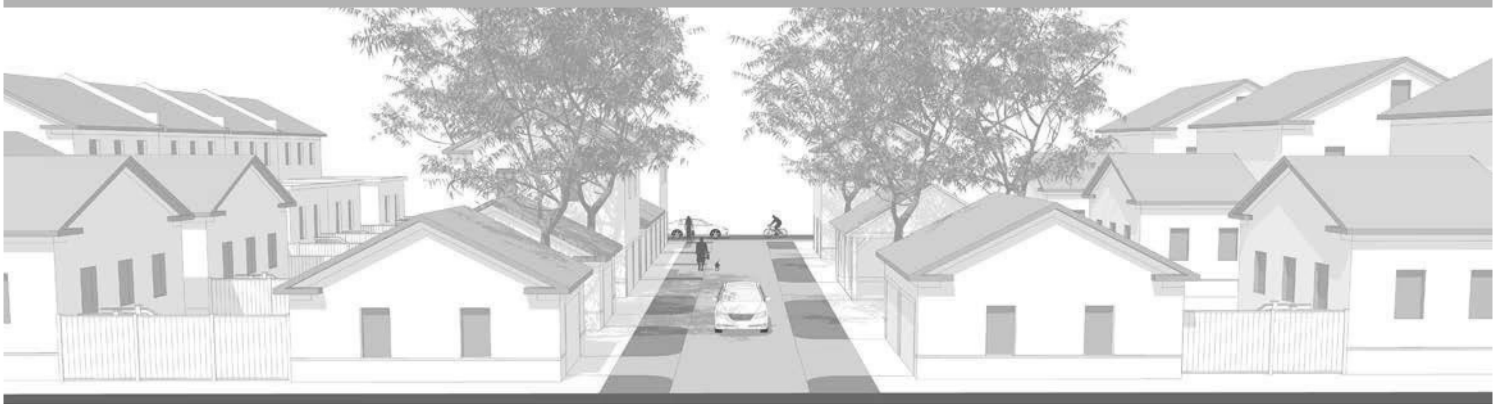


COMMERCIAL ALLEY: 30-20

see “Sec. DC-2.5 Road Standards” for exceptions

Right-of-Way	30 ft. max.	**Design Speed**	5 - 10 mph
Zoning districts	Z1, Z2, Z3, Z4	**Movement**	2-way Low
Sidewalk	None	**Travel Lanes**	2, 10 ft. max. each
Planting & Furnishing	5 ft. min., Swale	**Parking Lanes**	None
Curb	None	**Median**	None
		Bike Facility	None

TABLE 2.6: ROAD CROSS-SECTIONS



RESIDENTIAL ALLEY: 24-12

see “Sec. DC-2.5 Road Standards” for exceptions

Right-of-Way	24 ft.
Zoning districts	Z1, Z2, Z3, Z5, Z6
Sidewalk	None
Planting & Furnishing	6 ft. min., Swale
Curb	None

Design Speed	5 - 10 mph
Movement	2-way Low/Yield
Travel Lanes	1, 12 ft. max.
Parking Lanes	None
Median	None
Bike Facility	None

Article 3: Site & Building Standards

Sec. DC-3.1 Intent

(a) The intent of this Article is to provide design controls for the placement of buildings on lots, ensure they meets the street in a harmonious manner, and are scaled appropriately to their context and zoning.

Sec. DC-3.2 Lot Size & Occupation

(a) Lots shall meet the minimum requirements according to “Table 3.8: Building Form Standards”.

(b) Buildings and covered structures are limited in the total area they may occupy as a percentage of the total lot area, according to “Table 3.8: Building Form Standards”.

Sec. DC-3.3 Building Setbacks

(a) Required Setbacks
- (1) All structures shall be set back from the lot boundaries according to “Table 3.8: Building Form Standards”.
- (2) Front
  - a. (Primary) specifies the setback from the front lot line.
  - b. (Secondary) specifies the setback from the secondary frontage, when more than 1 frontage exists.
  - c. When more than 1 frontage exists, the shortest side of the lot will constitute the Front (Primary).
- (3) Side specifies the setback from side lot lines
- (4) Rear specifies the setback from the rear lot line

(b) Back Buildings
- (1) Back buildings are permitted to connect principal buildings to accessory buildings, with the following standards:
  - a. They cannot be habitable spaces.
  - b. They cannot exceed 10 feet in width.

(c) Garages
- (1) Where the garage is part of the principal building, the rear setback shall apply to the garage portion of the structure
- (2) Where the garage is detached from the principal building the rear, accessory building setback shall apply.
- (3) Accessory units above the garage are subject to the accessory setback requirements.

(d) Utilities
- (1) Utility easements along the front and side lot lines may require the buildings to exceed the maximum setback, up to 150% of the total setback maximum.
- (2) See Design Standards Manual, Chapter 1, Section 2-1.6(d) for requirements regarding utilities in road rights-of-way.
- (3) All utilities shall be provided below grade.

(e) Parking Location
- (1) Parking shall not be located within the front or side setbacks.
- (2) Parking shall not be located between building facades and the front property lines.

Sec. DC-3.4 Height

(a) Height is limited by stories, measured from highest adjacent sidewalk grade, according to “Table 3.8: Building Form Standards”.

(b) Below grade stories do not count towards height provided they do not extend more than 4 feet above the sidewalk grade.

(c) Chimneys, cupulas, antennae, vents, elevator bulkheads, stair housing, and other uninhabited elements do not count towards building height.

(d) Mezzanines exceeding 40% of the floor area of a tenant space or residential unit shall count as an additional story.

(e) Attics shall not exceed 50% of the footprint of a building, within the roof form.

(f) No portion of a building shall exceed 150 feet in height.

(g) Above ground floors are measure by story and are limited in height according to “Table 3.1: Measuring Height”and the following:

(1) For multi-story building height shall be measured from finished floor to finished floor.
(2) For single story buildings height shall be measured from finished floor to finished ceiling.
(3) Story height is measured at all points within the structure.
(4) If a floor height exceeds the maximum story height it is counted as 1 or more stories by dividing the story height by the maximum story height and rounding up.
(5) Ceiling height in bathrooms, closets and other ancillary rooms may be lower than the minimum story height.

TABLE 3.1: MEASURING HEIGHT

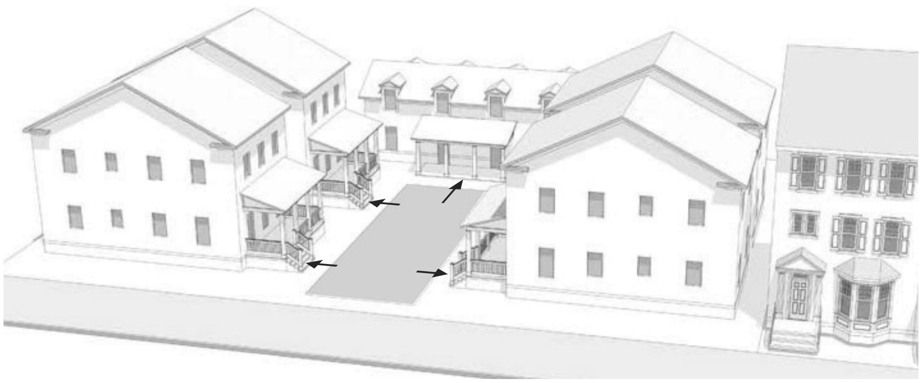
USE	MAX. HEIGHT	MIN. HEIGHT
Residential		
Ground Floor	14 feet	-
Upper Floors	14 feet	-
Commercial		
Ground Floor	24 feet	14 feet
Upper Floors	16 feet	-
Parking Structure		
Ground Floor	per adjacent floor	15 feet for loading & unloading
Upper Floors	per adjacent floor	-

Sec. DC-3.5 Building Orientation

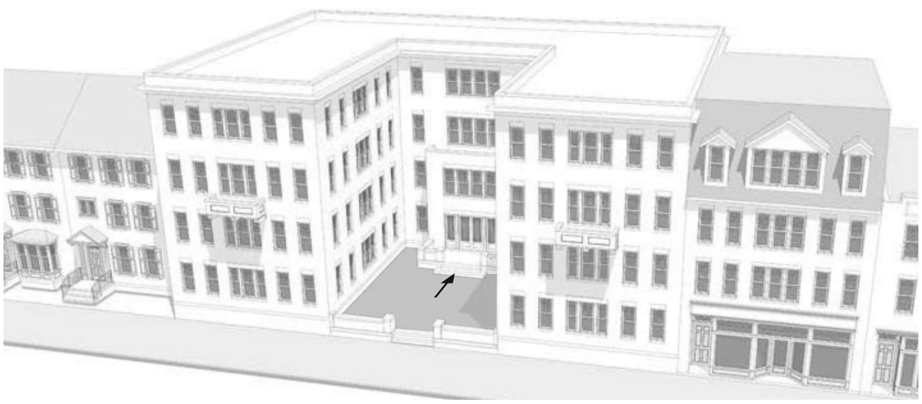
(a) The Principal Building shall be oriented parallel to the front property line or tangent to a curved front property line, for the minimum frontage requirement. See “Table 1.1: Variance Criteria” for exceptions.

(b) The Primary building entrance shall open directly to a sidewalk or path facing a street or open space, with the exception of visible entrances off a courtyard, according to “Figure 3.1: Primary building entrance”.

FIGURE 3.1: PRIMARY BUILDING ENTRANCE



Entries along Open Space



Courtyard and Forecourt Entry

Street Entry

Sec. DC-3.6 Frontage Requirements

(a) Frontage requirements regulate the following:

(1) The frontage yard type between front lot lines and building facades;

(2) The frontage yard type between side lot lines and building facades;

(3) The frontage elements nearest the front property lines; and

(4) Encroachments into the setbacks. See “Table 3.2: Frontage Yards” and “Table 3.3: Frontage Elements”.

(b) Frontage Assignment

(1) Frontages shall be assigned as follows:

a. Primary frontages correspond to the narrow side of the lot

b. Secondary frontages correspond to the Front (Secondary) lot lines, according to “Table 3.8: Building Form Standards”.

(c) Frontage Buildout

(1) Requires a minimum length of frontage be lined with building facades situated between the minimum and maximum setbacks, according to “Table 3.8: Building Form Standards”.

(2) Frontage buildout excludes Front (Secondary) setback on corner lots in the measurement of total frontage length.

(3) Forecourts, courtyards and other similarly defined open spaces shall count towards minimum frontage requirements.

(4) Frontage build-out along secondary frontages shall be 50% of the primary frontage occupation requirement.

(5) Frontage build-out requirements along B-streets may be reduced by up to 10%.

(d) Frontage Yards

(1) A frontage yard shall be selected and configured according to “Table 3.2: Frontage Yards” for primary and secondary frontages.

(2) Frontage Yards shall follow the standards according to “Table 3.2: Frontage Yards”

TABLE 3.2: FRONTAGE YARDS

NO YARD

see "Article 9: Definitions" and "Table 7.2: Frontage Yard Landscape Requirements"

	Zoning district	Z1, Z2, Z3, Z4
	Permitted Elements	Arcade, gallery, urban terrace, forecourt, shopfront
A	Max. Setback	per zoning district
B	Encroachment	Elements up to 100% of setback; may extend into ROW by permit
	Surface	Paved, unit paver or to match sidewalk
	Fencing	None

URBAN YARD

see "Article 9: Definitions" and "Table 7.2: Frontage Yard Landscape Requirements"

	Zoning district	Z1, Z2, Z5
	Permitted Elements	Stoop, porch, urban terrace, light well
A	Max. Setback	per zoning district
B	Encroachment	Elements up to 100% of setback
	Surface	Paved, raised planter, or landscaped
	Fencing	Permitted where landscaped in Z5

SHALLOW YARD

see "Article 9: Definitions" and "Table 7.2: Frontage Yard Landscape Requirements"

	Zoning district	Z1, Z2, Z5
	Permitted Elements	Stoop, porch, terrace, light well
A	Max. Setback	per zoning district
B	Encroachment	Elements up to the greater of 8 ft. or 60% of the setback
	Surface	Landscaped
	Fencing	Optional

COMMON YARD

see "Article 9: Definitions" and "Table 7.2: Frontage Yard Landscape Requirements"

	Zoning district	Z5, Z6
	Permitted Elements	Stoop, porch, terrace
A	Min. Setback	18 ft.
B	Encroachment	Elements up to the greater of 8 ft. or 40% of the setback
	Surface	Landscaped
	Fencing	None

 09/16/21

(e) Frontage Elements

(1) Frontage elements shall be selected and configured according to “Table 3.3: Frontage Elements”, for primary and secondary frontages.

(2) A Storefront is required for all ground floor retail uses.

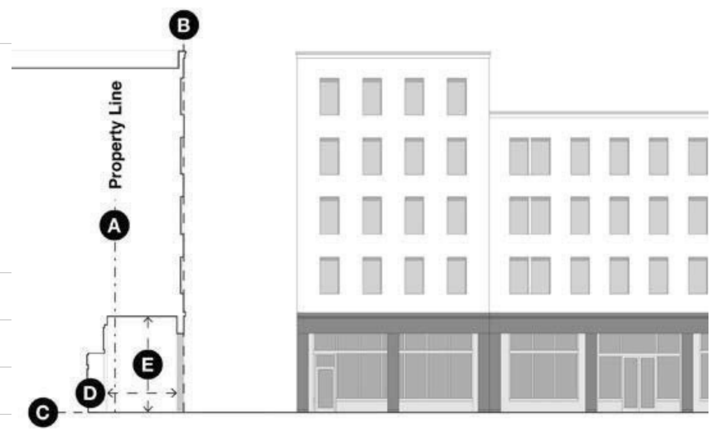
(3) A storefront when not combined with other frontage elements may include awnings or canopies according to section “(I) Projections”.

TABLE 3.3: FRONTAGE ELEMENTS

ARCADE

see “Article 9: Definitions”

	Combinations	Shopfront, common entry
A	**Max. setback**	2 ft.
B	**Encroachment/ Projection**	Building and arcade to within 2 feet of the curb; outdoor display, bay and display windows 100% of the setback; seating by permit
C	**Entry condition**	At grade entry
D	**Horizontal clear**	8 ft. min.
E	**Vertical clear**	12 ft. min.
	Special Conditions	Utility coordination required



GALLERY

see “Article 9: Definitions”

	Combinations	Shopfront, common entry
A	**Max. Setback**	6 ft.
B	**Encroachment/ Projection**	Gallery to within 2 feet of the curb; outdoor display, bay and display windows 100% of the setback; seating by permit
C	**Entry Condition**	At grade entry
D	**Horizontal Clear.**	8 ft. min.
E	**Vertical Clear.**	12 ft. min.
	Special Conditions	Utility coordination required

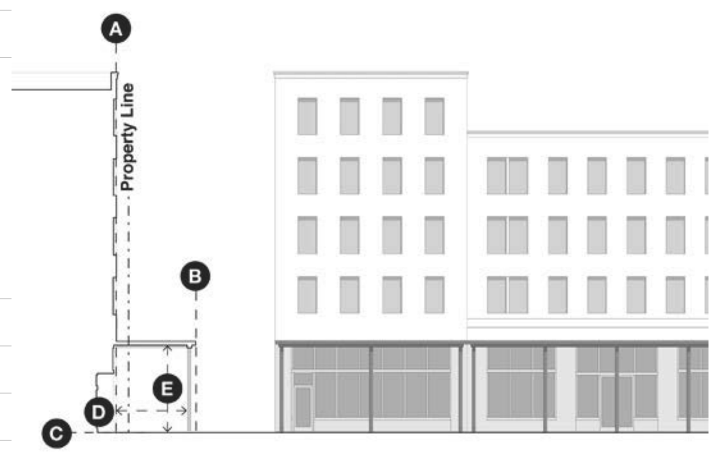
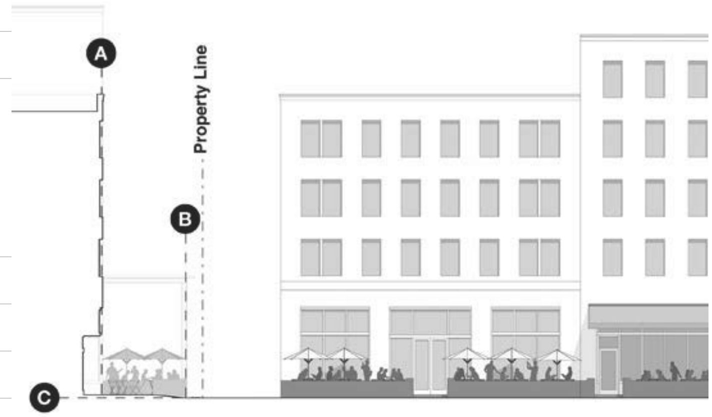


TABLE 3.3: FRONTAGE ELEMENTS

URBAN TERRACE

see "Article 9: Definitions"

	Combinations	Shopfront, awning, canopy
A	**Min. Setback**	10 ft.
B	**Encroachment**	Terrace and seating 100% of setback; outdoor display, bay and display windows up to 4 ft.
C	**Entry Condition**	At grade entry
	Horizontal Clear.	N/A
	Vertical Clear.	N/A
	Special Conditions	Wall permitted along frontage to 36 in. high



FORECOURT

see "Article 9: Definitions"

	Combinations	Arcade, gallery, urban terrace, shopfront, common entry
A	**Max. Setback**	60 ft.
B	**Encroachment**	By combination
C	**Entry Condition**	At grade entry or raised 18 in. max.
	Special Conditions	Courtyard minimum 300 sq.ft., and maximum 40% of frontage buildout width

SHOPFRONT

see "Article 9: Definitions"

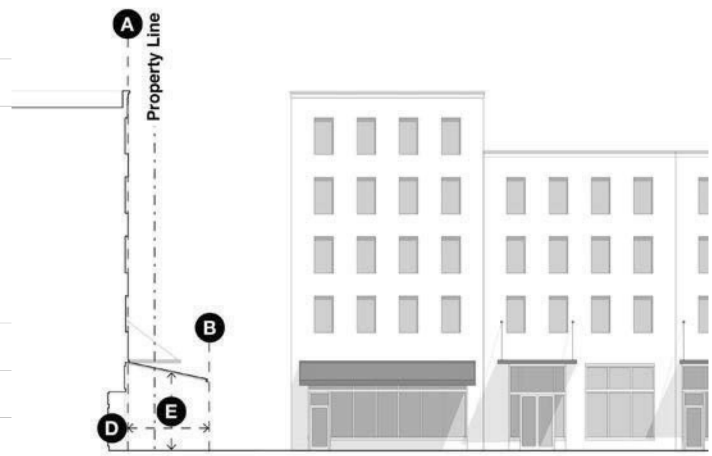
	Combinations	Arcade, gallery, urban terrace, forecourt
A	**Max. Setback**	By zoning district
B	**Encroachment/ Projection**	Seating by permit; bay and display windows to lot line; awning and canopy by element
C	**Entry Condition**	At grade entry
	Horizontal Clear.	N/A
	Vertical Clear.	N/A
	Special Conditions	None

TABLE 3.3: FRONTAGE ELEMENTS

AWNING OR CANOPY

see "Article 9: Definitions"

	Combinations	Shopfront, urban terrace, forecourt, common entry
A	**Max. Setback**	N/A
B	**Encroachment/ Projection**	Awning or canopy to within 2 ft. of curbs
	Entry Condition	N/A
D	**Horizontal Clear.**	8 ft. min.
E	**Vertical Clear.**	8 ft. min.
	Special Conditions	None



RESIDENTIAL TERRACE

see "Article 9: Definitions"

	Combinations	None
A	**Min. Setback**	10 ft.
B	**Encroachment**	Terrace minimum 6 feet and up to 60% of setback
C	**Entry Condition**	Raised entry
	Horizontal Clear.	N/A
	Vertical Clear.	N/A
	Special Conditions	Wall or fence permitted along the terrace edge;

TABLE 3.3: FRONTAGE ELEMENTS

STOOP

see “Article 9: Definitions”

	Combinations	Light well, terrace
A	**Min. Setback**	3 ft.
B	**Encroachment**	Landing, cover, and stairs up to 100% of setback in Z1, Z2, and Z5, and up to 10ft. in Z6
C	**Entry Condition**	Raised entry
	Horizontal Clear.	N/A
	Vertical Clear.	N/A
	Special Conditions	Stoop may be engaged into the building volume.

PORCH

see “Article 9: Definitions”

	Combinations	None
A	**Min. Setback**	10 ft.
B	**Encroachment**	Porch up to 60% of the setback
C	**Entry Condition**	Raised entry
D	**Horizontal Clear.**	Porch 8 ft. min.
	Vertical Clear.	N/A
	Special Conditions	See “(g) Glazing”

(f) Entry Frequency

(1) Entries to buildings shall be provided at a minimum frequency according to "Table 3.4: Building Entry Frequency".

(2) Buildings on corner lots shall be exempt from entry requirements along the longer side of the facade if the facade is less than 75 feet in length.

(3) Entries may be recessed up to 8 feet in depth.

TABLE 3.4: BUILDING ENTRY FREQUENCY

Z1	Z2	Z3	Z4	Z5	Z6	CZ
1 entry for every 60 ft. of facade or 1 per parcel along primary and secondary frontage, whichever is the least restrictive, except for entirely residential buildings	1 entry for every 60 ft. of facade or 1 per parcel along primary and secondary frontage, whichever is the least restrictive, except for entirely residential buildings	1 entry for every 75 ft. of facade along primary and secondary frontage	1 entry for every 100ft. of facade along primary frontage	1 primary building entry per parcel along primary frontage	1 primary building entry per parcel along primary frontage	N/A

(g) Glazing

(1) Facades along primary and secondary frontages shall meet minimum glazing requirements according to “Table 3.5: Minimum Glazing Requirement” and the following:

a. Percentage is calculated individually by floor and by facade.

b. The entire frame and structure of doors, windows, and storefront systems are considered glazing for this calculation.

c. Storefronts shall have a minimum 60% clear glazing

d. Tinted, mirrored and reflective glass, and glass covered by screening sheets, white, or UV protection film are prohibited.

e. Low-e is permitted according to Florida Building Code.

f. Glazing requirements may be reduced by 5% on south and west-facing walls.

TABLE 3.5: MINIMUM GLAZING REQUIREMENT

	RETAIL	OFFICE	LIGHT INDUSTRIAL	RESIDENTIAL
Ground (min.)	60%	40%	25% along A streets 10% along B streets	25%
Upper (min.)	30%	30%	10%	25%

(h) Blank walls along primary and secondary frontages shall be according to the following:

(1) Blank walls in Z1 Z2, Z3, Z5, and Z6 shall not exceed 50 linear feet.

(2) Blank walls in Z4 along A streets shall not exceed 80 feet

(3) Blank walls in Z4 along B streets shall not exceed 100 feet

(i) Where buildings do not occupy the entire lot frontage in Z1, Z2, Z3, and Z4, a streetscreen is required to occupy the remaining frontage as follows:

(1) Streetscreens or landscape shall be between 3 and 4 feet in height;

(2) Openings for vehicular access may be no wider than 24 feet for two travel lanes and 12 feet for a single travel lane; and

(3) Streetscreens shall have 50% openings or include plantings on the interior of the lot to overhang the streetscreen.

(4) Landscape shall be planted to create a solid wall of plantings, consistent with a non-landscaped streetscreen.

(j) Screening

(1) All outdoor electrical, plumbing, and mechanical equipment shall be located behind the front facade or concealed from street view with a screen or wall. These facilities may not encroach into any setback.

(2) Outdoor storage and building utility equipment shall be fully screend from view and shall not be permitted within the first 20 feet along primary and secondary frontages.

(k) Encroachments

(1) Minor facade elements may encroach into setbacks according to “Table 3.8: Building Form Standards” and the following:

a. Roof overhangs, cornices, window and door surrounds, and other facade decorations may encroach into setbacks up to 2 feet beyond the structure they are attached to.

(2) Major facade elements may encroach into setbacks according to “Table 3.8: Building Form Standards” and the following:

a. Major facade elements include bay windows, display windows, balconies, stoops, porches, awnings, galleries, and arcades may encroach into the setback up to 4 feet.

(3) Minor and Major facade elements shall not encroach into rights-of-way.

(4) Ground floor retail uses may utilize the public sidewalk for seating, serving, display of merchandise, and other business related activities, provided and 5 foot clear pedestrian way is maintained.

(l) Projections

(1) Projections into the public rights-of-way shall meet minimum clearance requirements and shall be limited as follows:

a. Projections are limited to Awnings, Canopies, Arcades, and Galleries.

b. Awnings:

1. Shall be fabric
2. Shall not have side panels
3. May be movable
4. Shall extend a minimum 6 feet from the building facade up to 2 feet from the curb.
5. Shall be a minimum 12 feet wide.
6. Shall maintain a minimum vertical clearance of 10 feet from the sidewalk.
7. Shall be a maximum 14 feet in height and shall be located below the floor of the second story.

c. Canopies:

1. Shall be metal, or wood.
2. Shall be fixed in place
3. Shall extend a minimum 6 feet from the building facade up to 2 feet from the curb.
4. Shall be a minimum 12 feet wide.
5. Shall maintain a minimum vertical clearance of 10 feet from the sidewalk.
6. Shall be a maximum 14 feet in height and shall be located below the floor of the second story.

d. Galleries shall be according to “Table 3.3: Frontage Elements” and shall extend fully over the sidewalk up to 2 feet from the curb.

(m) Drive-throughs

(1) Drive-through facilities are limited to Z3 and Z4, and the following:

a. Drive-through shall be located behind the building relative to sidewalks.

b. Queuing lanes shall not interfere with pedestrian circulation.

c. Queuing lanes shall be accommodated internal to the lot and shall not be located along primary and secondary frontages.

d. Drive-through canopies and other structures, where present, shall be constructed from the same material as the building, and shall follow the requirements for Canopies according to section “(l) Projections”.

Sec. DC-3.7 Fences and Walls

(a) Location

(1) Fencing is regulated according to the location of the fence, according to “Table 3.6: Fence Location and Height” and the following:

a. At corner lots, the primary frontage fence designation extends up to the primary setback of the principal building, as illustrated in “Table 3.6: Fence Location and Height”.

b. Primary frontage fences may be collectively referred to as frontage fences.

c. At corner lots, fences shall follow the Escambia County site distance requirements.

d. Fences shall provide complete enclosure as illustrated in “Table 3.6: Fence Location and Height”.

(b) Height

(1) Maximum fence and wall height is limited according to “Table 3.6: Fence Location and Height”.

(2) Frontage fence height is measured from sidewalk grade where sidewalks are present or abutting street grade.

(3) Private lot line fence and rear lot fence height is measured from the yard grade.

(c) Configuration

(1) Frontage fences may be located at the right-of-way, or up to 18” behind the right-of-way to permit landscaping. When erected at a right-of-way line, all of the fence and any of its supporting structures shall be contained within the lot.

(2) All fences or walls erected along the primary frontage shall provide an operable gate or opening with a minimum width of 36 inches. There shall be a minimum of one operable gate or opening for each street frontage and at least one operable gate or opening for every 500 feet of fencing along a street.

(3) Supporting members and posts shall be on the inside of the fence, and the smooth or flat faces on the outside. If two faces are used, each face shall be of the same type and finish.

(4) Wood frontage fences shall be painted or stained.

(5) Wood frontage fences shall have slats between 3.5 inches and 5.5 inches in width, with a minimum spacing of 2.5 inches and a maximum of 5.5 inches.

(6) Metal and iron fencing shall be black.

(7) Fence material is restricted to one fence type per lot per fence location.

(d) Material

(1) Fence and garden wall material is limited according to “Table 3.7: Fence Type by Zoning District” and the following:

a. The following fence and wall materials are permitted but not limited to:

1. Hedges;
2. Wood;
3. Metal and iron;
4. Stone, brick, and masonry; and
5. Composite

b. The following fence and garden wall materials are specifically prohibited:

1. Electric, barbed wire, razor wire, hog wire, rolled wire, fence spikes, electrically charged fences or other types of hazardous fencing;
2. Any wire smaller in size than 12 gauge and wire mesh fencing;
3. Galvanized or painted metal wire fencing;
4. Vinyl and plastic fencing; and
5. Wood stockade.

c. Chain link is prohibited as follows:

1. At Frontage and Frontage Facade locations in Z4; and
2. In all locations through Z1, Z2, Z3, Z5, Z6, and CZ zoning districts.

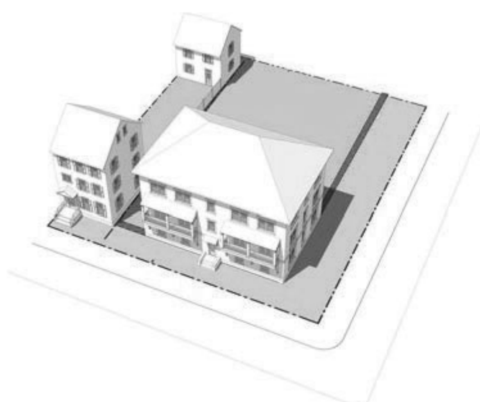
TABLE 3.6: FENCE LOCATION AND HEIGHT	Z1	Z2	Z3	Z4	Z5	Z6
Frontage Fence						
	36”	36”	36”	36”	36”	36”
Facade Fence						
	72”	72”	72”	96”	72”	72”
Side & Rear Fence						
	96”	96”	96”	96”	96”	96”

TABLE 3.7: FENCE TYPE BY ZONING DISTRICT

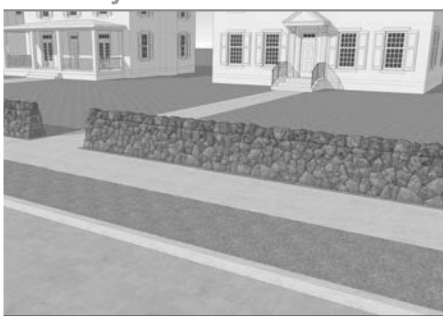
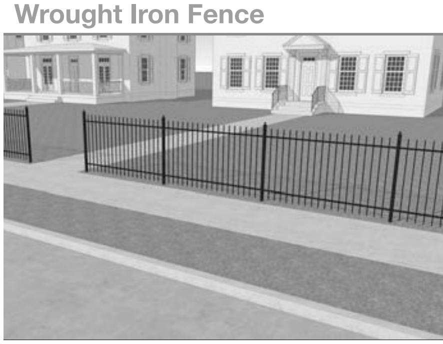
	Z1	Z2	Z3	Z4	Z5	Z6
Hedge 	-	-	-	-	P	P
Masonry Wall 	P	P	P	P	P	P
Picket Fence 	-	-	-	-	P	P
Wrought Iron Fence 	P	P	P	P	P	P

TABLE 3.7: FENCE TYPE BY ZONING DISTRICT

	Z1	Z2	Z3	Z4	Z5	Z6
Iron Fence with Masonry Base 	P	P	P	P	P	P
Wood Privacy Fence 	-	-	P	P	P	P
Chain Link Fence 	-	-	-	P	-	-

P: Permitted within the zoning district indicated

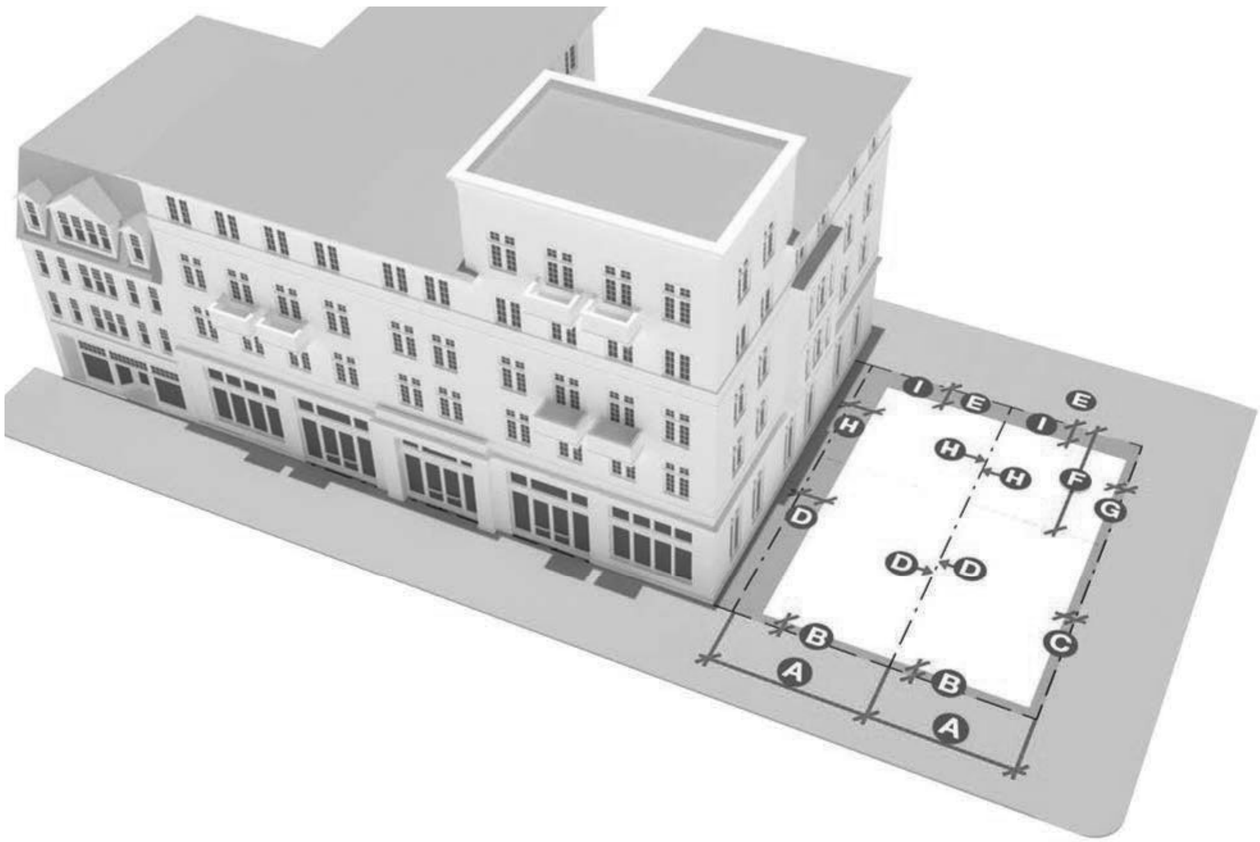
Sec. DC-3.8 Building Standards

(a) Standards are by zoning district and shall be according to “Table 3.8: Building Form Standards”.

(b) Should there be a conflict between the standards summarized in “Table 3.8: Building Form Standards” and the standards specified in the OLF-8 Design Code, the standards in “Table 3.8: Building Form Standards” shall prevail.

TABLE 3.8: BUILDING FORM STANDARDS

Z1: Neighborhood Core



LOT OCCUPATION

A	**Lot Width**	none
	Lot Coverage	90% max.
	Primary Frontage Occupation see Sec. DC-3.6 (c)	80% min.

SETBACKS: PRINCIPAL BUILDINGS

B	**Front (Primary)**	0 min. / 2 ft. max. 10 ft. max. for residential
C	**Front (Secondary)**	0 min. / 2 ft. max. 10 ft. max. for residential
D	**Side**	0 or 5 ft. min.
E	**Rear**	2 ft. min.

SETBACKS: ACCESSORY BUILDINGS

F	**Front (to rear of PB)**	20 ft. min.
G	**Front (Secondary)**	none
H	**Side**	0 or 5 ft. min.
I	**Rear**	2 ft. min.

BUILDING HEIGHT

Principal Building	4* stories
Accessory Building	2 stories

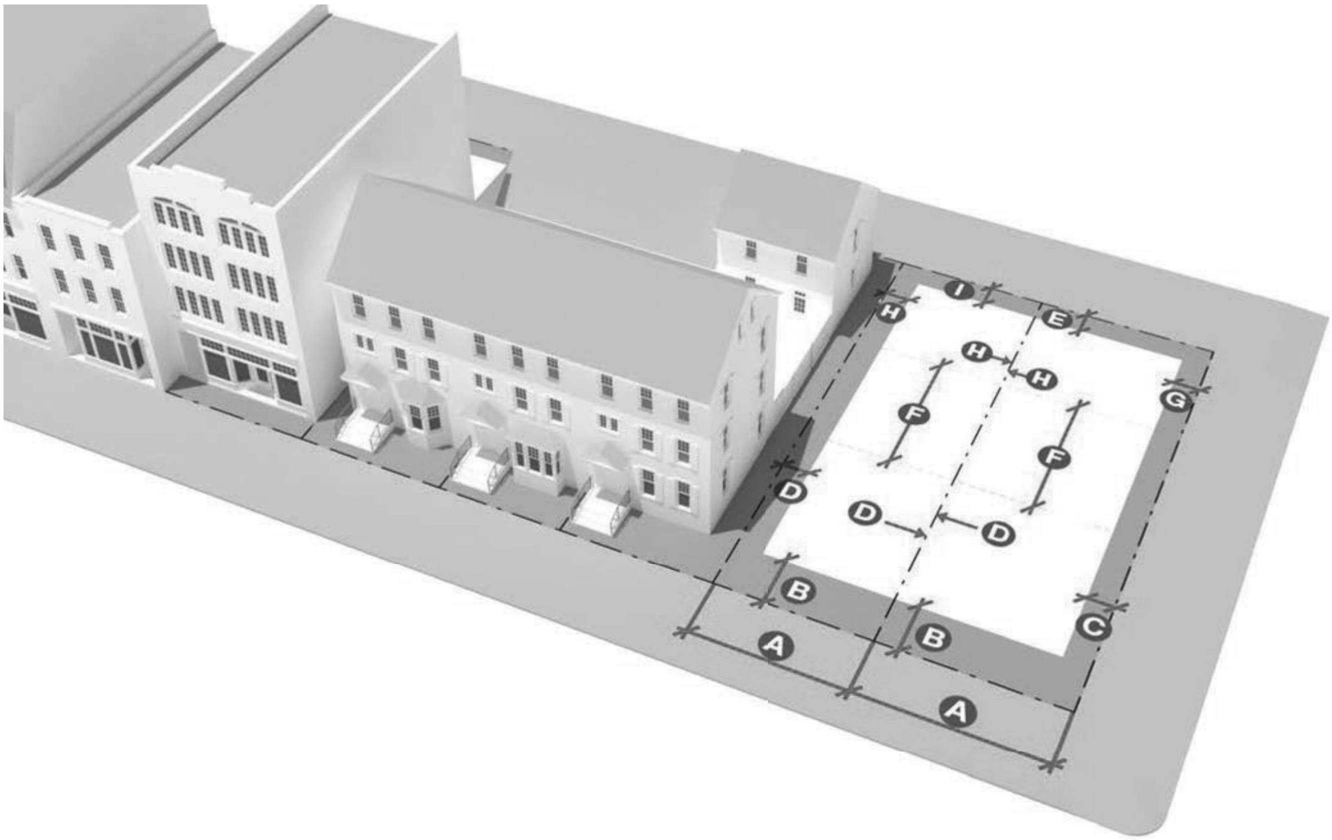
INTENSITY

Density	60 du / acre
FAR	4

* up to 5 stories max. permitted for buildings meeting the criteria of Sec. DC-7.3

TABLE 3.8: BUILDING FORM STANDARDS

Z2: Neighborhood Center (limited)



LOT OCCUPATION

A	**Lot Width**	none
	Lot Coverage	90% max.
	Primary Frontage Occupation see Sec. DC-3.6 (c)	80% min.

SETBACKS: PRINCIPAL BUILDINGS

B	**Front (Primary)**	0 min. / 2 ft. max. 10 ft. max. for residential
C	**Front (Secondary)**	0 min. / 2 ft. max. 10 ft. max. for residential
D	**Side**	0 or 5 ft. min.
E	**Rear**	2 ft. min.

SETBACKS: ACCESSORY BUILDINGS

F	**Front (to rear of PB)**	20 ft. min.
G	**Front (Secondary)**	none
H	**Side**	0 or 5 ft. min.
I	**Rear**	2 ft. min.

BUILDING HEIGHT

Principal Building	3* stories
Accessory Building	2 stories

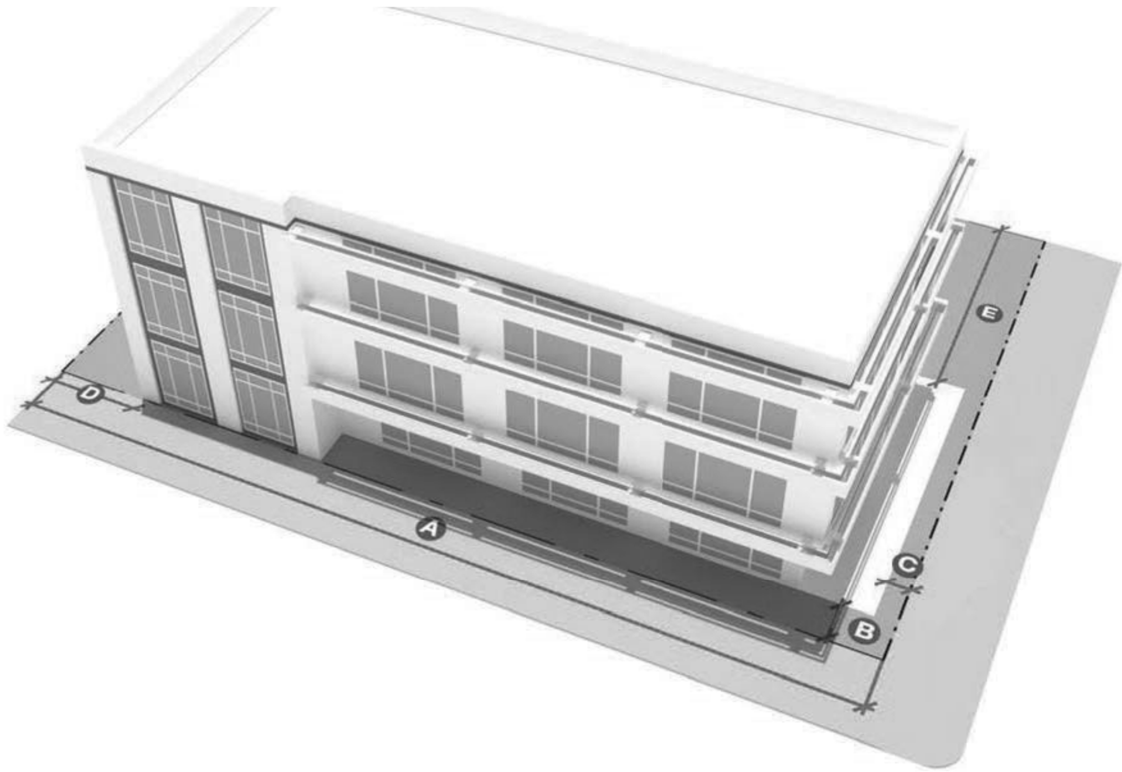
INTENSITY

Density	40 du / acre
FAR	3

* up to 4 stories max. permitted for buildings meeting the criteria of Sec. DC-7.3

TABLE 3.8: BUILDING FORM STANDARDS

Z3: Commerce District



LOT OCCUPATION

A	**Lot Width**	400 ft. max.
	Lot Coverage	80% max.
	Primary Frontage Occupation see Sec. DC-3.6 (c)	70% min.

SETBACKS: PRINCIPAL BUILDINGS

B	**Front (Primary)**	8 ft. max.
C	**Front (Secondary)**	12 ft. max.
D	**Side**	0 or 5 ft. min.
E	**Rear**	2 ft. min.

SETBACKS: ACCESSORY BUILDINGS

F	**Front (to rear of PB)**	20 ft. min.
G	**Front (Secondary)**	0 min.
H	**Side**	0 or 5 ft. min.
I	**Rear**	2 ft. min.

BUILDING HEIGHT

Principal Building	2* stories
Accessory Building	2 stories

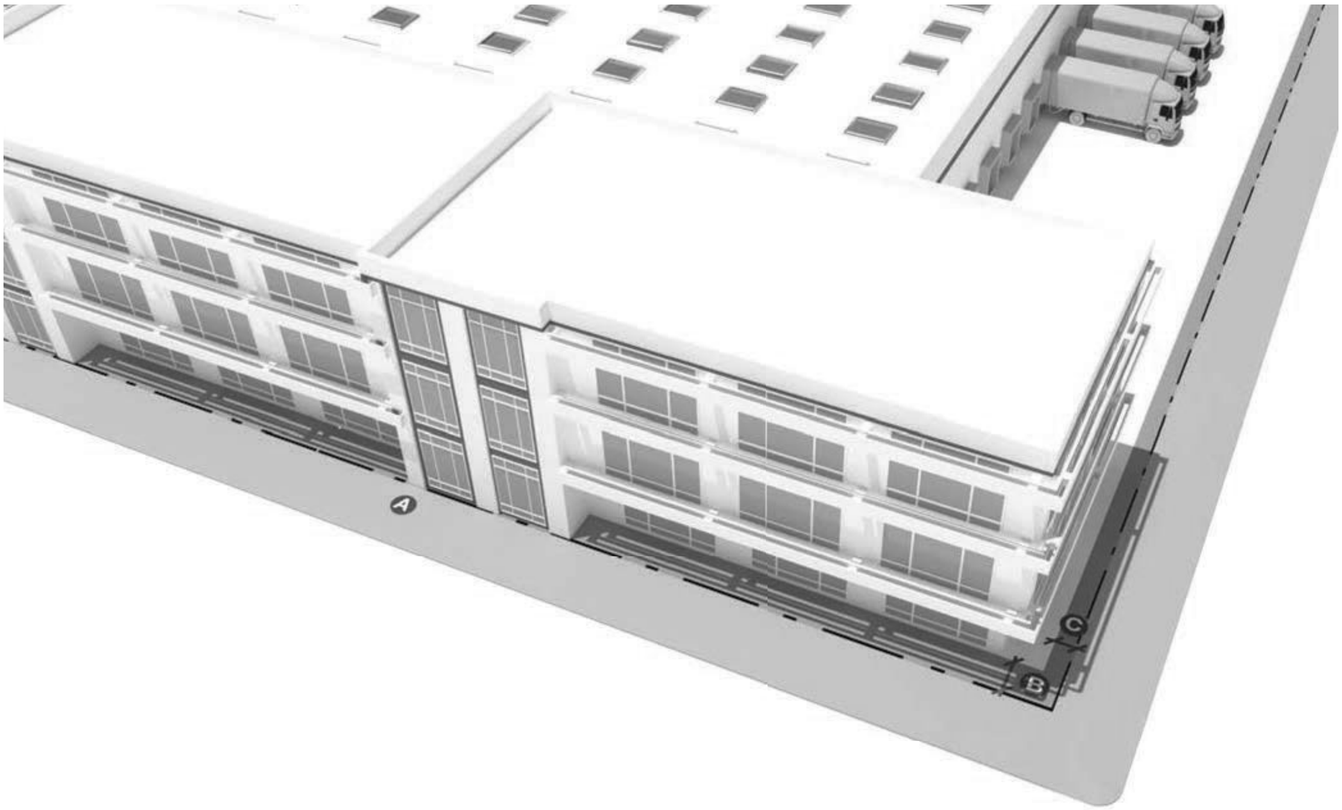
INTENSITY

Density	34 du / acre
FAR	2.5

* up to 3 stories max. permitted for buildings utilizing green roofs, or development areas with a closed loop geothermal system see Sec. DC-7.3

TABLE 3.8: BUILDING FORM STANDARDS

Z4: Light Industrial



LOT OCCUPATION

A	Lot Width	none
	Lot Coverage	80% max.
	Primary Frontage Occupation see Sec. DC-3.6 (c)	60% min.

SETBACKS: PRINCIPAL BUILDINGS

B	Front (Primary)	12 ft. max.
C	Front (Secondary)	18 ft. max.
D	Side	10 ft. min.
E	Rear	2 ft. min.

SETBACKS: ACCESSORY BUILDINGS

F	Front (to rear of PB)	20 ft. min.
G	Front (Secondary)	10 ft. min.
H	Side	10 ft. min.
I	Rear	2 ft. min.

BUILDING HEIGHT

Principal Building	2* stories
Accessory Building	1 story

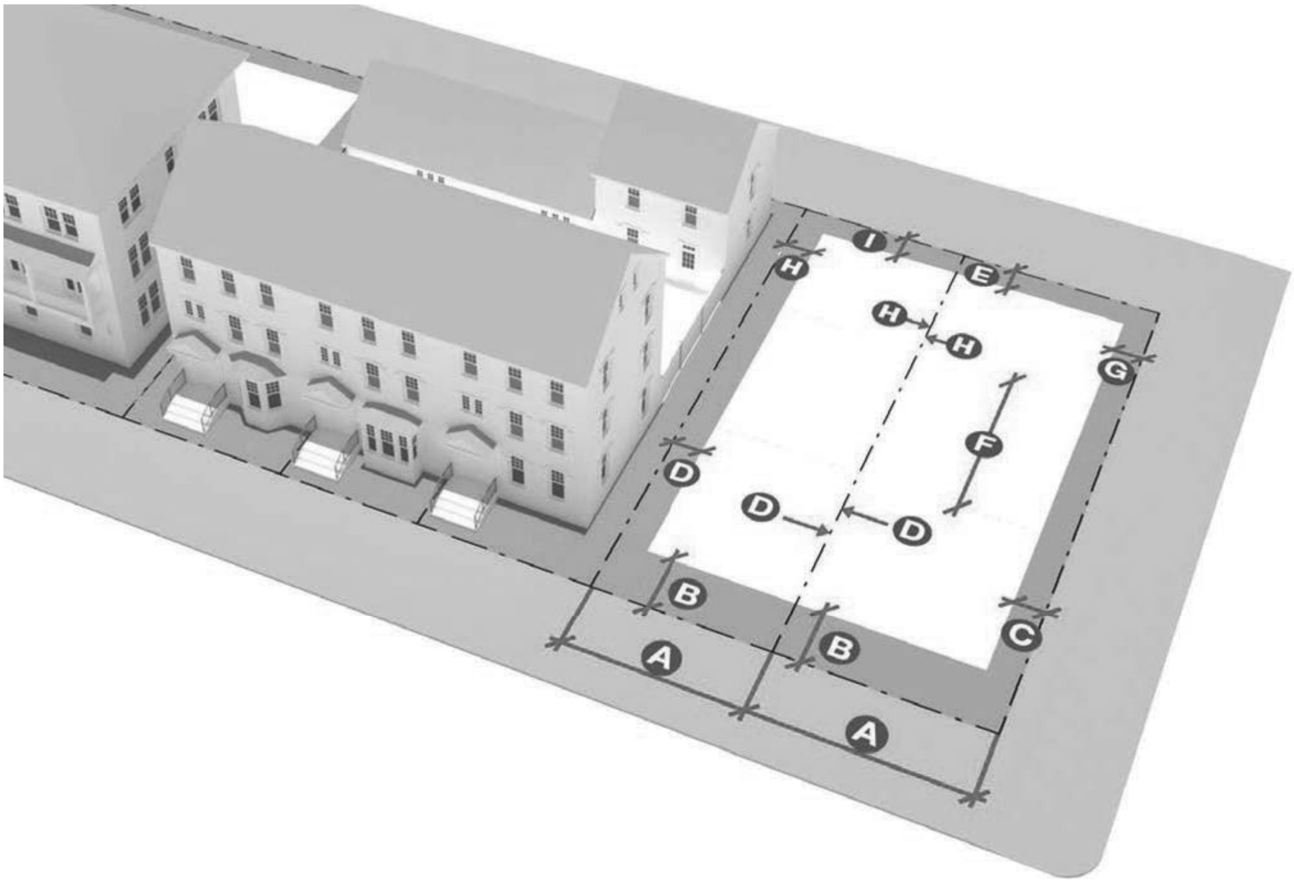
INTENSITY

Density	n/a
FAR	2.5

* up to 3 stories max. permitted for buildings utilizing green roofs, or development areas with a closed loop geothermal system see Sec. DC-7.3

TABLE 3.8: BUILDING FORM STANDARDS

Z5: Neighborhood General



LOT OCCUPATION

A	**Lot Width**	100 ft. max
	Lot Coverage	75% max.
	Primary Frontage Occupation see Sec. DC-3.6 (c)	70% min.

SETBACKS: PRINCIPAL BUILDINGS

B	**Front (Primary)**	8 ft. min. / 2 ft. max.
C	**Front (Secondary)**	8 ft. min.
D	**Side**	0 or 5 ft. min.
E	**Rear**	2 ft. min.

SETBACKS: ACCESSORY BUILDINGS

F	**Front (to rear of PB)**	20 ft. min.
G	**Front (Secondary)**	0 min.
H	**Side**	0 or 5 ft. min.
I	**Rear**	2 ft. min.

BUILDING HEIGHT

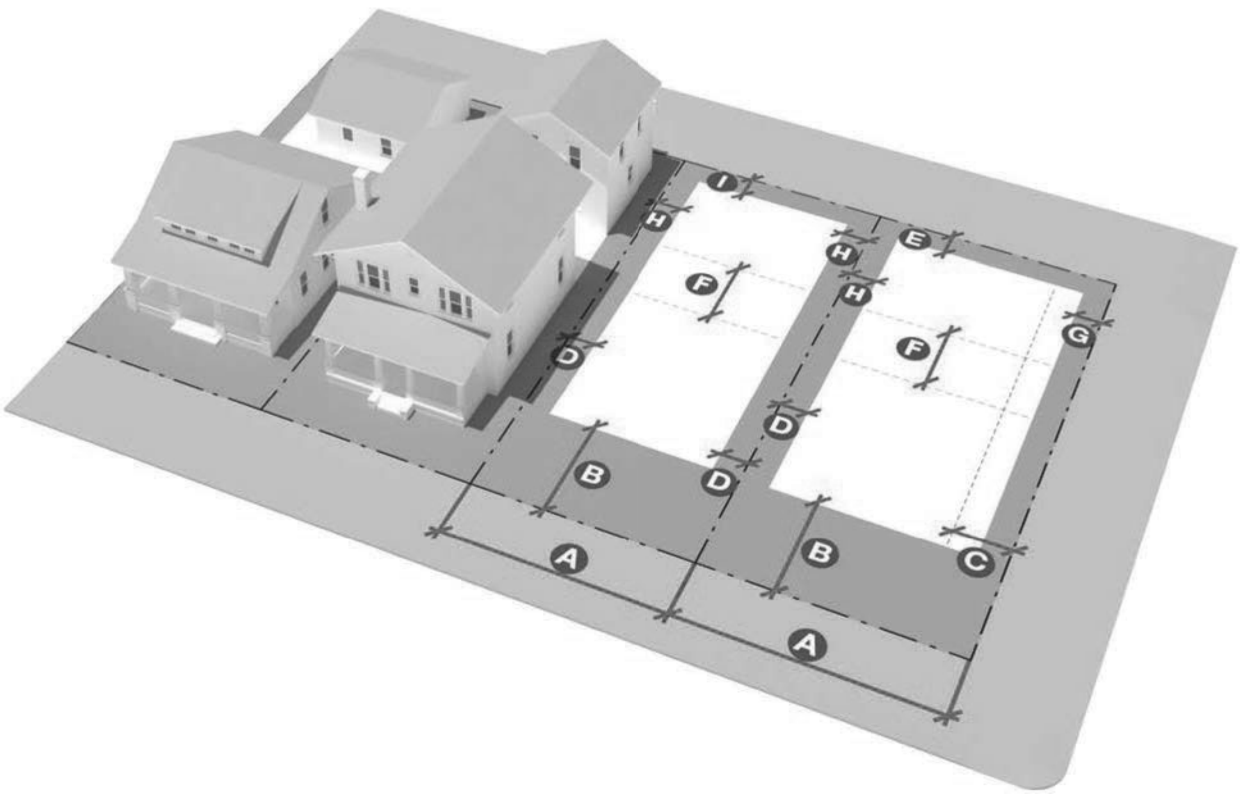
Principal Building	3 stories
Accessory Building	2 stories

INTENSITY

Density	34 du / acre
FAR	2.5

TABLE 3.8: BUILDING FORM STANDARDS

Z6: Neighborhood Edge



LOT OCCUPATION

A	**Lot Width**	60 ft. max
	Lot Coverage	65% max.
	Primary Frontage Occupation see Sec. DC-3.6 (c)	60% min.

SETBACKS: PRINCIPAL BUILDINGS

B	**Front (Primary)**	10 min. / 20 ft. max.
C	**Front (Secondary)**	10 min. / 20 ft. max.
D	**Side**	10 ft. min.
E	**Rear**	2 ft. min.

SETBACKS: ACCESSORY BUILDINGS

F	**Front (to rear of PB)**	20 ft. min.
G	**Front (Secondary)**	10 ft. min.
H	**Side**	0 or 5 ft. min.
I	**Rear**	2 ft. min.

BUILDING HEIGHT

Principal Building	2 stories
Accessory Building	2 stories

INTENSITY

Density	12 du / acre
FAR	1.5

Article 4: Use Standards

Sec. DC-4.1 Intent

(a) The intent of this Article is to allocate appropriate uses to each zoning district. Zoning districts are generally more flexible on use, so long as the use fits within the permitted form of the building. Non-desirable or inappropriate uses are prohibited.

Sec. DC-4.2 Permitted Uses

(a) Use Regulations shall be according to Chapter 4 of the Escambia County Land Development Code and the following:

(1) Uses are permitted by zoning district, according to “Table 4.1: Permitted Uses”and the following:

a. Permitted Uses are indicated with a ‘P’;

b. Uses with conditions applied to them are indicated with a ‘C’ and shall be according to “Table 4.2: Permitted Use Conditions” and Chapter 4 of the Escambia County Land Development Code.

(2) Lots and buildings may have more than 1 use.

(3) Uses shall be consistent with the Escambia County FLU Map.

Sec. DC-4.3 Prohibited Uses

(a) Uses not indicated by a ‘P’, or ‘C’ are prohibited from OLF-8.

(b) A blank cell means the use is prohibited from OLF-8.

(c) Uses not listed in “Table 4.1: Permitted Uses” are prohibited from OLF-8.

(d) The following specific uses are additionally prohibited from OLF-8:

(1) Tatoo Parlers; and

(2) Vape Shops;

(e) The first 150 feet north of 9-mile Rd, measured from the southern most boundary of the OLF-8 Area, shall not permit residential uses.

TABLE 4.1: PERMITTED USES

RESIDENTIAL	Z1	Z2	Z3	Z4	Z5	Z6	CZ
Group Living							
Manufactured Homes							
Detached Single-Family					P	P	
Two Family					P	P	
Triplex	P	P	P		P	P	
Quadraplex	P	P	P		P		
Townhouse	P	P	P		P		

TABLE 4.1: PERMITTED USES

Multi-Family	P	P	P				
Dormitories							
Retail Sales & Services	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z6**	**CZ**
Automotive Fuel							
Convenience Store	P	P	P		C		
Drugstore	P	P	P		C		
Grocery / Food Store	P	P	P		C		
General Retail	P	P	P		C		
Small Scale Retail Sales	P	P	P		C		
Bed & Breakfast Inns	P	P			C		
Boarding & Rooming Houses							
Car Wash				P			
Child Care Facility	P	P	P		C		
Hotel & Motel	P	P	P				
Personal Services	P	P	P		C		
Professional Services	P	P	P		C		
Repair Services			P	P			
Restaurants	P	P	P		C		
Brewpubs	P	P	P		C		
Taxi & Limousine			P				
Public & Civil	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z6**	**CZ**
Bird & Wildlife Sanctuary							P
Broadcast Stations							
Cemetery (family only)							
Cemetery							
Cinerators							
Clubs							P
Community Services							P
Correctional Facilities							
Educational Facilities							P
Emergency Services Facilities			P	P			P
Foster Care Facilities							
Funeral Establishments							
Homeless Shelter							
Hospitals			P	P			
Office (Gov.)							P
Other Public Institutional Use							
Parks							P
Places of Worship	P	P	P	P	C	C	P
Preschool & Kindergarten							P
Preservation & Conservation Lands							P

TABLE 4.1: PERMITTED USES

Public Utility Structure				P			
Warehouse / Maintenance Facility				P			
Recreation & Entertainment	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z6**	**CZ**
Campgrounds & RV Parks							
Commercial Entertainment Facilities				P			
Commercial Recreational Facilities							P
Marina Commercial							
Marina Private							
Off Highway Vehicle Recreation							
Passive Recreation & Entertainment							P
Parks without Restrooms							P
Parks with Restrooms							P
Passive Recreation							P
Recreation Facilities	P	P	P				P
Shooting Range							
Industrial	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z6**	**CZ**
Borrow Pits							
Bulk Storage							
Heavy Industrial							
Light Industrial			P	P			
Microbreweries, Microdistilleries, Microwineries	P	P	P	P			
Printing, lithography			P	P			
Solid Waste Collection							
Solid Waste Processing							
Wholesale warehousing				P			
Agriculture	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z6**	**CZ**
Agriculture & Raising of Livestock							
Agriculture, no Livestock							
Agriculture Food Production (Personal)							
Agriculture Research							
Aquaculture							
Aquaculture Processing							
Farm Equipment & Supply Stores				P			
Kennels & Animal Shelters							
Nurseries & Garden Centers			P	P			
Produce Display (sale of fruits & vegetables)	P	P	P	P			P
Silviculture							
Stables							P

TABLE 4.1: PERMITTED USES

Veterinary Clinics				P			

Other	Z1	Z2	Z3	Z4	Z5	Z6	CZ
Airport (Private)							
Billboard Structures							
Building or Construction Trade Shops				P			
Bus Leasing & Rental Facility							
Industrial Park				P			
Deposit Boxes							
Outdoor Display of Plants	P	P	P	P	P		
Outdoor Sales	P	P	P	P	C		
Outdoor Storage							
Parking Structure (Garage)	C	C	C	C	C		
Sales of Outdoor Sheds							
Self-Storage				P			

TABLE 4.2: PERMITTED USE CONDITIONS							
Retail Sales & Service	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z6**	**CZ**
Convenience Store, Drugstore, Grocery / Food Store, General Retail, Small Scale Retail Sales							
• Use limited to the ground floor only • Building footprint limited to a maximum 2,000 square feet • Hours of operation limited from 7am to 10pm • Outdoor music is limited from 8am to 9pm					C		
Bed & Breakfast Inns							
• Limited to a maximum 6 guest rooms • Outdoor music is limited from 8am to 9pm					C		
Child Care							
• Limited to a maximum 12 children, • Hours of operation is limited from 6am to 8pm					C		
Personal Services, Professional Services, Restaurants, Brewpubs,							
• Use limited to the ground floor only • Building footprint limited to a maximum 2,000 square feet • Hours of operation limited from 7am to 10pm • Outdoor music is limited from 8am to 9pm					C		
Public & Civil	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z6**	**CZ**
Places of Worship							
• Per County conditions for residential areas					C	C	
Other	**Z1**	**Z2**	**Z3**	**Z4**	**Z5**	**Z6**	**CZ**
Parking Garage (Structure)							
• Shall be secondary to the principal use • Shall be lined from all public frontages	C	C	C	C	C		
Outdoor Sales							
• Hours of operation limited from 7am to 8pm • Outdoor music is limited from 8am to 9pm • Goods for sale shall not be left outdoors past business hours • Goods for sale shall be wholly contained within a structure					C		

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Article 5: Parking Standards

Sec. DC-5.1 Intent

(a) The intent of this Article is to provide standards that right-size parking requirements, encourage shared parking where possible, and provide guidance on its access and location in ways that support the pedestrian realm and encourages multiple modes of circulation, including walking, biking and transit.

Sec. DC-5.2 General

(a) On-street parking spaces located along lot lines count towards minimum required parking, of that particular parcel they front.

Sec. DC-5.3 Driveways

(a) Driveways shall be limited according the following:
- (1) Driveways are prohibited along A-streets.
- (2) Driveways shall be limited in width, for the first 30 feet from the front right-of-way line, according to the following:
  - a. Single-Family dwelling in any zoning district.
    - 1. 9 feet maximum
  - b. Multi-family dwelling and all other non-residential.
    - 1. 20 feet maximum, 10 feet per lane.

Sec. DC-5.4 Off-Street Parking

(a) Off-Street parking is restricted as follows:
- (1) Shall be provided within the rear 70% of the lot depth.
- (2) Interior lots shall be accessed from the rear alley.
- (3) Corner lots shall be accessed from the rear 50% of the lot.
- (4) Shall be screened from Primary and Secondary frontages, according to “Sec. DC-3.7 Fences and Walls”.
- (5) Off-street parking may be provided in the following manner:
  - a. Clustered in groups less than 10 for shared use within a single block;
  - b. Garages and Carports, for private single use, serving a single lot;
  - c. Surface Parking Lots; and
  - d. Parking Garages.

(b) Garages and Carports are restricted as follows:
- (1) Garages and Carports shall be rear-loaded. Front-loaded lots are prohibited in OLF-8.
- (2) Garages and Carports shall be wholly located in the rear 50% of the lot.
- (3) Garages and Carports shall follow restrictions of their particular district according to “Table 3.8: Building Form Standards”.

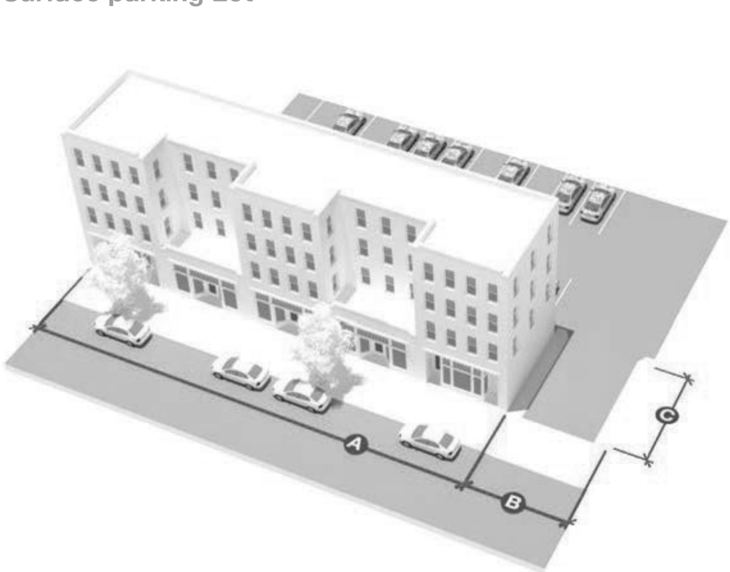
(c) Surface Parking Lots are restricted as follows:
- (1) Are not permitted along primary and secondary frontages
- (2) Shall be lined or screened according to the following:
  - a. Liner buildings, according to “Figure 5.1: Liner Building” and the following; or
    - 1. Liner buildings shall be a minimum 20 feet in depth (C);
    - 2. Liner buildings may be interrupted for vehicular access up to 24 feet in width (B); and
    - 3. Liner buildings shall follow the Form Standards according to “Table 3.8: Building Form Standards”.

b. Street screen according to the following:
   1. Streets screen shall meet fence requirements according to Sec. DC-3.7.
   2. Street screens may be interrupted a maximum 10 feet for pedestrian access.
   3. Street screens may be interrupted a maximum 24 feet for vehicular access.

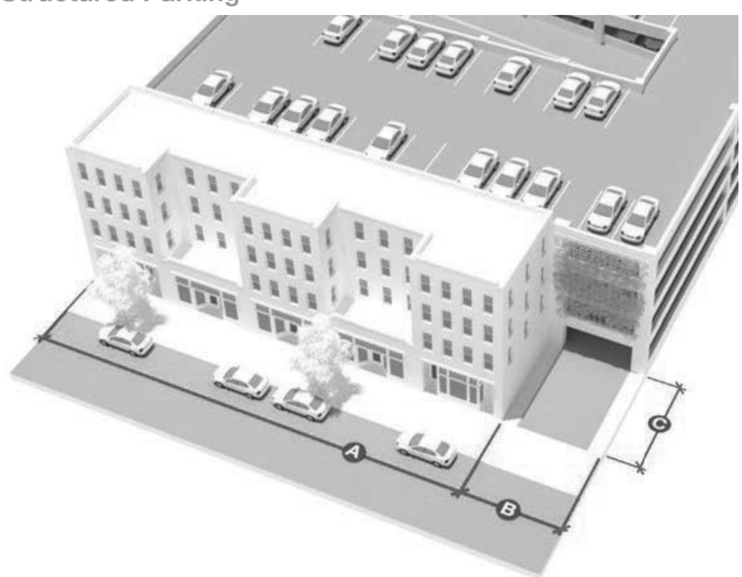
(d) Parking Structures may be provided with the following requirements:
(1) Are not permitted along primary and secondary frontages.
(2) Shall be lined or screened according to the following:
   a. Liner buildings, according to “Figure 5.1: Liner Building” and the following; or
      1. Liner buildings shall be a minimum 30 feet in depth (C);
      2. Liner buildings shall meet the minimum frontage occupation (A);
      3. Liner buildings may be interrupted for vehicular access up to 24 feet in width (B); and
      4. Liner buildings shall follow the Form Standards according to “Table 3.8: Building Form Standards”.
   b. Screening may be permitted along secondary frontages when a liner building is not possible to provide, according to the following:
      1. The ground floor of the parking structure shall have a habitable space a minimum 20 feet in depth
      2. The ground floor shall be designed following storefront standards.
      3. The habitable space shall not be interrupted with vehicular access, exceptions include interior lots without access to an alley.
      4. Above floors shall meet the glazing requirements, see section XX
      5. Openings count towards glazing.
      6. Openings shall be taller than they are wide in proportion.

FIGURE 5.1: LINER BUILDING

Surface parking Lot



Structured Parking



Sec. DC-5.5 Parking access

(a) Parking access shall be according to the following:
(1) Lots with alley access, parking shall be provided from the alley
(2) Lots with secondary street access shall be limited to 1 access per street frontage.
(3) Lots without alley or secondary access shall be permitted 1 street access.

Sec. DC-5.6 Parking Requirements

(a) Parking shall be according to "Table 5.1: Parking Requirements" and the following:
(1) All uses within the application are added to determine the minimum required parking.
(2) When requirements result in a fractional number, the fractions are rounded down.
(3) Uses within liner buildings less than 30 feet in depth and not taller than 2 stories are exempt from required parking.

(b) Minimum Parking is not required in CZ.

TABLE 5.1: PARKING REQUIREMENTS

Use	Z1	Z2	Z3	Z4	Z5	Z6
Residential (spaces per unit)	0 min. 2 max.	0 min. 2 max.	n/a	n/a	1 min. / 2 max.	1 min. / 2 max.
Lodging (spaces per room)	0 min. 1 max.	0 min. 1 max.	0 min. / 1 max.	0.5 min. / 1 max.	0.5 min. / 1 max.	n/a
Retail (spaces per 1,000 sq.ft.)	1 min. 2.5 max.	1 min. 2.5 max.	2 min. 4 max.	2 min. 4 max.	2 min. 4 max.	n/a
Hospital	min. 1 space / employee + 1 space for every 5 beds					
Office (spaces per 1,000 sq.ft.)	2 min. 3 max.	2 min. 3 max.	2 min. 4 max.	2 min. 4 max.	n/a	n/a
Industrial (spaces per 1,000 sq.ft.)	n/a	n/a	1 min. 2.5 max.	1 min. 2.5 max.	n/a	n/a
Assembly	min. 1 space / 4 fixed seats or patrons					
Education	min. 1 space / staff at all school levels + 1 space for every 3 high school students; max. 120% of min.					
All Other (spaces per 1,000 sq.ft.)	max. 3 spaces					

Sec. DC-5.7 Parking Modifications

(a) Shared Parking

(1) Reductions to the minimum parking may be provided based on “Table 5.1: Parking Requirements”, for single sites and parking lots.

(2) Shared parking is calculated for all uses provided.

(3) Shared parking may be utilized for uses located within 1000 feet of the shared parking lot.

(4) Shared parking shall require a shared parking agreement across tenants according to Escambia County Land Development Code.

(5) Shared parking reductions are calculated using “Table 5.2: Shared Parking Reduction” and as follows:

a. The minimum number of required spaces for each use as determined in “Table 5.1: Parking Requirements” is entered into the yellow column;

b. For each use and time of day, the number of required parking spaces is multiplied by the occupancy rate listed, entered into the red columns;

c. Each column is summed vertically in the green row;

d. The adjusted minimum required parking spaces is the highest result within the green row.

(b) Transit

(1) Parking may be further reduced up to 10% for uses located within 600 feet of a transit stop.

TABLE 5.2: SHARED PARKING REDUCTION

Use	Min. Space	Mon-Fri 8am - 6pm		Mon-Fri 6pm - 12am		Mon-Fri 12am - 8am		Sat-Sun 8am - 6pm		Sat-Sun 6pm - 12am		Sat-Sun 12am - 8am	
Residential	*sp*	60%	*sp*0.6*	100%	*sp*	100%	*sp*	80%	*sp*0.8*	100%	*sp*	100%	*sp*
Lodging	*sp*	70%	*sp*0.7*	100%	*sp*	100%	*sp*	70%	*sp*0.7*	100%	*sp*	100%	*sp*
Retail	*sp*	90%	*sp*0.9*	80%	*sp*0.8*	5%	*sp*.05*	100%	*sp*	70%	*sp*0.7*	5%	*sp*.05*
Office	*sp*	100%	*sp*	20%	*sp*0.2*	5%	*sp*.05*	5%	*sp*.05*	5%	*sp*.05*	5%	*sp*.05*
Industrial	*sp*	100%	*sp*	20%	*sp*0.2*	5%	*sp*.05*	5%	*sp*.05*	5%	*sp*.05*	5%	*sp*.05*
Assembly	*sp*	40%	*sp*0.4*	100%	*sp*	10%	*sp*0.1*	80%	*sp*0.8*	50%	*sp*0.5*	50%	*sp*0.5*
Required	***sum***		***sum***		***sum***		***sum***		***sum***		***sum***		***sum***

Sec. DC-5.8 Parking Lot Design

(a) Parking lots shall be designed according to the following:

(1) Parking lots shall have a minimum vertical clearance of 7 feet and 15 feet where the facility is to be used by trucks or for loading or along a garbage collection path.

(2) Compact stalls may account for up to 40% of off-street spaces in each parking lot.

(3) Drive aisles shall be a minimum 10 feet each direction.

(4) Parking stalls shall meet the requirements of "Table 5.3: Off-Street Parking Minimum Dimensions".

TABLE 5.3: OFF-STREET PARKING MINIMUM DIMENSIONS

Angle of Parking	Aisle: One-way, Single Loaded	Aisle: One-way, Double Loaded	Aisle: Two-way, Double Loaded
90 degrees	20 ft. min.	22 ft. min.	22 ft. min.
60 degrees	18 ft. min.	18 ft. min.	22 ft. min.
45 degrees	14 ft. min.	14 ft. min.	20 ft. min.
Parallel	10 ft. min.	10 ft. min.	20 ft. min.
Standard stall	8.5 ft. wide min. and 18 ft. long min.		
Compact stall	7.5 ft. wide min. and 16 ft. long min.		
Parallel stall	7 ft. wide min. and 22 ft. long min.		

Sec. DC-5.9 Bicycle Parking

(a) Minimum required bicycle parking shall be according to "Table 5.4: Minimum Bicycle Parking Requirements" and the following:

(1) Short-term bicycle parking shall be located in a publicly accessible space within 60 feet of pedestrian entrances.

(2) Long-term bicycle parking spaces shall be either fully enclosed or located within the building for which they are required.

(3) Both long-term and short-term bicycle parking for non-residential uses on a functionally interrelated campus containing more than one building may be located in an off-site location within 600 feet of the lot, and short-term public bicycle parking may be provided in a public place.

(4) Required long-term bicycle parking shall be no lower than the first basement level or the first complete parking level below ground, and no higher than the first above-ground level.

(5) Bicycle parking in parking garages shall be clearly marked and separated from motor vehicle parking by a physical barrier, such as a wheel stop or bollards.

(6) Where long-term parking is provided in a bicycle room, the room shall be as follows:

a. Shall have solid walls or floor-to-ceiling fencing.

b. Shall have locked doors.

c. The entire room shall be visible from the entry door.

d. A motion-activated security light in a tamper-proof case shall be provided in each bicycle room.

(7) Short-term bicycle parking locations shall be as follows:
  a. The location shall be convenient to the building it is meant to serve and shall include the following:
    1. Shall be in full view, near pedestrian traffic and windows, and in well-lit areas to maximize visibility and minimize vandalism.
    2. Shall be under cover to protect bicycles from inclement weather.
    3. Shall be far enough away from the street or parking spaces so that bicycles will not be damaged by cars, set back according to “Figure 2.4: Bicycle Rack Location Requirements”.
    4. Shall not obstruct pedestrian traffic, including when a bike is parked and when empty, according to “Figure 2.4: Bicycle Rack Location Requirements”..

TABLE 5.4: MINIMUM BICYCLE PARKING REQUIREMENTS

Use	Short Term	Long Term
Multi-family <8 units	Not required	Not required
Multi-family >8 units	0.25 spaces per unit	0.5 spaces per unit
Lodging	0.25 spaces per bedroom	Not required
Retail	0.5 spaces / 1,000 sq.ft.	Not required
Office	0.3 spaces / 1,000 sq.ft.	0.2 spaces / 1,000 sq.ft.
Assembly	0.25 spaces / 1,000 sq.ft.	Not required
All other	No minimum required; to be determined by owner	

Article 6: Sign Standards

Sec. DC-6.1 Intent

(a) The intent of this Article is to provide standards to ensure signage is appropriate to its context and scaled to pedestrians where appropriate.

Sec. DC-6.2 Permitted Signs

(a) Sign standards shall be limited by zoning district according to “Table 7.1: Sign Type & Requirements” and the following:
- (1) Sign height;
- (2) Copy height;
- (3) Number of signs per type;
- (4) Area of signs; and
- (5) Sign location.

(b) A permit is required for all signs according to Sec.5-8.2 of the Escambia County Land Development Code.

(c) Temporary signs are limited to A-frame and Banners. and shall be according to “Table 7.1: Sign Type & Requirements”.

(d) Signs are subject to removal according to Sec.5-8.2 of the Escambia County Land Development Code.

(e) Maintenance of signs shall be according to Sec.5-8.6(c) of the Escambia County Land Development Code.

(f) All signs shall meet the following clearance:
- (1) Minimum 8 feet clear over sidewalks; and
- (2) Minimum 10 feet over vehicular areas.

(g) Illuminated signs are prohibited except where specified in this section.
- (1) Illumination shall be limited to the following:
  - a. Natural lighting;
  - b. External lighting, lit from above; and
  - c. Halo-lit or backlit channel letters.
- (2) External lighting shall eliminate glare on surrounding properties.
- (3) Marquis, cinemas, and civic uses may have digital signs.

(h) Signs shall not create a public nuisance by emitting smoke, sound, vapor, particle emission, or objectionable odors.

(i) No sign shall extend to within 1 foot to the fascia, roof-line, or parapet.

(j) The maximum cumulative sign area shall not exceed 1 square foot for every linear foot of building frontage per lot.

(k) Sign Height:
- (1) Height is measured from finished sidewalk grade to the top of the sign.
- (2) Maximum height is determined by “Table 7.1: Sign Type & Requirements”.

(l) Signs shall be fully contained within private property.

(m) Additional requirements by sign type shall be according to “Table 6.1: Sign Type & Requirements”.

(n) Fabrication:
  (1) Installation shall be done in such a manner that signs may be removed without harm to the masonry or architectural detailing.
  (2) All conduit, conductors, transformers, ballasts, and other equipment shall be concealed.
  (3) Hardware shall be of corrosion resistant material.
  (4) Materials are limited to the following:
    a. Wood;
    b. Metal;
    c. Stone; or
    d. Other similar material with painted engraved, or raised messages.
    e. Exceptions shall be made for temporary signs.
  (5) Sign-makers logos and other identification are prohibited.
  (6) Vinyl applied copy is prohibited.
  (7) Signs shall be constructed out of durable materials and shall be maintained in safe condition and good repair at all times.

Sec. DC-6.3 Prohibited signs

(a) Prohibited signs shall follow Sec.5-8.5 of the Escambia County Land Development Code and the following:
  (1) The following sign types are additionally prohibited within OLF-8:
    a. Billboard signs;
    b. Roof (Billboard) signs; and
    c. Pole signs.

TABLE 6.1: SIGN TYPE & REQUIREMENTS

P: Permitted within the zoning district indicated

A-FRAME SIGN

HEIGHT (max.)	42 in.
NUMBER (max.)	1 per ground tenant
SIGN AREA (max.)	12 sq. ft.
COPY HEIGHT (max.)	n/a

Z1	Z2	Z3	Z4	Z5	Z6	CZ
P	P	P		P		P

Additional Requirements

- Shall only be displayed during business hours
- May be located within the public right-of-way, up to 3 feet from the curb
- Shall maintain a clear pathway of 5 feet

P: Permitted within the zoning district indicated

HANGING/PROJECTING SIGN

HEIGHT (max.)	n/a
NUMBER (max.)	1 per tenant
SIGN AREA (max.)	10 sq. ft.
COPY HEIGHT (max.)	12 in.

Z1	Z2	Z3	Z4	Z5	Z6	CZ
P	P	P		P		P

Additional Requirements

- May project up to 5 feet from the building facade
- May project into the public right-of-way up to 3 feet from the curb
- Supports shall be affixed to the building and shall not obstruct windows or openings
- Hanging signs are not permitted on buildings with wall signs

TABLE 6.1: SIGN TYPE & REQUIREMENTS

P: Permitted within the zoning district indicated

WALL SIGN

HEIGHT (max.)	n/a
NUMBER (max.)	1 per tenant or storefront
SIGN AREA (max.)	1.5 sq.ft. per linear ft. of storefront
COPY HEIGHT (max.)	18 in.

Z1	Z2	Z3	Z4	Z5	Z6	CZ
P	P	P	P			P

Additional Requirements

- Shall not extend within 1 foot of the facade corner, cornice, or parapet
- Shall be located a minimum 1 floor above the display window lintel
- Shall be parallel with the display window lintel and shall not obstruct windows or other openings
- Illuminated box style signs are prohibited. Only channel. lights may be illuminated.

P: Permitted within the zoning district indicated

ADDRESS SIGN

HEIGHT (max.)	5 ft. Commercial 10 ft. Residential
NUMBER (max.)	1 per frontage
SIGN AREA (max.)	3 sq. ft.
COPY HEIGHT (max.)	12 in.

Z1	Z2	Z3	Z4	Z5	Z6	CZ
P	P	P	P			P

Additional Requirements

- Shall be provided at the main entry

TABLE 6.1: SIGN TYPE & REQUIREMENTS

AWNING SIGN

HEIGHT (max.)	n/a
NUMBER (max.)	n/a
SIGN AREA (max.)	25% of sloping plane
COPY HEIGHT (max.)	12 in.

Z1	Z2	Z3	Z4	Z5	Z6	CZ
P	P	P	P	P		

Additional Requirements

- A maximum 1 logo is permitted on any 1 awning
- May not exceed 20 feet in length
- Shall be consistent in height and width across all tenants of a single building
- Shall meet the projection requirements of Sec. DC-3.6(l)

P: Permitted within the zoning district indicated

CANOPY SIGN

HEIGHT (max.)	n/a
NUMBER (max.)	1 per tenant
SIGN AREA (max.)	1.5 sq.ft. per linear ft. of storefront
COPY HEIGHT (max.)	24 in.

Z1	Z2	Z3	Z4	Z5	Z6	CZ
P	P	P	P			P

Additional Requirements

- A maximum 1 logo is permitted on any 1 awning
- May not exceed 20 feet in length
- Shall be consistent in height and width across all tenants of a single building
- Signs may be affixed to the side or front of canopy
- Shall meet the projection requirements of Sec. DC-3.6(l)

P: Permitted within the zoning district indicated

TABLE 6.1: SIGN TYPE & REQUIREMENTS

P: Permitted within the zoning district indicated

GROUND/MONUMENT SIGN

HEIGHT (max.)	8 ft.
NUMBER (max.)	1 per parcel
SIGN AREA (max.)	50 sq. ft.
COPY HEIGHT (max.)	18 in.

Z1	Z2	Z3	Z4	Z5	Z6	CZ
		P	P			P

Additional Requirements

- Shall be located within 50 feet of the building being advertised
- Maximum clearance to the bottom of the sign is 1 foot
- Shall have a minimum setback of 5 feet
- The width of the top of the sign shall not exceed 120% the width of the base

P: Permitted within the zoning district indicated

BANNER SIGN

HEIGHT (max.)	n/a
NUMBER (max.)	1 per parcel
SIGN AREA (max.)	1.5 sq.ft. per linear ft. of storefront
COPY HEIGHT (max.)	18 in.

Z1	Z2	Z3	Z4	Z5	Z6	CZ
P	P	P	P			

Additional Requirements

- Shall be spaced a minimum 20 feet from each other
- Shall follow the requirements of the Wall Sign
- May be erected for a maximum 30 cumulative days within a calendar year
- Shall not be used on multi-family buildings

TABLE 6.1: SIGN TYPE & REQUIREMENTS

WINDOW SIGN

HEIGHT (max.)	n/a
NUMBER (max.)	n/a
SIGN AREA (max.)	10% of window
COPY HEIGHT (max.)	6 in.

Z1	Z2	Z3	Z4	Z5	Z6	CZ
P	P	P	P	P		P

Additional Requirements

- Letters may be painted directly on the window
- Signs may be hung behind the glass
- May use vinyl applique letters directly applied to the glass and shall consist of Individual letters or graphics with no background
- see Sec. DC-8.2(a)(15) for additional storefront requirements

P: Permitted within the zoning district indicated

CORNER SIGN

HEIGHT (max.)	n/a
NUMBER (max.)	1 per parcel
SIGN AREA (max.)	40 sq. ft.
COPY HEIGHT (max.)	18 in.

Z1	Z2	Z3	Z4	Z5	Z6	CZ
P	P					P

Additional Requirements

- May project up to 5 feet into the right-of-way, up to 3 feet from the curb
- Shall follow the vertical clearance requirements in Sec. DC-6.2(f)

P: Permitted within the zoning district indicated

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Article 7: Landscape Standards & Guidelines

Sec. DC-7.1 Intent

(a) The intent of these landscape standards is to:

(1) Provide for healthy street trees that improve the public realm and provide shade.

(2) Screen servicing and trash areas.

(3) Enhance the public realm with locally-appropriate landscaping.

(4) Encourage vegetation and planting that is low maintenance and capable of thriving in the local climate.

(5) Minimize stormwater run-off and erosion, and encourage stormwater infiltration and aquifer recharge.

Sec. DC-7.2 Tree Installation

(a) General to all

(1) New trees shall meet the minimum size in caliper inches and overall tree height at the time of planting, according to the Design Standard Manual, Chapter 2, Section 2-6.1(C).

(2) Tree trimming, fertilization, and other maintenance work should follow industry best management practices.

(3) Tree Species

a. Trees species shall meet the following:

1. Native or naturalized to Florida as per the Florida Friendly Landscaping Guide;
2. Wind load tolerance appropriate for planting location;
3. Drought-tolerant; and
4. Resistant to diseases.

b. A non-comprehensive list of permitted trees for use in the landscape is provided for convenience in "Table 7.3: Permitted Trees".

c. Landscape plans and installations shall incorporate the following minimum diversity standards:

1. 2 genera for up to 10 (inclusive) required trees.
2. 3 genera for between 11 and 20 (inclusive) required trees.
3. 4 genera for greater than 20 required trees.

d. No more than 50% of the required trees may be of any 1 genera.

e. Canopy trees are preferred in residential areas.

(4) Tree installation and spacing shall be provided according to the Design Standard Manual, Chapter 2, Section 2-6.2 and the following. Where a conflict exists, the least restrictive shall apply.

a. Canopy trees shall be spaced at an average of 40 feet on-center.

b. Understory trees shall be spaced at an average of 20 feet on-center.

c. Tree planting shall provide the following back of curb, sidewalk, and pavement clearances, measured from the tree centerline:

1. Understory trees: minimum of 2 feet; and
2. Canopy trees: minimum of 3 feet if planted in a continuous swale, or minimum of 2 feet if planted in a tree well or continuous planter.

d. No tree that achieves a maturity height greater than 14 feet shall be planted within 20 feet of any overhead utility or underground water line; in such instance, understory trees shall be planted in lieu of canopy trees. Trees that achieve a maturing height greater than 14 feet should be planted at least 50 feet away. Trees may be planted 8 feet from street lights.

e. Tree planting shall provide the following building clearances, measured from the tree centerline to building base:

1. Understory trees: minimum of 3 feet; and
2. Canopy trees: minimum of 10 feet from the building and 8 feet from walls and fences.

f. Trees and landscaping adjacent to stormwater ponds and swales shall provide a minimum 10-foot clear access for maintenance.
g. The spacing and placement of plants shall be adequate for the typical size, shape and habit of the plant species at maturity.

(5) Trees in Roads
a. Streetscape shall be consistent with “Sec. DC-2.5 Road Standards”.
b. Street trees shall maintain a minimum clear branch height of 8 feet above finished grade of sidewalk at planting.
c. Location and spacing
1. Trees are required along all streets with continuous planters, long tree wells, and tree grates.
2. Alleys do not require trees.
3. Street trees shall be spaced as described in “Sec. DC-7.2 Tree Installation” and “Table 7.4: Permitted Street Trees”.
d. Tree Grates
1. For tree cut-outs adjacent to sidewalks 5 feet wide or less, a tree grate or pervious, walkable material shall be provided.
2. The opening in a tree grate for the trunk shall be expandable and designed as to not injure the tree trunk.
e. Intersection Visibility
1. Vertical and horizontal sight distances shall be maintained in accordance with the FDOT Florida Green Book standards and the Florida Design Manual (FDM).
2. The County Engineer may approve a Waiver to sight distance requirements in cases where traffic safety is not affected.
3. Trees and foliage shall be periodically pruned and trimmed to maintain vertical and horizontal sight distances.

(6) Trees in Front yards
a. Trees are required within the frontage yard, along both primary and secondary frontages as specified in “Table 7.2: Frontage Yard Landscape Requirements”, and “Table 7.3: Permitted Trees”.
b. Understory trees may be used in place of canopy trees as follows:
1. Each canopy tree requires 2 replacement understory trees; and
2. Up to 50% of the required canopy trees may be replaced by understory trees.

(7) Trees in Parking Lots
a. A minimum 1 canopy tree shall be planted for every 10 parking spaces and may be provided anywhere in the parking lot, or between parking spaces.
b. Landscape islands are required at the ends of free-standing parking rows, which shall be a minimum 8 feet in width and 18 feet in length.
c. Single loaded parking islands shall provide a minimum 1 canopy tree.
d. Double Loaded parking islands shall provide a minimum 2 canopy trees.
e. Trees meeting the minimum planting requirement in landscape islands shall not count towards the minimum tree planting requirement per parking space.

(8) Soil volume
a. For each tree planted adjacent to pavement, a minimum amount of soil volume shall be provided as specified in “Table 7.1: Tree Planting Dimensions” and as follows:
1. Soil volume is calculated as the length, width, and depth of all accessible soil allowing for root growth;
2. Minimum soil depth is 3 feet below grade; and

3. Available soil may extend under the pavement.

b. Where tree wells are used, a soil profile that encourages root growth below hardscape should be provided to meet the soil volume requirements of "Table 7.1: Tree Planting Dimensions" subject to the following:
   1. The use of structural soil, structural cells, or similar weight bearing material is encouraged;
   2. Material shall allow for root penetration and meet applicable structural standards for surface load requirements of pavement; and
   3. Structural soils and related pavement shall be maintained by the property owner, or privately administered entity.

(9) Plantings with spines, thorns, or needles that may present hazards are prohibited within 2 feet of all street-facing frontages.

