



SANCTUARY COURT

A MIXED-USE PLANNED UNIT DEVELOPMENT

124 SPRING STREET, CHARLESTON SC

CITY PROJECT ID 160405-SpringSt-1

APPLICANT: 124 SPRING STREET LLC
CONSULTANTS: AJ ARCHITECTS, GLENN ZUBER PE

5.23.2016 SUBMITTAL TO TRC

TABLE OF CONTENTS

I. INTRODUCTION

- A. Relationship to the City of Charleston Zoning Ordinance
- B. Executive Summary
- C. Comprehensive Plan Alignment

II. SITE & CONTEXT

- A. Aerial Exhibit
- B. Existing Survey
- C. Cultural Resource Assessment

III. LAND USE STRATEGY

- A. Development Plan
- B. Court: Living Street
- C. Case Studies
- D. Parking Philosophy

IV. SITE DESIGN

- A. Land Use Plan
- B. Green Space Plan
- C. Drainage Analysis
- D. Traffic Study

V. GENERAL GUIDELINES

- A. Parking
- B. Residential Units
- C. Commercial Units
- D. Building Heights & Massing
- E. Flood Zone
- F. Property Owners Association
- G. Utilities
- H. Signage
- I. Landscape
- J. Lighting
- K. Streets, Sidewalks
- L. Trees
- M. Affordable Housing
- N. City Benefit

VI. APPENDIX

List of Exhibits:

1. Letter from pastor, Plymouth Church
2. Aerial Site Photo
3. Existing Site Survey
4. Court Example Photos
5. Proposed Land Use Plan
6. Proposed Open Space Plan
7. PUD Storm Water Exhibit
8. Cultural Resource Assessment
9. Traffic Impact Study
10. Letters of Coordination

Sanctuary

noun sanc·tu·ary \ 'sɑŋ(k)-chə-,wer-ē\

Simple Definition of SANCTUARY

- : a place where someone or something is protected or given shelter
- : the protection that is provided by a safe place
- : the room inside a church, synagogue, etc., where religious services are held

In the earliest time after the founding of Elliottborough, the land known today as 124 Spring Street was safely nestled in the midst of dual fortresses providing security, safety and comfort to the early settlers of Elliottborough.

In its most recent life, this land was home to the congregants of the Plymouth Congregational Church for the past 57 years, providing a sacred place of worship, peace and fellowship for many individuals and families.

...A Sanctuary in every sense of the word...

The future vision for 124 Spring Street will continue this tradition by providing comfort, security and a sense of community to the residents of Sanctuary Court.

RELATIONSHIP TO THE CITY OF CHARLESTON ZONING ORDINANCE

The Development Guidelines and Land Use Plan for the Sanctuary Court Planned Unit Development (PUD), attached hereto and made part hereof, are part of the PUD conditional use Master Plan application submitted in accordance with the Zoning Ordinance of the City of Charleston, Article 2, Part 7 Sections 54-250, et seq. The Zoning Ordinance of the City of Charleston is incorporated herein by reference, except as amended herein.

No person shall erect or alter any building, structures or sign on any tract of land or use any tract of land within the Sanctuary Court PUD except in conformance with these guidelines and regulations. Unless modified herein, definitions of terms used in the Sanctuary Court PUD Development Guidelines shall follow definitions listed in the Zoning Ordinance of the City of Charleston, as amended from time to time. Administration and enforcement of the adopted Sanctuary Court PUD Master Plan shall follow Article 9 of the Zoning Ordinance of the City of Charleston.

The Sanctuary Court PUD Master Plan was approved by the Charleston City Council on _____, Ordinance Number _____.

EXECUTIVE SUMMARY

Sanctuary Court is a Mixed-Use Planned Unit Development located on Spring Street between Rutledge and Ashley Avenues on the City of Charleston's Peninsula. It is located within the Cannonborough/Elliottborough Community. The project is a redevelopment parcel totaling 26,022 SF (0.60 acres). The street address for the parcel is 124 Spring Street Charleston, SC 29403. The Charleston County TMS # is 460-11-02-027.

SITE HISTORY:

The site was originally two parcels, each containing an apartment building. The parcels were combined in 1958 when the Plymouth Congregational Church purchased the lots and subsequently built a church. In 2014, the congregation voted to sell the church property and relocate as a part of its vision to continue to grow its ministry and outreach by expansion of activities, facilities and programs. 124 Spring, LLC acquired the property in September of 2015 and obtained approval from the Board of Architectural Review to demolish the structure, as this was consistent with the wishes of the congregation (see Exhibit 1: Letter from Ramon Washington, Pastor). The demolition of the church was completed in January of 2016, with the stained glass windows being donated to the Plymouth Congregational Church for use in their new facility.

CURRENT ZONING:

The current zoning of the parcel is divided: LB (Limited Business) and DR-2F (Diverse Residential), which allows 14 residential units, and commercial units on the LB portion of the lot. It is located within a Zoning Overlay of maximum 50' height and 3 ½ stories. There are required Zoning buffers between the commercial and residential units.

NATURAL SITE FEATURES:

There are no wetlands on site. The vast majority of the site is asphalt pavement and the concrete slab remaining from the demolition. There is one tree of significance, a 24" Water Oak that will be inspected by an arborist. If the tree is in good condition it will be preserved, protected and incorporated into the bike path/storage area. If the tree is not in good condition it will be requested that we be allowed to remove the tree for the safety of the property and future buildings.

DEVELOPMENT CONCEPT

The development concept of the community is the incorporation of residential and mixed-use offering an appropriately scaled neighborhood court. The only permitted building uses will be consistent with current zoning with commercial office/restaurant use within the limited business portion of the lot along the Spring Street frontage and residential rental units throughout the remainder of the site.

The commercial office/restaurant space will be limited to the structures to be located within the commercially zoned portion of the site. The owner is desirous of securing commercial leases from businesses, which would serve the Cannonborough-

Elliottborough community, such as a café, coffee shop or other similar low traffic uses which would diminish the residential occupant's reliance upon automobiles by having such facilities on-site.

The residential units will be located throughout the site, including above the commercial spaces. This residential community will consist of (28) two or one bedroom units, in "residential scale" structures, consistent in size with neighboring structures. They will be leased units, but will be designed to accommodate the potential sale to individuals in the future at the election of the owner/developer.

An internal court, a living street, will serve as the central element of the community and will create a shared open space. Each building in the development will relate directly to the court; it will serve as a common gathering space.

To further reinforce the sense of "community" and to diminish the need for residents to own personal automobiles, Sanctuary Court will introduce a "car-share" service on the premises. One vehicle dedicated to car sharing will be available to the residents of Sanctuary Court on a pay-per-use basis. This amenity will potentially be expanded to 3 vehicles and made available to the Cannonborough/Elliottborough community pending the demand for this vehicle by Sanctuary Court residents.

COMPREHENSIVE PLAN ALIGNMENT

The Sanctuary Court Planned Unit Development is aligned with the City of Charleston's vision for future land use utilizing redevelopment and infill opportunities. As stated in the City of Charleston's PUD Zoning Ordinance, the intent is as follows:

"A planned unit development (PUD) is intended to provide flexibility in the design of developments; to encourage comprehensive planning of developments; to permit innovation in neighborhood design that includes incorporation of open space, preservation of natural features and other amenities; to provide opportunity for a mixture of uses within a development and to insure compatibility of developments with surrounding areas"

Per the Century V Plan Update:

"Redevelopment and Infill Opportunities... These underused or abandoned sites are one of Charleston's greatest physical assets because their development or redevelopment can help repair or complete existing neighborhoods. These sites can reduce the need to travel further to shop or work, preserve lands further out, and save taxpayers infrastructure costs."

The proposed PUD site is a large-midblock lot: L-shaped and deep. Access to the rear of the lot requires creative implementation of infrastructure, better defined through PUD language. Dividing the lot with a central court establishes an overall plan that mirrors the rhythm of Spring Street and the bordering properties on Ashley and Rutledge Avenues.

In relating this development to the Century V plan, it is important to note that the "Primary Land Use Designations" outlined in the comprehensive plan are listed as follows:

Urban Land Use: mixed use with primarily residential units, 8-12 units per acre
Neighborhood Centers: medium density gathering places, 8-20 units per acre

Urban Centers: mixed use office/retail/residential, 8-26 dwelling units per acre

Cannonborough/Elliottborough is listed as an Urban district on the Century V map. A majority of the buildings along Spring Street are mixed use, and density of the immediate area is approximately 13-17 units per acre. While the apartment unit density of this proposed development exceeds the recommended density of the Century V Plan, it certainly mirrors the density of more recent PUD developments in this area, relating to the need for diversity in development for urban Charleston neighborhoods. **Furthermore, Sanctuary Court has been designed to have predominantly two-bedroom and one-bedroom units, as opposed to the more typical four bedroom units. Thus, Sanctuary Court will provide housing for the same number of occupants, as permitted under the current zoning ordinance.**

Sanctuary Court will comply with the City of Charleston's Comprehensive Plan Goals as follows...

"Ensure a high quality of life throughout the City by maintaining existing and building new quality neighborhoods, encouraging infill and redevelopment and providing new gathering places throughout the City."

The Sanctuary Court Planned Unit Development has been designed to increase the number of units allowed by current zoning, **but reduce the number of bedrooms per unit**. This plan responds to neighborhood desires for high-quality, well integrated housing within walking or biking distance of the central business district and MUSC.

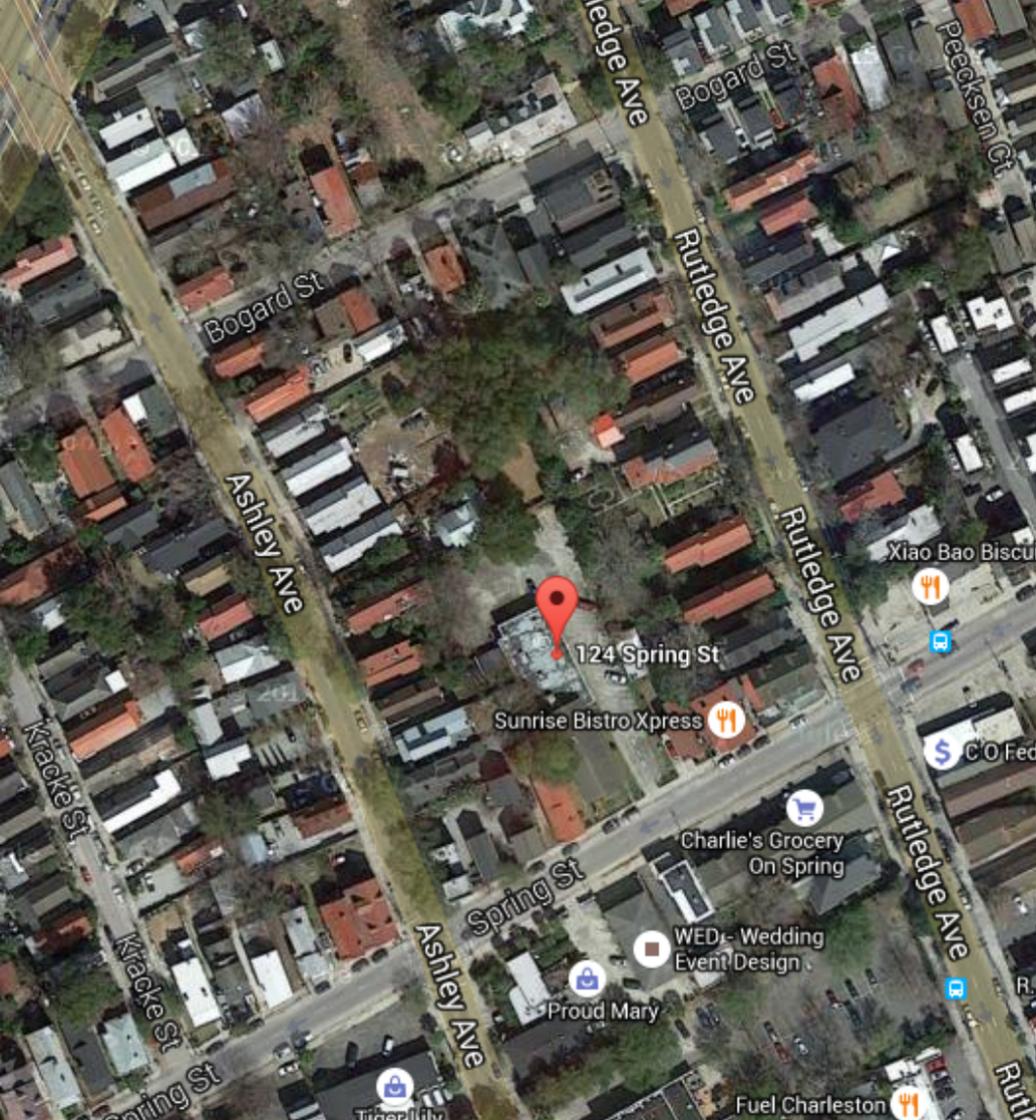
Other goals of the City of Charleston Comprehensive Plan that are embodied within the design of Sanctuary Court are:

"Ensure all citizens of Charleston have a choice of transportation options moving within neighborhoods, between neighborhoods and across the City and region."

"Accommodate future population growth through land-use policies that encourage vibrant, safe, and diverse neighborhoods in areas that allow efficient use of space and transportation."

The central location of Sanctuary Court Planned Unit Development enables walking and cycling access to shopping and worksites. To encourage less reliance on the automobile, the development will offer ample, well-lit, secure bike storage. The opportunity to have commercial uses such as a neighborhood café within the development will also foster this sort of urban lifestyle. "

Significantly, Sanctuary Court will provide an on-site "car-share" service, making it possible for the residents of Sanctuary Court (and possibly the Cannonborough/Elliottborough community) to forego personal automobile ownership.



Bogard St

Rutledge Ave

Rutledge Ave

Pecksen Ct

Ashley Ave

Rutledge Ave

Xiao Bao Biscuits

124 Spring St

Sunrise Bistro Xpress

C/O Fed

Kracke St

Charlie's Grocery
On Spring

Spring St

WED - Wedding
Event Design

Kracke St

Proud Mary

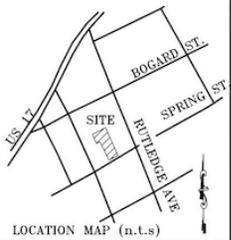
Rutledge Ave

Ashley Ave

Spring St

Fuel Charleston

Rutledge Ave



LEGEND:

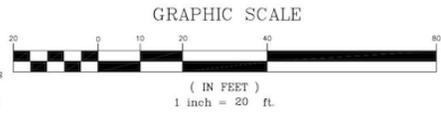
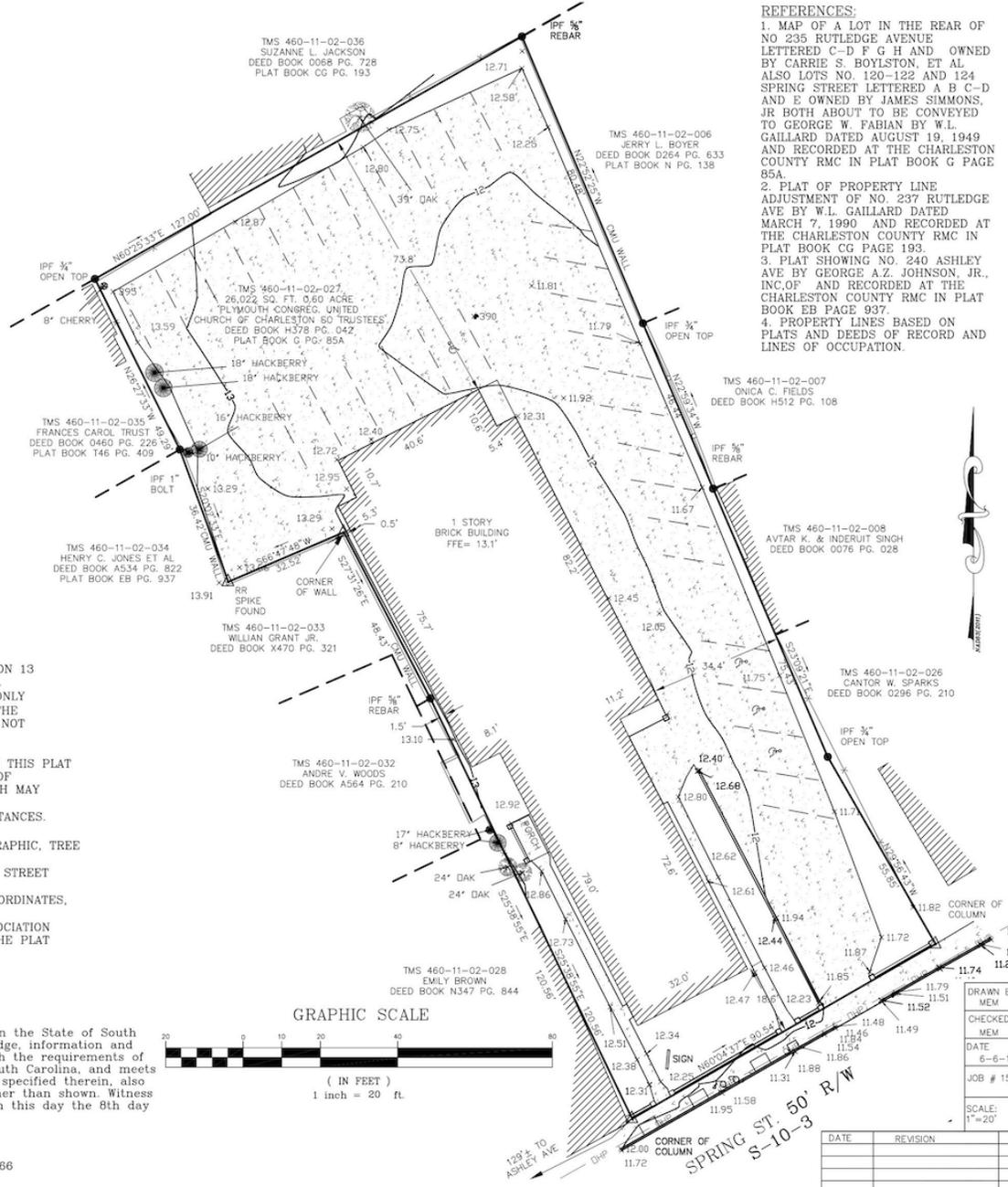
- IPS = IRON SET (5/8" REBAR UNLESS OTHERWISE NOTED)
- IPF = IRON FOUND (5/8" REBAR UNLESS OTHERWISE NOTED)
- CMF = CONCRETE MONUMENT FOUND
- SIGN
- LIGHT POLE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- WATER WELL
- SANITARY MANHOLE
- POWER POLE
- TELEPHONE PEDESTAL
- STORM MANHOLE
- WATER LINE
- ADJACENT PROPERTY LINE

NOTES:

1. AREA DETERMINED BY COORDINATES.
2. THIS PROPERTY LIES IN FLOOD ZONE 'X' & 'AE' ELEVATION 13 AS SHOWN ON FEMA MAP 45019C0512J DATED 11-17-04.
3. THE PUBLIC RECORDS REFERENCED ON THIS PLAT ARE ONLY USED AND/OR NECESSARY TO THE ESTABLISHMENT OF THE BOUNDARY OF THIS PROPERTY. THEY ARE NOT AND DO NOT CONSTITUTE A TITLE SEARCH.
4. NO SUBSURFACE OR ENVIRONMENTAL INVESTIGATION OR SURVEYS WERE PERFORMED FOR THIS PLAT. THEREFORE THIS PLAT DOES NOT REFLECT THE EXISTENCE OR NONEXISTENCE OF WETLANDS, CONTAMINATION, OR OTHER CONDITIONS WHICH MAY AFFECT THIS PROPERTY.
5. DISTANCE SHOWN HEREON ARE HORIZONTAL GROUND DISTANCES.
6. DATE OF FIELD SURVEY JUNE 4, 2015.
7. THE PURPOSE OF THIS SURVEY IS A BOUNDARY, TOPOGRAPHIC, TREE SURVEY OF 124 SPRING STREET.
8. ALL TREES 8" DBH AND ABOVE LOCATED AT 124 SPRING STREET AS SHOWN.
9. HORIZONTAL DATUM IS NAD83(2011) SC STATE PLANE COORDINATES, VERTICAL DATUM IS NGVD 29.
10. THERE IS NO HOMEOWNERS OR PROPERTY OWNERS ASSOCIATION IN PLACE OR RULES THAT WILL PREVENT OR VIOLATE THE PLAT PUT FORTH.

I, Matthew E. McBeath, a Professional Land Surveyor in the State of South Carolina, hereby state that to the best of my knowledge, information and belief, the survey herein was made in accordance with the requirements of the Standards of Practice Manual for Surveying in South Carolina, and meets or exceeds the requirements for a Class A Survey as specified therein, and also there are no visible encroachments or projections other than shown. Witness my original signature and license number and seal on this day the 8th day of June 2015.

