AGENDA

Town of Southern Pines Planning Board Special Meeting
Douglass Community Center
May 18, 2022 at 6:00 PM

I. Call to Order

II. Approval of Minutes

III. Proceedings:

Public Forum: PD-07-22 Planned Development District - Preliminary Development Plan for Morganton Park South Phase 2 located between West Morganton Road and US 15-501 Hwy; Petitioner: Zimmer Development Company by Koontz Jones Design, Agent

Public Forum: SU-03-22: Special Use Permit for a multi-family residential development on the northeast side of Long Street between Short Street and Haley Street; Petitioner: Davis Park Leasing by Koontz Jones Design, Agent

Public Hearing: OA-02-22: Text Amendments to the Unified Development Ordinance; Petitioner: Town of Southern Pines Administration Department

IV. Unfinished Business

V. New Business

VI. Adjournment

Agenda Item

To: **Planning Board**

From: **Pamela Graham, Principal Planner**

Subject: **PD-07-22: A Planned Development District - Preliminary Development Plan for 269 Multi-Family Units; Applicant: Zimmer Development Company, Adam Tucker; Bob Koontz of KoontzJones Design PLLC, Authorized Agent; Owners: Hyperactive Commercial Investments, LLC, and Morganton Road Enterprises, LLC, Thomas M. Van Camp, Trustee**

Date: **May 18, 2022**

I. SUMMARY OF APPLICATION REQUEST:

Mr. Bob Koontz has submitted an application on behalf of Zimmer Development Company for a Planned Development - Preliminary Development Plan in association with the Morganton Park South mixed-use development proposal approved in September of 2021. The application for this second phase of the Morganton Park South CDP proposes 269 multi-family residential units on a 13.18 acre portion of two parcels. The approved CDP calls for the following:

- Project total acreage = +/- 98.9;
- 650 total residential units, which may be multi-family, townhomes, or single family detached up to a density of 16 dwelling units per acre;
- Up to 700,000 square feet of office and/or commercial/retail;
- The multi-family residential development proposed for the subject project area is identified as Phase 2, following the Phase 1 retail component, which received PDP approval in October of 2021.

II. PROJECT INFORMATION:

A. Property Owners(s)

1. PIN 857100562348 (PARID 00049222)
Owned by Hyperactive Commercial Investments (HCI), LLC
25 Shaw Road
Pinehurst, NC 28374

2. PIN 857100575720 (PARID 98000749)
Owned by Morganton Road Enterprises, LLC, Thomas M. Van Camp, Trustee
PO Box 1389
Pinehurst, NC 28370

B. Applicant(s)

Zimmer Development Company c/o Adam Tucker
150 South Page Street
Southern Pines, NC 28387

C. Authorized Agent

Bob Koontz
Koontz Jones Design
150 South Page Street
Southern Pines, NC 28387

D. Property Information:

1. **Street Address:**
   The subject property currently contains two street addresses: 10693 and 10695 US 15-501 Highway.

2. **Size of Property:**

Total acreage in approved CDP:	98.9
Area being developed in current PDP (Phase 2):	13.18

3. **Subject Property Description:**
   The subject property is a portion of, and 2nd phase of, the Morganton Park South CDP and is located near the center of the CDP total project area, immediately adjacent to the previously approved Phase 1 retail portion of the plan. The Phase 2 project area currently has no road access, and will be accessed via the Parkway Connector road that is required to be constructed concurrent with Phase 1.

Figure 1: Aerial image taken over US 15-501, looking northeast towards subject property (approximate location shown in yellow)



Figure 2: Aerial image, looking north towards subject property (approximate location shown in yellow) – Lowe's Grocery and Kohl's shown in distance



Figure 3: Aerial image, looking northwest towards subject property (approximate location shown in yellow)



4. **Jurisdiction**
   The subject property was annexed in February of this year. Other portions of the full CDP area have not yet been annexed and remain in the Town's extra-territorial jurisdiction (ETJ). The CDP approval was conditioned on annexation of the entirety of the CDP area prior to issuance of the first building permit for construction for any phase.

5. **Property Zoning Classification:**
   The zoning of the subject property is PD-Planned Development (See Figure 4: Vicinity & Zoning Map below). A Conceptual Development Plan (CDP) for Morganton Park South was approved by the Town of Southern Pines Town Council on September 14, 2021 as file PD-08-21. The current and all future Preliminary Development Plan (PDP) applications must be consistent with the approved CDP or must request and be granted deviations from the CDP as part of the PDP review and approval process.

Figure 4: Current Zoning Vicinity Map (Overall CDP outlined in Red, Phase 2 PDP outlined in yellow)

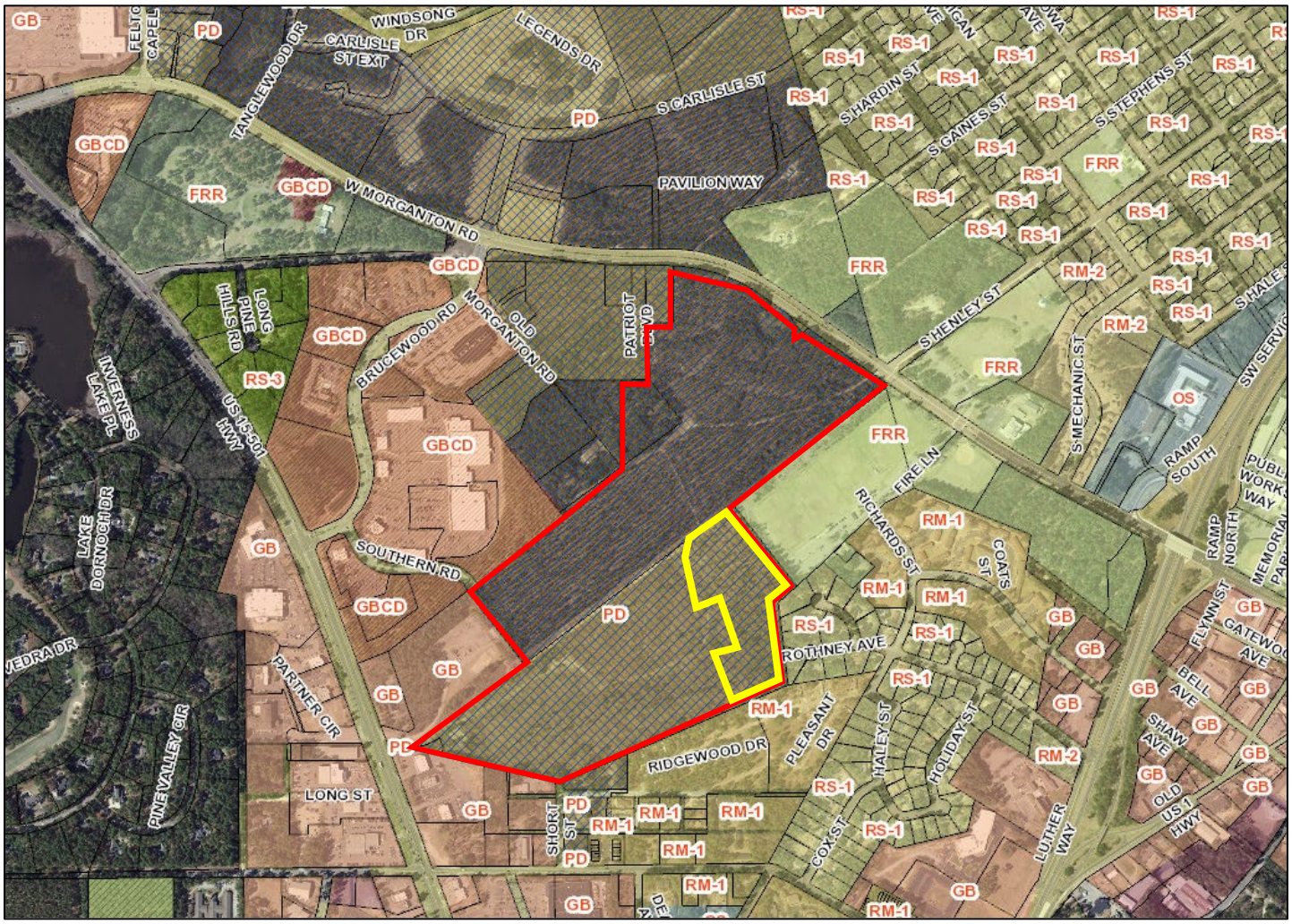
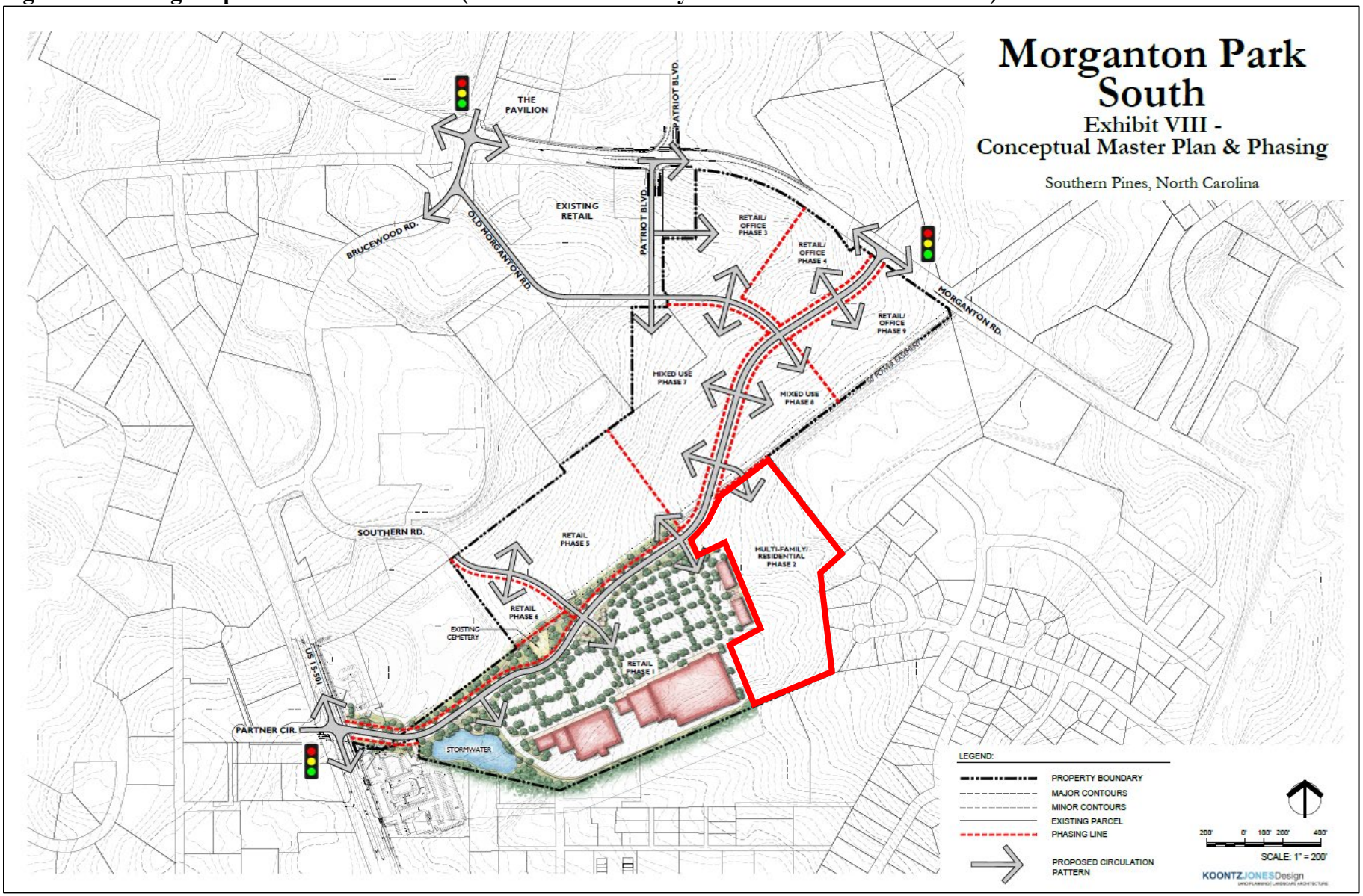


Figure 5: Phasing Map from CDP Submittal (Phase 2 Multi-Family is outlined with solid red line)



III. STAFF REVIEW:

I. Review Process:

Applications for a Planned Development District (PD) are reviewed in accordance with UDO §2.18. Creating a Planned Development District is a three-step process including Conceptual Development Plan (CDP), Preliminary Development Plan (PDP), and Final Development Plan (FDP). The second step, PDP, is when a project or phase of a project are reviewed for compliance with the unique zoning standards established in the CDP. An application for approval of a Preliminary Development Plan (PDP) follows the procedure for quasi-judicial decisions by the Town Council. Prior to the Council's decision, the Planning Board may hold a Preliminary Forum to review the project.

II. Summary of Procedural Requirements:

- PDP Application Submitted: April 11, 2022
- PDP Application Complete: April 21, 2022
- Notice of May 18, 2022 Planning Board Public Hearing:
  - Posted On-site: May 3, 2022
  - Mailed: May 2, 2022
  - Internet: April, 28, 2022
  - Newspaper: May 4, 2022 and May 11, 2022
- Planning Board Agenda Meeting: May 12, 2022.
- Planning Board Preliminary Forum: May 18, 2022 as a Special Called Meeting

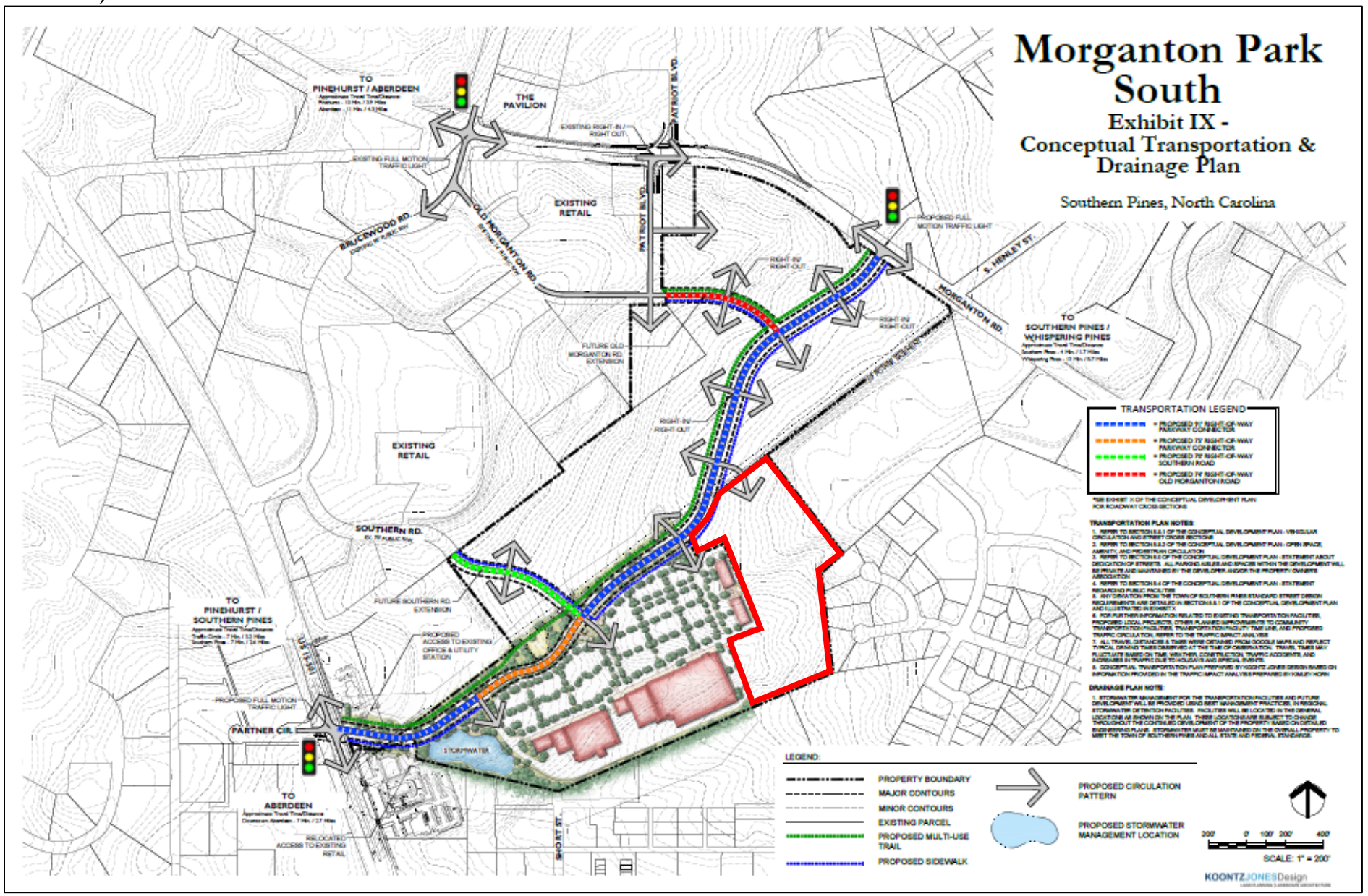
III. Applicable Criteria for Review:

The criteria for review and approval of a PDP are found in Chapter 2, §2.18.5(H), of the Town of Southern Pines Unified Development Ordinance. Staff analysis of how the application addresses these criteria is included in Section IV-B of this document.

Preliminary Development Plan:

1. *The application demonstrates that it will achieve the purposes of the Planned Development District (PDD) and this section of the UDO.*
2. *The Preliminary Development Plan is consistent with the Conceptual Development Plan and conforms to all applicable provisions of this UDO;*
3. *The proposed Development is located in an area of the Town that is appropriate; and*
4. *The proposed Development will not cause the need for inefficient extensions and expansions of public facilities, utilities and services.*

Figure 6: Conceptual Transportation & Drainage Plan from CDP Submittal (Phase 2 Multi-Family is outlined with solid red line)



IV. Town Staff Review and Comments:

1. Consultation with Technical Review Committee

The proposed development was presented multiple times to the Town of Southern Pines Technical Review Committee (TRC) during the CDP stage. A formal site plan review for this phase will occur following approval of the PDP by Town Council.

2. Consistency with Criteria for a Preliminary Development Plan:

The criteria against which a PDP shall be reviewed are found in UDO §2.18.5(H). The applicants have provided a Narrative and a Justification document addressing the criteria for a PDP as required by the UDO, which is enclosed with this report. Staff analysis of the application's ability to meet the criteria is as follows.

1. *The application demonstrates that it will achieve the purposes of the Planned Development District (PDD) and this section of the UDO.*
   The purpose, intent, and general requirements for the Planned Development (PD) District are found in Chapter 3, §3.5.14, and are included in the paragraphs that follow.

   The stated purpose for the District is *"to accommodate mixed land uses, such as office, residential, service, commercial, public or private recreational Development, and where consistent with the future land use map, light manufacturing and assembly uses that comply with the employment center Development Patterns in section 6.5".*
   The future land use map indicates Traditional Mixed Use for the subject project area.

   The stated intent for the District is *"to allow mixed-use Developments in areas where sufficient public water and sewer service is available (or can readily be extended) and where the street system is adequate (or can be readily improved) to handle the projected traffic volumes generated by the Development.*
   Public water is available at multiple locations adjacent to the site, including Morganton Road, US 15-501, Southern Road, and to the Old Morganton Road/Patriot Boulevard intersection. Public gravity sewer is available at all of these locations with the exception of Morganton Road. Additionally, Southern Pines' Town Engineer has certified that the Town's existing water and sewer systems have the capacity to serve the CDP. With regard to the adequacy of the street system, in addition to the existing roads that provide access to the overall CDP, a four-lane Parkway Connector is scheduled for construction concurrent with the development of Phase 1. This connector road, which will provide direct access to the Phase 2 property, is described in the CDP as being a connection between US Highway 15-501 and Morganton Road at signalized intersections, and will create an important cross connection that will provide alternative routes that will help disperse traffic in the area, enhancing the overall vehicular circulation patterns and

mobility throughout the area. A traffic impact analysis (TIA) was required for Phases 1 (Retail) and 2 (Apartments) and a copy is attached to this report. Please refer to Figure 6, (Exhibit IX from the approved CDP), for a diagram of the proposed transportation plan, and "Noteworthy Project Elements", both contained within this document, for additional information regarding the TIA.

The UDO's stated intent of the regulations for the District is to:

a. *Encourage planned, large-tract Development, including service, office, commercial, residential, public or private recreational Development or light industrial uses;*
b. *Exclude heavy commercial and heavy industrial land uses;*
c. *Encourage Development in areas located on major thoroughfares and collector streets;*
d. *Encourage vehicular access from service drive and other local streets;*
e. *Provide performance standards to help ensure compatible land uses;*
f. *Encourage common or shared parking;*
g. *Promote creativity and innovation in the design that leads to more appropriate relationships between land uses and features;*
h. *Facilitate clustering of Development thereby increasing the amount of saved land;*
i. *Foster Development of a network of open space to serve a variety of recreational and environmental purposes designed and located with respect to existing unique natural features and environmentally sensitive areas;*
j. *Improve connectivity within and between Developments to promote mobility and enhance walkability;*
k. *Integrate public spaces and amenities to promote community gatherings and activities;*
l. *Establish coordinated land plan and consistent treatment of common design elements;*
m. *Provide the flexibility to respond to market conditions over longer projected Development periods due to the scale of such Developments; and*
n. *If residential land uses are proposed, provide a variety of Lot sizes and Dwelling types to expand the spectrum of housing choices for households of various type, size, income and age.*

2. *The Preliminary Development Plan is consistent with the Conceptual Development Plan and conforms to all applicable provisions of the UDO.*
The UDO sets the expectation for uniqueness in the design and development of Planned Developments in §3.5.14, allowing for a significant degree of deviation from the UDO. In §3.5.14(F)(3), the UDO specifically allows for alternative standards as long as the proposal:

- Meets or exceeds the general intent of the UDO standards for the base districts;
- Is appropriate given the specific mix of uses and character of the development; and
- Achieves a more efficient, safe, or economical land use without detracting from the quality of the development or the community as a whole.

In comparing the PDP proposal with the approved CDP, staff analyzed the following CDP provisions that are relevant to Phase 2. The location within the CDP where the information can be found is also included for reference.

a. The "center portion" of the CDP development area will provide mixed-use development, which may include multi-family residential, retail, commercial, and office development. (CDP Section 2.2 – Vision)

The Phase 2 area is within the "center portion" of Morganton Park South, and proposes multi-family residential uses.

b. Street standards were approved in the CDP include four distinct cross-sections (Exhibits IX and X).

i. The 91' wide right-of-way cross-section was proposed for the area of the Parkway Connector that will provide access to Phase 2. The PDP plans indicate no change to this proposal.

c. *Open space, amenity, and pedestrian circulation is addressed in CDP Section 5.5.2.*

The CDP proposed a linear park running adjacent to the Parkway Connector on each side, with the park's total width (calculating both sides of the road) to be no less than eighty feet (80'). While the total width at any point must be no less than 80', it is not required to have a uniform width on each side of the roadway, and be as little as 20' on one side. The Parkway Connector section that fronts Phase 2 indicates the linear park measuring 60' of width along most of the frontage, narrowing to 40' along a +/- 150' long section, to avoid a conflict with the proposed parking lot. Amenities, as required by the CDP, include a bench, a sidewalk, and landscaping. The opposite side of the connector road has not yet been designed; staff will monitor as additional phases are submitted to ensure that the total 80' width is maintained along both sides of the connector.

3. The proposed Development is located in an area of the Town that is appropriate.

The CDP proposes in Section 1.0 to encourage a variety of land uses and building types including residential, commercial, and office uses, which will result in a master planned development, and discourage disjointed, piecemeal development. In approving the CDP, Town Council determined that the proposed development was consistent with the Comprehensive

Long Range Plan (CLRP) which indicates Traditional Mixed Uses for the project area. More specifically, the CLRP describes the Traditional Mixed Use category as follows:

> "The Traditional Mixed Use category applies to those larger, mostly undeveloped parcels well-suited to mixing residential and non-residential uses in a manner similar to that found in downtown Southern Pines. This designation applies to the Morganton Road area and to the Pine Needles area, identifying these as likely spots for mixed-use including an interconnected street network as found in traditional town development. No specific development intensity is implied by this designation. It simply indicates that such areas will be built to urban levels, will incorporate a variety of uses, and will have a street network accommodating modes of travel beyond the automobile."

4. *The proposed Development will not cause the need for inefficient extensions and expansions of public facilities, utilities and services.*
   The parcels for development of Phase 2 were annexed in February of this year. Prior to annexation, the property was considered extra-territorial jurisdiction (ETJ) and was surrounded by in-town properties on three sides. James Michel, Town Engineer, has certified that the Town's existing water and sewer systems have the capacity to serve the proposed development and extension of town services such as police and fire protection do not create an undue burden due to the adjacency of properties already served.

3. Requested Deviations from the Approved CDP:

1. For the PDP application for Phase 2, the following deviations are being requested and are included in the applicant's narrative.

   - UDO Section 4.5 addresses parking requirements for development within the Town. Multi-family developments require 1 parking space per dwelling unit for all 1-bedroom units and two spaces per unit for 2 and 3-bedroom units. Also required is one parking space per each five units to accommodate visitors. The proposed development would require 507 parking spaces based on the UDO and the proposed number of bedrooms and units. The applicant seeks to reduce the minimum required number of parking spaces from 507 to 434 but states that they are willing and able to incorporate the full number of required spaces if the request is not granted. The CDP did not grant parking reductions, except where shared parking may be appropriate. This PDP does not propose shared parking.
   - Residential units were capped at 650 total units by the CDP, and may be multi-family, townhomes, and single-family detached up to a density of sixteen dwelling units per acre. Phase 2 represents the first proposal for residential units for the development, and includes 269

multi-family dwelling units on 13.18 acres, which calculates to more than 20 units per acre. The applicant has requested an increase in the allowable density for Phase 2 to 20.4 units per acre, as stated in the attached narrative, "because of the proximity to the adjacent shopping center", to accommodate walkability between the retail and residential uses in these initial two phases. There is no request to increase the allowable number of total dwelling units for the overall development, which is capped at 650. If Phase 1 is allowed the 269 units in the design, 381 units will remain in the total allocation, to be distributed among future phases where residential uses are anticipated.

4. Noteworthy Project Elements for Planning Board and Town Council Consideration

- Approval of the Morganton Park Phase 2 PDP will allow 269 multi-family units in three buildings with a leasing office/clubhouse, associated parking, and other amenities such as a swimming pool arranged in the manner depicted in Preliminary Development Plan Sheet L1.1 to proceed to engineering plan (site plan) review with town staff.

- Though not included in the list of deviation requests made by the applicant, reviewers of the proposal should note that a waiver granted in the CDP approval is applicable to the Phase 2 design layout, and is subject to interpretation. The CDP Exhibit XIII – Master Plan Development Waivers document states: "Due to the type of development proposed and the site constraints (dimensions and topography), buildings will be oriented toward the street, however, they will not be required to be close to the street frontage". This waiver grants relief from UDO §3.6.6(C)(3), which states: "Except where approved by Council within Large Scale Retail Development, buildings should be oriented to and located close to the street frontage with parking lots on the side or rear." The applicant's narrative describes the orientation of the buildings in Phase 2 as being "toward the shopping center and adjacent recreation areas. This configuration provides an ideal opportunity for pedestrian connections to these areas and will encourage walking within the community." The plan orients the buildings toward the internal private street and provides direct access to adjacent open space for some units. The decision must be made as to whether the UDO language intends to draw the buildings towards the public, connector road that provides access to the apartment complex, rather than the internal, private road that winds its way through the Phases 2 development.

IV. Cooperating Agency Review and 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, Sandhills

Community College, Moore County Airport Authority, U.S. Fish and Wildlife Service and the Regional Land Use Advisory Commission on April 28, 2022.

- Dago Juarez Pozos, NCDOT District Engineer, responded on May 5, 2022 that they have no additional comments on this development, as it was accounted for in the TIA previously reviewed that included both the Phase 1 and Phase 2 development proposals.

- Vagn Hansen, RLUAC's Executive Director, responded on May 3, 2022 that the agency had no comments regarding this proposal.

- A Traffic Impact Analysis (TIA) was prepared and provided by the applicants prior to Phase 1 PDP approval, and studied traffic for both Phases 1 and 2. A copy of this TIA is attached. An updated Trip Generation Memo dated March 24, 2022 was generated by the traffic engineer to account for the increase of multi-family units from 260 to 269 in Phase 2 and is also attached to this staff report. Town Engineer James Michel has reviewed the memo and has verified that the increase of nine units does not warrant additional concern.

V. ATTACHMENTS:

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

1. Morganton Park South Phase 2 PDP Application
2. Reference: Morganton Park South CDP Land Use Plan (Exhibit VII)
3. Reference: Morganton Park South CDP Street Standards (Exhibit IX and X)
4. Applicant's PDP Narrative and Justification Documents
5. Applicant's Phase 2 Preliminary Development Plan (Sheet L-1.1)
6. Morganton Park South Phases 1 & 2 TIA
7. Morganton Park South Trip Generation Memo
8. NCDOT Comments
9. RLUAC Response

VI. PLANNING BOARD ACTION:

Pursuant to North Carolina General Statute §160D-301(b)(6) and Unified Development Ordinance §2.5.2, the Planning Board may hold a Preliminary Forum on a matter requiring a quasi-judicial decision by the Town Council. However, no part of the forum or any recommendation may be used as a basis for the deciding board.

Therefore, the Planning Board may wish to use the following motion to identify issues to bring to the attention of the Town Council at the evidentiary hearing.

I move to adopt the following for transmission to the Town Council as a result of the May 18, 2022 Preliminary Forum on application PD-07-22, Morganton Park South Phase 2 PDP:

The information presented at the forum indicated that the following issues be considered in applying the criteria for a PDP to application PD-07-22:

1.

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

1.

Town of Southern Pines North Carolina

Chartered 1887

Planned Development District
Preliminary Development Plan
Application

Fee: $_____ Date Received: _____ Case No.: PD-____-____

Project Information:

Project Name: MORGANTON PARK SOUTH APARTMENTS - PDP

Physical Address: BETWEEN W. MORGANTON RD AND US-15-501 HWY

PIN: 857100562348; 857100575720 Parcel ID: 00049222; 98000749

Site Size: ±12.85 AC Zoning: PD

Applicant:

Name(s): ZIMMER DEVELOPMENT COMPANY C/O ADAM TUCKER

Email: ADAMTUCKER@ZDC.COM Phone: 910-763-4669

Mailing Address: 111 PRINCESS STREET WILMINGTON, NC 28401

Authorized Agent, if different from Applicant:

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

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

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

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

Name(s): HYPERACTIVE COMMERCIAL INVESTMENTS, LLC; MORGANTON ROAD ENTERPRISES, LLC

Email: Nconti@pinehurstsurgical.com; thomasv@vancamplaw.com Phone: 910-315-8514; 910-295-2525

Mailing Address: 25 Shaw Road Pinehurst, NC 28374; PO Box 1389 Pinehurst, NC 28370

1/12/22

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 for approval of a Planned Development District – Preliminary Development Plan 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-15-501 (St./Ave.), between W MORGANTON RD (St./Ave.) and US-15-501 (St./Ave.). The property has a frontage of ±545 feet and a depth of ±1360 feet.

The request is based upon **Section 2.18.5** of the **Town of Southern Pines Unified Development Ordinance.** The proposed use of the property is as follows:

MULTI-FAMILY RESIDENTIAL DEVELOPMENT

Date: 4/8/22

Applicant (manager)

PLANNING DEPARTMENT
TOWN OF SOUTHERN PINES
801 SE Service Road, Southern Pines, NC 28387
plan@southernpines.net **(910) 692-4003** www.southernpines.net

1/12/22

APPOINTMENT OF AGENT

The undersigned owner(s), ZIMMER DEVLOPMENT COMPANY, hereby appoint(s) KOONTZ JONES DESIGN as the exclusive agent for the purpose of making an application to the Town of Southern Pines for the approval of the Planned Development District – Preliminary Development Plan 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 approval of a Planned Development District – Preliminary Development Plan; and

4. to act on behalf of the property owner(s) without limitations with regard to any and all things directly or indirectly connected with or arising out of any application for a Planned Development District -Preliminary Development Plan under the Southern Pines Unified Development Ordinance.

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

Signed this 8th day of April, 2022.

(manager)

~~Property Owner~~ Applicant

~~Property Owner~~

Agent

1/12/22

APPOINTMENT OF AGENT

The undersigned owner(s), HYPERACTIVE COMMERCIAL INVESTMENTS, 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 the approval of the Planned Development District – Preliminary Development Plan 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 approval of a Planned Development District – Preliminary Development Plan; and
4. to act on behalf of the property owner(s) without limitations with regard to any and all things directly or indirectly connected with or arising out of any application for a Planned Development District -Preliminary Development Plan under the Southern Pines Unified Development Ordinance.

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

Signed this 7 day of April, 2022.

Member / manager
Property Owner

Property Owner

Agent

1/12/22

APPOINTMENT OF AGENT

MORGANTON ROAD ENTERPRISES, LLC

The undersigned owner(s), THOMAS M VAN CAMP TRUSTEE & OTHERS, hereby appoint(s) KOONTZ JONES DESIGN as the exclusive agent for the purpose of making an application to the Town of Southern Pines for the approval of the Planned Development District – Preliminary Development Plan 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 approval of a Planned Development District – Preliminary Development Plan; and

4. to act on behalf of the property owner(s) without limitations with regard to any and all things directly or indirectly connected with or arising out of any application for a Planned Development District -Preliminary Development Plan under the Southern Pines Unified Development Ordinance.

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

Signed this 6 day of April, 2022.

Property Owner

Property Owner

Agent

1/12/22

Morganton Park South

Exhibit VII - Land Use Plan

Southern Pines, North Carolina

THE PAVILION
PATRIOT BLVD.
PATRIOT BLVD.
EXISTING RETAIL
BRUCEWOOD RD.
OLD MORGANTON RD.
S. HENLEY ST.
MORGANTON RD.
RETAIL/ OFFICE ±7.1 AC
RETAIL/ OFFICE ±4.7 AC
RETAIL/ OFFICE ±6.5 AC
MIXED USE -RESIDENTIAL -COMMERCIAL -OFFICE ±12.4 AC
MIXED USE -RESIDENTIAL -COMMERCIAL -OFFICE ±5.1 AC
50' POWER EASEMENT
DRIVE LOCATIONS NOT FINAL
SIDEWALK
SOUTHERN RD.
RETAIL ±11.3 AC
MULTI-FAMILY/ RESIDENTIAL ±12.7 AC
SIDEWALK
RETAIL ±2.3 AC
MULTI-USE TRAIL
EXISTING CEMETERY
US 15-501
RETAIL ±23.8 AC
PARTNER CIR.
STORMWATER

LAND USE LEGEND:

	RETAIL	= ±37.4 ACRES
	MULTI-FAMILY/RESIDENTIAL	= ±12.7 ACRES
	MIXED USE	= ±17.5 ACRES
	RETAIL/OFFICE	= ±18.3 ACRES

OPEN SPACE REQUIREMENT:

OPEN SPACE SUMMARY:	
CATEGORY	**REQUIRED**
Overall Open Space	19.8 acres; 20% minimum
Usable Open Space	9.9 acres; 10% minimum

OPEN SPACE NOTES:

1. OPEN SPACE WILL BE PROVIDED THROUGHOUT THE COMMUNITY AS REQUIRED BY THE TOWN'S UDO. A MINIMUM OF 20% OF THE SITE MUST BE DEDICATED TO OPEN SPACE WITH 50% OF THE OVERALL OPEN SPACE BEING USABLE OPEN SPACE AS DESCRIBED IN SECTION 3.5.14 OF THE UDO. EACH PRELIMINARY DEVELOPMENT PLAN (PDP) PREPARED FOR ANY AREA OF THE OVERALL MORGANTON PARK SOUTH PROPERTY SHALL PROVIDE A TABULATION ILLUSTRATING THE OPEN SPACE BEING PROVIDED WITH EACH PHASE, PREVIOUSLY PROVIDED OPEN SPACE FROM OTHER PHASES, AND THE BALANCE OF OPEN SPACE THAT MUST BE PROVIDED IN FUTURE PHASES TO MEET THE OPEN SPACE REQUIREMENTS OF SECTION 3.5.14. SPECIFIC LOCATIONS FOR COMMON AREAS AND OPEN SPACE WILL ALSO BE IDENTIFIED DURING EACH PDP.