TABLE 7.1: TREE PLANTING DIMENSIONS

Tree Type	Soil Volume Requirement	Minimum Pervious Area
Understory Tree	min. 300 cu.ft.	24 sq.ft. (ex. 4' x 6')
Canopy Tree	min. 1,000 cu.ft.	60 sq.ft. (ex. 6' x 10')

TABLE 7.2: FRONTAGE YARD LANDSCAPE REQUIREMENTS

Frontage Yard Type	Minimum Tree Requirement
No Yard	No Requirement
Urban Yard	No Requirement
Shallow Yard	1 understory tree for every 30 feet of frontage
Common Yard	1 canopy tree for every 30 feet of frontage

TABLE 7.3: PERMITTED TREES

Canopy Trees		
Common Name	Scientific Name	Zoning district
Red Maple	Acer rubrum	Z3, Z4, Z5, Z6, CZ
Pignut Hickory	Carya glabra	Z4, Z5, Z6, CZ
Pecan	Carya illinoinensis	Z4, Z5, Z6, CZ
Green Ash	Fraxinus pennsylvanica	Z1, Z2, Z3, Z4, Z5, Z6, CZ
Southern Red Cedar	Juniperus virginiana	Z4, Z5, Z6, CZ
Sweet Gum	Liquidambar styraciflua	Z4, Z5, Z6, CZ
Southern Magnolia	Magnolia grandiflora	Z4, Z5, Z6, CZ

TABLE 7.3: PERMITTED TREES

Common Name	Scientific Name	Zoning district
Canopy Trees		
Black Gum	Nyssa sylvatica	Z3, Z4, Z5, Z6, CZ
Sycamore	Platanus occidentalis	Z3, Z4, Z5, Z6, CZ
Southern Red Oak	Quercus falcata	Z4, Z5, Z6, CZ
Sand Live Oak	Quercus geminata	Z4, Z5, Z6, CZ
Swamp Chestnut Oak	Quercus michauxii	Z5, Z6, CZ
Water Oak	Quercus nigra	Z5, Z6, CZ
Spanish Oak	Quercus falcata	Z5, Z6, CZ
Live Oak	Quercus virginiana	Z5, Z6, CZ
Pond Cypress	Taxodium ascendens	Z4, Z5, Z6, CZ
Bald Cypress	Taxodium distichum	Z4, Z5, Z6, CZ
Winged Elm / Cork Elm	Ulmus alata	Z3, Z4, Z5, Z6, CZ
Chinese Elm	Ulmus parvifolia	Z1, Z2, Z3, Z4, Z5, Z6, CZ
London Plane	Platanus × acerifolia	Z1, Z2, Z3, Z4, Z5, Z6, CZ
Understory Trees		
Common Name	**Scientific Name**	**Zoning district**
Red Buckeye	Aesculus pavia	Z3, Z4, Z5, Z6, CZ
River Birch	Betula Nigra	Z4, Z5, Z6, CZ
Red Bud	Cercis canadensis	Z3, Z4, Z5, Z6, CZ
Fringe Tree	Chionanthus virginicus	Z3, Z4, Z5, Z6, CZ
Flowering Dogwood	Cornus florida	Z3, Z4, Z5, Z6, CZ
Loblolly Bay	Gordonia Lasianthus	CZ
Dahoon Holly	Ilex cassine	Z4, Z5, Z6, CZ
American Holly	Ilex opaca	Z4, Z5, Z6
Crepe Myrtle	Lagerstroemia indica	Z1, Z2, Z3, Z4, Z5, Z6, CZ
Ligustrum	Ligustrum japonicum	Z4, Z5, Z6, CZ
Sweet Bay	Magnolia virginiana	Z4, Z5, Z6, CZ
Wild olive-Devilwood	Osmanthus americanus	Z4, Z5, Z6
Chickasaw Plum	Prunus angustifolia	Z4, Z5, Z6
Blackjack Oak	Quercus incana	Z6
Scrub Oak	Quercus inopina	Z6
Myrtle Oak	Quercus myrtifolia	Z4, Z5, Z6

TABLE 7.4: PERMITTED STREET TREES	Z1	Z2	Z3	Z4	Z5	Z6	CZ	Common Name	Scientific Name
Columnar 			P	P	P	P	P	Southern Magnolia Bald Cypress Southern Red Cedar	Magnolia grandiflora Taxodium distichum Juniperus virginiana
Oval 	P	P	P	P	P	P	P	London Plane Green Ash Red Maple	Platanus × acerifolia Fraxinus pennsylvanica Acer rubrum
Rounded 	P	P	P	P	P	P	P	Chineese Elm Southern Magnolia Red Maple	Ulmus parvifolia Magnolia grandiflora Acer rubrum
Conical 				P	P	P	P	Pond Cypress Bald Cypress Sweet Gum Southern Red Cedar	Taxodium ascendens Taxodium distichum Liquidambar styraciflua Juniperus virginiana
Spreading 				P	P	P	P	Swamp Chestnut Oak Water Oak Spanish Oak Live Oak Sand Live Oak Southern Red Oak Pecan	Quercus michauxii Quercus nigra Quercus falcata Quercus virginiana Quercus geminata Quercus falcata Carya illinoinensis
Vase 			P	P	P	P	P	Winged Elm Sycamore Black Gum Southern Magnolia Sweet Gum Green Ash Pignut Hickory Red Maple	Ulmus alata Platanus occidentalis Nyssa sylvatica Magnolia grandiflora Liquidambar styraciflua Fraxinus pennsylvanica Carya glabra Acer rubrum

Sec. DC-7.3 Stormwater and Landscape Standards

(a) Plant material shall be native species and shall be selected to maintain species diversity and reinforce the existing ecosystem.

(b) Alleys shall use an inverted crown design.

(c) Roads shall use an inverted crown design for Avenues and Boulevards.

(d) Turf grass areas on private property shall be limited to the following areas:
(1) High volume pedestrian areas; and
(2) Areas used for recreation.

(e) Development utilizing a minimum 7 runoff reduction methods, according to 'Section 4.6 Civic and Environmental Analysis' and "Sec. DC-7.4 Stormwater and Landscape Guidelines" in Districts Z1 and Z2 shall permit an additional story of height according to "Table 3.8: Building Form Standards".

(f) Development within Z3 and Z4 shall be given an additional story of building height according to "Table 3.8: Building Form Standards" for the implementation of the following:
(1) Green roofs covering a minimum 75% of the roof surface. The green roofs shall meet Florida Green Roof standards.
(2) Porous pavers or pervious pavers for 50% of the surface parking.

(g) Development areas according to the official map shall be given an additional story of building height according to "Table 3.8: Building Form Standards" for the implementation of a closed loop geothermal system.

Sec. DC-7.4 Stormwater and Landscape Guidelines

(a) The installation of applicable landscaping is subject to best management practices according to the most recent edition of Florida Grades and Standards for Nursery Plants and the Florida Friendly Landscaping Guide.

(b) The preservation of existing trees and vegetation is encouraged and may be used to fulfill landscape requirements.

(c) The following runoff reduction methods should be considered, in addition to stormwater ponds and lakes:

(1) Vegetated swales are encouraged over the use of paved gutters.
(2) Stormwater trees planted along roads to reduce road drainage.
(3) Disconnection of rooftop runoff to promote overland vegetative filtering.
(4) Rain gardens to manage and treat low volume stormwater runoff.
(5) Blue and Green roofs.
(6) Stormwater planters to decrease stormwater runoff and improve water quality.
(7) Rain barrels and cisterns to capture and storm rain water for irrigation.
(8) The use of Porous pavement for overflow parking.
(9) The use of pervious pavers for low volume roads and alleys

(d) Avoid areas susceptible to erosion and sediment loss, according to Section 4 of the Civil and Environmental Analysis report.

(e) The preservation of the existing topography is encouraged.

(f) Landscape design should emphasize the practical use of plant materials which reduce irrigation demands and minimize maintenance. The use of xeriscape landscaping is highly encouraged.

(g) Plant selection should emphasize the use of native plants that reinforce the existing ecosystem.

(h) Closed loop geothermal systems are encouraged.

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Article 8: Architecture Standards & Guidelines

Sec. DC-8.1 Intent

(a) The intent of these architectural standards and guidelines is to:

(1) Promote architectural and site design treatments that further enhance the visual appearance of buildings and attractiveness of the streetscape.

(2) Orient buildings in a pedestrian-friendly manner towards the public right-of-ways.

(3) Enhance the compatibility of different building types adjacent to each other.

(4) Shape high quality public spaces and streetscape with buildings and other features to create a strong sense of place for OLF-8.

(5) Encourage best practices consistent with county guidelines for storm-water management, green infrastructure strategies and green building policies at the time of development.

(6) Protect and enhance property values and long-term economic viability of the OLF-8 Master Plan.

Sec. DC-8.2 Building Design

(a) General standards and guidelines for all buildings:

(1) All sides of a building should exhibit design continuity.

(b) Building facades at grade:

(1) Where mid-block passages are provided, they shall be landscaped or hardscaped with special paving, and well lit for security and comfort purposes.

(2) They should be designed to provide a sense of human scale at grade and incorporate architectural features along public right-of-ways that add visual interest to the street. This may include but is not limited to the use of glazing patterns, distinguished entries, building signage and lighting.

(3) Mixed-use buildings should provide a clear architectural distinction between the ground floor and all additional stories.

(4) Building accents on buildings should be expressed through different materials or architectural detailing, rather than applied finishes such as paints, graphics or forms of plastic or metal panels.

(5) Building entries should be given prominence on a street frontage by the use of distinctive materials or architectural elements, and sized appropriately for the scale of the building.

(6) Buildings should include shading from the sidewalk to the building entry. Shade can be accomplished by one or a combination of the following methods:

a. Landscape and shade trees within the front setback.

b. Structure shade elements, trellises or covered walkways attached to the primary building. Depth should be a minimum of six feet measured from any point of the ground floor facade to the exterior column or vertical plane of the overhang. The maximum head clearance should not exceed 20 feet measured from finish grade.

(7) Garden Walls & Fences should be articulated to match, or be complementary to, the building's architectural style and materials.

(8) Alternative paving materials such as permeable pavers, porous concrete or similar material should be used for on-site hardscaping to reduce the urban heat island effect and to allow natural drainage and filtration.

(9) In multiple building developments requiring service or loading facilities, the design of the facilities should be located adjacent to each other to minimize visual and noise impacts wherever possible.

(10) Windows & Doors:

a. Roll-up doors shall be oriented away from public street views.

b. Well integrated building elements over entrances and windows or overhanging eaves that provide consistent shade and reduce daytime heat gain on south and west-facing walls are encouraged.

c. Window openings should reflect a rhythm, scale and proportion compatible with the overall building design.

d. Window openings should reveal their thickness within the building wall, and where appropriate to the building material used.

e. Large expanses of highly reflective glazing should be avoided to reduce heat and prevent glare impacts on adjacent properties.

(11) Roofs:

a. Pitched roofs should be sloped no less than 5:12, with the exception of shed or minor roofs on porches which may have a pitch no less than 2:12.

b. Parapets on flat roofs should be as high as needed to conceal mechanical equipment.

(12) Specific to multi-family buildings:

a. The articulation of courtyards should maintain a minimum width to height ratio of 1:3.

b. Residential units at grade along frontage should provide individual entries that may include: stoops, landscaping and low walls or fences provided for privacy.

c. Roof decks are encouraged.

d. Green roofs are encouraged.

(13) Specific to townhouses:

a. The cornice line of a townhouse shall not exceed 3 stories. An optional 4th floor is permitted above the cornice line, provided it is incorporated into a roof or provides a building setback.

b. Townhouses should include special details to enhance the distinctiveness of each unit. This may include changes in color, material, height, entry portico, stoops, railings, etc.

(14) Specific to detached single-family homes:

a. Elevations along primary frontages should not be repeated more than twice along a block face, or directly across the street, and should be separated by a minimum 2 varied elevations.

(15) Specific to retail frontages:

a. Outdoor dining areas on sidewalk and public rights-of-way are allowed subject to the following standards:

1. Outdoor dining areas shall be separated from public walkways and streets using steel railings, wrought-iron fences, planters, landscaping and other suitable materials; and

2. A minimum unobstructed pedestrian path of at least six feet wide shall be provided along public right-of-ways.

b. Storefronts (Storefront windows) shall be further regulated as follows:

1. Opaque, reflective or smoked glass shall be prohibited on storefront windows.

2. Storefront windows shall remain open and free of shelving, furniture, blinds, drapes, or other elements that otherwise prohibit the visibility into the storefront from the sidewalk in front.

c. Each storefront frontage should be architecturally articulated, and reflect a store's unique identity.

d. Ground floor retail uses should be distinguished from upper floors with an identifiable break or distinguishing expression line. This may include: cornices, projections or stepbacks, changes in fenestration, material changes, etc.

e. Recessed storefront doors are encouraged to not impede pedestrian movement and to provide shelter from the weather.

f. Storefronts longer than 20 feet should provide awnings or canopies.

g. Street level retail and restaurant uses are encouraged to use operable windows and doors which can allow them to open onto sidewalk areas and outdoor patios.
h. Canvas, glass or metal awnings are encouraged and should be aligned with the top edge of the ground floor windows and door frames.

(c) Additional standards for buildings along A-streets only:

(1) Facades along street-facing sides shall have architectural style, materials, building elements and trim features that are consistent with each other and similar in level of detail and visual interest.
(2) Facade treatments shall be provided where the minimum glazing cannot be achieved, or when a blank wall facade exceeds a continuous 20 feet horizontally, or 15 feet vertically. Treatments may be achieved through a combination of architectural features, artwork, interactive displays, or landscaping.
(3) Long buildings, over 250 feet long, shall be broken down to a scale comparable to that of the buildings on the rest of the block face.
(4) When used in front yards, walls, landscaping, hedging or fencing, shall meet the standards of "Sec. DC-3.7 Fences and Walls".
(5) Where present, variations in garden wall and fence design are required between adjacent properties. Vegetated walls are required.

(d) Additional guidelines for buildings along B-streets only:

(1) Facades along street-facing sides should have architectural style, materials, building elements and trim features that are consistent with each other and similar in level of detail and visual interest.
(2) Facade treatments should be provided where the minimum glazing cannot be achieved, or when a blank wall facade exceeds a continuous 30 feet horizontally or 15 feet vertically. Treatments can be achieved through a combination of architectural features, artwork, interactive displays, or landscaping.
(3) Uninterrupted facades should be discouraged. Long buildings, over 250 feet long, should be broken down to a scale comparable to that of the buildings on the rest of the block face.
(4) Where present, variations in garden wall and fence design are encouraged between adjacent properties. Vegetated walls are also encouraged.

Sec. DC-8.3 Building Materials

(a) General standards for all buildings:

(1) Building materials for facades shall consist of the following:
    a. masonry,
    b. stucco,
    c. wood,
    d. cementitious or
    e. architectural precast concrete.
    f. Trim materials should consist of stone, cast stone, metal, wood or similar durable materials.
(2) High quality, durable exterior finish materials on the ground floor along street-facing facades shall be used.
(3) Other innovative and new materials not listed here and not prohibited may be considered.

(b) Additional standards and guidelines for buildings along A-streets only:

(1) Vinyl siding is not permitted as an exterior surface material along street-facing frontages.

(2) Exterior building materials should be restricted as follows:

a. Corrugated metal panels, used as a finished material on principal buildings should only be used as accent materials and should not cover more than 10% of any street-facing elevation, and 20% of any interior lot elevation. Architectural metal panels are acceptable, subject to an consultation and determination by the Planning Director that the treatment meets the intent of this section.

b. Smooth-faced concrete should not occupy more than 30% of any elevation and should incorporate stucco or other decorative finishes.

c. EIFS should only be permitted above the ground floor.

(c) Additional standards and guidelines for buildings along B-streets only:

(1) Exterior building materials should be restricted as follows:

a. Corrugated metal panels, used as a finished material on principal buildings should only be used as accent materials and should not cover more than 30% of any street-facing elevation, and 50% of any interior lot elevation. Architectural metal panels are acceptable, subject to an consultation and determination by the Planning Director that the treatment meets the intent of this section.

b. Smooth-faced concrete should not occupy more than 50% of any elevation and should incorporate stucco or other decorative finishes.

Sec. DC-8.4 Large scale buildings

(a) Large scale buildings within Z4, with a footprint of over 10,000 square feet shall be according to the following:

(1) Large-scale buildings that occupy more than half a block should reflect the rhythm of adjacent buildings and establish a fine-grained streetscape. This may be achieved by breaking up the building mass into several smaller buildings or articulating a single mass as a series of smaller cohesive forms where applicable. In both cases, each building facade should have a clear and balanced composition that can read as a stand-alone building.

(2) Buildings facades should:.

a. Express vertical articulation with height variations, balconies, bay windows or through the use of other building projections that are a minimum of 3 feet deep. Roof lines should not vary in height more than once every 50 feet.

b. Changes in material, color, vertical and horizontal articulation should not be arbitrary. Changes in material or color should correspond to variations in building mass.

c. When warehouses are located adjacent to less intense uses, such as residential or office uses), additional landscaping or setbacks is encouraged to mitigate potential adverse impacts. Where parking areas abut residential areas, a 20 foot landscape buffer is required.

d. Decorative roof elements, such as cornices are encouraged to enhance a building's roofline.

(b) Buildings should use design or building techniques that reduce a building's use of energy and decrease carbon emissions. These include but are not limited to:
  (1) Using locally-sourced low energy or renewable materials.
  (2) Using well integrated shading devices on south and west facing windows and entrances.
  (3) Using passive cooling such as natural ventilation and roofs that are low albedo or shaded with vegetation.
  (4) Using white or reflective paint on roofs, light-colored walls, and light paving materials and paints to reflect heat away from buildings.

(c) Shaded outdoor community spaces within forecourts are encouraged close to the primary entrance or circulation path to buildings to provide protection from the sun and adverse weather.

(d) Specific to large-scale, light industrial buildings:
  (1) Street facing facades should incorporate a minimum of 25% glazing.
  (2) The amount of pedestrian-scaled windows along street-facing facades should be maximized. Where actual windows and entrances are not possible, artistic murals, niches, alcoves with architectural relief and definition should be used.
  (3) Decorative parapets that are high enough to block the view of rooftop equipment should be used.
  (4) Site and building design should accommodate pedestrians by creating designated walkways from parking area to plazas and open space to adjoining buildings.
  (5) Adjacent parcels should allow for interconnectivity between connected parking lots.

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Article 9: Definitions

Sec. DC-9.1 General

(a) Unless otherwise expressly stated, the following words and terms shall, for the purposes of this article, have the meanings shown in this section.

Sec. DC-9.2 Terms defined

(a) Where terms are not defined in this article and are defined in the Florida Building Code, such terms shall have the meanings ascribed to them in that code.

Sec. DC-9.3 Terms not defined

(a) May be defined according to the Escambia County Land Development Code Chapter 6.

(b) Where terms are not defined in this article or in the Florida Building Code, such terms shall have ordinarily accepted meanings such as the context implies.

Sec. DC-9.4 Defined Terms

A-frame sign: a portable sign not secured or attached to the ground or surface upon which it is located, typically constructed in such a manner as to form an “A” or tent-like shape, and primarily or exclusively intended to advertise to pedestrian traffic.

A-street: a road that by virtue of its preexisting pedestrian-supportive qualities, or its future importance to pedestrian connectivity, requires that properties along them be held to the highest standards prescribed by this Design Code.

Accessory structure or accessory use: see Escambia County Land Development Code Chapter 6.

Address sign: a sign attached to or near the primary entrance wall indicating the property address.

Alley: a private or public way which affords a secondary means of access to the property abutting thereon.

Arcade: an arched or covered passageway within a building or attached to a building and supported on at least one side by columns. An arcade may overlap the sidewalk.

Articulation: the visible expression of architectural or landscape elements through form, structure or material that break up the scale of buildings and spaces to achieve human scale.

Awning: an ancillary lightweight structure of wood, metal, or canvas, cantilevered from a building facade and providing shade to the fenestration and spatial containment to the pedestrian. An awning may be fixed in place or retractable to a position against the building.

Awning sign: a sign consisting of information painted on, sewn on, imprinted on, or attached to the surface of an awning.

Back Buildings: non-habitable structures that connect an outbuilding to a principal building. Syn. Breezeway

B-street: a road that by virtue of its use, location, or absence of preexisting pedestrian-supportive qualities, may qualify properties along it for standards lower than that of the A-street. See A-street.

Banner sign: a temporary sign which consists of a sign face composed of nonrigid material that is secured or mounted at both ends.

Bicycle Facility: A way designated for use by bicycles alone or bicycles along with other roadway users such as pedestrians, scooters, or vehicles. Bicycle Facilities may be incorporated into streets and other multi-modal transportation facilities, or may be constructed independently in the case of bicycle trails. Bicycle Facilities is a category that includes different facility types such as Shared Travel Lanes, Dedicated Bicycle Lanes, Buffered Bicycle Lanes, Protected Bicycle Lanes, One- and Two-way Cycle Tracks, and Bicycle Trails or Paths. Bicycle Facilities are also referred to by Class (see FDOT Complete Streets Manual), from 1 to 4, which correspond with their more common names previously listed.

Block face: the sum of all the building facades on one side of a block.

Building height: the vertical extent of a building measured in stories and/or feet.

Building, principal: the main building on a lot, usually located toward the frontage.

Building scale: the relationship between the mass of a building and its surroundings, including the width of street, nearby open space, and the mass of buildings on adjacent properties.

Canopy: an ancillary structure of wood, or metal, cantilevered from a building facade and providing shade to the fenestration and spatial containment to the pedestrian. A canopy shall be fixed in place to a position against the building.

Canopy sign: a sign that may be affixed to the top, side or front of canopy.

Civic building: a building dedicated to religion, culture, education, recreation, government, and transit, or for use approved by the public.

Civic open space: land open to the sky and set aside for: the protection of natural resources (such as uplands, wildlife habitats and groundwater recharge areas) and areas unsuitable for development due to natural hazards (such as wetlands, floodplains and areas of unsuitable soils); recreation areas; and the enhancement of the urban environment (including buffer areas, landscaped areas, plazas and hardscape).

Commercial: This category is intended to collectively define non-residential workplace land-use such as office, retail, food establishments, entertainment and leisure establishments.

Commercial building: a building in which it is permitted to have commercial uses, as defined in the Design Code.

Common entry: a single collective primary building entrance to a multi-tenant lobby.

Common Yard: A frontage yard type remaining unfenced and visually continuous with abutting yards, supporting a common landscape.

Community Garden: A community garden is a single piece of land gardened collectively by a group of people. Community gardens utilize either individual or shared plots on private or public land while producing fruit, vegetables, and/or plants grown for their attractive appearance

Corner lot: a lot abutting two or more streets at their intersection.

Copy Height: the measurement of height of the text of an advertisement.

Design Code: the OLF-8 Design Code.

Directional sign: a sign which only provides directional instructions or information for pedestrian or vehicular traffic, such as “parking,” “one way,” “exit,” or “entrance.”

Effective Turn Radius: the curvature vehicles follow when turning.

Encroachment: an extension of a building or building elements into the area of the required setback, or any physical action which may jeopardize the health and longevity of a natural feature.

Entrance, principal: the main point of access of pedestrians into a building.

Facade, building: the exterior wall of a building that is set along a frontage line.

Facade, **primary**: a side of a building that faces a public or private right-of-way or roadway or has the primary customer entrance. (A building may have more than one primary facade.)

Facade, **secondary**: a side of a building that is not a primary facade and either is visible from a public or private right-of-way or roadway or has a secondary or tertiary customer entrance. (A building may have more than one secondary facade.)

Fence: a structure that functions as a boundary or barrier for the purpose of safety to prevent entrance, to confine, or to mark a boundary.

Frontage, building: the length of that portion of a building facing a public space, such as a road.

Frontage line: a property line bordering a public frontage. Facades facing frontage lines define the public realm and are therefore more regulated than the elevations facing other property lines.

Frontage, principal: that frontage facing the public space such as a road of higher pedestrian importance (i.e., traffic volume, number of lanes, etc.).

Frontage, private: the layer between the frontage line and the principal building facade. The structures and landscaping within the private frontage may be held to specific standards regarding the depth of the setback and the combination of architectural elements such as arcades, stoops and forecourts.

Frontage, public, means the area between the curb of the vehicular lanes and the frontage line or property line. Elements of the public frontage include the curb, sidewalk, planter, street tree, streetlight, street furniture, etc.

Frontage, property: the length of the property line along the public right-of-way on which the property borders. “Right-of-way” does not include right-of-way of a limited access highway, unopened right-of-way, vacated right-of-way, easements, and retention ponds.

Frontage, retail: frontage designated on a detailed plan that requires or recommends the provision of a storefront, encouraging the ground level to be available for retail use.

Frontage, secondary: that frontage facing the public space such as a road that is of lesser pedestrian importance (i.e., traffic volume, number of lanes, etc.).

Gallery: a covered walkway attached to a building and supported on at least one side by columns with no enclosed building space above.

Garage: A single story structure for housing a motor vehicle.

Garden, Formal: A formal garden is a garden with a clear structure, geometric shapes and in most cases a symmetrical layout.

Glazing: the glass portion of a wall or window.

Green: an open space type for unstructured recreation, spatially defined by landscaping rather than building frontages. See Open Space Types Table

Green Roof: a layer of vegetation planted over a waterproof membrane. Additional features of green roof includes support for irrigation and also some type of root management.

Landscape Screen: visually shielding or obscuring one structure or use from another with densely planted vegetation.

Liner building: a building or part of a building with habitable space, specifically designed to face a public space, masking an inactive use, such as, but not limited to, a parking lot, parking garage or storage facility.

Live-work: a property that contains a commercial, office, or light industrial component and a residential component. The work component should be less than fifty percent (50%) of the total floor area.

Lot coverage: the area of the lot occupied by all buildings, excluding structures such as decks, pools, shades, and pergolas.

Lot depth: the distance measured from the midpoint of the front line to the midpoint of the opposite rear line of the lot.

Lot, **interior**: a lot other than a corner lot.

Lot width: the horizontal distance between the side lot lines, measured at right angles to the depth at the front setback line.

Monument sign: see “Ground sign.”

Office: a building / floor space in which administrative, business, clerical or professional activities are undertaken. Visits by members of the public are accessory to the main activity of the occupier.

Open space type: open spaces organized by their physical characteristics, including size, location, and surface material.

Parcel: a part or portion of a development which may be synonymous with a lot.

Park: a tract of land within a municipality or unincorporated area which is kept for ornament and/or recreation and which is maintained as public property.

Parking Structure: Syn Parking Garage.

Passage: a pedestrian connector, open or roofed, that passes between buildings to provide shortcuts through long blocks and connect rear parking areas to frontages. They are public open spaces restricted to pedestrian use that also connect roads and other public use spaces.

Pedestrian ways: a clear pathway restricted to pedestrian use.

Planter: the element of the public frontage, which accommodates street trees, whether continuous or individual.

Plaza: an open space type designed for civic purposes and commercial activities in the more urban zoning districts, generally paved and spatially defined by building frontages.

Pocket park: an open space designed and equipped for the recreation with both natural surfaces and shaded areas and used for both passive and active activities. Pocket parks are the most frequent open space located within 1/4 mile of residents.

Porch: an open air space attached to a building, with floor and roof, but no walls on the side, usually facing frontages.

Private realm: the portions of the urban fabric that are behind the facades of a private building. The private realm constitutes the bulk of the urban fabric.

Project(ion): to break the plane of a vertical or horizontal regulatory limit with a structural element, so that it extends into a setback, into the public frontage, or above a height limit.

Projecting sign: a sign affixed to a building which projects in such a manner that both sides of the sign are visible.

Property line: means the boundary that legally and geometrically demarcates a lot.

Public and Civil (Use): see Escambia County definition

Public realm: those parts of the urban fabric that are held in common, either by physical occupation or visual association. This includes, but is not limited to open spaces, roads, public and private frontages and community facilities. On a road, the public realm is the entire space formed by the enfronting buildings.

Public right-of-way: see “Right-of-way, public.”

Regulating Plan: a plan that designates standards that new development is required to incorporate, as appropriate.

Right-of-way: a public or private easement for land, air space above the land, or area below the surface used for vehicular, pedestrian, transit or other right of passage, including a street, alley or crosswalk.

Right-of-way, public: land held publicly between property lines, including the sidewalks, on-street parking area, and the roadway, street and/or highway.

Screening: visually shielding or obscuring one structure or use from another by a liner building, fencing wall or densely planted vegetation.

Setback: the area of a lot measured from the property line to a building facade or elevation that is maintained clear of permanent structures, with the exception of allowed projections.

Setback, front: the area of a lot measured from the property line to the building facade along the principal frontage, that is maintained clear of permanent structures, with the exception of allowed projections.

Setback, rear: the area of a lot measured from the rear property line to the building elevation, that is maintained clear of permanent structures, with the exception of allowed projections.

Setback, side: the area of a lot measured from the side (secondary frontage) and/or shared, interior property lines to the building elevation, that is maintained clear of permanent structures, with the exception of allowed projections.

Shallow Yard: a frontage yard type with the building close to the primary frontage.

Shopfront: a frontage used for retail use, with glazing. The facade is often close to the property line with the building entrance at sidewalk grade. (Syn. Storefront)

Sign: any surface, fabric, device, name, identification, image description, message, display or illustration using graphics, symbols, words, letters, or numbers which is affixed to, painted on, or represented directly or indirectly upon a building, structure, or parcel of property, and which directs attention to an object, product, place, activity, facility, service, event, attraction, person, issue, idea, institution, organization, development, project, or business for the purpose of advertising, identifying or conveying information to the public. The definition of sign shall not be construed to mean a sign located in the interior of any building or structure which sign is not visible from outside the structure. A sign may include the sign face and sign structure.

Sign face: the part of a sign, including trim, embellishments, and background which contains the copy.

Square: an open space type designed for unstructured recreation and civic purposes, spatially defined by building frontages and consisting of paths, lawns, and trees formally disposed.

Stoop: where the facade is aligned close to the frontage line with the first story elevated from the sidewalk for privacy, with an exterior stair and landing at the entrance.

Storefront: the front side of a store or store building facing a street.

Streetscape: the physical components of streets, the urban element that is the major part of the public realm, composed of: the street pavements for vehicles, bicycles and pedestrians; amenities such as trees and plantings, and furnishings such as streetlights, bollards and benches; and the visible fronts of abutting properties including fences, yards, porches, and facades.

Streetscreen: a freestanding wall built along the frontage line, or coplanar with a facade. (Syn: streetwall)

Temporary sign: a sign erected on a parcel of real property for a period of limited duration and for a specialized purpose.

Terminated vista: a location at the axial conclusion of a road. A building located at a terminated vista designated on a regulating plan is required or recommended to be designed in response to the axis.

Terrace: a level paved area or platform next to a building; (Syn: patio)

Road: a way for use by vehicular and pedestrian traffic and to provide access to lots and open spaces, consisting of vehicular lanes and the public frontage. (Syn: Thoroughfare, street)

Road Hierarchy: classification of roads based on their pedestrian-supportive qualities, destination and overall road network connectivity.

Urban Yard: A frontage yard type that is paved at sidewalk level and serves as an extension of the public sidewalk.

Vista: See Terminated Vista

Wall sign: a sign erected on the wall, cupola, or parapet of a building or structure in such a manner that only one side of the sign is visible, or a sign which is affixed to or painted on the wall, cupola, or parapet of a building or structure. A wall sign is sometimes referred to in this chapter as a fascia sign. The definitions of wall sign and projecting sign are mutually exclusive. (Syn: fascia sign)

Window sign: a sign, graphic, or design which is painted, mounted, or otherwise displayed within three feet of a window in a manner to present a message to or attract attention of the public on adjoining rights-of-ways.

Yield street: a road intended for very low speed two-way movement, facilitated by a roadway too narrow for two vehicles to pass each other, requiring one of the vehicles to move into the parking lane in order to allow the other vehicle to pass.

PREPARED BY DPZ CODESIGN

OLF-8 HYBRID PLAN

CIVIL AND ENVIRONMENTAL ANALYSIS

REVISION 2

SUBMITTED TO

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EXHIBIT
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EXECUTIVE SUMMARY

This document provides a summary of the Integrated Civil and Environmental Engineering analysis of the OLF-8 project with emphasis on Green Infrastructure implementation for stormwater management. The proposed Project covers approximately 540 acres all of which are currently undeveloped. The topography varies between 70- and 145-feet elevation in the North American Vertical Datum of 1988 (NAVD 88); however, most of the site is relatively flat or at elevations above 100 feet NAVD 88. The site's flat topography areas are appropriate for a broad range of urban development alternatives. The low areas are partially occupied by wetlands and are considered undevelopable land. A prior wetland delineation investigation (completed in 2019) established that approximately 23 acres of wetlands are present on site. Initial soil investigation shows that the site is covered by silty material with poor conductivity, and the groundwater table is lower than the surface except within the wetland areas. The proposed development and introduction of large impervious areas will potentially alter the hydrology for areas with greater building density, and there will be a need for stormwater management to minimize potential flooding and provide stormwater management and resolution of water quality issues.

The stormwater management approach discussed in this document relies on a system of interconnected and distributed stormwater storage infrastructure (lakes, dry ponds, and smaller green infrastructure components), and conventional stormwater conveyance components to ensure adequate management of the stormwater runoff. The project area was delineated into 11 watersheds based on topography, soil, and proposed infrastructure, and analysis was conducted to determine post-development runoff and define the most efficient configuration of the stormwater system which would minimize the runoff, increase aquifer recharge, and ensure compliance with water quality requirements. The urban plan introduced 11 lakes (with a total area of 24 acres ranging between 0.3 and 4 acres in size) and more than 80 dry ponds (with a total area of 32 acres ranging in size between 0.1 to 2 acres). The proposed wet and dry ponds are interconnected with overland and subsurface conveyances to distribute and treat water storage within the site. The system was conceptualized to maximize infiltration and aquifer recharge of excess runoff during storms.

The analysis provided in this document is based on land use provided in the hybrid master plan and is based on limited information for the infiltration properties of the soils as obtained from previous studies. In addition, the calculations are based on the initial grading of the site which may be subject to change if a different type of use is required. Additional adjustments of the stormwater storage components (wet and dry ponds) may be required for the final design based on possible modified requirements.

Considering that the project has environmentally preserved areas (the wetlands to the south, west, and north), one of the main objectives for the development of the site plan was implementing green corridors in the direction of the streams and the conservation areas in order to preserve to the greatest degree of hydrologic connectivity between the watersheds and to preserve the natural pre-development flow. The green corridors include a variety of Green Infrastructure and light Imprint components to accomplish this objective.

Based on the urban plan configuration, the stormwater system for the Hybrid Plan provides enough storage to attenuate post-development 100-year, 24-hour peak discharge rate to pre-development rates. Furthermore, the hybrid plan provides a conveyance system for a 25-year, 24-hour peak discharge rate. An additional optimization is proposed to the thoroughfare components (pavement, sidewalks, on-street parking) to implement semi-impervious materials where possible.

The project has favorable topography for eliminating, to a great extent, the subsurface stormwater system and utilizes a variety of Green Infrastructure components for stormwater management. Therefore, one of the objectives was to propose a site plan which has minimal impervious infrastructure and the optimal surface of semi-impervious areas (parking lots, low traffic areas). The green infrastructure components reduce the need for conventional stormwater infrastructure and lower the costs and ensure the best environmental performance of the project.

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1 INTRODUCTION

1.1 Site Hydrology

The OLF-8 property is located within Sections 4 and 5, Township 1 South, Range 31 West in Escambia County, Florida. The OLF-8 site provides an opportunity for a new development that is environmentally sustainable and resilient, compact, diverse, and well-connected. The overall approach for civil and environmental engineering is to protect resources and reduce construction and operating costs in the long run by using sustainable civil engineering practices that are coordinated with urban design.

1.1.1 Topography

The topography for this project was derived from the Digital Elevation Model (DEM) containing a georeferenced digital representation of the ground surface elevations providing the vertical position above NAVD 88 in feet. Data is encapsulated in grid format (raster), based on Light Detection and Ranging (LiDAR) for ground elevations and conventional surveys for canal cross-sections.

The topography varies from 70 to 145 feet elevation in the North American Vertical Datum of 1988 (NAVD 88); however, most of the site is primarily flat and at elevations above 100 feet NAVD 88. With less than 15% of the site area at an elevation less than 100 feet, the site has favorable topography for a broad range of urban development; additionally, this area is primarily occupied by wetlands and considered undevelopable land, Figure 1. The figure shows ground surface elevations, adjacent parcels, wetlands, and existing drainage ponds.

The pre-development drainage from the site flows via natural land depressions and channels to wetlands and into perennial streams located on the southern and eastern boundaries. Surface runoff from the site is routed to Eleven Mile Creek, which is located approximately 4,500 feet to the east boundary as shown in Figure 1. Rainfall that exceeds the infiltration capacity of soils, results in surface runoff that is routed to drainage channels in the southern and eastern portions of the site. These channels ultimately discharge into Eleven Mile Creek.

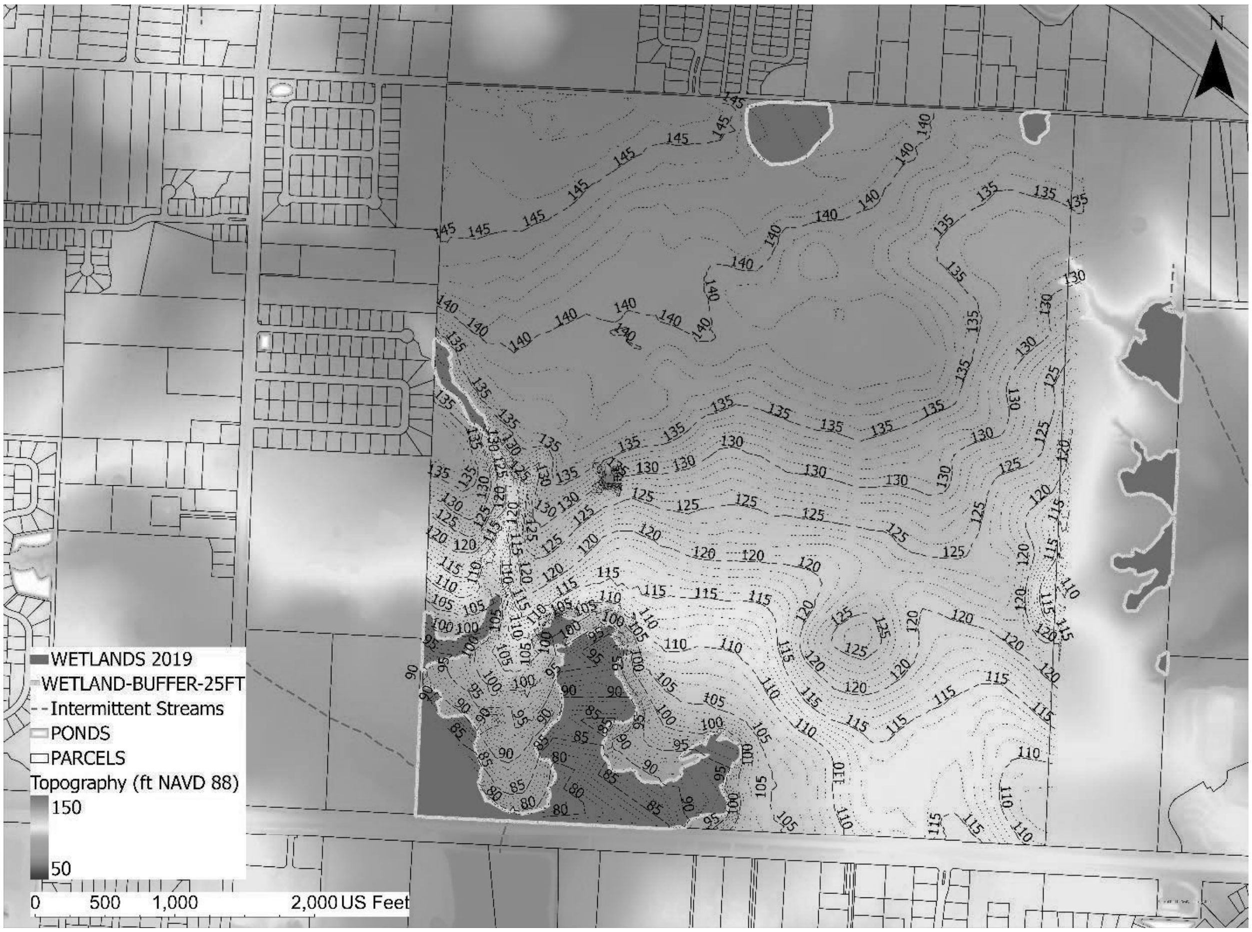


Figure 1 Site Topography in feet North American Vertical Datum of 1988

The site has natural drainage patterns, and no impervious areas exist to inhibit the natural recharge of the aquifer. Without comprehensive stormwater management, urban development will result in increased runoff from the impervious areas. Left untreated, these areas reduce aquifer recharge and increase stormwater surface runoff during rainfall events. Context-sensitive stormwater strategies are recommended to decrease the run-off peak postconstruction and avoid increasing pollutants downstream.

The natural slope for most of the project area (84.6% of total acreage) is below 5 % (Figure 2). Areas with slopes between 5% and 15% are less than 3.7 % of total acreage.

Areas with slopes steeper than 15% are less than 11.7 % of total acreage and are in the southwest corner of the project domain where wetlands also additionally exist therefore this land is not suited for development. In summary, the topography across the site, except for the SW corner, poses no constraints to urban development.

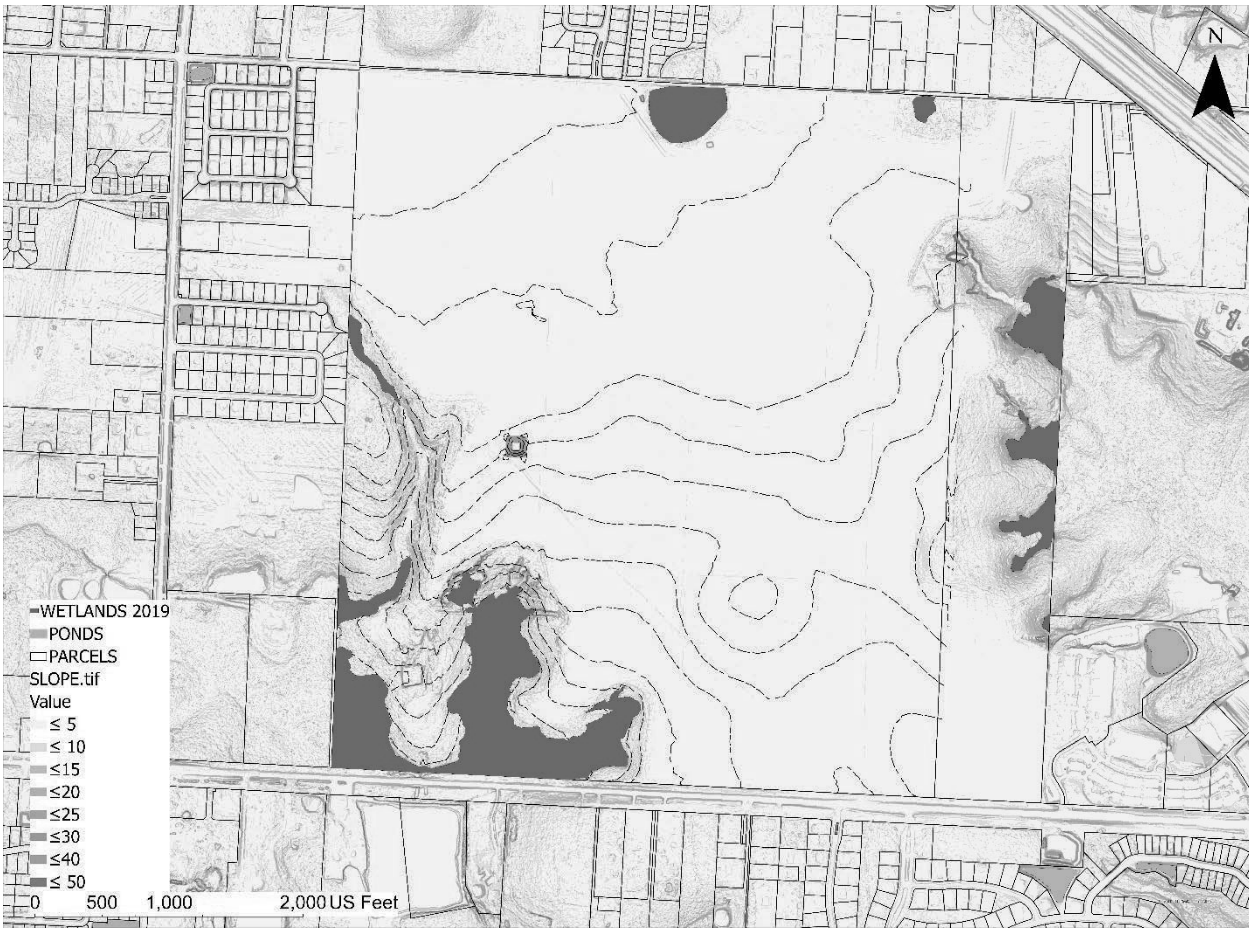


Figure 2 Ground surface slopes, adjacent parcels, wetlands, and existing drainage ponds.

The proposed urban development will result in the addition of impervious and semi-impervious areas, which will reduce aquifer recharge and will increase stormwater surface runoff during rainfall events generating higher runoff peaks and volumes and increasing pollution downstream. The impervious and semi-impervious areas can be classified in the following categories based on their perviousness and accessibility:

i) Impervious surfaces mainly from building roofs and footprints.

ii) Semi-impervious surfaces with public access, including light traffic roads, sidewalks, parking areas, and other public spaces.

iii) Pervious green infrastructure components are designed to provide stormwater storage including green areas, parks, detention areas, stormwater trees (trees with the capacity to accommodate runoff), this includes natural preserves. These areas are located within the blocks in proximity to the buildings and are used for stormwater retention.

iv) Pervious natural green areas, which are preserved in their native state.

To ensure that the overall site hydrology is preserved, the urban plan implements multiple strategies to reduce the impacts of impervious areas such as:

i) Reduce impervious areas to reduce surface runoff and increase the aquifer recharge

ii) Increase on-site storage to retain stormwater to maintain the pre-development drainage hydrology

iii) Use native vegetation to reduce stormwater runoff velocities, increase evapotranspiration, and improve water quality

iv) Provide a series of inline cascading storage features (dry, wet, and retention ponds) to attenuate post-development peak runoff and provide water quality treatment, while providing watercourse park amenities

1.1.2 Groundwater

The project is a greenfield site and there are no areas with known groundwater pollution, therefore, infiltration and use of surface drainage features are not expected to mobilize groundwater contamination. Tests provided most recently, January 2019, showed no presence of organic pollution in groundwater. The depth to groundwater beneath the project site during the wet season indicates available storage for infiltration even though the infiltration rates could be slow.

The surficial aquifer is underlain by the sandy to clayey surficial horizons of the Citronelle Formation that are time-equivalent to the hydrogeologic Sand & Gravel Aquifer. The Sand

& Gravel Aquifer is 275 to 300 feet thick in this area (Wilkins, et. al., 1985). In Southern Escambia County, the Sand & Gravel Aquifer is the source of all domestic and municipal water in Pensacola (ECUA, 1987).

1.1.3 Wetlands

A wetland Delineation investigation was completed in 2019 (Figure 3). The investigation established that the wetlands are comprised of four distinct ecological communities, wetland bay gall, wetland shrub bog, wetland dome swamp, upland mesic hardwoods, and disturbed uplands.

Figure 3 Wetland Delineation (2019)

The previous delineation from 2013 identified approximately 23.21 acres of palustrine wetlands (rooted in water but growing above the surface) along the northern, eastern, and southwestern borders of the site. Approximately 0.08 acres of emergent wetlands exist along the western border of the property. Upland and forested drainage channels are present, draining to the wetlands.

Approved jurisdictional determination for 17.08 acres of the wetlands along the west, South, and Eastern boundaries was issued by the USACE in April of 2013 due to their drainage to Eleven Mile Creek, which is a tributary to traditionally navigable water. Wetlands along the northern border of the property are classified non- jurisdictional because these areas (6.05 acres) are isolated from, or not adjacent to traditional navigable water or other waters of the U.S. Upland buffers with a minimum width of 15-feet and an average width of 25-feet shall be provided abutting those wetlands under the regulatory jurisdiction of the State of Florida under 62-340. A 10-feet average upland buffer shall be required for development activities that avoid impacts to wetlands.

1.1.4 Soils and Infiltration

The soil types within the County were determined from the United States Department of Agriculture (USDA) Natural Resources Conservation Service's (NRCS) Soil Survey and are known as Soil Survey Geographic (SSURGO) and State Soil Geographic (STATSGO2) databases (ref 2).

The SSURGO2 database contains information about soil which can be displayed in tables or as maps. The information was gathered by walking over the land and observing the soil and by laboratory analysis. The maps outline areas are called map units and are linked in the database to information about the component soils and their properties for each map unit.

Each map unit may contain one to three major components and some minor components. The map units are typically named for the major components. Examples of information available from the database include available water capacity, soil reaction, electrical conductivity, and frequency of flooding; yields for cropland, woodland, rangeland, and pastureland; and limitations affecting recreational development, building site development, and other engineering uses.

Figure 4 NRCS Soil Survey

For a large portion of the project and natural conditions, the NRCS provides a classification of group A (Figure 4). As a result of urbanization, the underlying soil may be disturbed or covered by a new layer which may lower the infiltration capacity. Soils types with dual classifications (e.g., Type B/D) generally represent areas where there is a lens of poorly drained soils lying above a section of better draining soils. Typically, the lower (Type-D) classification is used to determine infiltration rates, unless the soil is disturbed, such as a field of row crops where it is likely the upper lens has been penetrated. Based on the investigation by Terracon the predominant soil type encountered on-site was silty to clayey fine-grained sand.

To determine the runoff and the infiltration rates and capacity, a hydrological model was based on the Curve Number (CN) methodology described in USGS published "Urban Hydrology for Small Watersheds (TR-55)". The CN is a dimensionless number depending on hydrologic soil group, cover type, treatment, hydrological condition, and antecedent moisture conditions. This number has a valid range from 0 to 100 with typical values between 60 and 90 for most encountered conditions and ranging up to 98 for impervious surfaces.

Soil classification is based on Hydrologic Soil Groups (HSG). Typical soil classifications are Types A (>10 in/hr infiltration rate), B (7-10 in/hr), C (5-7 in/hr) and D (less than 5 in/hr). For fully developed urban areas (vegetation established), the CN values were obtained from Urban Hydrology for Small Watersheds TR-55 and summarized in the following table:

Table 1 CN values for land use and hydrologic soil group

Land Use	Hydrologic Soil Group			
	A	B	C	D
Urban Areas				
Open Space Poor Condition (grass cover < 50%)	68	79	86	89
Open Space Fair Condition (grass cover 50 to 75%)	49	69	79	84
Open Space Good Condition (grass cover > 75%)	39	61	74	80
Developing Urban Areas				
Newly graded areas (pervious only, no vegetation)	77	86	91	94

The hydrologic soil group listed for each map unit was used to derive the Curve Number (CN).

- **Group A** is sand, loamy sand, or sandy loam types of soils characterized by low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission.

- **Group B** is silt loam or loam with a moderate infiltration rate when thoroughly wetted and consists mainly of moderately deep to deep, moderately well to well-drained soils with moderately fine to moderately coarse textures.
- **Group C** soils are sandy clay loam with low infiltration rates when thoroughly wetted and consist mainly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.
- **Group D** soils are clay loam, silty clay loam, sandy clay, silty clay, or clay characterized by the highest runoff potential. They have very low infiltration rates when thoroughly wetted and consist mainly of clay soils with a high swelling potential, soils with a permanent high-water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material.

For infiltration analysis, an Open Space Poor Condition (grass cover 50% to 75%) was used for assigning the CN values.

Three categories can be used to provide the impact of the preexisting soil conditions:

- ARC I (dry soils),
- ARC II (typical conditions)
- ARC III (saturated soil after heavy rainfall)

The analysis was based on ARC II (typical conditions), and therefore no adjustments to CN values were performed based on antecedent moisture conditions. The soil layer HSG types were joined to the corresponding CN values from Table 6, then spatially joined to the sub-watershed delineation to determine the weighted average CN value for each sub-watershed.

1.1.5 Flood Hazard Mapping

The National Flood Insurance Program (NFIP) is a federal program managed by the Federal Emergency Management Agency (FEMA) intended to reduce the impact of flooding on private and public structures by providing affordable insurance and encouraging communities to adopt and enforce floodplain management regulations aimed at mitigating the effects of flooding on new and improved structures. Flood hazard mapping and the Community Rating System (CRS) are key components of this program.

Flood hazard mapping is an important part of the NFIP, as it forms the basis of the NFIP regulations and flood insurance requirements. Data is maintained and updated through the FIRMs. The FIRM is the official map which that roads and map landmarks that shows the community's base flood elevations and delineated the flood zones and floodplain boundaries. To identify a community's flood risk, FEMA conducts a Flood Insurance Study. The study includes information on canal and stream flows, storm tides, hydrologic and hydraulic analyses, and rainfall and topographic surveys. FEMA uses this data to create the FIRMs that outline each community's different flood risk areas.

FEMA performs a Flood Insurance Study (FIS) to investigate the existence and severity of flood hazards. An initial countywide Flood Insurance Study (FIS) was done on January 21, 1998, and later revised on February 23, 2000, July 17, 2002, on September 29, 2006, and most recently October 2019 (ref 1). FIRMs are available online at the following web address: https://msc.fema.gov/portal/home.

The project site is in FEMA's flood Zone X, which is designated as an area of minimal flood hazard, as per the FEMA Floor Insurance Rate Map (FIRM) Map No, 12033C0290G which is effective as of October 2019. Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain where average depths are less than 1 foot.

The project is not located within FEMA-designated special flood hazard areas. The entire site is in zone X (Figure 5), designated for minimal flood hazard, and located outside the Special Flood Hazard Area and at higher than the 0.2-percent-annual-chance flood.

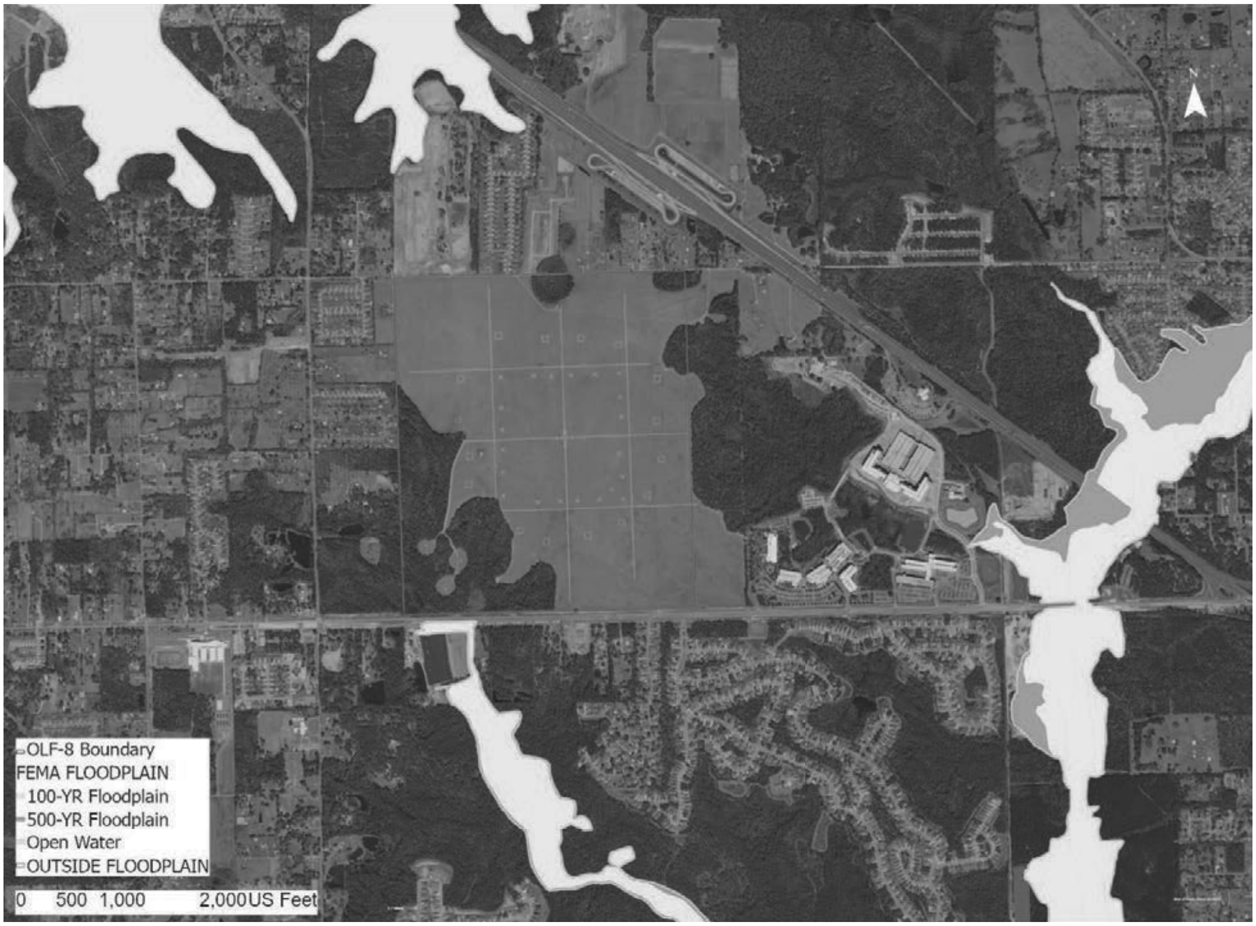


Figure 5 FEMA Flood Hazard Zones, October 2019

Flooding in Escambia County results primarily from tidal surges and the overflow of streams and swamps associated with rainfall-runoff. Major rainfall events occur because of hurricanes, tropical storms, and thundershowers associated with frontal systems. Some of the worst floods to occur in this area were the result of high-intensity rainfall during a hurricane (particularly in 2020, Hurricane Sally nearly 30” inches of rain were recorded within a few days and with maxim 3 -day rainfall (ref 3).

1.2 Environmental Characteristics of the Site

A summary of potential environmental site development characteristics and constraints of the site which was provided in the limited environmental assessment completed in 2019 is provided in Table 2. Eleven Mile Creek has an established TMDL for fecal coliform, a contaminant that results from a variety of non-point sources (failed septic systems, livestock, wildlife, and domestic animals).

Table 2 Summary of Potential Site Development Constraints

Resource Area	Constraints Anticipated	Additional Notes
Air Quality	No	No significant impacts are anticipated. No mitigation measures are warranted to reduce impacts to less than significant levels.
Water Resources	Yes	Jurisdictional Wetlands Delineated on site (approximately 17 acres), Requirements: No impacts required or mitigation measures with USACE Surface runoff currently discharging into Eleven Mile Creek Drainage Basin with TMDL requirements. The site will implement comprehensive stormwater plan to retain and treat stormwater runoff. Site will implement retention on site and will not generate pollutant discharges
Geological Resources	No	Topography, Geology and Soils, no impacts expected, Depending on the extent of the civil infrastructure, modifications of topography for grading will be needed at locations with land depressions possibly in the SW section of the site
Cultural Resources	No	No Archaeological, Architectural resources and traditional communities identified
Biological Resources	No	No threatened, endangered, and other special status species, including vegetation, terrestrial wildlife identified Only Gopher Tortoise was observed on site out of 17 potential species Wooded areas have potential for several other species, including birds
Noise	No	Nearest sensitive land use is residential houses which are located within the residential subdivisions known as Brunson Meadows and Blackberry Ridge
Infrastructure	No	Potable water for OLF Site 8 is municipally supplied, no on-site potable water wells are located on or utilized by the property Wastewater generated at OLF Site 8 is managed on-site via a sanitary septic system connected to existing buildings plumbing systems Surface water runoff infiltrates or is discharged eventually to Eleven Mile Creek, the site will implement comprehensive stormwater management plan to retain and treat stormwater on site Solid waste managed by ECUA
Hazardous Materials and Wastes	No	Regulations governing the handling and storage of petroleum products have been implemented on current site and no contamination has been recorded

2 STORMWATER MANAGEMENT

Man-made infrastructure and buildings can significantly modify the distribution of the water fluxes and contaminating the water and soil resources. Impervious surfaces intercept precipitation and affect the natural hydrological cycle by: a) Redirecting a significant portion of the precipitation to stormwater management facilities and reducing recharge of the aquifer, b) Increasing evaporation from impervious surfaces, and c) Polluting the surface runoff water.

Increased quantities of lawn nutrients, urban pesticides, rooftop runoff, and the first flush of stormwater, contamination by heavy metals, suspended and deposited sediments, and biocontamination are additional factors that are attributed to urbanization and urban pollution. The typical impact of the built environment is the deterioration of ecosystems and declining biodiversity.

Watersheds contain the human habitat and preservation of the services provided by the watersheds, including water quality and quantity; biodiversity and assimilative capacity are essential for sustainability. The continuous expansion of the infrastructure of human society increases the stress and impacts the natural, sustainable conditions of the watersheds. Minimization of the impact of the built environment is critical for maintaining the ecological balance and biodiversity of ecosystems within a watershed. Watersheds contain the human habitat; therefore, preservation of services (water quality and quantity, biodiversity, and assimilative capacity) are essential for sustainability.

In a natural setting, the following hydrologic functions occur:

- **Rainfall interception:** In a vegetated watershed, the surfaces of trees, shrubs, and grasses capture initial light precipitation before it reaches the ground. The interception of precipitation can delay the start and reduce the volume of stormwater runoff.

- **Shallow surface storage which is available for storage:** The shallow pockets present in natural terrain store rainfall and stormwater runoff, filter it, and allow it to infiltrate. This shallow surface storage can delay the start and reduce the volume of stormwater runoff.
- **Evaporation and transpiration:** Evapotranspiration, reduce the volume of stormwater runoff, locally return moisture into the atmosphere, and provide local cooling effects. Evapotranspiration occurs mainly through the foliage and preserving the vegetation to the maximum extent is beneficial. In addition, plants act as a pump extracting groundwater and releasing it into the air, thus keeping available infiltration storage.
- **Infiltration:** Infiltration is the movement of surface water down through the soil pores into groundwater. This movement provides natural treatment by filtration, reduces the volume of stormwater runoff, and replenishes groundwater supplies.
- **Runoff:** Runoff is the flow of water across the land surface that occurs after rainfall interception, surface storage, and infiltration reach capacity. In natural settings, most of the precipitation is either infiltrated into the soil or lost to evapotranspiration.

2.1 Urbanization and Development

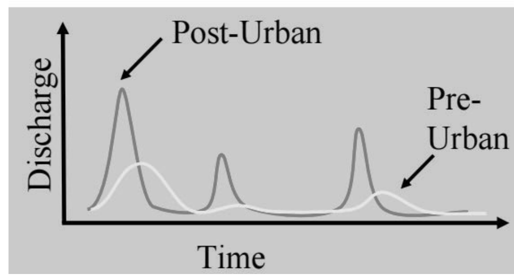
With urbanization and development, previous surfaces (such as forests and meadows) are converted into impervious areas (i.e., building footprints, driveways, parking lots), and the percentage of precipitation that becomes stormwater runoff increases. The impact of such conversion includes:

- Higher peak flow rates and stormwater runoff volumes produced by storms (Figure 6).
- Increased concentrations of nutrients, toxic pollutants, and bacteria in surface receiving waters, including adjacent land and habitat creeks, estuaries, and storm drain outlets.
- Decreased wet season groundwater recharge due to a reduced infiltration area.
- Increased dry weather urban runoff due to outdoor irrigation.

- Introduction of base flows in ephemeral streams due to surface discharge of dry weather urban runoff (i.e., irrigation runoff);
- Increased stream and channel instability and erosion due to increased stormwater runoff volumes, flow durations, and higher stream velocities
- Increased stream temperature, which decreases dissolved oxygen levels and adversely impacts temperature-sensitive aquatic life, due to loss of riparian vegetation as well as stormwater runoff warmed by impervious surfaces.

A summary of post-urban impacts includes:

- Increased Peak Flow
- Increased Overall Discharge
- Reduced Infiltration
- Reduced Storage in Soil
- Reduced Evapotranspiration
- Considerably faster stormwater events
- Loss of water
- Stream Erosion
- Discharge of contaminants



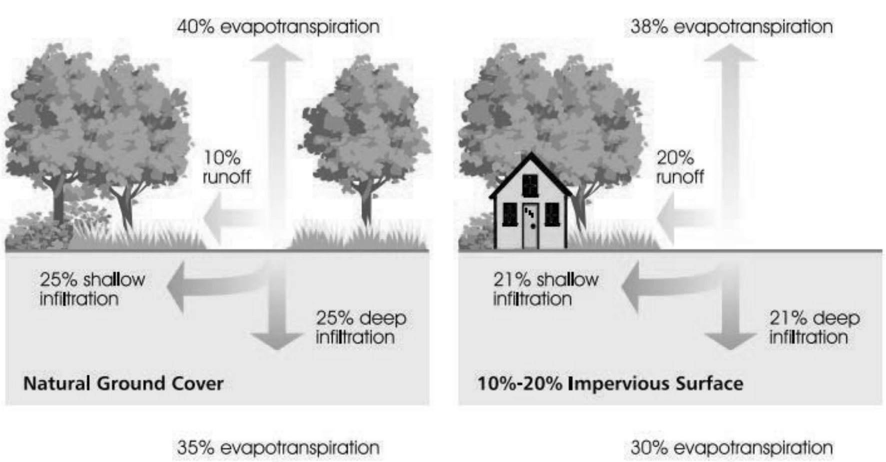


Figure 6 Changes of hydrologic distribution of water flux caused by urban environments (USGS)

2.2 Local Requirements and Guidelines

As per Section 3.3.1 of Environmental Resource Permit Applicant's Handbook Volume II, applicants may propose to utilize applicable storm event, duration, or criteria specified by a local government, a state agency (including FDOT), or stormwater utility with jurisdiction over the project.

Escambia County Land Development Code requires projects to provide attenuation of the runoff from a 100-year critical duration event, up to and including 24-hour duration so that the post-development runoff rate does not exceed the pre-development runoff rate when a positive discharge route is present.

2.3 Onsite retention criteria

To retain the 100-year 24-hr volumes and the difference between pre-and post-development runoff, for 25-year a-day event rainfall volumes, the stormwater system includes a series of distributed retention ponds. Depending on the anticipated density and total impervious areas, the approximate fraction of retention areas may range between 5% up to 15% for very low to high density. Retention-based stormwater quality control measures are more effective on level or gently sloped sites than steeply sloped sites, therefore, the retention green infrastructure components should preferably be placed in the flatter and lower areas to allow drainage by gravity. To accomplish zero stormwater discharge by retaining the maximum quantities of stormwater onsite, the following two strategies will be adopted:

- Use of lakes - the storage is determined based on the water level within the lake and the elevation of the freeboard;
- Use of natural preserves - the storage is determined based on the groundwater level and the elevation of the freeboard;

The configuration of the wet retention ponds will be carefully calibrated for the different master plans. Lakes and wet retention ponds best practices include recommendations include:

- The center portion of any man-made lake should be excavated deep enough to maintain a water depth greater than 10 feet.
- Constructed at a minimum of twenty-five feet distance from existing or proposed residence, other structures, or road right-of-way.
- Constructed at a minimum of fifty feet from existing or proposed soil absorption, on-site, sanitary waste disposal system.
- The perimeter of the man-made lake, pond, or waterway is landscaped and seeded after completion of the excavation.
- Excavated material from the site is shaped and spread to blend with the natural landforms in the area.
- Natural run-off and/or other waterway fed are the only water sources allowed for the man-made lake, pond, or waterway
- The constructed man-made lake, pond, or waterway meets the requirements of the local floodplain ordinance.

2.4 Preservation of Natural Features and Conservation:

Preservation of natural features, listed in Table 3, includes methodologies to identify and preserve natural areas that can be used to protect water, habitat, and vegetative resources. Conservation includes designing elements of the development in a way that the site design takes advantage of a site’s natural features, preserves sensitive areas, and identifies constraints and opportunities to prevent or reduce negative effects of development. An evaluation of the preservation of natural features and conservation planning practices is provided in Table 3:

Table 3 Methodologies for Preservation of Natural Site Features

Practice	Description
Preservation of Undisturbed Areas	Delineate and place into permanent conservation undisturbed forests, native vegetated areas, riparian corridors, wetlands, and natural terrain.
Preservation of Undisturbed Areas	Define, delineate, and preserve naturally vegetated buffers along perennial streams, rivers, shorelines and wetlands.

Preservation of Undisturbed Areas	Limit clearing and grading to the minimum amount needed for roads, driveways, foundations, utilities and stormwater management facilities.
Preservation of Undisturbed Areas	Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources.
Preservation of Undisturbed Areas	Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of post construction practices.

2.5 Reduction of Impervious Areas:

Reduction of impervious cover includes methods listed in Table 4 is accomplished by minimizing the number of rooftops, parking lots, roadways, sidewalks, and other surfaces that do not allow rain to infiltrate into the soil. An evaluation of the reduction of impervious cover techniques is provided in Table 4.

Table 4 Reduction of Imperivous Areas

Practice	Description
Roadway Reduction	Minimize roadway widths and lengths to reduce site impervious area
Sidewalk Reduction	Minimize sidewalk lengths and widths to reduce site impervious area
Parking Reduction	Reduce imperviousness on parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, minimizing stall dimensions, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate.

2.6 Future demand

Identify and estimate future demand and corresponding facilities required to serve projected local and regional growth

Develop and implement the Master Plan of Drainage for the near and long-term protection of the community and its residents

The analysis of the proposed master plan was performed using three scenarios:

- Analysis of preexisting conditions (Pre-Development)
- Analysis of post-development of each delineated watershed (Post-Development Conventional)
- Analysis of post-development of the entire site including Green Infrastructure. (Post-Development Green Infrastructure)

Green engineering is an important component in this master planning effort. The purpose of Green Infrastructure is to reduce total surface runoff and peak discharge rates, and duration of flow using site design and stormwater quality control measures. The benefits of reduced stormwater runoff volume include reduced pollutant loadings and increased groundwater recharge and evapotranspiration rates.

Stormwater quality control measures that incorporate green infrastructure principles will be placed throughout the site in small, discrete units and distributed near the source of impacts. Green Infrastructure strategies designed to protect surface and groundwater quality, maintain the integrity of ecosystems, and preserve the physical integrity of receiving waters by managing stormwater runoff at or close to the source will be expected.

Based on preliminary site understanding and conditions, the main green infrastructure strategies may include the following:

- use of bioretention/infiltration landscape areas,
- disconnected hydrologic flow paths,
- reduced impervious areas,
- functional landscaping, and grading to maintain natural hydrologic functions that existed before development, such as interception,
- shallow surface storage,
- infiltration, evapotranspiration, and groundwater recharge.

By implementing Low Impact Development (LID) strategies, this project site will be designed to be an integral part of the environment by maintaining undeveloped hydrologic functions through the careful use of stormwater quality control measures.

The runoff will be routed downstream through green infrastructure components, which provide additional storage and retention of the stormwater. The master plan will require optimization of the thoroughfare components (pavement, sidewalks, on-street parking) and implementation of pervious materials where possible. Proper implementation of green infrastructure requires detailed grading and analysis of the conveyance capacities of the system.

For this project, context-based strategies for a gradual transition from natural to urban settings are implemented and a set of relevant Light Imprint and green infrastructure tools were optimized for each character area. Retention-based stormwater quality control measures were developed. Space for distributed stormwater quality control measures will be planned and implemented throughout the project site. This may influence the configuration of roads, buildings, and other infrastructure. Flood control will be considered early in the design stages and control measures will be implemented to minimize stormwater runoff storm events that may exceed the design storm events.

3 ANALYSIS OF POST-DEVELOPMENT HYDROLOGY

3.1 Site Planning

A review of previous hydrologic studies and available data was conducted to identify physical site constraints, reduce costs of downstream stormwater quality control measures, and prevent potential project site re-design.

The following design criteria have been considered during the early planning stages:

- Applied a multidisciplinary approach for site planning that included collaborative effort between planners, engineers, landscape architects, and architects at the initial phases of the project the Pre- and Post- Charrette.
- Considered retention-based stormwater quality control measures as early as possible in the site planning process. Hydrology was the main organizing principle integrated into the initial site assessment planning phases.
- Planned for the space requirements of stormwater quality control measures.
- Distributed stormwater quality control measures throughout the project site. This influenced the configuration of roads, buildings, and other infrastructure.
- Considered flood control early in the design stages with the understanding that even sites with stormwater quality control measures will still have stormwater runoff during large storm events that exceed the size of the design storm event.

The topography of the site requires careful adjustment of the road spatial locations to ensure:

- Road slopes and parcel slopes that are within requirements
- Minimization of earthmoving volumes
- Optimization of location and sizing of green infrastructure components

Proper grading is critical for the optimal operation of the green infrastructure components. Exemplary site grading for a commerce block is shown in Figure 7.

The site is graded away from the building's finished floors, and it is sloped down towards Bioretention swales. Similarly, roadways are designed to slope down from bid block towards intersections, where the intersections are at a low point (Figure 8 and Figure 9). Also, roadway cross-sections are designed to route stormwater towards the bioretention swales in the medians, where available.

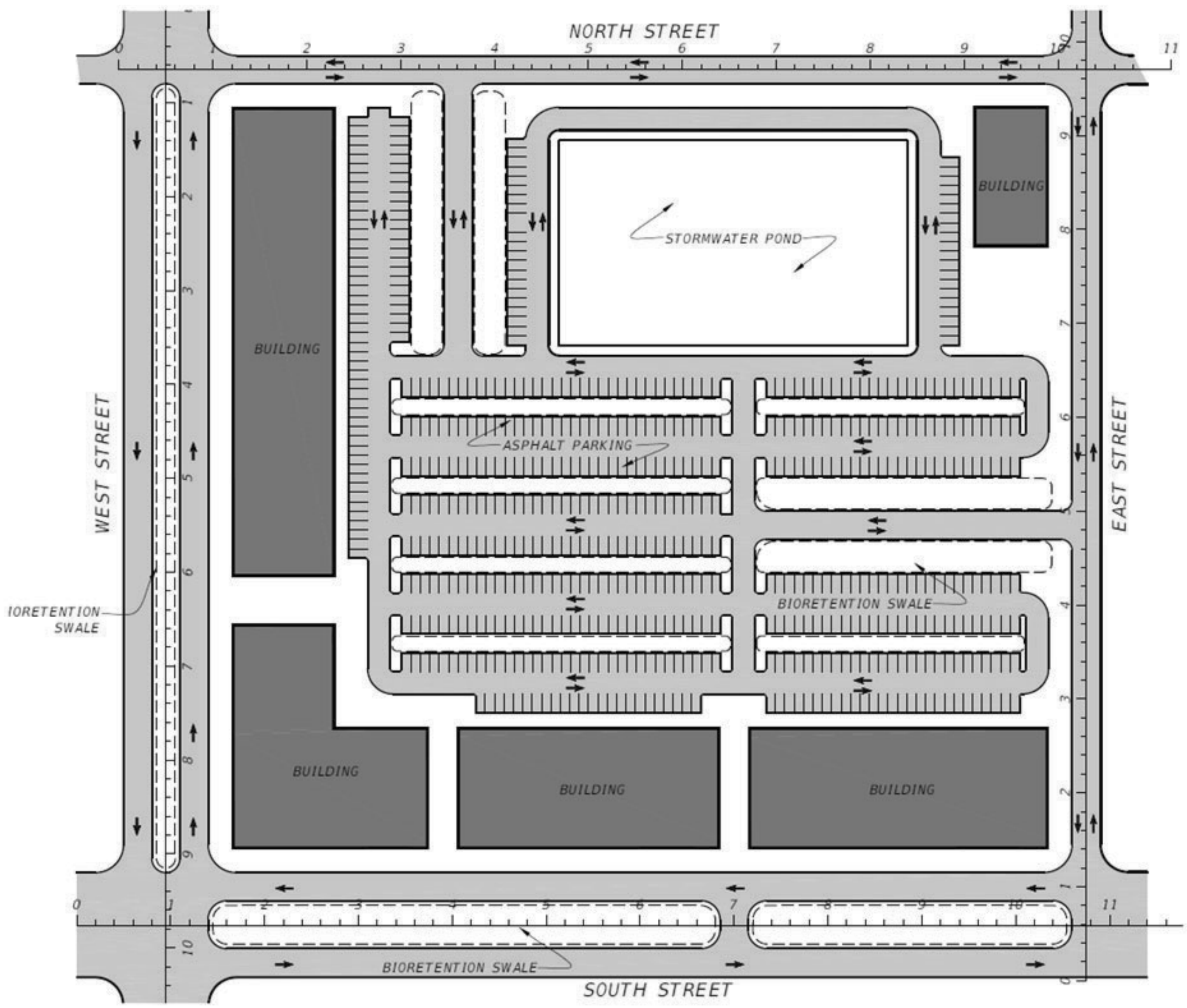


Figure 7 Site Plan for a Commerce Block

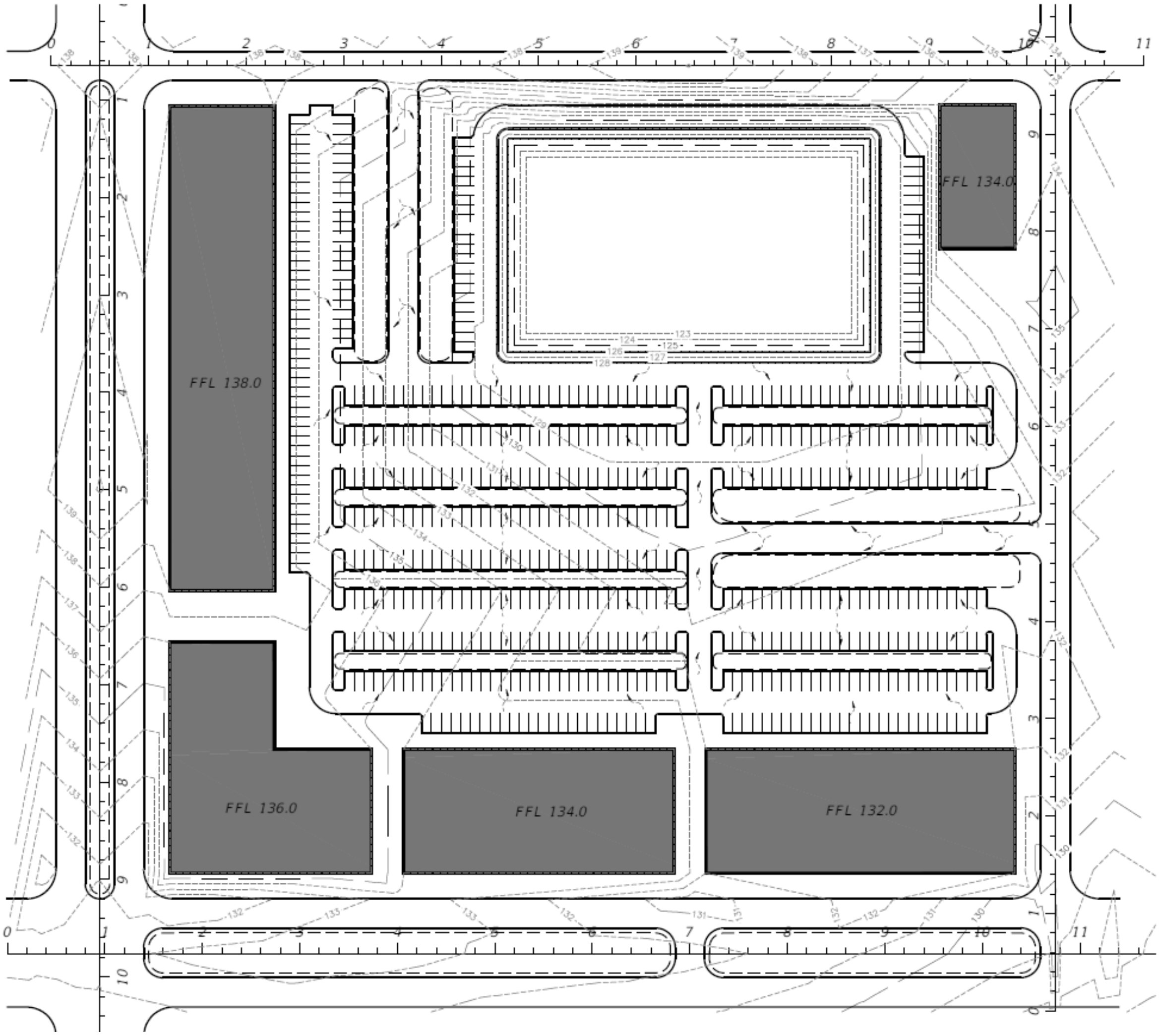


Figure 8 Grading Plan for a Commerce Block

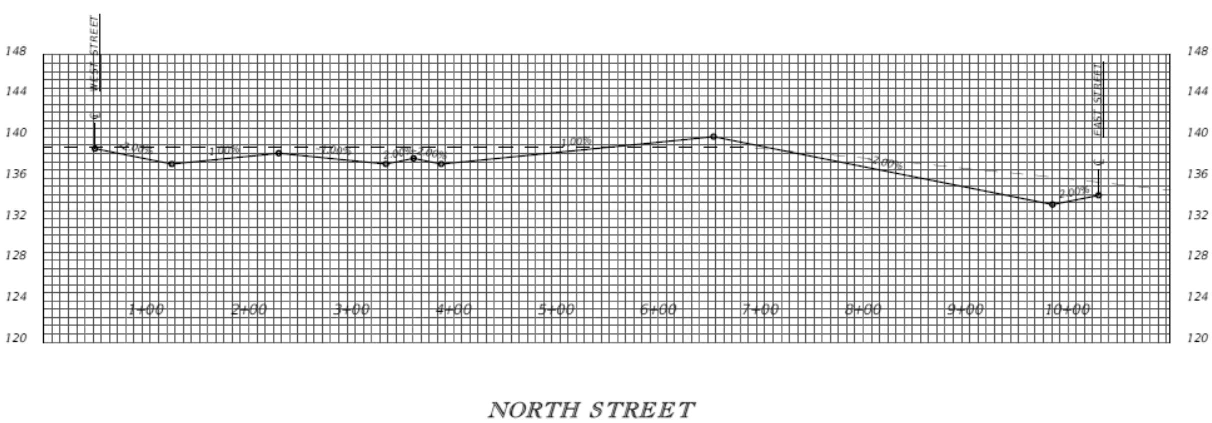


Figure 9 Typical Roadway Profile

3.2 Watersheds Delineation

The project has been delineated into 10 watersheds as shown in Figure 10. Each of these drainage basins will include green infrastructure techniques. The remaining highlighted watershed area at the southwest corner of the project is within the conservation limits and no development is proposed.

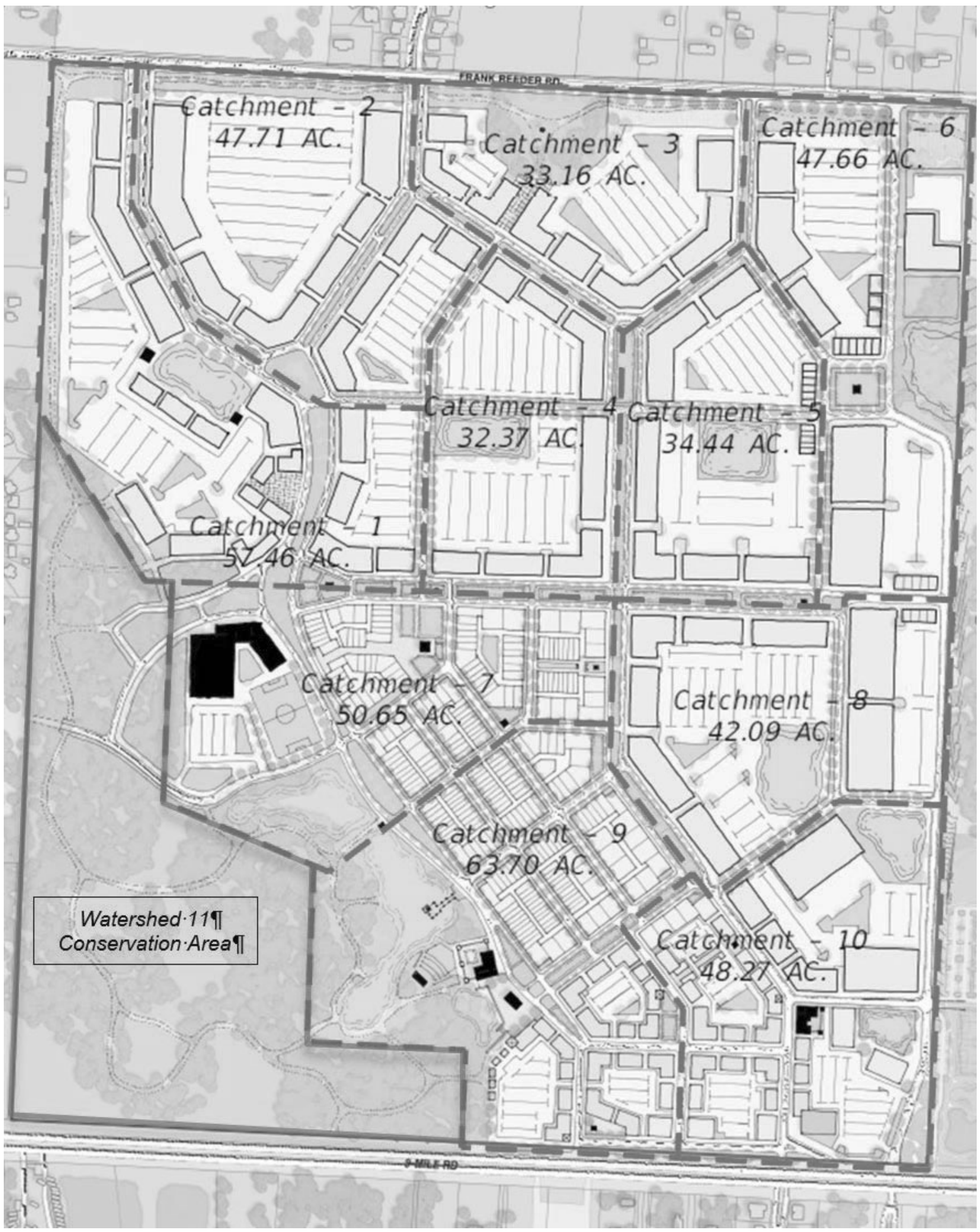


Figure 10 Post-Development Watersheds

The watersheds were delineated based on the topography and the proposed urban plan and pre-development drainage patterns with the intent of preserving the drainage direction. Based on the proposed master plan which provided conceptual location and sizing of green areas, lakes, and proposed buildings, the following table represents the areas that significantly impact the stormwater management, distribution, and mitigation.

Table 5 Summary of Dry Ponds, Lakes and Buildings Areas.

Watershed	Dry Ponds (acre)	Lakes (acre)	Buildings (acre)
Watershed 1	2.87	2.29	10.12
Watershed 2	3.59	0.30	9.55
Watershed 3	6.30		6.35
Watershed 4	0.63	2.27	5.29
Watershed 5	3.66	2.38	6.14
Watershed 6	3.00	2.60	10.04
Watershed 7	7.10	2.86	12.41
Watershed 8	1.67	3.01	9.85
Watershed 9	2.47	5.61	13.96
Watershed 10	1.14	2.55	11.20
Watershed 11*	0.99		
Total (acres)	**33.43**	**23.88**	**94.92**
* Watershed 11 covers the conservation area with no proposed development			

To total acreage was used to develop input files for the stormwater analysis.

3.3 Design Storm Events

The following are the design storm events are used for the design of the project. Storm events are referencing NOAA precipitation frequency estimates with 90% confidence intervals.

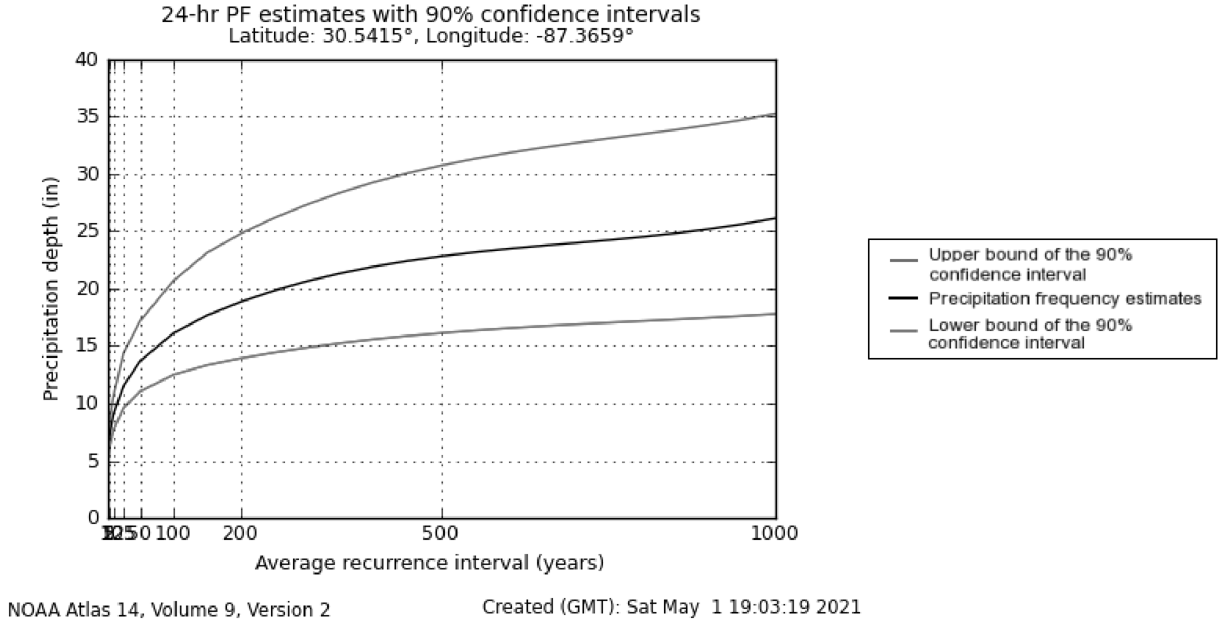


Figure 11 NOAA Precipitation Frequency Estimates

The recurrence intervals for 24-hour event and the rainfall depth are provided in the list below:

1 – Year, 24 Hour: 5.11“
5 – Year, 24 Hour: 7.47”
10 – Year, 24 Hour: 9.02”
25 – Year, 24 Hour: 11.5”
50 – Year, 24 Hour: 13.7”
100 – Year, 24 Hour: 16.2”

The predevelopment surface drainage patterns follow the topography. Additional infrastructure will be needed to improve the drainage of the flat areas and should be maintained to keep flood potential low.

The drainage basin Time of Concentration (TOC) is the time for a drop of water to reach the basin discharge point from the most hydraulically remote point in the basin. The watershed lag method is being used for the conceptual modeling. The watershed lag method spans a broad set of conditions ranging from heavily forested watersheds with steep channels and a high percent of runoff resulting from subsurface flow to meadows providing a high retardance to surface runoff, to smooth land surfaces and large paved areas.

$$T_c = \frac{\ell^{0.8}(S+1)^{0.7}}{1{,}140Y^{0.5}}$$

where:
L = lag, h
T_c = time of concentration, h
ℓ = flow length, ft
Y = average watershed land slope, %
S = maximum potential retention, in

$$= \frac{1{,}000}{cn'} - 10$$

where:
cn' = the retardance factor

3.4 Analysis of Watershed 1

Watershed 1 is 57.46 acres in size (Figure 12) and consists mostly of commerce use.

