AGENDA

Tuesday, December 14, 2021: 6:00 PM
Town Council Business Meeting
Douglass Community Center: 1185 W. Pennsylvania Ave

1. CALL TO ORDER

2. PLEDGE OF ALLEGIANCE

3. TOWN MANAGER'S COMMENTS

4. PUBLIC HEARINGS

a. SU-01-21 Patrick's Pointe

On behalf of Francis Maser, Mr. Bob Koontz, of Koontz Jones Design, has submitted an application for a Special Use Permit for the new construction of a multi-family residential and office development. The applicant is proposing to develop 13 apartment buildings with 276 multi-family residential units and one (1) office outparcel. The subject property is located along US Highway 1 North between West Connecticut Avenue and Midland Road and is comprised of three (3) parcels for a total of 25.4 acres of presently undeveloped, wooded land.

5. ACTION ITEMS

a. Consider AR-07-21 Pinnacle Storage (Phase 1)

Cothran Harris, on behalf of Longleaf Pines Storage, LLC, is requesting approval of an Architectural Compliance Permit for a 49,600 square foot commercial self-storage, two story building. The building is Phase I of a self-storage development. The address is 240 Bell Avenue which is located in the General Business (GB) zone. The surrounding streets are US 1 HWY S, Shaw Avenue and S Bennett St.

b. Consider AR-08-21 Rec Room, LLC

Mr. Dean King, on behalf of Rec Room, LLC., is requesting approval of an architectural compliance permit for exterior modifications to an existing 13,471 square foot building within the central business zoning district. The building will be used as a commercial arcade and is located at 750 SW Broad Street. The renovations include the addition of a patio pergola, adding brick and metal columns to the front entrance and garage door openings for the bartop tables on the front elevation.

c. Consider AR-09-21 Freddy's Frozen Custard & Steakburgers

Mr. William Moseley of MREA Southern Pines, LLC., is requesting approval of an architectural compliance permit for Freddy's Frozen Custard & Steakburger, a 3,200 square foot building within the general business zoning district, for a retail development located at the corner of Murray Hill Road and US Highway 15-501.

d. Consider Proposed Lease of Park Property from the Southern Pines Land and Housing Trust

Staff has drafted a proposed lease agreement with the Southern Pines Land & Housing Trust for park property on the campus of the former Southern Pines Primary School.

e. Consider Adoption of 2022-2032 CIP

Staff has prepared a draft Capital Improvement Program based on the projects that have been presented at the October and November Council work sessions.

6. CONSENT AGENDA

a. Re-Appoint Diane Westbrook to the Planning Board

Ms. Westbrook's second term will be through 12/4/2024.

b. Appoint Robert Brown to the Historic District Commission

Mr. Brown's term will be through 12/13/2025.

c. Appoint Lane West to the Historic District Commission

Mr. West's term will be through 12/13/2025.

d. Authorize Execution of Agreement with NCDOT and Town of Aberdeen for Relocation of US-1 Water Transmission Main

NCDOT is currently preparing for the roadway project along US-1 (North Sandhills Boulevard) from Roseland Road to Old US-1. The project scope requires NCDOT to relocate the Town of Southern Pines 18" water transmission main along US-1 to Poplar Street.

e. Direct the Clerk to Investigate the Sufficiency of AX-07-21 Voluntary Annexation Petition

Robert & Julie Van Camp and Morganton Road Enterprises, LLC have petitioned the Town for a voluntary annexation of a parcel totaling +54.94acres. The parcels are identified as PIN 857100575720 and 857100572972 and are located between US 15-501 and W. Morganton Rd. State law requires that Council direct the Town Clerk to investigate the sufficiency of the petition before proceeding further.

f. Direct the Clerk to Investigate the Sufficiency of AX-08-21 Voluntary Annexation Petition

Benjamin Stout of Benjamin Stout Real Estate Services Inc. has petitioned the Town for a voluntary annexation of a parcel totaling 4.10 acres. The parcels are identified as PIN 857400849276, PIN 857400940142, PIN 857404931919, PIN 857404932803 and PIN 857404932694. The parcels are located between NC Highway 22 and Sullivan Drive. State law requires the Council to direct the Town Clerk to investigate the sufficiency of the petition before proceeding further.

7. PUBLIC COMMENTS

8. ADJOURNMENT

Meetings/work sessions of the Southern Pines Town Council are now available on the Town's YouTube channel. Video of the Town Council meetings will be live streamed on the channel for viewing either during the meetings or after they have concluded. Please note, the video is provided only for the purposes of viewing the meetings; public comments or questions are not accepted via the live stream. To receive notifications when new content is published, please "subscribe" to the Town's channel at https://bit.ly/3hXx2Qk

Agenda Item

To: **Reagan Parsons, Town Manager**

From: **Suzy Russell, Planner II**

Subject: **SU-02-21 Special Use Permit; New construction of a 276-unit multi-family residential and office development located along US Highway 1 North between West Connecticut Avenue and Midland Road.**

Date: **December 14, 2021**

I. SUMMARY OF APPLICATION REQUEST:

On behalf of Francis Maser, Mr. Bob Koontz, of Koontz Jones Design, has submitted an application for a Special Use Permit for the new construction of a multi-family residential and office development. The applicant is proposing to develop 13 apartment buildings with 276 multi-family residential units and one (1) office outparcel. The subject property is located along US Highway 1 North between West Connecticut Avenue and Midland Road and is comprised of three (3) parcels for a total of 25.4 acres of presently undeveloped, wooded land. The subject properties are identified as PIN: 858214321933 (PARID: 00039174), PIN: 858217214672 (PARID: 00032830), PIN: 858217213440 (PARID: 00032829). The property owner for all three parcels according to the Moore County tax records is Maser, Francis T Trustee.

II. PLANNING BOARD ACTION:

At the November 18th, 2021 Regular Meeting of the Planning Board, the Planning Board opened the preliminary forum per UDO §2.5.2. With five members present, Mr. Andy Bleggi and Mr. Benjamin Greene being absent, the Planning Board heard from staff as well as those in attendance regarding application SU-02-21. Ms. Suzy Russell, planner II, presented a review of the special use permit application. Ms. Russell reviewed details of the project and discussed compliance with the applicable standards and criteria found within the Unified Development Ordinance (UDO).

Mr. Nick Robinson, the applicant's attorney, spoke to the board and presented Mr. Logan Burnett as the applicant, Mr. Bob Koontz as the land planner, Mr. Travis Fluitt as the traffic engineer and Mr. Frank Dean as the MAI Appraiser. Each witness spoke about the project as related to their profession.

The Board opened the forum for public comment. Approximately 10 residents of Southern Pines spoke in opposition to the project. After hearing comments from those wishing to speak, the Planning Board closed the preliminary forum and proceeded with discussion. During discussion, a variety of issues were discussed that the Planning Board wished to forward to the Town Council.

After discussing the public's testimony, the Planning Board made the following motion:

I move to adopt the following for transmission to the Town Council as a result of the November 18, 2021 Preliminary Forum on application SU-02-21, Patrick's Pointe:

The information presented at the forum indicated that the following issues be considered in applying the criteria for a SUP to application SU-02-21:

1. Upon review of the criteria for a Special Use Permit as found in UDO §2.21.7 (A-F) the Planning Board found the SU-02-21 application inconsistent with criteria (B), (E) and (F) for the following reasons:
    - (B) *The proposed special use shall conform to the character of the neighborhood in which it is located and not injure the use and enjoyment of property in the immediate vicinity for the purposes already permitted; The* density, scale and use appears to be incompatible with the surrounding neighborhood.
    - (E) *The establishment, maintenance, or operation of the proposed use shall not be detrimental to or endanger the public health, safety, comfort or general welfare;* In regard to safety and 2100 daily trips per day,
        - There is no acceleration lane on Route 1
        - There will be increased traffic on side streets
        - The northern portion of the Service Rd is not going to be improved
        - There are currently school bus safety issues and this will only make them worse

      are not just potential impacts to the neighborhood but they will impact US 1, Midland Road, Pennsylvania Avenue and Saylor Street.
    - (F) *The public interest and welfare supporting the proposed use shall be sufficient to outweigh individual interests that are adversely affected by the establishment of the proposed use.*
      The Town Council should consider there was a large number of residents that border this property that were concerned that the quality of their life and impact on the surrounding neighborhood would adversely affect them. They do not believe that the public interest and welfare supporting the proposed use outweighs the interests of the residents that showed up and stated their concerns at the hearing.

In addition, the following concerns were raised during the forum, but do not seem to apply in determining whether the SUP criteria are satisfied:

1. If approval is warranted the Planning Board requests that the buffer be improved with increased vegetation and a barrier wall on the side of the rear bordering neighborhood.

Pursuant to NCGS §160D-301(b)(6), the Town Council is reminded that although the Planning Board forwarded this list of issues for the Council's consideration, no part of the Preliminary Forum held by the Planning Board may be used as a basis for the Council's decision on SU-02-21.

III. PROJECT INFORMATION:

A. Property Owner & Applicant Information:

i. Property Owner:
Francis Maser
PO Box 1133
Southern Pines, NC 28387

ii. Applicant:
1700, LLC
Logan Burnett
2601 South Bayshore Drive
17th Floor
Miami, FL 33133

iii. Authorized Agent:
Koontz Jones Design
Bob Koontz
150 S Page Street
Southern Pines, NC 28387

B. Project History and Site Information:

i. Location:
The subject properties are located along US Highway 1 between W. Connecticut Avenue and Midland Road. (See Figure 1 below).

ii. Zoning:
The sites are currently zoned Office Service (OS) and Residential Mixed Housing (RM-2). (See Figure 2 below).

iii. Future Land Use Map Designation:
One subject property is designated as Commercial on the Future Land Use Map. *The Commercial designation applies to all land dedicated to retail, professional office, or other primarily non-residential, commercial use. It includes the Downtown portions along Broad Street and Pennsylvania Avenue, the regional commercial corridor on US 15/501, and all commercial land in between. Higher density residential may be incorporated into mixed-use developments within areas designated for this future land use category.*

The other two subject properties are designated as Residential on the Future Land Use Map. *This designation encompasses the majority of Southern Pines' residential land, providing for single-family and attached housing at development densities ranging from one unit per acre in areas that are less intensively developed to up to twelve units per acre in places that are clearly more urban. Elementary schools, civic uses, parks and neighborhood scale commercial services may be authorized through the rezoning process without amending the future land use map.* (See Figure 3).

Figure 1: Vicinity Map (Subject Property Outlined in Black*)*:

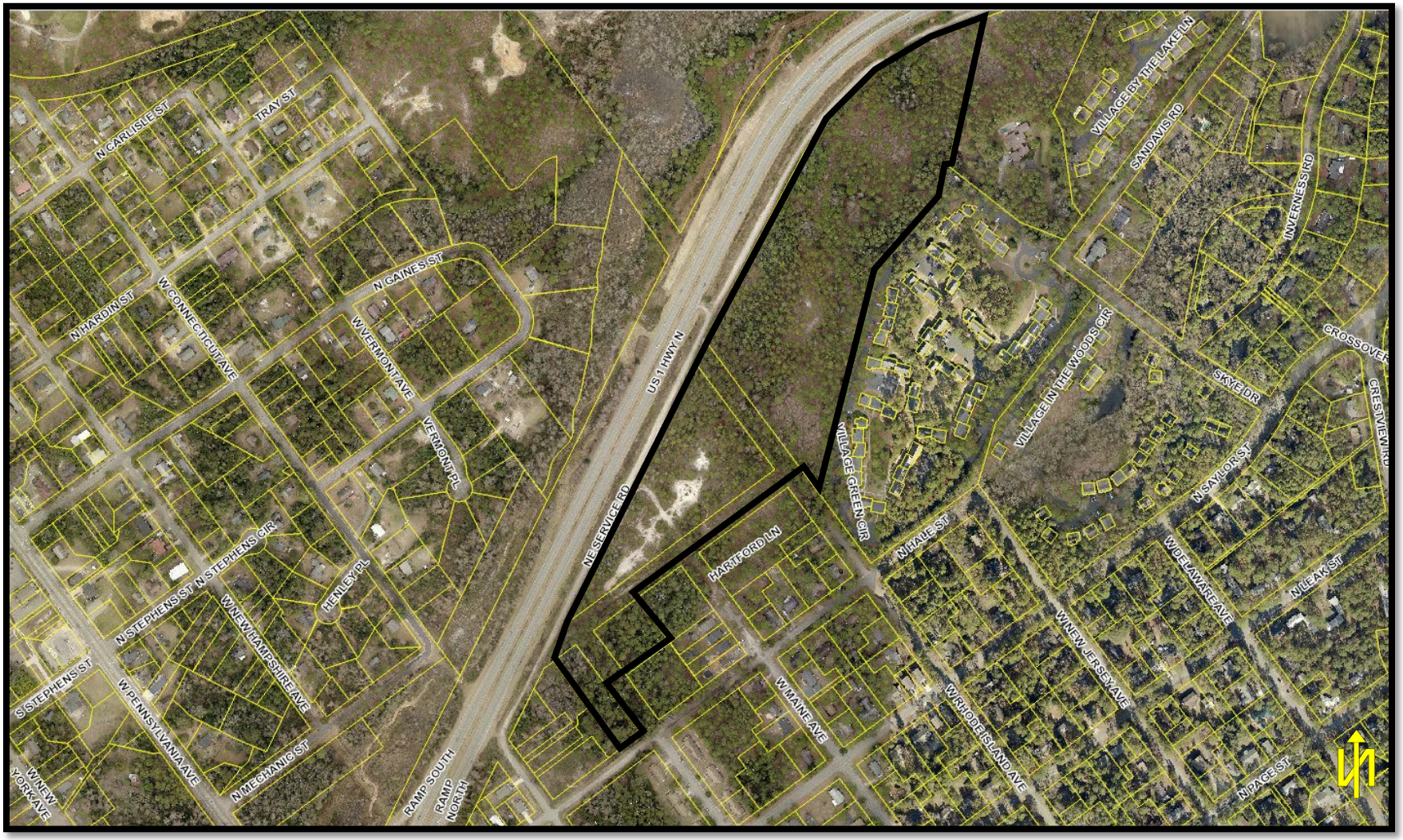


Figure 2: Zoning Map (Subject Properties (OS and RM-2) Outlined in Black*)*:

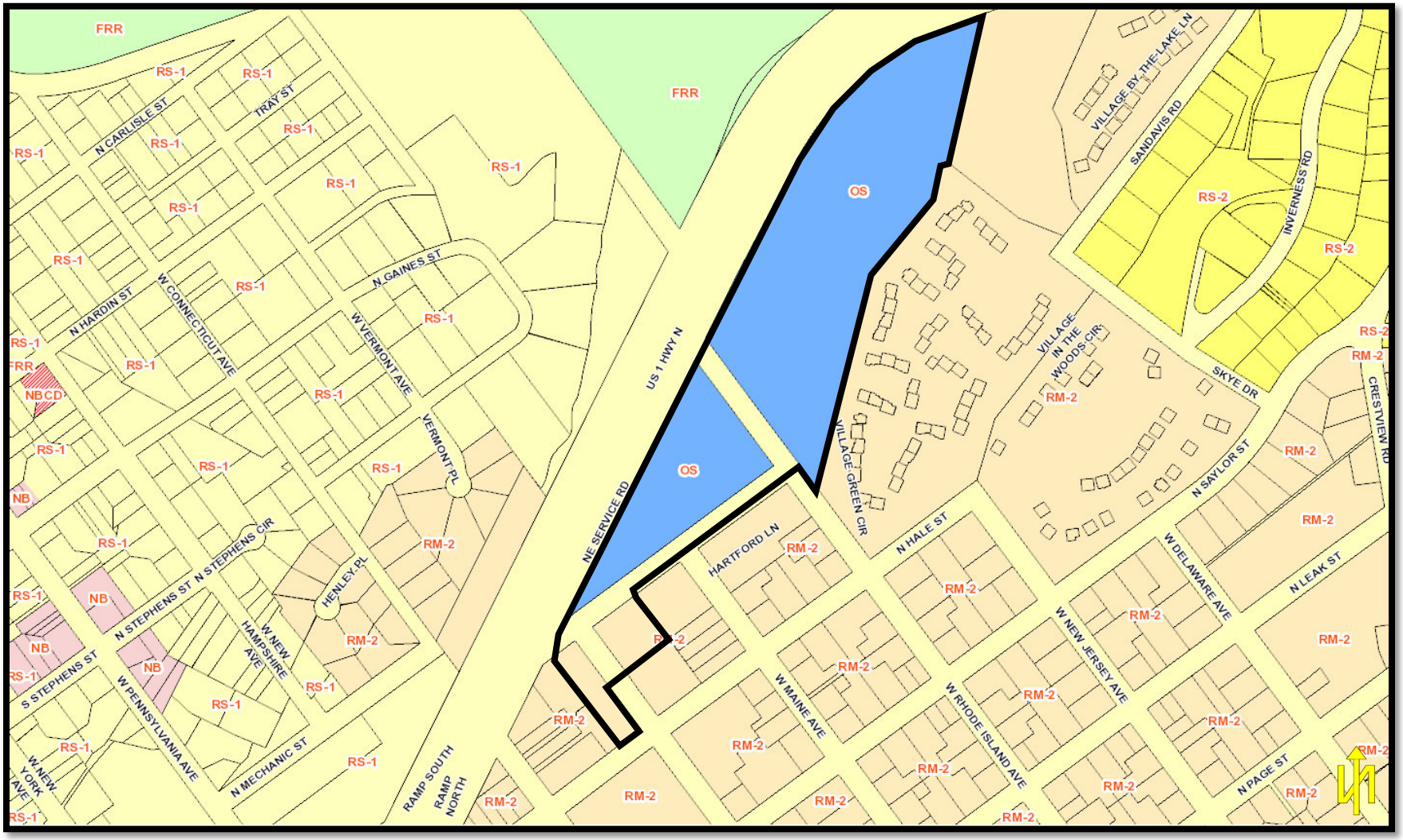
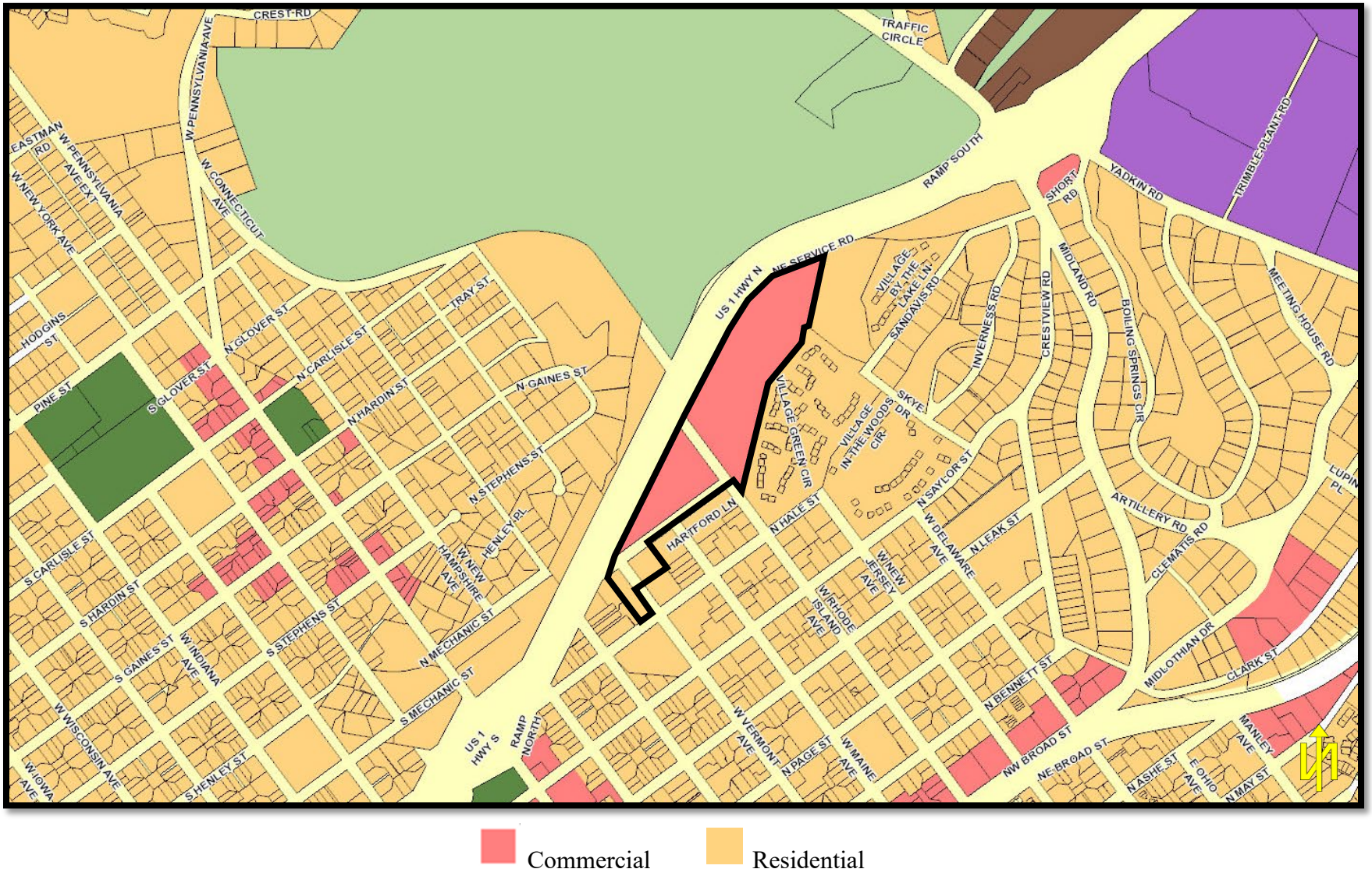


Figure 3: Future Land Use Map (Subject Properties Outlined in Black*)*:



IV. STAFF REVIEW:

A. Application Review Dates:

- TRC Review (US 1 Village): August 17, 2021
- Special Use Permit SU-02-21 and Major Subdivision Preliminary Plat S-41-21 Applications Submitted: September 14, 2021
- SU-02-21 and S-41-21 Applications Withdrawn: September 29, 2021
- Special Use Permit SU-02-21 and Major Subdivision Preliminary Plat S-41-21 Applications Submitted: October 11, 2021
- S-41-21 Application Withdrawn: October 15, 2021
- Application Incomplete: October 15, 2021
- Application Complete: October 22, 2021
- Notice of Planning Board Public Hearing:
  - Posted On-site: September 27, 2021
  - Mailed: October 29, 2021
  - Internet: October 29, 2021
  - Published: October 29, 2021
- Planning Board Agenda Meeting: Meeting Not Held
- Planning Board Preliminary Forum: November 18, 2021
- Town Council Agenda Meeting: December 8, 2021
- Town Council Regular Meeting: December 14, 2021

B. Process of Review:

The procedures for review and approval of a Special Use Permit, per UDO §2.21 establishes a process and standards to approve certain uses that, because of unique characteristics or potential impacts on adjacent land uses, are not permitted in zoning districts as a matter of right.

C. Criteria and Standards for Review:

The criteria for review for this Conditional Use Permit application submittal and approval are as follows:

- Special Use Permit UDO §2.21.7 (A-F)
- Office/Service Zoning District Standards UDO §3.5.11
- Residential Mixed Housing RM-2 Zoning District Standards UDO §3.5.7
- Watershed Protection Overlay District Standards UDO §3.6.8
- Urban Transition Highway Corridor Overlay Standards UDO §3.6.5 (UTHCO)
- Multi-Family Development Standards UDO §4.10.8
- Various Standards UDO Chapter 4

D. Staff Comments:

Compliance with the UDO:

i. Compliance with Special Use Permit – UDO §2.21.7 (A-F):

A special use is permitted only if the applicant demonstrates that:

A. *The proposed special use shall comply with all regulations of the applicable zoning district and any applicable supplemental use regulations;*

Tract 1 is in the OS – Office / Service zoning district. The applicant is proposing the multi-family land use falls under land use code 1151 and is an allowed land use only after approval of a Special Use Permit. The applicant is also proposing Finance and Insurance, Real Estate Services, Intellectual Property Rental, Business, Professional, Scientific, Technical and Administrative services office land uses as allowed in the OS zoning district on this tract. The office/service land use is only allowed on a .91 acre outparcel located on Tract 1. Tract 2 is in the RM-2 – Residential Mixed Housing zoning district. The applicant is proposing multi-family on this tract.

The OS zoning district development standards are as follows:

Maximum Height	35’
Front Setback	15’
Side Setback	20’
Rear Setback	20’
Lot size for 1 DU	10,000 sq. ft.
Additional Lot size per Additional DU	3,600 sq. ft.

The RM-2 zoning district development standards are as follows:

Maximum Height	40’
Front Setback	25’
Side Setback	10’
Rear Setback	30’
Lot size for 1 DU	10,000 sq. ft.
Additional Lot size per Additional DU	6,000 sq. ft.

Because the subject properties are located in the Urban Transition Highway Corridor Overlay, the applicant is required to comply with these overlay standards:

Maximum Height	35’
Building Setback	75’
Parking Area Setback	50’
Landscape Buffer	50’
Side and Rear Yard Buffer	50’
Maximum Built Upon Surface	65%
Maximum Building Footprint	30%

The applicant has provided setbacks in the zoning information box on the site plan that reflect the OS and RM-2 zoning district standards above. The applicant also shows on the site plan drawing

they are meeting the Urban Transition Highway Corridor Overlay Standards. The applicant must meet the UTHCO zoning standards and is compliant with setback and buffer standards other than the RM-2 property located to the west of West Vermont Avenue. The applicant has provided in the property information box that they have a total of 48.4% impervious and stated at the Planning Board Regular Meeting that they have 15.5% building footprint coverage of the 30% allowed.

Because the applicant has provided that they will not be requesting a rezoning, the OS Tract and the RM-2 Tract are two separate pieces of property, if these properties have not been combined into whole tracts they must be before moving to site plan approval.

Tract 2 must provide a 50' buffer along the northwestern lot line because this property is within the UTHCO.

Tract 1 fully combined will be 22.85 acres for a total of 995,346 square feet with a total of 274 DU allowed.

Tract 2 fully combined will be 2.56 acres for a total of 111,514 square feet with a total of 17 DU allowed.

Tract 1 contains a .91 acre outparcel for a proposed office development. These 39,640 square feet must be removed from the total 995,346 square feet because this acreage cannot be counted toward the allowed multi-family density and then also be counted toward the future office development. Therefore, removing the .91 acre from the total square feet would decrease 11 DU from the total 274 allowed on Tract 1. The new total of DU allowed would be 263 DU for Tract 1.

Tract 1 has 263 allowed DU and Tract 2 has 17 allowed DU for a total of 280 DU combined. The applicant is requesting 276 DU. The applicant generally appears to be compliant with density.

The total minimum parking required for the multi family land use totals 497 parking spaces. This total is reached by following the minimum number of required parking spaces table found in the UDO, Exhibit 4-6. The applicant is requesting to provide 554 parking spaces. The subject property falls within the UTHCO and the HCO sets a maximum parking standard. This standard however considers square footage of a building, and does not follow the calculations found in Exhibit 4-6.

A watershed protection permit would be granted with this application. The watershed protection permit that has been submitted is to allow up to 70% impervious surface. Because this property is within the UTHCO the maximum of impervious allowed is 65% and therefore the correct amount of impervious allowed for this project will be 65%.

B. *The proposed special use shall conform to the character of the neighborhood in which it is located and not injure the use and enjoyment of property in the immediate vicinity for the purposes already permitted;*

The subject properties are currently wooded and are located on the service road adjacent to US 1 Highway to the North and West. To the East of the properties borders the well-established RM-2 neighborhoods, Village in the Green and Village in the Woods and Village by the Lake. To the South are more RM-2 lots. The mixed-use residential office development may offer a transition from the RM-1 neighborhood to the highway and does not appear to planning staff to injure property in the immediate vicinity in a manner like some other more intensive land uses. This type of growth and change may be less impactful to the quality of the existing neighborhood and maintains compatible scale and intensity of development. Planning staff finds that the applicant appears to be generally consistent with these criteria. Planning staff does recommend that Town Council should carefully consider testimony provided at the public hearings and compare and contrast that testimony with staff's review of the application in evaluation of consistency with the standards.

C. *Adequate public facilities shall be provided as set forth herein;*

The subject property has access to public sewer and water.

D. *The proposed use shall not impede the orderly Development and improvement of surrounding property for uses permitted within the zoning district or substantially diminish or impair the property values within the neighborhood;*

The development provides open space, buffers and appropriate building scale. The mixed use residential and professional office development is located along the highway corridor and provides for compatibility by being a transition within the Office Services zoning district and a single-family residential zoning district. The RM-2 zoning district is completely compatible with the surrounding RM-

2 zoning district and adheres to the district development standards. The applicant appears to be generally consistent with these criteria.

E. *The establishment, maintenance, or operation of the proposed use shall not be detrimental to or endanger the public health, safety, comfort or general welfare;*

The scale, orientation and intensity of buildings appears to planning staff to be compatible with adjacent development and will help to minimize negative visual, noise and traffic impacts of the highway. Of all the uses possible for the OS and RM-2 zoning districts, the proposed mixed use residential and office uses accommodate a mix of housing and non-residential development required to serve this neighborhood. The applicant appears to be generally consistent with these criteria but the Town Council should carefully consider testimony provided at the public hearings and compare and contrast that testimony with staff's review of the application in evaluation of consistency with the standards.

F. *The public interest and welfare supporting the proposed use shall be sufficient to outweigh individual interests that are adversely affected by the establishment of the proposed use*

The proposed mixed-use residential and office development may be of more benefit to the surrounding neighborhood than other land uses allowed in the current Residential and Office Services zoning districts. The proposed development is generally compatible with the public interest and welfare based on the current zoning. The applicant appears to be generally consistent with these criteria. Town Council should carefully consider testimony provided at the public hearings and compare and contrast that testimony with staff's review of the application in evaluation of consistency with the standards.

ii. Compliance with Multi-Family Development Standards, UDO §4.10.8: The development standards in this section may be modified pursuant to a PD or Special Use Permit approval per UDO §4.10.8 (A)(3).

A. The application appears to be generally compliant with the standards as found in Section A, *applicability,* of the multi-family development standards found in UDO §4.10.8
B. The applicant has deviated from (B) (3) and has stated they are unable to place dwellings in locations that face each other across common landscaped spaces with buildings no closer than 30'.
UDO §4.10.8 (B) (3) states: *where practical, dwellings should be located to face each other across common landscaped space with buildings no closer than 30 feet.*

C. The applicant has deviated from (C) (2) and has stated they are unable to group the buildings in clusters.
UDO §4.10.8 (C) (2) states: *group buildings in clusters.*

D. The application appears to be generally complaint with the standards as found in Section D, *pedestrian improvements,* of the multi-family development standards found in UDO §4.10.8.

E. The applicant has deviated from (E) (2) and has stated they are unable to provide parking that does not separate dwelling units from common open space**.**
UDO §4.10.8 (E) (2) states: *to the greatest extent practicable, parking shall not separate dwelling units from common open space.*

F. The applicant has deviated from (F) (3) and has stated they are unable to configure common open space in square areas with sides of at least 100'.
UDO §4.10.8 (F) (3) states: *common open space shall be configured in square or nearly square areas with sides of at least 100'.*
The applicant has deviated from (F) (6) and has stated they are unable to provide play areas within a five (5) minute walk from each dwelling unit.
UDO §4.10.8 (F) (6) states: *for developments with more than 20 dwellings, provide on-site; well equipped and challenging play areas for school age children within a five (5) minute walk from each dwelling unit. (a) provide places for school age children to sit. (b) where possible include a space for ball games on site (minimum 80 feet x 40 feet.)*
The applicant has deviated from (F) (6b) and has stated they are unable to provide a space for ball games on the site. SEE ABOVE.

Staff has evaluated the comments provided from the applicant explaining their reason to deviate from the above standards and has determined that because of the shape of the subject property the applicant would be unable to meet the above standards and their request to deviate seems reasonable. Also, the verbiage in (B) (3) and (E) (2) are relative and are not absolute standards.

iii. General Staff Comments

- The subject property is within the High-Quality Watershed and will need has stated they are unable to5/70 exemption, which they have requested with this Special Use Permit application. The maximum built upon surface is regulated to 65% in the Urban Transition Highway Corridor Overlay.
- The applicant is required to apply for a sign permit with the Town of Southern Pines if they propose signage.
- The applicant shall meet all applicable landscape, parking, lighting and building design requirements found in Chapter 4 of the UDO.

- This development will be subject to permitting through the Inspections Department and will be required to submit for site plan review. All state level development regulation and the applicable development regulations in the Unified Development Ordinance (UDO) must be met prior to site plan approval.

E. Outside Agency Comments:

A request for comments from agencies was emailed to representatives of the Town of Southern Pines Engineering, Streets, Utilities, Fire and Recreation & Parks Departments as well as representatives of the North Carolina Department of Transportation, U.S. Fish and Wildlife Service and the Regional Land Use Advisory Commission. Any comments received after the publishing of this report will be forwarded to the Planning Board at the public hearing as an exhibit.

- Comments from the Department of Transpiration were received on October 27, 2021. The comments state as follows:

SUBJECT: US 1 Muti-Family
Traffic Impact Analysis

Dear Mr. Fluitt:

Thank you for submitting the updated Traffic Impact Analysis for the subject development. The preliminary site plan and traffic impact analysis have been reviewed by District Staff, Division Staff, and Congestion Management in accordance with the Policy on Street and Driveway Access to North Carolina Highways. Based upon our review we offer the following comments for the subject access as it relates to access to NCDOT maintained roadways:

Note: Comments contingent upon the developer's proposed roadway improvements along the NE US 1 Service Road as detailed on Figure 2.2 Site Plan in the Analysis.

US 1 at US NE Service Road Access

- Provide an exclusive right-turn lane on northbound US 1 with 75 feet of storage and appropriate taper.

US 1 NE Service Road at Site Driveway #1, #2 and #3

- We agree with the TIA recommendations for the striping of the US 1 NE Service Road as indicated in the Analysis.

US 1 NE Service Road at US 1 NE Service Road Access

- We agree with the TIA recommendations to operate the eastbound approach (US 1 NE Service Road Access) as a free-flow movement with stop-control on both the northbound and southbound approaches.

Please incorporate the above comments into your planning. When the above comments have been addressed, please submit a driveway permit along with any necessary encroachment agreements to this office for review. Also, please be aware that future site expansion may result in further roadway improvements being required by the Department. If further information is needed, please advise.

Sincerely,

Matthew W. Kitchen, PE
District Engineer

CC: Patrick Norman, PE
B.J. Grieve, Town of Southern Pines
John Grant, PE
David Willett
Josh Brooks, PE
File

Revised comments have been attached and are a part of the TIA for the revision proposed by the applicant.

- Comments from the Regional Land Use Advisory Commission were received on October 28, 2021. The comments state as follows:
  October 25, 2021Following a review of the above referenced Special Use Permit and Major Subdivision by the RLUAC staff and Board of Directors for the properties listed above, and recognizing that our findings are non-binding on the Town of Southern Pines, the RLUAC Board of Directors finds that:
  The issues of concern noted in the previous review of this project, prior to amendment and resubmission, are incorporated herein (see review letter dated October 6, 2021 for cases SU-01-21 and S-34-21). In reviewing the revised site plan, it is noted that a larger contiguous open space area is preserved on the northern part of the site in the current proposal. Based on the previously noted concerns, the reconfiguration of the site plan in this manner should produce a net positive outcome as compared to the previous plan, as this will allow for the preservation of a larger area that is currently forested with mature pines. This, in turn, better aligns the proposed development with the land protection goals of the Fort Bragg Compatible Use Rating System.
  Thank you for allowing RLUAC to review this case.
  John K. McNeill, Chairman Vagn K. Hansen II, AICP, Executive Director

- The Technical Review Committee at its November 9, 2021 meeting discussed the SU-02-21 project. Below are the comments received from the Town Engineer:

An updated TIA has been received and reviewed for this project. The TIA adequately addresses the requirements found in UDO §4.12 Transportation/Traffic Analyses. I do note that the TIA assumes new traffic will utilize the service road to bring traffic back towards Downtown. The requirement to coordinate the development with surrounding streets as noted in UDO §4.11.6. would redistribute traffic in a different manner, but it is my opinion that the analysis would not be impacted. The studied intersections all exceed the minimum level of service and the change in traffic distribution only changes which movements have to occur but not the total number of movements. The development currently proposes to connect to the existing sidewalk along W. Maine Avenue.
The existing section of sidewalk only extends 1 block to N. Hale Street and does not connect to any other portion of the Town's existing pedestrian network. A connection to the existing sidewalk network is recommended and the nearest connection would be at the intersection of N. Hale Street and W. Vermont Avenue.

V. ATTACHMENTS:

The following materials are provided as attachments to this staff memorandum:

1. Attachment A: Draft Findings of Fact
2. Special Use Permit Application
3. Special Use Permit Narrative
4. Special Use Permit Justification
5. Compliance with CLRP Narrative
6. Multi-Family Development Standards Narrative
7. Patrick's Pointe Justification
8. Existing Conditions Plan and Site Plan
9. TIA

VI. TOWN COUNCIL ACTION:

To either approve or deny a Special Use Permit application, the Town Council shall make findings of fact and conclusions to the applicable standards. The Town Council shall first vote on whether the application is complete and whether the facts presented are relevant to the case. The Town Council shall then vote on whether the application complies with the criteria as set forth in Section 2.21.7(A-F) Criteria for a Special Use Permit. The Town Council may choose one of the following motions or any alternative they wish:

I move to:

1. Adopt Attachment "A" of the staff report as our Findings of Fact regarding the proposed Conditional Use Permit SU-02-21.

2. Adopt Attachment "A" of the staff report as our Findings of Fact regarding the proposed Conditional Use Permit SU-02-21 with the following changes_____.

Next, the Town Council may vote on whether to approve, deny or approve with conditions the proposed Special Use Permit. The Town Council may choose one of the following motions, or any alternative they wish:

I move to:

1. Approve of the Special Use Permit SU-02-21.

2. Deny of the Special Use Permit SU-02-21

3. Approve the Special Use Permit for SU-02-21 with the following additional conditions….

ATTACHMENT "A"
Draft Town Council Findings of Fact
Special Use Permit Application SU-02-21

Finding of Fact #1:

The Town Council finds that the application is complete and that the facts submitted are relevant to the case because the request for Special Use Permit approval has met the specified submittal requirements as required in the Town of Southern Pines UDO Appendices and the evidence submitted was sworn testimony by qualified experts or provided through substantiated documentation.

Finding of Fact #2:

The Town Council finds that the application complies with UDO §2.21.7 Criteria for a Special Use Permit, Criteria A, C and D and finds that the application does not comply with UDO §2.21.7 Criteria for a Special Use Permit, Criteria B, E and F in that:

A. **The proposed special use shall comply with all regulations of the applicable zoning district and any applicable supplemental use regulations;**
The Town Council finds that the application SU-02-21 complies with all regulations of the OS, RM-2 and UTHCO zoning districts development standards. The applicant is allowed 554 parking spaces and granted the watershed protection permit for 65% impervious coverage.

B. **The proposed special use shall conform to the character of the neighborhood in which it is located and not injure the use and enjoyment of property in the immediate vicinity for the purposes already permitted;**
The Town Council finds that the density, scale and use appear to be incompatible with the surrounding neighborhood.

C. **Adequate public facilities shall be provided as set forth herein;**
The Town Council finds the subject properties have access to and can be served by TOSP public facilities.

D. **The proposed use shall not impede the orderly development and improvement of surrounding property for uses permitted within the zoning district or substantially diminish or impair the property values within the neighborhood;**
The Town Council finds that the proposed development is consistent with the existing zoning standards. The mixed use residential and professional office development is located along the highway corridor and provides for compatibility by being a transition within the Office Services zoning district and multi-family residential zoning district.

E. **The establishment, maintenance or operation for the proposed use shall not be detrimental to or endanger the public health, safety, comfort, or general welfare; and**

The Town Council finds that in regards to safety and the addition of 2100 daily trips that will be generated from this project, the following issues,

- There is no acceleration lane on Route 1
- There will be increased traffic on side streets
- The northern portion of the Service Rd is not going to be improved
- There are currently school bus safety issues and will only become worse

are not just potential impacts to the neighborhood but they will impact US 1, Midland Road, Pennsylvania Avenue and Saylor Street.

F. **The public interest and welfare supporting the proposed use shall be sufficient to outweigh individual interests that are adversely affected by the establishment of the proposed use;**

The Town Council finds that there were a large number of residents that border this property that were concerned that the quality of their life and impact on the surrounding neighborhood would adversely affect them. They do not believe that the public interest and welfare supporting the proposed use outweighs the interests of the residents that showed up and stated their concerns at the hearing.

Town of Southern Pines North Carolina — Chartered 1887

Special Use Permit Application

Fee: $_____ Date Paid: _____ Case No.: CU-_____-_____

Project Information:

Street Address: EAST OF US HIGHWAY 1 BETWEEN W. VERMONT AVE & W RHODE ISLAND AVE

PIN: 858214321933; 858217214672; 858217213440 Parcel ID: 00039174; 00032830; 00032829

Site Size: 25.4 ACRES Zoning: OS, RM-2

Applicant:

Name(s): **1700, LLC** C/O LOGAN BURNETT

Email: LBURNETT@VOLTAGLOBAL.COM Phone: 305-428-6504

Mailing Address: 2601 SOUTH BAYSHORE DRIVE, 17TH FLOOR MIAMI, FL 33133

Authorized Agent, if different from Applicant:

Name(s): KOONTZ JONES DESIGN C/O ROBERT KOONTZ

Email: BKOONTZ@KOONTZJONES.COM Phone: 910-684-8487

Mailing Address: 150 S PAGE STREET SOUTHERN PINES, NC 28387

Legal Property Owner(s), if different from Applicant:

Name(s): FRANCIS T MASER, TRUSTEE

Email: FMASER@GMAIL.COM Phone: 910-528-7649

Mailing Address: PO BOX 1133 SOUTHERN PINES, NC 28388

8-27-21

TO THE TOWN OF SOUTHERN PINES PLANNING BOARD AND TOWN COUNCIL:

I, the undersigned, do hereby make application to and petition the Planning Board and Town Council to grant a Special Use Permit as required by the Town of Southern Pines Zoning Ordinance. The following information is submitted in support of this application:

The property which is the subject of this application is located on the EAST side of US HIGHWAY 1 (St./Ave.), between W. VERMONT (St./Ave.) and W RHODE ISLAND (St./Ave.). The property has a frontage of 2930 feet and a depth of 650 feet.

The special use sought is based upon Section(s) 2.21; 3.7.2 of the **Town of Southern Pines Unified Development Ordinance**. The proposed use of the property is as follows:

TO DEVELOP MULTI-FAMILY RESIDENTIAL UNITS AND AN OFFICE OUTPARCEL

Date: 9/13/2021

DocuSigned by:
Logan Burnett
CDD528B5FF74493...
Applicant

PLANNING DEPARTMENT
TOWN OF SOUTHERN PINES
plan@southernpines.net (910) 692-4003 www.southernpines.net

8-27-21

APPOINTMENT OF AGENT

The undersigned owner(s), 1700, LLC, hereby appoint(s) KOONTZ JONES DESIGN as the exclusive agent for the purpose of making an application to the Town of Southern Pines for a Special Use Permit on the property described in the attached application. The owner(s) hereby agree that this agent has the authority to act for and on behalf of the owner(s) as follows:

1. to submit an application and required supplemental materials;

2. to appear at public meetings and give representation and comments on behalf of the owner(s);

3. to accept conditions or recommendations made by the Town of Southern Pines Planning Board and Town Council for the issuance of a Special Use Permit on the subject property; and

4. to act on behalf of the owner(s) without limitations with regard to any and all things directly or indirectly connected with or arising out of any application for a Special Use Permit under the Southern Pines Unified Development Ordinance.

This Appointment of Agent shall remain in effect until final resolution of the attached application.

Signed this 13th day of September, 2021.

DocuSigned by:
Logan Burnett
CDD528B5FF74493...

Property Owner

Property Owner

Agent

8-27-21

DocuSign Envelope ID: 881A6017-786B-4D81-9ABC-91C7CD3D567A

APPOINTMENT OF AGENT

The undersigned owner(s), Francis T Maser, hereby appoint(s) Kimley Horn Design as the exclusive agent for the purpose of making an application to the Town of Southern Pines for a Special Use Permit on the property described in the attached application. The owner(s) hereby agree that this agent has the authority to act for and on behalf of the owner(s) as follows:

1. to submit an application and required supplemental materials;
2. to appear at public meetings and give representation and comments on behalf of the owner(s);
3. to accept conditions or recommendations made by the Town of Southern Pines Planning Board and Town Council for the issuance of a Special Use Permit on the subject property; and
4. to act on behalf of the owner(s) without limitations with regard to any and all things directly or indirectly connected with or arising out of any application for a Special Use Permit under the Southern Pines Unified Development Ordinance.

This Appointment of Agent shall remain in effect until final resolution of the attached application.

Signed this 9th day of September, 2021.

Francis T. Maser, Trustee
under the Francis T. Maser
Revocable Trust dated 1/1/2014

Property Owner

Property Owner

Agent

8-27-21

PATRICK'S POINTE
SPECIAL USE PERMIT NARRATIVE

The development of the property described as the US 1 Village in the submitted exhibits is planned to be a new infill community within the existing downtown area of Southern Pines. The +/- 25.41 site located off of US Highway 1 and at the end of West Rhode Island Avenue is comprised of one large tract ("Tract 1") and one smaller, adjacent tract ("Tract 2"). Tract One is approximately 22.85 acres and is zoned Office/Service (OS). Tract 2 is approximately 2.56 acres and is zoned RM-2. The combined tracts are comprised of approximately 25.41 acres (the "Combined Tract"). Applicant does not propose any rezoning of the Tracts but merely seeks a conditional use permit for the Combined Tract, known as "Patrick's Pointe," that will allow the combination of multi-family uses along with office and service uses. Under the Southern Pines Unified Development Ordinance (the "UDO"), the OS zoning district is intended to "accommodate office and service uses as well as medium-density residential uses", which includes multi-family uses, as stated in Section 3.5.11 of the UDO. The RM-2 district accommodates single-family, single-family attached, and multi-family residential units. The underlying density on the project permits up to 291 residential dwelling units on the property and/or up to +/- 254,000 sf of office uses on the property, using a 10,000 sf per acre planning rule of thumb.

This conditional use permit application proposes 276 multi-family residential units and a +/- 0.91-acre office parcel. The development will meet the development standards for OS and RM-2 district projects as well as supplementary standards for multi-family development established in the Town's UDO, with modifications described in Exhibit D of this application. Adequate parking will be provided on site to meet UDO standards for multi-family and office uses. The main entrance to the site will be provided near the US 1 access location. The existing gravel service will be paved to NCDOT standards from the emergency access location on the north side of the property and tie back to West Connecticut Avenue. This street will be turned over to NCDOT and become a publicly maintained street. Access from US 1 and the public service road will provide the only vehicular access to the site. Pedestrian access gates will be provided at West Rhode Island Avenue and West Maine Avenue to allow residents to connect to the neighborhood street and pedestrian network for walking and biking to downtown Southern Pines. Sidewalks to downtown are available along West Vermont Avenue.

The multi-family development will consist of a total of 276 residential units with many shared amenities. These amenities will include a swimming pool, clubhouse building, children's play area, dog park and other park spaces. The property falls within a high-quality watershed and there is no floodplain. As a result, a watershed protection permit application has been submitted to allow for increased impervious surface and allow up to 70% impervious surface. Overall impervious surface to be developed on the property will fall well below the permitted 70%. Impervious surface and will not exceed 60%. This site is a residential infill location in the downtown of Southern Pines. Increased impervious surface in infill locations for residential development is consistent with the Towns Comprehensive Long-Range Plan (CLRP). See Exhibit C for additional information related to compliance with the CLRP.

Design elements for the project are described below.

- **Pedestrian Connectivity**
  - Pedestrian connectivity will be provided throughout the community. Pedestrian access gates will be provided at West Rhode Island Avenue and West Maine Avenue to allow residents to connect to the neighborhood street and sidewalk network to walk and bike to downtown Southern Pines. The property is five (5) blocks from Broad Street and the West Maine Avenue and West Rhode Island Avenue gate connections are in close proximity to sidewalk connections on West Vermont Avenue, which lead downtown.
- **Parking Areas**
  - The multi-family residential buildings will have surface parking at a ratio that meets the UDO standards. These standards are as follows from Section 4.5 of the Town's Udo:

Land Use	Minimum Vehicle Parking Spaces	Minimum Bicycle Parking Spaces
Multi-Family		
0-1 bedrooms	1 space per Dwelling Unit plus 1 space per 5 Dwelling Units for visitors	1 space per 10 Dwelling Unit
2-3 bedrooms	2 spaces per Dwelling Unit plus 1 space per 5 Dwelling Units for visitors	
4 or more bedrooms	2.5 spaces per Dwelling Unit plus 1 space per 5 Dwelling Units for visitors	

  - Office uses will park per the UDO required standards in Section 4.5 based on the particular type of office use developed. Medical and general office uses park at different ratios per the UDO. The specific office use is yet to be determined for the office outparcel. When a site plan is brought forward and the specific use determined for the parcel, parking per the UDO standards will be provided.
- **Streets and Access**
  - The main entrance to the site will be provided off the service road, near the US 1 access location. The existing gravel service road from the US 1 access location will be paved to NCDOT standards and tie back to West Connecticut Avenue. Two secondary access locations will be provided for emergency services along the service road and new pavement will continue to the northernmost emergency access location. Once improved and accepted, this street will be turned over to NCDOT and become a publicly maintained street. Access from US 1 and the public service road will provide the only vehicular access to the site. The main entrance to the property will not be gated, however, a gate may be provided at the emergency access location(s). If these locations are gated, appropriate emergency access controls will be provided as required by the Town of Southern Pines Fire Marshal.

- **Landscaping and Fencing**
  - Landscaping will be provided as required by the Town of Southern Pines UDO, including plantings required by the Urban Transition Highway Corridor Overlay District. Much of the site is currently wooded. Due to the topography of the site, many trees within the property boundary will be removed.
  - Planting buffers and screening will be provided on adjacent property boundaries where necessary and required by the Town's UDO. Effort will be made to preserve existing trees in the buffer areas of the project. Any tree save in these buffer areas may count toward planting credit as permitted in the UDO.
- **Open Space**
  - Multi-family residential development is required to have 10% open space. The development will provide approximately +/- 41.3% (+/- 10.5 acres) open space as indicated on the preliminary plat hatching. This open space will be located in buffer areas, stormwater features, parks and amenity areas throughout the property as indicated on the preliminary plat. While usable open space is not required within the OS district, usable open space has been included for the multi-family in the amenity areas and totals 10% (2.55 acres) of the total open space. This number does not reflect areas with sidewalks and trails that would also be considered usable open space within the community.
- **Buffers/Setbacks**
  - Buffers and setbacks will be provided at a minimum per the requirements of the OS district standards and Highway Corridor Overlay District. All setbacks will be met and in many instances the setbacks for the property exceed the required setback requirements. The standards of the overlay district in Section 3.6.5 of the UDO are significantly greater than those of the standard zoning district and are as follows:
    - All US 1 frontage requires a 75' building setback, 50' parking lot setback and 50' landscape buffer. Each of these standards will be met.
    - The OS district requires the following setbacks which will be met:
      - Front = 15'
      - Internal Side = 20'
      - External Side = 15'
      - Rear = 20'
- **Stormwater**
  - Stormwater management best practices will be applied on the site as necessary and required to control stormwater runoff throughout the project. All stormwater will be handled on site in a series of ponds, basins or other devices.
  - Stormwater devices may be located in buffer areas within the property.
- **Utility Service**
  - Adequate water and sewer service can be provided by the Town of Southern Pines to service this development. Utilities are currently within close proximity, along the streets and adjacent properties near the proposed site or located directly on the property. All utilities on the site will be located underground.
- **Architectural Character**
  - Multi-family residential units will be designed to fit the character of downtown Southern Pines. Design of the project is intended to blend into the surrounding area and add to the

surrounding neighborhood. It is also intended that the project will be visually appealing from US Highway 1. Materials are intended to be a mixture of brick and cementitious siding material that will blend with other downtown development.

- The project will comply with the Town of Southern Pines architectural standards and must obtain an Architectural Compliance Permit from the Town Council per the UDO. All multi-family and office structures will require approval of the Architectural Compliance Permit.

- **Signage**
  - A single subdivision sign for the multifamily development will be placed at the main entrance from US 1. In addition, a sign for the office outparcel will be provided on the parcel.
  - All signs will indicate the name of the community and/or business. Any additional directional or on-site signage for parking area, parks or amenities will follow the Town of Southern Pines sign standards in Section 4.6 for size, materials, and height.
- **Office Uses**
  - Office uses permitted for the outparcel will include the following, to the extent permitted by right under UDO Exhibit 3-15 (Table of Authorized Land Uses):
    - Finance and Insurance
    - Real Estate Services
    - Rental housing-related
    - Intellectual Property Rental
    - Business, Professional, Scientific, and Technical
    - Administrative Services

The descriptions and conditions described above will apply to the entire project as indicated in the Conditional Use Permit plan document.

EXHIBIT A

Patrick's Pointe
Special Use Permit Justification

Below are listed the six (6) criteria required to approve a Special Use Permit application as described in Section 2.21.7 of the Town of Southern Pines UDO. Following the individual criteria is an explanation, indicated in red, describing how the project demonstrates compliance with each of these criteria.

A Special Use is permitted only if the Applicant demonstrates that:

(A) The proposed special use shall comply with all regulations of the applicable zoning district and any applicable supplemental use regulations;

The property is currently zoned Office Service (OS) and RM-2 and would permit office and service uses as well as multi-family, single-family attached, and single-family detached residential development through a special use permit. Residential uses are permitted under the OS zoning classification at a density comparable to RM-2 density (10-12 dwelling units per acre). This density would allow for 274 residential units to be developed on the OS property (the Large Tract). Up to seven residential dwelling units per acre are allowed by right within the RM-2 zoning district. This density would allow for 17 residential dwelling units on the RM-2 property (the Small Tract). The combined total density for the properties would be 291 total residential units. Multi-family and single-family attached residential units are permitted at the proposed density through a Special Use Permit for the site. The proposed plan includes 276 total residential units, which complies with the regulations of the applicable zoning districts. The proposed development also complies with all other regulations within the UDO related to the OS district and proposed uses except for the supplemental use regulations for multi-family residential units (see Exhibit D for minor deviations). In addition, a +/- 0.91-acre office parcel has been provided on the property which is permitted within OS zoning district. This office parcel would permit for an office building and associated parking and provides for the mix of uses contemplated by the UDO for OS zoning districts.

(B) The proposed special use shall conform to the character of the neighborhood in which it is located and not injure the use and enjoyment of property in the immediate vicinity for the purposes already permitted;

All structures will be designed to meet the standards for multi-family and office development described in UDO. Residential development will be designed to be compatible with the existing surrounding townhome residential neighborhood and other homes in the vicinity. Buildings will meet all UDO standards for building height.

Buffers will be placed along property boundaries that are shared with adjacent properties. Every attempt will be made to maintain existing trees throughout the development and especially in buffer areas.

US 1 BOUNDARY: The property falls within a Highway Corridor Overlay District which requires a 75' building setback, a 50' parking area setback and a 40' landscape buffer from US 1. The 40' landscape buffer area will be planted per the Town of Southern Pines landscape standards. To gain additional credit toward the Town's landscape requirements, efforts will be taken to maintain trees in this area as well. All landscaping will meet and/or exceed Town of Southern Pines requirements for landscaping within parking fields.

EASTERN BOUNDARY: Appropriate landscaping will be planted along the adjoining property boundaries on the east side of the property. These plantings will meet the Town's landscaping requirements and screen the development from adjoining properties. Landscape materials will be selected to match the existing area and maintain a natural appearance for the property that is in keeping with the character of the surrounding neighborhood and Southern Pines community. The plan works to transition density from the adjacent (to the east) townhome community by placing

limited building development and large setbacks along the shared property boundary with the Village Green neighborhood. Residential multi-family buildings will act as a buffer and noise barrier to the existing townhome developments.

On page 2.4 of the Comprehensive Long-Range Plan (CLRP) under housing it states "Southern Pines residents recognize the importance and relevance of housing that is diverse, affordable and compatible with the neighborhood in which it is developed. The Town is committed to promoting these housing goals in all areas of the community." The developer believes that the multi-family residential proposed for this neighborhood offers a variety and diversity of residential products within the surrounding neighborhood and downtown Southern Pines. This variety in housing options allows residents of Southern Pines to make housing decisions that fit their needs and lifestyle. This development is consistent with the context of the surrounding neighborhood and provides a buffer and transition of density from single-family attached, multi-family and other residential development surrounding the property as well as the office parcel located on US 1.

In addition, see the attached Compliance with CLRP Objectives document.

(C) Adequate public facilities shall be provided as set forth herein;

Public water and sewer utilities are readily available for the project, the cost of which will be borne by the developer. Water and sewer lines currently cross areas of the site. Parks, open spaces, trails, sidewalks, and amenities will be provided by the developer for the residents.

The main entrance to the site will be provided near the US 1 access location along the service road. The existing gravel service road from the US 1 access location will be paved to NCDOT standards and tie back to West Connecticut Avenue. Two secondary access locations will be provided for emergency services along the service road and new pavement will continue to the northernmost emergency access location. Once improved and accepted, this street will be turned over to NCDOT and become a publicly maintained street. Access from US 1 and the public service road will provide the only vehicular access to the site. The main entrance to the property will not be gated, however, a gate may be provided at the emergency access location(s). If these locations are gated, appropriate emergency access controls will be provided as required by the Town of Southern Pines Fire Marshal.

(D) The proposed use shall not impede the orderly Development and improvement of surrounding property for uses permitted within the zoning district or substantially diminish or impair the property values within the neighborhood;

This is an infill project along the US 1 corridor in close proximity to downtown Southern Pines. All properties surrounding this property are zoned RM-2 and permit multi-family, townhome, and single-family detached development at a density of 5-7 dwelling units per acre. In addition, there are several similar parcels along the US 1 corridor that likewise are already zoned as OS and, thus, are likely to have similar office or mixed use improvements. This project will not impede the development of these surrounding properties in meeting their full development potential and meets the standards of the OS zoning district. The plan works to transition density from the adjacent (to the east) townhome community by placing limited multi-family development along the shared property boundary with the Village Green neighborhood and providing multi-family buildings closer to US 1, which will act as a buffer and noise barrier to the new and existing townhome developments. In addition, the residential uses will provide an appropriate transition to the higher intensity office development along US 1.

Patrick's Pointe and the improvements therein will not substantially diminish or impair the property values within the neighborhood.

(E) The establishment, maintenance, or operation of the proposed use shall not be detrimental to or endanger the public health, safety, comfort or general welfare; and

This office and residential development will continue the existing development pattern of the surrounding neighborhood, which is all zoned RM-2 Residential Mixed Housing (5-7 dwelling units per acre). This project meets all standards set forth in the Town's CLRP and UDO pertaining to land use and density. Based on the standards set forth in these publicly reviewed and approved documents, this project will not be detrimental to or endanger the public health, safety, comfort, or general welfare of the surrounding neighborhood or downtown Southern Pines. The development incorporates many of the goals of the CLRP.

Traffic volumes will not endanger the residents of the Town of Southern Pines as all vehicular access will be provided to the site via US 1 and the associated service road which connects to Connecticut Avenue. Access to the property will not connect to the surrounding neighborhoods. Low additional traffic volumes on local Town streets will not create any adverse impact on existing neighborhoods or streets.

Project buffers will be provided around the entirety of the property and planted to the Town of Southern Pines standards and requirements. These buffers, due to the projects location within the Highway Corridor Overlay District are significantly increased. This allows for additional screening and setbacks far beyond those required in the adjoining RM-2 Mixed Housing (5-7 dwelling units per acre) zoned properties. These standards protect adjoining property owners from any detrimental impacts.

(F) The public interest and welfare supporting the proposed use shall be sufficient to outweigh individual interests that are adversely affected by the establishment of the proposed use.

The proposed use and project density have already been established in both the Town of Southern Pines CLRP adopted on March 8, 2016, and incorporated in the Town of Southern Pines UDO under the OS zoning district classification. This proposal does not seek to deviate from the permitted density or uses prescribed in these documents. These documents were developed as a result of many hours of public input, hours of staff review and hours of Town Council deliberation in order to protect the public interest and welfare of the community.

Taking the existing zoning into account, the allowed uses therein and the goals, strategies and vision of the CLRP for this area, the public interests supporting the proposed uses outweigh any individual interests that may be adversely affected by the proposed use.

This project incorporates many goals and objectives of the CLRP and establishes a development pattern that is consistent with these planning and guiding documents. All properties surrounding this development are zoned for multi-family development based on the CLRP and UDO. This proposed office and multi-family development is consistent with these zoning classifications and shall serve as a buffer between the existing multi-family zoned parcels and US 1. The development pattern also meets the land use goals defined by the CLRP as it is an infill project and makes efficient use of the towns existing infrastructure and remaining high density watershed allocation to encourage housing diversity within Southern Pines, near downtown. This housing diversity and efficient use of land will be needed to meet the demands of projected growth of Southern Pines and the surrounding area.

Of the potential uses permitted by the CLRP and the UDO's OS district for this parcel, the proposed residential uses, which buffer adjacent properties, are significantly less intense than most others. Other by-right uses for this zoning district (such as hotels, daycares and private fitness clubs) are more intense, use more acreage, provide less open space, and generate more traffic than the proposed multi-family use and density. All access to this property will be provided via US 1 and the associated service road which will limit traffic impacts and bypass the surrounding neighborhood to the greatest extent possible. Any

connecting utility and roadway infrastructure, including the paving of the NCDOT service road will be extended and connected as necessary by the developer and dedicated to the Town of Southern Pines.

Based on the property's proximity to downtown, residential development and a limited amount of office use is appropriate for the surrounding area and location along US 1. Residents of this development will work, seek entertainment, and shop in downtown Southern Pines. These additional residents will contribute to the character and vibrancy of the downtown center.

EXHIBIT C

Patrick's Pointe
Compliance with Comprehensive Long Range Plan Objectives

Below is a list of Comprehensive Long range Plan (CLRP) objectives that the design of this project incorporates into the proposed development. The item identification at the beginning of each objective refers to the item number as referred to in the CLRP goals. Bold text represents the goal of the section as adopted on March 8, 2016.

G-11.Housing. Facilitate the provision of a broad range of housing choices that serve residents of all abilities and incomes.
G-13.Growth. Ensure that services, facilities and land resources accommodate anticipated growth while enhancing the quality of life for Southern Pines' residents.
P-2. Neighborhoods. Ensure that new development and redevelopment are compatible with the overall scale, architectural, transportation and public-space characteristics of the neighborhood in which it occurs.

The addition of multi-family apartments in this location will complement the wide availability of single family housing in Southern Pines, thus achieving the goal of "providing a broad range of housing choices that serve residents of all abilities and incomes." Such housing accommodates anticipated growth and allows for a mixed-use office component to serve the local community. Supply for new residential units is limited in the downtown area and demand for the proposed type of housing proposed is present.

The project's architecture, site design and neighborhood character fits into the surrounding neighborhood and is intended to blend into the Southern Pines vernacular. Elements of building design and scale will be comparable with recently-completed regional projects. All vehicular access will be directed away from the existing neighborhood and toward publicly maintained roadways while pedestrian and bicycle travel will be encouraged throughout the neighborhood and connect to adjoining Town of Southern Pines streets.

The scale of the buildings will be diminished due to site conditions. A large grade cut will be required to place buildings on the site. This cut, coupled with the Town of Southern Pines planting and buffering standards and the site's location within the Highway Corridor Overlay District will create a condition that will screen and buffer the project from adjoining property owners. In addition, the site plan calls for limited development to be placed directly adjacent to the Village Green townhome community, to further act as a transfer of density to US 1 and the office outparcel.

P-12. New Housing Choices. Foster the provision of a mix of housing that meets the financial and physical needs of existing and future residents by encouraging development of a variety of housing types in new residential areas and promoting compatible infill in existing neighborhoods.

The multi-family buildings within the development will be consistent with the Southern Pines vernacular but will also meet the housing needs of future residents by incorporating a variety of housing types. The buildings will use materials consistent with Southern Pines. The mix of residential unit types is appropriate with the surrounding area. Market parameters dictate standards supporting Town's existing vernacular.

P-18. Parks and Recreation. Facilitate access to public and private parks and recreational facilities and activities for residents in new and existing neighborhoods by:

b. Encouraging development of new public and private facilities in coordination with new development; and

The project will provide for its residents, parks and amenities including open play areas, pool and clubhouse area, shade structure, pocket parks and dog park area as well as internal trails and sidewalks. This reduces the need for the Town of Southern Pines to provide amenities for the residents of this develop. All costs associated with the construction of these amenities will be borne by the developer.

CHAPTER 8 Housing (Page 8-4). Retaining Diverse Housing Options. The Downtown neighborhood offers a diverse mix of housing choices, which are needed to meet the increasingly diverse housing needs of the community. Seniors, who are no longer able or willing to maintain large, single-family lots seek denser housing options by necessity. Millennials, and to some extent, baby-boomers seek mixed-use neighborhoods and attached housing options. This is not to suggest that existing single-family neighborhoods should be rezoned to allow multi-family housing, but it does suggest the importance of retaining existing mixed-density zoning Downtown and promoting mixed-density neighborhoods within new developments.

The plan maximizes the permitted density on the property in a downtown infill neighborhood without a change in zoning classification. The site is part of the existing downtown urbanized area and all utility services are readily available for the site. Proposed density and location maximize urban planning objectives by limiting adverse impact and enhancing neighborhood efficiencies and livability. Higher density in close proximity of the vibrant downtown center area of Southern Pines, provides more residents within walking and biking distance of downtown. More people close to downtown will help maintain its vibrancy as the project's residents seek work, entertainment/dining and shopping options close to home.

The development pattern also meets the land use goals defined in this section of the CLRP as it makes efficient use of the town's remaining high density watershed allocation to encourage housing diversity throughout Southern Pines. This housing diversity and efficient use of land will be needed to meet the demands of projected growth of Southern Pines and the surrounding area.

P-6. Mobility. Enhance mobility options for residents of Southern Pines by:

a. Ensuring that new neighborhoods and mixed-use centers interconnect with adjoining land uses.

The property provides an interconnected street network within the property and a street connection to US Highway 1 and the service road. The service road connects to West Connecticut Avenue and makes a full vehicular connection to downtown Southern Pines. Sidewalks will be added throughout the development to connect all internal amenities and encourage walking within the community. Pedestrian and bicycle gates located on the eastern property boundary will connect residents with the Town of Southern Pines street grid and promote biking and walking to downtown Southern Pines. This will help facilitate pedestrian and bicycle travel connecting to downtown.

G-8. Mobility. Increase mobility options for residents throughout Southern Pines.

P-6. Mobility. Enhance mobility options for residents of Southern Pines by:

a. Ensuring that new neighborhoods and mixed-use centers interconnect with adjoining land uses.

b. Making walking and bicycling safe, convenient and economical transportation alternatives to driving through development of greenways and streets that are

The project's proximity to Downtown Southern Pines encourages walking and biking on the property. Internal sidewalk connections throughout the development encourage residents to walk and bike to amenity areas located throughout the site. Pedestrian and bicycle gates located on the eastern property boundary will connect residents with the Town of Southern Pines street grid and promote biking and walking to downtown Southern Pines.

P-7. Streetscapes. When improving streets and when streets are installed as part of new developments, ensure that the streets:

b. Employ indigenous landscaping materials in streetscapes and buffers for parking and loading areas to reinforce the natural character of the Town;

It is intended that the development will maintain plants when appropriate and utilize native plants in all areas of the development. Use of native plants will be consistent with the surrounding neighborhood character and promote a project that looks like Southern Pines. Native plant utilization also reduces the amount of maintenance, pruning and irrigation that these plants need for survival. Native plants are more adapted to the local environment and are conditioned to meet the local environmental conditions including drought tolerance, pests and diseases.

G-13.Growth. Ensure that services, facilities and land resources accommodate anticipated growth while enhancing the quality of life for Southern Pines' residents.

P-15. Growth Coordination. To maintain the Town's fiscal integrity and ability to provide public facilities and services in a cost-effective manner:

b. Ensure that costs of extending services to new development are generally borne by such development, except where cost-sharing is necessary to facilitate or attain larger community goals

All development infrastructure to serve the property (water, sewer, roads) cost will be borne by the developer and dedicated to the Town of Southern Pines. Water, sewer and road infrastructure are all available adjacent to the site.

EXHIBIT D

Patrick's Point
Multifamily Development Standards

Below are listed the six (6) multi-family development standards and their subsections from Section 4.10.8 of the Town of Southern Pines UDO. Following the individual criteria is an explanation, indicated in red, describing how the project demonstrates compliance with each of these criteria.

(A) **Applicability**

(1) The following Development standards shall apply to all Multi-Family structures in the Morganton Road Overlay district and Multi-Family Developments of ten (10) or more Dwelling Units in any zoning district in which such Dwelling Units are allowed. These development standards apply to the property as it is more than 10 dwelling units.
(2) No Multi-Family Development may include more than ten (10) Dwelling Units, except pursuant to a Planned Development or Conditional Use Permit approval. This property is seeking a Special Use Permit as permitted by the UDO in the OS zoning district.
(3) The Development standards in this section may be modified pursuant to a PD or Conditional Use Permit approval. The proposed Special Use Permit follows these development standards to the greatest extent possible. Any variations are listed below and permitted as part of the Special Use Permit.
(4) In the RM-1 and RM-2 districts, no Multi-Family Residence may be located within two hundred (200) feet of the closest point of any other Multi-Family Residence, unless both structures are part of an integrated complex that includes no more than ten (10) Dwelling Units. One building is located in the RM-2 zoning district. This building is in excess of 200' from the closest multi-family building. All other buildings within the community are included in the OS district which is not governed by this standard.

(B) **Building Setbacks, Orientation and Lot Standards**

(1) Buildings shall be set back a minimum of ten (10) feet and a maximum of fifteen (15) feet from sidewalks public walkways or street right-of-way. Setbacks may be greater than fifteen (15) feet if the intervening distance consists of common open space. All multi-family buildings on the property meet this standard. The clubhouse building is setback beyond 15' to allow for additional landscaping area in front of the building.
(2) The minimum spacing between the sides of Multi-Family Residential structures shall be twenty (20) feet. All buildings exceed 20' in separation.
(3) Where practical, Dwellings should be located to face each other across common landscaped space with buildings no closer than (30) feet. Due to the narrow shape of this site, buildings have been placed in a linear fashion for most of the site. Where possible, buildings were across from each other. Most buildings backup to landscape areas and planted buffers. Where possible planted landscape islands have been provided to break up parking areas and add trees/landscaping.

(C) **Building Design**. Multi-Family Developments shall:

(1) Include variations in heights, color, setback, rooflines, trim, and building sizes to create visual diversity between structures; Architecture will meet these specifications and be reviewed during the submission of the Architectural Compliance Permit.
(2) Group buildings in clusters; Due to the narrow shape of this site buildings are dispersed in a more linear fashion. Buildings are grouped closely together in an effort to share parking and provide additional open space throughout the site.
(3) Articulate façades by including projections of at least five (5) feet at least once every fifty (50) feet along the façade, Architecture will meet these specifications and be reviewed during the submission of the Architectural Compliance Permit.

(4) Locate windows to provide easy surveillance of open spaces and walkways, without placing such windows within direct alignment with windows of adjacent structures; Windows are located on all facades of the building and near walkways in order to allow for surveillance.
(5) Units above grade level should have access to private balconies of usable dimensions no smaller than ten (10) feet by six (6) feet; Architecture will meet these specifications and be reviewed during the submission of the Architectural Compliance Permit.
(6) Create areas for foundation planting by keeping hard surfaces away from front façades; Foundation plantings will be provided between the building and hard surfaces. The dimensions of this area are defined by Section 4.10.8 (B)(1). The clubhouse will be setback beyond this requirement to provide additional landscaping area.
(7) Design entrances to.

(a) Provide private entrances at grade level and adjacent to private open space to the greatest extent possible. Unless otherwise approved by the Town Council, no more than four (4) Dwelling Units shall share a common entrance. 12 units are served by each breezeway from the ground level through the use of stairs. Each breezeway serves 4 dwelling units on each level of the building.
(b) Avoid aligning doors to separate Dwelling Units with each other unless screening is provided. However, entrances should be visible from the sidewalk or public walkway and other Dwelling Units, when practical. No entrances are aligned directly with other dwelling units without landscape areas in between the buildings and entrances. All entrances are clearly visible from sidewalks and parking areas.
(c) Provide porches or roofed overhangs over building entrances. Roofed overhangs will be provided on all breezeway entrances. These entrances will provide focal elements for the building, while breaking up the front façade of the buildings.
(d) Set back buildings or entries so that the entry paths extend at least ten (10) feet from sidewalk or public circulation walkway. These entry areas should be designed to provide semi-public gardens around the front entryways. Do not provide access to apartments via long-shared access galleries. Entrances are setback as defined by Section 4.10.8 (B)(1). Landscaping is provided in between the sidewalk and building entrance to soften the entrance and create an attractive entrance location.
(8) Provide a private garden, yard, patio or balcony for every Dwelling Unit. All units in the development will have a private outdoor balcony or patio. Ground floor units will have private fenced patios, while upper level units will have private balconies.
(9) The private open space of all Dwelling Units shall be visually and functionally accessible from inside the Dwelling. All units will have windows and view the exterior landscaped areas, amenities and park.
(10) Provide screening for yards where private activities are likely to occur and to delimit private from common open space. Landscaping will be provided in front of all ground floor patios to allow for screening and privacy.

(D) **Pedestrian Improvements**

(1) Provide continuous walkways through the project and connecting Dwellings to and through common open space. An interconnected network of walkways and sidewalks provide access throughout the community. All units are connected through pedestrian pathways to the park, clubhouse and amenity areas throughout the property.
(2) Minimize walkways that provide direct opportunities to cut through the project by strategically locating fences, low walls and planting areas within the site and near site entry points. The property is proposed to be a private community. Pedestrian connections will be made to the streets surrounding the property, however, these locations will be gated and intended of the use of the residents. All amenities within the development will be private.
(3) Provide storage space for strollers, bicycles, and so forth, close to the main entries of Dwellings or groups of Dwellings. Bicycle storage racks will be provided at the clubhouse and at each building.

(E) **Parking**
(1) Provide parking in small Lots that are designed and located to ensure that most parked vehicles are visible from one (1) or more Dwellings. Parked vehicles will be visible from each building. Parking areas will be separated and divided by landscaping and parking islands per the Town's UDO.

(2) To the greatest extent practicable, parking shall not separate Dwelling Units from common open space. Due to the narrow shape of this site, dwellings are located facing open space areas where practicable.

(F) **Open Space**

(1) Common usable open space shall comprise ten (10) percent of the total project area. The project has +/- 8.1 acres (32%) of open space and 2.55 acres (10%) of usable open included in the amenity areas as indicated on the preliminary plat included in the submission documents.

(2) Open spaces shall be configured so that the ratio of building height to open space width is in the range of 1:3 or greater. Ratios as tight as 1:2 may be approved if landscaping effectively screens buildings from each other. The open space areas meet these standards.

(3) Common open space shall be configured in square or nearly square areas with sides of at least one hundred (100) feet. Common open space and amenity areas are not configured as square areas as the topography and narrow site area prohibit this configuration. Open space areas are configured to fit the land, work with the topography and work within the plan structure to provide recreation opportunities for the residents of the community. The larger recreation/amenity areas exceed 100 feet on all sides.

(4) To the greatest extent practicable, Dwelling Units shall have access to common open space without having to cross a street. No public streets are provided within the development.

(5) Play Areas

(a) Play areas for young children should be physically separated from potential traffic hazards. The play area is located at the end of the property in a park area. This will allow for children's safety and separate children from vehicular traffic. The sidewalk system throughout the project will connect to this park area.

(b) Provide a variety of hard-surfaces areas in the form pathways that are least five (5) feet wide and small areas off the circulation system for various children's activities. The play area will provide these items.

(6) For Developments with more than twenty (20) Dwellings, provide on-site; well-equipped and challenging play areas for school age children within a five (5) minute walk from each Dwelling Unit. A play area will be provided as described above. Due to the linear nature and topography of this site, a flat area located outside of the main vehicular circulation pattern was identified for the playground. This area also has several large trees that will be maintained to create a shaded play area. Access to this area may exceed 5 minutes from the northernmost building. The clubhouse and pool area, however, are within five minutes' walk of all units. Children of all ages will be permitted to utilize these areas as well as the park area.

(a) Provide places for school age children to sit. Benches and sitting areas will be provided for children and adults.

(b) Where possible include a space for ball games on site (minimum 80 feet x 40 feet). Due to the topography and narrow site a flat area of this size will not be provided. However, the pool and clubhouse will provide a fitness room, theater room, game room and other amenities open to children. This properties proximity to downtown Southern Pines open spaces and parks will permit residents to have ball games if desired.

(7) Provide retaining walls that can also be used for casual seating. Retaining walls or site furniture will be used to provide casual seating.

(8) Where cluster Dwellings are included in a project, ensure some uniqueness for each cluster. Vary the design (size, dimensions, grading, planting, site furniture and play equipment) of the common open spaces of each cluster. This does not apply to this site.

(9) The number of Dwelling Units grouped around common and open space should range between twenty (20) to one hundred (100) Several units are grouped within close proximity of the clubhouse and pool area.

EXHIBIT E

Patrick's Pointe
Project Justification

There are many reasons why multi-family and office development at the densities proposed for Patrick's Pointe are justified and appropriate for the Town of Southern Pines. This project's justification statement provides evidence for full approval of the project. As submitted in other Exhibits with the application, the project is clearly justified as it meets many of the goals of the Town of Southern Pines Comprehensive Long-Range Plan (CLRP) and all development standards included in the Unified Development Ordinance (UDO). There are no waivers or modifications to these standards proposed by the applicant within the submission documents. In fact, many of the standards associated with these documents are exceeded by the plan and documentation presented as the preliminary plat. All UDO-required findings associated with the requested SUP and the Preliminary plat are easily met.

The Town of Southern Pines CLRP and UDO standards have been established through a series of public meetings and hearings, hours of staff review, Planning Board deliberation and Town Council deliberation. These documents are established to guide development, written specifically to protect the public interest, health and welfare of the citizens of Southern Pines and provide developers and landowners with a clear understanding of the community's goals prior to investing time, money and effort for a proposed project. As a guide to growth these documents establish many guidelines for development including the following: land uses, density, setbacks, landscaping standards, buffers, buffer planting requirements, required number of parking spaces, parking space sizes, parking lot planting requirements, signage, lighting, open space, architectural standards and many other items specific to development. The proposed project meets all these guidelines, in particular, land use, open space, density, setbacks and buffers.

Of the permitted uses in the OS zoning district, multi-family development is one of the least intense development classifications. This district permits office development, hotels, private fitness centers, daycares, banks, insurance offices, real estate offices, health clinics, medical offices, and many other uses. All these uses are permitted by-right and would involve no public process to develop these types of facilities. Standards for these uses have far lower open space requirements and produce significantly more traffic than multi-family development. Again, based on the zoning classification, these other uses could be permitted today with a simple application to Town Planning and Engineering staff with no public deliberation.

The proposed project has many advantages over the other permitted uses. Multi-family development has a greater requirement for open space. Some of this open space is proposed to be usable open space for the residents. Residential development also generates much less traffic than many of the other permitted uses in the OS zoning district.

In item P-15.a. of the CLRP it states "Favor infill development in areas with access to public facilities over development on the perimeter that requires extension of public utilities". This statement is very important for the future development of Southern Pines and speaks to "Smart Growth" principles and sound planning. Based on the projected population growth of Southern Pines, this statement is even more meaningful and important. Southern Pines is growing and projected to grow substantially over the next several years as indicated by US census data. There are choices as to how this increase in population should be housed. The CLRP and UDO have made it clear that the subject property is intended for higher density development.

Higher density in appropriate locations has many advantages over traditional low density development. From a land use and planning perspective, this site is ideal for higher density residential development. The proximity to Downtown Southern Pines encourages alternate transportation methods for travel to downtown. The project will provide pedestrian and bicycle access gates that connect to the grid of downtown Southern Pines that will enable residents to bike or walk to downtown for shopping, dining, working or to take advantage of the many downtown festivals and events. Residents will not have to cross any major highways or roadways in order to access downtown and can utilize the new bike racks being installed throughout the downtown area.

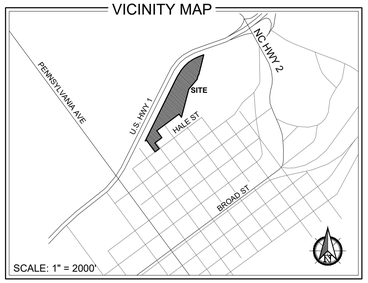
There are many other advantages to higher density on this site. While it may seem counterintuitive, increasing density helps protect local watersheds. The Town of Southern Pines has a limited amount of high density watershed allocation that it can utilize for development. Any development above 24% impervious surface is required to apply for a watershed allocation permit, which allows for development up to 70% impervious surface. If a development exceeds 24% impervious surface, the entire site must be counted toward the high intensity allocation. In this case, the site would require approximately 25 acres of watershed allocation for 276 residential units and an office outparcel. Spread this density over (3) 100 unit projects on 25 acres each and 75 acres of watershed allocation would be required, which reduces the future development potential for the balance of the watershed throughout Southern Pines. Increasing density makes efficient use of the watershed and should be encouraged to protect water resources.

Utility infrastructure efficiency is another advantage of infill development. Water, sewer and roadway infrastructure is readily available for this site and allows for efficient extension, distribution and maintenance of existing utilities. Serving more units with less infrastructure is a clear advantage of this type of development and an important aspect of smart growth development. While the costs of any extensions of utilities and connecting roadways will be borne by the developer, this infrastructure will be dedicated to the Town of Southern Pines and NCDOT for long term maintenance. Limiting the length and amount of public infrastructure to serve the maximum number of units has a positive impact on long term maintenance costs of utility infrastructure.

The proximity of this proposed development to downtown, coupled with “smart growth” principles of reducing watershed impact, reducing utility and roadway infrastructure, as well as the clear intent of the CLRP and UDO to promote this type of development on the site are a clear indication that the proposed development is appropriate. This project requests no modifications or waivers from the standards set forth in the UDO and is strictly prescribed by all guiding documents. This project represents the vision described for the property in all applicable documents. The project, as proposed, meets or exceeds all development standards of the UDO and complies with many of the goals of the CLRP.

Item F of the Conditional Use Permit Justification is as follows: “The public interest and welfare supporting the proposed use shall be sufficient to outweigh individual interests that are adversely affected by the establishment of the proposed use”. Based on the Town’s guiding documents, CLRP and UDO, this project clearly serves the public interest and welfare, as it asks for no waivers or modifications of the approved development standards. In the submitted exhibits, no modifications to land use, density, setbacks, landscaping standards, buffers, buffer planting requirements, required number of parking spaces, parking space sizes, parking lot planting requirements, signage, lighting, open space, architectural standards, and other items specific to development are requested. Planning concepts presented in the application are consistent with the major planning goals of the CLRP and this project represents sound community planning principles. Community needs with proposed development standards have been clearly defined by the Town’s guiding documents, the CLRP and UDO, and should not be compromised as the Town of Southern Pines looks towards it future.

VICINITY MAP



FLOODPLAIN DATA

THIS PROPERTY IS LOCATED IN FLOOD ZONE 'X'
(AREAS OF MINIMAL FLOODING)

THE LOCATION OF THE 100-YEAR FLOODPLAIN PER
NFIP FIRM COMMUNITY
PANEL(S) NO: 8582
MAP(S): 3710858200J
DATE: OCTOBER 17, 2006

CAUTION

THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT DEPICTED ON THESE PLANS. THE LANDSCAPE ARCHITECT AND ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES WITHIN THE PROJECT LIMITS. ALL DAMAGE MADE TO THE EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY BY THE CONTRACTOR.

LEGEND

- = OVERALL PROPETY BOUNDARY
- = EXISTING MINOR CONTOUR
- 400 = EXISTING MAJOR CONTOUR
- SS = EXISTING SEWER LINE
- = EXISTING RIGHT-OF-WAY
- = EXISTING WETLAND

PROPERTY INFORMATION

PROPERTY OWNER:
FRANCIS T MASER, TRUSTEE
PO BOX 1133
SOUTHERN PINES, NC 28388

APPLICANT:
1700, LLC
2601 SOUTH BAYSHORE DRIVE, 17TH FLOOR
MIAMI, FL 33133

TOTAL ACREAGE: 25.4 AC

ZONING INFORMATION

ZONING CLASSIFICATION(S):
(OS) OFFICE SERVICES
(RM-2) RESIDENTIAL MIXED HOUSING

EXISTING SETBACKS (OS):
FRONT: 15'
INTERIOR SIDE: 20'
EXTERIOR SIDE: 15'
REAR: 20'

EXISTING SETBACKS (RM-2):
FRONT: 25'
INTERIOR SIDE: 10'
EXTERIOR SIDE: 15'
REAR: 30'

MAX. BUILDING HEIGHT (OS): 35'
MAX. BUILDING HEIGHT (RM-2): 40'

HCOD (URBAN TRANSITION) STANDARDS:
BUILDING SETBACK: 75'
PARKING AREA SETBACK: 50'

PRELIMINARY PLANS - NOT RELEASED FOR CONSTRUCTION (FOR REVIEW ONLY)

KOONTZJONESDesign
LAND PLANNING | LANDSCAPE ARCHITECTURE
150 S PAGE STREET
SOUTHERN PINES, NC 28387
P: (910) 639-4058
W: www.koontzjonesdesign.com

REVISIONS:

PATRICK'S POINTE
SOUTHERN PINES, NORTH CAROLINA

EXISTING CONDITIONS

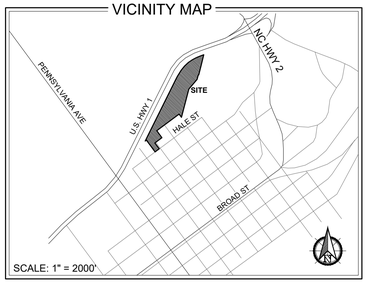
DATE: 10-11-2021
DESIGN BY: PJS REK
DRAWN BY: PJS
CHECKED BY: REK
Q.C. BY: REK
SCALE: 1" = 100'-0"
PROJECT #:

SHEET NUMBER#:
L-1.0

811 Know what's below. Call before you dig.

SCALE: 1" = 100'-0"

VICINITY MAP



FLOODPLAIN DATA

THIS PROPERTY IS LOCATED IN FLOOD ZONE 'X'
(AREAS OF MINIMAL FLOODING)

THE LOCATION OF THE 100-YEAR FLOODPLAIN PER
NFIP FIRM COMMUNITY
PANEL(S) NO: 8582
MAP(S): 3710858200J
DATE: OCTOBER 17, 2006

ZONING INFORMATION

ZONING CLASSIFICATION(S):
(OS) OFFICE SERVICES
(RM-2) RESIDENTIAL MIXED HOUSING

EXISTING SETBACKS (OS):
FRONT: 15'
INTERIOR SIDE: 20'
EXTERIOR SIDE: 15'
REAR: 20'

EXISTING SETBACKS (RM-2):
FRONT: 25'
INTERIOR SIDE: 10'
EXTERIOR SIDE: 15'
REAR: 30'

MAX. BUILDING HEIGHT (OS): 35'
MAX. BUILDING HEIGHT (RM-2): 40'

HCOD (URBAN TRANSITION) STANDARDS:
BUILDING SETBACK: 75' (STREET YARD)
PARKING AREA SETBACK: 50' (STREET YARD)

CAUTION

THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT DEPICTED ON THESE PLANS. THE LANDSCAPE ARCHITECT AND ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES WITHIN THE PROJECT LIMITS. ALL DAMAGE MADE TO THE EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY BY THE CONTRACTOR.

LEGEND

= OVERALL PROPETY BOUNDARY
= OUTPARCEL BOUNDARY
= EXISTING MINOR CONTOUR
400 = EXISTING MAJOR CONTOUR
SS = EXISTING SEWER LINE
= EXISTING RIGHT-OF-WAY
= PROPOSED OPEN SPACE
= PROPOSED USEABLE OPEN SPACE

PROPERTY INFORMATION

PROPERTY OWNER:
FRANCIS T MASER, TRUSTEE
PO BOX 1133
SOUTHERN PINES, NC 28388

APPLICANT:
1700, LLC
2601 SOUTH BAYSHORE DRIVE, 17TH FLOOR
MIAMI, FL 33133

TOTAL ACREAGE: 25.4 AC

TOTAL UNITS:
276 MULTI-FAMILY UNITS

TOTAL OPEN SPACE: ±10.5 AC (41.3%)
TOTAL USEABLE OPEN SPACE: ±2.55 AC (10%)

REQUIRED PARKING:
-MULTI-FAMILY
1 BEDROOM UNITS (110 UNITS)
-1 SPACE PER UNIT (+1 VISITOR SPACE / 5 UNITS)
= 132 SPACES
2-3 BEDROOM UNITS (166 UNITS)
-2 SPACES PER UNIT (+1 VISITOR SPACE / 5 UNITS)
= 365 SPACES
TOTAL PARKING REQUIRED = 497 SPACES

TOTAL PARKING PROVIDED = 554 SPACES

TOTAL IMPERVIOUS SURFACE: ±12.3 AC (48.4%)

PRELIMINARY PLANS - NOT RELEASED FOR CONSTRUCTION (FOR REVIEW ONLY)

SERVICE ROAD
-TO BE IMPROVED TO
W. CONNECTICUT

TOT LOT

PARK

DUMPSTER

RIP RAP

STORMWATER

U.S. HIGHWAY #1

NE SERVICE RD

PROJECT SIGNAGE

OFFICE
OUTPARCEL
±0.91 AC

50' HCOD PARKING SETBACK

75' HCOD BUILDING SETBACK

PEDESTRIAN/BIKE
CONNECTION TO EXISTING
W. MAINE AVE SIDEWALK

W. VERMONT AVE.
60' Public R/W

W. MAINE AVE.
60' Public R/W

HALE STREET
80' Public R/W

W. RHODE ISLAND AVE.
60' Public R/W

W. DELAWARE AVE.

SERVICE ROAD
-TO BE IMPROVED TO
ACCESS LOCATION

PICNIC AREA
-GAZEBO
-GRILLS

COMMUNITY CLUBHOUSE,
AMENITY AREA, & POOL

TV PEDESTAL

AMENITY AREA
-FIRE PIT
-SEATING AREA

APARTMENT BUILDING 3 STORY 24 OR 28 UNITS

APARTMENT BUILDING 3 STORY 12 UNITS

APARTMENT BUILDING 3 STORY 16 UNITS

GARAGE

50' 0' 50' 100' 200'
SCALE: 1" = 100'-0"

GENERAL NOTES:

1. DRAINAGE WILL BE RETAINED AND TREATED BY ON SITE STORMWATER MANAGEMENT DEVICES. THE GENERAL LOCATION OF SUCH DEVICES ARE SHOWN ON THIS PLAN. DETAILED STORMWATER MANAGEMENT PLANS WILL BE PROVIDED DURING PERMITTING OF THE DEVELOPMENT AND WILL FOLLOW THE TOWN OF SOUTHERN PINES STANDARDS AND BE APPROVED BY THE TOWN ENGINEER.
2. LIGHTING WILL BE PROVIDED IN ACCORDANCE WITH SECTION 4.8 OF TOWN'S UDO
3. PROJECT SIGNAGE WILL MEET ALL REQUIREMENTS AS ESTABLISHED IN THE TOWN OF SOUTHERN PINES UDO
4. LANDSCAPING WILL BE PROVIDED TO MEET OR EXCEED THE REQUIREMENTS AS ESTABLISHED IN THE TOWN OF SOUTHERN PINES UDO.

811 Know what's below. Call before you dig.

KOONTZJONESDesign
LAND PLANNING | LANDSCAPE ARCHITECTURE
150 S PAGE STREET
SOUTHERN PINES, NC 28387
P: (910) 639-4058
W: www.koontzjonesdesign.com

REVISIONS:

PATRICK'S POINTE
SOUTHERN PINES, NORTH CAROLINA

SITE PLAN

DATE: 10-11-2021
DESIGNED BY: REK
DRAWN BY: PJS
CHECKED BY: REK
Q.C. BY: REK
SCALE: 1" = 100'-0"
PROJECT #:

SHEET NUMBER#:
L-1.1

Revised
Traffic Impact Analysis

US 1 Multifamily
Southern Pines, NC

Prepared for:

Volta Global, LLC

Kimley»Horn

© Kimley-Horn and Associates, Inc. 2021

Revised Traffic Impact Analysis for

US 1 Multifamily

Southern Pines, North Carolina

Prepared for:

Volta Global, LLC

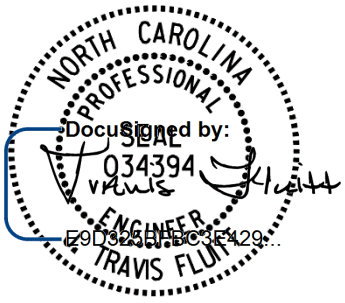
Miami, Florida

Prepared by:

Kimley-Horn and Associates, Inc.
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

October 2021

014362000



This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

Executive Summary

Kimley-Horn and Associates, Inc. has performed a revision to the Traffic Impact Analysis for the proposed US 1 Multifamily project located on the east side of US 1 between Pennsylvania Avenue and Midland Road in Southern Pines, North Carolina. The original report was dated September 17, 2021 and included 256 apartments, 37 townhomes, and 15,000 square feet (SF) of office space. The plan has since been revised to include 276 apartment units and up to 7,500 SF of general office space. Site access will still be provided via three proposed driveways along the US 1 NE Service Road, but Site Driveway #2 will no longer align with the US 1 NE Service Road Access. Although the development is projected to be complete before then, a 10-year horizon of 2031 was used for this analysis.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development. The traffic conditions studied include the existing (2021) traffic condition and the projected (2031) background and build-out traffic conditions.

As shown in Table ES-1, the project is projected to generate 2,106 new daily trips, 127 new trips during the AM peak hour, and 127 new trips during the PM peak hour on a typical weekday.

Table ES-1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily	AM Peak Hour		PM Peak Hour	
					In	Out	In	Out
221	Apartments	276	d.u.	2,020	24	69	71	46
710	General Office Building	7,500	s.f.	86	29	5	2	8
Total Net New External Trips				**2,106**	**53**	**74**	**73**	**54**

Capacity analyses were performed using Synchro/SimTraffic Version 10 software for the unsignalized intersections. Table ES-2 summarizes the operation of study intersections for the AM and PM peak hour traffic conditions.