LEGEND:

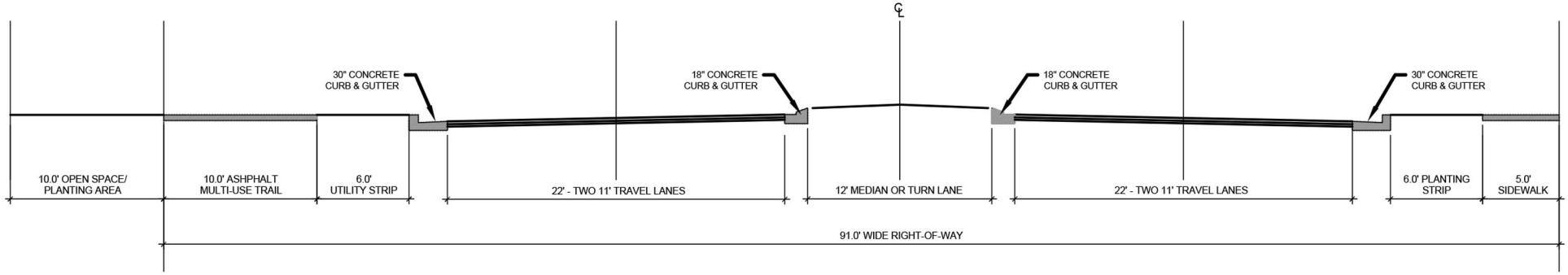
- PROPERTY BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- EXISTING PARCEL
- PROPOSED MULTI-USE TRAIL
- PROPOSED SIDEWALK
- PROPOSED CIRCULATION PATTERN
- PROPOSED STORMWATER MANAGEMENT LOCATION

200' 0' 100' 200' 400'

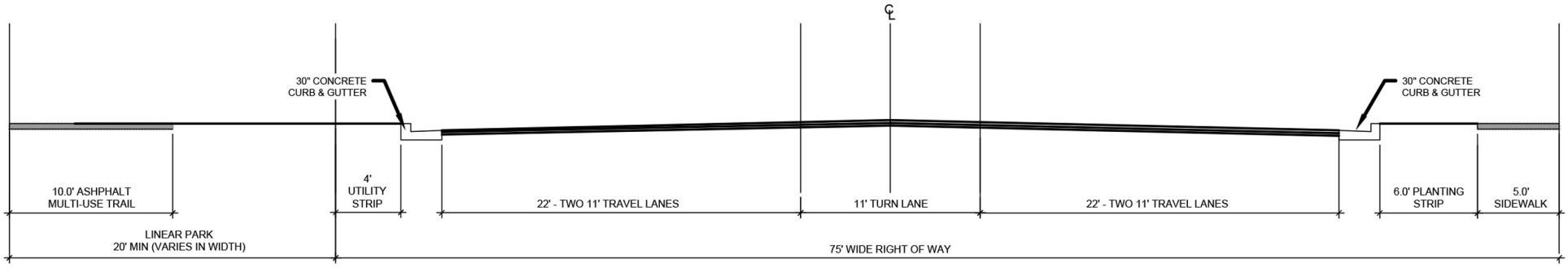
SCALE: 1" = 200'

KOONTZJONESDesign
LAND PLANNING | LANDSCAPE ARCHITECTURE

Exhibit X



91' Right-of-Way (Parkway Collector Street) NOT TO SCALE

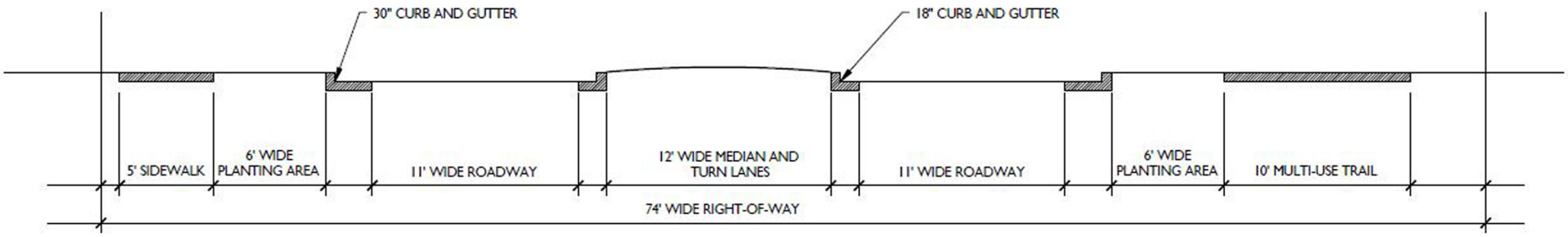


75' Right-of-Way (Parkway Collector Street) NOT TO SCALE

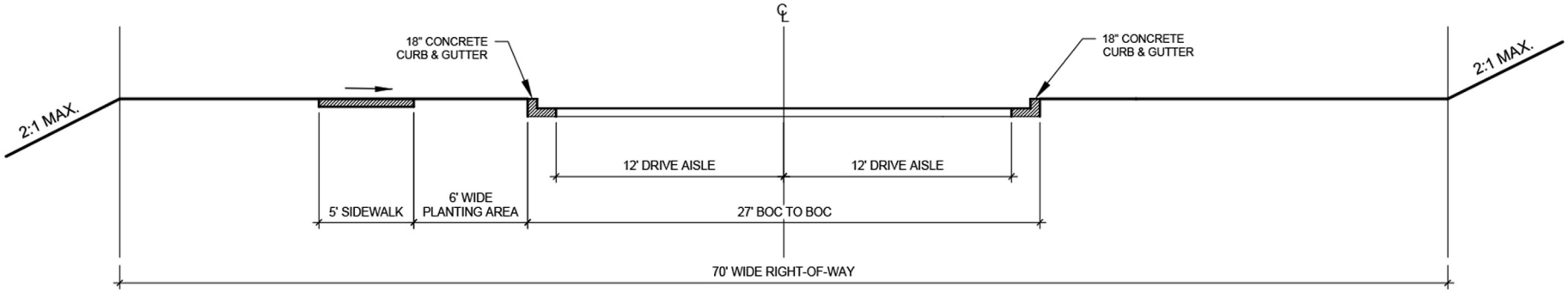
Morganton Park South

Exhibit X- Street and Sidewalk Standards | Sections
Southern Pines, North Carolina

Exhibit X



74' Right-of-Way (Old Morganton Road) NOT TO SCALE
*OR TO MATCH EXISTING OLD MORGANTON ROAD CROSS SECTION



70' Right-of-Way (Southern Road) NOT TO SCALE
*OR TO MATCH EXISTING SOUTHERN ROAD CROSS SECTION

Morganton Park South

Exhibit X- Street and Sidewalk Standards | Sections
Southern Pines, North Carolina

MORGANTON PARK SOUTH MULTI-FAMILY
PRELIMINARY DEVELOPMENT PLAN NARRATIVE

The purpose of this PD – Preliminary Development Plan (PDP) application is to fully describe the proposed phase 2 development of the Morganton Park South Conceptual Development Plan (CDP) which will include the Morganton Park South multi-family residential community. Multi-family units as proposed for the Morganton Park South multi-family residential community are consistent and meet all standards of the Morganton Park South CDP (PD-08-21) as approved on September 14, 2021. As stated in the Town of Southern Pines Unified Development Ordinance (UDO) in Section 2.18.5(A), the PDP is intended to show, with greater detail, the proposed portion of development and illustrate how "proposed land use mix and intensity are consistent with the Comprehensive Plan, the purposes of the PDD and the approved Conceptual Development Plan". The following narrative will provide information related to the submitted plans and provide details of the proposed multi-family residential community. This narrative will describe how the PDP meets the criteria set forth in Section 2.18.5(A). The multi-family residential community is consistent with the PD zoning district, CDP and the Town's Comprehensive Long-Range Plan (CLRP). The property and overall Morganton Park South properties are indicated as Traditional Mixed Use in the Town's CLRP.

The multi-family residential community, as described in this PDP application, is intended to include the second phase of development of the Morganton Park South CDP and includes 269 multi-family residential units. The CDP permits up to 650 multi-family units within the overall Morganton Park South CDP area. This development conforms with the Development Program in Section 5.1 – Table 1.1, the multi-family design standards approved as part of the CDP and all other standards indicated in the approved CDP for the property. A tabulation is provided on sheet L-1.1 of the submission documents indicating conformance to the development program and open space requirements as described in the CDP. Following is a description of the individual phase and overall design elements of the PDP.

Walkability

Walkability is an important component of the proposed multi-family community. Concrete sidewalks are provided throughout the neighborhood to provide convenient access to multi-family buildings. An interconnected network of walkways and sidewalks provide access throughout the community and link amenities and recreation areas. In addition, sidewalk connections will be made to the adjacent shopping center and linear park greenway trail area that will be located along the parkway which connects US 15/501 and Morganton Park. These connections will promote bicycle and pedestrian travel for shopping, dining and recreational opportunities.

Amenities

Amenities will be provided throughout the community. Amenities will include a community clubhouse, pool, fitness center and other community rooms, a dog park, children's playground, car wash area and other passive park spaces. The site's proximity to the

150 PAGE STREET
SOUTHERN PINES, NC 28387
P: 910.684.8487

adjacent Town of Southern Pines soccer fields and the linear park located on the connecting parkway will provide residents with additional recreational opportunities. The proposed development connects to the adjoining retail and dining opportunities.

The project frontage along the Parkway Connector is required to provide a minimum 20' linear park. Plans include a 40'-60' linear park along the parkway frontage and will include a trellised sitting area for the park as required. Landscaping within the linear park area will comply with the CDP requirements.

Parking Areas

Parking for the multi-family residential buildings will be provided through a combination of surface parking and free-standing garages. UDO 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	
2-3 bedrooms	2 spaces per Dwelling Unit	1 space per 10 Dwelling Units
Visitor Parking	1 space per 5 units	

Based on the parking standards above, the proposed development would require 507 parking spaces (1.88 spaces per unit). In consultation with the Planning Staff, Applicant seeks to reduce the minimum required number of parking spaces from 507 to 434 but is willing and able to incorporate the full number of required parking spaces if required by the Town.

Proposed parking for the development is as follows:

Parking Proposed: Total = 434 (1.61/Unit)
Surface Parking = 413
Garage Parking = 21

Stormwater Management

Stormwater management for the development will be provided per Section 5.5.10 of the CDP booklet. All stormwater will be directed toward the pond located near 15/501 and being constructed for the adjacent shopping center. Appropriate state and local stormwater and erosion control permits will be required by the Town prior to any land disturbance activity on the site.

Lighting

All lighting on the property will follow Section 4.5.6 of the CDP and Section 4.8 of the UDO. Lighting levels in parking areas and throughout the community will be provided to meet

the UDO standards for safety. All light will be projected downward to limit any light spilling onto adjacent properties.

Density and Buildings

While the proposed density for this project exceeds the 16 dwelling units per acre standard as defined in the Morganton Road Overlay district and noted in the approved CDP, the proposed unit count is still consistent with the approved overall development program. The CDP allows for a total of 650 residential units in the Morganton Park South development. The development as proposed in this PDP consists of 269 multi-family residential units on 13.18 acres, or 20.4 dwelling units per acre.

The applicant seeks to increase the allowable density for this phase to 20.4 units per acre because of the proximity to the adjacent shopping center. As proposed the project is consistent with the scale of the adjacent retail development CDP. Walkability from the multi-family development to the adjacent shopping center should be encouraged. More units that can take advantage of walking and biking between the adjacent shopping center and recreation areas, including the linear park, has the effect of reducing the number daily car trips. This location, adjacent to the large retail and entertainment center is ideal for the proposed density. Any, future multi-family projects within the CDP area will not have the proximity advantage that this community will possess.

Buildings have been placed on the property to orient toward the shopping center and adjacent recreation areas. This configuration provides an ideal opportunity for pedestrian connections to these areas and will encourage walking within the community. In addition, the buildings orient toward the main internal private street and several large areas of open space within the parking areas are provided to break up the parking areas and provide a more open feeling for the parking areas. These larger parking islands will be planted with shade trees and serve to break up the parking fields.

Open Space

Required open space for Morganton Park South CDP area is 20%. Open space is not required for each individual parcel within Morganton Park South, however, the Morganton Park South Apartments will provide 19.7 % open space as indicated on the site plan.

An updated ‘running’ tabulation for the overall Morganton Park South property has been provided on Sheet L.1.1 of the submission set and includes the linear park along the parkway connector.

Signage

A single subdivision sign for the multifamily development will be placed along the parkway at the main entrance. One additional sign may be placed at the shopping center access location. All signs will indicate the name of the community and/or business. Any additional directional or on-site signage for parking areas, parks or amenities will follow the Town of Southern Pines sign standards in Section 4.6 for size, materials, and height.

Environmental and Endangered Species

The project area is located outside of any high-quality watershed and 100-year floodplain areas. There are no threatened or endangered species on the property. All requirements of federal, state and local agencies for environmental standards will be met and any permits or authorization to proceed obtained prior to construction.

Utilities

This PDP follows the criteria described in Sections 5.5.5 of the CDP booklet. Water and sewer utilities are readily available for the project and will be connected to the adjacent shopping center development. The community will connect to readily available water and sewer utilities, the cost of which will be borne by the developer.

Vehicular Circulation

Vehicular circulation and access will be constructed in accordance with Section 4.5.1 of the CDP document. A Traffic Impact Assessment (TIA) has been provided showing the proposed exterior roadway improvements required. This project will be accessed from the parkway at a designated median break which was located during the parkway design and included in the CDP document. The parkway design was approved as part of the PDP for Phase 1 and included a full motion intersection at the main access location. In addition, a vehicular access location has been provided from the adjacent shopping center for emergency access and convenient access to the retail and dining opportunities.

In summary, the proposed PD – PDP is consistent with the Town's Comprehensive Long-Range Plan (CLRP) and promotes its objectives. The CLRP designates the property as Traditional Mixed-Use. This PDP contains a 269-unit multi-family residential community as permitted in the approved CDP. The proposed community design meets the standards of the approved CDP. The development as proposed in this PDP is the commencement of the second phase of development for the Morganton Park South CDP area. The proposed PDP meets the description of the vision described in Section 2.2 of the CDP and will create new residential housing, adjacent to a new shopping center and in the middle of a large mixed-use development as prescribed in the approved Morganton Park South CDP.

EXHIBIT A

Morganton Park South Multi-Family
Preliminary Development Plan Justification

Below are listed the four (4) criteria required to approve a Preliminary Development Plan (PDP) application as described in Section 2.18.5(H) of the Town of Southern Pines Unified Development Ordinance (UDO). Following the individual criteria is an explanation, indicated in red, describing how the project demonstrates compliance with each of these criteria.

A Preliminary Development Plan is permitted if the Applicant demonstrates that:

(1) The application demonstrates that it will achieve the purposes of the PDD and this section;

The PDP conforms to all standards set forth in the Conceptual Development Plan (CDP) and the standards set forth in the UDO. The documents included with the approved CDP demonstrate the overall compliance with the UDO and this PDP follows the standards of the CDP. The PD District, Comprehensive Long-Range Plan (CLRP) and the approved Morganton Park South CDP all encourage a mixed-use development that reflects the standards of the existing area which includes and surrounds the phase of development described in the PDP. The PDP submitted meets these goals.

(2) The Preliminary Development Plan is consistent with the Conceptual Development Plan and conforms to all applicable provisions of this UDO;

The PDP is consistent with and meets all standards and requirements provided in the CDP plans and documents. In addition, plans conform to the standards of the UDO, which are applicable and not described in the CDP. All uses are consistent with the proposed development program and allowable uses in the CDP contained in Section 5.1 – Table 1.1 of the approved document. The development of a 269-unit multi-family residential community is consistent with vision described in Section 2.2 of the Project Narrative and Design Standards approved as part of the CDP. The multi-family residential units follow all standards of the CDP.

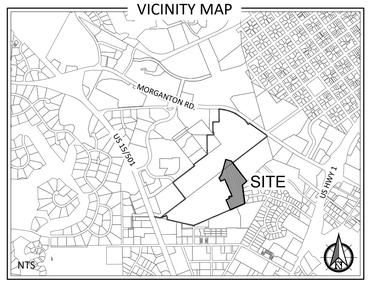
(3) The proposed Development is located in an area of the Town that is appropriate; and

The PDP is consistent with the CDP, surrounding community and the Morganton Park South mixed-use development which includes a mixed-use, office, residential, retail and restaurant uses. The CLRP, which takes in to account surrounding land uses, designates this property as traditional mixed-use. The continued development of the Morganton Park South CDP, as described by the PDP documents is consistent with the surrounding land uses and appropriate for this area. With the development standards set forth in the UDO and CDP, the PDP will be compatible with the surrounding neighborhoods and land uses.

(4) The proposed Development will not cause the need for inefficient extensions and expansions of public facilities, utilities and services

Water and sewer utilities are readily available to serve the project and will be connected to this site during the construction of the parkway connector, which will be installed during the first phase of development of the Morganton Park South CDP. Water and sewer utilities will be located within the right-of-way for the new parkway connector, which will serve this property. No additional extension of public utilities will be necessary to connect to this property. Stormwater management facilities to serve this property were designed in a regional facility on the southwestern portion of the Morganton Park South first phase and will be constructed to accommodate this property.

VICINITY MAP



GENERAL NOTES:

1. STREET LIGHTING WILL BE PROVIDED IN ACCORDANCE WITH SECTION 5.5.6 OF THE CDP AND SECTION 4.8 OF TOWN'S UDO
2. PROJECT SIGNS WILL MEET ALL REQUIREMENTS AS ESTABLISHED IN SECTION 5.5.7 OF THE CDP

DRAINAGE NOTES:

1. STORMWATER MANAGEMENT DEVICES WILL FOLLOW THE TOWN OF SOUTHERN PINES STANDARDS AND BE APPROVED BY THE TOWN ENGINEER.
2. DRAINAGE WILL BE RETAINED BY EXISTING REGIONAL STORMWATER MANAGEMENT POND WITHIN THE MORGANTON PARK SOUTH DEVELOPMENT. DETAILED STORMWATER MANAGEMENT PLANS AND CALCULATIONS WILL BE PROVIDED DURING PERMITTING OF THE DEVELOPMENT

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: 8571
MAP(S): 3710857100J
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.

PROPERTY INFORMATION

PROPERTY OWNER(S):
PARCEL 1:
MORGANTON ROAD ENTERPRISES, LLC
THOMAS VAN CAMP, TRUSTEE, & OTHERS
PO BOX 1389
PINEHURST, NC 28370

PARCEL 2:
HYPERACTIVE COMMERCIAL INVESTMENTS, LLC
25 SHAW ROAD
PINEHURST, NC 28374

APPLICANT:
ZIMMER DEVELOPMENT COMPANY
C/O ADAM TUCKER
111 PRINCESS STREET
WILMINGTON, NC 28401

TOTAL ACREAGE: ±13.18 AC

TOTAL UNITS:
269 MULTI-FAMILY UNITS

REQUIRED PARKING:
-MULTI-FAMILY
1 BEDROOM (85 UNITS)
-1 SPACE PER UNIT = 85 SPACES
2-3 BEDROMM (184 UNITS)
-2 SPACES PER UNIT = 368 SPACES
VISITOR SPACES
-1 SPACE PER 5 UNITS = 54 SPACES
TOTAL PARKING REQUIRED = 507 SPACES

TOTAL PARKING PROVIDED =
SURFACE = 413 SPACES
GARAGE = 21 SPACES
TOTAL = 434 SPACES (1.61 SPACES/UNIT)

TOTAL OPEN SPACE: ±2.60 AC (19.7%)
TOTAL USEABLE OPEN SPACE: ±1.97 AC (14.9%)

TOTAL IMPERVIOUS SURFACE: ±8.15 AC (61.8%)

LEGEND

- = PROPETY BOUNDARY
- = EXISTING MINOR CONTOUR
- = EXISTING MAJOR CONTOUR
- = EXISTING OVERHEAD POWER LINE
- = EXISTING UTILITY EASEMENT
- = OPEN SPACE
- = USEABLE OPEN SPACE

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

OPEN SPACE SUMMARY

(PER SECTION 5.0 OF THE CONCEPTUAL DEVELOPMENT PLAN)

PHASE	OVERALL OPEN SPACE (PROVIDED)		USEABLE OPEN SPACE (PROVIDED)	
1	5.92	acres	5.92	acres
2	2.60	acres	1.97	acres
TOTAL PROVIDED	8.52	acres	7.89	acres
REQUIRED OPEN SPACE (20%/10%)	19.8	acres	9.90	acres
TOTAL REMAINING TO PROVIDE	**11.28**	acres	**2.01**	acres

25' 0' 25' 50' 100'
SCALE: 1" = 50'-0"

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

KOONTZJONESDesign
LAND PLANNING | LANDSCAPE ARCHITECTURE
150 S PAGE STREET
SOUTHERN PINES, NC 28387
P: (910) 684-8487
W: www.koontzjonesdesign.com

REVISIONS:

MORGANTON PARK SOUTH MULTI-FAMILY
PRELIMINARY DEVELOPMENT PLAN
SOUTHERN PINES, NORTH CAROLINA

SITE PLAN

DATE: 04-11-2022
DESIGNED BY: PJS
DRAWN BY: PJS
CHECKED BY: REK
Q.C. BY: REK
SCALE: 1" = 50'-0"
PROJECT #: KJD21107

SHEET NUMBER#:
L-1.1

Traffic Impact Analysis

Pine Ridge Commercial

Southern Pines, NC

Prepared for:

LKC Engineering, PLLC

Kimley»Horn

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Traffic Impact Analysis for

Pine Ridge Commercial

Southern Pines, North Carolina

Prepared for:

LKC Engineering

Aberdeen, NC

Prepared by:

Kimley-Horn and Associates, Inc.

NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

July 2021

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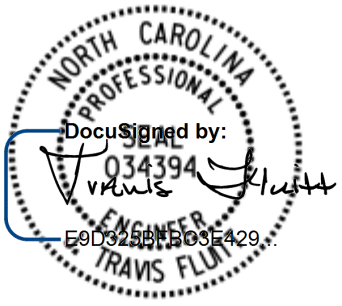

7/23/2021

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 Traffic Impact Analysis (TIA) for the proposed Pine Ridge Commercial development located between US 15/501 and Morganton Road east of the Southern Pines Village shopping center in Southern Pines, NC. The site is currently vacant. As currently envisioned, the development is proposed to include up to 260 multi-family residential units, 20,000 square feet (SF) of office space, and 220,000 SF of shopping center space. The site is proposed to be accessed by the new Pine Ridge Parkway, which will extend from US 15/501 at Partner Circle to Morganton Road at the proposed S. Stephens Street Extension. Build-out of the development is anticipated in 2024.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the proposed development. The Town of Southern Pines' Unified Development Ordinance (UDO) requires the study of the build-out traffic conditions for both the site build-out and 10-year projections. Therefore, the traffic conditions studied include the existing (2021) and projected (2024 and 2031) background and build-out traffic conditions for the AM and PM peak hours.

As shown in Table ES-1, the site has the potential to generate approximately 7,832 net new daily trips, 382 net new external trips during the AM peak hour, and 685 net new external trips during the PM peak hour.

Table ES-1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily Total	AM Peak Hour		PM Peak Hour	
					In	Out	In	Out
221	Multifamily Housing (Mid-Rise)	260	d.u.	1,416	23	64	68	43
710	General Office Building	20,000	s.f.	224	39	6	4	21
820	Shopping Center	220,000	s.f.	10,278	162	100	468	506
Subtotal				11,918	224	170	540	570
Internal Capture Reduction				*784*	*6*	*6*	*56*	*56*
Pass-By Reduction				*3,302*	*0*	*0*	*152*	*161*
Total Net New External Trips				**7,832**	**218**	**164**	**332**	**353**

Intersection capacity analyses were performed using Synchro/SimTraffic Version 10.3 software. Table ES-2 summarizes the operation of the overall study intersections for the AM and PM peak hours.

Table ES-2 Level-of-Service Summary		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
US 15/501 at Brucewood Road (Signalized)		
Existing (2021) Traffic	A (7.5)	C (20.4)
Background (2024) Traffic	A (8.2)	C (23.8)
Build-Out (2024) Traffic	A (7.1)	C (25.6)
Background (2031) Traffic	A (9.7)	C (25.1)
Build-Out (2031) Traffic	A (9.9)	C (26.3)
US 15/501 at Pine Ridge Parkway North U-Turn (Signalized)		
Background (2031) Traffic	A (7.3)	B (14.0)
Build-Out (2031) Traffic	A (8.9)	C (20.7)
US 15/501 at Partner Circle / Pine Ridge Parkway		
Existing (2021) Traffic – *Unsignalized, Full Movement*	EB – D (33.7) WB – F (72.6) NBL – B (10.8) SBL – B (10.7)	EB – F (77.4) WB – F (>500) NBL – B (14.2) SBL – B (12.8)
Background (2024) Traffic – *Unsignalized, Full Movement*	EB – E (46.7) WB – F (85.8) NBL – B (11.5) SBL – B (11.4)	EB – F (143.0) WB – F (>500) NBL – C (15.8) SBL – B (13.9)
Build-Out (2024) Traffic – *Signalized, Full Movement*	A (7.4)	B (12.5)
Background (2031) Traffic – *Signalized, Superstreet*	NB Side - A (7.2) SB Side - B (10.7)	NB Side - A (9.8) SB Side - B (16.3)
Build-Out (2031) Traffic – *Signalized, Superstreet*	NB Side - B (10.2) SB Side - B (10.6)	NB Side - C (21.4) SB Side - C (12.9)
US 15/501 at Murray Hill Road (Signalized)		
Existing (2021) Traffic	C (32.2)	F (90.8)
Background (2024) Traffic	D (39.1)	F (109.8)
Build-Out (2024) Traffic	D (40.5)	F (111.3)
Background (2031) Traffic - *Superstreet*	NB Side - B (15.9) SB Side - B (11.4)	NB Side - C (32.2) SB Side - D (37.3)
Build-Out (2031) Traffic - *Superstreet*	NB Side - B (16.6) SB Side - B (14.3)	NB Side - D (43.3) SB Side - D (50.9)

Table ES-2 (cont.) Level-of-Service Summary		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
Morganton Road at Brucewood Road (Signalized)		
Existing (2021) Traffic	B (11.2)	B (15.1)
Background (2024) Traffic	C (26.3)	C (32.0)
Build-Out (2024) Traffic	C (26.4)	C (32.0)
Background (2031) Traffic	C (28.7)	C (32.1)
Build-Out (2031) Traffic	C (28.9)	C (32.5)
Morganton Road at S. Stephens Street Extension / Pine Ridge Parkway		
Background (2024) Traffic – *Unsignalized*	NB – F (63.3) SB – E (49.4) EBL – B (11.2) WBL – B (10.3)	NB – F (74.3) SB – F (118.0) EBL – B (11.1) WBL – B (10.6)
Build-Out (2024) Traffic – *Signalized*	A (5.8)	A (9.0)
Background (2031) Traffic – *Signalized*	A (7.2)	B (11.0)
Build-Out (2031) Traffic – *Signalized*	A (8.7)	C (23.3)
Pine Ridge Parkway at Site Driveway 1 (Unsignalized)		
Build-Out (2024) Traffic	NB – A (9.6) WBL – A (7.5)	NB – B (12.8) WBL – A (8.0)
Build-Out (2031) Traffic	NB – C (16.2) WBL – A (8.8)	NB – E (45.3) WBL – A (9.5)
Pine Ridge Parkway at Southern Road / Site Driveway 2 (Unsignalized)		
Build-Out (2024) Traffic	NB – A (9.4) WBL – A (7.5)	NB – B (12.5) WBL – A (8.0)
Background (2031) Traffic	SB – B (12.0) EBL – A (7.9)	SB – C (16.7) EBL – A (8.7)
Build-Out (2031) Traffic	NB – C (17.8) SB – C (16.3) EBL – A (8.1) WBL – A (8.7)	NB – F (136.5) SB – F (59.9) EBL – A (9.1) WBL – A (9.3)
Pine Ridge Parkway at Site Driveway 3 / Phase 5 East Driveway (Unsignalized)		
Build-Out (2024) Traffic	NB – A (9.1) WBL – A (7.4)	NB – B (10.6) WBL – A (7.8)
Background (2031) Traffic	SB – B (11.8) EBL – A (8.1)	SB – C (23.7) EBL – A (8.8)
Build-Out (2031) Traffic	NB – C (17.2) SB – C (15.4) EBL – A (8.3) WBL – A (8.3)	NB – F (62.5) SB – F (72.4) EBL – A (9.5) WBL – A (8.7)

Table ES-2 (cont.) Level-of-Service Summary		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
Pine Ridge Parkway at Site Driveway 4 / Phase 7 Driveway (Unsignalized)		
Build-Out (2024) Traffic	NB – A (9.2) WBL – A (7.4)	NB – B (10.9) WBL – A (7.8)
Background (2031) Traffic	NB – B (13.5) SB – B (10.9) EBL – A (7.8) WBL – A (7.9)	NB – C (15.9) SB – B (12.9) EBL – A (8.2) WBL – A (7.9)
Build-Out (2031) Traffic	NB – B (16.5) SB – B (12.0) EBL – A (8.0) WBL – A (8.1)	NB – D (33.1) SB – C (18.8) EBL – A (8.9) WBL – A (8.6)
Pine Ridge Parkway at Old Morganton Road Extension		
Background (2031) Traffic	EB – B (11.0) WB – B (11.7) NBL – A (7.7) SBL – A (7.6)	EB – B (12.4) WB – B (10.8) NBL – A (7.8) SBL – A (7.7)
Build-Out (2031) Traffic	EB – B (12.0) WB – B (13.2) NBL – A (8.0) SBL – A (7.8)	EB – C (18.4) WB – B (14.4) NBL – A (8.4) SBL – A (8.2)

The following improvements are recommended to be performed as part of the proposed Pine Ridge Commercial development:

US 15/501 at Partner Circle / Pine Ridge Parkway:

- Provide an exclusive left-turn lane and a shared through/right lane on westbound Pine Ridge Parkway
- Install a temporary wood-pole traffic signal

Morganton Road at S. Stephens Street / Pine Ridge Parkway:

- Provide an exclusive left-turn lane and a shared through/right-turn lane on the northbound approach of Pine Ridge Parkway
- Construct a westbound left-turn lane on Morganton Road (and convert the existing intersection of Morganton Road at S. Henley Street to right-in/right-out only)
- Install a traffic signal when warranted

Pine Ridge Parkway at Site Driveway 1:

- Provide an exclusive westbound left-turn lane on Pine Ridge Parkway
- Provide separate left and right-turn lanes exiting the Site Driveway

Pine Ridge Parkway at Site Driveway 2:

- Provide an exclusive westbound left-turn lane on Pine Ridge Parkway
- Provide separate left and right-turn lanes exiting the Site Driveway

Pine Ridge Parkway at Site Driveway 3:

- Provide an exclusive westbound left-turn lane on Pine Ridge Parkway
- Provide separate left and right-turn lanes exiting the Site Driveway

Pine Ridge Parkway at Site Driveway 4:

- Provide an exclusive westbound left-turn lane on Pine Ridge Parkway
- Provide separate left and right-turn lanes exiting the Site Driveway

The following additional improvement is recommended to be incorporated into STIP Project U-5814:

US 15/501 at Partner Circle / Pine Ridge Parkway:

- Construct a northbound right-turn lane on US 15/501 with a minimum of 100 feet of storage and appropriate tapers

With the recommended improvements in place, all of the study intersections except for the intersection of US 15/501 at Murray Hill Road are expected to operate acceptably in the build-out traffic conditions. US 15/501 at Murray Hill Road currently operates at LOS F in the PM peak hour due to the lack of turn lanes on Murray Hill Road. It is anticipated that the commercial development proposed on the northeast quadrant of the intersection will provide at least a right-turn lane on the westbound approach. When the superstreet is implemented on US 15/501 with NCDOT STIP Project U-5814, the intersection is expected to operate at acceptable levels of service.

While some unsignalized intersections are expected to operate with long delays, 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. SimTraffic simulations also show no significant queuing issues as any of these intersections.

The recommended 2024 roadway laneage is shown on **Figure ES-1**, and the committed and recommended 2031 roadway laneage is shown on **Figure ES-2**.