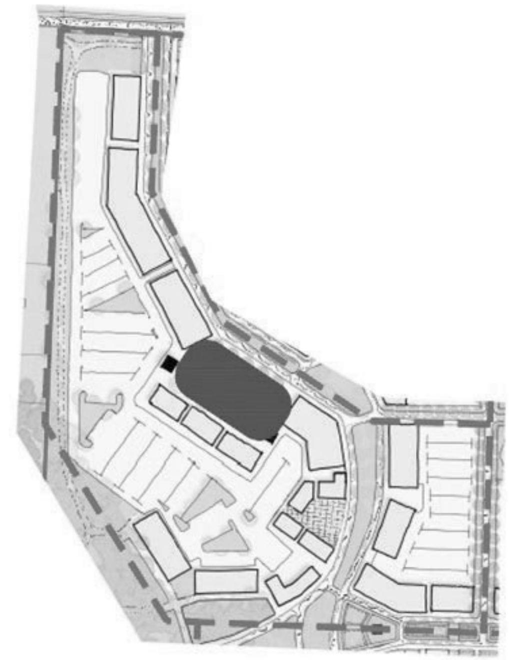


Figure 12 Configuration of Watershed 1

Summary of Hydrological calculations is shown as follows:

Table 6 Pre- and Post-Development Hydrology of Watershed 1

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.169	17.62	5.598
5-Year	7.49	2.651	44.62	12.694
10-Year	9.04	3.762	65.22	18.014
25 -Year	11.50	5.692	100.54	27.255
50-Year	13.70	7.531	134.12	36.061
100-Year	16.20	9.706	173.44	46.476

Post-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	3.887	140.60	18.612
5-Year	7.49	6.187	219.13	29.625
10-Year	9.04	7.709	269.92	36.913
25 -Year	11.50	10.139	349.93	48.549
50-Year	13.70	12.321	420.93	58.997
100-Year	16.20	14.806	501.31	85.261

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 “Short-Cut Method,” which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 13).

Vr=46.476

Qi=501.31

Qo=173.44

Qo/Qi=0.346

Using Figure 12*,*

Vs/Vr=0.350

Required Storage (acre-ft) = *16.266*

Additional 10-15% storage is recommended when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 16.266= 18.7 acre-feet.

Watershed 1 features a wet pond to provide stormwater storage. Profile view of the wet pond is shown in Figure 14. The proposed depth is 9 feet, and the approximate volume provided is 19.01 acre-feet, which is greater than the required attenuation volume of 18.7 acre-feet.

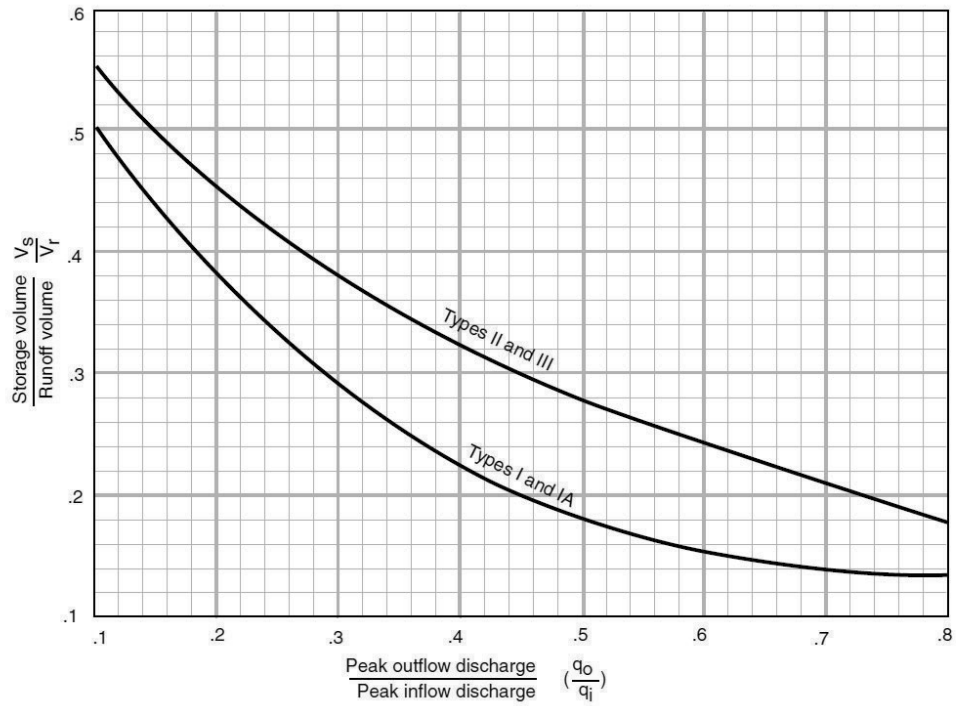


Figure 13 Approximate Detention Basin Routing for Rainfall Types I, IA, II, and III Source: TR-55, 1986

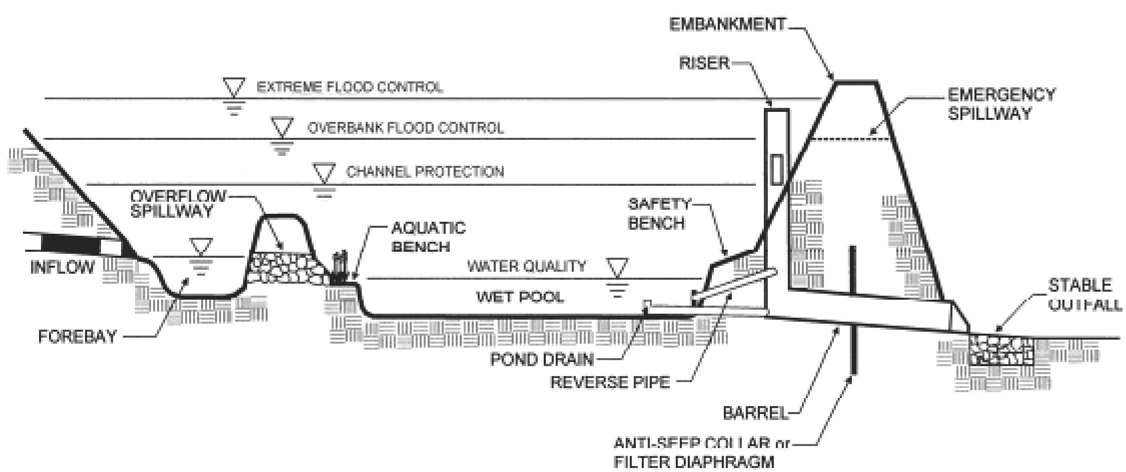


Figure 14 Typical Inline Stormwater Wet Pond with Positive Discharge (EPA). The slopes of the banks are 6:1 (Horizontal to Vertical) according to LDC, DSM Section 1-1.4(b)(2)a, b, & c

The Green Infrastructure tools for Watershed 1 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems.

Generally, bioretention systems, green roofs, and pervious pavement/pavers provide a considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

Being on the conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	46.476
Qi=	376.01
Qo=	173.44
Qo/Qi=	0.461
Using Figure 12,	
Vs/Vr=	0.290

Required Storage (acre-ft) + 15% = 15.5, which provides approximately 18% reduction in the 100-year attenuation volume.

3.5 Analysis of Watershed 2

Watershed 2 is 47.71 acres in size (Figure 15) and consist of commerce use.

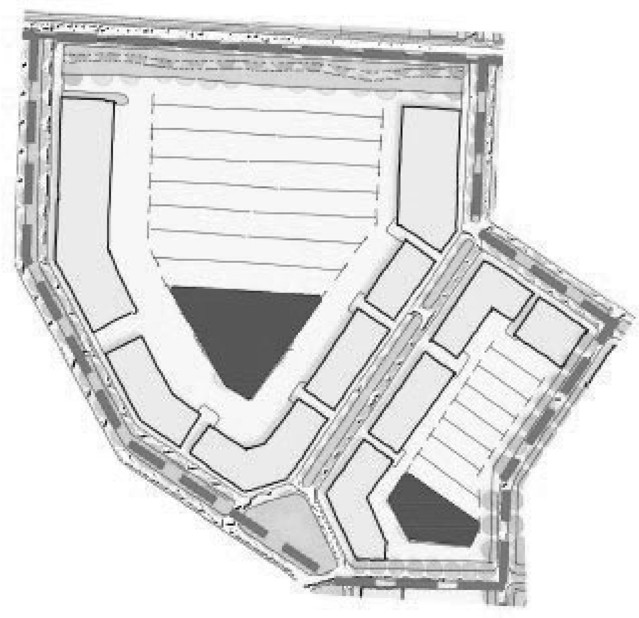


Figure 15 Configuration of Watershed 2

Summary of Hydrological calculations is listed in Table 7:

Table 7 Pre- and Post-Development Hydrology of Watershed 2

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.169	18.19	4.648
5-Year	7.49	2.651	46.27	10.540
10-Year	9.04	3.762	67.40	14.957
25 -Year	11.50	5.692	103.72	22.630
50-Year	13.70	7.531	137.83	29.942
100-Year	16.20	9.706	178.26	38.589

Post Development Conditions

Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	3.887	128.56	15.454
5-Year	7.49	6.197	200.00	24.638
10-Year	9.04	7.709	246.28	30.650
25 -Year	11.50	10.139	319.43	40.311
50-Year	13.70	12.321	383.78	48.986
100-Year	16.20	14.805	457.02	58.862

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 “Short-Cut Method,” which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 13).

Vr= 38.589

Qi= 457.02

Qo= 178.26

Qo/Qi= 0.390

Using Figure 12,

Vs/Vr= 0.322

Required Storage (acre-ft) =12.426

Experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 12.426= 14.29 acre-feet.

Watershed 2 features two (2) wet ponds to provide stormwater storage. For both ponds, the proposed depth is 9 feet, and the approximate volume provided is 15.8 acre-feet, which is greater than the required attenuation volume of 14.29 acre-feet.

The Green Infrastructure tools for Watershed 2 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and pervious pavement/pavers provide a

considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

Being on the conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	38.589
Qi=	342.765
Qo=	178.26
Qo/Qi=	0.520
Using Figure 12;	
Vs/Vr=	0.270

Required Storage (acre-ft) + 15% = 11.9, which provides approximately 16% reduction in the 100-year attenuation volume.

3.6 Analysis of Watershed 3

Watershed 3 is 33.16 acres in size (Figure 16) and consist of commerce use.

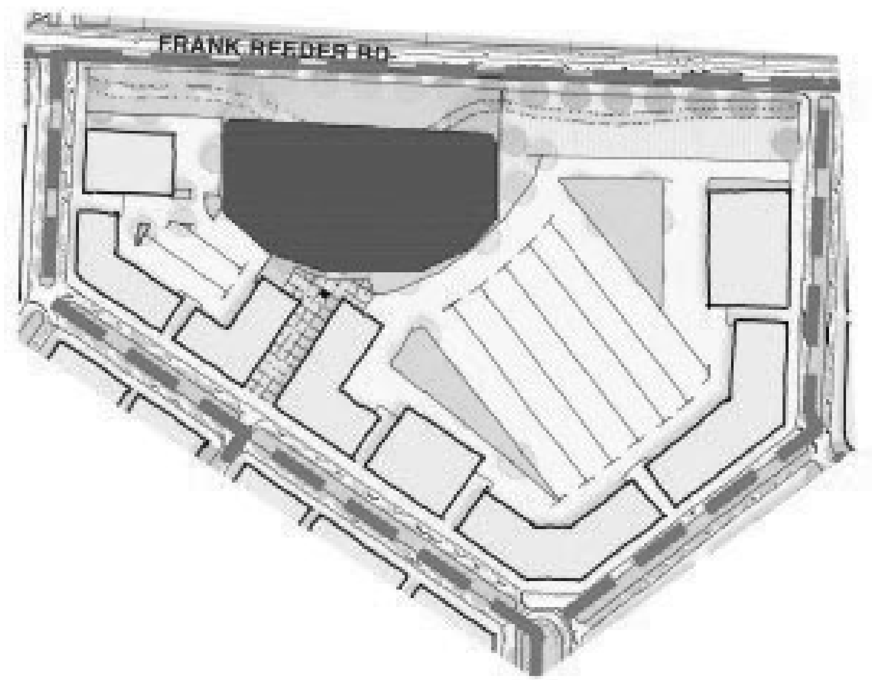


Figure 16 Configuration of Watershed 3

Summary of Hydrological calculations shown as follows:

Table 8 Pre- and Post-Development Hydrology of Watershed 3

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.168	10.31	3.228
5-Year	7.49	2.651	26.20	7.326
10-Year	9.04	3.761	38.11	10.393
25 -Year	11.50	5.692	58.92	15.729
50-Year	13.70	7.530	78.51	20.808
100-Year	16.20	9.706	101.45	26.821

Post Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	3.887	92.78	10.741
5-Year	7.49	6.196	144.52	17.122
10-Year	9.04	7.709	177.70	21.303
25 -Year	11.50	10.139	230.36	28.017
50-Year	13.70	12.321	277.09	34.047
100-Year	16.20	14.805	329.97	40.911

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 “Short-Cut Method,” which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 13).

Vr= 26.821

Qi= 329.97

Qo= 101.45

Qo/Qi= 0.307

Using Figure 12,

Vs/Vr= 0.375

Required Storage (acre-ft)=10.058

Experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 10.058= 11.56 acre-feet.

Watershed 3 features a wet pond to provide stormwater storage. The proposed depth is 9 feet, and the approximate volume provided is 24.81 acre-feet, which is greater than the required attenuation volume of 11.567 acre-feet.

The Green Infrastructure tools for Watershed 3 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and pervious pavement/pavers provide a

considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

Being on the conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	26.821
Qi=	247.47
Qo=	101.45
Qo/Qi=	0.410
Using Figure 12,	
Vs/Vr=	0.315

Required Storage (acre-ft) + 15% = 9.71, which provides approximately 16% reduction in the 100-year attenuation volume.

3.7 Analysis of Watershed 4

Watershed 4 is 32.37 acres in size (Figure 17) and consist of commerce use.

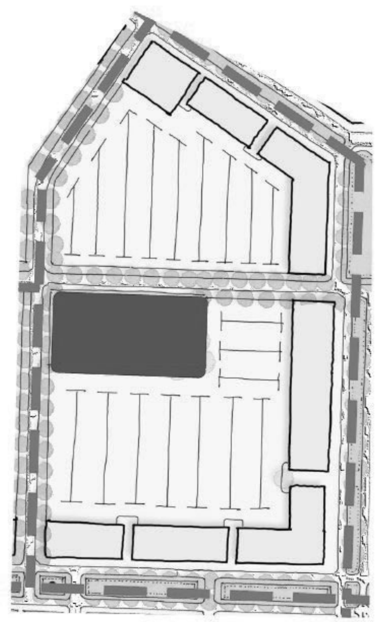


Figure 17 Configuration of Watershed 4

Summary of Hydrological calculations shown as follows:

Table 9 Pre- and Post-Development Hydrology of Watershed 4

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.169	24.48	3.153
5-Year	7.49	2.652	62.04	7.154
10-Year	9.04	3.762	90.12	10.148
25 -Year	11.50	5.693	138.21	15.357
50-Year	13.70	7.531	183.70	20.315
100-Year	16.20	9.707	236.61	26.185

Post Development Conditions

Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	3.887	92.33	10.485
5-Year	7.49	6.196	143.87	16.714
10-Year	9.04	7.709	177.03	20.795
25 -Year	11.50	10.139	229.41	27.350
50-Year	13.70	12.321	276.03	33.236
100-Year	16.20	14.805	328.54	39.936

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 “Short-Cut Method,” which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 12).

Vr= 26.185

Qi= 328.54

Qo= 236.61

Qo/Qi= 0.720

Using Figure 12,

Vs/Vr= 0.203

Required Storage (acre-ft)=5.315

Experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 5.315= **6.113 acre-feet.**

Watershed 4 features a wet pond to provide stormwater storage. The proposed depth is 5 feet, and the approximate volume provided is 8.44 acre-feet, which is greater than the required attenuation volume of 6.113 acre-feet.

The Green Infrastructure tools for Watershed 4 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and previous pavement/pavers provide

considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

Being on conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	26.821
Qi=	246.40
Qo=	236.61
Qo/Qi=	0.960
Using Figure 12,	
Vs/Vr=	0.180

Required Storage (acre-ft) + 15% = 5.42, which provides approximately 12% reduction in the 100-year attenuation volume.

3.8 Analysis of Watershed 5

Watershed 5 is 34.44 acres in size (Figure 18) and consist of commerce use.

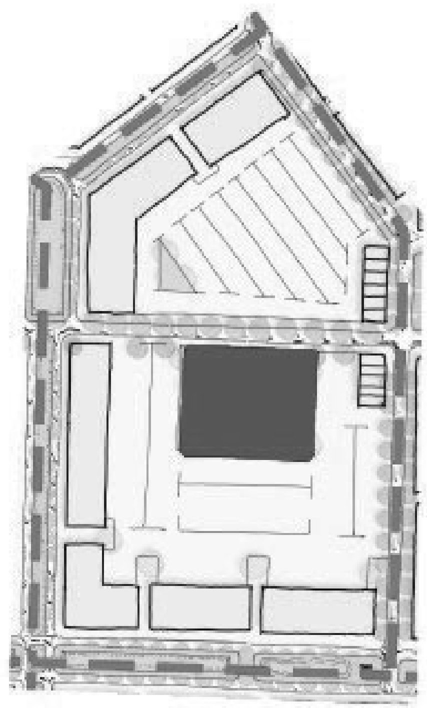


Figure 18 Configuration of Watershed 5

Summary of Hydrological calculations shown as follows:

Table 10 Pre- and Post-Development Hydrology of Watershed 5

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.168	13.93	3.352
5-Year	7.49	2.651	35.48	7.608
10-Year	9.04	3.762	51.52	10.797
25 -Year	11.50	5.692	79.43	16.336
50-Year	13.70	7.530	105.60	21.611
100-Year	16.20	9.706	136.32	27.856

Post Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	3.887	100.40	11.156
5-Year	7.49	6.197	156.42	17.785
10-Year	9.04	7.709	191.97	22.125
25 -Year	11.50	10.139	249.07	29.099
50-Year	13.70	12.321	299.75	35.361
100-Year	16.20	14.805	356.89	42.490

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 “Short-Cut Method,” which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 12).

Vr=27.856

Qi=356.89

Qo=136.32

Qo/Qi=0.382

Using Figure 12,

Vs/Vr=0.337

Required Storage (acre-ft)=9.388

Experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 9.388= **10.796 acre-feet.**

Watershed 5 features a wet pond to provide stormwater storage. The proposed depth is 6 feet, and the approximate volume provided is 11.17 acre-feet, which is greater than the required attenuation volume of 10.796 acre-feet.

The Green Infrastructure tools for Watershed 5 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and previous pavement/pavers provide thw

considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

Being on the conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	27.856
Qi=	267.66
Qo=	136.32
Qo/Qi=	0.509
Using Figure 12,	
Vs/Vr=	0.278

Required Storage (acre-ft) + 15% = 8.9, which provides approximately 17% reduction in the 100-year attenuation volume.

3.9 Analysis of Watershed 6

Watershed 6 is 47.66 acres in size (Figure 19) and consist of commerce use.

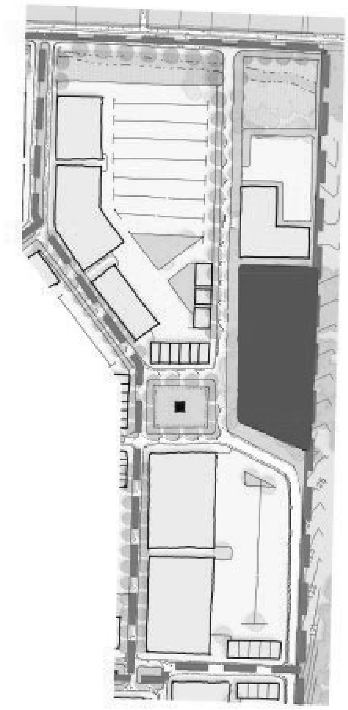


Figure 19 Configuration of Watershed 6

Summary of Hydrological calculations shown as follows:

Table 11 Pre- and Post-Development Hydrology of Watershed 6

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.168	16.85	4.639
5-Year	7.49	2.651	42.91	10.529
10-Year	9.04	3.762	62.51	14.941
25 -Year	11.50	5.692	96.38	22.607
50-Year	13.70	7.531	128.22	29.911
100-Year	16.20	9.706	165.72	38.549

Post Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	3.887	115.70	15.438
5-Year	7.49	6.197	180.39	24.612
10-Year	9.04	7.709	221.86	30.618
25 -Year	11.50	10.139	287.99	40.269
50-Year	13.70	12.321	346.16	48.935
100-Year	16.20	14.805	412.12	58.801

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 "Short-Cut Method," which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 12).

Vr= 38.549

Qi= 412.12

Qo= 165.72

Qo/Qi= 0.402

Using Figure 12,

Vs/Vr= 0.322

Required Storage (acre-ft)=12.413

Experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 12.413= **14.275 acre-feet.**

Watershed 6 features a wet pond to provide stormwater storage. The proposed depth is 5 feet, and the approximate volume provided is 17.29 acre-feet, which is greater than the required attenuation volume of 14.275 acre-feet.

The Green Infrastructure tools for Watershed 6 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and previous pavement/pavers provide

considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

Being on conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	38.549
Qi=	309.09
Qo=	165.72
Qo/Qi=	0.536
Using Figure 12,	
Vs/Vr=	0.264

Required Storage (acre-ft) + 15% = 11.7, which provides approximately 18% reduction in the 100-year attenuation volume.

3.10 Analysis of Watershed 7

Watershed 7 is 50.65 acres in size (Figure 20) and consist of medium intensity single family and civic space use.

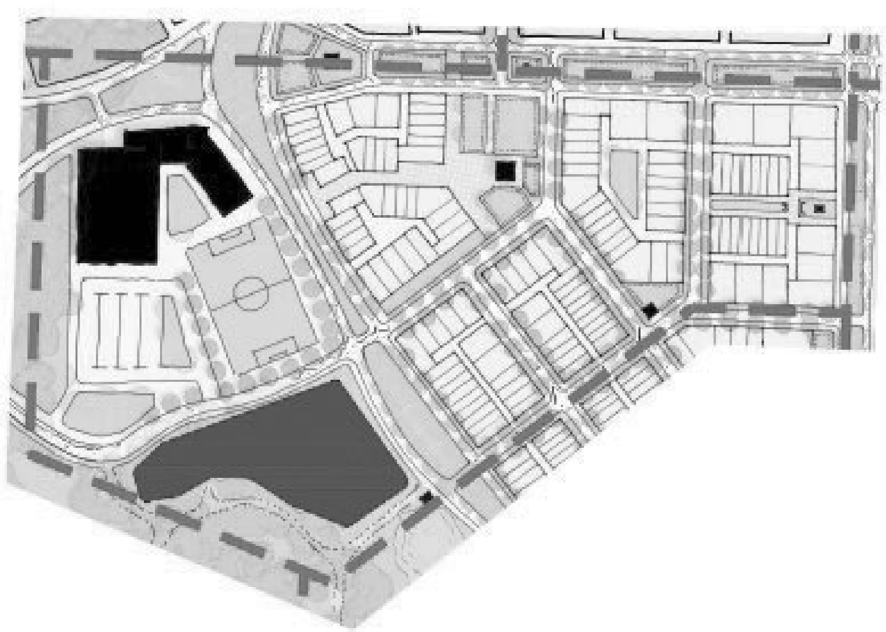


Figure 20 Configuration of Watershed 7

Summary of Hydrological calculations shown as follows:

Table 12 Pre- and Post-Development Hydrology of Watershed 7

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.168	16.35	4.930
5-Year	7.49	2.651	41.47	11.189
10-Year	9.04	3.762	60.45	15.879
25 -Year	11.50	5.692	93.22	24.025
50-Year	13.70	7.530	124.39	31.783
100-Year	16.20	9.706	160.88	40.967

Post Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.734	53.26	7.319
5-Year	7.49	3.494	111.56	14.748
10-Year	9.04	4.750	152.85	20.049
25 -Year	11.50	6.872	221.26	29.006
50-Year	13.70	8.848	283.78	37.346
100-Year	16.20	11.152	355.74	47.071

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 “Short-Cut Method,” which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 13).

Vr= 40.967
Qi= 355.74
Qo= 160.88
Qo/Qi= 0.452
Using Figure 12,
Vs/Vr= 0.299
Required Storage (acre-ft)= 12.249

Experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 12.249= 14.087 acre-feet.

Watershed 7 features a wet pond to provide stormwater storage. The proposed depth is 6 feet, and the approximate volume provided is 14.73 acre-feet, which is greater than the required attenuation volume of 14.087 acre-feet.

The Green Infrastructure tools for Watershed 7 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and pervious pavement/pavers provide a

considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

The Green Infrastructure tools that are used for the Watershed 6 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and previous pavement/pavers provide considerable amount of runoff reduction (10 to 20%) and peak flow reduction (25% to 65%).

Being on the conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	40.967
Qi=	266.80
Qo=	160.88
Qo/Qi=	0.603
UsingFigure 12,	
Vs/Vr=	0.240

Required Storage (acre-ft) + 15% = 11.3, which provides approximately 20% reduction in the 100-year attenuation volume.

3.11 Analysis of Watershed 8

Watershed 8 is 42.09 acres in size (Figure 21) and consist of commerce use.

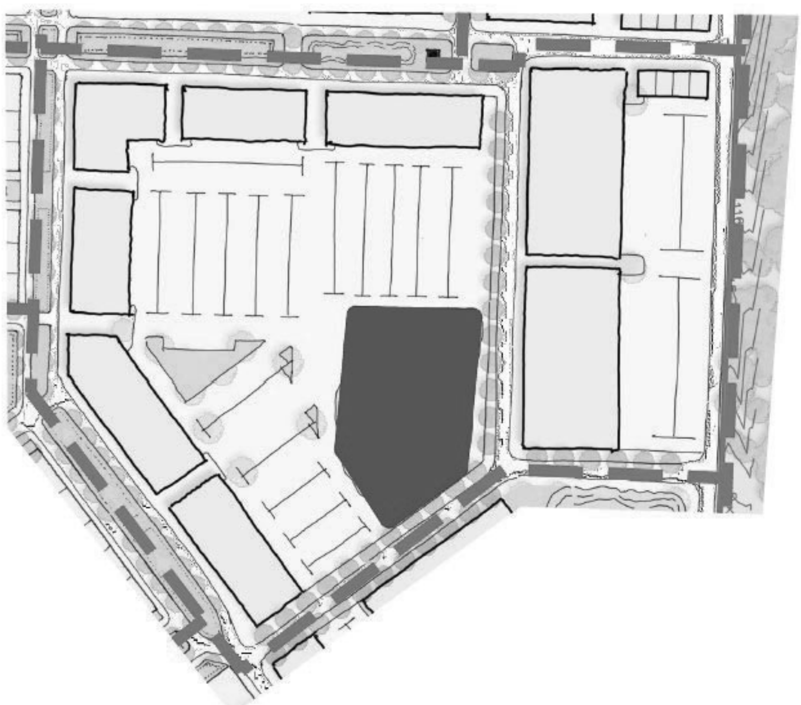


Figure 21 Configuration of Watershed 8

Summary of Hydrological calculations shown as follows:

Table 13 Pre- and Post-Development Hydrology of Watershed 8

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.168	15.42	4.097
5-Year	7.49	2.651	39.26	9.298
10-Year	9.04	3.762	57.18	13.195
25 -Year	11.50	5.692	88.10	19.965
50-Year	13.70	7.530	117.16	26.411
100-Year	16.20	9.706	151.46	34.044

Post Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	3.887	120.06	13.634
5-Year	7.49	6.197	187.08	21.736
10-Year	9.04	7.709	230.19	27.039
25 -Year	11.50	10.139	298.30	35.563
50-Year	13.70	12.321	358.93	43.216
100-Year	16.20	14.805	427.20	51.929

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 "Short-Cut Method," which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 12).

Vr= 34.044

Qi= 427.20

Qo= 151.46

Qo/Qi= 0.452

Using Figure 12,

Vs/Vr= 0.355

Required Storage (acre-ft)=11.677

Experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 11.667= **13.429 acre-feet.**

Watershed 8 features a wet pond to provide stormwater storage. The proposed depth is 6 feet, and the approximate volume provided is 14.42 acre-feet, which is greater than the required attenuation volume of 13.429 acre-feet.

The Green Infrastructure tools for Watershed 8 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and previous pavement/pavers provide a

considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

Being on conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	34.044
Qi=	320.40
Qo=	151.46
Qo/Qi=	0.473
Using Figure 12,	
Vs/Vr=	0.291

Required Storage (acre-ft) + 15% = 11.3, which provides approximately 15% reduction in the 100-year attenuation volume.

3.12 Analysis of Watershed 9

Watershed 9 is 63.7 acres in size (Figure 22) and consist of commerce use.

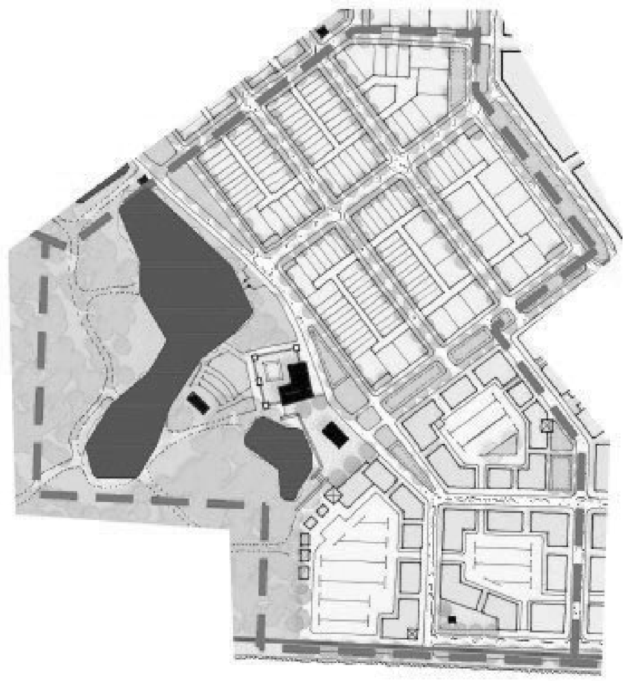


Figure 22 Configuration of Watershed 9

Summary of Hydrological calculations shown as follows:

Table 14 Pre- and Post-Development Hydrology of Watershed 9

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.169	24.09	6.205
5-Year	7.49	2.652	61.32	14.078
10-Year	9.04	3.762	89.17	19.970
25 -Year	11.50	5.692	137.21	30.215
50-Year	13.70	7.531	182.68	39.977
100-Year	16.20	9.706	235.80	51.523

Post Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.887	59.31	10.017
5-Year	7.49	3.710	120.17	19.694
10-Year	9.04	4.998	162.68	26.531
25 -Year	11.50	7.160	233.16	38.008
50-Year	13.70	9.164	296.92	48.646
100-Year	16.20	11.494	369.79	61.014

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 "Short-Cut Method," which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 12).

Vr= 51.523

Qi= 369.79

Qo= 235.80

Qo/Qi= 0.638

Using Figure 12,

Vs/Vr= 0.231

Required Storage (acre-ft)= 11.902

Experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 11.902= 13.687 acre-feet.

Watershed 9 features two (2) wet ponds to provide stormwater storage. The proposed depth is 4 feet, and the approximate volume provided is 16.26 acre-feet, which is greater than the required attenuation volume of 13.687 acre-feet.

The Green Infrastructure tools for Watershed 9 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and pervious pavement/pavers provide a

considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

Being on conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	51.523
Qi=	277.34
Qo=	235.80
Qo/Qi=	0.850
Using Figure 12,	
Vs/Vr=	0.170

Required Storage (acre-ft) + 15% = 10.07, which provides approximately 26% reduction in the 100-year attenuation volume.

3.13 Analysis of Watershed 10

Watershed 10 is 48.27 acres in size (Figure 23) and consist of mixed and commerce use.

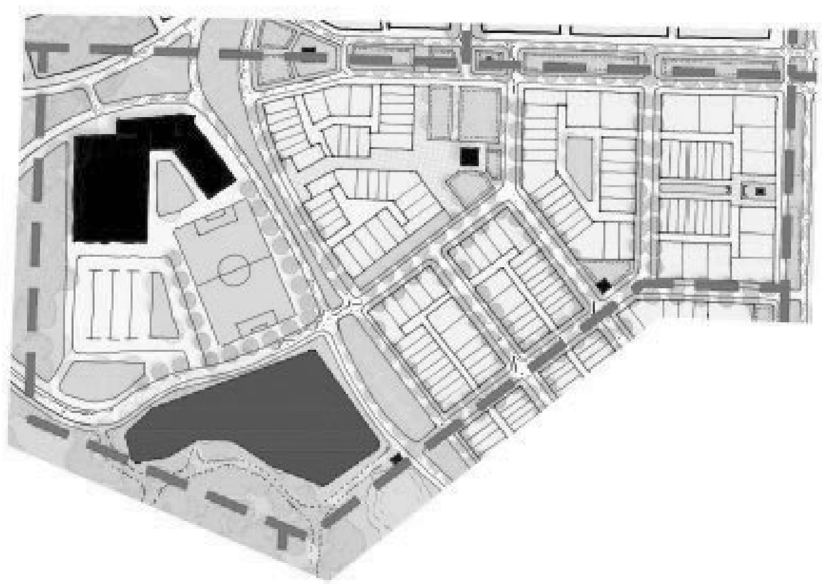


Figure 23 Configuration of Watershed 7

Summary of Hydrological calculations shown as follows:

Table 15 Pre- and Post-Development Hydrology of Watershed 10

Pre-Development Conditions				
Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	1.169	19.22	4.702
5-Year	7.49	2.651	48.92	10.664
10-Year	9.04	3.762	71.23	15.133
25 -Year	11.50	5.692	109.73	22.896
50-Year	13.70	7.531	145.79	30.293
100-Year	16.20	9.706	188.66	39.042

Post Development Conditions

Storm Event	Precipitation (in)	Runoff Amount (in)	Peak Flow (cfs)	Runoff Volume (acre-ft)
1-Year	5.12	3.886	95.77	15.631
5-Year	7.49	6.196	149.25	24.923
10-Year	9.04	7.709	183.54	31.009
25 -Year	11.50	10.139	238.45	40.784
50-Year	13.70	12.320	287.12	49.557
100-Year	16.20	14.805	341.81	59.553

For 100-Year storm even attenuation volume extreme, size is determined using the TR-55 “Short-Cut Method,” which relates the storage volume to the required reduction in peak flow and storm inflow volume (Figure 12).

Vr=	39.042
Qi=	341.81
Qo=	188.66
Qo/Qi=	0.552
Using Figure 12,	
Vs/Vr=	0.260

Required Storage (acre-ft)=10.151. Experience has shown that an additional 10-15% storage is required when multiple levels of extended detention are provided inclusive of the 100-year storm. Total required volume for attenuation = 1.15 x 10.151= 11.674 acre-feet.

Watershed 10 features two (2) wet ponds to provide stormwater storage. Proposed depth is 6 feet, and the approximate volume provided is 12.66 acre-feet, which is greater than the required attenuation volume of 11.674 acre-feet.

The Green Infrastructure tools for Watershed 10 include bioretention swales, pervious pavement and pavers, blue roofs and green roofs, and stormwater harvesting systems. Generally, bioretention systems, green roofs, and pervious pavement/pavers provide a

considerable amount of runoff reduction (10% to 20%) and peak flow reduction (25% to 65%).

Being on conservative side and assuming 25% of peak flow reduction, the required attenuation volume can be calculated as follows:

Vr=	39.042
Qi=	256.35
Qo=	188.66
Qo/Qi=	0.736
Using Figure 12,	
Vs/Vr=	0.198

Required Storage (acre-ft) + 15% = 8.89, which provides approximately 24% reduction in the 100-year attenuation volume.

The configuration of the system of lakes and conveyances is shown on Figure 24

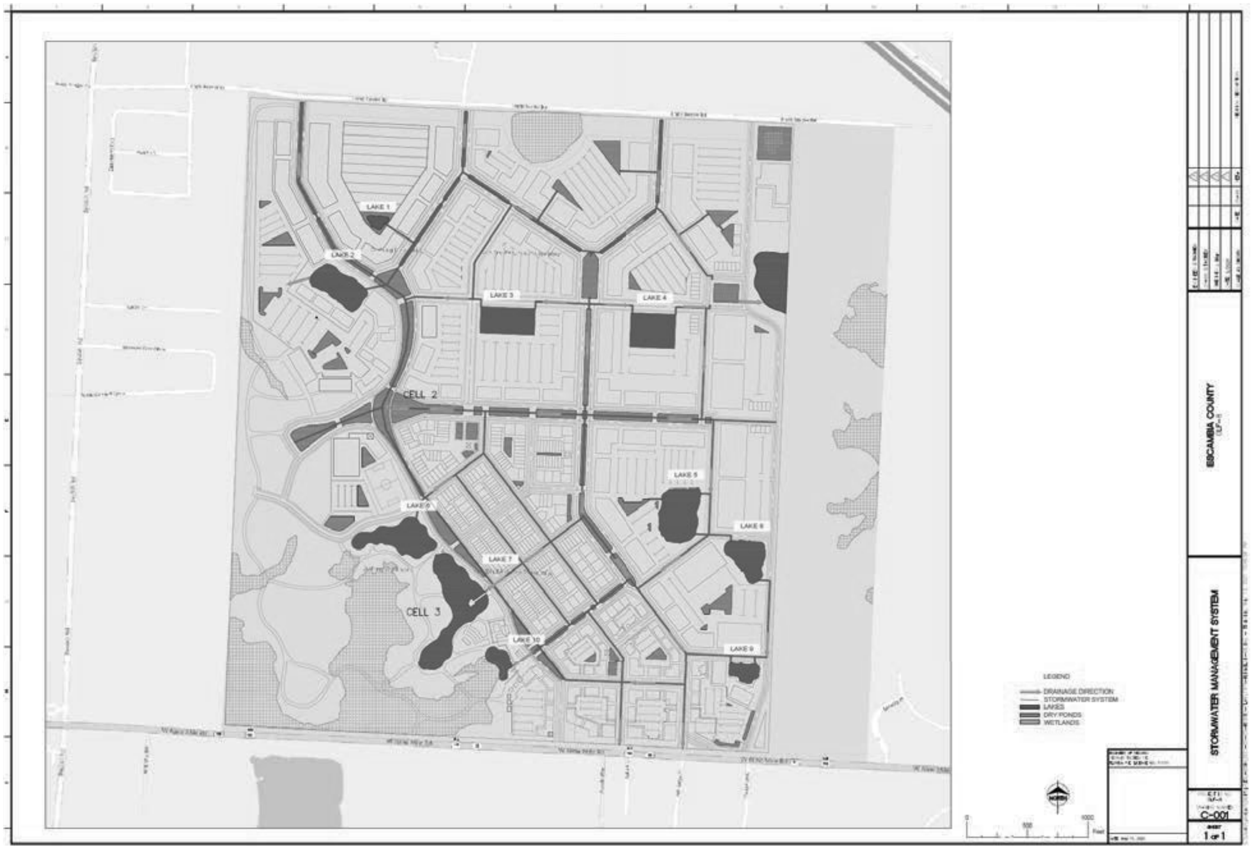


Figure 24 Configuration of Stormwater Management System

4 SITE DEVELOPMENT RECOMMENDATIONS

The principles of New Urbanism, which have been applied in this project, offer a better planning philosophy for minimization of the overall impact of the built environment. The tools of Green Infrastructure (GI) and Light Imprint (LI) integrate urban and engineering practices to offer a sustainable framework for development on regional, neighborhood, and block scales and to support sustained growth while preserving natural resources; protect biodiversity; reduce pollution and reduce consumption of two resources: energy and land. The combined use of New Urban Practices and GI+LI offers a superior planning strategy based on traditional neighborhood patterns favoring high density, mixed-use, and reduced use of transportation and building energy.

The GI+LI tools ensure the sustainability of watersheds on regional, neighborhood, and block levels and prevent disruption, and damage in urban/suburban areas, loss of biodiversity, and ecosystem changes. These tools are calibrated with New Urban planning philosophy to prioritizing compact and mixed-use urban patterns, increased density and walkable urban areas, energy, and environmental sustainability. Thus, GI+LI naturally accommodates a broader range of development standards necessary for the community-oriented design. The resulting development is a complete antidote to the conventional planning practices which lack connectivity and rely on arterials, collectors, and cul-de-sacs for traffic mobility and provide connectivity, compactness and structured open space, and use engineering design which requires expensive infrastructure for piping and storage of stormwater.

The main effects of GI+LI applications include enhanced watershed protection, by application of environmental and sustainability concepts to minimize the effects of the impervious surfaces. The GI applied in this project promotes numerous environmental qualities characteristic and include technologies for preserving the natural hydrological cycle including pervious pavements, light infrastructure, natural drainage, gravel swales, and very light infrastructure with reduced amounts of curbs. Furthermore, reduced maintenance is accomplished by using xeriscape and reducing the irrigation, eliminating pesticides and agricultural pollution.

Ultimately, the increased stormwater pollutant load, if not managed properly, will adversely affect local water bodies. To mitigate these impacts, prior stormwater program efforts primarily focused on conventional stormwater quality control measures (e.g., BMPs), such as detention basins, which temporarily detain stormwater runoff and release it over a period of time.

Stormwater quality control measures that incorporate Green Infrastructure principles are placed throughout the site in small, discrete units and distributed near the source of impacts. Green Infrastructure strategies are designed to protect surface and groundwater quality, maintain the integrity of ecosystems, and preserve the physical integrity of receiving waters by managing stormwater runoff at or close to the source.

The purpose of Green Infrastructure is to reduce and/or eliminate the altered areas of the post-development hydrograph, by reducing the peak discharge rate, volume, and duration of flow using site design and stormwater quality control measures. The benefits of reduced stormwater runoff volume include reduced pollutant loadings and increased groundwater recharge and evapotranspiration rates.

The main Green Infrastructure strategies include the use of bioretention/infiltration landscape areas, disconnected hydrologic flow paths, reduced impervious areas, functional landscaping, and grading to maintain natural hydrologic functions that existed prior to development, such as interception, shallow surface storage, infiltration, evapotranspiration, and groundwater recharge. By implementing GI+LI strategies, a project site can be designed to be an integral part of the environment by maintaining undeveloped hydrologic functions through the careful use of stormwater quality control measures.

Historically, stormwater management has consisted of a network of impervious surfaces that directly convey stormwater runoff to curb and gutter systems, the storm drain conveyance system, and downstream receiving waters. Until recently, conventional storm drain and flood control systems were designed to convey stormwater away from developed areas as quickly as possible to manage the risk of floods for homes and development. However, in order to protect the natural hydrological cycle, a more comprehensive approach to address stormwater runoff water quality and groundwater recharge opportunities.

4.1 Protection of Natural Areas

Conservation of natural areas, soils, and vegetation helps to retain numerous functions of pre-development hydrology, including rainfall interception, infiltration, and evapotranspiration was the primary consideration of the planning process. This project site has unique topographic, hydrologic, and vegetative features, which were taken into consideration.

The most sensitive areas, such as streams and their buffers, floodplains, wetlands, steep slopes, and highly permeable soils, were protected by moving away from the development. Slopes can be a major source of sediment and will be protected and stabilized. The following design features or elements have been considered:

- Preserve historically undisturbed areas. Identified the streams and their buffers, floodplains, wetlands, and steep slopes.
- Reserve areas with low permeability soils for either open space or retention stormwater quality control measures (such as lakes)
- Preserve the existing trees into site layout and consider planting stormwater trees along the main roads to reduce road drainage.
- Identify and avoid areas susceptible to erosion and sediment loss, such as the areas in proximity to the wetlands in the southwest corner
- Concentrate or cluster development with greater density on less sensitive areas of the project site and with minimal slope, while leaving the remaining land in a natural, undisturbed state.
- Protect slopes from erosion by safely conveying stormwater runoff from the tops of slopes.

- The project will limit the clearing and grading of the existing forested areas, and native vegetation at the project site to the minimum amount needed to build lots, allow access and provide fire protection.
- The project will maintain to the maximum extent the existing topography and existing drainage divides to encourage dispersed flow.
- The project will maximize trees and other vegetation at the project site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought-tolerant plants.

4.2 Minimization of Land Disturbance

The purpose of this site design principle is to protect water quality by preserving the natural hydrologic function of the project site to the maximum extent. By designing the project site layout to preserve natural hydrology and drainage ways at the project site, the need for grading and disturbance of native vegetation and soils has been reduced.

The buildings and impervious surfaces have been sighted away from steep slopes, drainage ways, and floodplains to limit the amount of grading and clearing necessary and to reduce the hydrologic impact. This site design principle is most applicable for this project because it is a greenfield site.

The objective was to reduce clearing, grading, and heavy equipment to remove and compact native soils and to reduce the soil infiltration capacity. The development envelope was established by identifying the minimum area needed to build lots, allow access, provide fire protection, and protect and buffer sensitive features such as streams, floodplains, steep slopes, and wetlands. The buildings and paved areas were concentrated on the least permeable soils, with the least intact habitat. For example, the lakes will be constructed in a location which already has natural water bodies, the groundwater is close to the surface which will provide the least impact.

4.3 Minimization of Impervious Area

The potential for discharge of pollutants in stormwater runoff from a project site increases as the percentage of the impervious areas within the project site increases because impervious areas increase the volume and rate of stormwater runoff.

Pollutants deposited on impervious areas are easily mobilized and transported by stormwater runoff. Minimizing impervious areas through site design is an important method to reducing the pollutant load in stormwater runoff.

Minimizing impervious areas will also reduce the stormwater runoff coefficient, which is directly proportional to the volume of stormwater runoff that must be retained on-site.

The following strategies for minimizing impervious areas through site design were applied:

- Used minimum allowable roadway and sidewalk cross-sections, driveway lengths, and parking stall sizes.
- Reduced building and parking lot footprints. Building footprints may be additionally reduced by building taller.
- Use pervious pavement material, such as modular paving blocks, turf blocks, porous concrete and asphalt, brick, and gravel or cobble, to accommodate overflow parking, if feasible.
- Cluster buildings and paved areas to maximize pervious area.
- Maximize tree preservation or tree planting.
- Use vegetated swales to convey stormwater runoff instead of paved gutters.
- Build compactly at redevelopment sites to avoid disturbing natural and agricultural lands and to reduce per capita impacts.

Site design with Green Infrastructure provides efficient protection of sensitive environmental features such as riparian areas, wetlands, and steep slopes. The intention of site design principles is to reduce stormwater runoff peak flows and volumes and other impacts associated with land development.

4.4 Classification of Green Infrastructure Tools

The green infrastructure tools are based on the following four categories:

Paving - to provide vehicular and pedestrian access Paving is a prominent feature in the landscape which provides vehicular and pedestrian access. It plays a large role in receiving, producing, and distributing stormwater runoff. Paving GI+LI tools included in this project include choices for paving materials of various degrees of permeability. The best features of each paving tool were maximized by selection based on mode and volume of traffic and low maintenance requirements. For example, a very stable material that is less pervious will be used in the urban zones which will have larger amounts of commercial and vehicular traffic. Furthermore, areas with heavy traffic require low maintenance and sturdy paving material to keep repairs to a minimum. Less sturdy materials were applied for light traffic volume and pedestrian areas. All low traffic thoroughfares should be based on using semi-impervious materials

Channeling - Channeling provides water conveyance features. Paving GI tools were applied throughout the project to ensure capturing and channeling stormwater to areas that can maximize on-site water retention. The channeling GI+LI tools were positioned to take into consideration pedestrian movement and the fraction of impervious surface. Some channeling tools provide an opportunity to produce an art form for the movement of water. The main function of the Channeling tools was to maximize the functions of storage and filtration. The site implements multiple channeling functions within the variable median of the thoroughfares.

Storage - Storage tools provide water retention on-site to reduce the surface runoff and to provide sufficient time for water to infiltrate the subsurface. Overly large ponds limit traditional neighborhood development because of size, volume, and flow regulations, however, for these sizes large wet and dry detention ponds are recommended. The GI+LI Storage tools in this project were calibrated to the topography. Public spaces such as parks, plazas, and greenways were used to provide storage. Public spaces with a storage functionality as the main component was preferably located in low areas to allow water to drain naturally. Cost is also minimized by the need for less grading and by eliminating large subsurface storage tanks and conveyances (piping, manholes). Storage tools that were applied provide distributed storage capacities that cumulatively attain the capacity required by the development.

Filtration - Filtration was incorporated in all GI+LI tools by avoiding concrete surfaces for storage and conveyance features. Maximizing the infiltration rates and capacities are important to increase aquifer recharge while reducing surface water run-off. Many current stormwater filtration processes involve the use of expensive, highly technological methods that accomplish the same results that natural processes have throughout history. The main function of the filtration GI+LI tools is to mimic the natural system with its general simplicity of allowing water to recharge the aquifer. The expensive filtration tools are economically feasible in the more urban zones of the transect. The filtration tools can also serve as civic amenities when they are well integrated into a design. Rain gardens can be beautiful public features; green fingers can be very active parks. Waterscapes can serve as beautiful teaching tools in urban plazas. There are many filtration processes in this toolbox that are successful in improving water quality within the built and natural environment.

4.5 Runoff Reduction Methods:

Green infrastructure techniques use the natural features of the site and promote runoff reduction through micromanaging runoff, promoting groundwater recharge, increasing losses through evapotranspiration, and emulating the existing hydrology.

4.5.1 Stormwater Ponds/Lakes

Stormwater ponds/lakes and wet basins are earthen depressions constructed with a substantial permanent water pool to provide both temporary and long-term storage of stormwater runoff, and they can be used to attenuate peak flows and provide Water Quality treatment through both pollutant removal and slow release. Ponds attenuate peak flows using an outlet control structure and provide storage capacity above the permanent pool, while water held within the system, including the permanent pool, is treated through a variety of physical, chemical, and biological processes. Wet basins can also achieve minimal volume reduction through evapotranspiration.

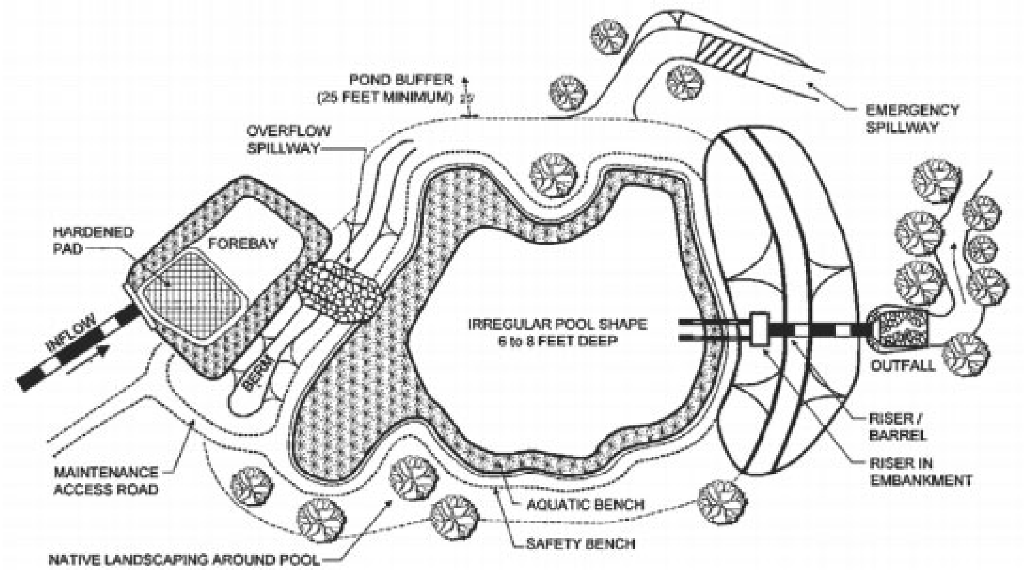


Figure 25 Plan view of a wet pond, source; NYSDEC. The slopes of the banks are 6:1 (Horizontal to Vertical) according to LDC, DSM Section 1-1.4(b)(2)a, b, & c

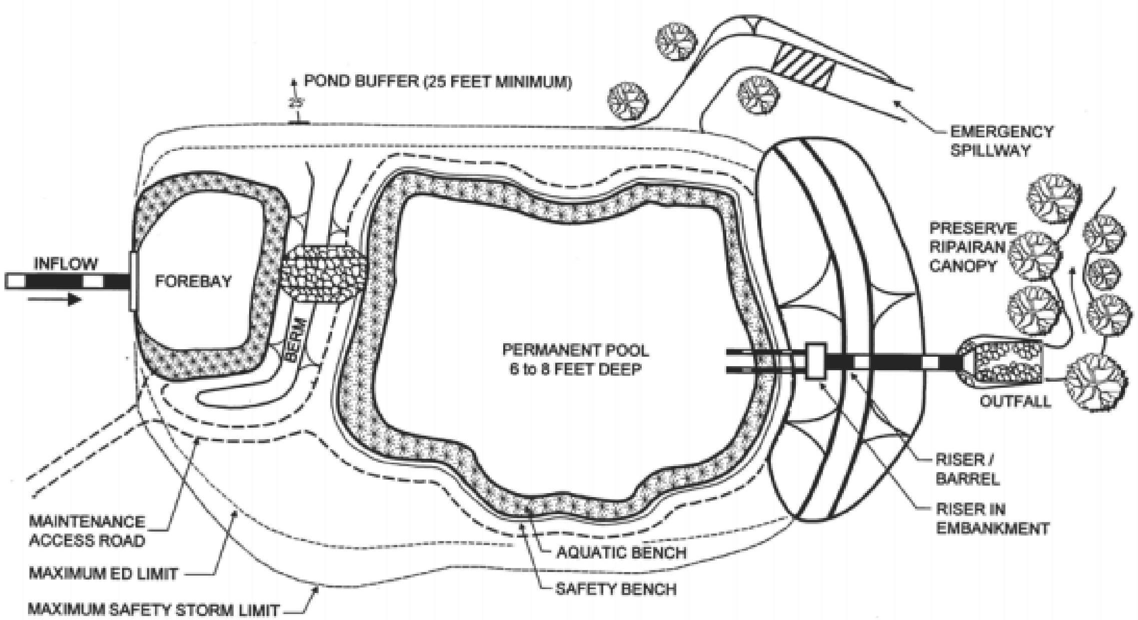


Figure 26 Plan view of a wet extended detention pond, source; NYSDEC. The slopes of the banks are 6:1 (Horizontal to Vertical) according to LDC, DSM Section 1-1.4(b)(2)a, b, & c

Stormwater ponds are practices that have either a permanent pool of water, or a combination of a permanent pool and extended detention, and some elements of a shallow marsh equivalent to the entire water quality volume.

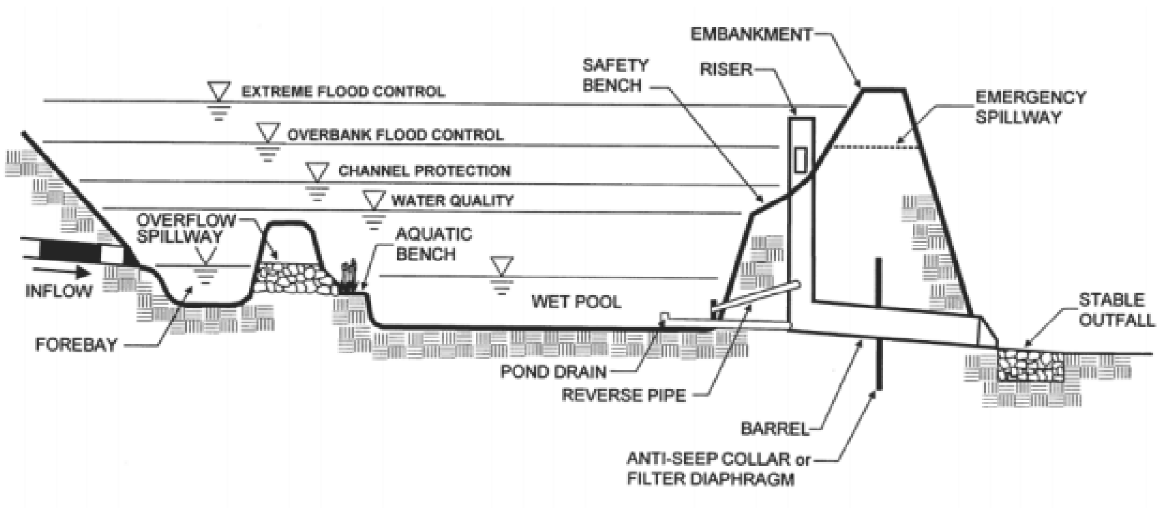


Figure 27 Profile view of a wet extended detention pond, source; NYSDEC. The slopes of the banks are 6:1 (Horizontal to Vertical) according to LDC, DSM Section 1-1.4(b)(2)a, b, & c

Where required, stormwater ponds have an embankment surrounding them. Part or all of the embankment acts as a dam to keep the water in the pond. The embankment is sloped and should be stabilized.

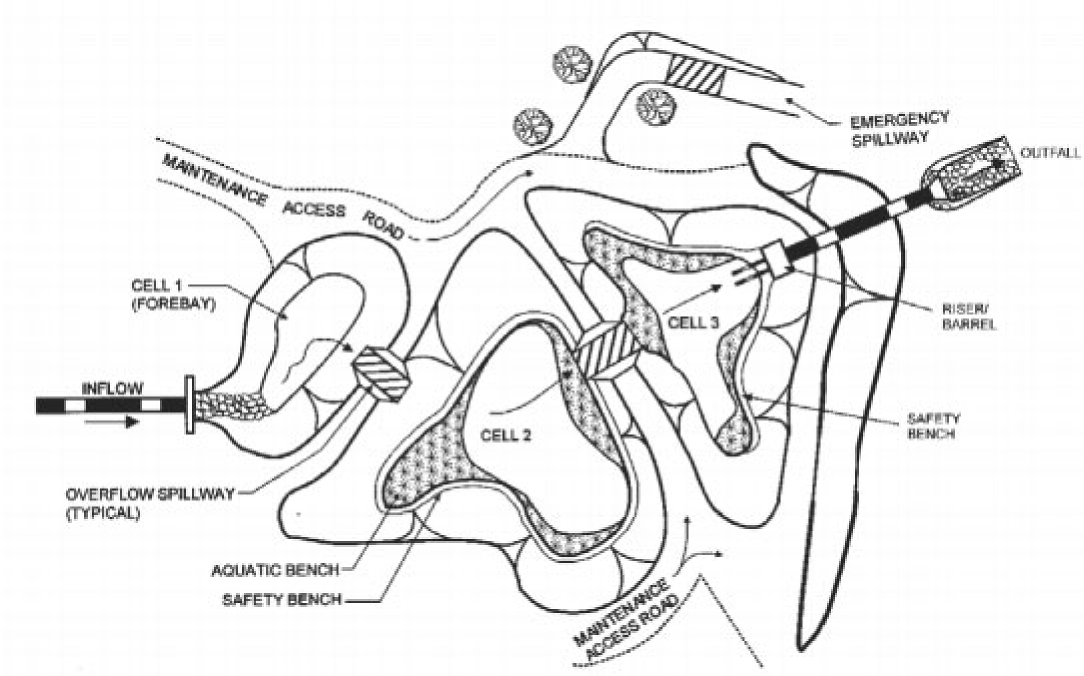


Figure 28 Plan view of a multiple pond system, source; NYSDEC . The slopes of the banks are 6:1 (Horizontal to Vertical) according to LDC, DSM Section 1-1.4(b)(2)a, b, & c

Wet ponds, wet extended detention ponds, and multiple interconnected ponds are a good choice for this project due to each watershed being greater than 25 acres.

Pretreatment is critical to the design of stormwater ponds. Properly designed pretreatment systems help to sustain required stormwater management function, extend service life, and reduce maintenance costs. The primary goal of pretreatment systems is to capture sediment, trash, and debris. This can be done by incorporating a forebay, which helps to decrease the peak stormwater velocities to allow sediment to settle or by filtering incoming stormwater through vegetation to remove sediment. If the site conditions do not allow a forebay, then equivalent upstream treatment should be included such as bioswales, rain gardens, or a hydrodynamic separator. The forebay should be designed in such a stable way to ensure that non-erosive conditions exist for at least the 2-year storm event.

The perimeter of all deep pool areas (four feet or greater in depth) shall be surrounded by two benches except when the pond side slopes are 6:1 or flatter. An aquatic bench that generally extends up to 15 feet inward from the normal shoreline should be included. Aquatic benches have an irregular configuration and have a maximum depth of 18 inches below the normal pool water surface elevation. The slope proceeding from the aquatic bench to the pond basin floor shall not exceed 2:1.

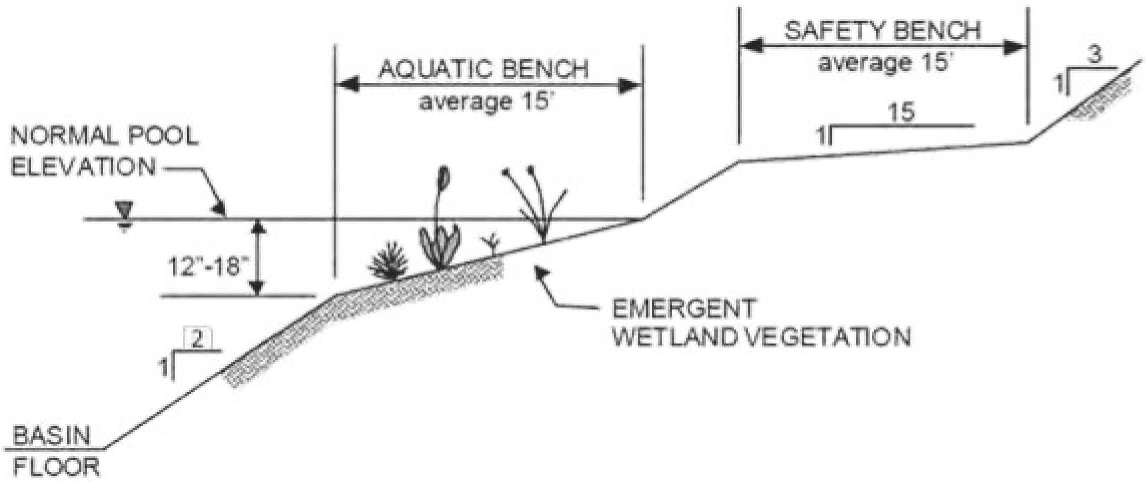


Figure 29 Slope diagram, source; NYSDEC . The slopes of the banks are 6:1 (Horizontal to Vertical) according to LDC, DSM Section 1-1.4(b)(2)a, b, & c

4.5.2 Vegetated Swales

The natural drainage paths, or properly designed vegetated channels, can be used instead of constructing underground storm sewers or concrete open channels to increase the time of concentration, reduce the peak flow, and provide infiltration.

Figure 30 Vegetated Swale

4.5.3 Stormwater Trees

Planting and conserving trees reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. Trees can be used for applications such as landscaping, stormwater management practice areas, conservation areas, and erosion and sediment control. Trees which provide additional space for storage and attenuation of stormwater runoff

4.5.4 Disconnection of Rooftop Runoff

Disconnection of rooftop runoff directs runoff from residential rooftop areas and upland overland runoff flow to designated pervious areas to reduce runoff volumes and rates. This can be achieved, by grading the site to promote overland vegetative filtering or by providing infiltration areas.

Figure 31 Disconnection of rooftop to designated vegetated areas. Otter Creek, NY, NYSDEC

4.5.5 Rain Gardens

Rain gardens are used to manage and treat small volumes of stormwater runoff using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression. The rain garden is suitable for a townhouse, single-family residential, and in some institutional settings.

Figure 32 Rain garden, NYSDEC

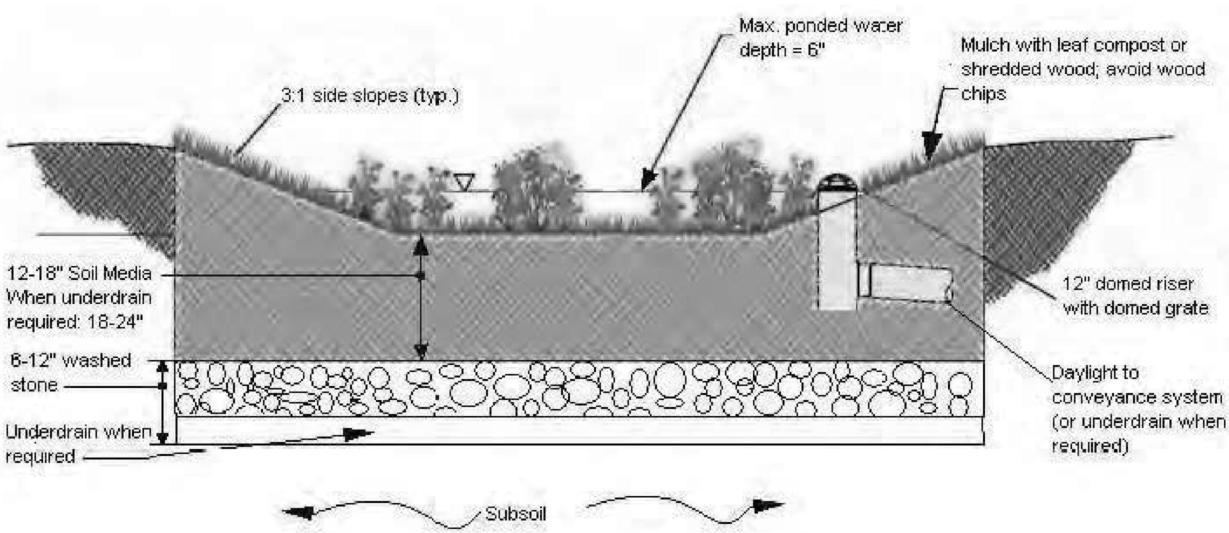


Figure 33 Profile of a typical rain garden, NYSDEC

4.5.6 Blue and Green Roofs

Green roofs capture runoff by a layer of vegetation and soil installed on top of a conventional flat or sloped roof. The rooftop vegetation allows evaporation and evapotranspiration processes to reduce the volume and discharge rate of runoff entering the conveyance system.

Figure 34 Green roof, GSA, Suitland, MD

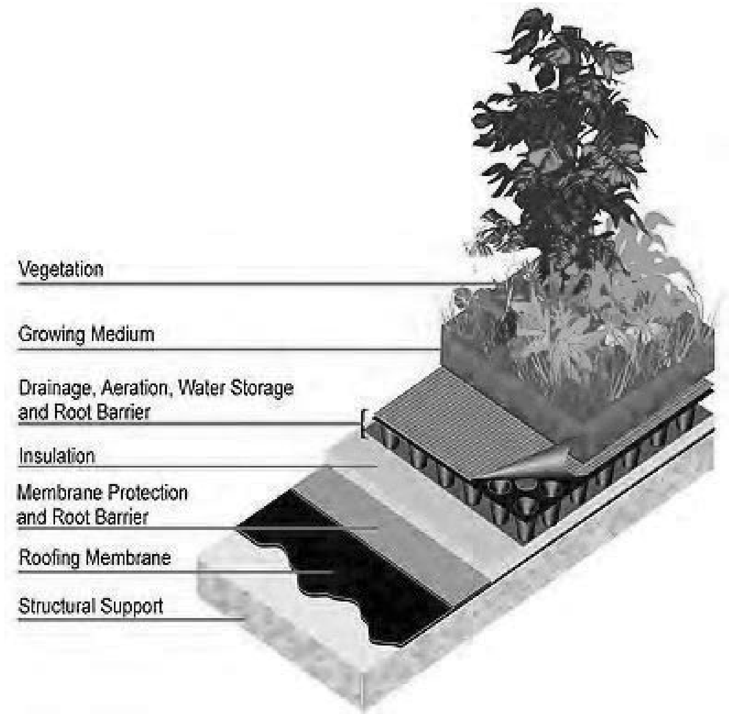


Figure 35 Green roof layers

4.5.7 Stormwater Planters

Stormwater planters are small, landscaped stormwater treatment devices that can be designed as infiltration or filtering practices. Stormwater planters use soil infiltration and biogeochemical processes to decrease the stormwater quantity and improve water quality.

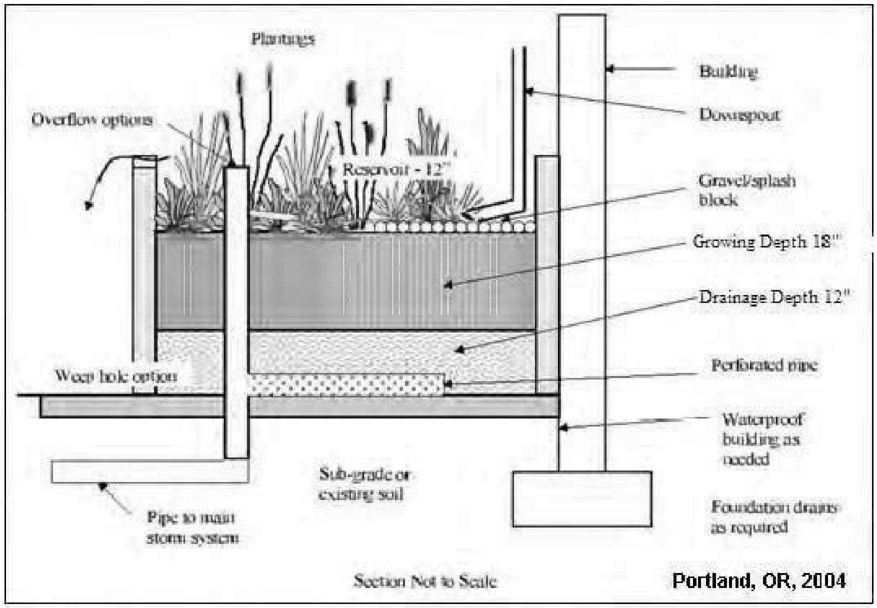


Figure 36 Infiltration stormwater planter, Portland, OR 2004

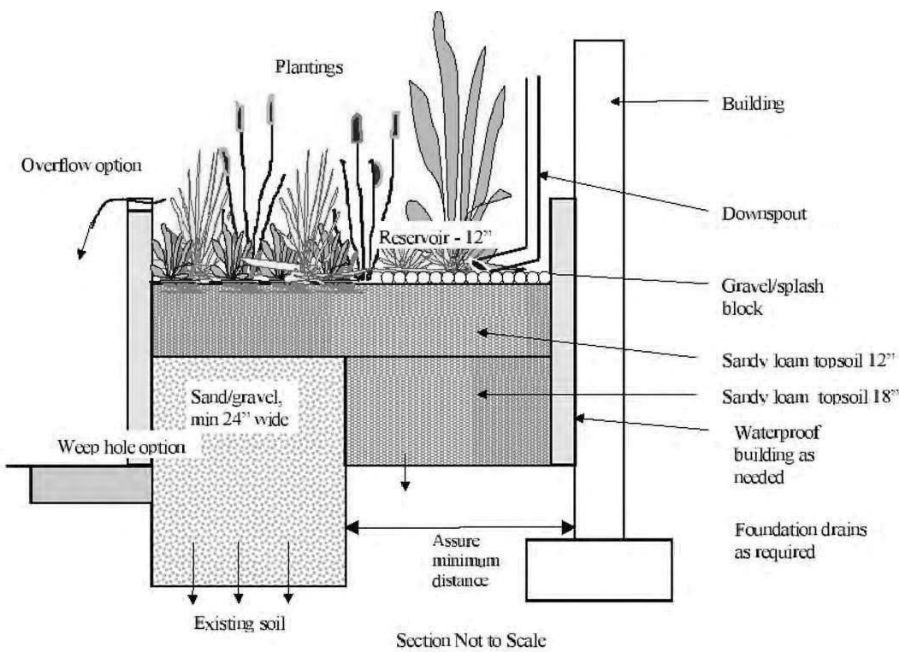


Figure 37 Flow-through stormwater planter

4.5.8 Rain Barrels and Cisterns

Rain barrels and cisterns capture and store stormwater runoff to be used for irrigation systems or filtered and reused for non-contact activities. Rain Barrels and cisterns may be constructed of any water-retaining material; their size varies from hundreds of gallons for residential uses to tens of thousands of gallons for commercial and/or industrial uses. The storage systems may be located either above or below ground and may be constructed of on-site material or pre-manufactured.

Figure 38 Rainwater collection system, Rainharvest.com

4.5.9 Porous Pavement

Porous pavements provide an alternative to conventional paved surfaces, designed to infiltrate rainfall through the surface, thereby reducing stormwater runoff from a site and providing some pollutant uptake in the underlying soils. Permeable paving has three main design components: surface, storage, and outflow. The surface types of paving can be broken into two basic design variations: porous pavement and permeable pavers.

Porous pavement is a permeable asphalt or concrete surface that refers to a material composed of aggregate bound with a black solid or semisolid substance distilled from a petroleum byproduct. Pervious asphalt uses open-graded (uniformly sized) aggregate, as opposed to the finely graded (various size) aggregate used in standard asphalt. Using open-graded aggregate leaves voids between the aggregate that allow water to flow through. Also, pervious asphalt uses less asphalt binder to ensure that many of the voids between pieces of aggregate are not clogged. Pervious asphalt is laid over an aggregate base that retains stormwater until it can filter through to be absorbed by the subsurface.

Figure 39 Porous Pavements, EPA, St. Albans, VT

Pervious pavers consist of cast or pressed concrete pavers are solid blocks set on a surface with joints that leave open spaces between each unit. The joints may be filled with loose aggregate or pervious material such as pea gravel, sand, or soil. Another option is to plant grass in the joints. Concrete pavers may be dyed during the manufacturing process. Additionally, the blocks can be pressed with a pattern that simulates other more expensive materials such as brick, stone, or wood.

Figure 40 Pervious Pavers, Seaside, FL

4.6 Infrastructure Cost Reduction strategies

The combination of New Urbanism Principles and GI+LI implementation ensures that the overall costs can be significantly reduced. Most of the tools provide multiple functionalities, e.g., rain gardens may provide storage and filtration, while also performing conveyance features. The range of reduction can be in the range of 30 to 50% when the following main principles are followed.

- Maximizing pervious surfaces (green areas which are completely pervious):
- Private - include privately accessible green areas
- Public - include public open space, parks, green alleys.

- Substituting impervious surfaces with semi-impervious surfaces where possible
- Private - includes privately accessible alleys.
- Public - includes thoroughfare for light and pedestrian traffic.
- Reducing the impervious surfaces to building roofs only and roads with heavy vehicular traffic
- Building's footprints are completely impervious and cause stormwater runoff
- Roads for heavy vehicular traffic, which may be from concrete blocks, or from asphalt, which are mainly impervious.

The main cost reduction is based on the combined effect of

i) Development of an urban plan which increases the connectivity while minimizing road infrastructure expressed by vehicular thoroughfare per capita,
ii) Eliminating stormwater onsite storage which is typically required for water quality purposes and
iii) Eliminating or significantly reducing the subsurface conveyance (pipes and other stormwater infrastructure.

Many assessments of green infrastructure costs and benefits find that total benefits outweigh the total costs, particularly relative to grey infrastructure strategies and at comparable scales. For example, a 2007 U.S. EPA study found lower total costs for 11 of 12 green infrastructure projects when compared to equivalent grey infrastructure projects.

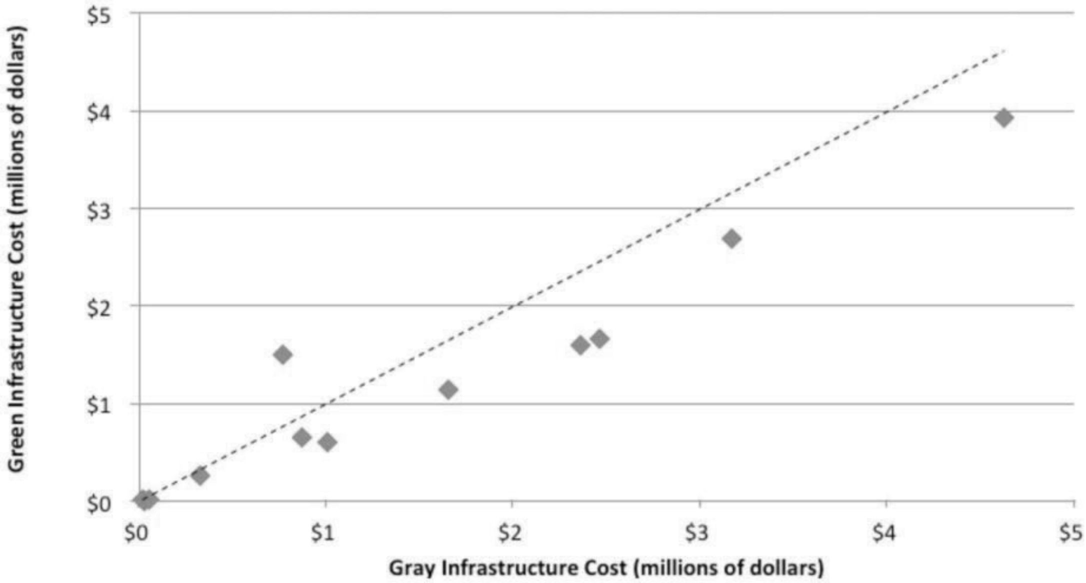


Figure 41 LID and Conventional Cost Comparison ($ Millions)

A survey of members of the American Society of Landscape Architects (ASLA) concerning recent green infrastructure projects revealed many reasons that stormwater professionals select green infrastructure over grey. They reported that green infrastructure offers benefits not available from grey, green options were less costly, and that long-term operation and maintenance expenses could be less particularly when combined with other efficiencies such as those corresponding to LEED certification. The reported cost savings over grey approaches were particularly substantial when large new equipment capacity would be otherwise necessary, or new conventional equipment would require more space than was available. In some cases, planners combined grey and green components to find the most cost-effective option.

5 CONCLUSIONS

To reduce the requirements of the stormwater system, the project will rely on a distributed system of lakes, dry ponds, and stormwater conveyances that are interconnected. The project area was delineated into 11 watersheds based on topography, soil and proposed infrastructure, and analysis was conducted to determine post-development runoff and define the most efficient configuration of the stormwater system which would minimize the runoff, increase aquifer recharge, and ensure compliance with water quality requirements. The urban plan introduced 11 lakes (with a total area of 24 acres ranging between 0.3 and 4 acres in size) and more than 80 dry (with a total area of 32 acres ranging in size between 0.1 to 2 acres). The proposed wet and dry ponds are interconnected with overland and subsurface conveyances to distribute and treat water storage within the site. The system was conceptualized to maximize infiltration and aquifer recharge of excess runoff during storms.

Considering that the project has environmentally preserved areas (the wetlands to the south, west and north), implementing green corridors in the direction of the streams was implemented in order to preserve to the greatest degree of hydrologic connectivity between the watershed and preserve the natural flow. The green corridors include a variety of Green Infrastructure and light Imprint components to accomplish the objective of providing infiltration areas for aquifer recharge and storage components.

Based on the urban plan configuration, the system for the Hybrid Plan provides enough storage to attenuate post-development 100-year, 24-hour peak discharge rate to pre-development rates. At the same time, the hybrid plan is to provide a conveyance system to convey a 25-year, 24-hour peak discharge rate.

A series of calculations were applied to determine the required storage volume and discharge rates for each type of pond.

The plan follows the topography and will not require significant modifications or grading. Best considerations of topographic features include placing the residential areas at the highest. The location of the industrial area is in proximity to the retention areas on the east side which is the most optimal for environmental purposes

Distributed open space within the plan and preservation of large open space area at the southwest section provides the most optimal approach to protecting open space and use within the urbanized areas.

The plan is expected to have minimal environmental impacts based on the distributed large number of green areas within the project which provide infiltration and correspondingly improve water quality and aquifer recharge, therefore reducing potential aquifer and downstream impacts.

The plan will provide the required flood protection capacity based on the minimized fraction of directly connected impervious areas which include multiple green corridors to provide storage and interrupt flow over such areas.

All potable water for the site will be municipally supplied, no on-site potable water wells are located on or utilized by the property. Wastewater generated at the site is currently managed on-site via a sanitary septic system connected to existing buildings' plumbing systems. The plan will include a sewer system that will be built in phases and which will connect to a regional wastewater treatment plant managed by Emerald Coast Utilities Authority (ECUA). Surface water runoff infiltrates or is discharged eventually to Eleven Mile Creek with no NPDES Permits requirements. Solid waste managed by ECUA. Electricity is provided by Gulf Power and electricity.

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7 APPENDIX A CONCEPTUAL STORMWATER PLAN

8 APPENDIX B HYDROLOGIC CALCULATIONS

OLF-8 HYBRID PLAN

GREEN INFRASTRUCTRUE IMPLEMENTATION

SUBMITTED TO

TERRI BERRY, PMP

PROJECT MANAGER

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EXHIBIT
H

EXECUTIVE SUMMARY

This document provides a summary for implementation of Green Infrastructure strategies for the OLF-8 project based on the Hybrid Plan developed by DPZ Codesign. The OLF-8 site provides an opportunity for a new development that is environmentally sustainable and resilient, compact, diverse, and well-connected. The overall approach for civil and environmental engineering is to protect resources and reduce construction and operating costs by using sustainable civil engineering practices that are coordinated with urban design.

This document provides selected Green Infrastructure strategies for the OLF-8 project based on the Hybrid Plan developed by DPZ Codesign in May 2021. Initial assessment of project site conditions and design considerations of the project site was conducted to determine potential constraints that may limit on-site retention of stormwater runoff and implementation of stormwater quality control measures. Six types of green infrastructure components are implemented.

For stormwater treatment a series of interconnected lakes and green areas are proposed (wet and dry ponds). The urban plan introduced 11 lakes (with a total area of 24 acres ranging between 0.3 and 4 acres in size) and additional dry ponds. The proposed wet and dry ponds are interconnected with overland and subsurface conveyances to distribute and treat water storage within the site. Based on the urban plan configuration, the stormwater system for the Hybrid Plan provides enough storage to attenuate post-development 100-year, 24-hour peak discharge rate to pre-development rates.

On a block and parcel scale, smaller green infrastructure components (with a total area of 32 acres ranging in size between 0.1 to 2 acres) are proposed, which include stormwater planters, rain gardens, stormwater trees and vegetated swales. To reduce the impact of introducing impervious roads, two strategies are proposed. Thoroughfare medians with total length of nearly 25,000 feet are used to provide stormwater storage runoff from the roads. Additionally, for semi-impervious road cover and medians are proposed for light vehicular and for pedestrian traffic.

For green building practices, either solar roofs or green roofs are proposed to cover the proposed 95 acre of building roofs. Using solar power has initial costly investment, however it has the potential to reduce the overall use of energy within the site. As an alternative to solar power, green roofs can be used to capture the runoff by a layer of vegetation and soil installed on top of a conventional flat or sloped roof. The rooftop vegetation allows evaporation and evapotranspiration processes to reduce the energy consumed by the building by estimated 33% and additional to reduce volume and discharge rate of stormwater runoff from the roofs. Geothermal Heat Pumps can be used to reduce the overall energy demand of the site and to reduce noise generated by air conditioning system. In Zones Z1 to Z4 Closed loop systems are recommended based on using a thermal fluid, (typically water), to circulate through underground pipes to a building's heat exchange system. In the winter, the heat pump extracts heat from the ground to heat the building through space heating or to heat water.

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1 INTRODUCTION

The OLF-8 site provides an opportunity for a new development that is environmentally sustainable and resilient, compact, diverse, and well-connected. The overall approach for civil and environmental engineering is to protect resources and reduce construction and operating costs by using sustainable civil engineering practices that are coordinated with urban design. This document provides a series of Green Infrastructure strategies for the OLF-8 project based on the Hybrid Plan developed by DPZ Codesign, and presented to the Board of County Commissioners in May 2021.

Initial assessment of project site conditions and design considerations of the project site was conducted to determine potential constraints that may limit on-site retention of stormwater runoff and implementation of stormwater quality control measures. As part of this assessment, the project identified the physiographic, hydrologic, climatic, and regulatory conditions at the site and included:

- Site hydrology (topography, soils, current land use, wetlands, groundwater elevations, flood hazards).
- Predevelopment drainage patterns and area (acreage and location via project site map).
- Location of point(s) of stormwater runoff discharge (storm drain system or receiving water).
- Activities expected on-site.
- Regulatory requirements mainly which include Escambia County (Land Development and Municipal code) and Northwest Florida Water Management District.

The topography of the sites varies from 70 to 145 feet elevation in the North American Vertical Datum of 1988 (NAVD 88). Most of the site is primarily flat and approximately 85% of the area is at elevations above 100 feet NAVD 88. The site has favorable topography for a broad range of urban development. The areas with elevations lower than 100 ft NAVD 88 are primarily occupied by wetlands and considered undevelopable land, therefore a conservation zone was proposed to protect these areas from future development.

The pre-development drainage of rainfall that exceeds the infiltration capacity of soils results in surface runoff that is routed via natural land depressions and channels to the existing wetlands and perennial streams located at the southwest and southwest corners of the site and subsequently discharge into Eleven Mile Creek which is located approximately one mile southeast of OLF-8.

Flooding in Escambia County results primarily from tidal surges and the overflow of streams and swamps associated with rainfall-runoff. Major rainfall events occur because of hurricanes, tropical storms, and thundershowers associated with frontal systems. Some of the worst floods to occur in this area were the result of high-intensity rainfall during a hurricane (particularly in 2020, Hurricane Sally nearly 30" inches of rain were recorded within a few days and with maxim 3 -day rainfall (ref 3).

The project is located outside of FEMA-designated special flood hazard areas as per the FEMA Floor Insurance Rate Map (FIRM) Map No, 12033C0290G which is effective as of October 2019. The entire site is in zone X, designated for minimal flood hazard, and located outside the Special Flood Hazard Area with greater than the 0.2-percent-annual-chance flood (ref 1).

Based on the limited preliminary investigation by Terracon Inc (ref 11) the predominant soil type encountered on-site was silty to clayey fine-grained sand. The initial soil data obtained from (ref 2) indicates low infiltration rates in the north half of the site (soil hydro group C) where lakes would be more appropriate. For the south section of the project dry retention or natural preserves which rely on higher infiltration rates to disperse the accumulated water are recommended.

The project is a greenfield site and there are no areas with known groundwater pollution, therefore, infiltration and use of surface drainage features are not expected to mobilize groundwater contamination. Tests provided most recently, January 2019 (ref 11), showed no presence of organic pollution in groundwater. The depth to groundwater beneath the project site during the wet season indicates available storage for infiltration even though the infiltration rates could be slow.

The surficial aquifer is underlain by the sandy to clayey surficial horizons of the Citronelle Formation that are time-equivalent to the hydrogeologic Sand and Gravel Aquifer. The Sand and Gravel Aquifer is 275 to 300 feet thick and is the source of all domestic and municipal water in Pensacola. ECUA intends to build a public supply water well system within the northeast corner of the site for withdrawals from the Sand and Gravel aquifer which is not expected to impact the stormwater system because of the separation of surficial aquifer and surface water flows by the soil layer.

Delineation investigation completed by Wetland Sciences Inc in 2019 established that the existing wetlands are comprised of four distinct ecological communities, wetland bay gall, wetland shrub bog, wetland dome swamp, upland mesic hardwoods, and disturbed uplands. Previous wetland delineation studies from 2013 identified approximately 23.21 acres of palustrine wetlands (rooted in water but growing above the surface) along the northern, eastern, and southwestern borders of the site. Approximately 0.08 acres of emergent wetlands exist along the western border of the property. Upland and forested drainage channels are present, draining to the wetlands. Approved jurisdictional determination for 17.08 acres of the wetlands along the west, South, and Eastern boundaries was issued by the USACE in April of 2013 due to their drainage to Eleven Mile Creek, which is a tributary to traditionally navigable water. Wetlands along the northern border of the property are classified non- jurisdictional because these areas (6.05 acres) are isolated from, or not adjacent to traditional navigable water or other waters of the U.S. Upland buffers with a minimum width of 15-feet and an average width of 25-feet shall be provided abutting those wetlands under the regulatory jurisdiction of the State of Florida under 62-340. A 10-feet average upland buffer shall be required for development activities that avoid impacts to wetlands.

The proposed urban development will result in the addition of impervious and semi-impervious areas, which will reduce aquifer recharge and will increase stormwater surface runoff during rainfall events. The urban plan will introduce impervious and semi-impervious areas which are classified in the following categories based on their perviousness and accessibility:

i) Impervious surfaces mainly from building roof, roadways and sidewalks.
ii) Semi-impervious surfaces with public access, including light traffic roads, sidewalks, parking areas, and other public spaces.
iii) Pervious green infrastructure components designed to provide stormwater storage including green areas, parks, detention areas, stormwater trees (trees with the capacity to accommodate runoff)
iv) Pervious natural green areas, which are preserved in their native state and can be used for treatment of stormwater volumes peaks and water quality

The initial concept of the stormwater management system was developed in collaboration with the planners, and with the objective to meet the on-site retention and treatment requirements and regulatory compliance and reduce the overall costs by incorporating green infrastructure strategies. The configuration of the proposed stormwater system includes a series of interconnected storage ponds, conveyance and green infrastructure components which were sized to provide stormwater flow and water quality treatment (Figure 1).

Figure 1 Configuration of Green Infrastructure and Stormwater Management System

To ensure that the overall site hydrology is preserved, the urban plan uses multiple strategies to reduce the impacts of impervious areas such as:

i) Reduce impervious areas and reduce surface runoff and increase the aquifer recharge.
ii) Increase on-site storage to retain stormwater and maintain the pre-development drainage hydrology.

iii) Use native vegetation to increase evapotranspiration, reduce stormwater runoff velocities, and provided water quality treatment.

iv) Provide a series of inline cascading storage features (dry and wet retention ponds) to attenuate post-development peak runoff and provide water quality treatment, while providing park amenities.

Figure 1 provides the configuration of the stormwater system which preserves the pre-drainage flows and is comprised by conventional stormwater components (underground pipes and infrastructure). Retention-based stormwater quality control measures are more effective on leveled or gently sloped areas, therefore, the retention green infrastructure components were preferably placed in flatter areas.

The plan shown on Figure 1 was developed based on the Design Standards Manual of Escambia's Municipal Code (ref 8 and 9) considering that the stormwater management system (SMS) shall at minimum be designed to provide for the following for the total contributing runoff area:

- **Positive Discharge Outfall:** Provide attenuation of the runoff from a 100-year critical duration event, up to and including 24-hour duration, so that the post-development runoff rate does not exceed the pre-development runoff rate.
- **No Positive Discharge Outfall:** Provide retention up to and including 24-hour, 100-year frequency storm with no offsite discharge. The Municipal Codes states that these systems shall remain private and will not be accepted by the county for ownership and maintenance.

Furthermore, the stormwater management system (SMS) is designed to provide for the treatment of the first one-half inch of runoff which shall be recovered in 72 hours. The methods of water quality treatment are provided in the latest edition of the Environmental Resources Permit Applicants Handbook, Volume II (ref 5). The entire capacity of a dry pond shall be fully recovered within seven days for a pond with positive drainage outfall and ten days for a pond with no positive drainage outfall.

Designs requirements for dry and wet ponds are provided in the Environmental Resource Permitting Applicants Handbook, Volume II, Florida Department of Environmental Protection and Northwest Florida Water Management District and were taken into consideration in development of the plan shown on Figure 1.

The perimeter of all deep pool areas (four feet or greater in depth) are typically surrounded by two benches except when the pond side slopes are 6:1 or flatter. An aquatic bench that generally extends up to 15 feet inward from the normal shoreline should be included. Aquatic benches have an irregular configuration and have a maximum depth of 18 inches below the normal pool water surface elevation.

All ponds are required to slope at a subtle grade into the water as a safeguard against accidents, to encourage the growth of vegetation, allow for proper maintenance, and to allow alternate flooding and exposure of areas along the shore as water levels change. An additional benefit is to allow the pond to be well integrated into the open space network so that it is also used as a public amenity. The OLF-8 project will use unfenced dry and wet ponds with a slope of 6:1 horizontal to vertical, out to a depth of two feet below the control elevation for wet ponds.

The Design Manual requires stabilization of wet/dry ponds using solid sod above the permanent pool elevation; alternatively, stabilization can be obtained through incorporation of littoral plantings. The side slopes of dry ponds are required to be solid sod from the bottom to three feet beyond the top of bank. Unobstructed maintenance access is required with a minimum width of 15 feet for wet ponds and 12 feet for dry ponds to the wet/dry pond area constructed of graded aggregate a minimum 12 feet wide, no steeper than 6:1 (horizontal to vertical) at least five inches thick and underlain with pervious geotextile fabric. A summary of applicable standards for maintenance access include:

- A concrete driveway leading from the roadway meeting county standards. To reduce road impervious areas, semi-impervious materials are suggested (i.e. pervious concrete or pavers)
- Access gate with a minimum 14 feet wide, six feet tall double access gate at the pond parcel boundary line is required, however, an exception is proposed not to require this gate for the OLF-8 project
- Dry ponds are required to have a minimum 5-foot-wide access route around the pond perimeter with a cross slope no steeper than 6:1.
- Wet ponds are required to have a minimum 15-foot-wide access route around the top bank perimeter of the retention area perimeter with a cross slope no steeper than 6:1.