Table ES-2 Level-of-Service Summary		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
Midland Road at US 1 Northbound Ramps		
Existing (2021) Traffic	EB – B (10.4) WB – C (15.3)	EB – A (9.8) WB – C (14.5)
Background (2031) Traffic	EB – B (10.9) WB – C (19.6)	EB – B (10.1) WB – C (17.8)
Build-out (2031) Traffic	EB – B (11.0) WB – C (21.0)	EB – B (10.1) WB – C (18.4)
Midland Road at Crestview Road		
Existing (2021) Traffic	EB – B (11.7) NBL – A (7.9)	EB – B (11.1) NBL – A (7.8)
Background (2031) Traffic	EB – B (12.5) NBL – A (8.1)	EB – B (11.8) NBL – A (7.9)
Build-out (2031) Traffic	EB – B (12.5) NBL – A (8.1)	EB – B (11.9) NBL – A (7.9)
N Saylor Street at Crestview Road		
Existing (2021) Traffic	NB – A (8.8) WBL – A (7.3)	NB – A (8.7) WBL – A (7.3)
Background (2031) Traffic	NB – A (8.9) WBL – A (7.3)	NB – A (8.7) WBL – A (7.4)
Build-out (2031) Traffic	NB – A (8.9) WBL – A (7.3)	NB – A (8.8) WBL – A (7.4)
N Saylor Street at W Rhode Island Avenue		
Existing (2021) Traffic	EB – A (9.0) WB – A (9.5) NBL – A (7.4) SBL – A (7.3)	EB – A (8.9) WB – A (8.9) NBL – A (7.3) SBL – A (7.3)
Background (2031) Traffic	EB – A (9.0) WB – A (9.5) NBL – A (7.4) SBL – A (7.3)	EB – A (8.9) WB – A (8.9) NBL – A (7.3) SBL – A (7.3)
Build-out (2031) Traffic	EB – A (9.1) WB – A (9.6) NBL – A (7.4) SBL – A (7.3)	EB – A (9.0) WB – A (9.0) NBL – A (7.3) SBL – A (7.3)

Table ES-2 Level-of-Service Summary (cont.)		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
N Saylor Street at W Vermont Avenue		
Existing (2021) Traffic	EB – A (9.1) WB – A (9.6) NBL – A (7.3) SBL – A (7.3)	EB – A (9.0) WB – A (9.0) NBL – A (7.3) SBL – A (7.3)
Background (2031) Traffic	EB – A (9.2) WB – A (9.7) NBL – A (7.4) SBL – A (7.3)	EB – A (9.1) WB – A (9.1) NBL – A (7.3) SBL – A (7.3)
Build-out (2031) Traffic	EB – A (9.2) WB – A (9.7) NBL – A (7.4) SBL – A (7.3)	EB – A (9.2) WB – A (9.1) NBL – A (7.3) SBL – A (7.3)
N Saylor Street at Pennsylvania Avenue		
Existing (2021) Traffic	NB – C (17.6) SB – B (12.4) EBL – A (8.0) WBL – A (8.3)	NB – C (19.7) SB – B (14.7) EBL – A (8.6) WBL – A (8.0)
Background (2031) Traffic	NB – C (21.0) SB – B (13.4) EBL – A (8.2) WBL – A (8.5)	NB – C (24.8) SB – C (17.0) EBL – A (8.9) WBL – A (8.1)
Build-out (2031) Traffic	NB – C (22.6) SB – C (17.6) EBL – A (8.2) WBL – A (8.5)	NB – D (26.9) SB – C (22.0) EBL – A (9.0) WBL – A (8.1)
US 1 NB at US 1 NE Service Road Access		
Existing (2021) Traffic	WB – B (12.4)	WB – C (15.3)
Background (2031) Traffic	WB – B (13.4)	WB – C (17.3)
Build-out (2031) Traffic	WB – B (14.0)	WB – C (18.1)
US 1 NE Service Road at Site Driveway #1		
Build-out (2031) Traffic	WB – A (8.9) SBL – A (7.3)	WB – A (8.8) SBL – A (7.3)
US 1 NE Service Road at Site Driveway #2		
Build-out (2031) Traffic	WB – A (8.9) SBL – A (7.3)	WB – A (8.9) SBL – A (7.3)
US 1 NE Service Road at US 1 NE Service Road Access*		
Build-out (2031) Traffic	NB – A (4.0) SB - A (3.8)	NB – A (4.0) SB - A (2.9)
US 1 NE Service Road at Site Driveway #3		
Build-out (2031) Traffic	WB – A (8.6) SBL – A (7.3)	WB – A (8.6) SBL – A (7.3)

The US 1 Multifamily project is proposed to provide three site driveways aligning with US 1 NB Service Road. All site driveways are proposed to be constructed with one ingress lane and one egress lane.

The following improvements are recommended to be performed as part of the proposed US 1 Multifamily development:

US 1 at US 1 NE Service Road Access:

- Construct an exclusive right-turn lane on northbound US 1 with 50 feet of storage and appropriate tapers

US 1 NE Service Road at Site Driveway #1:

- Stripe the northbound approach of the US 1 NE Service Road as a shared through/right-turn lane
- Stripe the southbound approach of the US 1 NE Service Road as a shared through/left-turn lane

US 1 NE Service Road at Site Driveway #2:

- Stripe the northbound approach of the US 1 NE Service Road as a shared through/right-turn lane
- Stripe the southbound approach of the US 1 NE Service Road as a shared through/left-turn lane

US 1 NE Service Road at US 1 NE Service Road Access

- Operate the eastbound approach (US 1 NE Service Road Access) as a free-flow movement with stop-control on the northbound and southbound approaches

US 1 NE Service Road at Site Driveway #3:

- Stripe the northbound approach of the US 1 NE Service Road as a shared through/right-turn lane
- Stripe the southbound approach of the US 1 NE Service Road as a shared through/left-turn lane

With the recommended improvements in place, analysis indicates that all study intersections are expected to operate at acceptable levels of service with no queuing issues at project build-out.

Figure ES-1 shows the recommended roadway laneage.

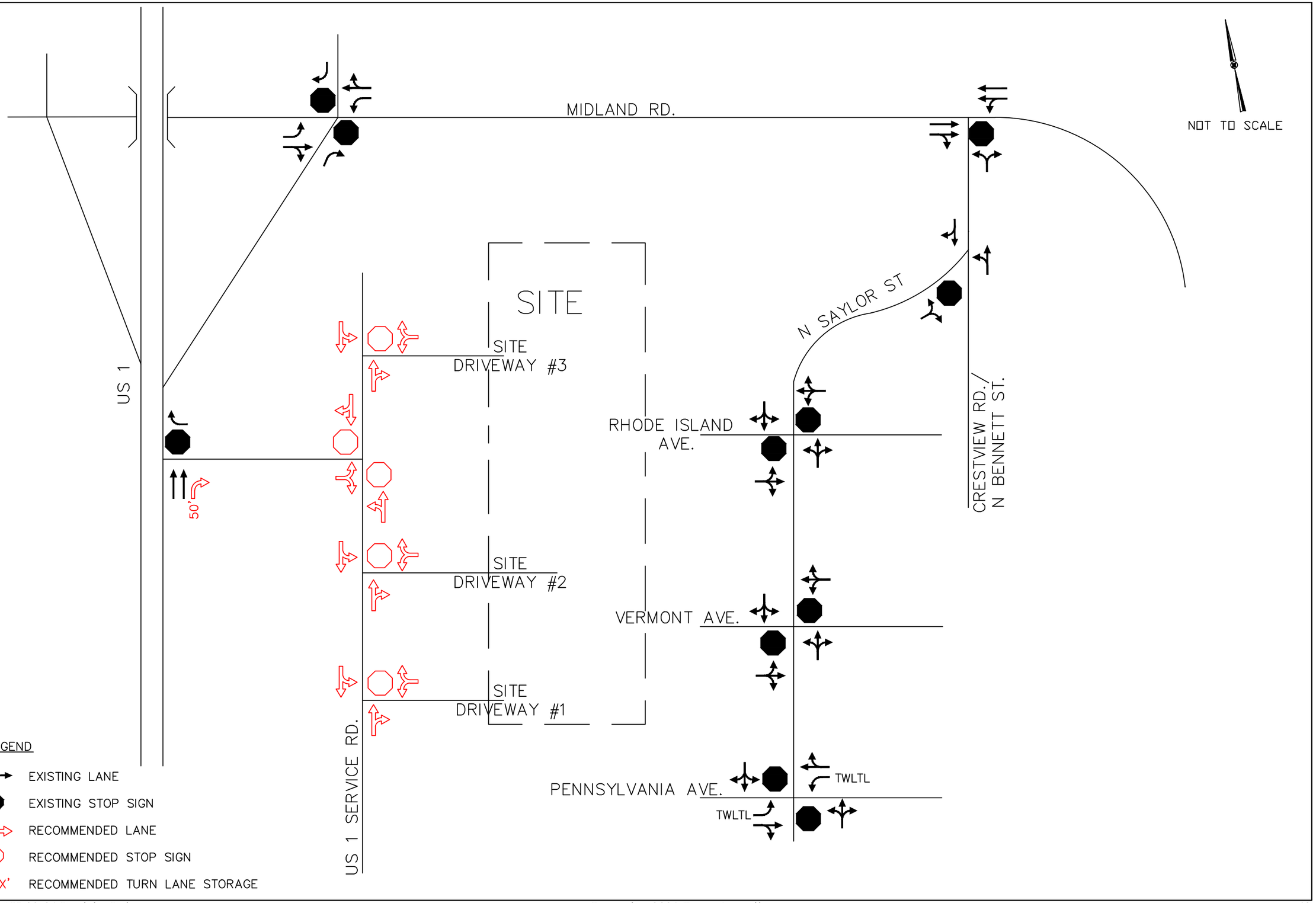


FIGURE
ES-1

RECOMMENDED ROADWAY LANEAGE

US 1 MULTIFAMILY
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

\\kimley-horn.com\SE_DUR\RAL_TPTO_Traffic\014362000 US 1 Multifamily\T5 - Report-Submittals\Figures\US 1 Multifamily - TIA Figures.dwg

TABLE OF CONTENTS

Page No.

1.0 INTRODUCTION 1

2.0 INVENTORY 2

2.1 STUDY AREA 2
2.2 EXISTING CONDITIONS 2

3.0 TRAFFIC GENERATION 6

4.0 SITE TRAFFIC DISTRIBUTION 7

5.0 PROJECTED TRAFFIC VOLUMES 10

5.1 EXISTING TRAFFIC 10
5.2 BACKGROUND TRAFFIC GROWTH 10
5.3 BACKGROUND TRAFFIC 10
5.4 SITE TRAFFIC 10
5.5 BUILD-OUT TRAFFIC 11

6.0 CAPACITY ANALYSIS 16

6.1 MIDLAND ROAD AT US 1 NORTHBOUND RAMPS 17
6.2 MIDLAND ROAD AT CRESTVIEW ROAD 18
6.3 N SAYLOR STREET AT CRESTVIEW ROAD 19
6.4 N SAYLOR STREET AT W RHODE ISLAND AVENUE 20
6.5 N SAYLOR STREET AT W VERMONT AVENUE 21
6.6 N SAYLOR STREET AT W PENNSYLVANIA AVENUE 22
6.7 US 1 NORTHBOUND AT US 1 NE SERVICE ROAD ACCESS 23
6.8 US 1 NE SERVICE ROAD AT SITE DRIVEWAY #1 24
6.9 US 1 NE SERVICE ROAD AT SITE DRIVEWAY #2 25
6.10 US 1 NE SERVICE ROAD AT US 1 NE SERVICE ROAD ACCESS 26
6.11 US 1 NE SERVICE ROAD AT SITE DRIVEWAY #3 27

7.0 RECOMMENDATIONS 28

APPENDICES

A. TRAFFIC COUNT DATA
B. TRIP GENERATION
C. INTERSECTION SPREADSHEETS
D. SYNCHRO OUTPUT: EXISTING (2021)
E. SYNCHRO OUTPUT: BACKGROUND (2031)
F. SYNCHRO OUTPUT: BUILD-OUT (2031)

LIST OF TABLES

Table No.	Title	Page No.
Table 3.1	ITE Traffic Generation (Vehicles)	6
Table 6.0	Level-of-Service Control Delay Thresholds	16
Table 6.1	Level-of-Service: Midland Road at US 1 Northbound Ramps	17
Table 6.2	Level-of-Service: Midland Road at Crestview Road	18
Table 6.3	Level-of-Service: N Saylor Street at Crestview Road	19
Table 6.4	Level-of-Service: N Saylor Street at W Rhode Island Avenue	20
Table 6.5	Level-of-Service: N Saylor Street at W Vermont Avenue	21
Table 6.6	Level-of-Service: N Saylor Street at W Pennsylvania Avenue	22
Table 6.7	Level-of-Service: US 1 NB at US 1 NE Service Road Access	23
Table 6.8	Level-of-Service: US 1 NE Service Road at Site Driveway #1	24
Table 6.9	Level-of-Service: US 1 NE Service Road at Site Driveway #2	25
Table 6.10	Level-of-Service: US 1 NE Service Road at US 1 NE Service Road Access	26
Table 6.11	Level-of-Service: US 1 NE Service Road at Site Driveway #3	27

LIST OF FIGURES

Figure No.	Title	Page No.
Figure 2.1	Site Location	3
Figure 2.2	Conceptual Site Plan	4
Figure 2.3	Existing Roadway Laneage	5
Figure 4.1	Site Traffic Distribution and Percent Assignment	8
Figure 4.2	Site Traffic Distribution - US 1 at Midland Road Interchange	9
Figure 5.1	Existing and Projected (2031) Background AM Peak Hour Traffic Volumes	12
Figure 5.2	Existing and Projected (2031) Background PM Peak Hour Traffic Volumes	13
Figure 5.3	Projected (2031) Build-out AM Peak Hour Traffic Volumes	14
Figure 5.4	Projected (2031) Build-out PM Peak Hour Traffic Volumes	15
Figure 7.1	Recommended Roadway Laneage	29

1.0 Introduction

Kimley-Horn and Associates, Inc. has performed a revision to the Traffic Impact Analysis for the proposed US 1 Multifamily project located on the east side of US 1 between Pennsylvania Avenue and Midland Road in Southern Pines, North Carolina. The original report was dated September 17, 2021 and included 256 apartments, 37 townhomes, and 15,000 square feet (SF) of office space. The plan has since been revised to include 276 apartment units and up to 7,500 SF of general office space. Site access will still be provided via three proposed driveways along the US 1 NE Service Road, but Site Driveway #2 will no longer align with the US 1 NE Service Road Access. Although the development is projected to be complete before then, a 10-year horizon of 2031 was used for this analysis.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development. The traffic conditions studied include the existing (2021) traffic condition and the projected (2031) background and build-out traffic conditions.

North Carolina Department of Transportation (NCDOT) and Town of Southern Pines staff were consulted regarding the elements to be covered in this analysis.

2.0 Inventory

2.1 Study Area

The study area for this development includes the following intersections:

- Midland Road at US 1 Northbound Ramps
- Midland Road at Crestview Road
- N Saylor Street at Crestview Road
- N Saylor Street at W Rhode Island Avenue
- N Saylor Street at W Vermont Avenue
- N Saylor Street at W Pennsylvania Avenue
- US 1 NB at US 1 NE Service Road Access
- US 1 NE Service Road at Proposed Site Driveway #1
- US 1 NE Service Road at Proposed Site Driveway #2
- US 1 NE Service Road at US 1 NE Service Road Access
- US 1 NE Service Road at Proposed Site Driveway #3

Figure 2.1 shows the site location, and the conceptual development plan is shown on **Figure 2.2.**

2.2 Existing Conditions

The proposed US 1 Multifamily development is project located on the east side of US 1 between Pennsylvania Avenue and Midland Road in Southern Pines, North Carolina. Roadways in the study area include US 1, Midland Road, Pennsylvania Avenue, Crestview Road, Saylor Street, Rhode Island Avenue, and Vermont Avenue. The existing roadway laneage is shown in **Figure 2.3**.

US 1 is a 4-lane divided highway with a posted speed limit of 55 mph near the study area. The reported 2019 average daily traffic (ADT) volume was approximately 26,000 vehicles per day (vpd) south of Midland Road.

Midland Road is a 4-lane divided roadway with a posted speed limit of 35 mph east of US 1. The reported 2017 ADT volume was approximately 6,500 vpd east of US 1.

Pennsylvania Avenue is a 3-lane roadway with a center two-way left-turn lane (TWLTL) and a posted speed limit of 35 mph. The reported ADT volume was approximately 7,600 vpd east of US 1.

Crestview Road, Saylor Street, Rhode Island Avenue, and Vermont Avenue are all 2-lane roadways with estimated ADT volumes below 1,000 vpd.

Kimley»Horn	US 1 MULTIFAMILY SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	SITE LOCATION	FIGURE 2.1

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

GENERAL NOTES:

1. DRAINAGE WILL BE RETAINED AND TREATED BY ON SITE STORMWATER MANAGEMENT DEVICES. THE GENERAL LOCATION OF SUCH DEVICES ARE SHOWN ON THIS PLAN. DETAILED STORMWATER MANAGEMENT PLANS WILL BE PROVIDED DURING PERMITTING OF THE DEVELOPMENT AND WILL FOLLOW THE TOWN OF SOUTHERN PINES STANDARDS AND BE APPROVED BY THE TOWN ENGINEER.
2. LIGHTING WILL BE PROVIDED IN ACCORDANCE WITH SECTION 4.8 OF TOWN'S UDO.
3. PROJECT SIGNAGE WILL MEET ALL REQUIREMENTS AS ESTABLISHED IN THE TOWN OF SOUTHERN PINES UDO
4. LANDSCAPING WILL BE PROVIDED TO MEET OR EXCEED THE REQUIREMENTS AS ESTABLISHED IN THE TOWN OF SOUTHERN PINES UDO.

811 Know what's below. Call before you dig.

FLOODPLAIN DATA

THIS PROPERTY IS LOCATED IN FLOOD ZONE 'X' (AREAS OF MINIMAL FLOODING)

THE LOCATION OF THE 100-YEAR FLOODPLAIN PER NFIP FIRM COMMUNITY
PANEL(S) NO: 8582
MAP(S): 3710858200J
DATE: OCTOBER 17, 2006

ZONING INFORMATION

ZONING CLASSIFICATION(S):
(OS) OFFICE SERVICES
(RM-2) RESIDENTIAL MIXED HOUSING

EXISTING SETBACKS (OS):
FRONT: 15'
INTERIOR SIDE: 20'
EXTERIOR SIDE: 15'
REAR: 20'

EXISTING SETBACKS (RM-2):
FRONT: 25'
INTERIOR SIDE: 10'
EXTERIOR SIDE: 15'
REAR: 30'

MAX. BUILDING HEIGHT (OS): 35'
MAX. BUILDING HEIGHT (RM-2): 40'

HCOD (URBAN TRANSITION) STANDARDS:
BUILDING SETBACK: 75' (STREET YARD)
PARKING AREA SETBACK: 50' (STREET YARD)

CAUTION

THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT DEPICTED ON THESE PLANS. THE LANDSCAPE ARCHITECT AND ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES WITHIN THE PROJECT LIMITS. ALL DAMAGE MADE TO THE EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY BY THE CONTRACTOR.

LEGEND

= OVERALL PROPETY BOUNDARY
= OUTPARCEL BOUNDARY
= EXISTING MINOR CONTOUR
= EXISTING MAJOR CONTOUR
= EXISTING SEWER LINE
= EXISTING RIGHT-OF-WAY
= PROPOSED OPEN SPACE
= PROPOSED USEABLE OPEN SPACE

PROPERTY INFORMATION

PROPERTY OWNER:
FRANCIS T MASER, TRUSTEE
PO BOX 1133
SOUTHERN PINES, NC 28388

APPLICANT:
1700, LLC
2601 SOUTH BAYSHORE DRIVE, 17TH FLOOR
MIAMI, FL 33133

TOTAL ACREAGE: 25.4 AC

TOTAL UNITS:
276 MULTI-FAMILY UNITS

TOTAL OPEN SPACE: ±10.5 AC (41.3%)
TOTAL USEABLE OPEN SPACE: ±2.55 AC (10%)

REQUIRED PARKING:
-MULTI-FAMILY
1 BEDROOM UNITS (110 UNITS)
-1 SPACE PER UNIT (+1 VISITOR SPACE / 5 UNITS) = 132 SPACES
2-3 BEDROOM UNITS (166 UNITS)
-2 SPACES PER UNIT (+1 VISITOR SPACE / 5 UNITS) = 365 SPACES
TOTAL PARKING REQUIRED = 497 SPACES

TOTAL PARKING PROVIDED = 554 SPACES

TOTAL IMPERVIOUS SURFACE: ±12.3 AC (48.4%)

PRELIMINARY PLANS - NOT RELEASED FOR CONSTRUCTION (FOR REVIEW ONLY)

KOONTZJONESDesign
LAND PLANNING | LANDSCAPE ARCHITECTURE
150 S PAGE STREET
SOUTHERN PINES, NC 28387
P: (910) 693-5555
W: www.koontzjonesdesign.com

REVISIONS:

PATRICK'S POINTE
SOUTHERN PINES, NORTH CAROLINA

SITE PLAN

DATE: 10-11-2021
DESIGNED BY: REK
DRAWN BY: PS
CHECKED BY: REK
Q.C. BY: REK
PROJECT #: 014362000

SHEET NUMBER#:
L-1.1

FIGURE 2.2

SITE PLAN

US 1 MULTIFAMILY
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

K:\RAL_TPTO_Traffic\014362000 US 1 Multifamily\T5 - Report-Submittals\Figures\US 1 Multifamily - TIA Figures.dwg

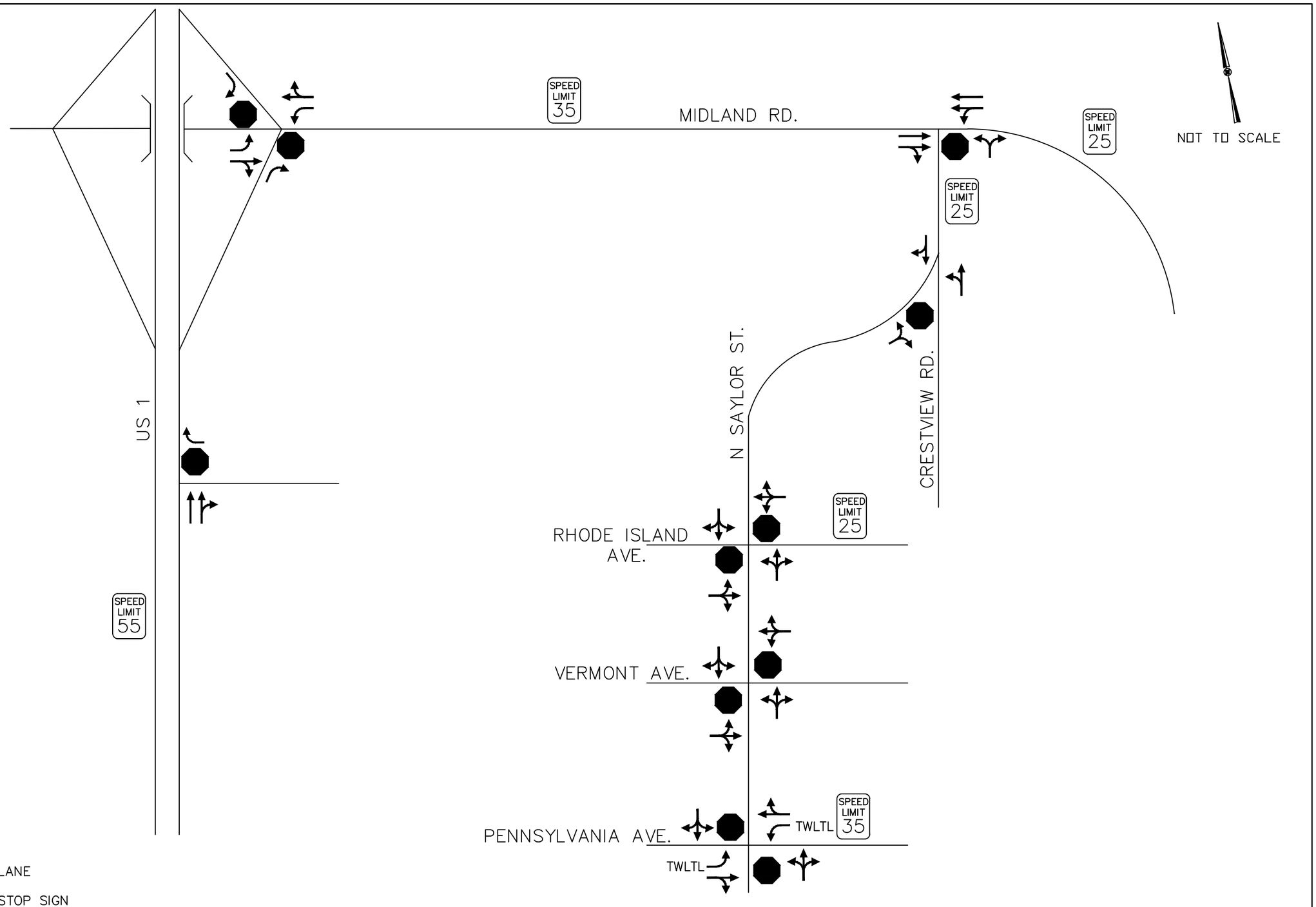


FIGURE 2.3

EXISTING ROADWAY LANEAGE

US 1 MULTIFAMILY
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

K: \RAL_TPTO_Traffic\014362000 US 1 Multifamily\T5 - Report-Submittals\Figures\US 1 Multifamily - TIA Figures.dwg

3.0 Traffic Generation

The traffic generation potential for the proposed US 1 Multifamily project was determined using the traffic generation data in *Trip Generation* (Institute of Transportation Engineers, 10th Edition, 2017) with the exception of the daily rate for the apartments for which a rate of 7.32 trips per unit was used per the Town's UDO. As currently envisioned, the site will include up to 276 apartment units and 7,500 square feet (SF) of general office space. The trip generation for the proposed development is shown on Table 3.1.

Table 3.1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily	AM Peak Hour		PM Peak Hour	
					In	Out	In	Out
221	Apartments	276	d.u.	2,020	24	69	71	46
710	General Office Building	7,500	s.f.	86	29	5	2	8
Total Net New External Trips				**2,106**	**53**	**74**	**73**	**54**

Table 3.1 shows that the project is anticipated to generate approximately 2,106 new daily trips, 127 new trips during the AM peak hour, and 127 new trips during the PM peak hour on a typical weekday. To present a conservative analysis, no internal capture was assumed between the residential and office land uses.

Detailed trip generation calculations are included in the Appendix of this report.

4.0 Site Traffic Distribution

The proposed generated trips for the development were assigned to the surrounding roadway network. The directional distribution and assignment for the development were based on a review of surrounding land uses and existing traffic patterns in the area.

- 30% to/from downtown Southern Pines
- 30% to/from Pinehurst along Midland Road and W Pennsylvania Avenue
- 30% to/from the south along US 1
- 10% to/from the north along US 1

The site traffic distribution and percent assignment are shown on **Figure 4.1**. The US 1 – Midland Road interchange site traffic distribution is shown in **Figure 4.2**.

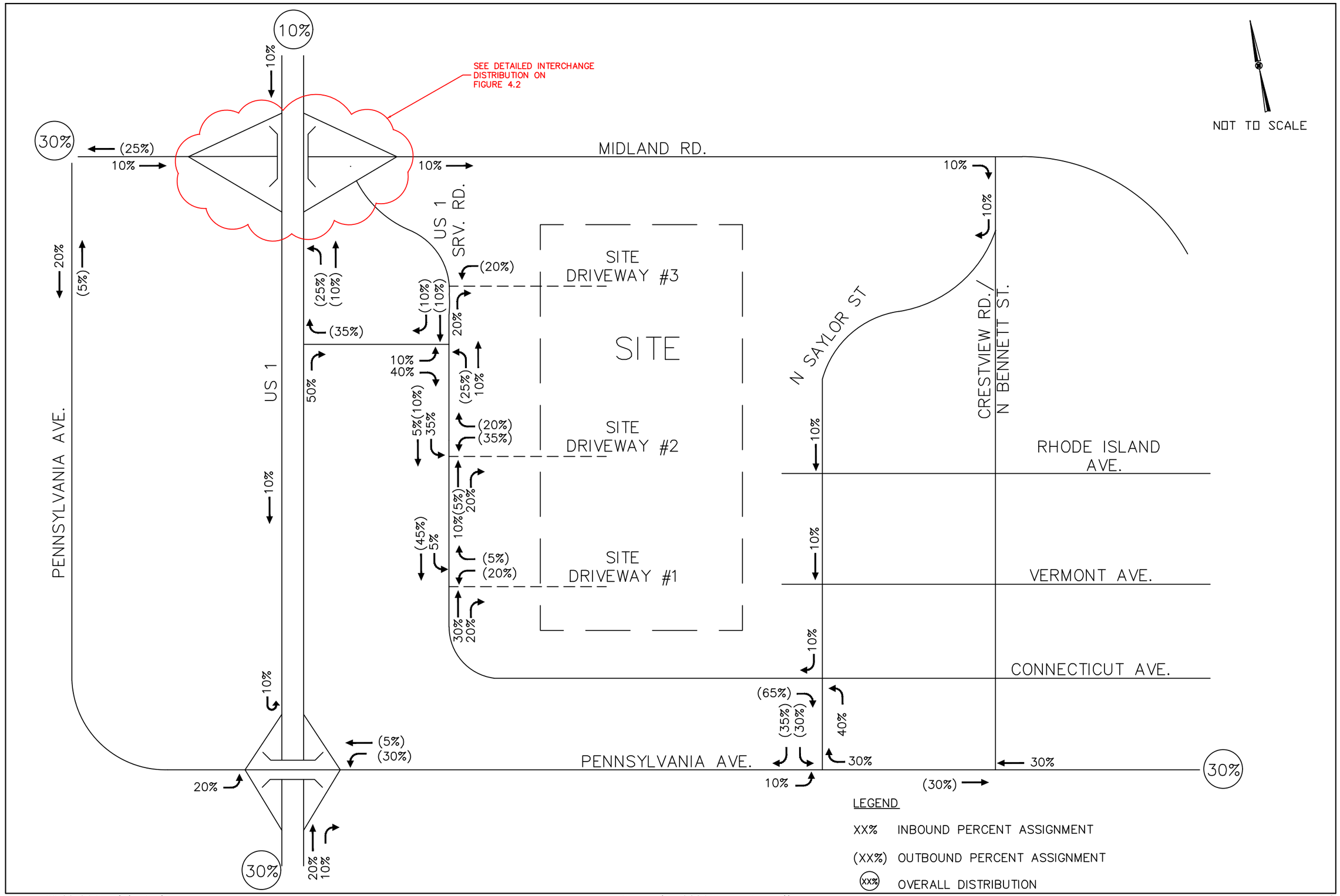


FIGURE 4.1

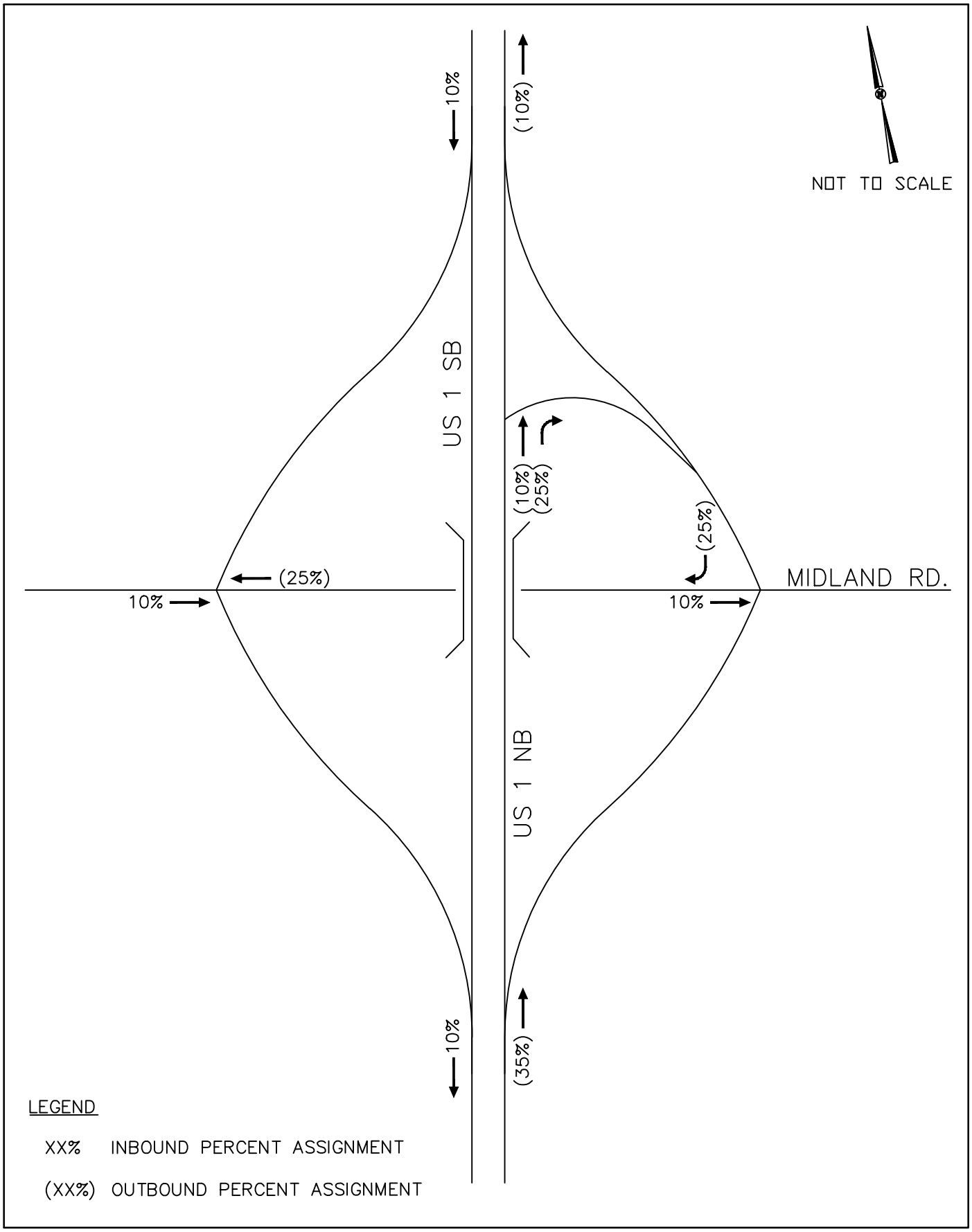
SITE TRAFFIC DISTRIBUTION AND PERCENT ASSIGNMENT

US 1 MULTIFAMILY
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

\\kimley-horn.com\SE_DUR\RAL_TPTO_Traffic\014362000 US 1 Multifamily\T5 - Report-Submittals\Figures\US 1 Multifamily - TIA Figures.dwg



Kimley»Horn	US 1 MULTIFAMILY SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	SITE TRAFFIC DISTRIBUTION – US 1 AT MIDLAND ROAD INTERCHANGE	FIGURE 4.2

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

5.0 Projected Traffic Volumes

5.1 Existing Traffic

Weekday AM (7:00 – 9:00 AM) and PM (4:00 – 6:00 PM) peak hour turning movement counts were collected at the following intersections:

- Midland Road at US 1 Northbound Ramps — September 8, 2021
- Midland Road at Crestview Road — September 8, 2021
- N Saylor Street at Crestview Road — September 8, 2021
- N Saylor Street at W Rhode Island Avenue — September 8, 2021
- N Saylor Street at W Vermont Avenue — September 8, 2021
- N Saylor Street at W Pennsylvania Avenue — September 8, 2021
- US 1 NE Service Road at US 1 NE Service Road Access — September 8, 2021

Moore County schools were in session when the counts were collected, therefore no adjustment was deemed necessary in the AM or PM peak hours.

Existing AM and PM peak hour traffic volumes, including volume adjustments, are shown on **Figures 5.1** and **5.2**, respectively, and the traffic count data are included in the Appendix.

5.2 Background Traffic Growth

Background traffic growth is the increase in traffic due to non-specific growth throughout the area. Based on a review of historic growth rates in the area, a 1.5% annual growth rate was applied to existing volumes up to the study year 2031. Background growth calculations are detailed on intersection spreadsheets included in the Appendix of this report.

5.3 Background Traffic

Background traffic volumes, consisting of existing traffic, background traffic growth, and approved development traffic, are shown on **Figures 5.1** and **5.2** for the AM and PM peak hours, respectively.

5.4 Site Traffic

The projected site traffic for development was generated and assigned to the adjacent roadway network according to the distribution discussed previously in *Section 4.0*. The AM and PM peak hour site traffic volumes are shown on **Figures 5.3** and **5.4**, respectively.

5.5 Build-Out Traffic

To obtain the projected (2031) build-out traffic volumes, the projected site traffic was added to the projected (2031) background traffic. **Figures 5.3** and **5.4** show the projected (2031) AM and PM peak hour build-out traffic volumes, respectively. Traffic volume calculations are detailed in intersection spreadsheets in the Appendix of this report.

FIGURE 5.1

EXISTING AND PROJECTED (2031) BACKGROUND AM PEAK HOUR TRAFFIC VOLUMES

US 1 MULTIFAMILY
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

K:\RAL_TPTO_Traffic\014362000 US 1 Multifamily\T5 - Report-Submittals\Figures\US 1 Multifamily - TIA Figures.dwg

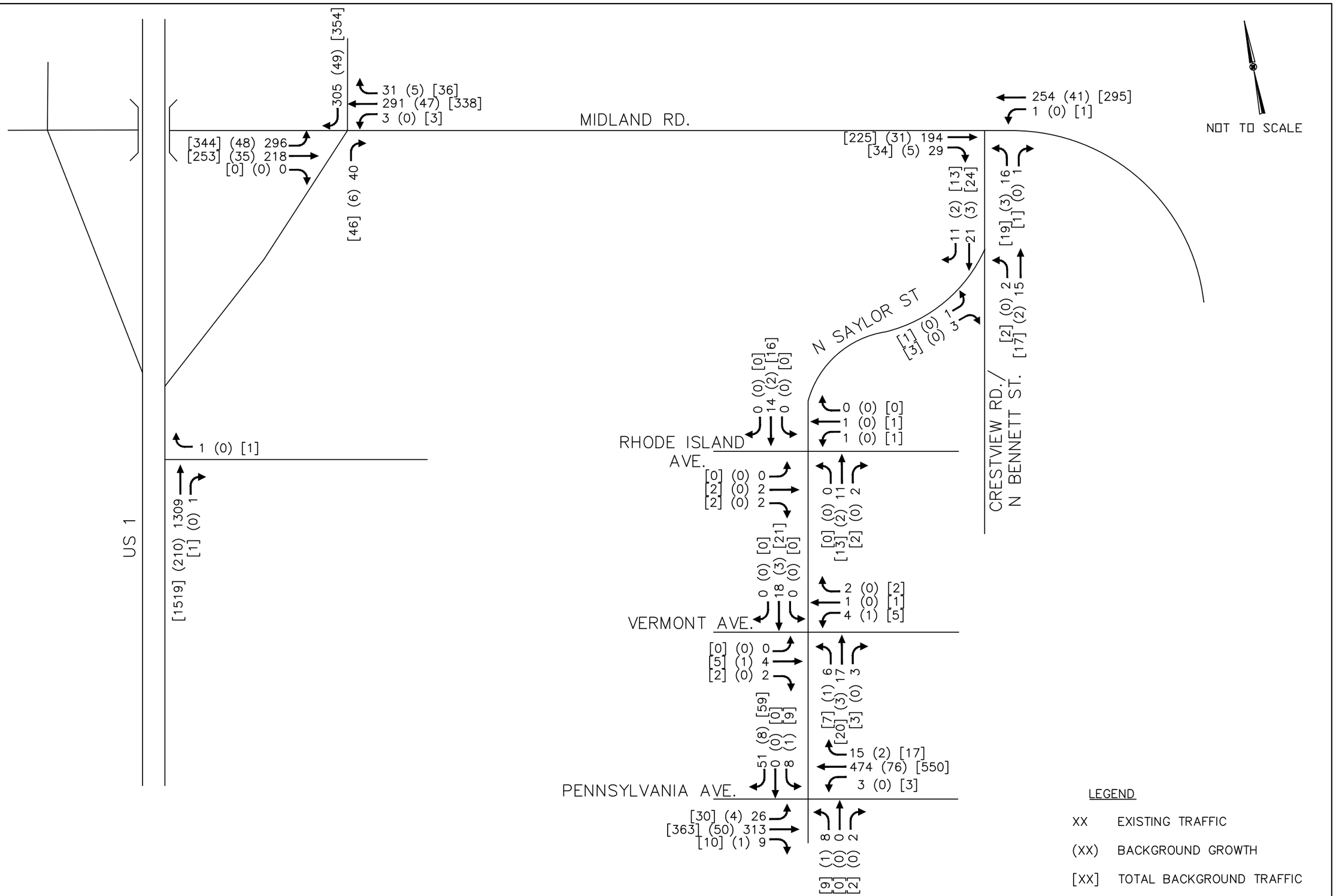


FIGURE 5.2

EXISTING AND PROJECTED (2031) BACKGROUND PM PEAK HOUR TRAFFIC VOLUMES

US 1 MULTIFAMILY
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

K:\RAL_TPTO_Traffic\014362000 US 1 Multifamily\T5 - Report-Submittals\Figures\US 1 Multifamily - TIA Figures.dwg

FIGURE 5.3

PROJECTED (2031) BUILD-OUT
AM PEAK HOUR TRAFFIC VOLUMES

US 1 MULTIFAMILY
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

\\kimley-horn.com\SE_DUR\RAL_TPTO_Traffic\014362000 US 1 Multifamily\T5 - Report-Submittals\Figures\US 1 Multifamily - TIA Figures.dwg

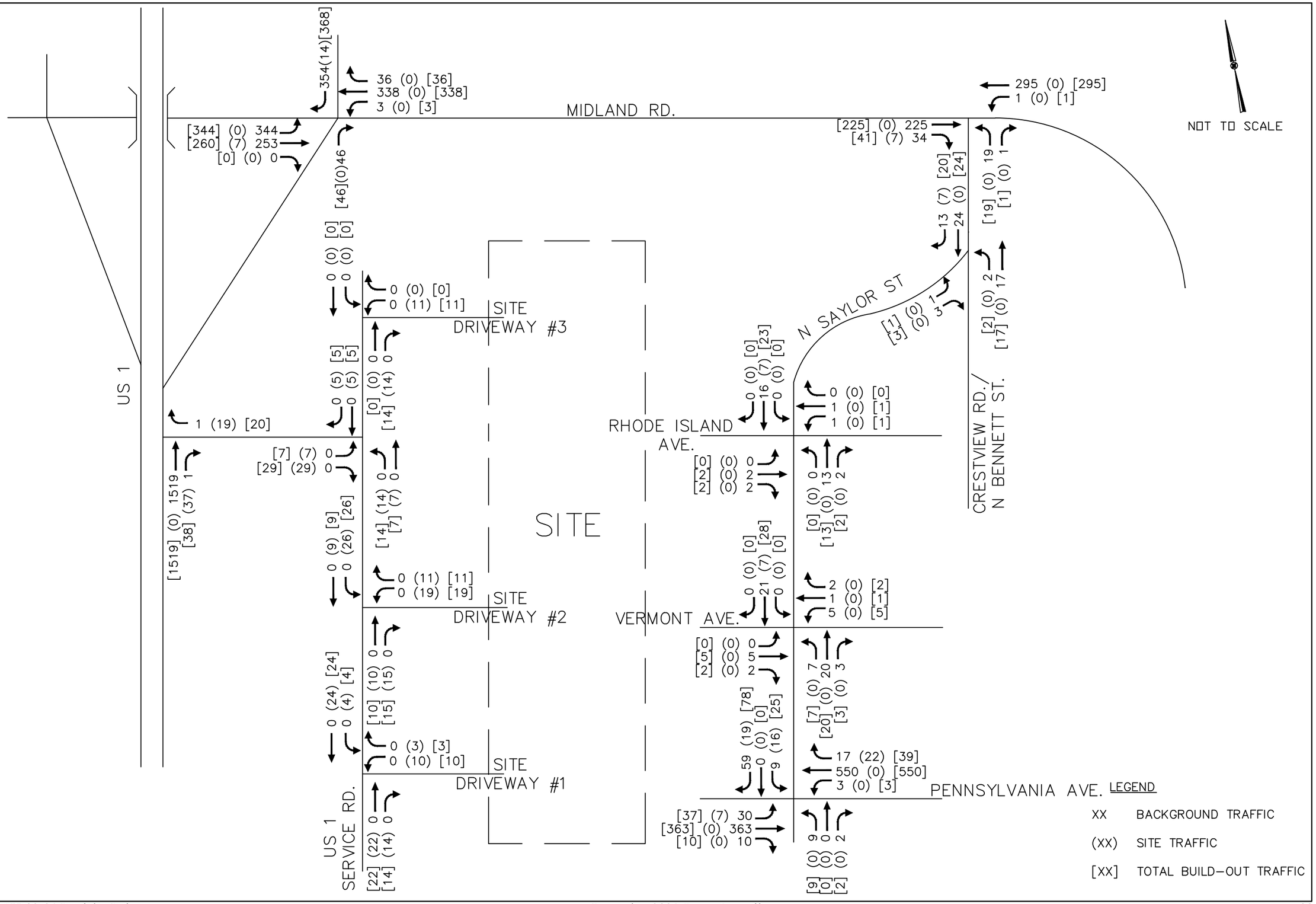


FIGURE 5.4

PROJECTED (2031) BUILD-OUT
PM PEAK HOUR TRAFFIC VOLUMES

US 1 MULTIFAMILY
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

\\kimley-horn.com\SE_DUR\RAL_TPTO_Traffic\014362000 US 1 Multifamily\T5 - Report-Submittals\Figures\US 1 Multifamily - TIA Figures.dwg

6.0 Capacity Analysis

Capacity analyses (see Appendix) were performed for the AM and PM peak hours for the existing traffic condition and the projected (2024) background and build-out traffic conditions using Synchro/SimTraffic Version 10 software to determine the operating characteristics of the adjacent road network and the impacts of the proposed project. The NCDOT Congestion Management Group uses and reports Synchro Level-of-Service output for the analysis of intersection operating conditions. All capacity analyses are included in the Appendix and are briefly summarized in the following sub-sections.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a set time duration. Capacity is combined with level-of-service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The *Highway Capacity Manual (HCM)* defines six levels-of-service, LOS A through LOS F, with A representing the shortest average delays and F representing the longest average delays. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection operation.

For unsignalized intersections, only the movements that must yield right-of-way experience control delay. Therefore, LOS criteria for the overall intersection is not reported by Synchro Version 10 or computable using methodology published in the *Highway Capacity Manual.* It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. Table 6.0 lists the LOS control delay thresholds published in the *Highway Capacity Manual* for signalized and unsignalized intersections.

Table 6.0
Level-of-Service Control Delay Thresholds

Level-of-Service	Signalized Intersections – Control Delay Per Vehicle [sec/veh]	Unsignalized Intersections – Average Control Delay [sec/veh] & Qualitative Operational Description	
A	≤ 10	≤ 10	Short Delays
B	> 10 – 20	> 10 – 15	
C	> 20 – 35	> 15 – 25	
D	> 35 – 55	> 25 – 35	Moderate Delays
E	> 55 – 80	> 35 – 50	
F	> 80	> 50	Long Delays

Existing peak hour factors (PHF) were used for existing intersections, while a PHF of 0.90 was used for new intersections.

6.1 Midland Road at US 1 Northbound Ramps

Analyses indicate that this unsignalized intersection currently operates with short delays on the minor street approaches (US 1 Northbound Ramps) in both peak hours on both the northbound and southbound sides of the intersection. The minor street approaches are expected to continue to operate with short delays in the 2031 background and build-out condition in both peak hours with only minor increases in delay due to site traffic. No queuing issues are expected at this intersection. Therefore, no roadway improvements are recommended to accommodate site traffic at this intersection.

Table 6.1 summarizes the operation of the intersection of Midland Road at US 1 Northbound Ramps for the existing (2021) traffic condition and the projected (2031) background and build-out traffic conditions.

Table 6.1
Level-of-Service
Midland Road at US 1 Northbound Ramps (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	EB – B (10.4) WB – C (15.3)	EB – A (9.8) WB – C (14.5)
Background (2031) Traffic	EB – B (10.9) WB – C (19.6)	EB – B (10.1) WB – C (17.8)
Build-out (2031) Traffic	EB – B (11.0) WB – C (21.0)	EB – B (10.1) WB – C (18.4)

6.2 Midland Road at Crestview Road

Analyses indicate that this unsignalized intersection currently operates with short delays on the minor street approach (Crestview Road) in both peak hours. The minor street approach is expected to continue operating with short delays in the 2031 background and build-out conditions in both peak hours. No queuing issues are expected at this intersection. Therefore, no roadway improvements are recommended to accommodate site traffic at this intersection.

Table 6.2 summarizes the operation of the intersection of Midland Road at Crestview Road for the existing (2021) traffic condition and the projected (2031) background and build-out traffic conditions.

Table 6.2
Level-of-Service
Midland Road at Crestview Road (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	EB – B (11.7) NBL – A (7.9)	EB – B (11.1) NBL – A (7.8)
Background (2031) Traffic	EB – B (12.5) NBL – A (8.1)	EB – B (11.8) NBL – A (7.9)
Build-out (2031) Traffic	EB – B (12.5) NBL – A (8.1)	EB – B (11.9) NBL – A (7.9)

6.3 N Saylor Street at Crestview Road

Analyses indicate that this unsignalized intersection currently operates with short delays on the minor street approaches (Crestview Road) in both peak hours. The minor street approaches are expected to continue operating with short delays in the 2031 background and build-out conditions in both peak hours. No queuing issues are expected at this intersection. Therefore, no roadway improvements are recommended to accommodate site traffic at this intersection.

Table 6.3 summarizes the operation of the intersection of N Saylor Street at Crestview Road for the existing (2021) traffic condition and the projected (2031) background and build-out traffic conditions.

Table 6.3
Level-of-Service
N Saylor Street at Crestview Road (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	NB – A (8.8) WBL – A (7.3)	NB – A (8.7) WBL – A (7.3)
Background (2031) Traffic	NB – A (8.9) WBL – A (7.3)	NB – A (8.7) WBL – A (7.4)
Build-out (2031) Traffic	NB – A (8.9) WBL – A (7.3)	NB – A (8.8) WBL – A (7.4)

6.4 N Saylor Street at W Rhode Island Avenue

Analyses indicate that this unsignalized intersection currently operates with short delays on the minor street approaches (W Rhode Island Avenue) in both peak hours. The minor street approaches are expected to continue operating with short delays in the 2031 background and build-out conditions in both peak hours. No queuing issues are expected at this intersection. Therefore, no roadway improvements are recommended to accommodate site traffic at this intersection.

Table 6.4 summarizes the operation of the intersection of N Saylor Street at W Rhode Island Avenue for the existing (2021) traffic condition and the projected (2031) background and build-out traffic conditions.

Table 6.4
Level-of-Service
N Saylor Street at W Rhode Island Avenue (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	EB – A (9.0) WB – A (9.5) NBL – A (7.4) SBL – A (7.3)	EB – A (8.9) WB – A (8.9) NBL – A (7.3) SBL – A (7.3)
Background (2031) Traffic	EB – A (9.0) WB – A (9.5) NBL – A (7.4) SBL – A (7.3)	EB – A (8.9) WB – A (8.9) NBL – A (7.3) SBL – A (7.3)
Build-out (2031) Traffic	EB – A (9.1) WB – A (9.6) NBL – A (7.4) SBL – A (7.3)	EB – A (9.0) WB – A (9.0) NBL – A (7.3) SBL – A (7.3)

6.5 N Saylor Street at W Vermont Avenue

Analyses indicate that this unsignalized intersection currently operates with short delays on the minor street approaches (W Vermont Avenue) in both peak hours. The minor street approaches are expected to continue operating with short delays in the 2031 background and build-out conditions in both peak hours. No queuing issues are expected at this intersection. Therefore, no roadway improvements are recommended to accommodate site traffic at this intersection.

Table 6.5 summarizes the operation of the intersection of N Saylor Street at W Vermont Avenue for the existing (2021) traffic condition and the projected (2031) background and build-out traffic conditions.

Table 6.5
Level-of-Service
N Saylor Street at W Vermont Avenue (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	EB – A (9.1) WB – A (9.6) NBL – A (7.3) SBL – A (7.3)	EB – A (9.0) WB – A (9.0) NBL – A (7.3) SBL – A (7.3)
Background (2031) Traffic	EB – A (9.2) WB – A (9.7) NBL – A (7.4) SBL – A (7.3)	EB – A (9.1) WB – A (9.1) NBL – A (7.3) SBL – A (7.3)
Build-out (2031) Traffic	EB – A (9.2) WB – A (9.7) NBL – A (7.4) SBL – A (7.3)	EB – A (9.2) WB – A (9.1) NBL – A (7.3) SBL – A (7.3)

6.6 N Saylor Street at Pennsylvania Avenue

Analyses indicate that this unsignalized intersection currently operates with short delays on the minor street approaches (N Saylor Street) in both peak hours. The minor street approaches are expected to continue operating with short delays in the 2031 background and build-out conditions in both peak hours. No queuing issues are expected at this intersection. Therefore, no roadway improvements are recommended to accommodate site traffic at this intersection.

Table 6.6 summarizes the operation of the intersection of N Saylor Street at Pennsylvania Avenue for the existing (2021) traffic condition and the projected (2031) background and build-out traffic conditions.

Table 6.6
Level-of-Service
N Saylor Street at Pennsylvania Avenue (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	NB – C (17.6) SB – B (12.4) EBL – A (8.0) WBL – A (8.3)	NB – C (19.7) SB – B (14.7) EBL – A (8.6) WBL – A (8.0)
Background (2031) Traffic	NB – C (21.0) SB – B (13.4) EBL – A (8.2) WBL – A (8.5)	NB – C (24.8) SB – C (17.0) EBL – A (8.9) WBL – A (8.1)
Build-out (2031) Traffic	NB – C (22.6) SB – C (17.6) EBL – A (8.2) WBL – A (8.5)	NB – D (26.9) SB – C (22.0) EBL – A (9.0) WBL – A (8.1)

6.7 US 1 Northbound at US 1 NE Service Road Access

Analyses indicate that this unsignalized intersection currently operates with short delays on the minor street approach (US 1 NE Service Road Access) in both peak hours. The minor street approach is expected to continue operating with short delays in the 2031 background condition in both peak hours.

The following improvement is recommended at this intersection to accommodate projected site traffic:

- Construct an exclusive right-turn lane on US 1 Northbound with 50 feet of storage and appropriate tapers

With this improvement in place, the intersection is expected to continue to operate with short delays in both peak hours in the projected (2031) build-out condition.

Table 6.7 summarizes the operation of the intersection of US 1 Northbound at US 1 NE Service Road Access for the existing (2021) traffic condition and the projected (2031) background and build-out traffic conditions.

Table 6.7
Level-of-Service
US 1 Northbound at US 1 NE Service Road Access (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	WB – B (12.4)	WB – C (15.3)
Background (2031) Traffic	WB – B (13.4)	WB – C (17.3)
Build-out (2031) Traffic	WB – B (14.0)	WB – C (18.1)

6.8 US 1 NE Service Road at Site Driveway #1

The US 1 Multifamily project proposes to construct a full movement site driveway with one ingress lane and one egress lane on the US 1 NE Service Road approximately 1,000 feet south of US 1 NE Service Road Access. To accommodate site traffic at this intersection, the following roadway improvements are recommended:

- Pave and stripe the northbound approach of the US 1 NE Service Road as a shared through/right-turn lane
- Pave and stripe the southbound approach of the US 1 NE Service Road as a shared through/left-turn lane

With these improvements in place, the intersection is expected to operate with short delays in both peak hours in the projected (2031) build-out condition.

Table 6.8 summarizes the operation of the intersection of US 1 NE Service Road at Proposed Site Driveway #1 for the projected (2031) build-out traffic condition.

Table 6.8
Level-of-Service
US 1 NE Service Road at Proposed Site Driveway #1 (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-out (2031) Traffic	WB – A (8.9) SBL – A (7.3)	WB – A (8.8) SBL – A (7.3)

6.9 US 1 NE Service Road at Site Driveway #2

The US 1 Multifamily project proposes to construct a full movement site driveway with one ingress lane and one egress lane on the US 1 NE Service Road approximately 200 feet south of US 1 NE Service Road Access. To accommodate site traffic at this intersection, the following roadway improvements are recommended:

- Pave and stripe the northbound approach of the US 1 NE Service Road as a shared through/right-turn lane
- Pave and stripe the southbound approach of the US 1 NE Service Road as a shared through/left-turn lane

With these improvements in place, the intersection is expected to operate with short delays in both peak hours in the projected (2031) build-out condition.

Table 6.9 summarizes the operation of the intersection of US 1 NE Service Road at Site Driveway #2 for the projected (2031) build-out traffic condition.

Table 6.9
Level-of-Service
US 1 NE Service Road at Site Driveway #2 (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-out (2031) Traffic	WB – A (8.9) SBL – A (7.3)	WB – A (8.9) SBL – A (7.3)

6.10 US 1 NE Service Road at US 1 NE Service Road Access

The US 1 Multifamily project proposes to construct a full movement site driveway with one ingress lane and one egress lane tied into the US 1 NE Service Road approximately 200 feet north of Proposed Site Driveway #2. To accommodate site traffic at this intersection, the following roadway improvements are recommended:

- Operate the eastbound approach (US 1 NE Service Road Access) as a free-flow movement with stop-control on the northbound and southbound approaches

With these improvements in place, the intersection is expected to operate with short delays in both peak hours in the projected (2031) build-out condition.

Table 6.10 summarizes the operation of the intersection of US 1 NE Service Road at US 1 NE Service Road Access for the projected (2031) build-out traffic condition.

Table 6.10
Level-of-Service*
US 1 NE Service Road at US 1 NE Service Road Access (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-out (2031) Traffic	NB – A (4.0) SB - A (3.8)	NB – A (4.0) SB - A (2.9)

*SimTraffic results were reported at this intersection as Synchro does not report delays for the proposed control condition

6.11 US 1 NE Service Road at Site Driveway #3

The US 1 Multifamily project proposes to construct a full movement site driveway with one ingress lane and one egress lane tied into US 1 NE Service Road approximately 450 feet north of US 1 NE Service Road Access. To accommodate site traffic at this intersection, the following roadway improvements are recommended:

- Pave and stripe the northbound approach of the US 1 NE Service Road as a shared through/right-turn lane
- Pave and stripe the southbound approach of the US 1 NE Service Road as a shared through/left-turn lane

With these improvements in place, the intersection is expected to operate with short delays in both peak hours in the projected (2031) build-out condition.

Table 6.11 summarizes the operation of the intersection of US 1 NE Service Road at Proposed Site Driveway #3 for the projected (2031) build-out traffic condition.

Table 6.11
Level-of-Service
US 1 NE Service Road at Site Driveway #3 (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-out (2031) Traffic	WB – A (8.6) SBL – A (7.3)	WB – A (8.6) SBL – A (7.3)

7.0 Recommendations

The following improvements are recommended to be performed as part of the proposed US 1 Multifamily development:

US 1 at US 1 NE Service Road Access:

- Construct an exclusive right-turn lane on northbound US 1 with 50 feet of storage and appropriate tapers

US 1 NE Service Road at Site Driveway #1:

- Stripe the northbound approach of the US 1 NE Service Road as a shared through/right-turn lane
- Stripe the southbound approach of the US 1 NE Service Road as a shared through/left-turn lane

US 1 NE Service Road at Site Driveway #2:

- Stripe the northbound approach of the US 1 NE Service Road as a shared through/right-turn lane
- Stripe the southbound approach of the US 1 NE Service Road as a shared through/left-turn lane

US 1 NE Service Road at US 1 NE Service Road Access

- Operate the eastbound approach (US 1 NE Service Road Access) as a free-flow movement with stop-control on the northbound and southbound approaches

US 1 NE Service Road at Site Driveway #3:

- Stripe the northbound approach of the US 1 NE Service Road as a shared through/right-turn lane
- Stripe the southbound approach of the US 1 NE Service Road as a shared through/left-turn lane

With the recommended improvements in place, analysis indicates that all study intersections are expected to operate at acceptable levels of service with no queuing issues at project build-out.

Figure 7.1 shows the recommended roadway laneage.

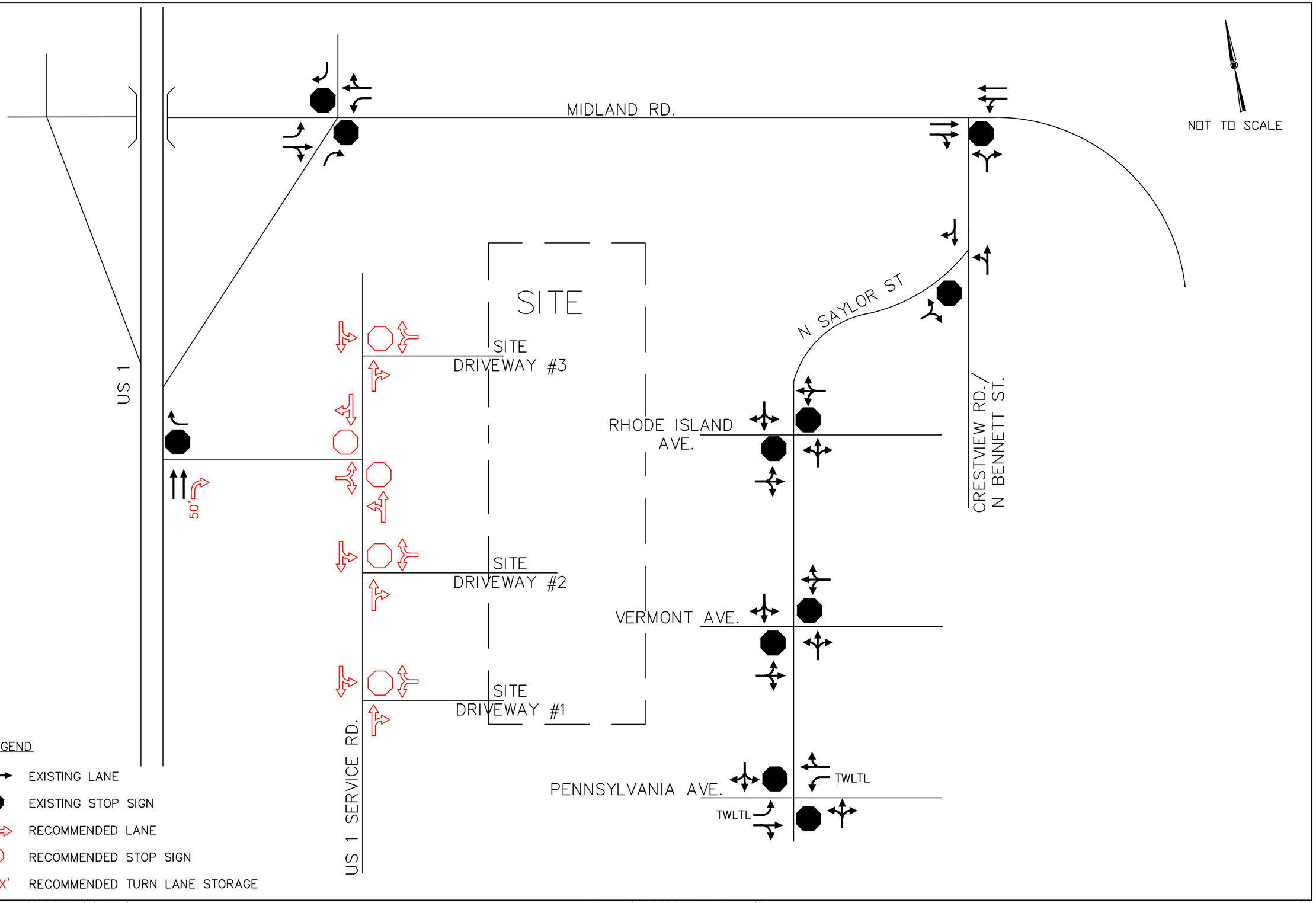


FIGURE 7.1

RECOMMENDED ROADWAY LANEAGE

US 1 MULTIFAMILY
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

\\kimley-horn.com\SE_DUR\RAL_TPTO_Traffic\014362000 US 1 Multifamily\T5 - Report-Submittals\Figures\US 1 Multifamily - TIA Figures.dwg

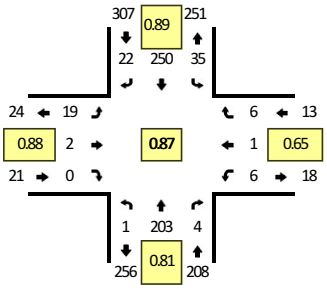
Appendix

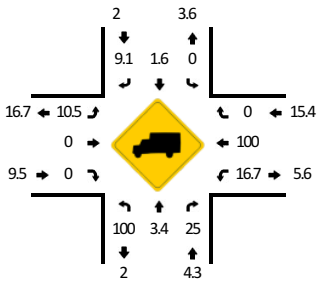
Appendix A:
Traffic Count Data

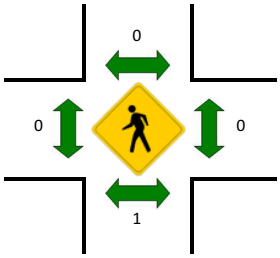
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

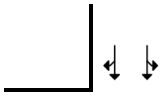
LOCATION: Midland Rd -- Crestview Rd | **QC JOB #:** 15560201
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

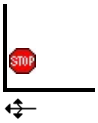
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

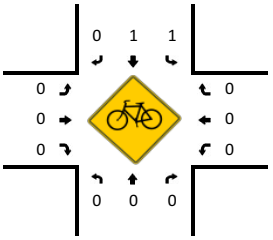


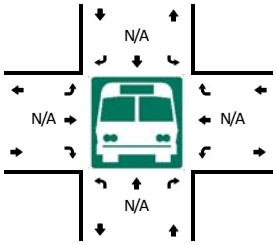


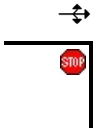


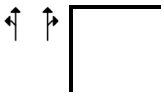


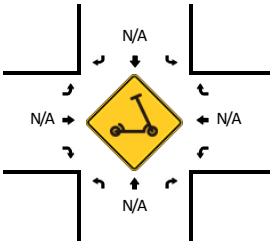












15-Min Count Period Beginning At	Midland Rd (Northbound)				Midland Rd (Southbound)				Crestview Rd (Eastbound)				Crestview Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	36	0	0	1	50	1	1	4	0	1	0	0	0	0	0	94	
7:15 AM	0	44	0	0	1	50	4	5	6	0	0	0	0	0	0	0	110	
7:30 AM	0	64	0	0	1	60	6	5	6	0	0	0	0	0	1	0	143	
7:45 AM	0	62	0	0	5	73	4	4	4	1	0	0	3	1	1	0	158	505
8:00 AM	0	32	2	0	2	53	5	5	4	0	0	0	2	0	3	0	108	519
8:15 AM	1	45	2	0	4	64	7	9	5	1	0	0	1	0	1	0	140	549
8:30 AM	0	36	0	0	4	46	3	3	2	1	0	0	0	0	3	0	98	504
8:45 AM	0	37	0	0	2	69	8	13	4	1	0	0	0	0	1	0	135	481

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	248	0	0	20	292	16	16	16	4	0	0	12	4	4	0	632
Heavy Trucks	0	4	0		0	0	0		0	0	0		0	4	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

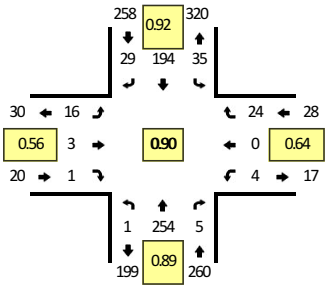
Comments:

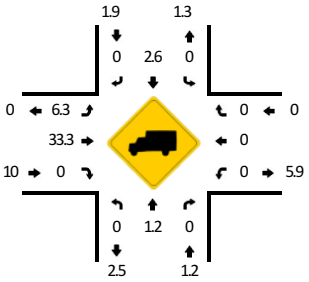
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

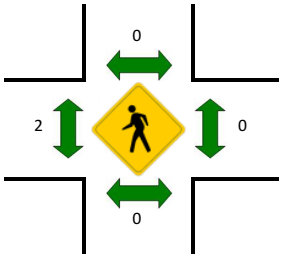
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

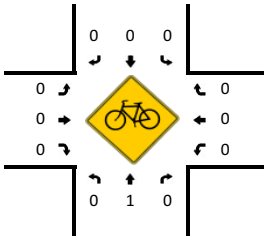
LOCATION: Midland Rd -- Crestview Rd | **QC JOB #:** 15560202
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

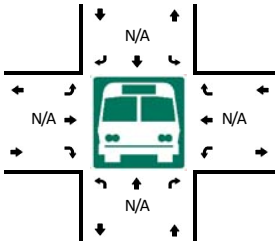
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

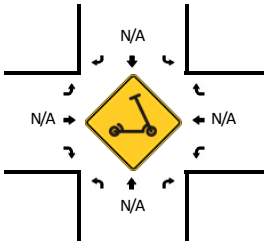












15-Min Count Period Beginning At	Midland Rd (Northbound)				Midland Rd (Southbound)				Crestview Rd (Eastbound)				Crestview Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	56	1	0	3	47	10	4	1	0	0	0	0	0	4	0	126	
4:15 PM	0	58	1	0	3	53	9	8	5	0	0	0	1	0	5	0	143	
4:30 PM	0	67	3	0	1	48	7	14	7	1	1	0	0	0	0	0	149	
4:45 PM	0	51	2	0	2	44	6	3	3	1	0	0	2	0	8	0	122	540
5:00 PM	1	63	0	0	4	54	6	3	0	0	0	0	0	0	7	0	138	552
5:15 PM	0	73	0	0	2	48	10	6	6	1	0	0	2	0	9	0	157	566
5:30 PM	0	64	0	0	2	34	7	4	6	0	0	0	0	0	0	0	117	534
5:45 PM	0	48	0	0	1	34	11	5	5	0	0	0	0	0	2	0	106	518

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	292	0	0	8	192	40	24	24	4	0	0	8	0	36	0	628
Heavy Trucks	0	0	0		0	4	0		4	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

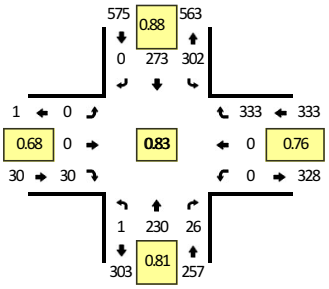
Comments:

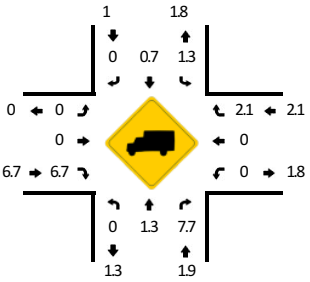
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

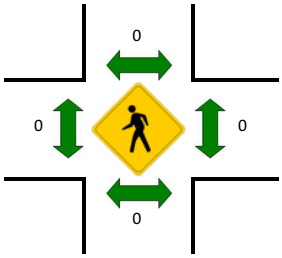
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

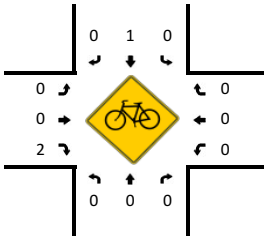
LOCATION: Midland Rd -- US 1 NB Ramps | **QC JOB #:** 15560203
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

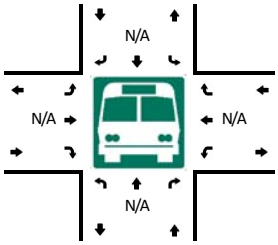
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

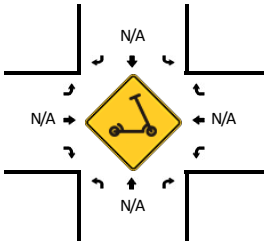












15-Min Count Period Beginning At	Midland Rd (Northbound)				Midland Rd (Southbound)				US 1 NB Ramps (Eastbound)				US 1 NB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	41	3	0	55	53	0	0	0	0	2	0	0	0	36	0	191	
7:15 AM	0	51	8	0	72	55	0	0	1	0	5	0	0	0	59	0	251	
7:30 AM	0	68	11	0	97	66	0	0	0	0	7	0	0	0	109	0	358	
7:45 AM	0	67	6	0	71	80	0	0	0	0	6	0	0	0	87	0	317	1117
8:00 AM	0	40	4	0	63	56	0	0	0	0	6	0	0	0	63	0	232	1158
8:15 AM	1	55	5	0	71	71	0	0	0	0	11	0	0	0	74	0	288	1195
8:30 AM	0	40	2	0	51	46	0	0	0	0	11	0	0	0	74	0	224	1061
8:45 AM	1	51	4	0	46	74	0	0	0	0	12	0	0	0	70	0	258	1002

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	272	44	0	388	264	0	0	0	0	28	0	0	0	436	0	1432
Heavy Trucks	0	4	0		0	4	0		0	0	4		0	0	4		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	4	0		0	0	8		0	0	0		12
Scooters																	

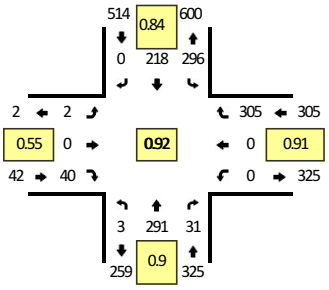
Comments:

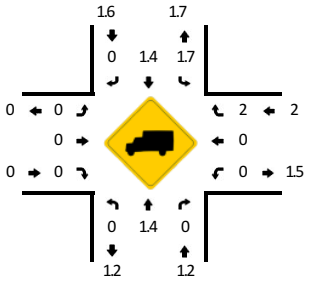
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

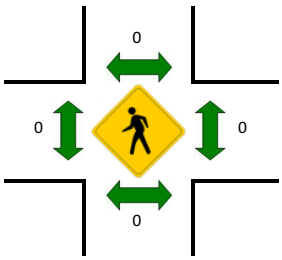
LOCATION: Midland Rd -- US 1 NB Ramps | **QC JOB #:** 15560204
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

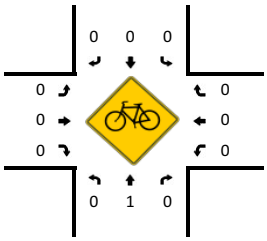
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

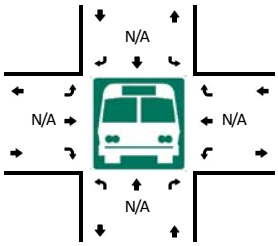


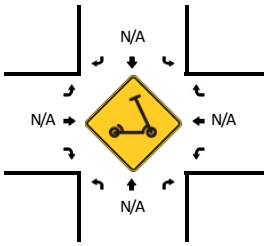


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Midland Rd (Northbound)				Midland Rd (Southbound)				US 1 NB Ramps (Eastbound)				US 1 NB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	63	5	0	70	55	0	0	0	0	11	0	0	0	76	0	280	
4:15 PM	1	67	7	0	83	63	0	0	0	0	13	0	0	0	62	1	297	
4:30 PM	1	75	11	1	75	56	0	1	0	0	10	0	0	0	72	0	302	
4:45 PM	0	61	7	0	56	50	0	0	0	0	5	0	0	0	84	0	263	1142
5:00 PM	0	73	6	0	69	54	0	0	2	0	17	0	0	0	76	0	297	1159
5:15 PM	1	82	7	0	94	58	0	1	0	0	8	0	0	0	73	0	324	1186
5:30 PM	0	68	10	0	61	36	0	0	0	0	14	0	0	0	72	0	261	1145
5:45 PM	0	57	3	0	42	41	0	0	0	0	15	0	0	0	60	0	218	1100

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	328	28	0	376	232	0	4	0	0	32	0	0	0	292	0	1296
Heavy Trucks	0	4	0		0	4	0		0	0	0		0	0	4		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

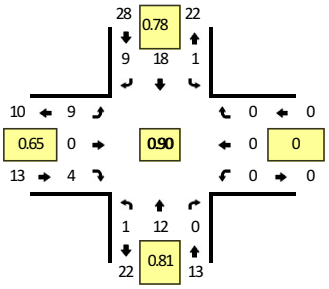
Comments:

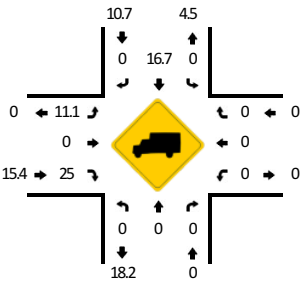
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

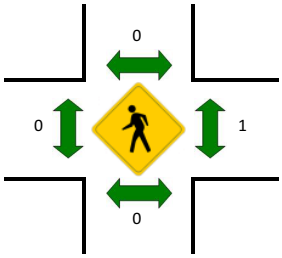
LOCATION: Crestview Rd -- Saylor St | **QC JOB #:** 15560205
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

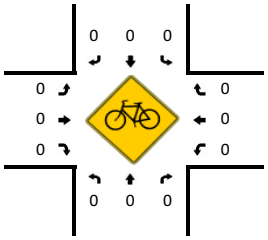
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

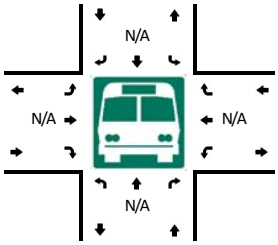


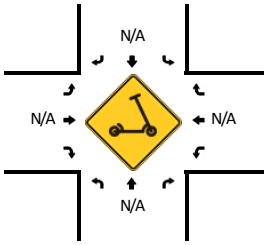


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Crestview Rd (Northbound)				Crestview Rd (Southbound)				Saylor St (Eastbound)				Saylor St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	0	0	0	3	0	0	3	0	0	0	0	0	0	0	7	
7:15 AM	0	3	0	0	0	2	2	0	2	0	0	0	0	0	0	0	9	
7:30 AM	1	3	0	0	0	2	3	1	2	0	0	0	0	0	0	0	12	
7:45 AM	0	2	0	0	0	4	2	0	3	0	1	0	0	0	0	0	12	40
8:00 AM	0	3	0	0	0	5	2	0	3	0	2	0	0	0	0	0	15	48
8:15 AM	0	4	0	0	0	7	2	0	1	0	1	0	0	0	0	0	15	54
8:30 AM	1	1	0	0	0	2	2	0	1	0	1	0	0	0	0	0	8	50
8:45 AM	0	1	0	0	0	5	2	0	3	0	0	0	0	0	0	0	11	49

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	12	0	0	0	20	8	0	12	0	8	0	0	0	0	0	60
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

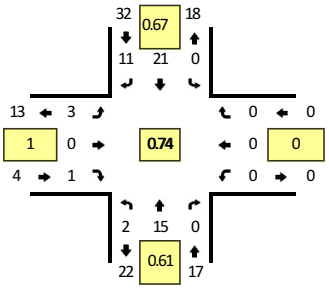
Comments:

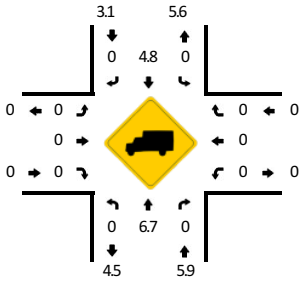
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

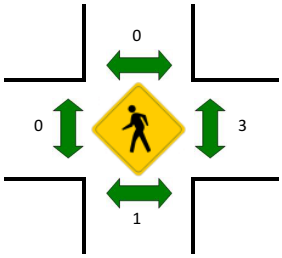
LOCATION: Crestview Rd -- Saylor St | **QC JOB #:** 15560206
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

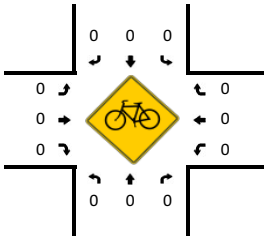
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:45 PM -- 6:00 PM

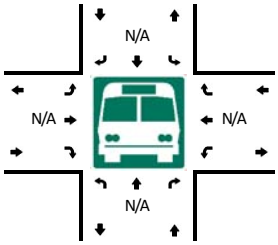


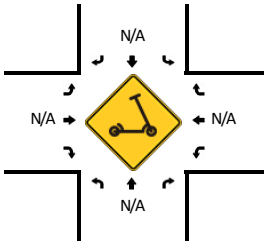


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Crestview Rd (Northbound)				Crestview Rd (Southbound)				Saylor St (Eastbound)				Saylor St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	5	2	0	1	0	1	0	0	0	0	0	9	
4:15 PM	0	5	0	0	0	6	4	0	1	0	0	0	0	0	0	0	16	
4:30 PM	0	4	0	0	0	2	3	0	2	0	0	0	0	0	0	0	11	
4:45 PM	0	4	0	1	0	4	2	0	0	0	1	0	0	0	0	0	12	48
5:00 PM	1	1	0	0	0	5	2	0	0	0	1	0	0	0	0	0	10	49
5:15 PM	1	6	0	0	0	6	3	0	1	0	0	0	0	0	0	0	17	50
5:30 PM	0	3	0	0	0	3	1	0	1	0	0	0	0	0	0	0	8	47
5:45 PM	0	5	0	0	0	7	5	0	1	0	0	0	0	0	0	0	18	53

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	20	0	0	0	28	20	0	4	0	0	0	0	0	0	0	72
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	0	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

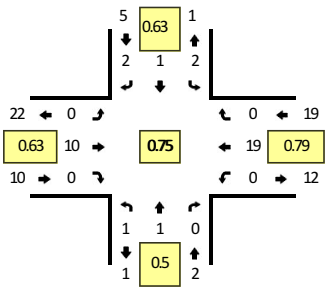
Comments:

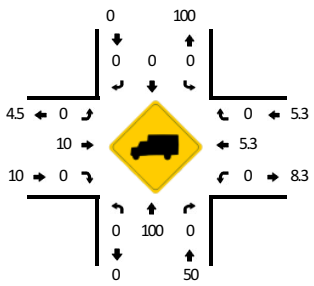
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

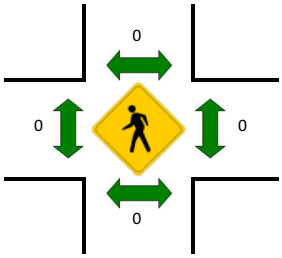
LOCATION: Rhode Island Ave -- Saylor St | **QC JOB #:** 15560207
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

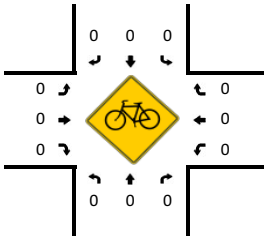
Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 8:30 AM -- 8:45 AM

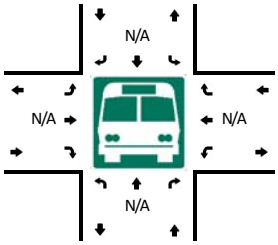


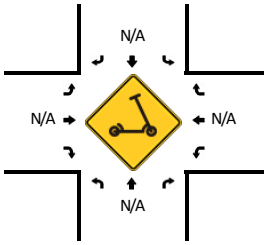


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Rhode Island Ave (Northbound)				Rhode Island Ave (Southbound)				Saylor St (Eastbound)				Saylor St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4	
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	5	0	0	7	
7:45 AM	0	0	0	0	2	0	0	0	0	2	0	0	0	6	0	0	10	25
8:00 AM	0	1	0	0	0	1	1	0	0	4	0	0	0	4	0	0	11	32
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	31
8:30 AM	1	0	0	0	0	0	1	0	0	4	0	0	0	6	0	0	12	36
8:45 AM	0	0	0	0	0	0	1	0	0	3	0	0	0	2	0	0	6	32

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	0	0	0	0	4	0	0	16	0	0	0	24	0	0	48
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

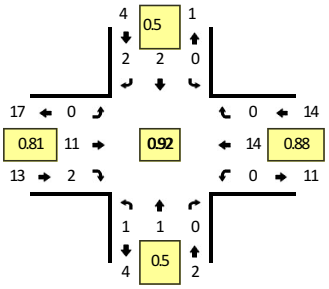
Comments:

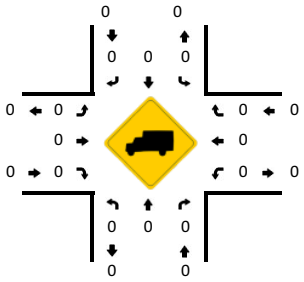
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

LOCATION: Rhode Island Ave -- Saylor St
CITY/STATE: Southern Pines, NC

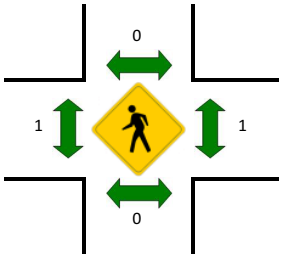
QC JOB #: 15560208
DATE: Wed, Sep 8 2021

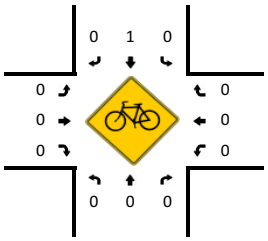
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

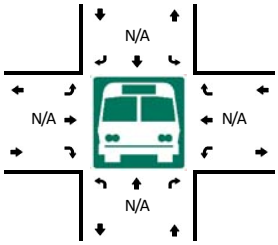


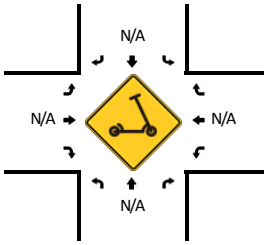


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Rhode Island Ave (Northbound)				Rhode Island Ave (Southbound)				Saylor St (Eastbound)				Saylor St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	4	0	0	6	
4:15 PM	2	0	0	0	1	0	0	0	1	3	0	0	0	3	0	0	10	
4:30 PM	0	0	1	0	0	0	0	0	0	2	0	0	0	3	0	0	6	
4:45 PM	1	0	0	0	0	1	0	0	0	3	0	0	0	4	0	0	9	31
5:00 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	4	0	0	7	32
5:15 PM	0	1	0	0	0	0	1	0	0	3	0	0	0	3	0	0	8	30
5:30 PM	0	0	0	0	0	1	1	0	0	3	1	0	0	3	0	0	9	33
5:45 PM	1	1	0	0	0	0	0	0	0	2	0	0	0	2	1	0	7	31

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	0	0	0	4	0	0	0	12	0	0	0	16	0	0	36
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	4	0		0	0	0		0	0	0		4
Scooters																	

Comments:

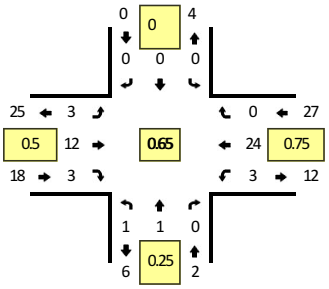
Report generated on 9/13/2021 11:56 AM

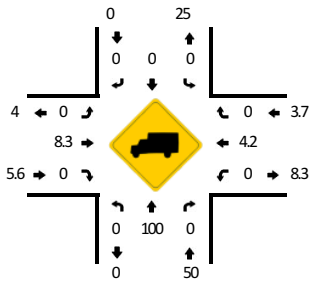
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

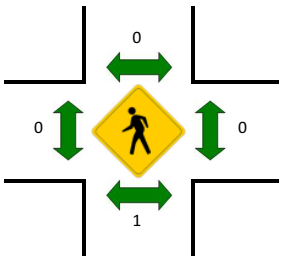
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

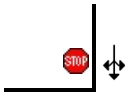
LOCATION: Vermont Ave -- Saylor St | **QC JOB #:** 15560209
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

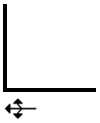
Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 8:30 AM -- 8:45 AM

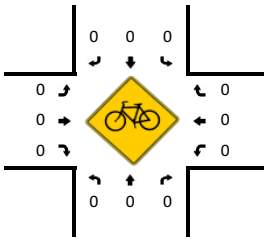


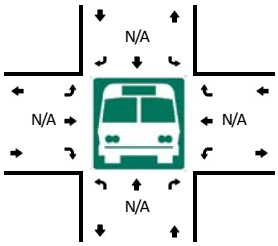


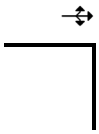


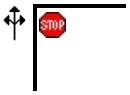


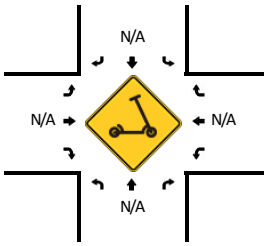












15-Min Count Period Beginning At	Vermont Ave (Northbound)				Vermont Ave (Southbound)				Saylor St (Eastbound)				Saylor St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	6	
7:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	4	
7:30 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	7	0	0	9	
7:45 AM	0	0	0	0	0	0	0	0	1	1	1	0	2	7	0	0	12	31
8:00 AM	0	0	0	0	0	0	0	0	0	3	0	0	1	4	0	0	8	33
8:15 AM	1	1	0	0	0	0	0	0	1	1	1	0	0	4	0	0	9	38
8:30 AM	0	0	0	0	0	0	0	0	1	7	1	0	0	9	0	0	18	47
8:45 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	6	41

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	4	28	4	0	0	36	0	0	72
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

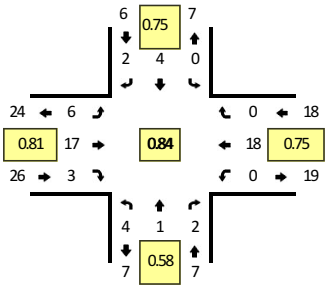
Comments:

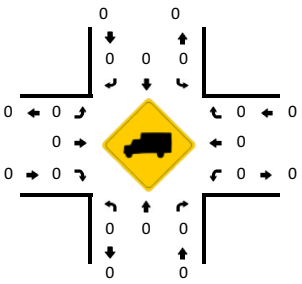
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

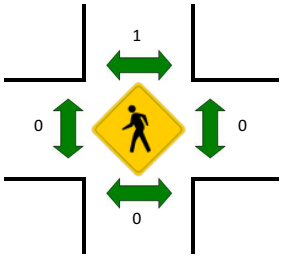
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

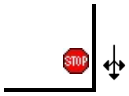
LOCATION: Vermont Ave -- Saylor St | **QC JOB #:** 15560210
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

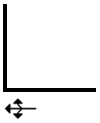
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

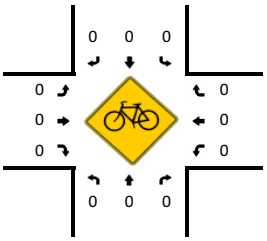


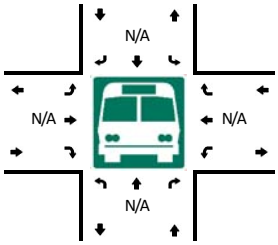


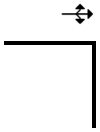


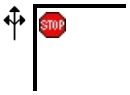


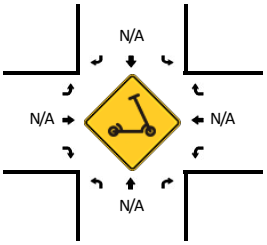












15-Min Count Period Beginning At	Vermont Ave (Northbound)				Vermont Ave (Southbound)				Saylor St (Eastbound)				Saylor St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	3	3	0	0	5	0	0	11	
4:15 PM	1	0	0	0	0	0	1	0	0	3	0	0	1	2	1	0	9	
4:30 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	3	0	0	6	
4:45 PM	0	0	0	0	0	2	0	0	2	4	0	0	0	6	0	0	14	40
5:00 PM	1	0	0	0	0	1	1	0	2	3	0	0	0	3	0	0	11	40
5:15 PM	1	0	2	0	0	0	1	0	0	5	2	0	0	4	0	0	15	46
5:30 PM	2	1	0	0	0	1	0	0	2	5	1	0	0	5	0	0	17	57
5:45 PM	1	0	0	0	0	0	0	0	1	3	1	0	0	2	0	0	8	51

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	4	0	0	0	4	0	0	8	20	4	0	0	20	0	0	68
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

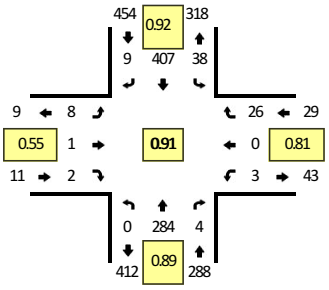
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

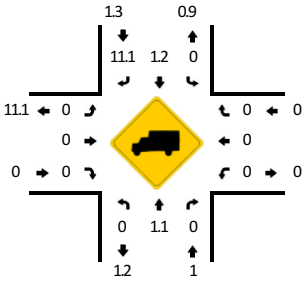
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

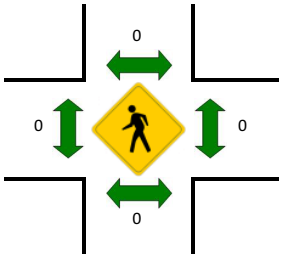
LOCATION: Pennsylvania Ave -- Saylor St
CITY/STATE: Southern Pines, NC

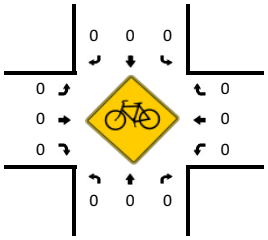
QC JOB #: 15560211
DATE: Wed, Sep 8 2021

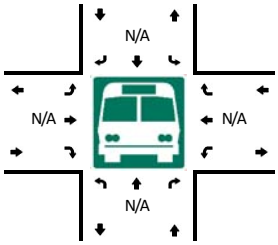
Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

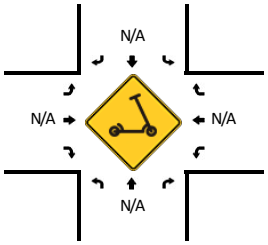












15-Min Count Period Beginning At	Pennsylvania Ave (Northbound)				Pennsylvania Ave (Southbound)				Saylor St (Eastbound)				Saylor St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	27	1	0	0	34	3	0	3	0	1	0	0	0	5	0	74	
7:15 AM	3	41	0	0	3	58	3	0	1	0	1	0	1	0	6	0	117	
7:30 AM	0	52	0	0	3	84	3	0	1	0	0	0	1	0	11	0	155	
7:45 AM	0	80	1	0	5	117	2	0	2	0	1	0	0	0	6	0	214	560
8:00 AM	0	61	0	0	12	93	4	0	2	0	0	0	1	0	6	0	179	665
8:15 AM	0	78	0	0	5	112	3	0	4	0	1	0	1	0	8	0	212	760
8:30 AM	0	65	3	0	16	85	0	0	0	1	0	0	1	0	6	0	177	782
8:45 AM	1	69	6	0	4	112	4	0	3	0	1	0	2	0	6	0	208	776

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	320	4	0	20	468	8	0	8	0	4	0	0	0	24	0	856
Heavy Trucks	0	0	0		0	8	0		0	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

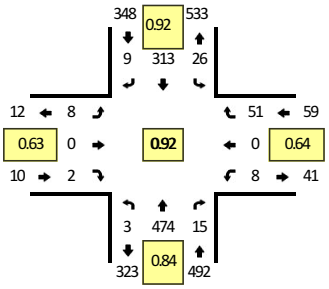
Report generated on 9/13/2021 11:56 AM

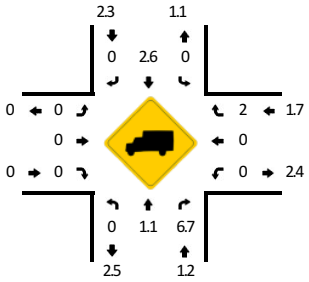
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

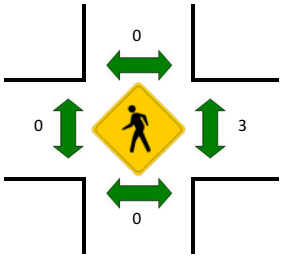
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

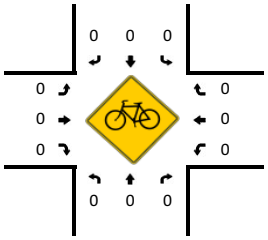
LOCATION: Pennsylvania Ave -- Saylor St | **QC JOB #:** 15560212
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

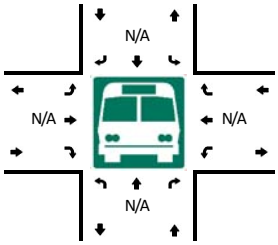
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

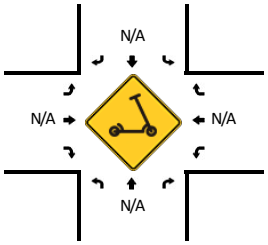












15-Min Count Period Beginning At	Pennsylvania Ave (Northbound)				Pennsylvania Ave (Southbound)				Saylor St (Eastbound)				Saylor St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	70	3	0	10	75	2	0	2	0	3	0	2	0	18	0	187	
4:15 PM	1	114	8	0	3	89	3	0	2	0	0	0	3	0	11	0	234	
4:30 PM	0	113	2	0	5	88	1	0	1	0	0	0	1	0	8	0	219	
4:45 PM	2	103	3	0	12	70	2	0	2	0	1	0	0	0	13	0	208	848
5:00 PM	0	144	2	0	6	66	3	0	3	0	1	0	4	0	19	0	248	909
5:15 PM	0	86	1	0	8	70	1	0	1	0	1	0	2	0	5	0	175	850
5:30 PM	2	88	2	0	14	73	6	0	1	0	0	0	3	1	7	0	197	828
5:45 PM	1	70	1	0	6	53	4	0	0	0	2	0	1	0	5	0	143	763

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	576	8	0	24	264	12	0	12	0	4	0	16	0	76	0	992
Heavy Trucks	0	4	0		0	12	0		0	0	0		0	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

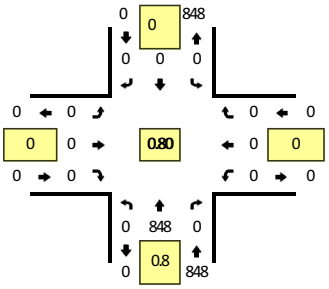
Comments:

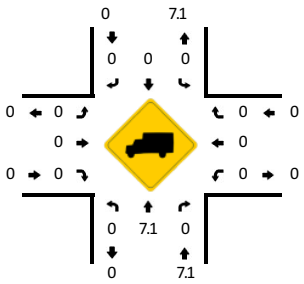
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

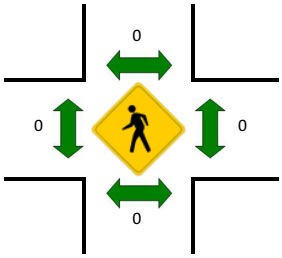
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

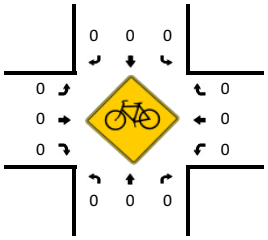
LOCATION: US 1 NB -- US 1 Northbound Service Road Access | **QC JOB #:** 15560213
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

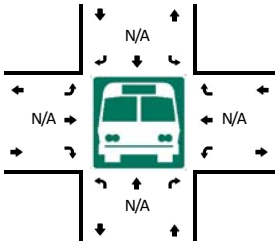
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

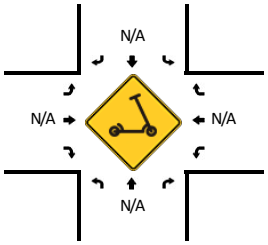












15-Min Count Period Beginning At	US 1 NB (Northbound)				US 1 NB (Southbound)				US 1 Northbound Service Road Access (Eastbound)				US 1 Northbound Service Road Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	151	
7:15 AM	0	199	0	0	0	0	0	0	0	0	0	0	0	0	1	0	200	
7:30 AM	0	265	0	0	0	0	0	0	0	0	0	0	0	0	0	0	265	
7:45 AM	0	215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	215	831
8:00 AM	0	167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	167	847
8:15 AM	0	201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	201	848
8:30 AM	0	183	0	0	0	0	0	0	0	0	0	0	0	0	0	0	183	766
8:45 AM	0	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180	731

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1060	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1060
Heavy Trucks	0	32	0		0	0	0		0	0	0		0	0	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

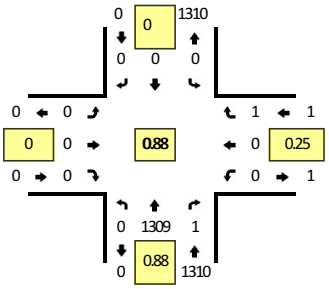
Comments:

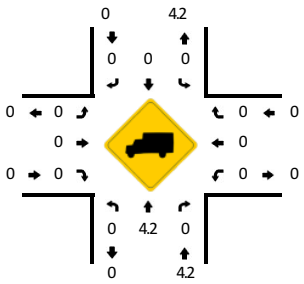
Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

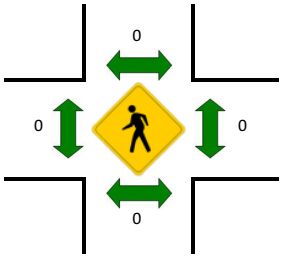
LOCATION: US 1 NB -- US 1 Northbound Service Road Access | **QC JOB #:** 15560214
CITY/STATE: Southern Pines, NC | **DATE:** Wed, Sep 8 2021

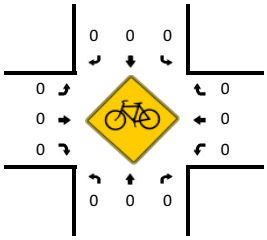
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

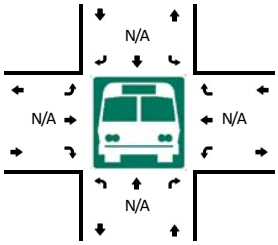


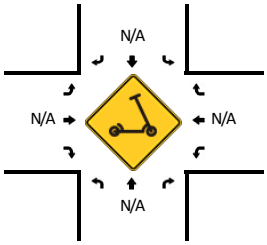


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	US 1 NB (Northbound)				US 1 NB (Southbound)				US 1 Northbound Service Road Access (Eastbound)				US 1 Northbound Service Road Access (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	260	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260	
4:15 PM	0	274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	274	
4:30 PM	0	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	275	
4:45 PM	0	287	1	0	0	0	0	0	0	0	0	0	0	0	0	0	288	1097
5:00 PM	0	373	0	0	0	0	0	0	0	0	0	0	0	0	1	0	374	1211
5:15 PM	0	336	0	0	0	0	0	0	0	0	0	0	0	0	0	0	336	1273
5:30 PM	0	313	0	0	0	0	0	0	0	0	0	0	0	0	0	0	313	1311
5:45 PM	0	213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	213	1236

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1492	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1496
Heavy Trucks	0	60	0		0	0	0		0	0	0		0	0	0		60
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 9/13/2021 11:56 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix B:
Trip Generation

US 1 Multifamily

Table 1 - Trip Generation

Land Use		Intensity		Daily			AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out	Total	In	Out
221	Multifamily Housing (Mid-Rise)	276	d.u.	2,020	1,010	1,010	93	24	69	117	71	46
710	General Office Building	7,500	s.f.	86	43	43	34	29	5	10	2	8
Total Net New External Trips				**2,106**	**1,053**	**1,053**	**127**	**53**	**74**	**127**	**73**	**54**

Appendix C:
Intersection Spreadsheets

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	**9/8/2021**
N/S Street:	**US 1 NB Ramp**
E/W Street:	**Midland Road**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF = 0.83

Description	Midland Road **Eastbound**			Midland Road **Westbound**			US 1 NB Ramp **Northbound**			US 1 NB Ramp **Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	302	273	0	1	230	26	0	0	30	0	0	333
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	302	273	0	1	230	26	0	0	30	0	0	333
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	48	44	0	0	37	4	0	0	5	0	0	53
2031 Background Traffic	350	317	0	1	267	30	0	0	35	0	0	386
Project Traffic												
Percent Assignment Inbound	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	5	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	19
Total External Site Traffic	0	5	0	0	0	0	0	0	0	0	0	19
Total Project Traffic	0	5	0	0	0	0	0	0	0	0	0	19
2031 Buildout Total	350	322	0	1	267	30	0	0	35	0	0	405
Percent Impact (Approach)		0.7%			0.0%			0.0%			4.7%	

Overall Percent Impact 1.7%

PM PEAK HOUR
PM PHF = 0.92

Description	Midland Road **Eastbound**			Midland Road **Westbound**			US 1 NB Ramp **Northbound**			US 1 NB Ramp **Southbound**		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	296	218	0	3	291	31	2	0	40	0	0	305
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	296	218	0	3	291	31	2	0	40	0	0	305
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	48	35	0	0	47	5	0	0	6	0	0	49
2031 Background Traffic	344	253	0	3	338	36	2	0	46	0	0	354
Project Traffic												
Percent Assignment Inbound	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	7	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	14
Total External Site Traffic	0	7	0	0	0	0	0	0	0	0	0	14
Total Project Traffic	0	7	0	0	0	0	0	0	0	0	0	14
2031 Buildout Total	344	260	0	3	338	36	2	0	46	0	0	368
Percent Impact (Approach)		1.2%			0.0%			0.0%			3.8%	

Overall Percent Impact 1.5%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #1 us1 ramp@midland *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	**9/8/2021**
N/S Street:	**Crestview Road**
E/W Street:	**Midland Road**

	AM In	AM Out	PM In	PM Out
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF = 0.87

Description	Midland Road Eastbound Left	Through	Right	Midland Road Westbound Left	Through	Right	Crestview Road Northbound Left	Through	Right	Southbound Left	Through	Right
2021 Traffic Count	35	250	22	1	203	4	19	2	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	35	250	22	1	203	4	19	2	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	6	40	4	0	33	1	3	0	0	0	0	0
2031 Background Traffic	41	290	26	1	236	5	22	2	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	5	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	5	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	5	0	0	0	0	0	0	0	0	0
2031 Buildout Total	41	290	31	1	236	5	22	2	0	0	0	0
Percent Impact (Approach)		1.4%			0.0%			0.0%			-	

Overall Percent Impact 0.8%

PM PEAK HOUR
PM PHF = 0.90

Description	Midland Road Eastbound Left	Through	Right	Midland Road Westbound Left	Through	Right	Crestview Road Northbound Left	Through	Right	Southbound Left	Through	Right
2021 Traffic Count	35	194	29	1	254	5	16	3	1	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	35	194	29	1	254	5	16	3	1	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	6	31	5	0	41	1	3	0	0	0	0	0
2031 Background Traffic	41	225	34	1	295	6	19	3	1	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	7	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	7	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	7	0	0	0	0	0	0	0	0	0
2031 Buildout Total	41	225	41	1	295	6	19	3	1	0	0	0
Percent Impact (Approach)		2.3%			0.0%			0.0%			-	

Overall Percent Impact 1.1%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #2 crestview@midland *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	**9/8/2021**
N/S Street:	**Crestview Road**
E/W Street:	**N Saylor Street**

	AM In	AM Out	PM In	PM Out
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF = 0.90

Description	N Saylor Street Eastbound Left	Through	Right	Westbound Left	Through	Right	Crestview Road Northbound Left	Through	Right	Crestview Road Southbound Left	Through	Right
2021 Traffic Count	9	0	4	0	0	0	1	12	0	1	18	9
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	9	0	4	0	0	0	1	12	0	1	18	9
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	1	0	1	0	0	0	0	2	0	0	3	1
2031 Background Traffic	10	0	5	0	0	0	1	14	0	1	21	10
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	5
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	0	0	0	0	0	0	0	5
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	0	5
2031 Buildout Total	10	0	5	0	0	0	1	14	0	1	21	15
Percent Impact (Approach)		0.0%			-			0.0%			13.5%	

Overall Percent Impact 7.5%

PM PEAK HOUR
PM PHF = 0.74

Description	N Saylor Street Eastbound Left	Through	Right	Westbound Left	Through	Right	Crestview Road Northbound Left	Through	Right	Crestview Road Southbound Left	Through	Right
2021 Traffic Count	1	0	3	0	0	0	2	15	0	0	21	11
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	1	0	3	0	0	0	2	15	0	0	21	11
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	2	0	0	3	2
2031 Background Traffic	1	0	3	0	0	0	2	17	0	0	24	13
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	7
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	0	0	0	0	0	0	0	7
Total Project Traffic	0	0	0	0	0	0	0	0	0	0	0	7
2031 Buildout Total	1	0	3	0	0	0	2	17	0	0	24	20
Percent Impact (Approach)		0.0%			-			0.0%			15.9%	

Overall Percent Impact 10.4%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #3 crestview@saylor *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	**9/8/2019**
N/S Street:	**W Rhode Island Avenue**
E/W Street:	**N Saylor Street**

	AM In	AM Out	PM In	PM Out
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF = 0.75

Description	N Saylor Street Eastbound Left	Through	Right	N Saylor Street Westbound Left	Through	Right	W Rhode Island Avenue Northbound Left	Through	Right	W Rhode Island Avenue Southbound Left	Through	Right
2021 Traffic Count	0	10	0	0	19	0	1	1	0	2	1	2
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	10	0	0	19	0	1	1	0	2	1	2
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	2	0	0	3	0	0	0	0	0	0	0
2031 Background Traffic	0	12	0	0	22	0	1	1	0	2	1	2
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	5	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	5	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	5	0	0	0	0	0	0	0
2031 Buildout Total	0	12	0	0	27	0	1	1	0	2	1	2
Percent Impact (Approach)		0.0%			18.5%			0.0%			0.0%	

Overall Percent Impact 10.9%

PM PEAK HOUR
PM PHF = 0.92

Description	N Saylor Street Eastbound Left	Through	Right	N Saylor Street Westbound Left	Through	Right	W Rhode Island Avenue Northbound Left	Through	Right	W Rhode Island Avenue Southbound Left	Through	Right
2021 Traffic Count	0	11	2	0	14	0	1	1	0	0	2	2
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	11	2	0	14	0	1	1	0	0	2	2
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	2	0	0	2	0	0	0	0	0	0	0
2031 Background Traffic	0	13	2	0	16	0	1	1	0	0	2	2
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	7	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	7	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	7	0	0	0	0	0	0	0
2031 Buildout Total	0	13	2	0	23	0	1	1	0	0	2	2
Percent Impact (Approach)		0.0%			30.4%			0.0%			0.0%	

Overall Percent Impact 15.9%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #4 saylor@rhode island *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	**9/8/2021**
N/S Street:	**W Vermont Avenue**
E/W Street:	**N Saylor Street**

	AM In	AM Out	PM In	PM Out
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF = 0.65

Description	N Saylor Street Eastbound			N Saylor Street Westbound			W Vermont Avenue Northbound			W Vermont Avenue Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	3	12	3	3	24	0	1	1	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	3	12	3	3	24	0	1	1	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	2	0	0	4	0	0	0	0	0	0	0
2031 Background Traffic	3	14	3	3	28	0	1	1	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	5	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	5	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	5	0	0	0	0	0	0	0
2031 Buildout Total	3	14	3	3	33	0	1	1	0	0	0	0
Percent Impact (Approach)		0.0%			13.9%			0.0%			-	
Overall Percent Impact	8.6%											

PM PEAK HOUR
PM PHF = 0.84

Description	N Saylor Street Eastbound			N Saylor Street Westbound			W Vermont Avenue Northbound			W Vermont Avenue Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	6	17	3	0	18	0	4	1	2	0	4	2
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	6	17	3	0	18	0	4	1	2	0	4	2
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	1	3	0	0	3	0	1	0	0	0	1	0
2031 Background Traffic	7	20	3	0	21	0	5	1	2	0	5	2
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	7	0	0	0	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	7	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	7	0	0	0	0	0	0	0
2031 Buildout Total	7	20	3	0	28	0	5	1	2	0	5	2
Percent Impact (Approach)		0.0%			25.0%			0.0%			0.0%	
Overall Percent Impact	9.6%											

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #5 saylor@vermont *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	**9/8/2021**
N/S Street:	**W Pennsylvania Avenue**
E/W Street:	**N Saylor Street/Private Drive**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF = 0.91

	Private Drive **Eastbound**			N Saylor Street **Westbound**			W Pennsylvania Avenue **Northbound**			W Pennsylvania Avenue **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	8	1	2	3	0	26	0	284	4	38	407	9
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	8	1	2	3	0	26	0	284	4	38	407	9
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	1	0	0	0	0	4	0	46	1	6	65	1
2031 Background Traffic	9	1	2	3	0	30	0	330	5	44	472	10
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	10.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	0	16	5	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	30.00%	0.00%	35.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	22	0	26	0	0	0	0	0	0
Total External Site Traffic	0	0	0	22	0	26	0	0	16	5	0	0
Total Project Traffic	0	0	0	22	0	26	0	0	16	5	0	0
2031 Buildout Total	9	1	2	25	0	56	0	330	21	49	472	10
Percent Impact (Approach)		0.0%			59.3%			4.6%			0.9%	

Overall Percent Impact 7.1%

PM PEAK HOUR
PM PHF = 0.92

	Private Drive **Eastbound**			N Saylor Street **Westbound**			W Pennsylvania Avenue **Northbound**			W Pennsylvania Avenue **Southbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	8	0	2	8	0	51	3	474	15	26	313	9
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	8	0	2	8	0	51	3	474	15	26	313	9
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	1	0	0	1	0	8	0	76	2	4	50	1
2031 Background Traffic	9	0	2	9	0	59	3	550	17	30	363	10
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	10.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	0	22	7	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	30.00%	0.00%	35.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	16	0	19	0	0	0	0	0	0
Total External Site Traffic	0	0	0	16	0	19	0	0	22	7	0	0
Total Project Traffic	0	0	0	16	0	19	0	0	22	7	0	0
2031 Buildout Total	9	0	2	25	0	78	3	550	39	37	363	10
Percent Impact (Approach)		0.0%			34.0%			3.7%			1.7%	

Overall Percent Impact 5.7%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #6 saylor@pennsylvania *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	**9/8/2021**
N/S Street:	**US 1 NB**
E/W Street:	**US 1 NB Service Road Access**

	AM In	**AM Out**	**PM In**	**PM Out**
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF = 0.80

Description	**Eastbound** Left	Through	Right	US 1 NB Service Road Access **Westbound** Left	Through	Right	US 1 NB **Northbound** Left	Through	Right	US 1 NB **Southbound** Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	848	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	848	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	136	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	0	984	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	0	27	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	35.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	26	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	0	26	0	0	27	0	0	0
Total Project Traffic	0	0	0	0	0	26	0	0	27	0	0	0
2031 Buildout Total	0	0	0	0	0	26	0	984	27	0	0	0
Percent Impact (Approach)		-			100.0%			2.7%			-	

Overall Percent Impact 5.1%

PM PEAK HOUR
PM PHF = 0.88

Description	0 **Eastbound** Left	Through	Right	US 1 NB Service Road Access **Westbound** Left	Through	Right	US 1 NB **Northbound** Left	Through	Right	US 1 NB **Southbound** Left	Through	Right
2021 Traffic Count	0	0	0	0	0	1	0	1309	1	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	1	0	1309	1	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	210	0	0	0	0
2031 Background Traffic	0	0	0	0	0	1	0	1519	1	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	0	37	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	35.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	0	0	19	0	0	0	0	0	0
Total External Site Traffic	0	0	0	0	0	19	0	0	37	0	0	0
Total Project Traffic	0	0	0	0	0	19	0	0	37	0	0	0
2031 Buildout Total	0	0	0	0	0	20	0	1519	38	0	0	0
Percent Impact (Approach)		-			95.0%			2.4%			-	

Overall Percent Impact 3.6%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #7 us1@us1 srvrd acc *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	
N/S Street:	**US 1 NB Service Road**
E/W Street:	**Site Driveway #1**

	AM In	AM Out	PM In	PM Out
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF =

	Eastbound			Site Driveway #1 Westbound			US 1 NB Service Road Northbound			US 1 NB Service Road Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	20.00%	5.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	16	10	3	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	20.00%	0.00%	5.00%	0.00%	0.00%	0.00%	0.00%	45.00%	0.00%
Outbound Project Traffic	0	0	0	15	0	4	0	0	0	0	33	0
Total External Site Traffic	0	0	0	15	0	4	0	16	10	3	33	0
Total Project Traffic	0	0	0	15	0	4	0	16	10	3	33	0
2031 Buildout Total	0	0	0	15	0	4	0	16	10	3	33	0
Percent Impact (Approach)		-			100.0%			100.0%			100.0%	

Overall Percent Impact 100.0%

PM PEAK HOUR
PM PHF =

	Eastbound			Site Driveway #1 Westbound			US 1 NB Service Road Northbound			US 1 NB Service Road Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	20.00%	5.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	22	14	4	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	20.00%	0.00%	5.00%	0.00%	0.00%	0.00%	0.00%	45.00%	0.00%
Outbound Project Traffic	0	0	0	10	0	3	0	0	0	0	24	0
Total External Site Traffic	0	0	0	10	0	3	0	22	14	4	24	0
Total Project Traffic	0	0	0	10	0	3	0	22	14	4	24	0
2031 Buildout Total	0	0	0	10	0	3	0	22	14	4	24	0
Percent Impact (Approach)		-			100.0%			100.0%			100.0%	

Overall Percent Impact 100.0%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #8 us1srv@sitedwy#1 *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	
N/S Street:	**US 1 NB Service Road**
E/W Street:	**Site Driveway #2**

	AM In	AM Out	PM In	PM Out
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF =

	Eastbound			Site Driveway #2 Westbound			US 1 NB Service Road Northbound			US 1 NB Service Road Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	20.00%	35.00%	5.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	5	11	19	3	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	35.00%	0.00%	20.00%	0.00%	5.00%	0.00%	0.00%	10.00%	0.00%
Outbound Project Traffic	0	0	0	26	0	15	0	4	0	0	7	0
Total External Site Traffic	0	0	0	26	0	15	0	9	11	19	10	0
Total Project Traffic	0	0	0	26	0	15	0	9	11	19	10	0
2031 Buildout Total	0	0	0	26	0	15	0	9	11	19	10	0
Percent Impact (Approach)		-			100.0%			100.0%			100.0%	

Overall Percent Impact 100.0%

PM PEAK HOUR
PM PHF =

	Eastbound			Site Driveway #2 Westbound			US 1 NB Service Road Northbound			US 1 NB Service Road Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	20.00%	35.00%	5.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	7	15	26	4	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	35.00%	0.00%	20.00%	0.00%	5.00%	0.00%	0.00%	10.00%	0.00%
Outbound Project Traffic	0	0	0	19	0	11	0	3	0	0	5	0
Total External Site Traffic	0	0	0	19	0	11	0	10	15	26	9	0
Total Project Traffic	0	0	0	19	0	11	0	10	15	26	9	0
2031 Buildout Total	0	0	0	19	0	11	0	10	15	26	9	0
Percent Impact (Approach)		-			100.0%			100.0%			100.0%	

Overall Percent Impact 100.0%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #9 us1srv@sitedwy#2 *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	
N/S Street:	**US 1 NB Service Road**
E/W Street:	**US 1 NB Service Road Access**

	AM In	AM Out	PM In	PM Out
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF =

Description	US 1 NB Service Road Access Eastbound Left	Through	Right	Westbound Left	Through	Right	US 1 NB Service Road Northbound Left	Through	Right	US 1 NB Service Road Southbound Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	10.00%	0.00%	40.00%	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	5	0	21	0	0	0	0	5	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	10.00%	10.00%
Outbound Project Traffic	0	0	0	0	0	0	19	0	0	0	7	7
Total External Site Traffic	5	0	21	0	0	0	19	5	0	0	7	7
Total Project Traffic	5	0	21	0	0	0	19	5	0	0	7	7
2031 Buildout Total	5	0	21	0	0	0	19	5	0	0	7	7
Percent Impact (Approach)		100.0%			-			100.0%			100.0%	

Overall Percent Impact 100.0%

PM PEAK HOUR
PM PHF =

Description	US 1 NB Service Road Access Eastbound Left	Through	Right	Westbound Left	Through	Right	US 1 NB Service Road Northbound Left	Through	Right	US 1 NB Service Road Southbound Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	10.00%	0.00%	40.00%	0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	7	0	29	0	0	0	0	7	0	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%	10.00%	10.00%
Outbound Project Traffic	0	0	0	0	0	0	14	0	0	0	5	5
Total External Site Traffic	7	0	29	0	0	0	14	7	0	0	5	5
Total Project Traffic	7	0	29	0	0	0	14	7	0	0	5	5
2031 Buildout Total	7	0	29	0	0	0	14	7	0	0	5	5
Percent Impact (Approach)		100.0%			-			100.0%			100.0%	

Overall Percent Impact 100.0%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #10 us1 srvrd acc@us1srv *10/14/21*

INTERSECTION ANALYSIS SHEET

Project:	**US 1 Multifamily**
Location:	**Southern Pines, NC**
Ct. Date:	
N/S Street:	**US 1 NB Service Road**
E/W Street:	**Site Driveway #3**

	AM In	AM Out	PM In	PM Out
Net New Trips:	53	74	73	54
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	1.5%	**Existing Year:**	2021
Growth Factor:	0.160541	**Buildout Year:**	2031

AM PEAK HOUR
AM PHF =

	Eastbound			Site Driveway #3 Westbound			US 1 NB Service Road Northbound			US 1 NB Service Road Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	0	10	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	14	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	0	14	0	0	0	0	10	0	0	0
Total Project Traffic	0	0	0	14	0	0	0	0	10	0	0	0
2031 Buildout Total	0	0	0	14	0	0	0	0	10	0	0	0
Percent Impact (Approach)		-			100.0%			100.0%			-	

Overall Percent Impact 100.0%

PM PEAK HOUR
PM PHF =

	Eastbound			Site Driveway #3 Westbound			US 1 NB Service Road Northbound			US 1 NB Service Road Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor (0.015 per year)	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161	0.161
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	0.00%	0.00%	0.00%
Inbound Project Traffic	0	0	0	0	0	0	0	0	14	0	0	0
Percent Assignment Outbound	0.00%	0.00%	0.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Outbound Project Traffic	0	0	0	11	0	0	0	0	0	0	0	0
Total External Site Traffic	0	0	0	11	0	0	0	0	14	0	0	0
Total Project Traffic	0	0	0	11	0	0	0	0	14	0	0	0
2031 Buildout Total	0	0	0	11	0	0	0	0	14	0	0	0
Percent Impact (Approach)		-			100.0%			100.0%			-	

Overall Percent Impact 100.0%

\\kimley-horn.com\se_dur\ral_tpto_traffic\014362000 us 1 multifamily\t4 - analysis\[us 1 multifamily - tia data sheet.xls]int. #11 us1srv@sitedwy#3 *10/14/21*

Appendix D:
Synchro Output:
Existing (2021)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	30	0	4	0	0	0	0	0	273	4
Future Volume (vph)	0	0	30	0	4	0	0	0	0	0	273	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	1536	0	1863	0	0	0	0	0	1859	0
Flt Permitted												
Satd. Flow (perm)	0	0	1536	0	1863	0	0	0	0	0	1859	0
Link Speed (mph)		35			45			30			45	
Link Distance (ft)		218			151			306			106	
Travel Time (s)		4.2			2.3			7.0			1.6	
Confl. Bikes (#/hr)			2									1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	36	0	5	0	0	0	0	0	334	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

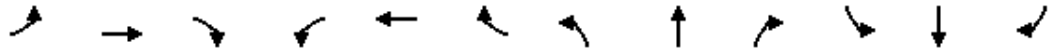
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	30	0	4	0	0	0	0	0	273	4
Future Vol, veh/h	0	0	30	0	4	0	0	0	0	0	273	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	7	7	7	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	36	0	5	0	0	0	0	0	329	5

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	-	-	332	-	334	-			-	-	0
Stage 1	-	-	-	-	0	-			-	-	-
Stage 2	-	-	-	-	334	-			-	-	-
Critical Hdwy	-	-	6.27	-	6.52	-			-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-			-	-	-
Follow-up Hdwy	-	-	3.363	-	4.018	-			-	-	-
Pot Cap-1 Maneuver	0	0	698	0	586	0			0	-	-
Stage 1	0	0	-	0	-	0			0	-	-
Stage 2	0	0	-	0	643	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	-	-	698	-	586	-			-	-	-
Mov Cap-2 Maneuver	-	-	-	-	586	-			-	-	-
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	643	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	10.4	11.2	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	698	586	-	-
HCM Lane V/C Ratio	0.052	0.008	-	-
HCM Control Delay (s)	10.4	11.2	-	-
HCM Lane LOS	B	B	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	302	0	0	0	333	0	230	26	0	0	0
Future Volume (vph)	0	302	0	0	0	333	0	230	26	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1863	0	0	0	1611	0	1837	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	1611	0	1837	0	0	0	0
Link Speed (mph)		45			35			45			30	
Link Distance (ft)		146			356			115			439	
Travel Time (s)		2.2			6.9			1.7			10.0	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	364	0	0	0	401	0	308	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.4%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	12.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	302	0	0	0	333	0	230	26	0	0	0
Future Vol, veh/h	0	302	0	0	0	333	0	230	26	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16979	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	364	0	0	0	401	0	277	31	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	308	-	-	-	293	-	0	0
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	308	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	-	-	-	6.22	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	-	-	-	3.318	-	-	-
Pot Cap-1 Maneuver	0	606	0	0	0	746	0	-	-
Stage 1	0	-	0	0	0	-	0	-	-
Stage 2	0	660	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	606	-	-	-	746	-	-	-
Mov Cap-2 Maneuver	-	606	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	660	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	19.5	15.3	0
HCM LOS	C	C	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	606	746
HCM Lane V/C Ratio	-	-	0.6	0.538
HCM Control Delay (s)	-	-	19.5	15.3
HCM Lane LOS	-	-	C	C
HCM 95th %tile Q(veh)	-	-	4	3.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	4	4	203	250	22
Future Volume (vph)	19	4	4	203	250	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1618	0	0	3468	3497	0
Flt Permitted	0.961			0.999		
Satd. Flow (perm)	1618	0	0	3468	3497	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	403			386	146	
Travel Time (s)	11.0			7.5	2.8	
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	4%	4%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	238	312	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

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

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	4	4	203	250	22
Future Vol, veh/h	19	4	4	203	250	22
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	10	10	4	4	2	2
Mvmt Flow	22	5	5	233	287	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	428	158	313	0	-	0
Stage 1	301	-	-	-	-	-
Stage 2	127	-	-	-	-	-
Critical Hdwy	7	7.1	4.18	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.4	2.24	-	-	-
Pot Cap-1 Maneuver	535	835	1230	-	-	-
Stage 1	701	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	531	833	1229	-	-	-
Mov Cap-2 Maneuver	531	-	-	-	-	-
Stage 1	697	-	-	-	-	-
Stage 2	861	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.7	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1229	-	567	-	-
HCM Lane V/C Ratio	0.004	-	0.047	-	-
HCM Control Delay (s)	7.9	0	11.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	18	9	4	12	9	4
Future Volume (vph)	18	9	4	12	9	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1635	0	0	1840	1534	0
Flt Permitted				0.988	0.966	
Satd. Flow (perm)	1635	0	0	1840	1534	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	944			1282	1990	
Travel Time (s)	25.7			35.0	54.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	11%	11%	2%	2%	15%	15%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	0	17	14	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	18	9	4	12	9	4
Future Vol, veh/h	18	9	4	12	9	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	2	2	15	15
Mvmt Flow	20	10	4	13	10	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	30	0	46	25
Stage 1	-	-	-	-	25	-
Stage 2	-	-	-	-	21	-
Critical Hdwy	-	-	4.12	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.218	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1583	-	932	1015
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	969	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1583	-	929	1015
Mov Cap-2 Maneuver	-	-	-	-	929	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	966	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	954	-	-	1583	-
HCM Lane V/C Ratio	0.015	-	-	0.003	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	4	10	4	4	19	4
Future Volume (vph)	4	4	4	4	4	4	4	10	4	4	19	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1190	0	0	1659	0	0	1763	0
Flt Permitted		0.984			0.984			0.989			0.993	
Satd. Flow (perm)	0	1750	0	0	1190	0	0	1659	0	0	1763	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		437			1927			950			1990	
Travel Time (s)		11.9			52.6			25.9			54.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	50%	50%	50%	10%	10%	10%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	15	0	0	23	0	0	35	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	4	10	4	4	19	4
Future Vol, veh/h	4	4	4	4	4	4	4	10	4	4	19	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	50	50	50	10	10	10	5	5	5
Mvmt Flow	5	5	5	5	5	5	5	13	5	5	25	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	69	66	28	69	66	16	30	0	0	18	0	0
Stage 1	38	38	-	26	26	-	-	-	-	-	-	-
Stage 2	31	28	-	43	40	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.6	7	6.7	4.2	-	-	4.15	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.95	4.45	3.75	2.29	-	-	2.245	-	-
Pot Cap-1 Maneuver	923	825	1047	818	741	940	1533	-	-	1579	-	-
Stage 1	977	863	-	881	787	-	-	-	-	-	-	-
Stage 2	986	872	-	862	776	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	908	820	1047	806	737	940	1533	-	-	1579	-	-
Mov Cap-2 Maneuver	908	820	-	806	737	-	-	-	-	-	-	-
Stage 1	974	860	-	878	785	-	-	-	-	-	-	-
Stage 2	971	869	-	850	774	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9.5	1.6	1.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	916	819	1579	-	-
HCM Lane V/C Ratio	0.003	-	-	0.017	0.02	0.003	-	-
HCM Control Delay (s)	7.4	0	-	9	9.5	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	4	12	4	4	24	4
Future Volume (vph)	4	4	4	4	4	4	4	12	4	4	24	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1190	0	0	1727	0	0	1785	0
Flt Permitted		0.984			0.984			0.990			0.994	
Satd. Flow (perm)	0	1750	0	0	1190	0	0	1727	0	0	1785	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		367			1102			1438			950	
Travel Time (s)		10.0			30.1			39.2			25.9	
Confl. Peds. (#/hr)				1		1			1	1		
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	2%	2%	2%	50%	50%	50%	6%	6%	6%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	18	0	0	30	0	0	49	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	4	12	4	4	24	4
Future Vol, veh/h	4	4	4	4	4	4	4	12	4	4	24	4
Conflicting Peds, #/hr	0	0	0	1	0	1	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	50	50	50	6	6	6	4	4	4
Mvmt Flow	6	6	6	6	6	6	6	18	6	6	37	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	92	89	41	93	89	23	43	0	0	25	0	0
Stage 1	52	52	-	34	34	-	-	-	-	-	-	-
Stage 2	40	37	-	59	55	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.6	7	6.7	4.16	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.95	4.45	3.75	2.254	-	-	2.236	-	-
Pot Cap-1 Maneuver	892	801	1030	788	719	931	1540	-	-	1577	-	-
Stage 1	961	852	-	872	781	-	-	-	-	-	-	-
Stage 2	975	864	-	845	764	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	874	794	1029	772	713	929	1540	-	-	1575	-	-
Mov Cap-2 Maneuver	874	794	-	772	713	-	-	-	-	-	-	-
Stage 1	957	849	-	868	777	-	-	-	-	-	-	-
Stage 2	956	860	-	830	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9.6	1.5	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	889	795	1575	-	-
HCM Lane V/C Ratio	0.004	-	-	0.021	0.023	0.004	-	-
HCM Control Delay (s)	7.3	0	-	9.1	9.6	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	407	9	4	284	4	8	4	4	4	4	26
Future Volume (vph)	38	407	9	4	284	4	8	4	4	4	4	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Satd. Flow (prot)	1770	1857	0	1770	1859	0	0	1756	0	0	1657	0
Flt Permitted	0.950			0.950				0.974			0.995	
Satd. Flow (perm)	1770	1857	0	1770	1859	0	0	1756	0	0	1657	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		453			554			258			1438	
Travel Time (s)		8.8			10.8			7.0			39.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	457	0	4	316	0	0	17	0	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	407	9	4	284	4	8	4	4	4	4	26
Future Vol, veh/h	38	407	9	4	284	4	8	4	4	4	4	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	447	10	4	312	4	9	4	4	4	4	29

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	316	0	0	457	0	0	875	860	452	862	863	314
Stage 1	-	-	-	-	-	-	536	536	-	322	322	-
Stage 2	-	-	-	-	-	-	339	324	-	540	541	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1244	-	-	1104	-	-	270	294	608	275	292	726
Stage 1	-	-	-	-	-	-	529	523	-	690	651	-
Stage 2	-	-	-	-	-	-	676	650	-	526	521	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1244	-	-	1104	-	-	249	283	608	262	281	726
Mov Cap-2 Maneuver	-	-	-	-	-	-	249	283	-	262	281	-
Stage 1	-	-	-	-	-	-	511	505	-	667	648	-
Stage 2	-	-	-	-	-	-	643	647	-	500	503	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	17.6	12.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	303	1244	-	-	1104	-	-	521
HCM Lane V/C Ratio	0.058	0.034	-	-	0.004	-	-	0.072
HCM Control Delay (s)	17.6	8	-	-	8.3	-	-	12.4
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	4	848	4	0	0
Future Volume (vph)	0	4	848	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1611	3370	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3370	0	0	0
Link Speed (mph)	25		55			55
Link Distance (ft)	194		1682			659
Travel Time (s)	5.3		20.9			8.2
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	7%	7%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	5	1065	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	4	848	4	0	0
Future Vol, veh/h	0	4	848	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	16979
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	7	7	2	2
Mvmt Flow	0	5	1060	5	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	533	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	491	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	491	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	12.4	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	491
HCM Lane V/C Ratio	-	-	0.01
HCM Control Delay (s)	-	-	12.4
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	40	0	4	0	0	0	0	0	218	4
Future Volume (vph)	0	0	40	0	4	0	0	0	0	0	218	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	1611	0	1863	0	0	0	0	0	1859	0
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	1863	0	0	0	0	0	1859	0
Link Speed (mph)		35			45			30			45	
Link Distance (ft)		218			151			306			106	
Travel Time (s)		4.2			2.3			7.0			1.6	
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	43	0	4	0	0	0	0	0	241	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	40	0	4	0	0	0	0	0	218	4
Future Vol, veh/h	0	0	40	0	4	0	0	0	0	0	218	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	43	0	4	0	0	0	0	0	237	4

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	-	-	239	-	241	-			-	-	0
Stage 1	-	-	-	-	0	-			-	-	-
Stage 2	-	-	-	-	241	-			-	-	-
Critical Hdwy	-	-	6.22	-	6.52	-			-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-			-	-	-
Follow-up Hdwy	-	-	3.318	-	4.018	-			-	-	-
Pot Cap-1 Maneuver	0	0	800	0	660	0			0	-	-
Stage 1	0	0	-	0	-	0			0	-	-
Stage 2	0	0	-	0	706	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	-	-	800	-	660	-			-	-	-
Mov Cap-2 Maneuver	-	-	-	-	660	-			-	-	-
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	706	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	9.8	10.5	0
HCM LOS	A	B	

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	800	660	-	-
HCM Lane V/C Ratio	0.054	0.007	-	-
HCM Control Delay (s)	9.8	10.5	-	-
HCM Lane LOS	A	B	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	296	0	0	0	305	0	291	31	0	0	0
Future Volume (vph)	0	296	0	0	0	305	0	291	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1863	0	0	0	1611	0	1839	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	1611	0	1839	0	0	0	0
Link Speed (mph)		45			35			45			30	
Link Distance (ft)		146			356			115			439	
Travel Time (s)		2.2			6.9			1.7			10.0	
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	322	0	0	0	332	0	350	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	10.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	296	0	0	0	305	0	291	31	0	0	0
Future Vol, veh/h	0	296	0	0	0	305	0	291	31	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16979	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	322	0	0	0	332	0	316	34	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	350	-	-	-	333	-	0	0
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	350	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	-	-	-	6.22	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	-	-	-	3.318	-	-	-
Pot Cap-1 Maneuver	0	574	0	0	0	709	0	-	-
Stage 1	0	-	0	0	0	-	0	-	-
Stage 2	0	633	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	574	-	-	-	709	-	-	-
Mov Cap-2 Maneuver	-	574	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	633	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	19	14.5	0
HCM LOS	C	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	574	709
HCM Lane V/C Ratio	-	-	0.561	0.468
HCM Control Delay (s)	-	-	19	14.5
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	3.4	2.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	4	4	254	194	29
Future Volume (vph)	16	4	4	254	194	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1618	0	0	3536	3472	0
Flt Permitted	0.961			0.999		
Satd. Flow (perm)	1618	0	0	3536	3472	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	403			386	146	
Travel Time (s)	11.0			7.5	2.8	
Confl. Peds. (#/hr)	2	2	2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	286	248	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	4	4	254	194	29
Future Vol, veh/h	16	4	4	254	194	29
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	10	2	2	2	2
Mvmt Flow	18	4	4	282	216	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	385	128	250	0	-	0
Stage 1	234	-	-	-	-	-
Stage 2	151	-	-	-	-	-
Critical Hdwy	7	7.1	4.14	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.4	2.22	-	-	-
Pot Cap-1 Maneuver	570	873	1313	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	565	870	1310	-	-	-
Mov Cap-2 Maneuver	565	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	836	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1310	-	608	-	-
HCM Lane V/C Ratio	0.003	-	0.037	-	-
HCM Control Delay (s)	7.8	0	11.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	21	11	4	15	4	4
Future Volume (vph)	21	11	4	15	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1758	0	0	1775	1694	0
Flt Permitted				0.990	0.976	
Satd. Flow (perm)	1758	0	0	1775	1694	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	944			1308	1990	
Travel Time (s)	25.7			35.7	54.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	3%	3%	6%	6%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	25	10	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	11	4	15	4	4
Future Vol, veh/h	21	11	4	15	4	4
Conflicting Peds, #/hr	0	0	1	0	0	1
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	74	74	74	74	74	74
Heavy Vehicles, %	3	3	6	6	2	2
Mvmt Flow	28	15	5	20	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	44	0	67	38
Stage 1	-	-	-	-	37	-
Stage 2	-	-	-	-	30	-
Critical Hdwy	-	-	4.16	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.254	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1539	-	938	1034
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	993	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1538	-	934	1032
Mov Cap-2 Maneuver	-	-	-	-	934	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	990	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	981	-	-	1538	-
HCM Lane V/C Ratio	0.011	-	-	0.004	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	4	11	4	4	14	4
Future Volume (vph)	4	4	4	4	4	4	4	11	4	4	14	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1750	0	0	1794	0	0	1804	0
Flt Permitted		0.984			0.984			0.990			0.991	
Satd. Flow (perm)	0	1750	0	0	1750	0	0	1794	0	0	1804	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		437			1927			950			1990	
Travel Time (s)		11.9			52.6			25.9			54.3	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	12	0	0	20	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	4	11	4	4	14	4
Future Vol, veh/h	4	4	4	4	4	4	4	11	4	4	14	4
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	4	4	4	4	4	4	12	4	4	15	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	53	51	19	53	51	16	20	0	0	17	0	0
Stage 1	26	26	-	23	23	-	-	-	-	-	-	-
Stage 2	27	25	-	30	28	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	946	840	1059	946	840	1063	1596	-	-	1600	-	-
Stage 1	992	874	-	995	876	-	-	-	-	-	-	-
Stage 2	990	874	-	987	872	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	933	833	1057	933	833	1061	1594	-	-	1598	-	-
Mov Cap-2 Maneuver	933	833	-	933	833	-	-	-	-	-	-	-
Stage 1	988	871	-	991	872	-	-	-	-	-	-	-
Stage 2	977	871	-	974	869	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	8.9	1.5	1.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1594	-	-	932	933	1598	-	-
HCM Lane V/C Ratio	0.003	-	-	0.014	0.014	0.003	-	-
HCM Control Delay (s)	7.3	0	-	8.9	8.9	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	6	17	4	4	18	4
Future Volume (vph)	4	4	4	4	4	4	6	17	4	4	18	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1750	0	0	1804	0	0	1807	0
Flt Permitted		0.984			0.984			0.989			0.992	
Satd. Flow (perm)	0	1750	0	0	1750	0	0	1804	0	0	1807	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		367			1102			1438			950	
Travel Time (s)		10.0			30.1			39.2			25.9	
Confl. Peds. (#/hr)	1		1				1					1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	15	0	0	32	0	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	6	17	4	4	18	4
Future Vol, veh/h	4	4	4	4	4	4	6	17	4	4	18	4
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	5	5	5	5	5	7	20	5	5	21	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	78	74	26	77	74	24	27	0	0	25	0	0
Stage 1	35	35	-	37	37	-	-	-	-	-	-	-
Stage 2	43	39	-	40	37	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	911	816	1050	912	816	1052	1587	-	-	1589	-	-
Stage 1	981	866	-	978	864	-	-	-	-	-	-	-
Stage 2	971	862	-	975	864	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	896	809	1048	898	809	1051	1585	-	-	1589	-	-
Mov Cap-2 Maneuver	896	809	-	898	809	-	-	-	-	-	-	-
Stage 1	976	863	-	974	861	-	-	-	-	-	-	-
Stage 2	956	859	-	961	861	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9	1.6	1.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	907	909	1589	-	-
HCM Lane V/C Ratio	0.005	-	-	0.016	0.016	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9	9	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	313	9	4	474	15	8	4	4	8	4	51
Future Volume (vph)	26	313	9	4	474	15	8	4	4	8	4	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Satd. Flow (prot)	1770	1855	0	1770	1853	0	0	1756	0	0	1648	0
Flt Permitted	0.950			0.950				0.974			0.993	
Satd. Flow (perm)	1770	1855	0	1770	1853	0	0	1756	0	0	1648	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		453			554			258			1438	
Travel Time (s)		8.8			10.8			7.0			39.2	
Confl. Peds. (#/hr)	3					3				3		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	350	0	4	531	0	0	17	0	0	68	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	313	9	4	474	15	8	4	4	8	4	51
Future Vol, veh/h	26	313	9	4	474	15	8	4	4	8	4	51
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	340	10	4	515	16	9	4	4	9	4	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	534	0	0	350	0	0	965	943	348	942	940	529
Stage 1	-	-	-	-	-	-	401	401	-	534	534	-
Stage 2	-	-	-	-	-	-	564	542	-	408	406	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1034	-	-	1209	-	-	234	263	695	243	264	550
Stage 1	-	-	-	-	-	-	626	601	-	530	524	-
Stage 2	-	-	-	-	-	-	510	520	-	620	598	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1031	-	-	1209	-	-	202	254	693	232	255	547
Mov Cap-2 Maneuver	-	-	-	-	-	-	202	254	-	232	255	-
Stage 1	-	-	-	-	-	-	609	585	-	514	521	-
Stage 2	-	-	-	-	-	-	452	517	-	593	582	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	19.7	14.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	262	1031	-	-	1209	-	-	439
HCM Lane V/C Ratio	0.066	0.027	-	-	0.004	-	-	0.156
HCM Control Delay (s)	19.7	8.6	-	-	8	-	-	14.7
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	4	1309	4	0	0
Future Volume (vph)	0	4	1309	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1611	3468	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3468	0	0	0
Link Speed (mph)	25		55			55
Link Distance (ft)	194		1682			659
Travel Time (s)	5.3		20.9			8.2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	5	1493	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	4	1309	4	0	0
Future Vol, veh/h	0	4	1309	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	16979
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	0	5	1488	5	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	747	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	355	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	355	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	15.3	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	355
HCM Lane V/C Ratio	-	-	0.013
HCM Control Delay (s)	-	-	15.3
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0

Appendix E:
Synchro Output:
Background (2031)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	35	0	4	0	0	0	0	0	317	4
Future Volume (vph)	0	0	35	0	4	0	0	0	0	0	317	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	1536	0	1863	0	0	0	0	0	1859	0
Flt Permitted												
Satd. Flow (perm)	0	0	1536	0	1863	0	0	0	0	0	1859	0
Link Speed (mph)		35			45			30			45	
Link Distance (ft)		218			151			306			106	
Travel Time (s)		4.2			2.3			7.0			1.6	
Confl. Bikes (#/hr)			2									1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	42	0	5	0	0	0	0	0	387	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	35	0	4	0	0	0	0	0	317	4
Future Vol, veh/h	0	0	35	0	4	0	0	0	0	0	317	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	7	7	7	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	42	0	5	0	0	0	0	0	382	5

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	-	-	385	-	387	-			-	-	0
Stage 1	-	-	-	-	0	-			-	-	-
Stage 2	-	-	-	-	387	-			-	-	-
Critical Hdwy	-	-	6.27	-	6.52	-			-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-			-	-	-
Follow-up Hdwy	-	-	3.363	-	4.018	-			-	-	-
Pot Cap-1 Maneuver	0	0	652	0	547	0			0	-	-
Stage 1	0	0	-	0	-	0			0	-	-
Stage 2	0	0	-	0	610	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	-	-	652	-	547	-			-	-	-
Mov Cap-2 Maneuver	-	-	-	-	547	-			-	-	-
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	610	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	10.9	11.6	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	652	547	-	-
HCM Lane V/C Ratio	0.065	0.009	-	-
HCM Control Delay (s)	10.9	11.6	-	-
HCM Lane LOS	B	B	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	350	0	0	0	386	0	267	30	0	0	0
Future Volume (vph)	0	350	0	0	0	386	0	267	30	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1863	0	0	0	1611	0	1837	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	1611	0	1837	0	0	0	0
Link Speed (mph)		45			35			45			30	
Link Distance (ft)		146			356			115			439	
Travel Time (s)		2.2			6.9			1.7			10.0	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	422	0	0	0	465	0	358	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.5%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	16.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	350	0	0	0	386	0	267	30	0	0	0
Future Vol, veh/h	0	350	0	0	0	386	0	267	30	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16979	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	422	0	0	0	465	0	322	36	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	358	-	-	-	340	-	0	0
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	358	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	-	-	-	6.22	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	-	-	-	3.318	-	-	-
Pot Cap-1 Maneuver	0	568	0	0	0	702	0	-	-
Stage 1	0	-	0	0	0	-	0	-	-
Stage 2	0	628	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	568	-	-	-	702	-	-	-
Mov Cap-2 Maneuver	-	568	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	628	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	27.4	19.6	0
HCM LOS	D	C	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	568	702
HCM Lane V/C Ratio	-	-	0.742	0.662
HCM Control Delay (s)	-	-	27.4	19.6
HCM Lane LOS	-	-	D	C
HCM 95th %tile Q(veh)	-	-	6.4	5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	4	4	236	290	26
Future Volume (vph)	22	4	4	236	290	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1620	0	0	3468	3497	0
Flt Permitted	0.960			0.999		
Satd. Flow (perm)	1620	0	0	3468	3497	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	403			386	146	
Travel Time (s)	11.0			7.5	2.8	
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	4%	4%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	0	276	363	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	4	4	236	290	26
Future Vol, veh/h	22	4	4	236	290	26
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	10	10	4	4	2	2
Mvmt Flow	25	5	5	271	333	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	495	184	364	0	-	0
Stage 1	349	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	7	7.1	4.18	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.4	2.24	-	-	-
Pot Cap-1 Maneuver	484	802	1177	-	-	-
Stage 1	662	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	481	800	1176	-	-	-
Mov Cap-2 Maneuver	481	-	-	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	842	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1176	-	512	-	-
HCM Lane V/C Ratio	0.004	-	0.058	-	-
HCM Control Delay (s)	8.1	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	21	10	4	14	10	5
Future Volume (vph)	21	10	4	14	10	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1636	0	0	1844	1524	0
Flt Permitted				0.990	0.969	
Satd. Flow (perm)	1636	0	0	1844	1524	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	944			1175	1990	
Travel Time (s)	25.7			32.0	54.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	11%	11%	2%	2%	15%	15%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	0	0	20	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	10	4	14	10	5
Future Vol, veh/h	21	10	4	14	10	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	2	2	15	15
Mvmt Flow	23	11	4	16	11	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	34	0	53	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	24	-
Critical Hdwy	-	-	4.12	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.218	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1578	-	924	1010
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	966	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1578	-	921	1010
Mov Cap-2 Maneuver	-	-	-	-	921	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	963	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	949	-	-	1578	-
HCM Lane V/C Ratio	0.018	-	-	0.003	-
HCM Control Delay (s)	8.9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	4	12	4	4	22	4
Future Volume (vph)	4	4	4	4	4	4	4	12	4	4	22	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1190	0	0	1666	0	0	1768	0
Flt Permitted		0.984			0.984			0.990			0.994	
Satd. Flow (perm)	0	1750	0	0	1190	0	0	1666	0	0	1768	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		437			1927			950			1990	
Travel Time (s)		11.9			52.6			25.9			54.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	50%	50%	50%	10%	10%	10%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	15	0	0	26	0	0	39	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	4	12	4	4	22	4
Future Vol, veh/h	4	4	4	4	4	4	4	12	4	4	22	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	50	50	50	10	10	10	5	5	5
Mvmt Flow	5	5	5	5	5	5	5	16	5	5	29	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	76	73	32	76	73	19	34	0	0	21	0	0
Stage 1	42	42	-	29	29	-	-	-	-	-	-	-
Stage 2	34	31	-	47	44	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.6	7	6.7	4.2	-	-	4.15	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.95	4.45	3.75	2.29	-	-	2.245	-	-
Pot Cap-1 Maneuver	914	817	1042	809	734	936	1527	-	-	1575	-	-
Stage 1	972	860	-	878	785	-	-	-	-	-	-	-
Stage 2	982	869	-	858	772	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	899	812	1042	797	730	936	1527	-	-	1575	-	-
Mov Cap-2 Maneuver	899	812	-	797	730	-	-	-	-	-	-	-
Stage 1	969	857	-	875	783	-	-	-	-	-	-	-
Stage 2	967	866	-	846	770	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9.5	1.5	1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1527	-	-	908	812	1575	-	-
HCM Lane V/C Ratio	0.003	-	-	0.018	0.02	0.003	-	-
HCM Control Delay (s)	7.4	0	-	9	9.5	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	4	14	4	4	28	4
Future Volume (vph)	4	4	4	4	4	4	4	14	4	4	28	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1190	0	0	1734	0	0	1791	0
Flt Permitted		0.984			0.984			0.991			0.995	
Satd. Flow (perm)	0	1750	0	0	1190	0	0	1734	0	0	1791	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		367			1102			1438			950	
Travel Time (s)		10.0			30.1			39.2			25.9	
Confl. Peds. (#/hr)				1		1			1	1		
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	2%	2%	2%	50%	50%	50%	6%	6%	6%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	18	0	0	34	0	0	55	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	4	14	4	4	28	4
Future Vol, veh/h	4	4	4	4	4	4	4	14	4	4	28	4
Conflicting Peds, #/hr	0	0	0	1	0	1	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	50	50	50	6	6	6	4	4	4
Mvmt Flow	6	6	6	6	6	6	6	22	6	6	43	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	102	99	47	103	99	27	49	0	0	29	0	0
Stage 1	58	58	-	38	38	-	-	-	-	-	-	-
Stage 2	44	41	-	65	61	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.6	7	6.7	4.16	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.95	4.45	3.75	2.254	-	-	2.236	-	-
Pot Cap-1 Maneuver	879	791	1022	775	709	926	1533	-	-	1571	-	-
Stage 1	954	847	-	868	777	-	-	-	-	-	-	-
Stage 2	970	861	-	838	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	861	784	1021	760	703	924	1533	-	-	1570	-	-
Mov Cap-2 Maneuver	861	784	-	760	703	-	-	-	-	-	-	-
Stage 1	950	844	-	864	773	-	-	-	-	-	-	-
Stage 2	951	857	-	823	756	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.7	1.3	0.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	878	785	1570	-	-
HCM Lane V/C Ratio	0.004	-	-	0.021	0.024	0.004	-	-
HCM Control Delay (s)	7.4	0	-	9.2	9.7	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	472	10	4	330	5	9	4	4	4	4	30
Future Volume (vph)	44	472	10	4	330	5	9	4	4	4	4	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Satd. Flow (prot)	1770	1857	0	1770	1859	0	0	1758	0	0	1651	0
Flt Permitted	0.950			0.950				0.973			0.995	
Satd. Flow (perm)	1770	1857	0	1770	1859	0	0	1758	0	0	1651	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		453			554			258			1438	
Travel Time (s)		8.8			10.8			7.0			39.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	530	0	4	368	0	0	18	0	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	472	10	4	330	5	9	4	4	4	4	30
Future Vol, veh/h	44	472	10	4	330	5	9	4	4	4	4	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	519	11	4	363	5	10	4	4	4	4	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	368	0	0	530	0	0	1013	997	525	999	1000	366
Stage 1	-	-	-	-	-	-	621	621	-	374	374	-
Stage 2	-	-	-	-	-	-	392	376	-	625	626	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1191	-	-	1037	-	-	217	244	552	222	243	679
Stage 1	-	-	-	-	-	-	475	479	-	647	618	-
Stage 2	-	-	-	-	-	-	633	616	-	473	477	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1191	-	-	1037	-	-	197	233	552	210	232	679
Mov Cap-2 Maneuver	-	-	-	-	-	-	197	233	-	210	232	-
Stage 1	-	-	-	-	-	-	456	460	-	621	616	-
Stage 2	-	-	-	-	-	-	596	614	-	446	458	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	21	13.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	243	1191	-	-	1037	-	-	472
HCM Lane V/C Ratio	0.077	0.041	-	-	0.004	-	-	0.088
HCM Control Delay (s)	21	8.2	-	-	8.5	-	-	13.4
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	4	984	4	0	0
Future Volume (vph)	0	4	984	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1611	3370	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3370	0	0	0
Link Speed (mph)	25		55			55
Link Distance (ft)	194		1682			659
Travel Time (s)	5.3		20.9			8.2
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	7%	7%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	5	1235	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	4	984	4	0	0
Future Vol, veh/h	0	4	984	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	16979
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	7	7	2	2
Mvmt Flow	0	5	1230	5	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	618	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	432	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	432	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	13.4	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	432
HCM Lane V/C Ratio	-	-	0.012
HCM Control Delay (s)	-	-	13.4
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	46	0	4	0	0	0	0	0	253	4
Future Volume (vph)	0	0	46	0	4	0	0	0	0	0	253	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	1611	0	1863	0	0	0	0	0	1859	0
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	1863	0	0	0	0	0	1859	0
Link Speed (mph)		35			45			30			45	
Link Distance (ft)		218			151			306			106	
Travel Time (s)		4.2			2.3			7.0			1.6	
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	50	0	4	0	0	0	0	0	279	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	46	0	4	0	0	0	0	0	253	4
Future Vol, veh/h	0	0	46	0	4	0	0	0	0	0	253	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	50	0	4	0	0	0	0	0	275	4

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	-	-	277	-	279	-			-	-	0
Stage 1	-	-	-	-	0	-			-	-	-
Stage 2	-	-	-	-	279	-			-	-	-
Critical Hdwy	-	-	6.22	-	6.52	-			-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-			-	-	-
Follow-up Hdwy	-	-	3.318	-	4.018	-			-	-	-
Pot Cap-1 Maneuver	0	0	762	0	629	0			0	-	-
Stage 1	0	0	-	0	-	0			0	-	-
Stage 2	0	0	-	0	680	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	-	-	762	-	629	-			-	-	-
Mov Cap-2 Maneuver	-	-	-	-	629	-			-	-	-
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	680	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	10.1	10.8	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	762	629	-	-
HCM Lane V/C Ratio	0.066	0.007	-	-
HCM Control Delay (s)	10.1	10.8	-	-
HCM Lane LOS	B	B	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	344	0	0	0	354	0	338	36	0	0	0
Future Volume (vph)	0	344	0	0	0	354	0	338	36	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1863	0	0	0	1611	0	1839	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	1611	0	1839	0	0	0	0
Link Speed (mph)		45			35			45			30	
Link Distance (ft)		146			356			115			439	
Travel Time (s)		2.2			6.9			1.7			10.0	
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	374	0	0	0	385	0	406	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	14.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	344	0	0	0	354	0	338	36	0	0	0
Future Vol, veh/h	0	344	0	0	0	354	0	338	36	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16979	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	374	0	0	0	385	0	367	39	0	0	0

Major/Minor	Minor2			Minor1			Major1					
Conflicting Flow All	-	406	-	-	-	387	-	0	0			
Stage 1	-	0	-	-	-	-	-	-	-			
Stage 2	-	406	-	-	-	-	-	-	-			
Critical Hdwy	-	6.52	-	-	-	6.22	-	-	-			
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-			
Critical Hdwy Stg 2	-	5.52	-	-	-	-	-	-	-			
Follow-up Hdwy	-	4.018	-	-	-	3.318	-	-	-			
Pot Cap-1 Maneuver	0	534	0	0	0	661	0	-	-			
Stage 1	0	-	0	0	0	-	0	-	-			
Stage 2	0	598	0	0	0	-	0	-	-			
Platoon blocked, %								-	-			
Mov Cap-1 Maneuver	-	534	-	-	-	661	-	-	-			
Mov Cap-2 Maneuver	-	534	-	-	-	-	-	-	-			
Stage 1	-	-	-	-	-	-	-	-	-			
Stage 2	-	598	-	-	-	-	-	-	-			

Approach	EB	WB	NB
HCM Control Delay, s	26	17.8	0
HCM LOS	D	C	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	534	661
HCM Lane V/C Ratio	-	-	0.7	0.582
HCM Control Delay (s)	-	-	26	17.8
HCM Lane LOS	-	-	D	C
HCM 95th %tile Q(veh)	-	-	5.5	3.8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	4	4	295	225	34
Future Volume (vph)	19	4	4	295	225	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1622	0	0	3536	3468	0
Flt Permitted	0.960			0.999		
Satd. Flow (perm)	1622	0	0	3536	3468	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	403			386	146	
Travel Time (s)	11.0			7.5	2.8	
Confl. Peds. (#/hr)	2	2	2			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	332	288	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	4	4	295	225	34
Future Vol, veh/h	19	4	4	295	225	34
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	10	2	2	2	2
Mvmt Flow	21	4	4	328	250	38

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	445	148	290	0	-	0
Stage 1	271	-	-	-	-	-
Stage 2	174	-	-	-	-	-
Critical Hdwy	7	7.1	4.14	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.4	2.22	-	-	-
Pot Cap-1 Maneuver	522	847	1269	-	-	-
Stage 1	727	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	518	844	1267	-	-	-
Mov Cap-2 Maneuver	518	-	-	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	813	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1267	-	555	-	-
HCM Lane V/C Ratio	0.004	-	0.046	-	-
HCM Control Delay (s)	7.9	0	11.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	24	13	4	17	4	4
Future Volume (vph)	24	13	4	17	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1754	0	0	1776	1694	0
Flt Permitted				0.991	0.976	
Satd. Flow (perm)	1754	0	0	1776	1694	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	944			1295	1990	
Travel Time (s)	25.7			35.3	54.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	3%	3%	6%	6%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	0	0	28	10	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	13	4	17	4	4
Future Vol, veh/h	24	13	4	17	4	4
Conflicting Peds, #/hr	0	0	1	0	0	1
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	74	74	74	74	74	74
Heavy Vehicles, %	3	3	6	6	2	2
Mvmt Flow	32	18	5	23	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	51	0	75	43
Stage 1	-	-	-	-	42	-
Stage 2	-	-	-	-	33	-
Critical Hdwy	-	-	4.16	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.254	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1530	-	928	1027
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1529	-	924	1025
Mov Cap-2 Maneuver	-	-	-	-	924	-
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	986	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	972	-	-	1529	-
HCM Lane V/C Ratio	0.011	-	-	0.004	-
HCM Control Delay (s)	8.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	4	4	4	4	4	4	13	4	4	16	4
Future Volume (vph)	4	4	4	4	4	4	4	13	4	4	16	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1750	0	0	1800	0	0	1807	0
Flt Permitted		0.984			0.984			0.991			0.992	
Satd. Flow (perm)	0	1750	0	0	1750	0	0	1800	0	0	1807	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		437			1927			950			1990	
Travel Time (s)		11.9			52.6			25.9			54.3	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	12	0	0	22	0	0	25	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	4	13	4	4	16	4
Future Vol, veh/h	4	4	4	4	4	4	4	13	4	4	16	4
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	4	4	4	4	4	4	14	4	4	17	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	57	55	21	57	55	18	22	0	0	19	0	0
Stage 1	28	28	-	25	25	-	-	-	-	-	-	-
Stage 2	29	27	-	32	30	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	940	836	1056	940	836	1061	1593	-	-	1597	-	-
Stage 1	989	872	-	993	874	-	-	-	-	-	-	-
Stage 2	988	873	-	984	870	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	927	829	1054	926	829	1059	1591	-	-	1595	-	-
Mov Cap-2 Maneuver	927	829	-	926	829	-	-	-	-	-	-	-
Stage 1	985	869	-	989	871	-	-	-	-	-	-	-
Stage 2	975	870	-	971	867	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	8.9	1.4	1.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1591	-	-	928	929	1595	-	-
HCM Lane V/C Ratio	0.003	-	-	0.014	0.014	0.003	-	-
HCM Control Delay (s)	7.3	0	-	8.9	8.9	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	5	4	5	4	4	7	20	4	4	21	4
Future Volume (vph)	4	5	4	5	4	4	7	20	4	4	21	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1758	0	0	1752	0	0	1809	0	0	1815	0
Flt Permitted		0.985			0.982			0.989			0.993	
Satd. Flow (perm)	0	1758	0	0	1752	0	0	1809	0	0	1815	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		367			1102			1438			950	
Travel Time (s)		10.0			30.1			39.2			25.9	
Confl. Peds. (#/hr)	1		1				1					1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	16	0	0	37	0	0	35	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	5	4	5	4	4	7	20	4	4	21	4
Future Vol, veh/h	4	5	4	5	4	4	7	20	4	4	21	4
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	6	5	6	5	5	8	24	5	5	25	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	88	84	30	87	84	28	31	0	0	29	0	0
Stage 1	39	39	-	43	43	-	-	-	-	-	-	-
Stage 2	49	45	-	44	41	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	897	806	1044	899	806	1047	1582	-	-	1584	-	-
Stage 1	976	862	-	971	859	-	-	-	-	-	-	-
Stage 2	964	857	-	970	861	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	882	799	1042	884	799	1046	1580	-	-	1584	-	-
Mov Cap-2 Maneuver	882	799	-	884	799	-	-	-	-	-	-	-
Stage 1	970	859	-	966	855	-	-	-	-	-	-	-
Stage 2	949	853	-	955	858	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9.1	1.6	1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1580	-	-	888	897	1584	-	-
HCM Lane V/C Ratio	0.005	-	-	0.017	0.017	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9.1	9.1	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	363	10	4	550	17	9	4	4	9	4	59
Future Volume (vph)	30	363	10	4	550	17	9	4	4	9	4	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Satd. Flow (prot)	1770	1855	0	1770	1855	0	0	1758	0	0	1646	0
Flt Permitted	0.950			0.950				0.973			0.994	
Satd. Flow (perm)	1770	1855	0	1770	1855	0	0	1758	0	0	1646	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		453			554			258			1438	
Travel Time (s)		8.8			10.8			7.0			39.2	
Confl. Peds. (#/hr)	3					3				3		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	406	0	4	616	0	0	18	0	0	78	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.1%		ICU Level of Service A	
Analysis Period (min) 15			

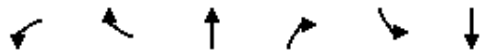
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	363	10	4	550	17	9	4	4	9	4	59
Future Vol, veh/h	30	363	10	4	550	17	9	4	4	9	4	59
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	395	11	4	598	18	10	4	4	10	4	64

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	619	0	0	406	0	0	1119	1094	404	1092	1090	613
Stage 1	-	-	-	-	-	-	467	467	-	618	618	-
Stage 2	-	-	-	-	-	-	652	627	-	474	472	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	961	-	-	1153	-	-	184	214	647	192	215	492
Stage 1	-	-	-	-	-	-	576	562	-	477	481	-
Stage 2	-	-	-	-	-	-	457	476	-	571	559	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	958	-	-	1153	-	-	152	205	645	181	206	489
Mov Cap-2 Maneuver	-	-	-	-	-	-	152	205	-	181	206	-
Stage 1	-	-	-	-	-	-	556	543	-	459	478	-
Stage 2	-	-	-	-	-	-	391	473	-	542	540	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	24.8	17
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	200	958	-	-	1153	-	-	379
HCM Lane V/C Ratio	0.092	0.034	-	-	0.004	-	-	0.206
HCM Control Delay (s)	24.8	8.9	-	-	8.1	-	-	17
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.8



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	4	1519	4	0	0
Future Volume (vph)	0	4	1519	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1611	3471	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3471	0	0	0
Link Speed (mph)	25		55			55
Link Distance (ft)	194		1682			659
Travel Time (s)	5.3		20.9			8.2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	5	1731	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

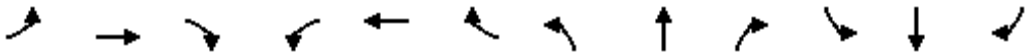
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	4	1519	4	0	0
Future Vol, veh/h	0	4	1519	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	16979
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	0	5	1726	5	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	866	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	297	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	297	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	17.3	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	297
HCM Lane V/C Ratio	-	-	0.015
HCM Control Delay (s)	-	-	17.3
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0

Appendix F:
Synchro Output:
Build-Out (2031)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	35	0	4	0	0	0	0	0	322	4
Future Volume (vph)	0	0	35	0	4	0	0	0	0	0	322	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	1536	0	1863	0	0	0	0	0	1859	0
Flt Permitted												
Satd. Flow (perm)	0	0	1536	0	1863	0	0	0	0	0	1859	0
Link Speed (mph)		35			45			30			45	
Link Distance (ft)		218			151			306			106	
Travel Time (s)		4.2			2.3			7.0			1.6	
Confl. Bikes (#/hr)			2									1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	42	0	5	0	0	0	0	0	393	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

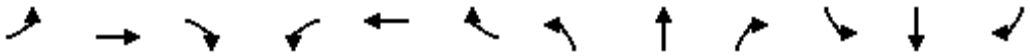
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	35	0	4	0	0	0	0	0	322	4
Future Vol, veh/h	0	0	35	0	4	0	0	0	0	0	322	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	7	7	7	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	42	0	5	0	0	0	0	0	388	5

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	-	-	391	-	393	-			-	-	0
Stage 1	-	-	-	-	0	-			-	-	-
Stage 2	-	-	-	-	393	-			-	-	-
Critical Hdwy	-	-	6.27	-	6.52	-			-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-			-	-	-
Follow-up Hdwy	-	-	3.363	-	4.018	-			-	-	-
Pot Cap-1 Maneuver	0	0	647	0	543	0			0	-	-
Stage 1	0	0	-	0	-	0			0	-	-
Stage 2	0	0	-	0	606	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	-	-	647	-	543	-			-	-	-
Mov Cap-2 Maneuver	-	-	-	-	543	-			-	-	-
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	606	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	11	11.7	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	647	543	-	-
HCM Lane V/C Ratio	0.065	0.009	-	-
HCM Control Delay (s)	11	11.7	-	-
HCM Lane LOS	B	B	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	350	0	0	0	405	0	267	30	0	0	0
Future Volume (vph)	0	350	0	0	0	405	0	267	30	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1863	0	0	0	1611	0	1837	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	1611	0	1837	0	0	0	0
Link Speed (mph)		45			35			45			30	
Link Distance (ft)		146			356			115			439	
Travel Time (s)		2.2			6.9			1.7			10.0	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	422	0	0	0	488	0	358	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

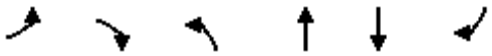
Intersection	
Int Delay, s/veh	17.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	350	0	0	0	405	0	267	30	0	0	0
Future Vol, veh/h	0	350	0	0	0	405	0	267	30	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	422	0	0	0	488	0	322	36	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	358	-	-	-	340	-	0	0
Stage 1	-	0	-	-	-	-	-	-	-
Stage 2	-	358	-	-	-	-	-	-	-
Critical Hdwy	-	6.52	-	-	-	6.22	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.018	-	-	-	3.318	-	-	-
Pot Cap-1 Maneuver	0	568	0	0	0	702	0	-	-
Stage 1	0	-	0	0	0	-	0	-	-
Stage 2	0	628	0	0	0	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	568	-	-	-	702	-	-	-
Mov Cap-2 Maneuver	-	568	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	628	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	27.4	21	0
HCM LOS	D	C	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	568	702
HCM Lane V/C Ratio	-	-	0.742	0.695
HCM Control Delay (s)	-	-	27.4	21
HCM Lane LOS	-	-	D	C
HCM 95th %tile Q(veh)	-	-	6.4	5.6



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	4	4	236	290	31
Future Volume (vph)	22	4	4	236	290	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1620	0	0	3468	3486	0
Flt Permitted	0.960			0.999		
Satd. Flow (perm)	1620	0	0	3468	3486	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	403			386	146	
Travel Time (s)	11.0			7.5	2.8	
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	4%	4%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	0	276	369	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	4	4	236	290	31
Future Vol, veh/h	22	4	4	236	290	31
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	10	10	4	4	2	2
Mvmt Flow	25	5	5	271	333	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	498	187	370	0	-	0
Stage 1	352	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	7	7.1	4.18	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.4	2.24	-	-	-
Pot Cap-1 Maneuver	482	799	1171	-	-	-
Stage 1	660	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	479	797	1170	-	-	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	842	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1170	-	510	-	-
HCM Lane V/C Ratio	0.004	-	0.059	-	-
HCM Control Delay (s)	8.1	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	21	15	4	14	10	5
Future Volume (vph)	21	15	4	14	10	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1614	0	0	1844	1524	0
Flt Permitted				0.990	0.969	
Satd. Flow (perm)	1614	0	0	1844	1524	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	944			1313	1990	
Travel Time (s)	25.7			35.8	54.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	11%	11%	2%	2%	15%	15%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	0	20	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	15	4	14	10	5
Future Vol, veh/h	21	15	4	14	10	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	11	11	2	2	15	15
Mvmt Flow	23	17	4	16	11	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	40	0	56	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	24	-
Critical Hdwy	-	-	4.12	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.218	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1570	-	920	1006
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	966	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1570	-	917	1006
Mov Cap-2 Maneuver	-	-	-	-	917	-
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	963	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	945	-	-	1570	-
HCM Lane V/C Ratio	0.018	-	-	0.003	-
HCM Control Delay (s)	8.9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	4	12	4	4	27	4
Future Volume (vph)	4	4	4	4	4	4	4	12	4	4	27	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1190	0	0	1666	0	0	1773	0
Flt Permitted		0.984			0.984			0.990			0.995	
Satd. Flow (perm)	0	1750	0	0	1190	0	0	1666	0	0	1773	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		437			1927			950			1990	
Travel Time (s)		11.9			52.6			25.9			54.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	50%	50%	50%	10%	10%	10%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	15	0	0	26	0	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	4	12	4	4	27	4
Future Vol, veh/h	4	4	4	4	4	4	4	12	4	4	27	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	50	50	50	10	10	10	5	5	5
Mvmt Flow	5	5	5	5	5	5	5	16	5	5	36	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	83	80	39	83	80	19	41	0	0	21	0	0
Stage 1	49	49	-	29	29	-	-	-	-	-	-	-
Stage 2	34	31	-	54	51	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.6	7	6.7	4.2	-	-	4.15	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.95	4.45	3.75	2.29	-	-	2.245	-	-
Pot Cap-1 Maneuver	904	810	1033	800	727	936	1518	-	-	1575	-	-
Stage 1	964	854	-	878	785	-	-	-	-	-	-	-
Stage 2	982	869	-	850	767	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	890	805	1033	788	723	936	1518	-	-	1575	-	-
Mov Cap-2 Maneuver	890	805	-	788	723	-	-	-	-	-	-	-
Stage 1	961	851	-	875	783	-	-	-	-	-	-	-
Stage 2	967	866	-	838	765	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9.6	1.5	0.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1518	-	-	900	806	1575	-	-
HCM Lane V/C Ratio	0.004	-	-	0.018	0.02	0.003	-	-
HCM Control Delay (s)	7.4	0	-	9.1	9.6	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	4	14	4	4	33	4
Future Volume (vph)	4	4	4	4	4	4	4	14	4	4	33	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1190	0	0	1734	0	0	1794	0
Flt Permitted		0.984			0.984			0.991			0.995	
Satd. Flow (perm)	0	1750	0	0	1190	0	0	1734	0	0	1794	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		367			1102			1438			950	
Travel Time (s)		10.0			30.1			39.2			25.9	
Confl. Peds. (#/hr)				1		1			1	1		
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	2%	2%	2%	50%	50%	50%	6%	6%	6%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	18	0	0	34	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

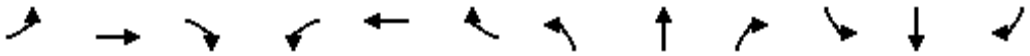
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	4	14	4	4	33	4
Future Vol, veh/h	4	4	4	4	4	4	4	14	4	4	33	4
Conflicting Peds, #/hr	0	0	0	1	0	1	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	65	65	65	65	65	65
Heavy Vehicles, %	2	2	2	50	50	50	6	6	6	4	4	4
Mvmt Flow	6	6	6	6	6	6	6	22	6	6	51	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	110	107	55	111	107	27	57	0	0	29	0	0
Stage 1	66	66	-	38	38	-	-	-	-	-	-	-
Stage 2	44	41	-	73	69	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.6	7	6.7	4.16	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.95	4.45	3.75	2.254	-	-	2.236	-	-
Pot Cap-1 Maneuver	868	783	1012	766	701	926	1522	-	-	1571	-	-
Stage 1	945	840	-	868	777	-	-	-	-	-	-	-
Stage 2	970	861	-	830	752	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	851	776	1011	751	695	924	1522	-	-	1570	-	-
Mov Cap-2 Maneuver	851	776	-	751	695	-	-	-	-	-	-	-
Stage 1	941	837	-	864	773	-	-	-	-	-	-	-
Stage 2	951	857	-	815	749	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.7	1.3	0.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1522	-	-	869	779	1570	-	-
HCM Lane V/C Ratio	0.004	-	-	0.021	0.024	0.004	-	-
HCM Control Delay (s)	7.4	0	-	9.2	9.7	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	472	10	4	330	21	9	4	4	25	4	56
Future Volume (vph)	49	472	10	4	330	21	9	4	4	25	4	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Satd. Flow (prot)	1770	1857	0	1770	1846	0	0	1758	0	0	1671	0
Flt Permitted	0.950			0.950				0.973			0.986	
Satd. Flow (perm)	1770	1857	0	1770	1846	0	0	1758	0	0	1671	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		453			554			258			1438	
Travel Time (s)		8.8			10.8			7.0			39.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	530	0	4	386	0	0	18	0	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.2%		ICU Level of Service A	
Analysis Period (min) 15			

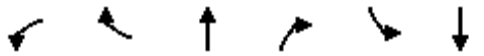
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	472	10	4	330	21	9	4	4	25	4	56
Future Vol, veh/h	49	472	10	4	330	21	9	4	4	25	4	56
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	519	11	4	363	23	10	4	4	27	4	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	386	0	0	530	0	0	1049	1027	525	1020	1021	375
Stage 1	-	-	-	-	-	-	633	633	-	383	383	-
Stage 2	-	-	-	-	-	-	416	394	-	637	638	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1172	-	-	1037	-	-	205	234	552	215	236	671
Stage 1	-	-	-	-	-	-	468	473	-	640	612	-
Stage 2	-	-	-	-	-	-	614	605	-	465	471	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1172	-	-	1037	-	-	177	222	552	202	224	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	177	222	-	202	224	-
Stage 1	-	-	-	-	-	-	446	451	-	611	610	-
Stage 2	-	-	-	-	-	-	552	603	-	436	449	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.1	22.6	17.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	223	1172	-	-	1037	-	-	378
HCM Lane V/C Ratio	0.084	0.046	-	-	0.004	-	-	0.247
HCM Control Delay (s)	22.6	8.2	-	-	8.5	-	-	17.6
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	1



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	26	984	27	0	0
Future Volume (vph)	0	26	984	27	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		50	0	
Storage Lanes	0	1		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1611	3374	1509	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3374	1509	0	0
Link Speed (mph)	25		55			55
Link Distance (ft)	194		1682			659
Travel Time (s)	5.3		20.9			8.2
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	7%	7%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	33	1230	34	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	26	984	27	0	0
Future Vol, veh/h	0	26	984	27	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	50	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	7	7	2	2
Mvmt Flow	0	33	1230	34	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	615	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	434	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	434	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	14	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	434
HCM Lane V/C Ratio	-	-	0.075
HCM Control Delay (s)	-	-	14
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	4	16	10	4	33
Future Volume (vph)	15	4	16	10	4	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1744	0	1768	0	0	1853
Flt Permitted	0.961					0.995
Satd. Flow (perm)	1744	0	1768	0	0	1853
Link Speed (mph)	25		30			30
Link Distance (ft)	290		288			821
Travel Time (s)	7.9		6.5			18.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	29	0	0	41
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.1%		ICU Level of Service A	
Analysis Period (min) 15			

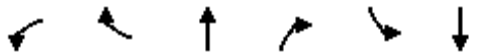
Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	4	16	10	4	33
Future Vol, veh/h	15	4	16	10	4	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	4	18	11	4	37

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	69	24	0	0	29	0
Stage 1	24	-	-	-	-	-
Stage 2	45	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	936	1052	-	-	1584	-
Stage 1	999	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	933	1052	-	-	1584	-
Mov Cap-2 Maneuver	933	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	974	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	956	1584	-
HCM Lane V/C Ratio	-	-	0.022	0.003	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	15	9	11	19	10
Future Volume (vph)	26	15	9	11	19	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1715	0	1725	0	0	1803
Flt Permitted	0.969					0.968
Satd. Flow (perm)	1715	0	1725	0	0	1803
Link Speed (mph)	25		30			30
Link Distance (ft)	398		821			192
Travel Time (s)	10.9		18.7			4.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	22	0	0	32
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			

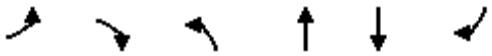
Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	15	9	11	19	10
Future Vol, veh/h	26	15	9	11	19	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	17	10	12	21	11

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	69	16	0	0	22	0
Stage 1	16	-	-	-	-	-
Stage 2	53	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	936	1063	-	-	1593	-
Stage 1	1007	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	924	1063	-	-	1593	-
Mov Cap-2 Maneuver	924	-	-	-	-	-
Stage 1	1007	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	4.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	970	1593	-
HCM Lane V/C Ratio	-	-	0.047	0.013	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

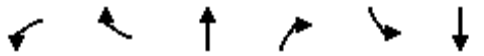


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	21	19	5	7	7
Future Volume (vph)	5	21	19	5	7	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1647	0	0	1794	1736	0
Flt Permitted	0.990			0.963		
Satd. Flow (perm)	1647	0	0	1794	1736	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	194			192	513	
Travel Time (s)	5.3			4.4	11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	0	27	16	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

11: US 1 NB Service Road & US 1 NB Service Road Access Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.1	4.0	3.8	2.4



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	4	4	10	4	4
Future Volume (vph)	14	4	4	10	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1744	0	1678	0	0	1818
Flt Permitted	0.962					0.976
Satd. Flow (perm)	1744	0	1678	0	0	1818
Link Speed (mph)	25		30			30
Link Distance (ft)	285		513			402
Travel Time (s)	7.8		11.7			9.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	15	0	0	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		

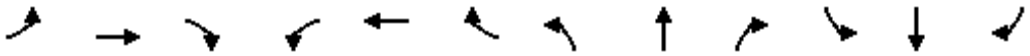
Intersection	
Int Delay, s/veh	4.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	4	4	10	4	4
Future Vol, veh/h	14	4	4	10	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	4	4	11	4	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	22	10	0	0	15	0
Stage 1	10	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	995	1071	-	-	1603	-
Stage 1	1013	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	992	1071	-	-	1603	-
Mov Cap-2 Maneuver	992	-	-	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1009	1603	-
HCM Lane V/C Ratio	-	-	0.02	0.003	-
HCM Control Delay (s)	-	-	8.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	46	0	4	0	0	0	0	0	260	4
Future Volume (vph)	0	0	46	0	4	0	0	0	0	0	260	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	0	1611	0	1863	0	0	0	0	0	1859	0
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	1863	0	0	0	0	0	1859	0
Link Speed (mph)		35			45			30			45	
Link Distance (ft)		218			151			306			106	
Travel Time (s)		4.2			2.3			7.0			1.6	
Confl. Bikes (#/hr)			2									1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	50	0	4	0	0	0	0	0	287	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.9%		ICU Level of Service A	
Analysis Period (min) 15			

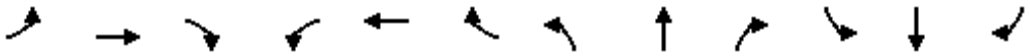
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	46	0	4	0	0	0	0	0	260	4
Future Vol, veh/h	0	0	46	0	4	0	0	0	0	0	260	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	50	0	4	0	0	0	0	0	283	4

Major/Minor	Minor2			Minor1					Major2		
Conflicting Flow All	-	-	285	-	287	-			-	-	0
Stage 1	-	-	-	-	0	-			-	-	-
Stage 2	-	-	-	-	287	-			-	-	-
Critical Hdwy	-	-	6.22	-	6.52	-			-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-			-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-			-	-	-
Follow-up Hdwy	-	-	3.318	-	4.018	-			-	-	-
Pot Cap-1 Maneuver	0	0	754	0	623	0			0	-	-
Stage 1	0	0	-	0	-	0			0	-	-
Stage 2	0	0	-	0	674	0			0	-	-
Platoon blocked, %										-	-
Mov Cap-1 Maneuver	-	-	754	-	623	-			-	-	-
Mov Cap-2 Maneuver	-	-	-	-	623	-			-	-	-
Stage 1	-	-	-	-	-	-			-	-	-
Stage 2	-	-	-	-	674	-			-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	10.1	10.8	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	754	623	-	-
HCM Lane V/C Ratio	0.066	0.007	-	-
HCM Control Delay (s)	10.1	10.8	-	-
HCM Lane LOS	B	B	-	-
HCM 95th %tile Q(veh)	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	344	0	0	0	368	0	338	36	0	0	0
Future Volume (vph)	0	344	0	0	0	368	0	338	36	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1863	0	0	0	1611	0	1839	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	1611	0	1839	0	0	0	0
Link Speed (mph)		45			35			45			30	
Link Distance (ft)		146			356			115			439	
Travel Time (s)		2.2			6.9			1.7			10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	374	0	0	0	400	0	406	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			

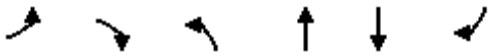
Intersection	
Int Delay, s/veh	14.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑				↱		↱				
Traffic Vol, veh/h	0	344	0	0	0	368	0	338	36	0	0	0
Future Vol, veh/h	0	344	0	0	0	368	0	338	36	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	374	0	0	0	400	0	367	39	0	0	0

Major/Minor	Minor2			Minor1			Major1					
Conflicting Flow All	-	406	-	-	-	387	-	0	0			
Stage 1	-	0	-	-	-	-	-	-	-			
Stage 2	-	406	-	-	-	-	-	-	-			
Critical Hdwy	-	6.52	-	-	-	6.22	-	-	-			
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-			
Critical Hdwy Stg 2	-	5.52	-	-	-	-	-	-	-			
Follow-up Hdwy	-	4.018	-	-	-	3.318	-	-	-			
Pot Cap-1 Maneuver	0	534	0	0	0	661	0	-	-			
Stage 1	0	-	0	0	0	-	0	-	-			
Stage 2	0	598	0	0	0	-	0	-	-			
Platoon blocked, %								-	-			
Mov Cap-1 Maneuver	-	534	-	-	-	661	-	-	-			
Mov Cap-2 Maneuver	-	534	-	-	-	-	-	-	-			
Stage 1	-	-	-	-	-	-	-	-	-			
Stage 2	-	598	-	-	-	-	-	-	-			

Approach	EB	WB	NB
HCM Control Delay, s	26	18.4	0
HCM LOS	D	C	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	534	661
HCM Lane V/C Ratio	-	-	0.7	0.605
HCM Control Delay (s)	-	-	26	18.4
HCM Lane LOS	-	-	D	C
HCM 95th %tile Q(veh)	-	-	5.5	4.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	19	4	4	295	225	41
Future Volume (vph)	19	4	4	295	225	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1622	0	0	3536	3458	0
Flt Permitted	0.960			0.999		
Satd. Flow (perm)	1622	0	0	3536	3458	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	403			386	146	
Travel Time (s)	11.0			7.5	2.8	
Confl. Peds. (#/hr)	2	2	2			2
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	332	296	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	4	4	295	225	41
Future Vol, veh/h	19	4	4	295	225	41
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	10	2	2	2	2
Mvmt Flow	21	4	4	328	250	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	449	152	298	0	-	0
Stage 1	275	-	-	-	-	-
Stage 2	174	-	-	-	-	-
Critical Hdwy	7	7.1	4.14	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.6	3.4	2.22	-	-	-
Pot Cap-1 Maneuver	518	842	1260	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	514	839	1258	-	-	-
Mov Cap-2 Maneuver	514	-	-	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	813	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.9	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1258	-	551	-	-
HCM Lane V/C Ratio	0.004	-	0.046	-	-
HCM Control Delay (s)	7.9	0	11.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	24	20	4	17	4	4
Future Volume (vph)	24	20	4	17	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1730	0	0	1776	1694	0
Flt Permitted				0.991	0.976	
Satd. Flow (perm)	1730	0	0	1776	1694	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	944			1313	1990	
Travel Time (s)	25.7			35.8	54.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	3%	3%	6%	6%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	0	28	10	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	20	4	17	4	4
Future Vol, veh/h	24	20	4	17	4	4
Conflicting Peds, #/hr	0	0	1	0	0	1
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	74	74	74	74	74	74
Heavy Vehicles, %	3	3	6	6	2	2
Mvmt Flow	32	27	5	23	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	60	0	80	48
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	33	-
Critical Hdwy	-	-	4.16	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.254	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1518	-	922	1021
Stage 1	-	-	-	-	975	-
Stage 2	-	-	-	-	989	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1517	-	918	1019
Mov Cap-2 Maneuver	-	-	-	-	918	-
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	986	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	966	-	-	1517	-
HCM Lane V/C Ratio	0.011	-	-	0.004	-
HCM Control Delay (s)	8.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	4	4	4	4	4	13	4	4	23	4
Future Volume (vph)	4	4	4	4	4	4	4	13	4	4	23	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1750	0	0	1750	0	0	1800	0	0	1822	0
Flt Permitted		0.984			0.984			0.991			0.994	
Satd. Flow (perm)	0	1750	0	0	1750	0	0	1800	0	0	1822	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		437			1927			950			1990	
Travel Time (s)		11.9			52.6			25.9			54.3	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	0	12	0	0	22	0	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	4	4	4	4	4	4	13	4	4	23	4
Future Vol, veh/h	4	4	4	4	4	4	4	13	4	4	23	4
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	4	4	4	4	4	4	14	4	4	25	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	65	63	29	65	63	18	30	0	0	19	0	0
Stage 1	36	36	-	25	25	-	-	-	-	-	-	-
Stage 2	29	27	-	40	38	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	929	828	1046	929	828	1061	1583	-	-	1597	-	-
Stage 1	980	865	-	993	874	-	-	-	-	-	-	-
Stage 2	988	873	-	975	863	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	915	821	1044	915	821	1059	1581	-	-	1595	-	-
Mov Cap-2 Maneuver	915	821	-	915	821	-	-	-	-	-	-	-
Stage 1	976	862	-	989	871	-	-	-	-	-	-	-
Stage 2	975	870	-	962	860	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9	1.4	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1581	-	-	918	922	1595	-	-
HCM Lane V/C Ratio	0.003	-	-	0.014	0.014	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9	9	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	5	4	5	4	4	7	20	4	4	28	4
Future Volume (vph)	4	5	4	5	4	4	7	20	4	4	28	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1758	0	0	1752	0	0	1809	0	0	1822	0
Flt Permitted		0.985			0.982			0.989			0.994	
Satd. Flow (perm)	0	1758	0	0	1752	0	0	1809	0	0	1822	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		367			1102			1438			950	
Travel Time (s)		10.0			30.1			39.2			25.9	
Confl. Peds. (#/hr)	1		1				1					1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	16	0	0	37	0	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

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

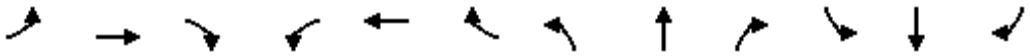
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	5	4	5	4	4	7	20	4	4	28	4
Future Vol, veh/h	4	5	4	5	4	4	7	20	4	4	28	4
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	6	5	6	5	5	8	24	5	5	33	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	96	92	38	95	92	28	39	0	0	29	0	0
Stage 1	47	47	-	43	43	-	-	-	-	-	-	-
Stage 2	49	45	-	52	49	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	887	798	1034	888	798	1047	1571	-	-	1584	-	-
Stage 1	967	856	-	971	859	-	-	-	-	-	-	-
Stage 2	964	857	-	961	854	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	872	791	1032	873	791	1046	1570	-	-	1584	-	-
Mov Cap-2 Maneuver	872	791	-	873	791	-	-	-	-	-	-	-
Stage 1	961	853	-	966	855	-	-	-	-	-	-	-
Stage 2	949	853	-	946	851	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.1	1.6	0.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1570	-	-	879	890	1584	-	-
HCM Lane V/C Ratio	0.005	-	-	0.018	0.017	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9.2	9.1	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	363	10	4	550	39	9	4	4	25	4	78
Future Volume (vph)	37	363	10	4	550	39	9	4	4	25	4	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Satd. Flow (prot)	1770	1855	0	1770	1844	0	0	1758	0	0	1658	0
Flt Permitted	0.950			0.950				0.973			0.988	
Satd. Flow (perm)	1770	1855	0	1770	1844	0	0	1758	0	0	1658	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		453			554			258			1438	
Travel Time (s)		8.8			10.8			7.0			39.2	
Confl. Peds. (#/hr)	3					3				3		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	406	0	4	640	0	0	18	0	0	116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.5%		ICU Level of Service A	
Analysis Period (min) 15			

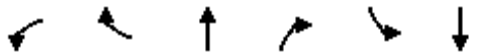
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	363	10	4	550	39	9	4	4	25	4	78
Future Vol, veh/h	37	363	10	4	550	39	9	4	4	25	4	78
Conflicting Peds, #/hr	3	0	0	0	0	3	0	0	0	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	125	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	395	11	4	598	42	10	4	4	27	4	85

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	643	0	0	406	0	0	1156	1132	404	1118	1116	625
Stage 1	-	-	-	-	-	-	481	481	-	630	630	-
Stage 2	-	-	-	-	-	-	675	651	-	488	486	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	942	-	-	1153	-	-	174	203	647	184	208	485
Stage 1	-	-	-	-	-	-	566	554	-	470	475	-
Stage 2	-	-	-	-	-	-	444	465	-	561	551	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	939	-	-	1153	-	-	136	193	645	172	198	482
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	193	-	172	198	-
Stage 1	-	-	-	-	-	-	542	530	-	449	472	-
Stage 2	-	-	-	-	-	-	360	462	-	528	527	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.1	26.9	22
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	183	939	-	-	1153	-	-	327
HCM Lane V/C Ratio	0.101	0.043	-	-	0.004	-	-	0.356
HCM Control Delay (s)	26.9	9	-	-	8.1	-	-	22
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	1.6



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	20	1519	38	0	0
Future Volume (vph)	0	20	1519	38	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		50	0	
Storage Lanes	0	1		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1611	3471	1553	0	0
Flt Permitted						
Satd. Flow (perm)	0	1611	3471	1553	0	0
Link Speed (mph)	25		55			55
Link Distance (ft)	194		1682			659
Travel Time (s)	5.3		20.9			8.2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	4%	4%	2%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	1726	43	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

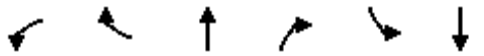
Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	20	1519	38	0	0
Future Vol, veh/h	0	20	1519	38	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	50	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	4	2	2
Mvmt Flow	0	23	1726	43	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	863	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.94	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.32	-	-
Pot Cap-1 Maneuver	0	298	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	298	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	18.1	0
HCM LOS	C	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	298
HCM Lane V/C Ratio	-	-	0.076
HCM Control Delay (s)	-	-	18.1
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.2



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	4	22	14	4	24
Future Volume (vph)	10	4	22	14	4	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1733	0	1762	0	0	1852
Flt Permitted	0.965					0.994
Satd. Flow (perm)	1733	0	1762	0	0	1852
Link Speed (mph)	25		30			30
Link Distance (ft)	290		288			812
Travel Time (s)	7.9		6.5			18.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	40	0	0	31
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.7%		ICU Level of Service A	
Analysis Period (min) 15			

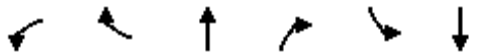
Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	4	22	14	4	24
Future Vol, veh/h	10	4	22	14	4	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	4	24	16	4	27

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	67	32	0	0	40	0
Stage 1	32	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	938	1042	-	-	1570	-
Stage 1	991	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	935	1042	-	-	1570	-
Mov Cap-2 Maneuver	935	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	963	1570	-
HCM Lane V/C Ratio	-	-	0.016	0.003	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	11	10	15	26	9
Future Volume (vph)	19	11	10	15	26	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1717	0	1710	0	0	1796
Flt Permitted	0.969					0.964
Satd. Flow (perm)	1717	0	1710	0	0	1796
Link Speed (mph)	25		30			30
Link Distance (ft)	349		812			202
Travel Time (s)	9.5		18.5			4.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	28	0	0	39
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.6%		ICU Level of Service A	
Analysis Period (min) 15			

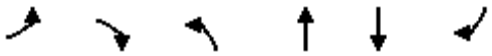
Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	11	10	15	26	9
Future Vol, veh/h	19	11	10	15	26	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	12	11	17	29	10

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	88	20	0	0	28	0
Stage 1	20	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	913	1058	-	-	1585	-
Stage 1	1003	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	897	1058	-	-	1585	-
Mov Cap-2 Maneuver	897	-	-	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	938	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	5.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	950	1585	-
HCM Lane V/C Ratio	-	-	0.035	0.018	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	29	14	7	5	5
Future Volume (vph)	7	29	14	7	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1645	0	0	1803	1736	0
Flt Permitted	0.990			0.968		
Satd. Flow (perm)	1645	0	0	1803	1736	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	194			202	513	
Travel Time (s)	5.3			4.6	11.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	0	24	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		

11: US 1 NB Service Road & US 1 NB Service Road Access Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.1	4.0	2.9	1.7

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	4	4	14	4	4
Future Volume (vph)	11	4	4	14	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1735	0	1662	0	0	1818
Flt Permitted	0.964					0.976
Satd. Flow (perm)	1735	0	1662	0	0	1818
Link Speed (mph)	25		30			30
Link Distance (ft)	285		513			402
Travel Time (s)	7.8		11.7			9.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	20	0	0	8
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	4	4	14	4	4
Future Vol, veh/h	11	4	4	14	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	4	4	16	4	4

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	24	12	0	0	20	0
Stage 1	12	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	992	1069	-	-	1596	-
Stage 1	1011	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	989	1069	-	-	1596	-
Mov Cap-2 Maneuver	989	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1009	1596	-
HCM Lane V/C Ratio	-	-	0.017	0.003	-
HCM Control Delay (s)	-	-	8.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Agenda Item

To: **Reagan Parsons, Town Manager**

From: **Jennifer Hunt, Planner I**

Subject: **AR-07-21 Pinnacle Storage**

Date: **December 14, 2021**

I. SUMMARY OF APPLICATION REQUEST:

Cothran Harris, on behalf of Longleaf Pines Storage, LLC, is requesting approval of an Architectural Compliance Permit for a 49,600 square foot commercial self-storage, two story building. The building is Phase I of a self-storage development. The address is 240 Bell Avenue which is located in the General Business (GB) zone. The surrounding streets are US 1 HWY S, Shaw Avenue and S Bennett St.