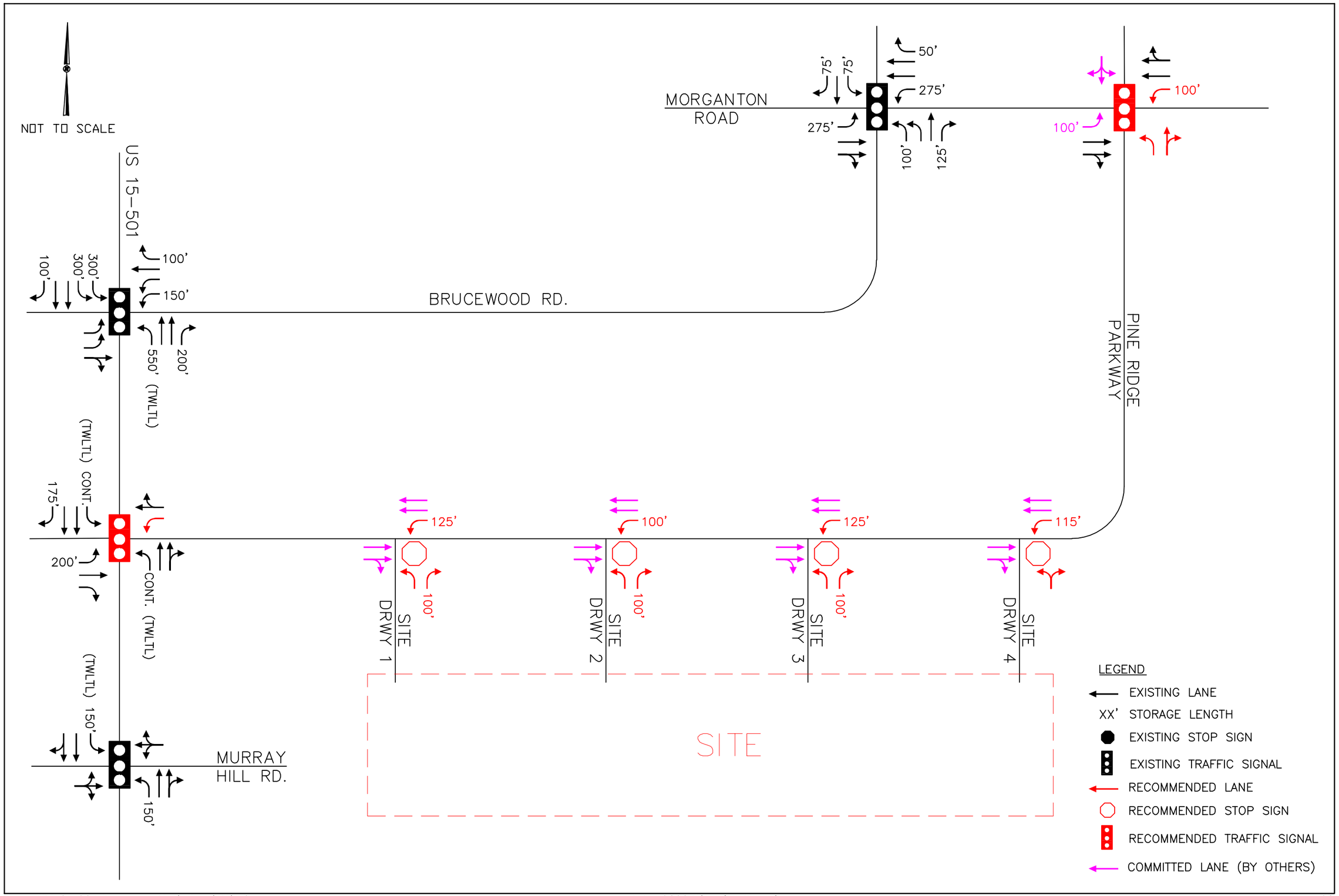

FIGURE ES-1

COMMITTED AND RECOMMENDED ROADWAY LANEAGE – 2024 BUILD-OUT YEAR

PINE RIDGE COMMERCIAL
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

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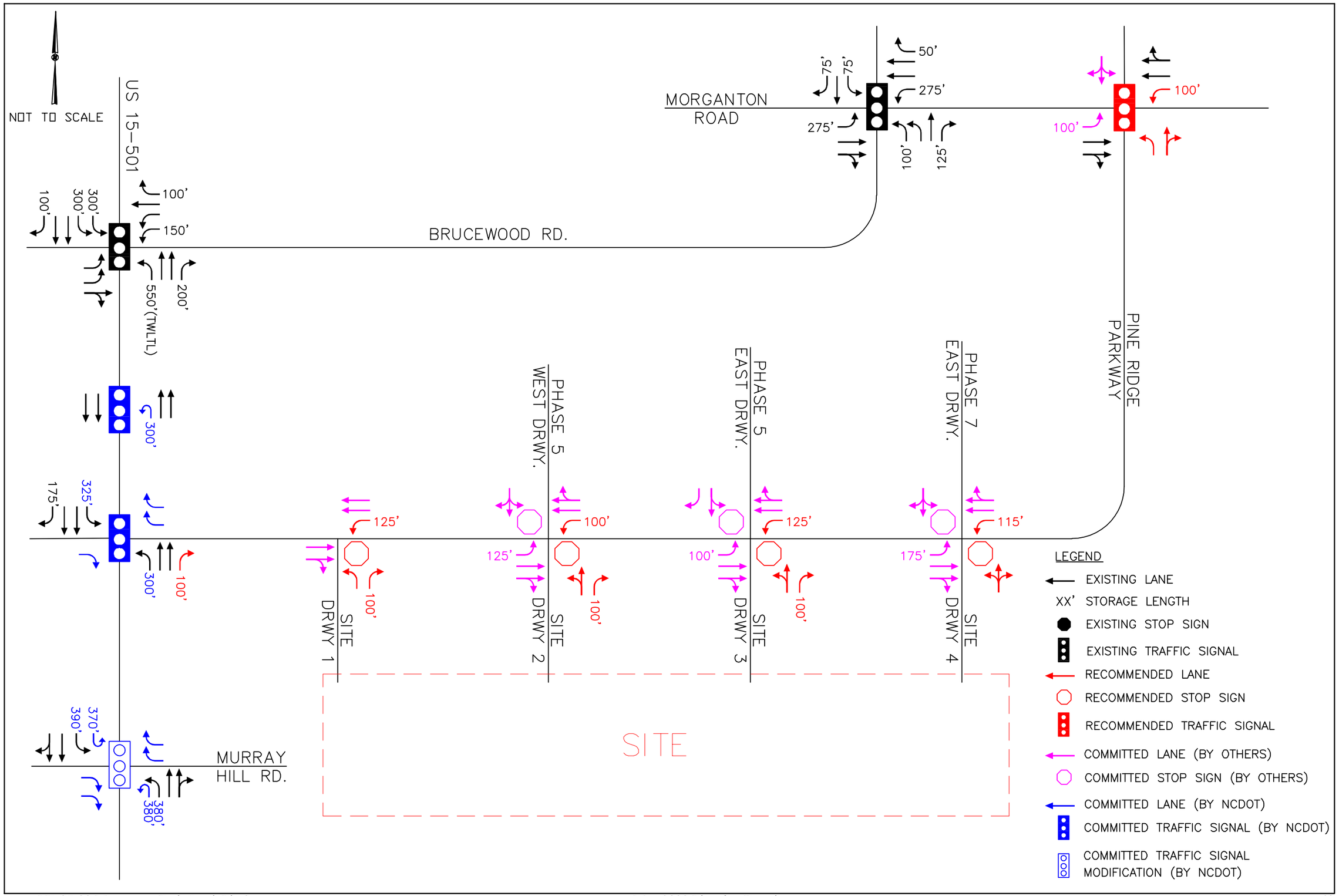

FIGURE ES-2

COMMITTED AND RECOMMENDED ROADWAY LANEAGE – 2031 HORIZON YEAR

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SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

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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 *HISTORIC GROWTH TRAFFIC 10*
5.3 *NCDOT TIP U-5814 DIVERSIONS 11*
5.4 *APPROVED DEVELOPMENT TRAFFIC 11*
5.5 *SITE TRAFFIC 12*
5.6 *BUILD-OUT TRAFFIC 13*

6.0 CAPACITY ANALYSIS 22

6.1 *US 15/501 AT BRUCEWOOD ROAD 24*
6.2 *US 15/501 AT PINE RIDGE PARKWAY NORTH U-TURN 25*
6.3 *US 15/501 AT PARTNER CIRCLE / PINE RIDGE PARKWAY 26*
6.4 *US 15/501 AT MURRAY HILL ROAD 28*
6.5 *MORGANTON ROAD AT BRUCEWOOD ROAD 29*
6.6 *MORGANTON ROAD AT S. STEPHENS STREET EXTENSION / PINE RIDGE PARKWAY 30*
6.7 *PINE RIDGE PARKWAY AT SITE DRIVEWAY 1 ..... 31*
6.8 *PINE RIDGE PARKWAY AT SOUTHERN ROAD / SITE DRIVEWAY 2 ..... 32*
6.9 *PINE RIDGE PARKWAY AT SITE DRIVEWAY 3 / PHASE 5 EAST DRIVEWAY 33*
6.10 *PINE RIDGE PARKWAY AT SITE DRIVEWAY 4 / PHASE 7 DRIVEWAY 34*
6.11 *PINE RIDGE PARKWAY AT OLD MORGANTON ROAD EXTENSION 35*

7.0 RECOMMENDATIONS 36

Appendices

A. *TRAFFIC COUNT DATA*
B. *TRIP GENERATION*
C. *APPROVED DEVELOPMENT DATA*
D. *MORGANTON PARK SOUTH MASTER PLAN TRIP GENERATION & ASSIGNMENT*
E. *INTERSECTION SPREADSHEETS - 2024 BUILD-OUT*
F. *INTERSECTION SPREADSHEETS - 2031 BUILD-OUT*
G. *SYNCHRO OUTPUT: EXISTING (2021)*
H. *SYNCHRO OUTPUT: BACKGROUND (2024)*
I. *SYNCHRO OUTPUT: BUILD-OUT (2024)*
J. *SYNCHRO OUTPUT: BACKGROUND (2031)*
K. *SYNCHRO OUTPUT: BUILD-OUT (2031)*
L. *SIGNAL PLANS AND TIMINGS*

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	22
Table 6.1	Level-of-Service US 15/501 at Brucewood Road	24
Table 6.2	Level-of-Service US 15/501 at Pine Ridge Parkway North U-Turn	25
Table 6.3	Level-of-Service US 15/501 at Partner Circle / Pine Ridge Parkway	27
Table 6.4	Level-of-Service US 15/501 at Murray Hill Road	28
Table 6.5	Level-of-Service Morganton Road at Brucewood Road	29
Table 6.6	Level-of-Service Morganton Road at S. Stephens Street / Pine Ridge Parkway	30
Table 6.7	Level-of-Service Pine Ridge Parkway at Site Driveway 1	31
Table 6.8	Level-of-Service Pine Ridge Parkway at Southern Road / Site Driveway 2	32
Table 6.9	Level-of-Service Pine Ridge Parkway at Site Driveway 3 / Phase 5 East Driveway	33
Table 6.10	Level-of-Service Pine Ridge Parkway Site Driveway 4 / Phase 7 Driveway	34
Table 6.11	Level-of-Service Pine Ridge Parkway at Old Morganton Road Extension	35

LIST OF FIGURES

Figure No.	Title	Page No.
Figure 2.1	Site Location	3
Figure 2.2	Site Plan	4
Figure 2.3	Existing Roadway Laneage	5
Figure 4.1	Site Traffic Distribution and Percent Assignment - 2024 Build-out	8
Figure 4.2	Site Traffic Distribution and Percent Assignment - 2031 Build-out	9
Figure 5.1	Existing (2021) and Projected Background (2024) AM Peak Hour Traffic Volumes	14
Figure 5.2	Existing (2021) and Projected Background (2024) PM Peak Hour Traffic Volumes	15
Figure 5.3	Projected Background (2031) AM Peak Hour Traffic Volumes	16
Figure 5.4	Projected Background (2031) PM Peak Hour Traffic Volumes	17
Figure 5.5	Projected Background and Build-Out (2024) AM Peak Hour Traffic Volumes	18
Figure 5.6	Projected Background and Build-Out (2024) PM Peak Hour Traffic Volumes	19
Figure 5.7	Projected Background and Build-Out (2031) AM Peak Hour Traffic Volumes	20
Figure 5.8	Projected Background and Build-Out (2031) PM Peak Hour Traffic Volumes	21
Figure 7.1	Recommended Roadway Laneage - 2024 Build-out	38
Figure 7.2	Committed and Recommended Roadway Laneage - 2031 Build-out	389

1.0 Introduction

Kimley-Horn and Associates, Inc. has performed a Traffic Impact Analysis (TIA) for the proposed Pine Ridge Commercial development located between US 15/501 and Morganton Road east of the Southern Pines Village shopping center in Southern Pines, NC. Build-out is anticipated in 2024. The site is currently vacant. As currently envisioned, the development is proposed to include up to 260 multi-family residential units, 20,000 square feet (SF) of office space, and 220,000 SF of shopping center space. The site is proposed to be accessed by the new Pine Ridge Parkway, which will extend from US 15/501 at Partner Circle to Morganton Road at the proposed S. Stephens Street Extension.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the proposed development. The Town of Southern Pines' Unified Development Ordinance (UDO) requires the study of the build-out traffic conditions for both the site build-out and 10-year projections. Therefore, the traffic conditions studied include the existing (2021) and projected (2024 and 2031) background and build-out traffic conditions for the AM and PM peak hours.

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 includes the following intersections:

- US 15/501 at Brucewood Road
- US 15/501 at Partner Circle / Pine Ridge Parkway
- US 15/501 at Murray Hill Road
- Morganton Road at Brucewood Road
- Morganton Road at S Stephens Street Extension / Pine Ridge Parkway
- Pine Ridge Parkway at Site Driveway #1
- Pine Ridge Parkway at Site Driveway #2
- Pine Ridge Parkway at Site Driveway #3
- Pine Ridge Parkway at Site Driveway #4
- US 15/501 at Partner Circle / Pine Ridge Parkway North U-Turn (2031 only)
- Pine Ridge Parkway at Old Morganton Road Extension (2031 only)

Figure 2.1 shows the site location. The proposed site plan is shown on **Figure 2.2**.

2.2 *Existing Conditions*

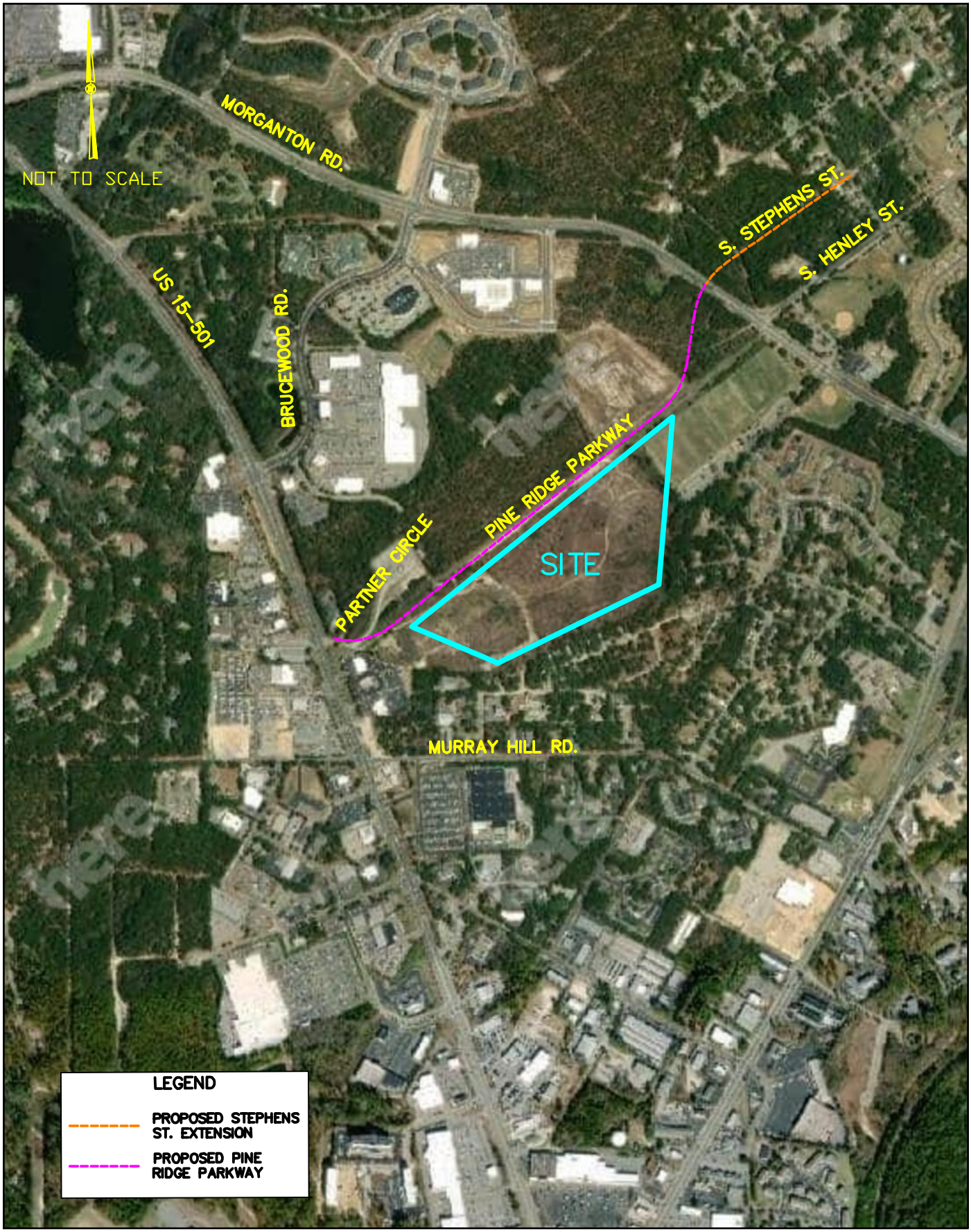
The Pine Ridge Commercial development is located between US 15/501 and Morganton Road east of the South Pines Village shopping center in Southern Pines, North Carolina. Major roadways in the study area include US 15/501, Morganton Road, Brucewood Road, and Murray Hill Road. The existing roadway laneage is shown on **Figure 2.3**.

US 15/501 is a 5-lane undivided principal arterial roadway with a posted speed of 45 mph in the vicinity of the site. The estimated 2021 average daily traffic (ADT) volume is approximately 24,000 vehicles per day (vpd) in the vicinity of the site.

Morganton Road is a 4-lane divided minor arterial with a posted speed of 45 mph in the vicinity of the site. The reported 2019 ADT volume on Morganton Road was approximately 20,500 vpd west of Brucewood Road.

Brucewood Road is a 4-lane divided section with a posted speed limit of 35 mph between US 15/501 and Morganton Road. The estimated 2021 ADT is approximately 5,000 vpd between US 15/501 and Morganton Road.

Murray Hill Road is a 2-lane undivided local roadway with a posted speed of 35 mph in the vicinity of US 15/501. The estimated 2021 ADT volume is approximately 7,500 vpd.



Kimley»Horn	PINE RIDGE COMMERCIAL SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	SITE LOCATION	FIGURE 2.1

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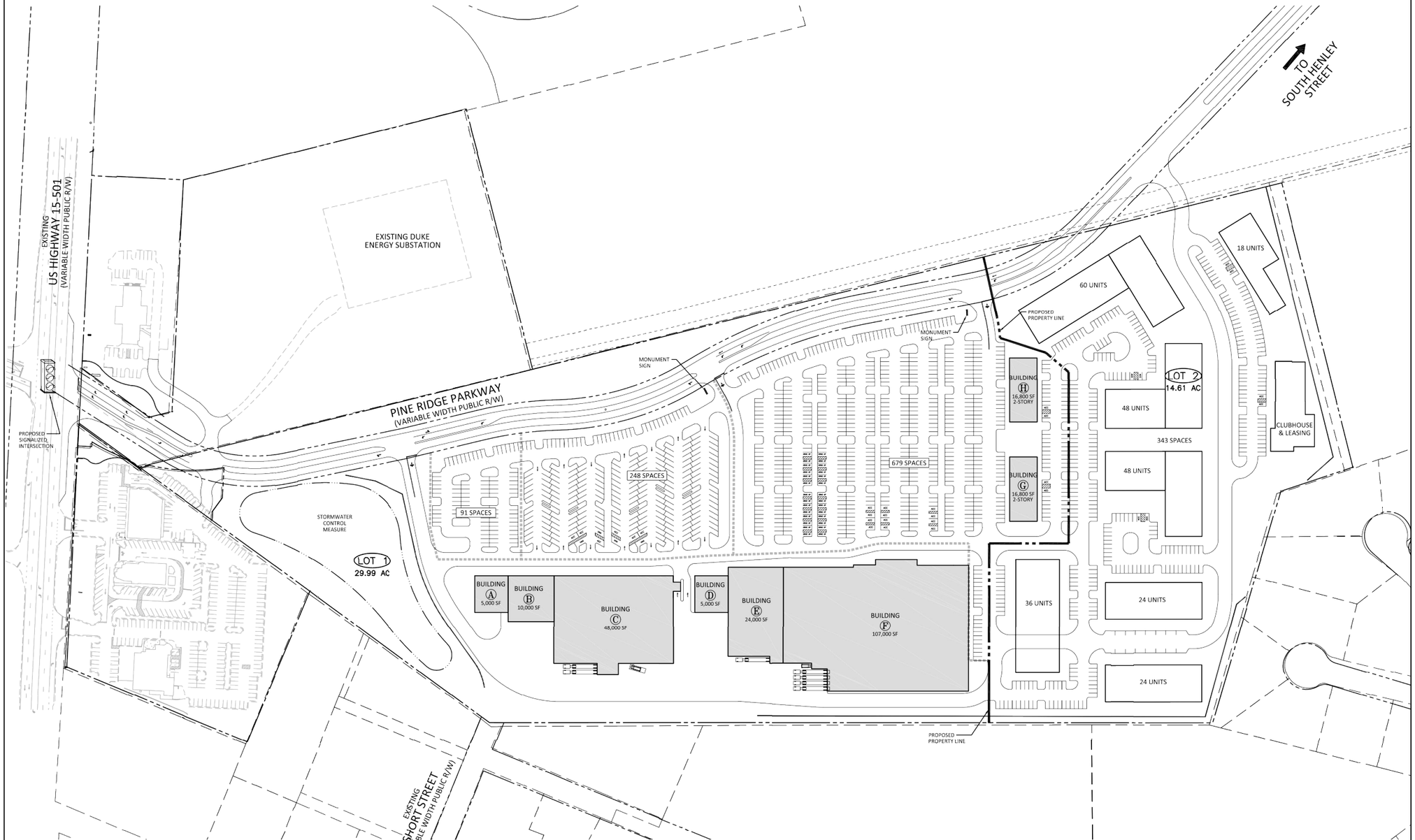

LOT 1 PARKING SUMMARY

	SQUARE FOOTAGE	SPACES	SPACES/1,000 SF
BUILDING A+B	15,000 SF	91	6.06
BUILDING C	48,000 SF	248	5.16
BUILDING D+E +F+G+H[1]	169,600 SF	679	4.00

(1) INCLUDES OFFICE SQUARE FOOTAGE

SITE DATA

	LOT 1	LOT 2	TOTAL
SITE AREA	29.99 AC	14.61 AC	44.60 AC
RETAIL	215,800 SF	-	215,800 SF
OFFICE	16,800 SF	-	16,800 SF
MULTI-FAMILY	-	258 UNITS	258 UNITS
PROPOSED PARKING	1,018 SPACES	343 SPACES	1,361 SPACES

GRAPHIC SCALE
0 50 100 200
1 inch = 100 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

FIGURE 2.2

SITE PLAN

PINE RIDGE COMMERCIAL
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

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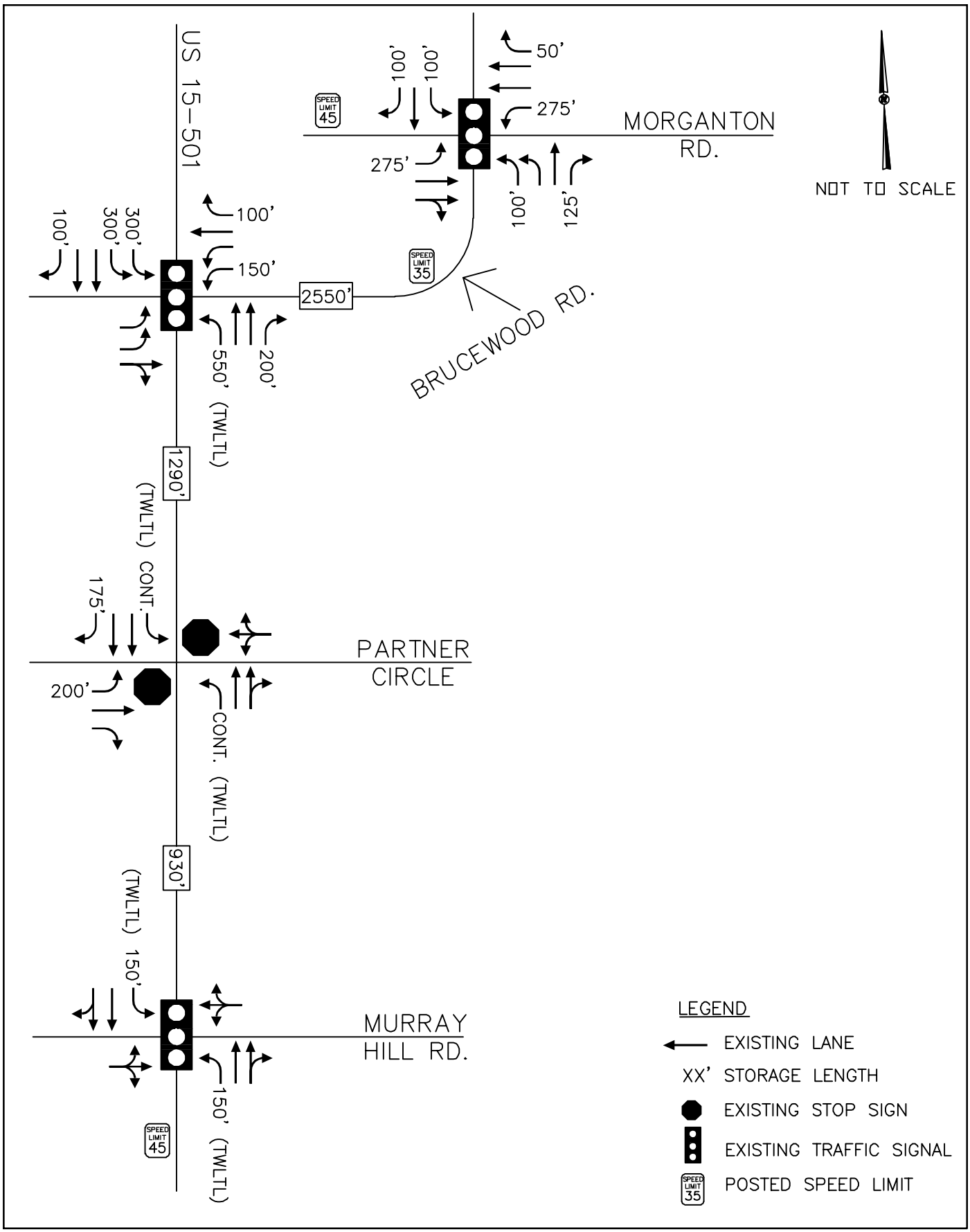

Kimley»Horn	PINE RIDGE COMMERCIAL SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	EXISTING ROADWAY LANEAGE	FIGURE 2.3

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3.0 Traffic Generation

The traffic generation potential for the proposed development was determined using the traffic generation rates published in *Trip Generation* (Institute of Transportation Engineers, Tenth Edition, 2017).

As currently envisioned, the development is proposed to include up to 260 multi-family residential units, 20,000 square feet (SF) of office space, and 220,000 SF of shopping center space. Table 3.1 summarizes the estimated traffic generation for the development.

Table 3.1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily Total	AM Peak Hour		PM Peak Hour	
					In	Out	In	Out
221	Multifamily Housing (Mid-Rise)	260	d.u.	1,416	23	64	68	43
710	General Office Building	20,000	s.f.	224	39	6	4	21
820	Shopping Center	220,000	s.f.	10,278	162	100	468	506
Subtotal				11,918	224	170	540	570
Internal Capture Reduction				*784*	*6*	*6*	*56*	*56*
Pass-By Reduction				*3,302*	*0*	*0*	*152*	*161*
Total Net New External Trips				**7,832**	**218**	**164**	**332**	**353**

As shown in Table 3.1, the Pine Ridge Commercial development has the potential to generate approximately 7,832 net new daily trips, 382 net new external trips during the AM peak hour, and 685 net new external trips during the PM peak hour.

Internally captured trips are trips that begin and end on the project site and do not access the external roadway network. Pass-by trips are trips already on the roadway network that will visit the site as they pass by on the adjacent street. Both internal capture and pass-by trips were accounted for per ITE methodology based on the uses proposed on this site.

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

4.0 Site Traffic Distribution

The proposed site generated trips were assigned to the surrounding roadway network. The directional distribution and assignment were based on a review of surrounding land uses and traffic patterns. The following overall distribution was used for new external site trips:

- 30% to/from the north on US 15/501
- 25% to/from the south on US 15/501
- 25% to/from the east on Morganton Road
- 5% to/from the west on Morganton Road
- 5% to/from the north on S Stephens Street Extension
- 5% to/from development along Brucewood Road
- 3% to/from the east on Murray Hill Road
- 2% to/from development north of Brucewood Road

The site traffic distribution and percent assignment for the Pine Ridge Commercial development for the 2024 build-out condition are shown on **Figure 4.1**. The site traffic percent assignment for the 2031 build-out condition is slightly different due to the extensions of Southern Road and Old Morganton Road to Pine Ridge Parkway and is shown on **Figure 4.2**.

NOT TO SCALE

BRUCEWOOD ROAD

MORGANTON ROAD

PINE RIDGE PARKWAY

US 15-501

MURRAY HILL ROAD

SITE

SITE DRWY 1

SITE DRWY 2

SITE DRWY 3

SITE DRWY 4

5% TO/FROM DEVELOPMENTS ALONG BRUCEWOOD ROAD

LEGEND

XX% INBOUND PERCENT ASSIGNMENT

(XX%) OUTBOUND PERCENT ASSIGNMENT

XX% OVERALL DISTRIBUTION

FIGURE 4.1

SITE TRAFFIC DISTRIBUTION AND PERCENT ASSIGNMENT – 2024 BUILD-OUT YEAR

PINE RIDGE COMMERCIAL
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

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NOT TO SCALE

NOTE: NOT A STUDY INTERSECTION BUT INCLUDED FOR REFERENCE

5% TO/FROM DEVELOPMENTS ALONG BRUCEWOOD ROAD

MORGANTON ROAD

OLD MORGANTON RD.

BRUCEWOOD ROAD

PINE RIDGE PARKWAY

US 15-501

MURRAY HILL ROAD

SITE DRWY 1

SITE DRWY 2

SITE DRWY 3

SITE DRWY 4

SITE

LEGEND

XX% INBOUND PERCENT ASSIGNMENT

(XX%) OUTBOUND PERCENT ASSIGNMENT

XX% OVERALL DISTRIBUTION

FIGURE 4.2

SITE TRAFFIC DISTRIBUTION AND PERCENT ASSIGNMENT - 2031 HORIZON YEAR

PINE RIDGE COMMERCIAL
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

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5.0 Projected Traffic Volumes

5.1 *Existing Traffic*

Previously collected turning movement counts were obtained for the study intersections. The counts were performed in the AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) at the following intersections:

- US 15/501 at Brucewood Road — February 11, 2020
- US 15/501 at Partner Circle — September 15, 2016
- US 15/501 at Murray Hill Road — April 27, 2021
- Morganton Road at Brucewood Road — February 11, 2020
- Morganton Road at Henley Street — March 27, 2018

The following adjustments were applied to the turning movement count volumes:

- A 1% growth rate was applied per year up to the year 2021 to all turning movement counts collected prior to 2021.
- For the intersection of US 15/501 at Partner Circle, turning movement volumes from the count were used, and the through volumes along US 15/501 were balanced with the count volumes at Brucewood Road.
- The turning movement counts collected at the intersection of Morganton Road and Henley Street were used to estimate the turn volumes at the S Stephens Street Extension, and the through volumes along Morganton Road were balanced with the count at Brucewood Road.
- Due to the ongoing COVID-19 pandemic, a 15% adjustment factor was applied to the turning movement counts at the intersection of US 15/501 at Murray Hill Road to be consistent with the Southern Pines Retail Center TIA being prepared by Ramey Kemp & Associates.

The existing AM peak hour traffic volumes are shown on **Figures 5.1**, and the existing PM peak hour traffic volumes are shown on **Figures 5.2**. The traffic count data are included in the Appendix of this report.

5.2 *Historic Growth Traffic*

Historic growth traffic is the increase in traffic due to usage increases and non-specific growth throughout the area. Based on historic ADT volumes in the area, an annual growth rate of 2% per year was applied to existing (2021) volumes up to the projected (2024) build-out year, and a 1% annual growth rate was applied to the 2024 background traffic volumes up to the future study year 2031. Background growth calculations are detailed on intersection spreadsheets in the Appendix of this report. Background traffic volumes for the year 2024 are shown on **Figures 5.1**

and **5.2** for the AM and PM peak hours, respectively. Background traffic volumes for the year 2031 are shown on **Figures 5.3** and **5.4** for the AM and PM peak hours, respectively.

5.3 *NCDOT TIP U-5814 Diversions*

NCDOT STIP Project U-5814 plans to convert the section of US 15/501 from Brucewood Road to US 1 to a superstreet configuration. Construction is scheduled to being in 2025. Therefore, this improvement was included in the 2031 analyses. The volume diversion methodology used in that study was applied to the impacted study intersections in all projected (2031) traffic conditions.

5.4 *Approved Development Traffic*

Approved development traffic is generated by approved, but not yet constructed, projects in the vicinity of the proposed project. Based on discussions with the Town of Southern Pines and NCDOT, the following developments were identified for inclusion as part of the background conditions of this analysis.

- Pinehurst Medical Morganton Park North: 80,000 SF of medical office space currently under construction on the north side of Morganton Road east of Brucewood Road. Site traffic for this project was obtained from the *Pinehurst Medical Morganton Park North Medical Office Building TIA Update, Southern Pines, NC – Revised Traffic Impact Analysis* (Kimley-Horn, March 2020) and included as background traffic in each of the future traffic conditions.
- Sandhills Pediatrics: 22,600 SF of medical office space currently under construction on the northeast corner of Brucewood Road at Pavilion Way. Site traffic for this project was obtained from the *Morganton Park North Medical Office Building TIA* (Kimley-Horn, November 2018) and included as background traffic in each of the future traffic conditions.
- Southern Pines Elementary: Though currently open, Southern Pines Elementary school was not open at the time the traffic counts were performed. Therefore, traffic for the school was obtained from the *Pinehurst Medical Morganton Park North Medical Office Building TIA Update, Southern Pines, NC – Revised Traffic Impact Analysis* (Kimley-Horn, March 2020) and included as background traffic in each of the future traffic conditions.
- Southern Pines Retail Center: 25,800 SF of mixed retail space to be located on the northeast corner of US 15/501 at Murray Hill Road. Site Traffic for this project was calculated using the trip generation and site distribution and percent assignment provided in the *Southern Pines Retail Center Memorandum of Understanding for TIA Report* (Ramey Kemp & Associates, May 2021) and included as background traffic in each of the future traffic conditions.
- Legends Apartments Expansion: 144 additional units at the Legends Apartments development on the north side of S. Carlisle Street at Brucewood Road. Site Traffic for this project was obtained from the revised *Legends Apartments Expansion, Southern*

Pines, NC – Traffic Impact Analysis (Kimley-Horn, April 2021) and included as background traffic in each of the future traffic conditions.

- Morganton Park South Master Plan: The Morganton Park South Master Plan proposes a mix of residential, office, and retail development on approximately 50 acres along Pine Ridge Parkway. While land uses have yet to be determined, for purposes of this analysis, the development was divided into three pods, and the following land use mixes were assumed based on development densities in the area:

    - Pod 1 (west side of Pine Ridge Parkway north of Old Morganton Road):
        - 59,000 SF of office space
        - 59,000 SF of retail space
    - Pod 2 (west side of Pine Ridge Parkway south of Old Morganton Road):
        - 250 apartments
        - 31,000 SF of office space
        - 168,000 SF of retail space
    - Pod 3 (east side of Pine Ridge Parkway at Old Morganton Road):
        - 50 townhomes
        - 32,500 SF of office space
        - 32,500 SF of retail space

    Trips for each pod were generated using ITE trip generation rates and assigned to the network using the same overall distribution as shown in Section 4.0 for the year 2031 analyses only. To account for interaction between pods and with the Pine Ridge Commercial development a 20% reduction in AM peak hour trips and a 30% reduction in PM peak hour trips was applied to the Morganton Park South Master Plan traffic at external intersections only. No reductions were applied at the intersections along Pine Ridge Parkway. Detailed trip generation and traffic assignment for this development are included in the Appendix.

Projected (2024) background traffic volumes consisting of existing, historic growth, traffic diversions, and approved development traffic are shown on **Figures 5.1** and **5.2** for the AM and PM peak hours, respectively.

Projected (2031) background traffic volumes consisting of existing, historic growth, traffic diversions, and approved development traffic are shown on **Figures 5.3** and **5.4** for the AM and PM peak hours, respectively.

5.5 *Site Traffic*

The projected site traffic was generated and assigned to the adjacent roadway network according to the distribution discussed previously in Section 4.0 for the build-out scenarios. The AM peak hour site traffic volumes for the years 2024 and 2031 are shown on **Figures 5.5** and **5.7**,

respectively. The PM peak hour site traffic volumes for the years 2024 and 2031 are shown on **Figures 5.6** and **5.8**, respectively.

5.6 *Build-Out Traffic*

To obtain the projected build-out traffic volumes, the projected site traffic was added to the projected background traffic for each scenario. Traffic volume calculations are detailed in intersection spreadsheets in the Appendix of this report. **Figures 5.5** and **5.6** show the projected (2024) AM and PM peak hour build-out traffic volumes, respectively. **Figures 5.7** and **5.8** show the projected (2031) AM and PM peak hour build-out traffic volumes, respectively.