Overland Conveyance Systems: All conveyance systems are designed to convey the runoff from a 25-year critical duration event. Curb and gutter systems are designed to convey runoff without exceeding:

- For local residential roads, the maximum allowable spread shall not overtop the top of curb and the flow spread should not exceed to the crown of the roadway.
- For two lane collector roads, the maximum allowable spread shall not overtop the top of curb and the flow spread must leave one lane free of water in one direction.
- For arterial roads, the maximum allowable spread shall not overtop the top of curb and the flow spread must leave at least one lane free of water in both directions.

Roadside swales and ditches are designed for:

- Flow shall not extend over the property line, right-of-way line, or drainage/utility easement line
- Minimal longitudinal slope of 0.30 percent.
- Depth less than three feet.
- Minimum distance of six feet from the edge of the travel lane.
- Design velocity of unlined swale is less than three feet per second, and less than six feet per second for lined swale.
- Maximum side slope is flatter than 3:1 (horizontal to vertical).

The open channels in drainage rights-of-way or easements are designed to:

- All ditches or swales shall be stabilized.
- Bank slopes shall be 6:1 or flatter unless permanent stabilization is provided.
- Velocity of water shall not exceed three feet per second in grassed ditches or six feet per second in lined ditches.
- Maximum allowable design depth of water in ditches shall be three feet during a 25-year storm.
- Bottom of ditch or swale is two inches or more above the water table.
- Any ditches with grades of five percent or greater shall be lined or otherwise improved to eliminate erosion and sedimentation buildup in the lower elevations of the ditch, as approved by the county engineer.
- Adequate access for maintenance equipment (15 feet wide minimum) must be provided as needed for maintenance equipment access.
- Channels and culverts under all proposed roads, excluding conveyance systems diverting runoff to the ponds, shall be designed to convey the runoff from a 100-year critical duration event without overtopping the road.

- All proposed conveyance swales and open conveyance ditches are designed with minimum longitudinal slope of 0.30 percent.
- Design velocity of unlined swale is less than three feet per second, and less than six feet per second for lined swale.

Underground Conveyance Systems: All underground conveyance systems are designed with inlet/junction boxes spacing not to exceed 400 feet. The minimum pipe diameter is 18 inches and shall be equal to or larger than the adjoining upstream pipe diameter. Under proposed or existing paved roadways only reinforced concrete pipe (RCP) are acceptable. Drainage easements for underground conveyance systems are minimum width of 15 feet for when the proposed depth is equal to or less than five feet from pipe invert to proposed finished grade and 20 feet for greater depts. Under normal flood conditions county standard inlets are designed to accept the following flowrates, or alternatively, FDOT inlets may be used as a substitute for county standard inlets provided the inlet capacity is accommodated by the specified inlet type:

- Type "A" Inlet: 7—10 cfs
- Type "A-1" Inlet: 7—10 cfs
- Type Modified "A" Inlet: 14—20 cfs
- Double "A" Inlet: 14—20 cfs

The DSM requires a stormwater management plan (SMP) prepared by, signed, and sealed by a professional engineer registered in the State of Florida certifying that the intent of the land development code and this design standards section have been met.

2 PROJECT ZONING AND PHASING

The proposed zoning information was used to define the preferred green infrastructure components of the site. The proposed zoning map for the period 2021-2027 and the proposed stormwater infrastructure are depicted in Figure 2.

Figure 2 Proposed Zoning Map (2021-2027) and Stormwater Infrastructure

The zoning map was used to identify site-specific Green Infrastructure Components recommendations. The zoning of the site includes:

- **CZ: Conservation Zone:** Protected public open space and natural wildlife habitats, total of 143.84 acres three lakes with surface area 8.47 acres.
- **Z1: Neighborhood Core:** A high intensity mixed-use district, consisting of residential, commercial, and institutional uses, with total area 31.78 acres.
- **Z2: Neighborhood Center:** A medium intensity mixed-use district, consisting of residential, commercial, and institutional uses, covering 16.11 acres, stormwater storage is provided in CZ.
- **Z3: Commerce District:** A medium intensity commerce district, consisting of commercial and retail uses covering 72.69 acres and a lake with surface are of 0.74 acres. Additional stormwater storage is provided in Z4.
- **Z4: Light Industrial District:** A medium intensity district, consisting of light industrial and commercial/office uses covering 181.6 acres and 7 lakes with surface area of 14.67 acres.
- **Z5: Neighborhood General:** A medium intensity, predominantly residential district, consisting of single-family attached housing, multi-family housing and live-work units, stormwater storage is provided in CZ.

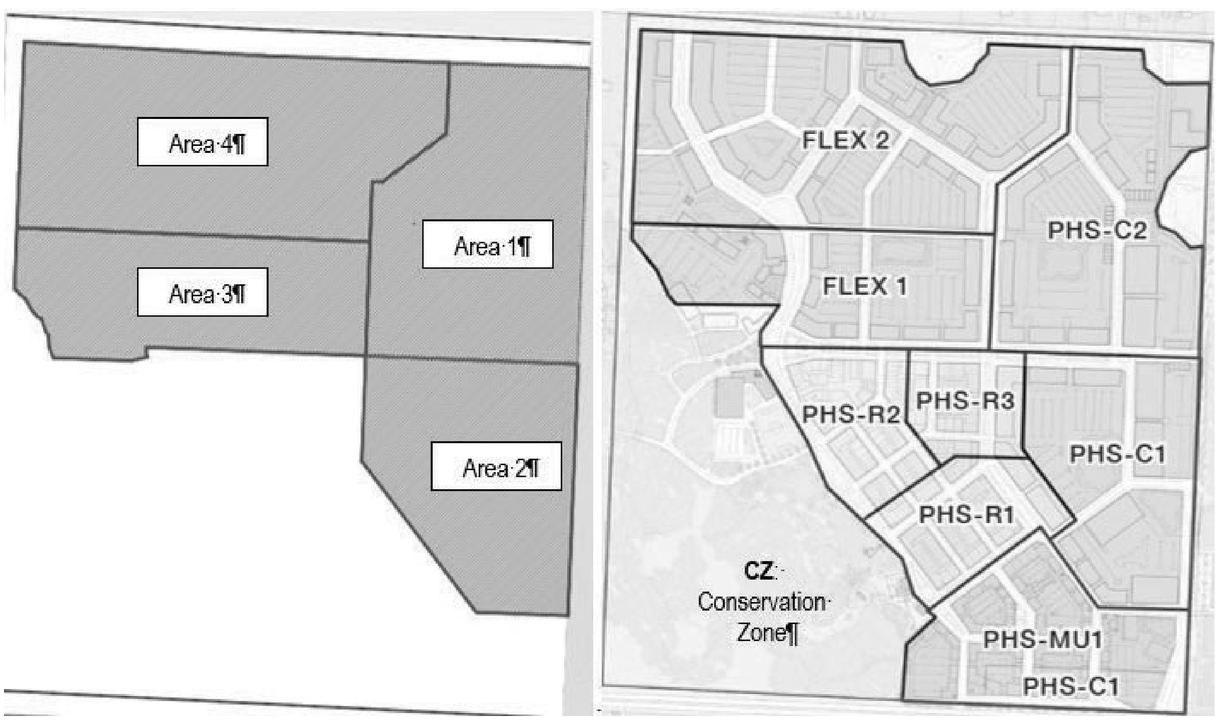


Figure 3 Phasing of Development Areas

The site infrastructure will be developed based on the urban phasing diagram shown on Figure 3. Areas 1 and 2, 3 and 4 will be developed sequentially starting with Area 1. The following recommendations are provided for infrastructure phasing:

- Infrastructure Phase 1 – Includes development of the infrastructure for Area 1 (PHS-C2), Area 2 (PHS-C1) and for the conservation zone will be developed. PHS-C1 of Area 1 and PHS-C2 of Area 2 will develop all civil infrastructure (stormwater, utilities, roads). The Conservation Zone will be developed initially considering that the entire zone is a set of parks which serves and provides amenities for the entire site, therefore early implementation is recommended.
- Infrastructure Phase 2 – Includes development of the infrastructure for Area 3 (FLEX 1), this area will also provide infrastructure for future development of Area 4.
- Infrastructure Phase 3 – Includes the development of the infrastructure for PHS-R1, PHS-R2, PHS-R3 and PHS-MU1. Considering that the land use type and zoning may change for some of the areas, the stormwater system and the utilities will be designed for medium intensity industrial (Z4, Z5 and Z6) or for high intensity neighborhood (Z1).

3 GREEN INFRASTRUCTURE IMPLEMENTATION

The project encourages the integration of Green Infrastructure strategies within all civil infrastructure components to provide the best environmental performance of the site and reduce the energy use and the costs of the civil infrastructure. Green infrastructure is a system of distributed and interconnected network of open spaces, natural areas and stormwater management components that preserve natural processes by engineering soils, topography, and vegetation in a way that maintains the pre-development hydrology and water quality of urban environments. The main design aspect of green infrastructure components is to minimize the impacts of development activities and impervious surfaces. This is accomplished mainly by maximizing stormwater storage, reducing impervious areas and increasing the use of vegetation (Figure 4):

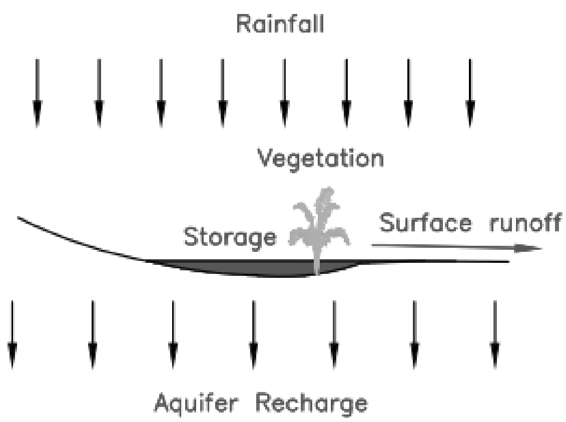


Figure 4 Principal Components of Hydrological and Green Infrastructure

The main aspect of Green Infrastructure Implementation is the preservation of the hydrological cycle (rainfall, runoff and evapotranspiration) which results in:

- Increase of on-site local storage of stormwater which proportionally reduce rainfall runoff volumes and provide longer contact times of surface runoff with soil to increase infiltration potential and aquifer recharge, preserve the physical integrity of receiving waters by managing stormwater runoff at or close to the source, and filter stormwater to improve water quality.
- Reduction of impervious areas which additionally reduce surface runoff volumes, peaks and velocities and improves distributed aquifer recharge.
- Increased use of native vegetation to reduce stormwater runoff velocities, correspondingly increase evapotranspiration, and improved water quality.

- Protect surface and ground water quality.
- Maintain the integrity of ecosystems.

Stormwater quality control measures are placed throughout the site in small, discrete units and distributed near the source of impacts.

The Green Infrastructure is designed to reduce and/or eliminate the altered areas of the post-development hydrograph, by reducing the peak discharge rate, volume, and duration of flow using site design and stormwater quality control measures. The benefits of reduced stormwater runoff volume include reduced pollutant loadings and increased groundwater recharge and evapotranspiration rates.

The main Green Infrastructure components include the use of bioretention/infiltration landscape areas, disconnected hydrologic flow paths, reduced impervious areas, functional landscaping, and grading to maintain natural hydrologic functions that existed prior to development, such as interception, shallow surface storage, infiltration, evapotranspiration, and groundwater recharge. The civil infrastructure will be designed as an integral part of the environment and to maintain the hydrologic functions through careful use of stormwater quality control measures.

All green open areas are designed to retain stormwater, increase infiltration, therefore reducing the overall stormwater runoff and providing water treatment by retaining the "first flush" water from semipervious and impervious surfaces. All open pervious areas contribute to the objective of the stormwater drainage system to retain and convey water during precipitation events. The Green Infrastructure system consist of a series of dry and wet ponds of various forms and sizes and strategically located to intercept stormwater runoff from adjacent upstream areas. The lakes additionally serve joint-use purposes such as parks and are be designed to improve the public areas. The integration of distributed Green Infrastructure on smaller scale that are distributed within the site will reduce the need for large-capacity retention systems and conveyance downstream.

Based on the hydrological properties of the site and the proposed zoning information, including site plan configuration, topography, soils and subsurface hydrology, a set of Green Infrastructure Components is proposed for best environmental performance and reduced energy use. The stormwater system consists of open green areas and conventional infrastructure (pipes, culverts, gutters, and structures) on neighborhood, block and parcel scale and include:

1. **Green Space Conservation** - Wetlands and forested areas below elevation of 100 ft NAVD 88 or slope greater than 15%.
2. **Natural Preserves (Dry Ponds) and Lakes (Wet Ponds)**
3. **Distributed Stormwater Control Components -** based on using stormwater retention areas, raingardens, bioswales, planters
4. **Urban Tree Canopy -** including stormwater trees, planters
5. **Thoroughfare Green Engineering Practices** –preferred use of semi-impervious materials for roadways and parking.
6. **Green Building Practices** –green roofs, geothermal energy for building heating and cooling.

3.1 Green Space Conservation

This project will provide protection of environmentally sensitive and valuable lands with unique topographic, hydrologic, and vegetative features at the southwest section of the site. These areas were included into a Conservation Zone (Figure 5) with total surface of 143.84 acres and includes three lakes with surface area 8.47 acres. The Conservation Zone will be protected from any activity that would alter their ecological integrity. The Conservation Zone includes all wetlands within the site limits, forested areas, flood plains, drainage ways, river or stream banks, and biological uniqueness.

The main function of the Conservation Zone is to protect wetlands, vegetation, slopes, soils, and the pre-development hydrology, including rainfall interception, infiltration, and evapotranspiration. Additionally, the conservation zone will include three lakes which will be used as stormwater treatment areas and will retain water for sufficient time to provide attenuate 100-year rainfall with duration of 24-hours and to provide water quality treatment. The proposed lakes will be constructed with a dual use as parks. The Conservation Zone includes the most sensitive areas, such as streams and their buffers, floodplains, wetlands, steep slopes, forested areas and highly permeable soils.

Within the conservation zone, the existing topography and drainage patterns will be preserved.

Figure 5 Conservation Zone

3.2 Natural Preserves and Lakes

The OLF-8 project will rely on a system of lakes (wet ponds) and natural preserves (dry ponds) to retain and treat stormwater on site for stormwater management and for attenuation of the 100-year rainfall. Dry and wet ponds are earthen depressions constructed with a substantial permanent water pool to provide both temporary and long-term storage of stormwater runoff, and they can be used to attenuate peak flows and provide Water Quality treatment through both pollutant removal and slow release. Ponds attenuate peak flows using an outlet control structure and provide storage capacity above the permanent pool, while water held within the system, including the permanent pool, is treated through natural physical, chemical, and biological processes. Typically, dry and wet ponds are designed within a watershed and have surface area greater than 0.5 acres.

Excess stormwater runoff from the developed areas will enter the lakes and the natural preserved areas directly or through natural and constructed channel systems. The lakes and the preserves are the two main Green Infrastructure components which will be used for stormwater storage and treatment.

The proposed plan relies on two main storage components for managing stormwater runoff and water quality:

- **Dry Ponds** (or Natural preserve) are stormwater facilities designed to temporarily hold a set amount of water while slowly draining to another location or infiltrate the ground (Figure 6). They are used for flood control when large amounts of rain could cause flash flooding. In general, higher conductivity of the subsurface layers is recommended in order to allow fast infiltration. Natural preserves have storage volumes which are equal to the surface area multiplied by the difference of the bottom elevation of the natural preserve and the freeboard.
- **Wet Ponds** (or Lakes) are bodies of water which are used for water retention (Figure 7). Lower conductivities of the underlying subsurface are preferable to maintain the lake water levels for extended period. Available lake storage during a stormwater event is defined based on the water level within the lake and the elevation of the freeboard.

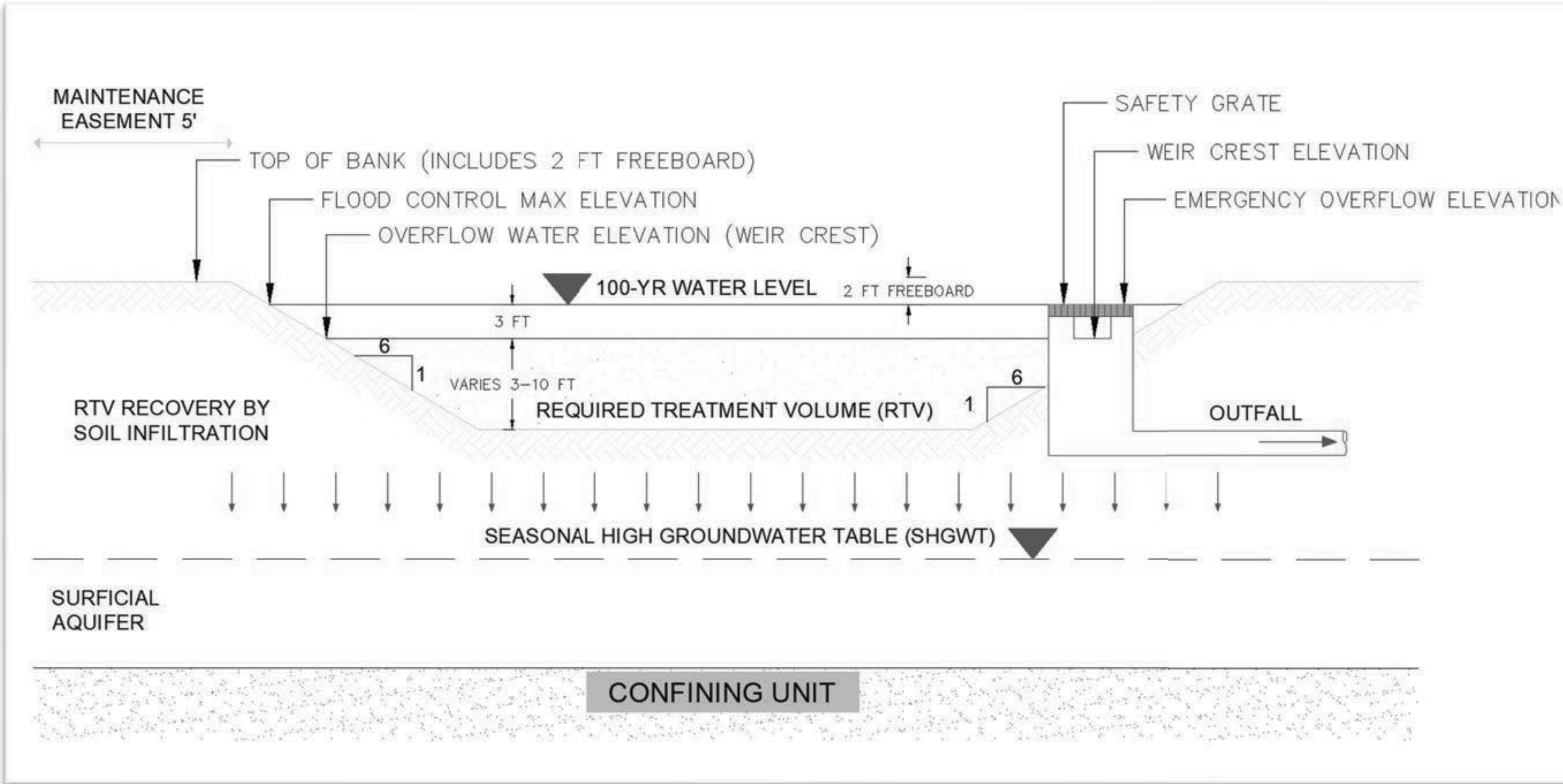


Figure 6 Typical Cross Section of Natural Preserve (Dry Pond)

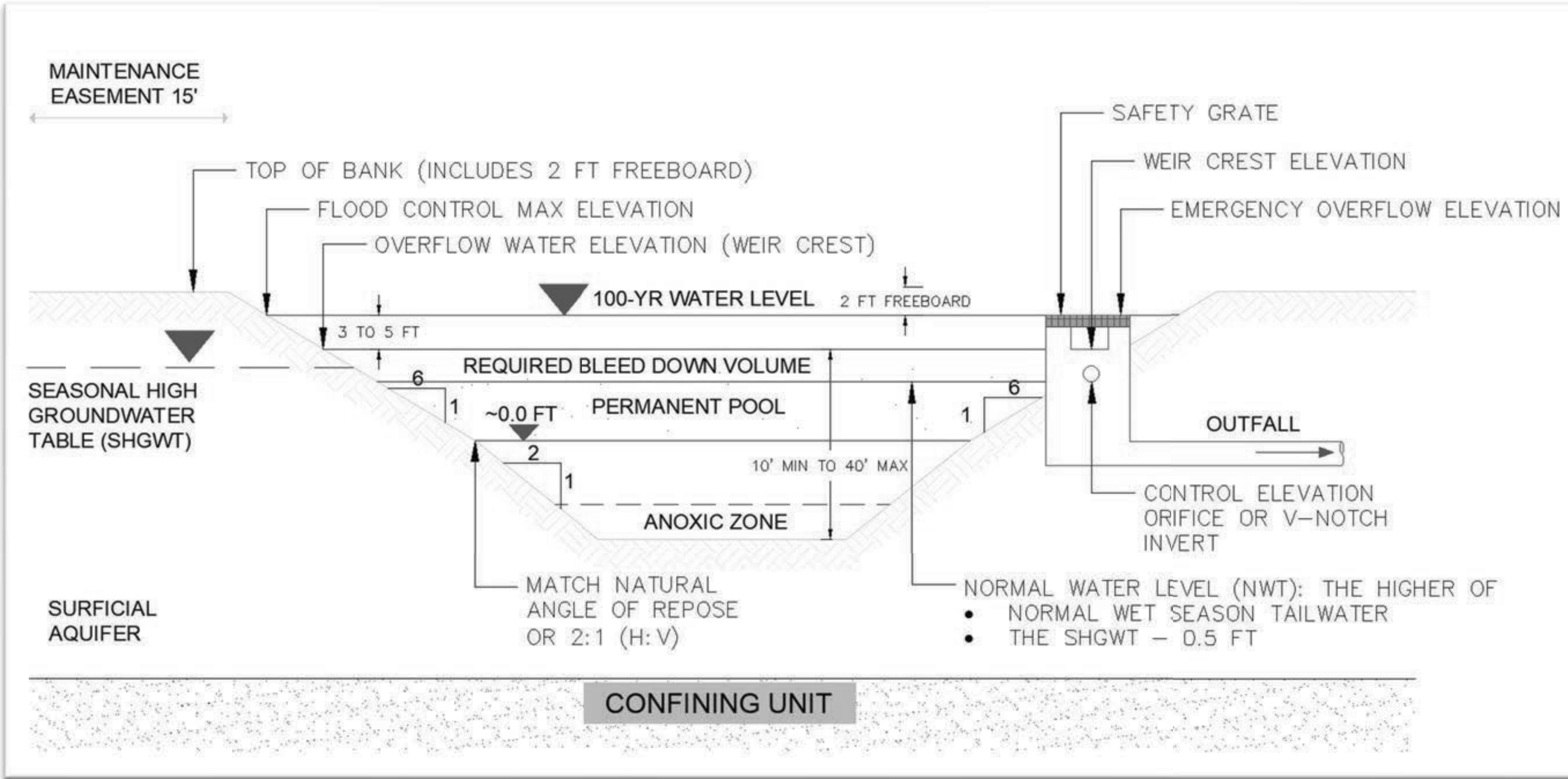


Figure 7 Typical Cross Section of Lake (Wet Pond)

The natural preserves and lakes have similar capacity in terms of stormwater storage. For natural preserves (dry ponds) the volume enclosed between ground level and the lower level of the freeboard is available for storage during stormwater events. Lakes provide storage between the lower level of the freeboard and the water level in the lake.

Based on the proposed master plan which provided conceptual location and sizing of green areas, lakes, and proposed buildings, a list of total areas of lakes and dry ponds per watershed are shown to provide stormwater management, distribution, and mitigation.

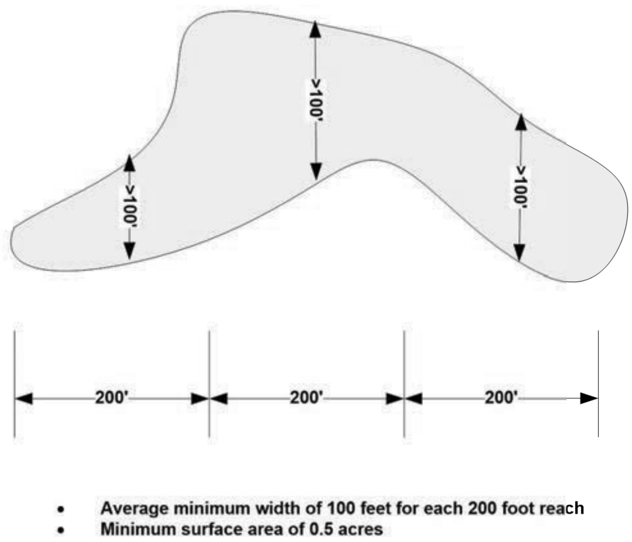
Table 1 Summary of Dry Ponds and Lakes

Watershed	Watershed Area (acre)	Total Area of Dry Ponds (acre)	Total Area of Lakes (acre)	Total Impervious Areas from Buildings (acre)**
Watershed 1	57.46	2.87	2.29	10.12
Watershed 2	47.71	3.59	0.30	9.55
Watershed 3	33.16	6.30		6.35
Watershed 4	32.37	0.63	2.27	5.29
Watershed 5	34.44	3.66	2.38	6.14
Watershed 6	47.66	3.00	2.60	10.04
Watershed 7	50.65	7.10	2.86	12.41
Watershed 8	42.09	1.67	3.01	9.85
Watershed 9	63.7	2.47	5.61	13.96
Watershed 10	48.27	1.14	2.55	11.20
Watershed 11*	77.05	0.99		
Total (acres)		**33.43**	**23.88**	**94.92**

* Watershed 11 covers the conservation area with no proposed development.
** The total building roof area is provided for reference

General recommendations for constructing lakes and natural preserves:

- Recommended shape is irregular as demonstrated below



To provide final design, additional information should be taken into consideration:

- Soil borings should be obtained within the lake areas to determine the potential seepage rates. Hydraulic conductivity of 3 ft/d or less will ensure low seepage rates and the lakes will hold water. The soil within the site have conductivity and lakes will be the natural choices for these areas 62 2).
- For areas with conductivity greater than 3 ft/d, bentonite clay can be used for lining the lakes. Bentonite is common for pond building, however if vegetation grows into the bentonite from outside of the pond, it could cause a leak. Therefore, it will be preferable to build natural preserves (dry ponds) if higher conductivities of the underlying surface layers are present.
- The natural preserves can provide water quality improvement, downstream flood control, channel erosion control, and mitigation of post-development runoff to pre-development levels. The primary mechanism by which a dry extended detention facility improves runoff quality is through the gravitational settling of pollutants.
- The edges of the lakes and the natural preserves will be sodded to protect the bank slopes of the dry and wet ponds. Finished grade at the beginning of the slope downward to the property line is equal to street grade at the front of the lot.
- Solid sod is placed from the bulkhead to meet the sod on the property or a point 5 feet landward from the top of the slope.
- Bank slope or incline from the bulkhead outward into the water cannot be steeper than 1:6 to an elevation of the water surface.

- If excavation below the water surface is in sound rock, the slope may be as nearly vertical as the rock will stand.
- Elevation of the top of the bulkhead is greater than one 1 foot above the control elevation
- Access boat ramps require slope of 20:1 (horizontal to vertical)
- A site plan is required for the construction of all dry and wet ponds following the Design Standards Manual of Escambia's Municipal Code (ref 8 and 9).
- The center portion of any man-made lake, pond, or waterway, other than a fish or wildlife facility, are typically excavated deep enough to maintain a water depth greater than 10 feet.
- Ponds are constructed at a distance at least fifty ft from an on-site, sanitary waste disposal system, and at least seventy-five feet from any existing or proposed residence, other structure or road right-of-way, at least twenty-five feet of any adjacent residential property line or at least two hundred feet of any agricultural property line.
- The perimeter of the man-made lake, pond, or waterway shall be landscaped and seeded within six months after completion of the excavation.
- All excavated material shall be moved from the site or shaped and spread to blend with the natural landforms in the area.
- Natural run-off and/or other waterway fed will be the only water sources allowed for the man-made lake, pond, or waterway
- The ground water table in the surrounding area and adjacent to the proposed man-made lake, pond, or waterway shall be protected.

Examples of typical lake configurations, of a dual function of stormwater lakes, including treatment and use as a park amenity, are shown for illustration.

Admiral Mason Park Pensacola Florida Stormwater Treatment Lake

Tavares Florida, 8-acre Stormwater Treatment Lake

Constructed wetlands (16 acre) as a multipurpose green infrastructure in Gorla Maggiore, Italy

Green Infrastructure for Overland Flow

3.3 Distributed Stormwater Control Components

For each watershed, the objective was to implement selected Green Infrastructure which will provide the most efficient reduction of runoff and water quality treatment. A system of distributed stormwater components is proposed to additionally reduce stormwater runoff and increase aquifer recharge on a block and parcel scale. A general description of the proposed infrastructure components is provided in this section.

A series of swales, planters and rain gardens is incorporated within the block and neighborhood to route stormwater downstream while simultaneously providing storage, retention, filtration and treatment and include:

- Vegetated Swales
- Raingardens
- Stormwater Planter
- Tree Canopy

The green infrastructure components are further refined based on the location within the urban zones are divided into two types:

- Stormwater infrastructure within median industrial, commercial, and high intensity urban areas (Z1, Z2 and Z3 zones).
- Stormwater infrastructure within medium or light industrial and commercial areas and medium intensity (Z4 and Z5) zones.

The stormwater system is individually designed for each block and integrates selected Green Infrastructure components that are evenly distributed within the site to provide a series of interconnected facilities for storage, filtration, and channeling within each catchment. The surface runoff from semi pervious and impervious surfaces is routed through surface channeling features (swales, and open channels), or optional subsurface piping system, to 88 Green Infrastructure components with average area of 24,000 square feet (min 400 and maximum 196,000 square feet). The total storage of all Green Infrastructure components is designed to exceed 66 ac-feet and contributes an additional 25% of storage to the wet and dry ponds.

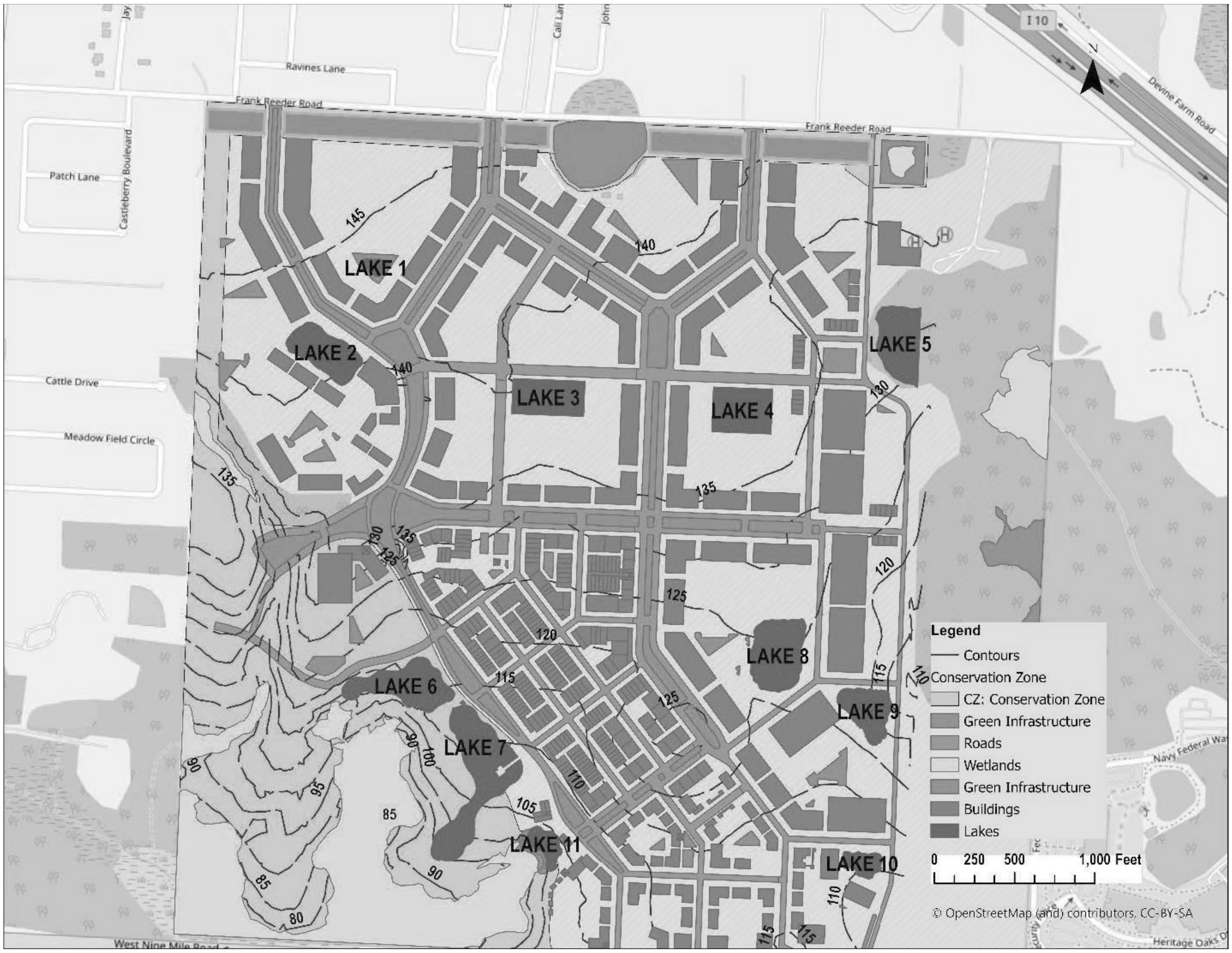


Figure 8 Map of Green Infrastructure Components within OLF-8

Each storage node connects downstream through a weir (an orifice is acceptable solution as well) which is designed to hold water according to the geometric properties of the storage node. During initial stages of rainfall, water flows to the storage node, and once the storage capacity of the node is exceeded, the water is routed downstream through the weir. Additionally, conventional stormwater infrastructure (system curbs, gutters, culverts, and pipes) will be used to drain the thoroughfares and public frontages within the urban zones (Z1, Z2 and Z3). Conventional infrastructure elements typically consist of the standard curb and gutter, and the pipes and culverts used as conduit, however, for low urban intensity, i.e. zones Z4 and Z5, drainage will be predominantly managed with green infrastructure which are designed to provide multiple functionality:

- **Conveyance** – Raingardens and swales provide conveyance and are positioned to take into consideration pedestrian movement and the fraction of impervious surface. The site implements multiple channeling functions within the variable median of the thoroughfares.
- **Storage –** All green infrastructure components provide storage and retention on-site to reduce the surface runoff and to provide sufficient time for water to infiltrate the subsurface. Public spaces with a storage functionality as the main component are preferably located in low areas to allow water to drain by gravity.
- **Filtration** - Maximizing the infiltration rates and capacities are important to increase aquifer recharge while reducing surface water run-off. All green infrastructure components improve infiltration to mimic the natural system and allow water to recharge the aquifer.

3.3.1 Stormwater Planters

Stormwater planters are small, landscaped stormwater treatment devices that can be designed as infiltration or filtering practices.

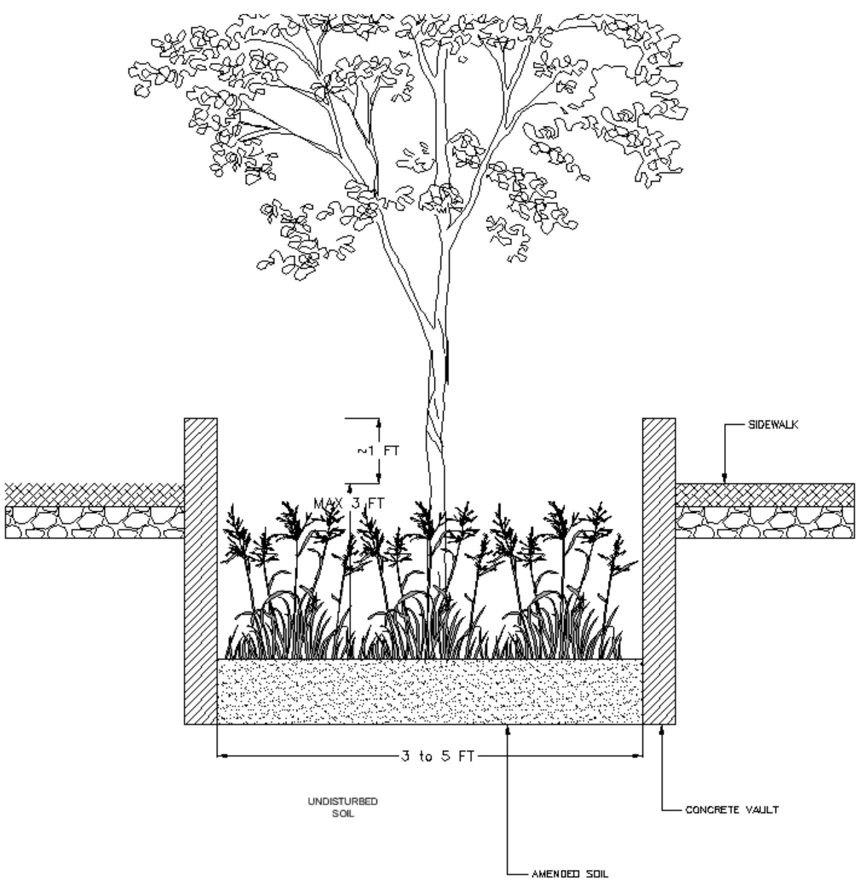


Figure 9 Stormwater Planter in Urban Settings (Z1, Z2, Z3)

Stormwater planters use soil infiltration and biogeochemical processes to decrease the stormwater quantity and improve water quality.

Green Infrastructure for Planters

Green Infrastructure Planters, Stockholm

Green Infrastructure Planters, Portland Oregon

3.3.2 Rain Garden

Rain gardens are used to manage and treat small volumes of stormwater runoff using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression. The rain garden is suitable for a townhouse, single-family residential, and in some institutional settings.

Figure 10 Rain garden, NYSDEC

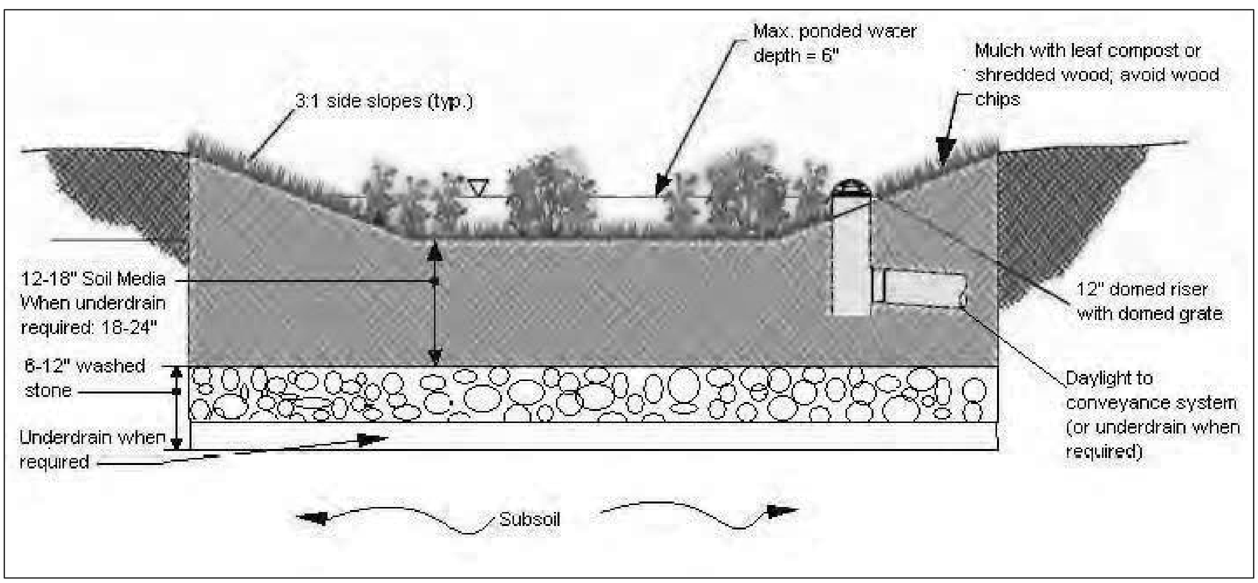


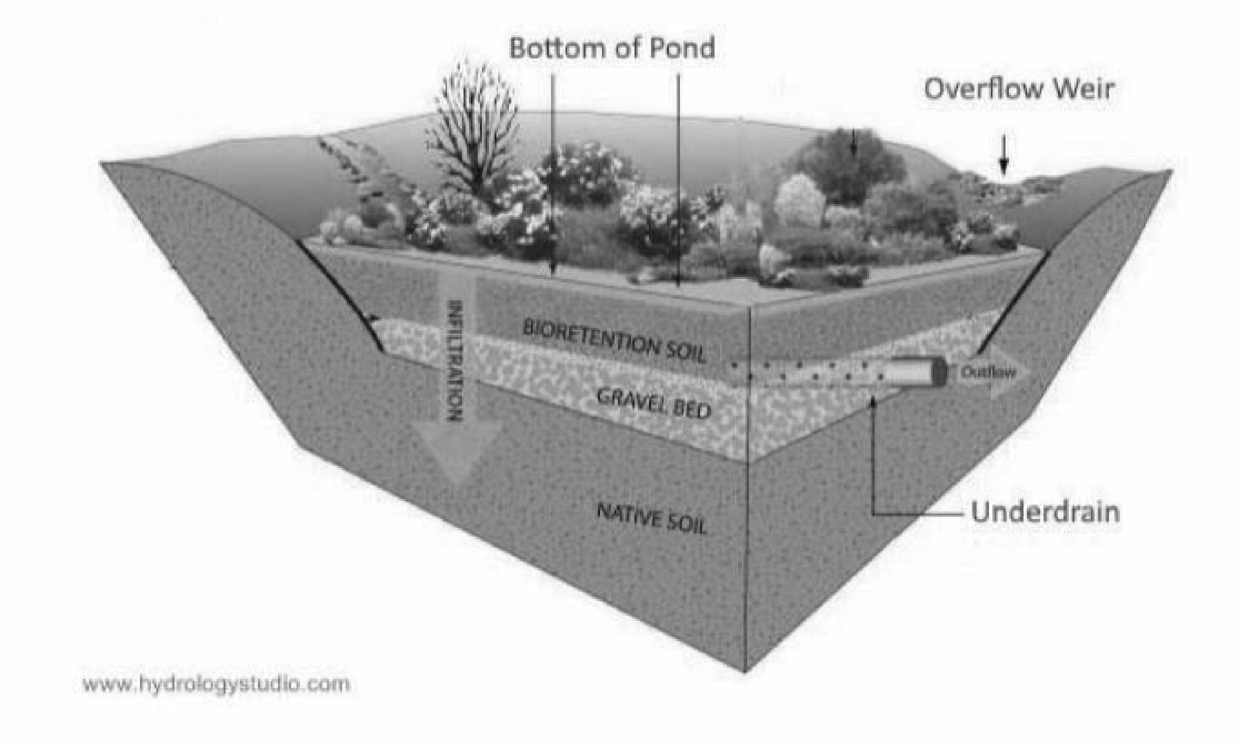
Figure 11 Profile of a typical rain garden, NYSDEC

https://stormwater.wef.org/2015/12/real-cost-green-infrastructure/

Figure 12 Vegetated Swale

https://currantdesign.wordpress.com/stormwater/

https://www.hedstromdesign.com/portfolio/streetscape-renovation/



https://www.ci.greenfield.wi.us/588/Green-Infrastructure

https://www.hazenandsawyer.com/work/services/green-infrastructure/

https://urbanresiliencehub.org/article/blue-green-infrastructure-for-climate-change-adaptation-in-peru/

3.3.3 Tree Canopy

In addition to documented social and economic benefits, planting and conserving trees reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. Trees can be used for applications such as landscaping, stormwater management practice areas, conservation areas, providing shade, and erosion and sediment control. Trees also provide additional space for storage and attenuation of stormwater runoff.

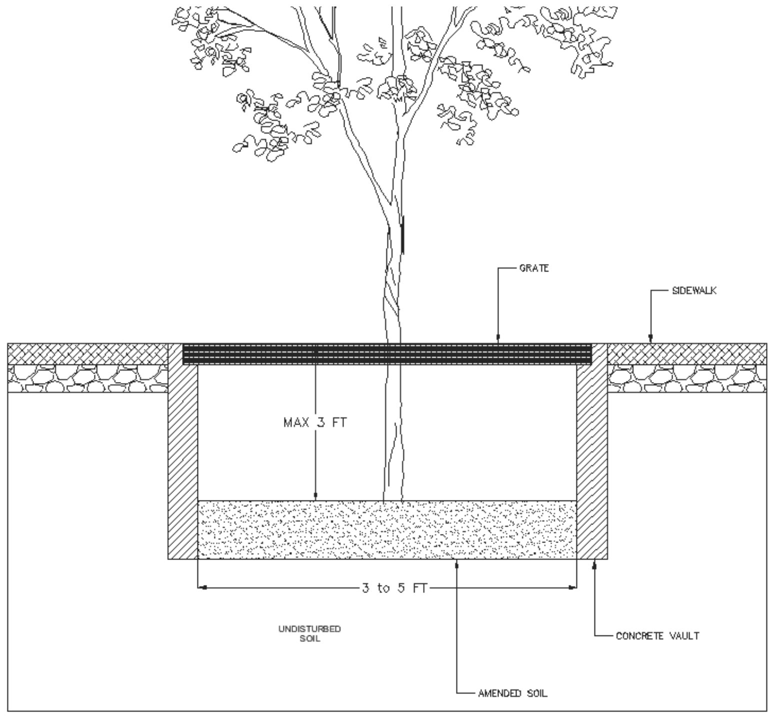


Figure 13 Stormwater Tree within Zones Z1, Z2 and Z3 (approximate storage 27-75 ft^3)

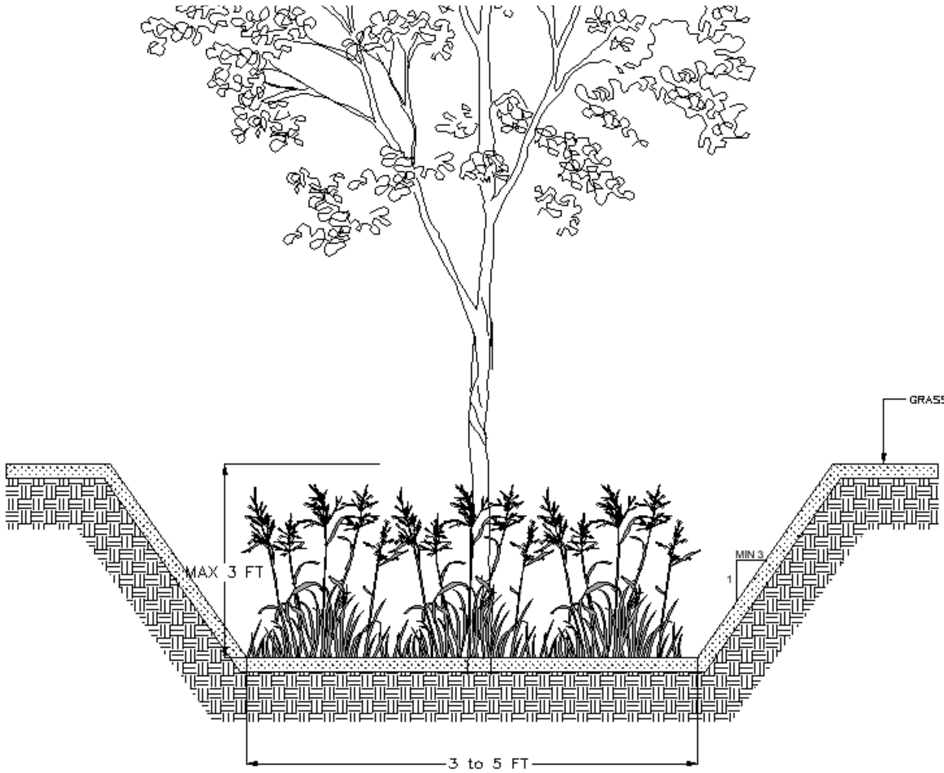


Figure 14 Stormwater Tree within Zones Z4 and Z5 (approximate retention 5-10 ft^3/ft)

The maximum side slope is flatter than 3:1 (horizontal to vertical). Minimal longitudinal slope of 0.30 percent. Depth is less than three feet. Minimum distance of six feet is provided from the edge of the travel lane. Design velocity of unlined swale is less than three feet per second, and less than six feet per second for lined swale.

3.3.4 Vegetated Swale

Rainwater is carried away from the thoroughfare by a system of swales. Swales are long, narrow open channels that infiltrate water and carry the excess water along the surface to a containment destination such as a detention or retention pond. Typically, all swales should be constructed to hold standing water for only a short time (approximately 70 to 80 hours) after a rainstorm. A minimum slope of 1 per cent should be maintained for proper drainage.

Vegetated Swale, City of Can Jose, CA

Shallow swales may run alongside a pedestrian pathway or bicycle trail on either side to accept the stormwater runoff from the gently crowned path. The maximum depth of swales is 3 ft. The natural drainage paths, or properly designed vegetated channels, can be used in zones Z4 and Z5 instead of constructing underground storm sewers or concrete open channels to increase the time of concentration, reduce the peak flow, and provide infiltration.

Example of Vegetated Swale with Erosion Control

Swales should be sodded and designed to look naturalistic and have a gradual maximum slope to prevent dangerous conditions to a nearby pedestrian.

Example of Vegetated Swale with Erosion Control

https://www.flowstobay.org/preventing-stormwater-pollution/in-my-community/green-infrastructure/

3.4 Thoroughfare Green Infrastructure

The potential for discharge of pollutants in stormwater runoff from roads increases as the percentage of the impervious areas within the project site increases. Pollutants deposited on impervious areas are easily mobilized and transported by stormwater runoff. Minimizing impervious areas through site design is an important method to reducing the pollutant load in stormwater runoff.

The following strategies for minimizing impervious areas through site design were applied:

- Use minimum allowable roadway and sidewalk cross-sections, driveway lengths, and parking stall sizes.
- Reduce building and parking lot footprints. Building footprints may be additionally reduced by building taller.

- Use pervious pavement material, such as modular paving blocks, turf blocks, porous concrete and asphalt, brick, and gravel or cobble, to accommodate overflow parking, if feasible.
- Cluster buildings and paved areas to maximize pervious area.
- Maximize tree preservation or tree planting.
- Use vegetated swales to convey stormwater runoff instead of paved gutters.
- Build compactly at redevelopment sites to avoid disturbing natural lands and to reduce per capita impacts.

3.4.1 Thoroughfare Medians

The plan incorporates medians along all major roads. Figure 15 shows the median along the major roads.

Figure 15 Vegetated Swale Along Frank Reader Road

The approximate length of all roadside swales is 25,000 feet, which provides significant attenuation of the stormwater runoff caused by road imperviousness. The medians provide an important benefit in intercepting stormwater runoff and reducing volumes and peaks downstream.

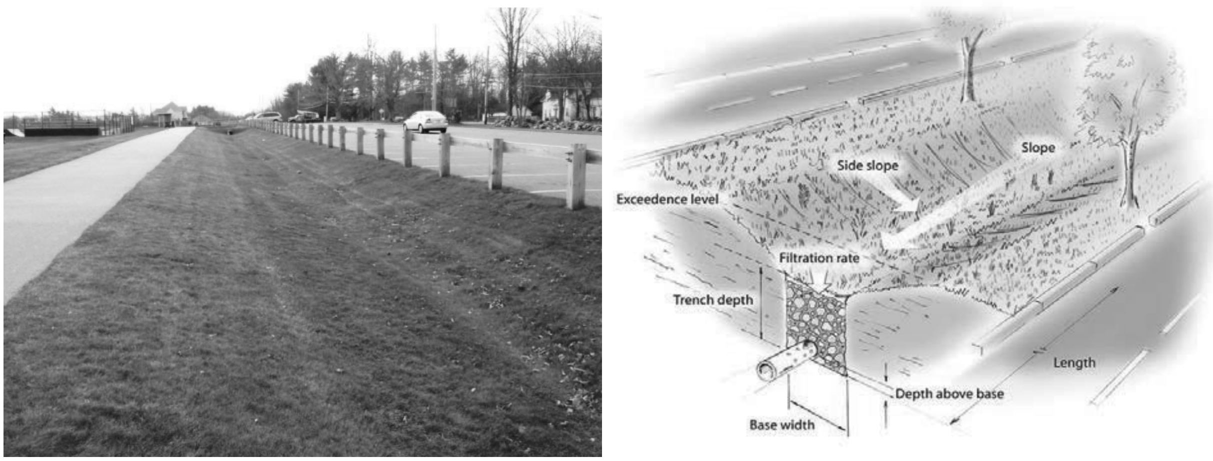


Figure 16 Typical Median Construction to Manage Stormwater Runoff

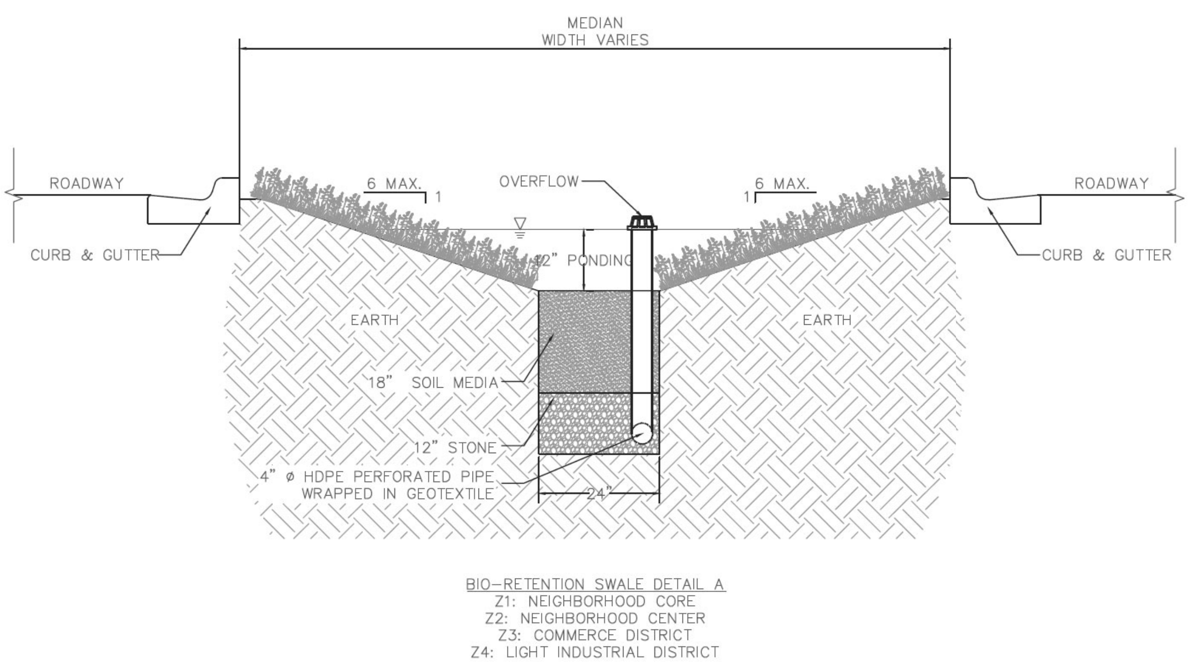


Figure 17 Typical Median in Zones Z1 to Z4

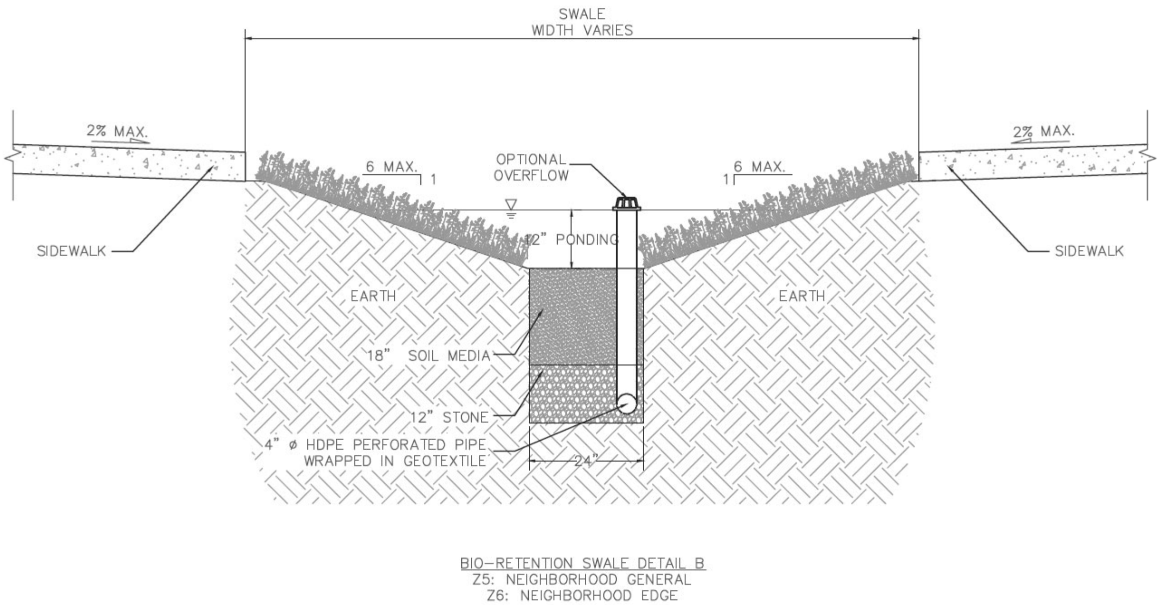


Figure 18 Typical Median in Zones Z5 and Z6, Overflow and Drainage Infrastructure are Optional

3.4.2 Semi-Impervious Pavement

Paving is a prominent feature in the landscape which provides vehicular and pedestrian access. It plays a large role in receiving, producing, and distributing stormwater runoff. Paving Green Engineering paving materials are based on various degrees of permeability. The best features of each paving tool were maximized by selection based on context, mode and volume of traffic and low maintenance requirements. For example, a very stable material that is less pervious will be used in the urban zones which will have larger amounts of commercial and vehicular traffic. Furthermore, areas with heavy traffic require low maintenance and sturdy paving material to keep repairs to a minimum. Less sturdy materials can be applied for light traffic volume and pedestrian areas. All low traffic thoroughfares should be based on using semi-impervious materials

Semipervious pavement, preferably gravel, should be considered for common parking areas which have low circulation, or are intended for daily parking. Pavement of alleys and low traffic volume roads should be preferably from gravel. Parking lots should not have curb and gutter and should be designed to be surrounded with raingardens with edges lower than the gravel pavement to promote drainage to the raingardens. For Z1 to Z4 zones, use of curb and gutter is allowed for the primary thoroughfares.

All streets and alleys in Zones Z5 to Z6 (Neighborhood General and Neighborhood Edge) residential areas should be from gravel or semipervious material, with no curbs. Road drainage should be directed to a roadside swale to attenuate stormwater runoff. For Z5 to Z6 zones, use of curb and gutter is not recommended.

To reduce the surface runoff, the project will use semipervious areas for light vehicular and for pedestrian traffic. Semi-impervious pavement is an important factor to reduce the overall runoff, as it reduces the surface flow between Directly Connected Impervious Areas (DCIA). Depending on the type of the construction material, the semipervious areas can provide limited infiltration and storage of stormwater. The semipervious surfaces will be shaped to provide conveyance to other stormwater components. Based on the above, all semipervious areas can be considered active components of the stormwater management system. The selection of semipervious areas is based on locally available materials and typically include:

- Cast or pressed concrete pavers
- Grassed cellular concrete
- Pervious asphalt

Porous pavement is a permeable asphalt or concrete surface that refers to a material composed of aggregate bound with a black solid or semisolid substance distilled from a petroleum byproduct. Pervious asphalt uses open-graded (uniformly sized) aggregate, as opposed to the finely graded (various size) aggregate used in standard asphalt. Using open-graded aggregate leaves voids between the aggregate that allow water to flow through. Also, pervious asphalt uses less asphalt binder to ensure that many of the voids between pieces of aggregate are not clogged. Pervious asphalt is laid over an aggregate base that retains stormwater until it can filter through to be absorbed by the subsurface.

Porous pavements provide an alternative to conventional paved surfaces, designed to infiltrate rainfall through the surface, thereby reducing stormwater runoff from a site and providing some pollutant uptake in the underlying soils. Permeable paving has three main design components: surface, storage, and outflow. The surface types of paving can be broken into two basic design variations: porous pavement and permeable pavers (ref 22 or Figure 19?).

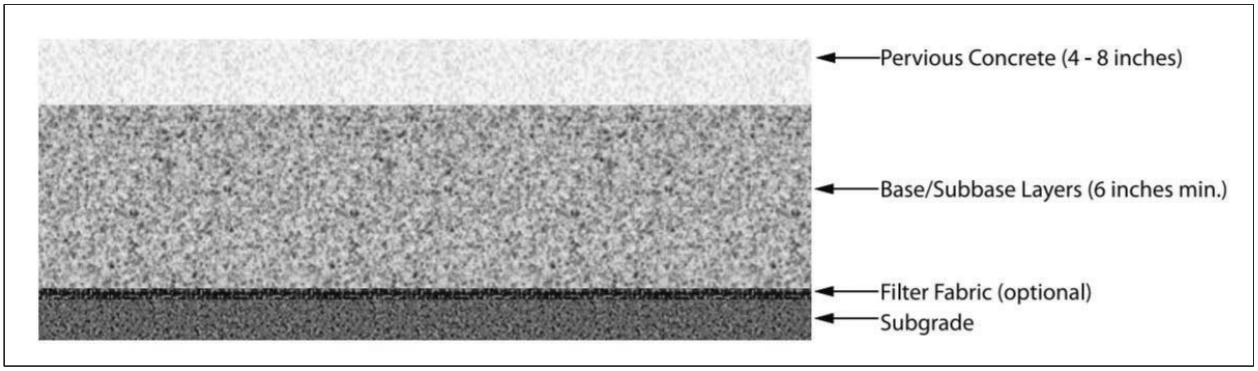


Figure 19 Typical pervious concrete pavement cross section.

Pavement cross-section treatments are designated by Context and Public Frontage type. Surface finish materials can be selected from the range of acceptable materials commonly used in the locally calibrated context and shall employ commonly used pavement section design procedures. Pervious pavers, porous asphalt and concrete, Macadam, and other ecological materials are encouraged.

Figure 20 Pervious Pavers, Seaside, FL

Pervious pavers consist of cast or pressed concrete pavers that are solid blocks set on a surface with joints that leave open spaces between each unit. The joints may be filled with loose aggregate or pervious material such as pea gravel, sand, or soil. Another option is to plant grass in the joints. Concrete pavers may be dyed during the manufacturing process. Additionally, the blocks can be pressed with a pattern that simulates other more expensive materials such as brick, stone, or wood.

Example of Semi-impervious Pavement

Pervious pavements provide multiple benefits to reduce stormwater runoff, however the infiltration capacity is reduced over time. Suspended solids substrate breaks down, sand and clay fines infiltrate the pore spaces and some of the wet areas grow moss. Without routine maintenance (sweeping, vacuum treatment or pressure washing) the infiltration rates can continue to decline over time. The expected service life of pervious pavement is 6-20 years depending on maintenance and use. For comparison, typical asphalt pavement in Florida can lasts up to 25 years with proper maintenance. For high traffic use, the pervious concrete requires reinforcement and routine maintenance.

3.5 Green Building Practices

Selected green building strategies include solar, or green roofs, and geothermal heating and cooling

3.5.1 Solar Energy and Green Roof

The OLF-8 project will include approximately 95 acres of building roofs. A typical solar panel system? has a surface of 21.45 sq.ft and approximately 2030 panels are required to cover one acre with expected output of 1MW per 5-6 acre or approximately 16 MW as a conservative estimate if roofs with surface greater than 500 square feet, are covered with solar panels (cost of $500,000/acre, or $48M to install solar panels for the entire site).

Figure 21 Building Footprint within OLF-8 Site

Alternatively, the rooftop can be used as a green roof and can be covered with vegetation. There are multiple benefits of using the rooftop as a vegetation including mitigation of stormwater pollutants, reduction of stormwater runoff, and reduced energy use.

The primary function of implementing green roofs is to mitigate stormwater runoff and reduce energy use. Additionally, removal of pollutants from the atmosphere via rain deposition is also a beneficial function, could be a potential benefit. Previous studies observed that the effect of green roofs in reducing energy use can be impactful and is approximately 33%. Some of the challenges in implementing green roofs include need for irrigation, restrictive storage for rain events (0.5-20 inches) and the shallow media (approximately 4”) which can complicate irrigation (ref 10).

3.5.2 Blue and Green Roofs

Green roofs capture runoff by a layer of vegetation and soil installed on top of a conventional flat or sloped roof. The rooftop vegetation allows evaporation and evapotranspiration processes to reduce the volume and discharge rate of runoff entering the conveyance system.

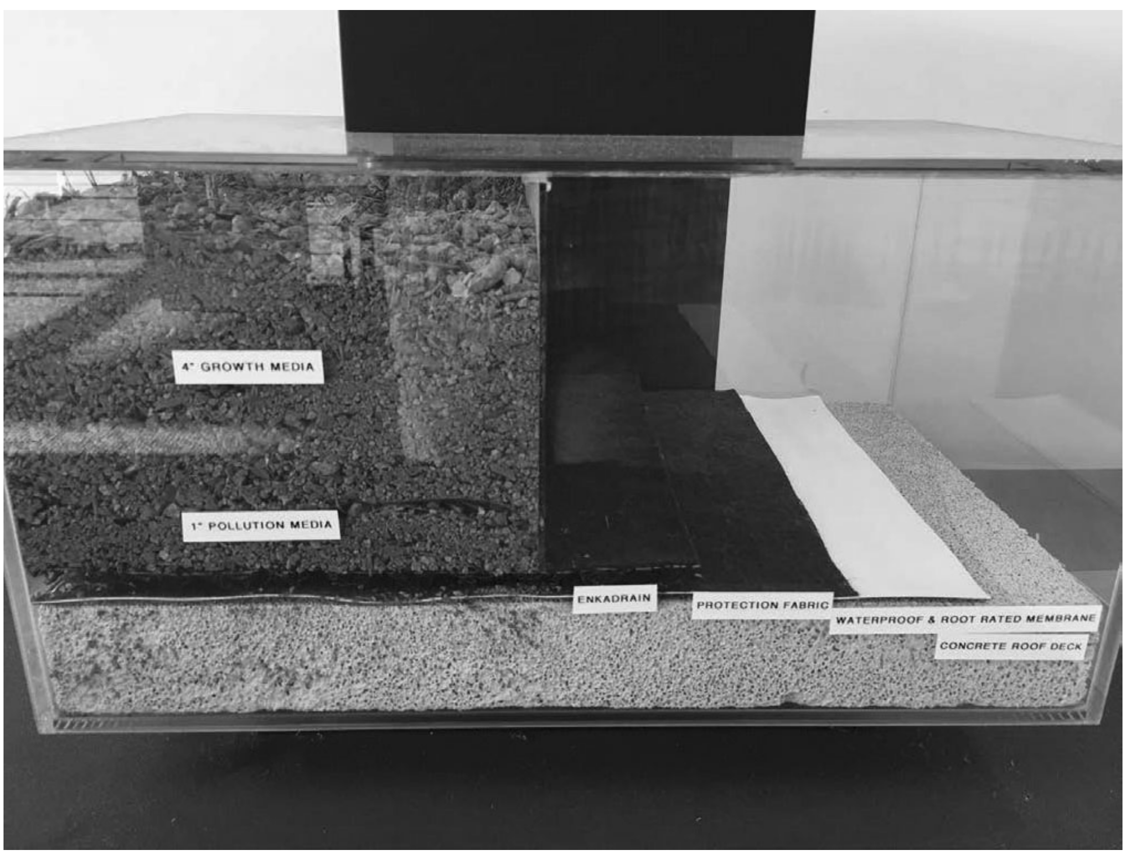
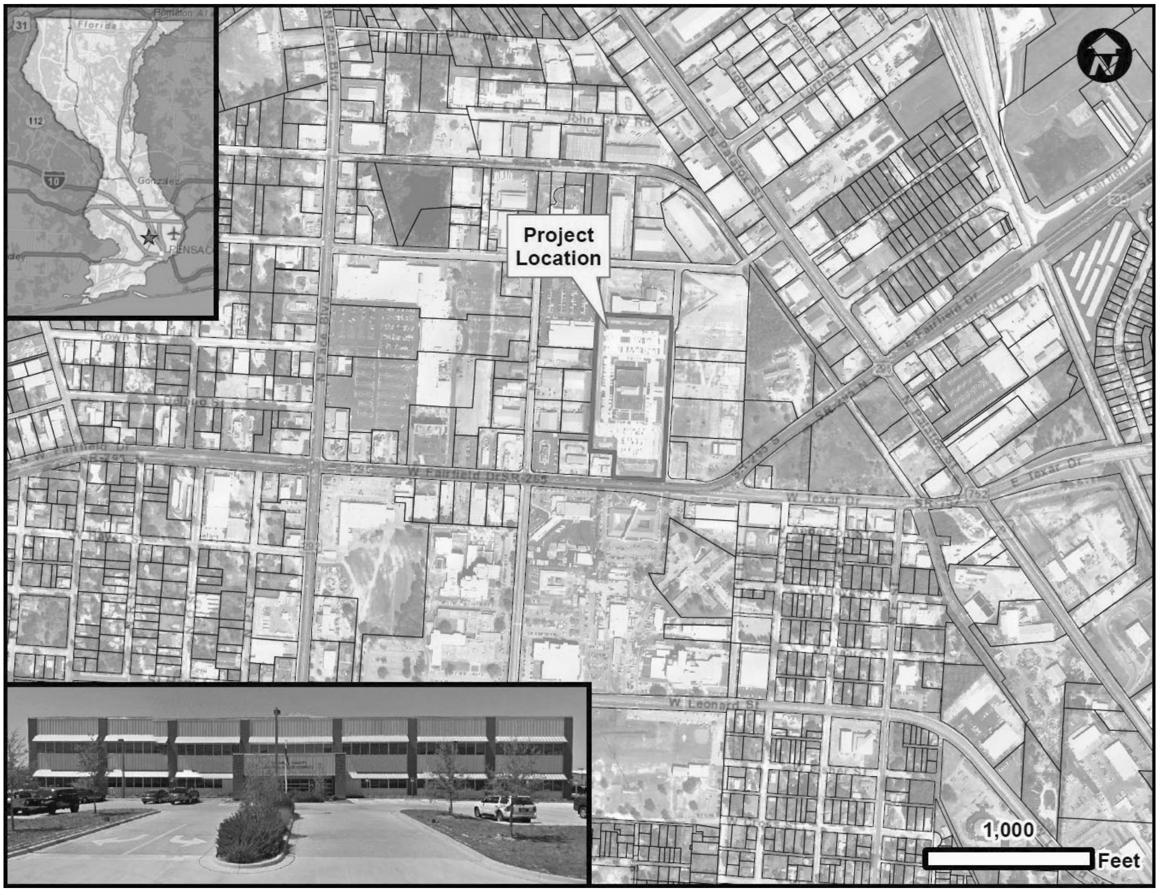


Figure 22 Typical Cross Section of Green Roof layers, Central Office Complex, Escambia County



Example of Green Building Roof, Central Office Complex Escambia County

3.5.3 Rain Barrels and Cisterns

Rain barrels and cisterns capture and store stormwater runoff to be used for irrigation systems or filtered and reused for non-contact activities. Rain Barrels and cisterns may be constructed of any water-retaining material; their size varies from hundreds of gallons for residential uses to tens of thousands of gallons for commercial and/or industrial uses. The storage systems may be located either above or below ground and may be constructed of on-site material or pre-manufactured.

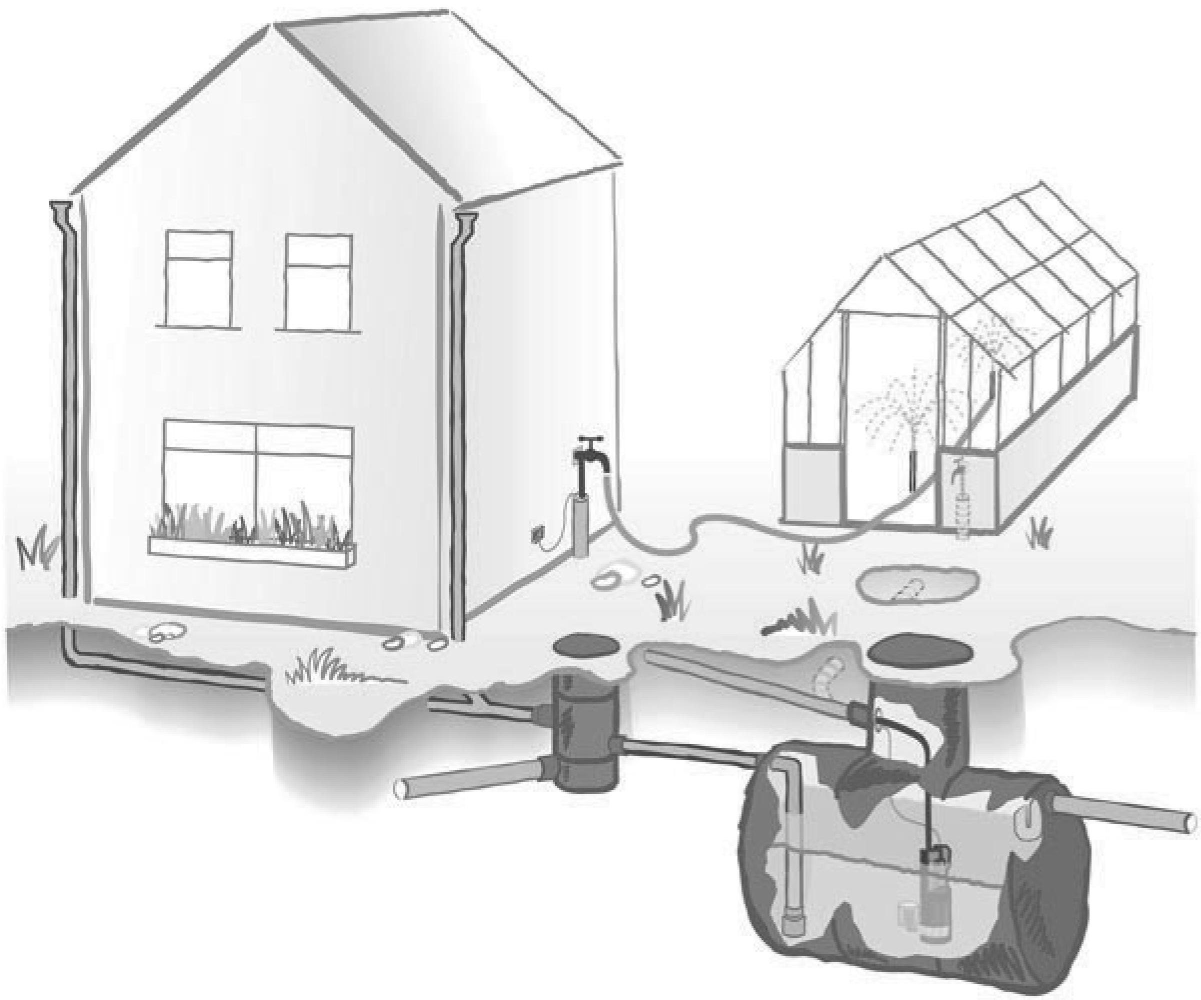


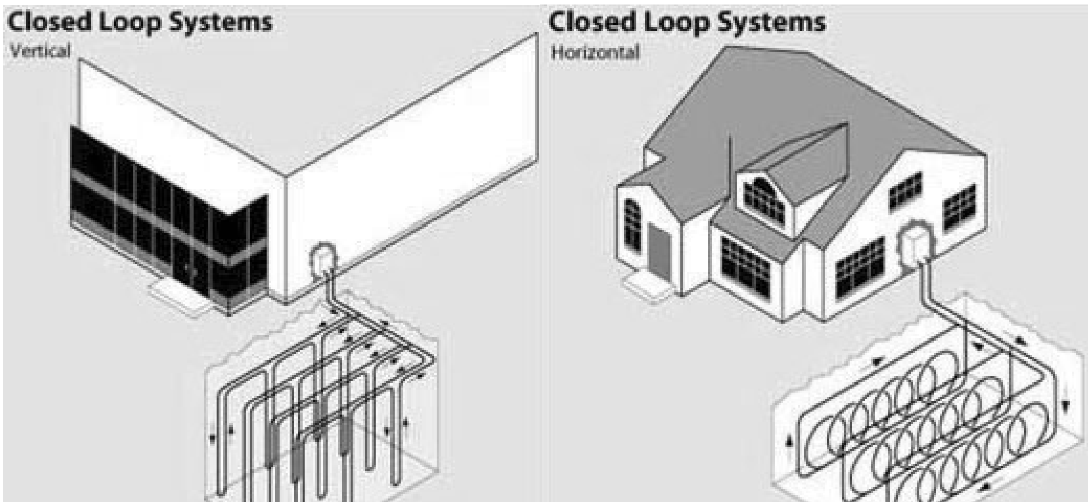
Figure 23 Rainwater collection system

Example of Rainwater Harvesting System, SigmaE

Figure 24 Rainwater collection system

3.5.4 Geothermal Heating and Cooling

Geothermal Heat Pumps can be used to reduce the overall energy demand of the site and to reduce noise generated by air conditioning system. I



Vertical and Horizontal Closed Loop Geothermal Heat Pump

In Zones Z1 to Z6 closed loop systems are recommended based on using a thermal fluid, (typically water), to circulate through underground pipes to a building's heat exchange system. In the winter, the heat pump extracts heat from the ground to heat the building through space heating or to heat water.

4 INFRASTRUCTURE COSTS

The main cost reduction of the Hybrid Plan is based on the combined effect of:

i) Development of an urban plan which increases the connectivity while minimizing road infrastructure expressed by vehicular thoroughfare per capita,
ii) Eliminating or significantly reducing the subsurface conveyance (pipes and other stormwater infrastructure.

Most of the tools provide multiple functionalities, e.g., rain gardens may provide storage and filtration, while also performing conveyance features. The range of reduction can be in the range of 30 to 50% when the following main principles are followed.

- Maximizing pervious surfaces (green areas which are completely pervious):
- Private - includes privately accessible green areas
- Public - includes public open space, parks, green alleys.
- Substituting impervious surfaces with semi-impervious surfaces where possible
- Private - include privately accessible alleys.
- Public - include thoroughfare for light and pedestrian traffic.
- Reducing the impervious surfaces to building roofs only and roads with heavy vehicular traffic
- Building's footprints are completely impervious and cause stormwater runoff
- Roads for heavy vehicular traffic, which may be from concrete blocks, or from asphalt, which are mainly impervious.

An engineering estimate of probable costs for civil infrastructure within the right of way was developed. The costs assume 20% contingencies based on the uncertainty of the initial plans. Calculation of quantities is based on generalized information and assumption for each plan. The information is preliminary and additional optimization for reduction of the infrastructure under consideration.

Table 2 Engineer's Opinion of Probable Cost - Hybrid Plan

NO.	ITEM	UNIT	QUANTITY	QUANTITY	UNIT COST	EXTENDED AMOUNT
1	CONCRETE CURB & GUTTER, TYPE F	LF		13,040	$ 25	$ 320,393
2	TYPE B STABILIZATION	SY		181,050	$ 7	$ 1,336,149
3	BASE	SY		181,050	$ 27	$ 4,814,120
4	SUPERPAVE ASPHALTIC CONCRETE	TN		10,980	$ 109	$ 1,199,455
5	ASPHALT CONCRETE FRICTION COURSE	TN		21,950	$ 116	$ 2,548,615
6	DRAINAGE MANHOLE	EA		100	$ 8,362	$ 836,200
7	CURB INLET	EA		170	$ 6,851	$ 1,164,670
8	PIPE CULVERT 15"	LF		9,800	$ 90	$ 882,000
9	PIPE CULVERT 18"	LF		8,750	$ 98	$ 855,138
10	PIPE CULVERT 24"	LF		7,350	$ 114	$ 837,533
11	PIPE CULVERT 30"	LF		5,420	$ 166	$ 901,346
12	PIPE CULVERT 36"	LF		2,370	$ 196	$ 463,667
13	PIPE CULVERT 42"	LF		560	$ 225	$ 125,720
14	MITERED END SECTION 24"	EA		2	$ 2,353	$ 4,706
15	MITERED END SECTION 30"	EA		11	$ 3,162	$ 34,782
16	MITERED END SECTION 36"	EA		2	$ 4,216	$ 8,432
17	MITERED END SECTION 42""	EA		11	$ 5,270	$ 57,970
18	WATER MAIN, 8", FITTINGS, AND VALVES	LF		29,410	$ 125	$ 3,670,368
19	WATER SERVICE CONNECTIONS, 2" DOMESTIC	EA		200	$ 4,500	$ 900,000
20	WATER SERVICE CONNECTIONS, 2", FIRE	EA		200	$ 9,400	$ 1,880,000
21	GRAVITY SEWER MAIN, 8"	LF		29,410	$ 107	$ 3,132,165
22	SEWER MANHOLE	LF		120	$ 4,258	$ 510,960

23	SANITARY LATERAL CONNECTIONS, 6"	EA		200	$ 5,000	$ 1,000,000
24	POWER AND TELECOMMUNICATION DUCT BANK	LF		17,950	$ 190	$ 3,410,500
25	TRANSFORMERS	EA		70	$ 2,000	$ 140,000
26	POWER AND TELECOMMUNICATION SERVICE CONNECTIONS	EA		30	$ 1,500	$ 45,000
27	SWITCH CABINETS	EA		20	$ 75,000	$ 1,500,000
28	MISC. EQUIPMENT (JUNCTION BOX, MANHOLES, HANDHOLES, ETC.)	LS		1	$ 500,000	$ 500,000
			SUB-TOTAL	SUB-TOTAL		$ 33,079,887
			20% CONTINGENCY	20% CONTINGENCY		$ 6,615,977
			TOTAL	**TOTAL**		**$ 39,695,865**
			COST PER CENTERMILE	**COST PER mi Street**		**$ 4,135,700**

5 CONCLUSIONS AND RECOMMENDATION

This document provides selected Green Infrastructure strategies for the OLF-8 project based on the Hybrid Plan developed by DPZ Codesign in May 2021. Initial assessment of project site conditions and design considerations of the project site was conducted to determine potential constraints that may limit on-site retention of stormwater runoff and implementation of stormwater quality control measures. Six types of green infrastructure components are implemented.

For stormwater treatment a series of interconnected lakes and green areas are proposed (wet and dry ponds). The urban plan introduced 11 lakes (with a total area of 24 acres ranging between 0.3 and 4 acres in size) and additional dry ponds. The proposed wet and dry ponds are interconnected with overland and subsurface conveyances to distribute and treat water storage within the site. Based on the urban plan configuration, the stormwater system for the Hybrid Plan provides enough storage to attenuate post-development 100-year, 24-hour peak discharge rate to pre-development rates. On a block and parcel scale, smaller green infrastructure components (with a total area of 32 acres ranging in size between 0.1 to 2 acres) are proposed, which include stormwater planters, rain gardens, stormwater trees and vegetated swales.

To reduce the impact of introducing impervious roads, two strategies are proposed. Thoroughfare medians with total length of nearly 25,000 feet are used to provide stormwater storage runoff from the roads. Additionally, for semi-impervious road cover and medians are proposed for light vehicular and for pedestrian traffic. For green building practices, either solar roofs or green roofs are proposed to cover the proposed 95 acre of building roofs. Using solar power has initial costly investment, however it has the potential to reduce the overall use of energy within the site.

As an alternative to solar roofs, green roofs can be used to capture the runoff by a layer of vegetation and soil installed on top of a conventional flat or sloped roof. The rooftop vegetation allows evaporation and evapotranspiration processes to reduce the volume and discharge rate of runoff entering the conveyance system.

Geothermal Heat Pumps are poposed to reduce the overall energy demand of the site and to reduce noise generated by air conditioning system. In Zones Z1 to Z4 Closed loop systems are recommended based on using a thermal fluid, (typically water), to circulate through underground pipes to a building's heat exchange system. In the winter, the heat pump extracts heat from the ground to heat the building through space heating or to heat water.

The plan follows the topography and will not require significant modifications or grading. Best considerations of topographic features include placing the residential areas at the highest. The location of the industrial area is in proximity to the retention areas on the east side which is the most optimal for environmental purposes.

Distributed open space within the plan and preservation of large open space area at the southwest section provides the most optimal approach to protecting open space and use within the urbanized areas. The plan will provide the required flood protection capacity based on the minimized fraction of directly connected impervious areas which include multiple green corridors to provide storage and interrupt flow over such areas.

All potable water for the site will be municipally supplied, no on-site potable water wells are located on or utilized by the property. Wastewater generated at the site is currently managed on-site via a sanitary septic system connected to existing buildings' plumbing systems. The plan will include a sewer system that will be built in phases and which will connect to a regional wastewater treatment plant managed by Emerald Coast Utilities Authority (ECUA). Surface water runoff infiltrates or is discharged eventually to Eleven Mile Creek with no NPDES Permits requirements. Solid waste managed by ECUA. Electricity is provided by Gulf Power and electricity.

The initial review of available data indicates that the proposed location of the lakes could be favorable in terms of topography and soil and subsurface properties. Additional investigations may be needed at the location of the proposed lakes. The soil type and geologic conditions of the project site should be additionally evaluated to estimate the potential for infiltration and to identify suitable as well as unsuitable locations for retention-based stormwater quality control measures.

A field exploration program should be designed using suitable and reliable drilling equipment with the goal of retrieving representative and undisturbed soil samples for an adequate characterization of the soil materials. A laboratory testing program should be designed with the goal of quantifying the strength and deformability characteristics of the soil materials. The laboratory equipment should meet ASTM standards and be properly calibrated. All slopes should be properly designed and protected from rainfall erosion. Two basic methods include drainage and use of vegetation.

As a part of future Green Infrastructure submittal, a detailed geotechnical report must be prepared by a geotechnical engineer. Infiltration can cause geotechnical issues, including settlement through collapsible soil, expansive soil movement, and slope instability due to a temporary increase in groundwater levels near retention-based stormwater quality control measures. Increased water pressure in soil pores reduces soil strength, which can make foundations more susceptible to settlement and slopes more susceptible to failure. In general, retention-based stormwater quality control measures must be set back from building foundations or steep slopes. Recommendations for each block must be determined by a licensed geotechnical engineer based on soils boring data, drainage patterns, and current requirements for stormwater treatment. Even though no issues may be expected with the current location of the lakes, further field and laboratory geotechnical investigation should confirm this preliminary result. A geotechnical engineer's recommendations are essential to reduce damage from increased subsurface water pressure on surrounding properties, public infrastructure, and sloped banks.

Slopes can be affected by the temporary rise in groundwater level. The presence of a water surface near a slope can reduce the stability of the slope compared to a dry condition. A groundwater modeling analysis is recommended to evaluate the potential increase in groundwater levels around a retention-based stormwater quality control measure. If the potential increase in groundwater level approaches nearby slopes, a slope stability evaluation should be conducted to determine the implications of the temporary groundwater surface. The geotechnical and groundwater mounding evaluations can identify the duration of the elevated groundwater level and provide safety factors consistent with the duration (e.g., temporary or long-term conditions).

Considering that concentrated flows from off-site drainage may cause extensive erosion if not properly conveyed through or around the project site or otherwise managed, the locations and sources of off-site drainage have been identified, and future design of the stormwater system can provide estimates of the volume of stormwater and factored into the siting and sizing of stormwater quantity and quality control measures.

The presence of Protected Ecological Areas may limit the siting of certain stormwater quality control measures, such as facilities that do not provide sufficient treatment of pollutants of concern. The OLF-8 project will aim for zero stormwater discharge which will be fulfilled by integrating stormwater infrastructure within the stormwater system.

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OLF-8

TRANSPORTATION REPORT

May 2021

NELSON
NYGAARD

EXHIBIT

I

Table of Contents

1 INTRODUCTION

This report summarizes the transportation environment surrounding Naval Outlying Field Site 8 (OLF-8) in Escambia County, FL, 15 miles northwest of downtown Pensacola. OLF-8 is an approximately 600-acre parcel that sits just west of Interstate-10 (I-10) at the fringes of northwest Pensacola, within the Beulah community. The site is essentially a quadrant bounded on the north by Frank Reeder Road and to the south by 9-Mile Road (US-90). To the east it abuts the Navy Federal Credit Union property at Heritage Oaks Commercial Parks and to the west and north, across from 9-Mile road, it abuts several residential subdivisions, which themselves sit along Beulah Road (see Figure 1 for the site location).

An evaluation of existing transportation conditions is necessary to prepare for the anticipated growth in travel demand that will accompany the implementation of the OLF-8 Master Plan. This evaluation of existing transportation conditions includes a review of roadway and public transit networks, traffic, and bike and pedestrian conditions, and is informed by a review of plans and study documents (state, county, and local), a summary of which can be found in **Appendix A**.