II. PROJECT INFORMATION:

1. **PARID** 00047591; **PIN** 857100865141
   PARID 00046695; **PIN** 857100859879

2. **Physical Address:**
   240 Bell Avenue
   Southern Pines, NC

3. **Owners:**
   Longleaf Pines Storage, LLC
   324 Greenville Avenue
   Wilmington, NC 28403

4. **Applicant / Agent:**
   Cothran Harris Architecture
   5725 Oleander Drive, Suite E-1
   Wilmington, NC 28403

Figure 1: Vicinity Map and Zoning Map (Subject Property Outlined in Yellow)

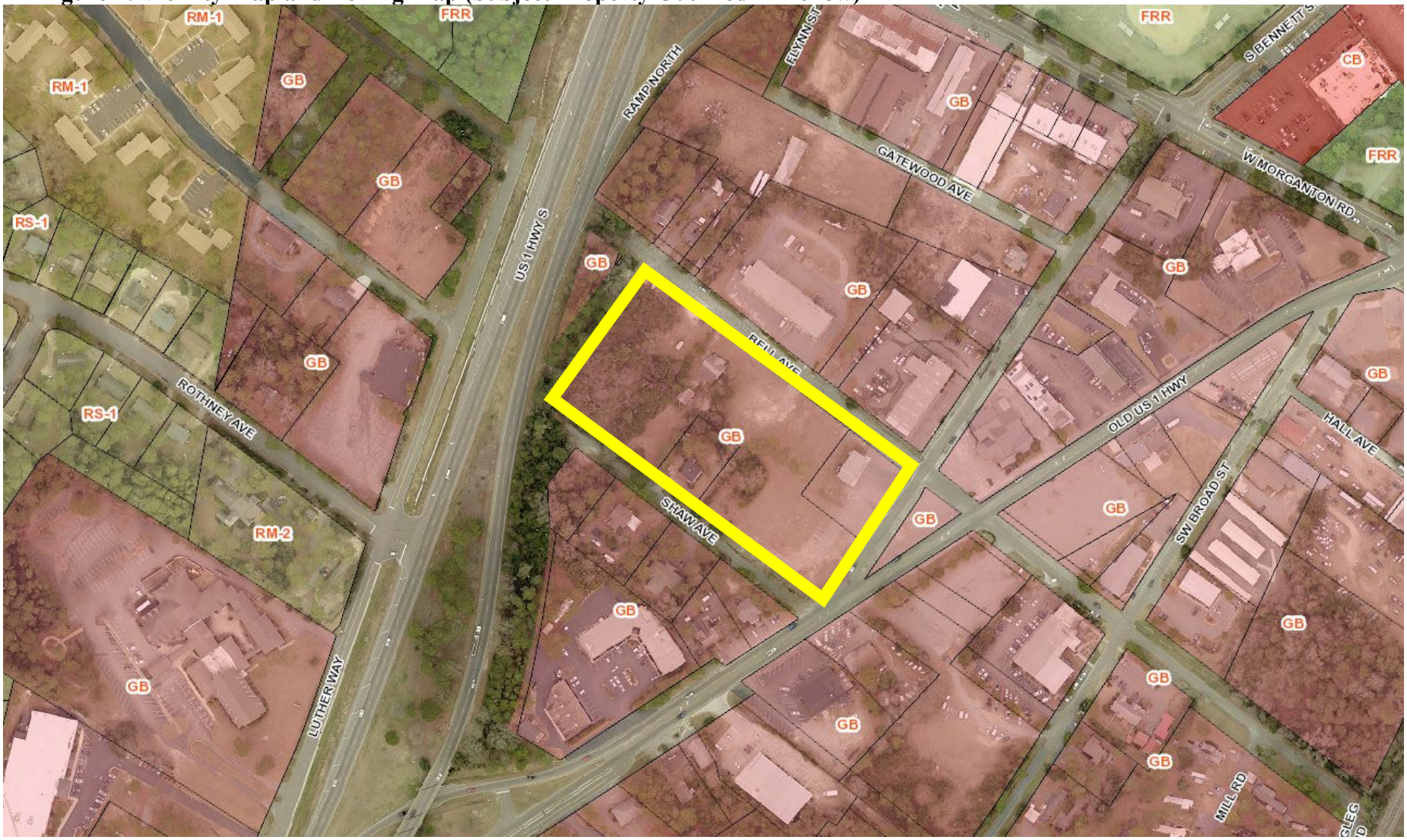
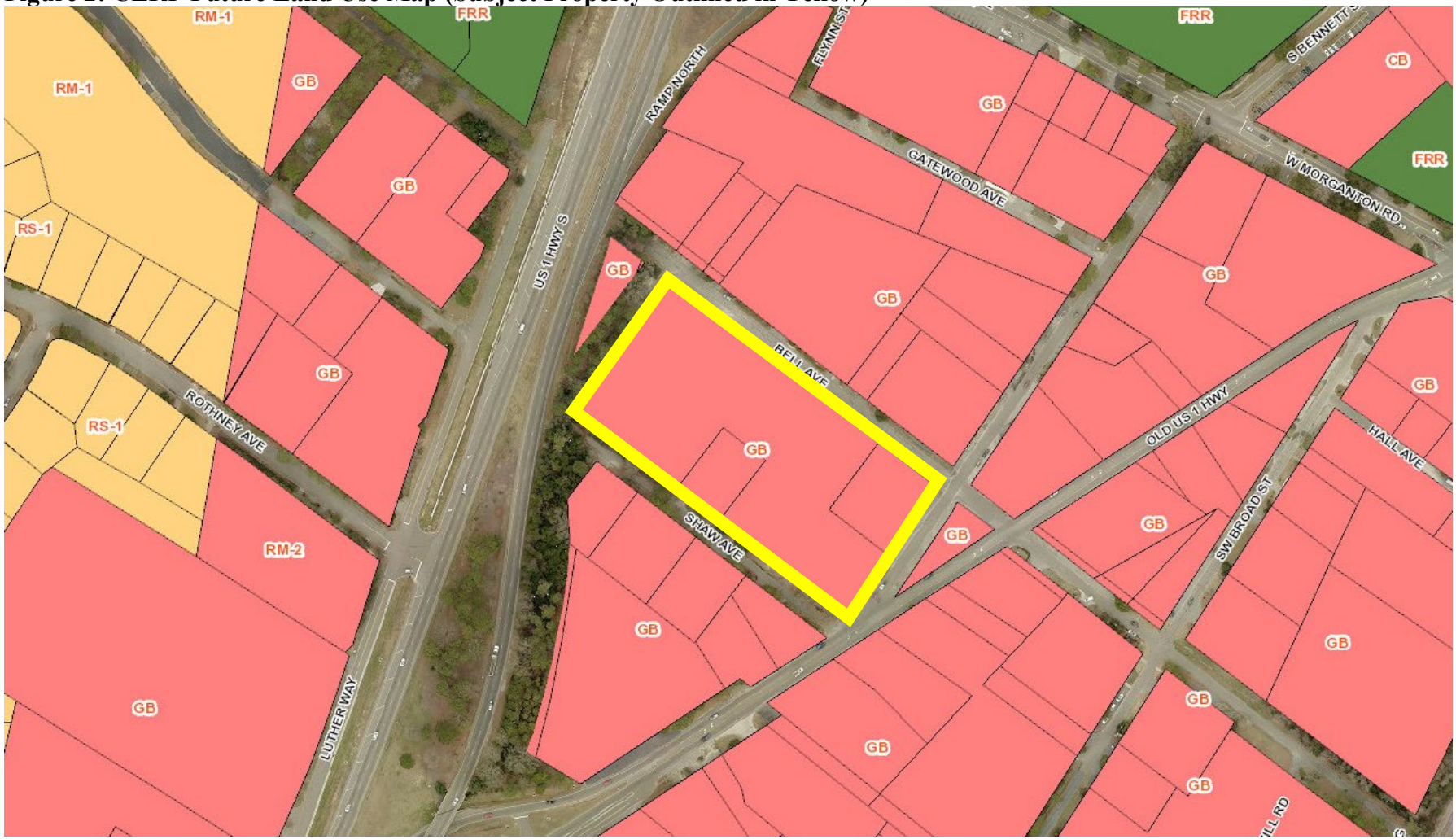


Figure 2: CLRP Future Land Use Map (Subject Property Outlined in Yellow)



5. **Comprehensive Long-Range Plan Designation:**
The area is designated as Commercial on the Comprehensive Long-Range Plan (CLRP). The "Commercial" future land use is designed to include land dedicated to retail, professional office, and other primarily non-residential commercial uses. Higher density residential and mixed- use development is also encouraged in this designation.

6. **Zoning:**
The parcel is currently zoned General Business (GB) (See Figure 1 above). GB is a district designed to accommodate highway-oriented retail, commercial service businesses and in some cases light manufacturing. The major objectives of the GB district is to discourage small lot development on major highways, encourage vehicular access from local commercial streets and provide a location for major shopping facilities, requiring large outdoor spaces.

III. STAFF REVIEW:

1. **Review Process:**
Applications for Architectural Compliance Permits are reviewed pursuant to UDO §2.26.

2. **Application Review Dates:**
Application Submitted: October 29, 2021
Application Complete: November 8, 2021
Town Council Agenda Meeting: December 8, 2021
Town Council Meeting: December 14, 2021

3. **Criteria for Review:**
When reviewing an application for an Architectural Compliance Permit, the Town Council shall approve, conditionally approve or deny the application based on the following criteria, as set forth in **UDO §2.26.7**:

    1. *The application is consistent with applicable Comprehensive Plan goals and policies;*
    2. *The application substantially conforms with the applicable multi-family or commercial design standards and other applicable provisions of the UDO, including the purposes of the zoning district in which the property is located;*
    3. *The application is consistent with applicable conditions of prior Development approvals; and*
    4. *The development as proposed will be compatible with neighboring development and has mitigated potential conflicts.*

4. **Staff Comments based on Commercial Building Design Requirements per UDO §4.10.4:**
The proposed elevations show a two-story commercial self-storage building which is 49,600 square feet in area. Staff has reviewed the project for compliance with §4.10.4 *Building Design Requirements.*

- UDO §4.10.4 (A) (1) *states the front of buildings shall face and have the primary customer entry facing that street. Corner Lot buildings shall face and have the primary customer entry facing the higher order street, facing the corner or facing each street. Buildings that extend the full depth of a block may be required to have entries on each street frontage.*
  Generally Compliant:
  The building orientation and entries meet the applicable standard along Bell Avenue, S Bennett Street and Shaw Avenue. Bell Avenue and S Bennett Street have a similar amount of traffic. Therefore, Bell Avenue is an appropriate primary customer entry facing the higher order street.

- UDO §4.10.4 (B) *states (2) In other districts, the width of buildings or building segments shall not be more than twice the building height. (3) Building segments may be created through a combination of vertical features such as changes in material, building offsets, courtyards, changes in rooflines or architectural features that create the appearance of building segments. (4) Large scale retail structures shall comply with Section 4.10.6.*
  Generally Compliant:
  The height of the building is 36'8." Twice the building height would be 73'6." There are eight building segments created through a change of vertical features such as building offsets, changes in rooflines or architectural features that create the appearance of building segments. The building segment's widths range from 8'8" to 33'4." Building segmentation is depicted in building elevations provided by the applicant that are attached to this report.

- UDO §4.10.4 (C) *states the exterior finish of building walls shall be primarily comprised of brick. Cementitious horizontal lap siding, textured concrete masonry, cast stone and stucco may be used for accents, provided that they cover no more than twenty (20) percent of the exterior walls, exclusive of doors and windows. Wood and metal may be used as trim around doors and windows. The Permit Issuing Authority may approve: (3) Alternative materials satisfying minimum building code standards for structures located within a planned golf course Development that are compatible with the Development and the proposed location within the Development.*
  Requesting a Deviation:
  The applicant meets the exterior finish requirements for Bell Avenue and S Bennett Street. They do not meet the standard for Shaw Avenue and US HWY 1 (the West Elevation). They are requesting a deviation for Shaw Avenue, showing 78% brick with 22% stucco. They are proposing no brick for the West elevation, along US HWY 1, since it will be fully screened.

  1. North Elevation (Bell Avenue) = 80% Brick, 20% Stucco
  2. East Elevation (S. Bennett Street) = 86% Brick, 14% Stucco
  3. South Elevation (Shaw Avenue) = 78% Brick, 22% Stucco
  4. West Elevation (US HWY 1) = 0% Brick, 0% Stucco

- UDO §4.10.4 (D) *states that windows shall be glazed in non-reflective clear glass. Windows and doors shall comprise at least 25% of street facing building facades between the elevations of 2 and 10 feet above the grade of the building entry.*
  Generally Compliant:
  The applicant has stated that the windows will be glazed in a non-reflective clear glass. The applicant will be using SN68 clear from the company Guardian SunGuard. The windows and doors comprise at least 25% of street facing building facades.

- UDO §4.10.4 (E) (3) *states awnings shall be canvas or material of similar appearance and flexibility unless otherwise approved by the Town Council. Street facing awnings shall not be taller than six (6) feet unless specifically approved by the Town Council.*
  Requesting a Deviation:
  The applicant is requesting for a three-foot deep flat metal canopy at the main entrances and customer entries to add shadow lines. They believe it will add character to the façade. This is not canvas or material of similar appearance and would therefore require the granting of a deviation at the Town Council's discretion.

- UDO §4.10.4 (F) *states galleries and arcades are encouraged and may encroach up to six (6) feet into any street side setback but may not encroach into public right-of-way.*
  Generally Compliant:
  There are no galleries and arcades proposed per the submitted building elevations and site plan.

- UDO §4.10.4 (G) *states buildings may use parapets and changes in parapet height or design in the roofline as viewed from any public street shall be required for any building that is wider that 100'.*
  Generally Compliant:
  The building as viewed from any public street is making use of a parapet with changes in height with each section utilizing different detailing.

- UDO §4.10.4 (H) *states that mechanical equipment shall be screened from view from the street and cannot be located between the building and the street.*
  Requesting a Deviation:
  The applicant has stated that no mechanical equipment is provided. The building will most likely be built with mechanical systems to serve HVAC. Town Council needs to require the applicant to state where the mechanical equipment will be located to determine compliance.

- UDO §4.10.4 (I) states *garage doors and loading bays shall face an interior lot line alley or service drive and shall not face a street unless buffered or screened per the landscaping code in UDO §4.3.*
  Generally Compliant:

The applicant has stated there are garage bays on the West Elevation. There will be full screening in this location.

- UDO §4.10.4 (J) *states Signage shall comply with the standards in section 4.6 and any applicable zoning district standards.* UDO §4.6.9 (B) (3) *states A secondary Wall Sign may be placed between the business establishment and its principal parking area if there is no parking between the business establishment and a street. The area of the secondary Wall Sign shall not exceed the lesser of thirty-five (35) square feet or the maximum size allowed for the street facing Wall Sign.*
  Generally Compliant:
  The applicant meets the standard for the number of wall signs requested, one on Bell Avenue and one on S. Bennett Street. However, the area of the secondary Wall Sign was not determinable in their application. All signage will be reviewed for compliance with applicable UDO requirements prior to issuance of a sign permit, and no deviations are granted per this Architectural Compliance Permit review process.

IV. ATTACHMENTS:

1. Written Narrative Addressing Compliance with §4.10.4 of the UDO
2. Application
3. Deed
4. Appointment of Agent
5. Site Plan
6. Elevations
7. Future Rendering
8. Building Materials: Glass

V. TOWN COUNCIL ACTION:

The Town Council shall vote on whether the proposed application for the Architectural Compliance Permit complies with the UDO and should consider whether the application is consistent with UDO Section 2.26 and UDO Section 4.10.4 as well as UDO Section 3.5.9.

The Town Council may make one of the following motions or any alternative they wish:

I move to:

1. Approve AR-07-21 with the deviations as requested by the applicant and as specifically set forth in the staff report;

2. Approve AR-07-21 with the following conditions…

3. Deny AR-07-21;

COTHRAN HARRIS
ARCHITECTURE

October 27, 2021

Town of Southern Pines
125 SE Broad St
Southern Pines, NC 28387

RE: New Self-Storage Building- 240 Bell Avenue
UDO Compliance Narrative

Project Description:
Pinnacle Storage- Southern Pines is a two story building totaling 49,660 sq. ft. of area. The site is sloped with the West elevation expressed as a single story building with exterior doors. All four elevations are brick, with some stucco accents. The North and East elevations face public ways, while the West elevation faces the interior of the site. Differences in parapet height, brick color, stucco accents and offsets are used to give the building composition the appearance of vertical elements as opposed to horizonal.

The proposed building is consistent with applicable comprehensive plan goals and substantially conforms with the commercial design standards as called out in the UDO. The site plan for the project has been submitted separately.

Building Design Requirements:

A. Building Orientation and Entries:
   a. The front of the building and primary customer entry faces Bell Ave.
   b. Although the number of entrances in self-storage are limited, per the guidelines, customer entry does not exceed 100 feet.

B. Building Dimensions:
   a. Building segments do not exceed 61' (twice the building height).
   b. Building segments are defined by the use of change in materials and rooflines.

C. Building Materials:
   a. Two Brick colors comprise 80% of the front facing façade.
   b. Other materials such as stucco do not exceed 20% of the front facing façade.
   c. No alternative materials are used on the entire building. Similar materials as listed above are used around the rest of the building in similar proportions.

D. Windows:
   a. Windows are all glazed in non-reflective, clear glass.
   b. At the front facing façades, between the elevations of 2 and 10 feet above grade, windows and doors comprise a minimum of 25% of the area.

5725 OLEANDER DRIVE, STE E-1
TELEPHONE 910-793-3433
OFFICE@COTHRANHARRIS.COM

WILMINGTON, NC 28403
FACSIMILE 910-793-1811
WWW.COTHRANHARRIS.COM

E. Awnings:
   a. Three foot deep flat metal canopies have been utilized to add shadow lines at the main entry and customer entries.

F. Galleries, and Arcades:
   a. There are no awnings, galleries or arcades at the front facing façade.

G. Roofs:
   a. The building has a parapet wall, the longest uninterrupted length is 43'-7"

H. Mechanical Equipment:
   a. Mechanical equipment will be located on the roof, concealed behind the parapet wall and will not be visible from the front and sides of the building.

I. Loading Zones and Garage Bays:
   a. There are garage bays on the West Elevation.
   b. Required screening will be provided.

J. Signage:
   a. All signage will comply with the standards in section 4.6.

Please let us know if you have any questions or need additional information about the build design.

Best Regards,

Cothran Harris

PLANNING DEPARTMENT
TOWN OF SOUTHERN PINES
plan@southernpines.net (910) 692-4003 www.southernpines.net

Architectural Compliance Permit Application

Date Received: 10/29/21 Fee Paid: _____ Case No.: AR- 07-21

TO THE TOWN COUNCIL OF THE TOWN OF SOUTHERN PINES:

I, the undersigned, do hereby make application for an Architectural Compliance Permit regarding for the following project:

Project Information:

Project Name: Pinnacle Storage Southern Pines- Bennet Street (Building A)

Street Address: 240 Bell Avenue

PIN: 857100859879 & 857100865141 Parcel ID: 00046695 & 00047591 Zoning: GB

Type of building (retail, office, etc.): Commercial (Self) Storage Total square footage: 49,660 Sq. Ft.

Applicant:

Name: Cothran Harris Architecture

Email: charris@cothranharris.com Phone: 910-793-3433

Mailing Address: 5725 Oleander Drive, Suite E-1, Wilmington, NC 28403

Legal Property Owner(s), if different from Applicant:

Name(s): Longleaf Pines LLC

Email: robert@roberthighdevelopment.com Phone: 910-790-9490

Mailing Address: 324 Greenville Avenue, Wilmington, NC 28403

Date: 27-OCT-21

_____ Applicant

8-27-21

For Registration Register of Deeds
Judy D. Martin
Moore County, NC
Electronically Recorded
September 16, 2021 1:57:05 PM
Book: 5702 Page: 230 - 233 #Pages: 4
Fee: $26.00 NC Rev Stamp: $600.00
Instrument # 2021020559

Prepared by:
Robert M. Friesen, Esq.
Robbins May & Rich LLP
120 Applecross Road, Pinehurst, NC 28374
No Title Exam By Drafting Attorney

NORTH CAROLINA GENERAL WARRANTY DEED

Excise Tax: $600.00

Parcel Identifier No. 00056046 Verified by _____ County on the ____ day of_____, 20_____
By:_____

Brief description for the Index: 255 Shaw Avenue (Lots 24 & 25) Southern Pines, NC

THIS DEED entered into as of this the 14th day of September, 2021, by and between

Grantor	Grantee
Prem Nath and wife, Kanwaljit Kaur Nath	Longleaf Pines Storage, LLC, a North Carolina limited liability company 324 Greenville Avenue Wilmington, NC 28403

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in/near the Town of Southern Pines, McNeill Township, Moore County, North Carolina and more particularly described as follows:

Being all of Lots Numbers 24 and 25 of "Pinedene Subdivision" located southwest of Southern Pines, North Carolina, and being more particularly shown on a map entitled "A Map of Pinedene, which is recorded in Map Book 1, Page 7, of the Moore County Public Registry, to which map and its recordation reference is hereby made for a more complete, accurate and particular description of said lots.

Submitted electronically by "Clarke, Phifer, Vaughn, Brenner & McNeill, PLLC"
in compliance with North Carolina statutes governing recordable documents
and the terms of the submitter agreement with the Moore County Register of Deeds.

Subject and together with utility easements, other easements and restrictive covenants that are enforceable against or a benefit to the property, if any, and to the lien for ad valorem property taxes for the current year to be prorated at closing.

The property hereinabove described was acquired by Grantor by instrument recorded in Book 1170, Page 421, Moore County Registry, North Carolina.

A map showing the above described property is recorded in Map Book 1, Page 7, Moore County Registry, North Carolina].

All or a portion of the property herein conveyed ___ includes or __X__ does not include the primary residence of a Grantor.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And Grantor covenants with Grantee that Grantor is seized of the Property in fee simple, has the right to convey the Property in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions noted herein.

[Signature Page to Follow]

IN WITNESS WHEREOF, this instrument is executed (a), if by individuals, by hereunto setting their hands under seal by adoption of the word "SEAL" appearing next to the individuals' names or signatures, (b), if by a corporation, by the duly authorized officers, directors or shareholders of the corporation on its behalf under seal by adoption of the facsimile seal printed hereon for such purpose or, if an impression seal appears hereon, by affixing such impression seal or by adoption of the word "SEAL" appearing next to the name of the corporation or the signatures of the officers, directors or shareholders, (c), if by a partnership, by the duly authorized partners of the partnership on its behalf under seal by adoption of the word "SEAL" appearing next to the name of the partnership or the signatures of the partners or (d), if by a limited liability company, by the duly authorized members or managers on its behalf under seal by adoption of the word "SEAL" appearing next to the name of the limited liability company or the signatures of the members or managers, on the day and year first above written.

Prem Nath (SEAL)
Prem Nath

STATE OF NC, COUNTY OF Moore

I certify that the following person personally appeared before me this day and acknowledged to me that the following person voluntarily signed the foregoing document for the purpose stated therein and in the capacity indicated:

Name	Capacity
Prem Nath	Grantor

☑ I have personal knowledge of the identity of the principal;
☐ I have seen satisfactory evidence of the principal's identity, by a current state or federal identification with the principal's photograph in the form of a _____; or
☐ A credible witness has sworn to the identity of the principal

Witness my hand and official stamp or seal on this the 14 day of September, 2021.

KIMBERLY TALBERT NOTARY PUBLIC MOORE COUNTY, N.C.

Kimberly Talbert
Notary Public

Print notary name: Kimberly Talbert
(notary name must be exactly as on notary seal)

My commission expires: 3/11/24

[affix notary seal above, which must be fully legible]

IN WITNESS WHEREOF, this instrument is executed (a), if by individuals, by hereunto setting their hands under seal by adoption of the word "SEAL" appearing next to the individuals' names or signatures, (b), if by a corporation, by the duly authorized officers, directors or shareholders of the corporation on its behalf under seal by adoption of the facsimile seal printed hereon for such purpose or, if an impression seal appears hereon, by affixing such impression seal or by adoption of the word "SEAL" appearing next to the name of the corporation or the signatures of the officers, directors or shareholders, (c), if by a partnership, by the duly authorized partners of the partnership on its behalf under seal by adoption of the word "SEAL" appearing next to the name of the partnership or the signatures of the partners or (d), if by a limited liability company, by the duly authorized members or managers on its behalf under seal by adoption of the word "SEAL" appearing next to the name of the limited liability company or the signatures of the members or managers, on the day and year first above written.

Kanwaljit Kaur Nath _____(SEAL)

STATE OF NC, COUNTY OF Moore

I certify that the following person personally appeared before me this day and acknowledged to me that the following person voluntarily signed the foregoing document for the purpose stated therein and in the capacity indicated:

Name	Capacity
Kanwaljit Kaur Nath	Grantor

☑ I have personal knowledge of the identity of the principal;
☐ I have seen satisfactory evidence of the principal's identity, by a current state or federal identification with the principal's photograph in the form of a _____; or
☐ A credible witness has sworn to the identity of the principal

Witness my hand and official stamp or seal on this the 14 day of September 2021.

KIMBERLY TALBERT NOTARY PUBLIC MOORE COUNTY, N.C.

Notary Public

Print notary name: Kimberly Talbert
(notary name must be exactly as on notary seal)

My commission expires: 3/11/24

[affix notary seal above, which must be fully legible]

For Registration Register of Deeds
Judy D. Martin

Moore County, NC
Electronically Recorded
September 16, 2021 2:03:05 PM
Book: 5702 Page: 236 - 239 #Pages: 4
Fee: $26.00 NC Rev Stamp: $2,160.00
Instrument # 2021020561

GENERAL WARRANTY DEED

THIS INSTRUMENT PREPARED BY:

Richard Lee Yelverton III, Esq.
Van Camp, Meacham & Newman, PLLC
2 Regional Circle (28374)
P.O. Box 1389
Pinehurst, North Carolina 28370

NO TITLE WORK COMPLETED BY PREPARING ATTORNEY

Excise Tax: $2,160.00
Parcel I.D.: 00046695 & 00047591 &00055046

TO BE RECORDED IN THE DEED RECORDS OF MOORE COUNTY, NC

THIS DEED made this 14th day of September, 2021, by and between:

GRANTOR	GRANTEE
CSMB HOLDINGS, LLC, a Texas Limited Liability Company	**LONGLEAF PINES STORAGE, LLC, a North Carolina Limited Liability Company** Mailing Address: 324 Greenville Avenue, Wilmington, NC 28403

WITNESSETH:

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, the Grantor, for valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land (referred to in the singular, whether one or more) situated in the Town of Southern Pines, Sandhills Township, Moore County, North Carolina, and more particularly described as follows:

See attached Exhibit "A"

Submitted electronically by "Clarke, Phifer, Vaughn, Brenner & McNeill, PLLC"
in compliance with North Carolina statutes governing recordable documents
and the terms of the submitter agreement with the Moore County Register of Deeds.

This property herein described is not the primary residence of the Grantor.

And being a portion of the property conveyed by instrument recorded in Book 5151, Page 507, in the Moore County, North Carolina, Register of Deeds.

This conveyance is made subject to (i) ad valorem taxes for the current year (prorated through the date of Settlement); (ii) utility easements and unviolated covenants, conditions or restrictions that do not materially affect the value of the Property and (iii) such other liens, encumbrances or defects as may be assumed or specifically approved by Grantee in writing.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions noted herein.

IN WITNESS WHEREOF, the said Grantor has hereunto set their hand and seal the day and year first above written.

[SIGNATURES AND NOTARY ACKNOWLEDGMENT ON FOLLOWING PAGE]

CSMB Holdings, LLC, a Texas limited liability company

By: _____ (SEAL)
Aaron Cooper, Member/Manager

STATE OF NC
COUNTY OF Moore

I, Notary Public, do hereby certify that Aaron Cooper personally appeared before me and acknowledged that he/she is Member/Manager of CSMB Holdings, LLC, and that by authority duly given and as the act of the company the foregoing instrument was signed in its name by him/her as its Member/Manager.

Witness my hand and notarial seal, this the 14 day of September, 2021.

_____
Notary Public

My commission expires: 2.23.2025

RICHARD LEE YELVERTON III
Notary Public, North Carolina
Moore County
My Commission Expires

[Notary Seal]

Exhibit "A"

Being all of Tracts 1, 2, & 5, as shown on that plat recorded in the Office of the Register of Deeds for Moore County, North Carolina in Plat Cabinet 18, Slide 124.

APPOINTMENT OF AGENT

The undersigned owner(s),Robert High hereby appoint(s) Cothran Harris as the exclusive agent for the purpose of making an application to the Town of Southern Pines for an **Architectural Compliance Permit** for improvements to the property described in the attached application. The owner(s) hereby agree(s) that this agent has the authority to act for and on behalf of the owner(s) as follows:

1. to submit an application and required supplemental materials;

2. to appear at public meetings and give representation and comments on behalf of the owner(s);

3. to accept conditions or recommendations made by the Town of Southern Pines Town Council for the issuance of an **Architectural Compliance Permit** for improvements to the subject property; and

4. to act on behalf of the owner(s) without limitations with regard to any and all things directly or indirectly connected with or arising out of any application for an **Architectural Compliance Permit** under the Southern Pines Unified Development Ordinance.

This Appointment of Agent shall remain in effect until final resolution of the attached application.

Signed this 27 day of October 2021

Property Owner

Agent

8-27-21

SITE KEY NOTING:		
SYMBOL	DESCRIPTION	SHEET REFERENCE
1	INSTALL ASPHALT PAVEMENT	SEE SHT. D-01, #1
3	INSTALL CONCRETE PAVEMENT	SEE SHT. D-01, #2
4a	INSTALL 24" CONCRETE CURB AND GUTTER	SEE SHT. D-01, #3
4b	INSTALL 24" ROLLED CONCRETE CURB AND GUTTER	SEE SHT. D-02, #3
5	INSTALL CONCRETE SIDEWALK WITH TURNDOWN	SEE SHT. D-01, #4
6	INSTALL IN-LINE HANDICAP RAMP	SEE SHT. D-01, #5
7	INSTALL PRECAST WHEELSTOP	SEE SHT. D-01, #6
8	INSTALL "STOP" SIGN	SEE SHT. D-01, #7, 8
9	INSTALL HANDICAP PARKING SIGN	SEE SHT. D-01, #9
10	INSTALL 4' HIGH BLACK VINYL COATED CHAIN LINK FENCE	SEE SHT. D-02, #1
11	INSTALL 8' WIDE 4' HIGH DOUBLE SWING GATE (4' GATES)	SEE SHT. D-02, #2
12	INSTALL PAVEMENT MARKINGS AS PER PLANS	SEE SHT. D-02, 1205.01
13	INSTALL CONCRETE DRAINAGE FLUME	SEE SHT. D-01, #10
14	INSTALL DUMPSTER ENCLOSURE	SEE SHT. D-02A, #1

NOTES:

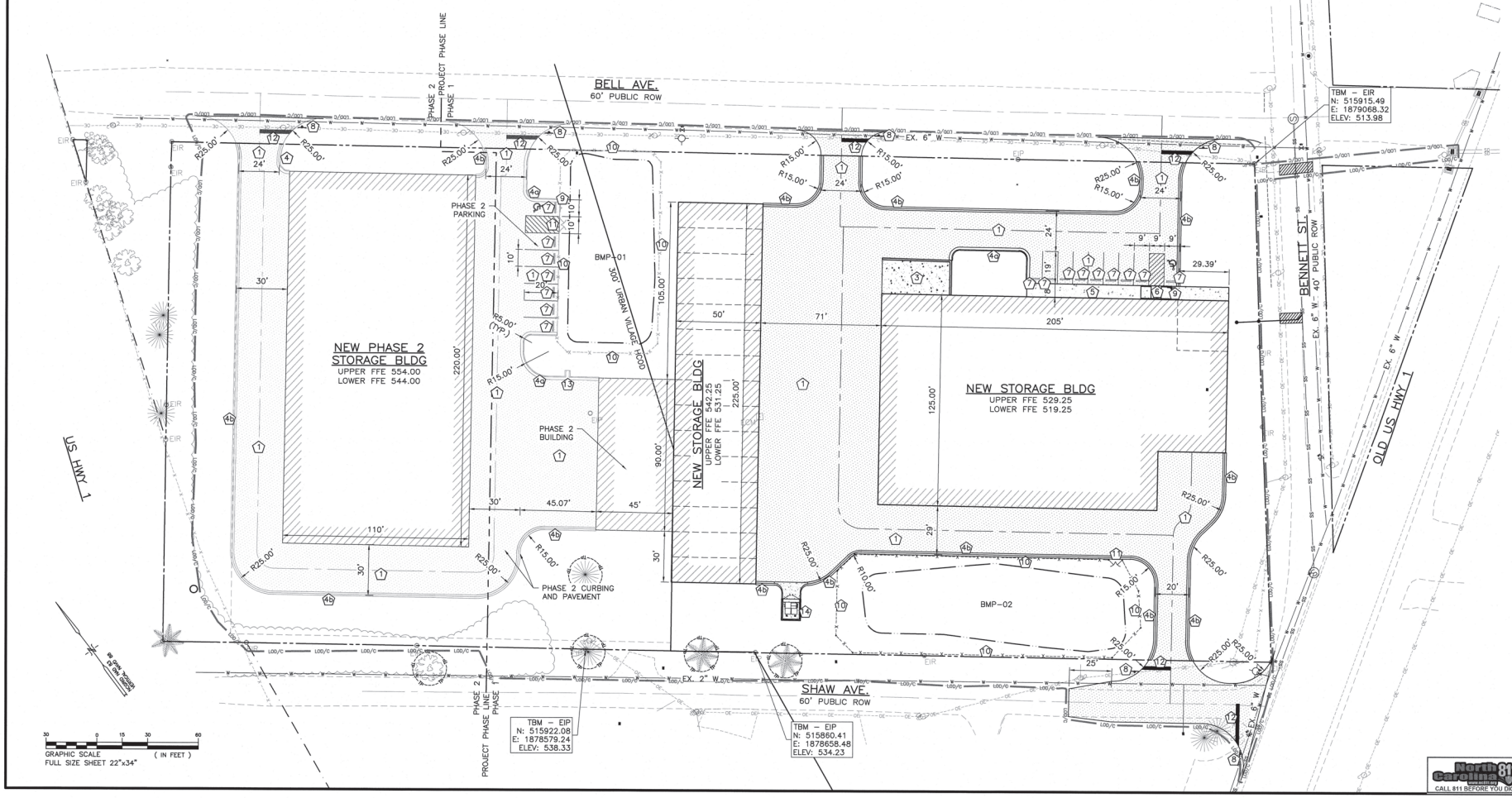
1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON SHEET C-01 SHALL APPLY TO THIS PLAN.
2. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. BENCHMARKS ARE THREE EIPS. THE FIRST IS LOCATED AT THE PROPERTY CORNER AT THE INTERSECTION OF BELL AVE AND BENNETT ST AND HAVING AN ELEVATION OF 513.98'. THE SECOND LOCATED AT THE SOUTHERN PROPERTY CORNER OF THE NATH PROPERTY AT SHAW AVE AND HAVING AN ELEVATION OF 534.23'. THE THIRD LOCATED AT THE NORTHERN PROPERTY CORNER OF THE NATH PROPERTY AT SHAW AVE AND HAVING AN ELEVATION OF 538.33'.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF SOUTHERN PINES STANDARDS AND SPECIFICATIONS.
4. CONTRACTOR SHALL ENSURE THAT THE EXISTING UTILITIES ARE LOCATED AND MARKED PRIOR TO INSTALLATION OF NEW UTILITIES.

HIGHWAY CORRIDOR OVERLAY:

PHASE 2 BUILDING AREA SHALL NOT EXCEED 30.0% OF THE HIGHWAY CORRIDOR OVERLAY AREA.

REVISIONS

SYM.	DESCRIPTION	DATE	BY



LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
O: 910.420.1437
F: 910.637.0096
lkcengineering.com
License No. P-1095

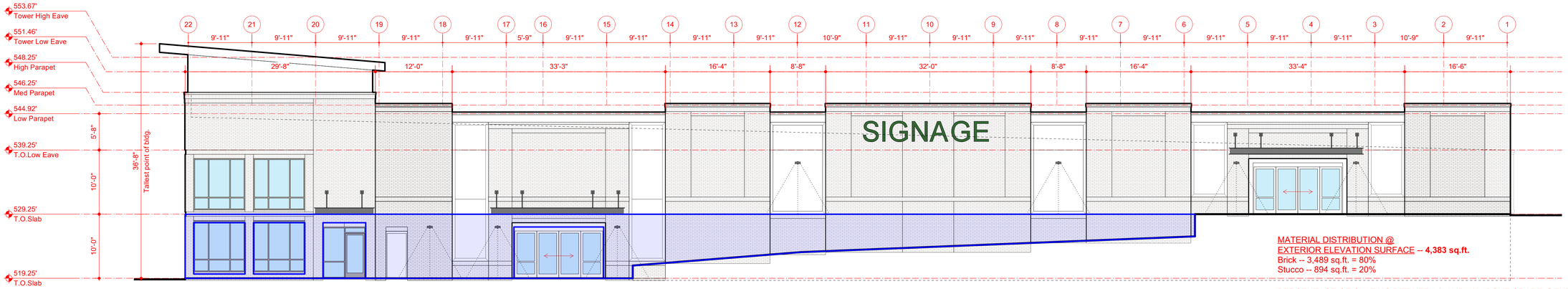
LKC Engineering Landscape Architecture Surveying

SITE LAYOUT PLAN

BELL AVENUE STORAGE FACILITY
Southern Pines, North Carolina

DATE: MAY, 2021
DESIGNED: FDW
DRAWN: FDW
CHECKED: TAC
NO. C-03

CALL 811 BEFORE YOU DIG

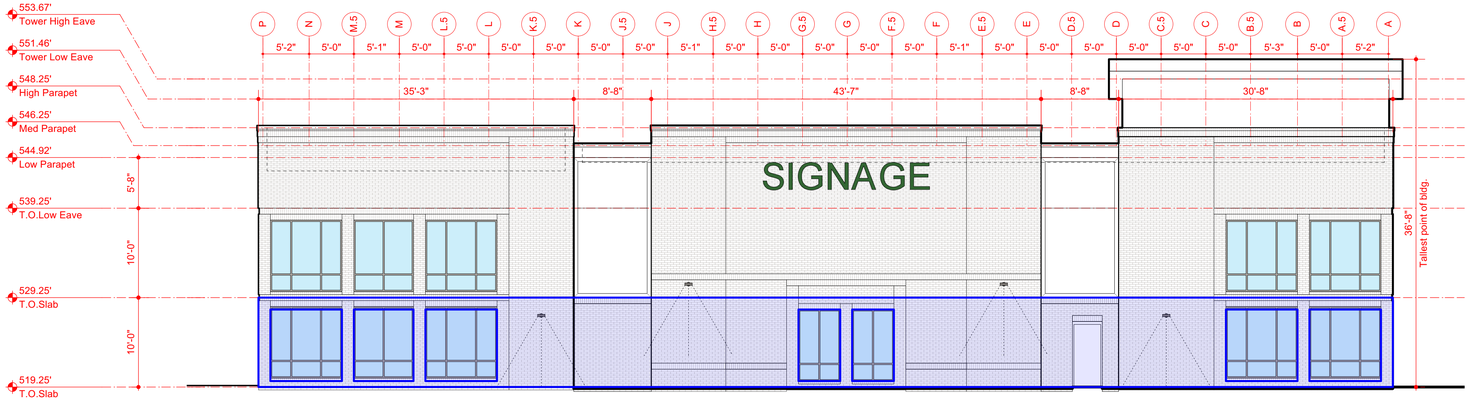


MATERIAL DISTRIBUTION @
EXTERIOR ELEVATION SURFACE -- **4,383 sq.ft.**
Brick -- 3,489 sq.ft. = 80%
Stucco -- 894 sq.ft. = 20%

PERCENTAGE OF GLAZING BETWEEN 2' AND 10' ABOVE GRADE @ENTRY
-- 298 sq.ft. glazing between 2' and 10' / 1,170 sq.ft. area between 2' and 10' = 25%

NORTH ELEVATION (BELL AVE.)

A2.22 1/8"

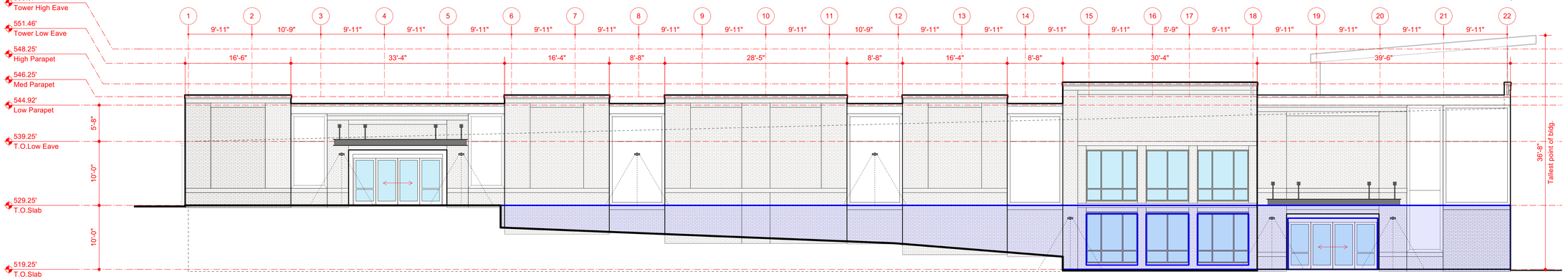


MATERIAL DISTRIBUTION @
EXTERIOR ELEVATION SURFACE -- **3,406 sq.ft.**
Brick -- 2,944 sq.ft. = 86%
Stucco -- 462 sq.ft. = 14%

PERCENTAGE OF GLAZING BETWEEN 2' AND 10' ABOVE GRADE @ENTRY
-- 384 sq.ft. glazing between 2' and 10' / 1,268 sq.ft. area between 2' and 10' = 30%

EAST ELEVATION (S. BENNET ST.)

A2.24 1/8"

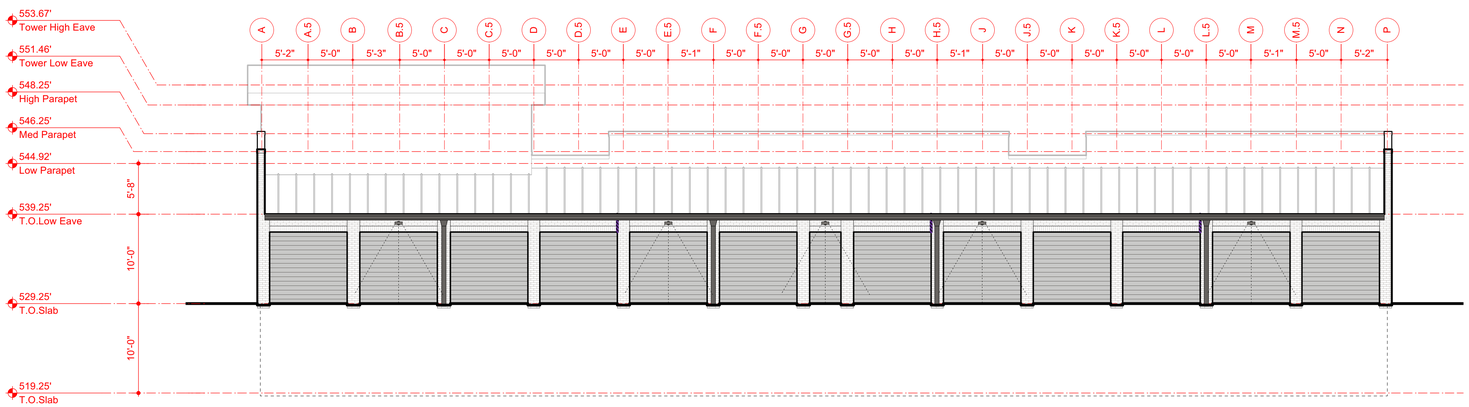


MATERIAL DISTRIBUTION @
EXTERIOR ELEVATION SURFACE -- **4,288 sq.ft.**
Brick -- 3,332 sq.ft. = 78%
Stucco -- 956 sq.ft. = 22%

PERCENTAGE OF GLAZING BETWEEN 2' AND 10' ABOVE GRADE @ENTRY
-- 293 sq.ft. glazing between 2' and 10' / 1,170 sq.ft. area between 2' and 10' = 25%

SOUTH ELEVATION (SHAW AVE.)

A2.26 1/8"



REQUIRED SCREENING WILL BE PROVIDED AT THIS ELEVATION

WEST ELEVATION

A2.38 1/8"

Owner acknowledges and agrees that Robert High Development, LLC (RHD) **[and its architect Cothran Harris Architecture and engineers]** have retained all ownership and other rights, title and interests in and to all conceptual, working and final drawings, plans and specifications (collectively, Plans and Specifications) relating to **the Project** (including without limitation architectural and engineering drawings, plans and specifications), and any and all of its proprietary rights embodied therein or related thereto. Except in connection with the construction, ownership, operation and management of the Project by Owner, this Agreement shall not grant Owner any vested right, title or interest in or to any of the Plans and Specifications or any patents (issued or pending), trademarks, service marks, trade names, copyrights, licenses, licensed or other proprietary rights of RHD or any such rights granted by third parties or other professionals to RHD.

The Plans and Specifications and any contents of any documents or information embodied therein or relating thereto shall not to be used, reproduced or copied, in whole or in part, without the prior, written permission of Cothran Harris Architecture and RHD.

COTHRAN HARRIS ARCHITECTURE
5725 OLEANDER DRIVE, STE E-1
WILMINGTON, NC 28403
910.793.4433

SOUTHERN PINES
PHASE I - BUILDING A
BELL AVENUE
SOUTHERN PINES, NC

ELEVATION BREAKDOWN

DESIGN DEVELOPMENT
OCTOBER 25, 2021

A2.2

© 2021 CHA ALL RIGHTS RESERVED

PINNACLE STORAGE

Southern Pines Phase I Bldg A

Make-up Name	Glass 1 & Coating	Glass 2 & Coating	Visible Light			Solar Energy			Thermal Properties	
			Transmittance	Reflectance		Transmittance	Reflectance	Solar Heat Gain Coefficient (SHGC)	U-Value	
			Visible (τ_v %)	ρ_v % out	ρ_v % in	Solar (τ_e %)	ρ_e % out		Winter Night (Btu/hr·ft²·F)	Summer Day (Btu/hr·ft²·F)
SN68 Clear	**SunGuard ® SN 68 (North America) on Guardian Clear Glass (North America)**	**Guardian Clear Glass (North America)**	**68**	**11**	**12**	**33**	**33**	**0.38**	**0.293**	**0.275**

Calculation Standard: NFRC 2010

SN68 Clear

Outdoors

GLASS 1	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#1 ---- #2 SunGuard® SN 68 (North America)
GAP 1	100% Air, 1/2" (12.7mm)	
GLASS 2	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#3 ---- #4 ----

Total Unit (Nominal) = 1 in | Slope = 90° | Window Height = 1 meter

Estimated Nominal Glazing Weight: 5.75 lb/ft²

Indoors

Important Notes

Calculations and terms in this report are based on NFRC 2010. The performance values shown above represent nominal values for the center of glass with no spacer system or framing.

Laminated products:
The Performance Calculator allows the user to model a wide variety of laminated glass makeups using different float glass substrates, coatings and interlayer material, including those makeups where the coating faces the interlayer. It is the user's responsibility to assess whether the laminated glass makeup meets relevant regional standards and complies with applicable laminated glass safety regulations.

In addition, when the laminated glass makeup includes a coating facing the interlayer material, there may be a loss of thermal insulation performance and a color change compared to non-embedded coated class.

Non-specular products (translucent or diffuse):
The performance measurement for non-specular (translucent or diffuse) materials such as translucent interlayers or acid etched glass surface, or surface with ceramic frit is limited by the current experimental technologies. Since measurements capture physically only a part of the resulting radiation, calculated performance results provided herein and based on such measurements are not compliant with any standard (including EN 410) and may only be used as a general reference. Actual values may vary significantly based upon exact fabrication process, as well as type, thickness and color of used non-specular material.

Please note that the Thermal Stress Guideline is only a general guide to the thermal safety of a glazing, and it is not a replacement for detailed thermal stress analysis.

Explanation of Terms

Visible Light Transmittance (Tv, %) is the percentage of incident light in the wavelength range of 380 nm to 780 nm that is transmitted by the glass.

Ultraviolet (UV) Transmittance (Tuv, %) is the percentage of the incident solar radiation transmitted by the glazing in the 300 nm to 380 nm range.

Solar Energy Direct Transmittance (Te, %) is the percentage of incident solar energy in the wavelength range of 300 nm to 2500 nm that is directly transmitted by the glass.

Visible Light Reflectance Outdoors/Indoor (Rv out/in, %) is the percentage of incident visible light directly reflected by the glass.

Solar Direct Reflectance Outdoors/Indoors (Re out/in, %) is the percentage of incident solar energy directly reflected by the glass.

Solar Energy Absorptance (Ae, %) is the percentage of the sun's energy that is absorbed by glass.

U-Value is the glazing parameter that characterizes the heat transfer through the central part of the glazing, i.e. without edge effects, and expresses the steady-state density of heat transfer rate per temperature difference between the environmental temperatures on each side. US Standard units are Btu/hr·ft²·F and SI / Metric units are W/m2 K.

Relative Heat Gain (RHG) is the total net heat gain to the indoors due to both the air-to-air thermal conductance and the solar heat gain. US Standard units are Btu/hr.ft² and SI / Metric units are W/m².

Shading Coefficient (sc) is Solar Factor divided by 0.87. It is a measure of the solar heat gain referenced to 3 mm clear glass which has the designated value of 1.00.

Solar Heat Gain Coefficient (SHGC) is the sum of the solar direct transmittance and the secondary heat transfer factor of the glazing towards the inside, the latter resulting from heat transfer by convection and longwave IR-radiation of that part of the incident solar radiation which has been absorbed by the glazing.

Light-to-Solar Gain (LSG) is the ratio of visible light gain to solar gain. LSG = (Visible Transmittance) / (SHGC)

Color Rendering Index in transmission, D65 (R_a) is the change in color of an object as a result of the light being transmitted by the glass.

Weighted Sound Reduction Index (Rw) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.

Sound Transmission Class (STC) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.

Disclaimer

This performance analysis is provided for the limited purpose of assisting the user in evaluating the performance of the glass products identified on this report.

Spectral data for products manufactured by Guardian reflect nominal values derived from typical production samples or CE Initial Type Testing and subject to variations due to manufacturing and calculation tolerances. Spectral data for products not manufactured by Guardian were derived from the LBNL International Glazing Database and have not been independently verified by Guardian. Guardian recommends a full-size mock-up be approved.

The values provided herein are generated according to established engineering practices and applicable calculation standards. Many factors may affect glazing characteristics, including glass size, building orientation, shading, wind speed, type of installation, production process and others. The applicability and results of the analysis are directly related to user inputs and any changes in actual conditions can have a significant effect on the results. It is the responsibility of the users of the analysis to ensure that the intended application is appropriate and complies with all relevant laws, regulations, standards, codes of practices, processing guidelines and other requirements. Guardian makes no guarantee that any glazing modeled herein is available from Guardian or any other manufacturer. The user has the responsibility to check with the manufacturer regarding availability of any glass type or make-up.

While Guardian has made a good faith effort to verify the reliability of the tools used for this analysis, they may contain unknown programming errors that could result in inaccurate results. The user assumes all risk relating to the results provided and is solely responsible for selection of appropriate products for user's application. Guardian makes no express or implied warranty of any kind with respect to the tools used by Guardian and this analysis. There are no warranties of merchantability, non-infringement or fitness for a particular purpose with respect to the tools used by Guardian and this analysis and no warranty shall be implied by operation of law or otherwise. The only warranties applicable to Guardian products are those separately provided in writing for each product. In no event shall Guardian be liable for direct, indirect, special, consequential or incidental damages of any kind relating to or resulting from

use of Guardian tools and analyses.

Trademarks owned by Guardian Industries, LLC and/or its affiliates may be registered in the United States and other jurisdictions. All other trademarks are property of their respective owners.

Program Version: 4.1.0.9199
Database Version: 20211108

Agenda Item

To: **Reagan Parsons, Town Manager**

From: **Jennifer Hunt, Planner I**

Subject: **AR-08-21 Rec Room**

Date: **December 14, 2021**

I. SUMMARY OF APPLICATION REQUEST:

Mr. Dean King, on behalf of Rec Room, LLC., is requesting approval of an architectural compliance permit for renovations to the exterior of an existing 13,471 square foot building located within the CB-Central Business zoning district for a commercial arcade. The building is located at 750 SW Broad Street. This project consists of a large open game room, a bar, outdoor seating and a party room. It is a renovation of an existing building. The renovations include the addition of a patio pergola, adding brick and metal columns to the front entrance and garage door openings for bar top tables on the front elevation. Patio retaining walls will also be added.

II. PROJECT INFORMATION:

1. **PARID** 00034761; **PIN** 858109061639

2. **Owners:**
   Rec Room, LLC
   P.O. Box 370
   Southern Pines, NC 28388

3. **Applicant / Agent:**
   Dean King
   P.O. Box 88
   Southern Pines, NC 28388

Figure 1: Vicinity Map and Zoning Map (Subject Property Outlined in Yellow)

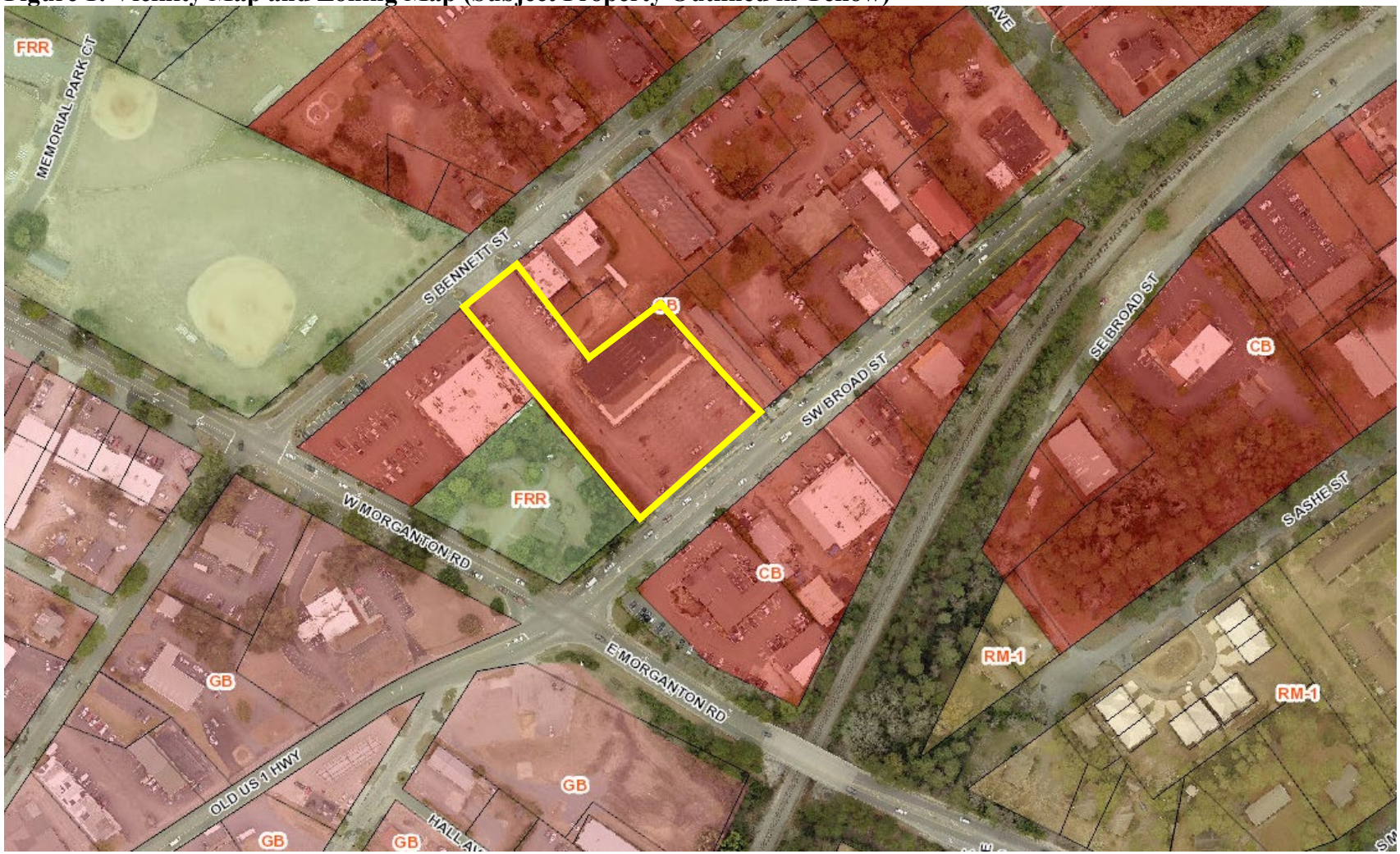
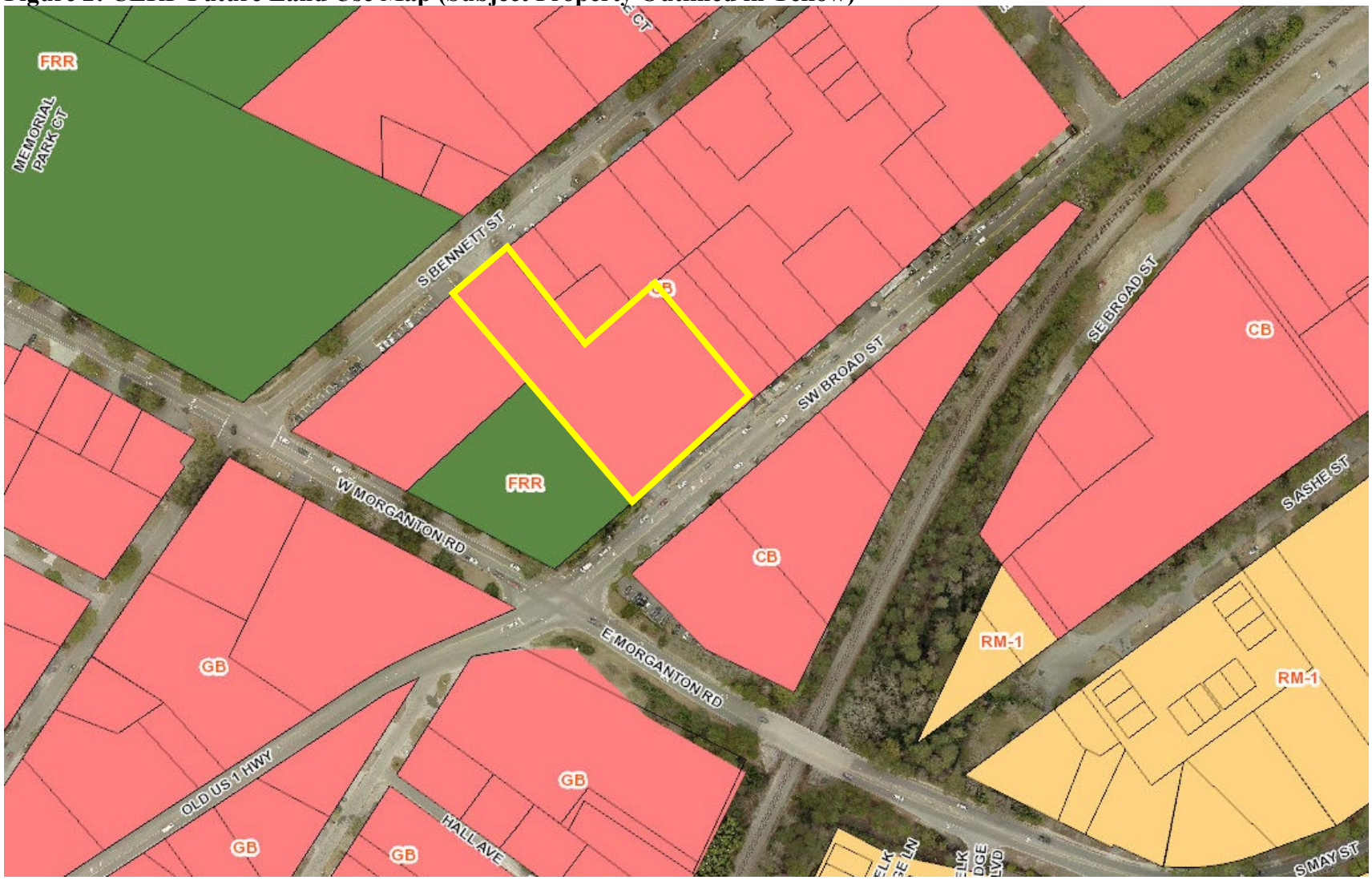


Figure 2: CLRP Future Land Use Map (Subject Property Outlined in Yellow)



4. **Comprehensive Long-Range Plan Designation:**
The area is designated as Commercial on the Comprehensive Long-Range Plan (CLRP). *The commercial designation applies to all land dedicated to retail, professional office, or other primarily non-residential, commercial use. It includes the downtown portions along Broad Street and Pennsylvania Avenue, the regional commercial corridor on US 15/501, and all commercial land in between. Higher density residential may be incorporated into mixed-use developments within areas designated for this future land use category.*

5. **Zoning:**
The parcel is currently zoned Central Business (CB) (See Figure 1). CB is designed to accommodate a wide variety of pedestrian oriented commercial activities. The regulations of this district are to encourage an intensive development pattern and land uses that provide for a multi-purpose central business district including retail, offices, services, entertainment and living space. Encouragement of shared off street parking and land uses that do not require large amounts of outdoor use areas are preferred.

III. STAFF REVIEW:

1. **Review Process:**
Applications for Architectural Compliance Permits are reviewed pursuant to UDO §2.26.

2. **Application Review Dates:**
Application Submitted: October 29, 2021
Application Complete: November 5, 2021
Town Council Agenda Meeting: December 8, 2021
Town Council Meeting: December 14, 2021

3. **Criteria for Review:**
When reviewing an application for an Architectural Compliance Permit, the Town Council shall approve, conditionally approve or deny the application based on the following criteria, as set forth in **UDO §2.26.7**:

    1. *The application is consistent with applicable Comprehensive Plan goals and policies;*
    2. *The application substantially conforms with the applicable multi-family or commercial design standards and other applicable provisions of the UDO, including the purposes of the zoning district in which the property is located;*
    3. *The application is consistent with applicable conditions of prior Development approvals; and*
    4. *The development as proposed will be compatible with neighboring development and has mitigated potential conflicts.*

4. **Staff Comments based on Commercial Building Design Requirements per UDO §4.10.4:**
Staff has reviewed the project for compliance with §4.10.4 *Building Design Requirements.*

- UDO §4.10.4 (A) (1) *states the front of buildings shall face and have the primary customer entry facing that street. Corner Lot buildings shall face and have the primary customer entry facing the higher order street, facing the corner or facing each street. Buildings that extend the full depth of a block may be required to have entries on each street frontage.*
  Generally Compliant:
  The front of the building has no change to the location of primary customer entrance. The primary customer entrance faces the higher order street, on SW Broad Street, with an added secondary entrance from the rear on S Bennett Street.

- UDO §4.10.4 (B) *states (2) In other districts, the width of buildings or building segments shall not be more than twice the building height. (3) Building segments may be created through a combination of vertical features such as changes in material, building offsets, courtyards, changes in rooflines or architectural features that create the appearance of building segments. (4) Large scale retail structures shall comply with Section 4.10.6.*
  Requesting Deviation:
  The height of the building is approximately 28 feet tall. The applicant states the front façade of the building is 158 feet wide with the pergola adding an additional 32 feet of width to the west. The width of the building, shown on the north elevation attached to this report, is approximately 206 feet. Although the width of the building is more than twice the building height, this is a renovation of an existing one-story building, also known as infill development.

- UDO §4.10.4 (C) *states the exterior finish of building walls shall be primarily comprised of brick. Cementitious horizontal lap siding, textured concrete masonry, cast stone and stucco may be used for accents, provided that they cover no more than twenty (20) percent of the exterior walls, exclusive of doors and windows. Wood and metal may be used as trim around doors and windows. The Permit Issuing Authority may approve: (3) Alternative materials satisfying minimum building code standards for structures located within a planned golf course Development that are compatible with the Development and the proposed location within the Development.*
  Generally Compliant:
  The applicant states there will be brick veneer on all four sides of the building. The brick façade will be composed of a single color, red brick, with grey Concrete Masonry Unit (CMU) accent features, which are not to cover more than 20 percent of the exterior walls, exclusive of doors and windows. CMU will be used on the patio wall and in the front column base.

- UDO §4.10.4 (D) *states that windows shall be glazed in non-reflective clear glass. The following standards apply in the CB district: a) On the ground floor a minimum of seventy (70) percent of the street-facing building facades between the elevations of two (2) and ten (10) feet above the sidewalk must be comprised of windows with at least eighty (80) percent transparency or doors.*

Generally Compliant:
The applicant states that the "windows will be glazed non-reflective aluminum clad storefronts" and "glazed bar top garage doors." Staff assumes from reviewing the submitted materials that this means bar top height garage doors. The windows appear to possibly comprise a minimum of 70% of the street facing building facades with at least 80% transparency or doors. The measurements provided by the applicants on the elevations submitted and attached to this staff report are not determinable, nor is 70% calculated on the elevations by the applicant.

- UDO §4.10.4 (E) (3) *states awnings shall be canvas or material of similar appearance and flexibility unless otherwise approved by the Town Council. Street facing awnings shall not be taller than six (6) feet unless specifically approved by the Town Council.*
  Requesting a Deviation:
  The applicant states the existing awning is metal and will remain as is. The applicant proposes to paint it another color, but has not indicated which color will be used. The awning material does not comply with the requirement for canvas awnings, but the Town Council may approve alternative materials. They propose to add columns supporting the awning that are made of brick, CMU and wood trim to complement the appearance of the existing awning. The height of the awning does not appear to be taller than six feet, based on the given measurements, and therefore complies with awning height requirements.

- UDO §4.10.4 (F) *states galleries and arcades are encouraged and may encroach up to six (6) feet into any street side setback but may not encroach into public right-of-way.*
  Generally Compliant:
  There are no proposed galleries or arcades for this building.

- UDO §4.10.4 (G) *states in the CB district horizontal parapets with cornices shall be required along Broad Street. Parapets, gable or hip roofs may be used along other streets in the CB district. Parapet height should vary between adjacent buildings. Shingles or standing seam, non-reflective metal shall be used on all roofs visible on public streets.*
  Requesting a Deviation:
  The applicant does not meet our requirement that in the CB district horizontal parapets with cornices shall be required along Broad Street. However, the front is a gable, pitched roof in the front which slopes to the front and the rear. It will be comprised of grey asphalt shingles. There is a flat roof in the back, which slightly slopes to the rear.

- UDO §4.10.4 (H) *states that mechanical equipment shall be screened from view from the street and cannot be located between the building and the street.*
  Requesting a Deviation:
  The applicant states the existing mechanical equipment is in the rear of the building between the existing building (Rec Room) and the Feed Store. The applicant proposes to place new replacement mechanical equipment in a similar location behind the building that will be out of view from the front of the building and states that they will provide full screening. The screening

provided by the applicant may be wood fencing but the exact material has not been confirmed by the applicant. Furthermore, screening of mechanical equipment on the rear of the building as shown on the North building elevation is not consistent with property lines and dumpster location depicted on the most recent site plan reviewed by the Technical Review Committee.

- UDO §4.10.4 (I) states *garage doors and loading bays shall face an interior lot line alley or service drive and shall not face a street unless buffered or screened per the landscaping code in UDO §4.3.*
  Generally Compliant:
  The applicant states delivery to the building will be at the rear door entrance, shown on the North elevation. There are no full garage doors or loading bay doors.

- UDO §4.10.4 (J) *states Signage shall comply with the standards in section 4.6 and any applicable zoning district standards.* UDO §4.6.9 (B) (3) *states A secondary Wall Sign may be placed between the business establishment and its principal parking area if there is no parking between the business establishment and a street. The area of the secondary Wall Sign shall not exceed the lesser of thirty-five (35) square feet or the maximum size allowed for the street facing Wall Sign.*
  Generally Compliant:
  The applicant meets the standard for the number of wall signs requested, one facing S. Bennett Street. However, the area of the Wall Sign was not determinable in their application. The area is not to exceed the maximum size allowed for the street facing Wall Sign and a sign permit will be required.

IV. ATTACHMENTS:

1. Written Narrative Addressing Compliance with §4.10.4 of the UDO
2. Application
3. Deed
4. Site Plan
5. Elevations

V. TOWN COUNCIL ACTION:

The Town Council shall vote on whether the proposed application for the Architectural Compliance Permit complies with the UDO and should consider whether the application is consistent with UDO Section 2.26 and UDO Section 4.10.4 as well as UDO Section 3.5.9.
The Town Council may make one of the following motions or any alternative they wish:
I move to:

1. Approve AR-08-21 with the deviations as requested by the applicant and as specifically set forth in the staff report;

2. Approve AR-08-21 with the following conditions…

3. Deny AR-08-21;

Pinnacle DEVELOPMENT DESIGN BUILD

PO Box 55, Southern Pines, North Carolina 28388

Phone: 910.725.1221 – www.pdcnc.com – Fax: 910.725.1394

Town of Southern Pines

Architectural Review Submission for Rec Room, LLC, a Commercial Arcade Building at 750 SW Broad St. October 20, 2021.

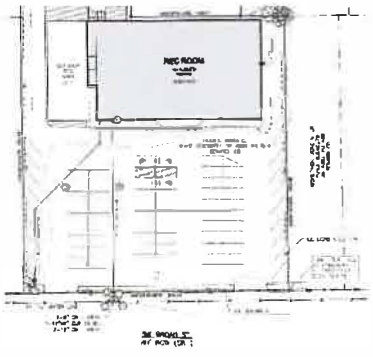
Compliance with the Southern Pines Unified Development Ordinance Section 2.26.7 Architectural Compliance Permit Criteria.

Please accept the following explanations of the Design of Rec Room, LLC Arcade. The project consists of 13,471 sq. ft. of commercial space. The exterior has very minimal additions to the existing structure, and any change to the exterior walls will be consistent with the existing exterior walls consisting of Brick. Other changes include a patio pergola, brick and metal columns to the front entrance and garage door openings for bar top tables on front elevation. Site work will include updated parking lot markings, landscaping and patio retaining walls. The Zoning is CB.

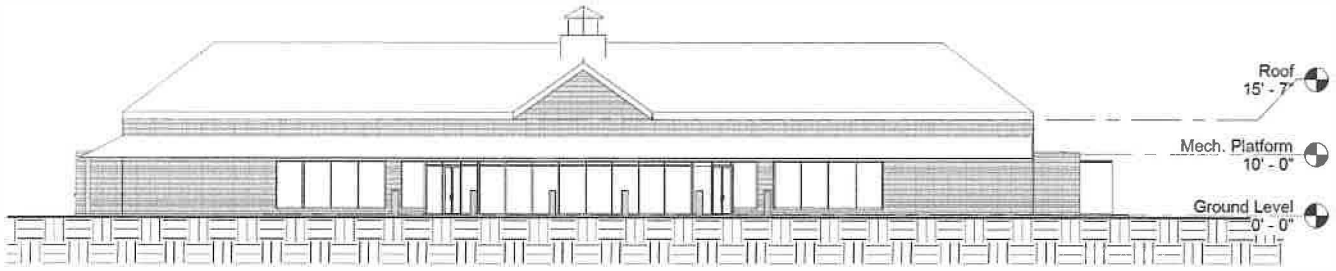
4.10.4 BUILDING DESIGN REQUIREMENTS

(A) Building Orientation and Entries

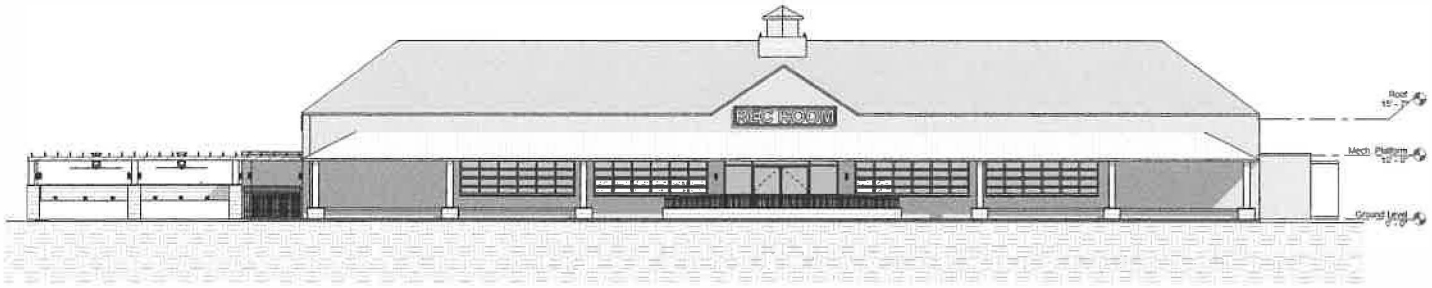
The Rec Room building has no change to its orientation. The primary entrances to the building remain from SW Broad St. and a secondary entrance from the rear on S Bennett St. All parking spaces are located between the building's front elevation and SW Broad Street.



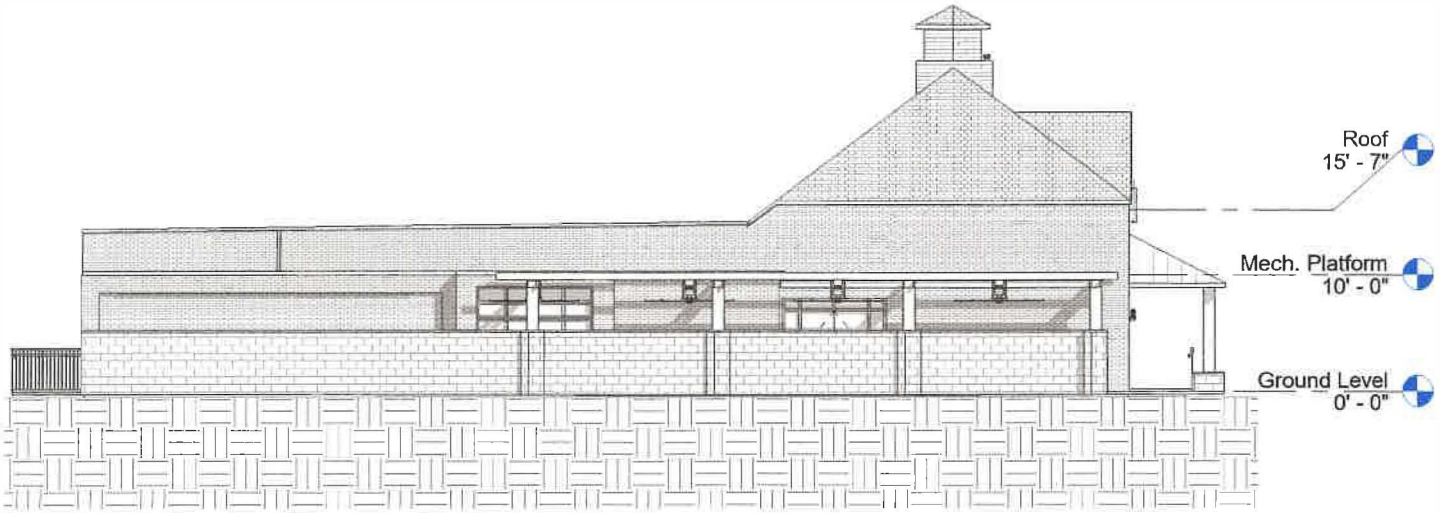
(B) The proposed renovation results in 13, 471 sq. ft., one story in height, and is comprised of open floor space with a bar, kitchen, event room, bathrooms and patio area. The renovation makes minor changes to the front and side elevation offering updated features and entrance. The existing awning will be updated and complimented with new brick and wood trim.



Existing Front Elevation Drawing



Proposed Front Elevation Drawing



Proposed Left Elevation Building

(C) Building Materials

The proposed building has a brick veneer on all four sides. The brick façade is composed of a single color (red) brick with grey CMU accent features. The roof line is comprised of grey asphalt shingles on front portion, membrane flat roof on rear and standing seam metal roofing on front awnings. See illustration below.

Conceptual Front View

(D) Windows

The proposed windows will be glazed non-reflective alum. clad storefronts and glazed bar top garage doors. The building is oriented with the front façade facing southeast. The southeast facing windows will be protected from the harsh sun with the existing awning, while the west facing doors will be protected with a patio non-combustible pergola.

(E) Awnings

As mentioned above, the front façade faces southeast. This means the windows will get full sun. Existing awnings over the entrance provide protection from the elements along with minimizing direct sunlight. The pergola will provide side facing doors with additional protection while providing an attractive profile and shadows to the existing structure.

(F) Galleries and Arcades

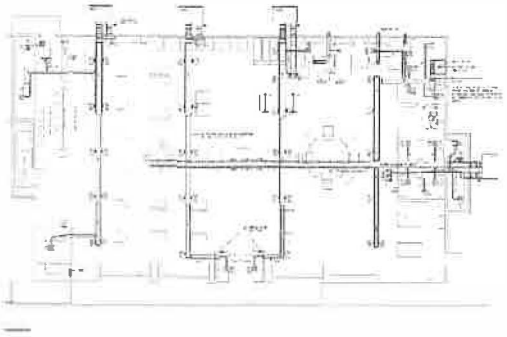
There are no proposed galleries or arcades for this building

(G) Roofs

The roof is comprised of a pitched roof in the front sloping to the front and rear and with a flat roof in the rear sloping slightly to the rear. The rear roof is membrane that will be unseen from the front. The front façade of the building is 158 feet with the pergola adding an additional 32 feet to the west.

(H) Mechanical Equipment

Existing mechanical equipment will be utilized on the east side concrete level, with additional equipment required to be installed to the rear at ground level



(I) Loading Zones and Garage Bays

Loading and delivery will be primarily from the rear entrance to supply the walk-in cooler on the west side and from the front entrance for additional supply requirements. Dumpsters to be located on the rear of the building and screened from view to the street with wood fencing.

(J) Signage

There will be business signage on the elevation of the building above the entrance, along with a monument sign by the street. All sign permit application will be filed for each sign.

The Rec Room Arcade building has minimal changes to the existing façade. Where this facility is seen to not be in compliance, and where necessary, we request a waiver of compliance.

Respectfully,

Dean King
Pinnacle Development Design/Build

Town of Southern Pines
Chartered 1887
North Carolina

Architectural Compliance Permit

REQUIRED APPLICATION MATERIALS:

- ☑ **Application fee** in the amount of **$100.00** (gross floor area of 3,499 sq. ft. or less); or **$300.00** (gross floor area of 3,500 sq. ft. or greater).
- ☑ **Completed Application** signed by the applicant. Please do not leave anything blank and make sure that all of the information provided is correct.
- ☑ **Appointment of Agent**, if applicable, signed by the property owner(s) and the agent.
- ☑ **Deed** copy to provide proof of ownership and property boundaries.
- ☑ **Written narrative:** It is the responsibility of the applicant to demonstrate compliance with **UDO §2.26.7**. Please also address **UDO §4.10.4** as part of the narrative.
- ☑ **Renderings of elevations** (color).
- ☑ **Site plan** if applicable.
- ☑ **Electronic copy (PDF) of all application materials** submitted to plan@southernpines.net.

PLEASE SUBMIT ONLY ONE (1) COMPLETE SET OF ALL MATERIALS.

REVIEW AND APPROVAL:

1. **Staff review**: Planning staff will review the application and notify the applicant if additional information or materials are needed.
2. **Public hearing**: A public hearing will be held before the Town Council at its regular monthly meeting. (Please refer to the **Application Processing Timeline** to determine the hearing date.) In addition to the regular meeting, the applicant or a representative is expected to attend the Town Council agenda meeting the Wednesday prior to the regular meeting.
3. **Approval**: The Town Council may approve, conditionally approve or deny the application based on the criteria listed in **UDO §2.26.7**.
4. **Issuance of an Architectural Compliance Permit**: If the request is approved by the Town Council, an Architectural Compliance Permit setting forth any conditions of approval will be issued to the applicant.

PLANNING DEPARTMENT
TOWN OF SOUTHERN PINES
plan@southernpines.net **(910) 692-4003** www.southernpines.net

Town of Southern Pines
Chartered 1887
North Carolina

Architectural Compliance Permit Application

Date Received: _____	Fee Paid: _____	Case No.: AR-____-____

TO THE TOWN COUNCIL OF THE TOWN OF SOUTHERN PINES:

I, the undersigned, do hereby make application for an Architectural Compliance Permit regarding for the following project:

Project Information:

Project Name: Rec Room

Street Address: 750 SW Broad Street

PIN: 858109061639 Parcel ID: 00034761 Zoning: CB

Type of building (retail, office, etc.): Arcade Total square footage: 13471

Applicant:

Name: Dean King

Email: dean@pdcnc.com Phone: (910) 986-1311

Mailing Address: P.O. BOX 88, Southern Pines, NC 28388

Legal Property Owner(s), if different from Applicant:

Name(s): Rec Room, LLC

Email: natparkei@gmail.com / heathermdyer@gmail.com Phone: (978) 807-4863

Mailing Address: P.O. BOX 370, Southern Pines, NC 28388

Date: 10/20/2021

Applicant

8-27-21

APPOINTMENT OF AGENT

The undersigned owner(s), Rec Room, LLC, hereby appoint(s) Dean King as the exclusive agent for the purpose of making an application to the Town of Southern Pines for an **Architectural Compliance Permit** for improvements to the property described in the attached application. The owner(s) hereby agree(s) that this agent has the authority to act for and on behalf of the owner(s) as follows:

1. to submit an application and required supplemental materials;

2. to appear at public meetings and give representation and comments on behalf of the owner(s);

3. to accept conditions or recommendations made by the Town of Southern Pines Town Council for the issuance of an **Architectural Compliance Permit** for improvements to the subject property; and

4. to act on behalf of the owner(s) without limitations with regard to any and all things directly or indirectly connected with or arising out of any application for an **Architectural Compliance Permit** under the Southern Pines Unified Development Ordinance.

This Appointment of Agent shall remain in effect until final resolution of the attached application.

Signed this 26th day of October, 2021.

Elena Avila Property Owner

Ezra Dyer Property Owner

Dean King Agent

8-27-21

UDO §2.26.7. Criteria

No Architectural Compliance Permit shall be approved unless the Town Council finds that:

(A) The application is consistent with applicable Comprehensive Plan goals and policies;

(B) The application substantially conforms with the applicable multi-family or commercial design standards and other applicable provisions of the UDO, including the purposes of the zoning district in which the property is located;

(C) The application is consistent with applicable conditions of prior Development approvals; and

(D) The development as proposed will be compatible with neighboring development and has mitigated potential conflicts.

UDO §2.26.9. Effect of Approval

(A) The Architectural Compliance Permit shall expire unless a Building Permit is issued within one (1) year of approval.

(B) Development activities subject to this section shall conform to the approved application and any conditions or restrictions. Any deviation from the approved Architectural Compliance Permit, unless approved in advance and in writing by the Planning Director, is deemed a violation of the UDO.

Please review UDO §2.26 in its entirety as well as UDO §4.10.4 for Building and Design Requirements (www.southernpinesudo.org).

For Registration Register of Deeds
Judy D. Martin

Moore County, NC
Electronically Recorded
June 18, 2021 3:44:06 PM
Book: 5642 Page: 131 - 136 #Pages: 6

Fee: $26.00 NC Rev Stamp: $3,050.00

Instrument # 2021014158

GENERAL WARRANTY DEED

THIS INSTRUMENT PREPARED BY:

Richard Lee Yelverton III, Esq.
Van Camp, Meacham & Newman, PLLC
2 Regional Circle (28374)
P.O. Box 1389
Pinehurst, North Carolina 28370

Excise Tax: **$3,050.00**
Parcel I.D.: **00034761 ; 20010375**

TO BE RECORDED IN THE
DEED RECORDS OF
MOORE COUNTY, NC

THIS DEED made this 18th day of June, 2021, by and between:

GRANTOR	**GRANTEE**
DAVID GRAY HOOKS, UNMARRIED, AS EXECUTOR OF THE MARTHA PURSER HOOKS ESTATE AND INDIVIDUALLY, MARY BLUE THARRINGTON, UNMARRIED, AS EXECUTRIX OF THE RUTH BLUE LEE ESTATE AND INDIVIDUALLY -AND- ADAM W. THARRINGTON, UNMARRIED	**REC ROOM, LLC, A NORTH CAROLINA LIMITED LIABILITY COMPANY** Mailing Address: **PO Box 370** **Southern Pines, NC 28388**

WITNESSETH:

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, the Grantor, for valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land (referred to in the singular, whether one or more) situated in the

Submitted electronically by "Van Camp, Meacham & Newman, PLLC"
in compliance with North Carolina statutes governing recordable documents
and the terms of the submitter agreement with the Moore County Register of Deeds.

Town of Southern Pines, McNeill Township, Moore County, North Carolina, and more particularly described as follows:

See attached Exhibit "A"

This property herein described is not the primary residence of the Grantor.

And being a portion of the property conveyed by instrument recorded in Book 321, Page 116, in the Moore County, North Carolina, Register of Deeds. The instruments recorded in Book 4649, Page 507 and in Book 4649, Page 512 were defective deeds.

Martha Purser Hooks passed away testate on October 21, 2019, in Scotland County, North Carolina; her surviving heirs were David Gray Hooks and Ruth Blue Lee. See Scotland County Estate File 19E 280 for reference and Moore County Estate File No. 21E 524 for reference.

Ruth Blue Lee passed away testate on November 18, 2020, in Scotland County, North Carolina; her surviving heirs were Mary Blue Tharrington and Adam W. Tharrington. See Scotland County Estate File 20E 368 for reference and Moore County Estate File No. 21E 525 for reference.

This conveyance is made subject to (i) the lien of the County of Moore for taxes and other assessments for the current year, which taxes or other assessments shall be pro-rated as of the date of closing and which Grantee by acceptance of this deed expressly agrees to pay; (ii) utility easements of record; and (iii) unviolated restrictive covenants of record that do not materially affect the value of the property.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions noted herein.

IN WITNESS WHEREOF, the said Grantor has hereunto set their hand and seal the day and year first above written.

[SIGNATURES AND NOTARY ACKNOWLEDGMENT ON FOLLOWING PAGE]

(SEAL)
David Gray Hooks,
Executor of the Martha Purser Hooks Estate

Date 6/18/21

(SEAL)
David Gray Hooks, Individually

Date 6/18/21

STATE OF North Carolina
COUNTY OF Moore

I, Sarah Childress Champion a notary public for the County of Moore and the State of NC, certify that David Gray Hooks, Executor of the Martha Purser Hooks Estate, personally appeared before me this day, and

a) ( ) I have personal knowledge of the identity of the principal(s)
b) (✓) I have seen satisfactory evidence of the principal's identity, by a current state or federal identification with the principle's photograph in the form of a: VADL.
c) ( ) A credible witness has sworn to the identity of the principal(s)

each acknowledging to me that he or she voluntarily signed the foregoing document for the purpose stated therein and in the capacity indicated.

WITNESS my hand and seal this 18th day of June, 2021.

Signature of Notary Public: Sarah Childress Champion

My Commission Expires: 3/24/2024

SARAH CHILDRESS CHAMPION NOTARY PUBLIC MOORE COUNTY, NC

3

Mary Blue Tharrington, for Executrix (SEAL) 6-18-21
Mary Blue Tharrington, Date
Executrix of the Ruth Blue Lee Estate

Mary Blue Tharrington (SEAL) 6-18-21
Mary Blue Tharrington, Individually Date

STATE OF North Carolina
COUNTY OF Moore

I, Sarah Childress Champion a notary public for the County of Moore and the State of NC, certify that Mary Blue Tharrington, Executrix of the Ruth Blue Lee Estate, personally appeared before me this day, and

a) ( ) I have personal knowledge of the identity of the principal(s)
b) (✓) I have seen satisfactory evidence of the principal's identity, by a current state or federal identification with the principle's photograph in the form of a: NC Driver License.
c) ( ) A credible witness has sworn to the identity of the principal(s)

each acknowledging to me that he or she voluntarily signed the foregoing document for the purpose stated therein and in the capacity indicated.

WITNESS my hand and seal this 18th day of June, 2021.

Signature of Notary Public: Sarah Childress Champion

My Commission Expires: 3/24/2024

SARAH CHILDRESS CHAMPION NOTARY PUBLIC MOORE COUNTY, NC

4

_____ (SEAL)
Adam W. Tharrington, Individually

6/18/21
Date

STATE OF North Carolina
COUNTY OF Moore

I, Sarah Childress Champion a notary public for the County of Moore and the State of NC, certify that Adam W. Tharrington, personally appeared before me this day, and

a) ( ) I have personal knowledge of the identity of the principal(s)
b) (✓) I have seen satisfactory evidence of the principal's identity, by a current state or federal identification with the principle's photograph in the form of a: NC Driver License,
c) ( ) A credible witness has sworn to the identity of the principal(s)

each acknowledging to me that he or she voluntarily signed the foregoing document for the purpose stated therein and in the capacity indicated.

WITNESS my hand and seal this 18th day of June, 2021.

Signature of Notary Public: Sarah Childress Champion

My Commission Expires: 3/24/2024

SARAH CHILDRESS CHAMPION NOTARY PUBLIC MOORE COUNTY, NC

5

Exhibit "A"

Those certain two lots or parcels of land known as the A & P Store premises in Southern Pines, North Carolina, bounded on the North by Bennett Street, on the South by West Broad Street, on the West by the Old Shaw House property and on the East by Cusan Corporation and other properties, and more particularly described as follows:

Main Lot:

ALL THAT certain tract or parcel of land situate in the Town of Southern Pines, McNeill Township, Moore County, North Carolina, BEGINNING at a concrete monument in the northerly line of West Broad Street, said monument located S 49-16 W 626.0 feet from the intersection of the westerly line of Wisconsin Avenue with the northerly line of West Broad Street; running thence with the northerly line of West Broad Street S 49-16 W 240.1 feet to a concrete monument, a corner of the Old Shaw House property; thence with the Shaw House property line N 41-04 W 250.77 feet to a concrete monument; thence N 39-59 W 200 feet to a concrete monument in the southerly line of Bennett Street; thence with the southerly line of Bennett Street N 49-28 E 100 feet to an iron pipe, a corner of the Newton lot; thence S 39-59 E 200 feet to a concrete monument; thence N 49-29 E 140.5 feet to a concrete monument thence S 41-04 E 250.0 feet to the BEGINNING, containing 1.868 acres more or less.

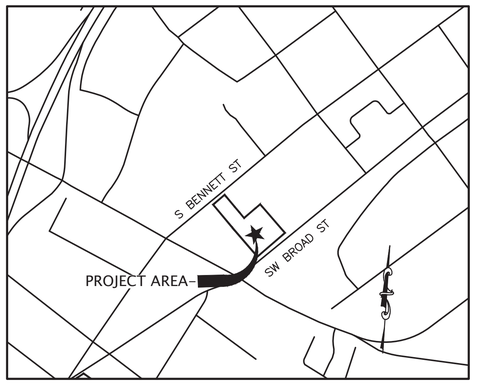
EXCEPTING, HOWEVER, AND SUBJECT TO all the rights, privileges, and easements conveyed to the Town of Southern Pines, North Carolina, by virtue of a deed dated September 4, 1947, and recorded in Book 156, page 21, Moore County Public Registry, from Harold A. Collins and wife, Emma A. Collins, reference to which is hereby made.

And being that same lot conveyed by Warranty Deed dated August 6, 1959, from Roy M. Purser and wife, Ruth B. Purser, to Roy M. Purser, Jr., James L. Purser, and Martha Purser Hooks, recorded in Book 232, page 316, Moore County Registry, to which reference is hereby made.

Adjacent Lot:

BEGINNING at an iron stake in the southerly corner of the Cusan Corporation's properties hereinbefore referred to and a corner of the Roy M. Purser, Jr. et al's land, said corner being located S 39-59 E 200 feet from the line of Bennett Street in the Town of Southern Pines, Moore County, North Carolina; running thence with the dividing line between Cusan Corporation property and Roy M. Purser, Jr., et al property N 49-29 E 100 feet, the easterly corner of Cusan Corporation properties; thence with the line of the Cusan Corporation properties N 39-59 W 50 feet, a new corner; thence paralleling the first line S 49-29 W 100 feet, a new corner in the dividing line between the Cusan Corporation properties and Roy M. Purser, Jr., et al properties; thence with the dividing line between the Cusan Corporation properties and Roy M. Purser, Jr. et al properties S 39-59 E 50 feet to the point of BEGINNING, the same comprising a rectangular tract 50 x 100 feet, and being the southeasterly portion of the Cusan Corporation properties.

REC ROOM
SOUTHERN PINES, NORTH CAROLINA



PROJECT VICINITY MAP

Scale: 1"=500'

TOWN OF SOUTHERN PINES GENERAL NOTES

1. All water and sewer construction shall be done in accordance with the Town of Southern Pines Standards and Specifications for Water and Sewer Construction. Contractor shall contact the Construction Inspector at least forty-eight (48) hours prior to start of construction. Phone number 910-692-1983. Contractor shall also contact the Construction Inspector before restarting work after work has stopped.
2. Contractor shall immediately contact the Town if there is a conflict between these plans and the published standards of the Town. Approval of these plans does not constitute any waiver from the Town standards.
3. All fire hydrants that are installed, that are not yet operational, shall be bagged. It shall be the responsibility of the Contractor to furnish and install the required materials at their cost.
4. Contractor shall not tap or otherwise penetrate existing water or sewer main lines without prior approval from NCDEQ Public Water Supply Section and the Town. Contractor is responsible to avoid spillage of raw sewage. Contractor shall provide all sewer plugging and pumping equipment necessary to avoid spillage. Violations are subject to fines and penalties and will be enforced to the full extent of the Law.
5. Contractor is responsible for maintenance of traffic on existing roadways in accordance with NCDOT Standard Specifications latest edition and Town requirements.
6. Water and sewer main construction shall not commence until involved roadways, storm drains, and utility easements have been graded and contoured to approximately final grade. Property corners of all lots are required to be staked by a licensed surveyor prior to installing water and sewer service connections.
7. Only the amount of trench that can be opened, worked in and then stabilized in a work day shall be done so. If stabilization does not occur at the end of the work day, then appropriate erosion, sediment, and safety controls shall be installed.
8. A Pre-Construction meeting is required prior to start of construction. Materials submittal shall be delivered and approved by the Town of Southern Pines for water and sewer construction prior to start of work.
9. All pipes shall be cleaned before they are laid and shall be kept clean until acceptance of the completed work by the Town. Open ends of pipes shall be fitted with water tight devices to prevent entrance of foreign matter when pipe-laying operations are interrupted.
10. All public sanitary sewer mains shall be installed in dedicated street right of way or in dedicated utility easements. Mains installed in Town right of way shall be located in the center of pavement.
11. Before the system may be put into service the Town will require the as-built information for water, sewer and storm drainage: Contact TOSP GIS Department for requirements.
12. All Transitions in pipe material shall have restrained joints. All restrained joints shall be inspected by the Town's construction inspectors prior to being covered.
13. All fire hydrant legs shall be DIP, be restrained with threaded rods and have thrust blocking. All FH legs shall be inspected by the Town's construction inspectors prior to being covered.
14. All grades for entrances and fire lanes shall be field verified by the Fire Dept. prior to acceptance. The contractor is responsible for coordination with testing by the fire department.
15. All utilities shall be electronically locatable using a locating method that is generally accepted by operators in the particular industry or trade in which the operator is engaged.