Matthew E. McBeath
 Matthew E. McBeath
 1500 Huxley Drive Mount Pleasant, South Carolina 29466
 Telephone (843) 856-1277



REFERENCES:
 1. MAP OF A LOT IN THE REAR OF NO 235 RUTLEDGE AVENUE LETTERED C-D F G H AND OWNED BY CARRIE S. BOYLSTON, ET AL ALSO LOTS NO. 120-122 AND 124 SPRING STREET LETTERED A B C-D AND E OWNED BY JAMES SIMMONS, JR BOTH ABOUT TO BE CONVEYED TO GEORGE W. FABIAN BY W.L. GAILLARD DATED AUGUST 19, 1949 AND RECORDED AT THE CHARLESTON COUNTY RMC IN PLAT BOOK G PAGE 85A.
 2. PLAT OF PROPERTY LINE ADJUSTMENT OF NO. 237 RUTLEDGE AVE BY W.L. GAILLARD DATED MARCH 7, 1990 AND RECORDED AT THE CHARLESTON COUNTY RMC IN PLAT BOOK CG PAGE 193.
 3. PLAT SHOWING NO. 240 ASHLEY AVE BY GEORGE A.Z. JOHNSON, JR., INC. OF AND RECORDED AT THE CHARLESTON COUNTY RMC IN PLAT BOOK EB PAGE 937.
 4. PROPERTY LINES BASED ON PLATS AND DEEDS OF RECORD AND LINES OF OCCUPATION.



EAST COOPER LAND SURVEYING, LLC

PROFESSIONAL LAND SURVEYORS
 1500 HUXLEY DRIVE MOUNT PLEASANT, SOUTH CAROLINA 29466
 OFFICE (843) 856-1277 E-MAIL ecsl@BELLSOUTH.NET

CITY OF CHARLESTON
 CHARLESTON COUNTY
 SOUTH CAROLINA

124 SPRING STREET

TMS 460-11-02-027

PREPARED FOR:
 CKC PROPERTIES, LLC

BOUNDARY, TOPOGRAPHIC, TREE SURVEY

DRAWN BY: MEM
 CHECKED BY: MEM
 DATE: 6-6-15
 JOB # 15088
 SCALE: 1"=20'

SHEET
 1 OF 1

DEVELOPMENT PLAN

Property Address: 124 Spring Street, Charleston, South Carolina

TMS# 460-11-02-027

Site Area: 26,022 SF, 0.60 acres

Existing Zoning: LB and DR-2F

Existing Conditions: Paved parking area

Proposed Use: Mixed use court

Proposed Density: A maximum of 28 residential units, 4,000 square feet of commercial space

Site Development:

Maximum Commercial Space: 4000 square feet

Maximum Residential Units: 28 2-BR or 1-BR units

Building Setbacks Minimums

Front: 0 feet

Side: 1 foot

Rear: 3 feet

Minimum Lot Size: N/A

Maximum Lot Occupancy: Total Project - 50%

Max. Structure Height: Structure heights are permitted to a maximum fifty feet (50') measured from the average adjacent curb elevation to the top of the roof and three and one half (3 1/2) stories. Newly constructed homes will range from two and one half (2 1/2) to three and one half (3 1/2) stories. Heights will be distributed appropriately according to adjacent land uses and contextually appropriate massing.

Open Space: The existing parcel proposed for development is less than 10 acres, and will be exempt from the Section 54-256(h) requirement to dedicate a minimum of 20% open space. The Sanctuary Court open space plan allocates 32% of the parcel as active open space, and 18% of the parcel as a living street. All public right of ways and all amenities will be ADA and FHA compliant.

Parking: 24 spaces

Bicycle Court Spaces: The proposed common bike area can accommodate 17 bicycles, and there are other open areas in which additional bicycle parking can be provided.

Accessory Building: No accessory buildings are planned at this time. Any accessory

building added will meet accessory building standards for DR-2F zoning regulations. Use of accessory buildings will be limited to storage.

COURT: A LIVING STREET

A court in Charleston's historic district is distinct from a lane or alleyway; it is a dead end road that terminates mid-block. Examples of courts in the city include:

LOWER PENINSULA

Ford Court
Longitude Lane
Weims Court
ZigZag Alley

MIDDLE PENINSULA

Montague Court
Humphrey Court
Porters Court
Brewster Court
Payne Court
Ipswich Court
Tully Alley
Murphy Court
Menotti Street

UPPER PENINSULA

Grants Court
Woodall Court
Hampstead Court

In general, Charleston's Courts seem to have several common traits:

- The order of the city grid is suspended within the court
- Court structures are diverse in scale and use
- Buildings relate intimately to the court

The common central spine of a court fosters community. The small scale of the development will enable a familiarity among neighbors that can serve as a means of security and connection.

CASE STUDY RESULTS: PUD DESIGN

“Alleyways are an important part of Cannonborough-Elliottborough’s character.”

Chapter 6: Cannonborough/Elliottborough Area Character Appraisal

URBAN DESIGN PRINCIPLES FOR THE PUD

The design and development of the PUD will follow basic urban design principles:

Design: the overall design of the court will relate to other court precedents within Cannonborough/Elliottborough and other peninsula neighborhoods such as:

Weims Court: architectural scale, relationship of building to court

Minotti Street: architectural scale, court detailing

Tully Alley: diversity in design

Brewsters Court: mixed use component

Height: The height limit in the development will be limited to 3 1/2 stories and 50'-0", in keeping with zoning ordinance and surrounding properties

Scale: The scale of the buildings will relate to the scale of the immediate neighborhood

Architectural Rhythm: The architectural rhythm of the development will be set to relate to the adjacent properties on Rutledge and Ashley Avenues. The entry of the site will re-establish the building rhythm on Spring Street.

Siting: Each structure in the PUD will be sited to relate to the central court, while being mindful of neighboring properties

Materials: Materials in the development will be selected to complement the neighboring properties, and to have longevity.

RELATING TO THE CONTEXT OF THE NEIGHBORHOOD

The Cannonborough/Elliottborough Area Character Appraisal lists several important landscape characteristics that we plan to adopt in the design of the PUD:

- “Brick stamped concrete patterns are present throughout the neighborhood. These mark the historic location of driveways.”
 - Brick-scaled pavers will be used for the drive and definition of parking areas
- “Most buildings have little or no setback with vegetation located to the rear or adjacent to the buildings.”
 - Buildings will directly front the court
- “The construction of walls, fences, and enclosures has been a vernacular tradition in the neighborhood. There are over 80 different variations of walls, fences, and enclosures in Cannonborough-Elliottborough.”
 - The perimeter fencing for the development will reflect neighborhood styles. There may be opportunities for smaller gated areas that relate specifically to individual structures.



relationship of buildings to court



relationship of buildings to court

SANCTUARY COURT
PLANNED UNIT DEVELOPMENT

CASE STUDY: WEIMS COURT



emergency vehicle lane is "zoned" with materials



parking is integrated with common space/landscape



parking is integrated with common space/landscape

SANCTUARY COURT
PLANNED UNIT DEVELOPMENT

CASE STUDY: MINOTTI STREET



diversity in architectural styles on the court

SANCTUARY COURT
PLANNED UNIT DEVELOPMENT

CASE STUDY: TULLY ALLEY

Parking Philosophy

Sanctuary Court is located centrally within the Charleston peninsula, a comfortable walking or bicycling distance to all major employment centers on the peninsula. The subject property is located 1/2 mile from MUSC; 1/2 mile from the King Street/central business district corridor and .9 miles from the College of Charleston. Furthermore, the burgeoning technology district in the Upper Peninsula is convenient to the subject site with businesses such as Boomtown located .7 miles to the north.

Due to the convenient and centralized location of Sanctuary Court, pedestrian and bicycle commuting will be encouraged by the owner through the implementation of safe, secure and convenient bicycle storage facilities on site.

In addition, there will be a total of 24 parking spaces on site for the use of the residents. There will be 1 space allocated for rent for each long-term residential unit. In the event that a renter elects not to secure a parking space, that space will be available for other long term renters to lease an additional space.

On street parking passes will be limited by the city to one parking space per residential unit to a maximum of 28 spaces; which relates to the original zoning maximum of 14 units with 2 on street parking spaces per unit.

In effort to reduce the residents' reliance upon personal automobiles, the owner will attempt to enter into a strategic alliance with Zipcar of Charleston, a national car sharing service. If an alliance with zip car is not obtained, the developer will provide an owner operated car share service on site. The owner's intention is to utilize one to three parking spaces at Sanctuary Court for the purpose of storing car-sharing cars for use by not only the residents of Sanctuary Court, but also for use by others within the Canonborough - Elliottborough neighborhood (pending usage needs within the development).

This car sharing service has proven on a national level to diminish the need for individuals to own and maintain personal vehicles as it provides the means to run errands, which has driven the necessity of personal vehicle ownership.

National League of Cities – Sustainable Cities Institute

The National League of Cities – Sustainable Cities Institute has summarized the benefits of Car sharing as follows:

“Carsharing is a membership-based service, often run by private companies or non-profit organizations, whereby individuals are able to access shared vehicles, parked throughout communities, for short-term use. Members typically pay an annual fee as well as an hourly rate per usage. Carshare companies in turn typically cover costs of insurance, regular maintenance, and even gas. Primarily designed for shorter trips, carsharing provides a viable alternative to traditional car ownership and can serve as an extension of a city's transportation network. These programs, which local

governments can support (see below), positively contribute to and expand sustainable transportation options within and around urban areas.

Rationale

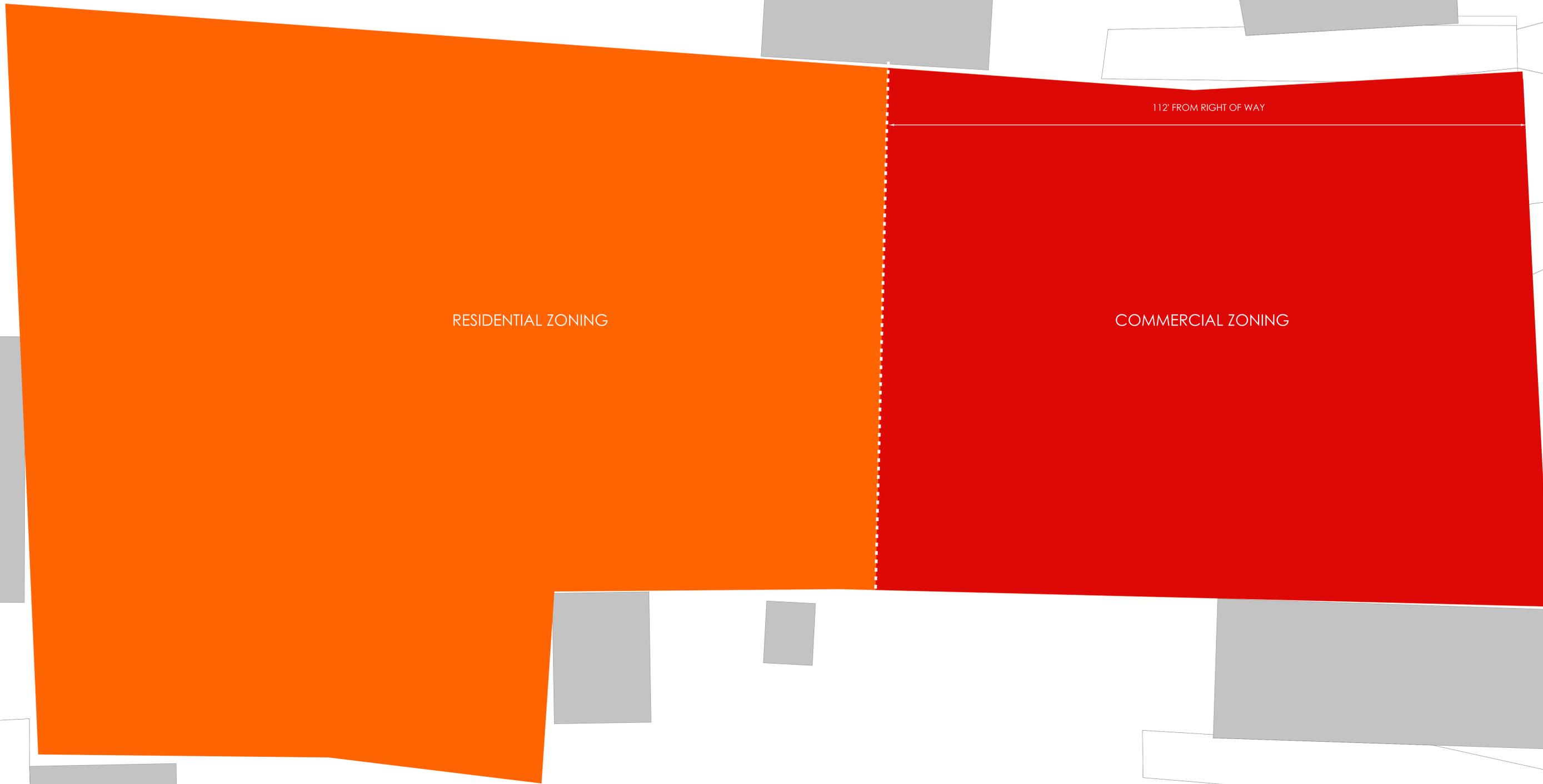
Carsharing increases mobility for community members to reach destinations otherwise inaccessible by public transit, walking or biking. This type of service is particularly valuable for individuals without access to personal vehicles and provides the added benefit of avoiding the financial costs associated with car ownership such as insurance and maintenance. Additionally, carsharing encourages and supports multi-modal communities by providing an additional transportation option and demonstrating that "mobility" in a city does not require personal vehicle ownership. While drop-off and pickup specifications vary based on the program, carsharing vehicles are typically located in areas to help increase connectivity and accessibility to a variety of transportation modes. Finally, vehicles used in carshare programs are typically fuel efficient, thus reducing gasoline consumption and keeping CO2 emissions to a minimum.

Benefits

Carsharing is most successful in dense areas; when it is offered as a complement to other forms of transit; and/or when it is located in areas that may not be strongly connected to existing transportation options. In such an environment, carsharing programs offer the following benefits:

- 1. · Increased mobility and accessibility for residents.**
- 2. · Increased transit ridership as a consequence of less car owners.**
- 3. · Avoided financial burdens of car ownership for members. According to research, approximately 25%-71% of carshare members have indicated that this option has allowed them to avoid the purchase of a personal vehicle (Shaheen et al, 2009).**
- 4. · Lower demand for on-street parking, particularly at peak traffic levels.**
- 5. · Lower traffic congestion and air pollution. Studies have estimated that carsharing removes between 4.6 and 20 cars per vehicle-shared from the road (Shaheen et al, 2009)."**

In summary, by offering parking at an additional cost and by implementing car share service at Sanctuary Court, the on-site parking demand will be reduced and more space may be utilized for bicycle storage and gathering spaces. An additional benefit of having a car share service positioned at Sanctuary Court will be the potential expansion of this service to the entire Cannonborough/Elliottborough community.



RESIDENTIAL ZONING

COMMERCIAL ZONING

112' FROM RIGHT OF WAY

SANCUTARY COURT PLANNED UNIT DEVELOPMENT

■	COMMERCIAL ZONING	9,730SF
■	RESIDENTIAL ZONING	16,292F



PROPOSED LAND USE PLAN



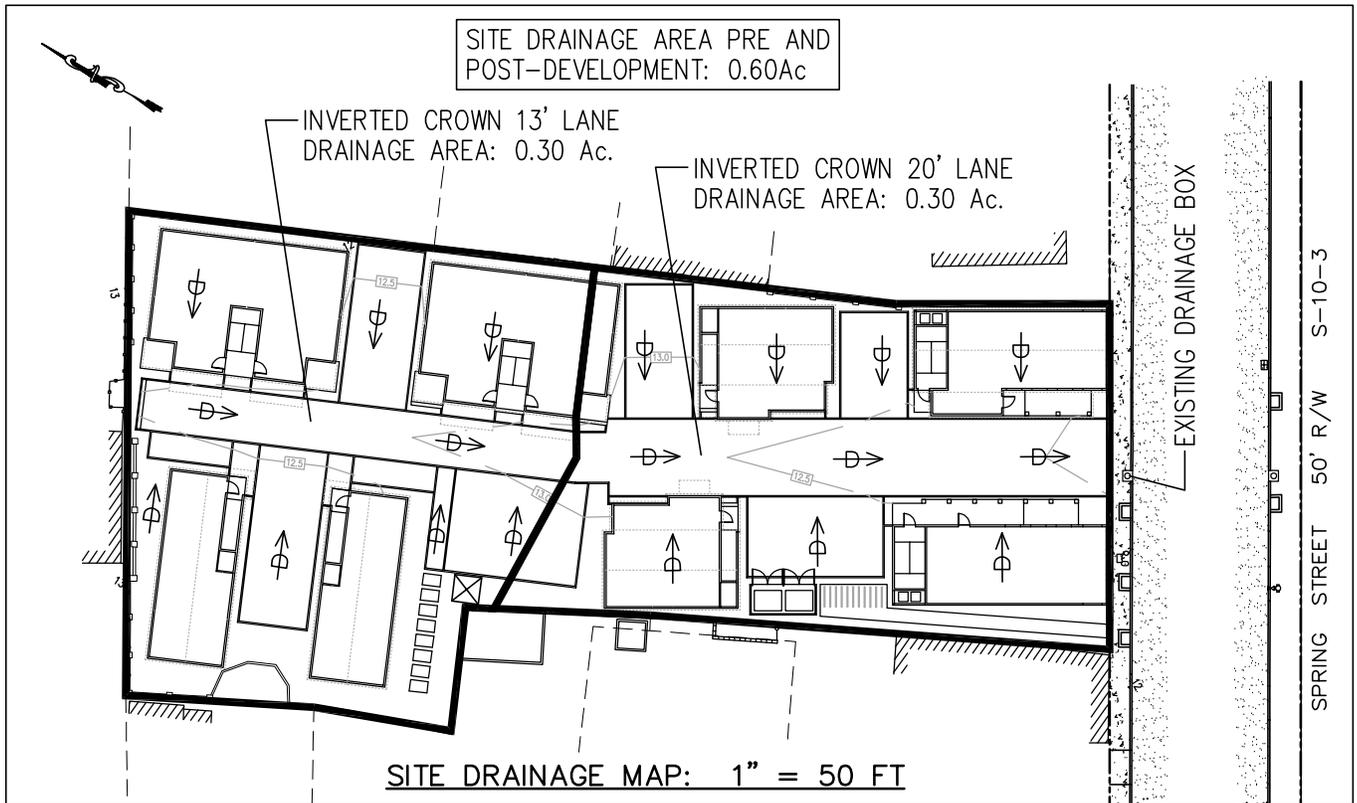
18% AS LIVING STREET
32% AS ACTIVE OPEN SPACE

SANCTUARY COURT PLANNED UNIT DEVELOPMENT

ACTIVE OPEN SPACE-GREEN SPACE 10,376SF
this area will be common space for use by all units



PROPOSED GREEN SPACE PLAN



SITE SURFACE AREA IMPERVIOUS COMPARISON:

TOTAL SITE AREA: 26,023 SF; 100.0%
 PRE-DEVELOPMENT SITE IMPERVIOUS: 21,597 SF; 83.0%
 POST-DEVELOPMENT SITE IMPERVIOUS: 15,464 SF; 59.4%

RUNOFF CURVE NUMBER COMPARISON:

PRE-DEVELOPMENT SITE IMPERVIOUS @ 98: 83.0%
 PRE-DEVELOPMENT SITE OPEN CONDITION @ 80: 17.0%
 PRE-DEVELOPMENT AVERAGE CN: 96.9

POST-DEVELOPMENT SITE IMPERVIOUS @ 98: 59.4%
 POST-DEVELOPMENT SITE GRAVEL PARKING @ 80: 6.9%
 POST-DEVELOPMENT SITE OPEN @ 77: 33.7%
 POST-DEVELOPMENT AVERAGE CN: 89.6

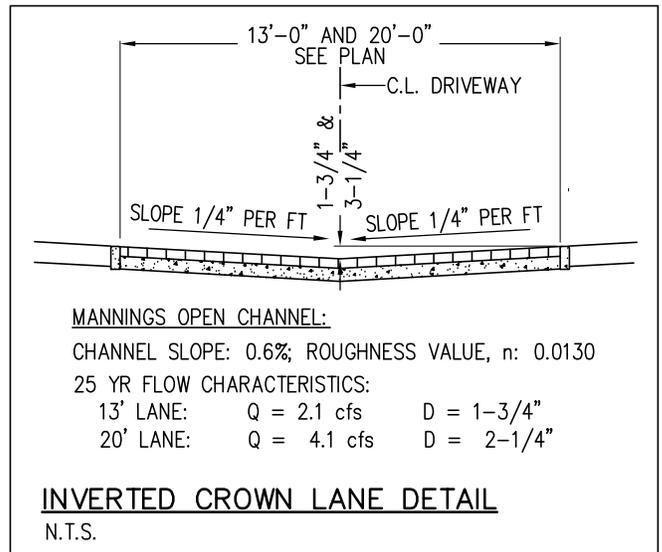
STORMWATER NOTES:

1. ANTICIPATED DISTURBANCE IS 0.6 Ac AND DRAINAGE TRAVEL PATH TO RECEIVING WATERBODY IS GREATER THAN 1/2 MILE.
2. DUE TO AN ANTICIPATED REDUCTION OF SURFACE IMPERVIOUS FROM REDEVELOPMENT, NO STORMWATER DETENTION IS PROPOSED FOR PURPOSE OF REDUCING PEAK FLOW RATES FROM THE SITE.
3. OUTFALL FROM THIS SITE IS AN EXISTING INLET SYSTEM ALONG SPRING STREET FOR BOTH PRE- AND POST-DEVELOPMENT CONDITIONS.

FLOW RATE COMARISON: (TR55)

STORM FREQUENCY: PRE-DEVELOPMENT: POST-DEVELOPMENT:

2 YEAR	2.3 CFS	1.9 CFS
10 YEAR	3.6 CFS	3.2 CFS
25 YEAR	4.4 CFS	4.0 CFS



PUD Stormwater Exhibit

124 Spring Street – TMS 460-11-02-027
 City of Charleston, Charleston Peninsula

GENERAL GUIDELINES

PARKING:

Parking will not be provided for commercial or short-term rental uses.