EXISTING (2021) AND PROJECTED (2024) BACKGROUND AM PEAK HOUR TRAFFIC VOLUMES

FIGURE 5.1

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TRAFFIC IMPACT ANALYSIS

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LEGEND

XX EXISTING TRAFFIC

(XX) BACKGROUND GROWTH

<XX> APPROVED DEVELOPMENT TRAFFIC

{XX} DIVERSION

[XX] TOTAL BACKGROUND TRAFFIC

FIGURE 5.2

EXISTING (2021) AND PROJECTED (2024) BACKGROUND PM PEAK HOUR TRAFFIC VOLUMES

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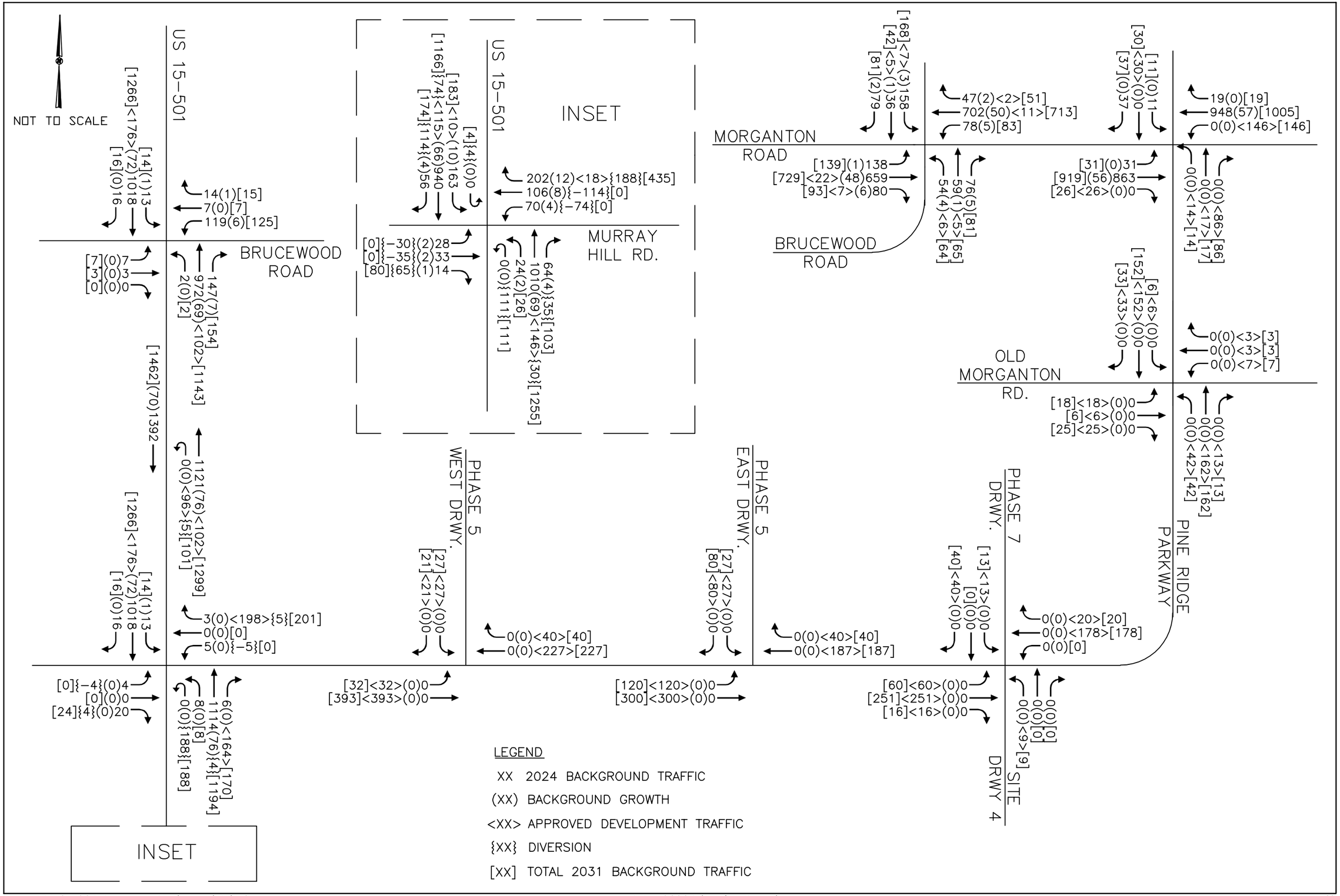

FIGURE 5.3

PROJECTED (2024) AND PROJECTED (2031) BACKGROUND AM PEAK HOUR TRAFFIC VOLUMES

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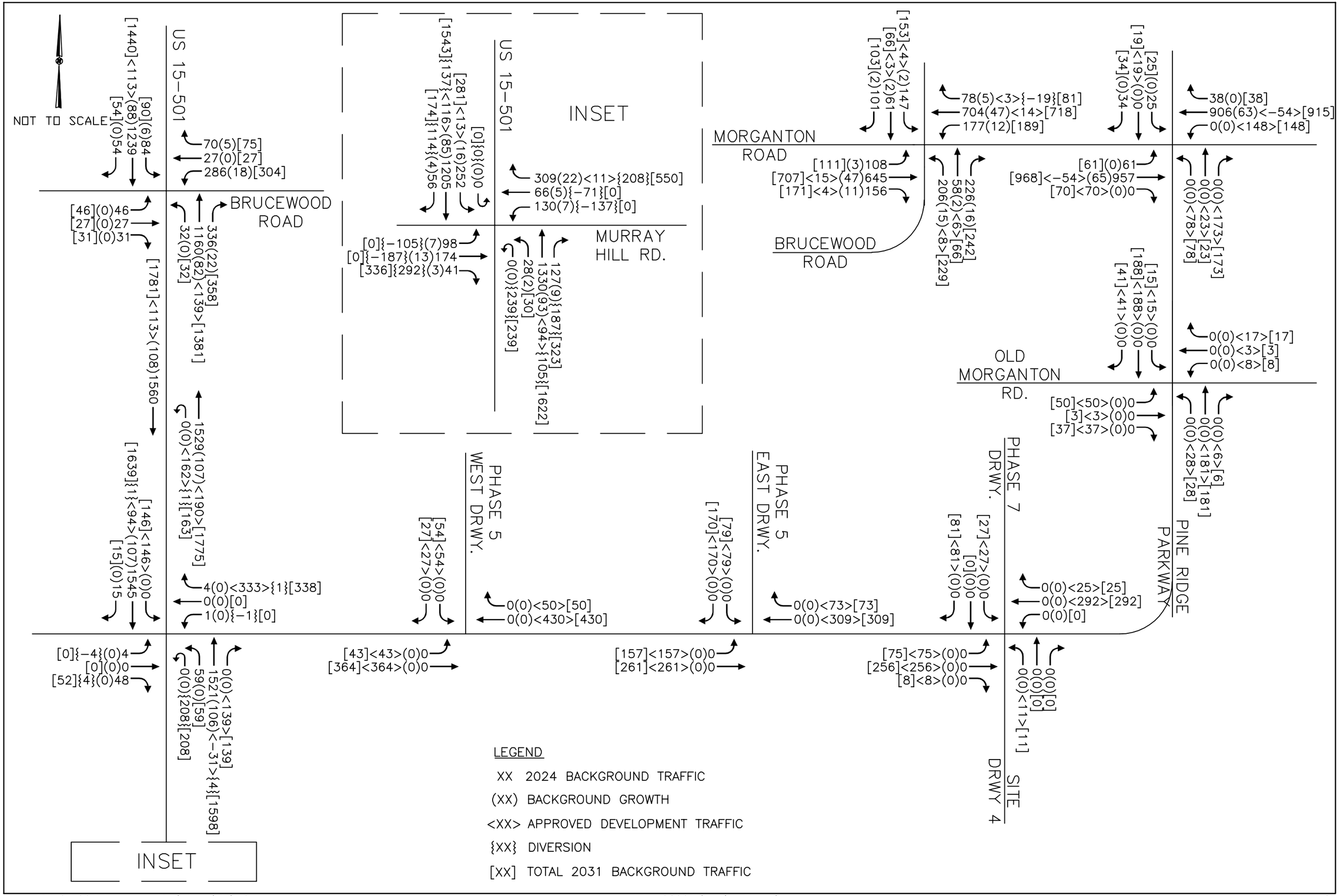

FIGURE 5.4

PROJECTED (2024) AND PROJECTED (2031) BACKGROUND PM PEAK HOUR TRAFFIC VOLUMES

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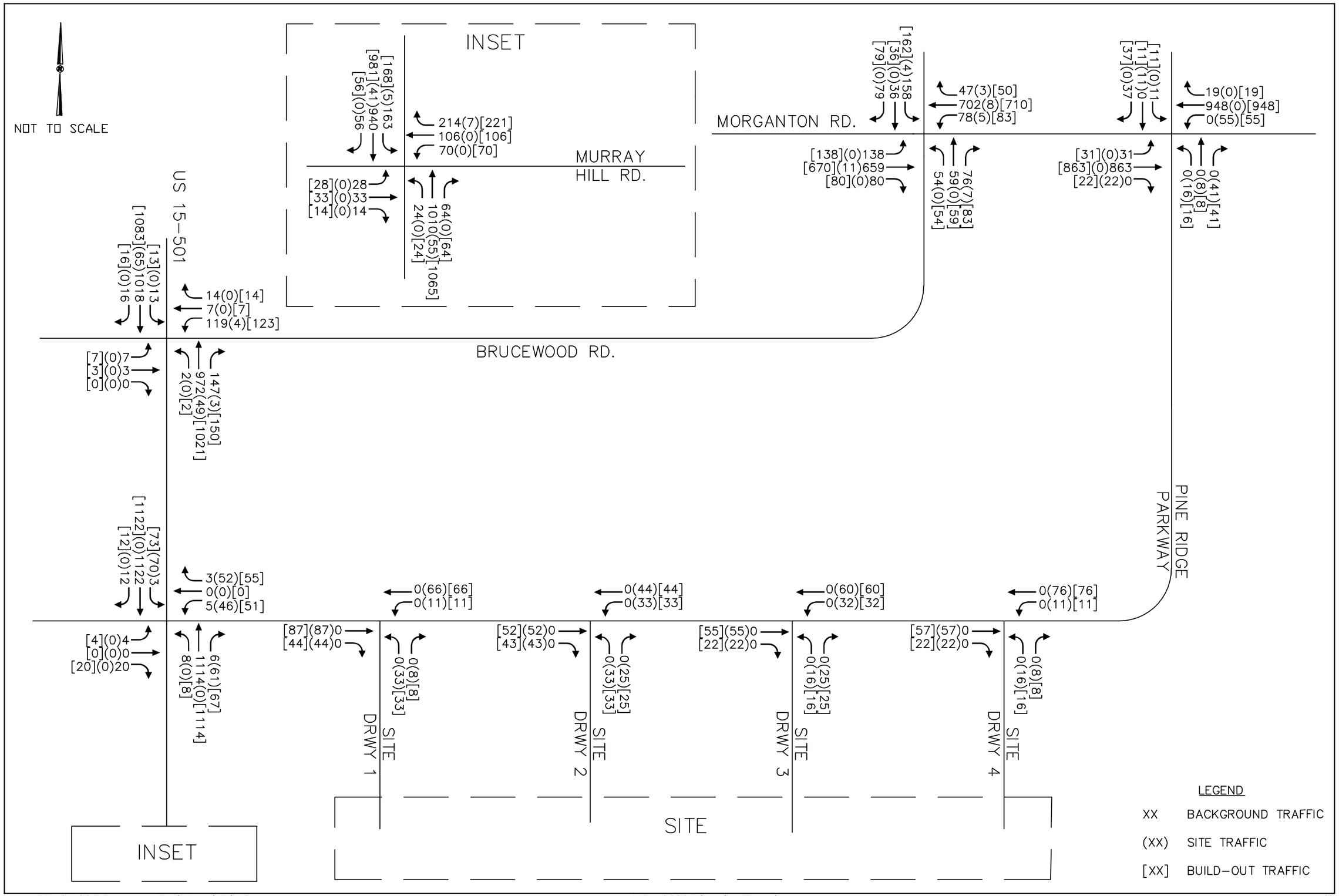

FIGURE 5.5

PROJECTED (2024)
BUILD-OUT AM PEAK HOUR
TRAFFIC VOLUMES

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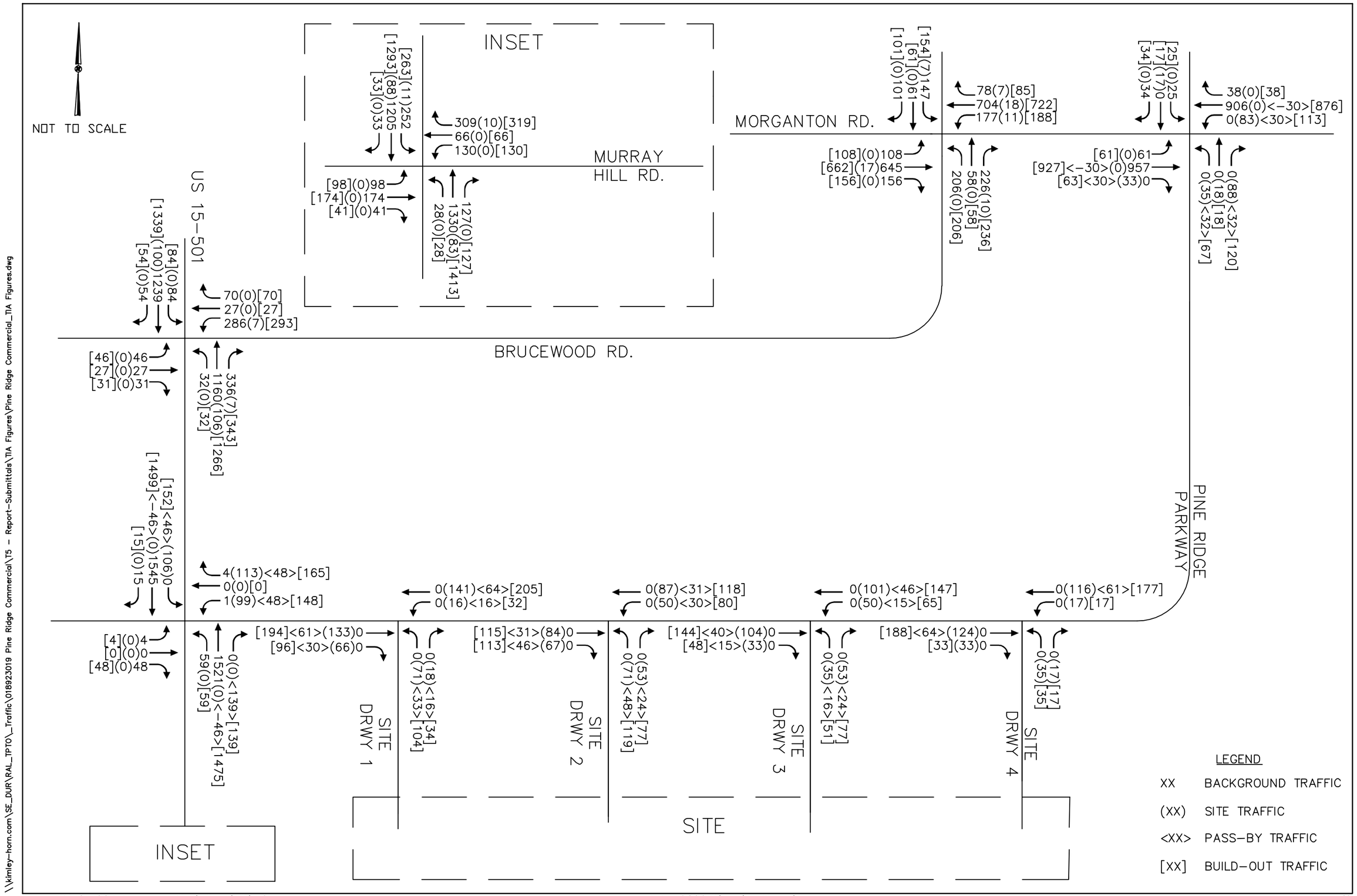

FIGURE 5.6

PROJECTED (2024)
BUILD-OUT PM PEAK HOUR
TRAFFIC VOLUMES

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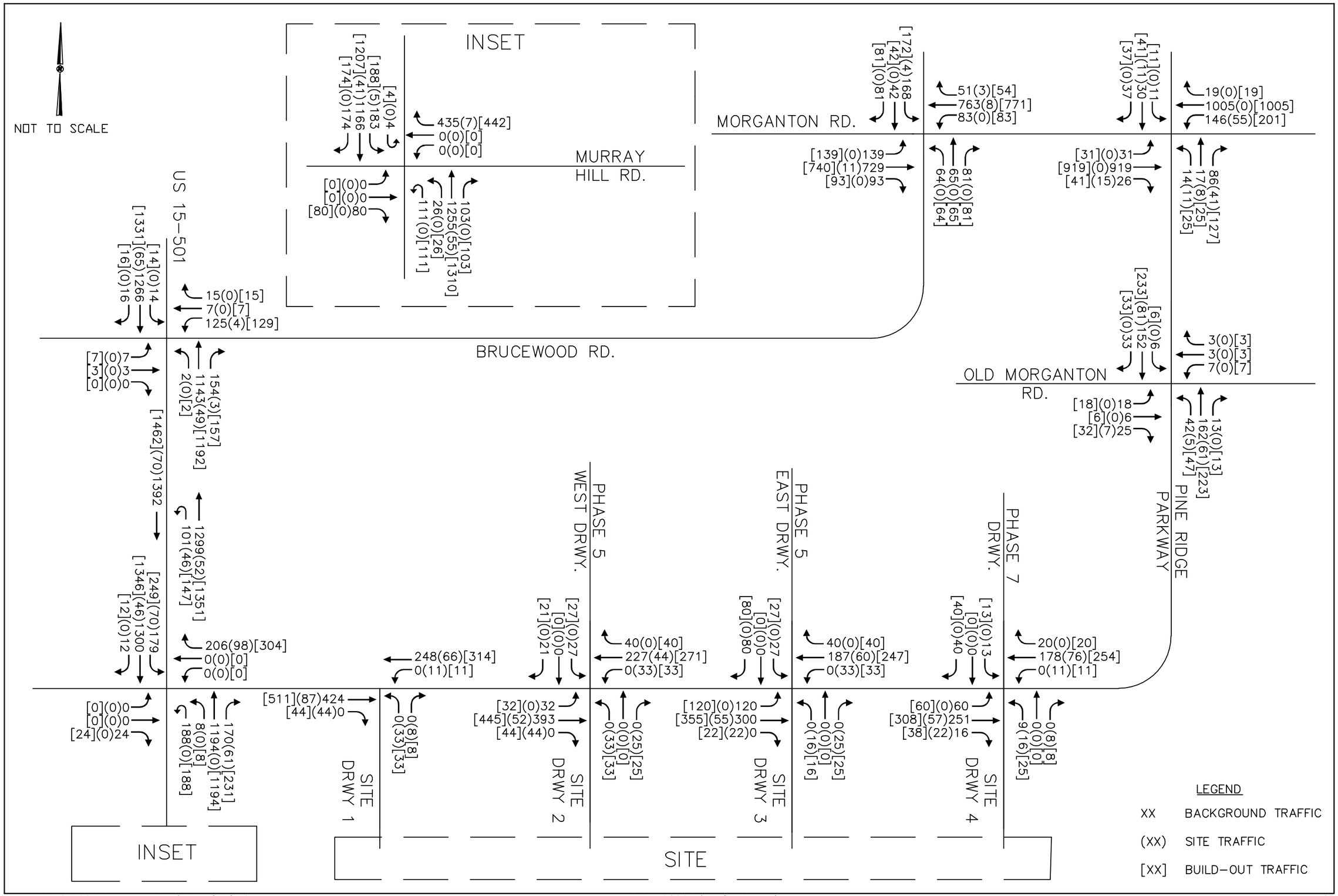

FIGURE 5.7

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

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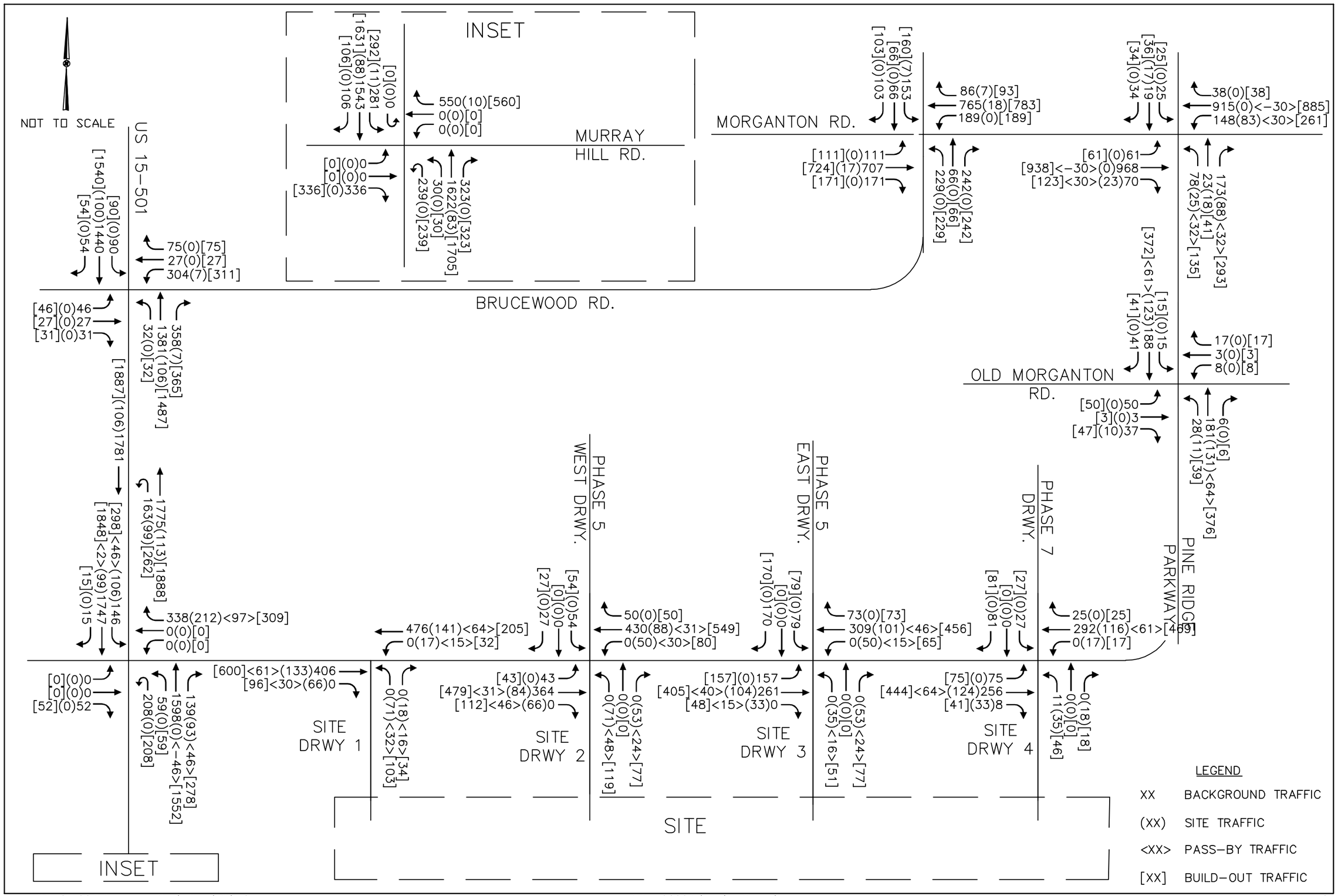

FIGURE 5.8

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

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6.0 Capacity Analysis

Capacity analyses were performed for the AM and PM peak hours for the existing (2021) traffic condition, the projected (2024) background and build-out traffic conditions, and the projected (2031) background and build-out traffic conditions and using Synchro/SimTraffic Version 10.3 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.

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* 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 10.3 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 signal plans and timings were obtained from NCDOT and used in the existing condition. Signal phasing and timings for the year 2031 superstreet condition on US 15/501 were obtained from the capacity analysis for U-5814. Existing peak hour factors (PHF) for the overall intersection were used for existing (2021) and projected (2024 and 2031) background and build-

out traffic conditions. A PHF of 0.90 was used at all new intersections and for the 2031 superstreet analyses.

Capacity analyses were performed for the existing (2021) traffic condition and the projected (2024 and 2031) background and build-out traffic conditions for the following intersections:

- US 15/501 at Brucewood Road
- US 15/501 at Partner Circle / Pine Ridge Parkway
- US 15/501 at Murray Hill Road
- Morganton Road at Brucewood Road
- Morganton Road at S Stephens Street Extension / Pine Ridge Parkway
- Pine Ridge Parkway at Site Driveway #1
- Pine Ridge Parkway at Site Driveway #2
- Pine Ridge Parkway at Site Driveway #3
- Pine Ridge Parkway at Site Driveway #4
- US 15/501 at Partner Circle / Pine Ridge Parkway North U-Turn (2031 only)
- Pine Ridge Parkway at Old Morganton Road Extension (2031 only)

All capacity analyses are included in the Appendix and are briefly summarized in the following sub-sections.

6.1 *US 15/501 at Brucewood Road*

Analyses indicates that the signalized intersection of US 15-501 at Brucewood Road currently operates at LOS A in the AM peak hour and LOS C in the PM peak hour. With the addition of background and site traffic, the intersection is expected to continue operating at LOS A in the AM peak hour and LOS C in the PM peak hour in 2024 and 2031 with or without the proposed project in place with only minor increases in delay due to the addition of site traffic. Therefore, no roadway improvements are recommended at this intersection to accommodate project traffic.

Table 6.1 summarizes the operation of the intersection of US 15-501 at Brucewood Road for the existing (2021) traffic condition and the projected (2024 and 2031) background and build-out traffic conditions.

Table 6.1
Level-of-Service
US 15/501 at Brucewood Road (Signalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	A (7.5)	C (20.4)
Background (2024) Traffic	A (8.2)	C (23.8)
Build-Out (2024) Traffic	A (7.1)	C (25.6)
Background (2031) Traffic	A (9.7)	C (25.1)
Build-Out (2031) Traffic	A (9.9)	C (26.3)

6.2 *US 15/501 at Pine Ridge Parkway North U-Turn*

As part of NCDOT STIP Project U-5814, a northbound U-turn intersection is proposed on US 15-501 between Brucewood Road and Partner Circle/Pine Ridge Parkway. This intersection was assumed to be in place by 2031.

Analyses indicate that this signalized intersection is expected to operate at LOS A in the AM peak hour and LOS B in the PM peak hour in the projected (2031) background traffic condition and at LOS A in the AM peak hour and LOS C in the PM peak hour in the projected (2031) build-out traffic condition. No queueing issues are expected at this intersection. Therefore, no roadway improvements are recommended at this intersection to accommodate project traffic.

Table 6.2 summarizes the operation of the intersection of US 15-501 at the Pine Ridge Parkway North U-Turn for the projected (2024 and 2031) background and build-out traffic conditions.

Table 6.2
Level-of-Service
US 15/501 at Pine Ridge Parkway North U-Turn (Signalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Background (2031) Traffic	A (7.3)	B (14.0)
Build-Out (2031) Traffic	A (8.9)	C (20.7)

6.3 *US 15/501 at Partner Circle / Pine Ridge Parkway*

Analyses indicate that the unsignalized intersection of US 15-501 at Partner Circle currently operates with moderate to long delays on the minor street approaches (Partner Circle) in both peak hours. The minor street approaches are expected to continue operating with long delays in the 2024 background condition.

As part of the proposed development Pine Ridge Parkway will be constructed as a 4-lane divided roadway from US 15/501 to Morganton Road. The following improvements are recommended at this intersection at project build-out:

- Provide an exclusive left-turn lane and a shared through/right lane on westbound Pine Ridge Parkway
- Install a temporary wood-pole traffic signal

With these improvements in place, the intersection is expected to operate at LOS A in the AM peak hour and LOS B in the PM peak hour in the projected (2024) build-out condition.

NCDOT STIP Project U-5814 proposed to convert this intersection to a superstreet configuration. The following additional improvement is recommended to be incorporated as part of Project U-5814:

- Construct a northbound right-turn lane on US 15/501 with a minimum of 100 feet of storage and appropriate tapers

With the improvement and superstreet conversion in place, the northbound US 15/501 side of the intersection is expected to operate at LOS A in the AM and PM peak hours, and the southbound US 15/501 side of the intersection is expected to operate at LOS B in the AM and PM peak hours for the 2031 background traffic condition. Both sides are expected to operate at LOS B or C in the projected (2031) build-out traffic condition with no queuing issues expected.

Table 6.3 summarizes the operation of the intersection of US 15-501 at Partner Circle / Pine Ridge Parkway for the existing (2021) traffic condition and the projected (2024 and 2031) background and build-out traffic conditions.

Table 6.3 Level-of-Service US 15/501 at Partner Circle / Pine Ridge Parkway		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
Existing (2021) Traffic – *Unsignalized, Full Movement*	EB – D (33.7) WB – F (72.6) NBL – B (10.8) SBL – B (10.7)	EB – F (77.4) WB – F (>500) NBL – B (14.2) SBL – B (12.8)
Background (2024) Traffic – *Unsignalized, Full Movement*	EB – E (46.7) WB – F (85.8) NBL – B (11.5) SBL – B (11.4)	EB – F (143.0) WB – F (>500) NBL – C (15.8) SBL – B (13.9)
Build-Out (2024) Traffic – *Signalized, Full Movement*	A (7.4)	B (12.5)
Background (2031) Traffic – *Signalized, Superstreet*	NB Side - A (7.2) SB Side - B (10.7)	NB Side - A (9.8) SB Side - B (16.3)
Build-Out (2031) Traffic – *Signalized, Superstreet*	NB Side - B (10.2) SB Side - B (10.6)	NB Side - C (21.4) SB Side - B (12.9)

6.4 *US 15/501 at Murray Hill Road*

Analyses indicate that the signalized intersection of US 15-501 at Murray Hill Road currently operates at LOS C in the AM peak hour and LOS F in the PM peak hour. With this addition of background and site traffic, the intersection is expected to operate at LOS D in the AM peak hour and LOS F in the PM peak hour in 2024 with or without the project in place. It should be noted while the westbound approach of Murray Hill Road includes a right-turn taper, it was analyzed as a single-lane approach to be conservative. There is a need for a full westbound right-turn lane on this approach, but it is anticipated that this improvement will be provided with the proposed Southern Pines Retail Center located on that quadrant of the intersection.

NCDOT STIP Project U-5814 proposed to convert this intersection to a superstreet configuration. With the improvements associated with this project in place, both sides of the intersection are expected to operate at LOS B in the AM peak hour and LOS C or D in the PM peak hour in 2031 with or without the project in place. Given that site traffic is expected to account for less than 5% of overall intersection traffic and that the NCDOT is expected to provide acceptable operations at this intersection, no additional improvements are recommended to be performed at this intersection to accommodate project traffic.

Table 6.4 summarizes the operation of the intersection of the US 15-501 at Murray Hill Road for the existing (2021) traffic condition and the projected (2024 and 2031) background and build-out traffic conditions.

Table 6.4
Level-of-Service
US 15/501 at Murray Hill Road (Signalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	C (32.2)	F (90.8)
Background (2024) Traffic	D (39.1)	F (109.8)
Build-Out (2024) Traffic	D (40.5)	F (111.3)
Background (2031) Traffic - *Superstreet*	NB Side - B (15.9) SB Side - B (11.4)	NB Side - C (32.2) SB Side - D (37.3)
Build-Out (2031) Traffic - *Superstreet*	NB Side - B (16.6) SB Side - B (14.3)	NB Side - D (43.3) SB Side - D (50.9)

6.5 *Morganton Road at Brucewood Road*

Analyses indicates that the signalized intersection of Morganton Road at Brucewood Road currently operates at LOS B in both peak hours. With the addition of background and site traffic, the intersection is expected to operate at LOS C in both peak hours in 2024 and 2031 with or without the project in place with only minor increases in delay due to the addition of site traffic. Therefore, no roadway improvements are recommended at this intersection to accommodate project traffic.

Table 6.5 summarizes the operation of the intersection of Morganton Road at Brucewood Road for the existing (2021) traffic condition and the projected (2024 and 2031) background and build-out traffic conditions.

Table 6.5
Level-of-Service
Morganton Road at Brucewood Road (Signalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2021) Traffic	B (11.2)	B (15.1)
Background (2024) Traffic	C (26.3)	C (32.0)
Build-Out (2024) Traffic	C (26.4)	C (32.0)
Background (2031) Traffic	C (28.7)	C (32.1)
Build-Out (2031) Traffic	C (28.9)	C (32.5)

6.6 *Morganton Road at S. Stephens Street Extension / Pine Ridge Parkway*

As part of the proposed development, Pine Ridge Parkway will be constructed as a 4-lane divided roadway from US 15/501 to Morganton Road. S. Stephens Street is planned to be extended to Morganton Road to align with Pine Ridge Parkway. Analyses indicates that the intersection of Morganton Road and S. Stephens Street/Pine Ridge Parkway is expected to operate with moderate to long delays on the minor street approaches (Pine Ridge Parkway and S. Stephens Street Extension) in the 2024 background condition.

The following improvements are recommended at this intersection at project build-out:

- Provide an exclusive left-turn lane and a shared through/right-turn lane on the northbound approach of Pine Ridge Parkway
- Construct a westbound left-turn lane on Morganton Road (and convert the existing intersection of Morganton Road at S. Henley Street to right-in/right-out only)
- Install a traffic signal when warranted

With the recommended improvements in place, the intersection is expected to operate at LOS A in the AM and PM peak hours in the projected (2024) build-out condition. The intersection is expected to operate at LOS A in the AM peak hour and LOS B in the PM peak hour in the projected (2031) background condition and at LOS A in the AM peak hour and LOS C in the PM peak hour in the projected (2031) build-out condition. No queueing issues are expected at this intersection.

Table 6.6 summarizes the operation of the intersection of Morganton Road at S. Stephens Street/Pine Ridge Parkway for the projected (2024 and 2031) background and build-out traffic conditions.

Table 6.6
Level-of-Service
Morganton Road at S. Stephens Street Ext. / Pine Ridge Parkway

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Background (2024) Traffic – *Unsignalized*	NB – F (63.3) SB – E (49.4) EBL – B (11.2) WBL – B (10.3)	NB – F (74.3) SB – F (118.0) EBL – B (11.1) WBL – B (10.6)
Build-Out (2024) Traffic – *Signalized*	A (5.8)	A (9.0)
Background (2031) Traffic – *Signalized*	A (7.2)	B (11.0)
Build-Out (2031) Traffic – *Signalized*	A (8.7)	C (23.3)

6.7 *Pine Ridge Parkway at Site Driveway 1*

As part of the proposed development, Pine Ridge Parkway will be constructed as a 4-lane divided roadway from US 15/501 to Morganton Road. A full-movement site driveway is proposed approximately 800 feet east of US 15/501. Analyses indicates that this unsignalized intersection is projected to operate with short delays for the minor street approach (Site Driveway) in both the AM and PM peak hours at project build-out in 2024. In the study year 2031, the intersection is expected to operate with moderate delays on the minor street approach in the PM peak hour. The following roadway laneage is recommended at this intersection:

- An exclusive westbound left-turn lane on Pine Ridge Parkway
- Separate left and right-turn lanes exiting the Site Driveway

Table 6.7 summarizes the operation of the intersection of the Pine Ridge Parkway at Site Driveway 1 for the projected (2024 and 2031) build-out traffic conditions.

Table 6.7
Level-of-Service
Pine Ridge Parkway at Site Driveway 1 (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-Out (2024) Traffic	NB – A (9.6) WBL – A (7.5)	NB – B (12.8) WBL – A (8.0)
Build-Out (2031) Traffic	NB – C (16.2) WBL – A (8.8)	NB – E (45.3) WBL – A (9.5)

6.8 *Pine Ridge Parkway at Southern Road Ext. / Site Driveway 2*

As part of the proposed development, Pine Ridge Parkway will be constructed as a 4-lane divided roadway from US 15/501 to Morganton Road. A full-movement site driveway is proposed approximately 700 feet east of Site Driveway 1. Analyses indicates that this unsignalized intersection is projected to operate with short delays for the minor street approach (Site Driveway) in both the AM and PM peak hours at project build-out in 2024. The following roadway laneage is recommended at this intersection:

- An exclusive westbound left-turn lane on Pine Ridge Parkway
- Separate left and right-turn lanes exiting the Site Driveway

As part of the Morganton Park South Master Plan, Southern Road will be extended from the Southern Pines Village shopping center to tie to Pine Ridge Parkway at Site Driveway 2. In the study year 2031 background condition, the intersection is expected to operate with short delays on the minor street approach (Southern Road) in the AM and PM peak hour. At project build-out in 2031, both minor street approaches are expected to operate with short delays in the AM peak hour and long delays in the PM peak hour. However, SimTraffic simulations show no queuing issues at this intersection.