SEWER MAIN SUMMARY REPORT

DESCRIPTION	MATERIAL	LENGTH	TOWN/PRIVATE
SEWER MAIN	NA		

DESCRIPTION	SIZE	QUANTITY
SEWER SERVICES	NA	
MANHOLES	NA	

STREET SUMMARY REPORT

DESCRIPTION	MATERIAL	LENGTH
STREETS		
PRIVATE	ASPHALT	0 LF
PRIVATE	CONCRETE	0 LF
CURB AND GUTTER		
TOWN		
PRIVATE	CONCRETE / 24"	0 LF
SIDEWALK		
TOWN		
PRIVATE	CONCRETE	375 LF

WATER MAIN SUMMARY REPORT

DESCRIPTION	MATERIAL	LENGTH	TOWN/PRIVATE
WATER MAIN	N/A	N/A	N/A

DESCRIPTION	SIZE	QUANTITY
WATER SERVICES	4" FDC	174 LF/PRIVATE
	6" FIRE	164 LF/PRIVATE
VALVES	6"	1/PUBLIC
	12"	2/PUBLIC
HYDRANTS		

STORM SEWER SUMMARY REPORT

DESCRIPTION	MATERIAL	LENGTH	TOWN/PRIVATE
PIPE			
NA	NA	NA	NA

DESCRIPTION	TYPE	QUANTITY
STORM BOXES	JUNCTION	0
	INLET	0

SEWER APPLICATION SUMMARY

# AND TYPE OF UNIT	@ X DEMAND	FLOW REQUESTED
VIDEO GAME ARCADE, POOL HALL	250 GAL/PLUMING FIX. X20	5,000 GPD
TOTAL DEMAND		5,000 GPD

WATER APPLICATION SUMMARY

DEMAND	FLOW REQUIREMENTS	FLOW PROVIDED
DOMESTIC DEMAND	11 GPM	5,000 GPD
PEAK DEMAND	20 GPM	GPM
FIRE DEMAND	GPM	GPM
SPRINKLER DEMAND	GPM	GPM
IRRIGATION DEMAND	GPM	GPM
TOTAL DEMAND	GPM	

TRAFFIC DATA

# AND TYPE OF UNIT	@ X TRIPS/DAY	TPD
MULTIPURPOSE RECREATIONAL FACILITY	35.8 / 1,000 SF	623 TPD
TOTAL DEMAND	NA	TPD
TIA REQUIRED	< 300 TPD (1)ACCESS < 1,000 APT	NO
TDA REQUIRED	> 200 ADT	NO

TOWN OF SOUTHERN PINES

APPROVED FOR CONSTRUCTION

	BY	DATE	PERMIT #
PUBLIC WORKS (TOWN)			
PLANNING/ZONING (TOWN)			
FIRE (TOWN)			

NOTE:
PROJECT IS NOT LOCATED IN AN AREA DESIGNATED AS "HIGH QUALITY WATERS".

SHEET INDEX

-	COVER SHEET
C-01	GENERAL NOTES AND LEGEND
C-02	EXISTING TOPOGRAPHIC SURVEY AND DEMOLITION PLAN
C-03	SITE PLAN
C-04	UTILITY PLAN
D-01	SITE DETAILS
D-02	UTILITY DETAILS

SITE DATA:

PROJECT NAME: REC ROOM ZP-10-21		
OWNER: REC ROOM LLC	OWNER EMAIL CONTACT: EZRA8@MAC.COM	
ENGINEER: LKC ENGINEERING, PLLC	ENGINEER EMAIL CONTACT: PHILIP@LKCENGINEERING.COM	
PROJECT ADDRESS: 750 SW BROAD ST, SOUTHERN PINES, NC	LAT & LONG: 35.1691305°, -079.4009879°	
PARCEL ID#: 00034761	PIN: 858109061639	
DEED BOOK & PAGE: DB 4969 PG 507	PARKING REQUIRED: 87 SPACES	
LOT SIZE: 1.84 ACRES	PARKING PROVIDED: 87 SPACES	
CURRENT ZONING: CB/DTO	EXISTING USE: 2151-GROCERY	PROPOSED USE: 5320- GAMES ARCADE 2510-FULL SERVICE RESTAURANT 2540-BAR
WATERSHED: N/A	RECEIVING WATER COURSE: ABERDEEN CREEK	
STREAM CLASS: C	RIVER BASIN: LUMBER	
HQW: Y/N N	FLOODZONE: NOT IN FLOODPLAIN	
TOTAL IMPERVIOUS AREA: 80,117 SF	AC. 1.84	% 100%

TOWN OF SOUTHERN PINES
CONSTRUCTION PLAN APPROVAL

ALL CONSTRUCTION METHODS AND MATERIALS AND OTHER STANDARDS AND SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE TOWN OF SOUTHERN PINES STANDARDS AND SPECIFICATIONS AS OUTLINED IN THE MOST CURRENT UNIFIED DEVELOPMENT ORDINANCE (UDO). IN THE EVENT OF A CONFLICT BETWEEN METHODS, MATERIALS, STANDARDS AND/OR SPECIFICATIONS IN THE APPROVED PLANS AND THE UDO, THE UDO GOVERNS UNLESS A WRITTEN WAIVER IS ISSUED BY THE TOWN ENGINEER. ANY CHANGE IN APPROVED PLANS MUST BE AUTHORIZED BY PRIOR WRITTEN APPROVAL. PUBLIC SANITARY SEWER AND UTILITY EASEMENTS SHALL BE RECORDED PRIOR TO FINAL ACCEPTANCE AND /OR ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE TOWN.

APPROVAL OF THESE PLANS IN NO WAY IS MEANT TO RELIEVE THE DESIGN PROFESSIONAL OF HIS OR HER RESPONSIBILITY FOR PROJECT DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 043255 ENGINEER PHILIP A PICERNO
8-23-21

North Carolina 811 CALL 811 BEFORE YOU DIG

LKC Engineering
Engineering
Landscape Architecture
Surveying

LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
O: 910.420.1437
F: 910.637.0096
lkcengineering.com
License No. P-1095

GENERAL NOTES

ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THIS SHEET SHALL APPLIED TO ALL CONTRACT DOCUMENTS AND SHEETS IN THIS SET.

1. THE GENERAL CONTRACTOR SHALL FIELD VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AT THE JOB SITE. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. THE BENCHMARK IS AN EIP LOCATED AT THE SOUTH-EAST PORTION OF THE PROPERTY LOCATED AT SW BROAD ST AND HAVING AN ELEVATION OF 501.58'.
2. THE VERTICAL DATUM FOR THIS SURVEY IS BASED ON NAVD 88. THE HORIZONTAL DATUM FOR THIS SURVEY IS BASED ON NAD83.
3. ALL DIMENSIONS AND ALL ELEVATIONS ARE MEASURED TO BACK OF CURB UNLESS OTHERWISE NOTED.
4. THE INTENT OF THE LIMITS OF DISTURBANCE/CONSTRUCTION (LOD/C) SHOWN ON THE DRAWINGS IS TO DEFINE THE GENERAL PROJECT AREA TO CONSTRUCT, INSTALL AND/OR MODIFY THE SITE. TYPICALLY, THE LOD/C WILL FOLLOW RIGHT-OF-WAY OR PROPERTY LINES. THE CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE REGARDING ANY QUESTIONS AS TO THE EXACT LOCATION OF THE LOD/C PRIOR TO BID AND PRIOR TO BEGINNING CONSTRUCTION. ALL ITEMS SHOWN ON THESE PLANS THAT DO NOT SPECIFICALLY STATE 'NOT-IN-CONTRACT (NIC), SHALL BE INCLUDED IN THE BID COST, INCLUDING ITEMS THAT MAY BE OUTSIDE THE PROJECT LIMITS.
5. LOCATIONS OF EXISTING UTILITY LINES HAVE BEEN TAKEN FROM UTILITY RECORDS SUPPLEMENTED BY FIELD INSPECTIONS AND SHOULD INDICATE IN GENERAL THE TYPE OF UNDERGROUND UTILITIES NOW IN SERVICE. LOCATIONS SHOWN ARE NOT GUARANTEED. DEVELOPERS AND/OR CONTRACTORS SHALL NOT ONLY MAKE SUBSURFACE INVESTIGATIONS BUT SHALL ALSO ALLOW FOR CONTINGENCIES WHICH MIGHT ARISE BY REASON OF ENCOUNTERING UNRECORDED LINES OR LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THESE PLANS. AT LEAST 48-HOURS PRIOR OR SOONER IF REQUIRED BY THE LOCAL MUNICIPALITY TO ANY CONSTRUCTION ACTIVITY, EXCAVATION, GRADING, OR DIGGING ON THE SITE, THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES TO VERIFY AND/OR FIELD-LOCATE THEIR RESPECTIVE UTILITIES (THE NORTH CAROLINA ONE CALL CENTER – 1-800-632-4949). ALL DAMAGE INCURRED TO EXISTING UTILITY LINES DURING CONSTRUCTION SHALL BE REPAIRED AT THE GENERAL CONTRACTORS EXPENSE.
6. ALL WASTE MATERIAL TO BE BROUGHT OFF-SITE SHALL BE DISPOSED OF IN A LEGALLY PERMITTED DISPOSAL SITE.
7. ANY AND ALL PARKING STRIPES SHALL BE 4" WIDE AND SHALL BE MARKED WITH STANDARD WHITE TRAFFIC PAINT. ALL ISLANDS AND TRAFFIC ARROWS SHALL BE MARKED WITH STANDARD WHITE TRAFFIC PAINT.
8. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF SOUTHERN PINES, MOORE COUNTY & STATE REQUIREMENTS.
9. DISTURBED AREAS NOT COVERED BY ASPHALT OR OTHER IMPERMEABLE SURFACES SHALL BE SEEDED AND STABILIZED PER SPECIFICATIONS.
10. ACCESSIBLE PARKING SPACES, ACCESS AISLES, & SIGNAGE SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AND INSTALLED PER FEDERAL, STATE, AND LOCAL REQUIREMENTS UNDER THE AMERICANS WITH DISABILITIES ACT (ADA). STANDARD R7-8 RESERVED PARKING AND MAXIMUM PENALTY $250 NCGS 20.37.6 SIGNS MUST BE INSTALLED IN FRONT OF ALL ACCESSIBLE PARKING SPACES. "VAN ACCESSIBLE" SIGNS MUST BE PROVIDED IN FRONT OF THE VAN ACCESSIBLE PARKING SPACE(S).
11. ALL TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, SIGNS, AND SIGNALS SHALL BE DESIGNED, INSTALLED AND MAINTAINED IN CONFORMANCE WITH THE STANDARDS SET FORTH IN THE NORTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
12. SURVEY, BASE MAPPING, & TOPOGRAPHICAL DATA PROVIDED BY LKC ENGINEERING PLLC, JEFFREY L. GREEN, PLS, L-3972, 140 AQUASHED CT., ABERDEEN, NC 28315, TEL. 910-420-1437.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TREE PROTECTION FENCING AROUND ALL "AT-RISK" TREES WITHIN THE VICINITY OF THE CONSTRUCTION ACTIVITY WHETHER SPECIFICALLY INDICATED ON THE PLANS OR NOT. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO BEGINNING ANY CONSTRUCTION OR OTHER DEVELOPMENT ACTIVITIES, AND SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE DURATION OF THE PROJECT UNTIL FINAL SITE INSPECTION. REFER TO CONSTRUCTION PLAN DETAIL SHEETS FOR TREE PROTECTION DETAIL(S).
14. CONTRACTOR SHALL INSTALL A RAIN GAUGE AND MAINTAIN A MONITORING LOG ACCORDING TO NCDENR REQUIREMENTS UNTIL THE AGENCY HAS RELEASED THE SITE.
15. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL ACCORDING TO NCDOT REQUIREMENTS DURING THE CONSTRUCTION OF IMPROVEMENTS IN THE RIGHT-OF-WAY.
16. CONTRACTOR SHALL PROVIDE RED-LINE PRINTS OF ALL CHANGES AND MODIFICATIONS. THIS INFORMATION SHALL BE PROVIDED TO THE DESIGNER OF RECORD AT THE TIME OF SUBSTANTIAL COMPLETION.
17. CONTRACTOR SHALL INSTALL 6-FT HIGH TEMPORARY CHAIN LINK CONSTRUCTION FENCING OR APPROVED ALTERNATIVE IN ALL AREAS WHERE DIRECT ACCESS TO CONSTRUCTION ACTIVITY IS POSSIBLE, AND SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH THE OWNER REGARDING THE LOCATION OF THE CONSTRUCTION FENCE AND PEDESTRIAN TRAFFIC CONTROL DURING CONSTRUCTION. ALL FENCING SHALL BE INCLUDED IN THE BID COST WHETHER SPECIFICALLY INDICATED OR NOT.
18. FINAL INSPECTION AND APPROVAL SHALL BE MADE PRIOR TO CERTIFICATE OF OCCUPANCY BEING ISSUED.
19. CONTRACTOR SHALL MAINTAIN A COPY OF THE LOCAL AUTHORITY'S APPROVED PLANS ALONG WITH ANY PERMIT LETTERS THAT HAVE BEEN MARKED "APPROVED" OR "APPROVED AS CORRECTED" ON SITE DURING CONSTRUCTION.

LEGEND / KEY

NAME:	EXISTING	NEW
ASPHALT PAVEMENT		
CABLE TV	CA	
CENTERLINE		
CURB & GUTTER		
CONCRETE		
CONTOUR MAJOR	100	100
CONTOUR MINOR	99	99
EASEMENT		
FENCE	X	X
FIBER OPTIC	FO	
FORCE MAIN	FM	FM
GAS LINE	G	
GAS VALVE	GV	
LIMITS OF DIST/CONST		LOD/C
LIGHT POLE		
OVERHEAD ELECTRIC	OE	
POWER POLE		
PROPERTY LINE		
PROPERTY LINE – ADJ		
RAILROAD		
RIGHT-OF-WAY (ROW)	R/W	R/W
SANITARY SEWER LINE	SS	
SANITARY SEWER MH	S	S
SANITARY SEWER CO		
SPOT EL. GS	+100.00	100.00
SPOT EL. TOC	+100.00	TOC 100.00
SPOT EL. TOW	+100.00	TOW 100.00
STORM DRAIN LINE	SD	
STORM DRAIN FES	SD	
STORM DRAIN MH		
STORM DRAIN CI		
STORM DRAIN GI		
STORM DRAIN YI		
TELEPHONE LINE	T	
TELEPHONE PEDESTAL	T	
UNDERGROUND ELEC.	UE	
UTILITY POLE		
WATER LINE	W	W
WATER VALVE	WV	WV
FIRE HYDRANT		
WATER METER	W	
WATER LINE BACKFLOW		
WATER LINE REDUCER		

EROSION CONTROL:	NEW
TEMP. CONST ENT.	
TEMP. SILT FENCE	SF
TEMP. DIVERSION	TD
TEMP. INLET PROTECT.	
TEMP. ROCK PIPE INLET PROTECTION	
RIPRAP DISSIPATOR	
TEMP. SILT FENCE OUTLET	
TEMP. SKIMMER BASIN WITH BAFFLES	
FAIRCLOTH SKIMMER	
TEMP. SEDIMENT TRAP WITH BAFFLES	
TEMP. SLOPE DRAIN	
TREE PROTECTION	TP TP
ROLLED EROSION CONTROL MATTING	

ABBREVIATIONS

ABBREVIATION:	DESCRIPTION:	ABBREVIATION:	DESCRIPTION:
A/C	AIR CONDITIONING	NIC	NOT IN CONTRACT
ADJ	ADJACENT	NTS	NOT TO SCALE
AL	AREA LIGHT		
APROX	APPROXIMATE	O.C.	ON CENTER
ASSM	ASSEMBLY	OHE	OVERHEAD ELECTRIC
ASPH	ASPHALT		
		PC	POINT OF CURVATURE
BLDG	BUILDING	PI	POINT OF INTERSECTION
B.O.	BLOW-OFF	PIV	POST INDICATION VALVE
BOC	BACK OF CURB	PP	POWER POLE
BOW	BOTTOM OF WALL	PT	POINT OF TANGENCY
BX	BOX	PVC	POLYVINYL CHLORIDE
		PVMT	PAVEMENT
CB	CATCH BASIN		
C.F.	CUBIC FOOT	R	RADIUS
CI	CURB INLET	R.J.	RESTRAINED JOINT
CL	CENTER LINE	R/W, ROW	RIGHT OF WAY
CONC	CONCRETE	RCP	REINFORCED CONCRETE PIPE
CONST	CONSTRUCTION	RDCO	ROOF DRAIN CLEAN OUT
CY	CUBIC YARD	REQD	REQUIRED
		RQMT	REQUIREMENT
DB	DRAINAGE BASIN	RT	RIGHT
DEMO	DEMOLISH (DEMOLITION)	RWM	RIGHT OF WAY MONUMENT
DP	DEEP		
DI	DUCTILE IRON	SCH	SCHEDULE
D.I.P.	DUCTILE IRON PIPE	SD	STORM DRAIN
DIA	DIAMETER	SDCO	STORM DRAIN CLEAN OUT
DIM	DIMENSION	SDMH	STORM DRAIN MANHOLE
DWG	DRAWING	SED	SEDIMENT
		SF	SQUARE FOOT
ECM	EXISTING CONCRETE MONUMENT	SPEC	SPECIFICATION
EIP	EXISTING IRON PIPE	SQ	SQUARE
EIS	EXISTING IRON STAKE	SS	SANITARY SEWER
ELEC	ELECTRIC	SSCO	SANITARY SEWER CLEAN OUT
ELEV	ELEVATION	SSMH	SANITARY SEWER MANHOLE
ELMH	ELECTRICAL MANHOLE	STA	STATION
ENCL	ENCLOSURE	SY	SQUARE YARD
EOC	EDGE OF CONCRETE		
EOP	EDGE OF PAVEMENT	TBM	TEMPORARY BENCHMARK
EQPT	EQUIPMENT	TEL	TELEPHONE
ESMT	EASEMENT	TEMP	TEMPORARY
EX	EXISTING	THK	THICK
		TOC, T/C	TOP OF CURB
FES	FLARED END SECTION	TOW	TOP OF WALL
FFE	FINISH FLOOR ELEVATION	TP	TELEPHONE POLE
FH	FIRE HYDRANT	TPED	TELEPHONE PEDESTAL
FNC	FENCE	TS&V	TAPPING SADDLE & VALVE
FO	FIBER OPTIC	TYP	TYPICAL
FOC	FACE OF CURB		
FT	FOOT	UGE	UNDERGROUND ELECTRIC
		UTIL	UTILITY
G.V.	GATE VALVE		
GALV	GALVANIZE		
GND	GROUND		
GRAV	GRAVEL		
HDPE	HIGH DENSITY POLYETHYLENE		
L	LENGTH		
LF	LINEAR FOOT		
LFT	LEFT		
MAX	MAXIMUM		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
M.J.	MECHANICAL JOINT		

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043255 PHILIP A. PICHE

LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
O: 910.420.1437
F: 910.637.0096
lkcengineering.com
License No. P-1095

Engineering
Landscape Architecture
Surveying

LKC

GENERAL NOTES AND LEGEND

REC ROOM

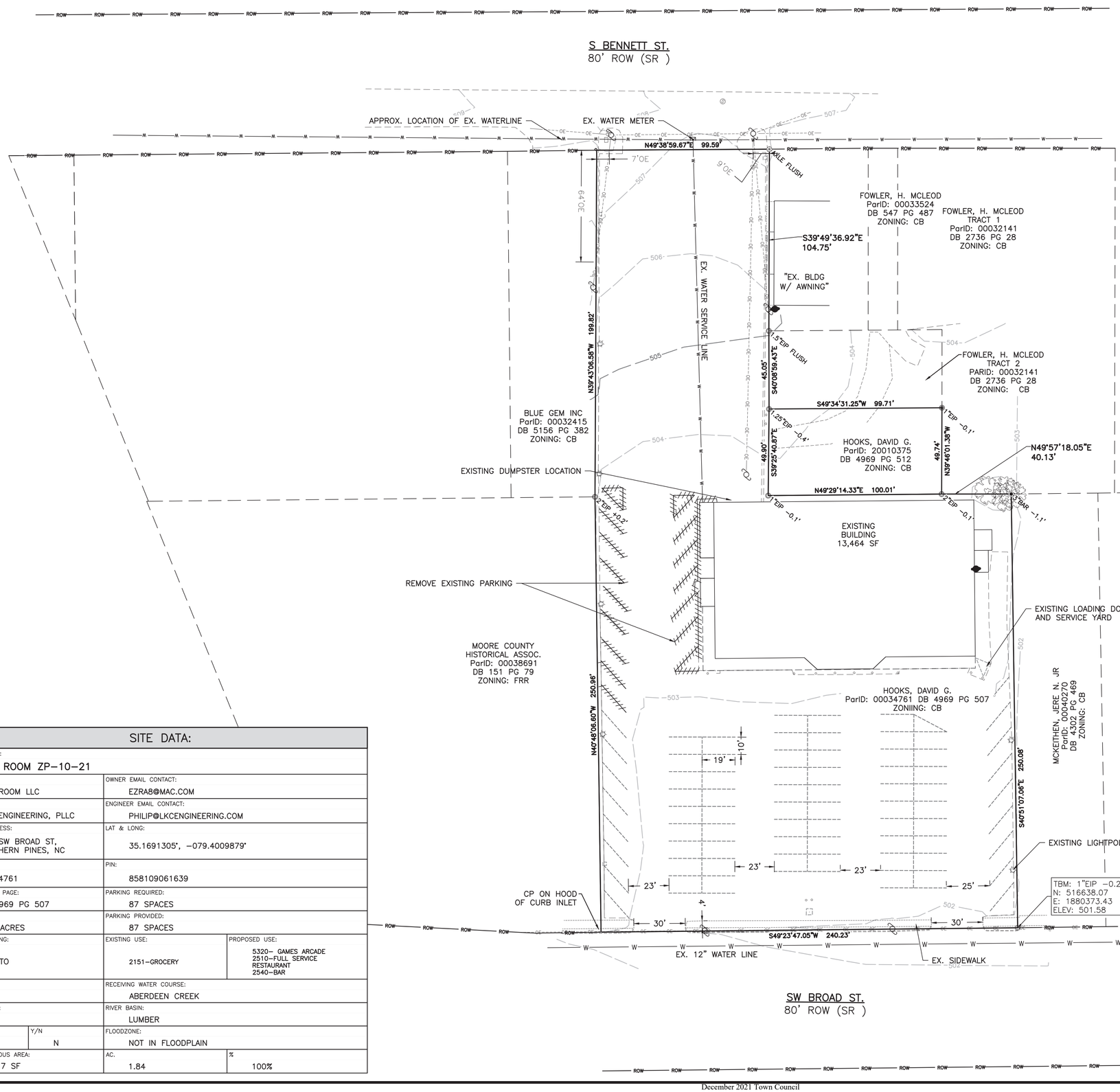
Southern Pines, North Carolina

DATE: JULY, 2021
DESIGNED: WLS
DRAWN: MFL
CHECKED: PAP
NO.
C-01

File: L:\RecRoom-21-01\800 - Drawings\810 Design Drawings\02 Civil\RecRoom-21.01 C01 LEGEND.dwg, By: Morgan, Plotted: Mon Aug 23, 2021 at 4:06pm

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

CALL 811 BEFORE YOU DIG



NOTES:

1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON SHEET C-01 SHALL APPLY TO THIS PLAN.
2. THE PURPOSE OF THE PLAN IS FOR INFORMATIONAL PURPOSES ONLY. THOUGH THIS PLAN IS FROM AN ACTUAL FIELD SURVEY IT IS NOT AND SHOULD NOT BE CONSIDERED A RECORDABLE DOCUMENT.
3. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. THE BENCHMARK IS AN EIP LOCATED AT THE SOUTH-EAST PORTION OF THE PROPERTY LOCATED AT SW BROAD ST AND HAVING AN ELEVATION OF 501.58'.
4. LOCATIONS OF EXISTING UTILITY LINES HAVE BEEN TAKEN FROM UTILITY RECORDS SUPPLEMENTED BY FIELD INSPECTIONS AND SHOULD INDICATE IN GENERAL THE TYPE OF UNDERGROUND FACILITIES NOW IN SERVICE. HOWEVER, LOCATIONS SHOWN ARE NOT GUARANTEED AND ANY FURTHER DEVELOPERS OR CONTRACTORS SHOULD NOT ONLY MAKE SUBSURFACE INVESTIGATIONS BUT SHOULD ALSO ALLOW FOR CONTINGENCIES WHICH MIGHT ARISE BY REASON OF ENCOUNTERING UNRECORDED LINES OR LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THIS PLAT.
5. THE HORIZONTAL DATUM FOR THIS SURVEY IS NC GRID NAD-83 AND THE VERTICAL DATUM IS NAVD-88.
6. ALL DISTANCES ARE HORIZONTAL GROUND.
7. AREA BY COORDINATE COMPUTATION.
8. SURVEY INFORMATION FROM THE SURVEYOR OF RECORD, LKC ENGINEERING, PLLC, JEFFREY L. GREEN,PLS; LICENSE #: L-3972; 140 AQUA SHED CT., ABERDEEN, NC 28315; PHONE 910-4201437.

EXISTING PARKING:
83 SPACES

SITE DATA:

PROJECT NAME: REC ROOM ZP-10-21		
OWNER: REC ROOM LLC	OWNER EMAIL CONTACT: EZRA8@MAC.COM	
ENGINEER: LKC ENGINEERING, PLLC	ENGINEER EMAIL CONTACT: PHILIP@LKCENGINEERING.COM	
PROJECT ADDRESS: 750 SW BROAD ST, SOUTHERN PINES, NC	LAT & LONG: 35.1691305°, -079.4009879°	
PARCEL ID#: 00034761	PIN: 858109061639	
DEED BOOK & PAGE: DB 4969 PG 507	PARKING REQUIRED: 87 SPACES	
LOT SIZE: 1.84 ACRES	PARKING PROVIDED: 87 SPACES	
CURRENT ZONING: CB/DTO	EXISTING USE: 2151-GROCERY	PROPOSED USE: 5320- GAMES ARCADE 2510-FULL SERVICE RESTAURANT 2540-BAR
WATERSHED: N/A	RECEIVING WATER COURSE: ABERDEEN CREEK	
STREAM CLASS: C	RIVER BASIN: LUMBER	
HQW: Y/N N	FLOODZONE: NOT IN FLOODPLAIN	
TOTAL IMPERVIOUS AREA: 80,117 SF	AC. 1.84	% 100%

GRAPHIC SCALE
FULL SIZE SHEET 22"x34"
1" = 40'-0"
30 0 15 30 60
(IN FEET)

LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
O: 910.420.1437
F: 910.637.0096
lkcengineering.com
License No. P-1095

Engineering
Landscape Architecture
Surveying

LKC

EXISTING TOPOGRAPHIC
SURVEY AND DEMOLITION PLAN

REC ROOM
Southern Pines, North Carolina

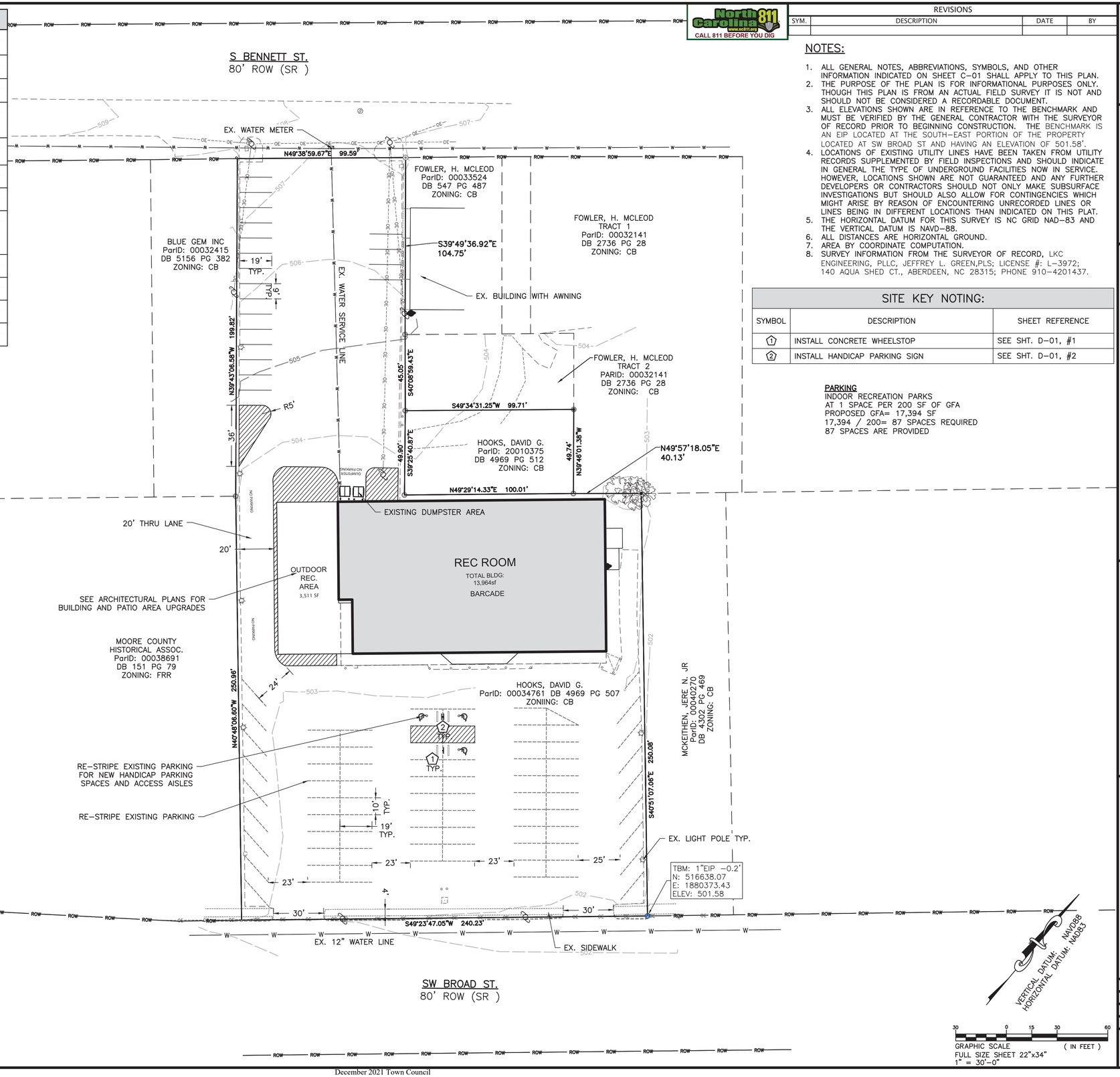
DATE: AUGUST, 2021
DESIGNED: WLS
DRAWN: MFL
CHECKED: PAP
NO. C-02

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043255 PHILIP A. PICKLER
9-23-21

File: L:\RecRoom-21-01\800 - Drawings\810 Design Drawings\02 Civil\RecRoom-21-01 C02 EX SURVEY.dwg, By: Morgan, Plotted: Mon Aug 23, 2021 at 4:06pm

SITE DATA:

PROJECT NAME: REC ROOM ZP-10-21		
OWNER: REC ROOM LLC	OWNER EMAIL CONTACT: EZRA8@MAC.COM	
ENGINEER: LKC ENGINEERING, PLLC	ENGINEER EMAIL CONTACT: PHILIP@LKCENGINEERING.COM	
PROJECT ADDRESS: 750 SW BROAD ST, SOUTHERN PINES, NC	LAT & LONG: 35.1691305°, -079.4009879°	
PARCEL ID#: 00034761	PIN: 858109061639	
DEED BOOK & PAGE: DB 4969 PG 507	PARKING REQUIRED: 87 SPACES	
LOT SIZE: 1.84 ACRES	PARKING PROVIDED: 87 SPACES	
CURRENT ZONING: CB/DTO	EXISTING USE: 2151-GROCERY	PROPOSED USE: 5320- GAMES ARCADE 2510-FULL SERVICE RESTAURANT 2540-BAR
WATERSHED: N/A	RECEIVING WATER COURSE: ABERDEEN CREEK	
STREAM CLASS: C	RIVER BASIN: LUMBER	
HQW: Y/N N	FLOODZONE: NOT IN FLOODPLAIN	
TOTAL IMPERVIOUS AREA: 80,117 SF	AC. 1.84	% 100%



REVISIONS

SYM.	DESCRIPTION	DATE	BY

NOTES:

1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON SHEET C-01 SHALL APPLY TO THIS PLAN.
2. THE PURPOSE OF THE PLAN IS FOR INFORMATIONAL PURPOSES ONLY. THOUGH THIS PLAN IS FROM AN ACTUAL FIELD SURVEY IT IS NOT AND SHOULD NOT BE CONSIDERED A RECORDABLE DOCUMENT.
3. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. THE BENCHMARK IS AN EIP LOCATED AT THE SOUTH-EAST PORTION OF THE PROPERTY LOCATED AT SW BROAD ST AND HAVING AN ELEVATION OF 501.58'.
4. LOCATIONS OF EXISTING UTILITY LINES HAVE BEEN TAKEN FROM UTILITY RECORDS SUPPLEMENTED BY FIELD INSPECTIONS AND SHOULD INDICATE IN GENERAL THE TYPE OF UNDERGROUND FACILITIES NOW IN SERVICE. HOWEVER, LOCATIONS SHOWN ARE NOT GUARANTEED AND ANY FURTHER DEVELOPERS OR CONTRACTORS SHOULD NOT ONLY MAKE SUBSURFACE INVESTIGATIONS BUT SHOULD ALSO ALLOW FOR CONTINGENCIES WHICH MIGHT ARISE BY REASON OF ENCOUNTERING UNRECORDED LINES OR LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THIS PLAT.
5. THE HORIZONTAL DATUM FOR THIS SURVEY IS NC GRID NAD-83 AND THE VERTICAL DATUM IS NAVD-88.
6. ALL DISTANCES ARE HORIZONTAL GROUND.
7. AREA BY COORDINATE COMPUTATION.
8. SURVEY INFORMATION FROM THE SURVEYOR OF RECORD, LKC ENGINEERING, PLLC, JEFFREY L. GREEN,PLS; LICENSE #: L-3972; 140 AQUA SHED CT., ABERDEEN, NC 28315; PHONE 910-4201437.

SITE KEY NOTING:

SYMBOL	DESCRIPTION	SHEET REFERENCE
1	INSTALL CONCRETE WHEELSTOP	SEE SHT. D-01, #1
2	INSTALL HANDICAP PARKING SIGN	SEE SHT. D-01, #2

PARKING
INDOOR RECREATION PARKS
AT 1 SPACE PER 200 SF OF GFA
PROPOSED GFA= 17,394 SF
17,394 / 200= 87 SPACES REQUIRED
87 SPACES ARE PROVIDED

LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
O: 910.420.1437
F: 910.637.0096
lkcengineering.com
License No. P-1095

Engineering
Landscape Architecture
Surveying

LKC

SITE LAYOUT PLAN

REC ROOM
Southern Pines, North Carolina

DATE: AUGUST, 2021
DESIGNED: WLS
DRAWN: MFL
CHECKED: PAP
NO. C-03

CALL 811 BEFORE YOU DIG

File: L:\Rec Room-21-01\800 - Drawings\810 Design Drawings\02 Civil\Rec Room-21-01 C03 SITE LAYOUT.dwg, By: Morgan, Plotted: Mon Aug 23, 2021 at 4:07pm

UTILITY KEY NOTING:		
SYMBOL	DESCRIPTION	SHEET REFERENCE
1	INSTALL GATE VALVE	SEE SHT. D-02, TOSP W1
2	INSTALL FDC ASSEMBLY	SEE SHT. D-02, TOSP W6
3	UTILITY CUT PAVEMENT REPAIR	SEE SHT. D-02, TOSP R6
4	INSTALL FIRE HYDRANT ASSEMBLY	SEE SHT. D-02, TOSP W5
5	INSTALL BACKFLOW PREVENTION ASSEMBLY	SEE SHT. D-02, TOSP W11

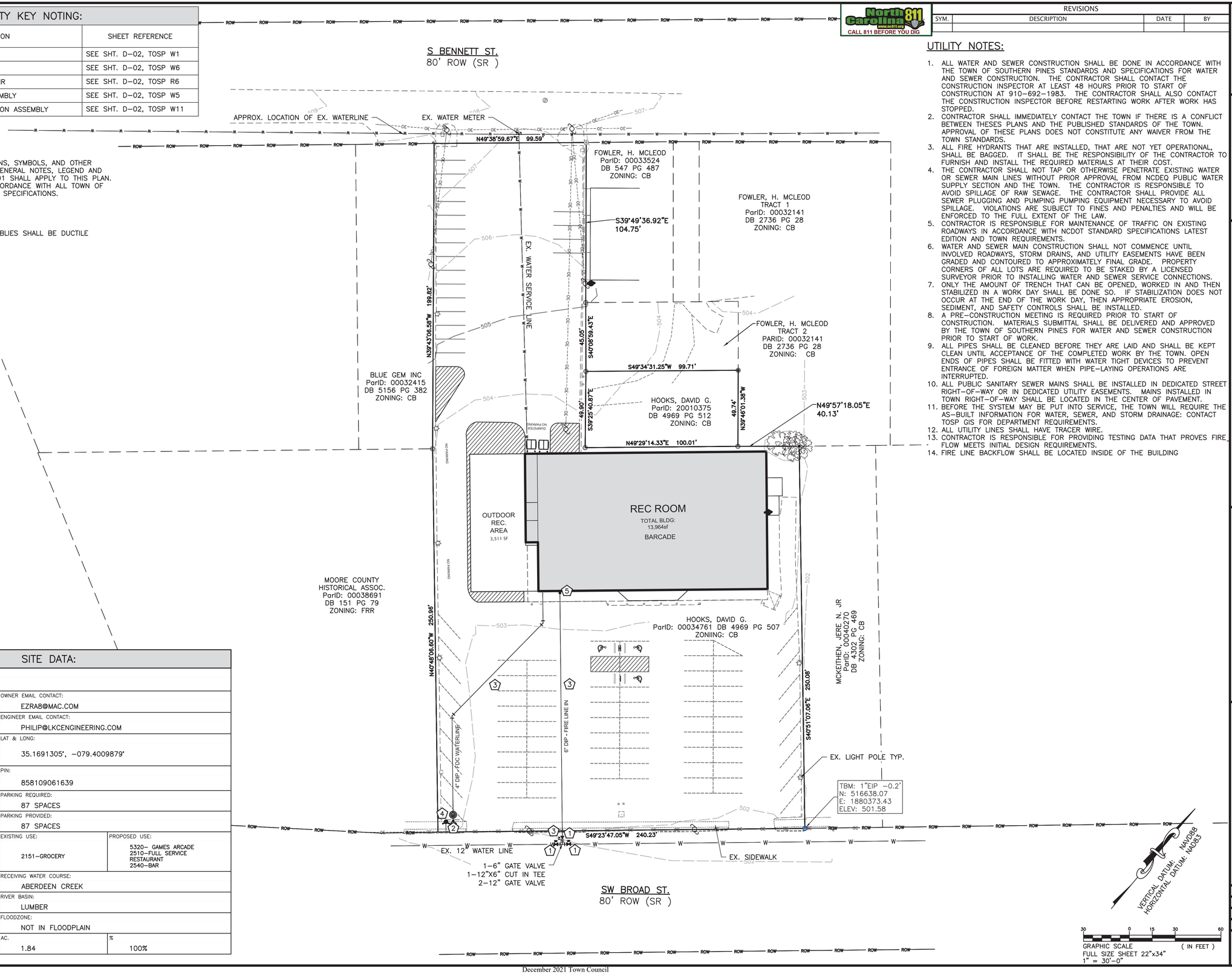
GENERAL NOTES:

1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THE GENERAL NOTES, LEGEND AND ABBREVIATIONS SHEET, SHEET C-01 SHALL APPLY TO THIS PLAN.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF SOUTHERN PINES STANDARDS AND SPECIFICATIONS.

FIRE HYDRANT PIPING:

PIPING FOR THE FIRE HYDRANT ASSEMBLIES SHALL BE DUCTILE IRON PIPE.

SITE DATA:		
PROJECT NAME: REC ROOM ZP-10-21		
OWNER: REC ROOM LLC	OWNER EMAIL CONTACT: EZRA8@MAC.COM	
ENGINEER: LKC ENGINEERING, PLLC	ENGINEER EMAIL CONTACT: PHILIP@LKCENGINEERING.COM	
PROJECT ADDRESS: 750 SW BROAD ST, SOUTHERN PINES, NC	LAT & LONG: 35.1691305°, -079.4009879°	
PARCEL ID#: 00034761	PIN: 858109061639	
DEED BOOK & PAGE: DB 4969 PG 507	PARKING REQUIRED: 87 SPACES	
LOT SIZE: 1.84 ACRES	PARKING PROVIDED: 87 SPACES	
CURRENT ZONING: CB/DTO	EXISTING USE: 2151-GROCERY	PROPOSED USE: 5320- GAMES ARCADE 2510-FULL SERVICE RESTAURANT 2540-BAR
WATERSHED: N/A	RECEIVING WATER COURSE: ABERDEEN CREEK	
STREAM CLASS: C	RIVER BASIN: LUMBER	
HQW: Y/N N	FLOODZONE: NOT IN FLOODPLAIN	
TOTAL IMPERVIOUS AREA: 80,117 SF	AC. 1.84	% 100%



REVISIONS			
SYM.	DESCRIPTION	DATE	BY

UTILITY NOTES:

1. ALL WATER AND SEWER CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE TOWN OF SOUTHERN PINES STANDARDS AND SPECIFICATIONS FOR WATER AND SEWER CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE CONSTRUCTION INSPECTOR AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION AT 910-692-1983. THE CONTRACTOR SHALL ALSO CONTACT THE CONSTRUCTION INSPECTOR BEFORE RESTARTING WORK AFTER WORK HAS STOPPED.
2. CONTRACTOR SHALL IMMEDIATELY CONTACT THE TOWN IF THERE IS A CONFLICT BETWEEN THESES PLANS AND THE PUBLISHED STANDARDS OF THE TOWN. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE ANY WAIVER FROM THE TOWN STANDARDS.
3. ALL FIRE HYDRANTS THAT ARE INSTALLED, THAT ARE NOT YET OPERATIONAL, SHALL BE BAGGED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH AND INSTALL THE REQUIRED MATERIALS AT THEIR COST.
4. THE CONTRACTOR SHALL NOT TAP OR OTHERWISE PENETRATE EXISTING WATER OR SEWER MAIN LINES WITHOUT PRIOR APPROVAL FROM NCDEQ PUBLIC WATER SUPPLY SECTION AND THE TOWN. THE CONTRACTOR IS RESPONSIBLE TO AVOID SPILLAGE OF RAW SEWAGE. THE CONTRACTOR SHALL PROVIDE ALL SEWER PLUGGING AND PUMPING PUMPING EQUIPMENT NECESSARY TO AVOID SPILLAGE. VIOLATIONS ARE SUBJECT TO FINES AND PENALTIES AND WILL BE ENFORCED TO THE FULL EXTENT OF THE LAW.
5. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS LATEST EDITION AND TOWN REQUIREMENTS.
6. WATER AND SEWER MAIN CONSTRUCTION SHALL NOT COMMENCE UNTIL INVOLVED ROADWAYS, STORM DRAINS, AND UTILITY EASEMENTS HAVE BEEN GRADED AND CONTOURED TO APPROXIMATELY FINAL GRADE. PROPERTY CORNERS OF ALL LOTS ARE REQUIRED TO BE STAKED BY A LICENSED SURVEYOR PRIOR TO INSTALLING WATER AND SEWER SERVICE CONNECTIONS.
7. ONLY THE AMOUNT OF TRENCH THAT CAN BE OPENED, WORKED IN AND THEN STABILIZED IN A WORK DAY SHALL BE DONE SO. IF STABILIZATION DOES NOT OCCUR AT THE END OF THE WORK DAY, THEN APPROPRIATE EROSION, SEDIMENT, AND SAFETY CONTROLS SHALL BE INSTALLED.
8. A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO START OF CONSTRUCTION. MATERIALS SUBMITTAL SHALL BE DELIVERED AND APPROVED BY THE TOWN OF SOUTHERN PINES FOR WATER AND SEWER CONSTRUCTION PRIOR TO START OF WORK.
9. ALL PIPES SHALL BE CLEANED BEFORE THEY ARE LAID AND SHALL BE KEPT CLEAN UNTIL ACCEPTANCE OF THE COMPLETED WORK BY THE TOWN. OPEN ENDS OF PIPES SHALL BE FITTED WITH WATER TIGHT DEVICES TO PREVENT ENTRANCE OF FOREIGN MATTER WHEN PIPE-LAYING OPERATIONS ARE INTERRUPTED.
10. ALL PUBLIC SANITARY SEWER MAINS SHALL BE INSTALLED IN DEDICATED STREET RIGHT-OF-WAY OR IN DEDICATED UTILITY EASEMENTS. MAINS INSTALLED IN TOWN RIGHT-OF-WAY SHALL BE LOCATED IN THE CENTER OF PAVEMENT.
11. BEFORE THE SYSTEM MAY BE PUT INTO SERVICE, THE TOWN WILL REQUIRE THE AS-BUILT INFORMATION FOR WATER, SEWER, AND STORM DRAINAGE: CONTACT TOSP GIS FOR DEPARTMENT REQUIREMENTS.
12. ALL UTILITY LINES SHALL HAVE TRACER WIRE.
13. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TESTING DATA THAT PROVES FIRE FLOW MEETS INITIAL DESIGN REQUIREMENTS.
14. FIRE LINE BACKFLOW SHALL BE LOCATED INSIDE OF THE BUILDING

LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
O: 910.420.1437
F: 910.637.0096
lkcengineering.com
License No. P-1095

Engineering
Landscape Architecture
Surveying

LKC

UTILITY PLAN

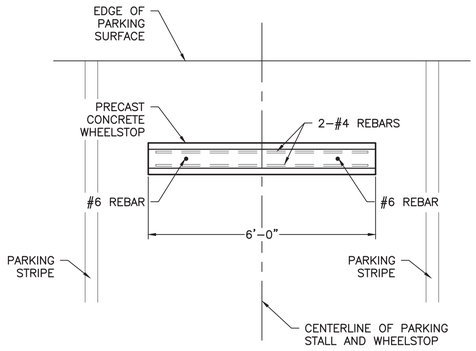
REC ROOM
Southern Pines, North Carolina

DATE: AUGUST, 2021
DESIGNED: WLS
DRAWN: MFL
CHECKED: PAP
NO.
C-04

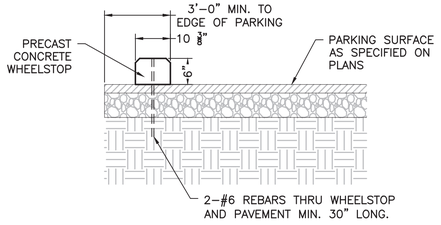
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043255 PHILIP A. PICHOTTA
8-24-21

North Carolina 811 www.ncl1.org CALL 811 BEFORE YOU DIG

File: L:\RecRoom-21-01\800 - Drawings\810 Design Drawings\02 Civil\RecRoom-21.01 C04 UTILITY.dwg, By: Morgan, Plotted: Mon Aug 23, 2021 at 4:07pm

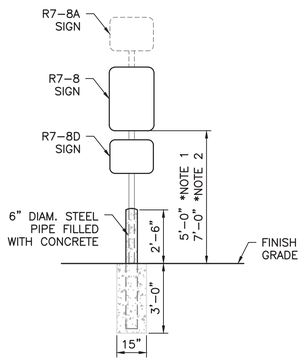


PLAN VIEW



SECTION VIEW

1 CONCRETE WHEELSTOP
NOT TO SCALE

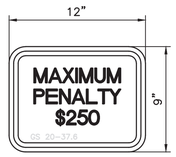


NOTE:

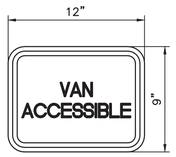
CONSTRUCTION AND INSTALLATION OF SIGNS AND POST SHALL COMPLY WITH GENERAL STATUTE 20–37.6

R7–8

SIGN APPROVED FOR USE UNDER GENERAL STATUTE 20–37.6



R7–8D



R7–8A

COLORS:

LEGEND AND BORDER – GREEN
WITH WHITE SYMBOL ON BLUE BACKGROUND
BACKGROUND – WHITE

*NOTE 1 – PEDESTRIAN PATH DOES NOT PASS UNDER OR AROUND SIGN
*NOTE 2 – PEDESTRIAN PATH GOES BY, UNDER OR AROUND SIGN

3 HANDICAP PARKING SIGN
NOT TO SCALE

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

NORTH CAROLINA PROFESSIONAL SEAL 043255 ENGINEER PHILIP A. PICHE

LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
O: 910.420.1437
F: 910.637.0096
lkcengineering.com
License No. P-1095

Engineering
Landscape Architecture
Surveying

LKC

SITE DETAILS

REC ROOM
Southern Pines, North Carolina

DATE: AUGUST, 2021
DESIGNED: WLS
DRAWN: MFL
CHECKED: PAP
NO.
D-01

File: L:\RecRoom-21-01\800 - Drawings\810 Design Drawings\02 Civil\RecRoom-21.01 001 DETAILS.dwg, By: Morgan, Plotted: Mon Aug 23, 2021 at 4:07pm

LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
O: 910.420.1437
F: 910.637.0096
lkcengineering.com
License No. P-1095

Engineering
Landscape Architecture
Surveying

LKC

UTILITY DETAILS

REC ROOM

Southern Pines, North Carolina

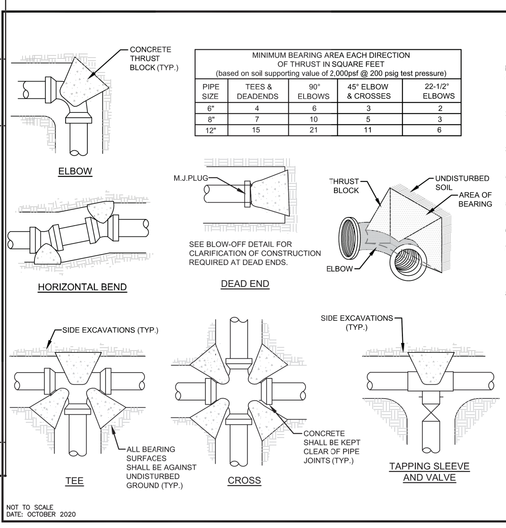
DATE: AUGUST, 2021
DESIGNED: WLS
DRAWN: MFL
CHECKED: PAP
NO. D-02

REVISIONS
SYM. | DESCRIPTION | DATE | BY

TOWN OF SOUTHERN PINES

THRUST BLOCKING DETAILS

W9



MINIMUM BEARING AREA EACH DIRECTION OF THRUST IN SQUARE FEET
(based on soil supporting value of 2,000psf @ 200 psig test pressure)

PIPE SIZE	TEES & DEADENDS	90° ELBOWS	45° ELBOW & CROSSES	22-1/2° ELBOWS
6"	4	6	3	2
8"	7	10	5	3
12"	15	21	11	6

NOTES:
1. PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
2. COMPACT FITTINGS ARE NOT ACCEPTABLE. STANDARD FITTINGS SHALL BE USED WITH CONCRETE THRUST BLOCKING.
3. THRUST BLOCKS SHALL BE INSTALLED ON SEWER FORCE MAIN IN THE MANNER SHOWN.
4. IF SAC-CRETE IS USED, MIXING MUST BE ON SITE UTILIZING A MECHANICAL MIXER.
5. NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
6. CONCRETE SHALL BE A MINIMUM 3,000PSI.
7. ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL AND SHALL BE APPROVED BYTHE TOWN PRIOR TO PLACEMENT OF CONCRETE.
8. USE OF RESTRAINED JOINT DUCTILE IRON WILL BE REQUIRED IF SOIL CONDITIONS DO NOT ALLOW THE USE OF THRUST BLOCKS.

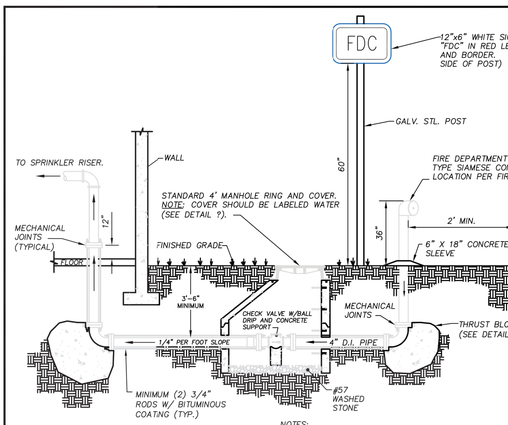
NOT TO SCALE
DATE: OCTOBER 2020

4

TOWN OF SOUTHERN PINES

FDC ASSEMBLY DETAIL

W6



NOTES:

1) ALL SIAMESE CONNECTION'S MUST BE WITHIN 50 FEET OF A FIRE HYDRANT.

2) SIAMESE CONNECTION CAN BE ATTACHED TO BUILDING. CHECK VALVE W/ BALL DRIP NOT REQUIRED IF SIAMESE CONNECTION IS TIED DIRECTLY TO THE BUILDING.

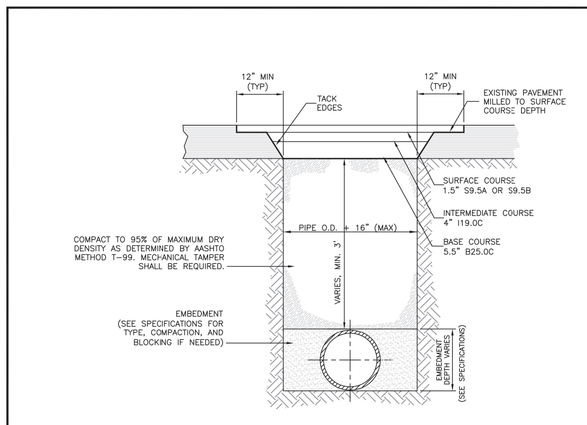
NOT TO SCALE
DATE: OCTOBER 2020

3

TOWN OF SOUTHERN PINES

UTILITY CUT PAVEMENT REPAIR DETAIL

R6



NOTES:

1. ASPHALT SHALL BE CUT WITH CUTTING WHEEL.

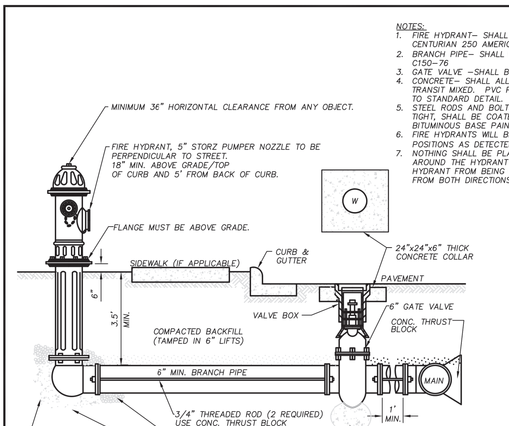
NOT TO SCALE
DATE: OCTOBER 2020

7

TOWN OF SOUTHERN PINES

FIRE HYDRANT ASSEMBLY

W5



NOTES:
1. FIRE HYDRANT– SHALL BE: MUELLER SUPER CENTURIAN 250 AMERICAN DARLING MARK 73.
2. BRANCH PIPE– SHALL BE 6" DUCTILE IRON AWWA C150–76
3. GATE VALVE –SHALL BE AWWA C500–86 OPEN LEFT.
4. CONCRETE– SHALL ALL BE 3000 PSI MINIMUM AND TRANSIT MIXED. PVC PIPE BEDDING SHALL CONFORM TO STANDARD DETAIL.
5. STEEL RODS AND BOLTS– ONCE INSTALLED AND TIGHT, SHALL BE COATED WITH TWO COATS OF BITUMINOUS BASE PAINT.
6. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITIONS AS DETECTED BY THE "NAKED" EYE.
7. NOTHING SHALL BE PLACED IN A MANNER NEAR OR AROUND THE HYDRANT THAT WOULD PREVENT THE HYDRANT FROM BEING IMMEDIATELY DISCERNABLE FROM BOTH DIRECTIONS.

NOT TO SCALE
DATE: OCTOBER 2020

2

TOWN OF SOUTHERN PINES

GENERAL NOTES - FIRE PROTECTION

F-1

SECTION 508
FIRE PROTECTION WATER SUPPLIES
508.1 General. An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction.
508.2 Type of water supply. A water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.
508.2.1 Private fire service mains. Private fire service mains and appurtenances shall be installed in accordance with NFPA 24.
508.2.2 Water tanks. Water tanks for private fire protection shall be installed in accordance with NFPA 22.
508.3 Fire flow requirements for buildings. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an approved method.
508.4 Water supply test. The fire code official shall be notified prior to the water supply test. Water supply tests shall be witnessed by the fire code official or approved documentation of the test shall be provided to the fire code official prior to final approval of the water supply system. approved documentation of the test shall be provided to the fire code official prior to final approval of the water supply system.
508.5 Fire hydrant systems. Fire hydrant systems shall comply with Sections 508.5.1 through 508.5.6.
508.5.1 Where required. Where a portion of the facility or building hereafter constructed or moved into or within the Jurisdiction is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official.
Exceptions:
1. For Group R–3 and Group U occupancies, the distance requirement shall be 600 feet (183 m).
2. For buildings equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet (183 m).
508.5.2 Inspection, testing and maintenance. Fire hydrant systems shall be subject to periodic tests as required by the fire code official. Fire hydrant systems shall be maintained in an operative condition at all times and shall be repaired where defective. Additions, repairs, alterations and servicing shall comply with approved standards.
508.5.3 Private fire service mains and water tanks. Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with NFPA 25 at the following intervals or as approved by the fire code official:
1. Private fire hydrants (all types): Inspection annually and after each operation; flow test and maintenance annually.
2. Fire service main piping strainers: Inspection and maintenance after each use.
3. Fire service main piping strainers: Inspection and maintenance after each use.
508.5.4 Obstruction. Posts, fences, vehicles, growth, trash, storage and other materials or objects shall not be placed or kept near fire hydrants, fire department inspection connections or fire protection system control valves in a manner that would prevent such equipment or fire hydrants from being immediately discernible. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants.
508.5.5 Clear space around hydrants. A 3–foot (914 mm) clear space shall be maintained around the circumference of fire hydrants, except as otherwise required or approved.
508.5.6 Physical protection. Where fire hydrants are subject to impact by a motor vehicle, guard posts or other approved means shall comply with Section 312.

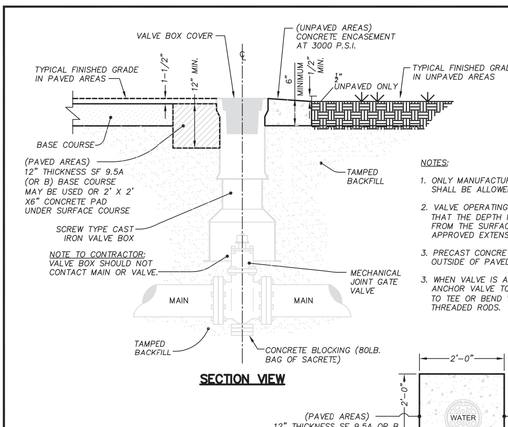
NOT TO SCALE
TOWN OF SOUTHERN PINES
DATE: JANUARY 2020

6

TOWN OF SOUTHERN PINES

GATE VALVE ASSEMBLY

W1



NOTES:
1. ONLY MANUFACTURED VALVE BOX EXTENSIONS SHALL BE ALLOWED.
2. VALVE OPERATING NUT MUST BE EXTENDED SO THAT THE DEPTH IS NO GREATER THAN 5' (ft.) FROM THE SURFACE USING A MANUFACTURER APPROVED EXTENSION KIT.
3. PRECAST CONCRETE ENCASEMENT IS ALLOWED OUTSIDE OF PAVED AREAS.
3. WHEN VALVE IS ADJACENT TO TEE OR BEND, ANCHOR VALVE TO TEE OR BEND, ANCHOR VALVE TO TEE OR BEND WITH TWO (2) 3/4" ALL THREADED RODS.

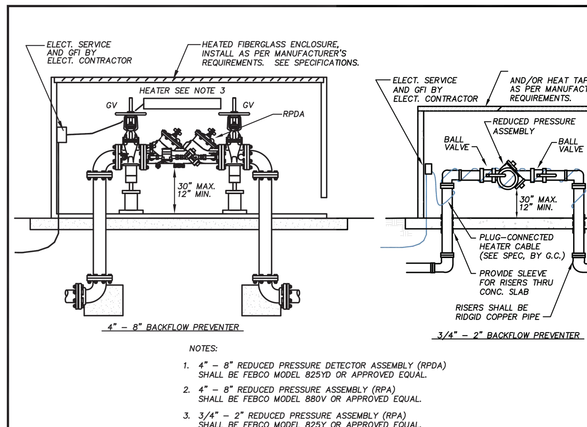
NOT TO SCALE
DATE: OCTOBER 2020

1

TOWN OF SOUTHERN PINES

BACKFLOW PREVENTION ASSEMBLIES

W11



NOTES:
1. 4" – 8" REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) SHALL BE FEBCO MODEL 825YD OR APPROVED EQUAL.
2. 4" – 8" REDUCED PRESSURE ASSEMBLY (RPA) SHALL BE FEBCO MODEL 880V OR APPROVED EQUAL.
3. 3/4" – 2" REDUCED PRESSURE ASSEMBLY (RPA) SHALL BE FEBCO MODEL 825Y OR APPROVED EQUAL.
4. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS OF BACKFLOW PREVENTER, VALVES, ENCLOSURE, ETC.
5. HEATER AND POWER CORD BY G.C., SEE SPECIFICATIONS INSTALL PER MANUFACTURES INSTRUCTIONS.
6. RPZ TO BE USC APPROVED.

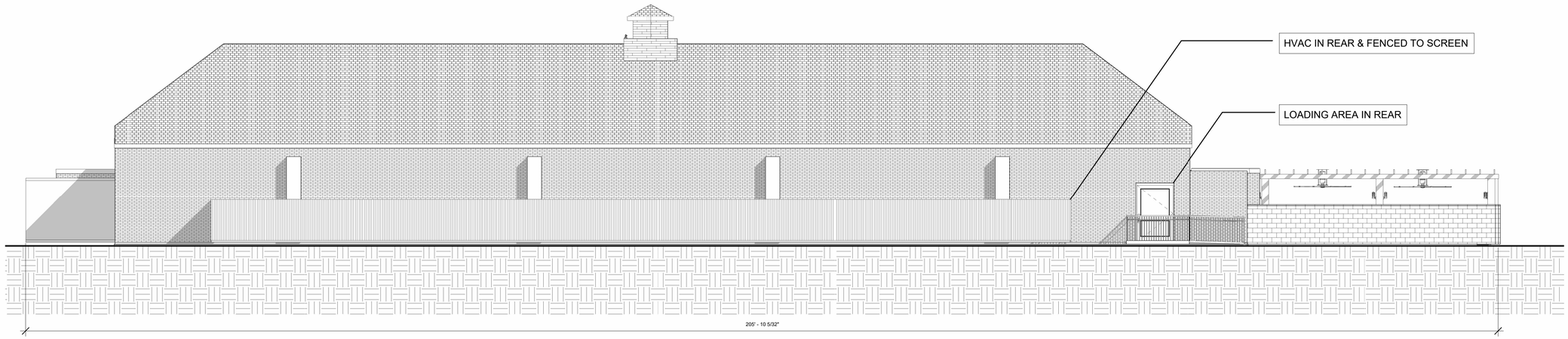
NOT TO SCALE
DATE: OCTOBER 2020

5

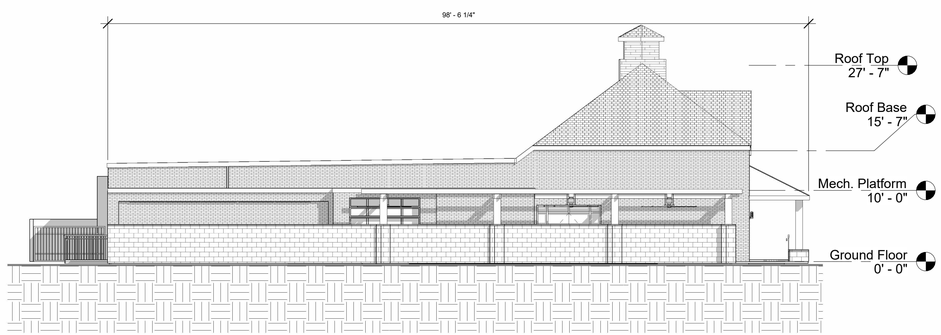
NORTH CAROLINA PROFESSIONAL SEAL 043255 ENGINEER CAITLIN A. PICKERING
8-27-21

File: L:\Rec Room-21-01\800 - Drawings\810 Design Drawings\02 CVil\Rec Room-21-01 D01 DETAILS.dwg, by: Morgan. Plotted: Mon Aug 23, 2021 at 4:07pm

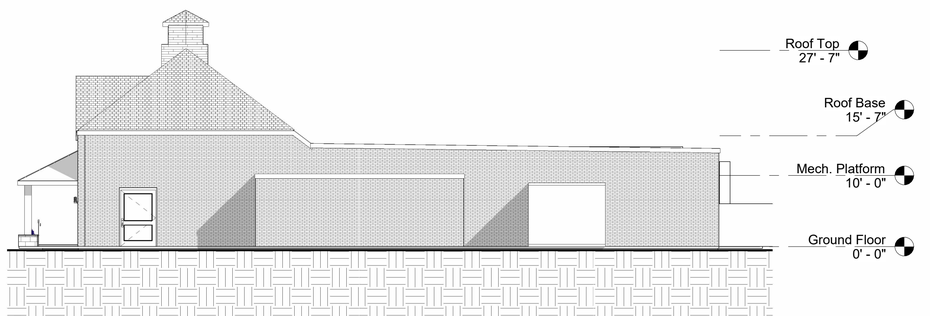
1 South
1/8" = 1'-0"



4 North
1/8" = 1'-0"



2 West
3/32" = 1'-0"



3 East
3/32" = 1'-0"

Pinnacle
DEVELOPMENT DESIGN BUILD

WWW.PDCNC.COM

REC ROOM

BAR + ARCADE

Southern Pines

REC ROOM

Elevations

Project number	R750
Date	29 OCT 2021
Drawn by	AJJ
Checked by	DK

A02

Scale: As indicated

11/29/2021 4:14:04 PM

REC ROOM

Agenda Item

To: **Reagan Parsons, Town Manager**

From: **Jennifer Hunt, Planner I**

Subject: **AR-09-21 Freddy's Frozen Custard & Steakburger**

Date: **December 14, 2021**

I. SUMMARY OF APPLICATION REQUEST:

Mr. William Moseley of MREA Southern Pines, LLC., is requesting approval of an architectural compliance permit for Freddy's Frozen Custard & Steakburger. This 3,200 square foot retail development is in the General Business (GB) zoning district and is located at the corner of Murray Hill Road and US Highway 15-501.

II. PROJECT INFORMATION:

1. **PARID** 00046731; **PIN** 857110451215

2. **Owners:**
   Daniel Patrick Black Family Limited Partnership
   90 Cherokee Road
   Pinehurst, NC 28374

3. **Applicant / Agent:**
   MREA Southern Pines, LLC.
   William Moseley
   1100 Kenilworth Avenue Suite 210
   Charlotte, NC 2820

Figure 1: Vicinity Map and Zoning Map (Subject Property Outlined in Yellow)

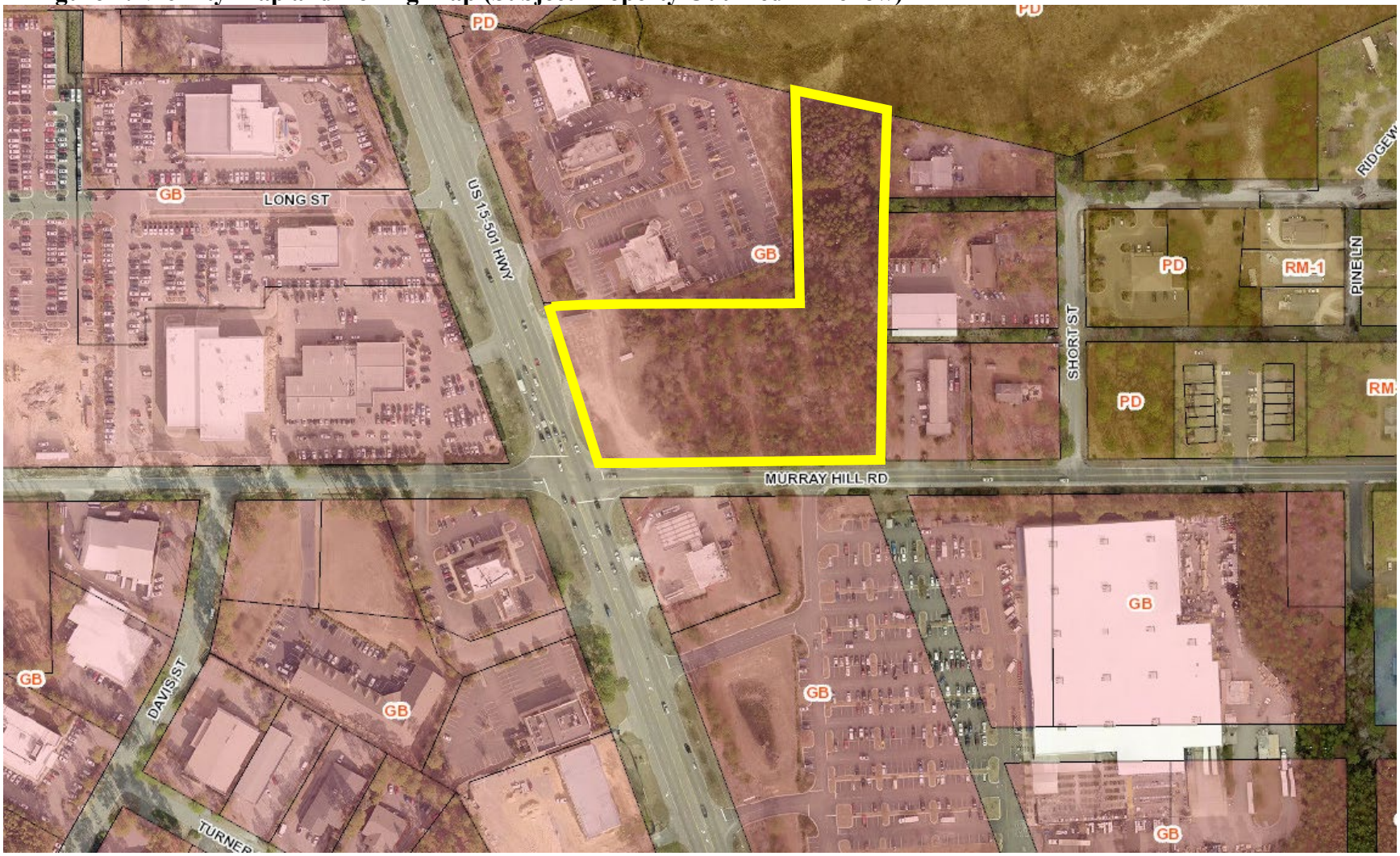
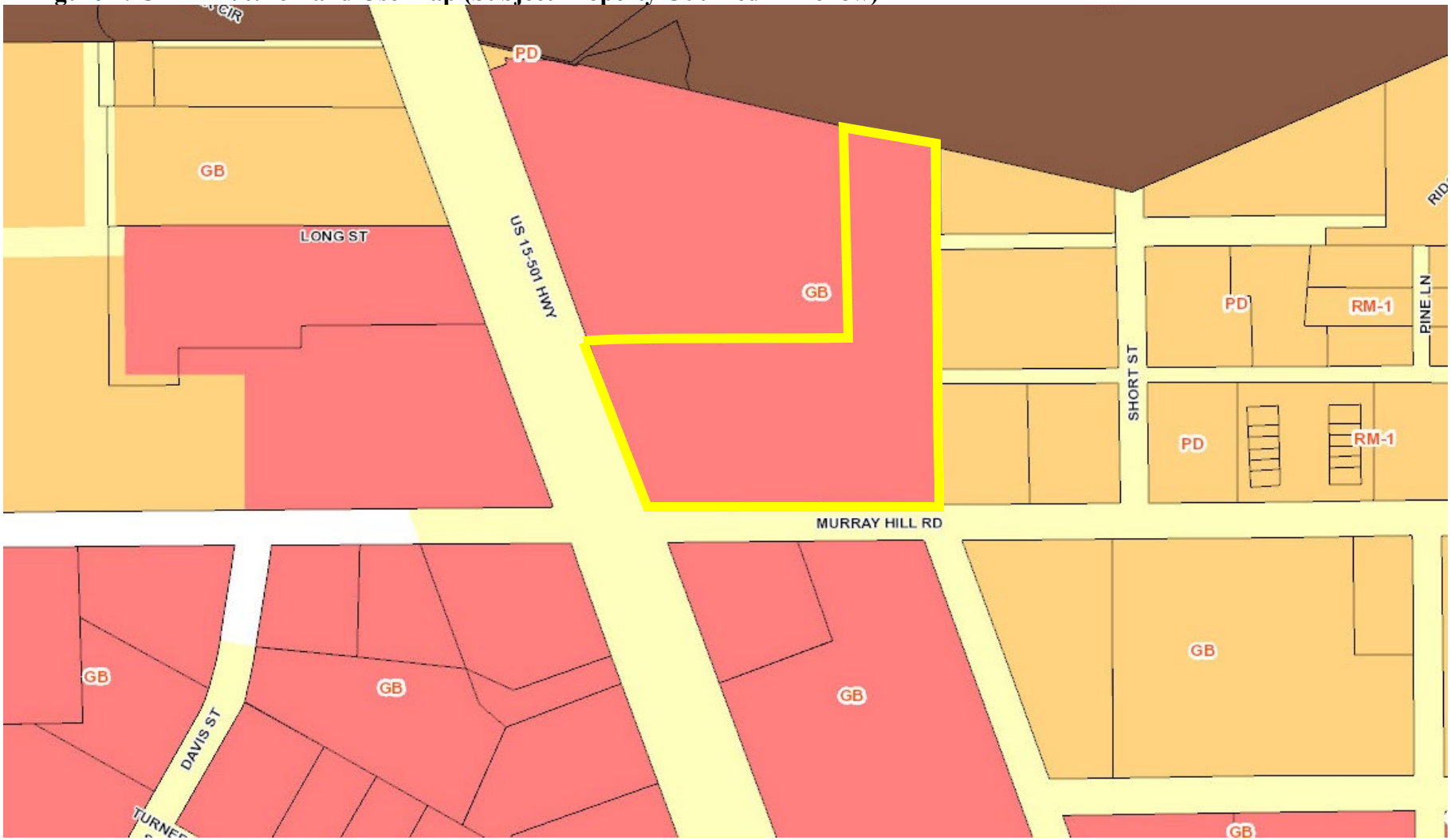


Figure 2: CLRP Future Land Use Map (Subject Property Outlined in Yellow)



4. **Comprehensive Long-Range Plan Designation:**
The area is designated as Commercial on the Comprehensive Long-Range Plan (CLRP). *The commercial designation applies to all land dedicated to retail, professional office, or other primarily non-residential, commercial use. It includes the downtown portions along Broad Street and Pennsylvania Avenue, the regional commercial corridor on US 15/501, and all commercial land in between. Higher density residential may be incorporated into mixed-use developments within areas designated for this future land use category.*

5. **Zoning:**
The parcel is currently zoned General Business (GB) (See figure 1). GB is a district designed to accommodate highway-oriented retail, commercial service businesses and in some cases light manufacturing. The major objectives of the GB district are to discourage small lot development on major highways, encourage vehicular access from local commercial streets and provide a location for major shopping facilities, requiring large outdoor spaces.

III. STAFF REVIEW:

1. **Review Process:**
Applications for Architectural Compliance Permits are reviewed pursuant to UDO §2.26.

2. **Application Review Dates:**
Application Submitted: November 4, 2021
Application Complete: November 5, 2021
Town Council Agenda Meeting: December 8, 2021
Town Council Meeting: December 14, 2021

3. **Criteria for Review:**
When reviewing an application for an Architectural Compliance Permit, the Town Council shall approve, conditionally approve or deny the application based on the following criteria, as set forth in **UDO §2.26.7**:

    1. *The application is consistent with applicable Comprehensive Plan goals and policies;*
    2. *The application substantially conforms with the applicable multi-family or commercial design standards and other applicable provisions of the UDO, including the purposes of the zoning district in which the property is located;*
    3. *The application is consistent with applicable conditions of prior Development approvals; and*
    4. *The development as proposed will be compatible with neighboring development and has mitigated potential conflicts.*

4. **Staff Comments based on Commercial Building Design Requirements per UDO §4.10.4:**
Staff has reviewed the project for compliance with §4.10.4 *Building Design Requirements.*

- UDO §4.10.4 (A) (1) *states the front of buildings shall face and have the primary customer entry facing that street. Corner Lot buildings shall face and have the primary customer entry facing the higher order street, facing the corner or facing each street. Buildings that extend the full depth of a block may be required to have entries on each street frontage.*
  Generally Compliant:
  The building orientation and entries are compliant. The primary customer entrance faces US 15-501 HWY, which is the highest order street. There is also an entrance located on the south side, facing Murray Hill Road, the other corner facing street.

- UDO §4.10.4 (B) *states (2) In other districts, the width of buildings or building segments shall not be more than twice the building height. (3) Building segments may be created through a combination of vertical features such as changes in material, building offsets, courtyards, changes in rooflines or architectural features that create the appearance of building segments. (4) Large scale retail structures shall comply with Section 4.10.6.*
  Generally Compliant:
  The proposed building complies with our standard that the width of buildings or building segments shall not be more than twice the building height. The height of the building is approximately 25 feet. The width of buildings or building segments is approximately 36 feet.

- UDO §4.10.4 (C) *states the exterior finish of building walls shall be primarily comprised of brick. Cementitious horizontal lap siding, textured concrete masonry, cast stone and stucco may be used for accents, provided that they cover no more than twenty (20) percent of the exterior walls, exclusive of doors and windows. Wood and metal may be used as trim around doors and windows. The Permit Issuing Authority may approve: (3) Alternative materials satisfying minimum building code standards for structures located within a planned golf course Development that are compatible with the Development and the proposed location within the Development.*
  Generally Compliant:
  The applicant meets the exterior finish of building walls. The exterior finish will be 100% brick veneer over wood frame construction. The applicant states that above the wainscot to the parapet cornice is a yellow cream brick with a black soldier course between the pilasters. The cornice is assembled of black brick. Wainscot and pilasters are of red brick.

- UDO §4.10.4 (D) *states that windows shall be glazed in non-reflective clear glass. Windows and doors shall comprise at least 25% of street facing building facades between the elevations of 2 and 10 feet above the grade of the building entry.*
  Generally Compliant:
  The applicant states the storefront glass will be glazed using 1 inch insulated low 'E' glazing, without a window tint. The windows will be glazed accordingly below.
  - 12% of the west façade
  - 0% of the east façade
  - 5% of the north façade
  - 12% of the south façade.

Windows and doors comprise at least 25% of the street facing building facades between the elevations of 2 and 10 feet.

-

- UDO §4.10.4 (E) (3) *states awnings shall be canvas or material of similar appearance and flexibility unless otherwise approved by the Town Council. Street facing awnings shall not be taller than six (6) feet unless specifically approved by the Town Council.*
  Generally Compliant:
  The applicant is proposing red and white vinyl awnings, a material that is of similar appearance and flexibility. The height of the awning complies with our standard and is not taller than six feet. They are 4 feet tall.

- UDO §4.10.4 (F) *states galleries and arcades are encouraged and may encroach up to six (6) feet into any street side setback but may not encroach into public right-of-way.*
  Generally Compliant:
  The applicant states that there are no galleries and arcades.

- UDO §4.10.4 (G) *states buildings may use parapets, and changes in parapet height or design in the roofline as viewed from any public street shall be required for any building that is wider that 100'.*
  Generally Compliant:
  The building has a parapet wall, where the longest uninterrupted width is approximately 44 feet. This follows our standard above.

- UDO §4.10.4 (H) *states that mechanical equipment shall be screened from view from the street and cannot be located between the building and the street.*
  Generally Compliant:
  The applicant states that the HVAC units are below the top of the parapet wall. They will not be seen from the street view nor are they located between the building and the street.

- UDO §4.10.4 (I) states *garage doors and loading bays shall face an interior lot line alley or service drive and shall not face a street unless buffered or screened per the landscaping code in UDO §4.3.*
  Generally Compliant:
  The applicant states there is a loading zone in front of the dumpster enclosure. The dumpster enclosure faces an interior lot line alley or service drive which complies with our standard.

- UDO §4.10.4 (J) *states Signage shall comply with the standards in section 4.6 and any applicable zoning district standards.* UDO §4.6.9 (B) (3) *states A secondary Wall Sign may be placed between the business establishment and its principal parking area if there is no parking between the business establishment and a street. The area of the secondary Wall Sign shall not exceed the lesser of thirty-five (35) square feet or the maximum size allowed for the street facing Wall Sign.*

Generally Compliant:
The applicant states their building signage will conform to the Town of Southern Pines signage ordinance. Freddy's logo sign will be on the west side, US 15-501 HWY, which is the highest order street.

IV. ATTACHMENTS:

1. Written Narrative Addressing Compliance with §4.10.4 of the UDO
2. Application
3. Deed
4. Site Plan
5. Elevations
6. Building Rendering and Materials Board

V. TOWN COUNCIL ACTION:

The Town Council shall vote on whether the proposed application for the Architectural Compliance Permit complies with the UDO and should consider whether the application is consistent with UDO Section 2.26 and UDO Section 4.10.4 as well as UDO Section 3.5.9.

The Town Council may make one of the following motions or any alternative they wish:

I move to:

1. Approve AR-09-21

2. Approve AR-09-21 with the following conditions…

3. Deny AR-09-21;

I. DESIGN

Freddy's Frozen Custard will be 100% brick veneer over wood frame construction. Southern Pines UDO requires a minimum of 80% brick veneer. Wainscot and pilasters are of red brick. Above the wainscot to the parapet cornice is a yellow cream brick w/ a black soldier course between pilasters. The cornice too is assembled of black brick. The facade facing US 15 is higher than the mean parapet elevation of the building. Freddy's logo sign will be on this facade. Percentage of glazing in each building elevation as required by the Southern Pines UDO:

12% of the west facade is glazing.
0% of the east facade is glazing.
5% of the north facade is glazing.
12% of the south facade is glazing.

Building signage will conform to the Southern Pines signage ordinance.

Red and white vinyl awnings are back lit from below the awnings. Those same lights illuminate the public sidewalks around the building and the drive thru lane on the buildings north side. Red gooseneck fixtures accent the long facades of the building.

Town of Southern Pines
Chartered 1887
North Carolina

Architectural Compliance Permit Application

Date Received: 11/4/21 Fee Paid: $100.00 Case No.: AR-09-21

TO THE TOWN COUNCIL OF THE TOWN OF SOUTHERN PINES:

I, the undersigned, do hereby make application for an Architectural Compliance Permit regarding for the following project:

Project Information:

Project Name: Freddy's Frozen Custard & Steakburgers

Street Address: Murray Hill Road & US Highway 15-501

PIN: 857110451215 Parcel ID: 00046731 Zoning: GB General Business

Type of building (retail, office, etc.): Fast Food Total square footage: 3,200

Applicant:

Name: MREA Southern Pines, LLC, Attn: William K. Moseley

Email: bmoseley@moseleyrea.com Phone: (704) 927-9210

Mailing Address: 1100 Kenilworth Avenue, Suite 210, Charlotte, NC 28204

Legal Property Owner(s), if different from Applicant:

Name(s): Daniel Patrick Black Family Limited Partnership

Email: kima@VandVLegal.com Phone: (910) 295-4000

Mailing Address: 90 Cherokee Road, 3rd Floor, Pinehurst, NC 28374
with copy to 235 Birchwood Ave, Apt 103, Cranford, NJ 07016

Date: 10/19/21

Applicant
William K. Moseley

8-27-21

APPOINTMENT OF AGENT

The undersigned owner(s), Daniel P. Black Family Limited Partnership, hereby appoint(s) William K. Mosley as the exclusive agent for the purpose of making an application to the Town of Southern Pines for an **Architectural Compliance Permit** for improvements to the property described in the attached application. The owner(s) hereby agree(s) that this agent has the authority to act for and on behalf of the owner(s) as follows:

1. to submit an application and required supplemental materials;

2. to appear at public meetings and give representation and comments on behalf of the owner(s);

3. to accept conditions or recommendations made by the Town of Southern Pines Town Council for the issuance of an **Architectural Compliance Permit** for improvements to the subject property; and

4. to act on behalf of the owner(s) without limitations with regard to any and all things directly or indirectly connected with or arising out of any application for an **Architectural Compliance Permit** under the Southern Pines Unified Development Ordinance.

This Appointment of Agent shall remain in effect until final resolution of the attached application.

Signed this 23 rd day of September, 2021.

DocuSigned by:
Kristin Wyman General Partner
BE13103713A44BC... Property Owner

DocuSigned by:
Daniel P. Black General Partner
9BB2927E2B414B8... Property Owner

Agent

8-27-21

TAX ADDRESS ✓
RECORDING $12.00
STAMP —
TOTAL $12.00 pd

2000 DEC 28 P 3:32

MRS. JUDITH M. ADAMS
REGISTER OF DEEDS
MOORE COUNTY, N.C.

BOOK 01693 PAGE 00047

Excise Stamps $ Recording Time, Book & Page

Drafted by John M. May, Attorney at Law
No Title Examination
120 Applecross Road
Pinehurst, NC 28374

Brief Description for Index: 4.58 acres in Sandhills Township

NORTH CAROLINA GENERAL WARRANTY DEED

THIS GENERAL WARRANTY DEED made this 21st day of December, 2000, by and between **DANIEL P. BLACK and wife, MARY LOU BLACK** (hereafter "Grantor"), of Southern Pines and **DANIEL PATRICK BLACK FAMILY LIMITED PARTNERSHIP, a North Carolina limited partnership** (hereafter "Grantee"), of 1976 Roseland Road, Aberdeen, NC 28315.

WITNESSETH:

The Grantor, as a capital contribution and for valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the Town of Southern Pines, Sandhills Township, Moore County, North Carolina, and more particularly described as follows:

01906

See Exhibit A attached hereto and herein incorporated by reference.

The property hereinabove described was acquired by Grantor by instrument recorded in Book 259, Page 201, Book 535, Page 817 and Book 542, Page 114.

May

Subject and together with utility easements and restrictive covenants that are enforceable against the property, if any, and the lien for ad valorem property taxes for the current year.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions noted herein.

The designations "Grantor" and "Grantee" as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal the day and year first above written.

BOOK 01693 PAGE 00048

Daniel P. Black (SEAL)
Daniel P. Black

Mary Lou Black (SEAL)
Mary Lou Black

==========

NORTH CAROLINA, MOORE COUNTY

I, Notary Public of the County and State aforesaid, certify that Daniel P. Black and wife, Mary Lou Black, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 21st day of December, 2000.

My commission expires: 05-03-05

Notary Public

WILLIAM L. GARNER NOTARY PUBLIC MOORE COUNTY, N.C.

NORTH CAROLINA-MOORE COUNTY
The foregoing certificate(s) William L. Garner
a Notary/Notaries Public
is/are certified to be correct.
This 28th day of December 20 00
JUDITH M. ADAMS, REGISTER OF DEEDS
ASSISTANT/DEPUTY

Black.ddjm

EXHIBIT "A"

Being all of Lots 12, 13, 14 and 33 and portions of Lots 15, 30, 31, 32, 61 and 62 and a portion of Long Street and Blue Lane, lying between said lots, all as shown on a map entitled "Longview", Southern Pines, Moore County, North Carolina, dated June 30, 1947, made by J.B. Swett, C.E., said map is recorded in the Office of the Register of Deeds of Moore County in Map Book 3, Page 70, to which map reference is hereby made, said lots and parcels of land being more particularly described as follows:

BEGINNING at a new iron pipe at the intersection of the east line of U.S. Highway 15-501 (150 feet wide) and the north line of Murray Hill Avenue (50 feet wide), running thence with the line of U.S. Highway 15-501 North 20°30.5' West 299.88 feet to an existing concrete monument; thence North 89°27.9' East 424.69 feet to an existing concrete monument; thence North 00°33.5' West 355.02 feet to an existing iron pipe; thence South 75°32.9' East 21.28 feet to an existing iron pipe; thence South 77°04.7' East 128.16 feet to an existing iron pipe; thence South 76°38.2' East 15.85 feet to an existing iron pipe; thence South 00°33.4' East 147.48 feet to an existing iron pipe; thence South 89°36.0' West 10.37 feet to an existing iron pipe; thence South 00°35.1' East 237.59 feet to an existing iron pipe; thence South 00°31.0' East 212.7 feet to an existing iron pipe in the northern line of Murray Hill Avenue; thence along the northern line of Murray Hill Avenue South 89°24.3' West 472.52 feet to the point of beginning, containing 4.58 acres, more or less, as shown on a "Plan of D.P. Black Property" dated February 3, 1986, prepared by Charles D. Ward, Registered Surveyor.

BOOK 01693 PAGE 00049

[1]

UDO §2.26.7. Criteria

No Architectural Compliance Permit shall be approved unless the Town Council finds that:

(A) The application is consistent with applicable Comprehensive Plan goals and policies;

(B) The application substantially conforms with the applicable multi-family or commercial design standards and other applicable provisions of the UDO, including the purposes of the zoning district in which the property is located;

(C) The application is consistent with applicable conditions of prior Development approvals; and

(D) The development as proposed will be compatible with neighboring development and has mitigated potential conflicts.

UDO §2.26.9. Effect of Approval

(A) The Architectural Compliance Permit shall expire unless a Building Permit is issued within one (1) year of approval.

(B) Development activities subject to this section shall conform to the approved application and any conditions or restrictions. Any deviation from the approved Architectural Compliance Permit, unless approved in advance and in writing by the Planning Director, is deemed a violation of the UDO.

Please review UDO §2.26 in its entirety as well as UDO §4.10.4 for Building and Design Requirements (www.southernpinesudo.org).

8-27-21

Nov 08, 2021 - 3:42pm Printed By:nlujan
COPYRIGHT © 2021 HUSSEY GAY BELL - ALL RIGHTS RESERVED - THESE PLANS ARE THE PROPERTY OF HUSSEY GAY BELL AND ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION AND CONSENT OF HUSSEY GAY BELL.

TBM = 472.26'
SPINDLE SET IN ASPHALT

FF=474.02

EXISTING BUILDING

FENCE

IPS

1.2'

BUILDING A
FFE = 478.0'
(3,187 SF)

FIRE LANE

BUILDING B
FFE = 478.0'
(8,224 SF)

FIRE LANE

20' SEWER EASEMENT

Parcel ID: 00046731
PIN: 857110451215
DB. 1693 PG. 47
BLACK, DANIEL PATRICK FAMILY LIMITED PARTNERSHIP
GB (GENERAL BUSINESS)

HWY 15-501
150 R/W PUBLIC

MURRAY HILL ROAD
(60' R/W)

50'

MAP NOTE:

1. ALL EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A LAND SURVEY PREPARED BY: SGROI LAND SURVEYING, LLC.
2. TRANSFER OF SITE BENCHMARK(S) IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND SHALL ONLY BE COMPLETED BY A SURVEYOR LICENSED/REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.
3. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF EXISTING BENCHMARK PRIOR TO ANY CONSTRUCTION AND SHALL REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER. FIELD VERIFICATION CAN BE ACCOMPLISHED BY CHECKING A MINIMUM OF TWO FIXED OBJECTS DISPLAYED ON THE SURVEY (i.e. MANHOLE RIM, STORM GRATE, PIPE INVERTS, ETC.).
4. HORIZONTAL DATUM IS NC NAD 83(2011). VERTICAL DATUM IS NAVD 29.

PAVING AND MARKING NOTES:

1. SEE SHEETS C-001 AND C-002 FOR GENERAL NOTES.
2. SEE SITE DIMENSIONAL CONTROL PLAN (SHEET C-210) FOR LAYOUT INFORMATION.
3. PAINTED PARKING STRIPING SHALL BE 4" WIDE WHITE STRIPES AND BE LOCATED AS SHOWN ON THE PLANS. HANDICAP PARKING STRIPING SHALL BE #154 LIGHT BLUE. DIRECTIONAL STRIPING SHALL BE PAINTED WHITE.
4. ALL PAVEMENT MARKINGS WITHIN THE RIGHT-OF-WAY SHALL BE OF THE THERMOPLASTIC OR EPOXY TYP.

SITE IMPROVEMENT KEY NOTES: (X)

1. 18" CONCRETE STRAIGHT CURB AND GUTTER. SEE DETAIL ON SHEET C-221.
2. NEW FULL DEPTH STANDARD DUTY ASPHALT PAVEMENT. SEE DETAIL ON SHEET C-221.
3. TAPER NEW ASPHALT TO EXISTING PAVEMENT. SEE DETAIL ON SHEET C-221.
4. STOP SIGN & 24" WIDE WHITE STOP BAR. SEE DETAIL ON SHEET C-220.
5. ADA ACCESSIBLE PARKING SPACE/ACCESS AISLE. SEE DETAIL ON SHEET C-220.
6. ADA ACCESSIBLE PARKING SIGNAGE. INSTALL 1' BEHIND ASPHALT/SIDEWALK TRANSITION. SEE DETAIL ON SHEET C-220.
7. ADA VAN ACCESSIBLE PARKING SIGNAGE. INSTALL 1' BEHIND ASPHALT/SIDEWALK TRANSITION. SEE DETAIL ON SHEET C-220.
8. 4" WHITE PAVEMENT STRIPING, TYP.
9. DRIVE-THRU QUEUE, TYP.
10. FLUSH CONCRETE WALK, WIDTH PER SITE DIMENSIONAL CONTROL PLAN. SEE DETAIL ON SHEET C-221.
11. ACCESSIBLE RAMP. SEE DETAIL ON SHEET C-221.
12. MONOLITHIC RAISED CONCRETE WALK, WIDTH PER SITE DIMENSIONAL CONTROL PLAN. SEE DETAIL ON SHEET C-221.
13. DUMPSTER WITH ENCLOSURE. SEE ARCHITECTURAL PLANS.
14. CONCRETE PAVEMENT. SEE DETAIL ON SHEET C-221.
15. ASPHALT EDGE OF PAVEMENT.
16. PAINTED SYMBOLS. SEE DETAILS ON SHEET C-220.
17. CONCRETE WHEEL STOP. SEE DETAILS ON SHEET C-220.
18. OUTDOOR SEATING AREA
19. BIKE RACKS. SEE DETAIL ON SHEET C-221.
20. PROPOSED SCDOT RIGHT-OF-WAY ASPHALT PAVING. SEE DETAIL SHEET C-220.
21. FIRE LANE MARKING. SEE DETAIL SHEET C-220.