Parking will be provided as follows:

0 spaces for commercial units

0 spaces for the short-term rental/Loft Office Units in commercially zoned portion

1 Space minimum per unit for the 20 Long Term Residential Rental Units

1 Space minimum 4 space maximum for the car share service

Standard parking spaces will be 9'x18'-6".

RESIDENTIAL UNITS:

Single family attached residential units will exist throughout the development.

Residential units will have frontage along Sanctuary Court and Spring Street. All units within the residentially zoned portion of the property will be offered as long-term rental units. Units within the commercially zoned portion of the property may be offered as short-term rental units per Ordinance. See the Land Use Plan exhibit for areas designated as Residential or Commercial Zones.

COMMERCIAL UNITS:

Commercial units will exist within the commercially zoned portion of the property. All uses allowed within the City of Charleston's LB zoning designation will be allowed in the commercial spaces. Units will be offered as rentals.

BUILDING HEIGHTS & MASSING:

Building height and massing will vary throughout the development but overall building height will be limited to 3 1/2 stories or 50'-0" measured from the average adjacent ROW/front property line back-of-curb elevation to the top of the roof. This project is within the City of Charleston Board of Architectural Review jurisdiction, and, therefore, all buildings, site elements, and signage will be within the board's purview.

FLOOD ZONE:

This property is in an A-13 flood zone. All new construction must meet current FEMA requirements. City of Charleston requires a 1'-0" first floor increase over base flood elevation.

PROPERTY OWNERS ASSOCIATION:

The owner's intention is to retain ownership of the entire parcel and be responsible for the ongoing maintenance and repairs. Thus, no POA will be formed at this time.

UTILITIES:

Water service will be provided by Charleston Water System. Power and natural gas will be provided by SCE&G. Garbage collection will be provided privately by Republic Services, Inc. or other commercial rubbish services, as contracted by owner.

SIGNAGE:

Signage will be limited to that necessary for parking/traffic, and what can be allocated for the commercial units per city of Charleston Zoning Ordinance, Section 54-410 and shall be reviewed by Charleston's Board of Architectural Review. Also, street and unit address signage will be provided.

LANDSCAPE:

Landscaping will be provided throughout the development. Supporting irrigation may be provided as well

LIGHTING:

The developer will prepare a lighting plan for pedestrian and street lighting. All decorative lighting for buildings will be provided during the build out of the project. As a general rule, all exterior lighting will be "cut-off" or "shielded" style fixtures as recommended by the Dark Sky Society to limit "light trespass" onto neighboring properties.

STREETS, SIDEWALKS:

The developer will construct Sanctuary Court, as a two-way 14-20' court.

The first 125'-0" of the drive will be 20'-0" wide to accommodate an emergency vehicle and will be designed to accommodate the load of that vehicle. Materials will be stamped concrete and heavy traffic rated pavers. The remaining 123'-0" will be 14'-0" wide with similar materials.

Connection of the Sanctuary court with Spring Street will be coordinated with SCDOT.

Streets and sidewalks will be private and will not be managed by SCDOT or the City of Charleston. Maintenance of all streets and sidewalks will be handled by the Owner/Developer and maintained privately.

TREES:

The existing 24" water oak will be protected per the City of Charleston Tree Protection Requirements unless it is deemed a hazard in which case the developer will request approval to remove.

AFFORDABLE HOUSING:

This project will have 4 units that will be offered as Affordable Housing for income levels ranging from 80%-120% AMI for a 10-year period.

Prior to issuance of certificate of occupancy for the building in which the affordable housing is located, the owner shall execute covenants identifying the owner occupied workforce housing units and/or rental workforce housing units and restricting such units to occupancy and if applicable ownership, by qualified households for a period of ten years, and submit a copy of the recorded covenants to the city of Charleston department of housing and community development, or its successor.

The covenants shall require the owner to provide proof to the city of Charleston department of Housing and Community Development, or its successor, on an annual basis, that no more than fair market rent is being charged for the unit and that a qualified household occupies the unit. Fair market rent is equal to no more than 33% of

annual income for a couple that are in income levels ranging between 80%-120% AMI.

The covenants shall accord the City of Charleston, or its assignee, rights to enforcement by any legal and/or equitable means, including the revocation of a Certificate of Occupancy, and in all events be subject to approval by corporation counsel.

PUBLIC BENEFITS:

Currently a concrete and asphalt parking lot that is non-contributory in the streetscape of Cannonborough-Elliottborough's mixed-use corridor, the site will be improved with a development that blends within the historic fabric of the neighborhood and yields a beautiful, safe and sociable environment.

Sanctuary Court will have smaller residential units geared towards housing professionals and working families, as well as commercial uses that will cater the neighborhood needs.

Sanctuary Court will help reduce on street parking demand and the need for car ownership by providing an on site car share service that will be offered to the residents of the development as well as the neighborhood.

Sanctuary Court will provide housing opportunities to Charleston's working class citizens, within walking or biking distance of all major employers on the Charleston Peninsula reducing cross-town traffic impacts.

FAX

To:

FA Johnson

From:

Ramon Washington

Fax: (843) 900-1679

Pages: 3
including
cover sheet

Phone: Sender (843) 218-4762

Date:
7/1/2015

Re:

CC:

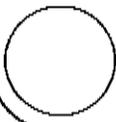
Urgent For Review Please Comment Please Reply Attention

FA Johnson

Comments:

Demolition Application Document

[Pick the date]





June 23rd, 2015

Board of Architectural Review

City of Charleston
2 George Street
Charleston, SC 29401

Re: Demolition Application: 124 Spring Street Plymouth Church

Dear Chair and Board Members:

We understand that an application for demolition of 124 Spring Street has been submitted to the Board of Architectural Review ("BAR"). We, the undersigned Trustees of Plymouth Church are submitting this letter in support of the applicant's application for demolition.

Plymouth intends to sell this location and relocate as a part of its vision to continue to grow its ministry and outreach. The sale of this property will allow for the continued expansion of activities, facilities, programs, and ministry of the church. This is consistent with our rich history that can be traced back to 1860s.

In the early days, meetings were held in several different places. On March 10, 1872 the church purchased and built a building on a corner lot on Pitt and Bull Streets. In 1884 the Church voted to remove that building and in 1886 built a three-story building. In 1905 that location was remodeled. Early in 1950, it was decided that the Church would move uptown to its current location in order to increase membership. In 1958, the current edifice was erected and the former site was sold to the Association for the Blind. In 1982 an addition to the original structure was completed. In 2014, the Congregation voted again to move, to sell the current location and relocate as a part of it vision of increasing ministry to the community.

As described above, we have worshiped in a number of locations and our move is both consistent with our vision for increased ministry and we believe is beneficial to the community fabric. Over the years there have been significant modifications and additions to the original structure. This includes an expansion of the sanctuary, relocating the main entrance, creation of the lobby, and construction of the fellowship hall in the rear.

In addition to the physical structure, the interior layout of the sanctuary has been modified over time, and, therefore, the items such as crown molding and paneling that may seem to be interesting elements in the sanctuary are not original, but were part of the alterations.

Lastly, the church has been used for singular purpose of worship. We don't feel like it should be used for any other use and therefore should be demolished rather than converted into an office or residential use, especially since there are no particular architectural elements of any significance.

May 5, 2016

Colin Colbert
124 Spring, LLC
PO Box #451
Charleston, SC 29402

Re: Cultural Resources Assessment of 124 Spring Street, Charleston, South Carolina.

Dear Mr. Colbert:

Please find attached a pdf copy of our report entitled “Cultural Resources Assessment of 124 Spring Street, Charleston, South Carolina.” Do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Gwendolyn Moore". The signature is fluid and cursive, with a large initial "G" and a long, sweeping underline.

Gwendolyn (Inna) Moore
Senior Archaeologist

Cultural Resources Assessment of 124 Spring Street Charleston, South Carolina

**Inna Moore and Charlie Philips
Brockington and Associates, Inc.
May 2016**

1.0 Introduction

Brockington and Associates, Inc. completed a cultural resources assessment of 124 Spring Street (TMS: 4601102027) in Charleston, South Carolina in May 2016. The assessment was conducted for 124 Spring, LLC to assess the potential for development activity related to a proposed Planned Unit Development (PUD) to impact significant historic resources. The location of the project parcel and previously recorded sites is shown in Figure 1.

The assessment consisted of background research and field reconnaissance. 124 Spring Street is within an area designated as an Historic Area (see Figure 1). This area of the peninsula has been determined eligible for the National Register of Historic Places (NRHP) as part of a proposed expansion to the Charleston Old and Historic District; however, due to owner objection, the district expansion never officially took place. This area of the peninsula is still considered eligible for the NRHP and should be managed as if it were listed.

There are no standing structures located on the property. Portions of the foundation and pieces of the floor of Plymouth Congregational Church are still visible at the ground surface; however these features do not retain any integrity and warrant no further investigation. Since the project tract is located in the Charleston Old and Historic District Expansion, the PUD should work closely with the City of Charleston's Planning, Preservation & Sustainability Department to ensure that the new development does not intrude on any individual historic properties or elements of the Historic Area. Additional work at the site with regard to cultural resources is not warranted.

2.0 Background Research

2.1 Previously Recorded Sites

The author (Inna Moore) consulted ArchSite, the state's online GIS database for previously recorded historic properties, and visited the state archaeological site files office at the South Carolina Institute of Archaeology and Anthropology (SCIAA) in Columbia. She also reviewed correspondence between Ralph Baily, of Brockington and Associates, and Brad Sauls at the South Carolina Department of Archives and History (SCDAH) regarding the proposed expansion to the Charleston Old and Historic District (Bailey and Kitchens 2015).

There is one recorded historic architectural resource within 500 feet of 124 Spring Street. The resource is located at 210 Rutledge Avenue (see Figure 1). It is a c. 1920s commercial building that contributes to the Charleston Old and Historic District Expansion. The resource is located well to the south of the proposed project and will not be impacted. As mentioned above, the parcel located at 124 Spring Street is within an area that was recommended as an expansion to the existing Charleston Old and Historic District following a study completed in 1985 (Bailey and Kitchens 2015). Owners of the properties that are within the proposed expansion objected to having their property listed on the NRHP,

and the expansion never took place; however, the area still considered eligible for the NRHP and should be managed as if it were listed.

2.2 A Brief History of 124 Spring Street

The project Historian (Charlie Philips) conducted archival research using historic maps, deeds, and plats of the project area at the Charleston County RMC office and the South Carolina Room of the Charleston County Library.

A review of historic maps and plats of the immediate area indicates that the project tract is part of the Elliottborough Neighborhood, developed by Barnard Elliott in the early nineteenth century. In March 1817, John Marsh sold the land located at the northwestern corner of Pinckney and Elliott Streets (today Rutledge and Spring Streets, respectively) to John Frazier (CCDB S8:83). In 1839 the land was sold by John Frazier's son, Frederick, to Andrew Gray (CCDB S8:83; CCDB D11:377). Between its purchase and Gray's death in 1857 a large house and multiple other buildings were built on the property. Figure 2 shows the 1857 plat of Gray's land and the project tract. The plat shows a residence and multiple outbuildings located in the southeastern portion of the project tract (Lot No. 7).

In 1867 Isabella Gray, who inherited the land from her husband, sold Lot No. 50, formerly known as Lot No. 7, to William Ferguson (CCDB T13:162). In 1883, Ferguson's executor conveyed Lot 50 to Benjamin F. Simmons (CCDB Q22:11). At this time, Simmons acquired the majority of the remaining Gray lands. Simmons divided the property to create two parcels Lots 120 and 122 Spring Street. He subdivided the northern interior portion of these lots and joined it to Lot 235 Rutledge Avenue.

Benjamin F. Simmons also purchased the lot west of his Lot 50 on May 5, 1887 from the Master in Equity (CCDB W18:275). This tract had been owned by Martin Nelson and his family prior to the Civil War and acquired by Robin Perry, though no deed is recorded. Perry passed the lot to Charlotte Perry and her children, who lost it in foreclosure in 1887. Simmons subdivided the northern interior portion lot 124 Spring Street and joined it to Lot 235 Rutledge Avenue. In 1887, Simmons also joined the rear portion of Lot 126 Spring Street to Lot 235 Rutledge Avenue (CCDB W18:275). Structures were built on Lots 124, 122, and 120 shortly after. Figure 3 shows subdivided lots, project area, and multiple buildings on a portion of the 1902 and 1944 Sanborn map.

The heirs of Benjamin F. Simmons conveyed 235 Rutledge Avenue along with the vacant rear lot to Walter P. Boylston in 1905 (CCDB F24:627). Boylston married Carrie Simmons, a daughter of Benjamin F. Simmons and when the property was foreclosed on during the Great Depression of the 1930s, Carrie Simmons repurchased it (CCDB Y36:367). In 1949 she sold the Plymouth Congregational Church the vacant lot behind her house at 235 Rutledge Avenue.

In 1894, James S. Simmons, a son of Benjamin F. Simmons purchased lots 120 and 122 Spring Street from his father (CCDB Q22:11). In 1898, he purchased Lot 124 Spring Street from his brothers and sisters, consolidating all three lots. In 1948, James S. Simmons' heirs transferred the three lots to their brother, James S. Simmons, Jr. as his share of their father's estate (CCDB M49:73). The heirs commissioned a plat drawn of the lands (see Figure 4). In 1949, Simmons sold the three lots to George W. Fabian who conveyed them to the Plymouth Congregational Church in 1956 (CCDB K62:178).

The Church kept the property for many years and consolidated the four lots into one piece, which constitutes the current project tract. Sometime between 1957 and 1973, the Church built two large structures on the western portion of the property. The records show no indication that the Church established a cemetery on the property. In 2015, 124 Spring, LLC bought the tract from the Trustees of the Plymouth Congregational Church (CCDB H378 and CCDB 0505:726). In December of 2015, they

were granted a permit to demolish the building which they did shortly after (Erin Lanier, personal communication May 3, 2016). At the present time, there are no standing structures on the property.

3.0 Field Reconnaissance

Archaeologists visited the site on May 4, 2016 and noted that the property is currently being used as a parking lot. The surface area of the parking lot consists of asphalt, concrete, and gravel. Figure 5 presents views of the project tract. After investigating the ground surface, it appears that the church and associated buildings were razed leaving the foundation and floors partially intact. Gravel was added to create a gradual rise from the original parking lot to the buildings floor to create a continuous surface for parking. Figure 6 presents views of the floor and foundation. No evidence of earlier buildings was seen on the property.

4.0 Project Summary

To summarize, development of the project tract began in the mid-1800s and continued into the mid-1900s. The earliest buildings were razed and new buildings were built in their footprints. There are no standing structures located on the property. Portions of the foundation and pieces of the floor of the Plymouth Congregational Church are still visible at the ground surface; however, these features do not retain any integrity and warrant no further investigation. Since the project tract is located in the Charleston Old and Historic District Expansion, the PUD should work closely with the City of Charleston's Planning, Preservation & Sustainability Department to ensure that the new development does not intrude on any individual historic properties or elements of the Historic Area. Additional work at the site with regard to cultural resources is not warranted.

5.0 References

Bailey, Ralph and Scott Kitchens

2015 *Cultural Resources Assessment of 133 and 134 Cannon Street, Charleston, South Carolina.*
Prepared for Melton Design Group.

Charleston County Deed Books

1719 to present Originals in the Charleston County RMC Office, Charleston.

Charleston County Plat Books

1783 to present Originals in the Charleston County RMC Office, Charleston.

Sanborn Fire Insurance Maps of Charleston, South Carolina

1901 An Original copy is in the South Carolina Room of the Charleston County Public Library.
Also online at the Charleston County Website.

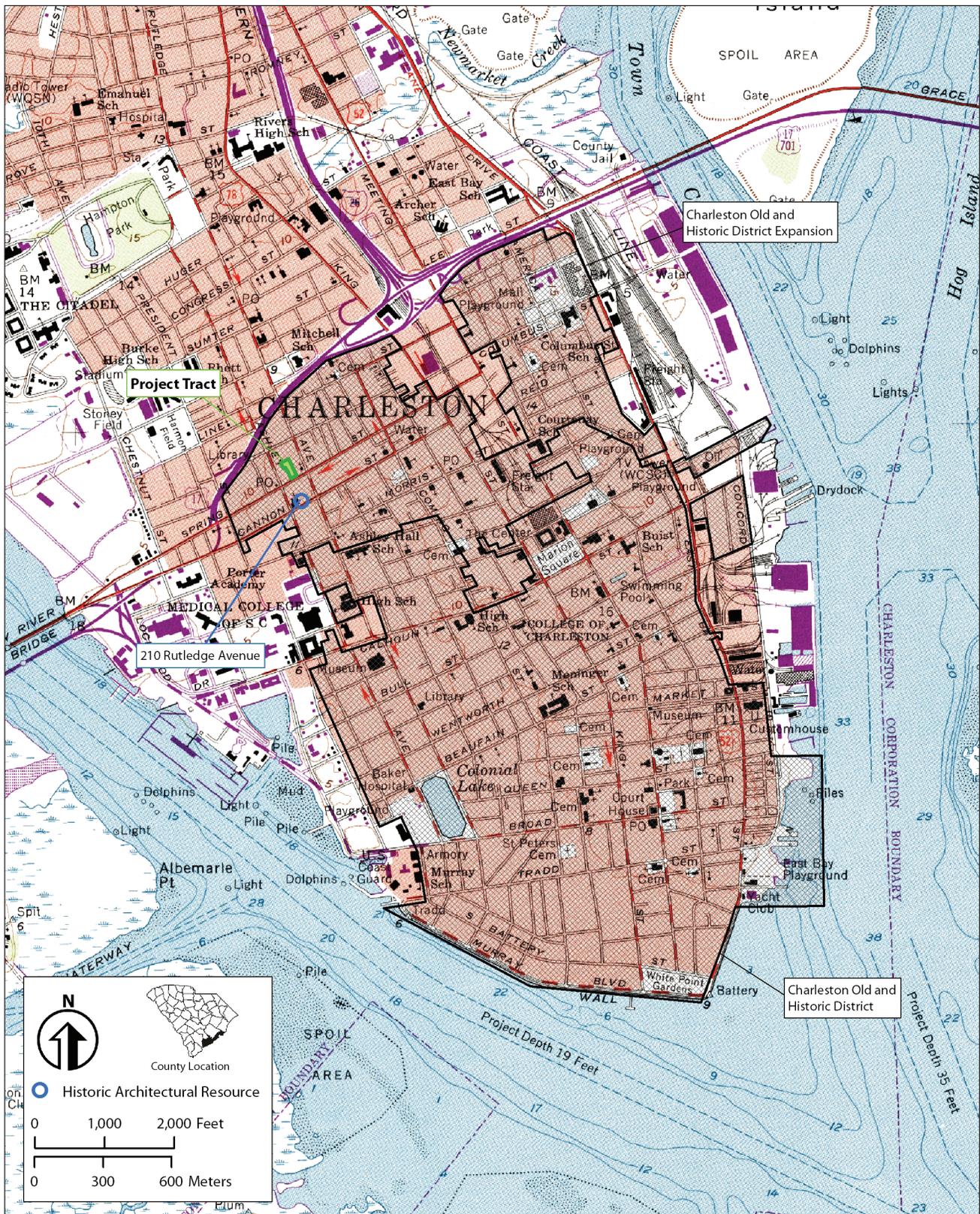


Figure 1. Location of 124 Spring Street showing recorded cultural resources within 500 feet as well as the Charleston Old and Historic District.

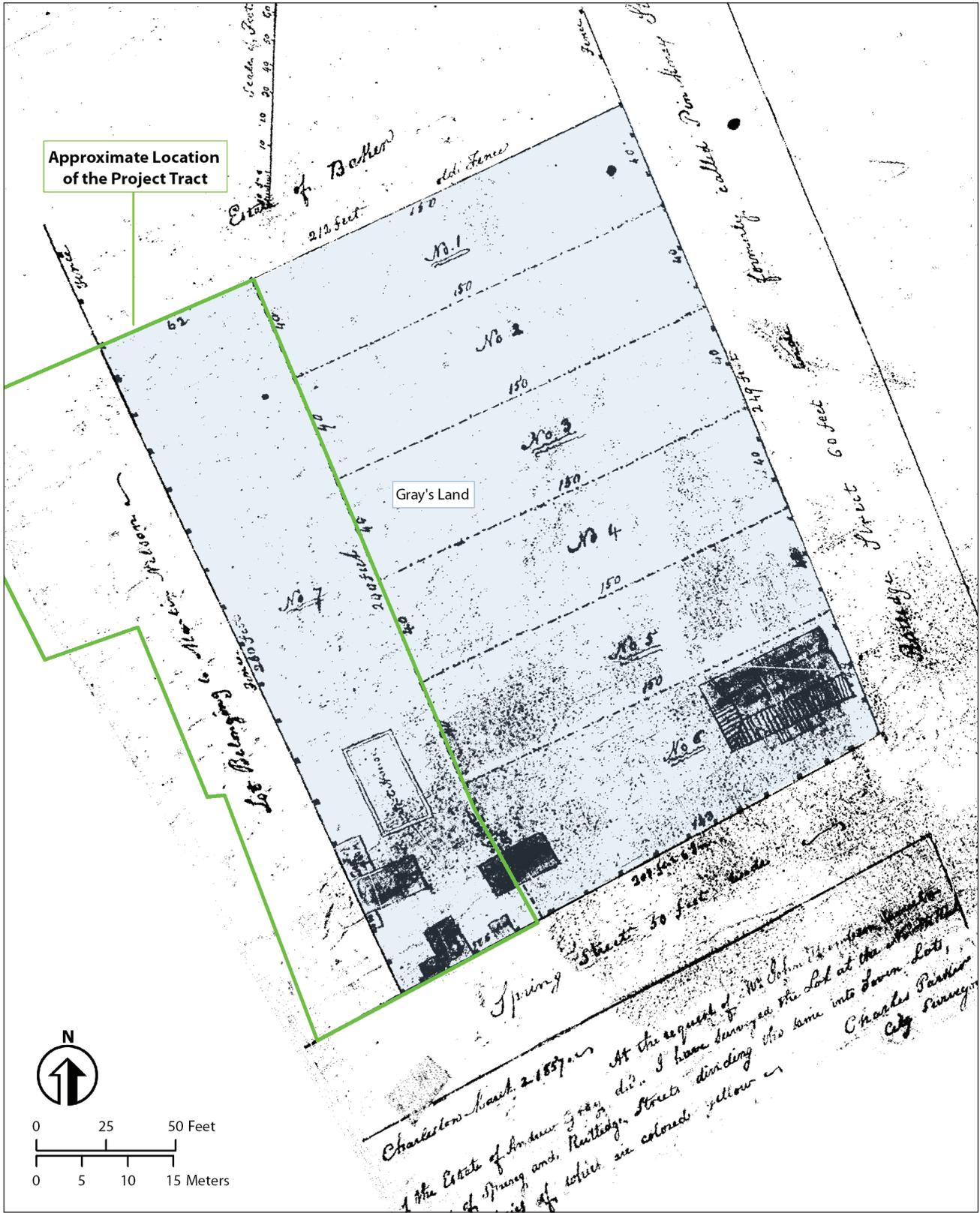


Figure 2. An 1857 Charles Parker plat of the subdivision of the lands of Andrew Gray at Rutledge and Spring Street with the project tract superimposed (Charleston County Plat Book [CCPB] A1:135).