Table 6.8 summarizes the operation of the intersection of the Pine Ridge Parkway at Southern Road / Site Driveway 2 for the projected (2024 and 2031) build-out traffic conditions.

Table 6.8
Level-of-Service
Pine Ridge Parkway at Southern Road / Site Driveway 2 (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-Out (2024) Traffic	NB – A (9.4) WBL – A (7.5)	NB – B (12.5) WBL – A (8.0)
Background (2031) Traffic	SB – B (12.0) EBL – A (7.9)	SB – C (16.7) EBL – A (8.7)
Build-Out (2031) Traffic	NB – C (17.8) SB – C (16.3) EBL – A (8.1) WBL – A (8.7)	NB – F (136.5) SB – F (59.9) EBL – A (9.1) WBL – A (9.3)

6.9 *Pine Ridge Parkway at Site Driveway 3 / Phase 5 East Driveway*

As part of the proposed development, Pine Ridge Parkway will be constructed as a 4-lane divided roadway from US 15/501 to Morganton Road. A full-movement site driveway is proposed approximately 650 feet east of Site Driveway 2. Analyses indicates that this unsignalized intersection is projected to operate with short delays for the minor street approach (Site Driveway) in both the AM and PM peak hours at project build-out in 2024. The following roadway laneage is recommended at this intersection:

- An exclusive westbound left-turn lane on Pine Ridge Parkway
- Separate left and right-turn lanes exiting the Site Driveway

A driveway to Phase 5 of the Morganton Park South Master Plan is proposed on Pine Ridge Parkway across from Site Driveway 3. In the study year 2031 background condition, the intersection is expected to operate with short delays on the minor street approach (Phase 5 Driveway) in the AM and PM peak hour. At project build-out in 2031, both minor street approaches are expected to operate with short delays in the AM peak hour and long delays in the PM peak hour. SimTraffic simulations show the potential for some queueing on the minor street approaches at this intersection. However, if queuing does become an issue at this location, it is anticipated that traffic will shift to other driveways on Pine Ridge Parkway.

Table 6.9 summarizes the operation of the intersection of the Pine Ridge Parkway at Site Driveway 3 / Phase 5 East Driveway for the projected (2024 and 2031) build-out traffic conditions.

Table 6.9
Level-of-Service
Pine Ridge Parkway at Site Driveway 3 / Phase 5 East Driveway (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-Out (2024) Traffic	NB – A (9.1) WBL – A (7.4)	NB – B (10.6) WBL – A (7.8)
Background (2031) Traffic	SB – B (11.8) EBL – A (8.1)	SB – C (23.7) EBL – A (8.8)
Build-Out (2031) Traffic	NB – C (17.2) SB – C (15.4) EBL – A (8.3) WBL – A (8.3)	NB – F (62.5) SB – F (72.4) EBL – A (9.5) WBL – A (8.7)

6.10 *Pine Ridge Parkway at Site Driveway 4 / Phase 7 Driveway*

As part of the proposed development, Pine Ridge Parkway will be constructed as a 4-lane divided roadway from US 15/501 to Morganton Road. A full-movement site driveway to the multi-family parcel is proposed approximately 450 feet east of Site Driveway 3. Analyses indicates that this unsignalized intersection is projected to operate with short delays for the minor street approach (Site Driveway) in both the AM and PM peak hours at project build-out in 2024. The following roadway laneage is recommended at this intersection:

- An exclusive westbound left-turn lane on Pine Ridge Parkway
- Separate left and right-turn lanes exiting the Site Driveway

A driveway to Phase 7 of the Morganton Park South Master Plan is proposed on Pine Ridge Parkway across from Site Driveway 4. In the study year 2031 background condition, the intersection is expected to operate with short delays on the minor street approach (Phase 7 Driveway) in the AM and PM peak hour. At project build-out in 2031, both minor street approaches are expected to operate with short delays in the AM peak hour and short to moderate delays in the PM peak hour. SimTraffic simulations show no queueing issues at this location.

Table 6.10 summarizes the operation of the intersection of the Pine Ridge Parkway at Site Driveway 4 / Phase 7 Driveway for the projected (2024 and 2031) build-out traffic conditions.

Table 6.10
Level-of-Service
Pine Ridge Parkway at Site Driveway 4 / Phase 7 Driveway (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-Out (2024) Traffic	NB – A (9.2) WBL – A (7.4)	NB – B (10.9) WBL – A (7.8)
Background (2031) Traffic	NB – B (13.5) SB – B (10.9) EBL – A (7.8) WBL – A (7.9)	NB – C (15.9) SB – B (12.9) EBL – A (8.2) WBL – A (7.9)
Build-Out (2031) Traffic	NB – B (16.5) SB – B (12.0) EBL – A (8.0) WBL – A (8.1)	NB – D (33.1) SB – C (18.8) EBL – A (8.9) WBL – A (8.6)

6.11 *Pine Ridge Parkway at Old Morganton Road Extension*

As part of the Morganton Park South Master Plan, Old Morganton Road will be extended from the Southern Pines Village shopping center to tie to Pine Ridge Parkway. Analysis indicates that this intersection is expected to operate with short delays on the minor street approaches (Old Morganton Road) in the AM and PM peak hours for both the 2031 background and build-out traffic conditions. SimTraffic simulations show no queuing issues at this intersection.

Table 6.11 summarizes the operation of the intersection of the Pine Ridge Parkway at Old Morganton Road Extension for the projected (2031) background and build-out traffic conditions.

Table 6.11
Level-of-Service
Pine Ridge Parkway at Old Morganton Road Extension (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Background (2031) Traffic	EB – B (11.0) WB – B (11.7) NBL – A (7.7) SBL – A (7.6)	EB – B (12.4) WB – B (10.8) NBL – A (7.8) SBL – A (7.7)
Build-Out (2031) Traffic	EB – B (12.0) WB – B (13.2) NBL – A (8.0) SBL – A (7.8)	EB – C (18.4) WB – B (14.4) NBL – A (8.4) SBL – A (8.2)

7.0 Recommendations

The following improvements are recommended to be performed as part of the proposed Pine Ridge Commercial development:

US 15/501 at Partner Circle / Pine Ridge Parkway:

- Provide an exclusive left-turn lane and a shared through/right lane on westbound Pine Ridge Parkway
- Install a temporary wood-pole traffic signal

Morganton Road at S. Stephens Street / Pine Ridge Parkway:

- Provide an exclusive left-turn lane and a shared through/right-turn lane on the northbound approach of Pine Ridge Parkway
- Construct a westbound left-turn lane on Morganton Road (and convert the existing intersection of Morganton Road at S. Henley Street to right-in/right-out only)
- Install a traffic signal when warranted

Pine Ridge Parkway at Site Driveway 1:

- Provide an exclusive westbound left-turn lane on Pine Ridge Parkway
- Provide separate left and right-turn lanes exiting the Site Driveway

Pine Ridge Parkway at Site Driveway 2:

- Provide an exclusive westbound left-turn lane on Pine Ridge Parkway
- Provide separate left and right-turn lanes exiting the Site Driveway

Pine Ridge Parkway at Site Driveway 3:

- Provide an exclusive westbound left-turn lane on Pine Ridge Parkway
- Provide separate left and right-turn lanes exiting the Site Driveway

Pine Ridge Parkway at Site Driveway 4:

- Provide an exclusive westbound left-turn lane on Pine Ridge Parkway
- Provide separate left and right-turn lanes exiting the Site Driveway

The following additional improvement is recommended to be incorporated into STIP Project U-5814:

US 15/501 at Partner Circle / Pine Ridge Parkway:

- Construct a northbound right-turn lane on US 15/501 with a minimum of 100 feet of storage and appropriate tapers

With the recommended improvements in place, all of the study intersections except for the intersection of US 15/501 at Murray Hill Road are expected to operate acceptably in the build-out traffic conditions. US 15/501 at Murray Hill Road currently operates at LOS F in the PM peak

hour due to the lack of turn lanes on Murray Hill Road. It is anticipated that the commercial development proposed on the northeast quadrant of the intersection will provide at least a right-turn lane on the westbound approach. When the superstreet is implemented on US 15/501 with NCDOT STIP Project U-5814, the intersection is expected to operate at acceptable levels of service.

While some unsignalized intersections are expected to operate with long delays, 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. SimTraffic simulations also show no significant queuing issues as any of these intersections.

The recommended 2024 roadway laneage is shown on **Figure 7.1**, and the committed and recommended 2031 roadway laneage is shown on **Figure 7.2**.

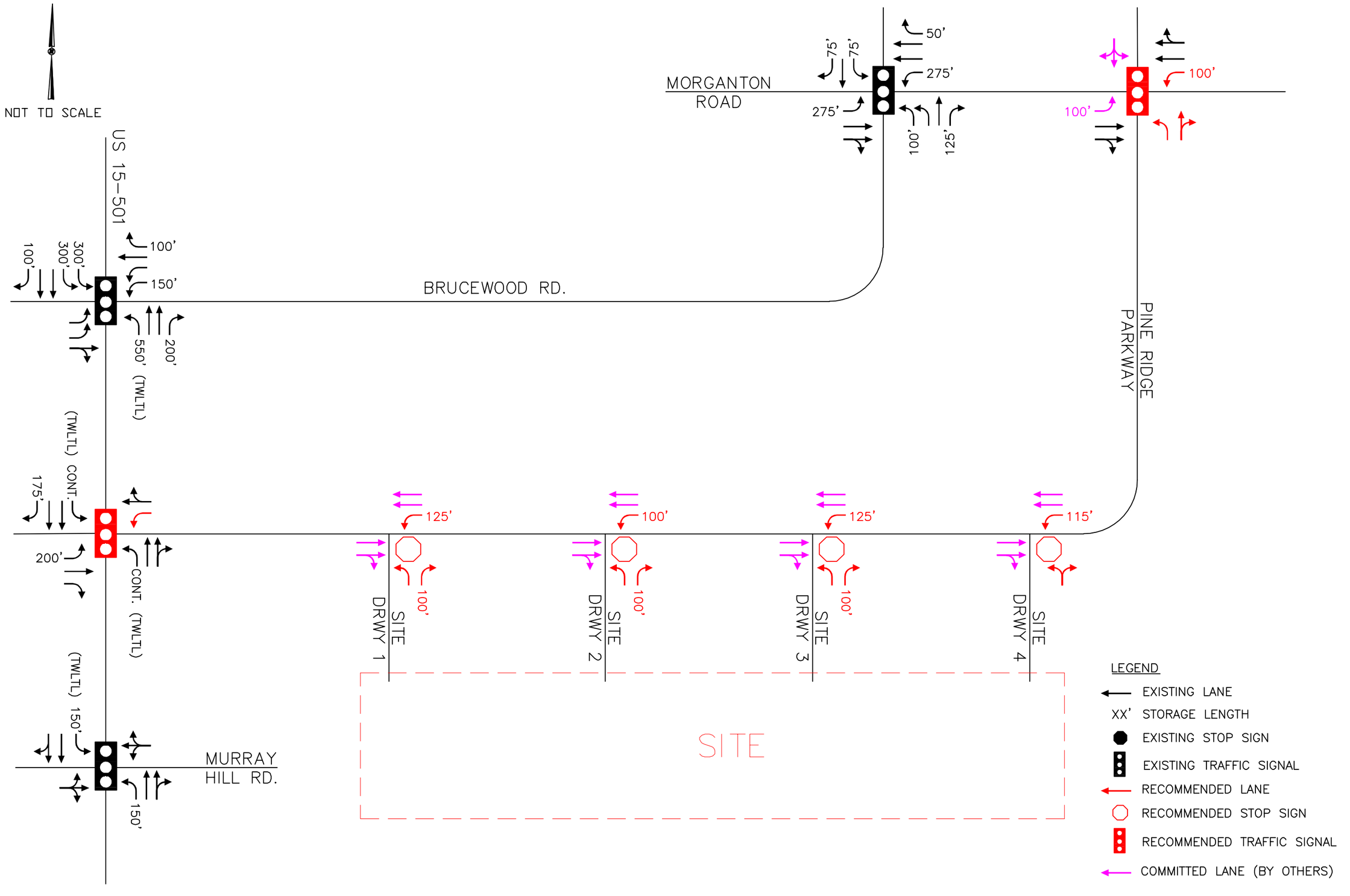

FIGURE 7.1

COMMITTED AND RECOMMENDED ROADWAY LANEAGE – 2024 BUILD-OUT YEAR

PINE RIDGE COMMERCIAL
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

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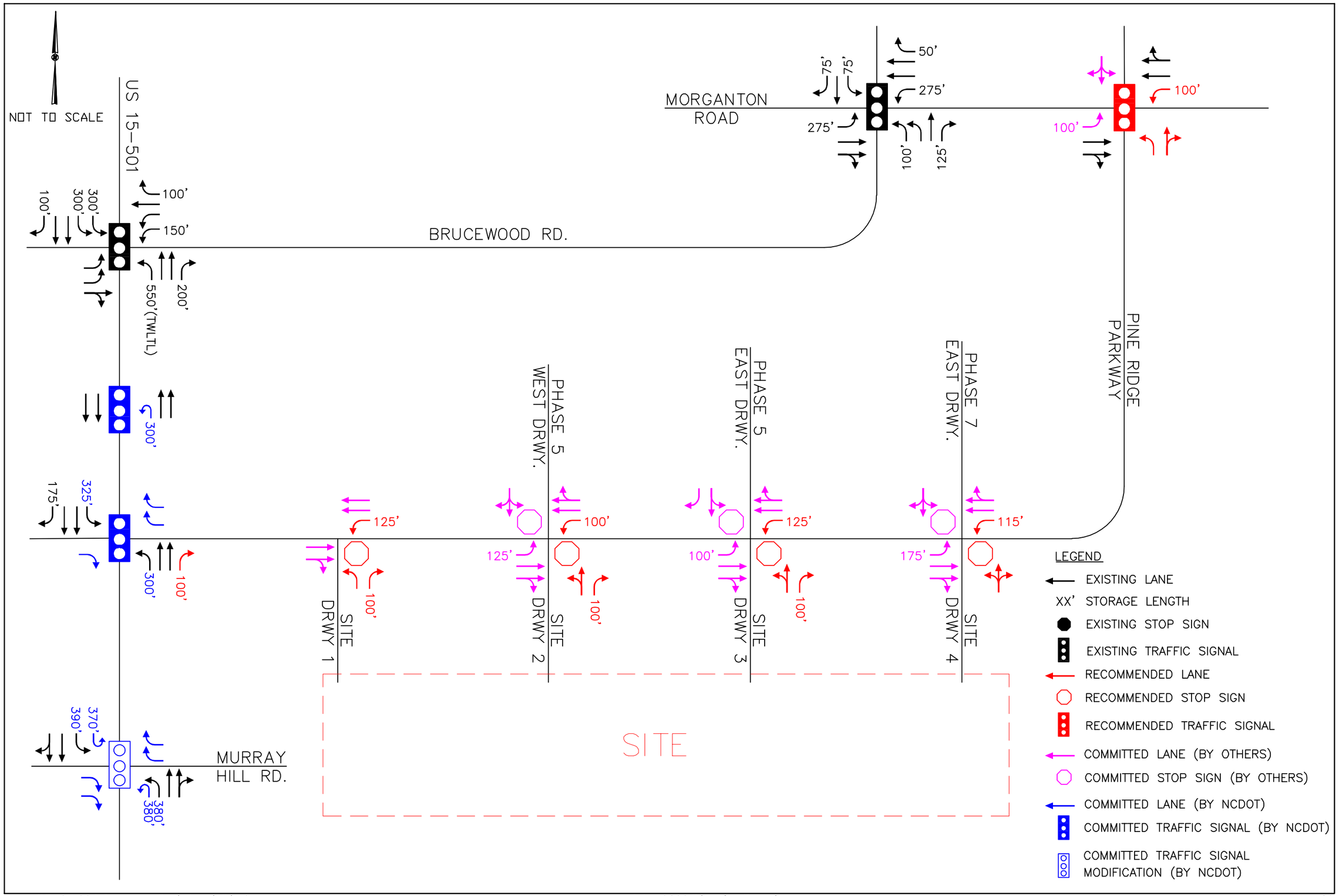

FIGURE 7.2

COMMITTED AND RECOMMENDED ROADWAY LANEAGE – 2031 HORIZON YEAR

PINE RIDGE COMMERCIAL
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

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Appendix

Appendix A:
Traffic Count Data

Project ID: 16-9352-008
Location: US 15_501 & Brucewood Rd_Business Dwy
City: Southern Pines

Day: Thursday
Date: 9/15/2016

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:00 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	US 15_501 Northbound					US 15_501 Southbound					Brucewood Rd_Business Dwy Eastbound					Brucewood Rd_Business Dwy Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	2	105	13	0	120	0	139	2	0	141	2	1	1	0	4	9	1	0	0	10	275
7:15 AM	1	157	19	0	177	1	168	1	0	170	0	0	0	0	0	13	1	0	0	14	361
7:30 AM	1	219	20	0	240	1	212	5	0	218	0	0	0	0	0	12	0	2	0	14	472
7:45 AM	1	234	22	0	257	1	238	5	0	244	0	0	1	0	1	15	2	3	0	20	522
Total	5	715	74	0	794	3	757	13	0	773	2	1	2	0	5	49	4	5	0	58	1630
8:00 AM	2	215	19	0	236	3	224	2	0	229	1	0	0	0	1	15	2	4	0	21	487
8:15 AM	1	283	18	0	302	2	243	3	0	248	2	1	0	0	3	19	2	6	0	27	580
8:30 AM	1	268	25	0	294	5	276	2	0	283	3	0	2	0	5	21	3	5	0	29	611
8:45 AM	1	215	25	0	241	3	265	3	0	271	1	0	0	0	1	27	0	0	0	27	540
Total	5	981	87	0	1073	13	1008	10	0	1031	7	1	2	0	10	82	7	15	0	104	2218
BREAK																					
4:00 PM	6	254	53	0	313	21	338	8	0	367	9	1	7	0	17	41	1	13	0	55	752
4:15 PM	9	217	55	0	281	25	300	9	0	334	14	8	6	0	28	49	3	11	0	63	706
4:30 PM	3	272	69	0	344	13	250	14	0	277	10	4	9	0	23	50	2	13	0	65	709
4:45 PM	7	247	52	0	306	20	288	10	0	318	3	5	9	0	17	53	5	13	0	71	712
Total	25	990	229	0	1244	79	1176	41	0	1296	36	18	31	0	85	193	11	50	0	254	2879
5:00 PM	6	277	51	0	334	19	311	15	0	345	10	10	9	0	29	46	8	16	0	70	778
5:15 PM	11	266	56	0	333	17	298	14	0	329	8	8	5	0	21	45	6	19	0	70	753
5:30 PM	8	287	56	1	351	17	231	15	0	263	8	3	8	0	19	50	6	11	0	67	700
5:45 PM	10	235	77	0	322	15	239	15	0	269	12	8	5	0	25	39	7	14	0	60	676
Total	35	1065	240	1	1340	68	1079	59	0	1206	38	29	27	0	94	180	27	60	0	267	2907
Grand Total	70	3751	630	1	4451	163	4020	123	0	4306	83	49	62	0	194	504	49	130	0	683	9634
Apprch %	1.6	84.3	14.2	0.0		3.8	93.4	2.9	0.0		42.8	25.3	32.0	0.0		73.8	7.2	19.0	0.0		
Total %	0.7	38.9	6.5	0.0	46.2	1.7	41.7	1.3	0.0	44.7	0.9	0.5	0.6	0.0	2.0	5.2	0.5	1.3	0.0	7.1	
Cars, PU, Vans	70	3726	629	1	4425	163	3990	123	0	4276	83	49	61	0	193	503	49	129	0	681	9575
% Cars, PU, Vans	100.0	99.3	99.8	100.0	99.4	100.0	99.3	100.0	0.0	99.3	100.0	100.0	98.4	0.0	99.5	99.8	100.0	99.2	0.0	99.7	99.4
Heavy Trucks	0	25	1		26	0	30	0		30	0	0	1		1	1	0	1		2	59
%Heavy Trucks	0.0	0.7	0.2	0.0	0.6	0.0	0.7	0.0	0.0	0.7	0.0	0.0	1.6	0.0	0.5	0.2	0.0	0.8	0.0	0.3	0.6

Project ID: 16-9352-008
Location: US 15_501 & Brucewood Rd
City: Southern Pines

PEAK HOURS

Day: Thursday
Date: 9/15/2016

AM

	US 15_501 Northbound				US 15_501 Southbound				Brucewood Rd_Business Dwy Eastbound				Brucewood Rd_Business Dwy Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
8:00 AM	2	215	19	236	3	224	2	229	1	0	0	1	15	2	4	21	487
8:15 AM	1	283	18	302	2	243	3	248	2	1	0	3	19	2	6	27	580
8:30 AM	1	268	25	294	5	276	2	283	3	0	2	5	21	3	5	29	611
8:45 AM	1	215	25	241	3	265	3	271	1	0	0	1	27	0	0	27	540
Total Volume	5	981	87	1073	13	1008	10	1031	7	1	2	10	82	7	15	104	2218
% App. Total	0.5	91.4	8.1	100	1.3	97.8	1.0	100	70.0	10.0	20.0	100	78.8	6.7	14.4	100	
PHF				0.888				0.911				0.500				0.897	
Cars, PU, Vans	5	972	86	1063	13	995	10	1018	7	1	2	10	82	7	14	103	2194
% Cars, PU, Vans	100.0	99.1	98.9	99.1	100.0	98.7	100.0	98.7	100.0	100.0	100.0	100.0	100.0	100.0	93.3	99.0	98.9
Heavy Trucks	0	9	1	10	0	13	0	13	0	0	0	0	0	0	1	1	24
%Heavy Trucks	0.0	0.9	1.1	0.9	0.0	1.3	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	6.7	1.0	1.1

PM

	US 15_501 Northbound				US 15_501 Southbound				Brucewood Rd_Business Dwy Eastbound				Brucewood Rd_Business Dwy Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 04:00 PM to 06:00 PM																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
4:30 PM	3	272	69	344	13	250	14	277	10	4	9	23	50	2	13	65	709
4:45 PM	7	247	52	306	20	288	10	318	3	5	9	17	53	5	13	71	712
5:00 PM	6	277	51	334	19	311	15	345	10	10	9	29	46	8	16	70	778
5:15 PM	11	266	56	333	17	298	14	329	8	8	5	21	45	6	19	70	753
Total Volume	27	1062	228	1317	69	1147	53	1269	31	27	32	90	194	21	61	276	2952
% App. Total	2.1	80.6	17.3	100	5.4	90.4	4.2	100	34.4	30.0	35.6	100	70.3	7.6	22.1	100	
PHF				0.957				0.920				0.776				0.972	
Cars, PU, Vans	27	1058	228	1313	69	1143	53	1265	31	27	32	90	194	21	61	276	2944
% Cars, PU, Vans	100.0	99.6	100.0	99.7	100.0	99.7	100.0	99.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.7
Heavy Trucks	0	4	0	4	0	4	0	4	0	0	0	0	0	0	0	0	8
%Heavy Trucks	0.0	0.4	0.0	0.3	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-9352-007

Day: Thursday

City: Southern Pines

Date: 9/15/2016

AM

NS/EW Streets:	US 15_501			US 15_501			Partner Circle			Partner Circle			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	1	1	1	1	0	1	0	
7:00 AM	0	104	0	1	145	0	2	0	3	0	0	0	255
7:15 AM	3	176	2	1	184	0	1	0	8	0	0	0	375
7:30 AM	3	236	0	1	220	1	0	0	4	0	0	0	465
7:45 AM	5	243	0	0	252	3	0	0	6	0	0	0	509
8:00 AM	1	257	2	0	231	4	1	0	5	1	0	0	502
8:15 AM	1	283	1	1	263	4	1	0	2	1	0	0	557
8:30 AM	4	288	0	2	288	2	2	0	9	1	0	1	597
8:45 AM	2	252	3	0	280	2	0	0	4	2	0	2	547
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	19	1839	8	6	1863	16	7	0	41	5	0	3	3807
APPROACH %'s :	1.02%	98.55%	0.43%	0.32%	98.83%	0.85%	14.58%	0.00%	85.42%	62.50%	0.00%	37.50%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	8	1080	6	3	1062	12	4	0	20	5	0	3	2203
PEAK HR FACTOR :		0.937			0.922			0.545			0.500		0.923

CONTROL : 2-Way Stop(EB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-9352-007

Day: Thursday

City: Southern Pines

Date: 9/15/2016

PM

NS/EW Streets:	US 15_501			US 15_501			Partner Circle			Partner Circle			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	1	1	1	1	0	1	0	
4:00 PM	12	290	1	0	358	0	0	0	12	0	0	3	676
4:15 PM	9	306	0	0	366	4	2	0	5	1	0	0	693
4:30 PM	14	321	0	0	337	0	1	0	9	0	0	1	683
4:45 PM	14	316	0	0	321	3	1	0	11	0	0	0	666
5:00 PM	10	351	0	0	346	7	1	0	11	1	0	3	730
5:15 PM	18	343	0	0	354	4	1	0	15	0	0	0	735
5:30 PM	9	335	0	0	302	2	2	0	7	0	0	0	657
5:45 PM	18	324	0	0	267	3	1	0	4	0	0	0	617
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	104	2586	1	0	2651	23	9	0	74	2	0	7	5457
APPROACH %'s :	3.86%	96.10%	0.04%	0.00%	99.14%	0.86%	10.84%	0.00%	89.16%	22.22%	0.00%	77.78%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	56	1331	0	0	1358	14	4	0	46	1	0	4	2814
PEAK HR FACTOR :		0.961			0.958			0.781			0.313		0.957

CONTROL : 2-Way Stop(EB/WB)

Moving forward.
RKA
RAMEY KEMP ASSOCIATES
5808 Faringdon Place
Suite 100
Raleigh, NC 27609
PH: 919-872-5115

File Name : US 15-501 and Murray Hill Road
Site Code : 00000003
Start Date : 4/27/2021
Page No : 1

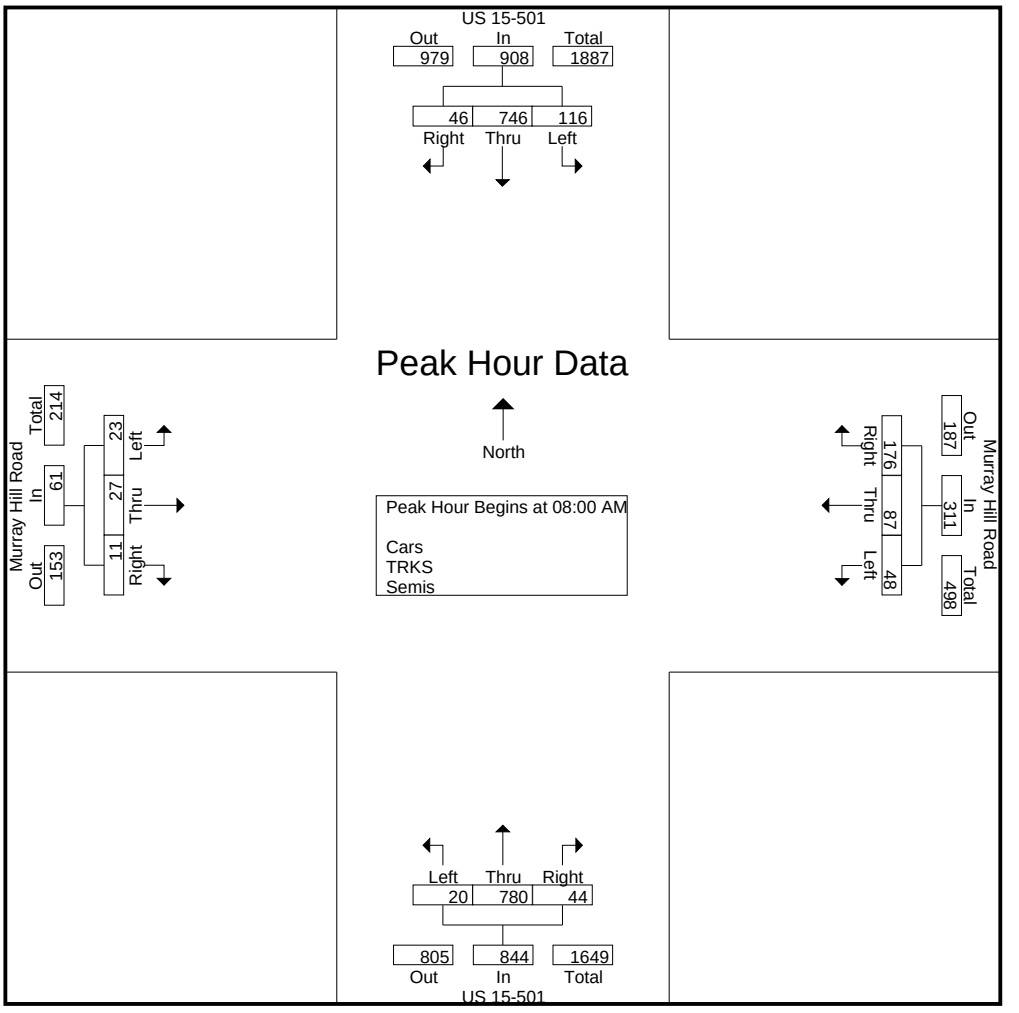
Groups Printed- Cars - TRKS - Semis

	US 15-501 From North					Murray Hill Road From East					US 15-501 From South					Murray Hill Road From West							
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	7	137	14	0	158	17	10	12	0	39	6	102	4	0	112	3	0	1	0	4	0	313	313
07:15 AM	10	177	28	0	215	39	10	6	0	55	11	135	5	0	151	0	4	1	0	5	0	426	426
07:30 AM	12	162	25	0	199	28	11	17	0	56	11	191	6	1	208	1	5	4	0	10	1	473	474
07:45 AM	9	151	31	0	191	41	13	16	0	70	9	217	8	0	234	2	1	3	0	6	0	501	501
Total	38	627	98	0	763	125	44	51	0	220	37	645	23	1	705	6	10	9	0	25	1	1713	1714
08:00 AM	10	157	24	0	191	43	32	15	1	90	17	177	7	0	201	1	3	5	0	9	1	491	492
08:15 AM	7	171	33	0	211	46	19	7	0	72	9	224	3	0	236	3	9	8	0	20	0	539	539
08:30 AM	10	189	25	0	224	52	16	14	0	82	11	183	5	0	199	3	6	3	0	12	0	517	517
08:45 AM	19	229	34	0	282	35	20	12	0	67	7	196	5	0	208	4	9	7	0	20	0	577	577
Total	46	746	116	0	908	176	87	48	1	311	44	780	20	0	844	11	27	23	0	61	1	2124	2125
*** BREAK ***																							
04:00 PM	19	299	31	0	349	55	15	25	0	95	18	234	1	0	253	10	18	32	0	60	0	757	757
04:15 PM	7	233	29	0	269	58	18	28	1	104	12	224	0	0	236	6	12	23	1	41	2	650	652
04:30 PM	10	241	40	0	291	56	16	21	0	93	16	235	10	1	261	14	20	26	0	60	1	705	706
04:45 PM	8	228	39	0	275	67	18	22	0	107	22	276	6	0	304	7	18	15	0	40	0	726	726
Total	44	1001	139	0	1184	236	67	96	1	399	68	969	17	1	1054	37	68	96	1	201	3	2838	2841
05:00 PM	5	209	56	0	270	67	8	25	0	100	27	247	4	0	278	7	85	23	0	115	0	763	763
05:15 PM	4	283	50	0	337	63	12	16	1	91	32	302	3	0	337	6	20	16	0	42	1	807	808
05:30 PM	3	257	45	0	305	58	5	26	0	89	24	238	3	0	265	8	10	17	0	35	0	694	694
05:45 PM	6	260	34	0	300	65	8	22	0	95	11	232	4	0	247	10	10	23	2	43	2	685	687
Total	18	1009	185	0	1212	253	33	89	1	375	94	1019	14	0	1127	31	125	79	2	235	3	2949	2952
Grand Total	146	3383	538	0	4067	790	231	284	3	1305	243	3413	74	2	3730	85	230	207	3	522	8	9624	9632
Apprch %	3.6	83.2	13.2			60.5	17.7	21.8			6.5	91.5	2			16.3	44.1	39.7					
Total %	1.5	35.2	5.6		42.3	8.2	2.4	3		13.6	2.5	35.5	0.8		38.8	0.9	2.4	2.2		5.4	0.1	99.9	
Cars	141	3315	528		3984	774	230	282		1289	238	3348	73		3661	82	228	203		516	0	0	9450
% Cars	96.6	98	98.1	0	98	98	99.6	99.3	100	98.5	97.9	98.1	98.6	100	98.1	96.5	99.1	98.1	100	98.3	0	0	98.1
TRKS	5	44	10		59	16	1	1		18	3	49	1		53	2	2	4		8	0	0	138
% TRKS	3.4	1.3	1.9	0	1.5	2	0.4	0.4	0	1.4	1.2	1.4	1.4	0	1.4	2.4	0.9	1.9	0	1.5	0	0	1.4
Semis	0	24	0		24	0	0	1		1	2	16	0		18	1	0	0		1	0	0	44
% Semis	0	0.7	0	0	0.6	0	0	0.4	0	0.1	0.8	0.5	0	0	0.5	1.2	0	0	0	0.2	0	0	0.5

Moving forward.
RAMEY KEMP ASSOCIATES
5808 Faringdon Place
Suite 100
Raleigh, NC 27609
PH: 919-872-5115

File Name : US 15-501 and Murray Hill Road
Site Code : 00000003
Start Date : 4/27/2021
Page No : 2

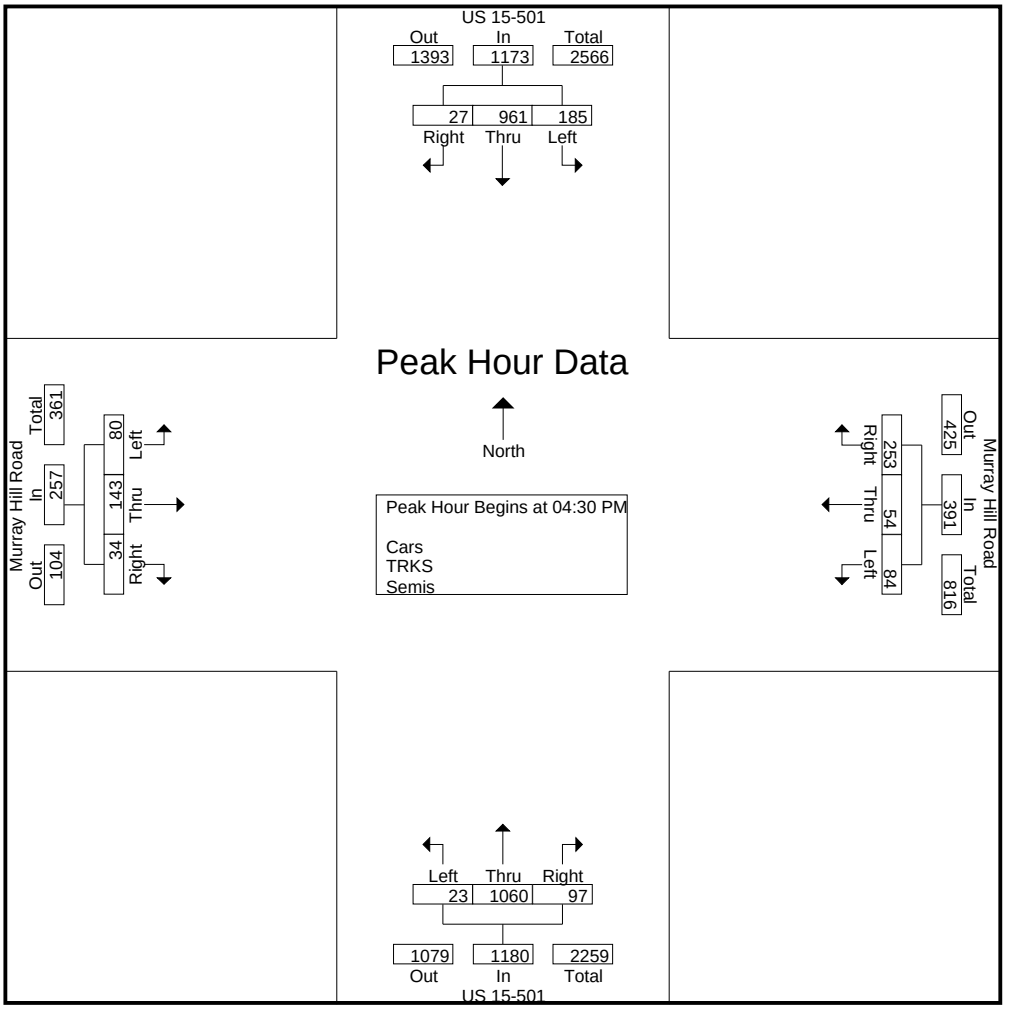
	US 15-501 From North				Murray Hill Road From East				US 15-501 From South				Murray Hill Road From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	10	157	24	191	43	32	15	90	17	177	7	201	1	3	5	9	491
08:15 AM	7	171	33	211	46	19	7	72	9	224	3	236	3	9	8	20	539
08:30 AM	10	189	25	224	52	16	14	82	11	183	5	199	3	6	3	12	517
08:45 AM	19	229	34	282	35	20	12	67	7	196	5	208	4	9	7	20	577
Total Volume	46	746	116	908	176	87	48	311	44	780	20	844	11	27	23	61	2124
% App. Total	5.1	82.2	12.8		56.6	28	15.4		5.2	92.4	2.4		18	44.3	37.7		
PHF	.605	.814	.853	.805	.846	.680	.800	.864	.647	.871	.714	.894	.688	.750	.719	.763	.920