Figure 1 Aerial view of OFL-8 site (center) and surrounding context

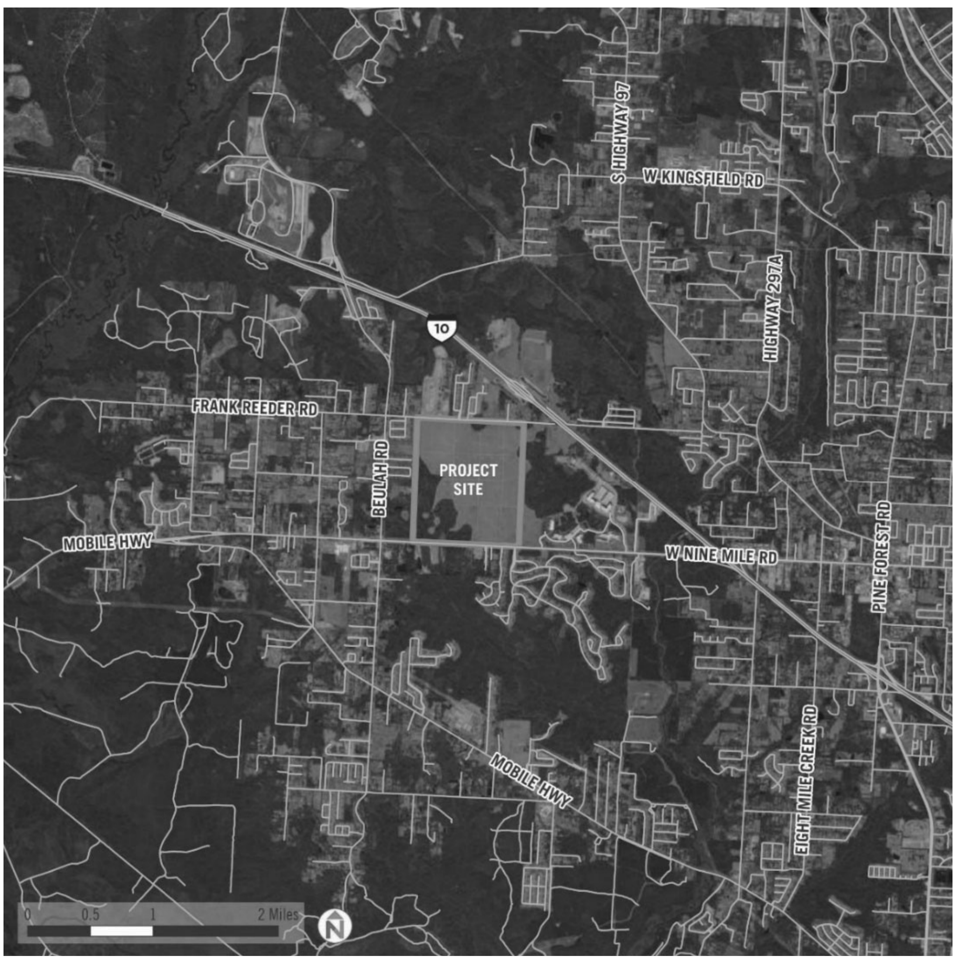


Image Source: Google Maps

2 EXISTING CONDITIONS

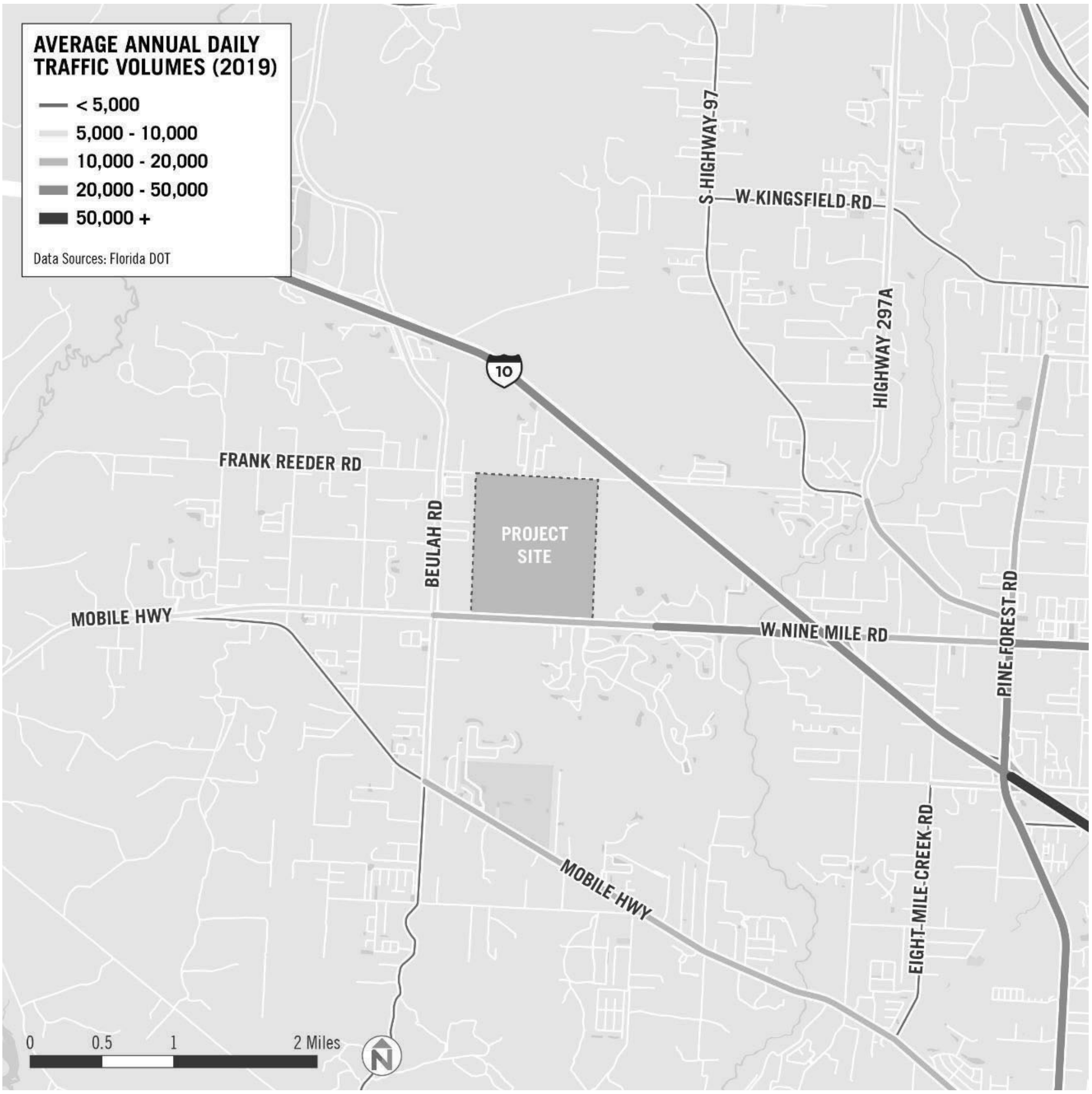
TRANSPORTATION NETWORKS

Vehicle Access Network

There are four primary roadways providing vehicular access to the OLF-8 site, two of which are directly adjacent and can provide direct access. The four roadways that make up the primary vehicular access to the site are as follows:

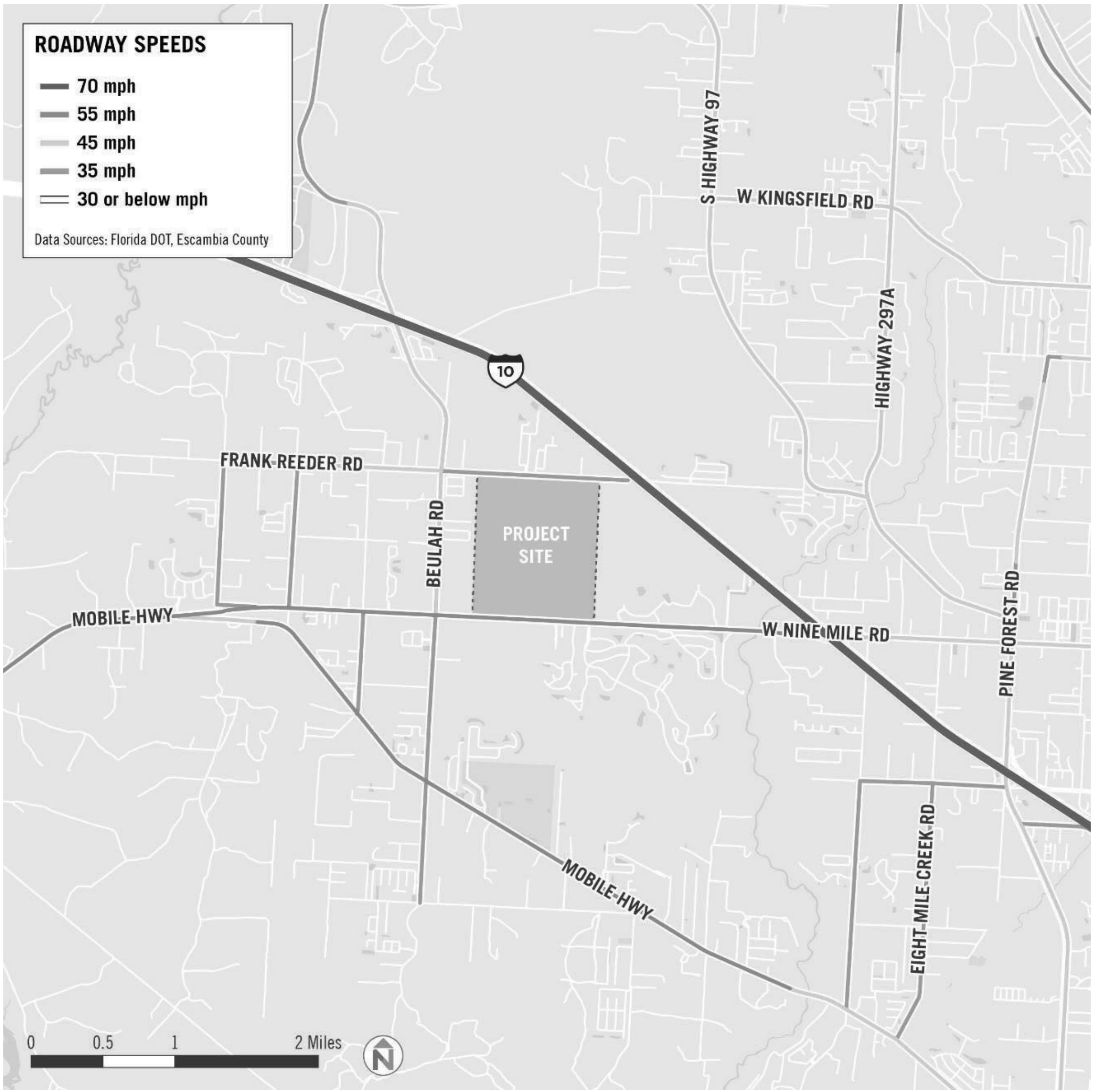
- **9-Mile Road** (State arterial) forms the southern border of the site and is the primary direct vehicular access road to the OLF-8 site, providing connectivity to I-10 and northern Pensacola to the east, and to the Mobile Highway to the west. Currently it is a two-lane arterial road that carries an average of 15,000 vehicles per day between Beulah Road and the access points to the Heritage Oaks Commerce Parks, and over 20,000 per day between the Heritage Oaks Commerce Parks and I-10, according to 2018 AADT of the Traffic report of the I-10/Beulah interchange. The segment between Beulah Road and Interstate-10 is currently being widened into a four-lane roadway.
- **Frank Reeder Road** (County collector road) forms the northern border of the site and is the secondary direct access road to the site, but its current design (and unstriped single-track roadway that does not cross Interstate-10) makes it less practical for access to the OLF-8 site.
- **Interstate-10** (State highway) a grade separated highway with two lanes per direction near the OLF-8 site, provides connectivity between the project area and the greater Pensacola area and carries an average of 32,000 vehicles per day
- **Beulah Road** (State collector road) a two-lane roadway, provides local north-south connectivity to the west of the site and carries an average of 5,800 to 6,400 vehicles per day.

Figure 2 Vehicle Access Network – Average Daily Traffic Volumes (2019)



All of the primary vehicle access roadways have signed speed limits of 45mph or above[1], but given the design speed of the roads, the actual speeds are likely much higher than those signed.

Figure 3 Vehicle Access Network –Signed Speed Limits

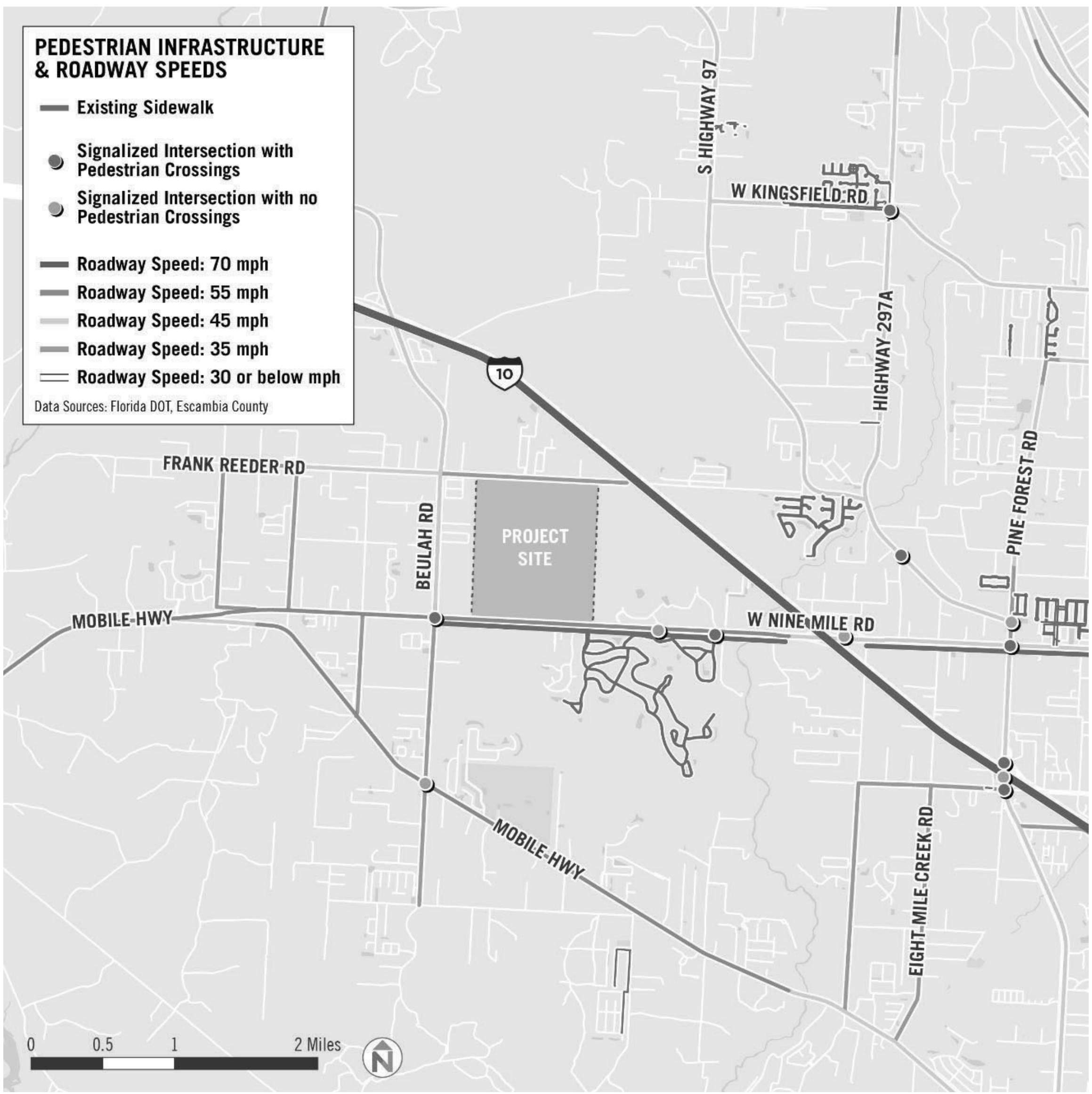


[1] The segment of Frank Reeder Road that connects to the site is technically unsigned, however the preceding segment

Pedestrian and Bike Network

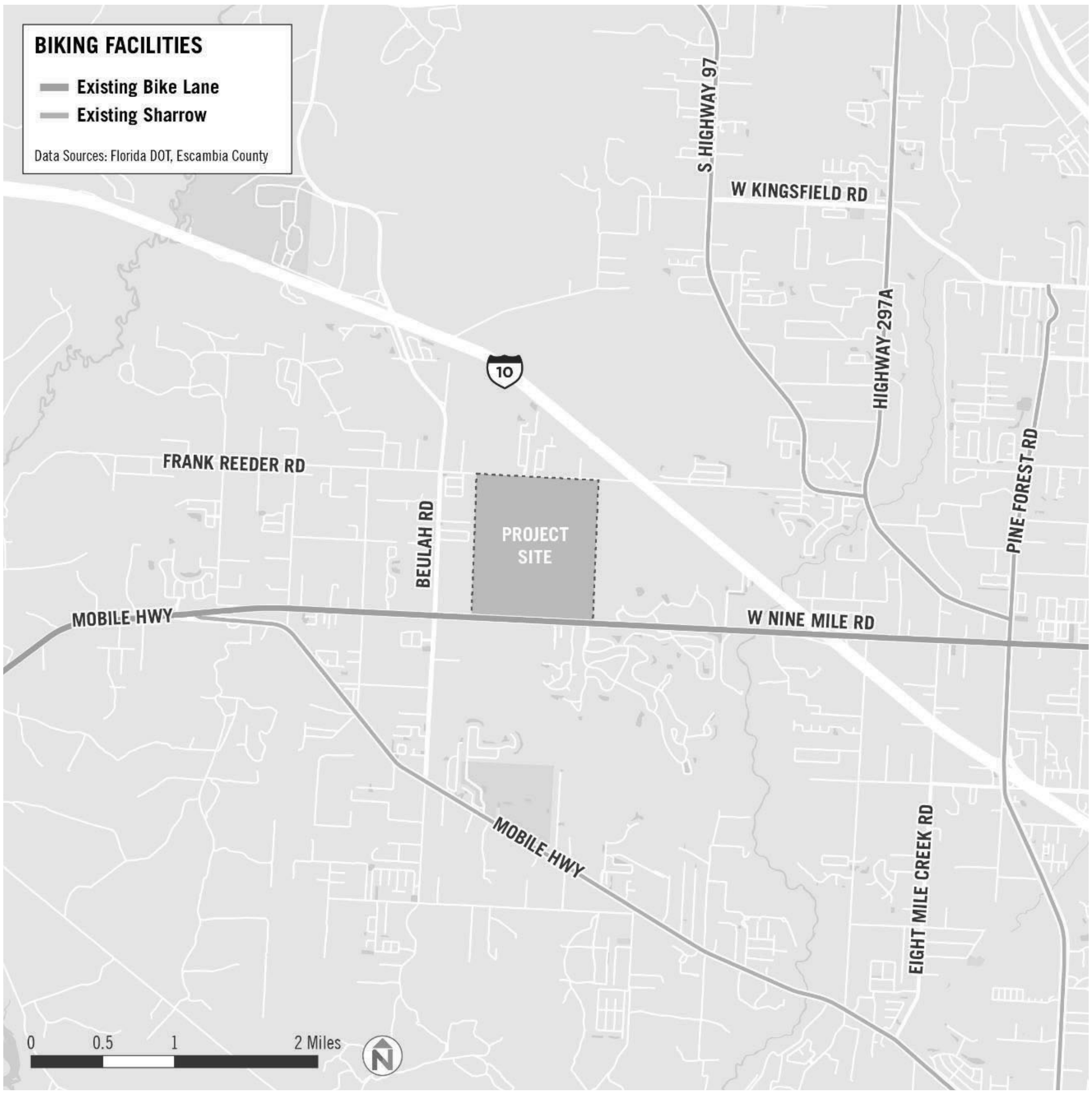
The OLF-8 site is not safely or easily accessible by walking. There is no sidewalk access along most of the roads surrounding the site. There is a sidewalk along the site's segment of 9-Mile Road, but it is on the south side of the road and there is no intersection or mid-block crossing at the likely site access point. It also does not connect to any other segment to the east or west, and connects only to a single residential sub-development. Further, along all connecting corridors traffic speeds are much higher than are comfortable for pedestrians, and the lack of land-use activity would leave pedestrians isolated, and the lack of trees or other cover would leave pedestrians exposed to the sun or other weather conditions. As a result, the existing pedestrian access to the site is poor.

Figure 4 Pedestrian Facility Access Network



The OLF-8 site is similarly not safely or easily accessible by bicycle riding. A painted bike lane in the shoulder of 9-Mile Road provides limited bike connectivity to points along 9-Mile Road but does not connect to a wider bicycle network, and the lack of protection from multiple lanes of high-speed vehicle traffic makes this bike lane relatively unsafe for people on bikes.

Figure 5 Bicycle Facility Access Network



Transit

ECAT, the public transit provider in Pensacola, does not provide transit service to the project area. The nearest transit service is approximately four miles, 45 to 60 minutes away by foot. See Route 47 in Figure 6.

Navy Federal, with 10,000 employees, operates a private shuttle to their worksite for their employees from a park and ride, from Milton and Pace Counties. However, most of the employees still drive to work.

Figure 6 Transit Routes

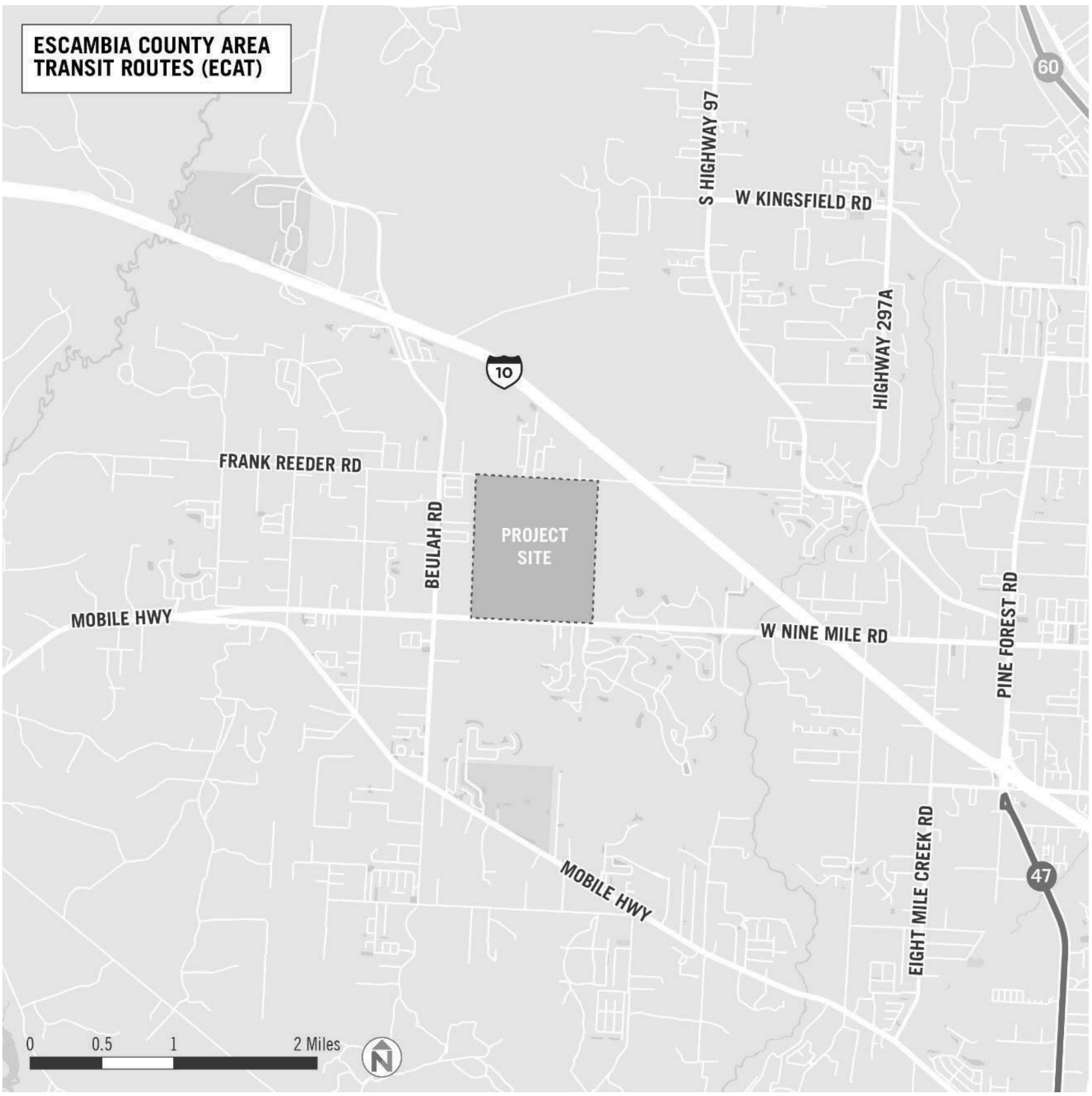
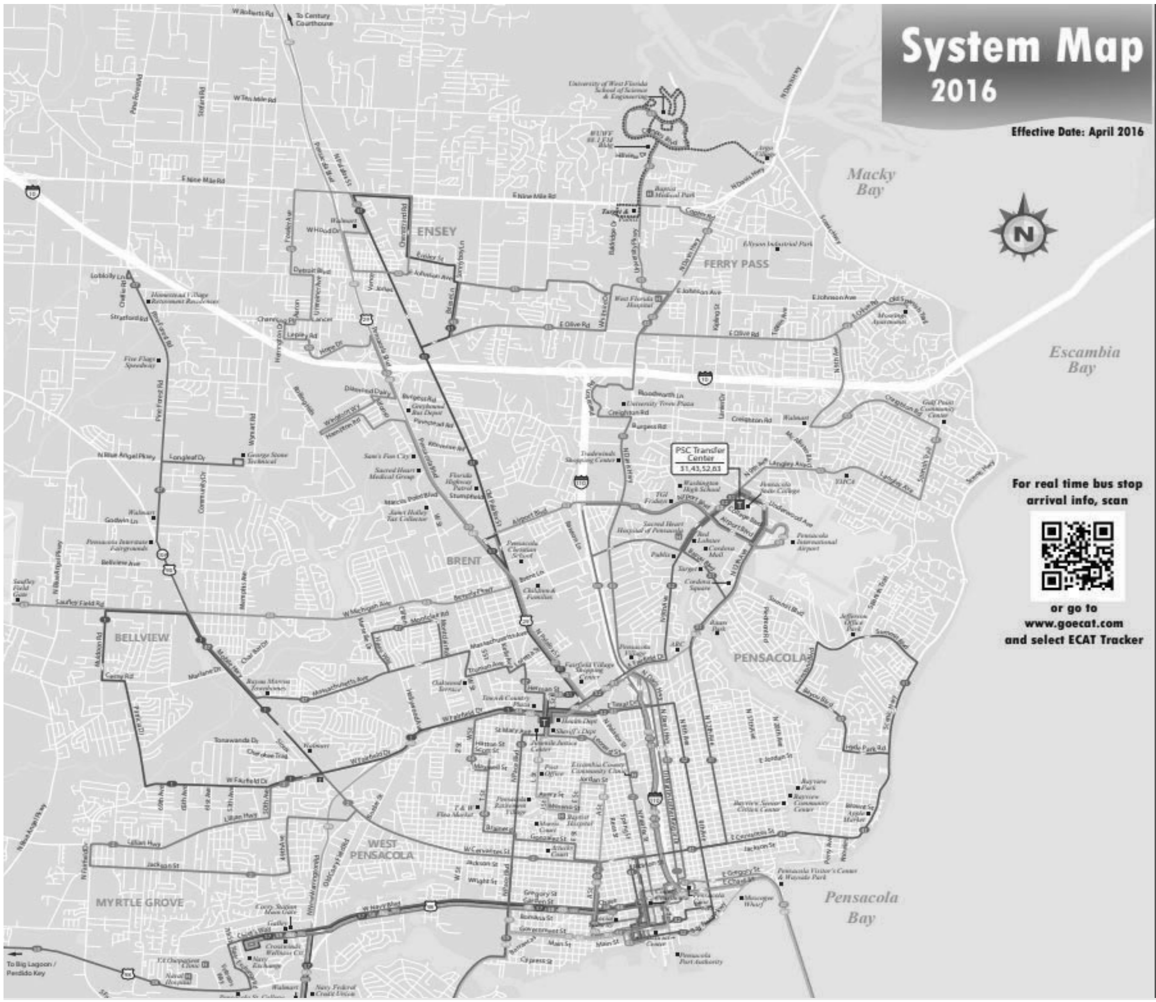


Figure 7 Escambia County Area Transit Map



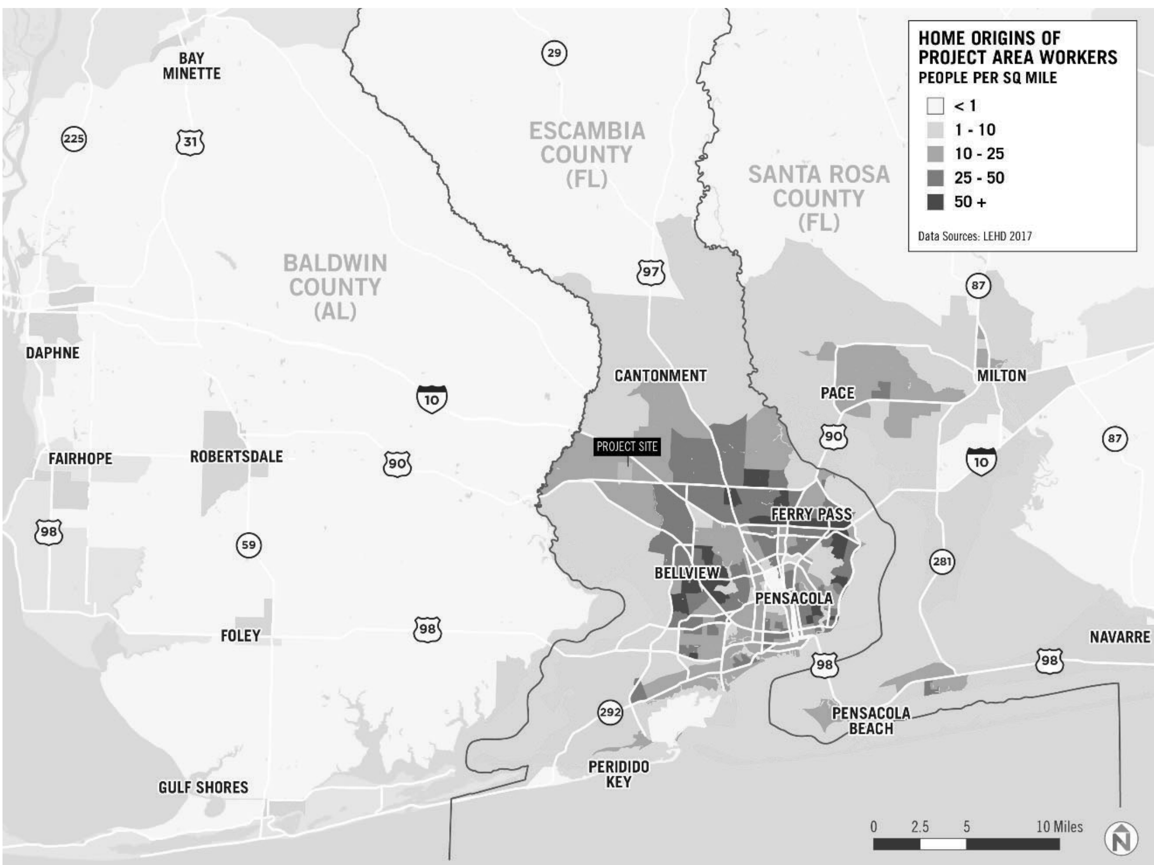
Source: https://goecat.com/docs/default-source/routes/ecat-system-map-final-1.pdf

Existing Travel Patterns and Mode Share

The transportation network surrounding the OLF-8 site serves a wide variety of transportation needs in the area. Available data provide some insight into work-related travel patterns on the local transportation network, which provides local residents with access to jobs and services, and also provides people from further afield with access to jobs in the project area.

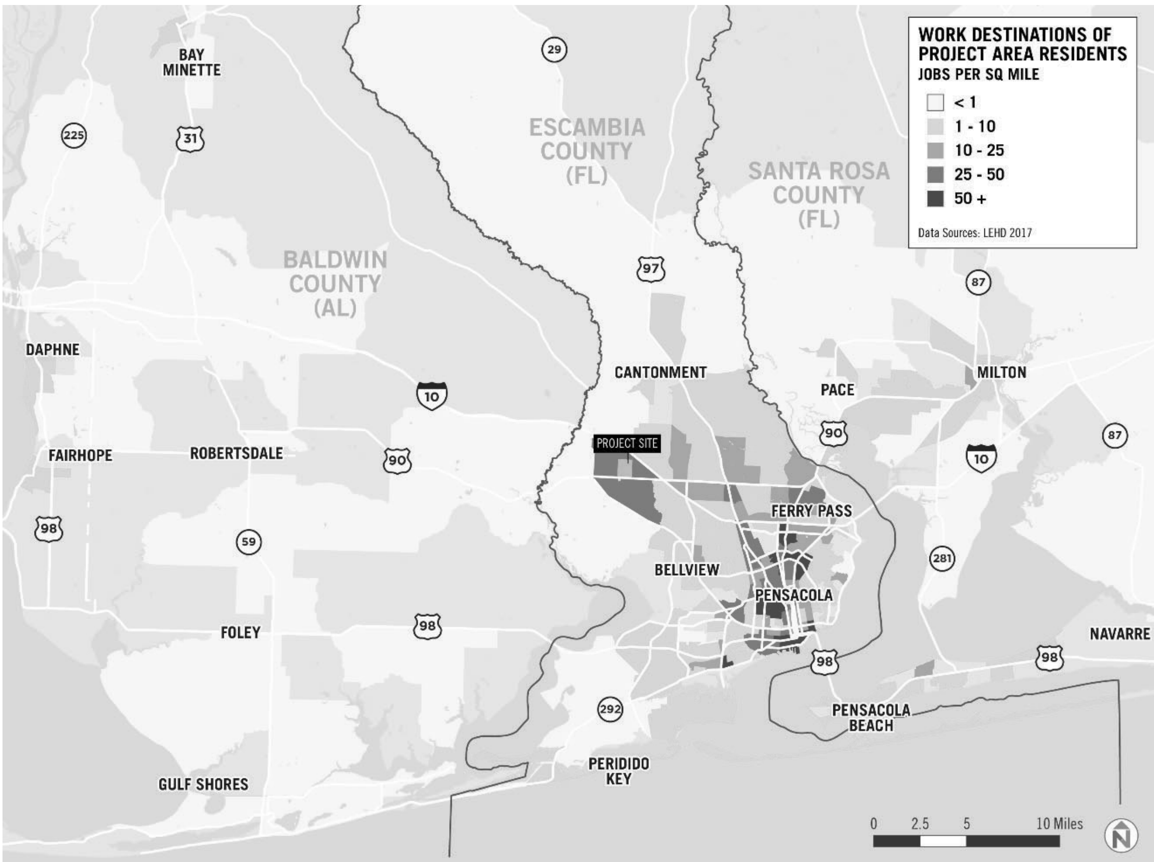
According to the 2017 Longitudinal Employer-Household Dynamics data (LEHD), people who work in the OLF-8 project area live across the Pensacola area (Figure 8). Many live in northern Pensacola near the project area, or on the western and eastern peripheries of the city in the Bellview and Ferry Pass districts. Smaller numbers of workers live in Pensacola Beach and Pace in Santa Rosa County. Very few commutes from outside of Escambia or Santa Rosa counties to the project area. Such travel patterns indicate that most work trips to the OLF-8 project area originate within 15 miles of project area, primarily in Pensacola.

Figure 8 Home Origins of Workers in the OLF-8 Project Area



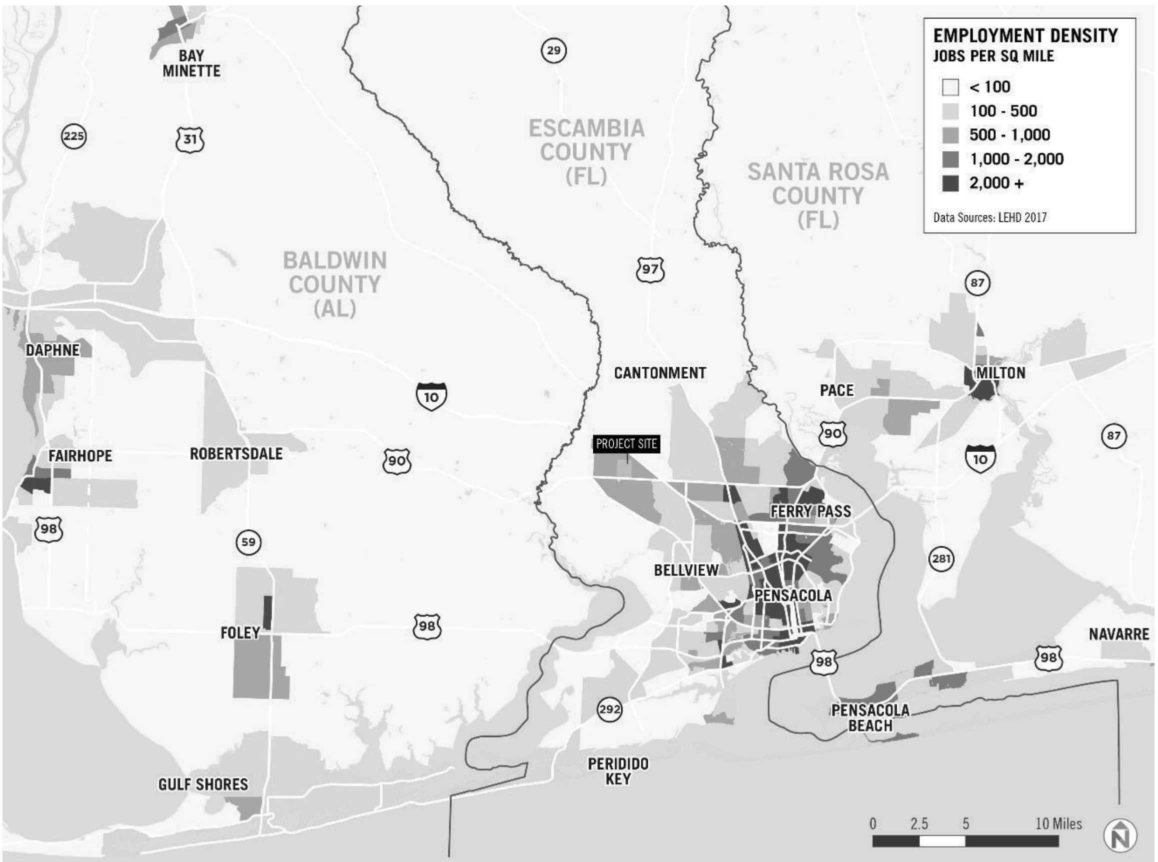
People who live in the vicinity of the OLF-8 project area primarily work in the Beulah area or in central and northern Pensacola. More modest numbers of residents work across the rest of Pensacola and in Santa Rosa County. These travel patterns indicate that local residents' places of work are more concentrated around the project area and in parts of Pensacola than the home locations of many of the workers who commute to the project area. It also indicates that the strongest transportation demand is likely for linkages between the project area and Pensacola, rather than to outlying areas.

Figure 9 Work Destinations of Residents in the OLF-8 Project Area



The concentration of residents' jobs in central and northern Pensacola roughly aligns with the overall density of jobs in the region. Central and northern Pensacola have a higher concentration of jobs than anywhere else in the region. Notably however, few residents of the OLF-8 project area work in areas with high numbers of jobs that are further from Pensacola. Job clusters in Milton, Pensacola Beach, and Baldwin County, Alabama for example, attract fewer project area residents for work.

Figure 10 Employment Density



According to the Census Bureau, in 2018 the average car ownership in Escambia County, FL was 2 cars per household, and the most common method of travel for workers was Drive Alone (74.2%), followed by those who Carpooled (11.2%) and those who Worked At Home (8.72%). However, in the post-Covid19 era, the percentage of people that Work at Home has significantly increased, reducing the mode-share of Drive Alone and Carpool for commute purposes. A study performed by several Universities[2] showed that in Florida traffic volumes by March 22, 2020, dropped by 47.5 percent compared to that same point in 2019 as a result of the state the governor's state of emergency declaration and school, restaurant, and bar closures.

[2] https://www.newswise.com/coronavirus/traffic-data-show-drastic-changes-in-floridians-behavior-at-onset-of-the-pandemic/?article_id=734037

FUTURE TRANSPORTATION NETWORKS

Road Network

The following are roadway expansions that are currently under construction, have been planned, or have been proposed:

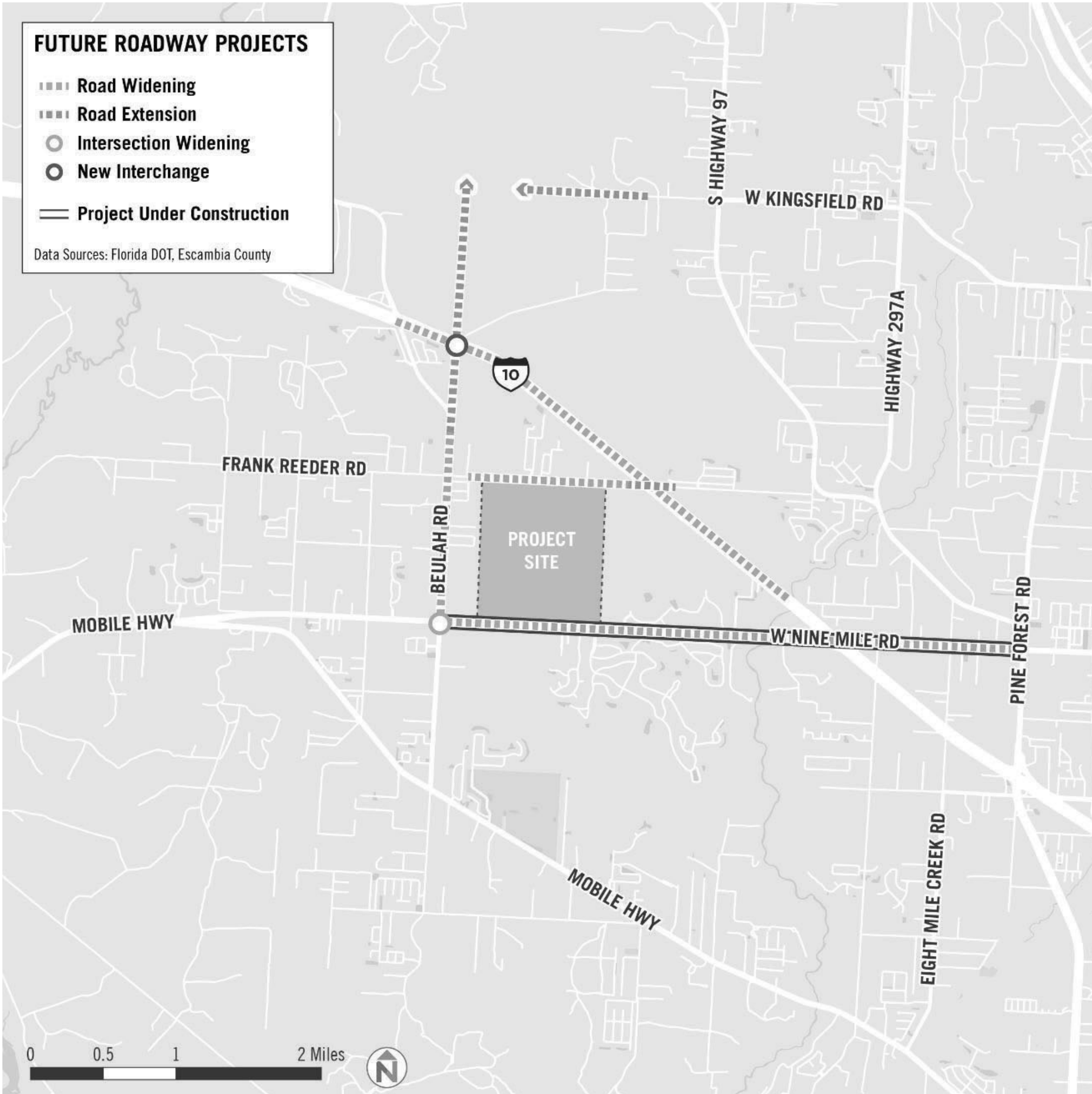
CONSTRUCTION IN PROGRESS:

- **9-Mile Road** is currently being widened from one lane per direction to two lanes per direction between Beulah Road and Pine Forest Road and may eventually be widened to three lanes per direction.

PLANNED OR PROPOSED:

- **Beulah Road** is planned to be widened from one lane per direction to two lanes per direction and will also feature new sidewalks and painted bike lanes.
- The **Beulah Road/9-Mile Road intersection** will be significantly expanded to accommodate up to eight east-west lanes, if 9-Mile Road is widened to three lanes per direction, seven lanes on Beulah Road to the north, and five lanes on Beulah Road to the south.
- As the wider area north of Interstate-10 is developed in line with regional plans, which anticipate significant suburban residential development, **Beulah Road** is proposed to be extended northward.
- **Kingsfield Road** is proposed to be extended westward to connect with Beulah Road.
- A study is currently assessing the feasibility of a new interchange at Beulah road and **Interstate-10**, which would also involve widening Interstate-10 from two lanes per direction to three lanes per direction in the vicinity of the OLF-8 site.
- **Frank Reeder Road** is proposed to be widened into a striped two-way roadway and to connect with Divine Farms Road via an under- or overpass across Interstate-10.

Figure 11 Future roadway projects



Pedestrian and Bike Network

The following are pedestrian and bicycle network expansions that are currently under construction, have been planned, or have been proposed:

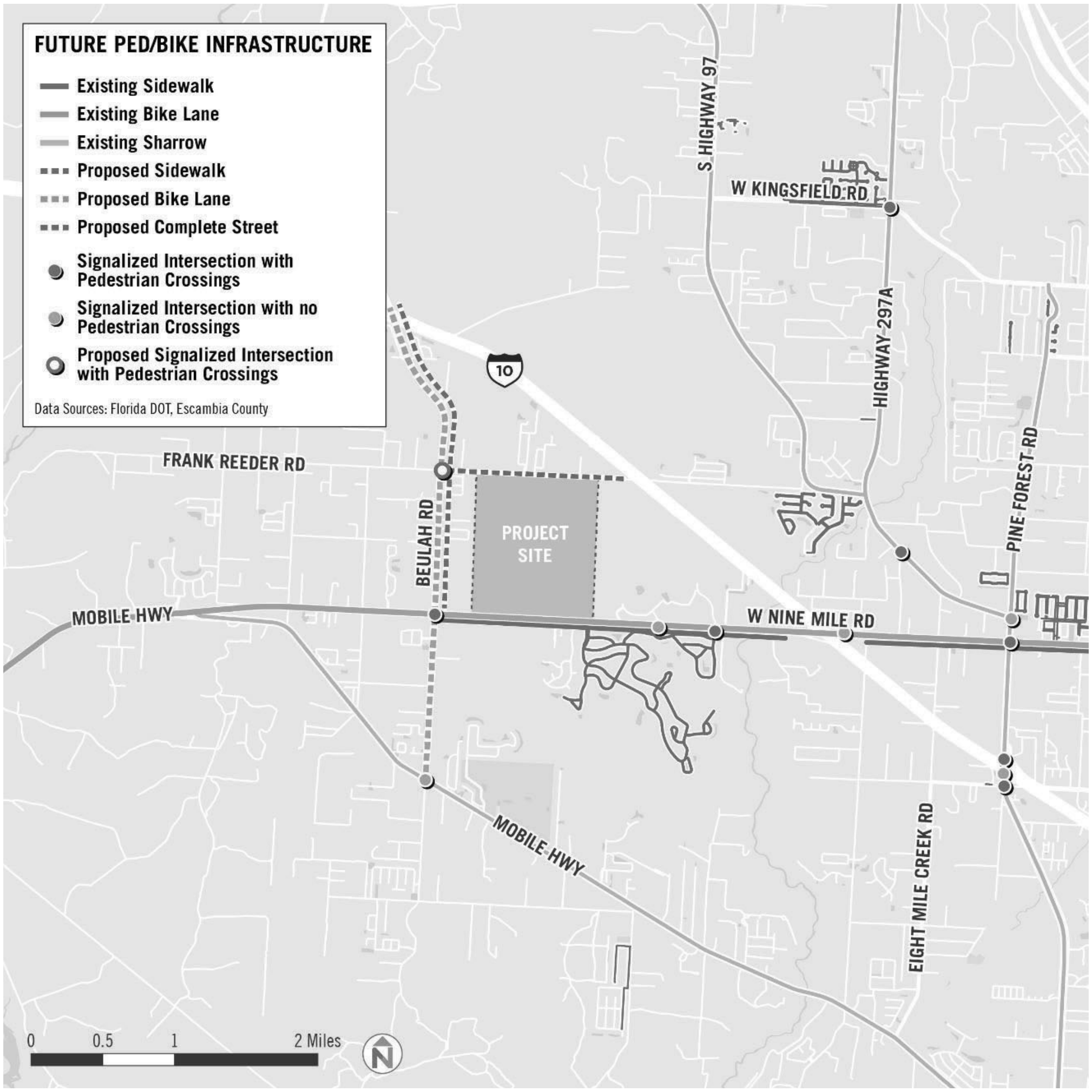
CONSTRUCTION IN PROGRESS:

- A sidewalk is being built along the south side of **9-Mile Road** as part of its expansion. The expansion will also maintain the painted bike lanes that currently exist on the road.

PLANNED OR PROPOSED:

- Painted bike lanes and sidewalks are planned as part of the eventual expansion of **Beulah Road**.
- **Frank Reeder Road** may be upgraded to include 'complete street features' when it is widened.
- Escambia County proposed to restripe bike lanes on **Beulah Road** between 9 Mile Road and the Mobile Highway in the 2018 Florida/Alabama TPO Pedestrian & Bicycle Masterplan (See Appendix A)

Figure 12 Future pedestrian and bicycle projects

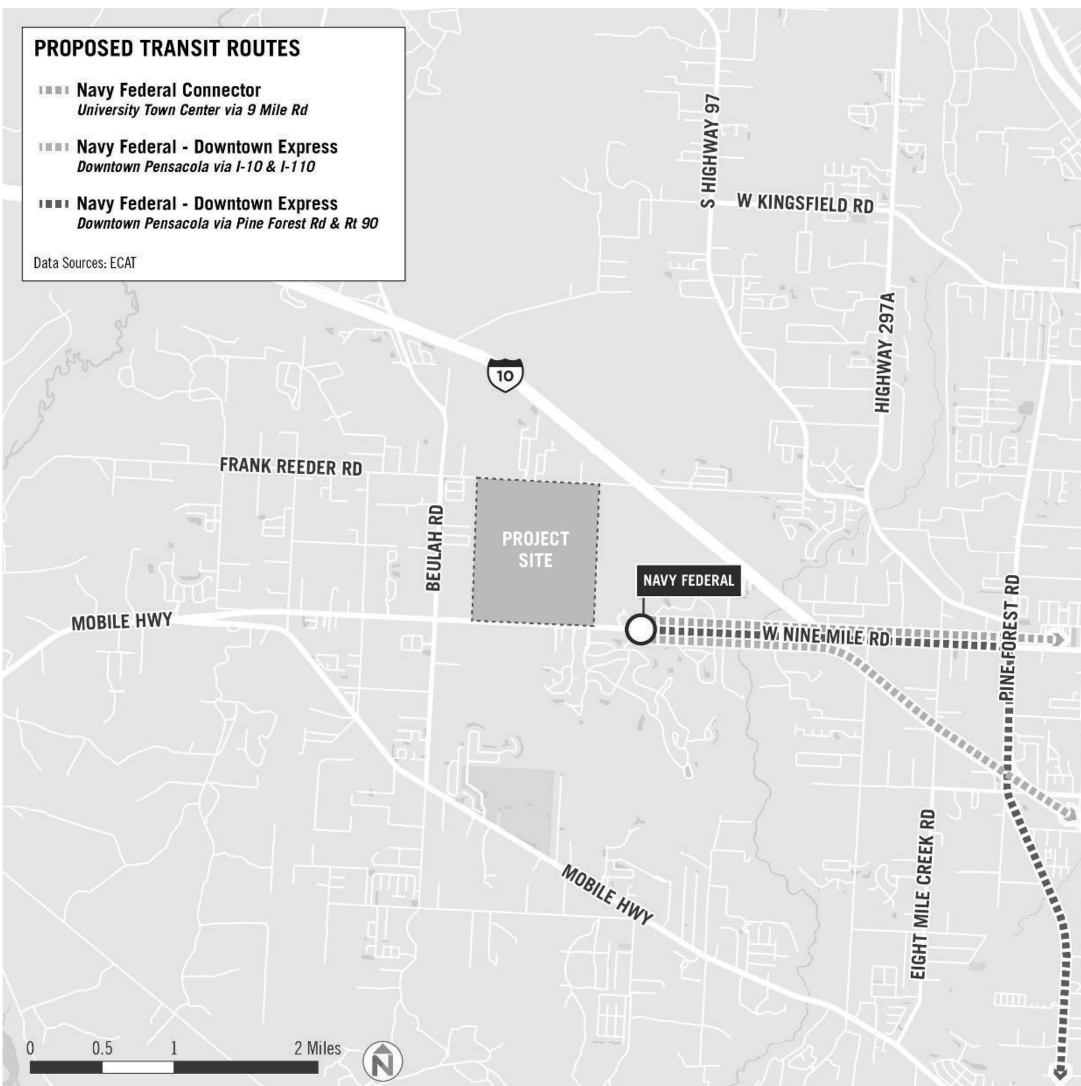


Transit

While there are no current plans to provide transit service directly to the OLF-8 site, ECAT has proposed service expansions to serve the Navy Federal site that could potentially be extended to serve the site. These proposed expansions include:

- **Navy Federal Connector**: a proposed bus service along 9-Mile Road between the Navy Federal site and University Town Center
- **Navy Federal – Downtown Express**: a proposed bus service connecting the Navy Federal site to downtown Pensacola via I-110 and I-10 or via Pine Forest Road and Route 90.

Figure 13 Proposed Transit Routes



ANTICIPATED DEVELOPMENTS

Significant development is planned for the area around the OLF-8 Site that will increase the demand of the use of the transportation networks. Approximately 2,000 new homes will be constructed in the immediate vicinity. New commercial developments at the intersection of Beulah Road and 9-Mile Road will add roughly 350 parking spaces in the area.

Figure 14 Future Network: Approved Development Project Types

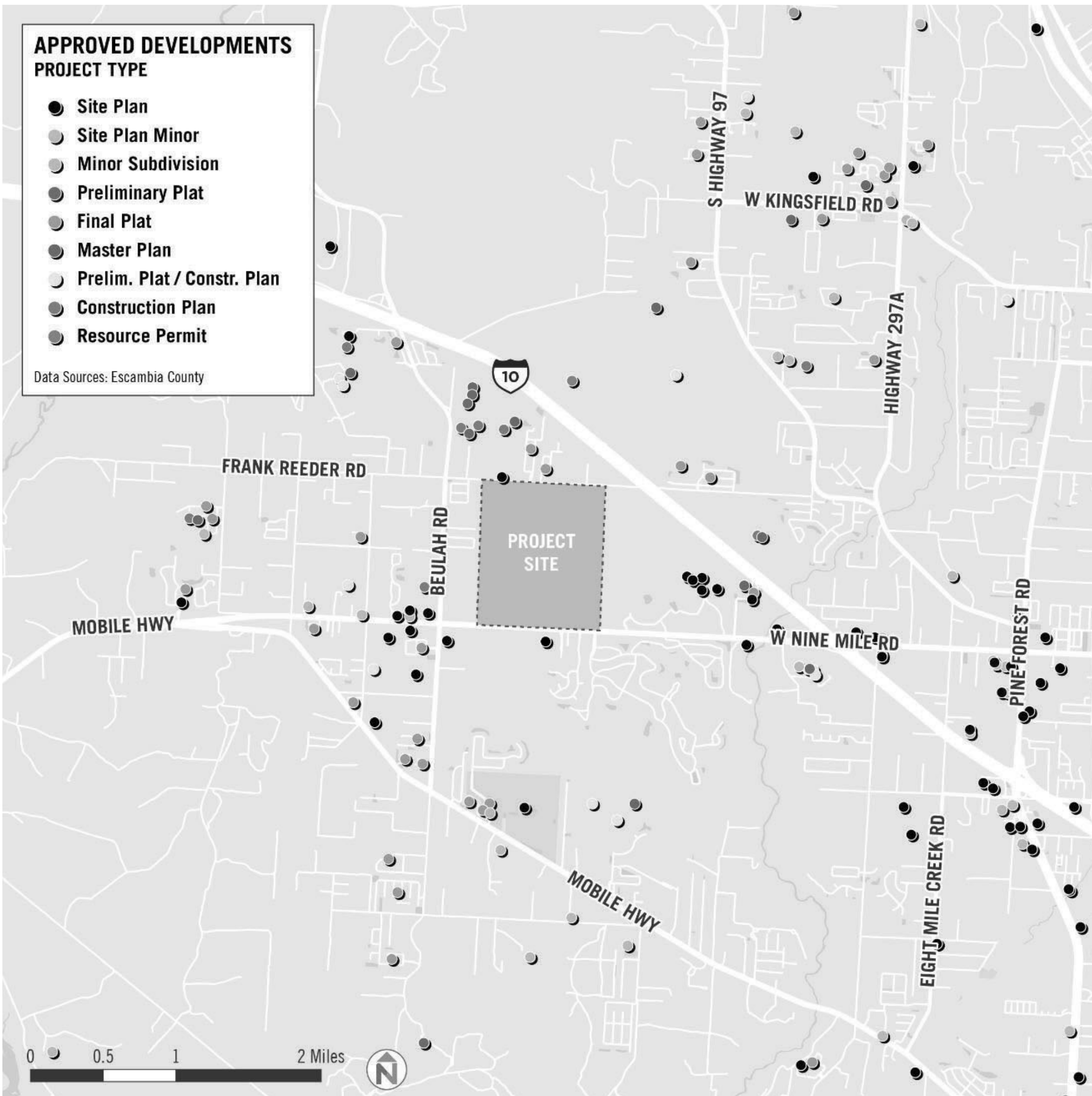
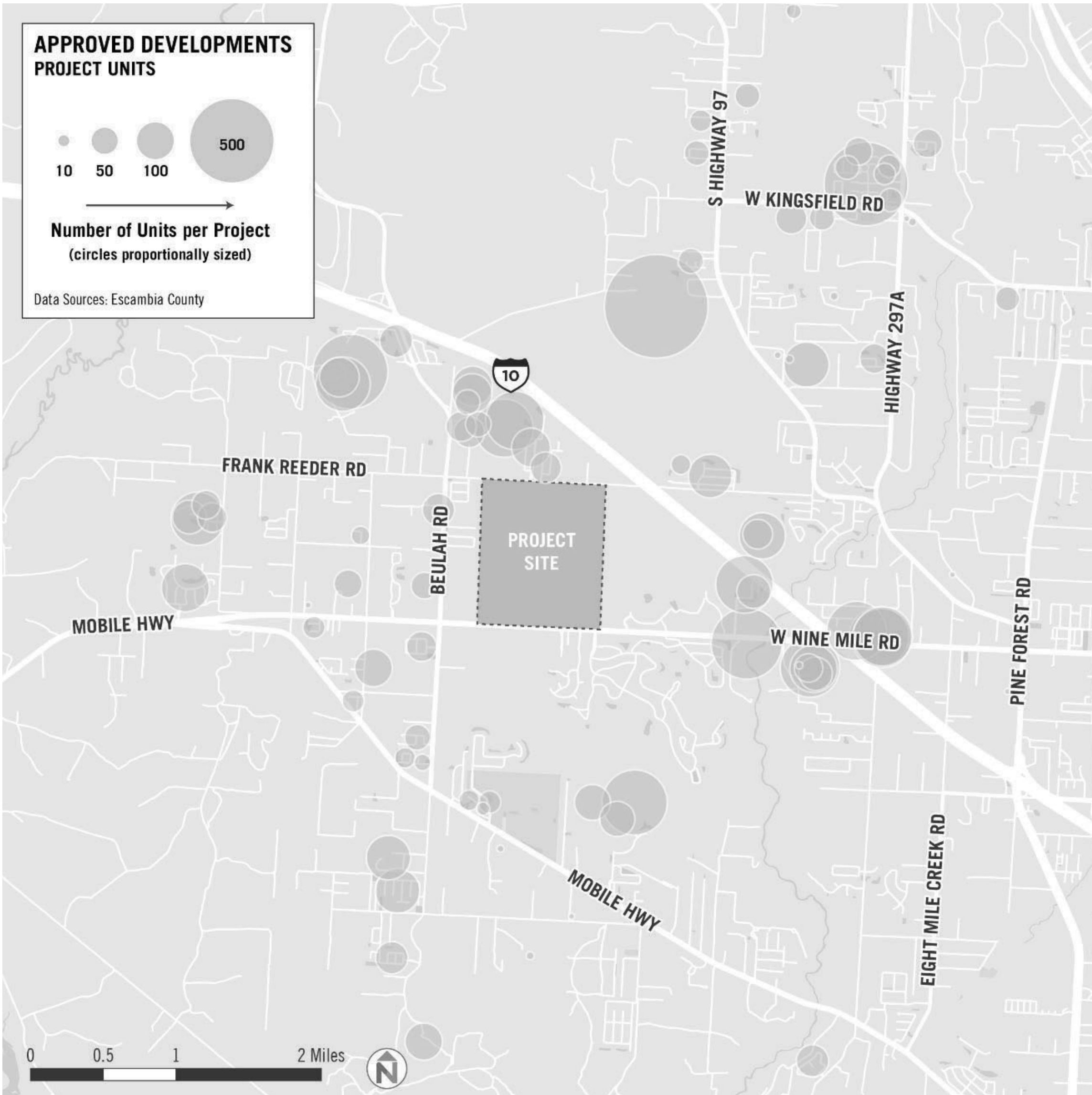


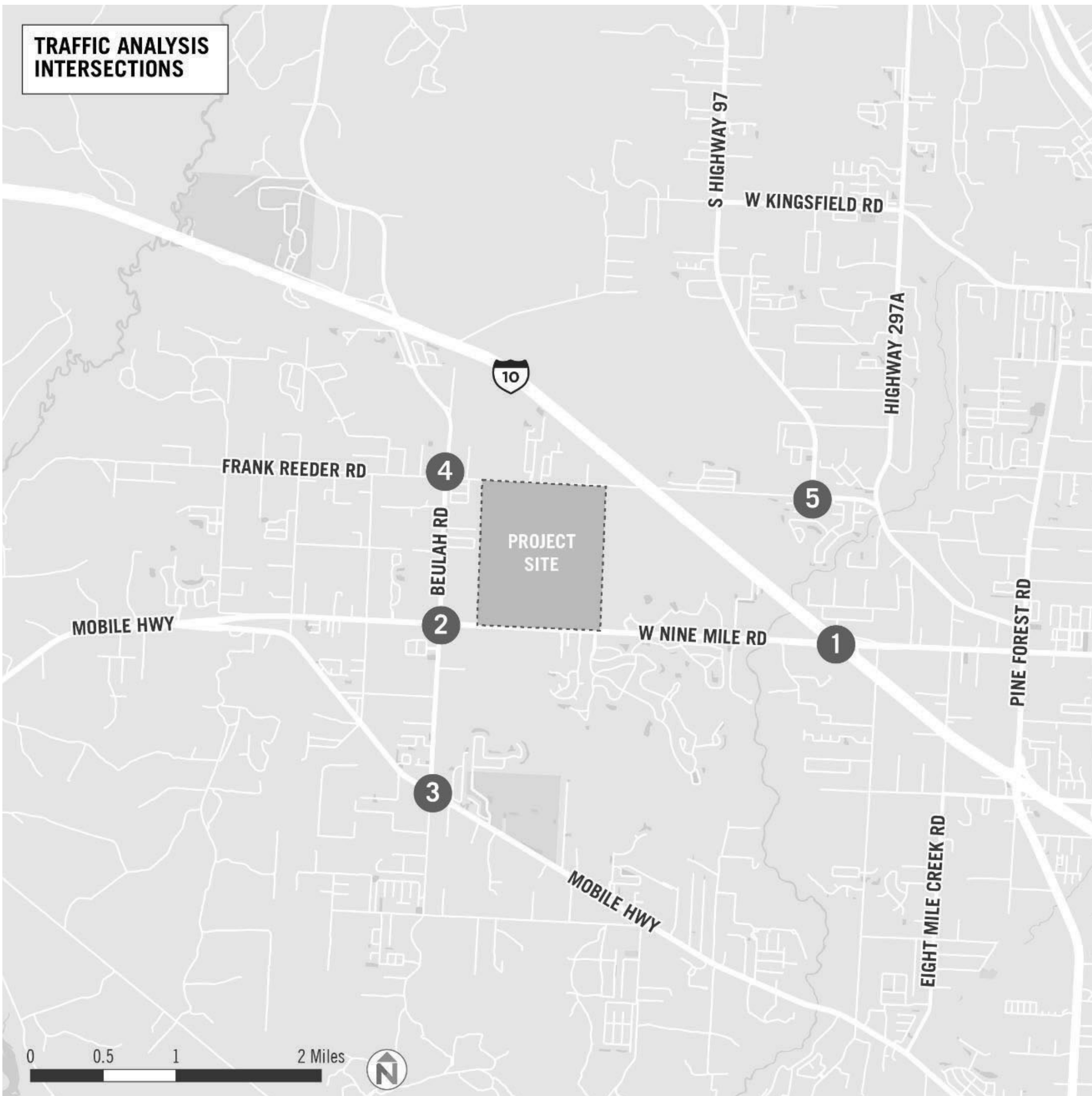
Figure 15 Approved Development Project Dwelling Units



TRAFFIC ANALYSIS

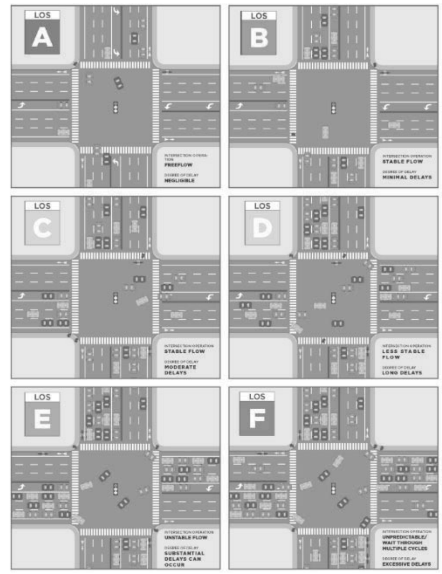
The Traffic Analysis goal is to understand how key intersections which will carry traffic to and from the site operate, and to estimate the excess capacity to absorb additional vehicles in the future. This assessment specifically analyses the existing conditions at the intersections mapped in Figure 16.

Figure 16 Traffic Analysis Intersections



Methodology

Intersection operations were analyzed at each of the study intersections noted previously for the existing conditions. Operations are assessed through two standard metrics:



- **Intersection Level of Service:** Level of Service (LOS) grades intersection operations on an A-F scale. LOS A/B represents free-flowing traffic conditions with little to no delay at an intersection. LOS C introduces some delay but is still considered an effective intersection condition. LOS D introduces more delay per vehicle but is typically still considered an acceptable level of service for most roadway users. LOS E adds more delay and begins what most users feel are congested conditions. LOS F represents highly congested conditions and indicates that traffic levels are above the capacity of the roadway or intersection.
- **Delay per Vehicle:** This metric defines the delay, in seconds, that a vehicle will experience on average when passing through an intersection. Lower delay represents a more efficient intersection condition.

Traffic Data

Determining LOS and Delay per Vehicle per intersection requires data during the period for which the analysis will be undertaken.

As the most recent available data was from the 2018 FDOT I-10/Beulah Design Traffic Report completed in February 2019 but was only available for 3 of the 5 study area intersections. Additional traffic data collection was undertaken in July 2020 at all 5 intersections during 8 hours on a weekday, during the morning, midday and afternoon peak periods (see **Appendix B** for the Traffic counts). Data collected showed that:

- Beulah Rd/Frank Reeder Rd intersection: traffic on Beulah Rd was about 2-4 times higher than that in Frank Reeder Rd in all three peak periods, being the busiest period that from 4 pm to 7 pm, and 4 pm to 5 pm the busiest hour. Frank Reeder Rd east of this intersection provides access to the development north of OLF-8 and connects them to I-10 and Mobile Hwy via Beulah Rd.
- Devine Farm Rd/Witt Rd intersection: low volumes were observed in both roads, and the highest movements was during the PM peak hour westbound on Devine Farm Rd, turning left on Witt Rd.
- Beulah Rd/Mobile Hwy intersection: similar to Beulah Rd/Frank Reeder Rd intersection, the highest volumes were observed during the PM, but in this case from 5 pm to 6 pm overall, and from 6 pm to 7 pm westbound on Mobile Hwy (close to 400 vehicles/hour). Main movements in the AM peak hour were

vehicles turning from Beulah Rd to Mobile Hwy, and vice-versa during the PM peak hour.

- Beulah Rd/9-Mile Rd intersection: this intersection follows the same typical commute pattern (higher volumes during the AM and PM peaks, with a lower Midday peak, with opposite main flows in the AM and PM peaks) observed in the Beulah Rd/Mobile Hwy intersection, although volumes on 9-Mile Rd are significantly higher than those on Beulah Rd, reaching close to 1,000 per hour in both directions.
- I-10/9-Mile Rd interchange: highest volumes from I-10 on to 9-Mile Rd were on the I-10 NB off-ramp, with steady volumes during the three peak periods, although slightly higher during the PM peak period. Most volumes from the I-10 SB off-ramp were turning east on 9-Mile Rd. Beulah Rd volumes on both sides of the interchange are 2,000 vehicles/hour in both directions, significantly higher than the volumes near Beulah Rd, due to the volumes in and out of Navy Federal and the residential areas nearby.

To factor the traffic counts from both the FDOT report and July 2020 (to account for the school vacation period and impacts of Covid-19), the following steps were taken:

1. Convert June 2018 traffic count to July 2018 (using FDOT seasonal factor)
2. Apply annual growth factor from July 2018 to July 2020 (based on FDOT AADT data from 2015-2019)
3. Calculate growth factor from existing counts to July 2020 (#2) and apply that to the five (5) intersections counted in July 2020.
4. Convert July 2020 with the seasonal factor to AADT 2020

Results

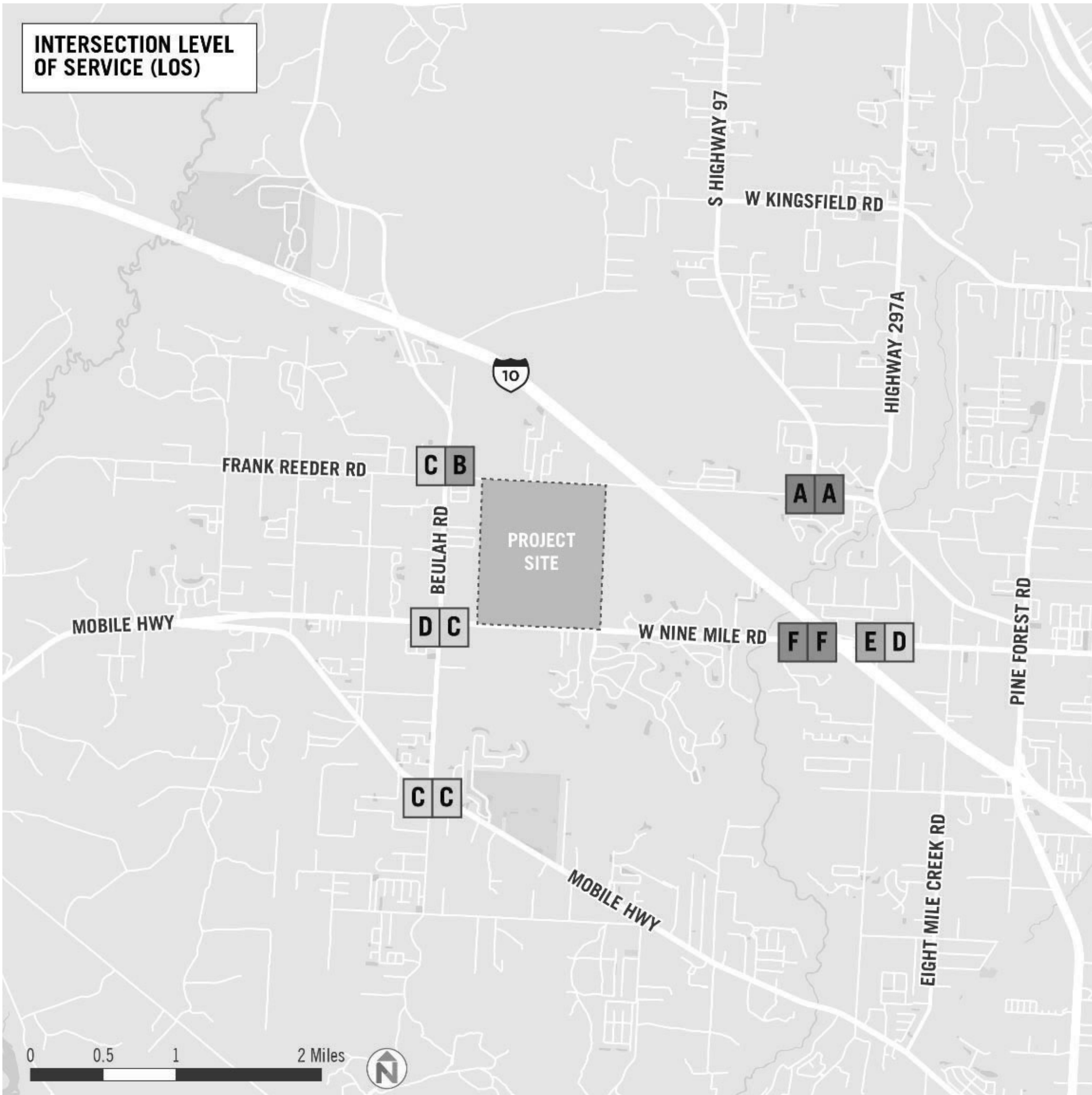
The existing condition LOS and delay were calculated for each study intersection for the AM and PM peak hours (7:15am-8:15 am and 4:15-5:15 pm) using guidelines laid out in the Highway Capacity Manual, 2010 (HCM 2010). Analysis was conducted in the Synchro 9 microsimulation software, and results are provided in the table below.

Under existing conditions, most intersections operate at an acceptable LOS. The intersection of I-10 Eastbound Ramps and 9-Mile Road operates at LOS F during both the AM and PM peaks. This is due to the high EB/WB volumes and 9-Mile Road that prevent the SB vehicles at the I-10 Ramp stop sign from finding a gap to pull out into traffic. Signalization could be required at this location in order to improve operations in the future. The intersection of I-10 Westbound Ramps and 9-Mile Road operates at LOS E during the AM peak. Changes to signal timing would likely improve operations at this intersection and provide an acceptable LOS in the future.

Figure 17 Intersection Analysis Results – Existing Conditions

ID	Intersection Name	Intersection Control	LOS and Delay (s) – AM Peak	LOS and Delay (s) – PM Peak
1a	I-10 EB Ramp & 9-Mile Rd	Side-Street Stop Control (SB)	**F (384.3)**	**F (219.0)**
1b	I-10 WB Ramp & 9-Mile Rd	Signalized	**E (79.2)**	D (48.3)
2	Beulah Rd & 9-Mile Rd	Signalized	D (46.5)	C (23.2)
3	Beulah Rd & Mobile Hwy	Signalized	C (31.8)	C (29.3)
4	Beulah Rd & Frank Reeder Rd	Side-Street Stop Control (EB/WB)	C (22.3)	B (14.3)
5	Witt Dr & Devine Farm Rd	Side-Street Stop Control (NB/SB)	A (8.8)	A (8.9)

Figure 18 Intersection Analysis – Existing Conditions



KEY FINDINGS

Following the evaluation of existing transportation conditions and future networks and improvements, the following key findings have been identified to support the anticipated growth in travel demand that will accompany the implementation of the OLF-8 Master Plan. The key findings of this evaluation include:

- Private vehicle is the main mode of transportation to move around Escambia County, partially due to the distances between origin (residential areas) and destinations (employers, retail, entertainment), but also as a result of the poor pedestrian and bike network, which is discontinuous and does not feel due to the width of vehicle travel lanes and limited crossings, and the lack of transit service in the area.
- Prior to Covid-19, Drive alone was the most used commute mode in Escambia County, followed by Carpool, and just a few Worked from Home. After Covid-19, though, commute travel behavior has shifted to a significant increase of Work from Home, and a decrease in the use of private vehicle.
- The local and regional network has few connection points and vehicular traffic is distributed poorly. I-10/9-Mile Rd interchange accumulates most of it and operates below acceptable level of service during peak periods. However, the current expansion of 9-Mile Rd and the proposed expansion of Frank Reeder Rd and its connection to Devine Farms will increase the road capacity and help distribute traffic in the future. The future road network, though, will need to be shared by the current Beulah area residents and Navy Federal employees, as well as by the future residents that will occupy the 2,000 residential units that are approved in the vicinity of OLF-8.
- Future opportunities to enhance mobility and access to the site and nearby areas include the incorporation of bicycle and pedestrian facilities for new construction or roadway enhancement projects. In addition, the potential ECAT transit expansion could support transit access to the site as could establishing a partnership with Navy Federal to expand and share their shuttle service. All combined could reduce the use of private vehicle for local trips and improve circulation operations on the road network.

3 PROPOSED PLAN

The OLF-8 Master Plan in Escambia County, FL is a transformative program of investment and development that re-imagines the OLF-8 site as a regional destination and town center that can support a robust mix of employment, residential, retail, and entertainment uses (see Figure 19). The OLF-8 proposed mixed-use Plan includes education, office and light industrial, retail, recreational and residential uses, as outlined in Figure 20. To support the development envisioned in the Plan, the proposed mobility network optimizes travel flows and reduces automobile usage.

Figure 19 Hybrid Plan

Figure 20 Land-use program and jobs

Land-use	Sq. Ft/Units	Jobs
Retail	249,814 Sq.Ft.	1,140
Multi-Family (over retail)	500 Units	
Multi-Family (stand-alone)	239 Units	
Industrial/Commerce	2,840,552 Sq.Ft.	2,500
Office (stand-alone)	84,148 Sq.Ft.	2,500
Residential 4-pck	132 Units	
Residential 6-pck	60 Units	
Town houses	179 Units	

Street Network

The street network proposed in the Plan is a grid comprised of north-south entrance streets that act as axes through the site and east-west connector streets. The street grid contains straight and diagonal streets - a response to the need to preserve wetlands at the southwest of the site. The proposed street network allows for permeable movement through all parts of the site and ensures that there are no dead-ends limiting access and connectivity. The grid primarily channels movement north-south through the site to and from the wider road network. Key elements of the street network are as follows:

Entrances

- Three entrances on the site's southern boundary would allow vehicles and people to enter the site from 9-Mile Road.
- Four entrances on the site's northern boundary would allow vehicles and people to enter the site from Frank Reeder Road.

North-South Axes

- The easternmost entrance street would provide a direct north-south route paralleling the site's eastern boundary. This route would allow heavy goods vehicles to move through the site without travelling through residential or retail areas.
- Two north-south routes, correspondent with the western and central entrances from 9-Mile Road would provide access through the retail and residential areas of the site.
- Four north-south routes, correspondent with the western and central entrances from Frank Reeder Road, would provide access through the commercial areas of the northern half of the site.

- The north-south streets of the northern and southern areas of the site meet at a wide east-west street dividing the residential area from the commercial area.

East-West Streets

- Eight streets provide east-west connectivity through the portions of the site.
- Two wide streets provide east-west connectivity through the northern commercial area of the site.
- East-west streets in the residential area of the site do not provide direct connectivity across the site to minimize through travel on residential streets.
- One diagonal and one straight street provide east-west connectivity across the southern portion of the site through the retail area and southern edge of the residential area. The southern straight street connects directly to the western entrance to the Navy Federal Site adjacent to the OLF-8 site.

The site also provides continuous walking and biking networks that connect with the proposed networks of the adjacent road network, as defined in Figure 12. Proposed Streets are described further in the following Chapter.

4 EVALUATION AND RECOMMENDATIONS FOR THE PROPOSED PLAN

The increased density and use of available space proposed by this Plan would attract a variety of daily trips to an already mobility constrained road network. A significant investment in the multimodal infrastructure and programs will be needed to support a significant shift in single occupancy vehicle (SOV) production to the site would enable a sustainable program of growth and land use development.

Following the Existing Conditions Assessment, the Implementation Strategy reviews the existing challenges and proposes a series of street and road design, parking and transportation demand management (TDM) recommendations to improve access and circulation at OLF-8 for future tenants.

This chapter is structured as follows:

- Assumptions and Methodology of the trip generation, traffic, and parking analysis
- Results of the trip generation, traffic, and parking analysis
- Recommendation on the multimodal transportation networks, organized into short and long term
- Street classifications, including cross-sections

ASSUMPTIONS & METHODOLOGY

Traffic Analysis

This chapter outlines the assumptions and methodology for the traffic analyses conducted to estimate vehicle trips generated by the Hybrid Plan proposed in the OLF-8 site, and the impact of those in the adjacent road network.

Scenarios

In addition to the Existing Conditions scenario (2020), whose results are presented earlier in this document, two future scenarios are evaluated to determine the extent to which the Plan may affect the surrounding transportation environment during weekday morning (AM) and evening (PM) peak periods, as indicated below:

- ***Future Base Line Conditions (2040)*** – Future traffic conditions in 2040, with traffic growth unrelated to the OLF-8 Master Plan.
- ***Future with Project (2040)*** – Future Base Line Conditions plus the new traffic generated by OLF-8 Plan.

Multimodal Network

The road network considered for each scenario is as follows:

- ***Future Base Line Conditions (2040):***
  - **Beulah Road**, widened from one lane per direction to two lanes per direction, with sidewalks and painted bike lanes, and extended north of Interstate-10.
  - **Beulah Road/9-Mile Road intersection**, expanded to accommodate up to eight east-west lanes, if 9-Mile Road is widened to three lanes per direction, seven lanes on Beulah Road to the north, and five lanes on Beulah Road to the south.
  - **Kingsfield Road,** extended westward to connect with Beulah Road.
  - **New interchange at Beulah road and Interstate-10,** widening Interstate-10 from two lanes per direction to three lanes per direction in the vicinity of the OLF-8 site[3].
  - **Frank Reeder Road,** widened into a striped two-way roadway, with one center turning lane, and extended to the east to connect with Divine Farms Road via an under- or overpass across Interstate-10.
  - **9-mile Road,** expanded to 3 lanes per direction.
  - **9-mile Road and Interstate-10,** redesigned to accommodate the expansion of 9-mile Road.
- ***Future with Hybrid Plan (2040)*** – Future Base Line Conditions (2040), plus the entry/exits to OLF-8 as designed in the Hybrid Plan.

In addition, we have assumed that a transit service will serve the site (see Figure 13) to connect it with Pensacola Downtown and other key regional destinations, and that the biking and walking infrastructure will be extended to the external networks.

Trip Generation and Mode Split

Mixed-use developments, such as the Hybrid Plan, generally shorten trips and thus allow what might otherwise be vehicle trips to external destinations to become internal walking, cycling, or transit trips. Thus, a mixed-use development that generates a given number of total trips creates less demand on the external roadway network than single-use developments generating the same number of trips. For example, the project would include retail located within proximity to the residential units; therefore, a certain percentage of the residents would likely opt to bike or walk to these shops instead of driving. As a result, a percent reduction in total vehicle trips generated is applicable.

Trip reductions were calculated using the Mixed-Use Trip Generation Model (MXD+) method developed by Fehr & Peers, which includes a combination of quantifiable methods used to more accurately assess trip generation estimation for mixed-use developments; the quantifiable methods that form the basis for the MXD+ method were developed and sponsored by the U.S. Environmental Protection Agency (EPA) and Transportation Research Board (TRB). The MXD+ method uses ITE trip generation

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[3] https://nwflroads.com/projects/433113-1

rates and then adjusts those estimates to account for the mix of uses and environmental characteristics (e.g., geographic layout of the site, land use in surrounding area, socioeconomic data, proximity to land uses and transportation resources, etc.)[4]

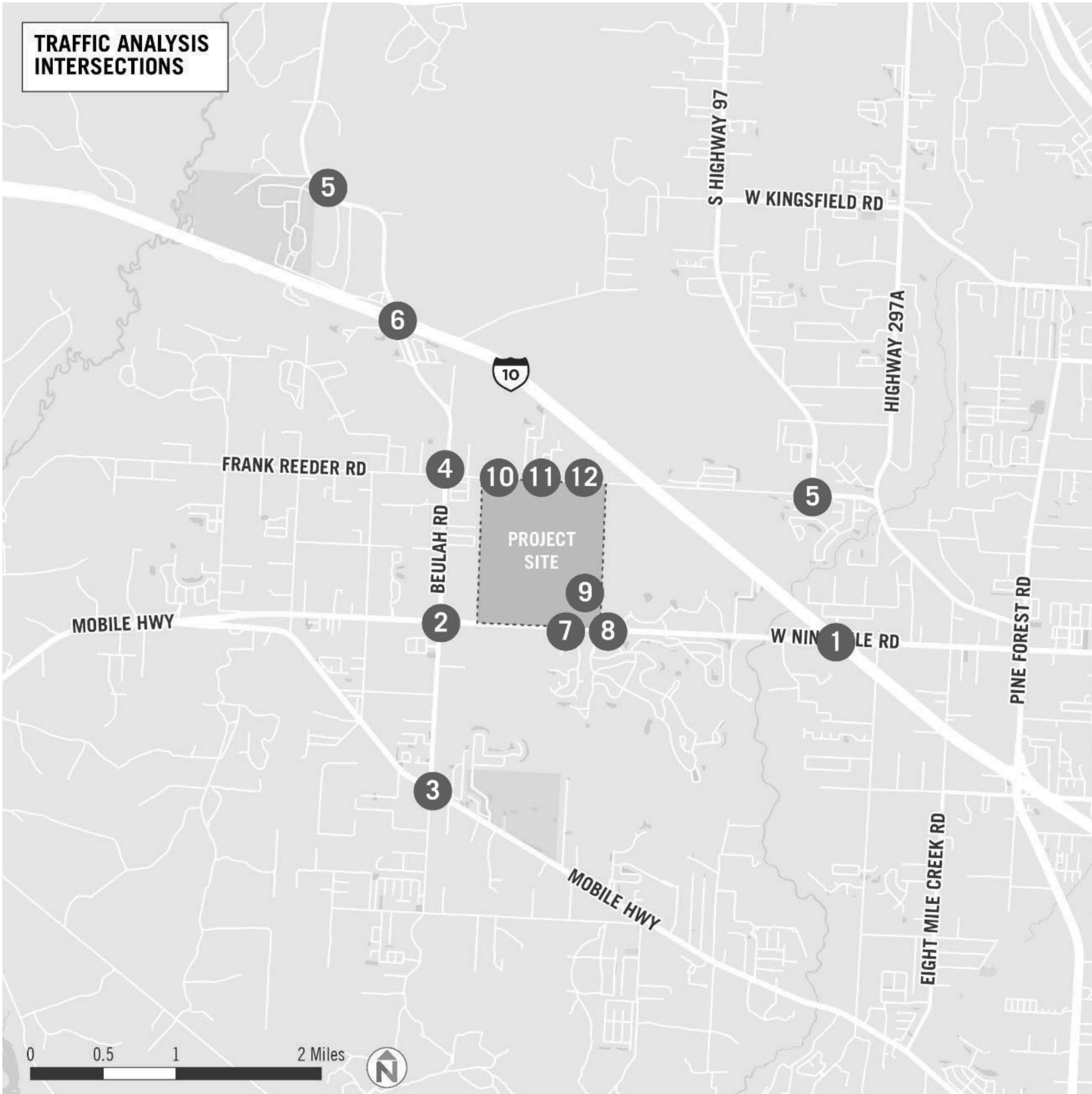
The amount of external traffic generated by the planned development is affected by a wide variety of factors including the mix of employment and residents, the overall size and density of the development, the internal connectivity for walking or driving among land uses, the availability of transit service, and the surrounding trip destinations. An empirically validated method of estimating vehicle trip generation at mixed-use developments was the result of the research. The model allows for predicting external vehicle trip reduction as a function of the mixed-use characteristics. Applying the external vehicle trip reduction percentage to “raw trips”, as predicted by ITE, produces an estimate for the number of vehicle trips traveling in or out of the site. To reiterate, the basis for this MXD+ model is the standard ITE trip generation rates and equations.

Traffic Volumes and new vehicle Trips Distribution and Assignment

- ***Future Base Line Conditions (2040)*** **–** Future traffic conditions considering traffic growth unrelated to OLF-8 for 2040. Traffic volumes during Peak Hours were defined applying an annual growth of 1.5% to the traffic volumes of the 2025 scenario in the Design Traffic Report of SR 8 (I-10) / CR 99 (Beulah Rd) Interchange.
- ***Future with Hybrid Plan (2040)*** **–** Traffic volumes were those of the Future Base Line Conditions scenario, plus the ones generated and attracted by OLF-8, calculated as indicated above. New external vehicle trips were distributed geographically based on the Longitudinal Employer-Household Dynamics of 2017, and assigned to each study intersection using PTV Vistro (see Figure 21).

[4] The MXD+ has also been peer reviewed in the ASCE Journal of Urban Planning and Development (Journal of Urban Planning and Development, 137(3), 248-261), peer reviewed in a 2012 TRB paper evaluating various smart growth trip generation methodologies (Shafizadeh, Kevan et al. “Evaluation of the Operation and Accuracy of Available Smart Growth Trip Generation Methodologies for Use in California”), promoted in an American Planning Association Planning Advisory Service (Walters, Jerry et al. “Getting Trip Generation Right – Eliminating the Bias Against Mixed Use Development”), which recommended it for evaluating traffic generation of mixed-use and other forms of smart growth.

Figure 21 Traffic Analysis Intersections



Intersection operability

Intersection operations were analyzed at each of the study intersections and were assessed through two standard metrics, as described below, using Synchro 9:

- **Intersection Level of Service:** Level of Service (LOS) grades intersection operations on an A-F scale. LOS A/B represents free-flowing traffic conditions with little to no delay at an intersection. LOS C introduces some delay but is still considered an effective intersection condition. LOS D introduces more delay per vehicle but is typically still considered an acceptable level of service for most roadway users. LOS E adds more delay and begins what most users feel are congested conditions. LOS F represents highly congested conditions and indicates that traffic levels are above the capacity of the roadway or intersection.

- **Delay per Vehicle:** This metric defines the delay, in seconds, that a vehicle will experience on average when passing through an intersection. Lower delay represents a more efficient intersection condition.

Parking Demand Analysis

This analysis develops its projected scenarios of potential future demand through past experience, Urban Land Institute (ULI) methodologies[5], and context-specific ratios in a calibrated model that best approximates the conditions in the OLF-8 master plan. To more accurately model mixed-use environments, Nelson\Nygaard has developed an adapted parking model as described in the ULI Shared Parking Manual, plus applied context factors specific to the proposed development characteristics in the OLF-8 master plan. The step-by-step modeling process is as follows:

1. **Traditional Parking Demand Model**: Calculate and compare how much parking would be "required" if each existing land use had its own, dedicated supply of parking based on the Institute of Transportation Engineers' (ITE) Parking Generation guidebook.
2. **Calibrate Parking Model to Context**: Calibration involves approximating the effect of factors specific to the proposed OLF-8 development area.
3. **Adapted Parking Model**: Apply an adapted parking model derived from the Urban Land Institute's (ULI) Shared Parking Manual to show the expected parking demand throughout the course of an average weekday.
4. **Anticipated Land Use**: Add anticipated development scenarios and model the expected parking demand.

[5] Urban Land Institute. Shared Parking Second Edition.

RESULTS

Trip generation

For the purposes of this analysis, the MXD+ reductions for internalization of person trips as well as external walking trips (both of which reduce vehicle demand generation) were calculated for daily, AM peak hour, and PM peak hour. The calculated MXD+ reduction rates for internal capture, walking, transit, and biking trips, are shown in Figure 22 and Figure 23, for Home-Based Work trips (HBW), Home-Based Non-Work trips (HBO), and for Non-Home-Based trips (NHB).

Daily HBO vehicle trips account for 75% of the total home-related external vehicle trips, while NHB account for 13% of the total external vehicle trips generated by OLF-8.

The average vehicle trip reduction for both internal capture and external trip capture by other modes is close to 10% for both Daily and Peak Hour trips, being the NHB trips those that would see the highest reduction, with close to 20% of external vehicle trip reduction. Those would be trips, for example, from the office to a nearby retail or restaurant.

On average, of the total HBW external vehicle trips generated by OLF-8, only 13% are related to the residential uses in the site. This percentage increases to 24% when referring to HBO external vehicle trips.

The results are conservative in the sense that they do not account for those that might reside in OLF-8 and work from home. As indicated in the Existing Conditions Assessment, the current commute mode share in Escambia County in 2018 was Drive Alone (74.2%), followed by those who Carpooled (11.2%) and those who Worked At Home (8.72%). However, they indicate that a percentage, while small, would walk, bike, or take transit, for their commute.