Figure 3. A portion of the 1902 and 1944 Sanborn Fire Insurance Map showing the location of the project tract.



Figure 5. Views of 124 Spring Street, facing north (top) and facing southeast (bottom).



Figure 6. Views of the floor and foundation of the Plymouth Congregational Church, facing south (top) and facing east (bottom).

Traffic Impact Analysis

**124 Spring Street
Charleston, SC**

Prepared for:
CKC Properties, LLC

© Bihl Engineering, LLC 2016

B
I
H
L

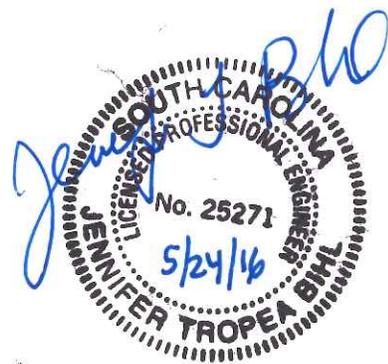
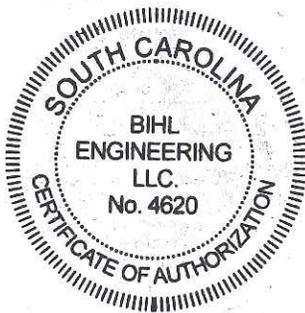
E
N
G
I
N
E
E
R
I
N
G



**Traffic Impact Analysis
124 Spring Street
Charleston, SC**

**Prepared for:
CKC Properties, LLC**

**Prepared by:
Bihl Engineering, LLC
304 Meeting Street, Suite D
Charleston, SC 29401
Mail:
P.O. Box 31318
Charleston, SC 29417
(843) 637-9187**



May 2016

TABLE OF CONTENTS

	<u>Page No.</u>
1.0 EXECUTIVE SUMMARY	1
2.0 INTRODUCTION	1
3.0 INVENTORY	1
3.1 STUDY AREA.....	1
3.2 EXISTING CONDITIONS	2
4.0 TRAFFIC GENERATION	2
5.0 SITE TRAFFIC DISTRIBUTION.....	3
6.0 TRAFFIC VOLUMES	3
6.1 2016 EXISTING TRAFFIC	3
6.2 2017 NO BUILD TRAFFIC	3
6.3 PROJECT TRAFFIC	4
6.4 2017 BUILDOUT TRAFFIC	4
7.0 CAPACITY ANALYSIS.....	4
8.0 CONCLUSION.....	6

LIST OF TABLES

Table No.	Title	Page No.
Table 1:	Trip Generation	2
Table 2:	Level of Service and delay (average seconds per vehicle)	5

1.0 Executive Summary

The proposed 124 Spring Street development is located on Spring Street between Ashley Avenue and Rutledge Avenue in Charleston, SC. The project consists of 28 apartments and up to 4,000 square feet (sf) of office space. The development will be accessed via an existing full access driveway on Spring Street. For the purposes of this Traffic Impact Analysis (TIA), the proposed development is assumed complete by 2017.

This report presents the trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands.

Spring Street is a one-way westbound street that forms a one-way couplet with Cannon Street (one-way eastbound). Both of these streets are in the process of being converted to two-way operation. This conversion was assumed in the No Build and Build analyses.

Existing conditions analysis shows all study area intersections are operating acceptably at Level of Service C or better during both the AM and PM peak hours. In the No Build conditions analysis, the cycle lengths were maintained but the intersection splits were optimized to account for the two-way conversion project. These adjusted intersection splits were maintained in the Build conditions analysis. Future No Build and Build analyses show that study area intersections continue to operate at Level of Service C or better during the AM and PM peak hour conditions. The Site Driveway is projected to operate acceptably. Due to the limited impact of the proposed project on the roadway network, there are no roadway improvements anticipated as part of this project.

2.0 Introduction

The proposed 124 Spring Street development is located on Spring Street between Ashley Avenue and Rutledge Avenue in Charleston, SC. The project consists of 28 apartments and up to 4,000 sf of office space. The development will be accessed via an existing full access driveway on Spring Street located. The existing site is used as a parking lot.

3.0 Inventory

3.1 Study Area

The study area for the TIA includes the following existing intersections:

- Spring Street at Rutledge Avenue
- Spring Street at Ashley Avenue
- Spring Street at existing Driveway

Figure 1 (Appendix) shows the site location and **Figure 2 (Appendix)** shows the conceptual site plan for the project.

3.2 Existing Conditions

Roadways included in this analysis are Ashley Avenue, Rutledge Avenue, and Spring Street.

Ashley Avenue is a two-lane, one-way northbound roadway with on-street parking on the east side of the street. Per South Carolina Department of Transportation (SCDOT) data, Ashley Avenue has a 2015 annual daily traffic (AADT) volume of 5,800 vehicles per day (vpd).

Rutledge Avenue is a two-lane, one-way southbound roadway with on-street parking. Per SCDOT data, Ashley Avenue has a 2015 AADT volume of 7,200 vpd.

Spring Street is a one-way, two-lane roadway that currently runs westbound with on-street parking on both sides of the street and a speed limit of 30 mph in the vicinity of the project. Per SCDOT data, Spring Street has a 2015 AADT of 8,000 vpd. Spring Street forms a one-way couplet with Cannon Street. Cannon Street and Spring Street are in the process of being converted to two-way operation.

Figure 3 (Appendix) shows the existing roadway laneage in the study area.

4.0 Traffic Generation

The traffic generation potential of the proposed development was determined using trip generation rates published in Institute of Transportation Engineers (ITE) *Trip Generation Manual* (Institute of Transportation Engineers, Ninth Edition).

Table 1 summarizes the daily and peak hour trips associated with the proposed project. To be conservative, internal capture was not assumed.

Land Use and Intensity	ITE Land Use Code	Daily (gross)	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
28 apartments	220	186	14	3	11	17	11	6
4,000 sf office ¹	710	44	6	5	1	6	1	5
New Trips			20	8	12	23	12	11

1. ITE does not provide information for peak hour of adjacent street traffic for the office land use so peak hour of generator information was used.

The proposed development is projected to generate 20 trips during the AM peak hour (8 entering and 12 exiting) and 23 trips during the PM peak hour (12 entering and 11 exiting). To be conservative the existing traffic from the parking lot (2 trips in the AM, 3 trips in the PM) were not applied.

5.0 Site Traffic Distribution

The proposed project traffic was assigned to the surrounding roadway network. The directional distribution and assignment were based on qualitative knowledge of the project area, quantitative application of existing traffic patterns, and expected trip length. The following general trip distribution was applied to the project trips:

- 30% to/from north on Rutledge Avenue
- 30% to/from south on Ashley Avenue
- 25% to/from east on Spring Street
- 15% to/from west on Spring Street

Figure 4 (Appendix) shows the traffic distribution through the study area.

6.0 Traffic Volumes

6.1 2016 Existing Traffic

Peak hour intersection turning movement counts were performed for the study area intersections on weekdays in May 2016 from 7 AM to 9 AM and from 4 PM to 6 PM.

The turning movement count data are included in the **Appendix** and the AM and PM peak hour existing traffic volumes are shown in **Figure 5 (Appendix)**.

6.2 2017 No Build Traffic

Historic growth is the increase in existing traffic volumes due to usage increases and non-specific growth throughout the area. A 2% growth rate was used.

The No Build traffic volumes were adjusted to account for the two-way conversion project for Spring Street and Cannon Street. The *Spring/Cannon One Way Pair Traffic Study*, prepared by Carter Burgess, assumed that 40% of the eastbound through traffic shifts from Cannon Street to Spring Street and that 20% of the westbound traffic shifts from Spring Street to Cannon Street. The existing counts were adjusted using No Build/Build relationships from the *Spring/Cannon One Way Pair Traffic Study*. The new laneage associated with the *Spring/Cannon One Way Pair Traffic Study* was also assumed in the analysis. The new laneage is shown in **Figure 3 (Appendix)**.

The 2017 No Build traffic volumes include existing traffic grown to the buildout year. **Figure 6 (Appendix)** and **Figure 7 (Appendix)** show the 2017 No Build AM and PM peak hour traffic volumes.

6.3 Project Traffic

Projected AM and PM peak hour project trips were assigned based on the trip distribution discussed in **Section 5**.

6.4 2017 Buildout Traffic

The 2017 total traffic volumes include the adjusted 2017 No Build traffic and the proposed development traffic at buildout. The 2017 AM and PM peak hour total traffic volumes are shown in **Figure 6 (Appendix)** and **Figure 7 (Appendix)**, respectively.

Intersection volume development worksheets are included in the **Appendix**.

7.0 Capacity Analysis

Capacity analyses were performed for the AM and PM peak hours for the 2015 existing, 2017 No Build, and 2017 Build conditions using the Synchro Version 9 software to determine the operating characteristics of the adjacent roadway network and the impacts of the proposed project. The analyses were conducted with methodologies contained in the *2010 Highway Capacity Manual* (Transportation Research Board, December 2010). Highway Capacity Manual 2000 methodologies were applied if the geometric configuration of an intersection was not conducive to 2010 methodologies.

Capacity of an intersection is defined as the maximum number of vehicles that can pass through an intersection during a specified time, typically an hour. Capacity is described by level of service (LOS) for the operating characteristics of an intersection. LOS is defined as a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. LOS D is the typically accepted standard for signalized intersections in urban and suburban areas.

LOS for a two-way stop-controlled (TWSC) intersection is determined by the delay of the poorest performing minor approach, as LOS is not defined for TWSC intersections as a whole. It is typical for stop controlled side streets and driveways on major streets to experience longer delays during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Capacity analyses were performed for the following intersections:

- Spring Street at Rutledge Avenue
- Spring Street at Ashley Avenue
- Spring Street at Site Driveway

Table 2 summarizes the 2015 Existing, 2017 No Build and 2017 Build conditions LOS and control delay (average seconds of delay per vehicle) for the unsignalized and signalized study area intersections for the AM and PM peak hours.

As previously discussed, the 2017 No Build and 2017 Build conditions volumes were adjusted to account for the two-way conversion project of Spring Street and Cannon Street. Existing signal timings were obtained from the City of Charleston for the study area intersections. In the 2017 No Build conditions analyses, for the intersections of Spring Street at Ashley Avenue and Spring Street at Rutledge Avenue, the cycle lengths were maintained, but the intersection splits were optimized to account for the change in traffic flow related to the conversion of Spring Street to two-way operation. These optimized splits were then maintained in the 2017 Build conditions analyses.

Table 2: Level of Service and delay (average seconds per vehicle)¹							
Intersection	Traffic Control²	Existing		2017 No Build		2017 Build	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Spring Street and Rutledge Avenue	S	B (19.9)	B (17.7)	C (22.7)	B (18.2)	C (22.6)	B (18.3)
Spring Street and Ashley Avenue	S	B (15.4)	B (15.5)	B (15.9)	B (12.7)	B (16.0)	B (12.8)
Spring Street at Site Driveway	U	A (9.9) – SB	B (10.8) – SB	B (10.9) – SB	B (11.1) – SB	B (13.5) – SB	B (12.2) – SB

1. For unsignalized intersections, the level of service of the poorest performing minor approach is reported.
2. S = Signalized, U = Unsignalized

Existing conditions analyses shows all study area intersections operating acceptably at LOS C or better during both the AM and PM peak hours.

The 2017 No Build conditions analyses (assuming the two-way conversion of Spring Street and Cannon Street) show all study area intersections operating acceptably during the peak hours with the intersection split optimization to account for the two-way conversion project for Spring Street. The 2017 Build conditions analyses show all study area intersections continuing to operate acceptably during the peak hours with the same intersection split improvements assumed in the 2017 No Build analysis. The signalized intersections operate with delay similar to No Build

conditions in the AM peak hour and PM peak hour. The Site Driveway is also expected operate acceptably in the 2017 Build Conditions.

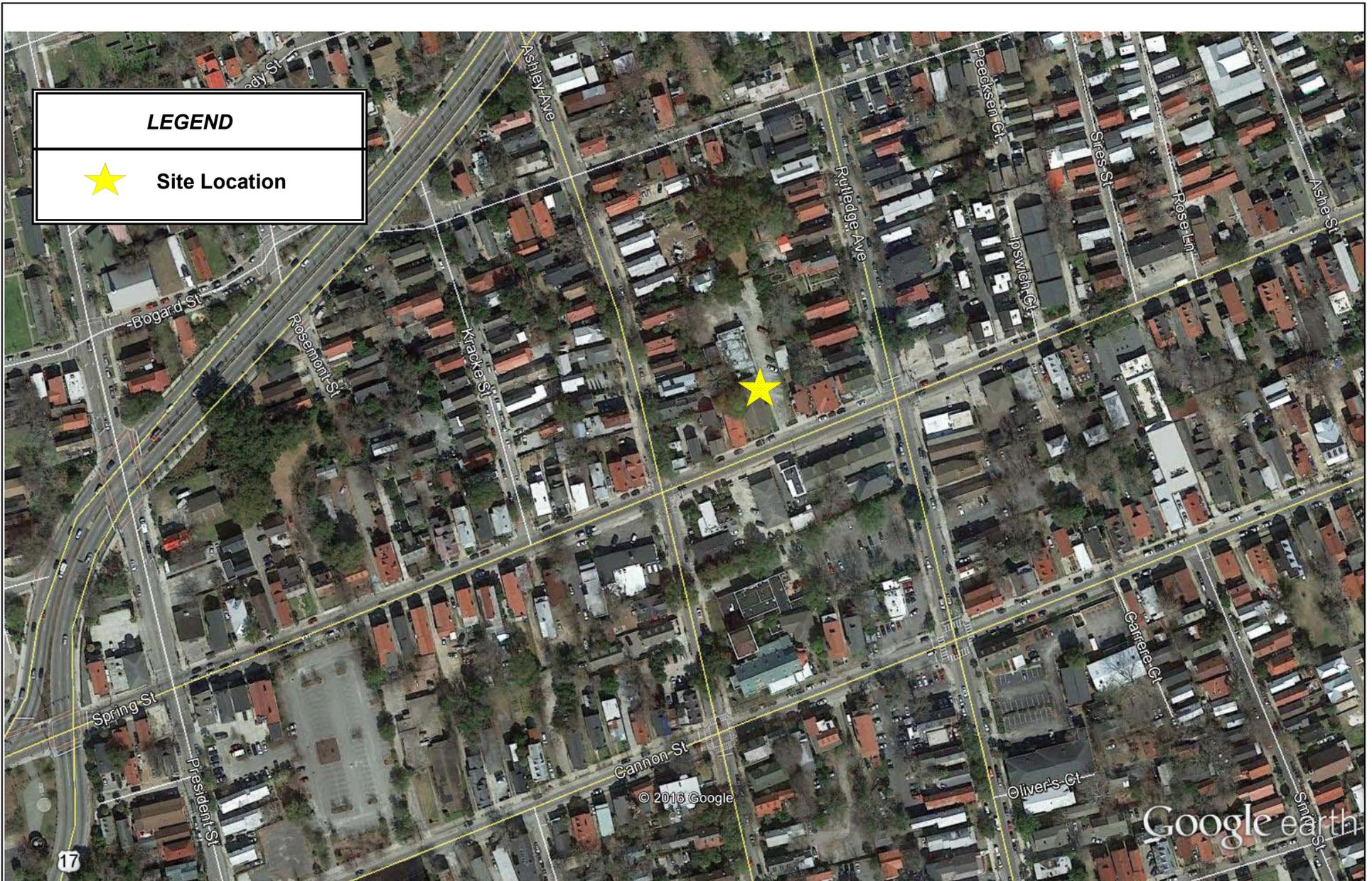
Capacity analysis reports are included in the **Appendix**.

8.0 Conclusion

The proposed 124 Spring Street development is located on Spring Street between Ashley Avenue and Rutledge Avenue in Charleston, SC. The project consists of 28 apartments and up to 4,000 sf of office space. The development will be accessed via an existing full access driveway on Spring Street located at an existing driveway.

This project is projected to have limited impact to the operations of the study area intersections.

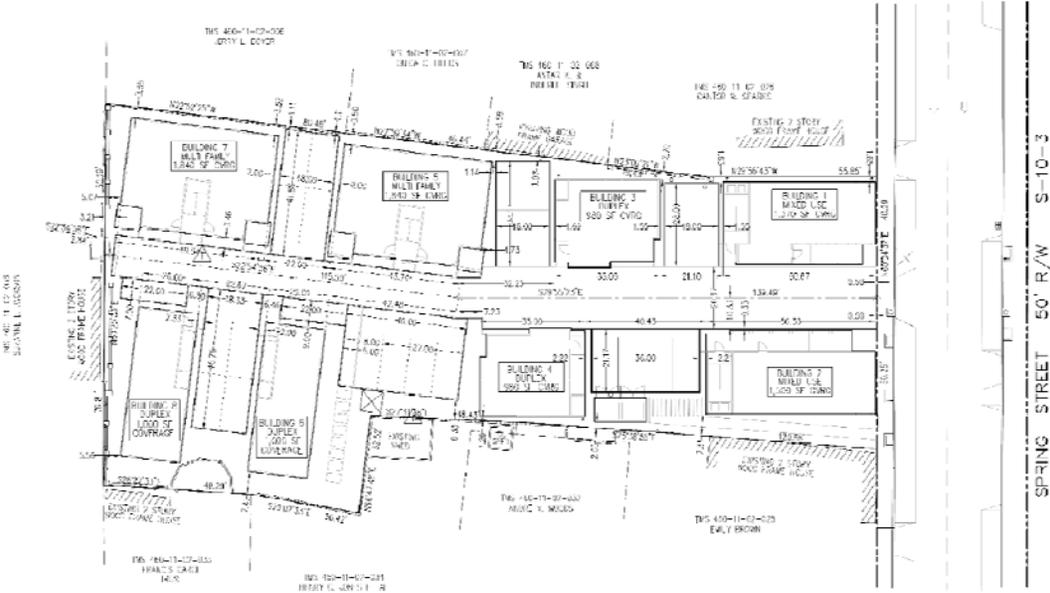
Appendix



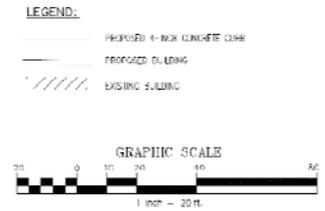
**124 Spring Street
Traffic Impact Analysis**

Site Location

**Figure
1**



SPRING STREET 50' R/W S-10-3



Civil/Site Plan Engineer:
 Glenn W. Zuber, P.E.
 1388 Lighthouse Ct.
 Mt Pleasant, SC 29466
 V 843-899-0457
 glennzuber@hotmail.com

Project Manager:
 CKC Properties, LLC
 P.O. Box 451
 Charleston, SC 29402
 V 803-727-8070
 ckcproperties@gmail.com

Architect:
 aj architects
 538 King Street
 Charleston, SC 29403
 V 843-577-7030
 ashay@ajarchitect.com