Moving forward.
RAMEY KEMP ASSOCIATES
5808 Faringdon Place
Suite 100
Raleigh, NC 27609
PH: 919-872-5115

File Name : US 15-501 and Murray Hill Road
Site Code : 00000003
Start Date : 4/27/2021
Page No : 3

	US 15-501 From North				Murray Hill Road From East				US 15-501 From South				Murray Hill Road From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	10	241	40	291	56	16	21	93	16	235	10	261	14	20	26	60	705
04:45 PM	8	228	39	275	67	18	22	107	22	276	6	304	7	18	15	40	726
05:00 PM	5	209	56	270	67	8	25	100	27	247	4	278	7	85	23	115	763
05:15 PM	4	283	50	337	63	12	16	91	32	302	3	337	6	20	16	42	807
Total Volume	27	961	185	1173	253	54	84	391	97	1060	23	1180	34	143	80	257	3001
% App. Total	2.3	81.9	15.8		64.7	13.8	21.5		8.2	89.8	1.9		13.2	55.6	31.1		
PHF	.675	.849	.826	.870	.944	.750	.840	.914	.758	.877	.575	.875	.607	.421	.769	.559	.930



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-9352-005

Day: Thursday

City: Southern Pines

Date: 9/15/2016

AM

NS/EW Streets:	US 15_501			US 15_501			Commerce Ave_Pinehurst Ave			Commerce Ave_Pinehurst Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1.5	0.5	1	1.5	0.5	1	0.5	0.5	1	0.5	0.5	
7:00 AM	1	99	5	11	104	9	5	3	0	3	5	10	255
7:15 AM	5	130	5	14	128	13	15	5	0	6	9	16	346
7:30 AM	11	196	4	23	131	15	7	5	1	9	12	19	433
7:45 AM	11	210	4	36	143	28	13	3	3	4	18	16	489
8:00 AM	9	197	9	19	150	24	13	7	2	5	9	24	468
8:15 AM	9	217	5	22	142	28	18	7	2	8	14	23	495
8:30 AM	9	192	6	30	166	39	16	6	3	14	16	32	529
8:45 AM	15	222	4	30	196	37	13	8	8	11	16	14	574
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	70	1463	42	185	1160	193	100	44	19	60	99	154	3589
APPROACH %'s :	4.44%	92.89%	2.67%	12.03%	75.42%	12.55%	61.35%	26.99%	11.66%	19.17%	31.63%	49.20%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	42	828	24	101	654	128	60	28	15	38	55	93	2066
PEAK HR FACTOR :		0.927			0.839			0.888			0.750		0.900

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-9352-005

Day: Thursday

City: Southern Pines

Date: 9/15/2016

PM

NS/EW Streets:	US 15_501			US 15_501			Commerce Ave_Pinehurst Ave			Commerce Ave_Pinehurst Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1.5	0.5	1	1.5	0.5	1	0.5	0.5	1	0.5	0.5	
4:00 PM	5	173	17	34	270	38	41	32	15	18	22	37	702
4:15 PM	10	209	9	31	246	44	45	23	9	11	23	32	692
4:30 PM	5	210	12	26	222	38	46	35	11	24	29	43	701
4:45 PM	9	193	11	29	234	48	39	27	10	19	35	41	695
5:00 PM	5	194	19	33	246	43	50	30	21	26	23	48	738
5:15 PM	4	244	17	38	260	31	32	29	17	18	26	36	752
5:30 PM	3	237	20	21	205	38	36	20	11	22	27	52	692
5:45 PM	10	240	10	9	188	40	41	33	9	15	14	30	639
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	51	1700	115	221	1871	320	330	229	103	153	199	319	5611
APPROACH %'s :	2.73%	91.10%	6.16%	9.16%	77.57%	13.27%	49.85%	34.59%	15.56%	22.80%	29.66%	47.54%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	23	841	59	126	962	160	167	121	59	87	113	168	2886
PEAK HR FACTOR :		0.871			0.948			0.859			0.948		0.959

CONTROL : Signalized

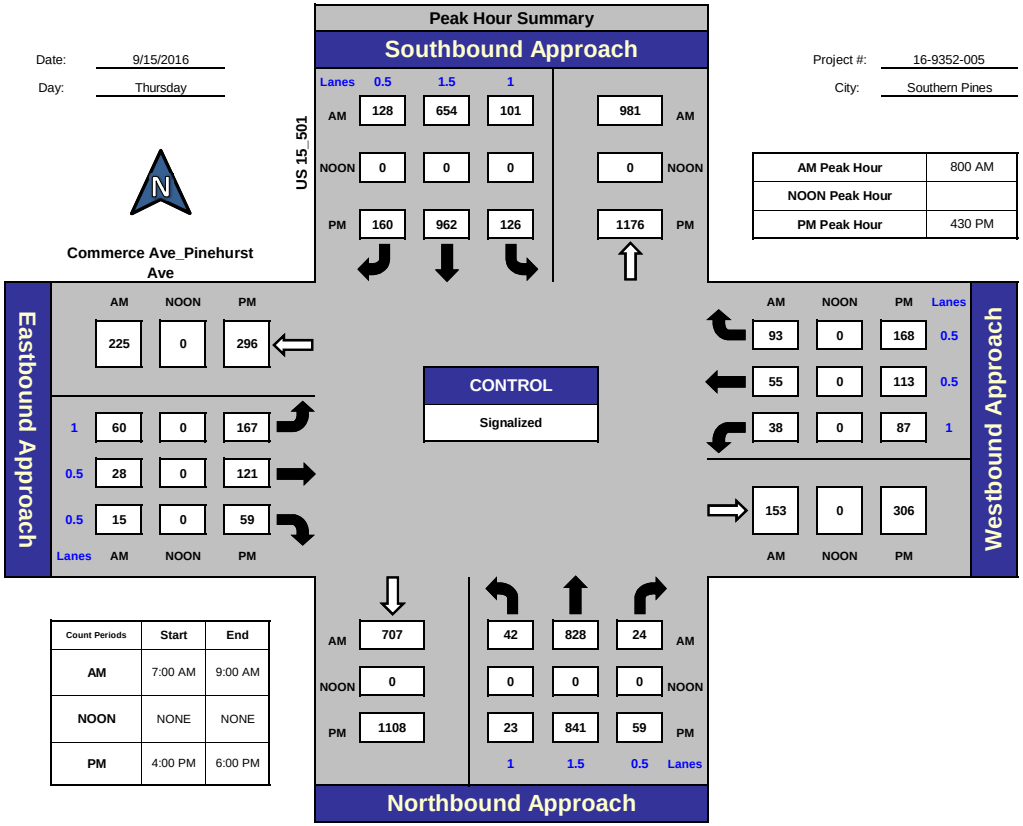
Intersection Turning Movement

Prepared by:
National Data & Surveying Services

US 15_501 and Commerce Ave_Pinehurst Ave , Southern Pines

Date: 9/15/2016
Day: Thursday

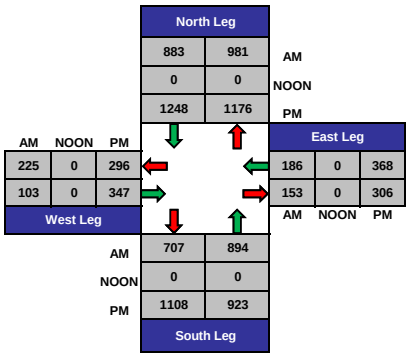
Project #: 16-9352-005
City: Southern Pines



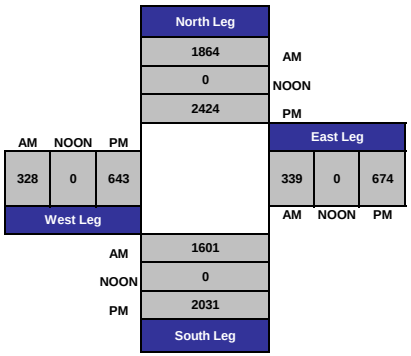
AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	430 PM

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Prepared by National Data & Surveying Services

Brucewood Rd & CR 1205 / Morganton Rd

Peak Hour Turning Movement Count

ID: 20-09051-004
City: Southern Pines

Day: Tuesday
Date: 02/11/2020

PEAK HOURS	
AM	07:45 AM - 08:45 AM
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS	
AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Brucewood Rd — SOUTHBOUND

AM	32	7	40	0	57	AM
NOON	0	0	0	0	0	NOON
PM	31	21	28	0	133	PM
	1	1	1	0		

CR 1205/Morganton Rd — EASTBOUND

AM	NOON	PM	
726	0	825	
0	0	0	0
19	0	43	1
615	0	602	1.5
74	0	146	0.5
AM	NOON	PM	

CONTROL

Signalized

TEV	1661	0	2121
	AM	NOON	PM
PHF	0.91		0.93

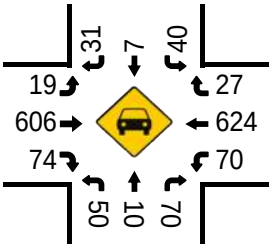
CR 1205/Morganton Rd — WESTBOUND

PM	NOON	AM	
62	0	28	1
602	0	644	2
154	0	71	1
1	0	0	0
842	0	726	
PM	NOON	AM	

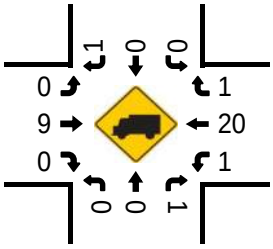
Brucewood Rd — NORTHBOUND

	0	2	1	1		
PM	321	0	192	28	211	PM
NOON	0	0	0	0	0	NOON
AM	152	0	50	10	71	AM

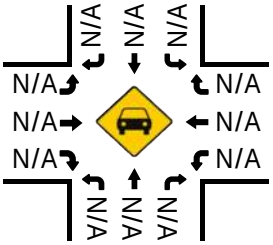
Cars (AM)



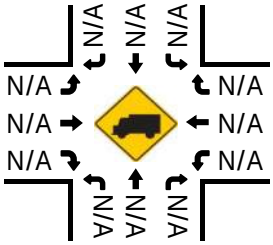
HT (AM)



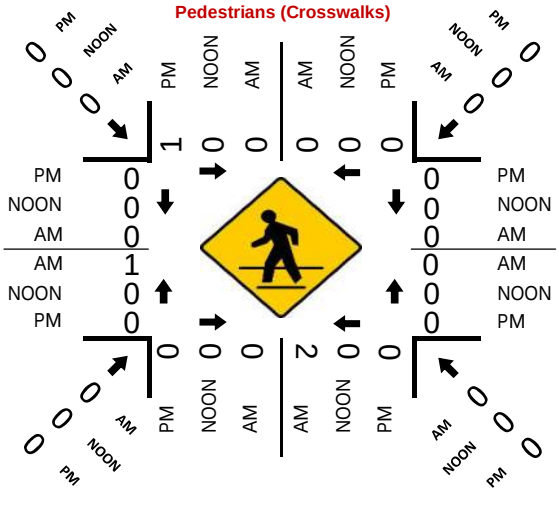
Cars (NOON)



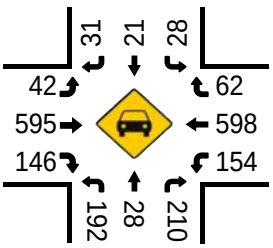
HT (NOON)



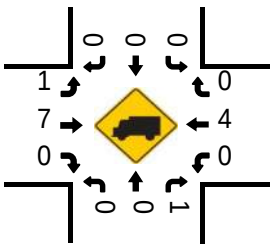
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: S Henley St & W Morganton Rd
City: Southern Pines
Control: 1-Way Stop (SB)

Project ID: 18-09136-001
Date: 3/27/2018

Total

NS/EW Streets:	S Henley St				S Henley St				W Morganton Rd				W Morganton Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	2	0	9	0	11	118	0	0	0	71	8	0	219
7:15 AM	0	0	0	0	10	0	10	0	2	119	0	0	0	97	8	0	246
7:30 AM	0	0	0	0	1	0	9	0	5	161	0	0	0	163	5	0	344
7:45 AM	0	0	0	0	6	0	7	0	4	144	0	0	0	171	5	0	337
8:00 AM	0	0	0	0	3	0	10	0	8	134	0	0	0	197	3	0	355
8:15 AM	0	0	0	0	1	0	11	0	14	178	0	0	0	182	6	0	392
8:30 AM	0	0	0	0	6	0	11	0	15	166	0	0	0	142	4	0	344
8:45 AM	0	0	0	0	2	0	6	0	4	127	0	0	0	117	3	0	259
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	31	0	73	0	63	1147	0	0	0	1140	42	0	2496
APPROACH %'s :					29.81%	0.00%	70.19%	0.00%	5.21%	94.79%	0.00%	0.00%	0.00%	96.45%	3.55%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	11	0	37	0	31	617	0	0	0	713	19	0	1428
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.458	0.000	0.841	0.000	0.554	0.867	0.000	0.000	0.000	0.905	0.792	0.000	0.911
					0.923				0.844				0.915				

NS/EW Streets:	S Henley St				S Henley St				W Morganton Rd				W Morganton Rd				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
2:00 PM	0	0	0	0	5	0	8	0	24	179	0	1	0	160	12	0	389
2:15 PM	0	0	0	0	4	0	10	0	11	171	0	1	0	163	8	0	368
2:30 PM	0	0	0	0	4	0	17	0	15	179	0	0	0	158	5	0	378
2:45 PM	0	0	0	0	6	0	8	0	17	206	0	0	0	156	6	0	399
3:00 PM	0	0	0	0	7	0	8	0	13	184	0	0	0	191	13	0	416
3:15 PM	0	0	0	0	3	0	10	0	15	182	0	0	0	179	7	0	396
3:30 PM	0	0	0	0	8	0	5	0	15	185	0	0	0	172	7	0	392
3:45 PM	0	0	0	0	7	0	11	0	18	217	0	0	0	197	11	0	461
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	44	0	77	0	128	1503	0	2	0	1376	69	0	3199
APPROACH %'s :					36.36%	0.00%	63.64%	0.00%	7.84%	92.04%	0.00%	0.12%	0.00%	95.22%	4.78%	0.00%	
PEAK HR :	03:00 PM - 04:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	25	0	34	0	61	768	0	0	0	739	38	0	1665
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.781	0.000	0.773	0.000	0.847	0.885	0.000	0.000	0.000	0.938	0.731	0.000	0.903
					0.819				0.882				0.934				

Appendix B:
Trip Generation

Pine Ridge Commercial

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)	260	d.u.	1,416	708	708	87	23	64	111	68	43
710 General Office Building	20,000	s.f.	224	112	112	45	39	6	25	4	21
820 Shopping Center	220,000	s.f.	10,278	5,139	5,139	262	162	100	974	468	506
Subtotal			**11,918**	**5,959**	**5,959**	**394**	**224**	**170**	**1,110**	**540**	**570**
Internal Capture											
221 Multifamily Housing (Mid-Rise)			345	172	173	2	0	2	51	31	20
710 General Office Building			70	41	29	5	3	2	7	3	4
820 Shopping Center			369	179	190	5	3	2	54	22	32
Internal Capture Total			*784*	*392*	*392*	*12*	*6*	*6*	*112*	*56*	*56*
Total External Trips			**11,134**	**5,567**	**5,567**	**382**	**218**	**164**	**998**	**484**	**514**
Pass-By Capture	AM	PM									
820 Shopping Center	0%	34%	*3,302*	*1651*	*1,651*	*0*	*0*	*0*	*313*	*152*	*161*
Total Net New External Trips			**7,832**	**3,916**	**3,916**	**382**	**218**	**164**	**685**	**332**	**353**

Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY

GROSS TRIP GENERATION

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
INPUT	Office	112	112	39	6	4	21
	Retail	5,139	5,139	162	100	468	506
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	708	708	23	64	68	43
	Hotel	0	0	0	0	0	0
		5,959	5,959	224	170	540	570

INTERNAL TRIPS

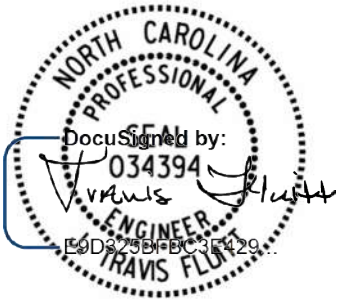
	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	41	29	3	2	3	4
	Retail	179	190	3	2	22	32
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	172	173	0	2	31	20
	Hotel	0	0	0	0	0	0
		392	392	6	6	56	56
	% Reduction	6.6%		3.0%		10.1%	

EXTERNAL TRIPS

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	71	83	36	4	1	17
	Retail	4,960	4,949	159	98	446	474
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	536	535	23	62	37	23
	Hotel	0	0	0	0	0	0
		5,567	5,567	218	164	484	514

Appendix C:
Approved Development Data

KIMLEY-HORN AND ASSOCIATES, INC
NC License #F-0102



3/17/2020

March 17, 2020

Dean Peacock
Peacock Partnership
5525 Interstate North Parkway
Atlanta, Georgia 30328

RE: ***Pinehurst Medical Morganton Park North Medical Office Building TIA Update, Southern Pines, NC – Revised Traffic Impact Analysis***

Dear Mr. Peacock,

Kimley-Horn has revised the "Pinehurst Medical MPN Traffic Impact Analysis Update" (Kimley-Horn, February 2020) based on comments from the Town of Southern Pines. This study is an update to the *Pinehurst Medical Morganton Park North Medical Office Building TIA* (Kimley-Horn, July 2019) related to the proposed Pinehurst Medical and Pinehurst Surgical medical office buildings located within the Morganton Park North development in Southern Pines, NC. The development is proposed to consist of two 40,000 square-foot office buildings north of Morganton Road and east of the existing Pavilion site. The site will be accessed via Patriot Way and the extension of Pavilion Way. Patriot Way is proposed to be a right-in/right-out connection to Morganton Road and a full-movement connection onto Carlisle Street. The development has a projected build-out year of 2021.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the proposed development in the projected (2021) build-out year and the projected (2030) ten-year horizon condition per the Town's UDO. The site location is shown on **Figure 1**, while **Figure 2** shows the proposed site plan. The existing roadway laneage at the study intersections is shown on **Figure 3**.

Existing and Background Traffic

AM and PM peak hour turning movement counts performed on February 11, 2020 at the following intersections:

- Morganton Road at Brucewood Road
- Brucewood Road at Pavilion Way

Based on historic daily traffic volumes in the area and to be consistent with other TIA's performed in the area, an annual growth factor of 2% was applied to existing volumes for the 2021 study year scenarios, and an annual growth factor of 1% was applied to 2021 volumes to the 2030 study year scenarios.

Traffic from the Morganton Park Elementary School and the Sandhills Pediatrics site were included in this analysis. Site traffic volumes for both sites were obtained from the *Morganton Park North Medical Office Building TIA.* Traffic diversions due to the extension of Carlisle Street from W. Lowe Avenue to Brucewood Road were obtained from the *Morganton Park Elementary School TIA* (Kimley-Horn, July 2018). Entering school trips from the east along Morganton Road were diverted from the westbound right at the intersection of Morganton Road at Patriot Way under the assumption these trips would

utilize the new connection from Morganton Road to the Carlisle Street Extension via Patriot Way. These trips therefore became a westbound right at the future intersection of Morganton Road at Patriot Way and a northbound right at the future intersection of Patriot Way at Carlisle Street Extension.

Peak hour existing and background traffic volumes for the year 2021, which include historic growth traffic, approved development traffic, and Carlisle Street traffic diversions are shown on **Figures 4** and **5**. For the study year 2030, 2021 background and 2030 background traffic volumes are shown on **Figures 6** and **7**.

Trip Generation

The trip generation potential of the development was determined using the traffic generation rates published in the *ITE Trip Generation Handbook* (Institute of Transportation Engineers, Tenth Edition, 2017). Table 1 summarizes the estimated traffic generation potential for the site.

Table 1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out	In	Out
720	Medical Office Building	80,000	s.f.	1,493	1,493	143	40	76	197

Table 1 shows that the site has the potential to generate 2,986 new trips on a typical weekday with 183 new trips during the AM peak hour and 273 new trips in the PM peak hour.

Trip Distribution and Assignment

The proposed generated trips were assigned to the surrounding roadway network based according to the distribution below. The directional distribution and assignment were based on land uses and existing travel patterns in the area.

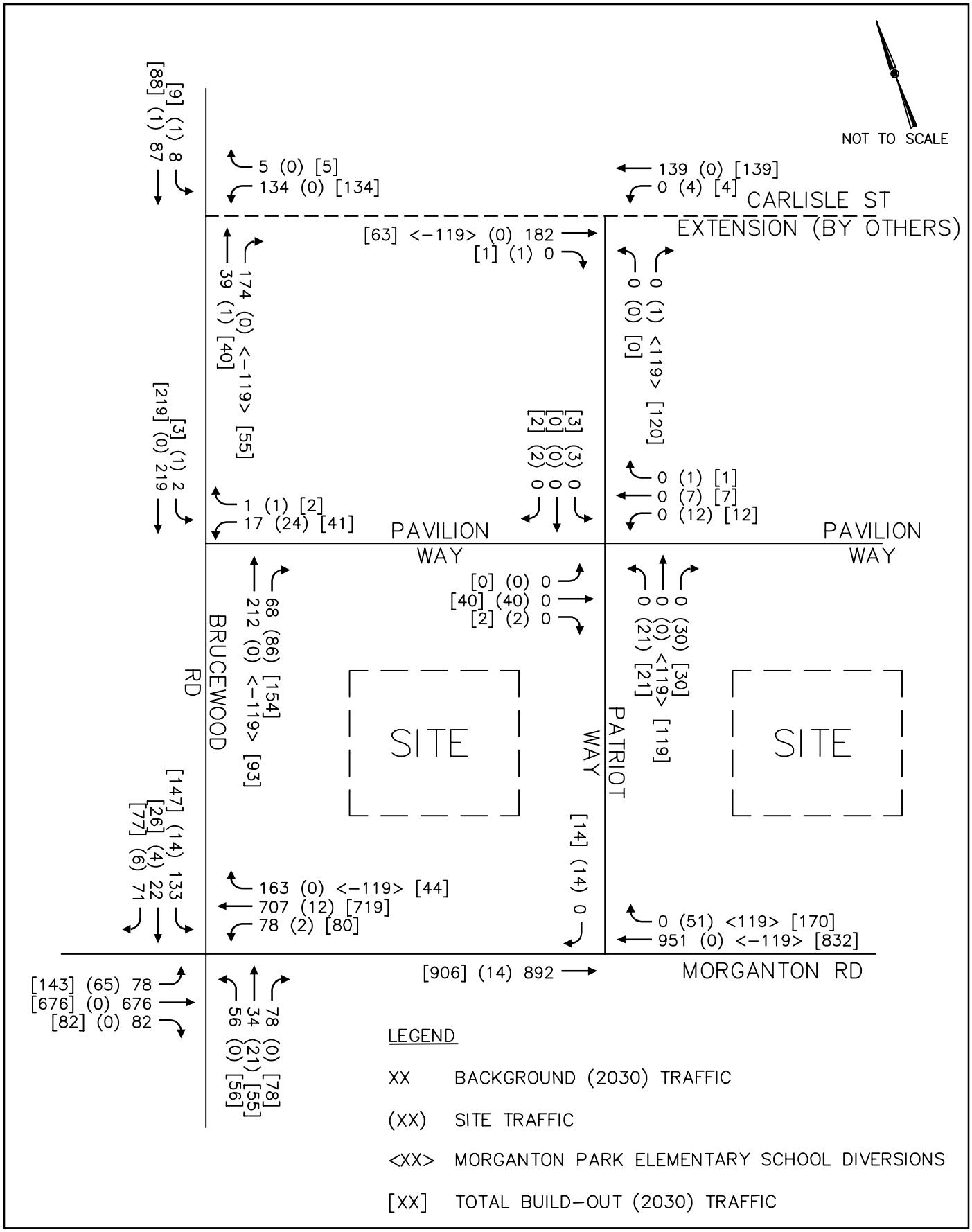
- 45% to/from the west along Morganton Road
- 35% to/from the east along Morganton Road
- 15% to/from the south along Brucewood Road
- 3% to/from the east along the future Carlisle Street Extension
- 2% to/from north along Brucewood Road

This is consistent with the distribution from the previous TIA. The site traffic distribution and percent assignment are shown on **Figure 8**.

The attached **Figures 9** and **10** show the year 2021 AM and PM peak hour site and build-out traffic volumes at the study intersections, respectively. **Figures 11** and **12** show the year 2030 AM and PM peak hour site and build-out traffic volumes at the study, respectively.

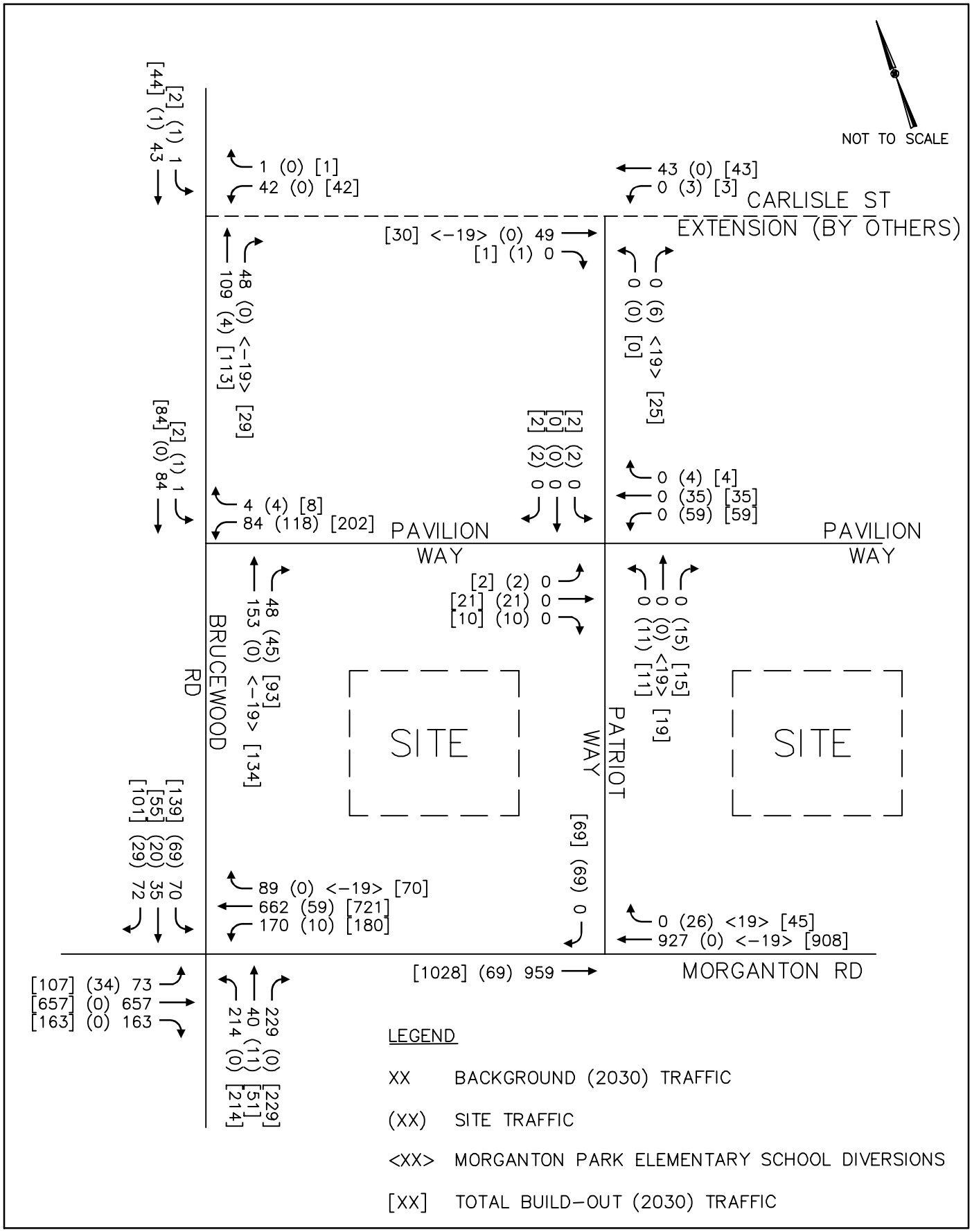
Capacity Analysis

Capacity analyses were performed using Synchro Version 10.3 software. Existing signal timings were obtained from NCDOT. Existing peak hour factors (PHF) were used for the existing traffic condition at both study intersections. For all future AM peak hour conditions, a weighted PHF was used for all



Kimley»Horn	PINEHURST MEDICAL MPN TRAFFIC IMPACT ANALYSIS UPDATE SOUTHERN PINES, NC	BACKGROUND AND BUILD-OUT (2030) AM PEAK HOUR TRAFFIC VOLUMES	FIGURE 11

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.



Kimley»Horn	PINEHURST MEDICAL MPN TRAFFIC IMPACT ANALYSIS UPDATE SOUTHERN PINES, NC	BACKGROUND AND BUILD-OUT (2030) PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 12

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.

Southern Pines Elementary

Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	143	40	76	197
Pass-By Trips:	0	0	0	0

Project:	Pinehurst Medical MPN TIA Update
Location:	Southern Pines, NC
Ct. Date	2/11/2020
N/S Street:	Brucewood Road
E/W Street:	Morganton Road

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2020
Growth Factor (Buildout):	0.020000	Buildout Year:	2021
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2030
Growth Factor (10 Year Projection):	0.093685		

AM PEAK HOUR
AM PHF = 0.91

Description	Morganton Road Eastbound			Morganton Road Westbound			Brucewood Road Northbound			Brucewood Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2020 Traffic Count	19	615	74	71	644	28	50	10	71	40	7	32
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2020 Existing Traffic	19	615	74	71	644	28	50	10	71	40	7	32
Growth Factor 2.0% per year to Build-out	0.000	0.020	0.020	0.020	0.020	0.000	0.020	0.000	0.020	0.000	0.000	0.000
2021 Background Growth	0	12	1	1	13	0	1	0	1	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.000	0.094	0.094	0.094	0.094	0.000	0.094	0.000	0.094	0.000	0.000	0.000
2030 Background Growth	0	59	7	7	62	0	5	0	7	0	0	0
Committed Projects												
Morganton Park Elementary	28	0	0	0	0	119	0	16	0	88	12	21
Morganton Park North MOB	21	0	0	0	0	16	0	7	0	5	2	6
Carlisle Street Diversion	10	-10	0	-1	-12	0	0	1	-1	0	1	12
Total Committed Traffic	59	-10	0	-1	-12	135	0	24	-1	93	15	39
2021 Background Traffic	78	617	75	71	645	163	51	34	71	133	22	71
2021 Weighted Background PHF:	0.76	0.91	0.91	0.91	0.91	0.61	0.91	0.72	0.91	0.64	0.69	0.79
2030 Background Traffic	78	676	82	78	707	163	56	34	78	133	22	71
2030 Weighted Background PHF:	0.76	0.91	0.91	0.91	0.91	0.61	0.91	0.72	0.91	0.64	0.69	0.79
Project Traffic												
Percent Assignment Inbound	45%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%
Inbound Project Traffic	65	0	0	0	0	0	0	21	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	5%	30%	0%	0%	0%	0%	35%	10%	15%
Outbound Project Traffic	0	0	0	2	12	0	0	0	0	14	4	6
Total Project Traffic	65	0	0	2	12	0	0	21	0	14	4	6
Morganton Park Elementary School Diversions	0	0	0	0	0	-119	0	0	0	0	0	0
2021 Buildout Total	143	617	75	73	657	44	51	55	71	147	26	77
2021 Weighted Build-out PHF:	0.83	0.91	0.91	0.91	0.91	0.91	0.91	0.79	0.91	0.66	0.72	0.80
Percent Impact (Approach)		7.8%			1.8%			11.9%			9.6%	
2030 Buildout Total	143	676	82	80	719	44	56	55	78	147	26	77
2030 Weighted Build-out PHF:	0.83	0.91	0.91	0.91	0.91	0.91	0.91	0.79	0.91	0.66	0.72	0.80
Percent Impact (Approach)		7.2%			1.7%			11.1%			9.6%	

Overall Percent Impact (2021)

Overall Percent Impact (2030)

PM PEAK HOUR
PM PHF = 0.93

Description	Morganton Road Eastbound			Morganton Road Westbound			Brucewood Road Northbound			Brucewood Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2020 Traffic Count	43	602	146	154	602	62	192	28	211	28	21	31
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2020 Existing Traffic	43	602	146	154	602	62	192	28	211	28	21	31
Growth Factor 2.0% per year to Build-out	0.000	0.020	0.020	0.020	0.020	0.000	0.020	0.000	0.020	0.000	0.000	0.000
2021 Background Growth	0	12	3	3	12	0	4	0	4	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.000	0.094	0.094	0.094	0.094	0.000	0.094	0.000	0.094	0.000	0.000	0.000
2030 Background Growth	0	58	14	15	58	0	18	0	20	0	0	0
Committed Projects												
Morganton Park Elementary	5	0	0	0	0	19	0	3	0	22	3	5
Morganton Park North MOB	10	0	0	0	0	8	0	3	0	20	9	26
Carlisle Street Diversion	15	-15	0	-2	-10	0	0	6	-6	0	2	10
Total Committed Traffic	30	-15	0	-2	-10	27	0	12	-6	42	14	41
2021 Background Traffic	73	599	149	155	604	89	196	40	209	70	35	72
2030 Background Traffic	73	657	163	170	662	89	214	40	229	70	35	72
Project Traffic												
Percent Assignment Inbound	45%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%
Inbound Project Traffic	34	0	0	0	0	0	0	11	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	5%	30%	0%	0%	0%	0%	35%	10%	15%
Outbound Project Traffic	0	0	0	10	59	0	0	0	0	69	20	29
Total Project Traffic	34	0	0	10	59	0	0	11	0	69	20	29
Morganton Park Elementary School Diversions	0	0	0	0	0	-19	0	0	0	0	0	0
2021 Buildout Total	107	599	149	165	663	70	196	51	209	139	55	101
Percent Impact (Approach)		4.0%			7.7%			2.4%			40.0%	
2030 Buildout Total	107	657	163	180	721	70	214	51	229	139	55	101
Percent Impact (Approach)		3.7%			7.1%			2.2%			40.0%	

Overall Percent Impact (2021)

Overall Percent Impact (2030)

k:\ral_tpto_traffic\014128000 pinehurst medical mpn tia update\t4 - analysis\[pinehurst medical mpn tia update - tia data.xls]int1 *3/17/20*

KIMLEY-HORN AND ASSOCIATES, INC
NC License #F-0102

November 21, 2018

Bob Koontz
Koontz Design
150 South Page Street
Southern Pines, NC 28387

RE: ***Morganton Park North Medical Office Building, Southern Pines, NC – Traffic Impact Analysis***

Dear Mr. Koontz,

Kimley-Horn has performed a Traffic Impact Analysis (TIA) for the proposed Morganton Park North Medical Office Building project in Southern Pines, NC. The 22,600 square foot office building is proposed to be constructed in the northeast quadrant of the intersection of Brucewood Road at Pavilion Way and for the short term will be accessed via one full-movement driveway along Pavilion Way. The site will also have a driveway connection to the future Carlisle Street Extension, but that access was not assumed to be in place for this analysis. The development has a projected build-out year of 2020.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the proposed development in the projected (2020) build-out year and the projected (2028) ten-year horizon condition per the Town's UDO. The site location is shown on **Figure 1**, while **Figure 2** shows the proposed site plan. The existing roadway laneage at the study intersections is shown on **Figure 3**.