PERMITTING SET - NOT FOR CONSTRUCTION

NORTH

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FT

NOTE: THIS SCALE APPLIES FOR 24"x36" SHEETS ONLY

Hussey, Gay, Bell & DeYoung, Inc., Consulting Engineers of SC
474 Wando Park Blvd. Suite 201
Mt. Pleasant, SC 29464

FIRM LICENSE
No. C-3466

NORTH CAROLINA PROFESSIONAL ENGINEER
No. 21484
JAY EVANS TOWNSEND

HUSSEY GAY BELL
Established 1958
474 WANDO PARK BLVD, SUITE 201, MT. PLEASANT, SC 29464 / T:843.849.7500

REVISIONS:
SUBMITTAL TO SOUTHERN PINES - DATE: 07/27/2021
2ND SUBMITTAL TO SOUTHERN PINES - DATE: 09/20/2021

DESIGNED	DRAWN	CHECKED
JBR	NAL	AET

DATE: OCTOBER 11, 2021

JOB NO. 421134174

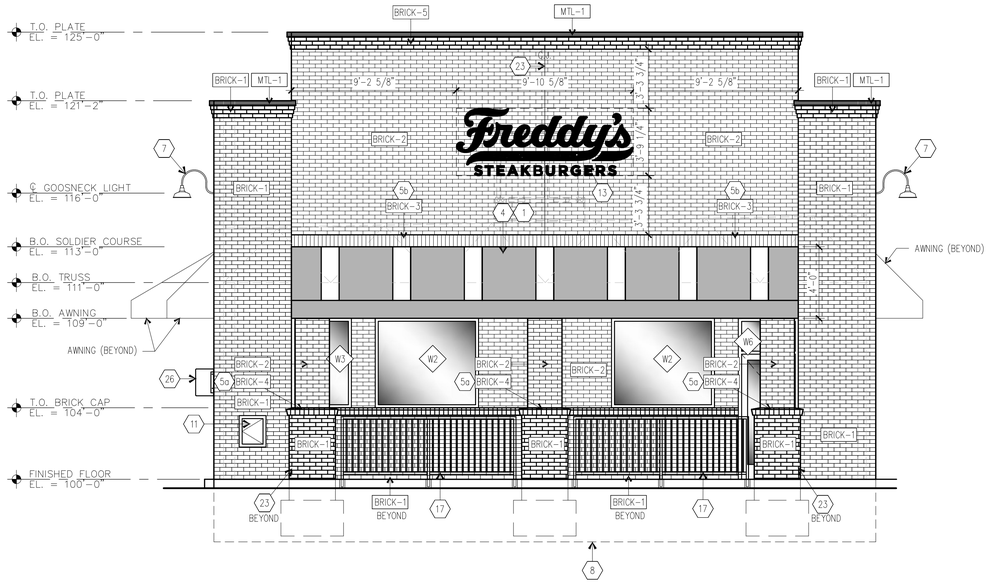
SCALE: 1" = 20'

MULTI-TENANT RETAIL SOUTHERN PINES
SOUTHERN PINES, NC
FOR
MOSELEY REA

SITE PLAN

DRAWING NUMBER
C-200

F:\40840 Moseley REA\421134174 - Buildings A&B Murray Hill Road - Southern Pines, NC\CAD\CD\PLANS\C-200 - SITE PLAN.dwg



A WEST ELEVATION

1/4"= 1'-0"

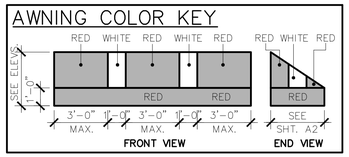
SIGNAGE AREA: WEST ELEVATION

FREDDY'S = 37 SQ.FT.

TOTAL = 37 SQ.FT.

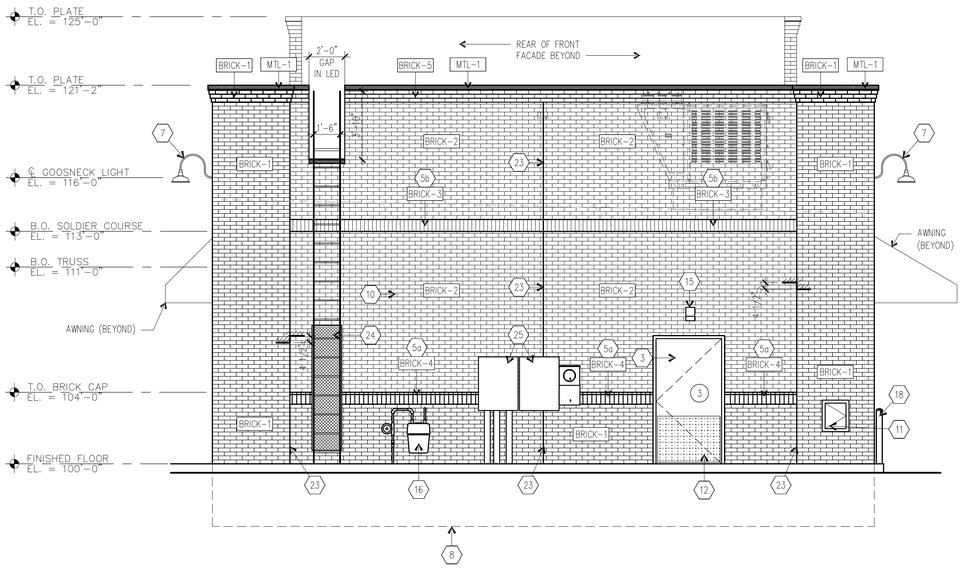
TOTAL SIGNAGE ALLOWED IS STREET FRONTAGE X 1ft = 37 SQ.FT. MAX

AWNING COLOR KEY



NOTE TO AWNING MANUFACTURER AND AWNING INSTALLER. AWNING FRAME TO BE ENGINEERED FOR APPROVAL BY LOCAL CODE AND DESIGNED TO MISS ALL BUILDING PROTRUSIONS NOT SHOWN ON PLANS.

CAULKING COLOR NOTE:
-AT EIFS / BRICK - MATCH EIFS
-AT BRICK / BRICK - MATCH BRICK
-AT EIFS / EIFS - MATCH EIFS
-AT EIFS / STOREFRONT - MATCH DARK BRONZE FRAME



B EAST ELEVATION

1/4"= 1'-0"

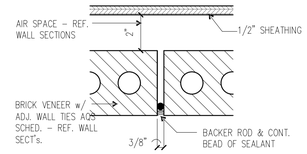
EXTERIOR FINISH SCHEDULE

SHERWIN WILLIAMS – PARENT NUMBER: BE37 FREDDY'S FROZEN CUSTARD

EXTERIOR PAINT	DESCRIPTION	FINISH NO.	MFGR.	MFGR. NO.	COLOR	REMARKS
BOLLARD	PAINT	P3	SHERWIN WILLIAMS	#17-572	FREDDY'S RED	PAINT WITH TWO COATS HIGH PERFORMANCE ACRYLIC (GLOSS)
GUARD RAIL	PAINT	P4	SHERWIN WILLIAMS	#B66B300	FREDDY'S JET BLACK	PAINT WITH TWO COATS HIGH PERFORMANCE ACRYLIC (GLOSS)

EXTERIOR BRICK	DESCRIPTION	FINISH NO.	MFGR.		COLOR & TEXTURE	REMARKS
BUILDING BRICK	MODULAR	BRICK-1	TAYLOR CLAY PRODUCTS		319-GRAY, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – MADE RUMBLED
BUILDING BRICK	THIN BRICK	BRICK-2	TAYLOR CLAY PRODUCTS		301-WHITE, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – RUMBLED EXTRA CHARGE
ACCENT BRICK	THIN BRICK	BRICK-3	TAYLOR CLAY PRODUCTS		BLACK ONYX, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – RUMBLED EXTRA CHARGE
ACCENT BRICK	MODULAR	BRICK-4	TAYLOR CLAY PRODUCTS		BLACK ONYX, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – RUMBLED EXTRA CHARGE
ACCENT BRICK	THIN BRICK	BRICK-5	TAYLOR CLAY PRODUCTS		319-GRAY, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – RUMBLED EXTRA CHARGE

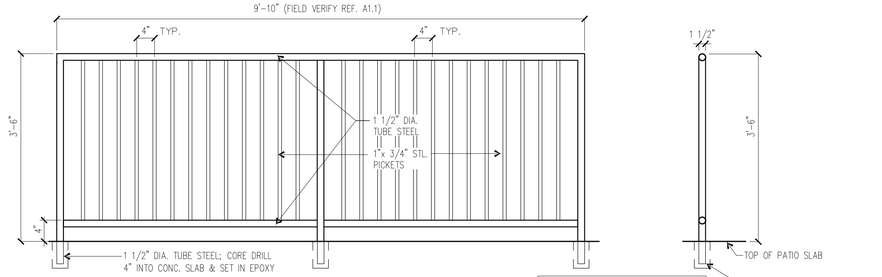
METAL COPING	DESCRIPTION	FINISH NO.			COLOR	REMARKS
BUILDING COPING	COPING	MTL-1	DUROLAST		COAL BLACK	2 PC COMPRESSION COPING CAP. SLOPE TOWARDS ROOF.



1 BRICK CONTROL JOINT

3"= 1'-0"

MARKED CJ ON EXTERIOR ELEVATIONS SHEETS A3 & A4



PAINT:
ALL METAL RAILINGS TO BE PAINTED BLACK (P4 – DIRECT TO METAL PAINT) PER FINISH SCHED. ARCH. SHEET A1.2

2 PATIO GUARD RAIL SECTION

3/4" = 1'-0"

GENERAL NOTES:

SIGNS SHOWN ON THESE ELEVATIONS ARE FOR CODE REVIEW PURPOSES ONLY. THESE SIGN ELEVATIONS ARE NOT TO BE USED AS OR CONSTRUED AS SHOP DRAWINGS FOR SIGN CONSTRUCTION. SIGN SHOP DRAWINGS ARE PRODUCED BY THE SIGN MANUFACTURER FOR REVIEW AND APPROVAL BY THE OWNER.

NOTE TO AWNING MANUFACTURER AND AWNING INSTALLER. AWNING FRAME TO BE ENGINEERED FOR APPROVAL BY LOCAL CODE AND DESIGNED TO MISS ALL BUILDING PROTRUSIONS NOT SHOWN ON PLANS.

ELEVATION KEY NOTES:

1. (2)-TUBE, STRIP LED FIXTURES WITH CLEAR LENS COVERS TO BACK LIGHT AWNINGS, TYP. SUPPLIED BY OWNER. WIRED & INSTALLED BY ELEC. CONTR.
2. OVERFLOW DRAIN WITH LAMBS TONGUE
3. HOLLOW METAL EXIT DR. REF. DOOR SCHED. PTD. GRAY TO MATCH 319-GRAY BRICK
4. EXTERIOR VINYL AWNING & ALUM FRAME BY OWNER AND AWNING MANUF, TYP REF. AWNING COLOR KEY SHT'S A3 & A4
5a. BRICK ROWLOCK
5b. THIN BRICK SOLDIER COARSE
6. NOT USED
7. GOOSENECK LIGHT FIXTURE 'RED'
8. CONCRETE FOUNDATION REFER TO STRUCTL. PLANS FOR SIZE AND DETAILS
9. NOT USED
10. NOT USED
11. RECESSED SS EASIWASH CAB.
12. 40"x 30" DIAMOND TREAD PLATE
13. SIGNAGE BY OWNER – INSTALLATION BY SIGNAGE MANUF., ELEC. CONNECTIONS BY G.C.
14. NOT USED
15. WALL PACK LIGHT FIXTURE. ABOVE REAR DOOR – REF. ELECT. PLANS
16. GAS METER PAINTED 319-GRAY TO MATCH BRICK. VERIFY LOC.
17. REFER TO DETAIL 2/A3 FOR GUARD RAIL DETAILS.
18. 4" CONC. FILLED PIPE BOLLARD. FREDDY'S RED
19. NOT USED.
20. READY ACCESS MODEL AA300 CURTAIN – 275 PASS-THRU AIR CURTAIN SYSTEM W/ STATUARY BRONZE FIN. ELECTRICAL CONTRACTOR TO VERIFY ELECTRICAL REQ'MTS. SEE MANUFACTURER FOR APPROPRIATE AIR CURTAIN CONFIGURATION BASED ON GEOGRAPHY.
21. READY ACCESS MODEL 275 WINDOW/ MANUAL. SINGLE PANEL SLIDER, 48"W x 60" H, R.O. (INCL. AIR CURTAIN ABOVE). MANUAL OPEN/ ELECTRONIC RELEASE – OPENS ON SIDE THE CAR APPROACHES. BRONZE FINISH –PROVIDED BY & INSTALLED BY G.C.
22. RECESSED KNOX BOX
23. BRICK EXPANSION JOINT REF. DETAIL 1/A3
24. STEEL MESH HINGED GATE (W/LOCK) TO ENCLOSE BOTTOM OF ACCESS LADDER. (PAINT TO MATCH EIFS).
25. ELECTRICAL CT CABINET & DISCONNECT – PAINTED TO MATCH 319-GRAY BRICK., VERIFY LOCATION
26. FREDDY'S PEDESTRIAN CROSSING SIGN. BOTTOM OF SIGN @ 56" A.F.F.

THE DESIGN AND DETAILS DISCLOSED HEREIN ARE THE EXCLUSIVE PROPERTY OF DAN WINTER ARCHITECT AND SHALL NOT BE COPIED OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT.

DAN WINTER, ARCHITECT

FREDDY'S FROZEN CUSTARD

10757 US 15-501 HWY

SOUTHERN PINES, NC

DAN WINTER ARCHITECT

1024 EAST FIRST STREET WICHITA, KS. 67214

PH. 316-267-7142

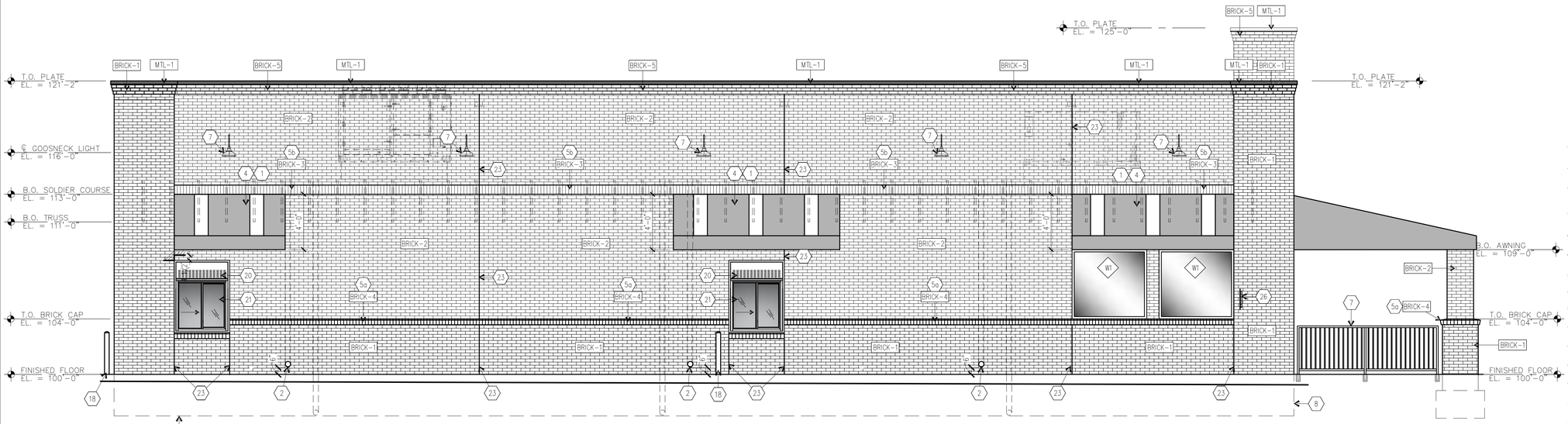
EXTERIOR ELEVATIONS

DATE
11/02/2021

DRAWN BY:
TDF

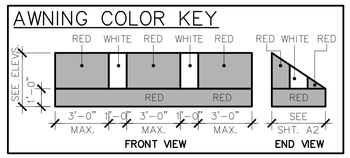
CHECKED BY:
DW

SHEET NO.
A3



A NORTH ELEVATION

1/4"= 1'-0"



NOTE TO AWNING MANUFACTURER AND AWNING INSTALLER. AWNING FRAME TO BE ENGINEERED FOR APPROVAL BY LOCAL CODE AND DESIGNED TO MISS ALL BUILDING PROTRUSIONS NOT SHOWN ON PLANS.

CAULKING COLOR NOTE:
- AT BRICK / BRICK – MATCH BRICK
- AT BRICK / STOREFRONT – MATCH DARK BRONZE FRAME.

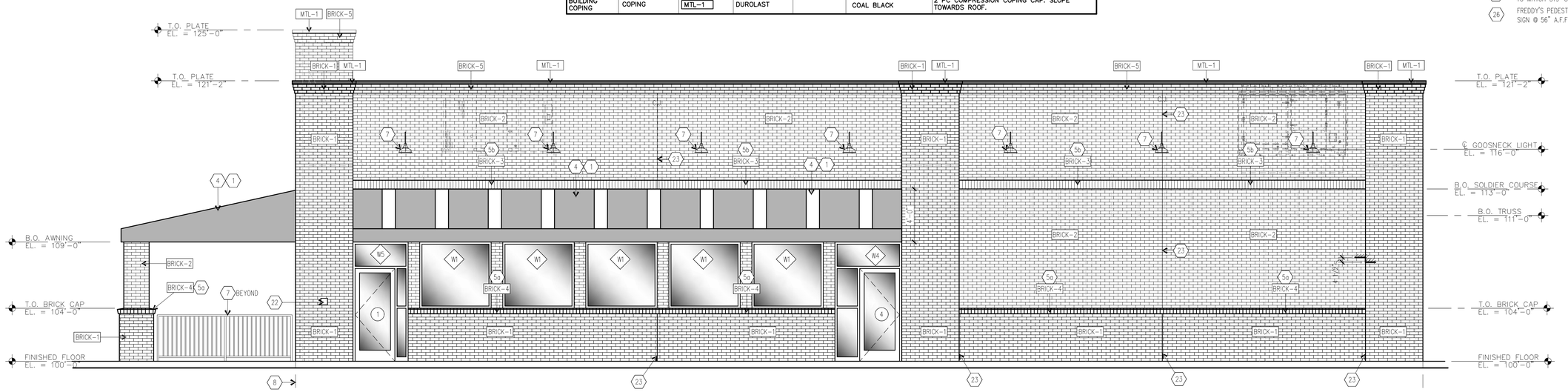
EXTERIOR FINISH SCHEDULE

SHERWIN WILLIAMS – PARENT NUMBER: BE37 FREDDY'S FROZEN CUSTARD

EXTERIOR PAINT	DESCRIPTION	FINISH NO.	MFGR.	MFGR. NO.	COLOR	REMARKS
BOLLARD	PAINT	P3	SHERWIN WILLIAMS	#17-572	FREDDY'S RED	PAINT WITH TWO COATS HIGH PERFORMANCE ACRYLIC (GLOSS)
GUARD RAIL	PAINT	P4	SHERWIN WILLIAMS	#B66B300	FREDDY'S JET BLACK	PAINT WITH TWO COATS HIGH PERFORMANCE ACRYLIC (GLOSS)

EXTERIOR BRICK	DESCRIPTION	FINISH NO.	MFGR.		COLOR & TEXTURE	REMARKS
BUILDING BRICK	MODULAR	BRICK-1	TAYLOR CLAY PRODUCTS		319-GRAY, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – MADE RUMBLED
BUILDING BRICK	THIN BRICK	BRICK-2	TAYLOR CLAY PRODUCTS		301-WHITE, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – RUMBLED EXTRA CHARGE
ACCENT BRICK	THIN BRICK	BRICK-3	TAYLOR CLAY PRODUCTS		BLACK ONYX, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – RUMBLED EXTRA CHARGE
ACCENT BRICK	MODULAR	BRICK-4	TAYLOR CLAY PRODUCTS		BLACK ONYX, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – RUMBLED EXTRA CHARGE
ACCENT BRICK	THIN BRICK	BRICK-5	TAYLOR CLAY PRODUCTS		319-GRAY, WIRECUT	GROUT COLOR – GRAY MODULAR & TIN – RUMBLED EXTRA CHARGE

METAL COPING	DESCRIPTION	FINISH NO.			COLOR	REMARKS
BUILDING COPING	COPING	MTL-1	DUROLAST		COAL BLACK	2 PC COMPRESSION COPING CAP. SLOPE TOWARDS ROOF.



B SOUTH ELEVATION

1/4"= 1'-0"

GENERAL NOTES:

SIGNS SHOWN ON THESE ELEVATIONS ARE FOR CODE REVIEW PURPOSES ONLY. THESE SIGN ELEVATIONS ARE NOT TO BE USED AS OR CONSTRUED AS SHOP DRAWINGS FOR SIGN CONSTRUCTION. SIGN SHOP DRAWINGS ARE PRODUCED BY THE SIGN MANUFACTURER FOR REVIEW AND APPROVAL BY THE OWNER.

NOTE TO AWNING MANUFACTURER AND AWNING INSTALLER. AWNING FRAME TO BE ENGINEERED FOR APPROVAL BY LOCAL CODE AND DESIGNED TO MISS ALL BUILDING PROTRUSIONS NOT SHOWN ON PLANS.

ELEVATION KEY NOTES:

1. (2)–TUBE, STRIP LED FIXTURES WITH CLEAR LENS COVERS TO BACK LIGHT AWNINGS, TYP. SUPPLIED BY OWNER. WIRED & INSTALLED BY ELEC. CONTR.
2. OVERFLOW DRAIN WITH LAMBS TONGUE
3. HOLLOW METAL EXIT DR. REF. DOOR SCHED. PTD. GRAY TO MATCH 319-GRAY BRICK
4. EXTERIOR VINYL AWNING & ALUM FRAME BY OWNER AND AWNING MANUF, TYP REF. AWNING COLOR KEY SHT'S A3 & A4
5a. BRICK ROWLOCK
5b. THIN BRICK SOLDIER COARSE
6. NOT USED
7. GOOSENECK LIGHT FIXTURE 'RED'
8. CONCRETE FOUNDATION REFER TO STRUCTL. PLANS FOR SIZE AND DETAILS
9. NOT USED
10. NOT USED
11. RECESSED SS EASIWASH CAB.
12. 40"x 30" DIAMOND TREAD PLATE
13. SIGNAGE BY OWNER – INSTALLATION BY SIGNAGE MANUF., ELEC. CONNECTIONS BY G.C.
14. NOT USED
15. WALL PACK LIGHT FIXTURE. ABOVE REAR DOOR – REF. ELECT. PLANS
16. GAS METER PAINTED 319-GRAY TO MATCH BRICK. VERIFY LOC.
17. REFER TO DETAIL 2/A3 FOR GUARD RAIL DETAILS.
18. 4" CONC. FILLED PIPE BOLLARD. FREDDY'S RED
19. NOT USED.
20. READY ACCESS MODEL AA300 CURTAIN – 275 PASS-THRU AIR CURTAIN SYSTEM W/ STATUARY BRONZE FIN. ELECTRICAL CONTRACTOR TO VERIFY ELECTRICAL REQ'MTS. SEE MANUFACTURER FOR APPROPRIATE AIR CURTAIN CONFIGURATION BASED ON GEOGRAPHY.
21. READY ACCESS MODEL 275 WINDOW/ MANUAL. SINGLE PANEL SLIDER, 48"W x 60" H. R.O. (INCL. AIR CURTAIN ABOVE). MANUAL OPEN/ ELECTRONIC RELEASE – OPENS ON SIDE THE CAR APPROACHES. BRONZE FINISH –PROVIDED BY & INSTALLED BY G.C.
22. RECESSED KNOX BOX
23. BRICK EXPANSION JOINT REF. DETAIL 1/A3
24. STEEL MESH HINGED GATE (W/LOCK) TO ENCLOSE BOTTOM OF ACCESS LADDER. (PAINT TO MATCH EIFS).
25. ELECTRICAL CT CABINET & DISCONNECT – PAINTED TO MATCH 319-GRAY BRICK., VERIFY LOCATION
26. FREDDY'S PEDESTRIAN CROSSING SIGN. BOTTOM OF SIGN @ 56" A.F.F.

THE DESIGN AND DETAILS DISCLOSED HEREIN ARE THE EXCLUSIVE PROPERTY OF DAN WINTER ARCHITECT AND SHALL NOT BE COPIED OR REPRODUCED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN CONSENT.

DAN WINTER, ARCHITECT

FREDDY'S FROZEN CUSTARD

10757 US 15-501 HWY
SOUTHERN PINES, NC

DAN WINTER ARCHITECT
1024 EAST FIRST STREET
WICHITA, KS. 67214
PH. 316-267-7142

EXTERIOR ELEVATIONS

DATE
11/02/2021

DRAWN BY: TDF
CHECKED BY: DW

SHEET NO.
A4

WEST ELEVATION
1 2 4 8 2 3 5 6 8
MERIDIAN BRICK
WAVERLY MILLS
1 MODULAR BRICK
TAYLOR CLAY PRODUCTS
BLACK ONYX "WIRECUT"
3 THIN BRICK
CHEROKEE BRICK –
VELOUR SAHARA BLEND
W/CREAM
2 THIN BRICK
SW B66B300
FREDDI'S JET BLACK
4 PATIO GUARDRAIL
6 EAST ELEVATION
1 2 3 5 8 6
NORTH ELEVATION
8 1 5 2 6 3 4 8 2 6 8 7 1 4 8
RED WHITE RED WHITE RED RED WHITE RED
RED RED RED
3'-0" MAX 3'-0" MAX 3'-0" MAX
FRONT VIEW
END VIEW
8 AWNING COLOR KEY
2 PIECE COMPRESSION COPING
CAP (DUAL BLACK) BY DUROLAST
MTL-1 SLOPE TOWARDS ROOF
5 METAL COPING
GOOSENECK LIGHT FIXTURE (RED)
6 LIGHT FIXTURE
DK. BRONZE ALUM.
STOREFRONT
w/ THERMAL BREAK & 1"
INSUL. LOW "E" GLAZING
7 STOREFRONT
1 4 8 5 7 2 SOUTH ELEVATION 8 1 6 7 6 3 5 2 1
FREDDY'S FROZEN CUSTARD
10757 US 15-501 HWY
SOUTHERN PINES, NC
DAN WINTER ARCHITECT
1024 EAST FIRST STREET
WICHITA, KS. 67214
PH. 316-267-7142
MATERIAL BOARD
DATE
11/02/2021
DRAWN BY:
TDF
CHECKED BY:
DW
SHEET NO.
MB

NORTH CAROLINA

MOORE COUNTY

LEASE AGREEMENT

THIS LEASE is made this_____day of_____, 2021, by and between the SOUTHERN PINES LAND AND HOUSING TRUST INC., referred to as the “Trust” or "Lessor," and the TOWN OF SOUTHERN PINES, referred to as “Town” or "Lessee."

WHEREAS, the Trust has a contract to purchase certain property which includes the Blanchie Carter Playground (referred to as "Playground"), described in the attachment A to this Lease Agreement;

WHEREAS, the Trust has entered into a contract with the Moore County Board of Education for the purchase of certain property encompassing approximately 17 acres. The Playground is located within the 17-acre parcel (“Subject Property”);

WHEREAS, the purchase of entire parcel by the Trust is being made pursuant N.C. Gen. Stat. § 160A-266(b) and the deed conveying the property to the Trust shall contain certain deed restrictions regarding the maintenance and use of the property;

WHEREAS, the Town wishes to lease the property from the Trust immediately upon the purchase of the property by the Trust under the terms of this Lease Agreement;

WHEREAS, this Lease Agreement shall only become binding on the parties if the Trust obtains fee simple ownership of the 17-acre parcel (which includes the Playground).

NOW, THEREFORE, for valuable consideration, the parties do covenant and agree as follows:

1. Immediately upon the purchase of the entire 17-acre tract, the Trust leases to the Town for the Town’s use and enjoyment the Playground.

2. In consideration of the right to lease the Playground for the term of the lease and, in consideration of the Trust’s obligation to service and maintain the Playground during the term of the lease, as set forth herein, the Town will pay to the Trust the sum of $160,000 on or before December 10, 2021. The $160,000 payment shall be held in Trust by the attorney representing the Trust for the purchase of the property and shall be returned to the Town if, for any reason, the Trust does not obtain and retain fee simple interest in the Subject Property.

3. Subject to the service and maintenance requirements imposed upon the Trust, the Town leases and accepts the premises on an "as is" basis on the day the Trust obtains fee simple interest in the entire tract, at which time the premises are deemed ready for occupancy as contemplated by this Lease Agreement.

4. The term for which the Town may use and occupy the Playground, in the manner provided below, shall be 99 years from the date of the commencement of the lease as set forth herein, subject to the requirements of law.

5. During the term of the lease, the Trust shall be responsible for all expenses for maintenance of the Playground, including water.

6. In consideration of the payment of $160,000 by the Town as set forth herein, during the term of the lease, the Trust will provide all services and materials for maintenance and upkeep of the Playground, including the necessary supplies, materials, painting, and labor, specifically including, but not limited to, mowing as needed depending on the season and inspecting and maintaining playground equipment present at transfer or added during this lease, and will bear the costs for such activities, and will keep the premises in a clean and neat condition, consistent with the standards generally applicable to parks and playgrounds of this kind, regardless of whether the cleaning and upkeep are necessitated by its own use or by use by others. If the Trust fails to maintain those obligations, the Town, in its discretion, may assume them and bill the Trust the costs thereof plus 10% administrative fee.

7. Signs may be used or installed by the Trust only with the express permission of the Town.

8. During the term of the lease, the Town shall not modify or make improvements to the premises, other than minor repairs, without the consent of the Trust which consent shall not be unreasonably withheld. The Trust shall be permitted to make any improvements to the Playground consistent with the intent and theme of the original master plan, attached as Exhibit A, or as expressly approved in writing by the Town Manager or Director of Parks and Recreation. It is agreed that all repairs, modifications, additions, or improvements shall be and become a permanent part of the real estate, and as such the property of the Trust.

9. The leased premises, during the term of this lease, shall be used exclusively as a public playground and outdoor educational, experiential learning, and recreational facility, though it may serve as a host space for the Town or the Trust for temporary events, festivals,

fundraisers, and gatherings. Except when used exclusively for other uses as provided in this agreement, the Playground must be available for public use from dawn to dusk, Monday through Sunday.

10. The Town may not assign this lease or sublet any part of the Playground without the written consent of the Trust.

11. The parties acknowledge and agree that this lease shall take effect immediately upon the Trust obtaining fee simple interest and the entire 17-acre tract. If for any reason the Trust does not obtain fee simple of the Subject Property within 60 days of the execution of this lease, this lease shall become null and void and the $160,000 payment made to the Trust in consideration for the 99-year lease term and the accompanying service and maintenance requirements imposed on the Trust, shall be immediately returned to the Town. If the transfer of the subject property should be rescinded or otherwise rendered ineffective or if the purchase payment otherwise should revert to the Trust, the Trust must transmit $160,000 to the Town within sixty (60) days of the return and before any other disbursement of the return payment.

12. The Trust specifically agrees that it will procure and keep in force, at its own expense, liability insurance in an amount of not less than $1,000,000 in respect to bodily injury, disease, illness, death or property damage suffered by any one person or entity, arising out of any one accident. The policy or policies of insurance shall show the Town as an additional insured as Town's interest may appear. The Trust will cause a certificate of insurance to be furnished to the Town evidencing that coverage and the policy shall provide that the insurance may not be canceled without written notice to the Town at least thirty (30) days before any cancellation. The Town, in its capacity as Lessee, may obtain liability or property insurance for the Subject Property as it deems necessary.

13. This Lease Agreement constitutes the entire understanding between the parties and shall not be modified except in writing signed by the parties. This lease is binding on the parties hereto, their heirs, and permitted assigns.

14. The designation Lessor and Lessee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

IN WITNESS WHEREOF, Lessor and Lessee have executed this Lease Agreement in duplicate.

TRUST: SOUTHERN PINES LAND AND HOUSING TRUST

By:_____ President

TOWN: TOWN OF SOUTHERN PINES

By:_____ Mayor, Town of Southern Pines

TOWN OF SOUTHERN PINES: 2022-2032 CIP

CATEGORY	PROJECT	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FUTURE YEARS FY 27-28 to FY 31-32	TOTAL ESTIMATE FY 22-23 to FY 31-32
Public Safety	Fire Brush Truck - Station #2	$ 210,000	$ -	$ -	$ -	$ -	$ -	$ 210,000
Public Safety	Fire Ladder Truck - Replacement of L81	$ -	$ -	$ 1,200,000	$ -	$ -	$ -	$ 1,200,000
Public Safety	Fire Engine Truck - Replacement of 813	$ -	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000
Public Safety	Fire Tanker Truck - Replacement of 830	$ -	$ -	$ -	$ -	$ -	$ 500,000	$ 500,000
Public Safety	Fire Engine Truck - Replacement of 812	$ -	$ -	$ -	$ -	$ -	$ 1,350,000	$ 1,350,000
Public Safety	Fire Fleet Vehicles	$ -	$ 85,000	$ 45,000	$ -	$ -	$ 135,000	$ 265,000
Public Safety	Fire Portable Radios	$ 25,000	$ 25,750	$ 26,500	$ 27,500	$ 28,500	$ 470,000	$ 603,250
Public Safety	Fire SCBA	$ 43,500	$ 48,000	$ 49,000	$ 51,000	$ 52,000	$ 860,000	$ 1,103,500
Public Safety	Fire Turnout Gear	$ 38,000	$ 39,000	$ 40,000	$ 41,000	$ 42,500	$ 705,000	$ 905,500
Public Safety	Police Fleet Vehicles	$ 235,000	$ 235,000	$ 235,000	$ 235,000	$ 235,000	$ 2,025,000	$ 3,200,000
	Public Safety Subtotal	**$ 551,500**	**$ 1,182,750**	**$ 1,595,500**	**$ 354,500**	**$ 358,000**	**$ 6,045,000**	**$ 10,087,250**
Facilities	Facility Modernization Projects	$ -	$ 125,000	$ 125,000	$ 125,000	$ 125,000	$ 625,000	$ 1,125,000
Facilities	Finance Building*	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Facilities	Fire Station #1 Renovation*	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Facilities	Police Property/Evidence Facility*	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Facilities	Water & Wastewater Projects^^	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Facilities	Whitehall Master Plan Implementation**	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Facilities Subtotal	**$ -**	**$ 125,000**	**$ 125,000**	**$ 125,000**	**$ 125,000**	**$ 625,000**	**$ 1,125,000**
Transportation	Street Construction^	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transportation	Street Resurfacing	$ 1,178,843	$ 1,214,208	$ 1,250,634	$ 1,288,153	$ 1,326,798	$ 7,255,475	$ 13,514,112
Transportation	Sidewalk Construction	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 1,000,000	$ 2,000,000
	Transportation Subtotal	**$ 1,378,843**	**$ 1,414,208**	**$ 1,450,634**	**$ 1,488,153**	**$ 1,526,798**	**$ 8,255,475**	**$ 15,514,112**
	CIP Total	**$ 1,930,343**	**$ 2,721,958**	**$ 3,171,134**	**$ 1,967,653**	**$ 2,009,798**	**$ 14,925,475**	**$ 26,726,362**

*The Town has identified the need to renovate some of its existing facilities. The scope of these projects has not been confirmed. The estimated costs and timeline will be confirmed in the future after design and engineering.

**The Town intends to master plan the Whitehall tract in 2022. It is anticipated that this master plan will identify future capital projects, that will likely involve public funding from the Town.

^The following transportation projects are anticipated for construction as part of development activities, but may include public funding on some level under certain circumstances. These budgets and timelines will be formally approved at that time.

1. Morganton Park South: To-be-named Parkway connecting 15/501 to Morganton Road through the Morganton Park South Development.
2. Carlisle Street: Extension of Carlisle Street from Morganton Road to the intersection with Brucewood Road Extension.
3. Knollwood Road: A Development Spine Road connecting Camp Easter Road to US 1.

^^Projects are detailed in the Town's Water & Wastewater CIP, adopted April 2020.

FREESE AND NICHOLS

WithersRavenel
Our People. Your Success.

Innovative approaches
Practical results
Outstanding service

Water & Wastewater Capital Improvement Plan

April 2020

Prepared for:

Town of Southern Pines

Prepared by:

FREESE AND NICHOLS, INC.
1017 Main Campus Drive, Suite 1200
Raleigh, North Carolina 27606
919-582-5850

WITHERSRAVENEL
115 MacKenan Drive
Cary, North Carolina 27511
919-469-3340

Adopted by Town Council on April 27, 2020

Table of Contents

EXECUTIVE SUMMARY **ES-1**
1.0 INTRODUCTION **1-1**
1.1 Scope of Work 1-1
1.2 List of Abbreviations 1-2
2.0 POPULATION **2-1**
2.1 Historical and Projected Population 2-1
2.2 Population Distribution 2-2
3.0 WATER DEMANDS **3-1**
3.1 Historical Water Production 3-1
3.2 Historical Water Demands 3-2
3.3 Projected Water Demands 3-3
4.0 EXISTING WATER SYSTEM **4-1**
4.1 Water Lines 4-4
4.2 Wholesale Customers 4-4
5.0 WATER DISTRIBUTION SYSTEM ANALYSES **5-1**
5.1 Existing Water System Analysis 5-1
Storage Capacity 5-1
Pumping Capacity 5-4
System Pressures 5-4
System Head Loss 5-5
Fire Flow Capacity 5-7
5.2 Future Water System Analysis 5-9
Water Supply Capacity 5-9
Transmission Capacity 5-10
Pressure Zones and Elevated Storage 5-10
Total Storage 5-12
Pumping Capacity 5-14
Fire Flow Capacity 5-14
New Development 5-14
6.0 WATER CAPITAL IMPROVEMENT PLAN **6-1**
6.1 Cost Methodology and Assumptions 6-1
6.2 20-Year CIP 6-5
Water System CIP 6-5
7.0 INTRODUCTION **7-1**
7.1 Scope of Work 7-1

7.2 List of Abbreviations 7-2
8.0 WASTEWATER FLOWS 8-1
8.1 Existing Wastewater Flows 8-3
8.2 Projected Nick's Creek Wastewater Flows 8-3
8.3 Outfall Analysis 8-5
8.4 Receiving Outfall Analysis 8-7
8.5 Warrior Woods Evaluation 8-9
9.0 EXISTING WASTEWATER SYSTEM 9-1
10.0 RISK EVALUATION 10-1
11.0 WASTEWATER CAPITAL IMPROVEMENT PLAN 11-1
Wastewater System CIP 11-2

APPENDICES

APPENDIX A Water Capital Improvement Plan Projects

APPENDIX B Wastewater Capital Improvement Plan Projects

APPENDIX C Additional Water Model Results Figures

LIST OF FIGURES

Figure 2-1: Planned Developments 2-3
Figure 4-1: Existing Water System 4-3
Figure 4-2: Pipe Diameter by Length 4-4
Figure 5-1: Minimum Pressures Under Existing Peak Demand Conditions 5-6
Figure 5-2: Existing Water System Available Fire Flow at 20 psi 5-8
Figure 5-3: Projected Water Supply Requirements 5-10
Figure 5-4: Projected Elevated Storage Capacity Recommendations 5-13
Figure 5-5: Future (2040) Water System Available Fire Flow at 20 psi 5-15
Figure 6-1: Water Distribution System Capital Improvement Plan 6-3
Figure 8-1: Nick's Creek Basin Flow Analysis 8-5
Figure 8-2: Nick's Creek Outfall Profile 8-6
Figure 8-3: Nick's Creek Outfall Percentage Filled 8-7
Figure 8-4: Warrior Woods Outfall 8-8
Figure 8-5: Warrior Woods Outfall Capacity 8-8
Figure 8-6: 2060 Warrior Woods Outfall Profile 8-9
Figure 9-1: Summary of Gravity Sewer Pipes by Diameter 9-1
Figure 10-1: Risk Evaluation Matrix Summary by Linear Feet 10-2
Figure 10-2: Gravity Sewer Risk Evaluation Results 10-1
Figure 11-1: Wastewater Collection System Capital Improvement Plan 11-1

LIST OF TABLES

Table 1-1: List of Abbreviations 1-2
Table 2-1: Town of Southern Pines Projected Population 2-1
Table 2-2: Anticipated Population Growth for Planned Developments (1) 2-4
Table 2-3: Projected Water Demand for Planned Developments 2-5
Table 3-1: Historical Water Production in Million Gallons (2015-2018) 3-2
Table 3-2: Historical Water Usage 3-3
Table 3-3: Water Demand Design Criteria 3-3
Table 3-4: Projected Water Demands 3-4
Table 4-1: Town of Southern Pines Existing Storage Facilities 4-2
Table 4-2: Town of Southern Pines Existing Wholesale Customers 4-5
Table 5-1: Proposed Design Criteria 5-3
Table 5-2: Existing Effective Storage Volume for Equalization and Fire Suppression 5-4
Table 5-3: Water Treatment Plant Improvements 5-9
Table 5-4: Recommended Future Effective Storage Volume for Equalization and Fire Suppression 5-11
Table 5-5: Town of Southern Pines Existing Storage Facilities 5-12
Table 6-1: Water Distribution System CIP 6-4
Table 7-1: List of Abbreviations 7-2
Table 8-1: Summary of Developable Land and Future Flow by Sewer Sub-Zones 8-2
Table 8-2: Nick's Creek Average Daily Flow from Run Times 8-3
Table 8-3: Projected Nick's Creek Wastewater Flows 8-4
Table 10-1: Risk Evaluation Scoring Criteria 10-1
Table 10-2: Risk Evaluation Summary 10-2
Table 11-1: Wastewater Collection System CIP 11-1

EXECUTIVE SUMMARY

1.0 INTRODUCTION

Freese and Nichols, Inc. (FNI) was retained in 2019 by the Town of Southern Pines to update the Town's existing Water Capital Improvements Plan (CIP). At the same time, the Town retained WithersRavenel to develop a recommended Wastewater CIP. FNI and WithersRavenel coordinated to consolidate their individual evaluations into this combined report. The relevant water and wastewater sections are sealed by FNI and WithersRavenel separately. The goals of the CIP updates were to investigate and analyze the water distribution and wastewater collection systems and to recommend 20-year capital improvement plans for each. The recommended improvements will serve as the basis for the design, construction, and financing of facilities required to meet Southern Pines' existing and projected water demands and wastewater flows which result from the projected population and commercial development. This report will provide the Town with a planning tool that will serve as a guide for short-term and long-term improvements to the water and wastewater systems.

2.0 POPULATION

The Town of Southern Pines has experienced a historical annual average population growth between one and two percent per year. Population projections were developed based on discussion with Town planning and utility staff. The Town is expected to grow by 7,218 residents by 2040. The projected populations and associated growth rates are summarized in **Table ES-1**.

Table ES-1 Town of Southern Pines Historical and Projected Population

Year	Total Population	Average Annual Population Growth	Average Annual Population Growth (%)
1990[1]	9,124	-	-
2000[1]	10,918	179	1.81%
2010[1]	12,334	142	1.23%
2011[1]	12,558	224	1.82%
2012[1]	12,712	154	1.23%
2013[1]	12,919	207	1.63%
2014[1]	13,195	276	2.14%
2015[1]	13,405	210	1.59%
2016[1]	13,651	246	1.84%
2017[1]	14,027	376	2.75%
2018[1]	14,277	250	1.78%
2020[2]	14,854	288	2.00%
2025[2]	16,400	309	2.00%
2030[2]	18,107	341	2.00%
2035[2]	19,991	377	2.00%
2040[2]	22,072	416	2.00%

(1) "American Fact Finder" US Census – Town of Southern Pines

(2) Assumption/Projection

3.0 WATER DEMANDS

Reviewing historical water production provides insight into the Town's daily average production requirement. Historical monthly water usage records were analyzed from 2015 through 2018. The Town provided recent water usage data consisting of monthly production and maximum day consumption. Historical annual average day demand, maximum day to average day peaking factors, and per-capita consumption are summarized in **Table ES-2.**

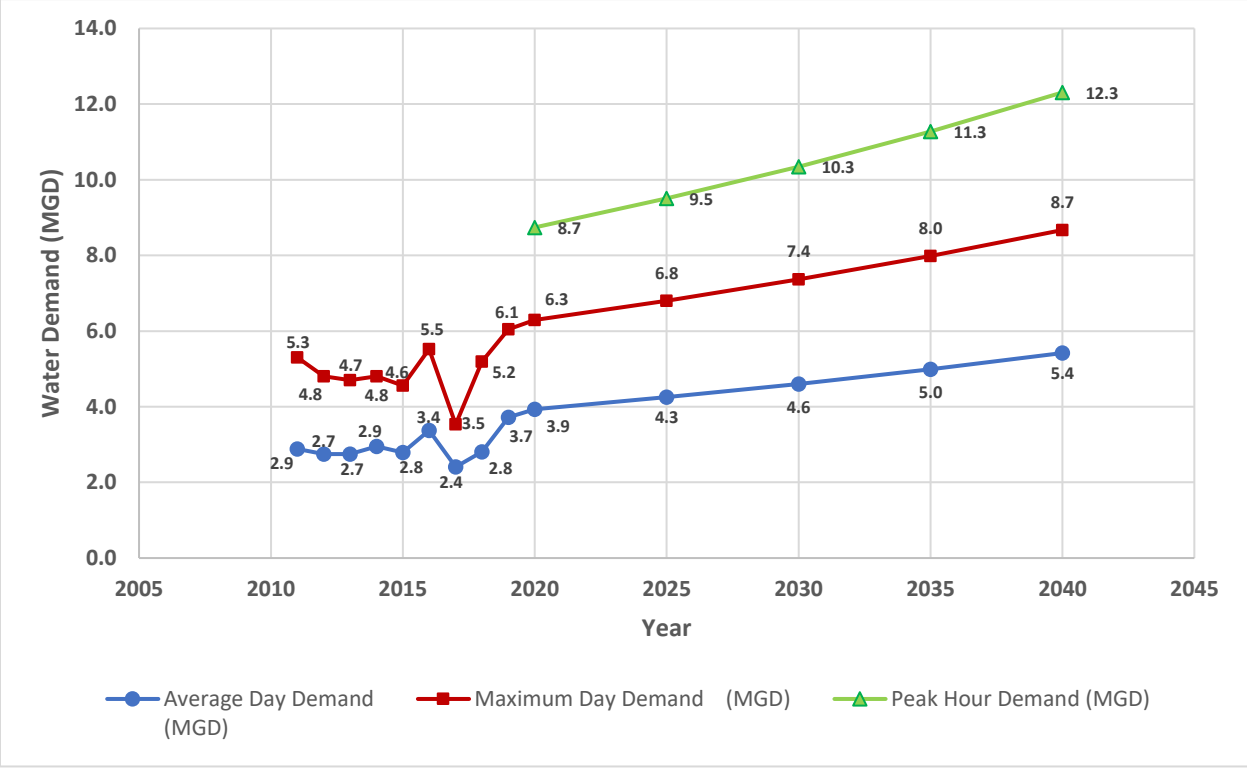
Table ES-2 Historical Water Usage

Year	Water Service Area Population	Average Day Demand (MGD)	Average Day Demand (gpcd)	Maximum Day Demand[(1)] (MGD)	Maximum Day to Average Day Peaking Factor
2015[(1)]	13,405	2.8	208	4.6	1.6
2016[(1)]	13,651	3.4	247	5.5	1.6
2017[(1)]	14,027	2.4	172	3.5	1.5
2018[(1)]	14,277	2.8	196	5.2	1.9
Average	-	**2.8**	**206**	**4.7**	**1.6**
Maximum	-	**3.4**	**247**	**5.5**	**1.9**

(1) Water Service Area Population from American Fact Finder.

Reviewing historical water demands allows design criteria to be selected in order to project future water demands. Annual average day demand, maximum day to average day peaking factors and per-capita consumption were reviewed and provided a basis for determining the design criteria used to project water demands. **Figure ES-1** illustrates the historical and projected water demands for the Town of Southern Pines.

Figure ES-1 Historical and Projected Water Demands



4.0 EXISTING WATER SYSTEM

The Town of Southern Pines' distribution system consists of 239 miles of water lines. Pipeline diameters range in size from 1-inch to 24-inches. The Town's water supply is produced by the Southern Pines Water Treatment Plant located south of the Town near Pinebluff. Three pump stations are utilized to supply water to the distribution system. The Town operates on two pressure zones: Central Pressure Zone and Weymouth Woods Pressure Zone. The hydraulic grade of the Weymouth Woods Pressure Zone is maintained by a recently constructed booster pump station. Water storage is provided by one ground storage tank, two elevated storage tanks, and one standpipe.

5.0 WATER DISTRIBUTION SYSTEM ANALYSES

The Town's previously developed water model was updated with revised demands based on current development information and projections. The updated model was used to evaluate the existing distribution system to assess current pumping and storage capacity, residual pressures, and fire-flow capacity. Various combinations of improvements and system modifications were investigated to determine the most appropriate approach to meet projected water demands. These improvements are identified in a CIP to improve the existing system and meet projected water demands through 2040. Parameters used to develop the CIP included increasing system reliability, meeting required fire flows and maintaining proper residual pressures.

6.0 WATER CAPITAL IMPROVEMENTS PLAN

A Water system CIP was developed for the Town's water distribution. The recommended water system improvements shown in **Table ES-3** will provide the required capacity and reliability to meet projected water demands through 2040. All project costs are shown in 2020 dollars. It is recommended that these projects be constructed generally in the order listed; however, development patterns may make it necessary to construct some projects sooner or later than anticipated.

Table ES-3 Water Distribution System 20-Year CIP

	Proj. No.	Project Description	Project Cost (2020 Value)
2020 - 2025	1*	**East Morganton Road Waterline Replacement**- Replace existing 6-inch waterline with 12-inch waterline along Morganton Road from Ridge Street to Valley Road. (Currently under design)	$ 468,000
	2*	**Pennsylvania Ave/Pee Dee Rd Water Line Replacement:** Replace Existing 10-inch Water Line with 16-inch Water Line along Pennsylvania Ave/Pee Dee Rd from Connecticut Ave to Central Drive (Currently under design)	$ 1,957,800
	3	**Midland Rd Water Line Replacement:** Replace Existing 6-inch Water Line and Existing 8-inch Water Line with 12-inch Water Line along Midland Rd from Knoll Rd to Pee Dee Rd	$ 1,237,600
	4	**North Pressure Zone:** Install 180-ft 1.0 MG North Elevated Storage Tank, 12" water line and Associated Valves	$ 4,749,400
	5	**US 1 Parallel Transmission Main:** Install a 20" water line parallel to the existing 18" transmission main from the US1 BPS to the intersection of US 1 and Saunders Blvd. Replace existing 6" water along the west side of Old US 1 from Murray Hill Rd to Shaw Ave, continuing along S. Bennet St. to the intersection with Morganton Rd.	$ 1,658,700
	6	**US 1 Booster Pump Station Pump Addition:** Addition of 4,500 gpm Pumping Capacity to the US 1 Booster Pump Station	$ 627,600
Total 2020-2025			**$ 10,699,900**
2025 - 2030	7	**Water Treatment Plant Expansion:** Application for Expansion of Licensed Water Treatment Plant Capacity to Plant Design Capacity of 11.0 MGD	$ 137,600
Total 2025 - 2030			**$ 137,600**
2030 - 2040	8	**US15-501 Water Line Replacement**: Replace existing 8-inch waterline with 12-inch waterline along US 15-501/Commerce Avenue from Murray Hill Road to Turner Street.	$ 682,200
	9	**Pinebluff Parallel Transmission Main:** Install a 30" water line parallel to the existing 18" transmission main between the Water Treatment Plant and the US 1 Booster Pump Station.	$ 20,059,800
Total 2030 - 2040			**$ 19,774,200**
GRAND TOTAL			**$ 31,579,500**

*Projects 1 and 2 are formatted in grey text color to differentiate them as "currently under design."

7.0 WASTEWATER FLOWS

Reviewing historical sewer flows provides insight into the Town's sewer system operation limits. Average monthly sewer flow is 50.2 MG. The calculated base flow is 42.2 MG per month and the peak monthly flow has reached 60.1 MG per month. Average daily sewer flow is 220 GPD per household. The sewer system experiences extraneous flows during wet weather events. System-wide, average flows of 1,319 GPD/IDM and 1,552 GPD/IDM are experienced during wet weather events.

8.0 EXISTING WASTEWATER SYSTEM

The Town's sewer collection system consists of 147.16 miles of gravity lines, 3,612 manholes, 21 sewer pump stations, and 16 miles of sewer force main. Pipeline diameters range in size from 2-inch to 42-inches.

9.0 WASTEWATER COLLECTION SYSTEM ANALYSIS

The Town's remaining developable land was determined, and a projected flow rate of 220 GPD per ERU was utilized to develop ultimate build-out flow projections. The sewer flow increase was added to the existing sewer flows in each pump station basin. Pump station capacities were compared to the ultimate build-out flows, and only Nick's Creek and Warrior Woods Pump Stations were determined to be undersized at ultimate build-out. All remaining pump stations and gravity sewer lines have adequate capacity to transport anticipated sewer flows. This analysis does not include needed upgrades to the Moore County Pump Station and Treatment Facility.

10.0 WASTEWATER CAPITAL IMPROVEMENTS PLAN

A wastewater system CIP was developed for the Town's wastewater collection system. The recommended wastewater system improvements shown in **Table ES-4** will provide the required capacity to meet projected wastewater flows through 2040. All project costs are shown in 2020 dollars.

It is recommended that these projects be constructed generally in the order listed; however, development patterns may make it necessary to construct some projects sooner or later than anticipated.

Table ES-4 Sanitary Sewer Collection System 20-Year CIP

	Proj. No.	Project Description	Project Cost (2020 Value)
2020 - 2025	1A**	**Warrior Woods PS Upgrades Phase IA**: Install new generator and parallel 12" DI force main (1,481 LF); Replace Ex. 10" FM with 12" DI FM (5,250 LF); Replace portion of existing 14" FM with new 14" DI FM (784 LF)	$650,900
	1B	**Warrior Woods PS Upgrades Phase IB:** Install Parallel 12" DI FM (3,769 LF), Parallel 14" DI FM (166 LF),Replace 10" PVC FM with 12" DI FM (5,250 LF)	$1,108,700*
	2	**Warrior Woods PS Upgrade Phase II:** Construct new 1,500 gpm wet pit/ dry pit pump station (expandable to 2,850 gpm)	$3,220,000*
	6***	**ARO Lift Station Sewer Replacement:** Upgrade the lift station design to bring the station into compliance with modern regulatory requirements and correct the station deficiencies.	$410,000
	7***	**Sewer Lift Station SCADA:** This project will help identify operational issues, areas of high I&I, verify sewer volumes at billing locations, and facilitate future projects related to identified problems and growth.	$300,000
	8***	**W. New York Aerial Sewer Repair:** Replacement of a Town 10" gravity sewer currently installed adjacent to McDeeds Creek running along W. New York Ave.	$350,000
	9***	**Sewer Lift Station Emergency Backups:** This project will expand the emergency backups to 4 additional permanent installations, replace 2 old gas powered generators, and purchase 2 new portable emergency station backups	$435,000
	10***	**Longleaf Dam Sewer Rehabilitation:** Replacement of a Town aerial sewer main currently installed in the face of a private dam located on the Longleaf Golf Course.	$420,000
Total 2020-2025			**$6,894,600**
2025 - 2030	3	**Warrior Woods PS Upgrade Phase III:** Expand pump station from 1,500 gpm to 2,850 gpm; Install parallel 12" DI force main (9,400 LF)	3,036,300*
Total 2025 - 2030			**$3,036,300**
		Capacity CIP Total	**$9,930,900**
2020-2040	4	**Annual Rehabilitation of Existing Gravity Sewer**	$10,748,200
		Rehabilitation and Capacity CIP Grand Total	**$20,679,100**

*Base project costs taken from the *Warrior Woods Pump Station and Force Main Preliminary Engineering Report and Master Plan (revised February 5, 2018)* by McAdams.

**Project 1 is formatted in grey text color to differentiate it as "currently under construction."

***Information for Projects 6-10 were provided by the Town.

Water Capital Improvement Plan

Prepared for

Town of Southern Pines

NORTH CAROLINA REGISTERED
ENGINEERING FIRM C-3916

Prepared by:

FREESE AND NICHOLS, INC.
1017 Main Campus Drive, Suite 1200
Raleigh, North Carolina 27606
919-582-5850

WATER CAPITAL IMPROVEMENTS PLAN

1.0 INTRODUCTION

In 2019, the Town of Southern Pines retained Freese and Nichols, Inc. (FNI) to update the Town's existing Water CIP. The goals of the study were to investigate and analyze the water system and to recommend a 20-year capital improvement plan (CIP). The recommended improvements will serve as the basis for the design, construction, and financing of facilities required to meet Southern Pines' existing and projected water demands which result from the projected population growth and commercial development. This report will provide the Town with a planning tool that will serve as a guide for short-term and long-term improvements to the water system.

1.1 SCOPE OF WORK

The major elements of the scope of this project include:

- Population and Water Demand Projections
- Water Distribution System Model Update and System Analyses
- Water Distribution System CIP

1.2 LIST OF ABBREVIATIONS

Table 1.1 provides a list of abbreviations used throughout this report and its appendices.

Table 1-1: List of Abbreviations

Abbreviation	Actual
AD	Average Day Demand
cfs	Cubic Feet per Second
CIP	Capital Improvement Plan
DWI	Division of Water Infrastructure
EPS	Extended Period Simulation
ERU	Equivalent Residential Unit
EST	Elevated Storage Tank
GIS	Geographic Information System
gpcd	Gallons per Capita per Day
gpd	Gallons per Day
gpm	Gallons per Minute
gpy	Gallons per Year
GST	Ground Storage Tank
MD	Maximum Day Demand
MG	Million Gallons
MGD	Million Gallons per Day
MHI	Median Household Income
NCDEQ	North Carolina Department of Environmental Quality
N.T.E.	Not to Exceed
O & P	Overhead and Profit
PH	Peak Hour Demand
PRV	Pressure Reducing Valve
psi	Pounds per Square Inch
SCADA	Supervisory Control and Data Acquisition
USDA	United State Department of Agriculture
USGS	United States Geological Survey
WTP	Water Treatment Plant

2.0 POPULATION

Population projections are an important element in the analysis of water systems. Water demands depend on the residential population and commercial development served by the system. A thorough analysis of historical and projected populations provides the basis for future water demands.

2.1 HISTORICAL AND PROJECTED POPULATION

The Town of Southern Pines has experienced an average annual historical population growth between one and two percent per year. Population projections were developed based on discussions with Town planning and utility staff. Town planning staff indicated areas of anticipated future growth throughout the Town. The Town is expected to grow by 7,218 residents by 2040. The population growth over the next 20 years was based on an expected two percent average annual growth rate. The historical and projected populations and associated growth rates are summarized in **Table 2-1.**

Table 2-1: Town of Southern Pines Projected Population

Year	Total Population	Average Annual Population Growth	Average Annual Population Growth (%)
1990[(1)]	9,124	-	-
2000[(1)]	10,918	179	1.81%
2010[(1)]	12,334	142	1.23%
2011[(1)]	12,558	224	1.82%
2012[(1)]	12,712	154	1.23%
2013[(1)]	12,919	207	1.63%
2014[(1)]	13,195	276	2.14%
2015[(1)]	13,405	210	1.59%
2016[(1)]	13,651	246	1.84%
2017[(1)]	14,027	376	2.75%
2018[(1)]	14,277	250	1.78%
2020[(2)]	14,854	288	2.00%
2025[(2)]	16,400	309	2.00%
2030[(2)]	18,107	341	2.00%
2035[(2)]	19,991	377	2.00%
2040[(2)]	22,072	416	2.00%

(1) "American Fact Finder" US Census – Town of Southern Pines

(2) Assumption/Projection

2.2 POPULATION DISTRIBUTION

The geographic distribution of population is as important as the total number. The magnitude and distribution of the growth in population will dictate where future infrastructure is needed. Projecting future population is challenging, especially for relatively small geographic areas, such as individual towns, because it can be difficult to predict how fast or slow development will occur when there are a variety of circumstances that can impact development.

Town planning staff identified the areas of planned development shown on **Figure 2-1**. The Town provided the location and expected number of lots or assumed development density for each planned development.

For the purposes of the water model update, growth within the Town was assumed to occur in the locations of the planned developments. Additionally, in the 2040 planning period, a portion of the increased demand was assumed to occur uniformly over the system to account for general infill growth. The anticipated population and projected water demand for each planned development is shown in **Table 2-2** and **Table 2-3**, respectively. Each development can be located on **Figure 2-1** using the corresponding Map Item number.

Created By Freese and Nichols, Inc.
Job No.: OFF15041
Location: H:\W_WW_PLANNING\01_DELIVERABLES\Figure2-1_PlannedDevelopmentAreas.mxd
Updated: Monday, April 13, 2020 9:12:02 AM

Remaining Developable Land

ZONING

CB	I	PD	RR
CB-CD	MU	PD-CD	RS-1
FRR	NB	RE	RS-1CD
FRR-CD	NBCD	RE-CD	RS-2
GB	OS	RM-1	RS-2CD
GBCD	OSCD	RM-2	RS-3

0 4,000
SCALE IN FEET

FIGURE 2-1
TOWN OF SOUTHERN PINES
Planned Development Areas

Streets
Town Limit
County_Boundary
Streams
Water Bodies

FREESE AND NICHOLS

Table 2-2: Anticipated Population Growth for Planned Developments [1]

Map Item	Name	Land Use	Approx. Expected Units[2]	Projected Buildout Population	Percent Developed				Projected Population Growth			
					2025	2030	2035	2040	2025	2030	2035	2040
1	Airport Road	Residential	229	515	10%	50%	70%	90%	51	257	360	463
2	Nicks' Creek South	Commercial	1,211,404	0	10%	15%	15%	25%	0	0	0	0
3	Nick's Creek North	Residential	429	966	5%	10%	45%	100%	48	97	435	966
4	Caropines	Residential	650	1,463	80%	80%	90%	100%	1,170	1,170	1,316	1,463
5	Mill Creek/Warrior Woods	Residential	529	600	35%	60%	95%	100%	210	360	570	600
6	Mill Creek/Warrior Woods	Commercial	308,143	0	35%	45%	45%	65%	0	0	0	0
7	Knollwood Tract	Residential	800	1,800	10%	55%	90%	100%	180	990	1,627	1,800
8	Knollwood Tract	Commercial	450,000	0	25%	40%	45%	70%	0	0	0	0
9	Corporate Park	Commercial	319,513	0	25%	35%	35%	50%	0	0	0	0
10	Corporate Park	Industrial		0	20%	35%	35%	50%	0	0	0	0
11	Morganton Park South	Commercial	750,000	0	20%	45%	45%	60%	0	0	0	0
12	Morganton Park North	Commercial	803,682	0	20%	45%	45%	60%	0	0	0	0
13	Tylers Ridge Community	Commercial	127,413	0	20%	40%	40%	60%	0	0	0	0
14	Ravensbrook	Residential	100	225	10%	40%	90%	100%	23	90	203	225
15	Pee Dee Road	Residential	102	229	10%	40%	90%	100%	23	92	207	229
16	Golf Course Redevelop	Residential	200	450	0%	26%	95%	100%	0	115	429	450
17	Forest Creek	Residential	900	1,560	40%	60%	80%	100%	624	936	1248	1,560
	Forest Creek	Commercial	250,000	0	40%	60%	80%	100%	0	0	0	0
Total			**-**	**7,218**					**2,329**	**4,107**	**6,395**	**7,756**

(1) Planned development and redevelopment areas identified by Town of Southern Pines Planning Department

(2) Residential: 1 unit = 1 dwelling unit. Commercial: 1 Unit = 1 square foot of business.

Table 2-3: Projected Water Demand for Planned Developments

Map Item	Name	Land Use	Approx. Expected Units[2]	Projected Buildout Demand (1000-Gal/Day)	Percent Developed				Projected Demand (1000-Gal/Day)			
					2025	2030	2035	2040	2025	2030	2035	2040
1	Airport Road	Residential- RS3	229	91	10%	50%	70%	90%	9	46	64	82
2	Nicks' Creek South	Commercial	1,211,404	121	10%	15%	15%	25%	12	18	18	30
3	Nick's Creek North	Residential	429	172	5%	10%	45%	100%	9	17	77	172
4	Caropines	Residential	650	260	80%	80%	90%	100%	208	208	234	260
5	Mill Creek/Warrior Woods	Residential	529	212	35%	60%	95%	100%	74	127	201	212
6	Mill Creek/Warrior Woods	Commercial	308,143	31	35%	45%	45%	65%	11	14	14	20
7	Knollwood Tract	Residential	800	320	10%	55%	90%	100%	32	176	289	320
8	Knollwood Tract	Commercial	450,000	45	25%	40%	45%	70%	11	18	20	32
9	Corporate Park	Commercial	319,513	32	25%	35%	35%	50%	8	11	11	16
10	Corporate Park	Industrial		32	20%	35%	35%	50%	6	11	11	16
11	Morganton Park South	Commercial	750,000	75	20%	45%	45%	60%	15	34	34	45
12	Morganton Park North	Commercial	803,682	80	20%	45%	45%	60%	16	36	36	48
13	Tylers Ridge Community	Commercial	127,413	13	20%	40%	40%	60%	3	5	5	8
14	Ravensbrook	Residential	100	40	10%	40%	90%	100%	4	16	36	40
15	Pee Dee Road	Residential	102	41	10%	40%	90%	100%	4	16	37	41
16	Golf Course Redevelop	Residential	200	80	0%	26%	95%	100%	0	20	76	80
17	Forest Creek	Residential	900	360	40%	60%	80%	100%	144	288	288	360
	Forest Creek	Commercial	250,000	40	40%	60%	80%	100%	16	24	32	40
	Total		-	**2,045**					**582**	**1,085**	**1,483**	**1,822**

(1) Residential: 1 unit = 1 dwelling unit. Commercial: 1 Unit = 1 square foot of business.

(2) Residential water demand = 400 gallons/day/dwelling unit. Commercial = 50 gallons/day/ft^2. Industrial = 880 gallons/acre/day.

3.0 WATER DEMANDS

A water utility must be able to supply water at rates that fluctuate over time. Yearly, monthly, daily and hourly variations in water use occur, with higher use during dry years and in hot months. Water use typically follows a diurnal pattern, being low at night and peaking in the early morning and late afternoon. Flow rates most important to the hydraulic design and operation of a water treatment plant and distribution system are average day (AD), maximum day (MD) and peak hour (PH) demands. Average day use is the total annual water use divided by the number of days in the year. The average day demand rate is used as a basis for water supply needs and estimating maximum day and peak hour demands. Maximum day demand is the maximum quantity of water used on any one day of the year. Water production facilities are typically designed based on the maximum day demand. Peak hour use is the peak rate at which water is required during any one hour of the year. Since minimum distribution pressures are usually experienced during peak hour, the sizes and locations of distribution facilities are generally determined based on this condition.

3.1 HISTORICAL WATER PRODUCTION

Reviewing historical water production provided insight into the Town's daily average production requirement. Historical monthly water production for 2015 through 2018 was reviewed and provided a basis for calculating the daily average used to determine historical water demands. **Table 3-1** illustrates the historical water production for the Town of Southern Pines.

Reviewing historical water demands allows design criteria to be selected in order to project future water demands. Annual average day demand, maximum day to average day peaking factors and per-capita consumption were reviewed and provided a basis for determining the design criteria used to project water demands.

Table 3-1: Historical Water Production in Million Gallons (2015-2018)

Month	2015	2016	2017	2018
January	84.6	86.2	83.8	87.1
February	80.7	77.1	67.5	65.6
March	94.5	93.7	89.6	83.0
April	98.7	110.7	95.4	99.5
May	138.6	117.2	101.0	121.3
June	125.3	127.5	112.9	123.3
July	132.8	138.3	115.3	127.0
August	138.7	148.9	125.5	127.0
September	126.8	130.7	103.6	116.6
October	121.9	131.1	112.2	12.2
November	99.1	126.4	93.0	102.6
December	94.6	90.6	73.1	101.9
Total	**1,336**	**1,378**	**1,173**	**1,167**
Average Wholesale	319	145	294	144
Total "Non-Wholesale"	**1,017**	**1,233**	**879**	**1,024**
Daily Average (MGD)	2.8	3.4	2.4	2.8
Water Service Area Population	13,405	13,651	14,027	14,277
Average Demand (gpcd)	208	247	172	196

3.2 HISTORICAL WATER DEMANDS

The Town provided recent water usage data consisting of monthly production and maximum day consumption. Historical annual average day demand, maximum day to average day peaking factors and per-capita consumption are summarized in **Table 3-2**. After removing average wholesale demand, average day per capita water usage ranged from 208 gallons per capita day (gpcd) to 247 gpcd, with an average of 206 gpcd over the last 4 years. Historical water usage data indicated the maximum day to average day peaking factor ranged from 1.5 to 1.9, with an average of 1.6 over the last 4 years.

Table 3-2: Historical Water Usage

Year	Water Service Area Population	Average Day Demand (MGD)	Average Day Demand (gpcd)	Maximum Day Demand (MGD)	Maximum Day to Average Day Peaking Factor
2015[(1)]	13,405	2.8	208	4.6	1.6
2016[(1)]	13,651	3.4	247	5.5	1.6
2017[(1)]	14,027	2.4	172	3.5	1.5
2018[(1)]	14,277	2.8	196	5.2	1.9
Average	-	**2.8**	**206**	**4.7**	**1.6**
Maximum	-	**3.4**	**247**	**5.5**	**1.9**

(1) Water Service Area Population from American Fact Finder.

3.3 PROJECTED WATER DEMANDS

The evaluation of historical data provided the basis for determining the design criteria used to project water demands. Based on the review of this data and the need to plan for low rainfall (dry) years with minimal water restrictions, FNI recommends using an average day demand of 206 gpcd. In selecting a peaking factor to project maximum day demands, FNI reviewed historical peaking factors and the years in which those peaking factors occurred, as just using the highest values for per-capitas and peaking factors may not be representative. Based on the narrow range of historical peaking factors and discussion with Town Staff, FNI recommends using a peaking factor of 1.6. Hourly Supervisory Control and Data Acquisition (SCADA) data was not available to determine a peak hour to maximum day peaking factor. A peaking factor of 1.5 was selected based on prior experience with towns similar in size to Southern Pines. These water demand design criteria are summarized in **Table 3-3**.

Using the water demand design criteria in **Table 3-3**, water demands were projected for 2020, 2025, 2035, and 2040. The projected population and water demand for the Town are summarized for each planning period in **Table 3-4**.

Table 3-3: Water Demand Design Criteria

Gallons per Capita per Day	Maximum Day to Average Day Peaking Factor	Peak Hour to Maximum Day Peaking Factor
206	1.6	1.5

Table 3-4: Projected Water Demands

		Average Day Demand			Maximum Day Demand			Peak Hour Demand		
Year	Projected Water Service Area Population	Wholesale Demand (MGD)	Non-Wholesale Demand (MGD)	Total (MGD)	Wholesale Demand (MGD)	Non-Wholesale Demand (MGD)	Total (MGD)	Wholesale Demand (MGD)	Peak Hour Demand (MGD)	Total (MGD)
2020	14,854	0.87	3.06	**3.9**	1.40	4.9	**6.3**	1.40	7.3	**8.7**
2025	16,400	0.87	3.38	**4.3**	1.40	5.4	**6.8**	1.40	8.1	**9.5**
2030	18,107	0.87	3.73	**4.6**	1.40	6.0	**7.4**	1.40	9.0	**10.3**
2035	19,991	0.87	4.12	**5.0**	1.40	6.6	**8.0**	1.40	9.9	**11.3**
2040	22,072	0.87	4.55	**5.4**	1.40	7.3	**8.7**	1.40	10.9	**12.3**

4.0 EXISTING WATER SYSTEM

The Town's water distribution system consists of a network of 239 miles of water line, three pump stations, one ground storage tank, two elevated storage tanks and one standpipe. The distribution system is operated as two pressure zones: The Central Pressure Zone and the recently created Weymouth Woods Pressure Zone. Ground elevations in the Central Zone generally range from 295 feet to 595 feet. Ground elevations in the Weymouth Woods Zone generally range from 530 feet to 615 feet.

The Town owns a raw water intake on Drowning Creek. The Town is permitted to withdraw and treat 8.0 MGD and as much as 14.0 MGD, as long as 56 cubic feet per second (cfs) is maintained at the United States Geological Survey (USGS) monitoring gauge downstream of the intake. The raw water is stored in the 20 MG and 140 MG raw water reservoirs which are located near the Southern Pines Water Treatment Plant (WTP). The WTP is located on US Route 1, north of the raw water intake and south of the Town. The WTP is currently permitted to treat 8.0 MGD and was designed for a maximum treated water supply of 11.0 MGD. The high service pumps at the US 1 Booster Pump Station have a firm pumping capacity of 4,500 gpm.

Two elevated storage tanks (ESTs) and one standpipe provide storage for equalization and fire suppression. The Henley Street EST is located in the western portion of the Central pressure zone. The Eastman Road EST is located in the northern portion of the distribution system. The Weymouth Woods standpipe is located in the eastern portion of the system. **Table 4-1** presents a summary of the Town's existing storage facilities. **Figure 4-1** shows the existing water distribution system for the Town of Southern Pines.

Table 4-1: Town of Southern Pines Existing Storage Facilities

Tank Name	Ground Elevation (ft)	Overflow Elevation (ft)	Bottom Elevation (ft)	Sidewater Depth (ft)	Capacity (MG)
Henley Street EST	595	681	651	30	0.5
Eastman Road EST	492.5	681	641	40	1.0
Weymouth Woods Standpipe	601	681	601	80	2.0
Total Elevated Storage					**3.5**
US1 Clearwell	445	475	445	30	2.0
Total Storage					**5.5**

1.0 MG Eastman Rd
Elevated Storage Tank
Overflow Elev.=681- ft

0.5 MG Henly St.
Elevated Storage Tank
Overflow Elev.=681- ft

2.0 MG Weymouth Woods
Standpipe
Overflow Elev.=681- ft

Weymouth Woods Pressure Zone

2.0 MG US 1
Ground Storage Tank and
Booster Pump Station
Overflow Elev.=495- ft

FIGURE 4-1
TOWN OF SOUTHERN PINES
Existing Water System

- Streets
- Pump Station
- City Limit
- Surrounding Cities
- Southern Pines ETJ
- Streams
- Water Bodies

Water Mains
- 16" and Larger
- Less than 16"

Tanks
- Elevated Storage Tank
- Ground Storage Tank
- Standpipe

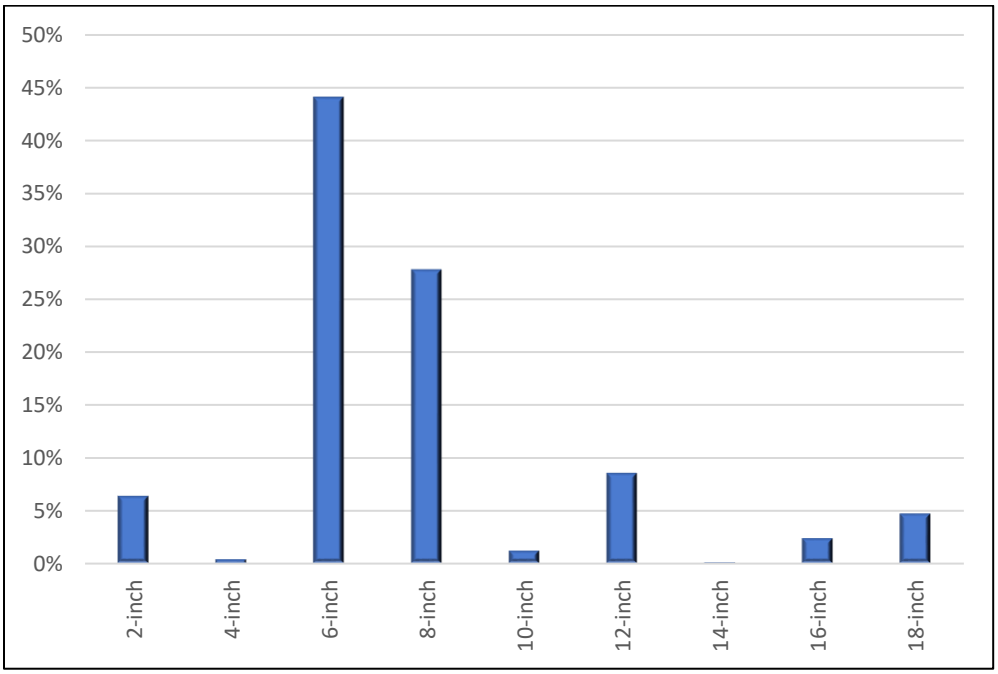
FREESE AND NICHOLS

0 4,000
SCALE IN FEET

4.1 WATER LINES

The Town's distribution system consists of 239 miles of water lines. Water line diameters range in size from 2-inch to 18-inches. The majority are 6-inch water lines. **Figure 4-2** illustrates the percentage of pipe length by diameter.

Figure 4-2: Pipe Diameter by Length



4.2 WHOLESALE CUSTOMERS

The Town currently provides wholesale water to three wholesale customers at six locations as seen in **Table 4-2**. Future water demand projections do not include increases to wholesale water demands.

Table 4-2: Town of Southern Pines Existing Wholesale Customers

Customer Name	Location	Wholesale Agreement	Average Monthly Usage(1) (gal)	Average Day Demand(1) (gpd)
Camp Mackall	Camp Mackall	16,736,460 gpy	1,082,750	35,598
Carolina Water Services	Ray's Bridge Road	NTE: 600,000 gpd Min: 205,000 gpd	3,509,921	115,395
	Hardee Rd		695,846	19,069
	Niagra-Carthage Rd		6,885,798	226,383
Total Carolina Water Services:			**10,743,642**	**341,778**
Moore County Public Utilities	Addor Rd	NTE: 1 MGD Min: 300,000 gpd [or] 109,500,000 gpy	106,465	3,501
	The Carolina/Warrior Woods		361,181	11,875
	Midland Rd		12,470,628	409,993
Total Moore County Public Utility:			**12,938,274**	**425,369**

(1) Based on 2017 and 2018 Wholesale Billing Data

(2) Hardee Road average monthly usage based on 2017 billing data only, due to lack of data for 2018.

5.0 WATER DISTRIBUTION SYSTEM ANALYSES

The Town's existing water model was updated to include new water distribution system infrastructure and updated demands. Various combinations of improvements and system modifications were investigated to determine the most appropriate approach to meet projected water demands. These improvements are identified in a CIP to improve the existing system and meet projected water demands through 2040. Parameters used to develop the CIP included increasing system reliability, meeting required fire flows and maintaining proper residual pressures.

5.1 EXISTING WATER SYSTEM ANALYSIS

The existing distribution system was evaluated to assess current pumping and storage capacity, residual pressures and fire flow capacity. This analysis was performed to identify existing system deficiencies and provide a baseline for the current level of service. The parameters that were evaluated are discussed in the following sections.

Storage Capacity

As a public water utility, the Town of Southern Pines must comply with the rules and regulations for public water systems set forth by the North Carolina Department of Environmental Quality (NCDEQ) and the North Carolina General Assembly. According to 15A NCAC 18C.0405(b)(2), the "elevation of storage tanks shall be sufficient to produce a designed minimum distribution system pressure of 20 pounds per square inch at peak demand (fire flow) and 30 pounds per square inch during peak flow." 15A NCAC 18C.0805(a) states "where feasible, elevated storage capacities shall meet the requirements of the Fire Suppression Rating Schedule". As specified by 15A NCAC 18C.0805(b) and (c), "the elevated storage for a municipality shall be sufficient to minimize the effect of fluctuating demand plus provide a reserve for fire protection" and that "the combined elevated and ground storage of the finished water for community and non-transient, non-community water systems shall be a minimum of one-half day's supply of the average annual daily demand." A summary of the design criteria used in this Water Capital Improvement Plan Update are shown in **Table 5-1**.

The Team analyzed the existing storage facilities to determine the amount of effective storage volume provided by the elevated tanks and standpipe. Effective storage is the volume in a tank above the point that provides the required minimum pressure to the highest elevation customer. To determine the

effective storage, the ground elevation of the high elevation customer is determined. Next, the required tank height to provide 30 psi to the highest elevation customer is calculated. This elevation is the bottom of the effective storage for equalization. Finally, the required tank height to provide 20 psi to the highest elevation customer is calculated. This elevation is the bottom of the effective storage for fire suppression. The available effective storage in the Central Pressure Zone for fire suppression is currently 2.55 MG, which meets the design criteria for existing conditions. The Weymouth Woods Pressure Zone currently has no dedicated elevated storage. The effective storage for equalization and fire suppression is summarized for each of the Town's elevated facilities in **Table 5-2**.

Table 5-1: Proposed Design Criteria

	Evaluation Parameter	Goal	Acceptable	Reference Standard
Water Supply Capacity	Firm Pumping Capacity	MD	MD	AWWA M32 Manual
Pumping and Storage Capacity	Minimum combined ground and elevated storage	EV + FS (or ER)	1/2 AD	15A NCAC 18C .0805(c)
	Elevated storage minimizes demand fluctuations and provides fire flow:	EV + FS	EV + FS	15A NCAC 18C .0405(b)(2)
	Equalization volume (EV)	(PH – MD) * 4 hr	(PH – MD) * 4 hr	Developed for this Study
	Fire suppression (FS)	3,500 gpm * 3 hr	3,500 gpm * 3 hr	Developed for this Study
	Emergency reserve (ER)	1/2 AD	1/2 AD	15A NCAC 18C .0805(c)
Pressure	Maximum Pressure	110 psi	130 psi	Developed for this Study
	Minimum Pressure (PH)	40 psi	30 psi	15A NCAC 18C .0405(b)(2)
	Minimum Pressure (MD + FS)	20 psi	20 psi	15A NCAC 18C .0405(b)(2)
Fire Flow Requirements	Minimum fire flow	Residential: 1,000 gpm Commercial: 1,500 gpm	Residential: 500 gpm Commercial: 1,500 gpm	Developed for this Study
Velocity and Headloss	*Water Transmission Lines* (diameter larger than 16-inches)			
	Maximum Pipeline velocity (MD)	5 ft/s	5 ft/s	AWWA M32 Manual
	Maximum Pipeline velocity (MD + FS)	10 ft/s	10 ft/s	AWWA M32 Manual
	Maximum friction loss	3 ft/1,000 ft	5 ft/1,000 ft	AWWA M32 Manual
	Water Distribution Lines (diameter 16-inches and smaller)			
	Maximum Pipeline velocity (MD)	5 ft/s	5 ft/s	AWWA M32 Manual
	Maximum Pipeline velocity (MD + FS)	10 ft/s	10 ft/s	AWWA M32 Manual
	Maximum friction loss	5 ft/1,000 ft	6 ft/1,000 ft	AWWA M32 Manual

Table 5-2: Existing Effective Storage Volume for Equalization and Fire Suppression

Tank Name	Overflow Elevation (ft)	Bottom Elevation (ft)	Capacity (MG)	High Elevation Customer (ft)	Effective Storage Elevation for Equalization (ft)	Effective Storage Volume for Equalization (MG)	Effective Storage Elevation for Fire Suppression (ft)	Effective Storage Volume for Fire Suppression (MG)
Eastman Road EST	681	641	1.0	593	662.3	0.47	639.2	1.0
Henley Street EST	681	651	0.5	593	662.3	0.31	639.2	0.5
Weymouth Woods Standpipe	681	601	2.0	593	662.3	0.37	639.2	1.05
Total Elevated Storage Available						**1.25**		**2.55**

Pumping Capacity

The Town must also provide sufficient pumping capacity to the system. The high service pumps at the US 1 Booster Pump Station have a firm pumping capacity of 4,500 gpm per pump (6.5 MGD). There is space for two additional pumps to be added, if necessary. The Town's WTP has an existing licensed treatment capacity of 8.0 MGD. The projected 2020 maximum day demand of 6.3 MGD means the Town is using 79% of their total water supply.

System Pressures

A steady-state hydraulic analysis was performed with 2020 maximum day demand conditions to evaluate residual pressure throughout the distribution system. The peak hour demand was simulated by applying the peak hour to maximum day peaking factor of 1.5. Peak hour demand represents the single hour of the year with the highest system demand. Peak hour simulations are used to assess the ability of the distribution system to maintain residual pressures because the highest demand period typically induces the lowest pressure due to increased headloss throughout the system. According to 15A NCAC 18C.0405 (b) (2), the minimum required pressure within a distribution system is 30 psi under peak hour demand conditions.

A review of existing system pressures revealed that pressures of 30 psi and above are maintained throughout the system, except in the area south of the new Weymouth Woods Pressure Zone. This area experiences pressures below the required minimum under peak hour demand conditions. **Figure 5-1** shows the minimum pressure observed in the model under existing peak hour demand conditions.

System Head Loss

The existing system model scenarios indicated several lines that experienced excessive head loss and/or velocity in the water lines. These lines were upsized in future model scenarios. See Appendix C for additional results figures.

1.0 MG Eastman Rd
Elevated Storage Tank
Overflow Elev.=681- ft

0.5 MG Henly St.
Elevated Storage Tank
Overflow Elev.=681- ft

2.0 MG US 1
Ground Storage Tank and
Booster Pump Station
Overflow Elev.=495- ft

2.0 MG Weymouth Woods
Standpipe
Overflow Elev.=681- ft

Weymouth Woods Pressure Zone

Pressure
- <30 psi
- 30-40 psi
- 40-80 psi
- 80-110 psi
- >110 psi

0 4,000
SCALE IN FEET

FIGURE 5-1
TOWN OF SOUTHERN PINES
Min. Pressures at Ex. Peak Demand

- Streets
- Pump Station
- City Limit
- Surrounding Cities
- Southern Pines ETJ
- Streams
- Water Bodies

Water Mains
- 16" and Larger
- Less than 16"

Tanks
- Elevated Storage Tank
- Ground Storage Tank
- Standpipe

FREESE AND NICHOLS

Fire Flow Capacity

To evaluate the fire suppression capabilities of the system, a fire flow analysis was conducted under existing maximum day demand conditions. According to 15A NCAC 18C.0405 (b) (2), a minimum residual pressure of 20 psi must be maintained while delivering the fire flow demand. For this analysis, a steady-state model run determined the available fire flow at each node in the system with a pressure of 20 psi. **Figure 5-2** shows the results of the fire flow simulation. The majority of the water system provides a minimum of 1,000 gpm, which is a typical residential fire flow demand. Available fire flows below 1,000 gpm are due to small diameter and/or dead-end lines and areas of higher elevation and are shown in orange on **Figure 5-2**. Upsizing of smaller lines, looping and increasing pressure are three methods to improve low fire flow. Available fire flow for commercial, multi-family, and industrial land uses is evaluated by the Fire Marshal on a case by case basis and should be compared to the model results to determine if adequate fire flow is available.

1.0 MG Eastman Rd
Elevated Storage Tank
Overflow Elev.=681- ft

0.5 MG Henly St.
Elevated Storage Tank
Overflow Elev.=681- ft

2.0 MG US 1
Ground Storage Tank and
Booster Pump Station
Overflow Elev.=495- ft

2.0 MG Weymouth Woods
Standpipe
Overflow Elev.=681- ft

Weymouth Woods Pressure Zone

Available Fire Flow

- <500 gpm
- 500-1,000 gpm
- 1000-1,500 gpm
- 1,500-2,500 gpm
- 2,500-3,500 gpm

0 4,000
SCALE IN FEET

FIGURE 5-2
TOWN OF SOUTHERN PINES
Ex. Water System Available Fire Flow at 20 psi

- Streets
- Pump Station
- City Limit
- Surrounding Cities
- Southern Pines ETJ
- Streams
- Water Bodies

Water Mains
- 16" and Larger
- Less than 16"

Tanks
- Elevated Storage Tank
- Ground Storage Tank
- Standpipe

FREESE AND NICHOLS

5.2 FUTURE WATER SYSTEM ANALYSIS

Hydraulic analyses were performed on the distribution system under future demand conditions. **Figure 5-1 and Figure 5-2** were used to identify areas of low pressure and fire flow in the existing system. Water system improvements were developed to accommodate the anticipated planned development over the next 20 years. Key observations and recommendations resulting from modeling and evaluation of the distribution system are discussed in the following sections.

Water Supply Capacity

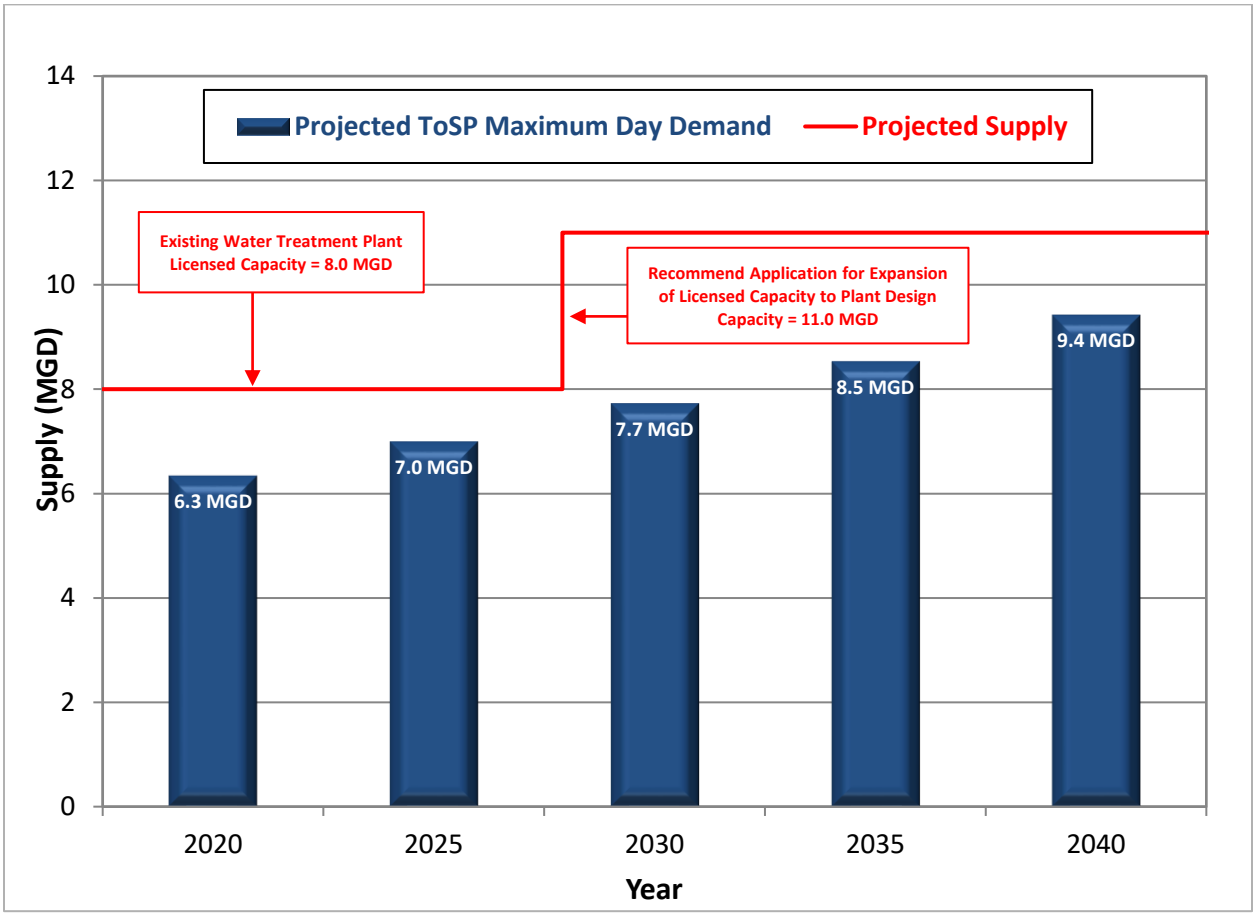
Securing future water supply is essential to support continued growth within the Town. The water supply capacity must be sufficient to replenish the water consumed daily within the service area. The maximum day demand is expected to grow from 6.3 MGD to 9.4 MGD by the year 2040. The existing water supply of 8.0 MGD is sufficient to meet the projected 2030 maximum day demands, but projected demands will exceed available supply by 2032. The Town should consider conducting a Water Treatment Plant Capacity Evaluation and submitting an application to expand the permitted plant capacity to the plant design capacity of 11.0 MGD by 2030. **Figure 5-3** illustrates the projected maximum day demand compared to the Town's projected water supply.

Table 5-3 shows planned upgrades at the Town's Water Treatment Plant by fiscal year, per an evaluation by SUEZ.

Table 5-3: Water Treatment Plant Improvements

Project Name	2020-21	2021-22	2022-23	2023-24	2024-25	Beyond	Project Totals
Upflow Clarifier Blower Replacement	$28,000	-	-	-	-	-	**$28,000**
Sludge Dewatering Expansion	-	-	$200,000	$1,313,000	-	-	**$1,513,000**
Filter Improvements	$490,000	$50,000	$537,000	-	-	-	**$1,077,000**
Raw Water Main Replacement	-	-	-	-	-	$5,750,000	**$5,750,000**
Yearly Totals	**$518,000**	**$50,000**	**$737,000**	**$1,313,000**	**-**	**$5,750,000**	**$8,368,000**

Figure 5-3: Projected Water Supply Requirements



Transmission Capacity

While the majority of the system has sufficient capacity to transmit water, several improvements were identified to increase transmission capacity. Several water line projects were identified to increase flow capacity, specifically to the northern portion of the distribution system where much of the anticipated growth is located. Upsizing water lines throughout the distribution system will also increase fire flow capacity and reduce high velocities and head loss.

Pressure Zones and Elevated Storage

Currently, the Town operates on two pressure zones: The Central Pressure Zone and the new Weymouth Woods Pressure Zone. The overflow elevation of the Central Pressure Zone is 681 feet. The maximum HGL of the Weymouth Woods Pressure Zone is 820 ft, which is maintained by booster pumps. Creation of the Weymouth Woods Pressure Zone separated several high elevation customers into a zone served by a

higher HGL and also increased the effective storage volume of the Town's existing ESTs. The elevation of the highest elevation customer in the Weymouth Woods Pressure zone is 614 ft. The ground elevation of the highest elevation customer in the Central Zone is 593 feet.

The northern portion of the Town has lower ground elevations than the central pressure zone was designed to support. As a result, the pressures in the northern portion of the Town are excessively high. In addition, there is no elevated storage in the northern portion of the Town which would cause difficulty providing sufficient future fire flows. The Team recommends separating the northern portion of the Town into a new pressure zone. A new elevated storage tank with a recommended overflow elevation of 630 feet would serve the north pressure zone. This new pressure zone will reduce the excessively high system pressures in order to reduce wear and tear on the pipes. The ground elevation of the highest customer in the new north pressure zone would be 500 feet. The new North EST is designed to provide almost 100% effective storage volume for equalization. **Table 5-4** summarizes the available effective storage volumes for equalization and fire suppression in the recommended future system.

Table 5-4: Recommended Future Effective Storage Volume for Equalization and Fire Suppression

Tank Name	Overflow Elevation (ft)	Bottom Elevation (ft)	Capacity (MG)	High Elevation Customer (ft)	Effective Storage Elevation for Equalization (ft)	Effective Storage Volume for Equalization (MG)	Effective Storage Elevation for Fire Suppression (ft)	Effective Storage Volume for Fire Suppression (MG)
Eastman Road EST	681	641	1.0	593	662.3	0.47	639.2	1.00
Henley Street EST	681	651	0.5	593	662.3	0.31	639.2	0.50
North EST	630	590	1.0	500	592.4	0.94	546.2	1.00
Weymouth Woods Standpipe*	681	601.5	2.0	593	662.3	0.47	639.2	1.05
Total Elevated Storage Available						**2.19**		**3.55**

* The Weymouth Woods Standpipe floats on the Central Pressure Zone, isolated from the newly created Weymouth Woods Pressure Zone. Currently, the Weymouth Woods Pressure Zone has no elevated storage capacity. A standalone backup generator will soon be installed to serve the Weymouth Woods Booster Pump Station during power outages. In the event of mechanical failure of the booster pump station, temporary operational changes can be made, and the Weymouth Woods Pressure Zone can be served from the Central Zone. Under these emergency conditions, effective storage volume of the system will be reduced to 2.39 MG.

Creating a North pressure zone with 1.0 MG Elevated Storage Tank will allow the Town to meet the minimum required storage volume for equalization through the year 2040 and reduce excessively high pressures experienced in the northern area of Town. The Team recommends that the Town complete this project in the next five years.

Total Storage

The total storage of the existing system is 5.5 MG. With the addition of the new North EST, the total storage of the future system will increase to 6.5 MG. The required total storage is one half of the average day demand, as defined in the design criteria in **Table 5-1**. As summarized in **Table 5-5**, the future system available total storage is greater than the required total storage.