PROPOSED MIXED USE DEVELOPMENT
 124 SPRING STREET
 CHARLESTON, SC
 TMS 160-11-02-027
 TRC PRE-APP

DESIGN: GWZ
CHECK: GWZ
SCALE: 1" = 20 FT
DATE: 03-08-18

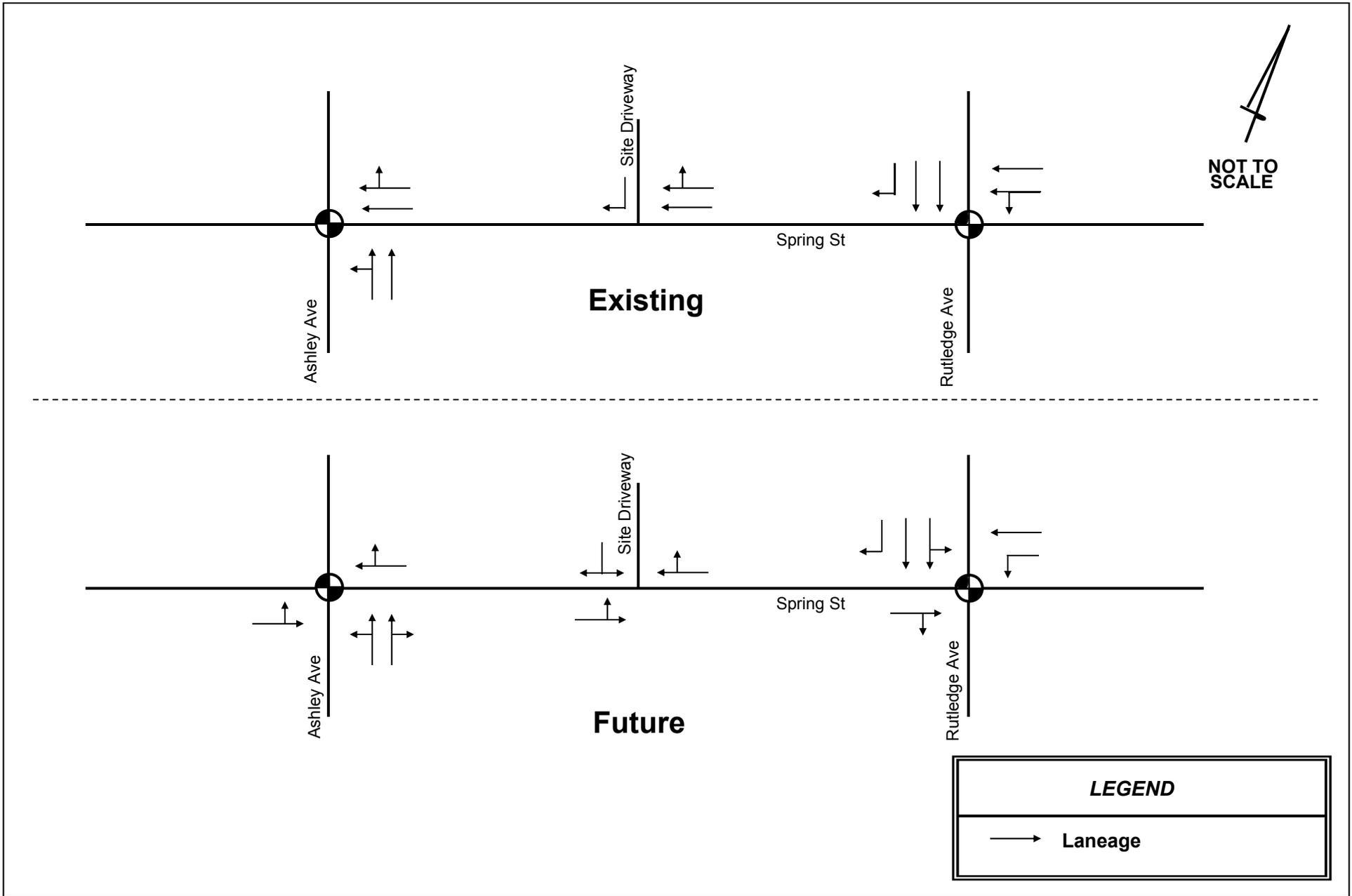
REVISIONS

NO.	DESCRIPTION

S H E E T
SD3
 DIMENSIONING PLAN

Source: aj architects

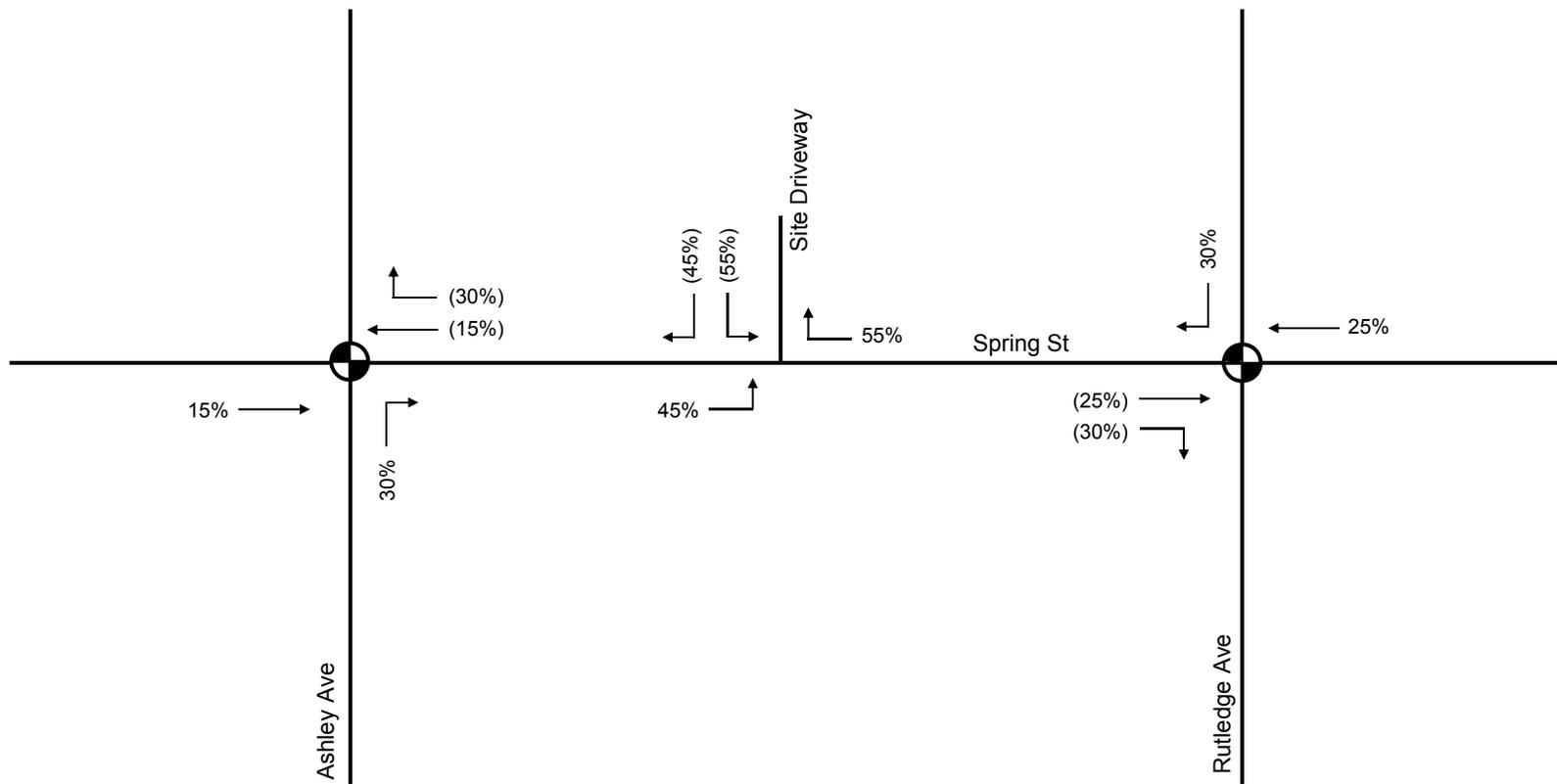
Figure 2: Conceptual Site Plan



**124 Spring Street
Traffic Impact Analysis**

Existing Laneage

**Figure
3**



LEGEND	
XX	Entering Distribution
(XX)	Exiting Distribution

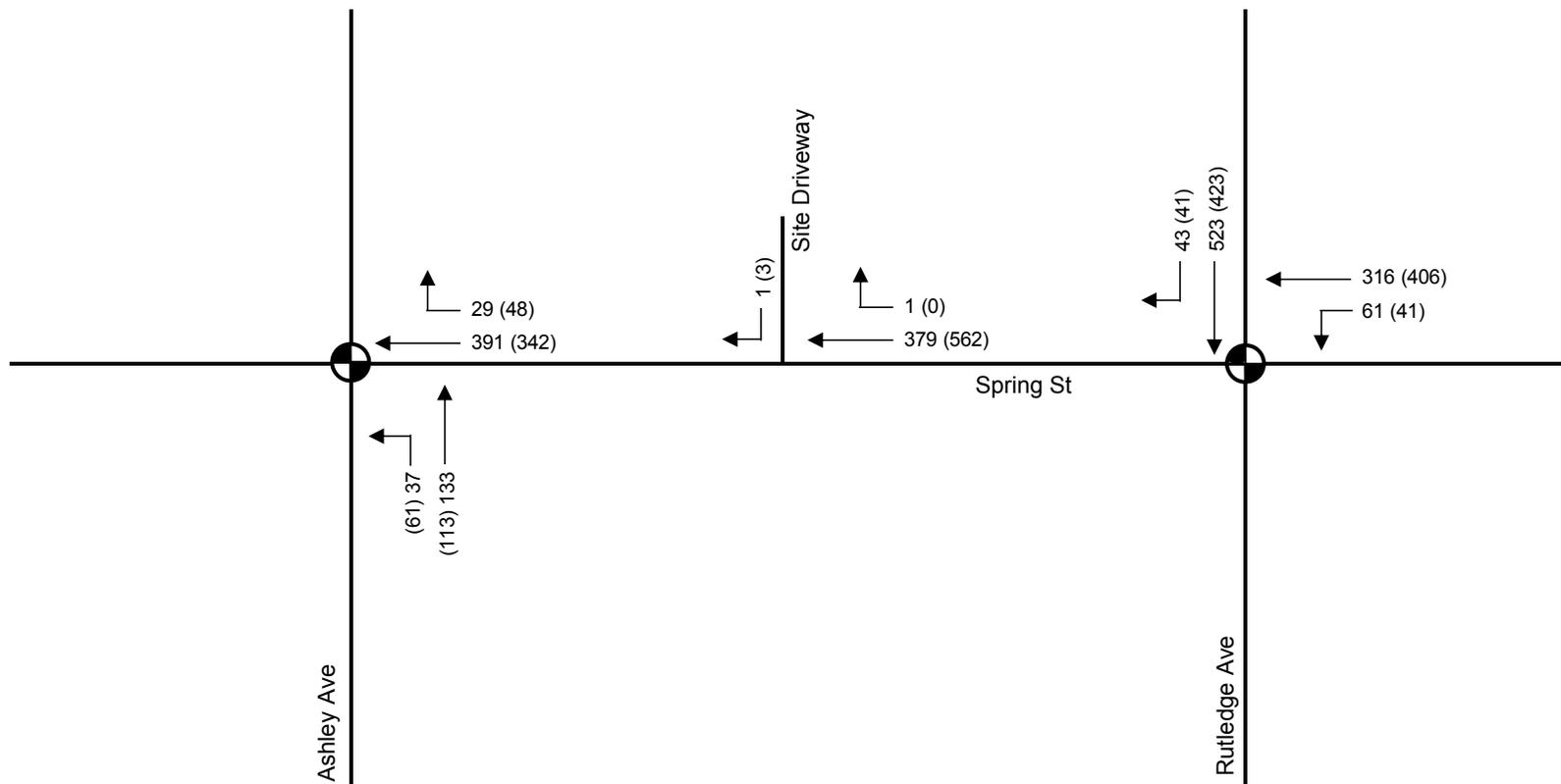


**124 Spring Street
Traffic Impact Analysis**

Trip Distribution

**Figure
4**

NOT TO SCALE



LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic

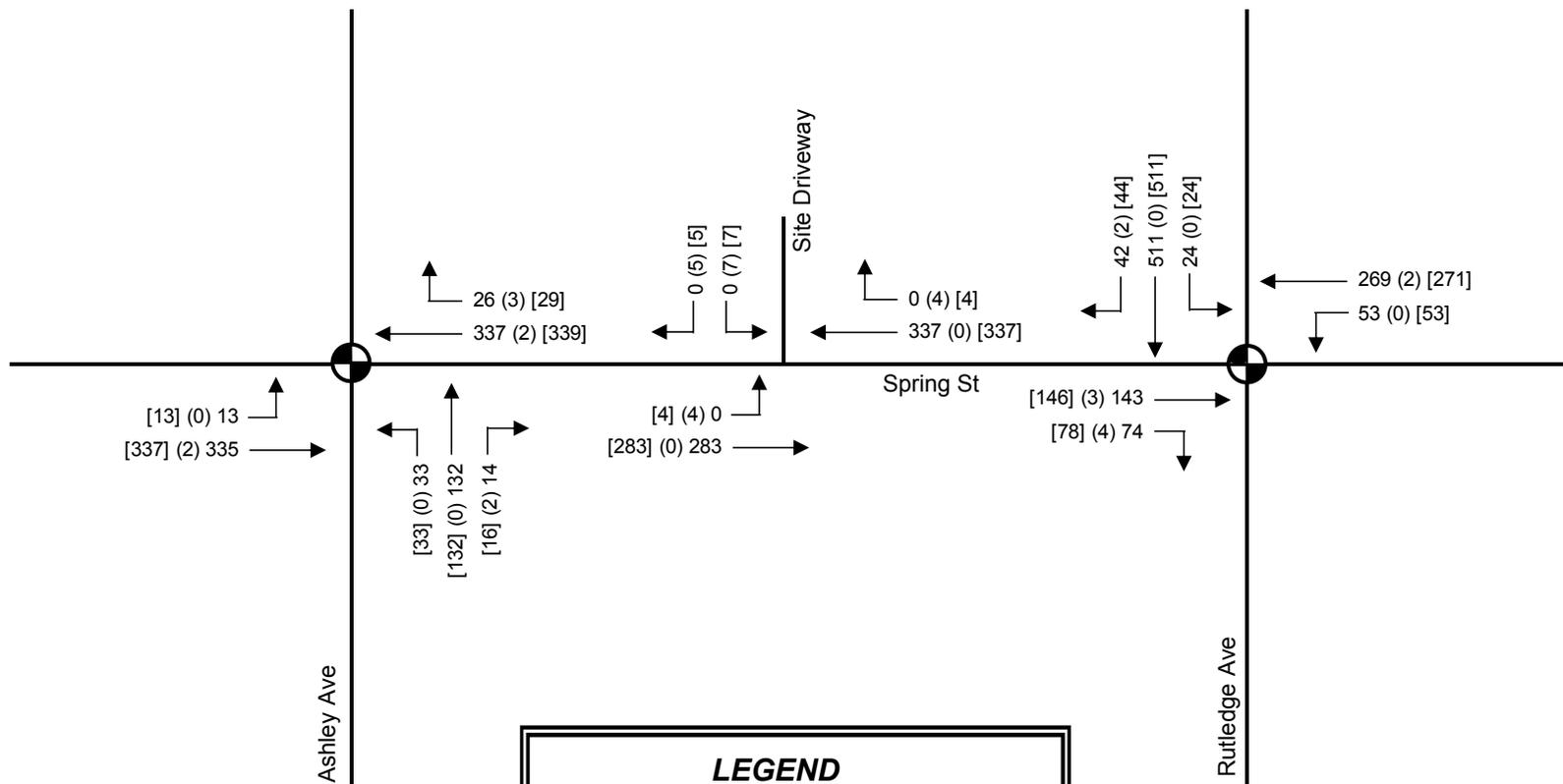


**124 Spring Street
Traffic Impact Analysis**

**Existing Traffic
Volumes**

**Figure
5**

NOT TO SCALE



LEGEND	
XX	2017 Background Traffic
((XX))	Site Traffic
([XX])	2017 Buildout Traffic

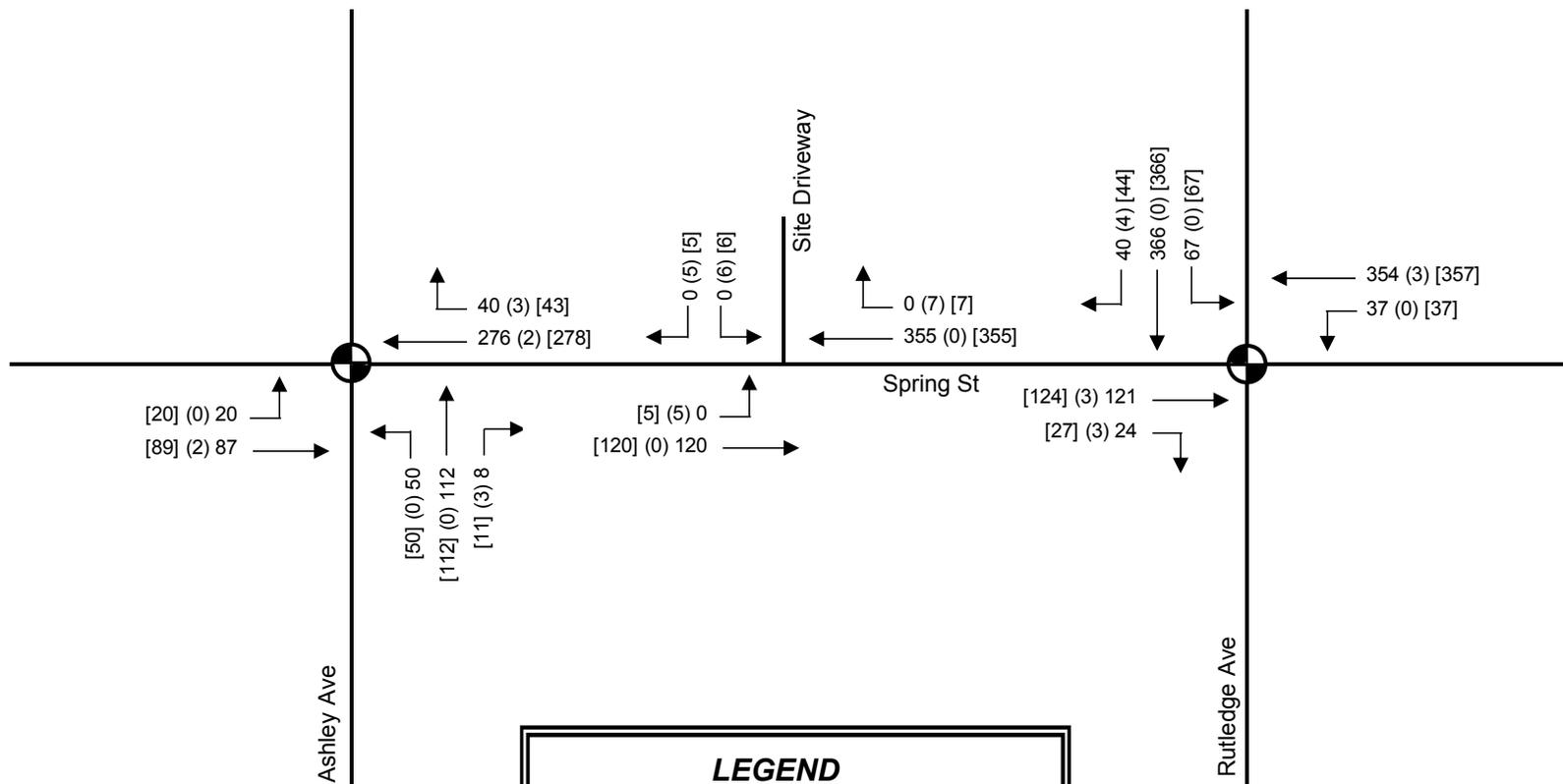


124 Spring Street
Traffic Impact Analysis

2017 AM Peak
Traffic Volumes

Figure
6

NOT TO SCALE



LEGEND	
XX	2017 Background Traffic
((XX))	Site Traffic
([XX])	2017 Buildout Traffic



**124 Spring Street
Traffic Impact Analysis**

**2017 PM Peak
Traffic Volumes**

**Figure
7**

Turning Movement Count Report

Report Generated Using Turning Movement Count for Android by PortableStudies.com

Study Information

Study Summary	Count Name	Notes	U = U Turn L = Left Turn T = Thru R = Right Turn P1 = Pedestrian Direction 1 P2 = Pedestrian Direction 2 Veh = Total Vehicles for Approach	Peak Hour Volume	
	124 Spring St			381	
	Location			% Bank 1	% Bank 2
	Spring St at Parking Lot, Charleston, SC			95.5%	2.1%
	Performed By			% Bank 3	% Bank 4
	SRW			2.4%	0.0%
	Date			Pedestrians Volume	
Wednesday, May 04, 2016	22				

Peak Hour Data

Time Period	Eastbound Approach							Westbound Approach							Northbound Approach							Southbound Approach							Total Vehicles	Total Pedestrians
	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh		
7:45 AM	0	0	0	0	0	0	0	0	0	103	1	0	0	104	0	0	0	0	0	0	0	0	0	0	1	6	3	1	105	9
8:00 AM	0	0	0	0	0	0	0	0	0	94	0	0	0	94	0	0	0	0	0	0	0	0	0	0	0	1	6	0	94	7
8:15 AM	0	0	0	0	0	0	0	0	0	92	0	0	0	92	0	0	0	0	0	0	0	0	0	0	0	4	0	0	92	4
8:30 AM	0	0	0	0	0	0	0	0	0	90	0	0	0	90	0	0	0	0	0	0	0	0	0	0	0	1	1	0	90	2

Vehicle Movement Summary

Movement / Details	Eastbound Approach							Westbound Approach							Northbound Approach							Southbound Approach							Entire Intersection	
	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	Vehicles	Pedestrians
Movement Volume	0	0	0	0	0	0	0	0	0	379	1	0	0	380	0	0	0	0	0	0	0	0	0	0	1	12	10	1	381	22
PHF	-	-	-	-	-	-	-	-	-	0.92	0.25	-	-	0.91	-	-	-	-	-	-	-	-	-	-	0.25	0.50	0.42	0.25	0.91	0.61
% Bank 1	0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	95.5%	100.0%				0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	100.0%	Need a custom report? Contact: support@portablestudies.com				
% Bank 2	0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	2.1%	0.0%				0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	0.0%					
% Bank 3	0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	2.4%	0.0%				0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	0.0%					
% Bank 4	0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	0.0%					