Existing and Background Traffic

AM and PM peak hour turning movement counts were performed on November 13, 2018 for the following intersections:

- Morganton Road at Brucewood Road
- Brucewood Road at Pavilion Way

The existing AM and PM peak hour turning movement volumes are shown on **Figures 4** and **5**, respectively, and the count data is attached.

Based on historic daily traffic volumes in the area and to be consistent with the TIA for the Morganton Park North Elementary School (Kimley-Horn, July 2018), an annual growth factor of 2% was applied to existing volumes for the 2020 study year scenarios, and an annual growth factor of 1% was applied to existing volumes for the 2028 study year scenarios.

While this proposed development is anticipated to be constructed prior to the opening of the approved Morganton Park Elementary School, traffic from that development will be included in this analysis. Site traffic volumes for the school were obtained from the *Morganton Park North Elementary School TIA*. Based on a comparison of ITE trip generation rates for elementary schools in the school PM peak hour versus the peak hour of adjacent street traffic (between 4-6 PM), the trip generation potential of a school

in the peak hour of adjacent street traffic is expected to be approximately one-half of the school PM peak hour trip generation. As such, the school PM peak hour site trips from the elementary school TIA were reduced by 50% for inclusion in this analysis as background traffic.

Peak hour background traffic volumes for the year 2020, which include historic growth traffic and approved development traffic, are shown on **Figures 4** and **5**. For the study year 2028, peak hour background traffic volumes are shown on **Figures 6** and **7**.

Trip Generation

The trip generation potential of the development was determined using the traffic generation rates published in the *ITE Trip Generation Handbook* (Institute of Transportation Engineers, Tenth Edition, 2017). Table 1 summarizes the estimated traffic generation potential for the site.

Table 1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out	In	Out
710	Medical Office Building	22,600	s.f.	391	391	46	13	22	57

Table 1 shows that the site has the potential to generate 782 new trips on a typical weekday with 59 new trips during the AM peak hour and 79 new trips in the PM peak hour.

Trip Distribution and Assignment

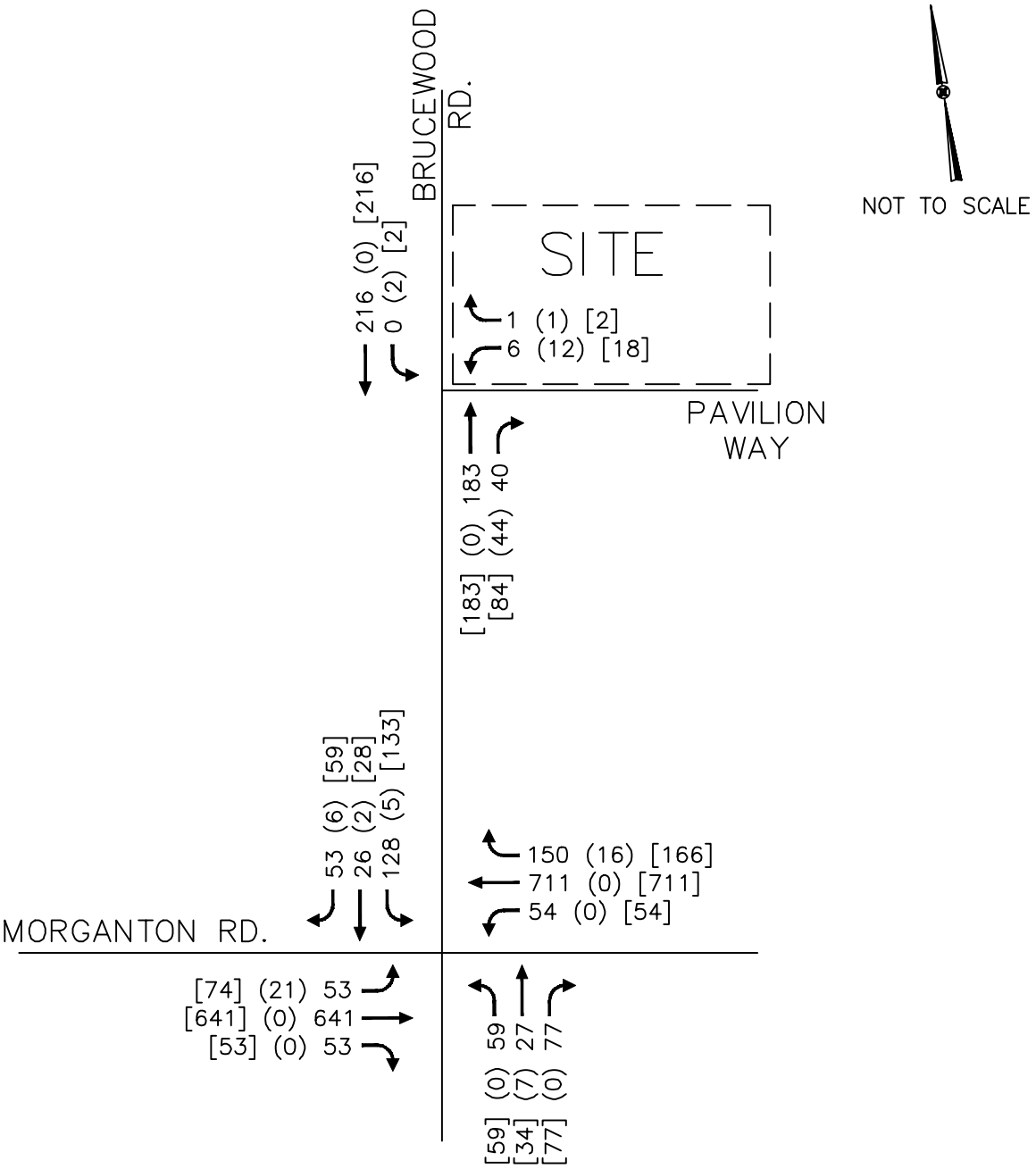
The proposed generated trips were assigned to the surrounding roadway network. The directional distribution and assignment were based on land uses and existing travel patterns in the area.

- 45% to/from the west along Morganton Road
- 35% to/from the east along Morganton Road
- 15% to/from the south along Brucewood Road
- 5% to/from north along Brucewood Road

The site traffic distribution and percent assignment are shown on **Figure 9**.

The attached **Figures 10** and **11** show the year 2020 AM and PM peak hour site and build-out traffic volumes at the study intersections, respectively. **Figures 12** and **13** show the year 2028 AM and PM peak hour site and build-out traffic volumes at the study intersections, respectively.

Existing signal timings were obtained from the signal plans. Existing peak hour factors (PHF) were used for the existing traffic condition at both study intersections. For all future AM peak hour conditions, a weighted PHF was used for all movements carrying projected school traffic, with a PHF of 0.50 used for school-generated traffic volumes and existing PHF values used for non-school volumes.



LEGEND

XX BACKGROUND TRAFFIC

(XX) TOTAL SITE TRAFFIC

[XX] TOTAL BUILD-OUT TRAFFIC

Kimley»Horn	MORGANTON PARK NORTH MOB SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	PROJECTED BUILD-OUT (2028) AM PEAK HOUR TRAFFIC VOLUMES	FIGURE 11

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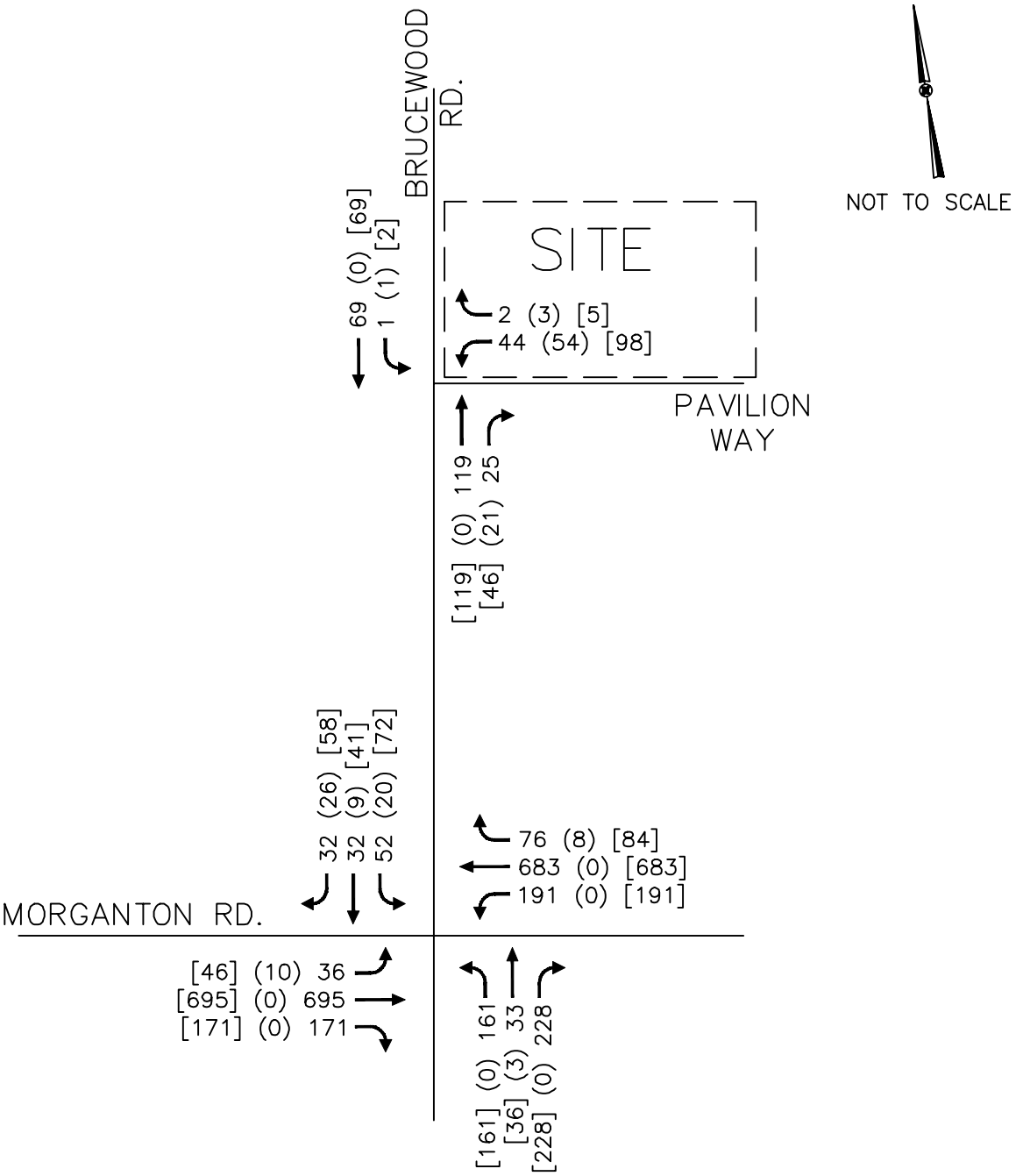

LEGEND

XX BACKGROUND TRAFFIC

(XX) TOTAL SITE TRAFFIC

[XX] TOTAL BUILD-OUT TRAFFIC

Kimley»Horn	MORGANTON PARK NORTH MOB SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	PROJECTED BUILD-OUT (2028) PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 12

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RAMEY KEMP ASSOCIATES
Moving forward.

T 919 872 5115

5808 Faringdon Place
Raleigh, NC 27609

May 20, 2021

James Michel, PE, MBA
Town Engineer / Asst. Public Works Director
Town of Southern Pines
jmichel@southernpines.net
125 SE Broad Street
Southern Pines, NC 28387

Reference: Southern Pines Retail Center
Southern Pines, North Carolina

Subject: Memorandum of Understanding for TIA Report

Dear Mr. Michel:

The following is a Memorandum of Understanding (MOU) outlining the proposed scope of work and assumptions related to the Traffic Impact Analysis (TIA) for the proposed retail development, to be located north of Murray Hill Road and east of US 15/501 in Southern Pines, North Carolina.

The proposed development, anticipated to be completed in 2024, is expected to consist of 8,100 sq. ft. of retail, 3,200 sq. ft. of restaurant, 4,000 sq. ft. of paint store, and 10,500 sq. ft. of auto shop. Access to the development is proposed via one (1) right-in/right-out driveway along US 15-501 to align with Toyota Driveway and one (1) full movement driveway along Murray Hill Road to align with Lowe's Driveway. A site location map and preliminary site plan have been attached for your reference.

Study Area

Based on coordination with the North Carolina Department of Transportation (NCDOT) and the Town of Southern Pines (Town), the study area is proposed to consist of the following existing intersections:

- US 15/501 and Chick-Fil-A Driveway
- US 15/501 and Toyota Driveway
- US 15/501 and Murray Hill Road
- Murray Hill Road and Circle K Driveway
- Murray Hill Road and Lowe's Driveway

Trip Generation

The proposed development is expected to consist of 8,100 sq. ft. of retail, 3,200 sq. ft. of restaurant, 4,000 sq. ft. of paint store, and 10,500 sq. ft. of auto shop. Average weekday daily and peak hour trips for the proposed site were calculated utilizing methodology contained within the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition. Refer to Table 1 for a detailed breakdown of the trip generation.

Table 1: Trip Generation Summary

Land Use	Intensity	Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Shopping Center (820)	8,100 sq.ft.	1,090	5*	3*	41	44
High-Turnover (Sit-Down) Restaurant (932)	3,200 sq.ft.	360	26	19	29	27
Paint Store (816)	4,000 sq.ft.	40	2	3	2	3
Automobile Parts and Service Center (943)	10,500 sq.ft.	180	15	6	9	15
Total Trips		**1,670**	**48**	**31**	**81**	**89**
*Internal Capture (22% PM) ***			--	--	*-19*	*-19*
Total External Trips			**48**	**31**	**62**	**70**
Pass-by Trips: High-Turnover (Sit-Down) Restaurant (43% PM)			--	--	*-9*	*-9*
Pass-by: Shopping Center (34% PM)			--	--	*-11*	*-11*
Total Primary Trips			**48**	**31**	**42**	**50**

*Based on the low square footage, rates were utilized to determine the weekday AM trip generation for this land use.
**Utilizing methodology contained in the NCHRP Report 684

It is estimated that the proposed development will generate approximately 1,670 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 79 trips (48 entering and 31 exiting) will occur during the weekday AM peak hour and 170 (81 entering and 89 exiting) will occur during the weekday PM peak hour. It should be noted that the proposed development is anticipated to be below the typical threshold for NCDOT to require a TIA (3,000 trips per day); however, a copy of the TIA will be provided for courtesy review. It should also be noted that based on data collection at similarly sized retail centers include in the ITE *Trip Generation Manual*, 10th Edition, an 8,100 sq. ft. shopping center correlates most

Intersection Analysis Sheet

Project:	**Southern Pines Retail Center**
Location:	**Southern Pines, NC**
Ct. Date	**February 11, 2020**
N/S Street:	**US 15/501**
E/W Street:	**Brucewood Road/Stein Mart Driveway**

	AM In	AM Out	PM In	PM Out
Net New Trips:	48	31	42	50
Pass-By Trips:	0	0	20	20

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.040400	**Buildout Year:**	2023
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.082857		

AM PEAK HOUR
AM PHF = 0.93

	Stein Mart Driveway Eastbound			Brucewood Road Westbound			US 15/501 Northbound			US 15/501 Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	22	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	45%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	14	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	14	0	0	22	0

PM PEAK HOUR
PM PHF = 0.97

	Stein Mart Driveway Eastbound			Brucewood Road Westbound			US 15/501 Northbound			US 15/501 Southbound		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	19	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	45%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	23	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	23	0	0	19	0

k:\ral_tpto_traffic\018923019 pine ridge commercial\t3 - background data\approved development\southern pines retail center\[southern pines retail center - approved development data.xls]int 1 - 15-501 @ brucewood *7/23/21*

Intersection Analysis Sheet

Project:	**Southern Pines Retail Center**
Location:	**Southern Pines, NC**
Ct. Date	**September 15, 2016**
N/S Street:	**US 15/501**
E/W Street:	**Partner Circle/Pine Ridge Parkway**

	AM In	AM Out	PM In	PM Out
Net New Trips:	48	31	42	50
Pass-By Trips:	0	0	20	20

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.040400	**Buildout Year:**	2023
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.082857		

AM PEAK HOUR
AM PHF = 0.92

	Partner Circle Eastbound			Pine Ridge Parkway Westbound			US 15/501 Northbound				US 15/501 Southbound		
Description	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	Left	Through	Right
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	22	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	45%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	14	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	14	0	0	22	0

Overall Percent Impact (2023)
Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.96

	Partner Circle Eastbound			Pine Ridge Parkway Westbound			US 15/501 Northbound				US 15/501 Southbound		
Description	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	Left	Through	Right
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	19	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	45%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	23	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	0	0	23	0	0	19	0

Overall Percent Impact (2031)

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Intersection Analysis Sheet

Project:	**Southern Pines Retail Center**
Location:	**Southern Pines, NC**
Ct. Date	**April 27, 2021**
N/S Street:	**US 15/501**
E/W Street:	**Murray Hill Road**

	AM In	AM Out	PM In	PM Out
Net New Trips:	48	31	42	50
Pass-By Trips:	0	0	20	20

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.040400	**Buildout Year:**	2023
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.082857		

AM PEAK HOUR
AM PHF = 0.92

Description	Murray Hill Road Eastbound			Murray Hill Road Westbound			US 15/501 Northbound				US 15/501 Southbound			
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Project Traffic														
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	20%	20%	0%	45%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	10	10	0	22	0	0
Percent Assignment Outbound	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	12	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	12	0	0	0	0	10	10	0	22	0	0

PM PEAK HOUR
PM PHF = 0.93

Description	Murray Hill Road Eastbound			Murray Hill Road Westbound			US 15/501 Northbound				US 15/501 Southbound			
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Project Traffic														
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	20%	20%	0%	45%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	8	8	0	19	0	0
Percent Assignment Outbound	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	20	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	-7	0
Pass-By Capture Assignment	0	0	0	7	0	0	0	0	0	0	0	7	0	0
Total Pass-By Traffic	0	0	0	7	0	0	0	0	0	0	0	7	-7	0
Total Project Traffic	0	0	0	27	0	0	0	0	8	8	0	26	-7	0

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KIMLEY-HORN AND ASSOCIATES, INC
NC License #F-0102



March 31, 2021 (*Revised April 6, 2021*)

Mr. Bob Koontz
Koontz Jones Design
150 South Page Street
Southern Pines, NC 28387

RE: ***Legends Apartments Expansion, Southern Pines, NC – Traffic Impact Analysis***

Dear Mr. Koontz,

Kimley-Horn has revised the Traffic Impact Analysis (original study dated March 31, 2021) for the proposed expansion of the Legends Apartments at Morganton Park development located north of Carlisle Street at Brucewood Road in Southern Pines, NC based on comments provided by Town of Southern Pines staff. The existing development currently includes 288 apartments with access on Carlisle Street. The proposed expansion will add 144 units for a total of 432 dwelling units and provide an additional right-in/right-out driveway on Carlisle Street between Brucewood Road and Patriot Way. The proposed expansion has an anticipated build-out year of 2022.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the proposed development in the projected (2022) build-out year and the projected (2031) ten-year horizon condition per the Town's UDO. The site location is shown on **Figure 1**, while **Figure 2** shows the proposed site plan. The existing roadway laneage at the study intersections is shown on **Figure 3**.

Existing and Background Traffic

AM and PM peak hour turning movement counts performed on February 11, 2020 were obtained from the *Revised Pinehurst Medical Morganton Park North Medical Office Building TIA* (Kimley-Horn, March 2020) for the following intersections:

- Morganton Road at Brucewood Road
- Brucewood Road at Pavilion Way

As those turning movement counts are more than one year old, a 2% growth rate was applied for one year up to the existing study year 2021. No growth was applied to traffic volumes north of Morganton Road as approved development traffic is expected to account for those traffic increases.

Based on historic daily traffic volumes in the area and to be consistent with other TIA's performed in the area, an annual growth factor of 2% was applied to existing volumes for the 2022 study year scenarios, and an annual growth factor of 1% was applied to 2022 volumes to the 2031 study year scenarios.

Traffic from the Morganton Park Elementary School, Sandhills Pediatrics, and Pinehurst Medical sites were also included in this analysis as background traffic. Morganton Park Elementary School is now open but was not open when the 2020 traffic counts were performed. Site traffic volumes for those developments were obtained from the *Revised Pinehurst Medical Morganton Park North Medical Office*

Building TIA. Traffic diversions due to the extension of Carlisle Street from W. Lowe Avenue to Brucewood Road for both school and non-school traffic were also obtained from that study.

Existing and projected (2022) background peak hour traffic volumes, which include historic growth traffic, approved development traffic, and Carlisle Street/Morganton Park Elementary School traffic diversions, are shown on **Figures 4** and **5**. Projected (2031) background traffic volumes are shown on **Figures 6** and **7**.

Trip Generation

The peak hour trip generation potential of the additional units was determined using the traffic generation data published in the *ITE Trip Generation Handbook* (Institute of Transportation Engineers, Tenth Edition, 2017), while daily trip generation was based on data in "Exhibit 4-20" of the Town's UDO. These calculations were based on the net increase in trips between the existing and proposed conditions, and Table 1 summarizes the estimated traffic generation potential for the site.

Table 1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out	In	Out
221	Multifamily Housing (Mid-Rise) – Existing	288	d.u.	1,054	1,054	25	72	74	78
221	Multifamily Housing (Mid-Rise) – Proposed	432	d.u.	1,581	1,581	37	107	110	70
Net Increase: Net New External Trips				**527**	**527**	**12**	**35**	**36**	**22**

Table 1 shows that the additional 144 apartments units are anticipated to increase overall site traffic generation by approximately 1,054 trips on a typical weekday, 47 trips during the AM peak hour, and 58 trips during the PM peak hour.

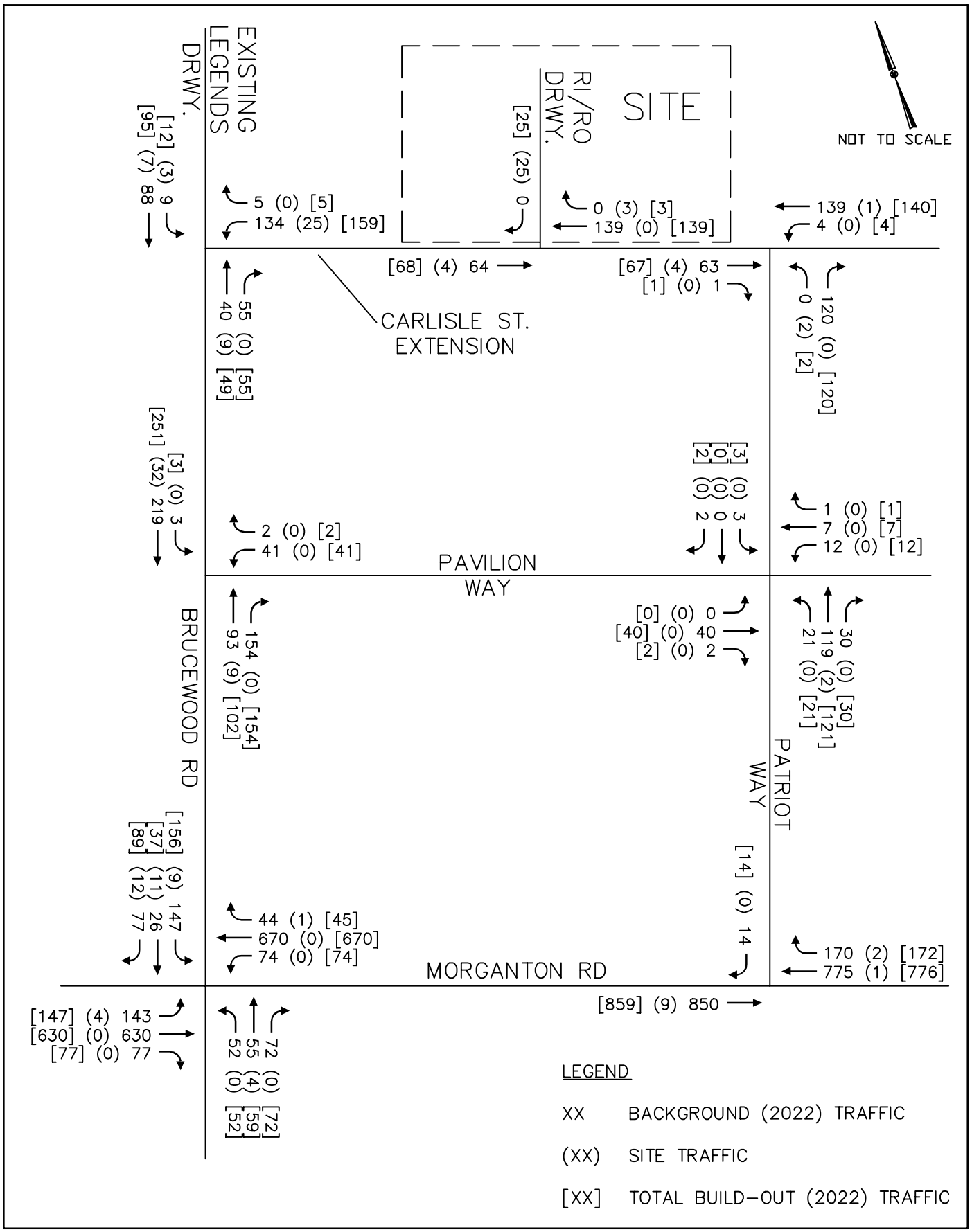
Trip Distribution and Assignment

The new site trips were assigned to the surrounding roadway network according to the distribution below. The directional distribution and assignment were based on existing and projected travel patterns in the area.

- 35% to/from the west along Morganton Road
- 30% to/from the south on Brucewood Road
- 25% to/from the east along Morganton Road
- 10% to/from the east on Carlisle Street Extension

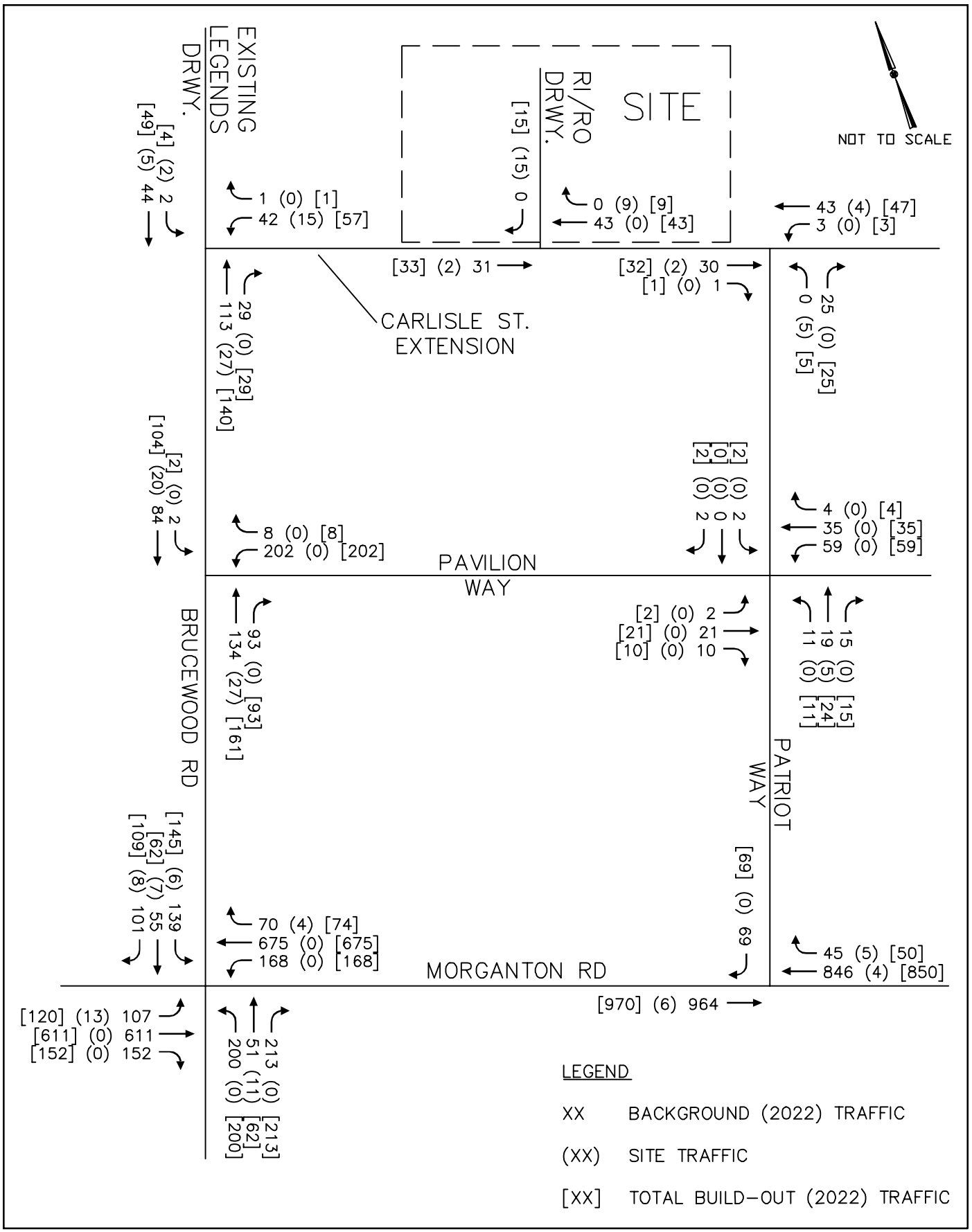
The site traffic distribution and percent assignment are shown on **Figure 8**.

The attached **Figures 9** and **10** show the projected (2022) site and build-out traffic volumes at the study intersections for the AM and PM peak hours, respectively. **Figures 11** and **12** show the projected (2031) site and build-out traffic volumes at the study intersections for the AM and PM peak hours, respectively.



Kimley»Horn	LEGENDS APARTMENTS EXPANSION TRAFFIC IMPACT ANALYSIS SOUTHERN PINES, NC	BACKGROUND AND BUILD-OUT (2022) AM PEAK HOUR TRAFFIC VOLUMES	FIGURE 9

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.



Kimley»Horn	LEGENDS APARTMENTS EXPANSION TRAFFIC IMPACT ANALYSIS SOUTHERN PINES, NC	BACKGROUND AND BUILD-OUT (2022) PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 10

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.

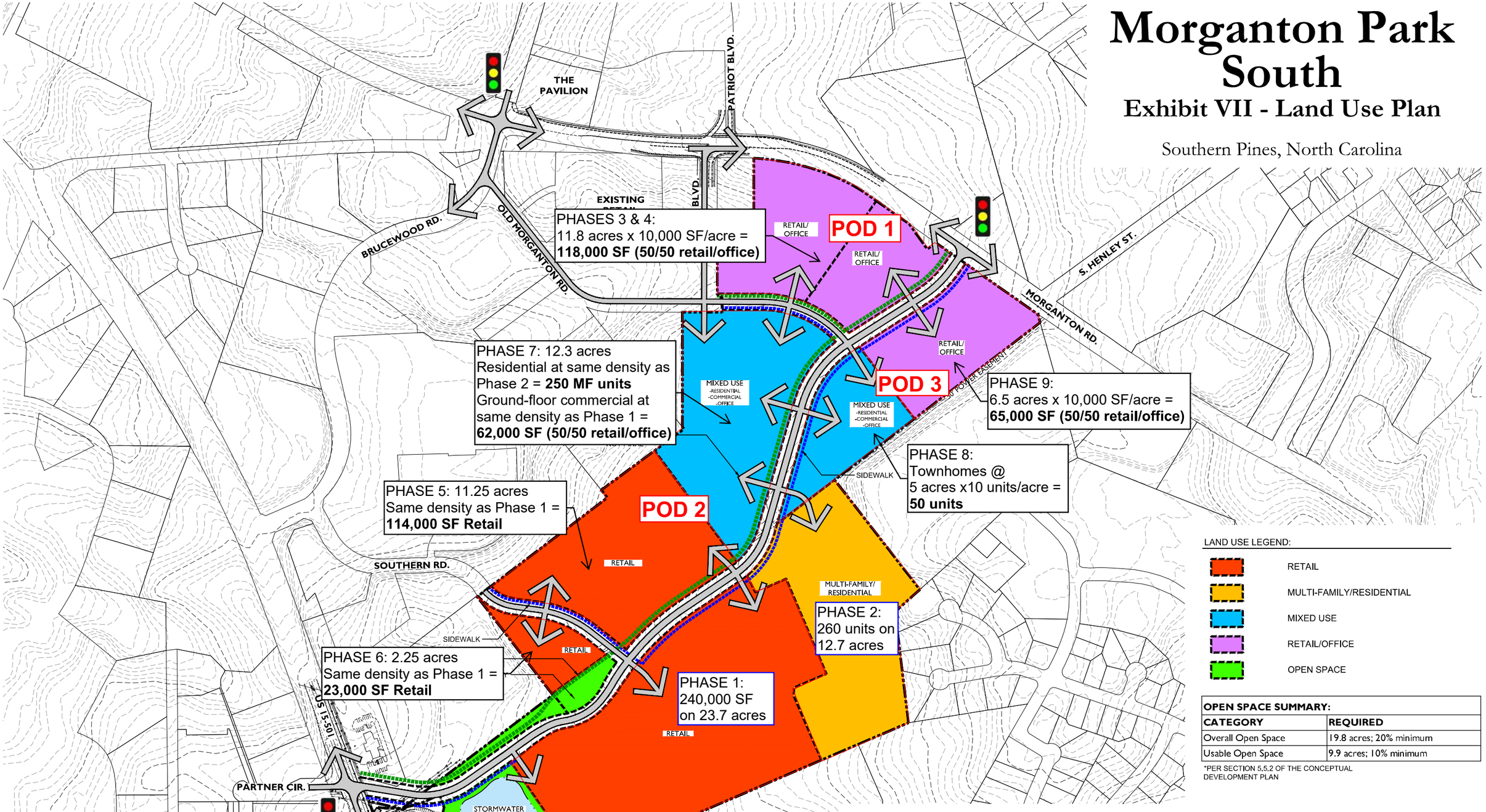
Appendix D:

Morganton Park South Master Plan Trip Generation & Assignment

Morganton Park South

Exhibit VII - Land Use Plan

Southern Pines, North Carolina



LAND USE LEGEND:

- RETAIL
- MULTI-FAMILY/RESIDENTIAL
- MIXED USE
- RETAIL/OFFICE
- OPEN SPACE

OPEN SPACE SUMMARY:	
CATEGORY	REQUIRED
Overall Open Space	19.8 acres; 20% minimum
Usable Open Space	9.9 acres; 10% minimum

*PER SECTION 5.5.2 OF THE CONCEPTUAL DEVELOPMENT PLAN

LEGEND:

- PROPERTY BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- EXISTING PARCEL
- PROPOSED MULTI-USE TRAIL
- PROPOSED SIDEWALK
- PROPOSED CIRCULATION PATTERN
- PROPOSED STORMWATER MANAGEMENT LOCATION

200' 0' 100' 200' 400'

SCALE: 1" = 200'

KOONTZJONESDesign
LAND PLANNING | ORDINANCE | ARCHITECTURE

Pine Ridge Commercial

Table 1 - Master Plan Trip Generation: Pod 1

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
710 General Office Building - *Phases 3 & 4**	59,000 s.f.	636	318	318	82	71	11	69	11	58
820 Shopping Center - *Phases 3 & 4**	59,000 s.f.	4,200	2,100	2,100	181	112	69	368	177	191
Subtotal		**4,836**	**2,418**	**2,418**	**263**	**183**	**80**	**437**	**188**	**249**
Internal Capture										
710 General Office Building - Phases 3 & 4*		132	56	76	6	3	3	15	3	12
820 Shopping Center - Phases 3 & 4*		132	76	56	6	3	3	15	12	3
Internal Capture Total		*264*	*132*	*132*	*12*	*6*	*6*	*30*	*15*	*15*
Total External Trips		**4,572**	**2,286**	**2,286**	**251**	**177**	**74**	**407**	**173**	**234**
Pass-By Capture	AM PM									
820 Shopping Center - Phases 3 & 4*	0% 34%	*0*	*0*	*0*	*0*	*0*	*0*	*120*	*56*	*64*
Total Net New External Trips		**4,572**	**2,286**	**2,286**	**251**	**177**	**74**	**287**	**117**	**170**

MPS Master Plan - Pod 1
Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY

GROSS TRIP GENERATION

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
INPUT	Office	318	318	71	11	11	58
	Retail	2,100	2,100	112	69	177	191
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	0	0	0	0	0	0
	Hotel	0	0	0	0	0	0
		2,418	2,418	183	80	188	249

INTERNAL TRIPS

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	56	76	3	3	3	12
	Retail	76	56	3	3	12	3
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	0	0	0	0	0	0
	Hotel	0	0	0	0	0	0
		132	132	6	6	15	15
	% Reduction	5.5%		4.6%		6.9%	

EXTERNAL TRIPS

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	262	242	68	8	8	46
	Retail	2,024	2,044	109	66	165	188
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	0	0	0	0	0	0
	Hotel	0	0	0	0	0	0
		2,286	2,286	177	74	173	234

Morganton Park South

Exhibit VIII - Conceptual Master Plan & Phasing

Southern Pines, North Carolina

POD 1 ASSIGNMENT

5% 2% 5% 30% 5% 25% 28%

POD 1

RETAIL/ OFFICE PHASE 3

RETAIL/ OFFICE PHASE 4

EXISTING RETAIL

MIXED USE PHASE 7

MIXED USE PHASE 8

RETAIL PHASE 5

RETAIL PHASE 6

RETAIL PHASE I

MULTI-FAMILY/ RESIDENTIAL PHASE 2

EXISTING CEMETERY

STORMWATER

50' POWER EASEMENT

BRUCEWOOD RD.