Figure 22 External Trip Reduction (Daily)

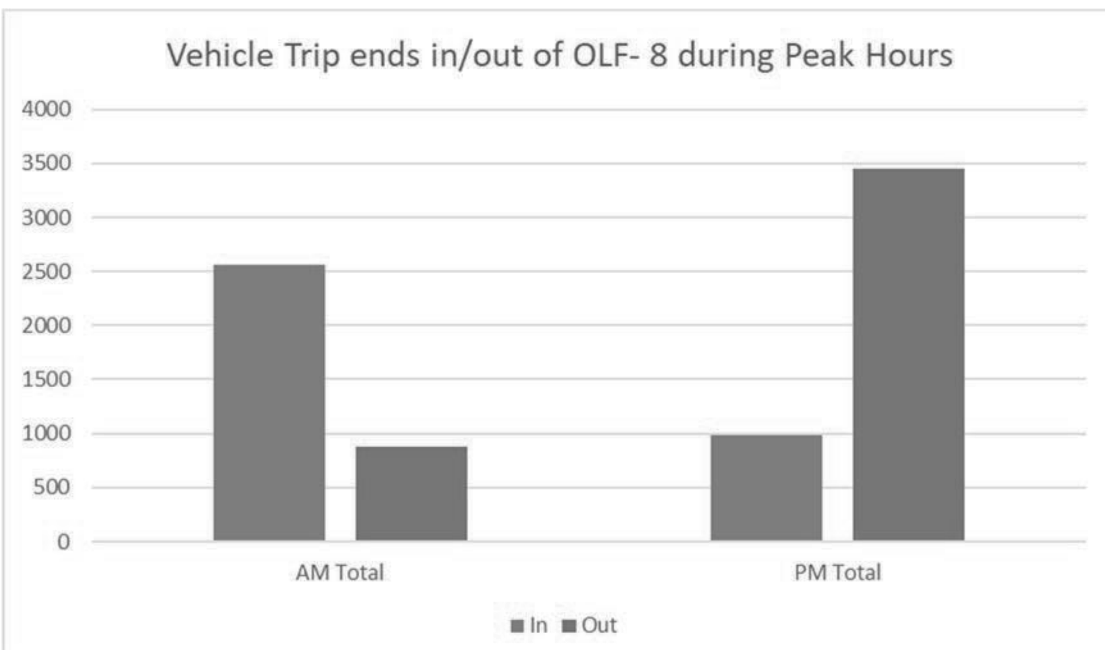
	Daily			
	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model)	10,850	22,940	10,470	44,250
% External Trip Reduction (predicted by MXD Model)				
Internal Capture	2.1%	6.6%	17.3%	**7.2%**
Walking/Biking External	1.5%	1.7%	0.9%	**1.6%**
Transit External	0.6%	1.0%	1.8%	**1.0%**
Total trip reduction	4.3%	9.4%	20.0%	**9.9%**
Adjusted # of External Trips	10,390	20,830	8,430	39,640

Figure 23 External trip reduction (AM and PM Peak Hour)

	AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model)	2,210	1,300	190	3,690	1,650	2,070	1,230	4,940
% External Trip Reduction (predicted by MXD Model)								
Internal Capture	2.1%	6.6%	17.3%	**5.0%**	2.1%	6.6%	17.3%	7.0%
Walking/Biking External	1.5%	1.7%	0.9%	**1.6%**	1.5%	1.7%	0.9%	1.6%
Transit External	0.6%	1.0%	1.8%	**0.9%**	0.6%	1.0%	1.8%	1.0%
Total trip reduction	4.3%	9.4%	20.0%	**7.4%**	4.3%	9.4%	20.0%	9.6%
Adjusted # of External Trips	2,120	1,180	150	3,440	1,580	1,880	990	4,440

Given the mix of uses and the anticipated jobs that the site will create, external vehicle going in the site are higher during the AM (for commute purposes), and vice versa in the PM. Residential uses general traffic in the opposite direction. PM Peak Hour will see higher traffic volumes in and out, due partially to the retail uses. See Figure 24.

Figure 24 External Vehicle trips in/out of OLF-8 during Peak Hours



Traffic Analysis

The Traffic Analysis goal is to understand how key intersections in the adjacent road network will operate because of the development of this Master Plan.

Level of Service and Vehicle Delay

The Level of Service (LOS) and vehicle delay were calculated for each study intersection for the AM and PM peak hours (7:15am-8:15 am and 4:15-5:15 pm) using guidelines laid out in the Highway Capacity Manual, 2010 (HCM 2010). Analysis was conducted in the Synchro 9 microsimulation software, and results are provided in the table below. Signal phasing have been optimized in both scenarios to optimize intersection operations. In addition, the geometry of some intersections in the scenario with project have been modified. An example is the Beulah Rd and Frank Reeder Rd intersection, where a 200ft WB left turn pocket was added on Frank Reeder Rd.

While traffic volumes will increase significantly in 2040 in relation to the existing traffic volumes, it is anticipated that most intersections operate at an acceptable LOS in the Future Base Line scenario for 2040, except from 9-mile Rd and Bell Ridge Dr during the AM Peak Period, as it is modelled as a stop-controlled intersection (see

Figure 25). This intersection improves its level of services once signalized, as indicated in the Future Hybrid Plan 2040 scenario (see Figure 28). With the Master Plan fully developed, results show that there will be operational problems during both the AM and PM peak hours at Frank Reeder Rd and New Project Access #2 if designed as a stop-controlled intersection, as well as at the Beulah Rd & Frank Reeder Rd and I-10 WB Ramp & Beulah Rd, during the PM Peak period.

Overall, the new design of the I-10 and 9-Mile Rd interchange improve its operability in regard to the Existing Conditions, despite the significant increase of traffic in the Future scenarios.

Synchro reports are available in **Appendix C**.

Figure 25 Intersection Analysis Results – Future Base Line Scenario

		Future 2040 Conditions		
ID	Intersection Name	Intersection Control	LOS and Delay (s) – AM Peak	LOS and Delay (s) – PM Peak
1a	I-10 EB Ramp & 9-Mile Rd	Signalized	B (10.1)	B (11.5)
1b	I-10 WB Ramp & 9-Mile Rd	Signalized	B (12.1)	B (12.0)
2	Beulah Rd & 9-Mile Rd	Signalized	C (34.8)	C (25.1)
3	Beulah Rd & Mobile Hwy	Signalized	C (33.3)	C (32.9)
4	Beulah Rd & Frank Reeder Rd	Side-Street Stop Control (EB/WB)	B (12.0)	B (11.8)
5	Beulah Rd & Beltway	Signalized	C (20.6)	D (52.2)
6a	I-10 EB Ramp & Beulah Rd	Signalized	C (25.4)	C (24.6)
6b	I-10 WB Ramp & Beulah Rd	Signalized	C (30.6)	B (19.8)
7	9-Mile Rd and Bell Ridge Dr	Side-Street Stop Control (NB)	**F (149.5)**	B (14.1)
8	9-Mile Rd and Foxtail Loop	Side-Street Stop Control (NB)	C (16.3)	B (11.1)
9	9-Mile Rd and New Project Access #1			
10	Frank Reeder Rd and New Project Access #2			
11	Frank Reeder Rd and Boxelder Blvd	Side-Street Stop Control (SB)	A (8.8)	A (8.6)
12	Frank Reeder Rd and New Project Access #3			

Figure 26 Intersection Level-of-Service | 2040 AM Peak

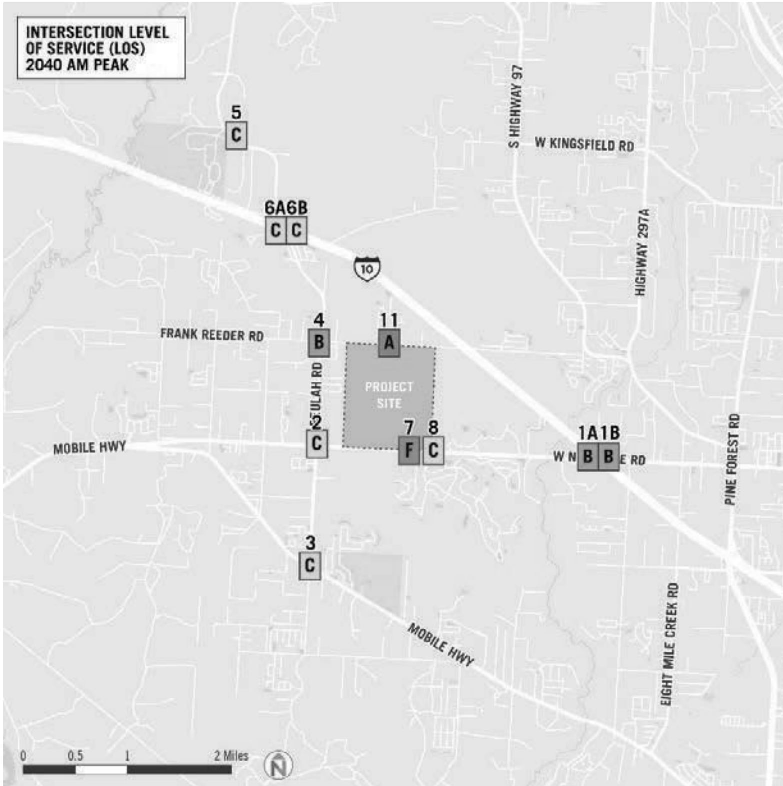


Figure 27 Intersection Level-of-Service | 2040 PM Peak

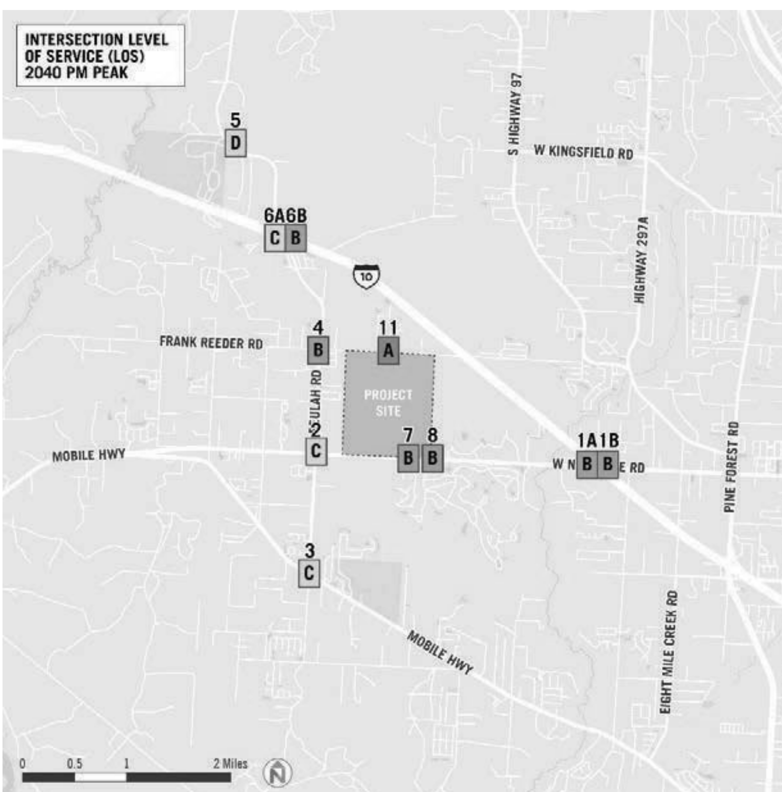


Figure 28 Intersection Analysis Results – Future with Hybrid Plan Scenario

		Future 2040 with Project Conditions		
ID	**Intersection Name**	**Intersection Control**	**LOS and Delay (s) – AM Peak**	**LOS and Delay (s) – PM Peak**
1a	I-10 EB Ramp & 9-Mile Rd	Side-Street Stop Control (SB)	B (19.6)	B (18.0)
1b	I-10 WB Ramp & 9-Mile Rd	Signalized	B (19.2)	B (19.1)
2	Beulah Rd & 9-Mile Rd	Signalized	D (43.1)	C (26.8)
3	Beulah Rd & Mobile Hwy	Signalized	D (35.3)	C (34.5)
4	Beulah Rd & Frank Reeder Rd	**Signalized**	D (44.9)	E (66.8)
5	Beulah Rd & Beltway	Signalized	D (43.1)	E (69.8)
6a	I-10 EB Ramp & Beulah Rd	Signalized	D (38.7)	D (44.3)
6b	I-10 WB Ramp & Beulah Rd	Signalized	C (32.0)	E (56.6)
7	9-Mile Rd and Bell Ridge Dr	**Signalized**	B (10.7)	B (19.1)
8	9-Mile Rd and Foxtail Loop	Side-Street Stop Control (NB/SB)	B (12.7)	C (16.8)
9	9-Mile Rd and New Project Access #1	Signalized	A (9.3)	A (9.4)
10	Frank Reeder Rd and New Project Access #2	Side-Street Stop Control (NB)	**F (65.7)**	E (35.3)
11	Frank Reeder Rd and Boxelder Blvd	**Signalized**	B (10.9)	C (23.1)
12	Frank Reeder Rd and New Project Access #3	Side-Street Stop Control (NB)	B (12.1)	B (12.2)

Figure 29 Intersection Level-of-Service | 2040 AM Peak with Project Conditions

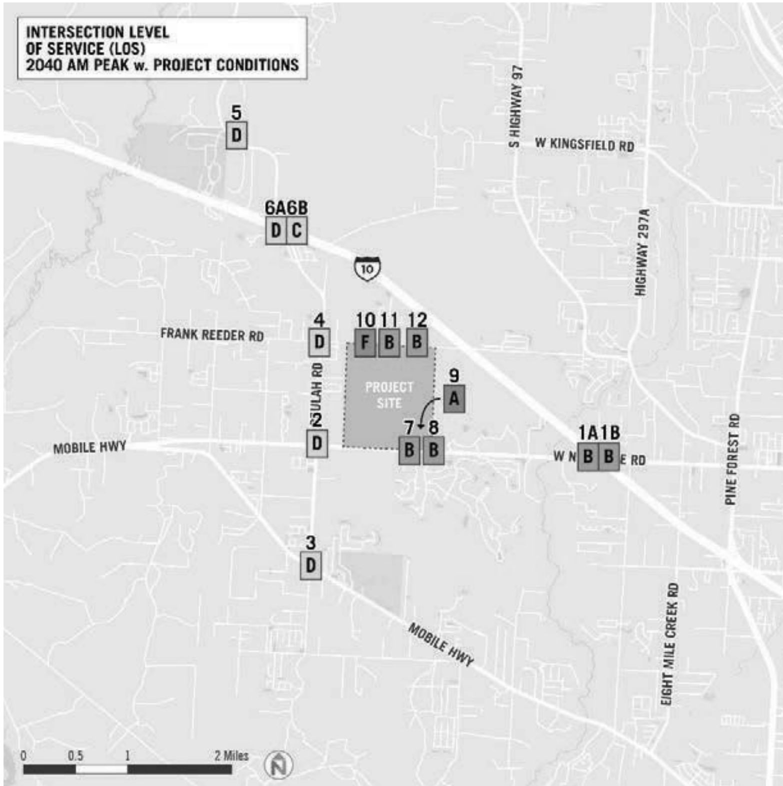
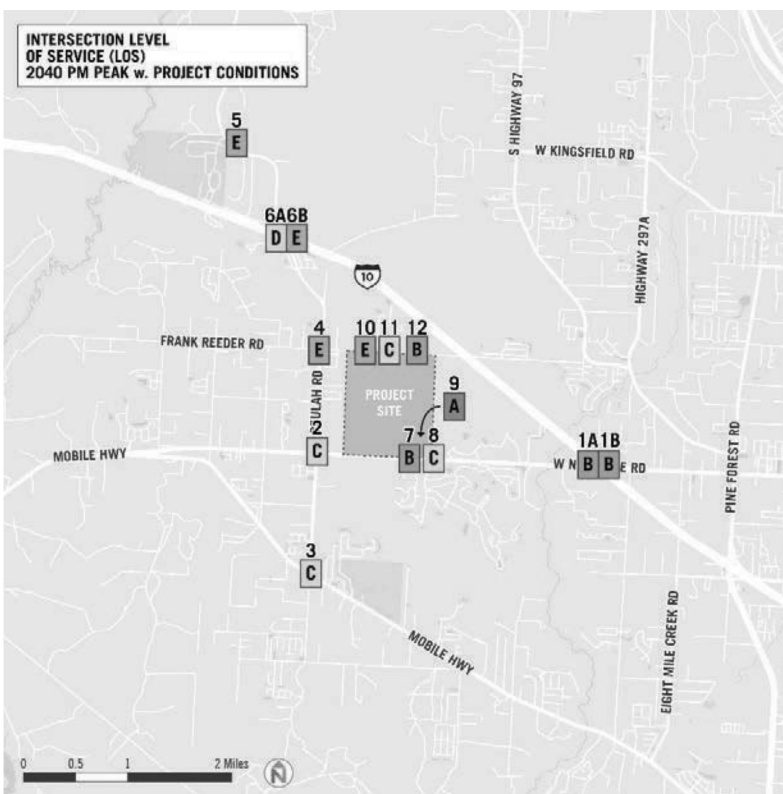


Figure 30 Intersection Level-of-Service | 2040 PM Peak with Project Conditions



Parking Demand Projections

The following table in Figure 31 summarizes the cumulative model outputs for each land use in the OLF-8 development framework. The low and high demand figures are defined as follows:

- Low – the "Low" demand level output of the adapted model factors in conservative adjustments for TDM and the conditions of the mobility environment.
- High – the "High" demand level is the output of the ITE-based Traditional Demand Model without any alterations.

The maximum projected parking supply level for each land use is shown in **bold** in Figure 31.

Figure 31 Projected Peak Parking Demand and Optimal Supply Targets, by Land Use

Land Use	Projected Peak Demand		Projected Optimal Supply (Max Peak + 10%)	
	Low	High	Low	High
Residential				
Weekday	1430	1430	**1573**	**1573**
Weekend	1335	1369	1469	1506
Office				
Weekday	2003	2100	2203	**2310**
Weekend	Not Available	Not Available	Not Available	Not Available
Industrial/Commerce				
Weekday	1312	1375	1443	**1513**
Weekend	Not Available	Not Available	Not Available	Not Available
Educational				
Weekday	165	175	182	**193**
Weekend	Not Available	Not Available	Not Available	Not Available
Retail				
Weekday	468	487	515	536
Weekend	698	727	768	**800**

The parking demand-pattern profile for weekdays and weekends can be found in Figure 32 and Figure 33. The weekday demand profile shows that demand will peak in the 9am-11 and 1pm-3pm range at about 4,500 vehicles. On weekends demand will remain relatively flat at around 1400-1600 vehicles due to the likelihood that demand from industrial, office, and education will be minimal to non-existent.

Figure 32 Weekday Parking Demand Profile (Low Demand Level)

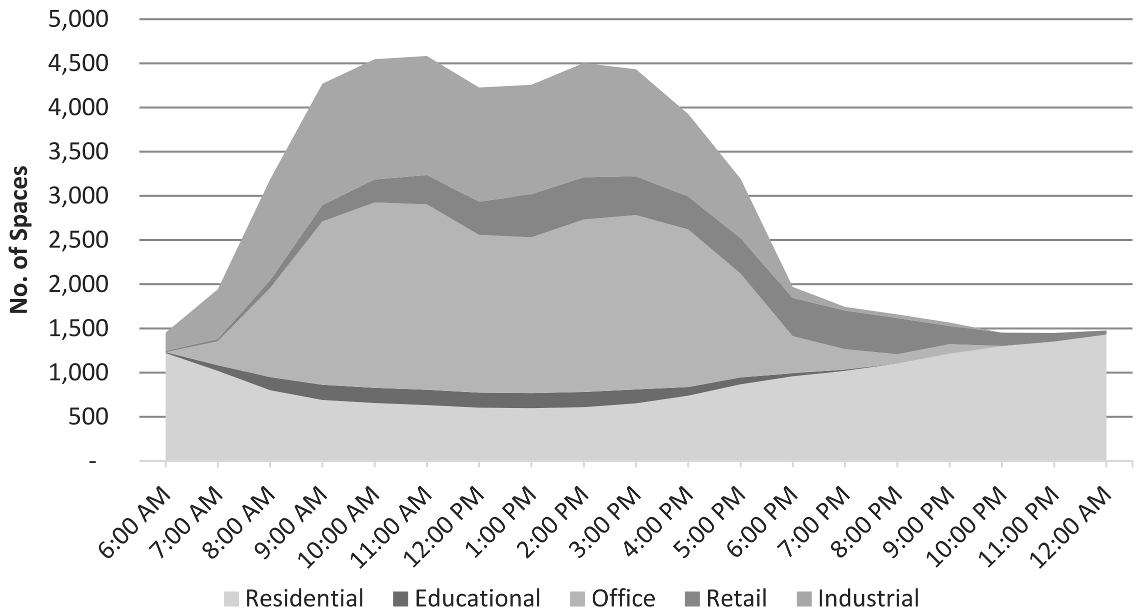
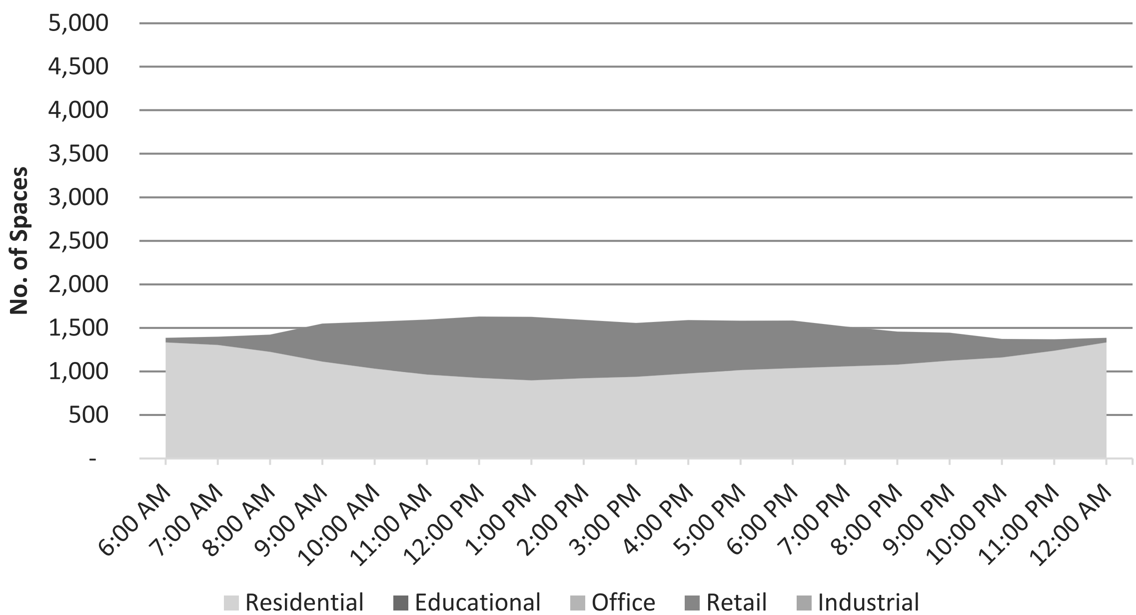


Figure 33 Weekend Parking Demand Profile (Low Demand Level)



5 IMPLEMENTATION RECOMMENDATIONS / STRATEGIES

The Vision proposes a comprehensive multi-modal plan to seamlessly connect OLF-8 to the larger regional transportation network. The proposed street grid and capital infrastructure investments will provide the right mobility options for OLF-8 employees, residents, and visitors via clean, safe, and reliable methods.

TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management, or TDM, consists of strategies that optimize available services and infrastructure by encouraging travel by more space-efficient modes (mass transit, bicycling and walking), shifting car trips to non-peak hours of the day (flexible schedules), or avoiding vehicular trips altogether by mixing land uses and/or employing technology (telecommuting). **TDM strategies are typically more *cost*-effective than capital investments in increased roadway or parking capacity.**

TDM is not meant to be a one-size-fits-all solution. Rather, a variety of strategies specific to the context combined to reduce congestion. **The most successful projects utilize a combination of bicycling, walking, transit, driving, parking, and programming strategies.** By working together with public agencies in Escambia County, OLF-8 future tenants can utilize existing resources and expertise to help them reach their TDM objectives. Some of the more common objectives of TDM programs may include:

- Creating a more active site by providing alternative transportation options to SOV to residents, visitors and employees to increase the site attraction.
- Reducing costs associated with providing parking on site.
- Reducing the physical impact of parking facilities on site.
- Reducing stakeholder concerns regarding growth; and
- Meeting sustainability goals.

Supply-Side Strategies

- **Integrate walking, biking, and transit infrastructure** in the internal street network to encourage safe walking and biking, and the use of transit to access the site, as well as within the stakeholders. Employers should offer amenities such as lockers and showers, as well as secure bike parking, to encourage walking and biking to work. Similarly, the new school should be equipped with covered bike parking to encourage students to bike to school.
- **Hire traffic control agents to speed up loading at the new school.** Traffic agents are commonly used to speed loading activities at busy destinations. Hiring traffic agents to facilitate faster loading – and preventing vehicles from lingering during peak times – may help mitigate potential congestion caused by parents picking up or dropping off students.

- **Encourage shared parking agreement** among tenants of different uses that are proximate one with another to prevent over-supply of parking:
    - Compensation in the form of increased lot maintenance, lot improvements, added security, etc.
    - If needed, restrict access to shared parking spaces, via permits, to area employees to reduce risk and increase accountability.
    - Defining any added security or enforcement measures necessary to ensure that the primary uses of the lot are prioritized.

Demand-Side Strategies

Because of OLF-8's geographic location, and the lack of bike, pedestrian, or transit connections to key destinations in Escambia County, the range of viable transportation demand management (TDM) strategies is limited in the short-term. Short-term strategies focus on optimizing access by establishing low-investment, high-impact policies and programs using current campus resources. The most significant of these is the administration of a Transportation Impact Fee on all future development at OLF-8, a critical strategy to finance transportation improvements that will enable OLF-8 to mature into a balanced, mixed-use development with a robust menu of mobility options.

SHORT-TERM STRATEGIES

- **Establish a Transportation Impact Fee (TIF) to finance Access Authority and longer-term access improvements.** Create a formalized process to calculate and administer a TIF for all future development at OLF-8. TIFs are calculated by evaluating the anticipated trip generation of each development, according to land use and other factors. Other approaches calculate fees based on the vehicle miles traveled (VMT) of each new development, a more precise measure of the developments' relative contribution to campus congestion. Fees are typically expressed in terms of dollars per square foot of development and may vary according to land use categories, as land use categories typically generate vehicle trips at different rates. Revenues generated by a TIF are crucial to financing long-term TDM strategies as well as an Access Authority to implement them. An Access Authority, also known as a Transportation Management Association (TMA) or Transportation Management Organization (TMO) is an organized, non-profit organization that manages and implements TDM programs for a specified campus or district on behalf of a group of tenants.
- Coordinate with nearby existing employers to **shuttle employees from certain locations**. Navy Federal currently runs a shuttle program, and new tenants could contribute with the service, offer an alternative mode to the employees, and reduce parking demand.
- **Set up Guaranteed Ride Home program for all employees**. OLF-8 should set up a Guaranteed Ride Home program for employees who carpool, walk, bike, or ride transit to work. A long-standing, effective TDM strategy, Guaranteed Ride Home (GRH) programs provide transportation when typical means are not available to employees returning home off of their normal schedule. This employer or association- provided benefit allows for a set amount

of free taxi rides or use of car share vehicles for unplanned trips home that cannot be accommodated by the employee's normal commute mode.

- **Encourage carpools among employees and visitors.** Key strategies for increasing rideshare commuting include the following:
  - **Ride-matching platform:** Drive-alone trips can be greatly reduced by organizing a ride-matching service within the community to help motorists identify potential driving companions.
  - **Use incentives to reward carpoolers:** Transportation management platforms like Ride Amigos or Luum offer highly effective tools for campus affiliates to track their commutes, find carpool ride-matches, and win cash-based incentives for the non-drive-alone trips they log. Subsidies as small as $5 per week can be effective in persuading employees who currently drive alone to OLF-8 to carpool. There are "offline" alternatives to these platforms as well – many institutions hold regular raffles or prize drawings to reward registered carpools.
  - **Dedicate preferential carpool parking**: Reserving the most desirable parking spaces for the most space-efficient car-commuters has proven effective in encouraging carpooling among employees, particularly where parking demand increases the chances of non-carpool commuters having to park far from their destination.
  - **Create "express drop-off" for carpooling users in the new school.** Families that carpool with two or more students in the vehicle should be rewarded with a shorter, more direct loop that minimizes time spent queuing.
- **Explore options with employer TNCs to operate employee carpools.** In recent years, several transportation network companies (TNCs) such as CarpooltoSchool,[6] Kango,[7] Zum,[8] and HopSkipDrive[9] have begun offering ride-hailing and carpool ride-matching services geared specifically for employees transportation needs. Shared TNCs rides could help to reduce traffic volumes, and parking demand.

LONG-TERM STRATEGIES

- **Create an Access Authority to administer and support key TDM programs.** The OLF-8 Master Plan implementation of a balanced, multimodal transportation system depends on the combined efforts of OLF-8 stakeholders to invest in transportation demand management programs in tandem with its investments in parking and roadway infrastructure. The Mobility Plan recommends that OLF-8 establish an Access Authority to facilitate the sharing of stakeholder resources and program administration functions necessary to implement the joint transportation vision. Access Authorities are generally non-profit, member-controlled organizations that provide transportation services in a

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[6] https://www.carpooltoschool.com/about-us/

[7] https://www.kangoapp.co/

[8] https://ridezum.com/

[9] https://www.hopskipdrive.com/school-transportation/

particular area, such as an industrial park, medical campus, or business district. They are often public-private partnerships, consisting primarily of area businesses and institutions, with local government support. The growth of these organizations in the last 25 years stems from the knowledge that businesses, developers, building owners, and government entities can be more effective when working together to address local transportation problems and developing solutions and strategies collaboratively.

As of September 2018, there are more than 145 Access Authorities (or similar organizations) in the U.S., which range in size, scope, and structure. While they differ in services offered, funding mechanisms, and memberships and partnerships, the primary mission of most is to increase mobility, reduce the share of trips made by single-occupancy vehicle, and enhance access to major activity centers for those who work, reside, shop, and commute into and within the district's boundaries. Collaborative organizations can implement programs and services to address traffic and parking challenge. Access authorities provide a range of TDM programs and services to help maximize the effectiveness of the campus transportation network and reduce the impacts of that network to all stakeholders. Some of the most common TDM programs and services managed by access authorities include:

- Shuttle services (local circulators and from park & rides).
- Rideshare matching.
- Vanpool programs.
- Guaranteed ride home programs.
- Sales of and discounts on transit tickets/passes.
- Parking management.
- Bike parking, showers, and lockers.
- Marketing for alternative commute modes; and
- Employee transportation coordinator training.

We recommend using funding from the TIF to finance and staff the Access Authority; some federal and state funding sources may also be available to create and maintain Access Authorities, though the absence of state/local legislation requiring TDM programs makes this pursuit less promising. Access authorities for developments the size of OLF-8 typically employ one full-time staff, often a Transportation Coordinator and a support staff person.

The Access Authority will be responsible for implementing and managing the following TDM programs in the long-term:

- **Work with stakeholders to develop a customized carpool ride-matching platform for employees, residents and visitors.**
- **Work with stakeholders to conduct annual TDM education activities.**
- **Conduct annual travel surveys along with summary report showing changes over time, by** regularly collecting data on how affiliates travel to, from, and within campus, typically through travel surveys. These

data collection efforts are essential to evaluating the success or failure of various TDM programs.

- **Provide subsidies for carpool riders who use on-demand carpool platforms.** The Access Authority should reward carpool riders with subsidized rides using on-demand carpooling platforms like Waze Carpool or Scoop, or Carpoolworld[10], if or when these platforms become available in Pensacola.[11] These subsidies could be awarded to any employees as an incentive to reduce drive-alone commuting by carpooling on-demand. The Palo Alto TMA operates a successful partnership with Scoop, offering riders $1 rides to and from select zones. This partnership has enrolled more than 200 registered users and hopes to reach 400 by 2020.[12]
- **Explore transit service partnerships with Escambia County Area Transit**. While OLF-8 does not currently have direct access to fixed-route services serving the site, this is likely to change as the site is developed and its travel demand increases. The Access Authority should leverage funding from the TIF to offset Escambia County Area Transit's operating costs of a new or modified route with direct service to OLF-8. This arrangement is a kind of public-private partnership that has been successfully implemented in the Seattle metropolitan area for many years to provide fixed-route transit in hard-to-serve areas. King County Metro, the region's largest transit agency, operates an additional 130,000 service-hours through its service partnership program "Transit Now," 30% of which is contributed by employers and local municipalities.[13]
- **Distribute Universal Transit Passes.** Going beyond assisting employees with pre-tax purchases or even direct subsidies of transit passes; the concept of the universal transit pass offers transformational TDM potential by drastically reducing the cost of transit commuting. The principle of these bulk-purchased passes is similar to that of group insurance plans – transit agencies can offer deep bulk discounts when selling passes to a large group with universal enrollment because not all those offered the pass will actually use them regularly. In response to the potential revenue/ridership benefits offered by this TDM strategy, a growing number of transit agencies have teamed with cities, employers, university campuses and neighborhoods, and even entire commercial/mixed-use districts to provide transit pass programs. Studies have linked universal transit passes to reductions in car mode shares of between 4% and 22%, with an average reduction of 11%. Many of these reductions have occurred in areas with very limited transit service.

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[10] https://www.carpoolworld.com/carpool.html?to=Pensacola&wc=USA,US&ws=FL&lat=30.4204410&lon=-87.2171480

[11] As of September 2018, Waze Carpool is available to anyone living and working in Texas and 12 other states. Scoop is available through negotiated agreements to private employers in some states.

[12] Sheyner, Gennady. 2018, March 14. "Nonprofit Revs up Efforts to Reduce Traffic." Accessed September 26, 2018. https://www.paloaltoonline.com/news/2018/03/14/palo-alto-nonprofit-revs-up-efforts-to-reduce-traffic.

[13] https://www.kingcounty.gov/transportation/kcdot/MetroTransit/TransitNow/Partnerships.aspx

- **Create an on-demand shared service to connect OLF-8 with nearby destinations.** This could be a branded electric vehicle, like those offered by hotels to bring customers to the airport and other destinations. The service could be funded by all tenants or through a TIF and coordinated by the TMA. Some of the benefits would be to provide an alternative transportation service to those residing in OLF-8 with mobility constraints, as well as to those living beyond the walkshed without access to a private vehicle or far from transit.
- **Create a branded shared micromobility service, such as e-bikes or e-scooters, to move around OLF-8.** This could be available to residents and employees, and managed by the TMA, and would provide an alternative to move within the site and cover the first-last mile to transit.

WALKING

SHORT-TERM STRATEGIES

- Build a connected sidewalk network within the site, as well as in the adjacent roads, that connect OLF-8 with the nearby residential subdivisions, retail areas, and employers, such as Navy Federal. The sidewalk network should be designed as specified in the Street Classification chapter.
- On the OLF-8 site, integrate pedestrian-oriented directional signage pointing towards key areas (school, green areas, trails, retail), with approximate walking time, specifically calling out ADA-accessible routes and access points.
- Require curb extensions (or refuge pedestrian islands) at all crosswalks spanning more than two total lanes of traffic.

BICYCLING

SHORT-TERM STRATEGIES

- Build a connected bicycle network within the site and one that completes the “desire lines” between OLF-8 and the nearby key destinations such as residential subdivisions, Navy Federal, retail areas at Beulah Rd intersections (Figure 34).
- Develop separated pathways and bike specific facilities to increase overall safety.
- Provide at least one bike repair shop and consider a shared bike program for residents and employees.
- Consider adding bicycle parking requirements and design guidelines to covenants, conditions, and restrictions (CC&R’s), following best practices established by the Association of Pedestrian & Bicycle Professionals (APBP).
- Require bicycle amenities to be provided in employment centers (showers, lockers, covered bike racks).

Figure 34 Planned Internal Bicycle Network

EMERGING MOBILITY

Emerging mobility and its impact on the OLF-8 site in the future is unknown with the continued growth of new services like bicycle share programs, e-bikes, e-trikes, micro shuttles, automated vehicles, and ride-hailing services, but can be planned for by considering risks and weighting them against future integrated mobility investments in a comprehensive manner. Impactful strategies start with programming for flexibility of use and allowing for an uncertain future. Mobility hubs and adaptable design will be key to this approach.

SHORT-TERM STRATEGIES

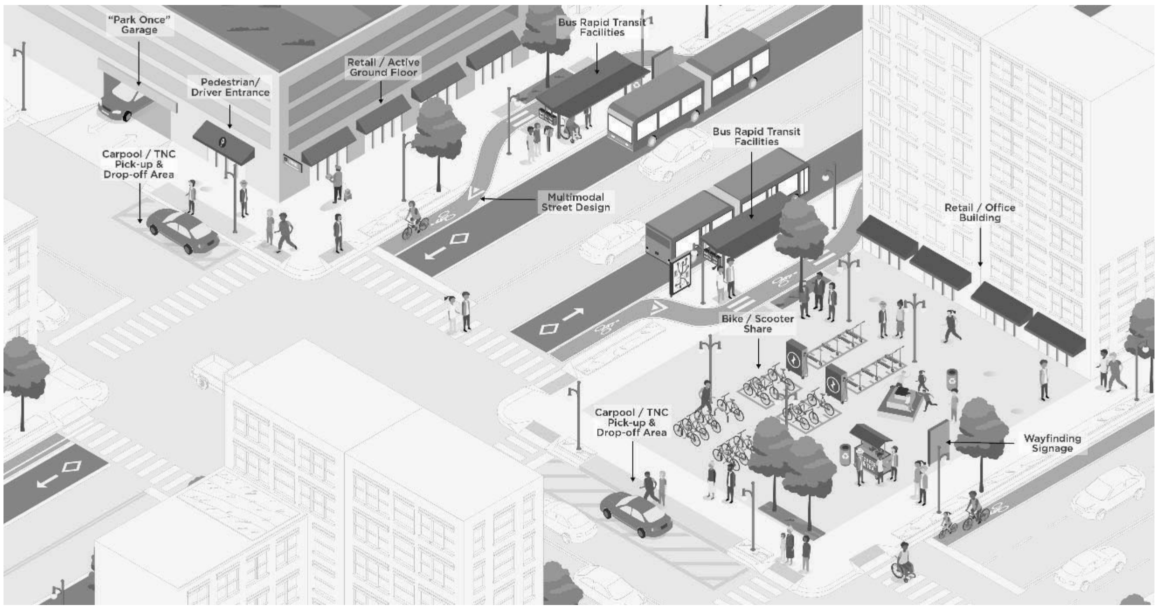
- Adopt flexible curb loading zones that work for passengers and consider policies that control usage by ride hailing services, micro shuttles and courier network services/package delivery, to limit conflicts with active modes
- Adopt a park-once district as a natural extension of the Mobility hub programming and services that *expand the area served by parking facilities* by providing on-site first-/last-mile options and by strategically locating parking supplies and encouraging sharing, we can:
  - Intercept drivers and encourage them to walk/transfer to final destination
  - Activate the streets and support a pedestrian friendly environment; and
  - Increase exposure to the site activities
- The risks associated with over-building parking are set to escalate significantly, as disruptive technologies and service innovations, primarily in the arena of" shared mobility" (or "emerging mobility" among other terms) push US travel preferences toward what many expect to be a profound paradigm shift. To prevent the potential of vacant parking spaces in future, parking infrastructure such as the following should be considered:
  - Parking resources designed to serve areawide needs (potentially in the context of a shared parking district), securing underutilized sites to temporarily serve as surface lots (prior to redevelopment); and,
  - "Adaptable" parking facilities which are designed and built to be repurposed for non-parking uses (such as data centers, offices, or apartments) within a 10-year window.

LONG-TERM STRATEGIES

- Adopt/implement Mobility Hub design that encourages and supports activity and facilitates the seamless transfer between modes. Mobility Hubs are places of connectivity that provide an integrated suite of mobility services, amenities, and technologies to bridge the distance between transit/parking and an individual's origin or destination. In OLF-8, that could be an option in the southeastern area, where dense mixed-use is expected. In addition, if transit serves, the area, that could be a point where additional services, such as shared (e)bikes or (e)scooters could be provided to access other locations within the site. Similarly, as the

Master Plan is developed, an internal shared shuttle service or a shared micromobility service (such as an electric shared vehicle), could serve the site from there.

Figure 35 Example of a Mobility Hub

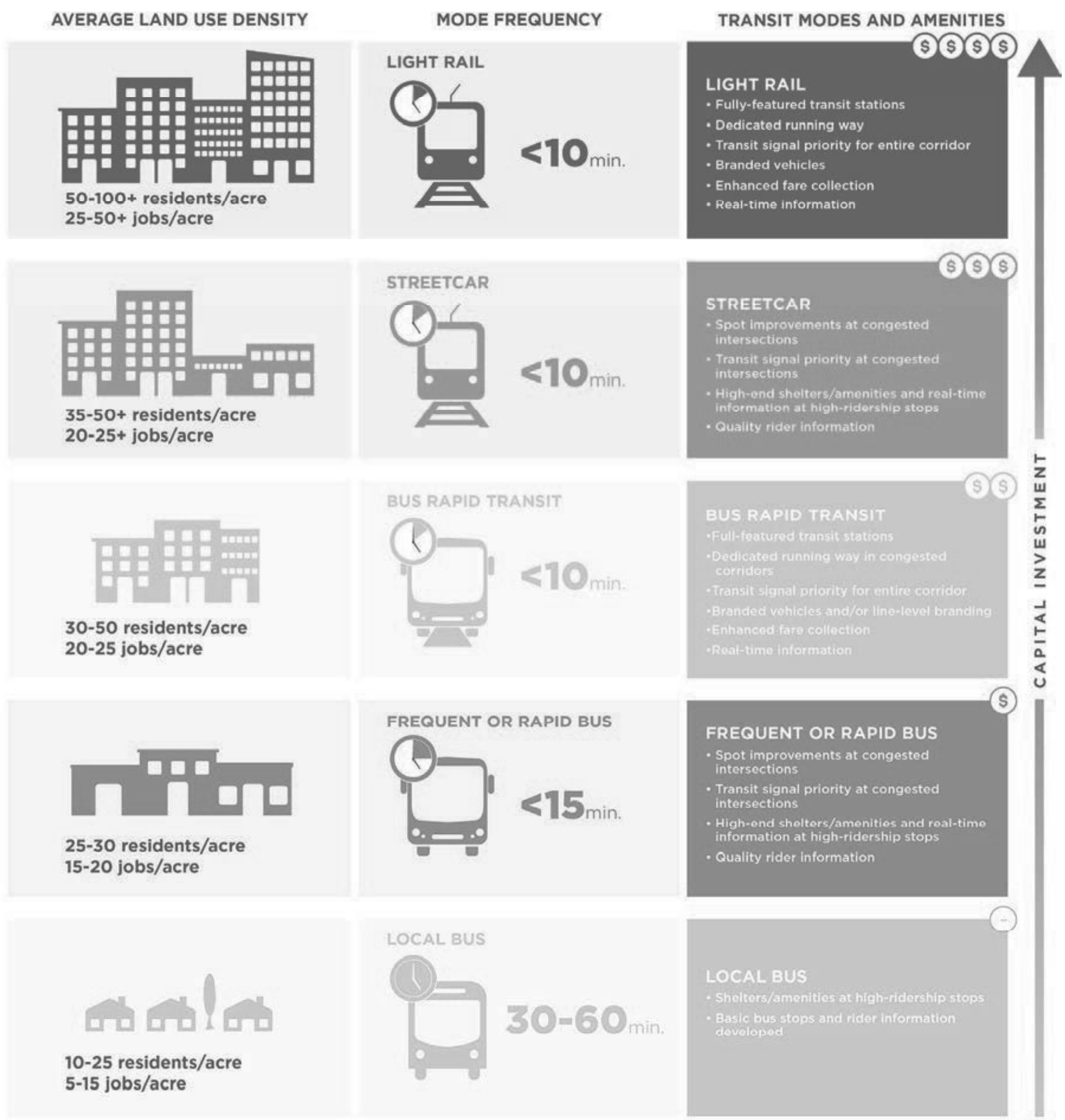


TRANSIT

SHORT-TERM STRATEGIES

The transit route could be one or several extensions of the existing bus routes operated by Escambia County Area Transit. According to the job and residents' density, it is recommended that the site is served by a bus route, with 30' to 60' frequency, and that stops are equipped with shelters at key locations. See Figure 36.

Figure 36 Transit Mode per Average Land Use Density



STREET DESIGN

The street network proposed in the Plan is intended to work well for people driving, bicycling, and walking. The street network would be comprised broadly of five different street designs implemented across 14 street types. These designs place varying emphasis on different uses, with some prioritizing vehicle movement and others prioritizing the creation of a comfortable and safe pedestrian environment.

Figure 37 depicts the assignment of five street designs within the proposed street network. The street designs assigned to the network include:

- **Primary Town-Center Streets**: Bidirectional streets intended to accommodate moderate speeds and volumes of vehicles, bicycles, people walking, and on-street parking or other parking lane uses.
- **Primary Commercial Streets:** Bidirectional streets intended to accommodate moderate speeds and volumes of vehicles, bicycles, people walking, and on-street parking.
- **Secondary Industrial Streets:** Bidirectional streets intended to accommodate low-speed and low-volume large vehicle traffic, on-street parking, and people walking.
- **Secondary Residential Streets:** Bidirectional streets intended to accommodate low-speed low-volume vehicle traffic, bicycles, people walking, and limited on-street parking.
- **Tertiary Streets:** Bidirectional streets intended to provide connectivity in less developed areas for low-speed low-volume vehicle traffic and people walking.

These five designs will be adapted and implemented across different street types, as identified in Figure 37. These street types have been designated according to their functionality and width as follows:

- Boulevard (BLVD) | 105’ right-of-way | 85’ curb-to-curb width
- Boulevard (BLVD) | 85’ right-of-way | 65’ curb-to-curb width
- Commercial Street (CS) | 70’ right-of-way | 34’ curb-to-curb width
- Commercial Street (CS) | 90’ right-of-way | 56’ curb-to-curb width
- Street (ST) | 60’ right-of-way | 34’ curb-to-curb width
- Street (ST) | 60’ right-of-way | 28’ curb-to-curb width
- Street (ST) | 50’ right-of-way | 18’ curb-to-curb width
- Parkway (PW) | 85’ right-of-way | 47’ curb-to-curb width
- Yield Street (YS) | 60’ right-of-way | 28’ curb-to-curb width
- Square (SQ) | 60’ right-of-way | 28’ curb-to-curb width
- Truck Route | 50’ right-of-way | 26’ curb-to-curb width

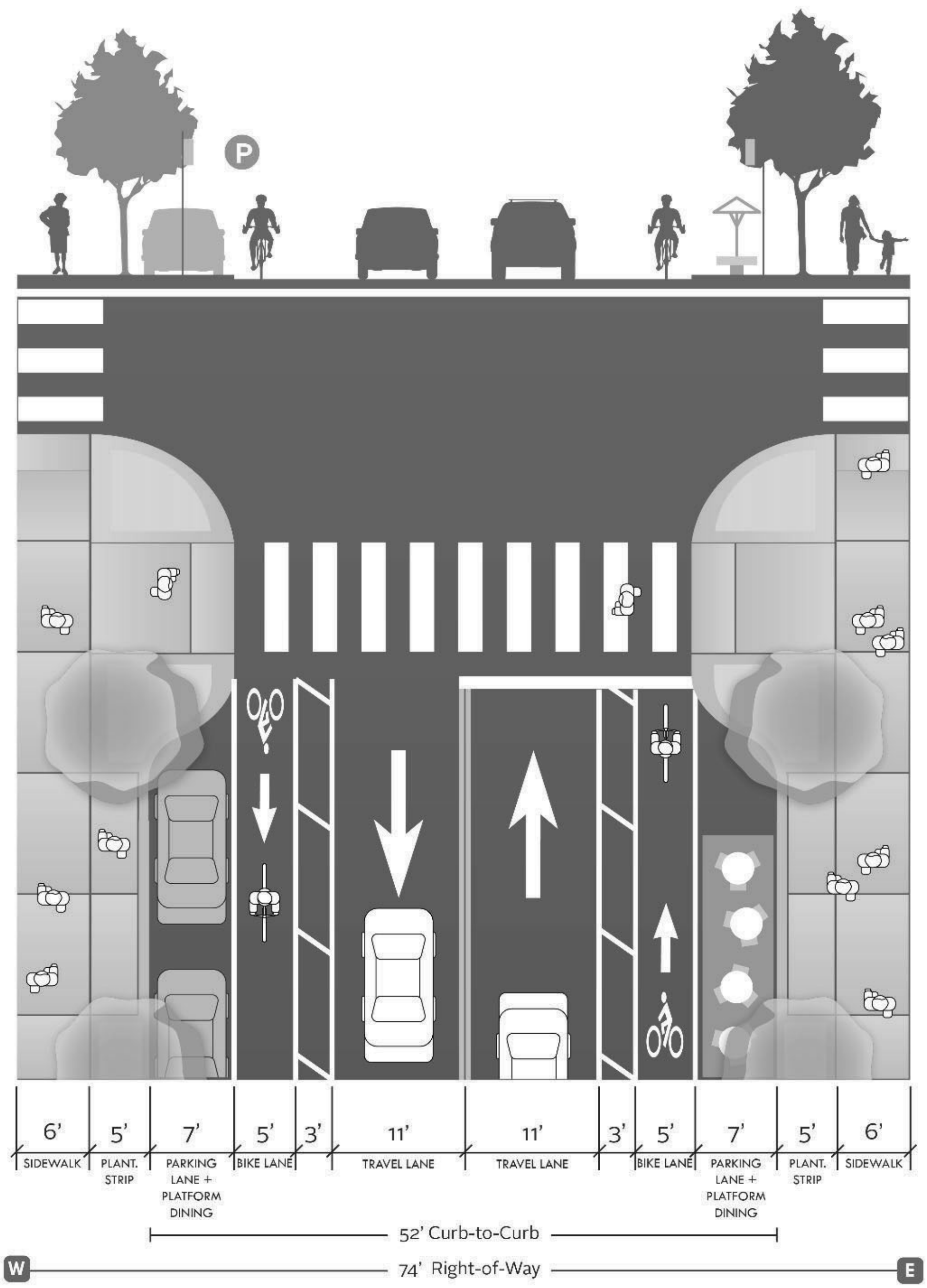
These five designs are described in further detail below. The designs depicted are intended to be flexible within the parameters of the OLF-8 street widths. Designs present standard street configurations for different purposes that will be modified according to the width of each OLF-8 street.

Figure 37 Street Design Assignment

Primary Town Center Street

Primary town center streets typically feature one or more lanes of vehicle traffic per direction, on-street parking, bicycle lanes, and sidewalks. At the OLF-8 site, town center streets will carry moderate volumes of traffic through the site, while providing safe and comfortable routes for the most vulnerable road users. Town center streets also allow for adaptive use of parking lanes, for restaurants or parklets, according to local needs.

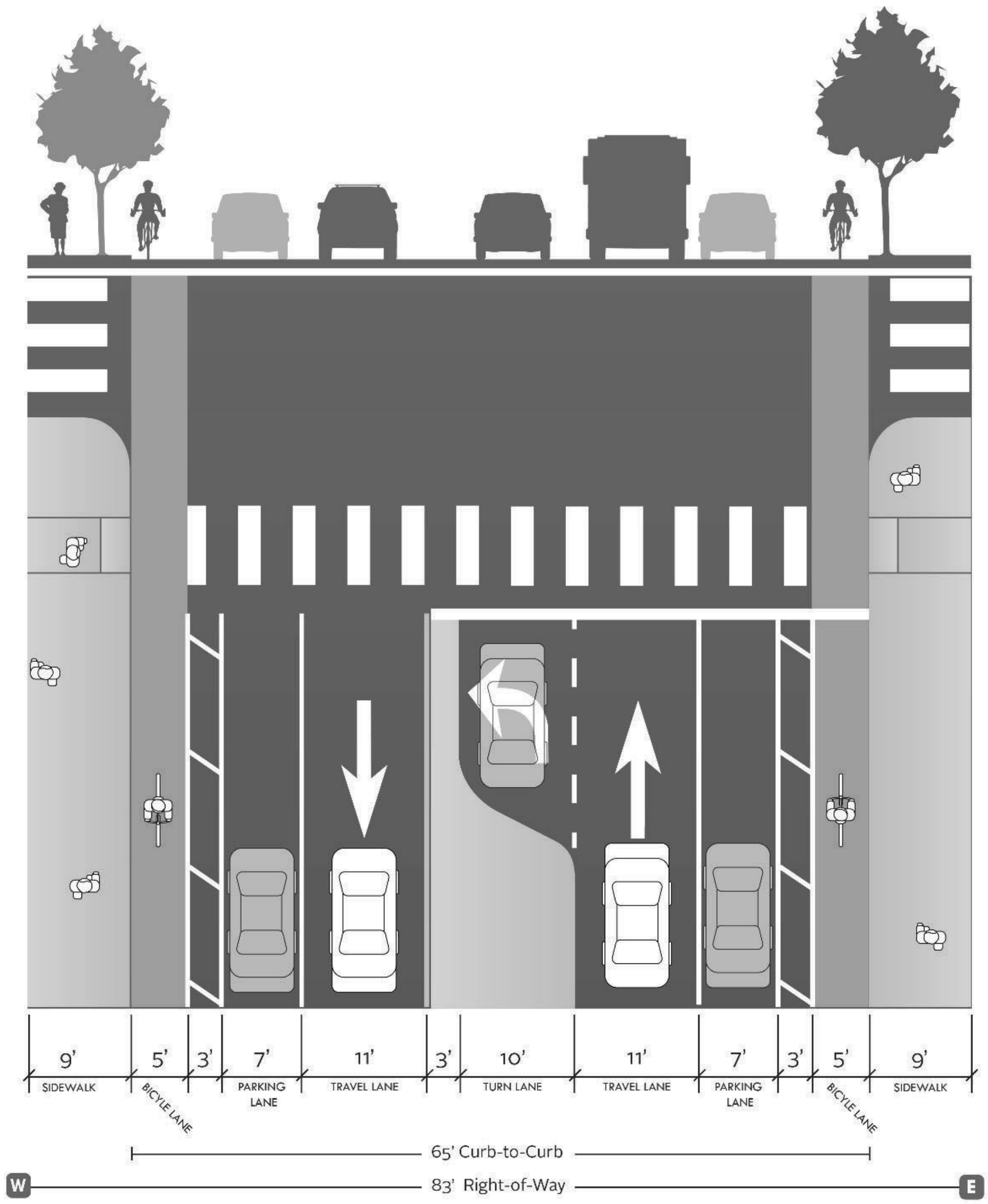
Figure 38 Cross Section: Primary Town Center Street



Primary Commercial Street

Primary commercial streets typically feature one or more lanes of vehicle traffic per direction, on-street parking, protected bicycle lanes, and sidewalks. At the OLF-8 site, primary commercial streets will be implemented in the commercial core at the south of the site and will accommodate vehicles and people entering the site from 9 Mile Road.

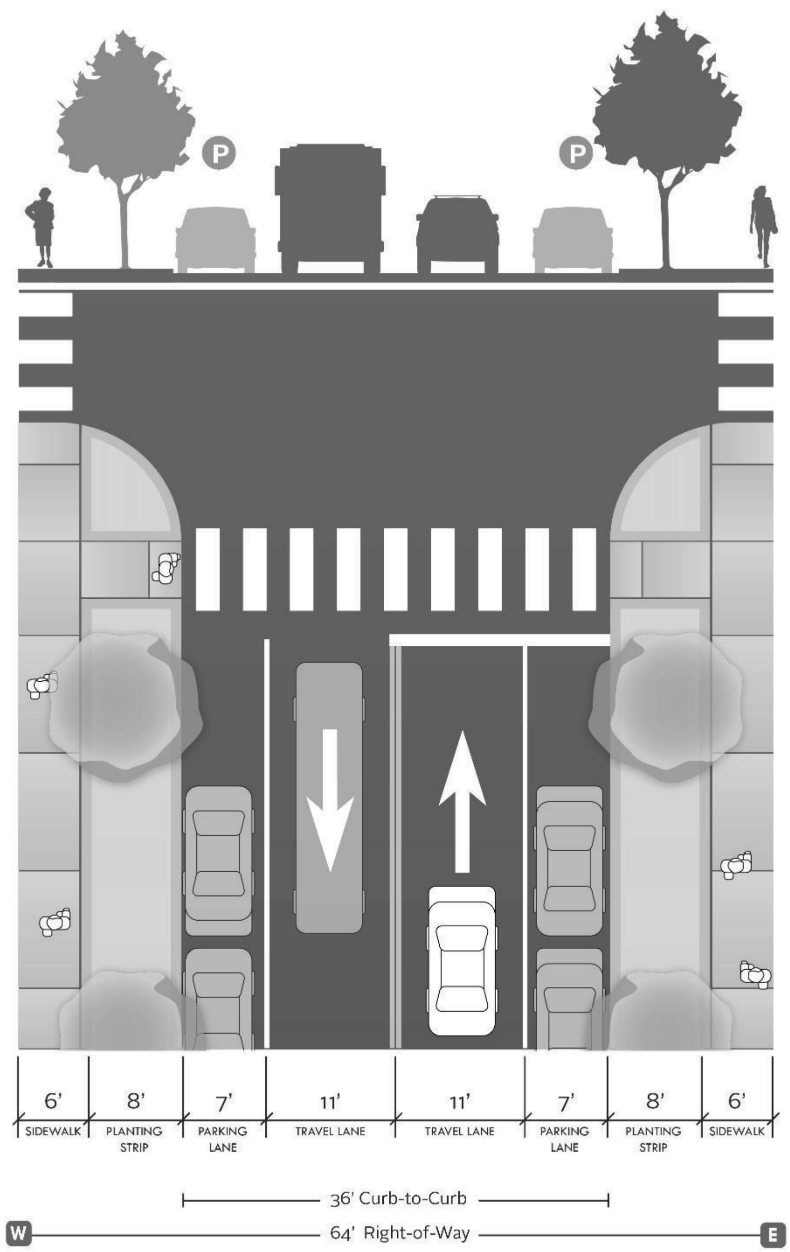
Figure 39 Cross Section: Primary Commercial Street



Secondary Industrial Street

Secondary industrial streets typically feature one vehicle lane per direction, on-street parking, and sidewalks buffered by planting strips. They are intended to accommodate industrial vehicle traffic while also providing safe walking routes for people. At the OLF-8 site, secondary industrial streets will be implemented in the industrial area at the central eastern edge of the site to provide connectivity to the main north-south access road at the site's eastern boundary.

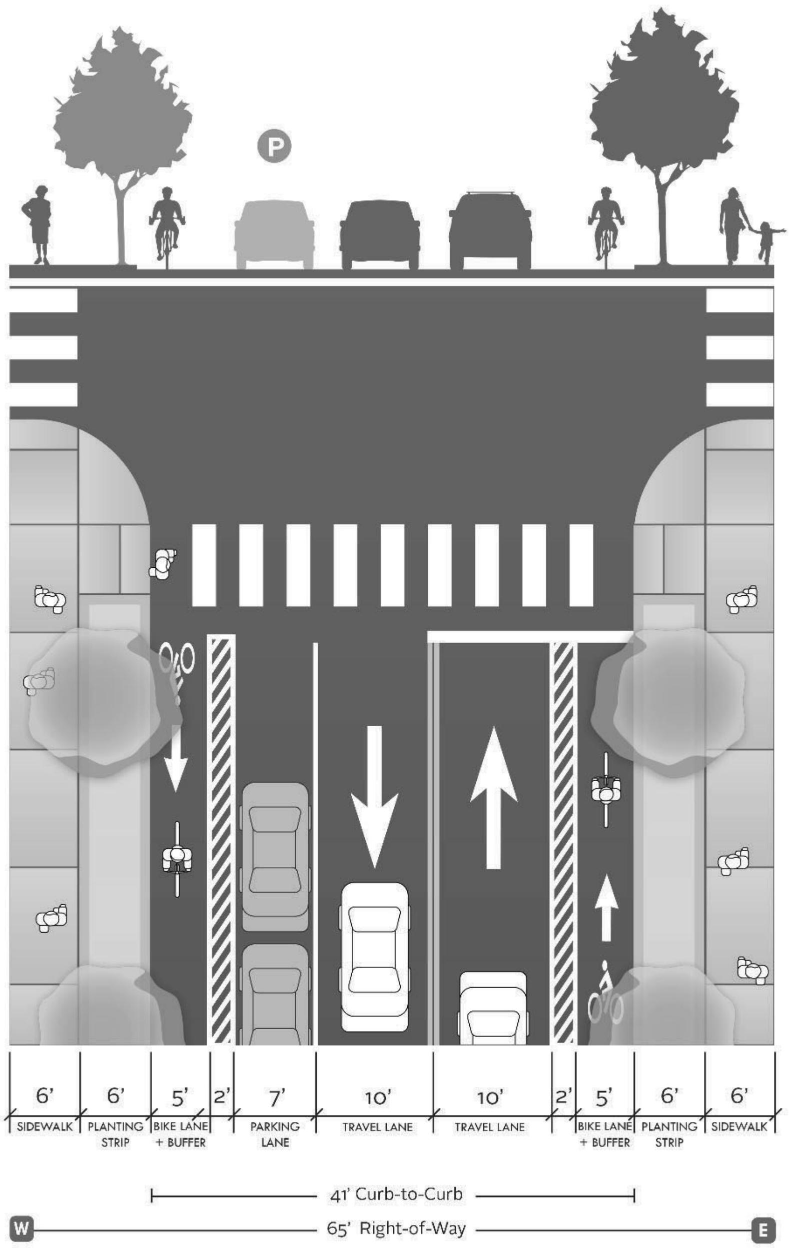
Figure 40 Cross Section: Secondary Industrial Street



Secondary Residential Street

Secondary residential streets typically feature one lane of vehicle traffic per direction, limited on-street parking, bicycle lanes, and buffered sidewalks. They are intended to accommodate vehicle, bicycle, and pedestrian traffic in residential areas at low speeds. At the OLF-8 site, secondary residential streets will be implemented in the residential areas to provide connectivity to primary streets at the edge of residential development.

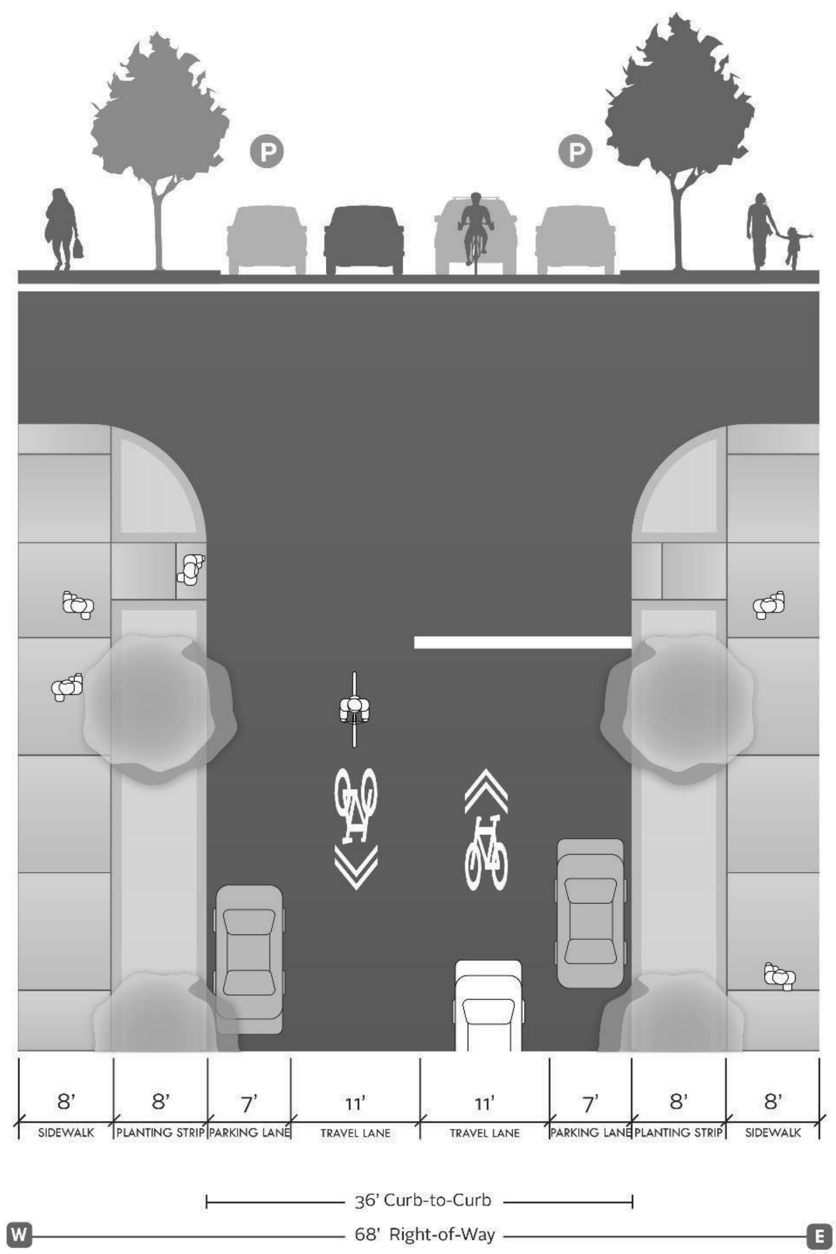
Figure 41 Cross Section: Secondary Residential Street



Tertiary Street

Tertiary streets typically do not feature striped lanes and instead functional as bidirectional low-speed streets with on-street parking and sidewalks. They may feature limited bicycle infrastructure such as sharrows. Tertiary streets are generally not intended to carry high volumes of through-traffic and at the OLF-8 site, they will be implemented only as part of a loop to recreational facilities at the site's west-central boundary.

Figure 42 Cross Section: Tertiary Street



Appendix A Summary of Previous Plans

Key Highlights:

- Beulah road to be widened to 4 lanes between 9-Mile road and I-10 and extended from there northward.
- 9-Mile Road is being widened to 4 lanes (with the potential for 6) between Pine Forest Road and Beulah Road, with shoulder bike lanes, sidewalks, and sound walls. Construction completion estimated at the end of 2021.
- Frank Reeder road to be widened to 2 lanes in each direction.
- Kingsfield road may be extended west from Hwy 97 to Beulah Road.
- Lots of low-density residential development planned for the area (~2000 units nearby to site) and some commercial development planned for the 9-Mile Road/Beulah Road intersection.

Escambia County Midwest Sector Plan

September 2011

- This plan puts forward a development vision for the Midwest sector of Escambia County, north of I-10.
- The plan calls for single-use commercial and residential development with some town center areas and the preservation of some wetlands.
- The plan calls for a curvilinear street grid that "respects the natural environment while providing a high degree of interconnectivity". It also calls for local networks of complete streets that encourage walking and bicycling while discouraging high vehicle speeds.
- Neighborhood centers are to be transit oriented for future transit expansions.
- Land use distribution should locate residences in close proximity to jobs.
- The circulation element of the plan calls for a large pedestrian/bike trail network, but this is largely focused on northern half of the sector and would not connect to the OLF 8 site.

Draft Corridor Study – Kingsfield Road Extension

July 2012

- Escambia County proposes to extend Kingsfield Road from Highway 97 to Beulah Road.
- From its existing urban section, the roadway will primarily be a 2-lane country road with 12' travel lanes, 5' shoulders, and a 130' ROW.

Final Environmental Assessment for Land Exchange Involving NOLF 8 Site for Suitable Land & Improvements in Santa Rosa County

March 2018

- The purpose of the EA is to assess the environmental impacts, including transportation, of the exchange of NOLF 8 from the Navy to Escambia County in exchange for suitable land for another NOLF in Santa Rosa County.
- In terms of transportation, the document finds that the transfer of land itself would have no significant impact on transportation patterns. The eventual redevelopment of NOLF 8 would have traffic impacts "consistent with expected growth patterns already accounted for within the region".

Project 52

May 2018

- Planned commercial and residential development just southeast of the Navy Federal site containing several buildings extending southward from 9-Mile Road and with two entrances on to 9-Mile Road.
- A shared parking analysis conducted for the development proposes 289 parking spaces.

Greater Beulah Area Transportation Network Sketch Plan

September 2018

2017 ADT on Surrounding Roads:

  - 32,000 on I10
  - 5,800 – 6,400 on Beulah Road
  - 4,900 on 9-Mile Road
- Injury concentrations at 9-Mile Road/I10 intersection and at Beulah Road/Mobile Hwy intersection.
- Schools located SW of the OLF-8 site near 9-Mile Road/Beulah Road intersection.
- Some community facilities located southwest of the site but none immediately adjacent.
- Approximately 1,850 lots/units approved in the immediate vicinity of OLF-8 between 2010 and 2018.
- Transportation planning recommendations:
  - Frank Reeder Road to be rebuilt as 2-lane roadway with complete street features. Make it the primary access point to OLF-8 and back entrance to Navy Federal
  - Signalize Beulah Road and Frank Reeder Road
  - Widen 8 Mile Creek Road

  - Widen Beulah Road from Mobile Highway to 9-Mile road to include 4’ shoulder/bike lane
  - Provide direct access road from OLF8 to Beulah Road
  - Provide direct access road from Navy Federal to Frank Reeder Road via a frontage road
  - Land development code change to increase front setback for new developments and access management
  - Create a special purpose district to help pay for the construction and maintenance of transportation infrastructure

Pathstone Subdivision

November 2018

- 175-acre site immediately to the east of Project 52, on 9-Mile road just west of I-10, is likely to be developed. No further information provided.
- Site to be developed in 4 phases with curvilinear street grid extending into site. No egress except to 9-Mile Road.

Beulah Beltway Corridor Project

December 2018

- Beulah Road is planned to be extended northward.
  - Option: northeast from I-10 through an area of woodland to Highway 97 @ Muskogee Road.
  - Option: northwest from I-10 to reconnect with itself along the alignment of the proposed extension of Kingsfield Road.

Northwest District 1 Survey Results

June – July 2019

- Most respondents were white homeowners in the area. The age of respondents was relatively evenly distributed between the ages of 35 to 74.
- People are in favor of:
  - Minimum lot sizes
  - Development fees to pay for infrastructure
  - A rural atmosphere with multi-use paths and recreational opportunities
  - An organized town center
  - Overlay zones
- Preferred green spaces/features are: multi-use paths, community parks, and street trees.
- Top amenities are: restaurants, fire station, and retail.
- Traffic and crime are viewed as the biggest detriments to quality of life.

- People favor synchronized lights and boulevard-style roads as traffic control solutions.

I-10 at Beulah Road Interchange Project

October 2019

- Beulah Road will be widened from 2 to 4 lanes between 9-Mile Road and I-10, and would include sidewalks and painted bike lanes.
- I-10 will be widened from 2 lanes per direction to 3 lanes per direction with 12' shoulders on either side of each directional roadway.

Navy Federal Recreation Facility

February 2020

- Navy Federal has proposed the development of a large recreational facility on part of the OLF-8 site to the west of the existing Navy Federal site.
- Development would extend 800' into the OLF-8 site west from the current boundary of the Navy Federal site.
- 777 total proposed parking spaces.

Nine Mile Crossing

February 2020

- 4 lot site planned for commercial development
- A McDonalds is planned on one lot at the southeast corner of 9-Mile Road and Beulah Road.
  - 44 parking spaces to be provided.
  - Ingress/egress will be off Beulah Road.
- A Publix is planned on the large lot south of the McDonalds.
  - 311 parking spaces to be provided (5/1000SF).
  - Ingress/egress will be via three driveways off Beulah Road.

Nine Mile Road PD&E Concept Plans

March 2020

- 9-Mile Road is currently being widened into a 2-lane x 2 lane roadway with sidewalks, shoulder bike lanes, and sound walls from I-10 to Beulah Road. Construction completion is estimated at the end of 2021.
- Plans show 9-Mile Road being widened into a 3-lane x 3 lane road with a center turn lane and shoulder bike lane south of the OLF-8 site from Pine Forest Road to Beulah Road.

Other Transportation Notes from Project Kick-off Meeting

May 2020

- A study is considering the widening of Frank Reeder Road and the potential construction of an overpass over I-10 to connect it to Devine Farms Road.
- Navy Federal congestion issues
  - The Navy Federal site faces notable congestion issues though the company has improved at staggering its start times.
  - Most of its 10,000 employees drive though there is bus service to Milton & Pace counties.
- There is currently no ECAT transit service in the area of the OLF-8 site.

Florida/Alabama TPO Pedestrian & Bicycle Masterplan

2018

- An update to the 2010 initial Ped/Bike Masterplan. Intended to provide strategic guidance on ped/bike friendly development as part of the 2040 transportation masterplan.
- Public Outreach
  - Surveys indicate that most people want more/improved sidewalks and bike paths separate from roadways.
  - Poor quality infrastructure and concerns about traffic danger were the primary factors keeping people from walking or biking.
- Commute Trends (2010)
  - 78.7% drive alone
  - 1.5% walk
  - 0.3% bike
- Summary of other relevant plans:
  - Florida adopted a complete streets policy in 2014
  - The *Escambia Comprehensive Plan* calls for the provision of sidewalk and bike infrastructure when new public roads are constructed. It outlines policies to encourage sidewalk development in private developments as well. It requires the provision of non-motorized transportation links between residential areas and commercial/recreational sites.
- Projects proposed under the TPO:
  - 81 projects are proposed around the Pensacola area as part of the TPO plan.
    - The only project proposed within the vicinity of the OLF-8 site is a proposal by Escambia County to restripe bike lanes on Beulah Road between 9 Mile Road and the Mobile Highway.
  - Most proposed projects are in central Pensacola and in Santa Rosa County
  - Projects are ranked according to a ranking system that takes into account a project's safety impact, connection to schools, network continuity, locational

and cost efficiencies, its coordination with existing plans, and proximity to low-vehicle ownership areas.

  - Most of the highly ranked proposals focus on sidewalk expansion/improvement.

- Policies proposed under the TPO:
  - The document outlines a policy of education, engineering, enforcement, equity, and encouragement to improve the pedestrian and bicycle network.
    - It proposes targeted policies corresponding to these themes.
- Funding Opportunities
  - The document identifies a wide range of federal, state, local, and third-party funding sources for pedestrian and bicycle projects including. Many federal and state roadway and congestion mitigation funding sources can be used for pedestrian and bicycle projects.

Appendix B Traffic Counts

Intersection Turning Movement Count

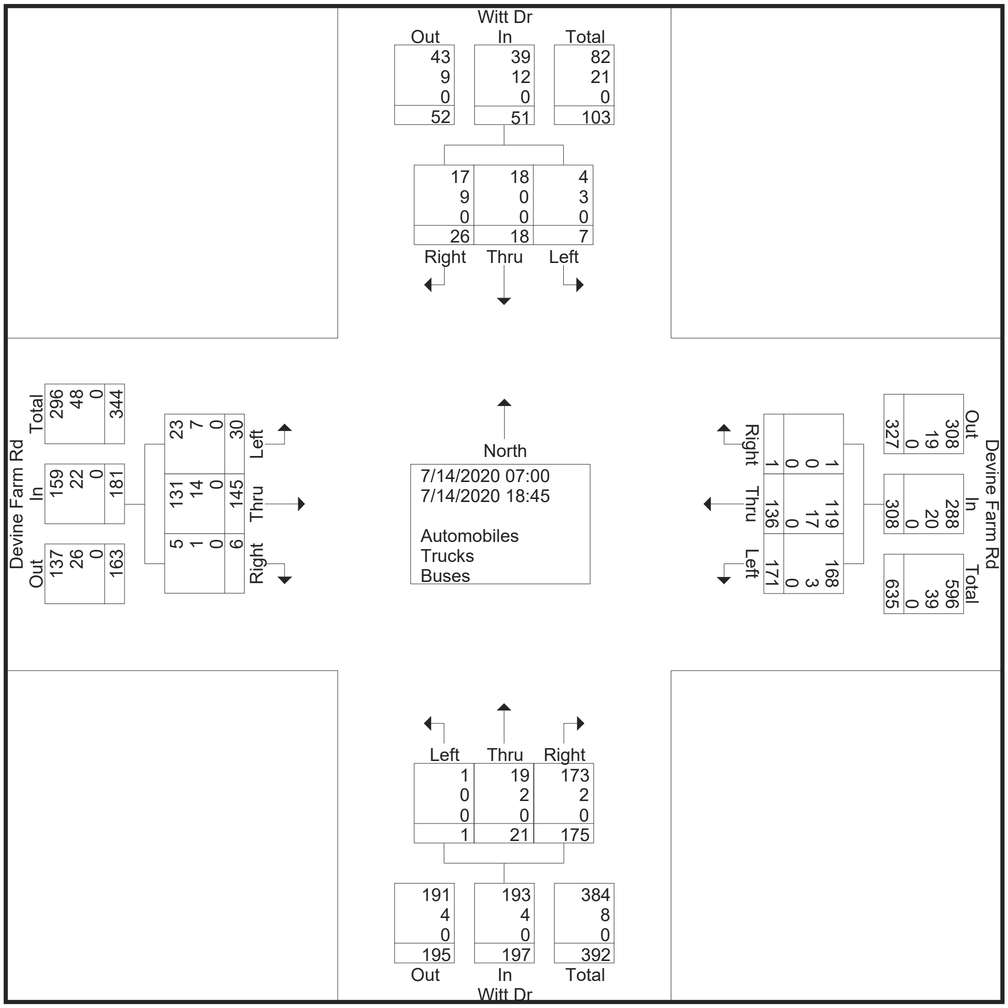
Devine Farm Rd @ Witt Dr
Pensacola, Florida

File Name : Devine Farm Rd @ Witt Dr
Site Code : 00000003
Start Date : 7/14/2020
Page No : 1

Groups Printed- Automobiles - Trucks - Buses

	Witt Dr Southbound				Devine Farm Rd Westbound				Witt Dr Northbound				Devine Farm Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	0	0	1	1	1	0	1	2	0	0	5	5	1	6	0	7	15
07:15	0	0	0	0	0	4	0	4	0	1	5	6	0	8	0	8	18
07:30	0	0	2	2	1	4	0	5	0	1	9	10	0	5	0	5	22
07:45	0	1	0	1	4	4	0	8	0	1	2	3	0	4	0	4	16
Total	0	1	3	4	6	12	1	19	0	3	21	24	1	23	0	24	71
08:00	0	1	1	2	6	2	0	8	0	0	5	5	1	5	0	6	21
08:15	1	1	0	2	0	5	0	5	0	0	5	5	1	8	0	9	21
08:30	0	0	1	1	2	4	0	6	0	0	5	5	0	6	0	6	18
08:45	0	1	1	2	2	1	0	3	0	0	7	7	1	8	0	9	21
Total	1	3	3	7	10	12	0	22	0	0	22	22	3	27	0	30	81
09:00	1	0	2	3	1	5	0	6	0	0	7	7	0	4	0	4	20
09:15	0	0	2	2	5	5	0	10	0	0	5	5	1	7	0	8	25
09:30	0	0	0	0	0	2	0	2	0	2	5	7	2	3	0	5	14
09:45	0	1	2	3	4	2	0	6	0	1	8	9	2	5	0	7	25
Total	1	1	6	8	10	14	0	24	0	3	25	28	5	19	0	24	84
*** BREAK ***																	
12:00	1	0	1	2	8	6	0	14	0	1	3	4	4	3	0	7	27
12:15	0	0	0	0	7	2	0	9	0	0	6	6	1	1	1	3	18
12:30	0	2	0	2	3	7	0	10	1	0	6	7	0	5	1	6	25
12:45	0	1	0	1	12	6	0	18	0	0	7	7	2	5	0	7	33
Total	1	3	1	5	30	21	0	51	1	1	22	24	7	14	2	23	103
13:00	0	1	1	2	9	7	0	16	0	2	8	10	1	5	0	6	34
13:15	1	1	2	4	8	2	0	10	0	0	8	8	1	1	0	2	24
13:30	0	1	0	1	7	5	0	12	0	1	4	5	0	5	0	5	23
13:45	1	1	0	2	5	5	0	10	0	1	5	6	1	1	0	2	20
Total	2	4	3	9	29	19	0	48	0	4	25	29	3	12	0	15	101
*** BREAK ***																	
16:00	1	2	3	6	5	7	0	12	0	1	6	7	2	2	1	5	30
16:15	0	1	1	2	7	4	0	11	0	0	8	8	1	3	0	4	25
16:30	0	1	1	2	4	4	0	8	0	0	3	3	3	3	0	6	19
16:45	0	0	1	1	11	5	0	16	0	2	3	5	2	4	0	6	28
Total	1	4	6	11	27	20	0	47	0	3	20	23	8	12	1	21	102
17:00	0	0	2	2	8	7	0	15	0	1	2	3	0	9	0	9	29
17:15	0	0	0	0	4	6	0	10	0	0	5	5	0	5	0	5	20
17:30	0	1	1	2	9	6	0	15	0	1	3	4	0	7	0	7	28
17:45	0	0	0	0	9	4	0	13	0	0	4	4	0	3	0	3	20
Total	0	1	3	4	30	23	0	53	0	2	14	16	0	24	0	24	97
18:00	0	0	0	0	9	3	0	12	0	2	6	8	1	4	0	5	25
18:15	1	1	1	3	8	2	0	10	0	0	4	4	2	4	0	6	23
18:30	0	0	0	0	8	3	0	11	0	2	10	12	0	5	2	7	30
18:45	0	0	0	0	4	7	0	11	0	1	6	7	0	1	1	2	20
Total	1	1	1	3	29	15	0	44	0	5	26	31	3	14	3	20	98
Grand Total	7	18	26	51	171	136	1	308	1	21	175	197	30	145	6	181	737
Apprch %	13.7	35.3	51		55.5	44.2	0.3		0.5	10.7	88.8		16.6	80.1	3.3		
Total %	0.9	2.4	3.5	6.9	23.2	18.5	0.1	41.8	0.1	2.8	23.7	26.7	4.1	19.7	0.8	24.6	
Automobiles	4	18	17	39	168	119	1	288	1	19	173	193	23	131	5	159	679
% Automobiles	57.1	100	65.4	76.5	98.2	87.5	100	93.5	100	90.5	98.9	98	76.7	90.3	83.3	87.8	92.1
Trucks	3	0	9	12	3	17	0	20	0	2	2	4	7	14	1	22	58
% Trucks	42.9	0	34.6	23.5	1.8	12.5	0	6.5	0	9.5	1.1	2	23.3	9.7	16.7	12.2	7.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count



Intersection Turning Movement Count

File Name : Devine Farm Rd @ Witt Dr
Site Code : 00000003
Start Date : 7/14/2020
Page No : 3

	Witt Dr Southbound				Devine Farm Rd Westbound				Witt Dr Northbound				Devine Farm Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 08:30

Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
08:30	0	0	1	1	2	4	0	6	0	0	5	5	0	6	0	6	18
08:45	0	**1**	1	2	2	1	0	3	0	0	**7**	**7**	**1**	**8**	0	**9**	21
09:00	**1**	0	**2**	**3**	1	**5**	0	6	0	0	7	7	0	4	0	4	20
09:15	0	0	2	2	**5**	5	0	**10**	0	0	5	5	1	7	0	8	**25**
Total Volume	1	1	6	8	10	15	0	25	0	0	24	24	2	25	0	27	84
% App. Total	12.5	12.5	75		40	60	0		0	0	100		7.4	92.6	0		
PHF	.250	.250	.750	.667	.500	.750	.000	.625	.000	.000	.857	.857	.500	.781	.000	.750	.840
Automobiles	0	1	3	4	9	11	0	20	0	0	24	24	0	21	0	21	69
% Automobiles	0	100	50.0	50.0	90.0	73.3	0	80.0	0	0	100	100	0	84.0	0	77.8	82.1
Trucks	1	0	3	4	1	4	0	5	0	0	0	0	2	4	0	6	15
% Trucks	100	0	50.0	50.0	10.0	26.7	0	20.0	0	0	0	0	100	16.0	0	22.2	17.9
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
	08:15				07:45				09:00				08:00			
+0 mins.	**1**	**1**	0	2	4	4	0	**8**	0	0	7	7	**1**	5	0	6
+15 mins.	0	0	1	1	**6**	2	0	8	0	0	5	5	1	**8**	0	**9**
+30 mins.	0	1	1	2	0	**5**	0	5	0	**2**	5	7	0	6	0	6
+45 mins.	1	0	**2**	**3**	2	4	0	6	0	1	**8**	**9**	1	8	0	9
Total Volume	2	2	4	8	12	15	0	27	0	3	25	28	3	27	0	30
% App. Total	25	25	50		44.4	55.6	0		0	10.7	89.3		10	90	0	
PHF	.500	.500	.500	.667	.500	.750	.000	.844	.000	.375	.781	.778	.750	.844	.000	.833
Automobiles	0	2	2	4	12	9	0	21	0	2	25	27	0	21	0	21
% Automobiles	0	100	50	50	100	60	0	77.8	0	66.7	100	96.4	0	77.8	0	70
Trucks	2	0	2	4	0	6	0	6	0	1	0	1	3	6	0	9
% Trucks	100	0	50	50	0	40	0	22.2	0	33.3	0	3.6	100	22.2	0	30
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 12:30

Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:30	0	**2**	0	2	3	**7**	0	10	**1**	0	6	7	0	**5**	**1**	6	25
12:45	0	1	0	1	**12**	6	0	**18**	0	0	7	7	**2**	5	0	**7**	33
13:00	0	1	1	2	9	7	0	16	0	**2**	**8**	**10**	1	5	0	6	**34**
13:15	**1**	1	**2**	**4**	8	2	0	10	0	0	8	8	1	1	0	2	24
Total Volume	1	5	3	9	32	22	0	54	1	2	29	32	4	16	1	21	116
% App. Total	11.1	55.6	33.3		59.3	40.7	0		3.1	6.2	90.6		19	76.2	4.8		
PHF	.250	.625	.375	.563	.667	.786	.000	.750	.250	.250	.906	.800	.500	.800	.250	.750	.853
Automobiles	0	5	3	8	31	18	0	49	1	2	28	31	4	12	1	17	105
% Automobiles	0	100	100	88.9	96.9	81.8	0	90.7	100	100	96.6	96.9	100	75.0	100	81.0	90.5
Trucks	1	0	0	1	1	4	0	5	0	0	1	1	0	4	0	4	11
% Trucks	100	0	0	11.1	3.1	18.2	0	9.3	0	0	3.4	3.1	0	25.0	0	19.0	9.5
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
	12:30				12:45				12:30				12:00			
+0 mins.	0	**2**	0	2	**12**	6	0	**18**	**1**	0	6	7	**4**	3	0	**7**
+15 mins.	0	1	0	1	9	**7**	0	16	0	0	7	7	1	1	**1**	3
+30 mins.	0	1	1	2	8	2	0	10	0	**2**	**8**	**10**	0	**5**	1	6
+45 mins.	**1**	1	**2**	**4**	7	5	0	12	0	0	8	8	2	5	0	7
Total Volume	1	5	3	9	36	20	0	56	1	2	29	32	7	14	2	23
% App. Total	11.1	55.6	33.3		64.3	35.7	0		3.1	6.2	90.6		30.4	60.9	8.7	
PHF	.250	.625	.375	.563	.750	.714	.000	.778	.250	.250	.906	.800	.438	.700	.500	.821
Automobiles	0	5	3	8	35	18	0	53	1	2	28	31	7	12	1	20
% Automobiles	0	100	100	88.9	97.2	90	0	94.6	100	100	96.6	96.9	100	85.7	50	87
Trucks	1	0	0	1	1	2	0	3	0	0	1	1	0	2	1	3
% Trucks	100	0	0	11.1	2.8	10	0	5.4	0	0	3.4	3.1	0	14.3	50	13
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

File Name : Devine Farm Rd @ Witt Dr
Site Code : 00000003
Start Date : 7/14/2020
Page No : 4

	Witt Dr Southbound				Devine Farm Rd Westbound				Witt Dr Northbound				Devine Farm Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	0	0	1	1	**11**	5	0	**16**	0	**2**	3	**5**	**2**	4	0	6	28
17:00	0	0	**2**	**2**	8	**7**	0	15	0	1	2	3	0	**9**	0	**9**	**29**
17:15	0	0	0	0	4	6	0	10	0	0	**5**	5	0	5	0	5	20
17:30	0	**1**	1	2	9	6	0	15	0	1	3	4	0	7	0	7	28
Total Volume	0	1	4	5	32	24	0	56	0	4	13	17	2	25	0	27	105
% App. Total	0	20	80		57.1	42.9	0		0	23.5	76.5		7.4	92.6	0		
PHF	.000	.250	.500	.625	.727	.857	.000	.875	.000	.500	.650	.850	.250	.694	.000	.750	.905
Automobiles	0	1	4	5	32	24	0	56	0	3	13	16	2	25	0	27	104
% Automobiles	0	100	100	100	100	100	0	100	0	75.0	100	94.1	100	100	0	100	99.0
Trucks	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0	0	0	25.0	0	5.9	0	0	0	0	1.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:00				16:45				18:00				16:45			
+0 mins.	**1**	**2**	**3**	**6**	**11**	5	0	**16**	0	**2**	6	8	**2**	4	0	6
+15 mins.	0	1	1	2	8	**7**	0	15	0	0	4	4	0	**9**	0	**9**
+30 mins.	0	1	1	2	4	6	0	10	0	2	**10**	**12**	0	5	0	5
+45 mins.	0	0	1	1	9	6	0	15	0	1	6	7	0	7	0	7
Total Volume	1	4	6	11	32	24	0	56	0	5	26	31	2	25	0	27
% App. Total	9.1	36.4	54.5		57.1	42.9	0		0	16.1	83.9		7.4	92.6	0	
PHF	.250	.500	.500	.458	.727	.857	.000	.875	.000	.625	.650	.646	.250	.694	.000	.750
Automobiles	1	4	5	10	32	24	0	56	0	5	25	30	2	25	0	27
% Automobiles	100	100	83.3	90.9	100	100	0	100	0	100	96.2	96.8	100	100	0	100
Trucks	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0
% Trucks	0	0	16.7	9.1	0	0	0	0	0	0	3.8	3.2	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

Devine Farm Rd @ Witt Dr
Pensacola, Florida

File Name : Devine Farm Rd @ Witt Dr
Site Code : 00000003
Start Date : 7/14/2020

Groups Printed- Trucks - Buses

	Witt Dr Southbound				Devine Farm Rd Westbound				Witt Dr Northbound				Devine Farm Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
07:30	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
07:45	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
Total	0	0	2	2	0	3	0	3	0	0	0	0	0	2	0	2	7
08:00	0	0	1	1	0	0	0	0	0	0	0	0	1	2	0	3	4
08:15	1	0	0	1	0	2	0	2	0	0	0	0	1	1	0	2	5
08:30	0	0	1	1	0	2	0	2	0	0	0	0	0	0	0	0	3
08:45	0	0	1	1	0	0	0	0	0	0	0	0	1	3	0	4	5
Total	1	0	3	4	0	4	0	4	0	0	0	0	3	6	0	9	17
09:00	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
09:15	0	0	1	1	1	2	0	3	0	0	0	0	1	1	0	2	6
09:30	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	3
09:45	0	0	2	2	0	0	0	0	0	0	0	0	1	0	0	1	3
Total	1	0	3	4	1	2	0	3	0	1	0	1	4	1	0	5	13
12:00	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
12:30	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
12:45	0	0	0	0	1	1	0	2	0	0	0	0	0	2	0	2	4
Total	0	0	0	0	1	4	0	5	0	0	0	0	0	2	1	3	8
13:00	0	0	0	0	0	1	0	1	0	0	1	1	0	2	0	2	4
13:15	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
13:45	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
Total	1	0	0	1	0	4	0	4	0	0	1	1	0	3	0	3	9
16:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	1	1	0	0	0	0	0	1	0	1	0	0	0	0	2
17:45	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
18:15	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Grand Total	3	0	9	12	3	17	0	20	0	2	2	4	7	14	1	22	58
Apprch %	25	0	75		15	85	0		0	50	50		31.8	63.6	4.5		
Total %	5.2	0	15.5	20.7	5.2	29.3	0	34.5	0	3.4	3.4	6.9	12.1	24.1	1.7	37.9	
Trucks	3	0	9	12	3	17	0	20	0	2	2	4	7	14	1	22	58
% Trucks	100	0	100	100	100	100	0	100	0	100	100	100	100	100	100	100	100
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

Devine Farm Rd @ Witt Dr

File Name : Devine Farm Rd @ Witt Dr Peds
Site Code : 00000003
Start Date : 7/14/2020