Turning Movement Count Report

Report Generated Using Turning Movement Count for Android by PortableStudies.com

Study Information

Study Summary	Count Name	Notes	U = U Turn L = Left Turn T = Thru R = Right Turn P1 = Pedestrian Direction 1 P2 = Pedestrian Direction 2 Veh = Total Vehicles for Approach	Peak Hour Volume	
	124 Spring St			565	
	Location			% Bank 1	% Bank 2
	Spring St at Parking Lot, Charleston, SC			98.8%	0.2%
	Performed By			% Bank 3	% Bank 4
	SRW			0.7%	0.4%
	Date			Pedestrians Volume	
Wednesday, May 04, 2016	19				

Peak Hour Data

Time Period	Eastbound Approach							Westbound Approach							Northbound Approach							Southbound Approach							Total Vehicles	Total Pedestrians
	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh		
4:45 PM	0	0	0	0	0	0	0	0	0	116	0	0	0	116	0	0	0	0	0	0	0	0	0	0	1	4	2	1	117	6
5:00 PM	0	0	0	0	0	0	0	0	0	150	0	0	0	150	0	0	0	0	0	0	0	0	0	0	0	2	0	0	150	2
5:15 PM	0	0	0	0	0	0	0	0	0	139	0	0	0	139	0	0	0	0	0	0	0	0	0	0	1	4	3	1	140	7
5:30 PM	0	0	0	0	0	0	0	0	0	157	0	0	0	157	0	0	0	0	0	0	0	0	0	0	1	2	2	1	158	4

Vehicle Movement Summary

Movement / Details	Eastbound Approach							Westbound Approach							Northbound Approach							Southbound Approach							Entire Intersection	
	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	U	L	T	R	P1	P2	Veh	Vehicles	Pedestrians
Movement Volume	0	0	0	0	0	0	0	0	0	562	0	0	0	562	0	0	0	0	0	0	0	0	0	0	3	12	7	3	565	19
PHF	-	-	-	-	-	-	-	-	-	0.89	-	-	-	0.89	-	-	-	-	-	-	-	-	-	-	0.75	0.75	0.58	0.75	0.89	0.68
% Bank 1	0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	98.8%	0.0%				0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	100.0%	Need a custom report? Contact: support@portablestudies.com				
% Bank 2	0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.2%	0.0%				0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	0.0%					
% Bank 3	0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.7%	0.0%				0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	0.0%					
% Bank 4	0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.4%	0.0%				0.0%	0.0%	0.0%	0.0%				0.0%	0.0%	0.0%	0.0%					

Short Counts

File Name : Spring St @ Ashley Ave Recount

Site Code :

Start Date : 5/19/2016

Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

Start Time	Ashley Ave From North					Spring St From East					Ashley Ave From South					Spring St From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	0	0	0	0	0	0	41	5	0	46	8	9	0	1	18	0	0	0	3	3	67
07:15 AM	0	0	0	1	1	0	46	3	2	51	11	15	0	1	27	0	0	0	1	1	80
07:30 AM	0	0	0	3	3	0	58	8	1	67	10	21	0	3	34	0	0	0	2	2	106
07:45 AM	0	0	0	1	1	0	63	12	0	75	8	18	0	0	26	0	0	0	0	0	102
Total	0	0	0	5	5	0	208	28	3	239	37	63	0	5	105	0	0	0	6	6	355
08:00 AM	0	0	0	1	1	0	71	9	0	80	9	29	0	1	39	0	0	0	1	1	121
08:15 AM	0	0	0	0	0	0	103	6	0	109	13	35	0	2	50	0	0	0	2	2	161
08:30 AM	0	0	0	1	1	0	114	9	1	124	8	43	0	0	51	0	0	0	0	0	176
08:45 AM	0	0	0	0	0	0	103	5	2	110	7	26	0	2	35	0	0	0	0	0	145
Total	0	0	0	2	2	0	391	29	3	423	37	133	0	5	175	0	0	0	3	3	603
*** BREAK ***																					
04:00 PM	0	0	0	4	4	0	57	6	0	63	7	21	0	3	31	0	0	0	0	0	98
04:15 PM	0	0	0	3	3	0	72	11	1	84	11	28	0	1	40	0	0	0	0	0	127
04:30 PM	0	0	0	3	3	0	73	13	1	87	16	33	0	0	49	0	0	0	0	0	139
04:45 PM	0	0	0	2	2	0	87	10	2	99	12	26	0	2	40	0	0	0	1	1	142
Total	0	0	0	12	12	0	289	40	4	333	46	108	0	6	160	0	0	0	1	1	506
05:00 PM	0	0	0	1	1	0	88	9	1	98	19	23	0	0	42	0	0	0	1	1	142
05:15 PM	0	0	0	3	3	0	94	16	0	110	14	31	0	1	46	0	0	0	3	3	162
05:30 PM	0	0	0	2	2	0	79	10	1	90	8	22	0	2	32	0	0	0	1	1	125
05:45 PM	0	0	0	1	1	0	63	11	2	76	9	19	0	0	28	0	0	0	0	0	105
Total	0	0	0	7	7	0	324	46	4	374	50	95	0	3	148	0	0	0	5	5	534
Grand Total	0	0	0	26	26	0	1212	143	14	1369	170	399	0	19	588	0	0	0	15	15	1998
Apprch %	0	0	0	100		0	88.5	10.4	1		28.9	67.9	0	3.2		0	0	0	100		
Total %	0	0	0	1.3	1.3	0	60.7	7.2	0.7	68.5	8.5	20	0	1	29.4	0	0	0	0.8	0.8	
Passenger Vehicles	0	0	0	26	26	0	1186	143	14	1343	170	399	0	19	588	0	0	0	15	15	1972
% Passenger Vehicles	0	0	0	100	100	0	97.9	100	100	98.1	100	100	0	100	100	0	0	0	100	100	98.7
Heavy Vehicles	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	13
% Heavy Vehicles	0	0	0	0	0	0	1.1	0	0	0.9	0	0	0	0	0	0	0	0	0	0	0.7
Buses	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	13
% Buses	0	0	0	0	0	0	1.1	0	0	0.9	0	0	0	0	0	0	0	0	0	0	0.7

Short Counts

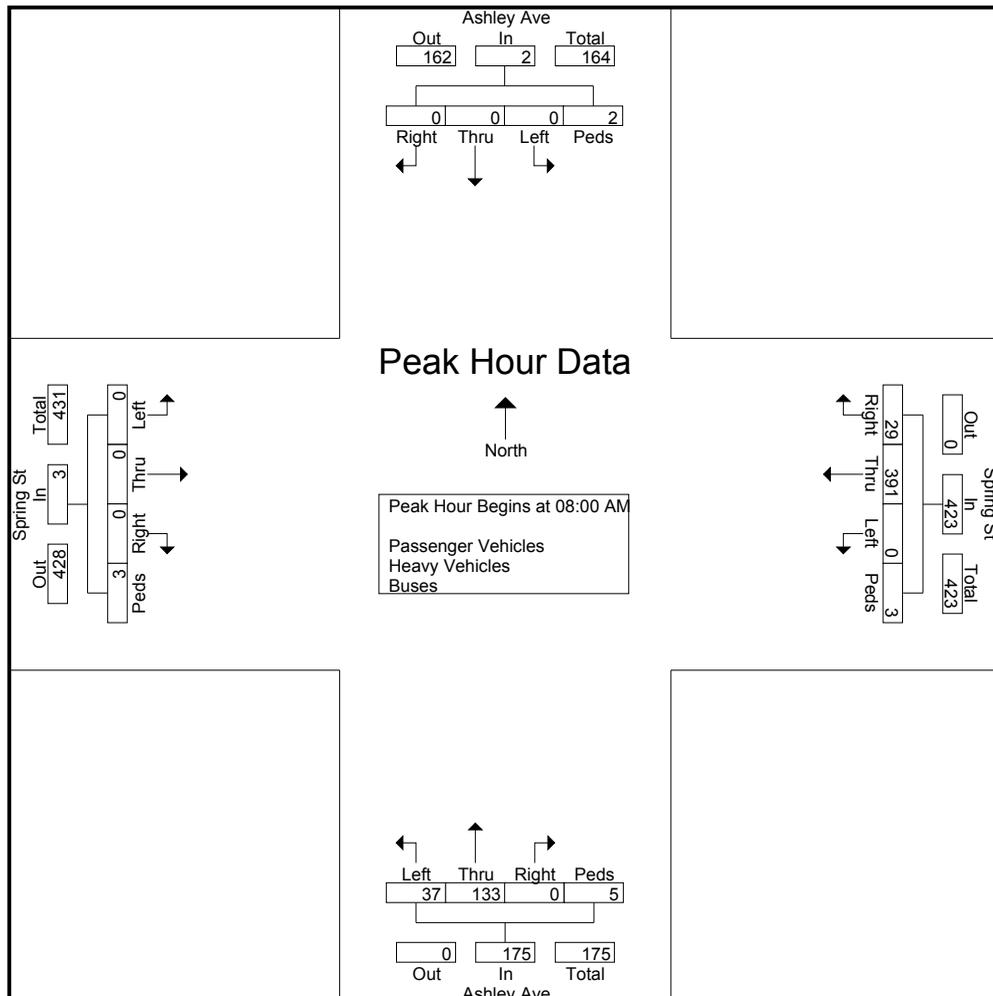
File Name : Spring St @ Ashley Ave Recount

Site Code :

Start Date : 5/19/2016

Page No : 2

Start Time	Ashley Ave From North					Spring St From East					Ashley Ave From South					Spring St From West					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 08:00 AM																						
08:00 AM	0	0	0	1	1	0	71	9	0	80	9	29	0	1	39	0	0	0	1	1	1	121
08:15 AM	0	0	0	0	0	0	103	6	0	109	13	35	0	2	50	0	0	0	2	2	2	161
08:30 AM	0	0	0	1	1	0	114	9	1	124	8	43	0	0	51	0	0	0	0	0	0	176
08:45 AM	0	0	0	0	0	0	103	5	2	110	7	26	0	2	35	0	0	0	0	0	0	145
Total Volume	0	0	0	2	2	0	391	29	3	423	37	133	0	5	175	0	0	0	3	3	3	603
% App. Total	0	0	0	100		0	92.4	6.9	0.7		21.1	76	0	2.9		0	0	0	100			
PHF	.000	.000	.000	.500	.500	.000	.857	.806	.375	.853	.712	.773	.000	.625	.858	.000	.000	.000	.375	.375		.857



Short Counts

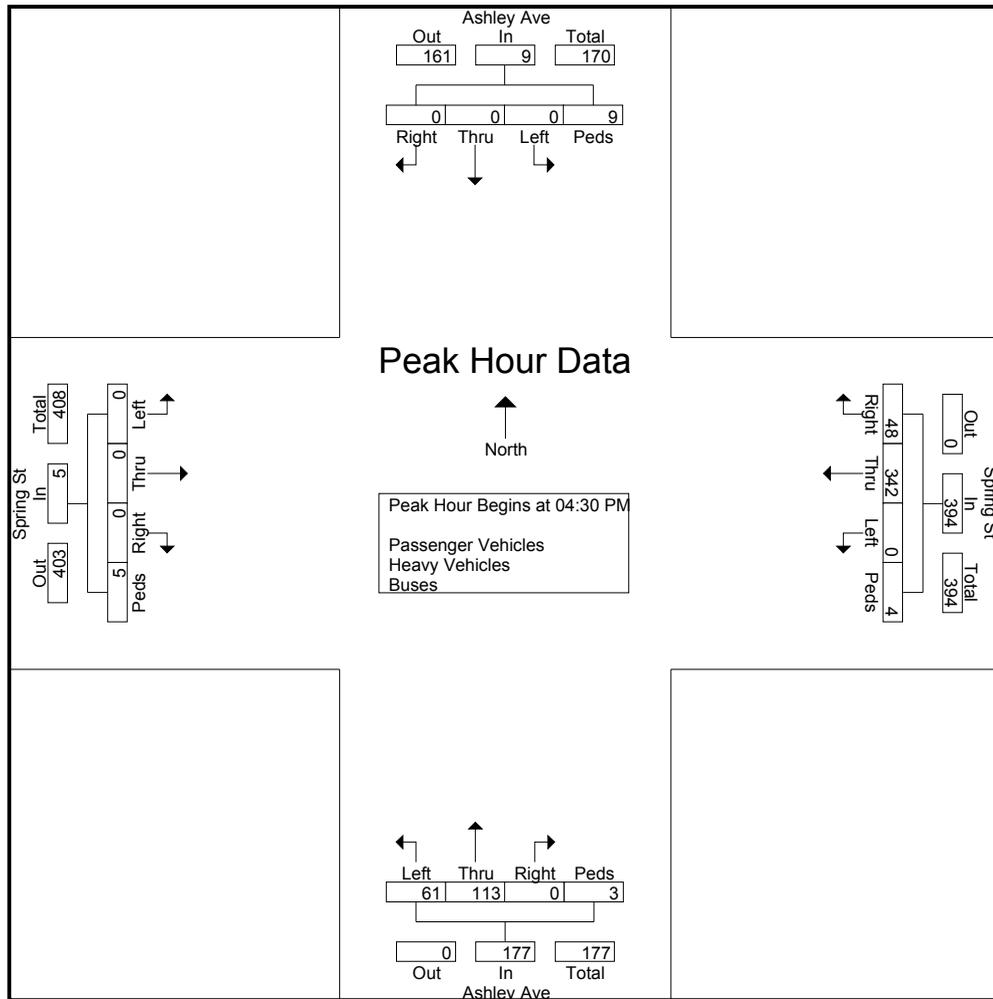
File Name : Spring St @ Ashley Ave Recount

Site Code :

Start Date : 5/19/2016

Page No : 3

Start Time	Ashley Ave From North					Spring St From East					Ashley Ave From South					Spring St From West					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:30 PM																						
04:30 PM	0	0	0	3	3	0	73	13	1	87	16	33	0	0	49	0	0	0	0	0	0	139
04:45 PM	0	0	0	2	2	0	87	10	2	99	12	26	0	2	40	0	0	0	0	1	1	142
05:00 PM	0	0	0	1	1	0	88	9	1	98	19	23	0	0	42	0	0	0	0	1	1	142
05:15 PM	0	0	0	3	3	0	94	16	0	110	14	31	0	1	46	0	0	0	0	3	3	162
Total Volume	0	0	0	9	9	0	342	48	4	394	61	113	0	3	177	0	0	0	0	5	5	585
% App. Total	0	0	0	100		0	86.8	12.2	1		34.5	63.8	0	1.7		0	0	0	0	100		
PHF	.000	.000	.000	.750	.750	.000	.910	.750	.500	.895	.803	.856	.000	.375	.903	.000	.000	.000	.417	.417	.903	



Short Counts

File Name : Rutledge at Spring St Recount

Site Code : DB400

Start Date : 5/19/2016

Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	Rutledge Ave From North					Spring St From East					Rutledge Ave From South					Spring St From West					Int. Total		
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
07:00 AM	0	92	8	0	100	5	37	0	0	42	0	0	0	0	0	0	0	0	0	0	0	142	
07:15 AM	0	126	11	0	137	11	44	0	2	57	0	0	0	1	1	0	0	0	0	1	1	0	196
07:30 AM	0	147	16	1	164	9	56	0	0	65	0	0	0	1	1	0	0	0	0	0	0	0	230
07:45 AM	0	156	9	1	166	13	52	0	1	66	0	0	0	0	0	0	0	0	0	1	1	0	233
Total	0	521	44	2	567	38	189	0	3	230	0	0	0	2	2	0	0	0	0	2	2	0	801
08:00 AM	0	145	12	1	158	14	90	0	1	105	0	0	0	1	1	0	0	0	0	3	3	0	267
08:15 AM	0	116	14	0	130	13	75	0	0	88	0	0	0	0	0	0	0	0	0	0	0	0	218
08:30 AM	0	106	8	2	116	21	99	0	0	120	0	0	0	2	2	0	0	0	0	0	0	0	238
08:45 AM	0	88	13	0	101	10	88	0	3	101	0	0	0	0	0	0	0	0	0	0	0	0	202
Total	0	455	47	3	505	58	352	0	4	414	0	0	0	3	3	0	0	0	0	3	3	0	925
*** BREAK ***																							
04:00 PM	0	85	16	1	102	15	44	0	0	59	0	0	0	0	0	0	0	0	0	1	1	0	162
04:15 PM	0	100	10	1	111	11	54	0	2	67	0	0	0	2	2	0	0	0	0	0	0	0	180
04:30 PM	0	107	14	0	121	9	70	0	0	79	0	0	0	1	1	0	0	0	0	2	2	0	203
04:45 PM	0	97	8	0	105	15	51	0	0	66	0	0	0	0	0	0	0	0	0	3	3	0	174
Total	0	389	48	2	439	50	219	0	2	271	0	0	0	3	3	0	0	0	0	6	6	0	719
05:00 PM	0	113	9	1	123	12	86	0	1	99	0	0	0	0	0	0	0	0	0	0	0	0	222
05:15 PM	0	119	12	2	133	12	104	0	2	118	0	0	0	1	1	0	0	0	0	1	1	0	253
05:30 PM	0	104	8	0	112	8	117	0	0	125	0	0	0	0	0	0	0	0	0	0	0	0	237
05:45 PM	0	87	12	1	100	9	99	0	1	109	0	0	0	2	2	0	0	0	0	0	0	0	211
Total	0	423	41	4	468	41	406	0	4	451	0	0	0	3	3	0	0	0	0	1	1	0	923
Grand Total	0	1788	180	11	1979	187	1166	0	13	1366	0	0	0	11	11	0	0	0	0	12	12	0	3368
Apprch %	0	90.3	9.1	0.6		13.7	85.4	0	1		0	0	0	100		0	0	0	0	100			
Total %	0	53.1	5.3	0.3	58.8	5.6	34.6	0	0.4	40.6	0	0	0	0.3	0.3	0	0	0	0	0.4	0.4		
Unshifted	0	1755	180	11	1946	182	1137	0	13	1332	0	0	0	11	11	0	0	0	0	12	12	0	3301
% Unshifted	0	98.2	100	100	98.3	97.3	97.5	0	100	97.5	0	0	0	100	100	0	0	0	0	100	100	0	98
Bank 1	0	17	0	0	17	5	15	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	37
% Bank 1	0	1	0	0	0.9	2.7	1.3	0	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	1.1
Bank 2	0	16	0	0	16	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	30
% Bank 2	0	0.9	0	0	0.8	0	1.2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0.9

Short Counts

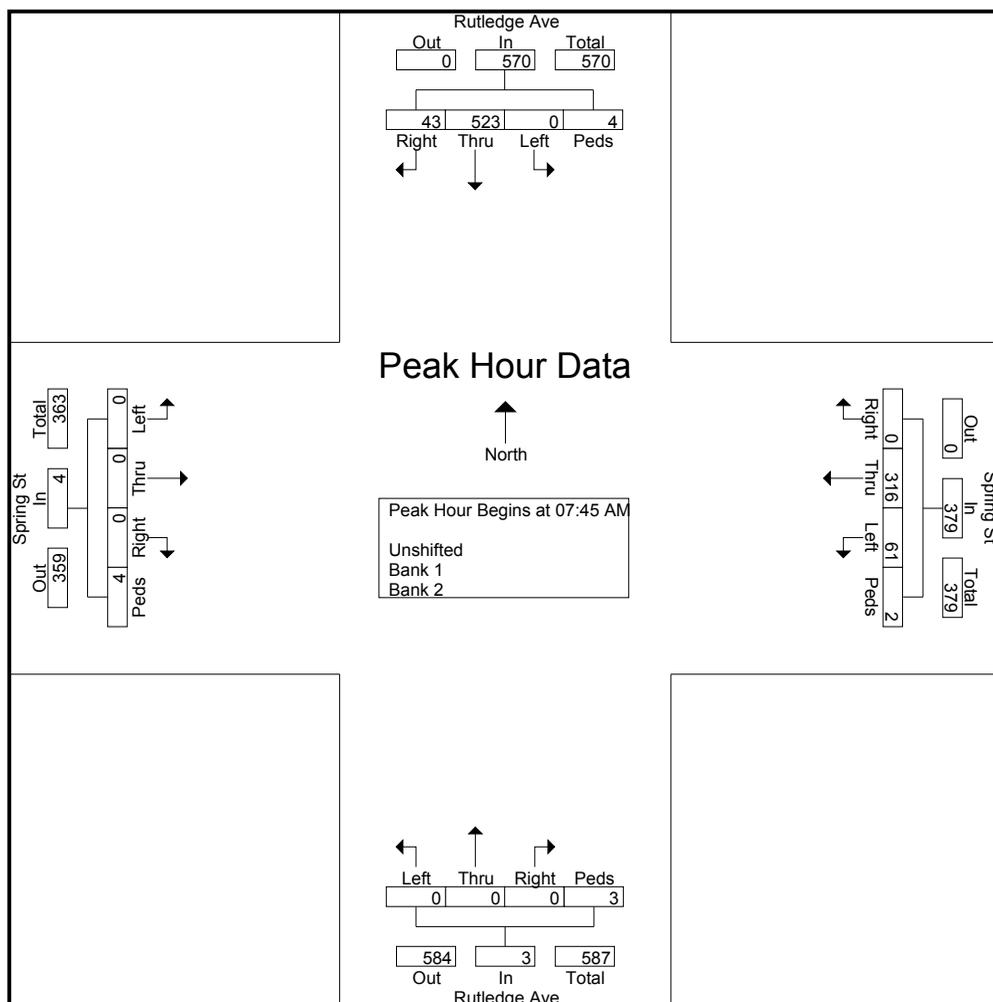
File Name : Rutledge at Spring St Recount