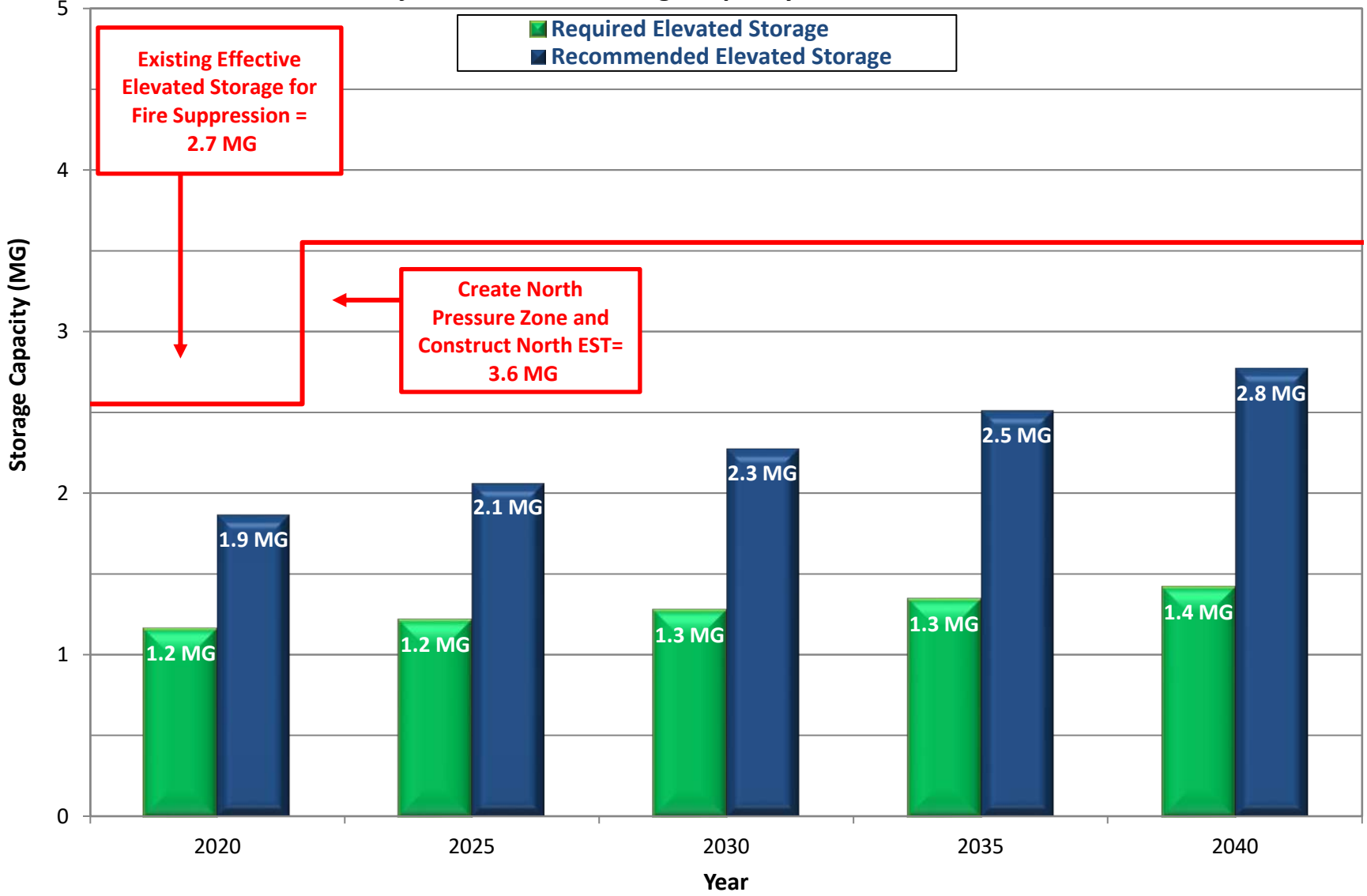
Table 5-5: Town of Southern Pines Existing Storage Facilities

Total Storage	2020	2025	2030	2035	2040
Required	1.9	2.1	2.3	2.5	2.8
Available	5.5	6.5	6.5	6.5	6.5

Figure 5-4

Town of Southern Pines

Projected Elevated Storage Capacity Recommendations



Pumping Capacity

In order to provide a firm pumping capacity equal to or greater than the projected 2040 maximum day demand of 9.4 MGD, the Team recommends adding an additional 4,500 gpm (6.5 MGD) pump to the U.S. 1 Booster Pump Station.

Fire Flow Capacity

To evaluate the fire suppression capabilities of the future system, a fire flow analysis was conducted under 2040 maximum day demand conditions. According to 15A NCAC 18C.0405 (b) (2), a minimum residual pressure of 20 psi must be maintained while delivering the fire flow demand. For this analysis, a steady-state model run determined the available fire flow at each node in the system with a pressure of 20 psi. **Figure 5-5** shows the results of the fire flow simulation. Fire flows between 500 and 1,000 gpm are acceptable to the Fire Marshal for these areas, provided no additional demands are placed on the system at these locations. If unanticipated development occurs in these areas, the small diameter water lines should be upsized, and the water lines should be looped to provide sufficient fire flows.

New Development

As new development occurs within the Town's water service area, new water lines will be needed to extend service to areas that are not currently served. It is recommended that a minimum of 8-inch lines be installed in areas that will be looped. Water lines smaller than 8-inches are recommended in areas of low demand, such as cul-de-sacs, to avoid water age issues. The Team also recommends minimizing dead-end lines to avoid water quality issues and excessive flushing. It is recommended that developer plans be reviewed with the water model to verify that sufficient pressure and fire flow will be provided as designed.

Created By Freese and Nichols, Inc.
Job No.: OFF15041
Location: H:\W_WW_PLANNING\01_DELIVERABLES\Figure5-5_FutureWaterSystemAvailFireFlow.mxd
Updated: Wednesday, February 26, 2020 6:31:56 PM

1.0 MG Eastman Rd
Elevated Storage Tank
Overflow Elev.=681- ft

0.5 MG Henly St.
Elevated Storage Tank
Overflow Elev.=681- ft

2.0 MG US 1
Ground Storage Tank and
Booster Pump Station
Overflow Elev.=495- ft

2.0 MG Weymouth Woods
Standpipe
Overflow Elev.=681- ft

Available Fire Flow

- <500 gpm
- 500-1,000 gpm
- 1,000-1,500 gpm
- 1,500-2,500 gpm
- >2,500 gpm

0 4,000
SCALE IN FEET

FIGURE 5-5

TOWN OF SOUTHERN PINES

Future (2040) Water System Fire Flow at 20 psi

- Streets
- Pump Station
- City Limit
- Surrounding Cities
- Southern Pines ETJ
- Streams
- Water Bodies

Water Mains
- 16" and Larger
- Less than 16"

Tanks
- Elevated Storage Tank
- Ground Storage Tank
- Standpipe

FREESE AND NICHOLS

6.0 WATER CAPITAL IMPROVEMENT PLAN

A capital improvement plan (CIP) was developed for the Town's water distribution system. The recommended improvements will provide the required capacity and reliability to meet projected water demands through 2040. The recommended projects for the water distribution system are illustrated on **Figure 6-1.**

Locations shown for new pipelines and other recommended improvements were generalized for hydraulic analyses. Specific alignments and sites will be determined as part of the design process. It is recommended that these projects be constructed generally in the order listed; however, development patterns may make it necessary to construct some projects sooner or later than anticipated.

6.1 COST METHODOLOGY AND ASSUMPTIONS

To develop planning level cost estimates, the work was divided into items of similar construction (i.e., installation of 16-inch water line, installation of fire hydrant assemblies, bore-and-jack installation of pipe under roads, etc.). Once the construction items were identified and quantified, contingency and administrative costs (survey, engineering, SUE or subsurface utility engineering, etc.) were applied in order to identify the total anticipated project cost. All project costs are in 2020 dollars.

Water line lengths were derived from the Town's GIS and assume that no deteriorated or damaged pipe is expected at the tie-in points. Bore and jack water line installation of pipe was assumed for major road crossings in order to minimize disruption to traffic. Reuse and reconnection of existing fire hydrant assemblies in good condition may decrease overall project costs. The presented costs were largely based on open cut methods in the existing pipe alignment. For each water line project, alternative construction methods and/or alignments may be evaluated in the design phase as more detailed, site-specific data becomes available. Unit construction costs were estimated based upon one or more sources including, recent bid tabs from similar work geographically close to the Town of Southern Pines, cost data published in the R.S. Means Construction Cost Data books, and from cost data provided by manufacturers or vendors.

For these planning level cost estimates, a contingency of 30 percent of overall project construction cost is included. As the project moves into the design phase and more details regarding site conditions, public concerns, and other factors are known, project cost estimates can be refined and contingencies reduced.

Administrative project costs were added to the anticipated project construction cost and contingencies to reflect the expected total cost to the Town for each project. Administration costs for services such as engineering and surveying are estimated at 15% of the construction cost including contingencies.

Figure 6-1 summarizes the cost estimates of the water distribution system CIP for the Town of Southern Pines. Detailed descriptions of the projects and associated costs are provided in **Appendix A.**

Project 4
North Pressure Zone
1.0 MG North EST
12" Water Line

Project 3
Midland Rd Water Line
Replacement

Project 2
Pennsylvania Ave/Pee Dee Rd
Water Line Replacement
(UNDER DESIGN)

1.0 MG Eastman Rd
Elevated Storage Tank
Overflow Elev.=681- ft

0.5 MG Henly St.
Elevated Storage Tank
Overflow Elev.=681- ft

2.0 MG Weymouth Woods
Standpipe
Overflow Elev.=681- ft

Project 5
US 1 Parallel
Transmission Main

Project 8
US15-501 Water Line
Replacement

Project 1
Morganton Rd
Water Line Replacement
(UNDER DESIGN)

2.0 MG US 1
Ground Storage Tank and
Booster Pump Station
Overflow Elev.=495- ft

Project 6
Add 4,500 gpm Pump

Project 9
Pinebluff Parallel
Transmission Main

Project 7
Water Treatment Plant
Expansion

0 2,000
SCALE IN FEET

Pressure Zones
- Weymouth Woods
- North
- Central

- 2020 EST
- 2020 Pump Station
- 2020 Flow Control Valve
- 2020 Pressure Reducing Valve
- 2020 Water Line
- 2030 Water Line

FIGURE 6-1
TOWN OF SOUTHERN PINES
Water Distribution System CIP

- Streets
- Pump Station
- City Limit
- Surrounding Cities
- Southern Pines ETJ
- Streams
- Water Bodies

Water Mains
- 16" and Larger
- Less than 16"

Tanks
- Elevated Storage Tank
- Ground Storage Tank
- Standpipe

FREESE AND NICHOLS

Table 6-1: Water Distribution System CIP

Fiscal Year (Project Initiation)	Project Description	Project Cost (2020 Value)
2020	**East Morganton Road Waterline Replacement**- Replace existing 6-inch waterline with 12-inch waterline along Morganton Road from Ridge Street to Valley Road. (Currently under design)	$ 468,800
2020	**Pennsylvania Ave/Pee Dee Rd Water Line Replacement:** Replace Existing 10-inch Water Line with 16-inch Water Line along Pennsylvania Ave/Pee Dee Rd from Connecticut Ave to Central Drive (Currently under design)	$ 1,957,800
2023	**Midland Rd Water Line Replacement:** Replace Existing 6-inch Water Line and Existing 8-inch Water Line with 12-inch Water Line along Midland Rd from Knoll Rd to Pee Dee Rd	$ 1,237,600
2023	**North Pressure Zone:** Install 180-ft 1.0 MG North Elevated Storage Tank, 12" water line and Associated Valves	$ 4,749,400
2024	**US 1 Parallel Transmission Main:** Install a 20" water line parallel to the existing 18" transmission main from the US1 BPS to the intersection of US 1 and Saunders Blvd. Replace existing 6" water along the west side of Old US 1 from Murray Hill Rd to Shaw Ave, continuing along S. Bennet St. to the intersection with Morganton Rd.	$ 1,658,700
2025	**US 1 Booster Pump Station Pump Addition:** Addition of 4,500 gpm Pumping Capacity to the US 1 Booster Pump Station	$ 627,600
2027	**Water Treatment Plant Expansion:** Application for Expansion of Licensed Water Treatment Plant Capacity to Plant Design Capacity of 11.0 MGD	$ 137,600
2030	**US15-501 Water Line Replacement**: Replace existing 8-inch waterline with 12-inch waterline along US 15-501/Commerce Avenue from Murray Hill Road to Turner Street.	$ 682,200
2030+	**Pinebluff Parallel Transmission Main:** Install a 30" water line parallel to the existing 18" transmission main between the Water Treatment Plant and the US 1 Booster Pump Station.	$ 20,059,800
GRAND TOTAL		**$ 31,579,500**

6.2 20-YEAR CIP

The 20-year CIP projects resolve existing deficiencies and accommodate anticipated growth. A detailed description of each project is provided below.

Water System CIP

Project 1: East Morganton Road Water Line Replacement (under design)

Project 2: Pennsylvania Avenue/Pee Dee Road Water Line Replacement (under design)

Project 3: Midland Road Water Line Replacement

Project 4 will replace the existing 6-inch and 8-inch water lines along Midland Road with a 12-inch water line from Knoll Road to Pee Dee Road. The water line replacement will reduce high velocities and head losses and increase transmission capacity to the existing Eastman Road EST.

Project 4: North Pressure Zone

Project 4 involves creating a new pressure zone in the northern portion of the Town. The purpose of this project is to reduce the highest pressures in the northern portion of the Town from 154 psi to 131 psi while, at the same time, increasing available fire flows. A new 1.0 MG North Elevated Storage tank will be designed and constructed. In addition, necessary valves will be added and closed to separate the area from the higher pressure Central pressure zone, and a section of 12-inch main will be constructed to serve the elevated storage tank.

Project 5: U.S. 1 Booster Pump Station Pump Addition

Project 5 will add a new 4,500 gpm pump to the U.S. 1 Booster Pump Station. This additional pump provides additional capacity to the Town in support of future growth.

Project 6: U.S. 1 Parallel Transmission Main

Project 6 will construct a new 20” transmission main parallel to the existing 18” transmission main from the US 1 Booster Pump Station to Saunders Blvd. Additionally, the existing 6” water line along the west side of Old US 1 and S. Bennet St between Murray Hill Rd and Morganton Rd will be replaced with a 12” water line. These improvements will provide increased transmission capacity into the system and reduce excessive headloss and velocity in the existing transmission main.

Project 7: Water Treatment Plant Capacity Increase

Project 7 involves a water treatment plant capacity study and application to increase the permitted water treatment plant capacity from 8.0 MGD to the full design capacity of 11.0 MGD. No physical changes to the plant are anticipated. This permitted capacity increase will provide sufficient water supply capacity for the Town through the end of the planning period.

Project 8: US 15-501 Water Line Replacement

Project 8 will replace the existing 8-inch water line along US 15-501/Commerce Avenue with a 12-inch water line from Murray Hill Road to Turner Street. The water line replacement will increase available fire flow west of US 15-501.

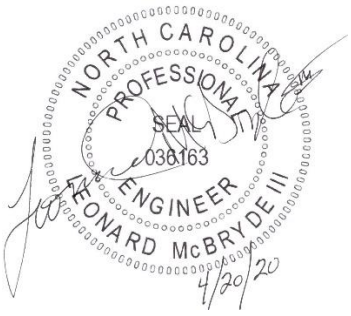
Project 9: Pinebluff Parallel Transmission Main

Project 9 will construct a 30" water transmission main parallel to the existing 18" transmission main between the Water Treatment Plant and the US 1 Booster Pump Station. This parallel line will provide system redundancy and transmission capacity necessary to supply 2040 projected demands.

Wastewater Capital Improvement Plan

Prepared for

Town of Southern Pines



Prepared by:

WITHERSRAVENEL
North Carolina Registered
Engineering Firm C-0832

115 MacKenan Drive
Cary, North Carolina 27511
919-469-3340

WASTEWATER CAPITAL IMPROVEMENTS PLAN

7.0 INTRODUCTION

In 2019, the Town of Southern Pines retained WithersRavenel to develop a Wastewater CIP. The goals of this study were to investigate and analyze the wastewater systems and to recommend a 20-year capital improvement plan (CIP). The recommended improvements will serve as the basis for the design, construction, and financing of facilities required to meet Southern Pines' existing and projected wastewater flows which result from the projected population growth and commercial development. This report will provide the Town with a planning tool that will serve as a guide for short-term and long-term improvements to the wastewater system.

7.1 SCOPE OF WORK

The major elements of the scope of this project include:

- Wastewater Flow Projections
- Wastewater Collection System Growth Model Development and Risk Evaluation
- Wastewater Collection System CIP

The Town's remaining developable land was determined, and a projected flow rate of 220 GPD per ERU was utilized to develop ultimate build-out flow projections. The sewer flow increase was added to the existing sewer flows in each pump station basin. Pump station capacities were compared to the ultimate build-out flows, and only Nick's Creek and Warrior Woods Pump Stations were determined to be undersized at ultimate build-out. All remaining pump stations and gravity sewer lines have adequate capacity to transport anticipated sewer flows. This analysis does not include needed upgrades to Moore County's Southern Pines Pump Station #4, Moore County Sewer Outfall System, or the Moore County Wastewater Treatment Facility.

7.2 LIST OF ABBREVIATIONS

Table 7-1 provides a list of abbreviations used throughout this report and its appendices.

Table 7-1: List of Abbreviations

Abbreviation	Actual
AD	Average Day Demand
cfs	Cubic Feet per Second
CIP	Capital Improvement Plan
DWI	Division of Water Infrastructure
EPS	Extended Period Simulation
ERU	Equivalent Residential Unit
EST	Elevated Storage Tank
GIS	Geographic Information System
gpcd	Gallons per Capita per Day
gpd	Gallons per Day
gpm	Gallons per Minute
gpy	Gallons per Year
GST	Ground Storage Tank
MD	Maximum Day Demand
MG	Million Gallons
MGD	Million Gallons per Day
MHI	Median Household Income
NCDEQ	North Carolina Department of Environmental Quality
N.T.E.	Not to Exceed
O & P	Overhead and Profit
PH	Peak Hour Demand
PRV	Pressure Reducing Valve
psi	Pounds per Square Inch
SCADA	Supervisory Control and Data Acquisition

Abbreviation	Actual
USDA	United State Department of Agriculture
USGS	United States Geological Survey
WTP	Water Treatment Plant

8.0 WASTEWATER FLOWS

Reviewing historical sewer flows provides insight into the Town's sewer system operation limits. Average monthly sewer flow is 50.2 MG. The calculated base flow is 42.2 MG per month, and the peak monthly flow has reached 60.1 MG per month. Average daily sewer flow is 220 GPD per household. The sewer system experiences extraneous flows during wet weather events. System-wide, average flows of 1,319 GPD/IDM and 1,552 GPD/IDM are experienced during wet weather events.

Methodology for projecting future sanitary sewer flows through buildout involved first determining the remaining property available for development. All property with existing structure value was omitted from future growth. All remaining property intersecting stream buffers, wetlands, flood plain, and conservation easement were removed. The remaining property is considered "developable" and the current land use was applied to calculate maximum Equivalent Residential Units (ERUs). Maximum ERU was reduced by 25% to allow for open space, streets, and ROW. The remaining ERU represents the maximum build out of the remaining developable property. The future flow projections were based on 220 GPD per ERU.

The future flow projections and remaining developable property for each sewer sub-basin are summarized in **Table 8-1.**

Table 8-1: Summary of Developable Land and Future Flow by Sewer Sub-Zones

	Aiken Road	ARO	Bell Meade	Bethesda & Maples	Bethesda & Ridgeview	Cypress Creek (200 Re-Development)	Middleton Place	Moore County Interceptor	Muster Branch	Nicks Creek	Pee Dee Road	Spring & Country Club Circle	Spring & South Valley	Warrior Woods	Weymouth Pines	Sum by Row
ERU Subtotal	18.81	Industrial	0	0.97	7.57	225.61	69.59	2,641.35	41.61	1,101.95	59.44	32.91	0.62	1,414.05	1.68	5,616
Population Subtotal	42.33	Industrial		2.19	17.02	507.63	156.51	5,943.03	93.61	2,479.40	133.73	74.05	1.39	3,181.61	3.77	12,636.27
Total Basin Acres	110	34.70	120.85	60.19	82.70	79.22	42.70	3,341.19	53.10	1,486.43	467.77	52.90	52.70	882.45	11.2	6,878.1
Developable Acres	12.58	17.33	0.20	2.59	3.91	190.1	24.31	574.15	5.84	480.41	19.89	3.36	0.32	325.5	.87	1,661.36
Gallons Per Day (GPD)	4,139	Industrial	96	214	1,664	49,634	15,303	581,097	9,153	242,430	13,076	7,241	136	311,091	368.98	1,235,642.98

8.1 EXISTING WASTEWATER FLOWS

The Town of Southern Pines doesn't currently have SCADA information available for all lift stations. A SCADA implementation is planned for 2020-2021. However, based on limited run time information, and future flow projections, only three (3) sewer lift stations were identified for potential future capacity upgrades. The three (3) sewer lift stations are: Warrior Woods (currently being upgraded), ARO (currently in design for future upgrade), and Nick's Creek Sewer Lift Station.

Nick's Creek Lift Station run time data included a period of 347 days, broken down by the total hours for each pump. Based upon the data, the existing outfall and lift station average daily flow (ADF) is 59,419 gallons per day gpd or 41 gpm. The ADF calculation is detailed in **Table 8-2** below.

Table 8-2: Nick's Creek Average Daily Flow from Run Times

Pump	Total Run Time for Time Period (Hrs)	Total Run Time for Time Period (Min)	Pumping Rate (gpm)	Total Gallons per Time Period (gal)	Time Period (days)	Average Daily Flow for Time Period (gpd)	Average Daily Flow for Time Period (gpm)
1	293.3	17,598	400	7,039,200	347	20,285	14
2	316.9	19,014	400	7,605,600	347	21,918	15
3	248.9	14,934	400	5,973,600	347	17,214	12
Totals	**859**	**51,546**		**20,618,400**		**59,419**	**41**

A 2018 Report by McAdams showed that Frazier Engineering was subcontracted to install a temporary flow monitor in the manhole on the Warrior Woods outfall where the Nicks Creek Lift Station Force Main discharges. The flow was monitored for 31 days, and the results showed that the Nicks Creek Lift Station had an ADF of 69,000 gpd or 48 gpm during the monitoring period. For conservative purposes, the higher ADF of 48 gpm, based on flow monitoring, will be taken as the existing ADF for this study.

8.2 PROJECTED NICK'S CREEK WASTEWATER FLOWS

The projected additional ERUs for Ultimate Buildout is 1,102 per the CIP. Using 220 gpd for each additional ERU, the additional flow to Ultimate Buildout will 242,430 gpd or 168 gpm. The Ultimate Buildout ADF will be the existing flow of 69,000 gpd or 48 gpm plus the projected additional flow for Ultimate Buildout of 242,430 gpd or 168 gpm that gives a total Ultimate Buildout ADF of 311,430 gpd or 216 gpm.

Utilizing the 2% growth rate the town provided, the ADF was projected yearly until the Ultimate Buildout was meet. It was determined that the Nicks Creek Lift Station force main will need to be upgraded when

the ADF reaches approximately 401,000 gpd or 279 gpm and the lift station, per NCDEQ requirements will need to be upgraded when the ADF reaches 230,921 gpd or 160 gpm.

Table 8-3 below shows the projected future wastewater flows for Nick's Creek basin.

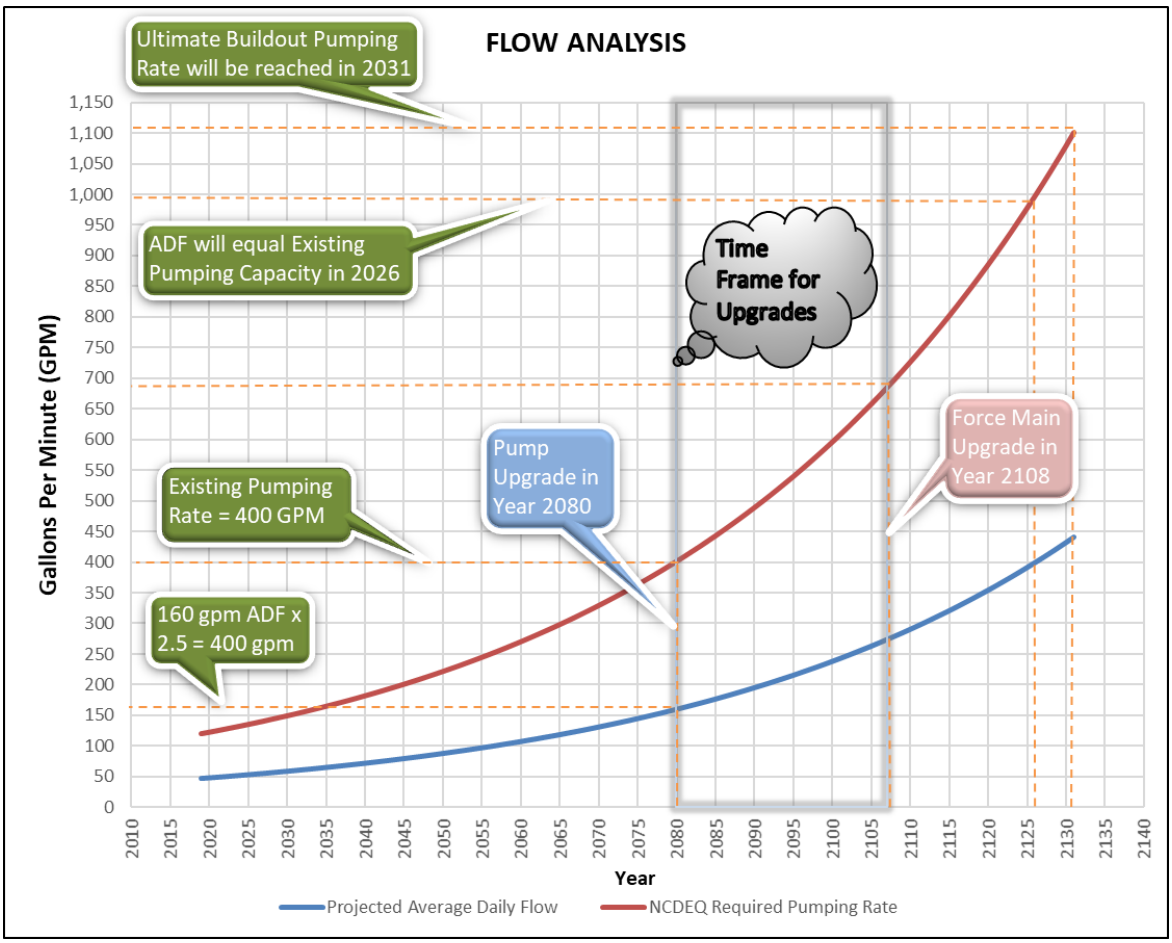
Table 8-3: Projected Nick's Creek Wastewater Flows

Year	Flow (gpm)	Flow (gpd)	Peak Flow 2.5 Multiplier (gpm)
2019	48	69,000	120
2020	49	70,380	122
2025	54	77,706	135
2030	60	85,793	149
2035	66	94,723	164
2040	73	104,582	182

North Carolina Department of Environmental Quality (NCDEQ) "Minimum Design Criteria for the Permitting of Pump Stations and Force Mains" reads:

> The peak flow can be calculated with the equation $PF = \frac{18 + \sqrt{P_{Thousands}}}{4 + \sqrt{P_{Thousands}}}$ if you know the population of the service basin. In no case shall a peaking factor less than 2.5 be used to calculate peak hourly wastewater flows for any lift station.

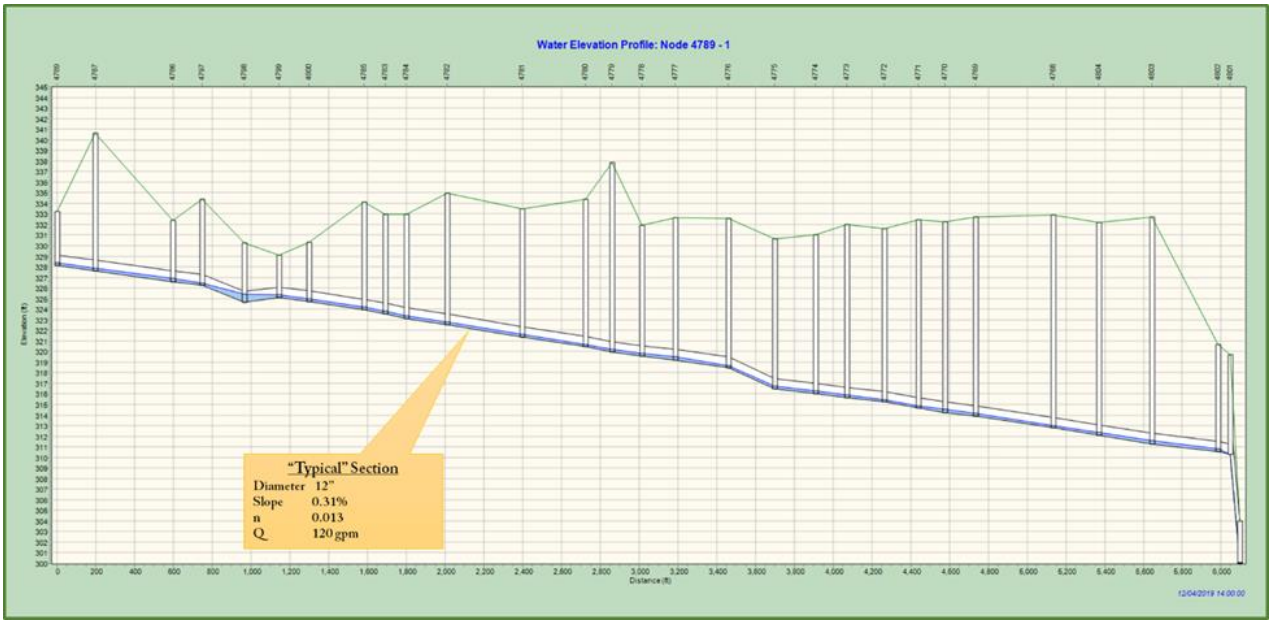
Figure 8-1: Nick's Creek Basin Flow Analysis



8.3 OUTFALL ANALYSIS

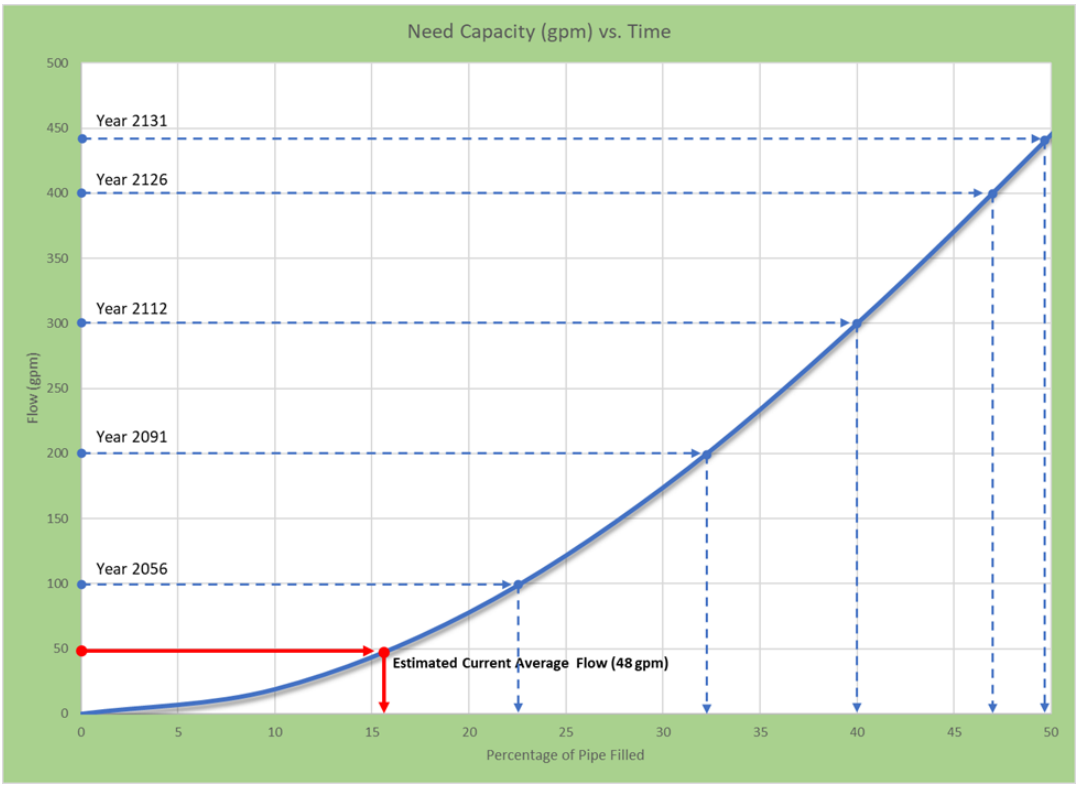
Figure 8-2 shows the profile of the existing Nick's Creek Outfall leading into the Nick's Creek Lift Station. The pipe profile information is based on the data shown in the Southern Pines GIS database. It is unknown as to whether or not the reverse grade shown between manholes 4798 and 4799 is correct. The "typical" section shown was selected to eliminate the backwater effects upstream of the possible depressed sewer section and it is representative of the general slope of the outfall.

Figure 8-2: Nick's Creek Outfall Profile



The NC minimum design criteria for gravity sewers recommends sizing a pipe to flow approximately one-half full at the average daily flow. Using this criterion, **Figure 8-3** below was prepared showing the relationship between the percentage of filled pipe (0 to 50%) and the corresponding flow capacity in gpm. Based on the future flow predictions, the chart shows the approximate time when the ½ pipe average daily flows will be attained. Based on the assumed 2% growth rate, the average daily flow will be at half pipe in excess of 100 years.

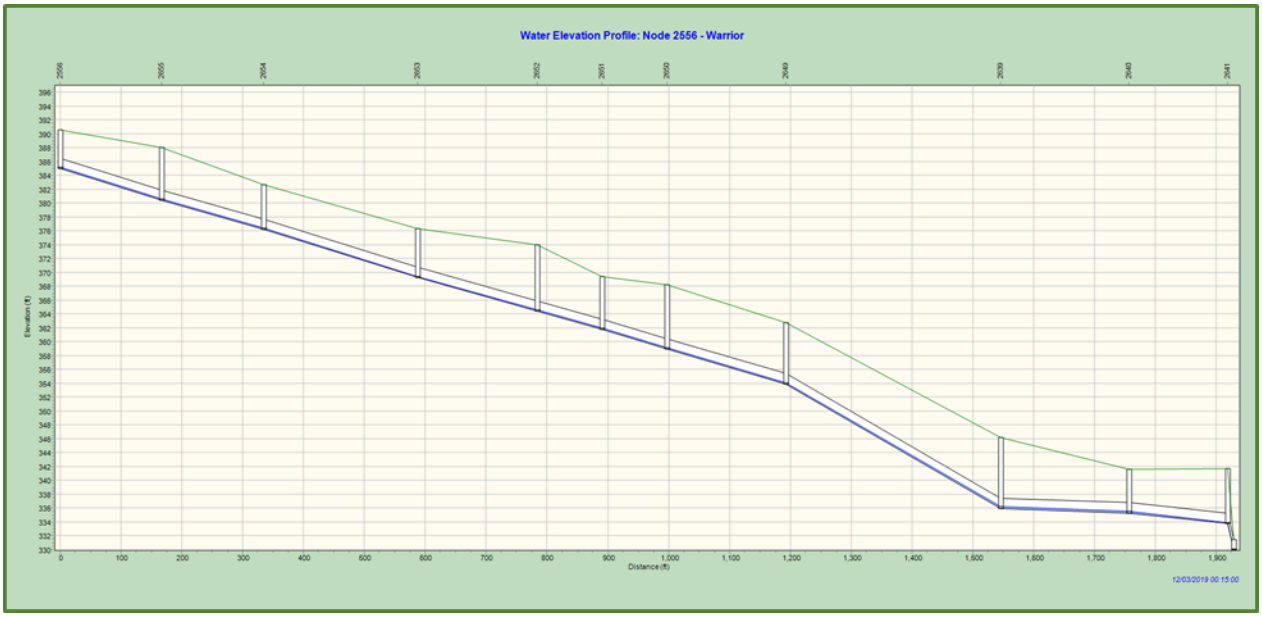
Figure 8-3: Nick's Creek Outfall Percentage Filled



8.4 RECEIVING OUTFALL ANALYSIS

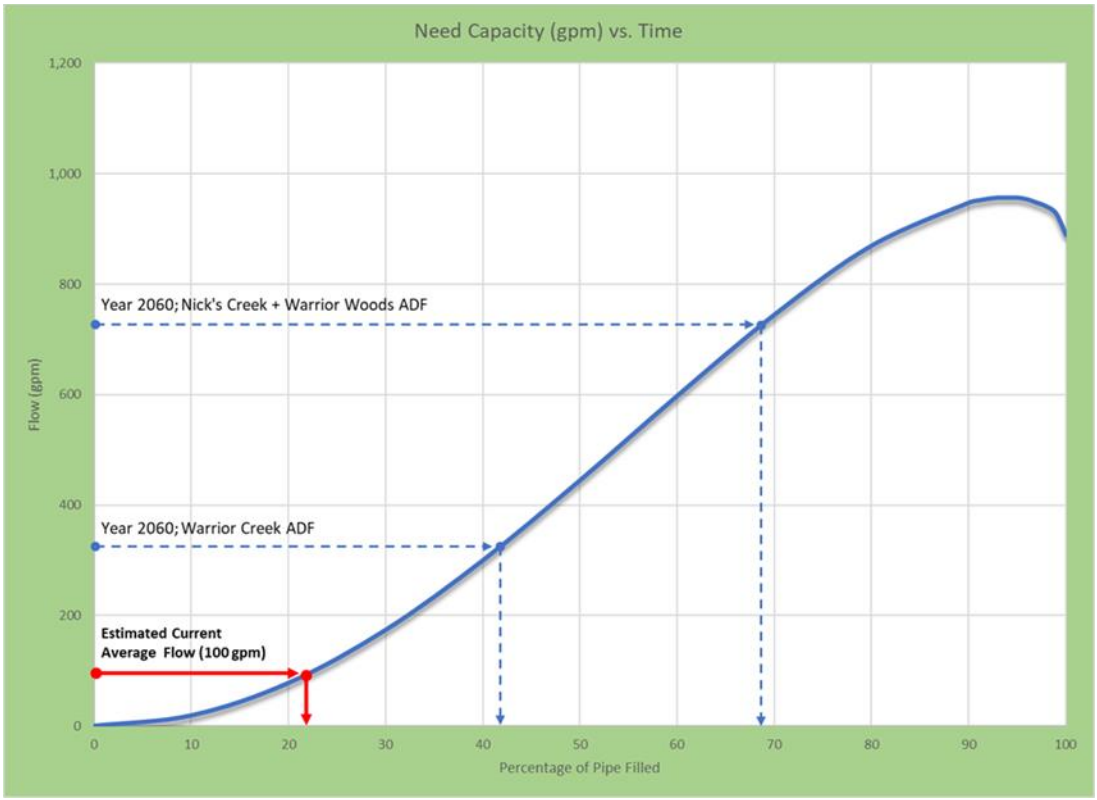
Figure 8-4 shows the profile of the existing Warrior Woods Outfall, where the Nicks Creek Lift Station discharges, leading into the Warrior Woods Lift Station. The pipe profile information is based on the data shown in the Southern Pines GIS database. The critical section for the Warrior Woods outfall lies between MH 3629 and MH 2640. The line is relative flat with an estimated grade of 0.31%, coincidentally the same as the Nick's Creek outfall.

Figure 8-4: Warrior Woods Outfall



The Warrior Woods outfall sees two operating conditions depending on whether the Nick's Creek pump station is operating. **Figure 8-5** illustrates these conditions.

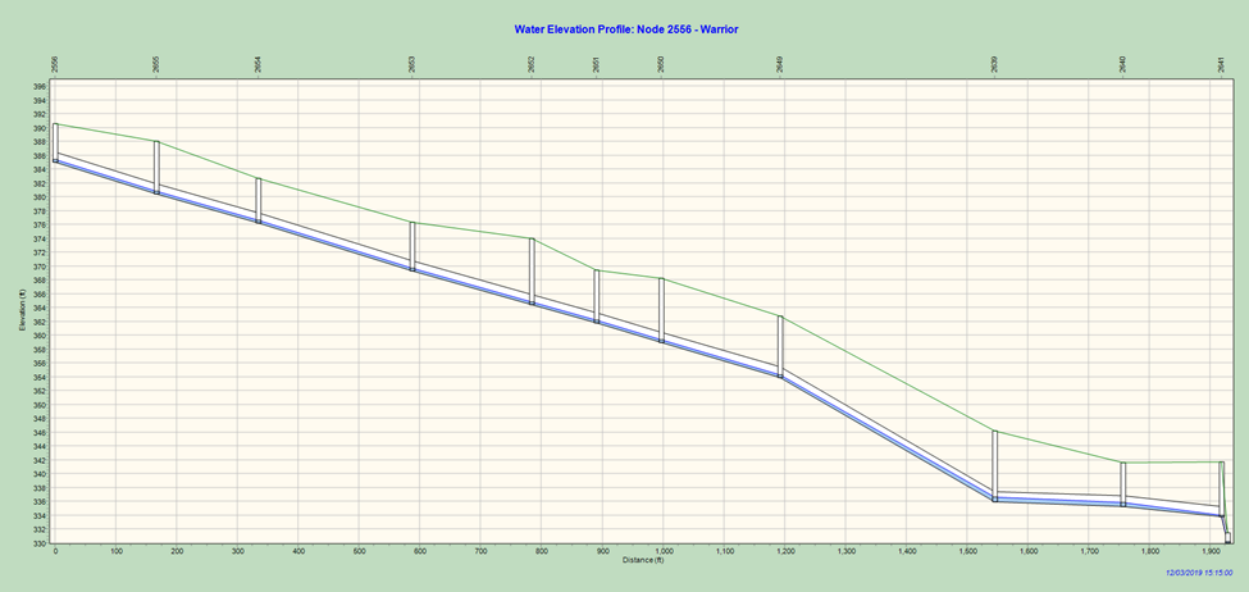
Figure 8-5: Warrior Woods Outfall Capacity



At the end of the 20-year CIP planning horizon (2040), Warrior Woods will safely handle the Nick's Creek Lift Station discharge plus the Warrior Woods expected ADF.

The worst expected case in 2060 will be Warrior Woods Lift Station experiencing its expected peak flow (gravity alone) of 812 gpm (325 gpm * 2.5) plus the Nick's Creek Lift Station discharge of 400 gpm, for a total of 1,212 gpm. **Figure 8-6** shows the sewer operating in this condition. The flow will still be fully contained. The difference between **Figure 8-6** and **Figure 8-5**, which shows an upper limit on the pipe capacity as being about 950 gpm, is the fact that the steep approach results in a significant portion of the overall hydraulic grade being due to the velocity of the flow.

Figure 8-6: 2060 Warrior Woods Outfall Profile



8.5 WARRIOR WOODS EVALUATION

The existing Warrior Woods pump station has a capacity of 1,020 gpm. The wastewater evaluation identified future capacity deficiencies with the existing Warrior Woods Pump Station as future development increases flows to the pump station. A 2018 Report by McAdams identified the need for increased pumping capacity (2,850 gpm at ultimate buildout) to convey future projected buildout flows.

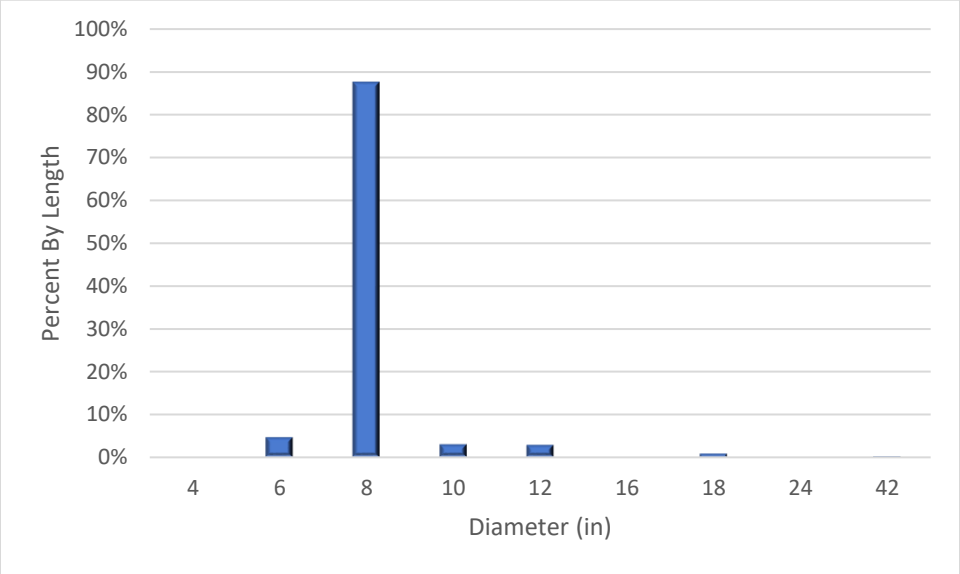
Recommended improvements to convey future buildout flows in the Warrior Woods PS Basin include a new parallel 12" force main to the junction with the existing 14" force main. Replacement of the existing 10" force main with a new 12" force main and replacement of a section (950 LF) of the existing 14" force

main. A new wet pit/dry pit 2,850 gpm pump station and installation of a new 12” force main parallel to the existing 14” force main.

9.0 EXISTING WASTEWATER SYSTEM

The Town's sewer collection system consists of 147.16 miles of gravity lines, 3,612 manholes, 19 sewer pump stations, and 16 miles of sewer force main. Pipeline diameters range in size from 2-inch to 24-inches. **Figure 9-1** summarizes the gravity sewer pipes by diameter.

Figure 9-1: Summary of Gravity Sewer Pipes by Diameter



10.0 RISK EVALUATION

WithersRavenel performed a risk evaluation of the Town's gravity sewer pipes. The likelihood of failure and consequence of failure scoring criteria used for the evaluation are summarized in **Table 10-1**.

Table 10-1: Risk Evaluation Scoring Criteria

Category	Weighting	Parameter	Criteria	Points
Likelihood of Failure	20%	Material	Cast Iron, Ductile Iron, Unknown, Other	1
			CIPP, HDPE, PVC	0.25
			Clay, Iron	2
			Truss	1.5
	40%	Age	0-20	0.5
			20-40	1
			40-60	2
			60-80	3
			80-100	4
	30%	Maintenance History (M311)	Yes	3
			No	1
	10%	Trees		1
Consequence of Failure	40%	Under Pavement	Major Access Road	4
			Under Pavement	2
			Near Pavement	1
			In ROW	0
	40%	Near Stream	0-25 ft	4
			25-50 ft	2
			50-100 ft	1
	20%	Capacity	Lower System	2
			Mid-System	1
			Upper System	0.5
			Minimal Collection	0

The matrix in **Figure 10-1** summarizes the risk scorings by linear feet of gravity sewer pipe. **Table 10-2** summarizes the risk results by category (sum of length) and the estimated costs to rehabilitate or replace each category. Based on the results of the risk evaluation, an annual budget of $400,000 (2020 Dollar Value) is recommended for rehabilitation of the existing sanitary sewer gravity system.

Figure 10-1: Risk Evaluation Matrix Summary by Linear Feet

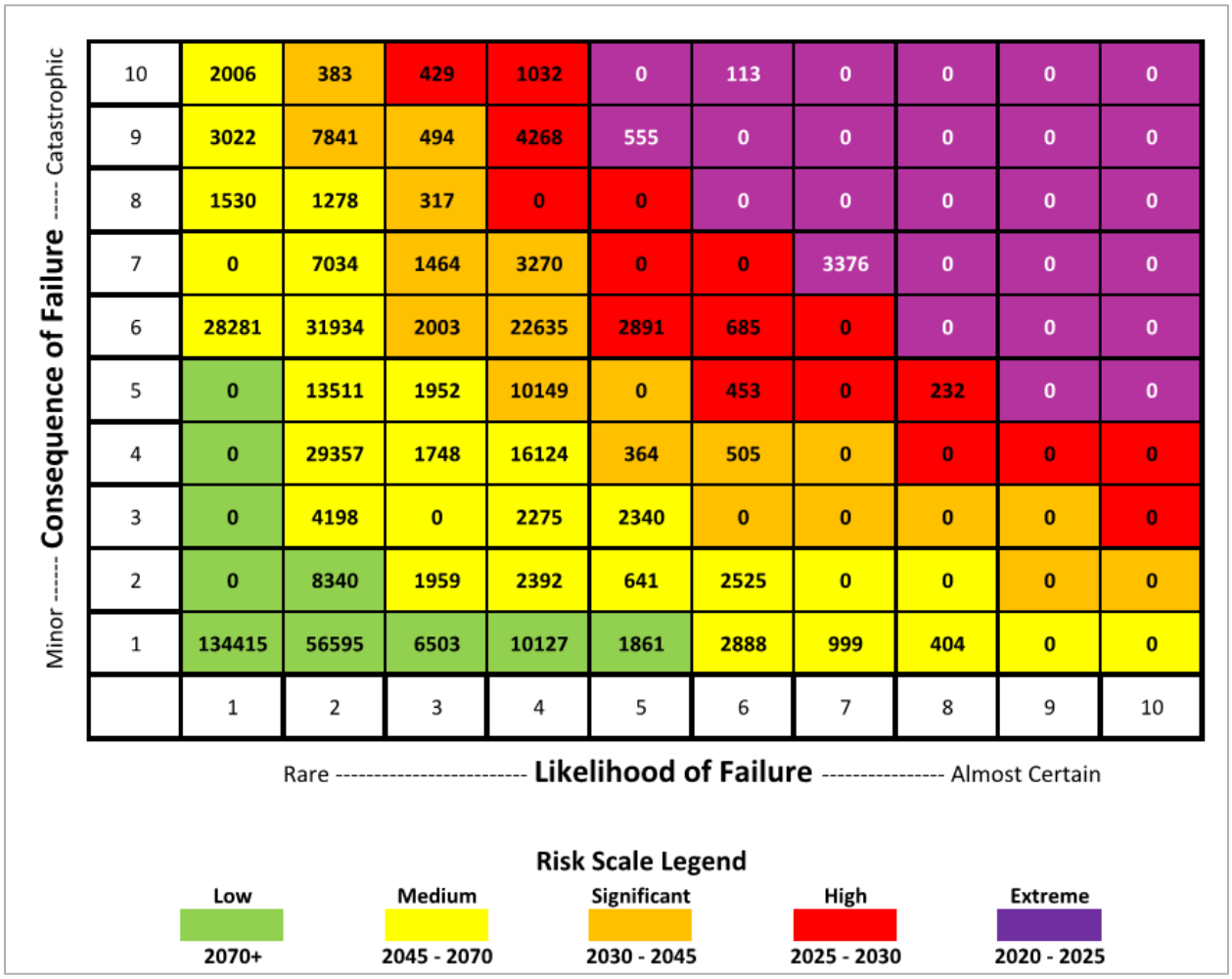


Table 10-2: Risk Evaluation Summary

Risk Category	Sum of Length	Sum of inch-foot	Sum of Replacement Cost	Sum of Rehab Costs
Purple	6,910	55,090	$ 1,267,067	$ 826,348
Red	10,589	88,010	$ 2,024,224	$1,320,146
Orange	48,584	391,973	$ 9,015,382	$5,879,597
Yellow	185,561	1,587,221	$ 36,506,084	$23,808,316
Green	525,363	4,659,353	$ 107,165,119	$69,890,295
Grand Total	**777,007**	**6,781,647**	**$ 155,977,877**	**$101,724,702**

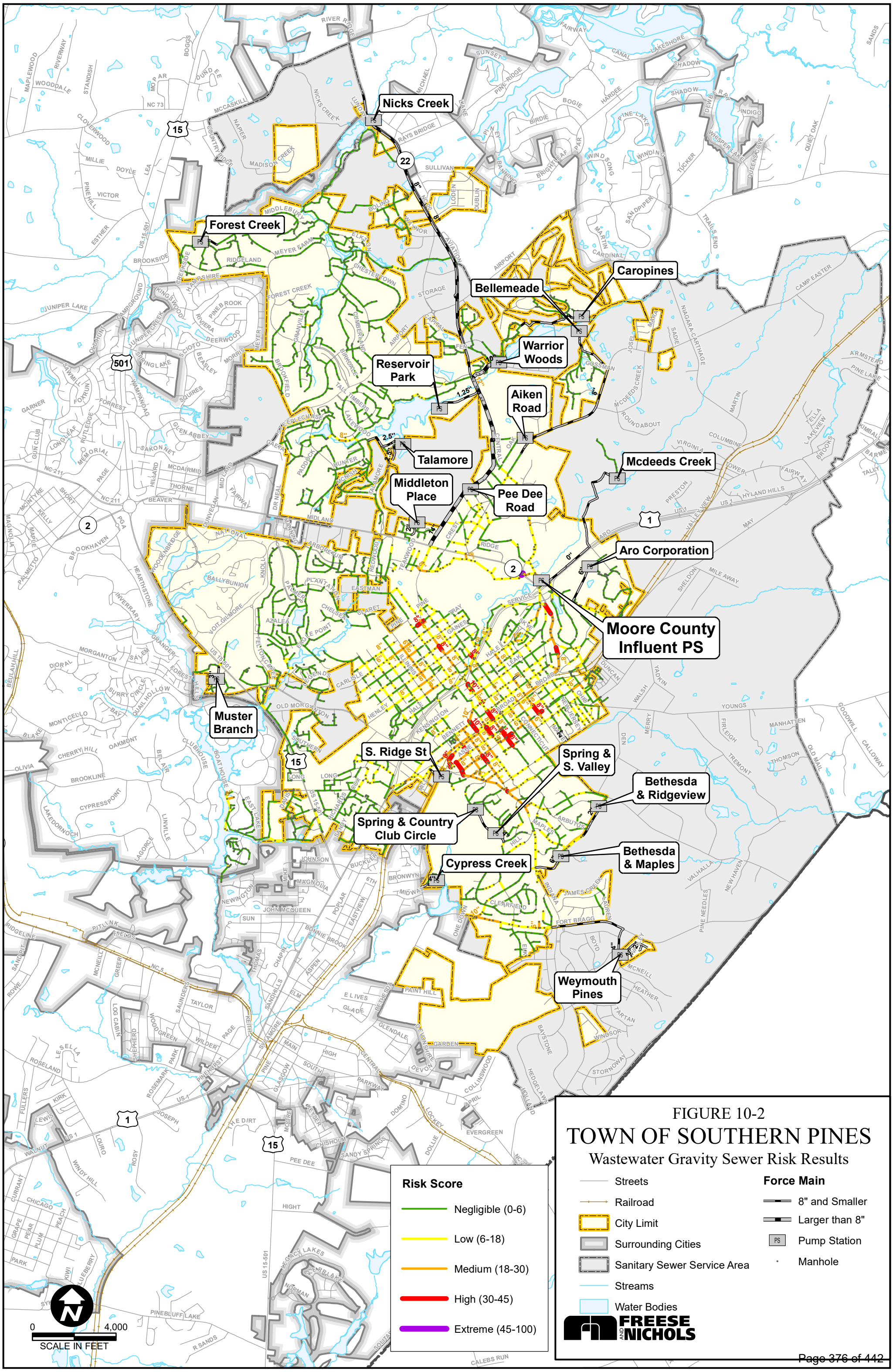


FIGURE 10-2

TOWN OF SOUTHERN PINES

Wastewater Gravity Sewer Risk Results

- Streets
- Railroad
- City Limit
- Surrounding Cities
- Sanitary Sewer Service Area
- Streams
- Water Bodies

Force Main

- 8" and Smaller
- Larger than 8"
- PS Pump Station
- Manhole

FREESE AND NICHOLS

11.0 WASTEWATER CAPITAL IMPROVEMENT PLAN

Table 11-1: Wastewater Collection System CIP

	Proj. No.	Project Description	Project Cost
2020 - 2025	1A**	**Warrior Woods PS Upgrades Phase IA**: Install new generator and parallel 12" DI force main (1,481 LF); Replace Ex. 10" FM with 12" DI FM (5,250 LF); Replace portion of existing 14" FM with new 14" DI FM (784 LF)	$650,900
	1B	**Warrior Woods PS Upgrades Phase IB:** Install Parallel 12" DI FM (3,769 LF), Parallel 14" DI FM (166 LF),Replace 10" PVC FM with 12" DI FM (5,250 LF)	$1,108,700*
	2	**Warrior Woods PS Upgrade Phase II:** Construct new 1,500 gpm wet pit/ dry pit pump station (expandable to 2,850 gpm)	$3,220,000*
	6***	**ARO Lift Station Sewer Replacement:** Upgrade the lift station design to bring the station into compliance with modern regulatory requirements and correct the station deficiencies.	$410,000
	7***	**Sewer Lift Station SCADA:** This project will help identify operational issues, areas of high I&I, verify sewer volumes at billing locations, and facilitate future projects related to identified problems and growth.	$300,000
	8***	**W. New York Aerial Sewer Repair:** Replacement of a Town 10" gravity sewer currently installed adjacent to McDeeds Creek running along W. New York Ave.	$350,000
	9***	**Sewer Lift Station Emergency Backups:** This project will expand the emergency backups to 4 additional permanent installations, replace 2 old gas powered generators, and purchase 2 new portable emergency station backups	$435,000
	10***	**Longleaf Dam Sewer Rehabilitation:** Replacement of a Town aerial sewer main currently installed in the face of a private dam located on the Longleaf Golf Course.	$420,000
Total 2020-2025			**$6,894,600**
2025 - 2030	3	**Warrior Woods PS Upgrade Phase III:** Expand pump station from 1,500 gpm to 2,850 gpm; Install parallel 12" DI force main (9,400 LF)	3,036,300*
Total 2025 - 2030			**$3,036,300**
		Capacity CIP Total	**$9,930,900**
2020-2040	4	**Annual Rehabilitation of Existing Gravity Sewer**	$10,748,200
		Rehabilitation and Capacity CIP Grand Total	**$20,679,100**

* Base project costs taken from the *2018 Warrior Woods Preliminary Engineering Report and Master Plan* by McAdams.

** *Project 1 is formatted in grey text color to differentiate it as "currently under construction."

***Information for Projects 6-10 were provided by the Town.

Wastewater System CIP

The following project descriptions are taken from the 2018 Warrior Woods Preliminary Engineering Report and Master Plan by McAdams.

Projects 1 and 2: Warrior Woods PS Upgrades Phase I

Project 1 includes replacing the existing 10" PVC force main with a 12" ductile iron force main (5,250 LF), installing a parallel 12" ductile iron force main (5,250 LF), and replacing the upstream portion of the existing 14" PVC force main with a 14" ductile iron force main (950 LF). Additionally, installation of a new generator sized to handle projected future electrical loading is recommended to replace the existing generator which is currently undersized. This project has been broken into 2 separate phases, IA and IB. Phase IA is currently under construction.

Project 3: Warrior Woods PS Upgrades Phase II

Project 2 involves design and construction of a new wet pit/dry pit pump station, adjacent to the existing pump station. The proposed pump station will be initially sized for 1,500 gpm capacity, with the ability to be expanded to the ultimate projected buildout capacity of 2,850 gpm. Note- It is assumed that the Town of Carthage will no longer be using the existing 14" force main.

Project 4: Warrior Woods PS Upgrades Phase III

Project 3 involves expanding the Warrior Woods PS from 1,500 gpm to 2,850 gpm by adding additional pumps and potentially modifying existing pumps (changing impellers, if needed). Before increasing pumping beyond 1,500 gpm, a parallel 12" ductile iron force main is required (9,400 LF). Note- It is assumed that the Town of Carthage will no longer be using the existing 14" force main.

Project 5: Annual Rehabilitation of Existing Gravity Sewer

An annual gravity sewer rehabilitation plan is recommended to maintain the Town's existing gravity sewer assets, reduce unexpected maintenance costs, reduce sanitary sewer overflows, and reduce infiltration and inflow into the collection system. The recommended annual investment is $400K.

Project 6: ARO Lift Station Replacement

The 2015 Sewer Lift Station Assessment noted several regulatory and operational deficiencies at the ARO lift station. This project will upgrade the lift station design to bring the station into compliance with modern regulatory requirements and correct the station deficiencies including an increasing inability to locate replacement parts.

Project 7: Sewer Lift Station SCADA

The Sewer Lift Station SCADA project will upgrade stations with remote monitoring and telemetry systems.

Project 8: W. New York Aerial Sewer Repair

A Town 10" gravity sewer is currently installed adjacent to McDeeds Creek running along W. New York Ave. The creek bank is continuing to see degradation and erosion of the banks threatening the sewer main This project will take measures to protect the sewer main from the failing bank.

Project 9: Sewer Lift Station Emergency Backups

The Town currently operates 19 sewer lift stations. 9 of these lift stations have permanent installed emergency backups which requires Town staff to rotate 4 portable generators to the remaining 12 stations during power outages and extreme weather events. This project will expand the emergency backups to 4 additional permanent installations, replace 2 old gas-powered generators, and purchase 2 new portable emergency station backups

Project 10: Longleaf Dam Sewer Relocation

A Town aerial sewer main is currently installed in the face of a private dam located on the Longleaf Golf Course. Due to poor maintenance of the dam the sewer main has been damaged in the past. This project will relocate the sewer away from the dam.

Project 1, Ph. IA
New Generator
Parallel 12" FM (1,481 LF)
Replace 784LF of Ex. 14" FM

Project 2, Ph. IB
Parallel 12" FM (3,769 LF)
Replace 166LF of Ex. 14" FM
Replace Ex. 10" FM w/ 12" DI FM

Project 3
New 1,500 gpm PS
(expandable to 2,850 gpm)

Project 4
Expand PS to 2,850 gpm

Project 4
Install Parallel 12"
DI force main

Project 6
ARO LS Replacement

Project 8
W. New York
Aerial Sewer Repair

Project 10
Longleaf Dam
Sewer Rehabilitation

System-Wide Projects

7 — **Project 7**
Sewer Lift Station
SCADA

9 — **Project 9**
Sewer Lift Station
Emergency Backups

Proposed CIP Projects
- 2020 PS
- 2020 Gravity Main
- 2020 Force Main
- 2025 Force Main

0 4,000
SCALE IN FEET

FIGURE 11-1
TOWN OF SOUTHERN PINES
Wastewater Collection System CIP

- Streets
- Railroad
- City Limit
- Surrounding Cities
- Sanitary Sewer Service Area
- Streams
- Water Bodies

Force Main
- 8" and Smaller
- Larger than 8"

Gravity Sewer
- 8" and Smaller
- Larger than 8"
- Pump Station
- Manhole

FREESE AND NICHOLS

APPENDIX A:
Water Capital Improvement Plan Projects

Town of Southern Pines Recommended Capital Improvement Plan

Planning Period

		2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Beyond	Project Totals
WATER CIP PROJECTS													
1	E. Morganton Waterline Replacement	$ 468,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 468,800**
2	Penn./Pee Dee Watermain Improvements	$ 1,957,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 1,957,800**
3	Midland Road Water Line Replacement	$ -	$ -	$ -	$ 648,100	$ 589,500	$ -	$ -	$ -	$ -	$ -	$ -	**$ 1,237,600**
4	North Pressure Water Zone	$ -	$ -	$ -	$ 40,000	$ 1,648,400	$ 2,561,000	$ 500,000	$ -	$ -	$ -	$ -	**$ 4,749,400**
5	US 1 Parallel Transmission Main	$ -	$ -	$ -	$ -	$ 213,200	$ 877,800	$ 567,700	$ -	$ -	$ -	$ -	**$ 1,658,700**
6	US1 Booster Pump Station Pump Addition	$ -	$ -	$ -	$ -	$ -	$ 627,600	$ -	$ -	$ -	$ -	$ -	**$ 627,600**
7	Water Treatment Plant Expansion	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 137,600	$ -	$ -	$ -	**$ 137,600**
8	US15-501 Water Line Replacement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 682,200	**$ 682,200**
9	Pinebluff Parallel Transmission Main	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,059,800	**$ 20,059,800**
	Yearly Water Subtotal	**$ 2,426,600**	**$ -**	**$ -**	**$ 688,100**	**$ 2,451,100**	**$ 4,066,400**	**$ 1,067,700**	**$ 137,600**	**$ -**	**$ -**	**$ 20,742,000**	**$ 31,579,500**
WATER TREATMENT PLANT PROJECTS (from SUEZ Evaluation)													
1	Upflow Clarifier Blower Replacement	$ 28,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 28,000**
2	Sludge Dewatering Expansion	$ -	$ -	$ 200,000	$ 1,313,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 1,513,000**
3	Filter Improvements	$ 490,000	$ 50,000	$ 537,000			$ -	$ -	$ -	$ -	$ -	$ -	**$ 1,077,000**
4	Raw Water Main Replacement	$ -	$ -	$ -	$ -	$ -	$ -	$ 250,000	$ 250,000	$ 2,625,000	$ 2,625,000	$ -	**$ 5,750,000**
	Yearly WTP Subtotal	**$ 518,000**	**$ 50,000**	**$ 737,000**	**$ 1,313,000**	**$ -**	**$ -**	**$ 250,000**	**$ 250,000**	**$ 2,625,000**	**$ 2,625,000**	**$ -**	**$ 8,368,000**
WASTEWATER PROJECTS													
2	Warrior Woods PS Upgrade Phase IB	$ -	$ 123,900	$ 984,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 1,108,700**
3	Warrior Woods PS Upgrade Phase II	$ -	$ -	$ -	$ -	$ 375,000	$ 1,845,000	$ 1,000,000	$ -	$ -	$ -	$ -	**$ 3,220,000**
4	Warrior Woods PS Upgrade Phase III	$ -	$ -	$ -	$ -	$ -	$ -	$ 327,300	$ 1,727,000	$ 982,000	$ -	$ -	**$ 3,036,300**
5	Annual Rehabilitation	$ 400,000	$ 412,000	$ 424,360	$ 437,091	$ 450,204	$ 463,710	$ 477,621	$ 491,950	$ 506,708	$ 521,909	$ 6,162,600	**$ 10,748,200**
6	ARO Sewer Lift Station Replacement	$ 410,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 410,000**
7	Sewer Lift Station SCADA	$ 300,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 300,000**
8	W. New York Aerial Sewer Repair	$ 350,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 350,000**
9	Sewer Lift Station Emergency Backups	$ 230,000	$ 205,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 435,000**
10	Longleaf Dam Sewer Relocation	$ -	$ 50,000	$ 370,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 420,000**
	Yearly Wastewater Subtotal	**$ 1,690,000**	**$ 790,900**	**$ 1,779,160**	**$ 437,091**	**$ 825,204**	**$ 2,308,710**	**$ 1,804,921**	**$ 2,218,950**	**$ 1,488,708**	**$ 521,909**	**$ 6,162,600**	**$ 20,028,200**
	OVERALL CIP TOTAL	**$ 4,634,600**	**$ 840,900**	**$ 2,516,160**	**$ 2,438,191**	**$ 3,276,304**	**$ 6,375,110**	**$ 3,122,621**	**$ 2,606,550**	**$ 4,113,708**	**$ 3,146,909**	**$ 26,904,600**	**$ 59,975,700**

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**
Construction Project Number: 1 — **Phase: 2020-2025**

Project Name: East Morganton Road Waterline Replacement

Project Description:

Replace existing 6-inch waterline with 12-inch waterline along Morganton Road from Ridge Street to Valley Road.

Vicinity Map

Project Justification:

This project will increase transmission capacity to the eastern area of the water system and improve an area of low water pressure south of the Weymouth Woods pressure zone. Additionally, this project will eliminate an existing 6" bottleneck in the system.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	12" WL & Appurtenances	1,750	LF	$ 96	$ 168,000
2	12" Gate Valve	8	EA	$ 3,000	$ 24,000
3	20" Boring and Casing	100	LF	$ 350	$ 35,000
4	Water Service	10	EA	$ 1,500	$ 15,000
5	Fire Hydrant Assembly	3	EA	$ 6,000	$ 18,000
6	16" TS&V	1	EA	$ 20,000	$ 20,000
7	6" TS&V	4	EA	$ 4,000	$ 16,000
8	Miscellaneous Restoration	1,750	LF	$ 10	$ 17,500
9	Pavement Repair	1	LS	$ 86,900	$ 86,900

Phase	2020-21	2021-22	2022-23	2023-24	2024-25
Topographic Survey	$ -	$ -	$ -	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ -	$ -
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ -
Construction	$ 468,800	$ -	$ -	$ -	$ -
Total	$ 468,800	$ -	$ -	$ -	$ -

SUBTOTAL:		**$ 400,400**
CONTINGENCY	30%	$ 7,200
SUBTOTAL:		**$ 407,600**
ENG/SURVEY	15%	$ 61,200
SUBTOTAL:		**$ 468,800**
Estimated Project Total:		**$ 468,800**

Town of Southern Pines

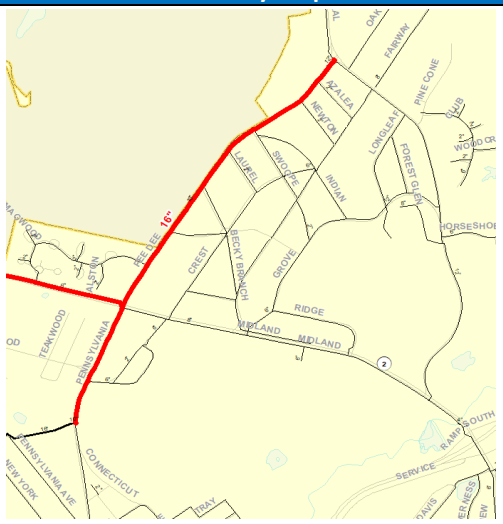
Capital Improvement Cost Estimate — **Costs are based on project initiation year**
Construction Project Number: 2 — **Phase: 2020-2025**

Project Name: Pennsylvania Ave/Pee Dee Road Waterline Replacement

Project Description:

Replace existing 10-inch waterline with 16-inch water line along Pennsylvania Ave/Pee Dee Road from Connecticut Ave to Central Drive.

Vicinity Map



Project Justification:

This project will reduce headloss and increase transmission capacity to the northern area of Town where much of the future growth is expected.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	16" WL & Appurtenances	7,100	LF	$ 128	$ 908,800
2	16" Gate Valve	8	EA	$ 8,000	$ 64,000
3	32" Boring and Casing	100	LF	$ 560	$ 56,000
4	Water Service	25	EA	$ 1,500	$ 37,500
5	Fire Hydrant Assembly	16	EA	$ 6,000	$ 94,667
6	16" TS&V	1	EA	$ 20,000	$ 20,000
7	12" TS&V	1	EA	$ 17,500	$ 17,500
8	6" TS&V	10	EA	$ 4,000	$ 40,000
9	Miscellaneous Restoration	7,100	LF	$ 10	$ 71,000
				SUBTOTAL:	**$ 1,309,500**
				CONTINGENCY 30%	$ 392,900
				SUBTOTAL:	**$ 1,702,400**
				ENG/SURVEY 15%	$ 255,400
				SUBTOTAL:	**$ 1,957,800**
				Estimated Project Total:	**$ 1,957,800**

Phase	2020-21	2021-22	2022-23	2023-24	2024-25
Topographic Survey	$ -		$ -	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ -	$ -
Land/Easement Acquision	$ -		$ -	$ -	$ -
Construction	$ 1,957,800	$ -	$ -	$ -	$ -
Total	$ 1,957,800	$ -	$ -	$ -	$ -

Comments:

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**
Construction Project Number: 3 — **Phase: 2020-2025**

Project Name: Midland Road Water Line Replacement

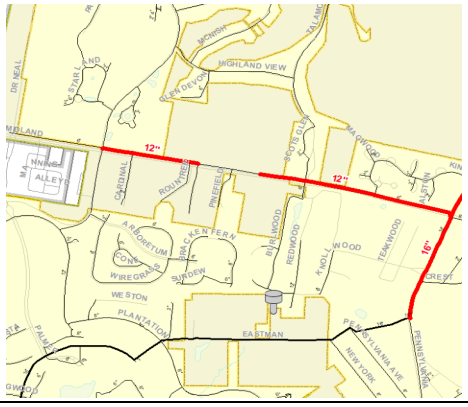
Project Description:

Replace existing 6-inch waterline and 8-inch waterline with 12-inch waterline along Midland Road from Knoll Road to Pee Dee Road.

Project Justification:

The water line replacement will reduce high velocities and head losses and increase transmission capacity to the existing Eastman Road EST.

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	12" WL & Appurtenances	6,400	LF	$ 96	$ 614,400
2	12" Gate Valve	7	EA	$ 3,000	$ 21,000
3	Fire Hydrant Assembly	10	EA	$ 6,000	$ 60,000
4	Miscellaneous Restoration	6,400	LF	$ 10	$ 64,000

Phase	2020-21	2021-22	2022-23	2023-24	2024-25
Topographic Survey	$ -	$ -	$ -	$ 20,000	$ -
Engineering Design	$ -	$ -	$ -	$ 128,100	$ -
Land/Easement Acquision	$ -	$ -	$ -	$ 20,000	$ -
Construction	$ -	$ -	$ -	$ 480,000	$ 589,500
Total	$ -	$ -	$ -	$ 648,100	$ 589,500

		SUBTOTAL:	**$ 759,400**
CONTINGENCY	30%		$ 227,900
		SUBTOTAL:	**$ 987,300**
ENG/SURVEY	15%		$ 148,100
		SUBTOTAL:	**$ 1,135,400**
Project Initiation Year: **2023**	Rate **3%**	Inflation:	**$ 102,186**
		Estimated Project Total:	**$ 1,237,600**

Comments:

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**

Construction Project Number: 4 — **Phase: 2020-2025**

Project Name: North Pressure Zone

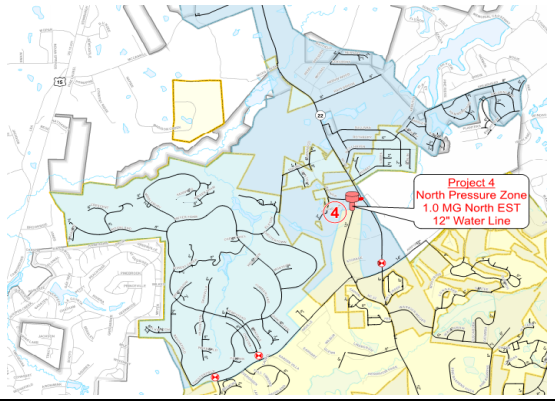
Project Description:

Install 184-ft 1.0 MG North Elevated Storage Tank, 12-inch waterline and associated valves.

Project Justification:

This project will reduce the highest pressures in the northern portion of the Town from 154 psi to 131 psi while, at the same time, increasing available fire flows.

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	1.0 MG Elevated Storage Tank	1	LS	$ 2,625,000	$ 2,625,000
2	12" Control Valve	1	EA	$ 30,000	$ 30,000
3	12" Gate Valve	4	EA	$ 3,000	$ 12,000
4	12" WL & Appurtenances	475	LF	$ 96	$ 45,600
5	8" TS&V	2	EA	$ 6,000	$ 12,000
6	Miscellaneous Restoration	475	LF	$ 10	$ 4,750
7	Site Improvements	1	LS	$ 65,000	$ 65,000
8	Electrical (Installation, SCADA, MCC)	1	LS	$ 120,000	$ 120,000

Phase	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Topographic Survey	$ -	$ -	$ -	$ -	$ 25,000	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ 40,000	$ 323,400	$ -	$ -
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ 50,000	$ -	$ -
Construction	$ -	$ -	$ -	$ -	$ 1,250,000	$ 2,561,000	$ 500,000
Total	$ -	$ -	$ -	$ 40,000	$ 1,648,400	$ 2,561,000	$ 500,000

SUBTOTAL:		**$ 2,914,400**
CONTINGENCY	30%	$ 874,400
SUBTOTAL:		**$ 3,788,800**
ENG/SURVEY	15%	$ 568,400
SUBTOTAL:		**$ 4,357,200**
Rate **3%**	Inflation:	**$ 392,148**
Estimated Project Total:		**$ 4,749,400**

Project Initiation Year: **2023**

Comments:

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**

Construction Project Number: 5 — **Phase:** 2020-2025

Project Name: US 1 Parallel Transmission Main

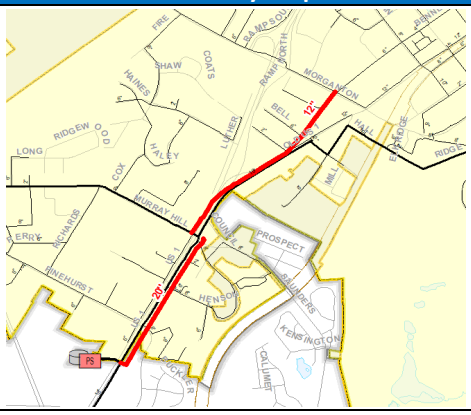
Project Description:

Install a 20" water line parallel to the existing 18" transmission main from the US1 BPS to the intersection of US 1 and Saunders Blvd. Replace existing 6" water along the west side of Old US 1 from Murray Hill Rd to Shaw Ave, continuing along S. Bennet St. to the intersection with Morganton Rd.

Project Justification:

These improvements will provide increased transmission capacity into the system and reduce excessive headloss and velocity in the existing transmission main. These improvements are needed to meet future demands.

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	12" WL & Appurtenances	3,200	LF	$ 96	$ 307,200
2	20" WL & Appurtenances	2,475	LF	$ 160	$ 396,000
3	12" Gate Valve	6	EA	$ 3,000	$ 18,000
4	20" Gate Valve	4	EA	$ 10,000	$ 40,000
5	20" Boring and Casing	225	LF	$ 350	$ 78,750
6	36" Boring and Casing	125	LF	$ 750	$ 93,750
7	Miscellaneous Restoration	5,675	LF	$ 10	$ 56,750

Phase	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Topographic Survey	$ -	$ -	$ -	$ -	$ 20,000	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ -	$ 173,200	$ -	$ -
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Construction	$ -	$ -	$ -	$ -	$ 20,000	$ 877,800	$ 567,700
Total	$ -	$ -	$ -	$ -	$ 213,200	$ 877,800	$ 567,700

	SUBTOTAL:	**$ 990,500**
CONTINGENCY 30%		$ 297,200
	SUBTOTAL:	**$ 1,287,700**
ENG/SURVEY 15%		$ 193,200
	SUBTOTAL:	**$ 1,480,900**
Project Initiation Year: **2024**	Rate **3%** Inflation:	**$ 177,708**
	Estimated Project Total:	**$ 1,658,700**

Comments:

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**
Construction Project Number: 6 — **Phase: 2020-2025**

Project Name: US 1 Booster Pump Station Pump Addition

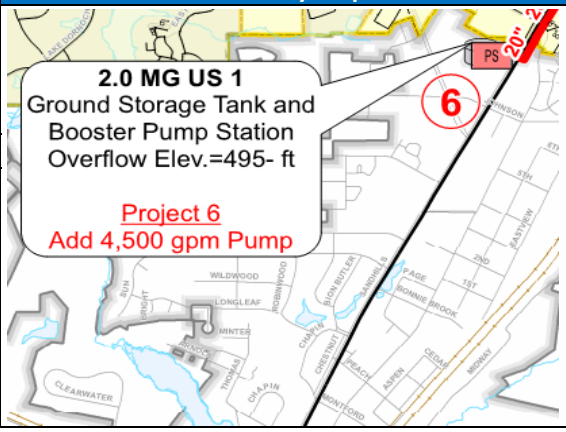
Project Description:

Addition of 4,500 gpm pumping capacity to the US 1 Booster Pump Station.

Project Justification:

This additional pump provides additional capacity to the Town in support of future growth.

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Vertical Turbine Pump- 4500 gpm, 400 hp	1	EA	$ 195,000	$ 195,000
2	VFD	1	EA	$ 50,000	$ 50,000
3	Electrical (Installation, SCADA, MCC)	1	LS	$ 120,000	$ 120,000

Phase	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Topographic Survey	$ -	$ -	$ -	$ -	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ -	$ -	$ 67,000
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ -	$ -
Construction	$ -	$ -	$ -	$ -	$ -	$ 560,600
Total	$ -	$ -	$ -	$ -	$ -	$ 627,600

		SUBTOTAL:	**$ 365,000**
CONTINGENCY	30%		$ 109,500
		SUBTOTAL:	**$ 474,500**
ENG/SURVEY	15%		$ 71,200
		SUBTOTAL:	**$ 545,700**
Project Initiation Year: **2025**	Rate **3%**	Inflation:	**$ 81,855**
		Estimated Project Total:	**$ 627,600**

Town of Southern Pines

Capital Improvement Cost Estimate — **January-19**
Construction Project Number: 7 — **Phase: 2025-2030**
Project Name: **Water Treatment Plant Capacity Expansion**

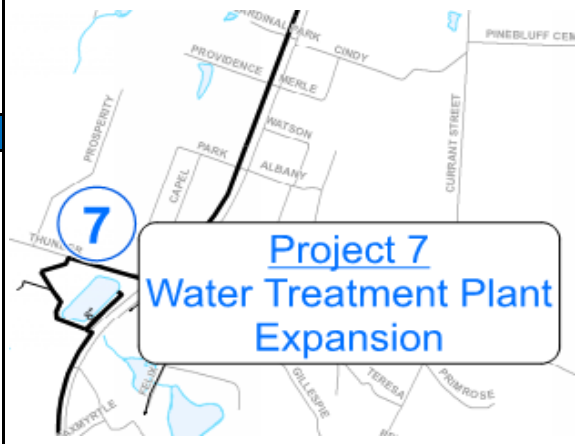
Project Description:

Application for Expansion of Licensed Water Treatment Plant Capacity to Plant Design Capacity of 11.0 MGD

Project Justification:

Projected future demands require additional supply needed by 2030.

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Permit Application	1	EA	$ 1,000	$ 1,000
2	Water Treatment Plant Capacity Study	1	EA	$ 75,000	$ 75,000

Phase	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Topographic Survey	$ -	$ -	$ -	$ -	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ -	$ -	$ 137,600
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ -	$ -
Construction	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ -	$ -	$ -	$ -	$ -	$ 137,600

		SUBTOTAL:		**$ 76,000**
	CONTINGENCY		30%	$ 22,800
		SUBTOTAL:		**$ 98,800**
	ENG/SURVEY		15%	$ 14,900
		SUBTOTAL:		**$ 113,700**
Project Initiation Year: **2027**	Rate	**3%**	Inflation:	**$ 23,877**
			Estimated Project Total:	**$ 137,600**

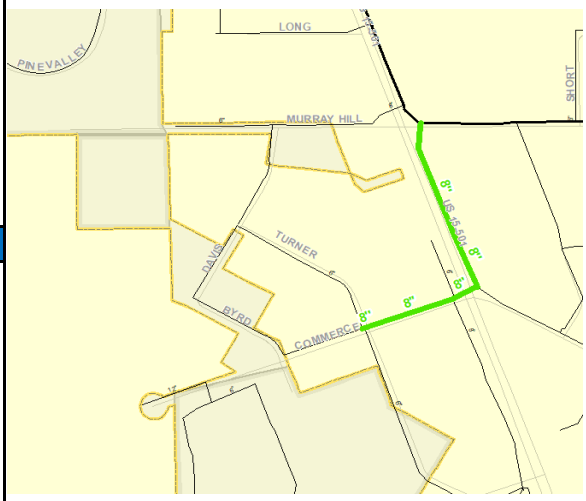
Town of Southern Pines

Capital Improvement Cost Estimate			**Date**
Construction Project Number:	**8**		**Phase: 2030-2035**
Project Name:	**US15-501 Water Line Replacement**		

Project Description:

Replace existing 8-inch waterline with 12-inch waterline along US 15-501/Commerce Avenue from Murray Hill Road to Turner Street.

Vicinity Map



Project Justification:

This project will improve transmission capacity and eliminate an existing bottleneck in the system

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	12" WL & Appurtenances	1,520	LF	$ 96	$ 145,920
2	12" Gate Valve	4	EA	$ 3,000	$ 12,000
3	20" Boring and Casing	450	LF	$ 350	$ 157,500
4	Miscellaneous Restoration	1,520	LF	$ 10	$ 15,200
5	Fire Hydrant Assembly	3	EA	$ 6,000	$ 20,267

Phase	2025-26	2026-27	2027-28	2028-29	2029-30	Beyond
Topographic Survey	$ -	$ -	$ -	$ -	$ -	$ 15,000
Engineering Design	$ -	$ -	$ -	$ -	$ -	$ 53,500
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ -	
Construction	$ -	$ -	$ -	$ -	$ -	$ 613,700
Total	$ -	$ -	$ -	$ -	$ -	$ 682,200

SUBTOTAL:		**$ 350,900**
CONTINGENCY	30%	$ 105,300
SUBTOTAL:		**$ 456,200**
ENG/SURVEY	15%	$ 68,500
SUBTOTAL:		**$ 524,700**
Project Initiation Year: **2030**	Rate **3%**	Inflation: **$ 157,410**
		Estimated Project Total: $ 682,200

Town of Southern Pines

Capital Improvement Cost Estimate		**Date**
Construction Project Number:	**9**	**Phase: 2030-2035**
Project Name:	**Pinebluff Parallel Transmission Main**	

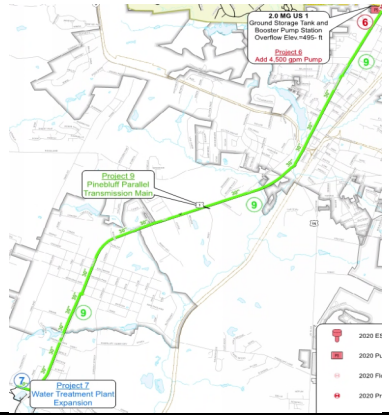
Project Description:

Install a 30" water line parallel to the existing 18" transmission main from the WTP to the US 1 Booster Pump Station.

Project Drivers:

This project will add a redudant supply line from the WTP to the Booster Pump Station and provide additional transmission capacity necessary to supply future demands.

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	30" WL & Appurtenances	36,500	LF	$ 240	$ 8,760,000
2	30" Gate Valve	18	EA	$ 25,000	$ 456,250
3	42" Boring and Casing	300	LF	$ 735	$ 220,500
4	Miscellaneous Restoration	1,825	LF	$ 10	$ 18,250

Phase	2025-26	2026-27	2027-28	2028-29	2029-30	Beyond
Topographic Survey	$ -	$ -	$ -	$ -	$ -	$ 485,100
Engineering Design	$ -	$ -	$ -	$ -	$ -	$ 1,973,200
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ -	
Construction	$ -	$ -	$ -	$ -	$ -	$ 17,601,500
Total	$ -	$ -	$ -	$ -	$ -	$ 20,059,800

			SUBTOTAL:	**$ 9,455,000**
		CONTINGENCY	30%	$ 2,836,500
			SUBTOTAL:	**$ 12,291,500**
		ENG/SURVEY	20%	$ 2,458,300
			SUBTOTAL:	**$ 14,749,800**
Project Initiation Year:	**2032**	Rate	**3%** Inflation:	**$ 5,309,928**
			Estimated Project Total:	**$ 20,059,800**

APPENDIX B:
Wastewater Capital Improvement Plan Projects

Town of Southern Pines

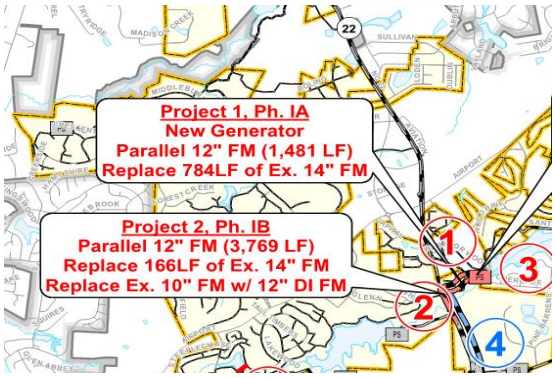
Capital Improvement Cost Estimate	**Costs based on Project Initiation Year**
Construction Project Number: 2	**Phase: 2020-2025**
Project Name:	**Warrior Woods PS Upgrade Phase IB**

Project Description:

Install parallel 12" DI force main (3,769 LF); Replace Ex. 10" FM with 12" DI FM (5,250 LF); Replace portion of existing 14" FM with new 14" DI FM (166 LF)

Project Drivers:

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Parallel 12" DI FM (3,769 LF) Parallel 14" DI FM (166 LF) Replace 10" PVC FM with 12" DI FM (5,250 LF)	1	LS	$ 952,471	$ 952,471

Phase	2020-21	2021-22	2022-23	2023-24	2024-25
Topographic Survey	$ -	$ -	$ -	$ -	$ -
Engineering Design	$ -	$ 123,900	$ -	$ -	$ -
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ -
Construction	$ -	$ -	$ 984,800	$ -	$ -
Total	$ -	$ 123,900	$ 984,800	$ -	$ -

		SUBTOTAL:	**$ 952,500**
CONTINGENCY	0%		$ -
		SUBTOTAL:	**$ 952,500**
ENG/SURVEY	13%		$ 123,900
		SUBTOTAL:	**$ 1,076,400**
Project Initiation Year: **2021**	Rate **3%**	Inflation:	**$ 32,292**
		Estimated Project Total:	**$ 1,108,700**

Comments: Cost estimate adapted from 2018 McAdams Warrior Woods PS PER & Master Plan.

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs based on Project Initiation Year**

Construction Project Number: 3 — **Phase:** 2020-2025

Project Name: Warrior Woods PS Upgrade Phase II

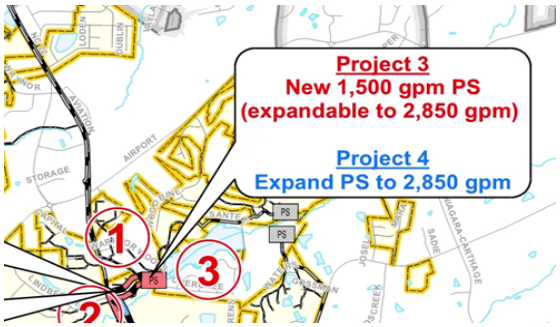
Project Justification:

Construct new 1,500 gpm wet pit/ dry pit pump station (expandable to 2,850 gpm)

Project Drivers:

0

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	1,500 gpm Wet Pit/Dry Pit Pump Station	1	LS	$ 2,500,000	$ 2,500,000

Phase	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Topographic Survey	$ -		$ -	$ -	$ 20,000	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ -	$ 355,000	$ -	$ -
Land/Easement Acquision	$ -		$ -	$ -	$ -	$ -	$ -
Construction	$ -	$ -	$ -	$ -	$ -	$ 1,845,000	$ 1,000,000
Total	$ -	$ -	$ -	$ -	$ 375,000	$ 1,845,000	$ 1,000,000

		SUBTOTAL:	**$ 2,500,000**
CONTINGENCY	0%		$ -
		SUBTOTAL:	**$ 2,500,000**
ENG/SURVEY			$ 375,000
		SUBTOTAL:	**$ 2,875,000**
Project Initiation Year: **2024**	Rate **3%**	Inflation:	**$ 345,000**
		Estimated Project Total:	**$ 3,220,000**

Comments: Estimated costs from 2018 McAdams Warrior Woods PER & Master Plan.

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs based on Project Initiation Year**

Construction Project Number: 4 — **Phase:** 2025-2030

Project Name: Warrior Woods PS Upgrade Phase III

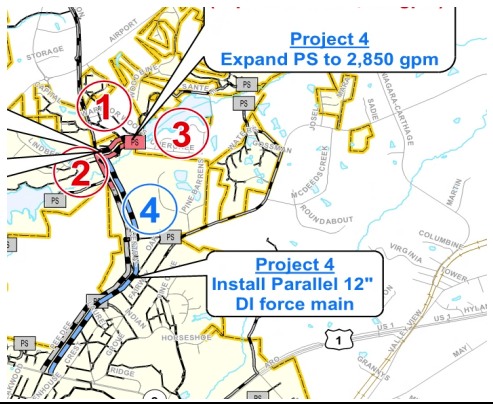
Project Justification:

Expand pump station from 1,500 gpm to 2,850 gpm; Install parallel 12" DI force main (9,400 LF)

Project Drivers:

0

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Expand PS from 1,500 gpm to 2,850 gpm	1	LS	$ 1,000,000	$ 1,000,000
2	Install parallel 12" DI force main (open cut)	9,300	LF	$ 120	$ 1,116,000
3	Install parallel 12" DI force main (bore and jack)	100	LF	$ 660	$ 66,000

Phase	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Topographic Survey	$ -	$ -	$ -	$ -	$ -	$ -	$ 25,000	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ -	$ -	$ -	$ 282,300	$ -	$ -
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,000	$ -	$ -
Construction	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,727,000	$ 982,000
Total	$ -	$ -	$ -	$ -	$ -	$ -	$ 327,300	$ 1,727,000	$ 982,000

		SUBTOTAL:	**$ 2,182,000**
CONTINGENCY	0%		$ -
		SUBTOTAL:	**$ 2,182,000**
ENG/SURVEY			$ 327,300
		SUBTOTAL:	**$ 2,509,300**
Project Initiation Year: **2027**	Rate **3%**	Inflation:	**$ 526,953**
		Estimated Project Total:	**$ 3,036,300**

Comments: Cost estimate from 2018 McAdams Warrior Woods PS PER & Master Plan.

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**
Construction Project Number: 6 — **Phase: 2020-2025**

Project Name: **ARO Sewer Lift Station Replacement**

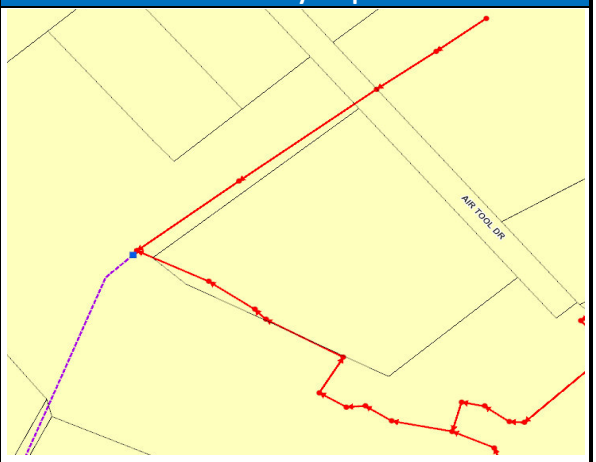
Project Description:

The 2015 Sewer Lift Station Assessment noted several regulatory and operational deficiencies at the ARO lift station. This project will upgrade the lift station design to bring the station into compliance with modern regulatory requirements and correct the station deficiencies including an increasing inability to locate replacement parts.

Project Justification:

The project is expected to reduce the O&M burden caused by the stations age and deficiencies.

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	180 GPM Lif Station	1	LS	$ 252,000	$ 252,000
2	Backup Pump System	1	LS	$ 65,000	$ 65,000
3	Site Work	1	LS	$ 73,500	$ 73,500

Phase	2020-21	2021-22	2022-23	2023-24	2024-25
Topographic Survey	$ -	$ -	$ -	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ -	$ -
Land/Easement Acquision	$ 10,000	$ -	$ -	$ -	$ -
Construction	$ 400,000	$ -	$ -	$ -	$ -
Total	$ 410,000	$ -	$ -	$ -	$ -

SUBTOTAL:		**$ 390,500**
CONTINGENCY	30%	$ 19,500
SUBTOTAL:		**$ 410,000**
ENG/SURVEY	0%	$ -
SUBTOTAL:		**$ 410,000**
Estimated Project Total:		**$ 410,000**

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**

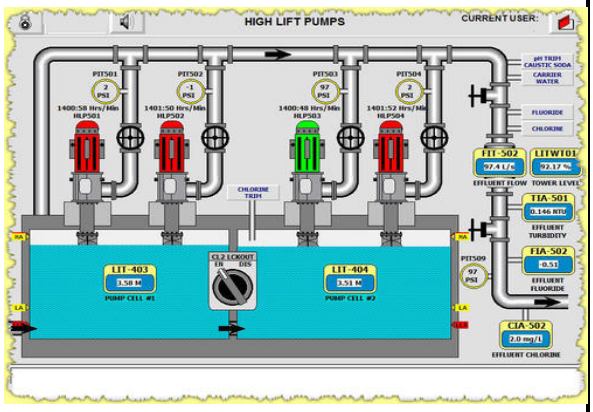
Construction Project Number: 7 — **Phase:** 2025-2030

Project Name: Sewer Lift Station SCADA

Project Description:

The Sewer Lift Station SCADA project will upgrade stations with remote monitoring and telemetry systems.

Vicinity Map



Project Justification:

This project will help identify operational issues, areas of high I&I, verify sewer volumes at billing locations, and facilitate future projects related to identified problems and growth.