Groups Printed- Peds

	Witt Dr Southbound	Devine Farm Rd Westbound	Witt Dr Northbound	Devine Farm Rd Eastbound	
Start Time	Peds	Peds	Peds	Peds	Int. Total
07:00	0	0	0	0	0
07:15	0	0	0	0	0
07:30	0	0	0	0	0
07:45	0	1	0	1	2
Total	0	1	0	1	2
08:00	0	0	0	0	0
08:15	0	0	0	0	0
08:30	0	0	0	0	0
08:45	0	0	0	0	0
Total	0	0	0	0	0
09:00	0	0	0	0	0
09:15	0	0	0	0	0
09:30	0	0	0	0	0
09:45	0	0	0	1	1
Total	0	0	0	1	1
10:00	0	0	0	0	0
10:15	0	0	0	0	0
10:30	0	0	0	0	0
10:45	0	0	0	0	0
Total	0	0	0	0	0
11:00	0	0	0	0	0
11:15	0	0	0	0	0
11:30	0	0	0	0	0
11:45	0	0	0	0	0
Total	0	0	0	0	0
12:00	0	0	0	0	0
12:15	0	0	0	0	0
12:30	0	0	0	0	0
12:45	0	0	0	0	0
Total	0	0	0	0	0
13:00	0	0	0	0	0
13:15	0	0	0	0	0
13:30	0	0	0	0	0
13:45	0	0	0	0	0
Total	0	0	0	0	0
14:00	0	0	0	0	0
14:15	0	0	0	0	0
14:30	0	0	0	0	0
14:45	0	0	0	0	0
Total	0	0	0	0	0
15:00	0	0	0	0	0
15:15	0	0	0	0	0
15:30	0	0	0	0	0
15:45	0	0	0	0	0
Total	0	0	0	0	0

Intersection Turning Movement Count

File Name : Devine Farm Rd @ Witt Dr Peds
Site Code : 00000003
Start Date : 7/14/2020
Page No : 2

Groups Printed- Peds

	Witt Dr Southbound	Devine Farm Rd Westbound	Witt Dr Northbound	Devine Farm Rd Eastbound	
Start Time	Peds	Peds	Peds	Peds	Int. Total
16:00	0	0	0	0	0
16:15	0	0	0	0	0
16:30	0	0	0	0	0
16:45	0	0	0	0	0
Total	0	0	0	0	0
17:00	0	0	0	0	0
17:15	0	0	0	0	0
17:30	0	0	0	0	0
17:45	0	0	0	0	0
Total	0	0	0	0	0
18:00	0	0	0	0	0
18:15	0	0	0	0	0
18:30	0	0	0	0	0
18:45	0	0	0	0	0
Total	0	0	0	0	0
Grand Total	0	1	0	2	3
Apprch %	0	100	0	100	
Total %	0	33.3	0	66.7	

Intersection Turning Movement Count

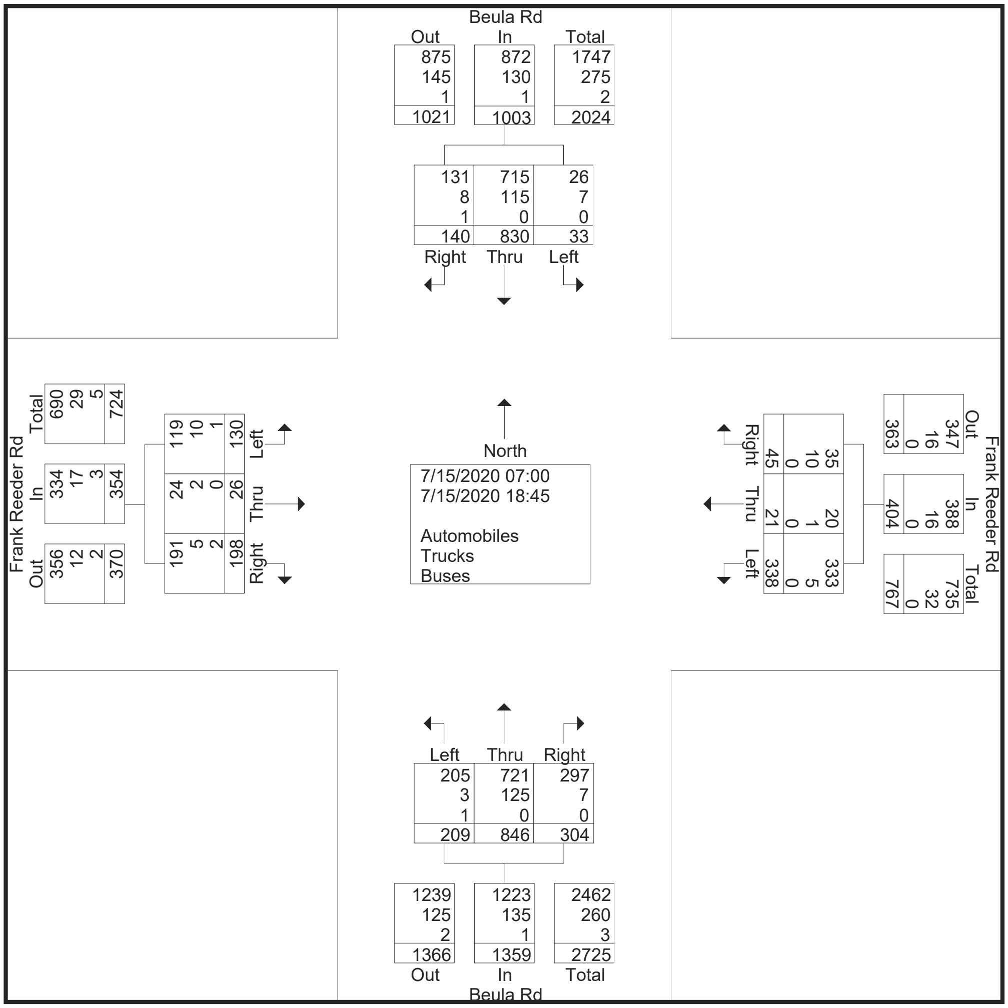
Frank Reeder Rd @ Beulah Rd
Pensacola, Florida

File Name : Frank Reeder Rd @ Beulah Rd
Site Code : 00000004
Start Date : 7/15/2020
Page No : 1

Groups Printed- Automobiles - Trucks - Buses

	Beula Rd Southbound				Frank Reeder Rd Westbound				Beula Rd Northbound				Frank Reeder Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	0	48	5	53	23	1	1	25	1	17	2	20	3	0	4	7	105
07:15	1	42	7	50	17	0	2	19	2	25	4	31	7	0	6	13	113
07:30	2	42	5	49	19	0	3	22	3	20	5	28	6	0	8	14	113
07:45	1	33	7	41	12	1	2	15	3	17	3	23	5	0	7	12	91
Total	4	165	24	193	71	2	8	81	9	79	14	102	21	0	25	46	422
08:00	2	35	4	41	15	0	2	17	5	14	9	28	4	0	6	10	96
08:15	0	25	1	26	11	0	4	15	5	12	5	22	4	1	6	11	74
08:30	1	33	2	36	15	1	1	17	6	38	6	50	4	3	11	18	121
08:45	0	21	2	23	12	0	3	15	4	26	4	34	5	0	2	7	79
Total	3	114	9	126	53	1	10	64	20	90	24	134	17	4	25	46	370
09:00	4	26	6	36	7	0	1	8	4	24	5	33	2	0	4	6	83
09:15	1	33	1	35	8	2	4	14	5	18	8	31	3	0	9	12	92
09:30	4	30	7	41	7	1	0	8	7	17	5	29	5	1	9	15	93
09:45	0	27	2	29	7	0	1	8	8	23	9	40	2	1	6	9	86
Total	9	116	16	141	29	3	6	38	24	82	27	133	12	2	28	42	354
*** BREAK ***																	
12:00	1	22	5	28	15	1	0	16	7	24	8	39	1	2	4	7	90
12:15	1	22	3	26	7	1	3	11	3	21	6	30	4	0	4	8	75
12:30	0	20	4	24	8	0	0	8	6	30	9	45	6	0	5	11	88
12:45	0	17	5	22	9	0	1	10	7	15	8	30	1	2	3	6	68
Total	2	81	17	100	39	2	4	45	23	90	31	144	12	4	16	32	321
13:00	1	17	4	22	10	1	0	11	3	16	4	23	4	3	7	14	70
13:15	0	23	3	26	7	1	1	9	8	22	9	39	3	1	5	9	83
13:30	0	16	2	18	14	1	3	18	11	33	4	48	6	0	10	16	100
13:45	1	26	4	31	6	1	0	7	5	37	11	53	6	2	5	13	104
Total	2	82	13	97	37	4	4	45	27	108	28	163	19	6	27	52	357
*** BREAK ***																	
16:00	1	34	4	39	3	2	1	6	8	41	14	63	5	0	4	9	117
16:15	1	32	7	40	11	0	0	11	13	35	12	60	2	2	5	9	120
16:30	2	22	6	30	16	0	0	16	8	49	13	70	9	0	10	19	135
16:45	1	32	4	37	9	1	2	12	6	34	20	60	3	1	5	9	118
Total	5	120	21	146	39	3	3	45	35	159	59	253	19	3	24	46	490
17:00	0	21	7	28	6	2	3	11	12	38	17	67	7	3	8	18	124
17:15	3	18	12	33	11	1	3	15	10	34	10	54	0	2	5	7	109
17:30	0	21	1	22	8	0	1	9	9	30	17	56	6	1	6	13	100
17:45	2	29	5	36	11	0	1	12	6	32	15	53	8	0	5	13	114
Total	5	89	25	119	36	3	8	47	37	134	59	230	21	6	24	51	447
18:00	3	18	4	25	12	1	1	14	11	31	14	56	5	1	4	10	105
18:15	0	16	5	21	6	1	0	7	9	26	17	52	4	0	13	17	97
18:30	0	17	2	19	12	0	1	13	6	19	16	41	0	0	9	9	82
18:45	0	12	4	16	4	1	0	5	8	28	15	51	0	0	3	3	75
Total	3	63	15	81	34	3	2	39	34	104	62	200	9	1	29	39	359
Grand Total	33	830	140	1003	338	21	45	404	209	846	304	1359	130	26	198	354	3120
Apprch %	3.3	82.8	14		83.7	5.2	11.1		15.4	62.3	22.4		36.7	7.3	55.9		
Total %	1.1	26.6	4.5	32.1	10.8	0.7	1.4	12.9	6.7	27.1	9.7	43.6	4.2	0.8	6.3	11.3	
Automobiles	26	715	131	872	333	20	35	388	205	721	297	1223	119	24	191	334	2817
% Automobiles	78.8	86.1	93.6	86.9	98.5	95.2	77.8	96	98.1	85.2	97.7	90	91.5	92.3	96.5	94.4	90.3
Trucks	7	115	8	130	5	1	10	16	3	125	7	135	10	2	5	17	298
% Trucks	21.2	13.9	5.7	13	1.5	4.8	22.2	4	1.4	14.8	2.3	9.9	7.7	7.7	2.5	4.8	9.6
Buses	0	0	1	1	0	0	0	0	1	0	0	1	1	0	2	3	5
% Buses	0	0	0.7	0.1	0	0	0	0	0.5	0	0	0.1	0.8	0	1	0.8	0.2

Intersection Turning Movement Count



Intersection Turning Movement Count

File Name : Frank Reeder Rd @ Beulah Rd
Site Code : 00000004
Start Date : 7/15/2020
Page No : 3

	Beula Rd Southbound				Frank Reeder Rd Westbound				Beula Rd Northbound				Frank Reeder Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00

Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	0	48	5	53	23	1	1	25	1	17	2	20	3	0	4	7	105
07:15	1	42	7	50	17	0	2	19	2	25	4	31	7	0	6	13	113
07:30	2	42	5	49	19	0	3	22	3	20	5	28	6	0	8	14	113
07:45	1	33	7	41	12	1	2	15	3	17	3	23	5	0	7	12	91
Total Volume	4	165	24	193	71	2	8	81	9	79	14	102	21	0	25	46	422
% App. Total	2.1	85.5	12.4		87.7	2.5	9.9		8.8	77.5	13.7		45.7	0	54.3		
PHF	.500	.859	.857	.910	.772	.500	.667	.810	.750	.790	.700	.823	.750	.000	.781	.821	.934
Automobiles	3	145	18	166	69	1	6	76	9	58	13	80	16	0	25	41	363
% Automobiles	75.0	87.9	75.0	86.0	97.2	50.0	75.0	93.8	100	73.4	92.9	78.4	76.2	0	100	89.1	86.0
Trucks	1	20	5	26	2	1	2	5	0	21	1	22	4	0	0	4	57
% Trucks	25.0	12.1	20.8	13.5	2.8	50.0	25.0	6.2	0	26.6	7.1	21.6	19.0	0	0	8.7	13.5
Buses	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	2
% Buses	0	0	4.2	0.5	0	0	0	0	0	0	0	0	4.8	0	0	2.2	0.5

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
	07:00				07:00				08:30				07:45			
+0 mins.	0	48	5	53	23	1	1	25	6	38	6	50	5	0	7	12
+15 mins.	1	42	7	50	17	0	2	19	4	26	4	34	4	0	6	10
+30 mins.	2	42	5	49	19	0	3	22	4	24	5	33	4	1	6	11
+45 mins.	1	33	7	41	12	1	2	15	5	18	8	31	4	3	11	18
Total Volume	4	165	24	193	71	2	8	81	19	106	23	148	17	4	30	51
% App. Total	2.1	85.5	12.4		87.7	2.5	9.9		12.8	71.6	15.5		33.3	7.8	58.8	
PHF	.500	.859	.857	.910	.772	.500	.667	.810	.792	.697	.719	.740	.850	.333	.682	.708
Automobiles	3	145	18	166	69	1	6	76	18	74	21	113	14	4	28	46
% Automobiles	75	87.9	75	86	97.2	50	75	93.8	94.7	69.8	91.3	76.4	82.4	100	93.3	90.2
Trucks	1	20	5	26	2	1	2	5	1	32	2	35	3	0	1	4
% Trucks	25	12.1	20.8	13.5	2.8	50	25	6.2	5.3	30.2	8.7	23.6	17.6	0	3.3	7.8
Buses	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
% Buses	0	0	4.2	0.5	0	0	0	0	0	0	0	0	0	0	3.3	2

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 13:00

Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
13:00	1	17	4	22	10	1	0	11	3	16	4	23	4	3	7	14	70
13:15	0	23	3	26	7	1	1	9	8	22	9	39	3	1	5	9	83
13:30	0	16	2	18	14	1	3	18	11	33	4	48	6	0	10	16	100
13:45	1	26	4	31	6	1	0	7	5	37	11	53	6	2	5	13	104
Total Volume	2	82	13	97	37	4	4	45	27	108	28	163	19	6	27	52	357
% App. Total	2.1	84.5	13.4		82.2	8.9	8.9		16.6	66.3	17.2		36.5	11.5	51.9		
PHF	.500	.788	.813	.782	.661	1.00	.333	.625	.614	.730	.636	.769	.792	.500	.675	.813	.858
Automobiles	2	66	13	81	37	4	2	43	26	89	27	142	16	6	25	47	313
% Automobiles	100	80.5	100	83.5	100	100	50.0	95.6	96.3	82.4	96.4	87.1	84.2	100	92.6	90.4	87.7
Trucks	0	16	0	16	0	0	2	2	1	19	1	21	3	0	2	5	44
% Trucks	0	19.5	0	16.5	0	0	50.0	4.4	3.7	17.6	3.6	12.9	15.8	0	7.4	9.6	12.3
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
	12:00				12:45				13:00				13:00			
+0 mins.	1	22	5	28	9	0	1	10	3	16	4	23	4	3	7	14
+15 mins.	1	22	3	26	10	1	0	11	8	22	9	39	3	1	5	9
+30 mins.	0	20	4	24	7	1	1	9	11	33	4	48	6	0	10	16
+45 mins.	0	17	5	22	14	1	3	18	5	37	11	53	6	2	5	13
Total Volume	2	81	17	100	40	3	5	48	27	108	28	163	19	6	27	52
% App. Total	2	81	17		83.3	6.2	10.4		16.6	66.3	17.2		36.5	11.5	51.9	
PHF	.500	.920	.850	.893	.714	.750	.417	.667	.614	.730	.636	.769	.792	.500	.675	.813
Automobiles	2	66	15	83	39	3	3	45	26	89	27	142	16	6	25	47
% Automobiles	100	81.5	88.2	83	97.5	100	60	93.8	96.3	82.4	96.4	87.1	84.2	100	92.6	90.4
Trucks	0	15	2	17	1	0	2	3	1	19	1	21	3	0	2	5
% Trucks	0	18.5	11.8	17	2.5	0	40	6.2	3.7	17.6	3.6	12.9	15.8	0	7.4	9.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

File Name : Frank Reeder Rd @ Beulah Rd
Site Code : 00000004
Start Date : 7/15/2020
Page No : 4

	Beula Rd Southbound				Frank Reeder Rd Westbound				Beula Rd Northbound				Frank Reeder Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	1	**32**	**7**	**40**	11	0	0	11	**13**	35	12	60	2	2	5	9	120
16:30	**2**	22	6	30	**16**	0	0	**16**	8	**49**	13	**70**	**9**	0	**10**	**19**	**135**
16:45	1	32	4	37	9	1	2	12	6	34	**20**	60	3	1	5	9	118
17:00	0	21	7	28	6	**2**	**3**	11	12	38	17	67	7	**3**	8	18	124
Total Volume	4	107	24	135	42	3	5	50	39	156	62	257	21	6	28	55	497
% App. Total	3	79.3	17.8		84	6	10		15.2	60.7	24.1		38.2	10.9	50.9		
PHF	.500	.836	.857	.844	.656	.375	.417	.781	.750	.796	.775	.918	.583	.500	.700	.724	.920
Automobiles	4	94	24	122	42	3	5	50	39	146	61	246	21	6	28	55	473
% Automobiles	100	87.9	100	90.4	100	100	100	100	100	93.6	98.4	95.7	100	100	100	100	95.2
Trucks	0	13	0	13	0	0	0	0	0	10	1	11	0	0	0	0	24
% Trucks	0	12.1	0	9.6	0	0	0	0	0	6.4	1.6	4.3	0	0	0	0	4.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	Southbound				Westbound				Northbound				Eastbound			
	16:00				16:30				16:15				16:15			
+0 mins.	1	**34**	4	39	**16**	0	0	**16**	**13**	35	12	60	2	2	5	9
+15 mins.	1	32	**7**	**40**	9	1	2	12	8	**49**	13	**70**	**9**	0	**10**	**19**
+30 mins.	**2**	22	6	30	6	**2**	**3**	11	6	34	**20**	60	3	1	5	9
+45 mins.	1	32	4	37	11	1	3	15	12	38	17	67	7	**3**	8	18
Total Volume	5	120	21	146	42	4	8	54	39	156	62	257	21	6	28	55
% App. Total	3.4	82.2	14.4		77.8	7.4	14.8		15.2	60.7	24.1		38.2	10.9	50.9	
PHF	.625	.882	.750	.913	.656	.500	.667	.844	.750	.796	.775	.918	.583	.500	.700	.724
Automobiles	5	106	21	132	42	4	8	54	39	146	61	246	21	6	28	55
% Automobiles	100	88.3	100	90.4	100	100	100	100	100	93.6	98.4	95.7	100	100	100	100
Trucks	0	14	0	14	0	0	0	0	0	10	1	11	0	0	0	0
% Trucks	0	11.7	0	9.6	0	0	0	0	0	6.4	1.6	4.3	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

Frank Reeder Rd @ Beulah Rd
Pensacola, Florida

File Name : Frank Reeder Rd @ Beulah Rd
Site Code : 00000004
Start Date : 7/15/2020
Page No : 1

Groups Printed- Trucks - Buses

	Beula Rd Southbound				Frank Reeder Rd Westbound				Beula Rd Northbound				Frank Reeder Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	0	6	2	8	1	0	0	1	0	1	0	1	1	0	0	1	11
07:15	0	5	1	6	0	0	0	0	0	8	0	8	1	0	0	1	15
07:30	1	3	1	5	1	0	2	3	0	7	1	8	1	0	0	1	17
07:45	0	6	2	8	0	1	0	1	0	5	0	5	2	0	0	2	16
Total	1	20	6	27	2	1	2	5	0	21	1	22	5	0	0	5	59
08:00	1	9	0	10	0	0	0	0	0	5	0	5	0	0	1	1	16
08:15	0	5	0	5	0	0	1	1	1	2	0	3	1	0	0	1	10
08:30	1	6	1	8	0	0	0	0	0	11	1	12	0	0	1	1	21
08:45	0	3	0	3	0	0	2	2	0	3	1	4	0	0	0	0	9
Total	2	23	1	26	0	0	3	3	1	21	2	24	1	0	2	3	56
09:00	2	5	0	7	0	0	0	0	1	8	0	9	1	0	0	1	17
09:15	0	6	0	6	0	0	2	2	0	10	0	10	0	0	0	0	18
09:30	2	7	0	9	1	0	0	1	0	4	0	4	1	1	0	2	16
09:45	0	7	0	7	0	0	0	0	0	3	0	3	0	0	0	0	10
Total	4	25	0	29	1	0	2	3	1	25	0	26	2	1	0	3	61
12:00	0	5	0	5	0	0	0	0	0	7	1	8	0	0	0	0	13
12:15	0	4	1	5	1	0	1	2	0	4	0	4	0	0	0	0	11
12:30	0	5	0	5	0	0	0	0	0	5	1	6	0	0	0	0	11
12:45	0	1	1	2	1	0	0	1	0	6	0	6	0	1	0	1	10
Total	0	15	2	17	2	0	1	3	0	22	2	24	0	1	0	1	45
13:00	0	1	0	1	0	0	0	0	0	5	0	5	0	0	1	1	7
13:15	0	2	0	2	0	0	1	1	0	2	0	2	0	0	1	1	6
13:30	0	1	0	1	0	0	1	1	0	6	1	7	1	0	0	1	10
13:45	0	12	0	12	0	0	0	0	1	6	0	7	2	0	0	2	21
Total	0	16	0	16	0	0	2	2	1	19	1	21	3	0	2	5	44
16:00	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0	5
16:15	0	4	0	4	0	0	0	0	0	6	0	6	0	0	0	0	10
16:30	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
16:45	0	6	0	6	0	0	0	0	0	2	1	3	0	0	0	0	9
Total	0	14	0	14	0	0	0	0	0	13	1	14	0	0	0	0	28
17:00	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
17:15	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
17:45	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	2	0	2	0	0	0	0	1	1	0	2	0	0	1	1	5
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
18:30	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	2
18:45	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	3	0	3	0	0	2	2	5
Grand Total	7	115	9	131	5	1	10	16	4	125	7	136	11	2	7	20	303
Apprch %	5.3	87.8	6.9		31.2	6.2	62.5		2.9	91.9	5.1		55	10	35		
Total %	2.3	38	3	43.2	1.7	0.3	3.3	5.3	1.3	41.3	2.3	44.9	3.6	0.7	2.3	6.6	
Trucks	7	115	8	130	5	1	10	16	3	125	7	135	10	2	5	17	298
% Trucks	100	100	88.9	99.2	100	100	100	100	75	100	100	99.3	90.9	100	71.4	85	98.3
Buses	0	0	1	1	0	0	0	0	1	0	0	1	1	0	2	3	5
% Buses	0	0	11.1	0.8	0	0	0	0	25	0	0	0.7	9.1	0	28.6	15	1.7

Intersection Turning Movement Count

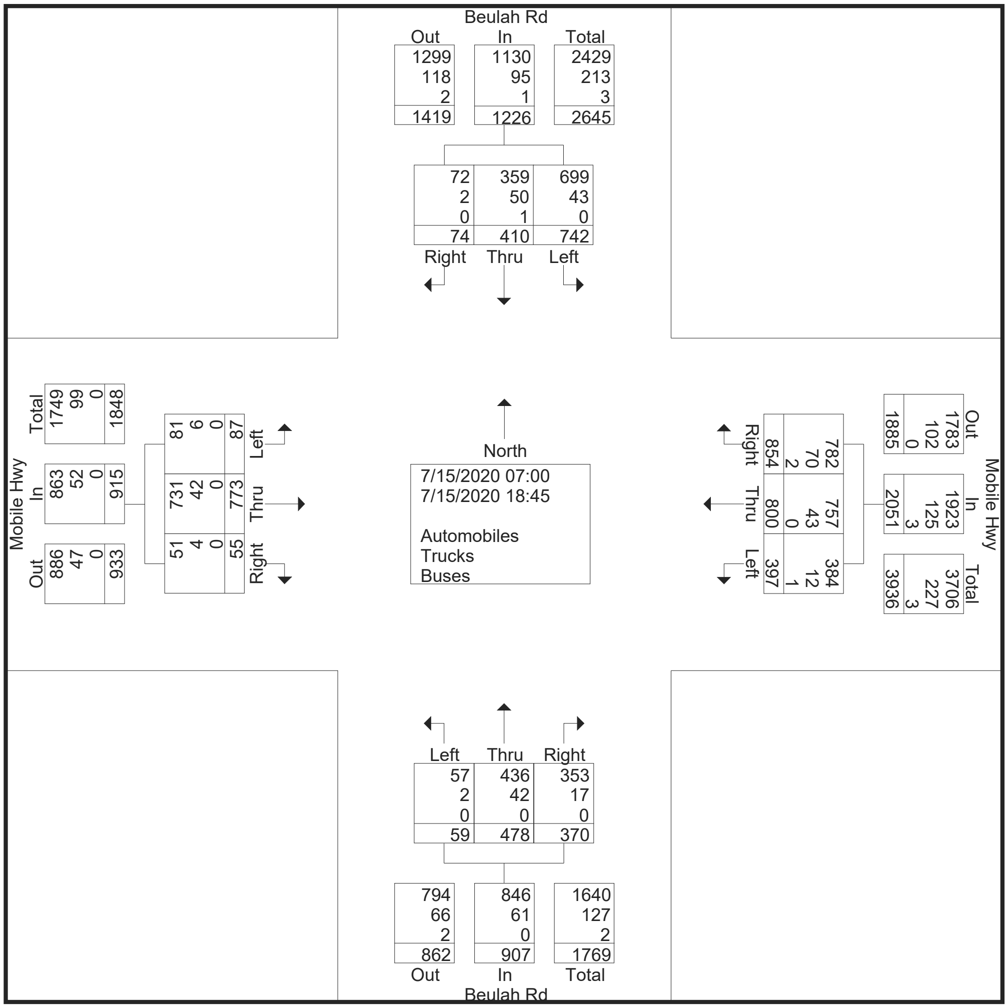
Mobile Hwy @ Beulah Rd
Pensacola, Florida

File Name : Mobile Hwy @ Beulah Rd
Site Code : 00000006
Start Date : 7/15/2020
Page No : 1

Groups Printed- Automobiles - Trucks - Buses

	Beulah Rd Southbound				Mobile Hwy Westbound				Beulah Rd Northbound				Mobile Hwy Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	16	6	2	24	6	10	12	28	1	6	8	15	2	20	1	23	90
07:15	25	5	0	30	2	20	22	44	0	13	12	25	2	22	0	24	123
07:30	20	4	0	24	3	21	27	51	1	20	17	38	0	25	0	25	138
07:45	28	10	1	39	8	15	24	47	0	16	15	31	4	33	0	37	154
Total	89	25	3	117	19	66	85	170	2	55	52	109	8	100	1	109	505
08:00	24	9	0	33	6	9	29	44	2	17	15	34	4	30	1	35	146
08:15	31	13	2	46	5	14	21	40	0	27	16	43	7	34	4	45	174
08:30	31	5	1	37	9	14	21	44	2	27	18	47	5	40	0	45	173
08:45	28	10	2	40	8	19	27	54	2	11	12	25	5	18	1	24	143
Total	114	37	5	156	28	56	98	182	6	82	61	149	21	122	6	149	636
09:00	23	9	2	34	11	14	34	59	2	12	12	26	2	30	1	33	152
09:15	22	12	1	35	9	20	24	53	3	20	10	33	3	30	2	35	156
09:30	25	18	2	45	9	13	26	48	1	15	9	25	6	24	1	31	149
09:45	22	9	1	32	14	10	24	48	2	18	15	35	3	27	3	33	148
Total	92	48	6	146	43	57	108	208	8	65	46	119	14	111	7	132	605
*** BREAK ***																	
12:00	23	11	1	35	4	17	23	44	2	13	11	26	4	9	1	14	119
12:15	25	11	1	37	16	22	24	62	4	13	11	28	2	10	2	14	141
12:30	19	12	5	36	7	24	18	49	2	12	6	20	4	23	1	28	133
12:45	25	17	1	43	6	32	23	61	1	12	10	23	3	20	1	24	151
Total	92	51	8	151	33	95	88	216	9	50	38	97	13	62	5	80	544
13:00	21	11	6	38	6	21	24	51	1	9	9	19	0	13	1	14	122
13:15	16	10	3	29	7	23	19	49	1	9	3	13	1	21	2	24	115
13:30	18	9	3	30	12	17	19	48	2	19	13	34	1	24	5	30	142
13:45	19	10	4	33	11	24	23	58	3	10	10	23	0	18	2	20	134
Total	74	40	16	130	36	85	85	206	7	47	35	89	2	76	10	88	513
*** BREAK ***																	
16:00	22	20	1	43	16	32	29	77	0	16	10	26	0	26	1	27	173
16:15	23	21	3	47	8	37	22	67	2	12	12	26	4	24	0	28	168
16:30	27	14	5	46	23	28	35	86	1	14	9	24	0	26	7	33	189
16:45	25	21	3	49	14	30	35	79	0	12	7	19	4	27	1	32	179
Total	97	76	12	185	61	127	121	309	3	54	38	95	8	103	9	120	709
17:00	19	10	3	32	22	30	36	88	2	16	11	29	3	29	3	35	184
17:15	28	22	3	53	18	40	32	90	3	19	16	38	1	32	2	35	216
17:30	24	18	3	45	28	31	38	97	4	13	17	34	4	33	2	39	215
17:45	14	26	5	45	22	39	40	101	5	15	6	26	2	23	0	25	197
Total	85	76	14	175	90	140	146	376	14	63	50	127	10	117	7	134	812
18:00	24	13	4	41	24	47	31	102	1	10	12	23	0	26	4	30	196
18:15	32	15	3	50	24	52	30	106	4	14	11	29	6	13	4	23	208
18:30	21	15	2	38	25	38	24	87	4	20	13	37	4	26	1	31	193
18:45	22	14	1	37	14	37	38	89	1	18	14	33	1	17	1	19	178
Total	99	57	10	166	87	174	123	384	10	62	50	122	11	82	10	103	775
Grand Total	742	410	74	1226	397	800	854	2051	59	478	370	907	87	773	55	915	5099
Apprch %	60.5	33.4	6		19.4	39	41.6		6.5	52.7	40.8		9.5	84.5	6		
Total %	14.6	8	1.5	24	7.8	15.7	16.7	40.2	1.2	9.4	7.3	17.8	1.7	15.2	1.1	17.9	
Automobiles	699	359	72	1130	384	757	782	1923	57	436	353	846	81	731	51	863	4762
% Automobiles	94.2	87.6	97.3	92.2	96.7	94.6	91.6	93.8	96.6	91.2	95.4	93.3	93.1	94.6	92.7	94.3	93.4
Trucks	43	50	2	95	12	43	70	125	2	42	17	61	6	42	4	52	333
% Trucks	5.8	12.2	2.7	7.7	3	5.4	8.2	6.1	3.4	8.8	4.6	6.7	6.9	5.4	7.3	5.7	6.5
Buses	0	1	0	1	1	0	2	3	0	0	0	0	0	0	0	0	4
% Buses	0	0.2	0	0.1	0.3	0	0.2	0.1	0	0	0	0	0	0	0	0	0.1

Intersection Turning Movement Count



Intersection Turning Movement Count

File Name : Mobile Hwy @ Beulah Rd
Site Code : 00000006
Start Date : 7/15/2020
Page No : 3

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:45

	Beulah Rd Southbound				Mobile Hwy Westbound				Beulah Rd Northbound				Mobile Hwy Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:45	28	10	1	39	8	**15**	24	**47**	0	16	15	31	4	33	0	37	154
08:00	24	9	0	33	6	9	**29**	44	**2**	17	15	34	4	30	1	35	146
08:15	**31**	**13**	**2**	**46**	5	14	21	40	0	**27**	16	43	**7**	34	**4**	**45**	**174**
08:30	31	5	1	37	**9**	14	21	44	2	27	**18**	**47**	5	**40**	0	45	173
Total Volume	114	37	4	155	28	52	95	175	4	87	64	155	20	137	5	162	647
% App. Total	73.5	23.9	2.6		16	29.7	54.3		2.6	56.1	41.3		12.3	84.6	3.1		
PHF	.919	.712	.500	.842	.778	.867	.819	.931	.500	.806	.889	.824	.714	.856	.313	.900	.930
Automobiles	107	24	4	135	27	50	84	161	4	75	62	141	20	133	5	158	595
% Automobiles	93.9	64.9	100	87.1	96.4	96.2	88.4	92.0	100	86.2	96.9	91.0	100	97.1	100	97.5	92.0
Trucks	7	12	0	19	1	2	11	14	0	12	2	14	0	4	0	4	51
% Trucks	6.1	32.4	0	12.3	3.6	3.8	11.6	8.0	0	13.8	3.1	9.0	0	2.9	0	2.5	7.9
Buses	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Buses	0	2.7	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0.2

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:15				08:45				07:45				07:45			
+0 mins.	**31**	**13**	**2**	**46**	8	19	27	54	0	16	15	31	4	33	0	37
+15 mins.	31	5	1	37	**11**	14	**34**	**59**	**2**	17	15	34	4	30	1	35
+30 mins.	28	10	2	40	9	**20**	24	53	0	**27**	16	43	**7**	34	**4**	**45**
+45 mins.	23	9	2	34	9	13	26	48	2	27	**18**	**47**	5	**40**	0	45
Total Volume	113	37	7	157	37	66	111	214	4	87	64	155	20	137	5	162
% App. Total	72	23.6	4.5		17.3	30.8	51.9		2.6	56.1	41.3		12.3	84.6	3.1	
PHF	.911	.712	.875	.853	.841	.825	.816	.907	.500	.806	.889	.824	.714	.856	.313	.900
Automobiles	103	28	7	138	34	62	91	187	4	75	62	141	20	133	5	158
% Automobiles	91.2	75.7	100	87.9	91.9	93.9	82	87.4	100	86.2	96.9	91	100	97.1	100	97.5
Trucks	10	9	0	19	3	4	20	27	0	12	2	14	0	4	0	4
% Trucks	8.8	24.3	0	12.1	8.1	6.1	18	12.6	0	13.8	3.1	9	0	2.9	0	2.5
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 12:15

12:15	**25**	11	1	37	**16**	22	**24**	**62**	**4**	**13**	**11**	**28**	2	10	**2**	14	141
12:30	19	12	5	36	7	24	18	49	2	12	6	20	**4**	**23**	1	**28**	133
12:45	25	**17**	1	**43**	6	**32**	23	61	1	12	10	23	3	20	1	24	**151**
13:00	21	11	**6**	38	6	21	24	51	1	9	9	19	0	13	1	14	122
Total Volume	90	51	13	154	35	99	89	223	8	46	36	90	9	66	5	80	547
% App. Total	58.4	33.1	8.4		15.7	44.4	39.9		8.9	51.1	40		11.2	82.5	6.2		
PHF	.900	.750	.542	.895	.547	.773	.927	.899	.500	.885	.818	.804	.563	.717	.625	.714	.906
Automobiles	85	44	13	142	34	88	79	201	7	42	33	82	8	62	4	74	499
% Automobiles	94.4	86.3	100	92.2	97.1	88.9	88.8	90.1	87.5	91.3	91.7	91.1	88.9	93.9	80.0	92.5	91.2
Trucks	5	7	0	12	1	11	10	22	1	4	3	8	1	4	1	6	48
% Trucks	5.6	13.7	0	7.8	2.9	11.1	11.2	9.9	12.5	8.7	8.3	8.9	11.1	6.1	20.0	7.5	8.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:15				12:15				12:00				12:45			
+0 mins.	**25**	11	1	37	**16**	22	**24**	**62**	2	**13**	**11**	26	**3**	20	1	24
+15 mins.	19	12	5	36	7	24	18	49	**4**	13	11	**28**	0	13	1	14
+30 mins.	25	**17**	1	**43**	6	**32**	23	61	2	12	6	20	1	21	2	24
+45 mins.	21	11	**6**	38	6	21	24	51	1	12	10	23	1	**24**	**5**	**30**
Total Volume	90	51	13	154	35	99	89	223	9	50	38	97	5	78	9	92
% App. Total	58.4	33.1	8.4		15.7	44.4	39.9		9.3	51.5	39.2		5.4	84.8	9.8	
PHF	.900	.750	.542	.895	.547	.773	.927	.899	.563	.962	.864	.866	.417	.813	.450	.767
Automobiles	85	44	13	142	34	88	79	201	9	45	34	88	3	74	8	85
% Automobiles	94.4	86.3	100	92.2	97.1	88.9	88.8	90.1	100	90	89.5	90.7	60	94.9	88.9	92.4
Trucks	5	7	0	12	1	11	10	22	0	5	4	9	2	4	1	7
% Trucks	5.6	13.7	0	7.8	2.9	11.1	11.2	9.9	0	10	10.5	9.3	40	5.1	11.1	7.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

File Name : Mobile Hwy @ Beulah Rd
Site Code : 00000006
Start Date : 7/15/2020
Page No : 4

	Beulah Rd Southbound				Mobile Hwy Westbound				Beulah Rd Northbound				Mobile Hwy Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:15																	
17:15	**28**	22	3	**53**	18	40	32	90	3	**19**	16	**38**	1	32	2	35	**216**
17:30	24	18	3	45	**28**	31	38	97	4	13	**17**	34	**4**	**33**	2	**39**	215
17:45	14	**26**	**5**	45	22	39	**40**	101	**5**	15	6	26	2	23	0	25	197
18:00	24	13	4	41	24	**47**	31	**102**	1	10	12	23	0	26	**4**	30	196
Total Volume	90	79	15	184	92	157	141	390	13	57	51	121	7	114	8	129	824
% App. Total	48.9	42.9	8.2		23.6	40.3	36.2		10.7	47.1	42.1		5.4	88.4	6.2		
PHF	.804	.760	.750	.868	.821	.835	.881	.956	.650	.750	.750	.796	.438	.864	.500	.827	.954
Automobiles	87	76	15	178	91	154	132	377	12	54	50	116	6	101	7	114	785
% Automobiles	96.7	96.2	100	96.7	98.9	98.1	93.6	96.7	92.3	94.7	98.0	95.9	85.7	88.6	87.5	88.4	95.3
Trucks	3	3	0	6	1	3	8	12	1	3	1	5	1	13	1	15	38
% Trucks	3.3	3.8	0	3.3	1.1	1.9	5.7	3.1	7.7	5.3	2.0	4.1	14.3	11.4	12.5	11.6	4.6
Buses	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
% Buses	0	0	0	0	0	0	0.7	0.3	0	0	0	0	0	0	0	0	0.1

Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:00				17:30				17:00				16:45			
+0 mins.	22	20	1	43	**28**	31	38	97	2	16	11	29	**4**	27	1	32
+15 mins.	23	**21**	3	47	22	39	**40**	101	3	**19**	16	**38**	3	29	**3**	35
+30 mins.	**27**	14	**5**	46	24	47	31	102	4	13	**17**	34	1	32	2	35
+45 mins.	25	21	3	**49**	24	**52**	30	**106**	**5**	15	6	26	4	**33**	2	**39**
Total Volume	97	76	12	185	98	169	139	406	14	63	50	127	12	121	8	141
% App. Total	52.4	41.1	6.5		24.1	41.6	34.2		11	49.6	39.4		8.5	85.8	5.7	
PHF	.898	.905	.600	.944	.875	.813	.869	.958	.700	.829	.735	.836	.750	.917	.667	.904
Automobiles	88	67	12	167	98	167	133	398	13	57	48	118	10	109	7	126
% Automobiles	90.7	88.2	100	90.3	100	98.8	95.7	98	92.9	90.5	96	92.9	83.3	90.1	87.5	89.4
Trucks	9	9	0	18	0	2	5	7	1	6	2	9	2	12	1	15
% Trucks	9.3	11.8	0	9.7	0	1.2	3.6	1.7	7.1	9.5	4	7.1	16.7	9.9	12.5	10.6
Buses	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0.7	0.2	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

Mobile Hwy @ Beulah Rd
Pensacola, Florida

File Name : Mobile Hwy @ Beulah Rd
Site Code : 00000006
Start Date : 7/15/2020
Page No : 1

Groups Printed- Trucks - Buses

	Beulah Rd Southbound				Mobile Hwy Westbound				Beulah Rd Northbound				Mobile Hwy Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	0	0	0	0	1	0	1	2	0	0	0	0	0	0	1	1	3
07:15	0	1	0	1	0	0	3	3	0	0	1	1	0	0	0	0	5
07:30	2	0	0	2	0	0	4	4	0	0	1	1	0	2	0	2	9
07:45	1	3	0	4	0	0	2	2	0	1	0	1	0	3	0	3	10
Total	3	4	0	7	1	0	10	11	0	1	2	3	0	5	1	6	27
08:00	2	4	0	6	0	0	0	0	0	2	1	3	0	1	0	1	10
08:15	4	3	0	7	0	0	3	3	0	4	0	4	0	0	0	0	14
08:30	0	3	0	3	1	2	6	9	0	5	1	6	0	0	0	0	18
08:45	4	2	0	6	0	1	6	7	0	1	1	2	0	0	0	0	15
Total	10	12	0	22	1	3	15	19	0	12	3	15	0	1	0	1	57
09:00	2	1	0	3	2	2	5	9	0	1	0	1	0	1	0	1	14
09:15	2	4	0	6	0	1	3	4	0	0	0	0	1	0	0	1	11
09:30	3	5	0	8	1	0	6	7	0	4	0	4	0	0	0	0	19
09:45	0	1	0	1	4	0	0	4	0	2	1	3	0	2	0	2	10
Total	7	11	0	18	7	3	14	24	0	7	1	8	1	3	0	4	54
12:00	0	1	1	2	0	0	1	1	0	1	1	2	0	1	0	1	6
12:15	1	2	0	3	0	2	4	6	0	2	1	3	0	1	0	1	13
12:30	1	2	0	3	0	3	1	4	0	1	0	1	0	1	0	1	9
12:45	2	2	0	4	1	3	3	7	0	1	2	3	1	2	0	3	17
Total	4	7	1	12	1	8	9	18	0	5	4	9	1	5	0	6	45
13:00	1	1	0	2	0	3	2	5	1	0	0	1	0	0	1	1	9
13:15	0	2	1	3	0	2	0	2	0	2	1	3	0	0	0	0	8
13:30	0	0	0	0	0	2	1	3	0	3	0	3	1	2	0	3	9
13:45	4	0	0	4	0	1	4	5	0	0	1	1	0	2	1	3	13
Total	5	3	1	9	0	8	7	15	1	5	2	8	1	4	2	7	39
16:00	2	2	0	4	0	4	1	5	0	3	0	3	0	1	0	1	13
16:15	3	2	0	5	0	1	0	1	0	0	2	2	0	1	0	1	9
16:30	3	2	0	5	1	3	1	5	0	2	0	2	0	1	0	1	13
16:45	1	3	0	4	1	2	4	7	0	0	1	1	1	3	0	4	16
Total	9	9	0	18	2	10	6	18	0	5	3	8	1	6	0	7	51
17:00	0	1	0	1	0	6	2	8	0	3	1	4	0	3	0	3	16
17:15	1	1	0	2	1	2	3	6	0	3	1	4	0	5	0	5	17
17:30	1	1	0	2	0	1	4	5	1	0	0	1	1	1	1	3	11
17:45	1	1	0	2	0	0	1	1	0	0	0	0	0	3	0	3	6
Total	3	4	0	7	1	9	10	20	1	6	2	9	1	12	1	14	50
18:00	0	0	0	0	0	0	1	1	0	0	0	0	0	4	0	4	5
18:15	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
18:30	0	0	0	0	0	1	0	1	0	0	0	0	1	1	0	2	3
18:45	2	1	0	3	0	0	0	0	0	1	0	1	0	1	0	1	5
Total	2	1	0	3	0	2	1	3	0	1	0	1	1	6	0	7	14
Grand Total	43	51	2	96	13	43	72	128	2	42	17	61	6	42	4	52	337
Apprch %	44.8	53.1	2.1		10.2	33.6	56.2		3.3	68.9	27.9		11.5	80.8	7.7		
Total %	12.8	15.1	0.6	28.5	3.9	12.8	21.4	38	0.6	12.5	5	18.1	1.8	12.5	1.2	15.4	
Trucks	43	50	2	95	12	43	70	125	2	42	17	61	6	42	4	52	333
% Trucks	100	98	100	99	92.3	100	97.2	97.7	100	100	100	100	100	100	100	100	98.8
Buses	0	1	0	1	1	0	2	3	0	0	0	0	0	0	0	0	4
% Buses	0	2	0	1	7.7	0	2.8	2.3	0	0	0	0	0	0	0	0	1.2

Intersection Turning Movement Count

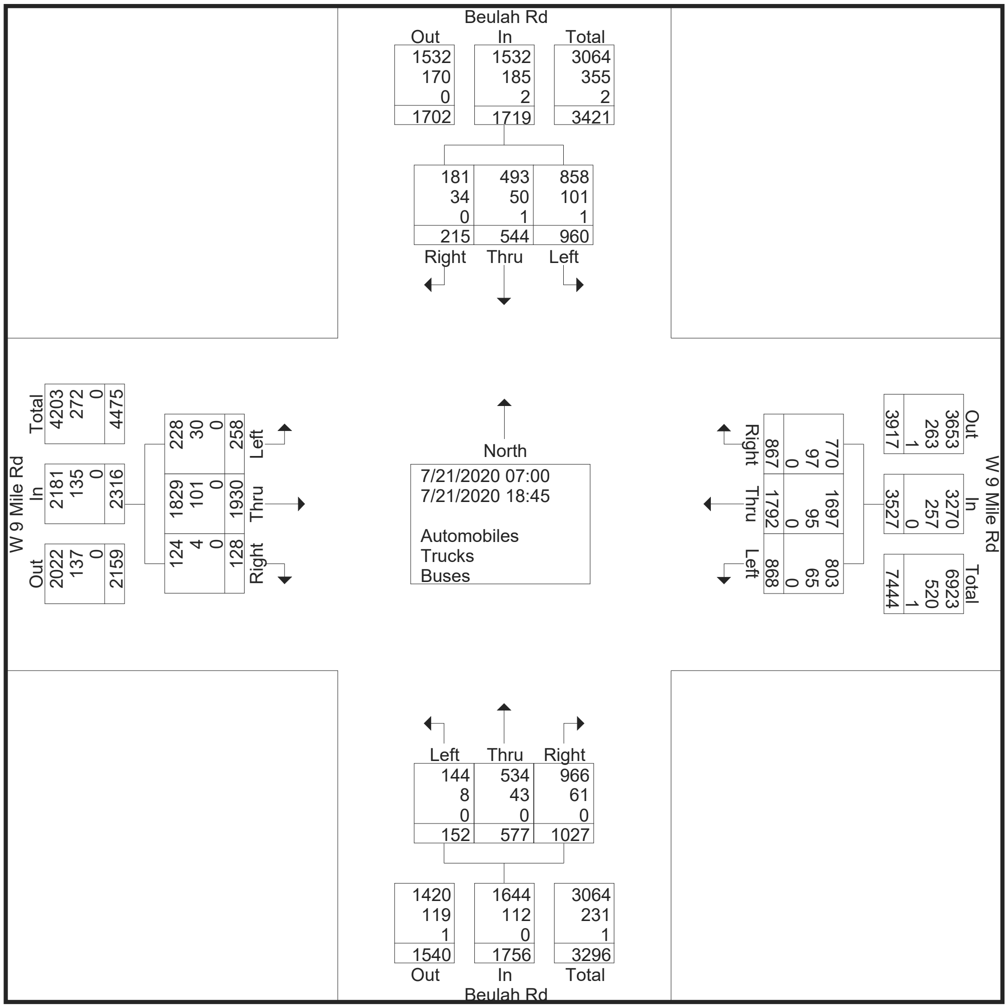
W 9 Mile Rd @ Beulah Rd
Pensacola, Florida

File Name : W 9 Mile Rd @ Beulah Rd
Site Code : 00000005
Start Date : 7/21/2020
Page No : 1

Groups Printed- Automobiles - Trucks - Buses

	Beulah Rd Southbound				W 9 Mile Rd Westbound				Beulah Rd Northbound				W 9 Mile Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	58	20	3	81	23	22	16	61	4	12	49	65	8	70	0	78	285
07:15	52	22	3	77	23	38	21	82	6	5	59	70	12	103	2	117	346
07:30	56	25	7	88	24	33	14	71	4	14	36	54	8	90	1	99	312
07:45	40	20	9	69	24	30	24	78	4	14	29	47	7	75	3	85	279
Total	206	87	22	315	94	123	75	292	18	45	173	236	35	338	6	379	1222
08:00	46	11	8	65	19	37	15	71	5	8	48	61	2	71	3	76	273
08:15	45	18	1	64	25	48	23	96	4	9	45	58	4	56	1	61	279
08:30	34	10	2	46	20	32	15	67	2	10	38	50	5	71	7	83	246
08:45	32	21	4	57	17	32	18	67	4	18	36	58	3	59	2	64	246
Total	157	60	15	232	81	149	71	301	15	45	167	227	14	257	13	284	1044
09:00	21	11	1	33	14	42	22	78	3	27	32	62	6	53	2	61	234
09:15	32	13	6	51	13	38	21	72	4	11	35	50	5	66	3	74	247
09:30	26	21	11	58	25	36	25	86	5	10	27	42	5	67	5	77	263
09:45	36	13	5	54	25	47	25	97	4	13	31	48	6	55	5	66	265
Total	115	58	23	196	77	163	93	333	16	61	125	202	22	241	15	278	1009
Break																	
12:00	31	15	10	56	28	49	25	102	6	16	32	54	8	56	4	68	280
12:15	33	20	8	61	32	67	30	129	5	22	31	58	17	48	5	70	318
12:30	40	16	7	63	33	58	18	109	4	17	16	37	5	59	8	72	281
12:45	21	18	8	47	24	57	26	107	7	13	29	49	6	49	5	60	263
Total	125	69	33	227	117	231	99	447	22	68	108	198	36	212	22	270	1142
13:00	17	17	4	38	30	56	31	117	3	13	26	42	5	55	8	68	265
13:15	26	13	6	45	31	58	32	121	10	23	32	65	7	59	0	66	297
13:30	22	15	5	42	21	57	17	95	7	10	33	50	9	60	3	72	259
13:45	25	17	7	49	25	66	31	122	3	25	20	48	11	55	2	68	287
Total	90	62	22	174	107	237	111	455	23	71	111	205	32	229	13	274	1108
Break																	
16:00	24	20	10	54	37	84	32	153	7	24	34	65	10	62	9	81	353
16:15	17	14	12	43	24	74	32	130	7	32	26	65	15	59	3	77	315
16:30	22	17	13	52	38	101	45	184	9	36	26	71	16	65	3	84	391
16:45	19	28	11	58	43	85	26	154	4	21	30	55	12	47	6	65	332
Total	82	79	46	207	142	344	135	621	27	113	116	256	53	233	21	307	1391
17:00	19	29	8	56	39	81	44	164	5	31	37	73	6	59	4	69	362
17:15	27	23	6	56	31	78	46	155	1	23	36	60	9	64	5	78	349
17:30	34	8	12	54	33	83	42	158	6	27	40	73	14	64	6	84	369
17:45	28	20	7	55	35	82	31	148	6	18	28	52	8	38	9	55	310
Total	108	80	33	221	138	324	163	625	18	99	141	258	37	225	24	286	1390
18:00	23	13	7	43	25	56	34	115	2	23	18	43	8	60	5	73	274
18:15	17	12	5	34	32	54	33	119	3	18	20	41	9	46	5	60	254
18:30	25	19	4	48	29	63	30	122	5	17	31	53	4	46	1	51	274
18:45	12	5	5	22	26	48	23	97	3	17	17	37	8	43	3	54	210
Total	77	49	21	147	112	221	120	453	13	75	86	174	29	195	14	238	1012
Grand Total	960	544	215	1719	868	1792	867	3527	152	577	1027	1756	258	1930	128	2316	9318
Apprch %	55.8	31.6	12.5		24.6	50.8	24.6		8.7	32.9	58.5		11.1	83.3	5.5		
Total %	10.3	5.8	2.3	18.4	9.3	19.2	9.3	37.9	1.6	6.2	11	18.8	2.8	20.7	1.4	24.9	
Automobiles	858	493	181	1532	803	1697	770	3270	144	534	966	1644	228	1829	124	2181	8627
% Automobiles	89.4	90.6	84.2	89.1	92.5	94.7	88.8	92.7	94.7	92.5	94.1	93.6	88.4	94.8	96.9	94.2	92.6
Trucks	101	50	34	185	65	95	97	257	8	43	61	112	30	101	4	135	689
% Trucks	10.5	9.2	15.8	10.8	7.5	5.3	11.2	7.3	5.3	7.5	5.9	6.4	11.6	5.2	3.1	5.8	7.4
Buses	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0.1	0.2	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count



Intersection Turning Movement Count

File Name : W 9 Mile Rd @ Beulah Rd
Site Code : 00000005
Start Date : 7/21/2020

	Beulah Rd Southbound				W 9 Mile Rd Westbound				Beulah Rd Northbound				W 9 Mile Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00

Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	**58**	20	3	81	23	22	16	61	4	12	49	65	8	70	0	78	285
07:15	52	22	3	77	23	**38**	21	**82**	**6**	5	**59**	**70**	**12**	**103**	2	**117**	**346**
07:30	56	**25**	7	**88**	**24**	33	14	71	4	**14**	36	54	8	90	1	99	312
07:45	40	20	**9**	69	24	30	**24**	78	4	14	29	47	7	75	**3**	85	279
Total Volume	206	87	22	315	94	123	75	292	18	45	173	236	35	338	6	379	1222
% App. Total	65.4	27.6	7		32.2	42.1	25.7		7.6	19.1	73.3		9.2	89.2	1.6		
PHF	.888	.870	.611	.895	.979	.809	.781	.890	.750	.804	.733	.843	.729	.820	.500	.810	.883
Automobiles	188	82	20	290	78	110	54	242	17	38	165	220	31	326	5	362	1114
% Automobiles	91.3	94.3	90.9	92.1	83.0	89.4	72.0	82.9	94.4	84.4	95.4	93.2	88.6	96.4	83.3	95.5	91.2
Trucks	17	5	2	24	16	13	21	50	1	7	8	16	4	12	1	17	107
% Trucks	8.3	5.7	9.1	7.6	17.0	10.6	28.0	17.1	5.6	15.6	4.6	6.8	11.4	3.6	16.7	4.5	8.8
Buses	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Buses	0.5	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0.1

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00				09:00				07:00				07:00			
+0 mins.	**58**	20	3	81	14	42	22	78	4	12	49	65	8	70	0	78
+15 mins.	52	22	3	77	13	38	21	72	**6**	5	**59**	**70**	**12**	**103**	2	**117**
+30 mins.	56	**25**	7	**88**	**25**	36	**25**	86	4	**14**	36	54	8	90	1	99
+45 mins.	40	20	**9**	69	25	**47**	25	**97**	4	14	29	47	7	75	**3**	85
Total Volume	206	87	22	315	77	163	93	333	18	45	173	236	35	338	6	379
% App. Total	65.4	27.6	7		23.1	48.9	27.9		7.6	19.1	73.3		9.2	89.2	1.6	
PHF	.888	.870	.611	.895	.770	.867	.930	.858	.750	.804	.733	.843	.729	.820	.500	.810
Automobiles	188	82	20	290	63	147	71	281	17	38	165	220	31	326	5	362
% Automobiles	91.3	94.3	90.9	92.1	81.8	90.2	76.3	84.4	94.4	84.4	95.4	93.2	88.6	96.4	83.3	95.5
Trucks	17	5	2	24	14	16	22	52	1	7	8	16	4	12	1	17
% Trucks	8.3	5.7	9.1	7.6	18.2	9.8	23.7	15.6	5.6	15.6	4.6	6.8	11.4	3.6	16.7	4.5
Buses	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0.5	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 12:00

Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:00	31	15	**10**	56	28	49	25	102	6	16	**32**	54	8	56	4	68	280
12:15	33	**20**	8	61	32	**67**	**30**	**129**	5	**22**	31	**58**	**17**	48	5	70	**318**
12:30	**40**	16	7	**63**	**33**	58	18	109	4	17	16	37	5	**59**	**8**	**72**	281
12:45	21	18	8	47	24	57	26	107	**7**	13	29	49	6	49	5	60	263
Total Volume	125	69	33	227	117	231	99	447	22	68	108	198	36	212	22	270	1142
% App. Total	55.1	30.4	14.5		26.2	51.7	22.1		11.1	34.3	54.5		13.3	78.5	8.1		
PHF	.781	.863	.825	.901	.886	.862	.825	.866	.786	.773	.844	.853	.529	.898	.688	.938	.898
Automobiles	105	61	28	194	109	216	82	407	20	60	96	176	29	191	22	242	1019
% Automobiles	84.0	88.4	84.8	85.5	93.2	93.5	82.8	91.1	90.9	88.2	88.9	88.9	80.6	90.1	100	89.6	89.2
Trucks	20	8	5	33	8	15	17	40	2	8	12	22	7	21	0	28	123
% Trucks	16.0	11.6	15.2	14.5	6.8	6.5	17.2	8.9	9.1	11.8	11.1	11.1	19.4	9.9	0	10.4	10.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00				12:15				12:45				13:00			
+0 mins.	31	15	**10**	56	32	**67**	30	**129**	7	13	29	49	5	55	**8**	68
+15 mins.	33	**20**	8	61	**33**	58	18	109	3	13	26	42	7	59	0	66
+30 mins.	**40**	16	7	**63**	24	57	26	107	**10**	**23**	32	**65**	9	**60**	3	**72**
+45 mins.	21	18	8	47	30	56	**31**	117	7	10	**33**	50	**11**	55	2	68
Total Volume	125	69	33	227	119	238	105	462	27	59	120	206	32	229	13	274
% App. Total	55.1	30.4	14.5		25.8	51.5	22.7		13.1	28.6	58.3		11.7	83.6	4.7	
PHF	.781	.863	.825	.901	.902	.888	.847	.895	.675	.641	.909	.792	.727	.954	.406	.951
Automobiles	105	61	28	194	112	221	85	418	26	54	110	190	28	209	12	249
% Automobiles	84	88.4	84.8	85.5	94.1	92.9	81	90.5	96.3	91.5	91.7	92.2	87.5	91.3	92.3	90.9
Trucks	20	8	5	33	7	17	20	44	1	5	10	16	4	20	1	25
% Trucks	16	11.6	15.2	14.5	5.9	7.1	19	9.5	3.7	8.5	8.3	7.8	12.5	8.7	7.7	9.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

File Name : W 9 Mile Rd @ Beulah Rd
Site Code : 00000005
Start Date : 7/21/2020
Page No : 4

Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:30

	Beulah Rd Southbound				W 9 Mile Rd Westbound				Beulah Rd Northbound				W 9 Mile Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:30	22	17	**13**	52	38	**101**	45	**184**	**9**	**36**	26	71	**16**	**65**	3	**84**	**391**
16:45	19	28	11	**58**	**43**	85	26	154	4	21	30	55	12	47	**6**	65	332
17:00	19	**29**	8	56	39	81	44	164	5	31	**37**	**73**	6	59	4	69	362
17:15	**27**	23	6	56	31	78	**46**	155	1	23	36	60	9	64	5	78	349
Total Volume	87	97	38	222	151	345	161	657	19	111	129	259	43	235	18	296	1434
% App. Total	39.2	43.7	17.1		23	52.5	24.5		7.3	42.9	49.8		14.5	79.4	6.1		
PHF	.806	.836	.731	.957	.878	.854	.875	.893	.528	.771	.872	.887	.672	.904	.750	.881	.917
Automobiles	81	93	27	201	150	340	157	647	17	107	126	250	40	225	18	283	1381
% Automobiles	93.1	95.9	71.1	90.5	99.3	98.6	97.5	98.5	89.5	96.4	97.7	96.5	93.0	95.7	100	95.6	96.3
Trucks	6	4	11	21	1	5	4	10	2	4	3	9	3	10	0	13	53
% Trucks	6.9	4.1	28.9	9.5	0.7	1.4	2.5	1.5	10.5	3.6	2.3	3.5	7.0	4.3	0	4.4	3.7
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:45				16:30				16:15				16:00			
+0 mins.	19	28	11	**58**	38	**101**	45	**184**	7	32	26	65	10	62	**9**	81
+15 mins.	19	**29**	8	56	**43**	85	26	154	**9**	**36**	26	71	15	59	3	77
+30 mins.	27	23	6	56	39	81	44	164	4	21	30	55	**16**	**65**	3	**84**
+45 mins.	**34**	8	**12**	54	31	78	**46**	155	5	31	**37**	**73**	12	47	6	65
Total Volume	99	88	37	224	151	345	161	657	25	120	119	264	53	233	21	307
% App. Total	44.2	39.3	16.5		23	52.5	24.5		9.5	45.5	45.1		17.3	75.9	6.8	
PHF	.728	.759	.771	.966	.878	.854	.875	.893	.694	.833	.804	.904	.828	.896	.583	.914
Automobiles	93	85	31	209	150	340	157	647	22	117	115	254	51	224	21	296
% Automobiles	93.9	96.6	83.8	93.3	99.3	98.6	97.5	98.5	88	97.5	96.6	96.2	96.2	96.1	100	96.4
Trucks	6	3	6	15	1	5	4	10	3	3	4	10	2	9	0	11
% Trucks	6.1	3.4	16.2	6.7	0.7	1.4	2.5	1.5	12	2.5	3.4	3.8	3.8	3.9	0	3.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

W 9 Mile Rd @ Beulah Rd
Pensacola, Florida

File Name : W 9 Mile Rd @ Beulah Rd
Site Code : 00000005
Start Date : 7/21/2020
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Groups Printed- Trucks - Buses

	Beulah Rd Southbound				W 9 Mile Rd Westbound				Beulah Rd Northbound				W 9 Mile Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	5	1	1	7	4	3	7	14	0	1	2	3	1	2	0	3	27
07:15	4	0	0	4	4	1	6	11	0	0	1	1	1	2	1	4	20
07:30	5	2	0	7	4	6	2	12	0	2	2	4	1	3	0	4	27
07:45	4	2	1	7	4	3	6	13	1	4	3	8	1	5	0	6	34
Total	18	5	2	25	16	13	21	50	1	7	8	16	4	12	1	17	108
08:00	7	3	1	11	2	6	4	12	1	0	4	5	0	5	0	5	33
08:15	4	1	0	5	3	8	4	15	0	3	0	3	1	1	0	2	25
08:30	4	4	1	9	3	3	3	9	0	1	1	2	3	3	1	7	27
08:45	1	2	0	3	0	4	3	7	0	1	3	4	1	2	0	3	17
Total	16	10	2	28	8	21	14	43	1	5	8	14	5	11	1	17	102
09:00	2	0	0	2	1	4	4	9	0	6	4	10	2	5	0	7	28
09:15	8	3	1	12	3	2	4	9	0	2	5	7	0	3	0	3	31
09:30	1	6	1	8	5	2	6	13	0	2	1	3	1	3	0	4	28
09:45	12	3	0	15	5	8	8	21	0	1	4	5	0	6	1	7	48
Total	23	12	2	37	14	16	22	52	0	11	14	25	3	17	1	21	135
12:00	3	2	2	7	5	3	3	11	0	1	2	3	0	5	0	5	26
12:15	3	4	1	8	0	3	2	5	2	3	4	9	4	5	0	9	31
12:30	11	0	1	12	2	6	2	10	0	3	4	7	1	5	0	6	35
12:45	3	2	1	6	1	3	10	14	0	1	2	3	2	6	0	8	31
Total	20	8	5	33	8	15	17	40	2	8	12	22	7	21	0	28	123
13:00	1	1	2	4	4	5	6	15	0	1	1	2	0	3	1	4	25
13:15	4	1	0	5	4	5	4	13	0	2	3	5	1	8	0	9	32
13:30	0	1	3	4	1	2	3	6	1	1	4	6	1	5	0	6	22
13:45	6	5	1	12	4	2	6	12	0	2	1	3	2	4	0	6	33
Total	11	8	6	25	13	14	19	46	1	6	9	16	4	20	1	25	112
16:00	4	2	0	6	4	5	0	9	0	0	4	4	1	2	0	3	22
16:15	1	1	5	7	0	0	0	0	1	1	1	3	0	2	0	2	12
16:30	0	1	5	6	0	5	1	6	1	0	1	2	0	2	0	2	16
16:45	2	0	4	6	0	0	2	2	0	1	2	3	1	3	0	4	15
Total	7	4	14	25	4	10	3	17	2	2	8	12	2	9	0	11	65
17:00	1	1	1	3	0	0	1	1	1	1	0	2	1	1	0	2	8
17:15	3	2	1	6	1	0	0	1	0	2	0	2	1	4	0	5	14
17:30	0	0	0	0	1	2	0	3	0	1	1	2	2	0	0	2	7
17:45	0	1	1	2	0	2	0	2	0	0	1	1	0	2	0	2	7
Total	4	4	3	11	2	4	1	7	1	4	2	7	4	7	0	11	36
18:00	2	0	0	2	0	0	0	0	0	0	0	0	1	2	0	3	5
18:15	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
18:30	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
18:45	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Total	3	0	0	3	0	2	0	2	0	0	0	0	1	4	0	5	10
Grand Total	102	51	34	187	65	95	97	257	8	43	61	112	30	101	4	135	691
Apprch %	54.5	27.3	18.2		25.3	37	37.7		7.1	38.4	54.5		22.2	74.8	3		
Total %	14.8	7.4	4.9	27.1	9.4	13.7	14	37.2	1.2	6.2	8.8	16.2	4.3	14.6	0.6	19.5	
Trucks	101	50	34	185	65	95	97	257	8	43	61	112	30	101	4	135	689
% Trucks	99	98	100	98.9	100	100	100	100	100	100	100	100	100	100	100	100	99.7
Buses	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	1	2	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0.3

Intersection Turning Movement Count

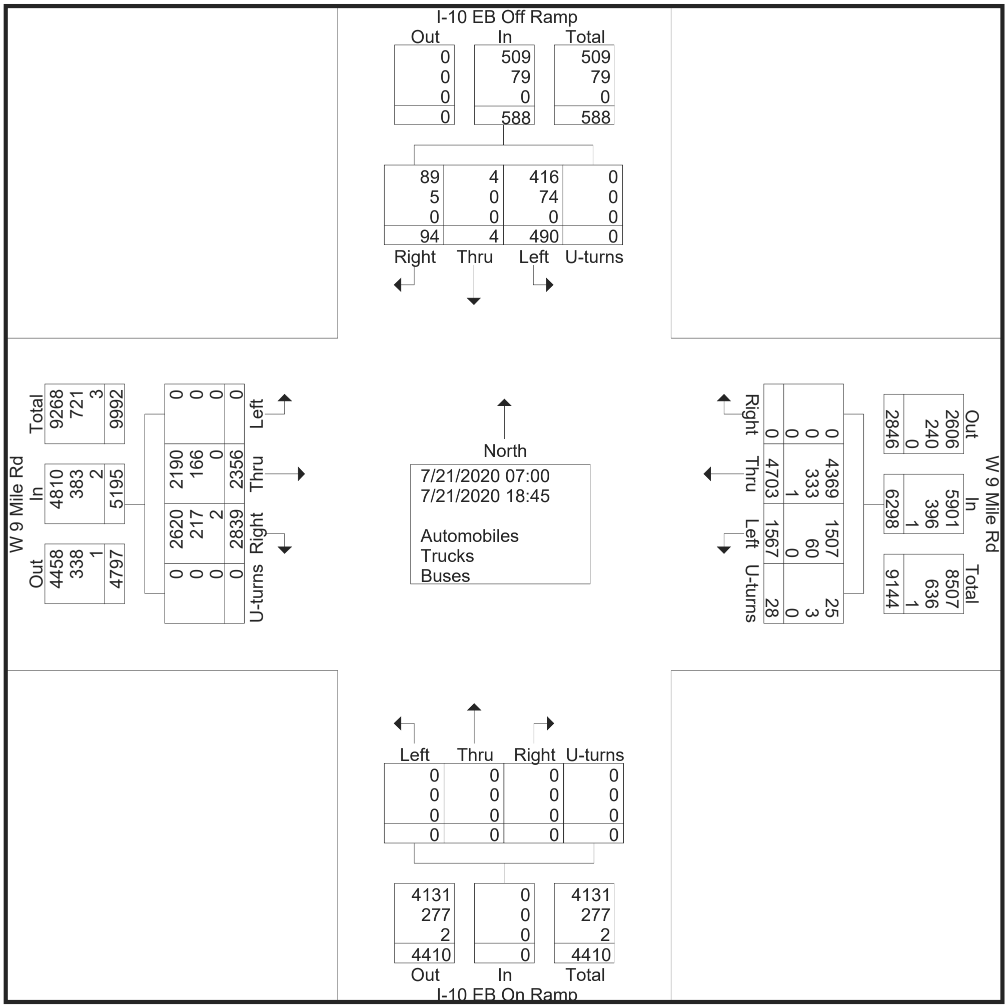
W 9 Mile Rd @ I-10 EB Ramps
Pensacola, Florida

File Name : W 9 Mile Rd @ I-10 EB Ramps
Site Code : 00000002
Start Date : 7/21/2020
Page No : 1

Groups Printed- Automobiles - Trucks - Buses

	I-10 EB Off Ramp Southbound					W 9 Mile Rd Westbound					I-10 EB On Ramp Northbound					W 9 Mile Rd Eastbound					
Start Time	Left	Thru	Right	U-turns	App. Total	Left	Thru	Right	U-turns	App. Total	Left	Thru	Right	U-turns	App. Total	Left	Thru	Right	U-turns	App. Total	Int. Total
07:00	10	0	4	0	14	65	117	0	1	183	0	0	0	0	0	0	62	120	0	182	379
07:15	10	0	1	0	11	94	126	0	1	221	0	0	0	0	0	0	58	179	0	237	469
07:30	8	0	2	0	10	105	130	0	0	235	0	0	0	0	0	0	59	184	0	243	488
07:45	10	0	2	0	12	69	150	0	0	219	0	0	0	0	0	0	63	131	0	194	425
Total	38	0	9	0	47	333	523	0	2	858	0	0	0	0	0	0	242	614	0	856	1761
08:00	15	0	2	0	17	52	131	0	1	184	0	0	0	0	0	0	89	107	0	196	397
08:15	14	0	0	0	14	59	153	0	0	212	0	0	0	0	0	0	69	107	0	176	402
08:30	20	0	2	0	22	77	111	0	0	188	0	0	0	0	0	0	77	96	0	173	383
08:45	13	0	2	0	15	57	136	0	0	193	0	0	0	0	0	0	76	98	0	174	382
Total	62	0	6	0	68	245	531	0	1	777	0	0	0	0	0	0	311	408	0	719	1564
09:00	7	0	2	0	9	44	101	0	0	145	0	0	0	0	0	0	75	77	0	152	306
09:15	17	0	1	0	18	48	130	0	1	179	0	0	0	0	0	0	69	91	0	160	357
09:30	15	0	2	0	17	47	126	0	2	175	0	0	0	0	0	0	63	99	0	162	354
09:45	9	0	3	0	12	44	127	0	3	174	0	0	0	0	0	0	71	85	0	156	342
Total	48	0	8	0	56	183	484	0	6	673	0	0	0	0	0	0	278	352	0	630	1359
*** BREAK ***																					
12:00	16	0	1	0	17	45	162	0	0	207	0	0	0	0	0	0	76	59	0	135	359
12:15	9	1	6	0	16	43	169	0	3	215	0	0	0	0	0	0	81	68	0	149	380
12:30	17	1	5	0	23	36	142	0	0	178	0	0	0	0	0	0	59	80	0	139	340
12:45	20	0	1	0	21	31	158	0	4	193	0	0	0	0	0	0	78	66	0	144	358
Total	62	2	13	0	77	155	631	0	7	793	0	0	0	0	0	0	294	273	0	567	1437
13:00	14	0	4	0	18	34	151	0	1	186	0	0	0	0	0	0	70	79	0	149	353
13:15	14	0	4	0	18	46	152	0	0	198	0	0	0	0	0	0	80	65	0	145	361
13:30	19	0	1	0	20	48	134	0	1	183	0	0	0	0	0	0	71	76	0	147	350
13:45	17	0	3	0	20	41	159	0	0	200	0	0	0	0	0	0	58	74	0	132	352
Total	64	0	12	0	76	169	596	0	2	767	0	0	0	0	0	0	279	294	0	573	1416
*** BREAK ***																					
16:00	13	0	2	0	15	42	187	0	2	231	0	0	0	0	0	0	90	78	0	168	414
16:15	21	0	5	0	26	52	165	0	0	217	0	0	0	0	0	0	90	101	0	191	434
16:30	30	0	9	0	39	44	178	0	2	224	0	0	0	0	0	0	74	94	0	168	431
16:45	26	0	2	0	28	42	187	0	0	229	0	0	0	0	0	0	73	74	0	147	404
Total	90	0	18	0	108	180	717	0	4	901	0	0	0	0	0	0	327	347	0	674	1683
17:00	24	0	9	0	33	53	186	0	0	239	0	0	0	0	0	0	78	90	0	168	440
17:15	18	0	8	0	26	35	182	0	1	218	0	0	0	0	0	0	88	72	0	160	404
17:30	25	1	1	0	27	39	177	0	0	216	0	0	0	0	0	0	108	82	0	190	433
17:45	17	1	2	0	20	35	155	0	2	192	0	0	0	0	0	0	74	70	0	144	356
Total	84	2	20	0	106	162	700	0	3	865	0	0	0	0	0	0	348	314	0	662	1633
18:00	12	0	4	0	16	37	119	0	3	159	0	0	0	0	0	0	70	60	0	130	305
18:15	8	0	2	0	10	38	152	0	0	190	0	0	0	0	0	0	71	53	0	124	324
18:30	15	0	1	0	16	33	135	0	0	168	0	0	0	0	0	0	79	65	0	144	328
18:45	7	0	1	0	8	32	115	0	0	147	0	0	0	0	0	0	57	59	0	116	271
Total	42	0	8	0	50	140	521	0	3	664	0	0	0	0	0	0	277	237	0	514	1228
Grand Total	490	4	94	0	588	1567	4703	0	28	6298	0	0	0	0	0	0	2356	2839	0	5195	12081
Apprch %	83.3	0.7	16	0		24.9	74.7	0	0.4		0	0	0	0		0	45.4	54.6	0		
Total %	4.1	0	0.8	0	4.9	13	38.9	0	0.2	52.1	0	0	0	0	0	0	19.5	23.5	0	43	
Automobiles	416	4	89	0	509	1507	4369	0	25	5901	0	0	0	0	0	0	2190	2620	0	4810	11220
% Automobiles	84.9	100	94.7	0	86.6	96.2	92.9	0	89.3	93.7	0	0	0	0	0	0	93	92.3	0	92.6	92.9
Trucks	74	0	5	0	79	60	333	0	3	396	0	0	0	0	0	0	166	217	0	383	858
% Trucks	15.1	0	5.3	0	13.4	3.8	7.1	0	10.7	6.3	0	0	0	0	0	0	7	7.6	0	7.4	7.1
Buses	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	2	3
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0

Intersection Turning Movement Count



Intersection Turning Movement Count

File Name : W 9 Mile Rd @ I-10 EB Ramps
Site Code : 00000002
Start Date : 7/21/2020
Page No : 3

	I-10 EB Off Ramp Southbound					W 9 Mile Rd Westbound					I-10 EB On Ramp Northbound					W 9 Mile Rd Eastbound					
Start Time	Left	Thru	Right	U-turns	App. Total	Left	Thru	Right	U-turns	App. Total	Left	Thru	Right	U-turns	App. Total	Left	Thru	Right	U-turns	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15																					
07:15	10	0	1	0	11	94	126	0	**1**	221	0	0	0	0	0	0	58	179	0	237	469
07:30	8	0	**2**	0	10	**105**	130	0	0	**235**	0	0	0	0	0	0	59	**184**	0	**243**	**488**
07:45	10	0	2	0	12	69	**150**	0	0	219	0	0	0	0	0	0	63	131	0	194	425
08:00	**15**	0	2	0	**17**	52	131	0	1	184	0	0	0	0	0	0	**89**	107	0	196	397
Total Volume	43	0	7	0	50	320	537	0	2	859	0	0	0	0	0	0	269	601	0	870	1779
% App. Total	86	0	14	0		37.3	62.5	0	0.2		0	0	0	0		0	30.9	69.1	0		
PHF	.717	.000	.875	.000	.735	.762	.895	.000	.500	.914	.000	.000	.000	.000	.000	.000	.756	.817	.000	.895	.911
Automobiles	31	0	6	0	37	308	463	0	2	773	0	0	0	0	0	0	245	561	0	806	1616
% Automobiles	72.1	0	85.7	0	74.0	96.3	86.2	0	100	90.0	0	0	0	0	0	0	91.1	93.3	0	92.6	90.8
Trucks	12	0	1	0	13	12	74	0	0	86	0	0	0	0	0	0	24	39	0	63	162
% Trucks	27.9	0	14.3	0	26.0	3.8	13.8	0	0	10.0	0	0	0	0	0	0	8.9	6.5	0	7.2	9.1
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.1	0.1
Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:	08:00					07:15					07:00					07:15					
+0 mins.	15	0	**2**	0	17	94	126	0	**1**	221	0	0	0	0	0	0	58	179	0	237	
+15 mins.	14	0	0	0	14	**105**	130	0	0	**235**	0	0	0	0	0	0	59	**184**	0	**243**	
+30 mins.	**20**	0	2	0	**22**	69	**150**	0	0	219	0	0	0	0	0	0	63	131	0	194	
+45 mins.	13	0	2	0	15	52	131	0	1	184	0	0	0	0	0	0	**89**	107	0	196	
Total Volume	62	0	6	0	68	320	537	0	2	859	0	0	0	0	0	0	269	601	0	870	
% App. Total	91.2	0	8.8	0		37.3	62.5	0	0.2		0	0	0	0		0	30.9	69.1	0		
PHF	.775	.000	.750	.000	.773	.762	.895	.000	.500	.914	.000	.000	.000	.000	.000	.000	.756	.817	.000	.895	
Automobiles	46	0	5	0	51	308	463	0	2	773	0	0	0	0	0	0	245	561	0	806	
% Automobiles	74.2	0	83.3	0	75	96.2	86.2	0	100	90	0	0	0	0	0	0	91.1	93.3	0	92.6	
Trucks	16	0	1	0	17	12	74	0	0	86	0	0	0	0	0	0	24	39	0	63	
% Trucks	25.8	0	16.7	0	25	3.8	13.8	0	0	10	0	0	0	0	0	0	8.9	6.5	0	7.2	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.1	
Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00																					
12:00	16	0	1	0	17	**45**	162	0	0	207	0	0	0	0	0	0	76	59	0	135	359
12:15	9	**1**	**6**	0	16	43	**169**	0	3	**215**	0	0	0	0	0	0	**81**	68	0	**149**	**380**
12:30	17	1	5	0	**23**	36	142	0	0	178	0	0	0	0	0	0	59	**80**	0	139	340
12:45	**20**	0	1	0	21	31	158	0	**4**	193	0	0	0	0	0	0	78	66	0	144	358
Total Volume	62	2	13	0	77	155	631	0	7	793	0	0	0	0	0	0	294	273	0	567	1437
% App. Total	80.5	2.6	16.9	0		19.5	79.6	0	0.9		0	0	0	0		0	51.9	48.1	0		
PHF	.775	.500	.542	.000	.837	.861	.933	.000	.438	.922	.000	.000	.000	.000	.000	.000	.907	.853	.000	.951	.945
Automobiles	47	2	13	0	62	143	586	0	6	735	0	0	0	0	0	0	261	236	0	497	1294
% Automobiles	75.8	100	100	0	80.5	92.3	92.9	0	85.7	92.7	0	0	0	0	0	0	88.8	86.4	0	87.7	90.0
Trucks	15	0	0	0	15	12	45	0	1	58	0	0	0	0	0	0	33	37	0	70	143
% Trucks	24.2	0	0	0	19.5	7.7	7.1	0	14.3	7.3	0	0	0	0	0	0	11.2	13.6	0	12.3	10.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:	12:30					12:00					10:00					12:45					
+0 mins.	17	**1**	**5**	0	**23**	**45**	162	0	0	207	0	0	0	0	0	0	78	66	0	144	
+15 mins.	**20**	0	1	0	21	43	**169**	0	3	**215**	0	0	0	0	0	0	70	**79**	0	**149**	
+30 mins.	14	0	4	0	18	36	142	0	0	178	0	0	0	0	0	0	**80**	65	0	145	
+45 mins.	14	0	4	0	18	31	158	0	**4**	193	0	0	0	0	0	0	71	76	0	147	
Total Volume	65	1	14	0	80	155	631	0	7	793	0	0	0	0	0	0	299	286	0	585	
% App. Total	81.2	1.2	17.5	0		19.5	79.6	0	0.9		0	0	0	0		0	51.1	48.9	0		
PHF	.813	.250	.700	.000	.870	.861	.933	.000	.438	.922	.000	.000	.000	.000	.000	.000	.934	.905	.000	.982	
Automobiles	53	1	14	0	68	143	586	0	6	735	0	0	0	0	0	0	272	254	0	526	
% Automobiles	81.5	100	100	0	85	92.3	92.9	0	85.7	92.7	0	0	0	0	0	0	91	88.8	0	89.9	
Trucks	12	0	0	0	12	12	45	0	1	58	0	0	0	0	0	0	27	32	0	59	

Intersection Turning Movement Count

% Trucks	18.5	0	0	0	15	7.7	7.1	0	14.3	7.3	0	0	0	0	0	0	9	11.2	0	10.1	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:15

16:15	21	0	5	0	26	52	165	0	0	217	0	0	0	0	0	0	**90**	**101**	0	**191**	434
16:30	**30**	0	**9**	0	**39**	44	178	0	**2**	224	0	0	0	0	0	0	74	94	0	168	431
16:45	26	0	2	0	28	42	**187**	0	0	229	0	0	0	0	0	0	73	74	0	147	404
17:00	24	0	9	0	33	**53**	186	0	0	**239**	0	0	0	0	0	0	78	90	0	168	**440**
Total Volume	101	0	25	0	126	191	716	0	2	909	0	0	0	0	0	0	315	359	0	674	1709
% App. Total	80.2	0	19.8	0		21	78.8	0	0.2		0	0	0	0		0	46.7	53.3	0		
PHF	.842	.000	.694	.000	.808	.901	.957	.000	.250	.951	.000	.000	.000	.000	.000	.000	.875	.889	.000	.882	.971
Automobiles	91	0	25	0	116	189	706	0	2	897	0	0	0	0	0	0	304	338	0	642	1655
% Automobiles	90.1	0	100	0	92.1	99.0	98.6	0	100	98.7	0	0	0	0	0	0	96.5	94.2	0	95.3	96.8
Trucks	10	0	0	0	10	2	10	0	0	12	0	0	0	0	0	0	11	21	0	32	54
% Trucks	9.9	0	0	0	7.9	1.0	1.4	0	0	1.3	0	0	0	0	0	0	3.5	5.8	0	4.7	3.2
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	16:15					16:30					14:00					16:00				
+0 mins.	21	0	5	0	26	44	178	0	**2**	224	0	0	0	0	0	0	**90**	78	0	168
+15 mins.	**30**	0	**9**	0	**39**	42	**187**	0	0	229	0	0	0	0	0	0	90	**101**	0	**191**
+30 mins.	26	0	2	0	28	**53**	186	0	0	**239**	0	0	0	0	0	0	74	94	0	168
+45 mins.	24	0	9	0	33	35	182	0	1	218	0	0	0	0	0	0	73	74	0	147
Total Volume	101	0	25	0	126	174	733	0	3	910	0	0	0	0	0	0	327	347	0	674
% App. Total	80.2	0	19.8	0		19.1	80.5	0	0.3		0	0	0	0		0	48.5	51.5	0	
PHF	.842	.000	.694	.000	.808	.821	.980	.000	.375	.952	.000	.000	.000	.000	.000	.000	.908	.859	.000	.882
Automobiles	91	0	25	0	116	172	725	0	3	900	0	0	0	0	0	0	311	325	0	636
% Automobiles	90.1	0	100	0	92.1	98.9	98.9	0	100	98.9	0	0	0	0	0	0	95.1	93.7	0	94.4
Trucks	10	0	0	0	10	2	8	0	0	10	0	0	0	0	0	0	16	22	0	38
% Trucks	9.9	0	0	0	7.9	1.1	1.1	0	0	1.1	0	0	0	0	0	0	4.9	6.3	0	5.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

W 9 Mile Rd @ I-10 EB Ramps
Pensacola, Florida

File Name : W 9 Mile Rd @ I-10 EB Ramps
Site Code : 00000002
Start Date : 7/21/2020
Page No : 1

Groups Printed- Trucks - Buses

	I-10 EB Off Ramp Southbound					W 9 Mile Rd Westbound					I-10 EB On Ramp Northbound					W 9 Mile Rd Eastbound					
Start Time	Left	Thru	Right	U-turns	App. Total	Left	Thru	Right	U-turns	App. Total	Left	Thru	Right	U-turns	App. Total	Left	Thru	Right	U-turns	App. Total	Int. Total
07:00	0	0	1	0	1	3	20	0	0	23	0	0	0	0	0	0	3	9	0	12	36
07:15	2	0	0	0	2	6	13	0	0	19	0	0	0	0	0	0	6	8	0	14	35
07:30	3	0	0	0	3	2	18	0	0	20	0	0	0	0	0	0	5	7	0	12	35
07:45	3	0	0	0	3	1	21	0	0	22	0	0	0	0	0	0	6	15	0	21	46
Total	8	0	1	0	9	12	72	0	0	84	0	0	0	0	0	0	20	39	0	59	152
08:00	4	0	1	0	5	3	22	0	0	25	0	0	0	0	0	0	7	10	0	17	47
08:15	3	0	0	0	3	4	15	0	0	19	0	0	0	0	0	0	8	6	0	14	36
08:30	7	0	0	0	7	2	14	0	0	16	0	0	0	0	0	0	5	8	0	13	36
08:45	2	0	0	0	2	1	15	0	0	16	0	0	0	0	0	0	2	9	0	11	29
Total	16	0	1	0	17	10	66	0	0	76	0	0	0	0	0	0	22	33	0	55	148
09:00	3	0	1	0	4	3	14	0	0	17	0	0	0	0	0	0	8	7	0	15	36
09:15	4	0	1	0	5	3	20	0	0	23	0	0	0	0	0	0	9	13	0	22	50
09:30	3	0	1	0	4	0	20	0	1	21	0	0	0	0	0	0	9	8	0	17	42
09:45	0	0	0	0	0	5	16	0	0	21	0	0	0	0	0	0	12	12	0	24	45
Total	10	0	3	0	13	11	70	0	1	82	0	0	0	0	0	0	38	40	0	78	173
12:00	5	0	0	0	5	5	13	0	0	18	0	0	0	0	0	0	6	9	0	15	38
12:15	2	0	0	0	2	2	7	0	0	9	0	0	0	0	0	0	8	10	0	18	29
12:30	6	0	0	0	6	2	10	0	0	12	0	0	0	0	0	0	8	9	0	17	35
12:45	2	0	0	0	2	3	15	0	1	19	0	0	0	0	0	0	11	9	0	20	41
Total	15	0	0	0	15	12	45	0	1	58	0	0	0	0	0	0	33	37	0	70	143
13:00	2	0	0	0	2	1	22	0	0	23	0	0	0	0	0	0	3	8	0	11	36
13:15	2	0	0	0	2	2	12	0	0	14	0	0	0	0	0	0	7	5	0	12	28
13:30	3	0	0	0	3	1	6	0	1	8	0	0	0	0	0	0	6	10	0	16	27
13:45	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	5	6	0	11	26
Total	7	0	0	0	7	4	55	0	1	60	0	0	0	0	0	0	21	29	0	50	117
16:00	0	0	0	0	0	2	6	0	0	8	0	0	0	0	0	0	5	4	0	9	17
16:15	2	0	0	0	2	2	3	0	0	5	0	0	0	0	0	0	4	10	0	14	21
16:30	2	0	0	0	2	0	4	0	0	4	0	0	0	0	0	0	4	4	0	8	14
16:45	3	0	0	0	3	0	2	0	0	2	0	0	0	0	0	0	3	4	0	7	12
Total	7	0	0	0	7	4	15	0	0	19	0	0	0	0	0	0	16	22	0	38	64
17:00	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	3	0	3	7
17:15	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	0	6	3	0	9	12
17:30	1	0	0	0	1	1	2	0	0	3	0	0	0	0	0	0	1	3	0	4	8
17:45	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	2	0	4	6
Total	4	0	0	0	4	4	5	0	0	9	0	0	0	0	0	0	9	11	0	20	33
18:00	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	4	0	5	7
18:15	4	0	0	0	4	0	1	0	0	1	0	0	0	0	0	0	2	1	0	3	8
18:30	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	0	3	3	0	6	11
18:45	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	0	1	0	0	1	5
Total	7	0	0	0	7	3	6	0	0	9	0	0	0	0	0	0	7	8	0	15	31
Grand Total	74	0	5	0	79	60	334	0	3	397	0	0	0	0	0	0	166	219	0	385	861
Apprch %	93.7	0	6.3	0		15.1	84.1	0	0.8		0	0	0	0		0	43.1	56.9	0		
Total %	8.6	0	0.6	0	9.2	7	38.8	0	0.3	46.1	0	0	0	0	0	0	19.3	25.4	0	44.7	
Trucks	74	0	5	0	79	60	333	0	3	396	0	0	0	0	0	0	166	217	0	383	858
% Trucks	100	0	100	0	100	100	99.7	0	100	99.7	0	0	0	0	0	0	100	99.1	0	99.5	99.7
Buses	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	2	3
% Buses	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	0	0.9	0	0.5	0.3

Intersection Turning Movement Count

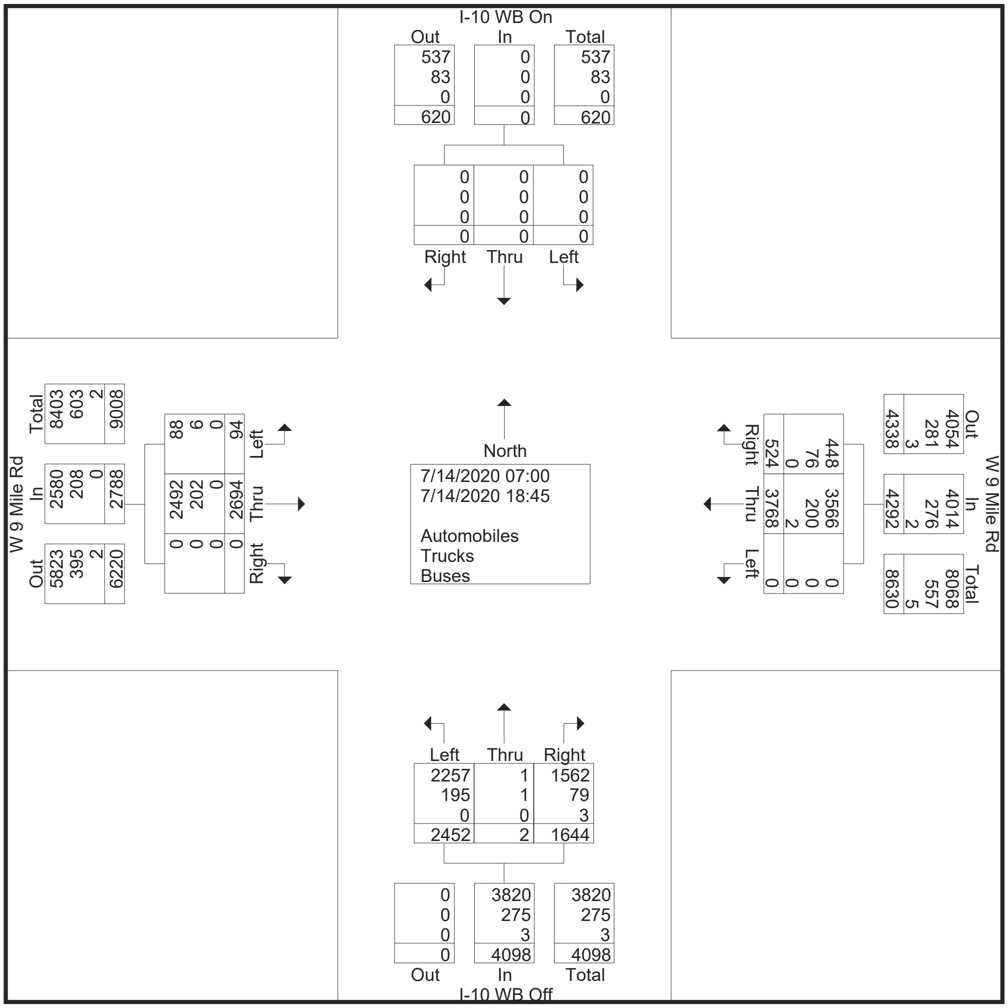
W 9 Mile Rd @ I-10 WB Ramps
Pensacola, Florida