Site Code : DB400

Start Date : 5/19/2016

Page No : 2

Start Time	Rutledge Ave From North					Spring St From East					Rutledge Ave From South					Spring St From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	156	9	1	166	13	52	0	1	66	0	0	0	0	0	0	0	0	1	1	233
08:00 AM	0	145	12	1	158	14	90	0	1	105	0	0	0	1	1	0	0	0	3	3	267
08:15 AM	0	116	14	0	130	13	75	0	0	88	0	0	0	0	0	0	0	0	0	0	218
08:30 AM	0	106	8	2	116	21	99	0	0	120	0	0	0	2	2	0	0	0	0	0	238
Total Volume	0	523	43	4	570	61	316	0	2	379	0	0	0	3	3	0	0	0	4	4	956
% App. Total	0	91.8	7.5	0.7		16.1	83.4	0	0.5		0	0	0	100		0	0	0	100		
PHF	.000	.838	.768	.500	.858	.726	.798	.000	.500	.790	.000	.000	.000	.375	.375	.000	.000	.000	.333	.333	.895



Short Counts

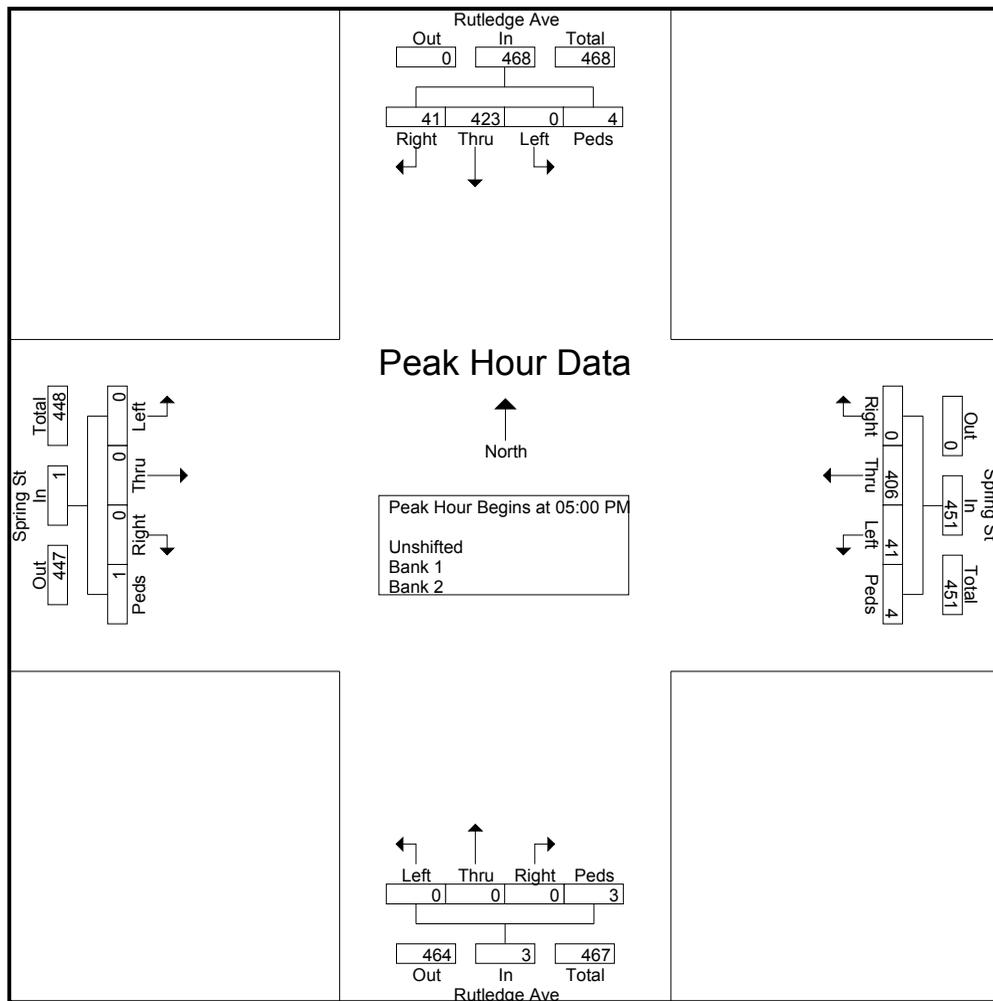
File Name : Rutledge at Spring St Recount

Site Code : DB400

Start Date : 5/19/2016

Page No : 3

Start Time	Rutledge Ave From North					Spring St From East					Rutledge Ave From South					Spring St From West					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	113	9	1	123	12	86	0	1	99	0	0	0	0	0	0	0	0	0	0	222
05:15 PM	0	119	12	2	133	12	104	0	2	118	0	0	0	0	1	0	0	0	0	1	253
05:30 PM	0	104	8	0	112	8	117	0	0	125	0	0	0	0	0	0	0	0	0	0	237
05:45 PM	0	87	12	1	100	9	99	0	1	109	0	0	0	2	2	0	0	0	0	0	211
Total Volume	0	423	41	4	468	41	406	0	4	451	0	0	0	3	3	0	0	0	1	1	923
% App. Total	0	90.4	8.8	0.9		9.1	90	0	0.9		0	0	0	100		0	0	0	100		
PHF	.000	.889	.854	.500	.880	.854	.868	.000	.500	.902	.000	.000	.000	.375	.375	.000	.000	.000	.250	.250	.912



INTERSECTION VOLUME DEVELOPMENT

**Spring Street at Site Driveway
AM PEAK HOUR**

Description	Site Driveway <u>Northbound</u>			Site Driveway <u>Southbound</u>			Spring Street <u>Eastbound</u>			Spring Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2016 AM Volumes				0	0	1				0	379	1
Adjusted AM Volumes For Conversion						1		278			330	1
Pedestrians											22	
Heavy Vehicle %					0.0%						4.5%	
Peak Hour Factor					0.25						0.91	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
2017 Background Traffic	0	0	0	0	0	1	0	283	0	0	337	1
New Project Trips												
Trip Distribution IN							45%					55%
Trip Distribution OUT				55%		45%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	0	7	0	5	4	0	0	0	0	4
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	0	7	0	5	4	0	0	0	0	4
Adjustment for New Use						-1						-1
2017 Buildout Total	0	0	0	7	0	5	4	283	0	0	337	4

PM PEAK HOUR

Description	Site Driveway <u>Northbound</u>			Site Driveway <u>Southbound</u>			Spring Street <u>Eastbound</u>			Spring Street <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2016 PM Volumes				0	0	3					562	0
Adjusted PM Volumes For Conversion						3		118			348	0
Pedestrians											19	
Heavy Vehicle %					0.0%						0.9%	
Peak Hour Factor					0.75						0.89	
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
2017 Background Traffic	0	0	0	0	0	3	0	120	0	0	355	0
New Project Trips												
Trip Distribution IN							45%					55%
Trip Distribution OUT				55%		45%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	0	6	0	5	5	0	0	0	0	7
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	0	6	0	5	5	0	0	0	0	7
Adjustment for New Use						-3						
2017 Buildout Total	0	0	0	6	0	5	5	120	0	0	355	7

INTERSECTION VOLUME DEVELOPMENT

**Spring St. at Ashley Ave
AM PEAK HOUR**

Description	Ashley Ave <u>Northbound</u>			Ashley Ave <u>Southbound</u>			Spring St. <u>Eastbound</u>			Spring St. <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing AM Volumes	37	133									391	29
Adjusted AM Volumes For Conversion	32	129	14				13	328			330	25
Pedestrians	5			2			3			3		
Heavy Vehicle %	0.0%									1.8%		
Peak Hour Factor	0.86									0.85		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
2017 Background Traffic	33	132	14	0	0	0	13	335	0	0	337	26
New Project Trips												
Trip Distribution IN			30%					15%				
Trip Distribution OUT										15%	30%	
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	2	0	0	0	0	2	0	0	2	3
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	2	0	0	0	0	2	0	0	2	3
2017 Buildout Total	33	132	16	0	0	0	13	337	0	0	339	29

PM PEAK HOUR

Description	Ashley Ave <u>Northbound</u>			Ashley Ave <u>Southbound</u>			Spring St. <u>Eastbound</u>			Spring St. <u>Westbound</u>		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing PM Volumes	61	113									342	48
Adjusted PM Volumes For Conversion	49	110	8				20	85			270	39
Pedestrians	3			9			5			4		
Heavy Vehicle %	0.0%									1.8%		
Peak Hour Factor	0.90									0.90		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
2017 Background Traffic	50	112	8	0	0	0	20	87	0	0	276	40
New Project Trips												
Trip Distribution IN			30%					15%				
Trip Distribution OUT										15%	30%	
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	3	0	0	0	0	2	0	0	2	3
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	3	0	0	0	0	2	0	0	2	3
2017 Buildout Total	50	112	11	0	0	0	20	89	0	0	278	43

INTERSECTION VOLUME DEVELOPMENT

**Spring St at Rutledge Ave
AM PEAK HOUR**

Description	Rutledge Ave Northbound			Rutledge Ave Southbound			Spring St Eastbound			Spring St Westbound					
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right			
Existing AM Volumes					523	43				61	316				
Adjusted AM Volumes For Conversion				24	501	41		140	73	52	264				
		3			4			4			2				
Heavy Vehicle %							1.7%						2.5%		
Peak Hour Factor							0.86						0.79		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%			
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020			
2017 Background Traffic	0	0	0	24	511	42	0	143	74	53	269	0			
New Project Trips															
Trip Distribution IN												25%			
Trip Distribution OUT								25%	30%						
Pass-by Project Trips															
Trip Distribution IN															
Trip Distribution OUT															
New Trips	0	0	0	0	0	2	0	3	4	0	2	0			
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0			
Total Project Trips	0	0	0	0	0	2	0	3	4	0	2	0			
2017 Buildout Total	0	0	0	24	511	44	0	146	78	53	271	0			

PM PEAK HOUR

Description	Rutledge Ave Northbound			Rutledge Ave Southbound			Spring St Eastbound			Spring St Westbound					
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right			
Existing PM Volumes					423	41				41	406				
Adjusted PM Volumes For Conversion				66	359	39		119	24	36	347				
Pedestrians		3			4			1			4				
Heavy Vehicle %							1.7%						2.5%		
Peak Hour Factor							0.88						0.90		
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%			
Growth Factor	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020			
2017 Background Traffic	0	0	0	67	366	40	0	121	24	37	354	0			
New Project Trips															
Trip Distribution IN												25%			
Trip Distribution OUT								25%	30%						
Pass-by Project Trips															
Trip Distribution IN															
Trip Distribution OUT															
New Trips	0	0	0	0	0	4	0	3	3	0	3	0			
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0			
Total Project Trips	0	0	0	0	0	4	0	3	3	0	3	0			
2017 Buildout Total	0	0	0	67	366	44	0	124	27	37	357	0			

HCM 2010 Signalized Intersection Summary
3: Rutledge Ave & Spring St

Existing AM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕						↕↕	↗
Traffic Volume (veh/h)	0	0	0	61	316	0	0	0	0	0	523	43
Future Volume (veh/h)	0	0	0	61	316	0	0	0	0	0	523	43
Number				7	4	14				1	6	16
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	0.85
Adj Sat Flow, veh/h/ln				1900	1845	0				0	1863	1863
Adj Flow Rate, veh/h				77	400	0				0	608	50
Adj No. of Lanes				0	2	0				0	2	1
Peak Hour Factor				0.79	0.79	0.79				0.86	0.86	0.86
Percent Heavy Veh, %				3	3	0				0	2	2
Cap, veh/h				299	1490	0				0	1180	446
Arrive On Green				0.53	0.53	0.00				0.00	0.33	0.33
Sat Flow, veh/h				468	2906	0				0	3632	1338
Grp Volume(v), veh/h				250	227	0				0	608	50
Grp Sat Flow(s),veh/h/ln				1695	1595	0				0	1770	1338
Q Serve(g_s), s				2.4	7.0	0.0				0.0	12.4	2.3
Cycle Q Clear(g_c), s				6.9	7.0	0.0				0.0	12.4	2.3
Prop In Lane				0.31		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				947	842	0				0	1180	446
V/C Ratio(X)				0.26	0.27	0.00				0.00	0.52	0.11
Avail Cap(c_a), veh/h				947	842	0				0	1180	446
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				11.6	11.7	0.0				0.0	24.1	20.8
Incr Delay (d2), s/veh				0.7	0.8	0.0				0.0	1.6	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.6	3.3	0.0				0.0	6.3	0.9
LnGrp Delay(d),s/veh				12.3	12.5	0.0				0.0	25.8	21.3
LnGrp LOS				B	B						C	C
Approach Vol, veh/h					477						658	
Approach Delay, s/veh					12.4						25.4	
Approach LOS					B						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				53.5		36.5						
Change Period (Y+Rc), s				6.0		6.5						
Max Green Setting (Gmax), s				47.5		30.0						
Max Q Clear Time (g_c+I1), s				9.0		14.4						
Green Ext Time (p_c), s				3.1		3.9						
Intersection Summary												
HCM 2010 Ctrl Delay				19.9								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
6: Ashley Ave & Spring St

Existing AM
5/24/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑			↑↑				
Traffic Volume (veh/h)	0	0	0	0	391	29	37	133	0	0	0	0
Future Volume (veh/h)	0	0	0	0	391	29	37	133	0	0	0	0
Number				7	4	14	5	2	12			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	0.85	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1863	1900	1900	1863	0			
Adj Flow Rate, veh/h				0	460	34	43	155	0			
Adj No. of Lanes				0	2	0	0	2	0			
Peak Hour Factor				0.85	0.85	0.85	0.86	0.86	0.86			
Percent Heavy Veh, %				0	2	2	2	2	0			
Cap, veh/h				0	1542	114	292	1021	0			
Arrive On Green				0.00	0.50	0.50	0.38	0.38	0.00			
Sat Flow, veh/h				0	3178	227	614	2748	0			
Grp Volume(v), veh/h				0	263	231	106	92	0			
Grp Sat Flow(s),veh/h/ln				0	1770	1542	1667	1610	0			
Q Serve(g_s), s				0.0	7.9	7.9	0.5	3.4	0.0			
Cycle Q Clear(g_c), s				0.0	7.9	7.9	3.4	3.4	0.0			
Prop In Lane				0.00		0.15	0.41		0.00			
Lane Grp Cap(c), veh/h				0	885	771	695	617	0			
V/C Ratio(X)				0.00	0.30	0.30	0.15	0.15	0.00			
Avail Cap(c_a), veh/h				0	885	771	695	617	0			
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)				0.00	1.00	1.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	13.2	13.2	18.1	18.2	0.0			
Incr Delay (d2), s/veh				0.0	0.9	1.0	0.5	0.5	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				0.0	4.0	3.5	1.8	1.6	0.0			
LnGrp Delay(d),s/veh				0.0	14.1	14.2	18.6	18.7	0.0			
LnGrp LOS					B	B	B	B				
Approach Vol, veh/h					494			198				
Approach Delay, s/veh					14.1			18.6				
Approach LOS					B			B				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		39.5		50.5								
Change Period (Y+Rc), s		5.0		5.5								
Max Green Setting (Gmax), s		34.5		45.0								
Max Q Clear Time (g_c+I1), s		5.4		9.9								
Green Ext Time (p_c), s		1.1		3.2								
Intersection Summary												
HCM 2010 Ctrl Delay					15.4							
HCM 2010 LOS					B							

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	0	379	1	0	1
Future Vol, veh/h	0	0	379	1	0	1
Conflicting Peds, #/hr	0	0	0	22	0	22
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	91	91	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	416	1	0	2

Major/Minor

	Major2	Minor2
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach

	WB	SB
HCM Control Delay, s	0	9.9
HCM LOS		A

Minor Lane/Major Mvmt

	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	730
HCM Lane V/C Ratio	-	-	0.003
HCM Control Delay (s)	-	-	9.9
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0

HCM 2010 Signalized Intersection Summary
3: Rutledge Ave & Spring St

Existing PM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	41	406	0	0	0	0	0	423	41
Future Volume (veh/h)	0	0	0	41	406	0	0	0	0	0	423	41
Number				7	4	14				1	6	16
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	0.85
Adj Sat Flow, veh/h/ln				1900	1845	0				0	1863	1863
Adj Flow Rate, veh/h				46	451	0				0	481	47
Adj No. of Lanes				0	2	0				0	2	1
Peak Hour Factor				0.90	0.90	0.90				0.88	0.88	0.88
Percent Heavy Veh, %				3	3	0				0	2	2
Cap, veh/h				161	1493	0				0	1376	521
Arrive On Green				0.48	0.48	0.00				0.00	0.39	0.39
Sat Flow, veh/h				239	3208	0				0	3632	1339
Grp Volume(v), veh/h				264	233	0				0	481	47
Grp Sat Flow(s),veh/h/ln				1768	1595	0				0	1770	1339
Q Serve(g_s), s				0.0	8.1	0.0				0.0	8.7	2.0
Cycle Q Clear(g_c), s				7.8	8.1	0.0				0.0	8.7	2.0
Prop In Lane				0.17		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				892	762	0				0	1376	521
V/C Ratio(X)				0.30	0.31	0.00				0.00	0.35	0.09
Avail Cap(c_a), veh/h				892	762	0				0	1376	521
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				14.3	14.4	0.0				0.0	19.4	17.4
Incr Delay (d2), s/veh				0.8	1.0	0.0				0.0	0.7	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.2	3.7	0.0				0.0	4.3	0.8
LnGrp Delay(d),s/veh				15.2	15.4	0.0				0.0	20.1	17.8
LnGrp LOS				B	B						C	B
Approach Vol, veh/h					497						528	
Approach Delay, s/veh					15.3						19.9	
Approach LOS					B						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs				4		6						
Phs Duration (G+Y+Rc), s				48.5		41.5						
Change Period (Y+Rc), s				5.5		6.5						
Max Green Setting (Gmax), s				43.0		35.0						
Max Q Clear Time (g_c+I1), s				10.1		10.7						
Green Ext Time (p_c), s				3.2		3.5						
Intersection Summary												
HCM 2010 Ctrl Delay				17.7								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
6: Ashley Ave & Spring St

Existing PM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑			↑↑				
Traffic Volume (veh/h)	0	0	0	0	342	48	61	113	0	0	0	0
Future Volume (veh/h)	0	0	0	0	342	48	61	113	0	0	0	0
Number				7	4	14	5	2	12			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	0.85	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1863	1900	1900	1863	0			
Adj Flow Rate, veh/h				0	380	53	68	126	0			
Adj No. of Lanes				0	2	0	0	2	0			
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %				0	2	2	2	2	0			
Cap, veh/h				0	1409	195	453	860	0			
Arrive On Green				0.00	0.49	0.49	0.39	0.39	0.00			
Sat Flow, veh/h				0	2975	399	981	2264	0			
Grp Volume(v), veh/h				0	232	201	104	90	0			
Grp Sat Flow(s),veh/h/ln				0	1770	1511	1549	1610	0			
Q Serve(g_s), s				0.0	6.9	7.1	2.6	3.2	0.0			
Cycle Q Clear(g_c), s				0.0	6.9	7.1	3.7	3.2	0.0			
Prop In Lane				0.00		0.26	0.66		0.00			
Lane Grp Cap(c), veh/h				0	865	739	677	635	0			
V/C Ratio(X)				0.00	0.27	0.27	0.15	0.14	0.00			
Avail Cap(c_a), veh/h				0	865	739	677	635	0			
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)				0.00	1.00	1.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	13.5	13.6	17.6	17.5	0.0			
Incr Delay (d2), s/veh				0.0	0.8	0.9	0.5	0.5	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				0.0	3.5	3.1	1.8	1.5	0.0			
LnGrp Delay(d),s/veh				0.0	14.3	14.5	18.1	18.0	0.0			
LnGrp LOS					B	B	B	B				
Approach Vol, veh/h					433			194				
Approach Delay, s/veh					14.4			18.0				
Approach LOS					B			B				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4								
Phs Duration (G+Y+Rc), s		40.5		49.5								
Change Period (Y+Rc), s		5.0		5.5								
Max Green Setting (Gmax), s		35.5		44.0								
Max Q Clear Time (g_c+I1), s		5.7		9.1								
Green Ext Time (p_c), s		1.1		2.8								
Intersection Summary												
HCM 2010 Ctrl Delay					15.5							
HCM 2010 LOS					B							

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	0	562	0	0	3
Future Vol, veh/h	0	0	562	0	0	3
Conflicting Peds, #/hr	0	0	0	19	0	19
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	89	89	75	75
Heavy Vehicles, %	2	2	5	5	2	2
Mvmt Flow	0	0	631	0	0	4

Major/Minor

	Major2	Minor2
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach

	WB	SB
HCM Control Delay, s	0	10.8
HCM LOS		B

Minor Lane/Major Mvmt

	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	630
HCM Lane V/C Ratio	-	-	0.006
HCM Control Delay (s)	-	-	10.8
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