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	System Servers	1	LS	$ 91,200	$ 91,200
2	Large Station RTU	6	EA	$ 13,200	$ 79,200
3	Small Station RTU	12	EA	$ 10,800	$ 129,600

Phase	2020-21	2021-22	2022-23	2023-24	2024-25
Topographic Survey	$ -	$ -	$ -	$ -	$ -
Engineering Design	$ -	$ -	$ -	$ -	$ -
Land/Easement Acquision	$ -	$ -	$ -	$ -	$ -
Construction	$ 300,000	$ -	$ -	$ -	$ -
Total	$ 300,000	$ -	$ -	$ -	$ -

SUBTOTAL:		**$ 300,000**
CONTINGENCY	0%	$ -
SUBTOTAL:		**$ 300,000**
ENG/SURVEY	0%	$ -
SUBTOTAL:		**$ 300,000**
Estimated Project Total:		**$ 300,000**

Comments:

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**

Construction Project Number: 8 — **Phase: 2030-2035**

Project Name: W. New York Aerial Sewer Repair

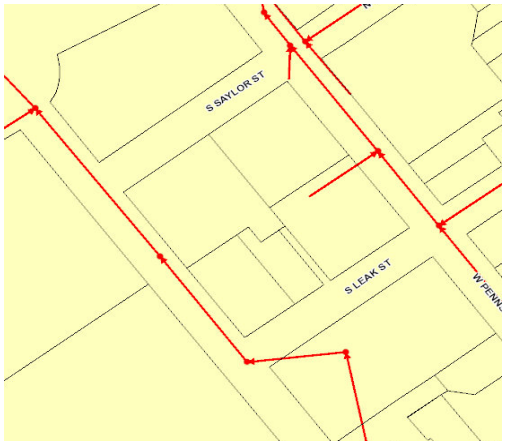
Project Description:

A Town 10" gravity sewer is currently installed adjacent to McDeeds Creek running along W. New York Ave. The creek bank is continuing to see degradation and erosion of the banks threatening the sewer main This project will take measures to protect the sewer main from the failing bank.

Project Justification:

A failure on this sewer line would result in a reportable sanitary sewer overflow directly into McDeeds Creek.

Vicinity Map



Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Protective Measures	1,520	LS	$ 300,000	$ 253,300

Phase	2020-21	2021-22	2022-23	2023-24	2024-25
Topographic Survey	$ -	$ -	$ -	$ -	$ -
Engineering Design	$ 50,000	$ -	$ -	$ -	$ -
Land/Easement Acquision		$ -	$ -	$ -	$ -
Construction	$ 300,000	$ -	$ -	$ -	$ -
Total	$ 350,000	$ -	$ -	$ -	$ -

		SUBTOTAL:	**$ 253,300**
	CONTINGENCY	20%	$ 51,000
		SUBTOTAL:	**$ 304,300**
	ENG/SURVEY	15%	$ 45,700
		SUBTOTAL:	**$ 350,000**
Project Initiation Year: **2020**	Rate **3%**	Inflation:	$ -
		Estimated Project Total:	**$ 350,000**

Comments:

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**

Construction Project Number: 9 — **Phase:** #N/A

Project Name: Sewer Lift Station Emergency Backups

Project Description:

The Town currently operates 19 sewer lift stations. 9 of these lift stations have permanent installed emergency backups which requires Town staff to rotate 4 portable generators to the remaining 12 stations during power outages and extreme weather events. This project will expand the emergency backups to 4 additional permanent installations, replace 2 old gas powered generators, and purchase 2 new portable emergency station backups

Project Justification:

The project will reduce the effort required to keep all 19 stations operating during an emergency.

Vicinity Map

Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Permanent Emergency Backups	4	EA	$ 45,500	$ 182,000
2	Portable Emergency Backups	4	EA	$ 25,100	$ 100,400

Phase	2020-21	2021-22	2022-23	2023-24	2024-25
Topographic Survey	$ -	$ -	$ -	$ -	$ -
Engineering Design	$ 27,500	$ 22,500	$ -	$ -	$ -
Land/Easement Acquision	$ 2,500	$ 2,500	$ -	$ -	$ -
Construction	$ 200,000	$ 180,000	$ -	$ -	$ -
Total	$ 230,000	$ 205,000	$ -	$ -	$ -

		SUBTOTAL:	**$ 282,400**
	CONTINGENCY 30%		$ 84,800
		SUBTOTAL:	**$ 367,200**
	ENG/SURVEY 15%		$ 55,100
		SUBTOTAL:	**$ 422,300**
Project Initiation Year: **2021**	Rate **3%**	Inflation:	**$ 12,669**
		Estimated Project Total:	**$ 435,000**

Comments:

Town of Southern Pines

Capital Improvement Cost Estimate — **Costs are based on project initiation year**

Construction Project Number: 10 — **Phase:** #N/A

Project Name: Longleaf Dam Sewer Relocation

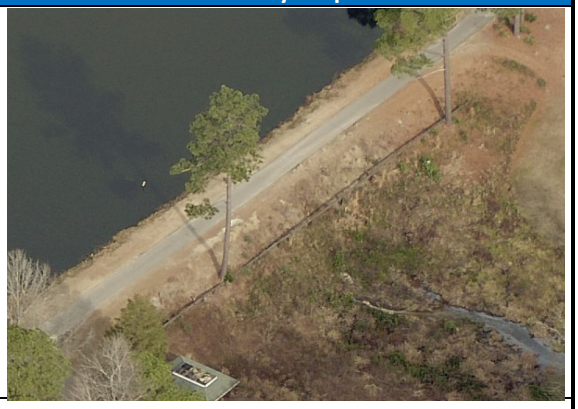
Project Description:

A Town aerial sewer main is currently installed in the face of a private dam located on the Longleaf Golf Course. Due to poor maintenance of the dam the sewer main has been damaged in the past. This project will relocate the sewer away from the dam.

Project Justification:

This project will reduce the risk of future repairs and failures resulting from the dam.

Vicinity Map



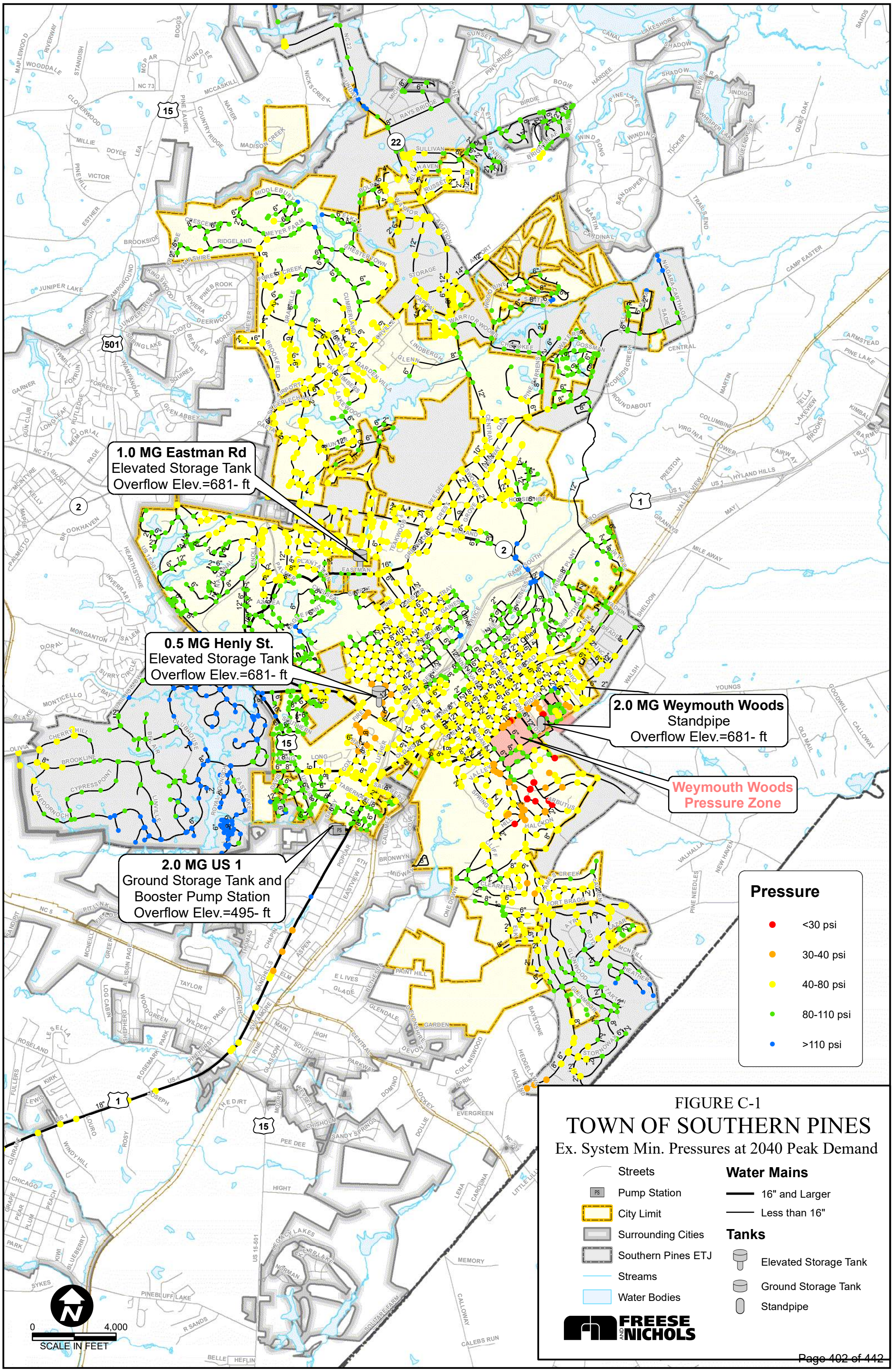
Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Aerial Sewer	350	LF	$ 500	$ 175,000
2	Piles	6	EA	$ 2,500	$ 15,000
3	Demolition of Existing Sewer	1	LS	$ 50,000	$ 50,000
4	Bypass Pumping	1	LS	$ 25,000	$ 25,000

Phase	2020-21	2021-22	2022-23	2023-24	2024-25
Topographic Survey	$ -	$ -	$ -	$ -	$ -
Engineering Design	$ -	$ 45,000	$ -	$ -	$ -
Land/Easement Acquision		$ 5,000	$ -	$ -	$ -
Construction	$ -	$ -	$ 370,000	$ -	$ -
Total	$ -	$ 50,000	$ 370,000	$ -	$ -

		SUBTOTAL:	**$ 265,000**
	CONTINGENCY	30%	$ 79,500
		SUBTOTAL:	**$ 344,500**
	ENG/SURVEY	15%	$ 51,700
		SUBTOTAL:	**$ 396,200**
Project Initiation Year: **2022**	Rate **3%**	Inflation:	**$ 23,772**
		Estimated Project Total:	**$ 420,000**

APPENDIX C:
Additional Water Model Results Figures


1.0 MG Eastman Rd
Elevated Storage Tank
Overflow Elev.=681- ft
0.5 MG Henly St.
Elevated Storage Tank
Overflow Elev.=681- ft
2.0 MG US 1
Ground Storage Tank and
Booster Pump Station
Overflow Elev.=495- ft
2.0 MG Weymouth Woods
Standpipe
Overflow Elev.=681- ft
Weymouth Woods
Pressure Zone
Pressure
<30 psi
30-40 psi
40-80 psi
80-110 psi
>110 psi
0
4,000
SCALE IN FEET
FIGURE C-1
TOWN OF SOUTHERN PINES
Ex. System Min. Pressures at 2040 Peak Demand
Streets
Pump Station
City Limit
Surrounding Cities
Southern Pines ETJ
Streams
Water Bodies
Water Mains
16" and Larger
Less than 16"
Tanks
Elevated Storage Tank
Ground Storage Tank
Standpipe
FREESE AND NICHOLS

1.0 MG Eastman Rd
Elevated Storage Tank
Overflow Elev.=681- ft

0.5 MG Henly St.
Elevated Storage Tank
Overflow Elev.=681- ft

2.0 MG US 1
Ground Storage Tank and
Booster Pump Station
Overflow Elev.=495- ft

2.0 MG Weymouth Woods
Standpipe
Overflow Elev.=681- ft

Weymouth Woods Pressure Zone

0.0095
0.0091
0.0051
0.0058
0.0054
0.0012
0.0069
0.0084
0.0051
0.0132
0.0059
0.0093
0.0062
0.0063
0.0057
0.0057
0.0055
0.0056

Headloss

<=16" Diam
5-6 ft/1000ft
>6 ft/1000ft

>16" Diam
3-5 ft/1000ft
>5 ft/1000ft

0 4,000
SCALE IN FEET

FIGURE C-2
TOWN OF SOUTHERN PINES
Ex. System Headloss at 2040 Peak Demand

Streets
Pump Station
City Limit
Surrounding Cities
Southern Pines ETJ
Streams
Water Bodies

Water Mains
16" and Larger
Less than 16"

Tanks
Elevated Storage Tank
Ground Storage Tank
Standpipe

FREESE AND NICHOLS

Created By Freese and Nichols, Inc.
Job No.: OFF15041
Location: H:\W_WW_PLANNING\01_DELIVERABLES\FigureC-3_FutureWaterSystemMinPressure.mxd
Updated: Thursday, February 27, 2020 11:47:21 AM

1.0 MG Eastman Rd
Elevated Storage Tank
Overflow Elev.=681- ft

0.5 MG Henly St.
Elevated Storage Tank
Overflow Elev.=681- ft

2.0 MG US 1
Ground Storage Tank and
Booster Pump Station
Overflow Elev.=495- ft

2.0 MG Weymouth Woods
Standpipe
Overflow Elev.=681- ft

Pressure
- <30 psi
- 30-40 psi
- 40-80 psi
- 80-110 psi
- >110 psi

0 4,000
SCALE IN FEET

FIGURE C-3
TOWN OF SOUTHERN PINES
Future (2040) Water System Minimum Pressure

- Streets
- Pump Station
- City Limit
- Surrounding Cities
- Southern Pines ETJ
- Streams
- Water Bodies

Water Mains
- 16" and Larger
- Less than 16"

Tanks
- Elevated Storage Tank
- Ground Storage Tank
- Standpipe

FREESE AND NICHOLS

Agenda Item

To: **Reagan Parsons, Town Manager**

From: **BJ Grieve, Planning Director**

Subject: **Planning Board Reappointment – Diane Westbrook**

Date: **December 8, 2021**

I. RECOMMENDATION:

The Planning Director recommends that Ms. Diane Westbrook be considered for reappointment to serve on the Planning Board for a second consecutive term to expire December 4, 2024.

II. BACKGROUND:

Ms. Westbrook was appointed to serve her first term on the Planning Board beginning December 3, 2018 and expiring on December 3, 2021. Ms. Westbrook has an outstanding record of attendance and participation that is appreciated by both her fellow Planning Board members and Planning staff.

III. LEGAL REVIEW:

In accordance with UDO §8.13.1(B), the Planning Board shall consist of seven (7) members, all of which shall be resident citizens. Five (5) members appointed by the Town Council shall reside within the Town. Two members appointed by the County Board of Commissioners shall reside within the Town's Extraterritorial Planning Area, also referred to as the Extraterritorial Jurisdiction (ETJ).

- *The Board currently consists of five (5) active members who reside in Town and two (2) active members who reside in the ETJ.*

- *Ms. Westbrook currently resides in Town and is thereby eligible for reappointment as an in-Town member of the Board.*

In accordance with UDO §8.13.1(C), Planning Board members shall be appointed for three-year staggered terms, but may continue to serve until their successors have been appointed. Members may be appointed to not more than two successive full terms but may be eligible for reappointment after one year has elapsed from the date of termination of the second term.

- *Upon reappointment, Ms. Westbrook will serve a second consecutive term to expire on December 4, 2024.*

Agenda Item

To: **Reagan Parsons, Town Manager**

From: **BJ Grieve, Planning Director**

Subject: **Historic District Commission Appointment – Robert Brown**

Date: **December 14, 2021**

I. RECOMMENDATION:

The Planning Director recommends that Mr. Robert Brown be considered for appointment to serve on the Historic District Commission at the Town Council's regular business meeting on December 14, 2021, for a first term to expire on December 13, 2025.

II. BACKGROUND:

Mr. Brown has applied for appointment to the Historic District Commission. Mr. Brown's educational background and years of experience as a professional historian, combined with his interest in historic preservation, will be an asset to the Commission.

III. LEGAL REVIEW:

In accordance with UDO §8.16.1(B), the Historic District Commission shall consist of seven (7) members, all of which shall be resident citizens.

- *The Commission currently consists of five (5) active members who reside in Town.*
- *Mr. Brown currently resides in Town and is thereby eligible for appointment as a member of the Commission.*

In accordance with UDO §8.16.1(C), HDC members shall be appointed for four-year staggered terms. Members may be appointed to not more than two (2) successive complete terms but may be eligible for reappointment after one year has elapsed from the date of termination of the second term.

- *Upon appointment, Mr. Brown will serve his first term to expire on December 13, 2025.*

Agenda Item

To: **Reagan Parsons, Town Manager**

From: **BJ Grieve, Planning Director**

Subject: **Historic District Commission Appointment – Lane West**

Date: **December 14, 2021**

I. RECOMMENDATION:

The Planning Director recommends that Mr. Lane West be considered for appointment to serve on the Historic District Commission at the Town Council's regular business meeting on December 14, 2021, for a first term to expire on December 13, 2025.

II. BACKGROUND:

Mr. West has applied for appointment to the Historic District Commission and the Planning Director has recommended him for appointment.

III. LEGAL REVIEW:

In accordance with UDO §8.16.1(B), the Historic District Commission shall consist of seven (7) members, all of which shall be resident citizens.

- *The Commission currently consists of five (5) active members who reside in Town.*
- *Mr. West currently resides in Town and is thereby eligible for appointment as a member of the Commission.*

In accordance with UDO §8.16.1(C), HDC members shall be appointed for four-year staggered terms. Members may be appointed to not more than two (2) successive complete terms but may be eligible for reappointment after one year has elapsed from the date of termination of the second term.

- *Upon appointment, Mr. West will serve his first term to expire on December 13, 2025.*

To: Reagan Parsons, Town Manager

From: James Michel, PE, MBA, Town Engineer/Assistant Public Works Director

Re: NCDOT 3-Party Municipal Agreement for the Relocation of the 18" Water Transmission Main along US1

Date: November 17, 2021

AGREEMENT

Included in the Council Packet is a copy of the 3 Party Municipal Agreement between NCDOT, Town of Southern Pines, and Town of Aberdeen. Aberdeen is included in this agreement as the relocation of Southern Pines transmission main along Elm and Poplar will impact existing Aberdeen utilities. NCDOT is compensating Aberdeen for the degradation of some of the line and will also be replacing some of the lines. None of the cost associated with the Aberdeen lines are being passed along to Southern Pines. A future Utility Relocation Agreement (URA) will be forwarded to the Town which will be more specific to the details and cost of the relocation work.

BACKGROUND

NCDOT is currently preparing for the roadway project along U.S. 1 (North Sandhills Boulevard) from Roseland Road to Old U.S. 1. (STIP Project U-5815). Below is the basic summary of the project from NCDOT's website.

Proposed work on U.S. 1 involves a 2.8-mile segment from Roseland Road to Old U.S. 1. Work would be divided into two phases, referred to as Section A and Section B.

- Section A involves building a Synchronized Street on the southern section of U.S. 1 from Roseland Road to Knight Street (0.6 miles).
- Section B involves building a Synchronized Street on the 2.2-mile northern section of U.S. 1 from Knight Street to Old U.S. 1 as well as minor improvements to the southern section of U.S. 1, including realigning Roseland Road at U.S. 1.
- An alternate design at the U.S. 1/Old U.S. 1 intersection has also been developed. It adds a traffic signal at the existing free-flow merge from Old U.S. 1 onto U.S. 1 and enlarges the U-turn bulb to more easily accommodate large trucks.

Construction on Section A is scheduled to begin in 2027. Right-of-way acquisition for Section B was scheduled for 2019, and construction is scheduled for 2024. Typically, utility relocations are part of the overall roadway project. Due to the size and scope of this relocation, NCDOT is attempting to have the line relocated under a separate contract prior to the 2024 US Open Golf Tournament. This will allow the roadway work to precede with less conflicts after the US Open has concluded and be completed prior to the 2029 Open.

The Town's 18" Water Transmission Main (WTM) runs along the east side of US1 through the project corridor. The preliminary designs for the roadway project included improvements to the storm drainage network. These improvements conflict with the Town's WTM requiring relocation of approximately 8,800 linear feet of line between Elm Street and the Town's Ground Storage Tank. The new WTM will be routed along Poplar Street due to space limitations in the right-of-way (ROW) along US1. Since the WTM was originally installed in NCDOT's ROW via an encroachment agreement, NCDOT has the authority to require the relocation. Per General Statue § 136-27.1 the Town is responsible for 25% of the relocation cost estimated at $854,351.

The Town recently studied long term water system needs as part of the 2019 Water & Wastewater Capital Improvement Plan (CIP). The study identified the need to upgrade the WTM as the existing 18" main is limited to an approximate capacity of 8 MGD. The projections from the CIP estimates that the Town would reach 8 MGD of maximum day demand

around the year 2035. An upgrade to a 24" main is currently being recommended as it would provide 11 MGD of capacity which would match the buildout capacity of the Water Treatment Plant and provide capacity beyond the 20 year study horizon.

Table 3-4: Projected Water Demands

		Average Day Demand			Maximum Day Demand			Peak Hour Demand		
Year	Projected Water Service Area Population	Wholesale Demand (MGD)	Non-Wholesale Demand (MGD)	Total (MGD)	Wholesale Demand (MGD)	Non-Wholesale Demand (MGD)	Total (MGD)	Wholesale Demand (MGD)	Peak Hour Demand (MGD)	Total (MGD)
2020	14,854	0.87	3.06	3.9	1.40	4.9	6.3	1.40	7.3	8.7
2025	16,400	0.87	3.38	4.3	1.40	5.4	6.8	1.40	8.1	9.5
2030	18,107	0.87	3.73	4.6	1.40	6.0	7.4	1.40	9.0	10.3
2035	19,991	0.87	4.12	5.0	1.40	6.6	8.0	1.40	9.9	11.3
2040	22,072	0.87	4.55	5.4	1.40	7.3	8.7	1.40	10.9	12.3

NCDOT does allow for improvements to be made to facilities being relocated as part of the project. Per the above referenced G.S, the Town is responsible for 25% of the relocation cost, but responsible for 100% of any betterment. The estimated cost to the Town for upsizing the pipe would be an additional $912,167 for a total cost of $1,766,518. The current submitted agreement shows the cost associated with upsizing the line the 24".

ADDITIONAL CONSIDERATIONS

The agreement currently being discussed is only for the relocations of the WTM. There will be other water distribution lines and/or sewer collection line relocations associated with the actual roadway project which will require a future agreement and additional cost.

There is an ancillary project U.S. 15-501 from U.S. 1 to Brucewood Road (STIP Project U-5814) that will also have some additional relocation work associated with it. Construction of this project is expected to follow the same schedule as the US 1 road work.

Staff has discussed with NCDOT about bidding the project both ways. This would allow an easier determination of the cost difference between the 18" and 24" lines and defers the final decision until the actual bid numbers are in hand. Staff has requested confirmation of this strategy in writing but has not yet received a response. This should be addressed in the forthcoming URA.

Typical NCDOT policy is to bill Municipalities once the work is completed. The Town's share of the work would be due in late 2023 to early 2024. The rate analysis prepared for the 2021 Budget cycle included a $1,500,000 cost in FY26-27. This was based off the information available in NCDOT's Transportation Improvement Program at the time. Staff estimate that moving the $1,766,518 cost into FY23-24 would require an additional 2% increase in the FY25-26 utility rates, from 5% to 7%. This assumes that the on hand retained earnings will fund the cost of the work. Additional options including the use of American Rescue Plan Act (ARPA) are also being reviewed which could help offset the future rate increase.

NEXT STEPS

Staff continues to work with NCDOT to nail down the final details and will be bringing the URA back to council once received from NCDOT.

NORTH CAROLINA

MOORE COUNTY

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

AND

TOWN OF ABERDEEN
AND
TOWN OF SOUTHERN PINES

TRANSPORTATION IMPROVEMENT PROJECT – MUNICIPAL AGREEMENT

DATE: 11/12/2021

TIP #: U-5815BA

WBS Elements: PE 54041.1.4
ROW 54041.2.7
UTIL 54041.2.8
CON 54041.3.5

THIS 3-PARTY MUNICIPAL AGREEMENT is made and entered into on the last date executed below, by and between the North Carolina Department of Transportation, an agency of the State of North Carolina, hereinafter referred to as the "Department" and the Town of Aberdeen, hereinafter referred to as "Aberdeen," Southern Pines, hereinafter referred to as "Southern Pines;" together herein after called the "Municipalities", and all three, collectively, herein after called "Parties."

W I T N E S S E T H:

WHEREAS, the Department has plans to construct improvements to the US 1 corridor from Old US 1 in Southern Pines to Roseland Road in Aberdeen under Project U-5814B in Moore County, hereinafter known as the "Project"; and,

WHEREAS, the Project includes upgrading the existing storm drainage along the US 1 corridor; and,

WHEREAS, said upgrades requires the relocation of an existing 18-inch transmission water line owned by the Southern Pines; and,

WHEREAS, the costs and inconvenience associated with the water line will create a burden to Parties, property owners and other businesses along the US 1 corridor; and,

WHEREAS, the Department has identified an alternate location on North Poplar Street, which is a parallel route to US 1; and,

WHEREAS, both Southern Pines and Aberdeen agree with the use of North Poplar Street as an acceptable location for the water line; and

WHEREAS, the optimal location to tie-in the southern portion of the relocated water line along North Poplar Street is at Elm Street, which is an Aberdeen roadway; and,

WHEREAS, the Aberdeen has an existing Sanitary Sewer line along Elm Street that is in substandard condition and will be affected by the installation of the new water line; and,

WHEREAS, NCDOT agrees to provide Aberdeen compensation for the upgrade of the Town's existing sanitary sewer line along North Poplar Street from Peach Avenue to the northern limits in lieu of performing the work; and,

WHEREAS, the Department and the Municipalities have agreed that the municipal limits, as of the date of the awarding of the contract for the construction of the above-mentioned project, are to be used in determining the duties, responsibilities, rights and legal obligations of the Parties hereto for the purposes of this Agreement; and,

WHEREAS, this Agreement is made under the authority granted to the Department by the North Carolina General Assembly, including but not limited to, the following legislation: General Statutes of North Carolina (NCGS), Section 136-66.1, Section 160A-296 and 297, Section 136-18, and Section 20-169, to participate in the planning and construction of a Project approved by the Board of Transportation for the safe and efficient utilization of transportation systems for the public good; and,

NOW, THEREFORE, the Parties hereto, each in consideration of the promises and undertakings of the other as herein provided, do hereby covenant and agree, each with the other, as follows:

SCOPE OF THE WORK

1. The Project consists of improvements to the US 1 corridor from Old US 1 in Southern Pines to Roseland Road in Aberdeen, programmed under U-5814B in Moore County. Said Project includes upgrading the existing storm drainage along the US 1 corridor, which will require the relocation of an 18-inch transmission water line owned by Southern Pines. The Department will construct the Project and will relocate the water line to North Poplar Street and Elm Street in Aberdeen.

2. As part of the relocation of the water line, the Department will provide compensation to Aberdeen to upgrade an existing sanitary sewer line along North Poplar Street in Aberdeen.

RESPONSIBILITIES OF EACH PARTY

3. Southern Pines will:

   A. Grant permission to the Department to relocate an existing 18-inch transmission water line, which is located in the Project area and is owned by Southern Pines, at an approximate cost to Southern Pines of $1,766,518.

   B. A separate Utility Agreement will be provided to specify the reimbursement details associated with this work.

   C. Coordinate with Aberdeen for relocation of the 18-inch transmission water line including all encroachments, agreements and forms necessary.

4. Aberdeen will:

   A. Grant permission to the Department to relocate an existing 18-inch transmission water line, which is owned by the Town of Southern Pines, to a location on along North Poplar Street (SR 2055) and Elm Street, which is an Aberdeen roadway, at no cost to Aberdeen.

   B. Coordinate with Southern Pines for relocation of the 18-inch transmission water line including all encroachments, agreements and forms necessary.

   C. Accept compensation from the Department in the amount of $375,000 for future rehabilitation or replacement of the town's existing sanitary sewer line along North Poplar Street from Peach Avenue to the northern terminus of the project.

5. The Department will:

   A. Relocate the existing Southern Pines' 18-inch transmission water line currently located along the US 1 corridor to North Poplar Street and tie-in the southern portion of the new transmission line using Elm Street which is owned by Aberdeen.

   B. Replace the existing water line and sanitary sewer line on North Poplar Street from Peach Avenue to Elm, as well as along Elm Street between US 1 and North Poplar Street.

   C. Repair any sanitary sewer lateral services and repair any sections of the sanitary sewer mainline damaged during construction on North Poplar Street from Peach Avenue to the northern terminus of the project.

D. Provide $375,000 in compensation to Aberdeen to participate in the cost to rehabilitate or replace of the town's existing sanitary sewer line along North Poplar Street from Peach Avenue to the northern terminus of the project.

RIGHT OF WAY

6. The Department shall be responsible for acquiring any needed right of way required for the Project, including the relocated water transmission line. Acquisition of right of way shall be accomplished in accordance with the policies and procedures set forth in the North Carolina Right of Way Manual.

7. It is understood by the Parties that all work for the betterments shall be performed within the existing right of way. However, should it become necessary, the Municipalities, at no expense or liability whatsoever to the Department, shall provide any needed right of way and or construction easements for the construction of the betterments, and remove from said rights of way all obstructions and encroachments of any kind or character. Acquisition of any needed right of way shall be performed in accordance with the following state and federal policies and procedures, "Right of Way Acquisition Policy and Land Acquisition Policy, contained in the Federal-Aid Policy Guide, Part 712, Subpart B", and the North Carolina Right of Way Manual (Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970). The Department shall be indemnified and held harmless from any and all damages and claims for damages associated with the acquisition of any construction easements and/or right of way.

CONSTRUCTION

8. The Department shall perform the Project in accordance with the plans and specifications of the Project as filed with, and approved by, the Department. The Department shall administer the construction contract for the Project.

MAINTENANCE

9. Upon completion of the Project:

   A. The Department shall be responsible for all traffic operating controls and devices which shall be established, enforced, and installed and maintained in accordance with the North Carolina General Statutes, the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, the latest edition of the "Policy on Street and Driveway Access to North Carolina Highways", and departmental criteria.

B. The improvement(s) shall be within North Poplar Street which is owned and maintained by the Department and Elm Street which is owned and maintained by Aberdeen.

C. The Municipalities, at no expense to the Department, shall assume all maintenance responsibilities for the betterments and release the Department from all liability relating to such maintenance

D. Upon the satisfactory completion of the relocations and adjustments of the utility lines covered under this Agreement, the Municipalities shall assume normal maintenance operations to the said utility lines. Upon completion of the construction of the said project, the Municipalities shall release the Department from any and all claims for damages in connection with adjustments made to its utility lines; and, further, Aberdeen and Southern Pines shall release the Department of any future responsibility for the cost of maintenance to said utility lines. Said releases shall be deemed to be given by the Aberdeen and Southern Pines upon completion of construction of the project and its acceptance by the Department from its contractor unless the Aberdeen and Southern Pines notifies the Department, in writing, to the contrary prior to the Department's acceptance of the project.

E. The Municipalities obligate themselves to service and to maintain their respective facilities to be retained and installed over and along the highway within the Department's right-of-way limits in accordance with the mandate of the North Carolina General Statutes and such other laws, rules, and regulations as have been or may be validly enacted or adopted, now or hereafter.

F. If at any time the Department shall require the removal of or changes in the location of the encroaching facilities, which are being relocated at the Municipalities' expense, the Municipalities binds themselves, their successors and assigns, to promptly remove or alter said facilities, in order to conform to the said requirement (if applicable per G.S. 136-27.1), without any cost to the Department.

FUNDING

10. The Department will provide $375,000 in compensation to Aberdeen to cover the cost to the future rehabilitation or replacement of their existing sanitary sewer line along North Poplar Street from Peach Avenue to the northern terminus of the Project within sixty (60) days of the execution of this Agreement.

Payment of this compensation provides full and complete compensation for any and all work necessary for the existing sanitary sewer line. No further compensation will be provided under the terms of this Agreement.

ADDITIONAL PROVISIONS

11. It is the policy of the Department not to enter into any agreement with another party that has been debarred by any government agency (Federal or State). The Municipalities certifies, by signature of this agreement, that neither it nor its agents or contractors are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any Federal or State Department or Agency.

12. To the extent authorized by state and federal claims statutes, each party shall be responsible for its respective actions under the terms of this agreement and save harmless the other party from any claims arising as a result of such actions.

13. All terms of this Agreement are subject to available departmental funding and fiscal constraints.

14. This Agreement contains the entire agreement between the Parties and there are no understandings or agreements, verbal or otherwise, regarding this Agreement except as expressly set forth herein.

15. The Parties hereby acknowledge that the individual executing the Agreement on their behalf is authorized to execute this Agreement on their behalf and to bind the respective entities to the terms contained herein and that he has read this Agreement, conferred with his attorney, and fully understands its contents.

16. By Executive Order 24, issued by Governor Perdue, and N.C. G.S.§ 133-32, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e., Administration, Commerce, Environmental Quality, Health and Human Services, Information Technology, Military and Veterans Affairs, Natural and Cultural Resources, Public Safety, Revenue, Transportation, and the Office of the Governor).

IN WITNESS WHEREOF, this Agreement has been executed, in duplicate, the day and year heretofore set out, on the part of the Department and the Municipality by authority duly given.

L.S. ATTEST:

TOWN OF ABERDEEN

BY:_____ BY: _____

TITLE:_____ TITLE: _____

DATE:_____ DATE: _____

This Agreement has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

BY:_____
(FINANCE OFFICER)

Federal Tax Identification Number

_____

L.S. ATTEST:

TOWN OF SOUTHERN PINES

BY:_____ BY: _____

TITLE:_____ TITLE: _____

DATE:_____ DATE: _____

This Agreement has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

BY:_____
(FINANCE OFFICER)

Federal Tax Identification Number

_____

DEPARTMENT OF TRANSPORTATION

BY: _____
(CHIEF ENGINEER)

DATE: _____

APPROVED BY BOARD OF TRANSPORTATION ITEM O:_____(Date)

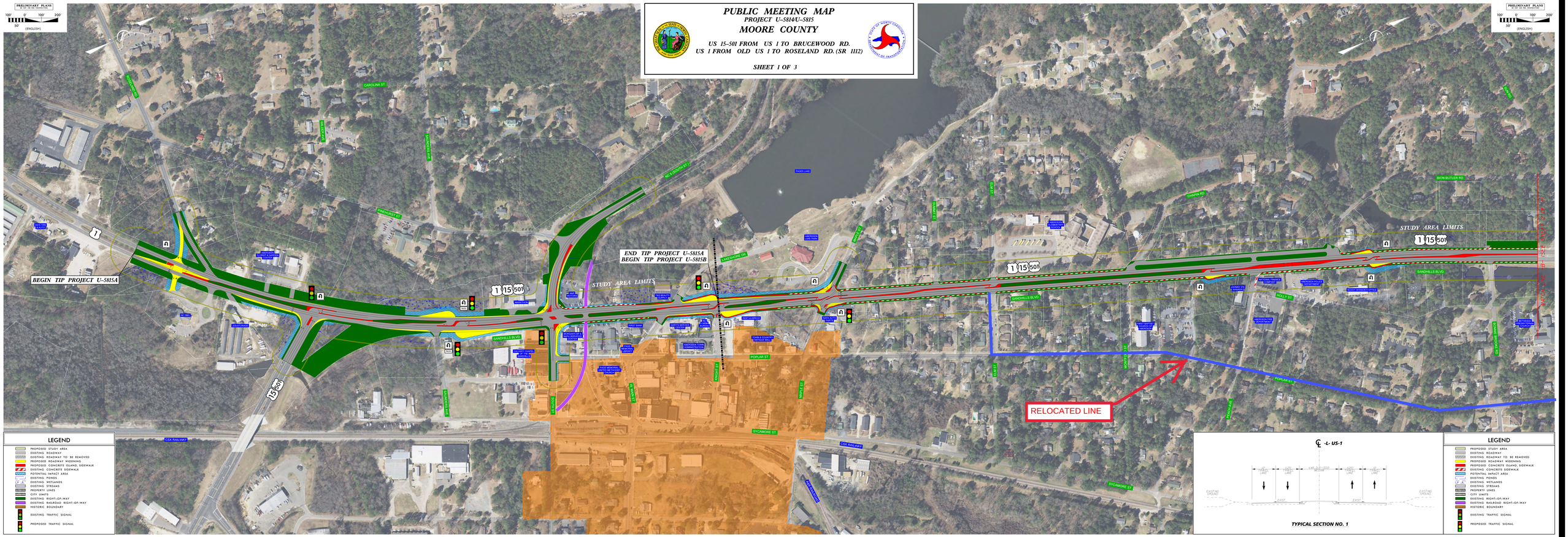
PUBLIC MEETING MAP

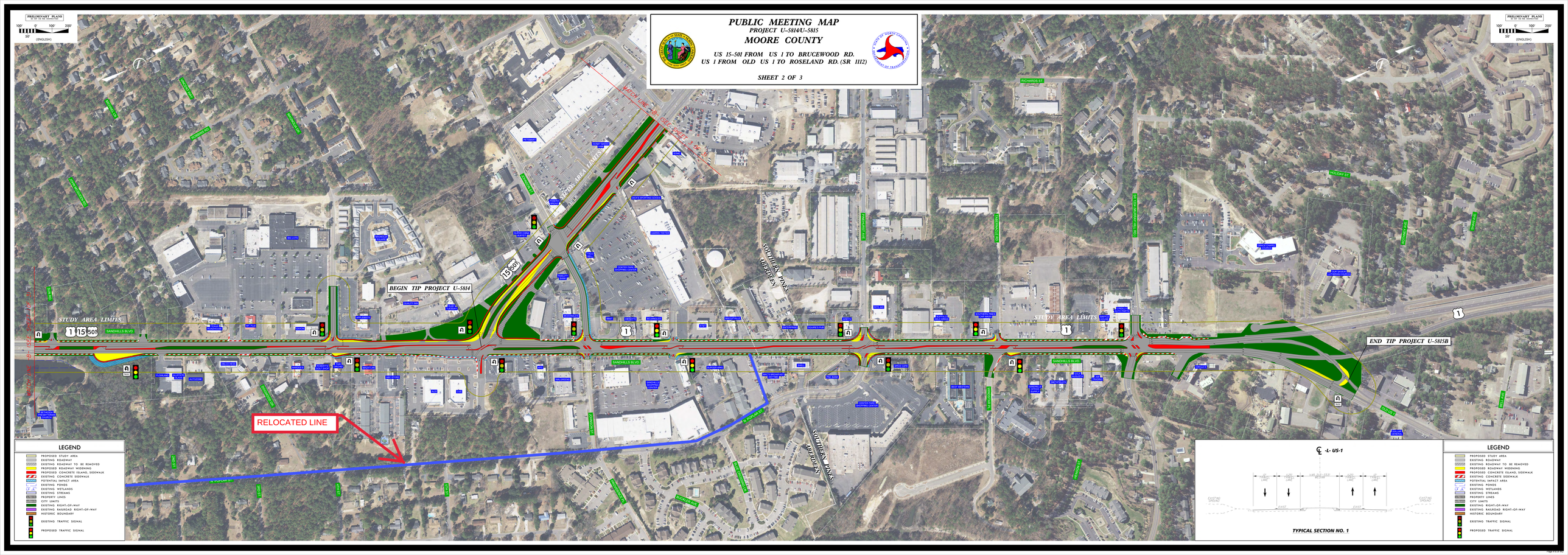
PROJECT U-5814/U-5815

MOORE COUNTY

US 15-501 FROM US 1 TO BRUCEWOOD RD.
US 1 FROM OLD US 1 TO ROSELAND RD. (SR 1112)

SHEET 1 OF 3


PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
100' 0' 100' 200'
50'
(ENGLISH)
BEGIN TIP PROJECT U-5815A
END TIP PROJECT U-5815A
BEGIN TIP PROJECT U-5815B
STUDY AREA LIMITS
STUDY AREA LIMITS
RELOCATED LINE
US 1
US 15-501
NC 5 (BONNIE DR.)
POWHURST ST.
CAROLINA ST.
MAGNOLIA ST.
MAGNOLIA AVE.
PINEHURST
PINEHURST AIRPORT
AIRPORT RD.
SANDHILLS BLVD.
MCREYNOLDS ST.
MCREYNOLDS AVE.
MOORE COUNTY COURTHOUSE
MOORE COUNTY SCHOOLS
MOORE COUNTY LIBRARY
MOORE COUNTY ANNEX
MOORE COUNTY SHERIFF'S DEPARTMENT
MOORE COUNTY DETENTION CENTER
MOORE COUNTY EMERGENCY SERVICES
MOORE COUNTY HOSPITAL
MOORE COUNTY HEALTH DEPARTMENT
MOORE COUNTY DEPARTMENT OF SOCIAL SERVICES
MOORE COUNTY SCHOOLS ADMINISTRATION
MOORE COUNTY SCHOOLS TRANSPORTATION
MOORE COUNTY SCHOOLS MAINTENANCE
MOORE COUNTY SCHOOLS CENTRAL OFFICE
MOORE COUNTY SCHOOLS CENTRAL KITCHEN
MOORE COUNTY SCHOOLS TECHNOLOGY


PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
100' 0' 100' 200'
50'
(ENGLISH)
PUBLIC MEETING MAP
PROJECT U-5814/U-5815
MOORE COUNTY
US 15-501 FROM US 1 TO BRUCEWOOD RD.
US 1 FROM OLD US 1 TO ROSELAND RD. (SR 1112)
SHEET 2 OF 3
STATE OF SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
WATCH LINE TO SEE PROJECT 3 OF 3
STUDY AREA LIMITS
BEGIN TIP PROJECT U-5814
END TIP PROJECT U-5815B
RELOCATED LINE
SOUTHERN PINES
ABERDEEN
SANDHILLS BLVD
N. PENNSYLVANIA AVE
RICHARDS ST
HOLLOWAY ST
LEGEND
PROPOSED STUDY AREA
EXISTING ROADWAY
EXISTING ROADWAY TO BE REMOVED
PROPOSED ROADWAY WIDENING
PROPOSED CONCRETE ISLAND, SIDEWALK
EXISTING CONCRETE SIDEWALK
POTENTIAL IMPACT AREA
EXISTING PONDS
EXISTING WETLANDS
EXISTING STREAMS
PROPERTY LINES
CITY LIMITS
EXISTING RIGHT-OF-WAY
EXISTING RAILROAD RIGHT-OF-WAY
HISTORIC BOUNDARY
EXISTING TRAFFIC SIGNAL
PROPOSED TRAFFIC SIGNAL
-L- US-1
TYPICAL SECTION NO. 1

PUBLIC MEETING MAP

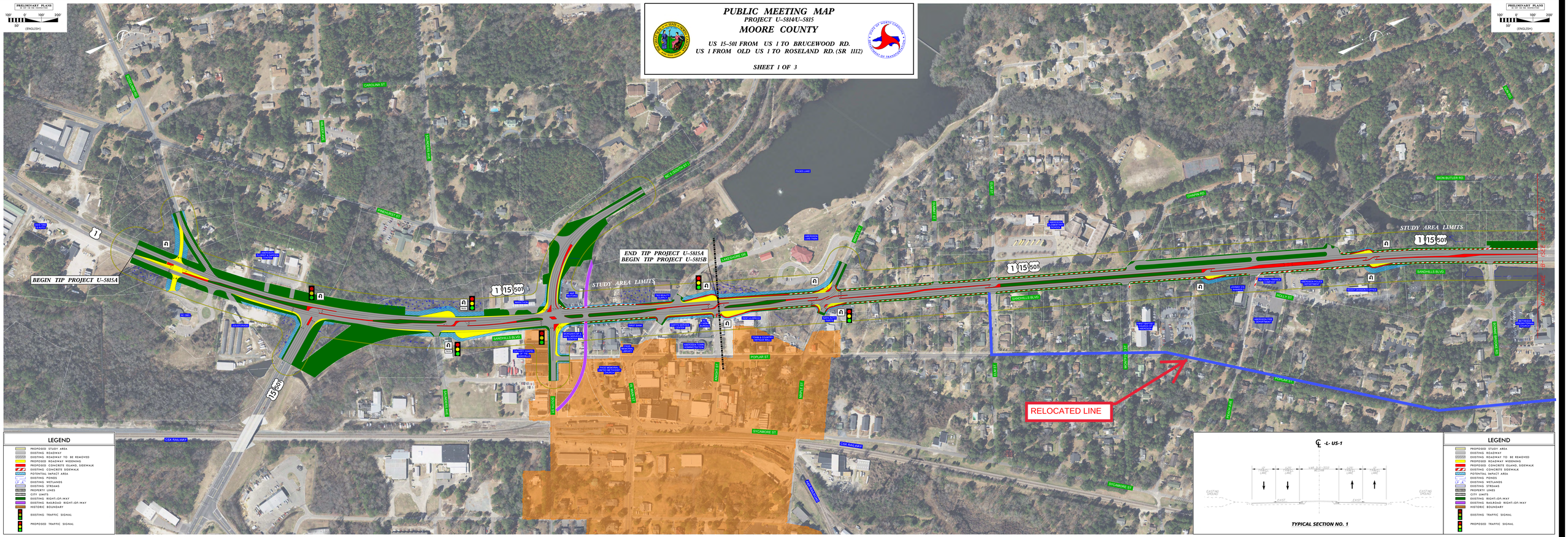
PROJECT U-5814/U-5815

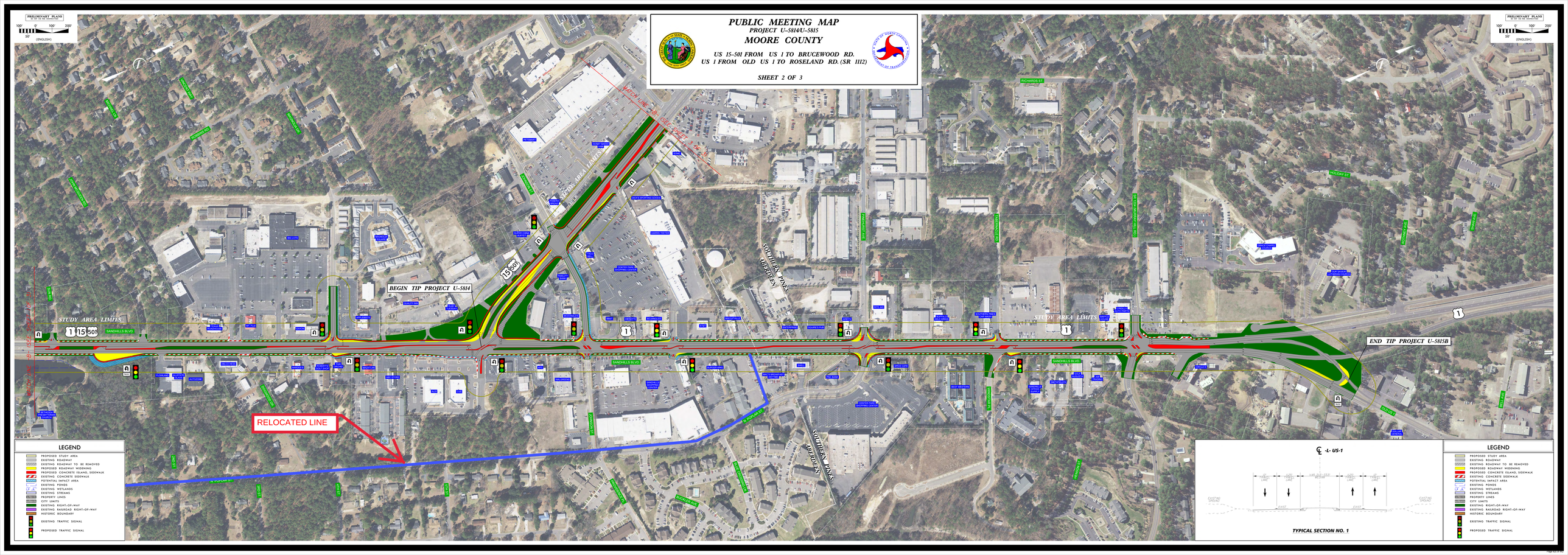
MOORE COUNTY

US 15-501 FROM US 1 TO BRUCEWOOD RD.
US 1 FROM OLD US 1 TO ROSELAND RD. (SR 1112)

SHEET 1 OF 3

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
100' 0 100' 200'
50'
(ENGLISH)


BEGIN TIP PROJECT U-5815A
END TIP PROJECT U-5815A
BEGIN TIP PROJECT U-5815B
STUDY AREA LIMITS
STUDY AREA LIMITS
RELOCATED LINE
US 1
US 15-501
SANDHILLS BLVD
POPLAR ST
BYCAMORE ST
MAPLE ST
KNIGHT ST
MONTICELLO ST
ROLLY ST
CHAPIN RD
BION BUTLER RD
LAKESHORE DR
PINEHURST ST
CAROLINA ST
MCILWAIN ST
CSX RAILWAY
PAGES LAKE
ABERDEEN LAKE ROAD
ABERDEEN
PINEHURST
SOUTHERN PINES
ASHEBORO
SOUTH PINES
MOORE COUNTY COURTHOUSE
MOORE COUNTY SCHOOLS
TOWN HALL
POLICE DEPARTMENT
FIRE DEPARTMENT
PUBLIC LIBRARY
POST OFFICE
MOORE COUNTY HOSPITAL
MOORE COUNTY SHERIFF'S OFFICE
MOORE COUNTY COURTHOUSE
MOORE COUNTY SCHOOLS
MOORE COUNTY COMMUNITY CHAMBER
MOORE COUNTY ARTS COUNCIL
MOORE COUNTY ANIMAL SHELTER
MOORE COUNTY EMERGENCY SERVICES
MOORE COUNTY DEPARTMENT OF SOCIAL SERVICES
MOORE COUNTY PUBLIC HEALTH
MOORE COUNTY SCHOOLS ADMINISTRATIVE OFFICES
MOORE COUNTY SCHOOLS TECHNOLOGY CENTER
MOORE COUNTY SCHOOLS CENTRAL OFFICE
MOORE COUNTY SCHOOLS TRANSPORTATION
MOORE COUNTY SCHOOLS MAINTENANCE
MOORE COUNTY SCHOOLS FOOD SERVICE
MOORE COUNTY SCHOOLS PINE NEEDLES ELEMENTARY SCHOOL
MOORE COUNTY SCHOOLS SOUTHERN PINES ELEMENTARY SCHOOL
MOORE COUNTY SCHOOLS WESTMORE ELEMENTARY SCHOOL
MOORE COUNTY SCHOOLS WESTMORE MIDDLE SCHOOL
MOORE COUNTY SCHOOLS PINECREST HIGH


PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
100' 0' 100' 200'
50'
(ENGLISH)
PUBLIC MEETING MAP
PROJECT U-5814/U-5815
MOORE COUNTY
US 15-501 FROM US 1 TO BRUCEWOOD RD.
US 1 FROM OLD US 1 TO ROSELAND RD. (SR 1112)
SHEET 2 OF 3
STATE OF SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
WATCH LINE - SEE SHEET 3 OF 3
STUDY AREA LIMITS
BEGIN TIP PROJECT U-5814
END TIP PROJECT U-5815B
RELOCATED LINE
SOUTHERN PINES
ABERDEEN
SANDHILLS BLVD
RICHARDS ST
HOLLOWAY ST
15-501
1
LEGEND
PROPOSED STUDY AREA
EXISTING ROADWAY
EXISTING ROADWAY TO BE REMOVED
PROPOSED ROADWAY WIDENING
PROPOSED CONCRETE ISLAND, SIDEWALK
EXISTING CONCRETE SIDEWALK
POTENTIAL IMPACT AREA
EXISTING PONDS
EXISTING WETLANDS
EXISTING STREAMS
PROPERTY LINES
CITY LIMITS
EXISTING RIGHT-OF-WAY
EXISTING RAILROAD RIGHT-OF-WAY
HISTORIC BOUNDARY
EXISTING TRAFFIC SIGNAL
PROPOSED TRAFFIC SIGNAL
-L- US-1
TYPICAL SECTION NO. 1

NORTH CAROLINA

MOORE COUNTY

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

AND

TOWN OF ABERDEEN
AND
TOWN OF SOUTHERN PINES

TRANSPORTATION IMPROVEMENT PROJECT – MUNICIPAL AGREEMENT

DATE: 11/12/2021

TIP #: U-5815BA
WBS Elements: PE 54041.1.4
ROW 54041.2.7
UTIL 54041.2.8
CON 54041.3.5

THIS 3-PARTY MUNICIPAL AGREEMENT is made and entered into on the last date executed below, by and between the North Carolina Department of Transportation, an agency of the State of North Carolina, hereinafter referred to as the "Department" and the Town of Aberdeen, hereinafter referred to as "Aberdeen," Southern Pines, hereinafter referred to as "Southern Pines;" together herein after called the "Municipalities", and all three, collectively, herein after called "Parties."

W I T N E S S E T H:

WHEREAS, the Department has plans to construct improvements to the US 1 corridor from Old US 1 in Southern Pines to Roseland Road in Aberdeen under Project U-5814B in Moore County, hereinafter known as the "Project"; and,

WHEREAS, the Project includes upgrading the existing storm drainage along the US 1 corridor; and,

WHEREAS, said upgrades requires the relocation of an existing 18-inch transmission water line owned by the Southern Pines; and,

WHEREAS, the costs and inconvenience associated with the water line will create a burden to Parties, property owners and other businesses along the US 1 corridor; and,

WHEREAS, the Department has identified an alternate location on North Poplar Street, which is a parallel route to US 1; and,

WHEREAS, both Southern Pines and Aberdeen agree with the use of North Poplar Street as an acceptable location for the water line; and

WHEREAS, the optimal location to tie-in the southern portion of the relocated water line along North Poplar Street is at Elm Street, which is an Aberdeen roadway; and,

WHEREAS, the Aberdeen has an existing Sanitary Sewer line along Elm Street that is in substandard condition and will be affected by the installation of the new water line; and,

WHEREAS, NCDOT agrees to provide Aberdeen compensation for the upgrade of the Town's existing sanitary sewer line along North Poplar Street from Peach Avenue to the northern limits in lieu of performing the work; and,

WHEREAS, the Department and the Municipalities have agreed that the municipal limits, as of the date of the awarding of the contract for the construction of the above-mentioned project, are to be used in determining the duties, responsibilities, rights and legal obligations of the Parties hereto for the purposes of this Agreement; and,

WHEREAS, this Agreement is made under the authority granted to the Department by the North Carolina General Assembly, including but not limited to, the following legislation: General Statutes of North Carolina (NCGS), Section 136-66.1, Section 160A-296 and 297, Section 136-18, and Section 20-169, to participate in the planning and construction of a Project approved by the Board of Transportation for the safe and efficient utilization of transportation systems for the public good; and,

NOW, THEREFORE, the Parties hereto, each in consideration of the promises and undertakings of the other as herein provided, do hereby covenant and agree, each with the other, as follows:

SCOPE OF THE WORK

1. The Project consists of improvements to the US 1 corridor from Old US 1 in Southern Pines to Roseland Road in Aberdeen, programmed under U-5814B in Moore County. Said Project includes upgrading the existing storm drainage along the US 1 corridor, which will require the relocation of an 18-inch transmission water line owned by Southern Pines. The Department will construct the Project and will relocate the water line to North Poplar Street and Elm Street in Aberdeen.

2. As part of the relocation of the water line, the Department will provide compensation to Aberdeen to upgrade an existing sanitary sewer line along North Poplar Street in Aberdeen.

RESPONSIBILITIES OF EACH PARTY

3. Southern Pines will:

   A. Grant permission to the Department to relocate an existing 18-inch transmission water line, which is located in the Project area and is owned by Southern Pines, at an approximate cost to Southern Pines of $1,766,518.

   B. A separate Utility Agreement will be provided to specify the reimbursement details associated with this work.

   C. Coordinate with Aberdeen for relocation of the 18-inch transmission water line including all encroachments, agreements and forms necessary.

4. Aberdeen will:

   A. Grant permission to the Department to relocate an existing 18-inch transmission water line, which is owned by the Town of Southern Pines, to a location on along North Poplar Street (SR 2055) and Elm Street, which is an Aberdeen roadway, at no cost to Aberdeen.

   B. Coordinate with Southern Pines for relocation of the 18-inch transmission water line including all encroachments, agreements and forms necessary.

   C. Accept compensation from the Department in the amount of $375,000 for future rehabilitation or replacement of the town's existing sanitary sewer line along North Poplar Street from Peach Avenue to the northern terminus of the project.

5. The Department will:

   A. Relocate the existing Southern Pines' 18-inch transmission water line currently located along the US 1 corridor to North Poplar Street and tie-in the southern portion of the new transmission line using Elm Street which is owned by Aberdeen.

   B. Replace the existing water line and sanitary sewer line on North Poplar Street from Peach Avenue to Elm, as well as along Elm Street between US 1 and North Poplar Street.

   C. Repair any sanitary sewer lateral services and repair any sections of the sanitary sewer mainline damaged during construction on North Poplar Street from Peach Avenue to the northern terminus of the project.

D. Provide $375,000 in compensation to Aberdeen to participate in the cost to rehabilitate or replace of the town's existing sanitary sewer line along North Poplar Street from Peach Avenue to the northern terminus of the project.

RIGHT OF WAY

6. The Department shall be responsible for acquiring any needed right of way required for the Project, including the relocated water transmission line. Acquisition of right of way shall be accomplished in accordance with the policies and procedures set forth in the North Carolina Right of Way Manual.

7. It is understood by the Parties that all work for the betterments shall be performed within the existing right of way. However, should it become necessary, the Municipalities, at no expense or liability whatsoever to the Department, shall provide any needed right of way and or construction easements for the construction of the betterments, and remove from said rights of way all obstructions and encroachments of any kind or character. Acquisition of any needed right of way shall be performed in accordance with the following state and federal policies and procedures, "Right of Way Acquisition Policy and Land Acquisition Policy, contained in the Federal-Aid Policy Guide, Part 712, Subpart B", and the North Carolina Right of Way Manual (Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970). The Department shall be indemnified and held harmless from any and all damages and claims for damages associated with the acquisition of any construction easements and/or right of way.

CONSTRUCTION

8. The Department shall perform the Project in accordance with the plans and specifications of the Project as filed with, and approved by, the Department. The Department shall administer the construction contract for the Project.

MAINTENANCE

9. Upon completion of the Project:

   A. The Department shall be responsible for all traffic operating controls and devices which shall be established, enforced, and installed and maintained in accordance with the North Carolina General Statutes, the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, the latest edition of the "Policy on Street and Driveway Access to North Carolina Highways", and departmental criteria.

B. The improvement(s) shall be within North Poplar Street which is owned and maintained by the Department and Elm Street which is owned and maintained by Aberdeen.

C. The Municipalities, at no expense to the Department, shall assume all maintenance responsibilities for the betterments and release the Department from all liability relating to such maintenance

D. Upon the satisfactory completion of the relocations and adjustments of the utility lines covered under this Agreement, the Municipalities shall assume normal maintenance operations to the said utility lines. Upon completion of the construction of the said project, the Municipalities shall release the Department from any and all claims for damages in connection with adjustments made to its utility lines; and, further, Aberdeen and Southern Pines shall release the Department of any future responsibility for the cost of maintenance to said utility lines. Said releases shall be deemed to be given by the Aberdeen and Southern Pines upon completion of construction of the project and its acceptance by the Department from its contractor unless the Aberdeen and Southern Pines notifies the Department, in writing, to the contrary prior to the Department's acceptance of the project.

E. The Municipalities obligate themselves to service and to maintain their respective facilities to be retained and installed over and along the highway within the Department's right-of-way limits in accordance with the mandate of the North Carolina General Statutes and such other laws, rules, and regulations as have been or may be validly enacted or adopted, now or hereafter.

F. If at any time the Department shall require the removal of or changes in the location of the encroaching facilities, which are being relocated at the Municipalities' expense, the Municipalities binds themselves, their successors and assigns, to promptly remove or alter said facilities, in order to conform to the said requirement (if applicable per G.S. 136-27.1), without any cost to the Department.

FUNDING

10. The Department will provide $375,000 in compensation to Aberdeen to cover the cost to the future rehabilitation or replacement of their existing sanitary sewer line along North Poplar Street from Peach Avenue to the northern terminus of the Project within sixty (60) days of the execution of this Agreement.

Payment of this compensation provides full and complete compensation for any and all work necessary for the existing sanitary sewer line. No further compensation will be provided under the terms of this Agreement.

ADDITIONAL PROVISIONS

11. It is the policy of the Department not to enter into any agreement with another party that has been debarred by any government agency (Federal or State). The Municipalities certifies, by signature of this agreement, that neither it nor its agents or contractors are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any Federal or State Department or Agency.

12. To the extent authorized by state and federal claims statutes, each party shall be responsible for its respective actions under the terms of this agreement and save harmless the other party from any claims arising as a result of such actions.

13. All terms of this Agreement are subject to available departmental funding and fiscal constraints.

14. This Agreement contains the entire agreement between the Parties and there are no understandings or agreements, verbal or otherwise, regarding this Agreement except as expressly set forth herein.

15. The Parties hereby acknowledge that the individual executing the Agreement on their behalf is authorized to execute this Agreement on their behalf and to bind the respective entities to the terms contained herein and that he has read this Agreement, conferred with his attorney, and fully understands its contents.

16. By Executive Order 24, issued by Governor Perdue, and N.C. G.S.§ 133-32, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e., Administration, Commerce, Environmental Quality, Health and Human Services, Information Technology, Military and Veterans Affairs, Natural and Cultural Resources, Public Safety, Revenue, Transportation, and the Office of the Governor).

IN WITNESS WHEREOF, this Agreement has been executed, in duplicate, the day and year heretofore set out, on the part of the Department and the Municipality by authority duly given.

L.S. ATTEST:

TOWN OF ABERDEEN

BY:_____ BY: _____

TITLE:_____ TITLE: _____

DATE:_____ DATE: _____

This Agreement has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

BY:_____
(FINANCE OFFICER)

Federal Tax Identification Number

_____

L.S. ATTEST:

TOWN OF SOUTHERN PINES

BY:_____ BY: _____

TITLE:_____ TITLE: _____

DATE:_____ DATE: _____

This Agreement has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

BY:_____
(FINANCE OFFICER)

Federal Tax Identification Number

_____

DEPARTMENT OF TRANSPORTATION

BY: _____
(CHIEF ENGINEER)

DATE: _____

APPROVED BY BOARD OF TRANSPORTATION ITEM O:_____(Date)

RESOLUTION DIRECTING THE CLERK TO INVESTIGATE A PETITION RECEIVED UNDER G.S. 160A-31

AX-07-21: MPS Van Camp Property

WHEREAS, a petition requesting annexation of an area described in said petition was received on November 22, 2021 by the Town Council of the Town of Southern Pines; and

WHEREAS, G.S. 160A-31 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Southern Pines deems it advisable to proceed in response to this request for annexation;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Southern Pines that:

The Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify as soon as possible to the Town Council the result of her investigation.

Adopted this 14th day of December, 2021.

ATTEST: TOWN OF SOUTHERN PINES

_____ _____

Elizabeth Robertson, Deputy Town Clerk Carol R. Haney, Mayor

I certify that this Order was adopted by the Town Council of the Town of Southern Pines at its meeting on December 14, 2021 as shown in the Minutes of the Town Council meeting for that date.

_____

Elizabeth Robertson, Deputy Town Clerk

Town of Southern Pines
Chartered 1887
North Carolina

APPLICATION FOR
Voluntary Annexation

SUBMITTAL REQUIREMENTS:

X **Completed Petition for Voluntary Annexation (attached).** Petition signed with original wet ink by the owners of all real property located within the subject area to be considered for annexation.

X **Legal Description.** Written metes and bounds legal description of the subject property.

X **Accurate Map.** Provide a survey or accurate map of subject property.

X **Electronic copy (.pdf) of all application materials.** E-mail to admin@southernpines.net.

____ **NCGS § 160A-31** governs the Town's authority to annex property by a voluntary petition.

REVIEW & APPROVAL PROCESS:

- **Submittal (2nd Monday – month #1 of process):** Submit a packet as detailed above to the Town Clerk no later than close of business on the 2nd Monday of the month.

  Hard copies shall be submitted in person or by mail to: Town Clerk, Town of Southern Pines Administration Dept., 125 SE Broad St., Southern Pines, NC 28387.

- **Review by Staff:** Town staff will review the petition to ensure all required materials are submitted and properly executed. If the petition is complete, staff will forward it, along with a report, to the Town Council for review at their work session (4th Monday of the same month a complete application is submitted).

- **Town Council Work Session (4th Monday of month #1):** Staff and the petitioner will present the details of the petition to the Town Council. The Council will vote on a Resolution Directing the Town Clerk to Investigate the Sufficiency of a Petition for Annexation.

- **Investigation by Town Staff:** The Town Clerk will investigate the sufficiency of the petition per North Carolina General Statute §160A-31 and prepare a Certificate of Sufficiency.

- **1st Town Council Regular Meeting (2nd Tuesday of month #2):** The Town Council will receive the Certificate of Sufficiency and vote on a resolution scheduling a public hearing for the petition.

- **Legal Notice:** Town staff will publish a notice of the public hearing in the newspaper, at least 10 days prior to the date of the public hearing.

- **2nd Town Council Regular Meeting (2nd Tuesday of month #3):** The Town Council will hold a public hearing to receive public comment on petition and then vote to either approve or deny the petition. If approved, the annexation generally becomes effective the same day.

PETITION FOR VOLUNTARY ANNEXATION

To the Town Council of the Town of Southern Pines, North Carolina:

1. I/We the undersigned owner(s) of real property respectfully request that the area described in the attached Exhibit A be annexed to the Town of Southern Pines.

2. The area to be annexed is **contiguous** to the Town of Southern Pines and the boundaries of such territory are described in the attached metes and bounds description, Exhibit A.

3. The area is identified as PIN: 857100572972, 857100575720, and ; PARID: 00052502, 98000749, and .

Property Owner(s):

Name: Robert W. & Julie M. Van Camp, Trustees Signature: Robert + Julie Van Camp AIF

Address: 2 Regional Circle

Pinehurst, NC 28374-9796

Name: Morganton Road Enterprises, LLC Signature: Manage

Address: 2 Regional Circle

Pinehurst, NC 28374-9796

Name: _____ Signature: _____

Address: _____

_____

(Duplicate this form to add names, addresses and signatures of property owners, as necessary.)

7-28-21

EXHIBIT A

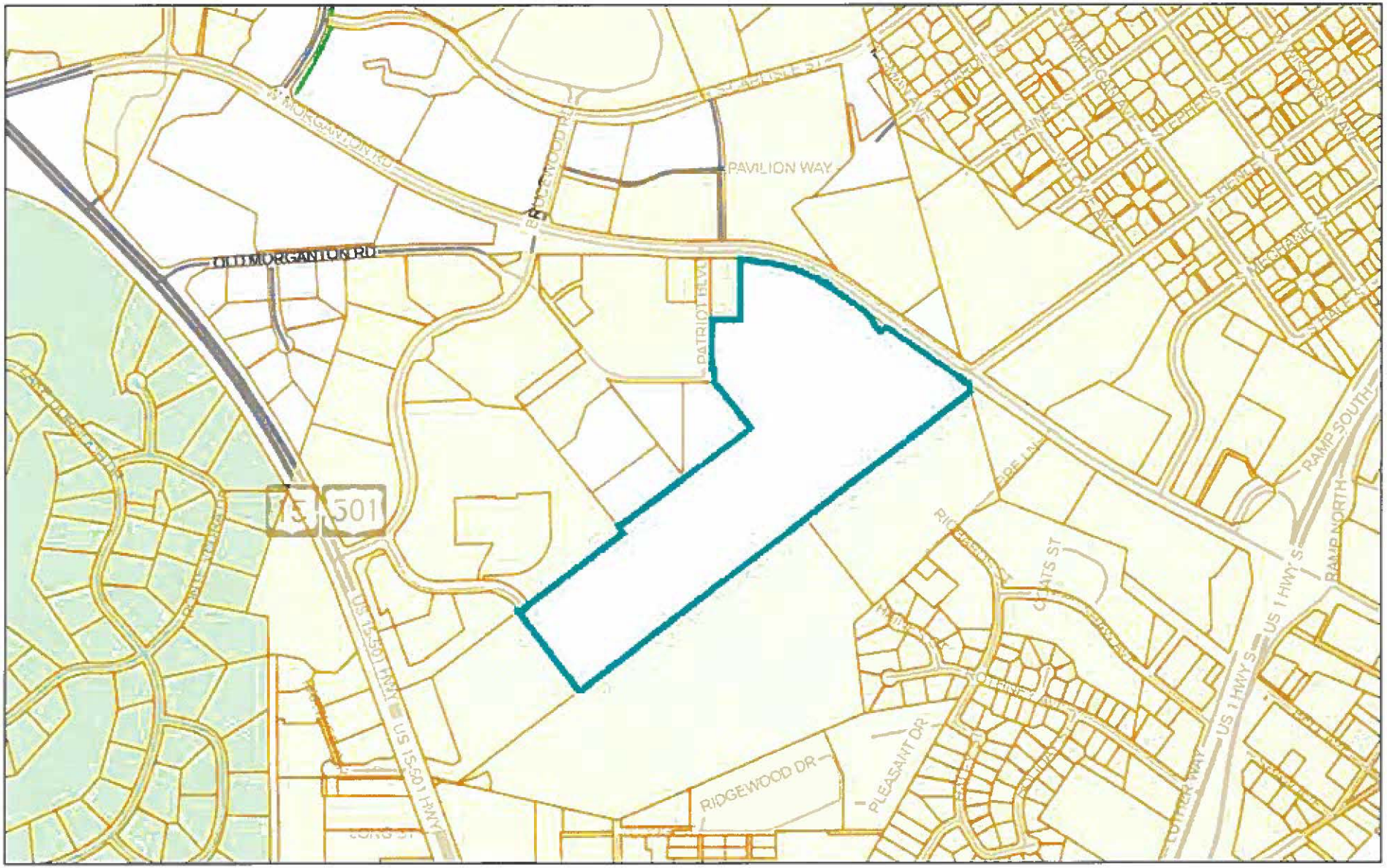
Metes and Bounds Description of Property/Properties Petitioning for Voluntary Annexation

7-28-21

LEGAL DESCRIPTION
54.94 ACRE TRACT, SOUTHERN PINES, SANDHILLS TOWNSHIP
MOORE COUNTY, NORTH CAROLINA

A CERTAIN TRACT OF LAND COMPRISED OF THE FOLLOWING TRACTS BEING LOCATED IN SOUTHERN PINES, SANDHILLS TOWNSHIP, MOORE COUNTY, NORTH CAROLINA; TRACT 2 AND TRACT 3 AS SHOWN ON THE MAP ENTITLED "RECOMBINATION PLAT OF 84.2457 ACRES" RECORDED IN PLAT CABINET 16 SLIDE 581 IN THE MOORE COUNTY REGISTRY, LOCATED IN SANDHILLS TOWNSHIP, MOORE COUNTY, NORTH CAROLINA AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A .5" IRON ROD SET IN THE EASTERN U.S. HIGHWAY 15-501 RIGHT-OF-WAY, SAID .5" IRON ROD SET BEING LOCATED N 20°01'27" W A DISTANCE OF 530.93' FROM NCGS GRID MONUMENT "SIMPSON" HAVING THE N.C. GRID COORDINATES: NORTHING 515,380.35', EASTING 1,873,851.03; THENCE FROM SAID IRON ROD AND WITH THE NORTHEASTERN BOUNDARY OF THE 44.835 ACRE TRACT AS SHOWN ON A MAP ENTITLED "SURVEY FOR OAKHURST FARMS, LLC" RECORDED IN PLAT CABINET 8 SLIDE 192 IN THE MOORE COUNTY REGISTRY S 77°09'09" E A DISTANCE OF 161.44' TO A .5" IRON ROD SET; THENCE WITH SAID NORTHEASTERN BOUNDARY N 52°51'24" E A DISTANCE OF 882.87' TO A 0.75' EXISTING IRON ROD AND POINT OF BEGINNING.
THENCE FROM SAID BEGINNING BEING THE SAME 0.75' EXISTING IRON ROD N 37°34'45" W A DISTANCE OF 583.00' TO AN EXISTING CONCRETE MONUMENT; THENCE N 52°41'23" E A DISTANCE OF 764.53' TO AN EXISTING CONCRETE MONUMENT; THENCE N 38°35'02" W A DISTANCE OF 45.48' TO A 2" IRON PIPE; THENCE N 53°32'04" E A DISTANCE OF 479.94' TO A 2" IRON PIPE; THENCE N 38°37'32" W A DISTANCE OF 12.02' TO A .5" IRON ROD SET; THENCE N 00°01'18" W A DISTANCE OF 536.79' TO A .5" IRON ROD SET; THENCE N 89°58'42" E A DISTANCE OF 185.93' TO A .5" IRON ROD SET; THENCE N 00°01'18" W A DISTANCE OF 70' TO A .5" IRON ROD SET; THENCE A CURVE TO THE LEFT HAVING A RADIUS OF 22.50' A CHORD BEARING OF N 45°01'18" W A CHORD DISTANCE OF 31.82' TO A .5" IRON ROD SET; THENCE N 00°01'18" W A DISTANCE OF 267.81' TO A .5" IRON ROD SET; THENCE N 89°58'42" E A DISTANCE OF 170.37' TO A .5" IRON ROD SET; THENCE N 00°01'18" W A DISTANCE OF 359.45' TO A .5" IRON ROD SET; THENCE A CURVE TO THE RIGHT HAVING A RADIUS OF 2056.05' A CHORD BEARING OF S 86°10'26" E A CHORD DISTANCE OF 42.87' TO A .5" EXISTING IRON ROD ; THENCE A CURVE TO THE RIGHT HAVING A RADIUS OF 1036.13' A CHORD BEARING OF S 75°38'39" E A CHORD DISTANCE OF 362.16' TO A .5" EXISTING IRON ROD; THENCE A CURVE TO THE RIGHT HAVING A RADIUS OF 1544.46' A CHORD BEARING OF S 59°31'50" E A DISTANCE OF 259.23' TO A .5" EXISTING IRON ROD; THENCE S 54°52'04" E A DISTANCE OF 218.95' TO A .5" EXISTING IRON ROD; THENCE S 36°27'29" E A DISTANCE OF 71.22' TO AN EXISTING CONCRETE MONUMENT; THENCE N 53°34'30" E A DISTANCE OF 23.50' TO A .5" EXISTING IRON ROD; THENCE S 54°50'08" E A DISTANCE OF 600.42' TO A .5" EXISTING IRON ROD; THENCE S 16°10'24" E A DISTANCE OF 37.01' TO AN EXISTING CONCRETE MONUMENT; THENCE S 52°52'03" W A DISTANCE OF 1199.88' TO AN EXISTING CONCRETE MONUMENT; THENCE S 52°51'44" W A DISTANCE OF 1,678.24' TO THE BEGINNING AND HAVING AN AREA OF 54.94 ACRES.



1 inch = 800 feet

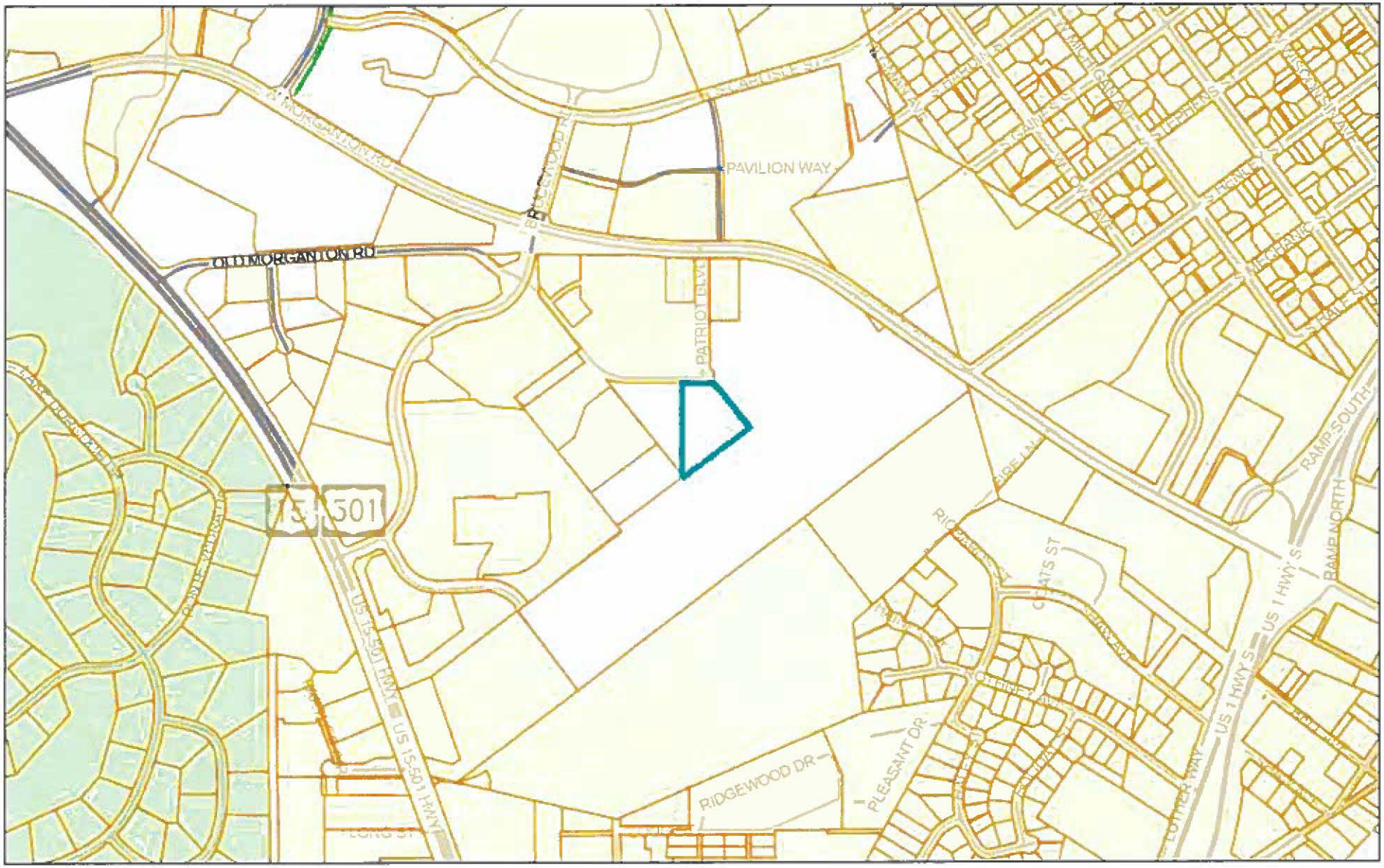
November 1, 2021

0 345 690 1,380 Feet

Name: MORGANTON ROAD ENTERPRISES, LLC
VAN CAMP, THOMAS M TRUSTEE & OTHERS

Parcel ID: 98000749

Deeded Acres: 52



1 inch = 800 feet

November 1, 2021

0 345 690 1,380 Feet

Name: VAN CAMP, ROBERT W & JULIE M TRUSTEES

Parcel ID: 00052502

Deeded Acres: 3.048

Town of Southern Pines
Chartered 1887
North Carolina

APPLICATION FOR
Voluntary Annexation

SUBMITTAL REQUIREMENTS:

____ **Completed Petition for Voluntary Annexation (attached).** Petition signed with original wet ink by the owners of all real property located within the subject area to be considered for annexation.

____ **Legal Description.** Written metes and bounds legal description of the subject property.

____ **Accurate Map.** Provide a survey or accurate map of subject property.

____ **Electronic copy (.pdf) of all application materials.** E-mail to admin@southernpines.net.

____ **NCGS § 160A-31** governs the Town's authority to annex property by a voluntary petition.

REVIEW & APPROVAL PROCESS:

- **Submittal (2nd Monday – month #1 of process):** Submit a packet as detailed above to the Town Clerk no later than close of business on the 2nd Monday of the month.

  Hard copies shall be submitted in person or by mail to: Town Clerk, Town of Southern Pines Administration Dept., 125 SE Broad St., Southern Pines, NC 28387.

- **Review by Staff:** Town staff will review the petition to ensure all required materials are submitted and properly executed. If the petition is complete, staff will forward it, along with a report, to the Town Council for review at their work session (4th Monday of the same month a complete application is submitted).

- **Town Council Work Session (4th Monday of month #1):** Staff and the petitioner will present the details of the petition to the Town Council. The Council will vote on a Resolution Directing the Town Clerk to Investigate the Sufficiency of a Petition for Annexation.

- **Investigation by Town Staff:** The Town Clerk will investigate the sufficiency of the petition per North Carolina General Statute §160A-31 and prepare a Certificate of Sufficiency.

- **1st Town Council Regular Meeting (2nd Tuesday of month #2):** The Town Council will receive the Certificate of Sufficiency and vote on a resolution scheduling a public hearing for the petition.

- **Legal Notice:** Town staff will publish a notice of the public hearing in the newspaper, at least 10 days prior to the date of the public hearing.

- **2nd Town Council Regular Meeting (2nd Tuesday of month #3):** The Town Council will hold a public hearing to receive public comment on petition and then vote to either approve or deny the petition. If approved, the annexation generally becomes effective the same day.

PETITION FOR VOLUNTARY ANNEXATION

To the Town Council of the Town of Southern Pines, North Carolina:

1. I/We the undersigned owner(s) of real property respectfully request that the area described in the attached Exhibit A be annexed to the Town of Southern Pines.

2. The area to be annexed is **contiguous** to the Town of Southern Pines and the boundaries of such territory are described in the attached metes and bounds description, Exhibit A.

3. The area is identified as PIN: See Attached; PARID: See Attached.

Property Owner(s):

Name: Benjamin Stout Real Estate Services Inc. Signature: B Stout

Address: PO Box 53798

Fayetteville, NC 28305

Name: _____ Signature: _____

Address: _____

_____

Name: _____ Signature: _____

Address: _____

_____

(Duplicate this form to add names, addresses and signatures of property owners, as necessary.)

7-28-21

EXHIBIT A

Metes and Bounds Description of Property/Properties Petitioning for Voluntary Annexation

See Attached

7-28-21

PIN	PARID
857400849276	00041291
857400940142	00041293
857404931919	00041294
857404932803	00041296
857404932694	00041297

ENGINEERING - SURVEYING - DESIGNING - DRAFTING
Larry King & Associates, R.L.S., P.A.
P.O. Box 53787
1333 Morganton Road, Suite 201
Fayetteville, North Carolina 28305
P. (910) 483-4300 F. (910) 483-4052
www.LKandA.com
NC Firm License C-0887

December 6, 2021

LEGAL DESCRIPTION

BLUE FARM SECTION THREE
LOTS 6, 7, 8, 9 and 10

Moore County

4.10 ACRES

LYING in McNeills Township, Moore County, North Carolina, this subject tract being bounded on the northeast by Lots 1, 2, 3, 4 and 5, "Blue Farm, Section Three" as described and recorded in Plat Cabinet 4, Page 319, Moore County Registry; bounded on the southeast by the tract as conveyed to Charles Leon Hargrove, as described and recorded in Deed Book 1526, Page 328, Moore County Registry; bounded on the southwest by the northeast right of way margin NC Highway 22, a 60 foot public right of way; bounded on the northwest by the southeast right of way margin of Sullivan Drive, a 60 foot public right of way, and being more particularly described as follows:

COMMENCING from the northernmost corner of Lot 10, "Blue Farm, Section Three" as described and recorded in Plat Cabinet 4, Page 319, Moore County Registry, said corner of Lot 10 also being the **TRUE POINT AND PLACE OF BEGINNING**;

THENCE as and with the southwest boundary line of Lots 1, 2, 3, 4 and 5 "Blue Farm, Section Three" (Plat Cabinet 4, Page 319), South 26 degrees 41 minutes 00 seconds East for a distance of 880.77 feet to the southernmost corner of Lot 5;
THENCE as and with the southeast boundary line of Lot 6, South 63 degrees 19 minutes 00 seconds West for a distance of 205.80 feet to a point, the southernmost corner of Lot 6, located in northeastern right of way margin of NC Highway 22, a 60 foot public right of way;
THENCE as and with the southwest boundary line of Lot 6, North 27 degrees 17 minutes 00 seconds West for a distance of 200.05 feet to a point;
THENCE as and with the southwest boundary line of Lot 7, North 26 degrees 36 minutes 00 seconds West for a distance of 210.00 feet to a point;
THENCE as and with the southwest boundary line of Lot 8, North 26 degrees 01 minutes 00 seconds West for a distance of 155.00 feet to a point;

THENCE as and with the southwest boundary line of Lot 9, North 25 degrees 25 minutes 00 seconds West for a distance of 155.03 feet to a point;

THENCE as and with the southwest boundary line of Lot 10, North 23 degrees 28 minutes 00 seconds West for a distance of 124.99 feet to a point;

THENCE a curve to the right having a radius of 20.00 feet, an arc length of 28.36 feet and a chord bearing and distance of North 17 degrees 09 minutes 30 seconds East for a distance of 26.04 feet to a point located in the southeast right of way margin of Sullivan Drive (S.R. 1911);

THENCE as and with said right of way margin of Sullivan Drive, North 57 degrees 47 minutes 00 seconds East for a distance of 178.14 feet to the northernmost corner of Lot 10, said point also being the **TRUE POINT AND PLACE OF BEGINNING.**

Together with and subject to covenants, easements, and restrictions of record.
Said property contains 4.10 acres (178,591 square feet).

This description prepared by Larry King & Associates, R.L.S., P.A. on this 06th day of December, 2021, under the supervision of W. Larry King, a Professional Land Surveyor.

W. Larry King PLS 1339

W. Larry King, P.L.S., L-1339

Jun 15 1 31 PM '90

MR[illegible] M[illegible]
REGISTE[illegible] OF
MOORE COUNTY, N.C.

Certificate of Ownership and Dedication

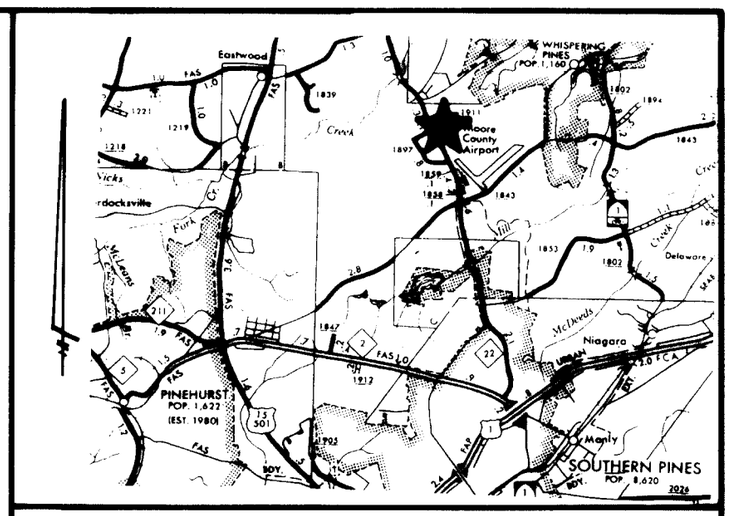
I (We) hereby certify that I am (we are) the owner(s) of the property shown and described hereon and that I (we) hereby adopt this plan of subdivision with my (our) free consent, establish minimum building lines, and dedicate all streets, alleys, walks, parks and other sites to public or private uses as noted. Further, I (we) certify the land as shown hereon is within the platting jurisdiction of the Village of Whispering Pines, North Carolina

May 30, 1990 Julian Hallright
Date Owner

A. P. Johnson
Owner

A PRELIMINARY EVALUATION OF THIS SUBDIVISION INDICATES THAT INDIVIDUAL SEWAGE DISPOSAL SYSTEMS MAY BE USED. IT WILL BE NECESSARY TO EVALUATE EACH LOT INDEPENDENTLY IN RELATION TO CONSTRUCTION PLANS AND SITE SUITABILITY PRIOR TO APPROVAL OF ANY SEWAGE DISPOSAL SYSTEM. SYSTEMS SHALL MEET THE REQUIREMENTS OF THE NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES, DIVISION OF HEALTH SERVICES AND THE MOORE COUNTY HEALTH DEPARTMENT, PRIOR TO APPROVAL.

MAY 24 1990 James (W) Fields, RS.
DATE ENVIRONMENTAL HEALTH SUPERVISOR OR HIS AUTHORIZED REPRESENTATIVE



LOCATION SKETCH
1" = 2 MILES±

Certificate of Approval of the Design and Installation of Streets, Utilities, and Other Required Improvements

I hereby certify that streets, utilities and other improvements have been installed in an acceptable manner and in accordance with Village specifications in the subdivision entitled _____, or that a surety bond in the amount of $ ___ has been posted with the Village Clerk to assure completion of all required improvements in case of default.

June 6, 1990
Date

Village Administrator

Attest:

Marjorie H. Dawson
Village Clerk

Certificate of Approval by the Village Council

I, JAMES E. STEELE, President of the Village of Whispering Pines, do hereby certify that said Council fully approved the final plat of the subdivision entitled BLUE FARM, SECTION THREE, on the 14th day of JUNE, 1990, and such approval is recorded in the Village Council Minutes dated JUNE 14 1990.

James E. Steele
President

NOTE:
SIGHT LINE EASEMENTS AS SHOWN HEREON TO BE KEPT CLEAR OF BUILDINGS & OBSTRUCTIONS.

NO NEW STREETS OR ROADS ARE CREATED BY THIS PLAT.

STREETS AND ROADS SHOWN HEREON ARE DESIGNATED "PUBLIC"

ERROR OF CLOSURE (EXPRESSED AS A RATIO OF PRECISSION) = 1/7,500+

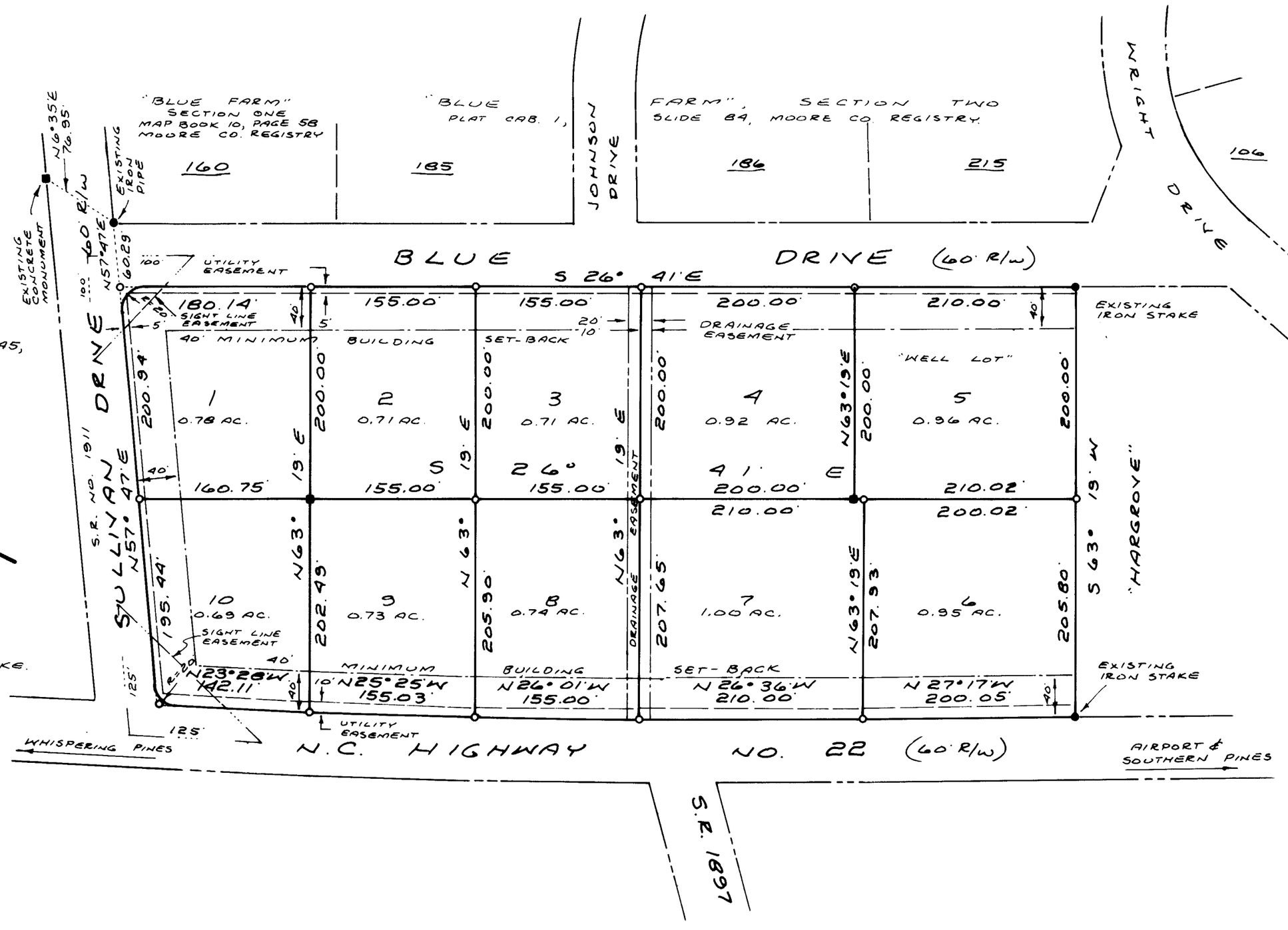
ACREAGE CALCULATED BY COORDINATE METHOD.

REFERENCE: DEED BOOK 345, PAGE 133, MOORE COUNTY REGISTRY.

DEED MAGNETIC NORTH - 1970

■ ~ DENOTES CONCRETE MONUMENT "CONTROL CORNER".

o ~ DENOTES NEW IRON STAKE.



I, H.D. GILHOUSEN, CERTIFY THAT THIS PLAT WAS DRAWN BY ME FROM MY ACTUAL SURVEY: THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES: THAT THIS PLAT WAS PREPARED IN ACORDANCE WITH G.S. 47-30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 22ND DAY OF MAY 19 90

L-2508 H.D. Gilhousen
R.L.S. NO. REGISTERED SURVEYOR

NORTH CAROLINA, MOORE COUNTY
I, MERRY ANN CADDELL A NOTARY PUBLIC OF THE COUNTY AND STATE AFORESAID, CERTIFY THAT H.D. GILHOUSEN, A REGISTERED LAND SURVEYOR, PERSONALY APPEARED BEFORE ME THIS DAY AND ACKNOWLEDGED THE EXECUTION OF THE FOREGOING INSTRUMENT THIS 22ND DAY OF MAY 1990

Merry Ann Caddell
NOTARY PUBLIC MY COMMISSION EXPIRES: AUGUST 12, 1990

MERRY ANN CADDELL NOTARY PUBLIC MOORE COUNTY, N.C.

BLUE FARM, SECTION THREE

PROPERTY OF A.P. JOHNSON AND J. H. WRIGHT
McNEILLS TOWNSHIP, MOORE COUNTY, NORTH CAROLINA
MAY 15, 1990 SCALE ~ 1" = 100'
AMERICAN SURVEYING & MAPPING, RT. 1, WEST END, N.C.

0 100 200 400 600

A.P. JOHNSON
204 BOYD LANE
SOUTHERN PINES, N.C. 28387

RESOLUTION DIRECTING THE CLERK TO INVESTIGATE
A PETITION RECEIVED UNDER G.S. 160A-31
AX-08-21: Blue Farm Section Three

WHEREAS, a petition requesting annexation of an area described in said petition was received on December 6, 2021 by the Town Council of the Town of Southern Pines; and

WHEREAS, G.S. 160A-31 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Southern Pines deems it advisable to proceed in response to this request for annexation;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Southern Pines that:

The Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify as soon as possible to the Town Council the result of her investigation.

Adopted this 14th day of November, 2021.

ATTEST: TOWN OF SOUTHERN PINES

_____ _____
Elizabeth Robertson, Deputy Town Clerk Carol R. Haney, Mayor

I certify that this Order was adopted by the Town Council of the Town of Southern Pines at its meeting on December 14, 2021 as shown in the Minutes of the Town Council meeting for that date.

_____
Elizabeth Robertson, Deputy Town Clerk