File Name : W 9 Mile Rd @ I-10 WB Ramps
Site Code : 00000001
Start Date : 7/14/2020
Page No : 1

Groups Printed- Automobiles - Trucks - Buses

	I-10 WB On Southbound				W 9 Mile Rd Westbound				I-10 WB Off Northbound				W 9 Mile Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	0	0	0	0	0	142	13	155	72	0	23	95	4	64	0	68	318
07:15	0	0	0	0	0	146	12	158	66	0	25	91	2	66	0	68	317
07:30	0	0	0	0	0	134	18	152	87	0	25	112	0	73	0	73	337
07:45	0	0	0	0	0	169	9	178	68	0	17	85	8	85	0	93	356
Total	0	0	0	0	0	591	52	643	293	0	90	383	14	288	0	302	1328
08:00	0	0	0	0	0	109	15	124	80	0	25	105	6	68	0	74	303
08:15	0	0	0	0	0	125	20	145	74	0	28	102	0	64	0	64	311
08:30	0	0	0	0	0	136	16	152	65	0	30	95	2	86	0	88	335
08:45	0	0	0	0	0	115	12	127	84	0	30	114	3	75	0	78	319
Total	0	0	0	0	0	485	63	548	303	0	113	416	11	293	0	304	1268
09:00	0	0	0	0	0	88	10	98	54	0	26	80	3	85	0	88	266
09:15	0	0	0	0	0	93	15	108	54	0	23	77	0	80	0	80	265
09:30	0	0	0	0	0	114	20	134	66	0	36	102	7	71	0	78	314
09:45	0	0	0	0	0	127	14	141	64	0	38	102	2	86	0	88	331
Total	0	0	0	0	0	422	59	481	238	0	123	361	12	322	0	334	1176
*** BREAK ***																	
12:00	0	0	0	0	0	130	16	146	77	0	41	118	5	90	0	95	359
12:15	0	0	0	0	0	125	17	142	66	0	36	102	5	91	0	96	340
12:30	0	0	0	0	0	120	17	137	83	0	46	129	7	92	0	99	365
12:45	0	0	0	0	0	118	16	134	62	0	46	108	2	92	0	94	336
Total	0	0	0	0	0	493	66	559	288	0	169	457	19	365	0	384	1400
13:00	0	0	0	0	0	103	14	117	83	0	41	124	2	89	0	91	332
13:15	0	0	0	0	0	125	14	139	83	0	33	116	1	85	0	86	341
13:30	0	0	0	0	0	120	16	136	87	0	45	132	4	77	0	81	349
13:45	0	0	0	0	0	123	29	152	68	0	37	105	5	100	0	105	362
Total	0	0	0	0	0	471	73	544	321	0	156	477	12	351	0	363	1384
*** BREAK ***																	
16:00	0	0	0	0	0	133	17	150	94	0	76	170	5	89	0	94	414
16:15	0	0	0	0	0	145	23	168	99	1	100	200	5	104	0	109	477
16:30	0	0	0	0	0	125	30	155	99	0	110	209	1	104	0	105	469
16:45	0	0	0	0	0	117	17	134	114	0	88	202	0	82	0	82	418
Total	0	0	0	0	0	520	87	607	406	1	374	781	11	379	0	390	1778
17:00	0	0	0	0	0	147	18	165	95	0	91	186	3	115	0	118	469
17:15	0	0	0	0	0	93	18	111	96	0	94	190	0	112	0	112	413
17:30	0	0	0	0	0	107	12	119	70	0	111	181	2	118	0	120	420
17:45	0	0	0	0	0	91	23	114	87	0	107	194	2	68	0	70	378
Total	0	0	0	0	0	438	71	509	348	0	403	751	7	413	0	420	1680
18:00	0	0	0	0	0	84	14	98	70	1	78	149	4	76	0	80	327
18:15	0	0	0	0	0	86	14	100	56	0	53	109	1	72	0	73	282
18:30	0	0	0	0	0	92	10	102	65	0	50	115	1	70	0	71	288
18:45	0	0	0	0	0	86	15	101	64	0	35	99	2	65	0	67	267
Total	0	0	0	0	0	348	53	401	255	1	216	472	8	283	0	291	1164
Grand Total	0	0	0	0	0	3768	524	4292	2452	2	1644	4098	94	2694	0	2788	11178
Apprch %	0	0	0		0	87.8	12.2		59.8	0	40.1		3.4	96.6	0		
Total %	0	0	0	0	0	33.7	4.7	38.4	21.9	0	14.7	36.7	0.8	24.1	0	24.9	
Automobiles	0	0	0	0	0	3566	448	4014	2257	1	1562	3820	88	2492	0	2580	10414
% Automobiles	0	0	0	0	0	94.6	85.5	93.5	92	50	95	93.2	93.6	92.5	0	92.5	93.2
Trucks	0	0	0	0	0	200	76	276	195	1	79	275	6	202	0	208	759
% Trucks	0	0	0	0	0	5.3	14.5	6.4	8	50	4.8	6.7	6.4	7.5	0	7.5	6.8
Buses	0	0	0	0	0	2	0	2	0	0	3	3	0	0	0	0	5
% Buses	0	0	0	0	0	0.1	0	0	0	0	0.2	0.1	0	0	0	0	0

Intersection Turning Movement Count



Intersection Turning Movement Count

File Name : W 9 Mile Rd @ I-10 WB Ramps
Site Code : 00000001
Start Date : 7/14/2020
Page No : 3

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00

	I-10 WB On Southbound				W 9 Mile Rd Westbound				I-10 WB Off Northbound				W 9 Mile Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	0	0	0	0	0	142	13	155	72	0	23	95	4	64	0	68	318
07:15	0	0	0	0	0	146	12	158	66	0	**25**	91	2	66	0	68	317
07:30	0	0	0	0	0	134	**18**	152	**87**	0	25	**112**	0	73	0	73	337
07:45	0	0	0	0	0	**169**	9	**178**	68	0	17	85	**8**	**85**	0	**93**	**356**
Total Volume	0	0	0	0	0	591	52	643	293	0	90	383	14	288	0	302	1328
% App. Total	0	0	0		0	91.9	8.1		76.5	0	23.5		4.6	95.4	0		
PHF	.000	.000	.000	.000	.000	.874	.722	.903	.842	.000	.900	.855	.438	.847	.000	.812	.933
Automobiles	0	0	0	0	0	560	47	607	268	0	83	351	14	261	0	275	1233
% Automobiles	0	0	0	0	0	94.8	90.4	94.4	91.5	0	92.2	91.6	100	90.6	0	91.1	92.8
Trucks	0	0	0	0	0	31	5	36	25	0	6	31	0	27	0	27	94
% Trucks	0	0	0	0	0	5.2	9.6	5.6	8.5	0	6.7	8.1	0	9.4	0	8.9	7.1
Buses	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% Buses	0	0	0	0	0	0	0	0	0	0	1.1	0.3	0	0	0	0	0.1

Peak Hour Analysis From 07:00 to 09:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	I-10 WB On Southbound				W 9 Mile Rd Westbound				I-10 WB Off Northbound				W 9 Mile Rd Eastbound			
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
	07:00				07:00				08:00				08:30			
+0 mins.	0	0	0	0	0	142	13	155	80	0	25	105	2	**86**	0	**88**
+15 mins.	0	0	0	0	0	146	12	158	74	0	28	102	**3**	75	0	78
+30 mins.	0	0	0	0	0	134	**18**	152	65	0	**30**	95	3	85	0	88
+45 mins.	0	0	0	0	0	**169**	9	**178**	**84**	0	30	**114**	0	80	0	80
Total Volume	0	0	0	0	0	591	52	643	303	0	113	416	8	326	0	334
% App. Total	0	0	0		0	91.9	8.1		72.8	0	27.2		2.4	97.6	0	
PHF	.000	.000	.000	.000	.000	.874	.722	.903	.902	.000	.942	.912	.667	.948	.000	.949
Automobiles	0	0	0	0	0	560	47	607	266	0	95	361	8	290	0	298
% Automobiles	0	0	0	0	0	94.8	90.4	94.4	87.8	0	84.1	86.8	100	89	0	89.2
Trucks	0	0	0	0	0	31	5	36	37	0	18	55	0	36	0	36
% Trucks	0	0	0	0	0	5.2	9.6	5.6	12.2	0	15.9	13.2	0	11	0	10.8
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 12:00

	I-10 WB On Southbound				W 9 Mile Rd Westbound				I-10 WB Off Northbound				W 9 Mile Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
12:00	0	0	0	0	0	**130**	16	**146**	77	0	41	118	5	90	0	95	359
12:15	0	0	0	0	0	125	**17**	142	66	0	36	102	5	91	0	96	340
12:30	0	0	0	0	0	120	17	137	**83**	0	**46**	**129**	**7**	**92**	0	**99**	**365**
12:45	0	0	0	0	0	118	16	134	62	0	46	108	2	92	0	94	336
Total Volume	0	0	0	0	0	493	66	559	288	0	169	457	19	365	0	384	1400
% App. Total	0	0	0		0	88.2	11.8		63	0	37		4.9	95.1	0		
PHF	.000	.000	.000	.000	.000	.948	.971	.957	.867	.000	.918	.886	.679	.992	.000	.970	.959
Automobiles	0	0	0	0	0	465	53	518	254	0	161	415	18	333	0	351	1284
% Automobiles	0	0	0	0	0	94.3	80.3	92.7	88.2	0	95.3	90.8	94.7	91.2	0	91.4	91.7
Trucks	0	0	0	0	0	28	13	41	34	0	7	41	1	32	0	33	115
% Trucks	0	0	0	0	0	5.7	19.7	7.3	11.8	0	4.1	9.0	5.3	8.8	0	8.6	8.2
Buses	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% Buses	0	0	0	0	0	0	0	0	0	0	0.6	0.2	0	0	0	0	0.1

Peak Hour Analysis From 10:00 to 13:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	I-10 WB On Southbound				W 9 Mile Rd Westbound				I-10 WB Off Northbound				W 9 Mile Rd Eastbound			
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
	10:00				12:00				12:45				12:00			
+0 mins.	0	0	0	0	0	**130**	16	**146**	62	0	**46**	108	5	90	0	95
+15 mins.	0	0	0	0	0	125	**17**	142	83	0	41	124	5	91	0	96
+30 mins.	0	0	0	0	0	120	17	137	83	0	33	116	**7**	**92**	0	**99**
+45 mins.	0	0	0	0	0	118	16	134	**87**	0	45	**132**	2	92	0	94
Total Volume	0	0	0	0	0	493	66	559	315	0	165	480	19	365	0	384
% App. Total	0	0	0		0	88.2	11.8		65.6	0	34.4		4.9	95.1	0	
PHF	.000	.000	.000	.000	.000	.948	.971	.957	.905	.000	.897	.909	.679	.992	.000	.970
Automobiles	0	0	0	0	0	465	53	518	274	0	147	421	18	333	0	351
% Automobiles	0	0	0	0	0	94.3	80.3	92.7	87	0	89.1	87.7	94.7	91.2	0	91.4
Trucks	0	0	0	0	0	28	13	41	41	0	17	58	1	32	0	33
% Trucks	0	0	0	0	0	5.7	19.7	7.3	13	0	10.3	12.1	5.3	8.8	0	8.6
Buses	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0.6	0.2	0	0	0	0

Intersection Turning Movement Count

File Name : W 9 Mile Rd @ I-10 WB Ramps
Site Code : 00000001
Start Date : 7/14/2020
Page No : 4

	I-10 WB On Southbound				W 9 Mile Rd Westbound				I-10 WB Off Northbound				W 9 Mile Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	0	0	0	0	0	145	23	**168**	99	**1**	100	200	**5**	104	0	109	**477**
16:30	0	0	0	0	0	125	**30**	155	99	0	**110**	**209**	1	104	0	105	469
16:45	0	0	0	0	0	117	17	134	**114**	0	88	202	0	82	0	82	418
17:00	0	0	0	0	0	**147**	18	165	95	0	91	186	3	**115**	0	**118**	469
Total Volume	0	0	0	0	0	534	88	622	407	1	389	797	9	405	0	414	1833
% App. Total	0	0	0		0	85.9	14.1		51.1	0.1	48.8		2.2	97.8	0		
PHF	.000	.000	.000	.000	.000	.908	.733	.926	.893	.250	.884	.953	.450	.880	.000	.877	.961
Automobiles	0	0	0	0	0	508	82	590	396	1	376	773	7	390	0	397	1760
% Automobiles	0	0	0	0	0	95.1	93.2	94.9	97.3	100	96.7	97.0	77.8	96.3	0	95.9	96.0
Trucks	0	0	0	0	0	26	6	32	11	0	13	24	2	15	0	17	73
% Trucks	0	0	0	0	0	4.9	6.8	5.1	2.7	0	3.3	3.0	22.2	3.7	0	4.1	4.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Analysis From 14:00 to 18:45 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	14:00				16:15				16:15				16:45			
+0 mins.	0	0	0	0	0	145	23	**168**	99	**1**	100	200	0	82	0	82
+15 mins.	0	0	0	0	0	125	**30**	155	99	0	**110**	**209**	**3**	115	0	118
+30 mins.	0	0	0	0	0	117	17	134	**114**	0	88	202	0	112	0	112
+45 mins.	0	0	0	0	0	**147**	18	165	95	0	91	186	2	**118**	0	**120**
Total Volume	0	0	0	0	0	534	88	622	407	1	389	797	5	427	0	432
% App. Total	0	0	0		0	85.9	14.1		51.1	0.1	48.8		1.2	98.8	0	
PHF	.000	.000	.000	.000	.000	.908	.733	.926	.893	.250	.884	.953	.417	.905	.000	.900
Automobiles	0	0	0	0	0	508	82	590	396	1	376	773	5	408	0	413
% Automobiles	0	0	0	0	0	95.1	93.2	94.9	97.3	100	96.7	97	100	95.6	0	95.6
Trucks	0	0	0	0	0	26	6	32	11	0	13	24	0	19	0	19
% Trucks	0	0	0	0	0	4.9	6.8	5.1	2.7	0	3.3	3	0	4.4	0	4.4
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Turning Movement Count

W 9 Mile Rd @ I-10 WB Ramps
Pensacola, Florida

File Name : W 9 Mile Rd @ I-10 WB Ramps
Site Code : 00000001
Start Date : 7/14/2020
Page No : 1

Groups Printed- Trucks - Buses

	I-10 WB On Southbound				W 9 Mile Rd Westbound				I-10 WB Off Northbound				W 9 Mile Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00	0	0	0	0	0	5	2	7	7	0	3	10	0	4	0	4	21
07:15	0	0	0	0	0	15	1	16	4	0	2	6	0	5	0	5	27
07:30	0	0	0	0	0	4	2	6	9	0	1	10	0	6	0	6	22
07:45	0	0	0	0	0	7	0	7	5	0	1	6	0	12	0	12	25
Total	0	0	0	0	0	31	5	36	25	0	7	32	0	27	0	27	95
08:00	0	0	0	0	0	6	2	8	10	0	6	16	1	10	0	11	35
08:15	0	0	0	0	0	17	4	21	9	0	2	11	0	7	0	7	39
08:30	0	0	0	0	0	8	2	10	8	0	6	14	0	12	0	12	36
08:45	0	0	0	0	0	14	1	15	10	0	4	14	0	7	0	7	36
Total	0	0	0	0	0	45	9	54	37	0	18	55	1	36	0	37	146
09:00	0	0	0	0	0	4	3	7	5	0	1	6	0	10	0	10	23
09:15	0	0	0	0	0	7	3	10	13	0	4	17	0	7	0	7	34
09:30	0	0	0	0	0	6	8	14	7	0	5	12	1	7	0	8	34
09:45	0	0	0	0	0	11	2	13	9	0	1	10	0	12	0	12	35
Total	0	0	0	0	0	28	16	44	34	0	11	45	1	36	0	37	126
12:00	0	0	0	0	0	12	4	16	8	0	0	8	0	6	0	6	30
12:15	0	0	0	0	0	3	2	5	9	0	3	12	0	14	0	14	31
12:30	0	0	0	0	0	5	3	8	11	0	2	13	1	6	0	7	28
12:45	0	0	0	0	0	8	4	12	6	0	3	9	0	6	0	6	27
Total	0	0	0	0	0	28	13	41	34	0	8	42	1	32	0	33	116
13:00	0	0	0	0	0	3	3	6	12	0	5	17	0	6	0	6	29
13:15	0	0	0	0	0	8	1	9	10	0	3	13	0	8	0	8	30
13:30	0	0	0	0	0	9	3	12	13	0	7	20	0	3	0	3	35
13:45	0	0	0	0	0	8	7	15	10	0	2	12	1	8	0	9	36
Total	0	0	0	0	0	28	14	42	45	0	17	62	1	25	0	26	130
16:00	0	0	0	0	0	3	4	7	2	0	3	5	0	4	0	4	16
16:15	0	0	0	0	0	9	2	11	2	0	2	4	2	4	0	6	21
16:30	0	0	0	0	0	6	2	8	3	0	2	5	0	4	0	4	17
16:45	0	0	0	0	0	1	2	3	6	0	5	11	0	3	0	3	17
Total	0	0	0	0	0	19	10	29	13	0	12	25	2	15	0	17	71
17:00	0	0	0	0	0	10	0	10	0	0	4	4	0	4	0	4	18
17:15	0	0	0	0	0	4	1	5	3	0	0	3	0	7	0	7	15
17:30	0	0	0	0	0	3	0	3	1	0	0	1	0	5	0	5	9
17:45	0	0	0	0	0	1	2	3	0	0	2	2	0	5	0	5	10
Total	0	0	0	0	0	18	3	21	4	0	6	10	0	21	0	21	52
18:00	0	0	0	0	0	1	2	3	1	1	2	4	0	3	0	3	10
18:15	0	0	0	0	0	1	1	2	0	0	0	0	0	2	0	2	4
18:30	0	0	0	0	0	1	1	2	1	0	0	1	0	2	0	2	5
18:45	0	0	0	0	0	2	2	4	1	0	1	2	0	3	0	3	9
Total	0	0	0	0	0	5	6	11	3	1	3	7	0	10	0	10	28
Grand Total	0	0	0	0	0	202	76	278	195	1	82	278	6	202	0	208	764
Apprch %	0	0	0		0	72.7	27.3		70.1	0.4	29.5		2.9	97.1	0		
Total %	0	0	0	0	0	26.4	9.9	36.4	25.5	0.1	10.7	36.4	0.8	26.4	0	27.2	
Trucks	0	0	0	0	0	200	76	276	195	1	79	275	6	202	0	208	759
% Trucks	0	0	0	0	0	99	100	99.3	100	100	96.3	98.9	100	100	0	100	99.3
Buses	0	0	0	0	0	2	0	2	0	0	3	3	0	0	0	0	5
% Buses	0	0	0	0	0	1	0	0.7	0	0	3.7	1.1	0	0	0	0	0.7

Intersection Turning Movement Count

W 9 Mile Rd @ I-10 WB Ramps

File Name : W 9 Mile Rd @ I-10 WB Ramps Peds
Site Code : 00000001
Start Date : 7/14/2020
Page No : 1

Groups Printed- Peds

	I-10 WB On Southbound	W 9 Mile Rd Westbound	I-10 WB Off Northbound	W 9 Mile Rd Eastbound	
Start Time	Peds	Peds	Peds	Peds	Int. Total
07:00	0	0	0	0	0
07:15	0	0	0	0	0
07:30	0	0	1	0	1
07:45	0	0	0	0	0
Total	0	0	1	0	1
08:00	0	0	0	0	0
08:15	0	0	0	0	0
08:30	0	0	0	0	0
08:45	0	0	0	0	0
Total	0	0	0	0	0
09:00	0	0	1	0	1
09:15	0	0	1	0	1
09:30	0	0	0	0	0
09:45	0	3	0	0	3
Total	0	3	2	0	5
10:00	0	0	0	0	0
10:15	0	0	0	0	0
10:30	0	0	0	0	0
10:45	0	0	0	0	0
Total	0	0	0	0	0
11:00	0	0	0	0	0
11:15	0	0	0	0	0
11:30	0	0	0	0	0
11:45	0	0	0	0	0
Total	0	0	0	0	0
12:00	0	0	0	0	0
12:15	0	0	1	0	1
12:30	0	0	1	0	1
12:45	0	0	0	0	0
Total	0	0	2	0	2
13:00	0	0	0	0	0
13:15	0	0	0	0	0
13:30	0	0	0	0	0
13:45	0	0	0	0	0
Total	0	0	0	0	0
14:00	0	0	0	0	0
14:15	0	0	0	0	0
14:30	0	0	0	0	0
14:45	0	0	0	0	0
Total	0	0	0	0	0
15:00	0	0	0	0	0
15:15	0	0	0	0	0
15:30	0	0	0	0	0
15:45	0	0	0	0	0
Total	0	0	0	0	0

Intersection Turning Movement Count

File Name : W 9 Mile Rd @ I-10 WB Ramps Peds
Site Code : 00000001
Start Date : 7/14/2020
Page No : 2

Groups Printed- Peds

	I-10 WB On Southbound	W 9 Mile Rd Westbound	I-10 WB Off Northbound	W 9 Mile Rd Eastbound	
Start Time	Peds	Peds	Peds	Peds	Int. Total
16:00	0	0	0	0	0
16:15	0	0	0	0	0
16:30	0	0	0	0	0
16:45	0	0	1	0	1
Total	0	0	1	0	1
17:00	0	0	0	0	0
17:15	0	0	0	0	0
17:30	0	0	0	0	0
17:45	0	0	0	0	0
Total	0	0	0	0	0
18:00	0	0	0	0	0
18:15	0	0	0	0	0
18:30	0	0	0	0	0
18:45	0	0	0	0	0
Total	0	0	0	0	0
Grand Total	0	3	6	0	9
Apprch %	0	100	100	0	
Total %	0	33.3	66.7	0	

Appendix C Traffic Analysis – Future Scenarios

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	5	43	81	4	55	33	329	34	16	725	48
Future Volume (vph)	63	5	43	81	4	55	33	329	34	16	725	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	10	12	12	11	12	12	11	12
Total Lost time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.95			0.95		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.97			0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1659			1600		1626	3144	1455	1626	3114	
Flt Permitted		0.79			0.79		0.25	1.00	1.00	0.54	1.00	
Satd. Flow (perm)		1354			1300		429	3144	1455	917	3114	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	69	5	47	89	4	60	36	362	37	18	797	53
RTOR Reduction (vph)	0	28	0	0	36	0	0	0	22	0	11	0
Lane Group Flow (vph)	0	93	0	0	117	0	36	362	15	18	839	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	11%	11%	11%	11%	11%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		18.0			18.0		18.0	18.0	18.0	18.0	18.0	
Effective Green, g (s)		18.0			18.0		18.0	18.0	18.0	18.0	18.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)		541			520		171	1257	582	366	1245	
v/s Ratio Prot								0.12			c0.27	
v/s Ratio Perm		0.07			c0.09		0.08		0.01	0.02		
v/c Ratio		0.17			0.23		0.21	0.29	0.03	0.05	0.67	
Uniform Delay, d1		8.7			8.9		8.8	9.2	8.2	8.3	11.1	
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.7			1.0		2.8	0.6	0.1	0.3	2.9	
Delay (s)		9.4			9.9		11.6	9.7	8.3	8.5	14.0	
Level of Service		A			A		B	A	A	A	B	
Approach Delay (s)		9.4			9.9			9.8			13.9	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	716	16	66	73	99	24	159	473	501	225	123
Future Volume (vph)	138	716	16	66	73	99	24	159	473	501	225	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	10	10	10	12	12	12
Total Lost time (s)	7.6	7.6	7.6	7.5	7.5	7.5	6.7	6.7	6.7	6.8	6.8	6.8
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1616	4803	1495	1616	4803	1495	1518	3035	1358	1626	3252	1455
Flt Permitted	0.54	1.00	1.00	0.34	1.00	1.00	0.60	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	911	4803	1495	570	4803	1495	961	3035	1358	1102	3252	1455
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	148	770	17	71	78	106	26	171	509	539	242	132
RTOR Reduction (vph)	0	0	13	0	0	85	0	0	160	0	0	66
Lane Group Flow (vph)	148	770	4	71	78	21	26	171	349	539	242	66
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	11%	11%	11%	11%	11%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	37.6	27.1	27.1	25.0	20.8	20.8	31.7	31.7	31.7	53.4	53.4	53.4
Effective Green, g (s)	37.6	27.1	27.1	25.0	20.8	20.8	31.7	31.7	31.7	53.4	53.4	53.4
Actuated g/C Ratio	0.35	0.25	0.25	0.23	0.20	0.20	0.30	0.30	0.30	0.50	0.50	0.50
Clearance Time (s)	7.6	7.6	7.6	7.5	7.5	7.5	6.7	6.7	6.7	6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	390	1221	380	174	937	291	285	902	403	625	1629	728
v/s Ratio Prot	c0.04	c0.16		0.02	0.02			0.06		c0.12	0.07	
v/s Ratio Perm	0.10		0.00	0.08		0.01	0.03		0.26	c0.31		0.05
v/c Ratio	0.38	0.63	0.01	0.41	0.08	0.07	0.09	0.19	0.87	0.86	0.15	0.09
Uniform Delay, d1	24.8	35.3	29.7	32.7	35.1	35.0	27.0	27.9	35.4	23.4	14.3	13.9
Progression 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
Incremental Delay, d2	0.6	1.1	0.0	1.6	0.0	0.1	0.1	0.1	17.3	11.8	0.0	0.1
Delay (s)	25.4	36.4	29.7	34.2	35.1	35.1	27.2	28.0	52.8	35.2	14.4	14.0
Level of Service	C	D	C	C	D	D	C	C	D	D	B	B
Approach Delay (s)		34.5			34.9			45.8			26.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	106.6	Sum of lost time (s)	28.6
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1638	3	5	201	43	26
Future Volume (Veh/h)	1638	3	5	201	43	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1820	3	6	223	48	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1823		1908	608
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1823		1908	608
tC, single (s)			4.3		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			98		19	93
cM capacity (veh/h)			308		59	439

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	728	728	367	6	74	74	74	77
Volume Left	0	0	0	6	0	0	0	48
Volume Right	0	0	3	0	0	0	0	29
cSH	1700	1700	1700	308	1700	1700	1700	88
Volume to Capacity	0.43	0.43	0.22	0.02	0.04	0.04	0.04	0.88
Queue Length 95th (ft)	0	0	0	1	0	0	0	119
Control Delay (s)	0.0	0.0	0.0	16.9	0.0	0.0	0.0	149.5
Lane LOS				C				F
Approach Delay (s)	0.0			0.4				149.5
Approach LOS								F

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1651	29	11	200	0	103
Future Volume (Veh/h)	1651	29	11	200	0	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1814	32	12	220	0	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1846		1927	621
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1846		1927	621
tC, single (s)			4.3		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			96		100	74
cM capacity (veh/h)			301		56	430

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	726	726	395	12	73	73	73	113
Volume Left	0	0	0	12	0	0	0	0
Volume Right	0	0	32	0	0	0	0	113
cSH	1700	1700	1700	301	1700	1700	1700	430
Volume to Capacity	0.43	0.43	0.23	0.04	0.04	0.04	0.04	0.26
Queue Length 95th (ft)	0	0	0	3	0	0	0	26
Control Delay (s)	0.0	0.0	0.0	17.4	0.0	0.0	0.0	16.3
Lane LOS				C				C
Approach Delay (s)	0.0			0.9				16.3
Approach LOS								C

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	530	169	278	259	3
Future Volume (vph)	30	530	169	278	259	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3534	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3534	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	576	184	302	282	3
RTOR Reduction (vph)	0	364	0	0	1	0
Lane Group Flow (vph)	33	212	184	302	284	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	29.5	29.5	16.5	41.5	20.5	
Effective Green, g (s)	29.5	29.5	16.5	41.5	20.5	
Actuated g/C Ratio	0.37	0.37	0.21	0.52	0.26	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	652	583	365	1835	905	
v/s Ratio Prot	0.02		c0.10	0.09	c0.08	
v/s Ratio Perm		c0.13				
v/c Ratio	0.05	0.36	0.50	0.16	0.31	
Uniform Delay, d1	16.2	18.4	28.1	10.1	24.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	1.8	4.9	0.2	0.9	
Delay (s)	16.4	20.2	33.0	10.3	25.0	
Level of Service	B	C	C	B	C	
Approach Delay (s)	20.0			18.9	25.0	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	279	10	56	105	176	9	156	130	224	50	9
Future Volume (vph)	41	279	10	56	105	176	9	156	130	224	50	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	6.8		7.8	6.8	6.8	7.8	7.8		7.4	7.4	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1853		1770	1863	1583	1770	1736		1770	1819	
Flt Permitted	0.64	1.00		0.43	1.00	1.00	0.72	1.00		0.50	1.00	
Satd. Flow (perm)	1187	1853		792	1863	1583	1332	1736		937	1819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	303	11	61	114	191	10	170	141	243	54	10
RTOR Reduction (vph)	0	1	0	0	0	135	0	21	0	0	5	0
Lane Group Flow (vph)	45	313	0	61	114	56	10	290	0	243	59	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	55.4	44.2		49.4	41.2	41.2	65.2	65.2		65.6	65.6	
Effective Green, g (s)	55.4	44.2		49.4	41.2	41.2	65.2	65.2		65.6	65.6	
Actuated g/C Ratio	0.40	0.32		0.35	0.29	0.29	0.47	0.47		0.47	0.47	
Clearance Time (s)	7.8	6.8		7.8	6.8	6.8	7.8	7.8		7.4	7.4	
Lane Grp Cap (vph)	516	585		336	548	465	620	808		439	852	
v/s Ratio Prot	0.01	c0.17		c0.01	0.06			0.17			0.03	
v/s Ratio Perm	0.03			0.05		0.04	0.01			c0.26		
v/c Ratio	0.09	0.54		0.18	0.21	0.12	0.02	0.36		0.55	0.07	
Uniform Delay, d1	26.3	39.4		30.8	37.1	36.1	20.1	24.0		26.7	20.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	3.5		1.2	0.9	0.5	0.0	1.2		5.0	0.2	
Delay (s)	26.6	42.9		32.0	38.0	36.7	20.2	25.2		31.7	20.6	
Level of Service	C	D		C	D	D	C	C		C	C	
Approach Delay (s)		40.9			36.3			25.1			29.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.4
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	38	25	0	2	6
Future Volume (Veh/h)	2	38	25	0	2	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	41	27	0	2	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	27				72	27
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	27				72	27
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1587				931	1048

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	43	27	9
Volume Left	2	0	2
Volume Right	0	0	7
cSH	1587	1700	1020
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.3	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	13.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations					↑↑↑			↑↑				
Traffic Volume (vph)	0	0	0	0	1614	0	0	600	0	0	0	0
Future Volume (vph)	0	0	0	0	1614	0	0	600	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.91			0.95				
Frt					1.00			1.00				
Flt Protected					1.00			1.00				
Satd. Flow (prot)					5085			3539				
Flt Permitted					1.00			1.00				
Satd. Flow (perm)					5085			3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1754	0	0	652	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1754	0	0	652	0	0	0	0
Turn Type					NA			NA				
Protected Phases					2			4				
Permitted Phases												
Actuated Green, G (s)					23.0			18.0				
Effective Green, g (s)					23.0			18.0				
Actuated g/C Ratio					0.46			0.36				
Clearance Time (s)					4.5			4.5				
Lane Grp Cap (vph)					2339			1274				
v/s Ratio Prot					c0.34			c0.18				
v/s Ratio Perm												
v/c Ratio					0.75			0.51				
Uniform Delay, d1					11.1			12.6				
Progression Factor					0.57			1.00				
Incremental Delay, d2					2.2			1.5				
Delay (s)					8.6			14.0				
Level of Service					A			B				
Approach Delay (s)		0.0			8.6			14.0			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	19	0	95	36	109	0	0	858	24
Future Volume (vph)	0	0	0	19	0	95	36	109	0	0	858	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5	4.5	4.5			4.5	4.5
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433		1583	1770	3539			3539	1583
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433		1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	21	0	103	39	118	0	0	933	26
RTOR Reduction (vph)	0	0	0	0	0	77	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	0	21	0	26	39	118	0	0	933	8
Turn Type				Perm		Perm	Split	NA			NA	Perm
Protected Phases							2	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				18.0		18.0	18.0	18.0			20.5	20.5
Effective Green, g (s)				18.0		18.0	18.0	18.0			20.5	20.5
Actuated g/C Ratio				0.26		0.26	0.26	0.26			0.29	0.29
Clearance Time (s)				4.5		4.5	4.5	4.5			4.5	4.5
Lane Grp Cap (vph)				882		407	455	910			1036	463
v/s Ratio Prot							0.02	c0.03			c0.26	
v/s Ratio Perm				0.01		c0.02						0.00
v/c Ratio				0.02		0.07	0.09	0.13			0.90	0.02
Uniform Delay, d1				19.4		19.6	19.7	20.0			23.8	17.6
Progression Factor				1.00		1.00	0.41	0.40			1.00	1.00
Incremental Delay, d2				0.0		0.3	0.4	0.3			12.3	0.1
Delay (s)				19.5		20.0	8.4	8.4			36.1	17.7
Level of Service				B		B	A	A			D	B
Approach Delay (s)		0.0			19.9			8.4			35.6	
Approach LOS		A			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	0	115	0	0	0	0	126	181	730	146	0
Future Volume (vph)	19	0	115	0	0	0	0	126	181	730	146	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.97	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		1583					3539	1583	3433	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	0	125	0	0	0	0	137	197	793	159	0
RTOR Reduction (vph)	0	0	93	0	0	0	0	0	146	0	0	0
Lane Group Flow (vph)	21	0	32	0	0	0	0	137	51	793	159	0
Turn Type	Perm		Perm					NA	Perm	Split	NA	
Protected Phases								2		6	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	18.0		18.0					18.0	18.0	20.5	20.5	
Effective Green, g (s)	18.0		18.0					18.0	18.0	20.5	20.5	
Actuated g/C Ratio	0.26		0.26					0.26	0.26	0.29	0.29	
Clearance Time (s)	4.5		4.5					4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	882		407					910	407	1005	1036	
v/s Ratio Prot								c0.04		c0.23	0.04	
v/s Ratio Perm	0.01		c0.02						0.03			
v/c Ratio	0.02		0.08					0.15	0.12	0.79	0.15	
Uniform Delay, d1	19.4		19.7					20.1	20.0	22.8	18.3	
Progression Factor	1.00		1.00					1.00	1.00	1.13	1.35	
Incremental Delay, d2	0.0		0.4					0.4	0.6	2.9	0.1	
Delay (s)	19.5		20.1					20.4	20.6	28.6	24.9	
Level of Service	B		C					C	C	C	C	
Approach Delay (s)		20.0			0.0			20.5			28.0	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	1055	0	0	0	0	0	0	0	0	723	0
Future Volume (vph)	0	1055	0	0	0	0	0	0	0	0	723	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.95									0.91	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		3539									5085	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		3539									5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1147	0	0	0	0	0	0	0	0	786	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1147	0	0	0	0	0	0	0	0	786	0
Turn Type		NA									NA	
Protected Phases		2									4	
Permitted Phases												
Actuated Green, G (s)		23.0									18.0	
Effective Green, g (s)		23.0									18.0	
Actuated g/C Ratio		0.46									0.36	
Clearance Time (s)		4.5									4.5	
Lane Grp Cap (vph)		1627									1830	
v/s Ratio Prot		c0.32									c0.15	
v/s Ratio Perm												
v/c Ratio		0.70									0.43	
Uniform Delay, d1		10.8									12.1	
Progression Factor		0.84									1.00	
Incremental Delay, d2		2.5									0.7	
Delay (s)		11.6									12.9	
Level of Service		B									B	
Approach Delay (s)		11.6			0.0			0.0			12.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	50	60	0	0	40
Future Volume (Veh/h)	0	50	60	0	0	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	54	65	0	0	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	65				119	65
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	65				119	65
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	1537				877	999

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	54	65	43
Volume Left	0	0	0	0
Volume Right	0	0	0	43
cSH	1700	1700	1700	999
Volume to Capacity	0.00	0.03	0.04	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	8.8
Lane LOS				A
Approach Delay (s)	0.0		0.0	8.8
Approach LOS				A

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	50	100	0	0	0
Future Volume (Veh/h)	0	50	100	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	54	109	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	109				163	109
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109				163	109
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1481				828	945

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	54	109	0
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.00	0.03	0.06	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				A
Approach Delay (s)	0.0		0.0	0.0
Approach LOS				A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	8.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1	35	53	1	28	58	704	78	45	531	59
Future Volume (vph)	43	1	35	53	1	28	58	704	78	45	531	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	10	12	12	11	12	12	11	12
Total Lost time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.94			0.95		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.97			0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1648			1606		1626	3144	1455	1626	3097	
Flt Permitted		0.84			0.81		0.36	1.00	1.00	0.29	1.00	
Satd. Flow (perm)		1430			1349		623	3144	1455	498	3097	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	47	1	38	58	1	31	64	774	86	49	584	65
RTOR Reduction (vph)	0	23	0	0	19	0	0	0	52	0	19	0
Lane Group Flow (vph)	0	63	0	0	71	0	64	774	34	49	630	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	11%	11%	11%	11%	11%	11%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		18.0			18.0		18.0	18.0	18.0	18.0	18.0	
Effective Green, g (s)		18.0			18.0		18.0	18.0	18.0	18.0	18.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)		572			539		249	1257	582	199	1238	
v/s Ratio Prot								c0.25			0.20	
v/s Ratio Perm		0.04			c0.05		0.10		0.02	0.10		
v/c Ratio		0.11			0.13		0.26	0.62	0.06	0.25	0.51	
Uniform Delay, d1		8.5			8.6		9.0	10.7	8.3	9.0	10.2	
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.4			0.5		2.5	2.3	0.2	2.9	1.5	
Delay (s)		8.9			9.1		11.5	13.0	8.5	11.9	11.7	
Level of Service		A			A		B	B	A	B	B	
Approach Delay (s)		8.9			9.1			12.5			11.7	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	178	15	406	555	466	28	223	91	174	220	225
Future Volume (vph)	150	178	15	406	555	466	28	223	91	174	220	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	10	10	10	12	12	12
Total Lost time (s)	7.6	7.6	7.6	7.5	7.5	7.5	6.7	6.7	6.7	6.8	6.8	6.8
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1616	4803	1495	1616	4803	1495	1518	3035	1358	1626	3252	1455
Flt Permitted	0.42	1.00	1.00	0.42	1.00	1.00	0.60	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	707	4803	1495	717	4803	1495	965	3035	1358	1031	3252	1455
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	161	191	16	437	597	501	30	240	98	187	237	242
RTOR Reduction (vph)	0	0	13	0	0	320	0	0	84	0	0	175
Lane Group Flow (vph)	161	191	3	437	597	181	30	240	14	187	237	67
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	11%	11%	11%	11%	11%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	26.9	15.3	15.3	52.6	33.4	33.4	13.3	13.3	13.3	25.8	25.8	25.8
Effective Green, g (s)	26.9	15.3	15.3	52.6	33.4	33.4	13.3	13.3	13.3	25.8	25.8	25.8
Actuated g/C Ratio	0.29	0.17	0.17	0.57	0.36	0.36	0.14	0.14	0.14	0.28	0.28	0.28
Clearance Time (s)	7.6	7.6	7.6	7.5	7.5	7.5	6.7	6.7	6.7	6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	318	792	246	694	1730	538	138	435	194	324	905	404
v/s Ratio Prot	0.06	0.04		c0.20	0.12			0.08		c0.04	0.07	
v/s Ratio Perm	0.08		0.00	c0.16		0.12	0.03		0.01	c0.12		0.05
v/c Ratio	0.51	0.24	0.01	0.63	0.35	0.34	0.22	0.55	0.07	0.58	0.26	0.17
Uniform Delay, d1	25.9	33.7	32.4	12.4	21.7	21.6	35.1	36.9	34.4	29.5	26.0	25.3
Progression 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
Incremental Delay, d2	1.3	0.2	0.0	1.8	0.1	0.4	0.8	1.5	0.2	2.5	0.2	0.2
Delay (s)	27.2	33.8	32.4	14.2	21.8	21.9	35.9	38.4	34.5	32.0	26.2	25.5
Level of Service	C	C	C	B	C	C	D	D	C	C	C	C
Approach Delay (s)		30.9			19.7			37.2			27.6	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	92.7	Sum of lost time (s)	28.6
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	415	9	26	1381	8	14
Future Volume (Veh/h)	415	9	26	1381	8	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	461	10	29	1534	9	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			471		1035	159
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			471		1035	159
tC, single (s)			4.3		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			97		96	98
cM capacity (veh/h)			1046		221	858

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	184	184	102	29	511	511	511	25
Volume Left	0	0	0	29	0	0	0	9
Volume Right	0	0	10	0	0	0	0	16
cSH	1700	1700	1700	1046	1700	1700	1700	421
Volume to Capacity	0.11	0.11	0.06	0.03	0.30	0.30	0.30	0.06
Queue Length 95th (ft)	0	0	0	2	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	8.5	0.0	0.0	0.0	14.1
Lane LOS				A				B
Approach Delay (s)	0.0			0.2				14.1
Approach LOS								B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	385	44	89	1408	0	54
Future Volume (Veh/h)	385	44	89	1408	0	54
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	423	48	98	1547	0	59
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			471		1159	165
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			471		1159	165
tC, single (s)			4.3		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			91		100	93
cM capacity (veh/h)			1046		171	850

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	169	169	133	98	516	516	516	59
Volume Left	0	0	0	98	0	0	0	0
Volume Right	0	0	48	0	0	0	0	59
cSH	1700	1700	1700	1046	1700	1700	1700	850
Volume to Capacity	0.10	0.10	0.08	0.09	0.30	0.30	0.30	0.07
Queue Length 95th (ft)	0	0	0	8	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	8.8	0.0	0.0	0.0	9.5
Lane LOS				A				A
Approach Delay (s)	0.0			0.5				9.5
Approach LOS								A

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	318	573	201	318	24
Future Volume (vph)	5	318	573	201	318	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3502	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3502	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	346	623	218	346	26
RTOR Reduction (vph)	0	268	0	0	7	0
Lane Group Flow (vph)	5	78	623	218	365	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0	30.5	53.0	18.0	
Effective Green, g (s)	18.0	18.0	30.5	53.0	18.0	
Actuated g/C Ratio	0.22	0.22	0.38	0.66	0.22	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	398	356	674	2344	787	
v/s Ratio Prot	0.00		c0.35	0.06	c0.10	
v/s Ratio Perm		c0.05				
v/c Ratio	0.01	0.22	0.92	0.09	0.46	
Uniform Delay, d1	24.1	25.3	23.6	4.9	26.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	1.4	20.4	0.1	2.0	
Delay (s)	24.2	26.7	44.0	4.9	28.8	
Level of Service	C	C	D	A	C	
Approach Delay (s)	26.6			33.9	28.8	
Approach LOS	C			C	C	

Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	143	15	160	273	218	21	85	75	275	215	50
Future Volume (vph)	18	143	15	160	273	218	21	85	75	275	215	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	6.8		7.8	6.8	6.8	7.8	7.8		7.4	7.4	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1837		1770	1863	1583	1770	1731		1770	1810	
Flt Permitted	0.46	1.00		0.54	1.00	1.00	0.51	1.00		0.64	1.00	
Satd. Flow (perm)	860	1837		999	1863	1583	958	1731		1196	1810	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	155	16	174	297	237	23	92	82	299	234	54
RTOR Reduction (vph)	0	3	0	0	0	162	0	23	0	0	6	0
Lane Group Flow (vph)	20	168	0	174	297	75	23	151	0	299	282	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	51.4	40.2		59.4	44.2	44.2	62.2	62.2		62.6	62.6	
Effective Green, g (s)	51.4	40.2		59.4	44.2	44.2	62.2	62.2		62.6	62.6	
Actuated g/C Ratio	0.37	0.29		0.42	0.32	0.32	0.44	0.44		0.45	0.45	
Clearance Time (s)	7.8	6.8		7.8	6.8	6.8	7.8	7.8		7.4	7.4	
Lane Grp Cap (vph)	388	527		507	588	499	425	769		534	809	
v/s Ratio Prot	0.00	0.09		c0.04	c0.16			0.09			0.16	
v/s Ratio Perm	0.01			0.11		0.05	0.02			c0.25		
v/c Ratio	0.05	0.32		0.34	0.51	0.15	0.05	0.20		0.56	0.35	
Uniform Delay, d1	28.6	39.2		26.0	39.0	34.4	22.1	23.7		28.5	25.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.6		1.8	3.1	0.6	0.2	0.6		4.2	1.2	
Delay (s)	28.8	40.8		27.8	42.1	35.0	22.4	24.3		32.7	26.5	
Level of Service	C	D		C	D	D	C	C		C	C	
Approach Delay (s)		39.5			36.2			24.0			29.7	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.4
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	41	39	0	0	6
Future Volume (Veh/h)	4	41	39	0	0	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	45	42	0	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	42				95	42
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	42				95	42
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1567				902	1029

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	49	42	7
Volume Left	4	0	0
Volume Right	0	0	7
cSH	1567	1700	1029
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.6	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	15.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations					↑↑↑			↑↑				
Traffic Volume (vph)	0	0	0	0	1038	0	0	885	0	0	0	0
Future Volume (vph)	0	0	0	0	1038	0	0	885	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.91			0.95				
Frt					1.00			1.00				
Flt Protected					1.00			1.00				
Satd. Flow (prot)					5085			3539				
Flt Permitted					1.00			1.00				
Satd. Flow (perm)					5085			3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1128	0	0	962	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1128	0	0	962	0	0	0	0
Turn Type					NA			NA				
Protected Phases					2			4				
Permitted Phases												
Actuated Green, G (s)					22.5			18.5				
Effective Green, g (s)					22.5			18.5				
Actuated g/C Ratio					0.45			0.37				
Clearance Time (s)					4.5			4.5				
Lane Grp Cap (vph)					2288			1309				
v/s Ratio Prot					c0.22			c0.27				
v/s Ratio Perm												
v/c Ratio					0.49			0.73				
Uniform Delay, d1					9.7			13.6				
Progression Factor					0.60			1.00				
Incremental Delay, d2					0.8			3.7				
Delay (s)					6.5			17.3				
Level of Service					A			B				
Approach Delay (s)		0.0			6.5			17.3			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	106	0	393	33	159	0	0	413	13
Future Volume (vph)	0	0	0	106	0	393	33	159	0	0	413	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5	4.5	4.5			4.5	4.5
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433		1583	1770	3539			3539	1583
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433		1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	115	0	427	36	173	0	0	449	14
RTOR Reduction (vph)	0	0	0	0	0	305	0	0	0	0	0	10
Lane Group Flow (vph)	0	0	0	115	0	122	36	173	0	0	449	4
Turn Type				Perm		Perm	Split	NA			NA	Perm
Protected Phases							2	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				20.0		20.0	18.4	18.4			18.1	18.1
Effective Green, g (s)				20.0		20.0	18.4	18.4			18.1	18.1
Actuated g/C Ratio				0.29		0.29	0.26	0.26			0.26	0.26
Clearance Time (s)				4.5		4.5	4.5	4.5			4.5	4.5
Lane Grp Cap (vph)				980		452	465	930			915	409
v/s Ratio Prot							0.02	c0.05			c0.13	
v/s Ratio Perm				0.03		c0.08						0.00
v/c Ratio				0.12		0.27	0.08	0.19			0.49	0.01
Uniform Delay, d1				18.5		19.3	19.4	20.0			22.0	19.3
Progression Factor				1.00		1.00	0.46	0.46			1.00	1.00
Incremental Delay, d2				0.2		1.5	0.3	0.4			1.9	0.0
Delay (s)				18.7		20.8	9.2	9.6			23.9	19.3
Level of Service				B		C	A	A			C	B
Approach Delay (s)		0.0			20.4			9.5			23.8	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰		↱					↑↑	↱	↰↰	↑↑	
Traffic Volume (vph)	29	0	61	0	0	0	0	163	44	239	280	0
Future Volume (vph)	29	0	61	0	0	0	0	163	44	239	280	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.97	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		1583					3539	1583	3433	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	0	66	0	0	0	0	177	48	260	304	0
RTOR Reduction (vph)	0	0	49	0	0	0	0	0	35	0	0	0
Lane Group Flow (vph)	32	0	17	0	0	0	0	177	13	260	304	0
Turn Type	Perm		Perm					NA	Perm	Split	NA	
Protected Phases								2		6	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	18.5		18.5					19.5	19.5	18.5	18.5	
Effective Green, g (s)	18.5		18.5					19.5	19.5	18.5	18.5	
Actuated g/C Ratio	0.26		0.26					0.28	0.28	0.26	0.26	
Clearance Time (s)	4.5		4.5					4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	907		418					985	440	907	935	
v/s Ratio Prot								c0.05		0.08	c0.09	
v/s Ratio Perm	0.01		c0.01						0.01			
v/c Ratio	0.04		0.04					0.18	0.03	0.29	0.33	
Uniform Delay, d1	19.1		19.2					19.2	18.4	20.5	20.7	
Progression Factor	1.00		1.00					1.00	1.00	1.31	1.29	
Incremental Delay, d2	0.1		0.2					0.4	0.1	0.7	0.9	
Delay (s)	19.2		19.3					19.6	18.5	27.6	27.7	
Level of Service	B		B					B	B	C	C	
Approach Delay (s)		19.3			0.0			19.3			27.6	
Approach LOS		B			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑									↑↑↑	
Traffic Volume (vph)	0	1169	0	0	0	0	0	0	0	0	500	0
Future Volume (vph)	0	1169	0	0	0	0	0	0	0	0	500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.95									0.91	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		3539									5085	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		3539									5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1271	0	0	0	0	0	0	0	0	543	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1271	0	0	0	0	0	0	0	0	543	0
Turn Type		NA									NA	
Protected Phases		2									4	
Permitted Phases												
Actuated Green, G (s)		22.5									18.5	
Effective Green, g (s)		22.5									18.5	
Actuated g/C Ratio		0.45									0.37	
Clearance Time (s)		4.5									4.5	
Lane Grp Cap (vph)		1592									1881	
v/s Ratio Prot		c0.36									c0.11	
v/s Ratio Perm												
v/c Ratio		0.80									0.29	
Uniform Delay, d1		11.8									11.1	
Progression Factor		0.73									1.00	
Incremental Delay, d2		3.6									0.4	
Delay (s)		12.2									11.5	
Level of Service		B									B	
Approach Delay (s)		12.2			0.0			0.0			11.5	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Sign configuration not allowed in HCM analysis.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	90	60	0	0	0
Future Volume (Veh/h)	0	90	60	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	98	65	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	65				163	65
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	65				163	65
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1537				828	999

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	0	98	65	0
Volume Left	0	0	0	0
Volume Right	0	0	0	0
cSH	1700	1700	1700	1700
Volume to Capacity	0.00	0.06	0.04	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0
Lane LOS				A
Approach Delay (s)	0.0		0.0	0.0
Approach LOS				A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	8.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	5	43	116	4	365	33	329	98	893	757	48
Future Volume (vph)	63	5	43	116	4	365	33	329	98	893	757	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	10	12	12	11	12	12	11	12
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.86		1.00	0.85		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1557		1770	1480		1626	3144	1455	1626	3116	
Flt Permitted	0.22	1.00		0.70	1.00		0.32	1.00	1.00	0.25	1.00	
Satd. Flow (perm)	407	1557		1304	1480		550	3144	1455	422	3116	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	69	5	47	127	4	401	36	362	108	981	832	53
RTOR Reduction (vph)	0	41	0	0	347	0	0	0	91	0	3	0
Lane Group Flow (vph)	69	11	0	127	58	0	36	362	17	981	882	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	11%	11%	11%	11%	11%	11%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	23.4	18.3		24.6	18.9		21.5	21.5	21.5	102.5	102.5	
Effective Green, g (s)	23.4	18.3		24.6	18.9		21.5	21.5	21.5	102.5	102.5	
Actuated g/C Ratio	0.17	0.13		0.18	0.13		0.15	0.15	0.15	0.73	0.73	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	117	203		248	199		84	482	223	966	2281	
v/s Ratio Prot	c0.02	0.01		0.02	0.04			0.12		c0.55	0.28	
v/s Ratio Perm	c0.08			0.07			0.07		0.01	c0.19		
v/c Ratio	0.59	0.05		0.51	0.29		0.43	0.75	0.07	1.02	0.39	
Uniform Delay, d1	51.3	53.3		51.6	54.5		53.7	56.7	50.7	25.1	7.0	
Progression Factor	1.00	1.00		1.02	1.53		1.00	1.00	1.00	1.77	2.42	
Incremental Delay, d2	20.0	0.5		7.3	3.6		15.2	10.3	0.6	23.9	0.2	
Delay (s)	71.2	53.8		59.9	86.9		68.9	67.0	51.4	68.3	17.2	
Level of Service	E	D		E	F		E	E	D	E	B	
Approach Delay (s)		63.7			80.5			63.8			44.1	
Approach LOS		E			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	54.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	755	16	108	84	99	24	210	626	533	253	130
Future Volume (vph)	151	755	16	108	84	99	24	210	626	533	253	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	10	10	10	12	12	12
Total Lost time (s)	7.6	7.6	7.6	7.5	7.5	7.5	6.7	6.7	6.7	6.8	6.8	6.8
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1616	4803	1495	1616	4803	1495	1518	3035	1358	1626	3252	1455
Flt Permitted	0.56	1.00	1.00	0.21	1.00	1.00	0.58	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	945	4803	1495	363	4803	1495	933	3035	1358	1045	3252	1455
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	162	812	17	116	90	106	26	226	673	573	272	140
RTOR Reduction (vph)	0	0	14	0	0	89	0	0	143	0	0	61
Lane Group Flow (vph)	162	812	3	116	90	17	26	226	530	573	272	79
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	11%	11%	11%	11%	11%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	38.2	25.7	25.7	28.2	20.7	20.7	53.7	53.7	53.7	72.3	72.3	72.3
Effective Green, g (s)	38.2	25.7	25.7	28.2	20.7	20.7	53.7	53.7	53.7	72.3	72.3	72.3
Actuated g/C Ratio	0.30	0.20	0.20	0.22	0.16	0.16	0.42	0.42	0.42	0.57	0.57	0.57
Clearance Time (s)	7.6	7.6	7.6	7.5	7.5	7.5	6.7	6.7	6.7	6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	349	968	301	154	780	242	393	1279	572	647	1845	825
v/s Ratio Prot	c0.05	c0.17		0.04	0.02			0.07		c0.08	0.08	
v/s Ratio Perm	0.09		0.00	0.12		0.01	0.03		0.39	c0.42		0.05
v/c Ratio	0.46	0.84	0.01	0.75	0.12	0.07	0.07	0.18	0.93	0.89	0.15	0.10
Uniform Delay, d1	34.8	48.9	40.7	42.0	45.5	45.2	21.9	23.0	35.0	25.3	13.0	12.6
Progression 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
Incremental Delay, d2	1.0	6.5	0.0	18.6	0.1	0.1	0.1	0.1	21.0	13.7	0.0	0.1
Delay (s)	35.8	55.3	40.7	60.7	45.6	45.3	22.0	23.1	56.0	39.0	13.0	12.7
Level of Service	D	E	D	E	D	D	C	C	E	D	B	B
Approach Delay (s)		51.9			51.1			47.0			28.1	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	127.4	Sum of lost time (s)	28.6
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	1835	3	5	766	570	43	0	26	222	0	21
Future Volume (vph)	64	1835	3	5	766	570	43	0	26	222	0	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	
Frt	1.00	1.00		1.00	0.94			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.96	
Satd. Flow (prot)	1770	4802		1671	4607			1715			1760	
Flt Permitted	0.13	1.00		0.10	1.00			0.77			0.69	
Satd. Flow (perm)	239	4802		183	4607			1361			1269	
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.90	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	70	2039	3	6	851	620	48	0	29	241	0	23
RTOR Reduction (vph)	0	0	0	0	188	0	0	16	0	0	16	0
Lane Group Flow (vph)	70	2042	0	6	1283	0	0	61	0	0	248	0
Heavy Vehicles (%)	2%	8%	8%	8%	8%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	38.5	38.5		38.5	38.5			22.5			22.5	
Effective Green, g (s)	38.5	38.5		38.5	38.5			22.5			22.5	
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.32			0.32	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	131	2641		100	2533			437			407	
v/s Ratio Prot		c0.43			0.28							
v/s Ratio Perm	0.29			0.03				0.05			c0.20	
v/c Ratio	0.53	0.77		0.06	0.51			0.14			0.61	
Uniform Delay, d1	10.0	12.3		7.3	9.8			16.9			20.0	
Progression Factor	0.56	0.53		1.00	1.00			1.00			1.00	
Incremental Delay, d2	11.7	1.8		1.1	0.7			0.7			6.7	
Delay (s)	17.4	8.3		8.5	10.6			17.6			26.7	
Level of Service	B	A		A	B			B			C	
Approach Delay (s)		8.6			10.5			17.6			26.7	
Approach LOS		A			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↱		↰	↑↑↑↱				↱			↱
Traffic Volume (veh/h)	0	2070	29	11	1333	134	0	0	103	0	0	2
Future Volume (Veh/h)	0	2070	29	11	1333	134	0	0	103	0	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Hourly flow rate (vph)	0	2275	32	12	1465	146	0	0	113	0	0	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		549										
pX, platoon unblocked				0.67			0.67	0.67	0.67	0.67	0.67	
vC, conflicting volume	1611			2307			2805	3926	774	2433	3869	561
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1611			1202			1952	3637	0	1392	3551	561
tC, single (s)	4.1			4.3			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	84	100	100	100
cM capacity (veh/h)	401			362			25	3	721	55	4	471

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	910	910	487	12	586	586	439	113	2
Volume Left	0	0	0	12	0	0	0	0	0
Volume Right	0	0	32	0	0	0	146	113	2
cSH	1700	1700	1700	362	1700	1700	1700	721	471
Volume to Capacity	0.54	0.54	0.29	0.03	0.34	0.34	0.26	0.16	0.00
Queue Length 95th (ft)	0	0	0	3	0	0	0	14	0
Control Delay (s)	0.0	0.0	0.0	15.3	0.0	0.0	0.0	10.9	12.7
Lane LOS				C				B	B
Approach Delay (s)	0.0			0.1				10.9	12.7
Approach LOS								B	B

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	53.7%		ICU Level of Service	A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	658	213	544	1040	3
Future Volume (vph)	30	658	213	544	1040	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3538	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3538	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	715	232	591	1130	3
RTOR Reduction (vph)	0	224	0	0	0	0
Lane Group Flow (vph)	33	491	232	591	1133	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	51.1	51.1	23.5	79.9	51.9	
Effective Green, g (s)	51.1	51.1	23.5	79.9	51.9	
Actuated g/C Ratio	0.37	0.37	0.17	0.57	0.37	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	646	577	297	2019	1311	
v/s Ratio Prot	0.02		c0.13	0.17	c0.32	
v/s Ratio Perm		c0.31				
v/c Ratio	0.05	0.85	0.78	0.29	0.86	
Uniform Delay, d1	28.8	41.0	55.8	15.5	40.8	
Progression Factor	1.00	1.00	0.66	0.93	0.93	
Incremental Delay, d2	0.1	14.7	12.7	0.2	5.6	
Delay (s)	28.9	55.7	49.5	14.6	43.5	
Level of Service	C	E	D	B	D	
Approach Delay (s)	54.5			24.5	43.5	
Approach LOS	D			C	D	

Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	59	262	32	75	108	20
Future Volume (Veh/h)	59	262	32	75	108	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	285	35	82	117	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			349		358	206
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			349		358	206
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		81	97
cM capacity (veh/h)			1210		622	834

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	349	35	82	139
Volume Left	0	35	0	117
Volume Right	285	0	0	22
cSH	1700	1210	1700	648
Volume to Capacity	0.21	0.03	0.05	0.21
Queue Length 95th (ft)	0	2	0	20
Control Delay (s)	0.0	8.1	0.0	12.1
Lane LOS		A		B
Approach Delay (s)	0.0	2.4		12.1
Approach LOS				B

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	279	10	56	105	304	9	232	130	268	76	9
Future Volume (vph)	41	279	10	56	105	304	9	232	130	268	76	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	6.8		7.8	6.8	6.8	7.8	7.8		7.4	7.4	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1853		1770	1863	1583	1770	1762		1770	1833	
Flt Permitted	0.61	1.00		0.39	1.00	1.00	0.70	1.00		0.45	1.00	
Satd. Flow (perm)	1128	1853		729	1863	1583	1298	1762		841	1833	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	303	11	61	114	330	10	252	141	291	83	10
RTOR Reduction (vph)	0	1	0	0	0	249	0	14	0	0	3	0
Lane Group Flow (vph)	45	313	0	61	114	81	10	379	0	291	90	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	48.4	38.2		40.4	34.2	34.2	73.2	73.2		73.6	73.6	
Effective Green, g (s)	48.4	38.2		40.4	34.2	34.2	73.2	73.2		73.6	73.6	
Actuated g/C Ratio	0.35	0.27		0.29	0.24	0.24	0.52	0.52		0.53	0.53	
Clearance Time (s)	7.8	6.8		7.8	6.8	6.8	7.8	7.8		7.4	7.4	
Lane Grp Cap (vph)	436	505		256	455	386	678	921		442	963	
v/s Ratio Prot	0.01	c0.17		c0.01	0.06			0.21			0.05	
v/s Ratio Perm	0.03			0.06		0.05	0.01			c0.35		
v/c Ratio	0.10	0.62		0.24	0.25	0.21	0.01	0.41		0.66	0.09	
Uniform Delay, d1	30.8	44.6		37.1	42.6	42.1	16.1	20.3		24.1	16.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	5.6		2.2	1.3	1.2	0.0	1.4		7.5	0.2	
Delay (s)	31.3	50.2		39.3	43.9	43.4	16.1	21.7		31.6	16.7	
Level of Service	C	D		D	D	D	B	C		C	B	
Approach Delay (s)		47.8			43.0			21.5			28.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.4
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Volume (veh/h)	0	59	0	96	72	0	15	0	15	0	0	0
Future Volume (Veh/h)	0	59	0	96	72	0	15	0	15	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	64	0	104	78	0	16	0	16	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	78			64			350	350	64	366	350	78
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	78			64			350	350	64	366	350	78
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			97	100	98	100	100	100
cM capacity (veh/h)	1520			1538			573	535	1000	551	535	983

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	64	182	32	0
Volume Left	0	104	16	0
Volume Right	0	0	16	0
cSH	1520	1538	729	1700
Volume to Capacity	0.00	0.07	0.04	0.00
Queue Length 95th (ft)	0	5	3	0
Control Delay (s)	0.0	4.5	10.2	0.0
Lane LOS		A	B	A
Approach Delay (s)	0.0	4.5	10.2	0.0
Approach LOS			B	A

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations					↑↑↑			↑↑				
Traffic Volume (vph)	0	0	0	0	2689	0	0	714	0	0	0	0
Future Volume (vph)	0	0	0	0	2689	0	0	714	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.91			0.95				
Frt					1.00			1.00				
Flt Protected					1.00			1.00				
Satd. Flow (prot)					5085			3539				
Flt Permitted					1.00			1.00				
Satd. Flow (perm)					5085			3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2923	0	0	776	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2923	0	0	776	0	0	0	0
Turn Type					NA			NA				
Protected Phases					2			4				
Permitted Phases												
Actuated Green, G (s)					43.0			18.0				
Effective Green, g (s)					43.0			18.0				
Actuated g/C Ratio					0.61			0.26				
Clearance Time (s)					4.5			4.5				
Lane Grp Cap (vph)					3123			910				
v/s Ratio Prot					c0.57			c0.22				
v/s Ratio Perm												
v/c Ratio					0.94			0.85				
Uniform Delay, d1					12.3			24.7				
Progression Factor					0.73			1.00				
Incremental Delay, d2					6.6			10.0				
Delay (s)					15.5			34.7				
Level of Service					B			C				
Approach Delay (s)		0.0			15.5			34.7			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	224	0	95	268	109	0	0	858	24
Future Volume (vph)	0	0	0	224	0	95	268	109	0	0	858	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5	4.5	4.5			4.5	4.5
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433		1583	1770	3539			3539	1583
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433		1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	243	0	103	291	118	0	0	933	26
RTOR Reduction (vph)	0	0	0	0	0	77	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	0	243	0	26	291	118	0	0	933	8
Turn Type				Perm		Perm	Split	NA			NA	Perm
Protected Phases							2	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				18.0		18.0	18.0	18.0			20.5	20.5
Effective Green, g (s)				18.0		18.0	18.0	18.0			20.5	20.5
Actuated g/C Ratio				0.26		0.26	0.26	0.26			0.29	0.29
Clearance Time (s)				4.5		4.5	4.5	4.5			4.5	4.5
Lane Grp Cap (vph)				882		407	455	910			1036	463
v/s Ratio Prot							c0.16	0.03			c0.26	
v/s Ratio Perm				c0.07		0.02						0.00
v/c Ratio				0.28		0.07	0.64	0.13			0.90	0.02
Uniform Delay, d1				20.8		19.6	23.1	20.0			23.8	17.6
Progression Factor				1.00		1.00	1.38	0.97			1.00	1.00
Incremental Delay, d2				0.8		0.3	6.4	0.3			12.3	0.1
Delay (s)				21.6		20.0	38.3	19.6			36.1	17.7
Level of Service				C		B	D	B			D	B
Approach Delay (s)		0.0			21.1			32.9			35.6	
Approach LOS		A			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	0	691	0	0	0	0	358	215	730	351	0
Future Volume (vph)	19	0	691	0	0	0	0	358	215	730	351	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.97	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		1583					3539	1583	3433	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	0	751	0	0	0	0	389	234	793	382	0
RTOR Reduction (vph)	0	0	470	0	0	0	0	0	169	0	0	0
Lane Group Flow (vph)	21	0	281	0	0	0	0	389	65	793	382	0
Turn Type	Perm		Perm					NA	Perm	Split	NA	
Protected Phases								2		6	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	18.5		18.5					19.5	19.5	18.5	18.5	
Effective Green, g (s)	18.5		18.5					19.5	19.5	18.5	18.5	
Actuated g/C Ratio	0.26		0.26					0.28	0.28	0.26	0.26	
Clearance Time (s)	4.5		4.5					4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	907		418					985	440	907	935	
v/s Ratio Prot								c0.11		c0.23	0.11	
v/s Ratio Perm	0.01		c0.18						0.04			
v/c Ratio	0.02		0.67					0.39	0.15	0.87	0.41	
Uniform Delay, d1	19.1		23.0					20.5	19.0	24.6	21.2	
Progression Factor	1.00		1.00					1.09	6.54	1.35	1.46	
Incremental Delay, d2	0.0		8.3					1.2	0.7	7.5	0.8	
Delay (s)	19.1		31.4					23.5	125.0	40.7	31.8	
Level of Service	B		C					C	F	D	C	
Approach Delay (s)		31.1			0.0			61.6			37.8	
Approach LOS		C			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑									↑↑↑	
Traffic Volume (vph)	0	1143	0	0	0	0	0	0	0	0	979	0
Future Volume (vph)	0	1143	0	0	0	0	0	0	0	0	979	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.95									0.91	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		3539									5085	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		3539									5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1242	0	0	0	0	0	0	0	0	1064	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1242	0	0	0	0	0	0	0	0	1064	0
Turn Type		NA									NA	
Protected Phases		2									4	
Permitted Phases												
Actuated Green, G (s)		43.0									18.0	
Effective Green, g (s)		43.0									18.0	
Actuated g/C Ratio		0.61									0.26	
Clearance Time (s)		4.5									4.5	
Lane Grp Cap (vph)		2173									1307	
v/s Ratio Prot		c0.35									c0.21	
v/s Ratio Perm												
v/c Ratio		0.57									0.81	
Uniform Delay, d1		8.0									24.4	
Progression Factor		1.11									1.00	
Incremental Delay, d2		1.0									5.6	
Delay (s)		9.9									30.1	
Level of Service		A									C	
Approach Delay (s)		9.9			0.0			0.0			30.1	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	1754	261	563	197	30
Future Volume (vph)	160	1754	261	563	197	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.91	0.91		1.00	
Frt	1.00	1.00	0.90		0.98	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	4564		1753	
Flt Permitted	0.29	1.00	1.00		0.96	
Satd. Flow (perm)	544	5085	4564		1753	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	1907	284	612	214	33
RTOR Reduction (vph)	0	0	249	0	8	0
Lane Group Flow (vph)	174	1907	647	0	239	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)	41.5	41.5	41.5		19.5	
Effective Green, g (s)	41.5	41.5	41.5		19.5	
Actuated g/C Ratio	0.59	0.59	0.59		0.28	
Clearance Time (s)	4.5	4.5	4.5		4.5	
Lane Grp Cap (vph)	322	3014	2705		488	
v/s Ratio Prot		c0.38	0.14		c0.14	
v/s Ratio Perm	0.32					
v/c Ratio	0.54	0.63	0.24		0.49	
Uniform Delay, d1	8.5	9.3	6.8		21.1	
Progression Factor	1.00	1.00	0.25		1.00	
Incremental Delay, d2	6.4	1.0	0.2		3.5	
Delay (s)	14.9	10.3	1.9		24.6	
Level of Service	B	B	A		C	
Approach Delay (s)		10.7	1.9		24.6	
Approach LOS		B	A		C	

Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	312	460	0	183	0	159	0	9	0	0	40
Future Volume (vph)	0	312	460	0	183	0	159	0	9	0	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.91			1.00			0.99			0.86	
Flt Protected		1.00			1.00			0.95			1.00	
Satd. Flow (prot)		1696			1863			1766			1611	
Flt Permitted		1.00			1.00			0.71			1.00	
Satd. Flow (perm)		1696			1863			1306			1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	339	500	0	199	0	173	0	10	0	0	43
RTOR Reduction (vph)	0	76	0	0	0	0	0	17	0	0	31	0
Lane Group Flow (vph)	0	763	0	0	199	0	0	166	0	0	12	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		41.5			41.5			19.5			19.5	
Effective Green, g (s)		41.5			41.5			19.5			19.5	
Actuated g/C Ratio		0.59			0.59			0.28			0.28	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		1005			1104			363			448	
v/s Ratio Prot		c0.45			0.11						0.01	
v/s Ratio Perm								c0.13				
v/c Ratio		0.76			0.18			0.46			0.03	
Uniform Delay, d1		10.6			6.5			20.9			18.4	
Progression Factor		2.56			1.00			1.00			1.00	
Incremental Delay, d2		1.9			0.4			4.1			0.1	
Delay (s)		28.9			6.9			25.0			18.5	
Level of Service		C			A			C			B	
Approach Delay (s)		28.9			6.9			25.0			18.5	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	773	218	0	382	0	63	0	0	0	0	0
Future Volume (Veh/h)	0	773	218	0	382	0	63	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	840	237	0	415	0	68	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	415			1077			1374	1374	958	1255	1492	415
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	415			1077			1374	1374	958	1255	1492	415
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			45	100	100	100	100	100
cM capacity (veh/h)	1144			647			123	146	312	148	123	637

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	1077	0	415	68	0
Volume Left	0	0	0	0	68	0
Volume Right	0	237	0	0	0	0
cSH	1700	1700	1700	1700	123	1700
Volume to Capacity	0.00	0.63	0.00	0.24	0.55	0.00
Queue Length 95th (ft)	0	0	0	0	67	0
Control Delay (s)	0.0	0.0	0.0	0.0	65.7	0.0
Lane LOS					F	A
Approach Delay (s)	0.0		0.0		65.7	0.0
Approach LOS					F	A

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1	35	190	1	764	58	704	101	362	543	59
Future Volume (vph)	43	1	35	190	1	764	58	704	101	362	543	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	10	12	12	11	12	12	11	12
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.85		1.00	0.85		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1537		1770	1478		1626	3144	1455	1626	3098	
Flt Permitted	0.09	1.00		0.67	1.00		0.40	1.00	1.00	0.10	1.00	
Satd. Flow (perm)	161	1537		1242	1478		685	3144	1455	168	3098	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	47	1	38	209	1	840	64	774	111	398	597	65
RTOR Reduction (vph)	0	25	0	0	305	0	0	0	82	0	6	0
Lane Group Flow (vph)	47	14	0	209	536	0	64	774	29	398	656	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	11%	11%	11%	11%	11%	11%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	51.4	46.4		61.0	51.5		37.0	37.0	37.0	70.0	70.0	
Effective Green, g (s)	51.4	46.4		61.0	51.5		37.0	37.0	37.0	70.0	70.0	
Actuated g/C Ratio	0.37	0.33		0.44	0.37		0.26	0.26	0.26	0.50	0.50	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	116	509		579	543		181	830	384	380	1549	
v/s Ratio Prot	0.01	0.01		c0.03	c0.36			0.25		c0.21	0.21	
v/s Ratio Perm	0.13			0.13			0.09		0.02	c0.31		
v/c Ratio	0.41	0.03		0.36	0.99		0.35	0.93	0.08	1.05	0.42	
Uniform Delay, d1	35.4	31.6		25.5	43.9		41.8	50.3	38.7	43.9	22.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.21	2.16	
Incremental Delay, d2	10.2	0.1		1.7	35.7		5.3	18.6	0.4	51.0	0.6	
Delay (s)	45.6	31.7		27.2	79.6		47.1	68.9	39.1	104.1	48.4	
Level of Service	D	C		C	E		D	E	D	F	D	
Approach Delay (s)		39.3			69.2			63.9			69.3	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	66.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	192	15	433	562	466	28	242	147	186	330	252
Future Volume (vph)	155	192	15	433	562	466	28	242	147	186	330	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12	10	10	10	12	12	12
Total Lost time (s)	7.6	7.6	7.6	7.5	7.5	7.5	6.7	6.7	6.7	6.8	6.8	6.8
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1616	4803	1495	1616	4803	1495	1518	3035	1358	1626	3252	1455
Flt Permitted	0.41	1.00	1.00	0.42	1.00	1.00	0.49	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	702	4803	1495	706	4803	1495	782	3035	1358	1006	3252	1455
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	167	206	16	466	604	501	30	260	158	200	355	271
RTOR Reduction (vph)	0	0	13	0	0	315	0	0	135	0	0	195
Lane Group Flow (vph)	167	206	3	466	604	186	30	260	23	200	355	76
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	11%	11%	11%	11%	11%	11%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	8	
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	27.4	15.3	15.3	55.9	36.2	36.2	14.4	14.4	14.4	27.2	27.2	27.2
Effective Green, g (s)	27.4	15.3	15.3	55.9	36.2	36.2	14.4	14.4	14.4	27.2	27.2	27.2
Actuated g/C Ratio	0.28	0.16	0.16	0.57	0.37	0.37	0.15	0.15	0.15	0.28	0.28	0.28
Clearance Time (s)	7.6	7.6	7.6	7.5	7.5	7.5	6.7	6.7	6.7	6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	311	754	234	713	1785	555	115	448	200	319	908	406
v/s Ratio Prot	0.07	0.04		c0.22	0.13			0.09		c0.04	0.11	
v/s Ratio Perm	0.08		0.00	c0.15		0.12	0.04		0.02	c0.14		0.05
v/c Ratio	0.54	0.27	0.01	0.65	0.34	0.34	0.26	0.58	0.12	0.63	0.39	0.19
Uniform Delay, d1	28.1	36.2	34.7	12.9	22.0	22.0	36.8	38.7	36.0	31.6	28.4	26.7
Progression 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
Incremental Delay, d2	1.8	0.2	0.0	2.2	0.1	0.4	1.2	1.9	0.3	3.8	0.3	0.2
Delay (s)	29.8	36.4	34.7	15.1	22.1	22.3	38.0	40.6	36.2	35.5	28.7	26.9
Level of Service	C	D	C	B	C	C	D	D	D	D	C	C
Approach Delay (s)		33.5			20.1			38.9			29.7	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	97.4	Sum of lost time (s)	28.6
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	774	9	26	1585	206	8	0	14	359	0	0
Future Volume (vph)	23	774	9	26	1585	206	8	0	14	359	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	
Frt	1.00	1.00		1.00	0.98			0.91			1.00	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.95	
Satd. Flow (prot)	1770	4794		1671	4751			1672			1770	
Flt Permitted	0.12	1.00		0.28	1.00			0.89			0.74	
Satd. Flow (perm)	228	4794		493	4751			1510			1380	
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.90	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	25	860	10	29	1761	224	9	0	16	390	0	0
RTOR Reduction (vph)	0	2	0	0	23	0	0	14	0	0	0	0
Lane Group Flow (vph)	25	868	0	29	1962	0	0	11	0	0	390	0
Heavy Vehicles (%)	2%	8%	8%	8%	8%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.7	32.7		32.7	32.7			28.3			28.3	
Effective Green, g (s)	32.7	32.7		32.7	32.7			28.3			28.3	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.40			0.40	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	106	2239		230	2219			610			557	
v/s Ratio Prot		0.18			c0.41							
v/s Ratio Perm	0.11			0.06				0.01			c0.28	
v/c Ratio	0.24	0.39		0.13	0.88			0.02			0.70	
Uniform Delay, d1	11.2	12.1		10.6	16.9			12.5			17.3	
Progression Factor	0.74	0.74		1.00	1.00			1.00			1.00	
Incremental Delay, d2	4.8	0.5		1.1	5.6			0.1			7.2	
Delay (s)	13.0	9.5		11.7	22.5			12.6			24.5	
Level of Service	B	A		B	C			B			C	
Approach Delay (s)		9.6			22.4			12.6			24.5	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1103	44	89	1818	49	0	0	54	0	0	0
Future Volume (Veh/h)	0	1103	44	89	1818	49	0	0	54	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Hourly flow rate (vph)	0	1212	48	98	1998	53	0	0	59	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		549										
pX, platoon unblocked				0.90			0.90	0.90	0.90	0.90	0.90	
vC, conflicting volume	2051			1260			2098	3483	428	2684	3480	692
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2051			885			1820	3365	0	2473	3362	692
tC, single (s)	4.1			4.3			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			85			100	100	94	100	100	100
cM capacity (veh/h)	270			649			38	6	972	11	6	386

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	485	485	290	98	799	799	453	59	0
Volume Left	0	0	0	98	0	0	0	0	0
Volume Right	0	0	48	0	0	0	53	59	0
cSH	1700	1700	1700	649	1700	1700	1700	972	1700
Volume to Capacity	0.29	0.29	0.17	0.15	0.47	0.47	0.27	0.06	0.00
Queue Length 95th (ft)	0	0	0	13	0	0	0	5	0
Control Delay (s)	0.0	0.0	0.0	11.5	0.0	0.0	0.0	8.9	0.0
Lane LOS				B				A	A
Approach Delay (s)	0.0			0.5				8.9	0.0
Approach LOS								A	A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	364	659	851	601	24
Future Volume (vph)	5	364	659	851	601	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3519	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3519	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	396	716	925	653	26
RTOR Reduction (vph)	0	332	0	0	2	0
Lane Group Flow (vph)	5	64	716	925	677	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	22.5	22.5	68.5	108.5	35.5	
Effective Green, g (s)	22.5	22.5	68.5	108.5	35.5	
Actuated g/C Ratio	0.16	0.16	0.49	0.78	0.25	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	284	254	866	2742	892	
v/s Ratio Prot	0.00		c0.40	0.26	c0.19	
v/s Ratio Perm		c0.04				
v/c Ratio	0.02	0.25	0.83	0.34	0.76	
Uniform Delay, d1	49.4	51.4	30.7	4.8	48.3	
Progression Factor	1.00	1.00	0.77	0.41	0.94	
Incremental Delay, d2	0.1	2.4	3.1	0.1	5.5	
Delay (s)	49.6	53.7	26.8	2.1	51.0	
Level of Service	D	D	C	A	D	
Approach Delay (s)	53.7			12.9	51.0	
Approach LOS	D			B	D	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	84	95	12	100	180	34
Future Volume (Veh/h)	84	95	12	100	180	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	103	13	109	196	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			194		278	142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			194		278	142
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		72	96
cM capacity (veh/h)			1379		706	905

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	194	13	109	233
Volume Left	0	13	0	196
Volume Right	103	0	0	37
cSH	1700	1379	1700	731
Volume to Capacity	0.11	0.01	0.06	0.32
Queue Length 95th (ft)	0	1	0	34
Control Delay (s)	0.0	7.6	0.0	12.2
Lane LOS		A		B
Approach Delay (s)	0.0	0.8		12.2
Approach LOS				B

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	143	15	160	273	264	21	113	75	361	266	50
Future Volume (vph)	18	143	15	160	273	264	21	113	75	361	266	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.8	6.8		7.8	6.8	6.8	7.8	7.8		7.4	7.4	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1837		1770	1863	1583	1770	1751		1770	1819	
Flt Permitted	0.40	1.00		0.54	1.00	1.00	0.48	1.00		0.62	1.00	
Satd. Flow (perm)	747	1837		1006	1863	1583	896	1751		1150	1819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	155	16	174	297	287	23	123	82	392	289	54
RTOR Reduction (vph)	0	3	0	0	0	209	0	17	0	0	5	0
Lane Group Flow (vph)	20	168	0	174	297	78	23	188	0	392	338	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	46.1	35.9		50.7	38.2	38.2	69.2	69.2		69.6	69.6	
Effective Green, g (s)	46.1	35.9		50.7	38.2	38.2	69.2	69.2		69.6	69.6	
Actuated g/C Ratio	0.33	0.26		0.36	0.27	0.27	0.49	0.49		0.50	0.50	
Clearance Time (s)	7.8	6.8		7.8	6.8	6.8	7.8	7.8		7.4	7.4	
Lane Grp Cap (vph)	320	471		432	508	431	442	865		571	904	
v/s Ratio Prot	0.00	0.09		c0.04	c0.16			0.11			0.19	
v/s Ratio Perm	0.02			0.11		0.05	0.03			c0.34		
v/c Ratio	0.06	0.36		0.40	0.58	0.18	0.05	0.22		0.69	0.37	
Uniform Delay, d1	32.3	42.6		31.8	44.0	38.9	18.4	20.1		26.9	21.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	2.1		2.8	4.9	0.9	0.2	0.6		6.6	1.2	
Delay (s)	32.7	44.7		34.5	48.9	39.9	18.6	20.6		33.5	22.9	
Level of Service	C	D		C	D	D	B	C		C	C	
Approach Delay (s)		43.4			42.2			20.4			28.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.4
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	4	110	0	88	51	0	60	5	38	0	1	6
Future Volume (Veh/h)	4	110	0	88	51	0	60	5	38	0	1	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	120	0	96	55	0	65	5	41	0	1	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	55			120			382	375	120	418	375	55
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	55			120			382	375	120	418	375	55
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			88	99	96	100	100	99
cM capacity (veh/h)	1550			1468			541	518	931	490	518	1012

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	124	151	111	8
Volume Left	4	96	65	0
Volume Right	0	0	41	7
cSH	1550	1468	639	904
Volume to Capacity	0.00	0.07	0.17	0.01
Queue Length 95th (ft)	0	5	16	1
Control Delay (s)	0.3	5.0	11.8	9.0
Lane LOS	A	A	B	A
Approach Delay (s)	0.3	5.0	11.8	9.0
Approach LOS			B	A

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations					↑↑↑			↑↑				
Traffic Volume (vph)	0	0	0	0	1428	0	0	1057	0	0	0	0
Future Volume (vph)	0	0	0	0	1428	0	0	1057	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.91			0.95				
Frt					1.00			1.00				
Flt Protected					1.00			1.00				
Satd. Flow (prot)					5085			3539				
Flt Permitted					1.00			1.00				
Satd. Flow (perm)					5085			3539				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1552	0	0	1149	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1552	0	0	1149	0	0	0	0
Turn Type					NA			NA				
Protected Phases					2			4				
Permitted Phases												
Actuated Green, G (s)					34.4			26.6				
Effective Green, g (s)					34.4			26.6				
Actuated g/C Ratio					0.49			0.38				
Clearance Time (s)					4.5			4.5				
Lane Grp Cap (vph)					2498			1344				
v/s Ratio Prot					c0.31			c0.32				
v/s Ratio Perm												
v/c Ratio					0.62			0.85				
Uniform Delay, d1					13.0			19.9				
Progression Factor					0.78			1.00				
Incremental Delay, d2					1.2			7.1				
Delay (s)					11.4			27.0				
Level of Service					B			C				
Approach Delay (s)		0.0			11.4			27.0			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	180	0	393	546	159	0	0	413	13
Future Volume (vph)	0	0	0	180	0	393	546	159	0	0	413	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5		4.5	4.5	4.5			4.5	4.5
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433		1583	1770	3539			3539	1583
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433		1583	1770	3539			3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	196	0	427	593	173	0	0	449	14
RTOR Reduction (vph)	0	0	0	0	0	317	0	0	0	0	0	10
Lane Group Flow (vph)	0	0	0	196	0	110	593	173	0	0	449	4
Turn Type				Perm		Perm	Split	NA			NA	Perm
Protected Phases							2	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)				18.0		18.0	20.5	20.5			18.0	18.0
Effective Green, g (s)				18.0		18.0	20.5	20.5			18.0	18.0
Actuated g/C Ratio				0.26		0.26	0.29	0.29			0.26	0.26
Clearance Time (s)				4.5		4.5	4.5	4.5			4.5	4.5
Lane Grp Cap (vph)				882		407	518	1036			910	407
v/s Ratio Prot							c0.34	0.05			c0.13	
v/s Ratio Perm				0.06		c0.07						0.00
v/c Ratio				0.22		0.27	1.14	0.17			0.49	0.01
Uniform Delay, d1				20.5		20.8	24.8	18.4			22.1	19.4
Progression Factor				1.00		1.00	1.86	1.42			1.00	1.00
Incremental Delay, d2				0.6		1.6	81.1	0.3			1.9	0.0
Delay (s)				21.1		22.4	127.2	26.3			24.0	19.4
Level of Service				C		C	F	C			C	B
Approach Delay (s)		0.0			22.0			104.4			23.9	
Approach LOS		A			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	56.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	0	270	0	0	0	0	676	181	239	354	0
Future Volume (vph)	29	0	270	0	0	0	0	676	181	239	354	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5					4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97		1.00					0.95	1.00	0.97	0.95	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433		1583					3539	1583	3433	3539	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433		1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	0	293	0	0	0	0	735	197	260	385	0
RTOR Reduction (vph)	0	0	218	0	0	0	0	0	139	0	0	0
Lane Group Flow (vph)	32	0	75	0	0	0	0	735	58	260	385	0
Turn Type	Perm		Perm					NA	Perm	Split	NA	
Protected Phases								2		6	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	18.0		18.0					20.5	20.5	18.0	18.0	
Effective Green, g (s)	18.0		18.0					20.5	20.5	18.0	18.0	
Actuated g/C Ratio	0.26		0.26					0.29	0.29	0.26	0.26	
Clearance Time (s)	4.5		4.5					4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	882		407					1036	463	882	910	
v/s Ratio Prot								c0.21		0.08	c0.11	
v/s Ratio Perm	0.01		c0.05						0.04			
v/c Ratio	0.04		0.19					0.71	0.12	0.29	0.42	
Uniform Delay, d1	19.5		20.3					22.1	18.2	20.9	21.7	
Progression Factor	1.00		1.00					1.97	6.32	1.41	1.36	
Incremental Delay, d2	0.1		1.0					3.9	0.5	0.8	1.3	
Delay (s)	19.6		21.3					47.4	115.3	30.2	30.9	
Level of Service	B		C					D	F	C	C	
Approach Delay (s)		21.1			0.0			61.8			30.6	
Approach LOS		C			A			E			C	

Intersection Summary			
HCM 2000 Control Delay	44.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑									↑↑↑	
Traffic Volume (vph)	0	1341	0	0	0	0	0	0	0	0	592	0
Future Volume (vph)	0	1341	0	0	0	0	0	0	0	0	592	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.95									0.91	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		3539									5085	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		3539									5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1458	0	0	0	0	0	0	0	0	643	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1458	0	0	0	0	0	0	0	0	643	0
Turn Type		NA									NA	
Protected Phases		2									4	
Permitted Phases												
Actuated Green, G (s)		34.4									26.6	
Effective Green, g (s)		34.4									26.6	
Actuated g/C Ratio		0.49									0.38	
Clearance Time (s)		4.5									4.5	
Lane Grp Cap (vph)		1739									1932	
v/s Ratio Prot		c0.41									c0.13	
v/s Ratio Perm												
v/c Ratio		0.84									0.33	
Uniform Delay, d1		15.4									15.4	
Progression Factor		1.04									1.00	
Incremental Delay, d2		4.5									0.5	
Delay (s)		20.5									15.9	
Level of Service		C									B	
Approach Delay (s)		20.5			0.0			0.0			15.9	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	58	447	1389	204	359	34
Future Volume (vph)	58	447	1389	204	359	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.91	0.91		1.00	
Frt	1.00	1.00	0.98		0.99	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	4988		1761	
Flt Permitted	0.10	1.00	1.00		0.96	
Satd. Flow (perm)	194	5085	4988		1761	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	486	1510	222	390	37
RTOR Reduction (vph)	0	0	28	0	5	0
Lane Group Flow (vph)	63	486	1704	0	422	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)	38.5	38.5	38.5		22.5	
Effective Green, g (s)	38.5	38.5	38.5		22.5	
Actuated g/C Ratio	0.55	0.55	0.55		0.32	
Clearance Time (s)	4.5	4.5	4.5		4.5	
Lane Grp Cap (vph)	106	2796	2743		566	
v/s Ratio Prot		0.10	c0.34		c0.24	
v/s Ratio Perm	0.33					
v/c Ratio	0.59	0.17	0.62		0.75	
Uniform Delay, d1	10.5	7.8	10.8		21.2	
Progression Factor	1.00	1.00	0.32		1.00	
Incremental Delay, d2	22.2	0.1	0.5		8.7	
Delay (s)	32.7	8.0	3.9		29.9	
Level of Service	C	A	A		C	
Approach Delay (s)		10.8	3.9		29.9	
Approach LOS		B	A		C	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Sign configuration not allowed in HCM analysis.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑		↰	↑			✥			✥	
Traffic Volume (veh/h)	0	351	79	0	684	0	248	0	0	0	0	0
Future Volume (Veh/h)	0	351	79	0	684	0	248	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	382	86	0	743	0	270	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	743			468			1168	1168	425	1125	1211	743
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	743			468			1168	1168	425	1125	1211	743
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			0	100	100	100	100	100
cM capacity (veh/h)	864			1094			170	193	629	182	182	415

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	468	0	743	270	0
Volume Left	0	0	0	0	270	0
Volume Right	0	86	0	0	0	0
cSH	1700	1700	1700	1700	170	1700
Volume to Capacity	0.00	0.28	0.00	0.44	1.59	0.00
Queue Length 95th (ft)	0	0	0	0	452	0
Control Delay (s)	0.0	0.0	0.0	0.0	337.8	0.0
Lane LOS					F	A
Approach Delay (s)	0.0		0.0		337.8	0.0
Approach LOS					F	A

Intersection Summary			
Average Delay	61.6		
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		