HCM Signalized Intersection Capacity Analysis

3: Rutledge Ave & Spring St

No Build AM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (vph)	0	143	74	53	269	0	0	0	0	24	511	42
Future Volume (vph)	0	143	74	53	269	0	0	0	0	24	511	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0						6.5	6.5
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frb, ped/bikes		0.99		1.00	1.00						1.00	0.97
Flpb, ped/bikes		1.00		1.00	1.00						1.00	1.00
Frt		0.95		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		1748		1483	1568						3266	1310
Flt Permitted		1.00		0.56	1.00						1.00	1.00
Satd. Flow (perm)		1748		868	1568						3266	1310
Peak-hour factor, PHF	0.80	0.80	0.80	0.79	0.79	0.79	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	0	179	92	67	341	0	0	0	0	28	594	49
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	0	23
Lane Group Flow (vph)	0	251	0	67	341	0	0	0	0	0	622	26
Confl. Peds. (#/hr)	2		4	4		2	4		3	3		4
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Parking (#/hr)				10	10						10	10
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		4			4						6	
Permitted Phases				4						6		6
Actuated Green, G (s)		42.0		42.0	42.0						35.5	35.5
Effective Green, g (s)		42.0		42.0	42.0						35.5	35.5
Actuated g/C Ratio		0.47		0.47	0.47						0.39	0.39
Clearance Time (s)		6.0		6.0	6.0						6.5	6.5
Lane Grp Cap (vph)		815		405	731						1288	516
v/s Ratio Prot		0.14			c0.22							
v/s Ratio Perm				0.08							0.19	0.02
v/c Ratio		0.31		0.17	0.47						0.48	0.05
Uniform Delay, d1		15.0		13.9	16.4						20.4	16.8
Progression Factor		2.15		1.00	1.00						1.00	1.00
Incremental Delay, d2		0.9		0.9	2.1						1.3	0.2
Delay (s)		33.1		14.7	18.5						21.7	17.0
Level of Service		C		B	B						C	B
Approach Delay (s)		33.1			17.9			0.0			21.3	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			22.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			12.5			
Intersection Capacity Utilization			54.6%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Ashley Ave & Spring St

No Build AM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	335	0	0	337	26	33	132	14	0	0	0
Future Volume (vph)	13	335	0	0	337	26	33	132	14	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.99				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		1859			1566			3193				
Flt Permitted		0.98			1.00			0.99				
Satd. Flow (perm)		1827			1566			3193				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86	0.92	0.92	0.92
Adj. Flow (vph)	15	394	0	0	396	31	38	153	16	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	409	0	0	424	0	0	200	0	0	0	0
Confl. Peds. (#/hr)	3		3	3		3	2		5	5		2
Parking (#/hr)					10	10		10				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		55.5			55.5			24.0				
Effective Green, g (s)		55.5			55.5			24.0				
Actuated g/C Ratio		0.62			0.62			0.27				
Clearance Time (s)		5.5			5.5			5.0				
Lane Grp Cap (vph)		1126			965			851				
v/s Ratio Prot					c0.27							
v/s Ratio Perm		0.22						0.06				
v/c Ratio		0.36			0.44			0.24				
Uniform Delay, d1		8.5			9.1			25.8				
Progression Factor		1.00			1.72			1.00				
Incremental Delay, d2		0.9			1.4			0.7				
Delay (s)		9.4			17.0			26.5				
Level of Service		A			B			C				
Approach Delay (s)		9.4			17.0			26.5			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			15.9				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		10.5			
Intersection Capacity Utilization			47.7%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	283	337	1	0	1
Future Vol, veh/h	0	283	337	1	0	1
Conflicting Peds, #/hr	0	0	0	22	0	22
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	50	50
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	0	311	370	1	0	2

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	393	0	415
Stage 1	-	-	393
Stage 2	-	-	311
Critical Hdwy	4.15	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.245	-	3.318
Pot Cap-1 Maneuver	1149	-	637
Stage 1	-	-	682
Stage 2	-	-	743
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1125	-	611
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	668
Stage 2	-	-	727

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1125	-	-	-	611
HCM Lane V/C Ratio	-	-	-	-	0.003
HCM Control Delay (s)	0	-	-	-	10.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM Signalized Intersection Capacity Analysis
3: Rutledge Ave & Spring St

No Build PM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (vph)	0	121	24	37	354	0	0	0	0	67	366	40
Future Volume (vph)	0	121	24	37	354	0	0	0	0	67	366	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		5.5	5.5						6.5	6.5
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frb, ped/bikes		1.00		1.00	1.00						1.00	0.97
Flpb, ped/bikes		1.00		1.00	1.00						1.00	1.00
Frt		0.98		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.99	1.00
Satd. Flow (prot)		1799		1488	1568						3246	1310
Flt Permitted		1.00		0.66	1.00						0.99	1.00
Satd. Flow (perm)		1799		1026	1568						3246	1310
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	0	134	27	41	393	0	0	0	0	76	416	45
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	0	26
Lane Group Flow (vph)	0	153	0	41	393	0	0	0	0	0	492	19
Confl. Peds. (#/hr)	4		1	1		4	4		3	3		4
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Parking (#/hr)				10	10						10	10
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		4			4						6	
Permitted Phases				4						6		6
Actuated Green, G (s)		44.5		44.5	44.5						33.5	33.5
Effective Green, g (s)		44.5		44.5	44.5						33.5	33.5
Actuated g/C Ratio		0.49		0.49	0.49						0.37	0.37
Clearance Time (s)		5.5		5.5	5.5						6.5	6.5
Lane Grp Cap (vph)		889		507	775						1208	487
v/s Ratio Prot		0.09			c0.25							
v/s Ratio Perm				0.04							0.15	0.01
v/c Ratio		0.17		0.08	0.51						0.41	0.04
Uniform Delay, d1		12.6		12.0	15.4						20.9	18.0
Progression Factor		0.71		1.00	1.00						1.00	1.00
Incremental Delay, d2		0.4		0.3	2.4						1.0	0.1
Delay (s)		9.4		12.3	17.7						21.9	18.1
Level of Service		A		B	B						C	B
Approach Delay (s)		9.4			17.2			0.0			21.6	
Approach LOS		A			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			18.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			53.8%			ICU Level of Service				A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: Ashley Ave & Spring St

No Build PM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	87	0	0	276	40	50	112	8	0	0	0
Future Volume (vph)	20	87	0	0	276	40	50	112	8	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			0.99				
Frt		1.00			0.98			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		1844			1553			3169				
Flt Permitted		0.92			1.00			0.99				
Satd. Flow (perm)		1705			1553			3169				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	22	97	0	0	307	44	56	124	9	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	119	0	0	345	0	0	185	0	0	0	0
Confl. Peds. (#/hr)	4		5	5		4	9		3	3		9
Parking (#/hr)					10	10		10				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		53.5			53.5			26.0				
Effective Green, g (s)		53.5			53.5			26.0				
Actuated g/C Ratio		0.59			0.59			0.29				
Clearance Time (s)		5.5			5.5			5.0				
Lane Grp Cap (vph)		1013			923			915				
v/s Ratio Prot					0.22							
v/s Ratio Perm		0.07						0.06				
v/c Ratio		0.12			0.37			0.20				
Uniform Delay, d1		8.0			9.5			24.2				
Progression Factor		1.00			0.70			1.00				
Incremental Delay, d2		0.2			1.0			0.5				
Delay (s)		8.2			7.7			24.7				
Level of Service		A			A			C				
Approach Delay (s)		8.2			7.7			24.7			0.0	
Approach LOS		A			A			C			A	
Intersection Summary												
HCM 2000 Control Delay			12.7				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		10.5			
Intersection Capacity Utilization			41.4%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	120	355	0	0	3
Future Vol, veh/h	0	120	355	0	0	3
Conflicting Peds, #/hr	0	0	0	19	0	19
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	135	399	0	0	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	418	0	553
Stage 1	-	-	418
Stage 2	-	-	135
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1141	-	494
Stage 1	-	-	664
Stage 2	-	-	891
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1120	-	476
Mov Cap-2 Maneuver	-	-	476
Stage 1	-	-	652
Stage 2	-	-	875

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1120	-	-	-	598
HCM Lane V/C Ratio	-	-	-	-	0.007
HCM Control Delay (s)	0	-	-	-	11.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM Signalized Intersection Capacity Analysis
3: Rutledge Ave & Spring St

Build AM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (vph)	0	146	78	53	271	0	0	0	0	24	511	44
Future Volume (vph)	0	146	78	53	271	0	0	0	0	24	511	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0						6.5	6.5
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frbp, ped/bikes		0.99		1.00	1.00						1.00	0.97
Flpb, ped/bikes		1.00		1.00	1.00						1.00	1.00
Frt		0.95		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		1746		1483	1568						3266	1310
Flt Permitted		1.00		0.54	1.00						1.00	1.00
Satd. Flow (perm)		1746		849	1568						3266	1310
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	0	185	99	67	343	0	0	0	0	28	594	51
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	0	24
Lane Group Flow (vph)	0	263	0	67	343	0	0	0	0	0	622	27
Confl. Peds. (#/hr)	2		4	4		2	4		3	3		4
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Parking (#/hr)				10	10						10	10
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		4			4						6	
Permitted Phases				4						6		6
Actuated Green, G (s)		42.0		42.0	42.0						35.5	35.5
Effective Green, g (s)		42.0		42.0	42.0						35.5	35.5
Actuated g/C Ratio		0.47		0.47	0.47						0.39	0.39
Clearance Time (s)		6.0		6.0	6.0						6.5	6.5
Lane Grp Cap (vph)		814		396	731						1288	516
v/s Ratio Prot		0.15			c0.22							
v/s Ratio Perm				0.08							0.19	0.02
v/c Ratio		0.32		0.17	0.47						0.48	0.05
Uniform Delay, d1		15.1		13.9	16.4						20.4	16.9
Progression Factor		2.08		1.00	1.00						1.00	1.00
Incremental Delay, d2		1.0		0.9	2.2						1.3	0.2
Delay (s)		32.4		14.8	18.5						21.7	17.0
Level of Service		C		B	B						C	B
Approach Delay (s)		32.4			17.9			0.0			21.3	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			22.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				12.5		
Intersection Capacity Utilization			54.6%			ICU Level of Service				A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: Ashley Ave & Spring St

Build AM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	337	0	0	339	29	33	132	16	0	0	0
Future Volume (vph)	13	337	0	0	339	29	33	132	16	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.99				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		1859			1564			3186				
Flt Permitted		0.98			1.00			0.99				
Satd. Flow (perm)		1827			1564			3186				
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.86	0.86	0.86	0.92	0.92	0.92
Adj. Flow (vph)	15	396	0	0	399	34	38	153	19	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	411	0	0	430	0	0	202	0	0	0	0
Confl. Peds. (#/hr)	3		3	3		3	2		5	5		2
Parking (#/hr)					10	10		10				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		55.5			55.5			24.0				
Effective Green, g (s)		55.5			55.5			24.0				
Actuated g/C Ratio		0.62			0.62			0.27				
Clearance Time (s)		5.5			5.5			5.0				
Lane Grp Cap (vph)		1126			964			849				
v/s Ratio Prot					c0.27							
v/s Ratio Perm		0.22						0.06				
v/c Ratio		0.37			0.45			0.24				
Uniform Delay, d1		8.5			9.1			25.8				
Progression Factor		1.00			1.71			1.00				
Incremental Delay, d2		0.9			1.4			0.7				
Delay (s)		9.4			17.0			26.5				
Level of Service		A			B			C				
Approach Delay (s)		9.4			17.0			26.5			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			16.0				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		10.5			
Intersection Capacity Utilization			47.8%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	4	283	337	4	7	5
Future Vol, veh/h	4	283	337	4	7	5
Conflicting Peds, #/hr	0	0	0	22	0	22
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	50	50
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	4	311	370	4	14	10

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	397	0	417
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.15	-	6.22
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.245	-	3.318
Pot Cap-1 Maneuver	1145	-	636
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1121	-	610
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1121	-	-	-	450
HCM Lane V/C Ratio	0.004	-	-	-	0.053
HCM Control Delay (s)	8.2	0	-	-	13.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM Signalized Intersection Capacity Analysis

3: Rutledge Ave & Spring St

Build PM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	124	27	37	357	0	0	0	0	67	366	44
Future Volume (vph)	0	124	27	37	357	0	0	0	0	67	366	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		5.5	5.5						6.5	6.5
Lane Util. Factor		1.00		1.00	1.00						0.95	1.00
Frb, ped/bikes		1.00		1.00	1.00						1.00	0.97
Flpb, ped/bikes		1.00		1.00	1.00						1.00	1.00
Frt		0.98		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.99	1.00
Satd. Flow (prot)		1796		1488	1568						3246	1310
Flt Permitted		1.00		0.65	1.00						0.99	1.00
Satd. Flow (perm)		1796		1019	1568						3246	1310
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	0	138	30	41	397	0	0	0	0	76	416	50
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	0	30
Lane Group Flow (vph)	0	159	0	41	397	0	0	0	0	0	492	20
Confl. Peds. (#/hr)	4		1	1		4	4		3	3		4
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Parking (#/hr)				10	10						10	10
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		4			4						6	
Permitted Phases				4						6		6
Actuated Green, G (s)		44.5		44.5	44.5						33.5	33.5
Effective Green, g (s)		44.5		44.5	44.5						33.5	33.5
Actuated g/C Ratio		0.49		0.49	0.49						0.37	0.37
Clearance Time (s)		5.5		5.5	5.5						6.5	6.5
Lane Grp Cap (vph)		888		503	775						1208	487
v/s Ratio Prot		0.09			c0.25							
v/s Ratio Perm				0.04							0.15	0.02
v/c Ratio		0.18		0.08	0.51						0.41	0.04
Uniform Delay, d1		12.6		12.0	15.4						20.9	18.0
Progression Factor		0.77		1.00	1.00						1.00	1.00
Incremental Delay, d2		0.4		0.3	2.4						1.0	0.2
Delay (s)		10.1		12.3	17.8						21.9	18.2
Level of Service		B		B	B						C	B
Approach Delay (s)		10.1			17.3			0.0			21.6	
Approach LOS		B			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			18.3			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			53.8%			ICU Level of Service				A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Ashley Ave & Spring St

Build PM
5/24/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	89	0	0	278	43	50	112	11	0	0	0
Future Volume (vph)	20	89	0	0	278	43	50	112	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			0.99				
Frt		1.00			0.98			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		1845			1551			3161				
Flt Permitted		0.92			1.00			0.99				
Satd. Flow (perm)		1705			1551			3161				
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	22	99	0	0	309	48	56	124	12	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	121	0	0	351	0	0	186	0	0	0	0
Confl. Peds. (#/hr)	4		5	5		4	9		3	3		9
Parking (#/hr)					10	10		10				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		53.5			53.5			26.0				
Effective Green, g (s)		53.5			53.5			26.0				
Actuated g/C Ratio		0.59			0.59			0.29				
Clearance Time (s)		5.5			5.5			5.0				
Lane Grp Cap (vph)		1013			921			913				
v/s Ratio Prot					c0.23							
v/s Ratio Perm		0.07						0.06				
v/c Ratio		0.12			0.38			0.20				
Uniform Delay, d1		8.0			9.6			24.2				
Progression Factor		1.00			0.71			1.00				
Incremental Delay, d2		0.2			1.1			0.5				
Delay (s)		8.2			7.9			24.7				
Level of Service		A			A			C				
Approach Delay (s)		8.2			7.9			24.7			0.0	
Approach LOS		A			A			C			A	
Intersection Summary												
HCM 2000 Control Delay			12.8				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		10.5			
Intersection Capacity Utilization			41.5%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	5	120	355	7	6	5
Future Vol, veh/h	5	120	355	7	6	5
Conflicting Peds, #/hr	0	0	0	19	0	19
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	135	399	8	8	7

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	426	0	568
Stage 1	-	-	422
Stage 2	-	-	146
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1133	-	484
Stage 1	-	-	662
Stage 2	-	-	881
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1112	-	464
Mov Cap-2 Maneuver	-	-	464
Stage 1	-	-	650
Stage 2	-	-	860

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1112	-	-	-	515
HCM Lane V/C Ratio	0.005	-	-	-	0.028
HCM Control Delay (s)	8.3	0	-	-	12.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



PO Box B
Charleston, SC 29402
103 St. Philip Street (29403)

(843) 727-6800
www.charlestonwater.com

Board of Commissioners
Thomas B. Pritchard, Chairman
David E. Rivers, Vice Chairman
William E. Koopman, Jr., Commissioner
Mayor John J. Tecklenburg (Ex-Officio)
Councilmember Perry K. Waring (Ex-Officio)

Officers
Kin Hill, P.E., Chief Executive Officer
Dorothy Harrison, Chief Administrative Officer
Wesley Ropp, CMA, Chief Financial Officer
Andy Fairey, Chief Operating Officer
Mark Cline, P.E., Capital Projects Officer

5/2/2016

Mr. Glenn Zuber
1388 Lochmere Ct.
Mt. Pleasant, SC 29466

Re: Sewer Availability to TMS #460-11-02-027 to serve 28 multi family residential units and two commercial units

Dear Mr. Zuber,

This letter is to certify our willingness and ability to provide wastewater collection service to the above referenced site in Charleston County, South Carolina. Wastewater collection service to this site may be made available via the existing eight inch gravity main in the right of way of Spring St. Any subdividing of the property subsequent to this correspondence will require a review process of the civil engineering plans to ensure compliance with the Charleston Water System minimum standards. Any extensions and/or modifications to the infrastructure to serve this site will be a developer expense. Please be advised that wastewater impact fees, wastewater tap fees, change-in-use fees, and/or cost to extend fees will be due prior to connection of any Charleston Water System's sewer system. This letter does not reserve capacity in the Charleston Water System infrastructure and it is incumbent upon the developer or his agent to confirm the availability herein granted past 12 months of this correspondence.

The Charleston Water System certifies the availability of service only insofar as its rights allow. Should access to our existing sewer main/mains be denied by appropriate governing authorities, the Charleston Water System will have no other option than to deny service.

This letter is not to be construed as a letter of acceptance for operation and maintenance from the Department of Health and Environmental Control.

If there are any questions pertaining to this letter, please do not hesitate to call on me at (843) 727-6870.

Sincerely,

A handwritten signature in blue ink that reads "Cheryl L. Boyle".

Cheryl L. Boyle
Engineering Assistant
Charleston Water System

cc: file



PO Box B
Charleston, SC 29402
103 St. Philip Street (29403)
(843) 727-6800
www.charlestonwater.com

Board of Commissioners
Thomas B. Pritchard, Chairman
David E. Rivers, Vice Chairman
William E. Koopman, Jr., Commissioner
Mayor John J. Tecklenburg (Ex-Officio)
Councilmember Perry K. Waring (Ex-Officio)

Officers
Kin Hill, P.E., Chief Executive Officer
Dorothy Harrison, Chief Administrative Officer
Wesley Ropp, CMA, Chief Financial Officer
Andy Fairey, Chief Operating Officer
Mark Cline, P.E., Capital Projects Officer

5/2/2016

Mr. Glenn Zuber
1388 Lochmere Ct.
Mt. Pleasant, SC 29466

Re: Water Availability to TMS #460-11-02-027 to serve 28 multi family residential units and two commercial units

Dear Mr. Zuber,

This letter is to certify our willingness and ability to provide water to the above referenced site in Charleston County, South Carolina once completion of the water main replacement project is finalized. We are replacing the existing main with an eight inch water main in the right of way of Spring St. that is projected to be completed by the end of the third quarter of 2016. This review does not supplant any other review as required by governing authorities and municipalities. It will of course be a developer responsibility to ensure there are adequate pressures and quantities on this line to serve this site with domestic water/fire flow and not negatively impact the existing developments. Please be advised any extensions or modification to the infrastructure as well as any additional fire protection will be a developer expense. All fees and costs associated with providing water service to this site will be a developer expense. This letter does not reserve capacity in the Charleston Water System infrastructure and it is incumbent upon the developer or his agent to confirm the availability herein granted past 12 months of this correspondence.

The Charleston Water System certifies the availability of service only insofar as its rights allow. Should access to our existing main/mains be denied by appropriate governing authorities, the Charleston Water System will have no other option than to deny service.

This letter is not to be construed as a letter of acceptance for operation and maintenance from the Department of Health and Environmental Control.

If there are any questions pertaining to this letter, please do not hesitate to call on me at (843) 727-6870.

Sincerely,

A handwritten signature in blue ink that reads "Cheryl Boyle".

Cheryl L. Boyle
Engineering Assistant
Charleston Water System

cc: file



April 27, 2016

Mr. Glenn Zuber
1388 Lockmere Court
Mt Pleasant, SC 29466

Re: 124 Spring Street, Charleston, SC 29403
TMS # 460-11-02-027

Dear Mr. Zuber:

I am pleased to inform you that South Carolina Electric & Gas Company (SCE&G) will be able to provide electric and gas service to the above referenced project. Electric and gas service will be provided in accordance with SCE&G's General Terms and Conditions, other documents on file with the South Carolina Public Service Commission, and the company's standard operating policies and procedures. Any associated customer contribution will be determined when equipment loads and projected revenues are analyzed. In order to begin engineering work for the project, the following information will need to be provided:

- Detailed utility site plan (AutoCAD format preferred) showing water, sewer, and storm drainage as well as requested service point/transformer location.
- Additional drawings that indicate wetlands boundaries, tree survey with barricade plan and buffer zones (if required), as well as any existing or additional easements will also be needed.
- Electric load breakdown by type with riser diagrams
- Gas load and delivery pressure
- Signed copy of this letter acknowledging its receipt and responsibility for its contents and authorization to begin engineering work with the understanding that SCE&G intends to serve the referenced project.

SCE&G's construction standards and specifications are available at www.SCEG.com/en/builder-services/resources. For more information or questions, please contact me by phone at (843) 576-8452 or at khare@scana.com.

Sincerely,

Kathy J. Hare
Customer Service Engineering

AUTHORIZED SIGNATURE: _____ DATE: _____

TITLE: _____ PHONE: _____