OLD MORGANTON RD.

PATRIOT BLVD.

MORGANTON RD.

SOUTHERN RD.

US I-5-501

PARTNER CIR.

< 1% V 1%

< (2%)

4% > 1% V

(3%) < (2%) >

2% > 3% V

5% V

> (5%) V (5%)

2% V

< 5%

V 25%

^ 15% < (30%)

(2%) ^ (5%) > (25%) V

(15%) ^ (28%) V

28% ^ 30% >

30% >

< (30%)

< (30%) U (28%)

30% ^ (28%) >

^ (58%)

< (58%)

58% >

^ 28%

LEGEND:

- PROPERTY BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- EXISTING PARCEL
- PHASING LINE
- PROPOSED CIRCULATION PATTERN

200' 0' 100' 200' 400'

SCALE: 1" = 200'

KOONTZJONESDesign

Pine Ridge Commercial

Table 2 - Master Plan Trip Generation: Pod 2

Land Use	Intensity		Daily			AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out
221 Multifamily Housing (Mid-Rise) - *Phase 7*	250	d.u.	1,362	681	681	84	22	62	107	65	42
710 General Office Building - *Phase 7*	31,000	s.f.	342	171	171	56	48	8	37	6	31
820 Shopping Center - *Phase 7*	31,000	s.f.	2,712	1,356	1,356	167	104	63	228	109	119
820 Shopping Center - *Phase 5*	114,000	s.f.	6,572	3,286	3,286	209	130	79	599	288	311
820 Shopping Center - *Phase 6*	23,000	s.f.	2,214	1,107	1,107	163	101	62	183	88	95
Subtotal			**13,202**	**6,601**	**6,601**	**679**	**405**	**274**	**1,154**	**556**	**598**
Internal Capture											
221 Multifamily Housing (Mid-Rise) - Phase 7			332	166	166	2	0	2	51	31	20
710 General Office Building - Phase 7			94	50	44	5	3	2	11	4	7
820 Shopping Center - Phase 7			90	44	46	2	1	1	13	6	7
820 Shopping Center - Phase 5			217	107	110	2	1	1	33	14	19
820 Shopping Center - Phase 6			73	36	37	1	1	0	10	4	6
Internal Capture Total			*806*	*403*	*403*	*12*	*6*	*6*	*118*	*59*	*59*
Total External Trips			**12,396**	**6,198**	**6,198**	**667**	**399**	**268**	**1,036**	**497**	**539**
Pass-By Capture	AM	PM									
820 Shopping Center - Phase 7	0%	34%	868	434	434	0	0	0	73	35	38
820 Shopping Center - Phase 5	0%	34%	2,107	1053	1,054	0	0	0	192	93	99
820 Shopping Center - Phase 6	0%	34%	714	357	357	0	0	0	59	29	30
Pass-By Capture Total			*3,689*	*1,844*	*1,845*	*0*	*0*	*0*	*324*	*157*	*167*
Total Net New External Trips			**8,707**	**4,354**	**4,353**	**667**	**399**	**268**	**712**	**340**	**372**

MPS Master Plan - Pod 2
Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY

GROSS TRIP GENERATION

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
INPUT	Office	171	171	48	8	6	31
	Retail	5,749	5,749	335	204	485	525
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	681	681	22	62	65	42
	Hotel	0	0	0	0	0	0
		6,601	6,601	405	274	556	598

INTERNAL TRIPS

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	50	44	3	2	4	7
	Retail	187	193	3	2	24	32
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	166	166	0	2	31	20
	Hotel	0	0	0	0	0	0
		403	403	6	6	59	59
	% Reduction	6.1%		1.8%		10.2%	

EXTERNAL TRIPS

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	121	127	45	6	2	24
	Retail	5,562	5,556	332	202	461	493
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	515	515	22	60	34	22
	Hotel	0	0	0	0	0	0
		6,198	6,198	399	268	497	539

Morganton Park South

Exhibit VIII - Conceptual Master Plan & Phasing

Southern Pines, North Carolina

POD 2 ASSIGNMENT

POD 2

RETAIL PHASE 6

EXISTING RETAIL

RETAIL/ OFFICE PHASE 3

RETAIL/ OFFICE PHASE 4

MIXED USE PHASE 7

MIXED USE PHASE 8

RETAIL PHASE 5

RETAIL PHASE I

MULTI-FAMILY/ RESIDENTIAL PHASE 2

EXISTING CEMETERY

STORMWATER

BRUCEWOOD RD.

OLD MORGANTON RD.

PATRIOT BLVD.

MORGANTON RD.

SOUTHERN RD.

PARTNER CIR.

US 15-501

50' POWER EASEMENT

5%

2%

30%

5%

25%

28%

10% in/out of this drwy.

LEGEND:

- PROPERTY BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- EXISTING PARCEL
- PHASING LINE
- PROPOSED CIRCULATION PATTERN

200' 0' 100' 200' 400'

SCALE: 1" = 200'

KOONTZJONES Design

Pine Ridge Commercial

Table 3 - Master Plan Trip Generation: Pod 3

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
220 Multifamily Housing (Low-Rise) - *Phase 8**	50 d.u.	338	169	169	25	6	19	32	20	12
710 General Office Building - *Phase 9***	32,500 s.f.	358	179	179	57	49	8	39	6	33
820 Shopping Center - *Phase 9***	32,500 s.f.	2,800	1,400	1,400	168	104	64	237	114	123
Subtotal		**3,496**	**1,748**	**1,748**	**250**	**159**	**91**	**308**	**140**	**168**
Internal Capture	**65000%**									
220 Multifamily Housing (Low-Rise) - Phase 8*		85	44	41	0	0	0	15	10	5
710 General Office Building - Phase 9**		82	36	46	4	2	2	10	2	8
820 Shopping Center - Phase 9**		151	79	72	4	2	2	23	12	11
Internal Capture Total		*318*	*159*	*159*	*8*	*4*	*4*	*48*	*24*	*24*
Total External Trips		**3,178**	**1,589**	**1,589**	**242**	**155**	**87**	**260**	**116**	**144**
Pass-By Capture	AM PM									
820 Shopping Center - Phase 9**	0% 34%	*0*	*0*	*0*	*0*	*0*	*0*	*73*	*35*	*38*
Total Net New External Trips		**3,178**	**1,589**	**1,589**	**242**	**155**	**87**	**187**	**81**	**106**

MPS Master Plan - Pod 3
Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY

GROSS TRIP GENERATION

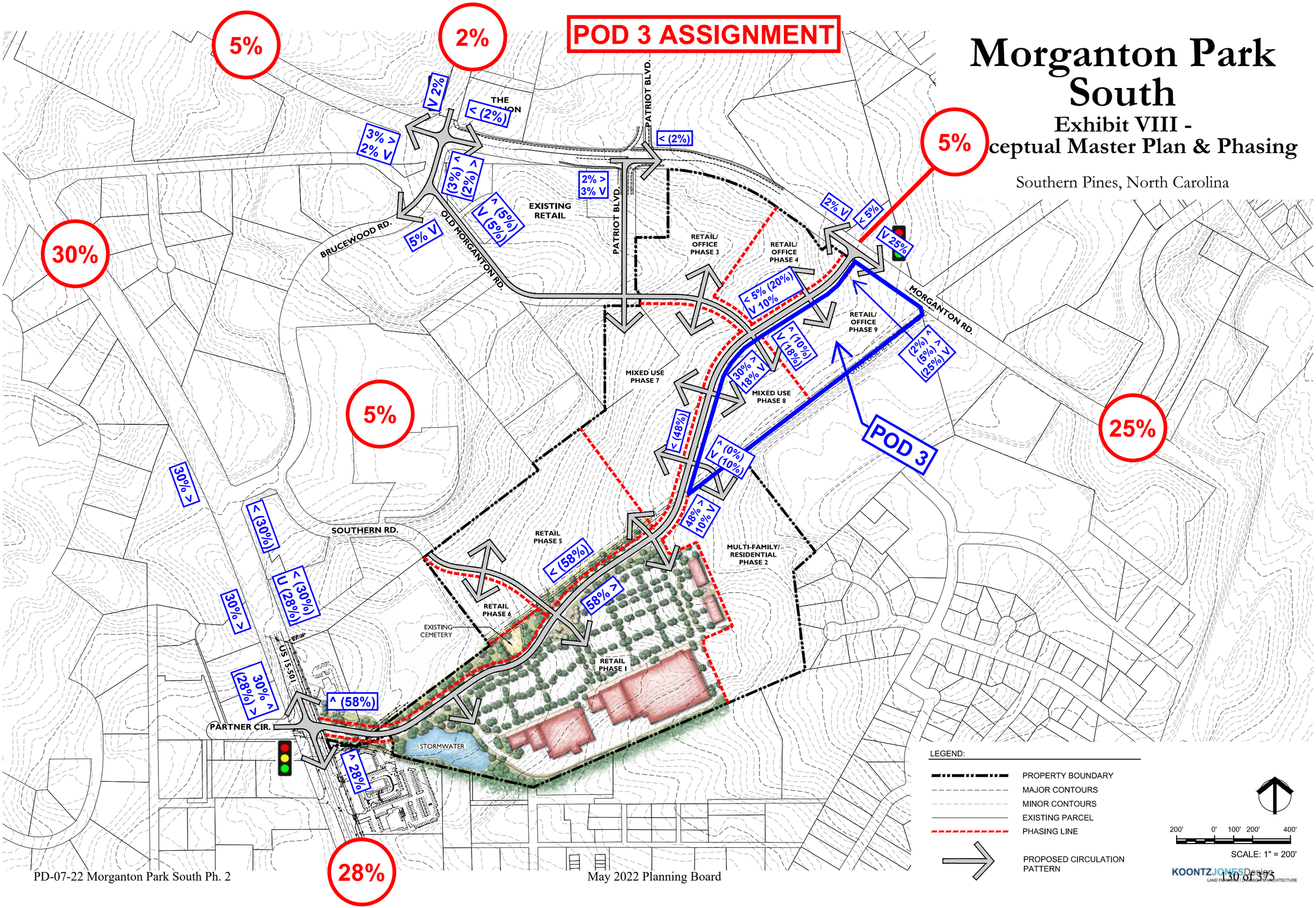
	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
INPUT	Office	179	179	49	8	6	33
	Retail	1,400	1,400	104	64	114	123
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	169	169	6	19	20	12
	Hotel	0	0	0	0	0	0
		1,748	1,748	159	91	140	168

INTERNAL TRIPS

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	36	46	2	2	2	8
	Retail	79	72	2	2	12	11
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	44	41	0	0	10	5
	Hotel	0	0	0	0	0	0
		159	159	4	4	24	24
	% Reduction	9.1%		3.2%		15.6%	

EXTERNAL TRIPS

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	143	133	47	6	4	25
	Retail	1,321	1,328	102	62	102	112
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	125	128	6	19	10	7
	Hotel	0	0	0	0	0	0
		1,589	1,589	155	87	116	144


POD 3 ASSIGNMENT
Morganton Park South
Exhibit VIII - Conceptual Master Plan & Phasing
Southern Pines, North Carolina
5%
2%
5%
30%
5%
25%
28%
POD 3
THE UNION
PATRIOT BLVD.
EXISTING RETAIL
BRUCEWOOD RD.
OLD MORGANTON RD.
MORGANTON RD.
SOUTHERN RD.
PARTNER CIR.
US 15-501
EXISTING CEMETERY
STORMWATER
RETAIL/ OFFICE PHASE 3
RETAIL/ OFFICE PHASE 4
RETAIL/ OFFICE PHASE 9
MIXED USE PHASE 7
MIXED USE PHASE 8
RETAIL PHASE 5
RETAIL PHASE 6
RETAIL PHASE 1
MULTI-FAMILY/ RESIDENTIAL PHASE 2
V 2%
< (2%)
3% > 2% V
(3%) ^ (2%) >
2% > 3% V
^ (5%) V (5%)
5% V
< (2%)
2% V
< 5%
V 25%
< 5% (20%) V 10%
^ (10%) V (18%)
30% > 18% V
(2%) ^ (5%) > (25%) V
< (48%)
^ (0%) V (10%)
48% > 10% V
< (58%)
58% >
30% >
< (30%)
< (30%) U (28%)
30% >
30% ^ (28%) >
^ (58%)
^ 28%
LEGEND:
PROPERTY BOUNDARY
MAJOR CONTOURS
MINOR CONTOURS
EXISTING PARCEL
PHASING LINE
PROPOSED CIRCULATION PATTERN
200' 0' 100' 200' 400'
SCALE: 1" = 200'
KOONTZJONES Design

Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**US 15/501**
E/W Street:	**Brucewood Road/Stein Mart Driveway**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Stein Mart Driveway Eastbound Left	Through	Right	Brucewood Road Westbound Left	Through	Right	US 15/501 Northbound Left	Through	Right	US 15/501 Southbound Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	53	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	22	0	0	0	0
Total Project Traffic - Pod 1	0	0	0	0	0	0	0	22	0	0	53	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	120	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	80	0	0	0	0
Total Project Traffic - Pod 2	0	0	0	0	0	0	0	80	0	0	120	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	47	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	26	0	0	0	0
Total Project Traffic - Pod 3	0	0	0	0	0	0	0	26	0	0	47	0
20% Reduction for Interaction between Pods	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-26**	**0**	**0**	**-44**	**0**
TOTAL MASTER PLAN TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**102**	**0**	**0**	**176**	**0**

PM PEAK HOUR

Description	Stein Mart Driveway Eastbound Left	Through	Right	Brucewood Road Westbound Left	Through	Right	US 15/501 Northbound Left	Through	Right	US 15/501 Southbound Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	35	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	51	0	0	0	0
Total External Site Traffic	0	0	0	0	0	0	0	51	0	0	35	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	0	0	0	0	0	0	51	0	0	35	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	102	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	112	0	0	0	0
Total External Site Traffic	0	0	0	0	0	0	0	112	0	0	102	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	-47	0	0	-47	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	50	0	0	47	0
Total Pass-By Traffic	0	0	0	0	0	0	0	3	0	0	0	0
Total Project Traffic - Pod 2	0	0	0	0	0	0	0	115	0	0	102	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	24	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	32	0	0	0	0
Total External Site Traffic	0	0	0	0	0	0	0	32	0	0	24	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	0	0	0	0	0	0	32	0	0	24	0
30% Reduction for Interaction between Pods	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-59**	**0**	**0**	**-48**	**0**
TOTAL MASTER PLAN TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**139**	**0**	**0**	**113**	**0**

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**US 15/501**
E/W Street:	**U-Turn north of Partner Circle**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	U-Turn north of Partner Circle Eastbound Left	Through	Right	U-Turn north of Partner Circle Westbound Left	Through	Right	US 15/501 Northbound U-Turn	Left	Through	Right	US 15/501 Southbound Left	Through	Right
Project Traffic - Pod 1													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	53	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	28%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	21	0	22	0	0	0	0
Total Project Traffic - Pod 1	0	0	0	0	0	0	21	0	22	0	0	53	0
Project Traffic - Pod 2													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	120	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	28%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	75	0	80	0	0	0	0
Total Project Traffic - Pod 2	0	0	0	0	0	0	75	0	80	0	0	120	0
Project Traffic - Pod 3													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	47	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	28%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	24	0	26	0	0	0	0
Total Project Traffic - Pod 3	0	0	0	0	0	0	24	0	26	0	0	47	0
20% Reduction for Interaction between Pods	0	0	0	0	0	0	-24	0	-26	0	0	-44	0
TOTAL MASTER PLAN TRAFFIC	0	0	0	0	0	0	96	0	102	0	0	176	0

PM PEAK HOUR

Description	U-Turn north of Partner Circle Eastbound Left	Through	Right	U-Turn north of Partner Circle Westbound Left	Through	Right	US 15/501 Northbound U-Turn	Left	Through	Right	US 15/501 Southbound Left	Through	Right
Project Traffic - Pod 1													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	35	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	28%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	48	0	51	0	0	0	0
Total External Site Traffic	0	0	0	0	0	0	48	0	51	0	0	35	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	0	0	0	0	0	48	0	51	0	0	35	0
Project Traffic - Pod 2													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	102	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	28%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	104	0	112	0	0	0	0
Total External Site Traffic	0	0	0	0	0	0	104	0	112	0	0	102	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	-47	0	0	-47	0
Pass-By Capture Assignment	0	0	0	0	0	0	50	0	50	0	0	47	0
Total Pass-By Traffic	0	0	0	0	0	0	50	0	3	0	0	0	0
Total Project Traffic - Pod 2	0	0	0	0	0	0	154	0	115	0	0	102	0
Project Traffic - Pod 3													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	24	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	28%	0%	30%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	30	0	32	0	0	0	0
Total External Site Traffic	0	0	0	0	0	0	30	0	32	0	0	24	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	0	0	0	0	0	30	0	32	0	0	24	0
30% Reduction for Interaction between Pods	0	0	0	0	0	0	-70	0	-59	0	0	-48	0
TOTAL MASTER PLAN TRAFFIC	0	0	0	0	0	0	162	0	139	0	0	113	0

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**US 15/501**
E/W Street:	**Partner Circle/Pine Ridge Parkway**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Partner Circle Eastbound			Pine Ridge Parkway Westbound			US 15/501 Northbound				US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	50	53	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	28%	0%
Outbound Project Traffic	0	0	0	0	0	43	0	0	0	0	0	21	0
Total Project Traffic - Pod 1	0	0	0	0	0	43	0	0	0	50	53	21	0
Project Traffic - Pod 2													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	112	120	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	28%	0%
Outbound Project Traffic	0	0	0	0	0	155	0	0	0	0	0	75	0
Total Project Traffic - Pod 2	0	0	0	0	0	155	0	0	0	112	120	75	0
Project Traffic - Pod 3													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	43	47	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	28%	0%
Outbound Project Traffic	0	0	0	0	0	50	0	0	0	0	0	24	0
Total Project Traffic - Pod 3	0	0	0	0	0	50	0	0	0	43	47	24	0
20% Reduction for Interaction between Pods	0	0	0	0	0	-50	0	0	0	-41	-44	-24	0
TOTAL MASTER PLAN TRAFFIC	0	0	0	0	0	198	0	0	0	164	176	96	0

PM PEAK HOUR

Description	Partner Circle Eastbound			Pine Ridge Parkway Westbound			US 15/501 Northbound				US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	33	35	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	28%	0%
Outbound Project Traffic	0	0	0	0	0	99	0	0	0	0	0	48	0
Total External Site Traffic	0	0	0	0	0	99	0	0	0	33	35	48	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	0	0	0	0	99	0	0	0	33	35	48	0
Project Traffic - Pod 2													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	95	102	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	28%	0%
Outbound Project Traffic	0	0	0	0	0	216	0	0	0	0	0	104	0
Total External Site Traffic	0	0	0	0	0	216	0	0	0	95	102	104	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	-47	0	0	-47	0
Pass-By Capture Assignment	0	0	0	0	0	100	0	0	0	47	47	0	0
Total Pass-By Traffic	0	0	0	0	0	100	0	0	-47	47	47	-47	0
Total Project Traffic - Pod 2	0	0	0	0	0	316	0	0	-47	142	149	57	0
Project Traffic - Pod 3													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	30%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	23	24	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	28%	0%
Outbound Project Traffic	0	0	0	0	0	61	0	0	0	0	0	30	0
Total External Site Traffic	0	0	0	0	0	61	0	0	0	23	24	30	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	0	0	0	0	61	0	0	0	23	24	30	0
30% Reduction for Interaction between Pods	0	0	0	0	0	-143	0	0	14	-59	-62	-41	0
TOTAL MASTER PLAN TRAFFIC	0	0	0	0	0	333	0	0	-33	139	146	94	0

k:\ral_tpto_traffic\018923019 pine ridge commercial\t4 - analysis\2031 master plan trip gen and assignment\[pine ridge commercial - tia data - 2031 master plan build-out.xls]int 2 - 15-501 @ partner circle 7/23/21

Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**US 15/501**
E/W Street:	**Murray Hill Road**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Murray Hill Road Eastbound Left	Through	Right	Murray Hill Road Westbound Left	Through	Right	US 15/501 Northbound Left	Through	Right	US 15/501 Southbound Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	25%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	5	0	44	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	2	19	0
Total Project Traffic - Pod 1	0	0	0	0	0	5	0	44	0	2	19	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	25%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	12	0	100	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	8	67	0
Total Project Traffic - Pod 2	0	0	0	0	0	12	0	100	0	8	67	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	25%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	5	0	39	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	3	22	0
Total Project Traffic - Pod 3	0	0	0	0	0	5	0	39	0	3	22	0
20% Reduction for Interaction between Pods	**0**	**0**	**0**	**0**	**0**	**-4**	**0**	**-37**	**0**	**-3**	**-22**	**0**
TOTAL MASTER PLAN TRAFFIC	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**146**	**0**	**10**	**86**	**0**

PM PEAK HOUR

Description	Murray Hill Road Eastbound Left	Through	Right	Murray Hill Road Westbound Left	Through	Right	US 15/501 Northbound Left	Through	Right	US 15/501 Southbound Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	25%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	4	0	29	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	5	43	0
Total External Site Traffic	0	0	0	0	0	4	0	29	0	5	43	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	0	0	0	0	4	0	29	0	5	43	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	25%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	10	0	85	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	11	93	0
Total External Site Traffic	0	0	0	0	0	10	0	85	0	11	93	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	-47	0	0	-47	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	47	0	0	50	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	3	0
Total Project Traffic - Pod 2	0	0	0	0	0	10	0	85	0	11	96	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	25%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	2	0	20	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	3	27	0
Total External Site Traffic	0	0	0	0	0	2	0	20	0	3	27	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	0	0	0	0	2	0	20	0	3	27	0
30% Reduction for Interaction between Pods	**0**	**0**	**0**	**0**	**0**	**-5**	**0**	**-40**	**0**	**-6**	**-50**	**0**
TOTAL MASTER PLAN TRAFFIC	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**94**	**0**	**13**	**116**	**0**

Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**Brucewood Road**
E/W Street:	**Morganton Road**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Morganton Road Eastbound			Morganton Road Westbound			Brucewood Road Northbound			Brucewood Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	4%	1%	0%	0%	0%	0%	0%	0%	1%	1%	0%
Inbound Project Traffic	0	7	2	0	0	0	0	0	0	2	2	0
Percent Assignment Outbound	0%	0%	0%	0%	2%	0%	3%	2%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	1	0	2	1	0	0	0	0
Total Project Traffic - Pod 1	0	7	2	0	1	0	2	1	0	2	2	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	4%	1%	0%	0%	0%	0%	0%	0%	1%	1%	0%
Inbound Project Traffic	0	16	4	0	0	0	0	0	0	4	4	0
Percent Assignment Outbound	0%	0%	0%	0%	4%	1%	1%	1%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	11	3	3	3	0	0	0	0
Total Project Traffic - Pod 2	0	16	4	0	11	3	3	3	0	4	4	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	3%	2%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Inbound Project Traffic	0	5	3	0	0	0	0	0	0	3	0	0
Percent Assignment Outbound	0%	0%	0%	0%	2%	0%	3%	2%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	2	0	3	2	0	0	0	0
Total Project Traffic - Pod 3	0	5	3	0	2	0	3	2	0	3	0	0
20% Reduction for Interaction between Pods	**0**	**-6**	**-2**	**0**	**-3**	**-1**	**-2**	**-1**	**0**	**-2**	**-1**	**0**
TOTAL MASTER PLAN TRAFFIC	**0**	**22**	**7**	**0**	**11**	**2**	**6**	**5**	**0**	**7**	**5**	**0**

PM PEAK HOUR

Description	Morganton Road Eastbound			Morganton Road Westbound			Brucewood Road Northbound			Brucewood Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	4%	1%	0%	0%	0%	0%	0%	0%	1%	1%	0%
Inbound Project Traffic	0	5	1	0	0	0	0	0	0	1	1	0
Percent Assignment Outbound	0%	0%	0%	0%	2%	0%	3%	2%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	3	0	5	3	0	0	0	0
Total External Site Traffic	0	5	1	0	3	0	5	3	0	1	1	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	5	1	0	3	0	5	3	0	1	1	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	4%	1%	0%	0%	0%	0%	0%	0%	1%	1%	0%
Inbound Project Traffic	0	14	3	0	0	0	0	0	0	3	3	0
Percent Assignment Outbound	0%	0%	0%	0%	4%	1%	1%	1%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	15	4	4	4	0	0	0	0
Total External Site Traffic	0	14	3	0	15	4	4	4	0	3	3	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 2	0	14	3	0	15	4	4	4	0	3	3	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	3%	2%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Inbound Project Traffic	0	2	2	0	0	0	0	0	0	2	0	0
Percent Assignment Outbound	0%	0%	0%	0%	2%	0%	3%	2%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	2	0	3	2	0	0	0	0
Total External Site Traffic	0	2	2	0	2	0	3	2	0	2	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	2	2	0	2	0	3	2	0	2	0	0
30% Reduction for Interaction between Pods	**0**	**-6**	**-2**	**0**	**-6**	**-1**	**-4**	**-3**	**0**	**-2**	**-1**	**0**
TOTAL MASTER PLAN TRAFFIC	**0**	**15**	**4**	**0**	**14**	**3**	**8**	**6**	**0**	**4**	**3**	**0**

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**S. Stephens Street Extension/Pine Ridge Parkway**
E/W Street:	**Morganton Road**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Morganton Road Eastbound			Morganton Road Westbound			Pine Ridge Parkway Northbound			S. Stephens Street Extension Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	0%	2%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	4	44	0	0	0	0	0	0	9	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	2%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	1	4	19	0	0	0
Total Project Traffic - Pod 1	0	0	4	44	0	0	1	4	19	0	9	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	0%	5%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	20	100	0	0	0	0	0	0	20	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	5%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	13	13	67	0	0	0
Total Project Traffic - Pod 2	0	0	20	100	0	0	13	13	67	0	20	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	0%	5%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	8	39	0	0	0	0	0	0	8	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	5%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	4	4	22	0	0	0
Total Project Traffic - Pod 3	0	0	8	39	0	0	4	4	22	0	8	0
20% Reduction for Interaction between Pods	**0**	**0**	**-6**	**-37**	**0**	**0**	**-4**	**-4**	**-22**	**0**	**-7**	**0**
TOTAL MASTER PLAN TRAFFIC	**0**	**0**	**26**	**146**	**0**	**0**	**14**	**17**	**86**	**0**	**30**	**0**

PM PEAK HOUR

Description	Morganton Road Eastbound			Morganton Road Westbound			Pine Ridge Parkway Northbound			S. Stephens Street Extension Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	0%	2%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	2	29	0	0	0	0	0	0	6	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	2%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	3	9	43	0	0	0
Total External Site Traffic	0	0	2	29	0	0	3	9	43	0	6	0
Pass-By Capture Reduction	0	-28	0	0	-28	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	28	28	0	0	32	0	32	0	0	0
Total Pass-By Traffic	0	-28	28	28	-28	0	32	0	32	0	0	0
Total Project Traffic - Pod 1	0	-28	30	57	-28	0	35	9	75	0	6	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	0%	5%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	17	85	0	0	0	0	0	0	17	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	5%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	19	19	93	0	0	0
Total External Site Traffic	0	0	17	85	0	0	19	19	93	0	17	0
Pass-By Capture Reduction	0	-31	0	0	-31	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	31	31	0	0	33	0	33	0	0	0
Total Pass-By Traffic	0	-31	31	31	-31	0	33	0	33	0	0	0
Total Project Traffic - Pod 2	0	-31	48	116	-31	0	52	19	126	0	17	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	0%	5%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	4	20	0	0	0	0	0	0	4	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	5%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	5	5	27	0	0	0
Total External Site Traffic	0	0	4	20	0	0	5	5	27	0	4	0
Pass-By Capture Reduction	0	-18	0	0	-18	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	18	18	0	0	19	0	19	0	0	0
Total Pass-By Traffic	0	-18	18	18	-18	0	19	0	19	0	0	0
Total Project Traffic - Pod 3	0	-18	22	38	-18	0	24	5	46	0	4	0
30% Reduction for Interaction between Pods	**0**	**23**	**-30**	**-63**	**23**	**0**	**-33**	**-10**	**-74**	**0**	**-8**	**0**
TOTAL MASTER PLAN TRAFFIC	**0**	**-54**	**70**	**148**	**-54**	**0**	**78**	**23**	**173**	**0**	**19**	**0**

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**Site Driveway #1 (west)**
E/W Street:	**Pine Ridge Parkway**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #1 (west) Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	103	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	43	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	103	0	0	43	0	0	0	0	0	0	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	231	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	155	0	0	0	0	0	0	0
Total Project Traffic - Pod 2	0	231	0	0	155	0	0	0	0	0	0	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	90	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	50	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	90	0	0	50	0	0	0	0	0	0	0
TOTAL MASTER PLAN TRAFFIC	**0**	**424**	**0**	**0**	**248**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

PM PEAK HOUR

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #1 (west) Northbound			Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	68	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	99	0	0	0	0	0	0	0
Total External Site Traffic	0	68	0	0	99	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	68	0	0	99	0	0	0	0	0	0	0
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	197	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	216	0	0	0	0	0	0	0
Total External Site Traffic	0	197	0	0	216	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	94	0	0	100	0	0	0	0	0	0	0
Total Pass-By Traffic	0	94	0	0	100	0	0	0	0	0	0	0
Total Project Traffic - Pod 2	0	291	0	0	316	0	0	0	0	0	0	0
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	47	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	61	0	0	0	0	0	0	0
Total External Site Traffic	0	47	0	0	61	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	47	0	0	61	0	0	0	0	0	0	0
TOTAL MASTER PLAN TRAFFIC	**0**	**406**	**0**	**0**	**476**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**Site Driveway #2 (west-center)**
E/W Street:	**Pine Ridge Parkway**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #2 (west-center) Northbound			Phase 5 West Driveway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	103	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	43	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	103	0	0	43	0	0	0	0	0	0	0
Project Traffic - Pod 2												
Percent Assignment Inbound	8%	50%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	32	200	0	0	0	40	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	50%	0%	0%	0%	0%	10%	0%	8%
Outbound Project Traffic	0	0	0	0	134	0	0	0	0	27	0	21
Total Project Traffic - Pod 2	32	200	0	0	134	40	0	0	0	27	0	21
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	90	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	50	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	90	0	0	50	0	0	0	0	0	0	0
TOTAL MASTER PLAN TRAFFIC	**32**	**393**	**0**	**0**	**227**	**40**	**0**	**0**	**0**	**27**	**0**	**21**

PM PEAK HOUR

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #2 (west-center) Northbound			Phase 5 West Driveway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	68	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	99	0	0	0	0	0	0	0
Total External Site Traffic	0	68	0	0	99	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	68	0	0	99	0	0	0	0	0	0	0
Project Traffic - Pod 2												
Percent Assignment Inbound	8%	50%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	27	170	0	0	0	34	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	50%	0%	0%	0%	0%	10%	0%	8%
Outbound Project Traffic	0	0	0	0	186	0	0	0	0	37	0	30
Total External Site Traffic	27	170	0	0	186	34	0	0	0	37	0	30
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	16	79	0	0	84	16	0	0	0	17	0	17
Total Pass-By Traffic	16	79	0	0	84	16	0	0	0	17	0	17
Total Project Traffic - Pod 2	43	249	0	0	270	50	0	0	0	54	0	47
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	47	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	61	0	0	0	0	0	0	0
Total External Site Traffic	0	47	0	0	61	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	47	0	0	61	0	0	0	0	0	0	0
TOTAL MASTER PLAN TRAFFIC	**43**	**364**	**0**	**0**	**430**	**50**	**0**	**0**	**0**	**54**	**0**	**47**

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**Site Driveway #3 (east-center)**
E/W Street:	**Pine Ridge Parkway**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #3 (east-center) Northbound			Phase 5 East Driveway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	103	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	43	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	103	0	0	43	0	0	0	0	0	0	0
Project Traffic - Pod 2												
Percent Assignment Inbound	30%	20%	0%	0%	10%	10%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	120	80	0	0	40	40	0	0	0	0	0	0
Percent Assignment Outbound	0%	10%	0%	0%	20%	0%	0%	0%	0%	10%	0%	30%
Outbound Project Traffic	0	27	0	0	54	0	0	0	0	27	0	80
Total Project Traffic - Pod 2	120	107	0	0	94	40	0	0	0	27	0	80
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	90	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	50	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	90	0	0	50	0	0	0	0	0	0	0
TOTAL MASTER PLAN TRAFFIC	**120**	**300**	**0**	**0**	**187**	**40**	**0**	**0**	**0**	**27**	**0**	**80**

PM PEAK HOUR

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #3 (east-center) Northbound			Phase 5 East Driveway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	68	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	99	0	0	0	0	0	0	0
Total External Site Traffic	0	68	0	0	99	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	68	0	0	99	0	0	0	0	0	0	0
Project Traffic - Pod 2												
Percent Assignment Inbound	30%	20%	0%	0%	10%	10%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	102	68	0	0	34	34	0	0	0	0	0	0
Percent Assignment Outbound	0%	10%	0%	0%	20%	0%	0%	0%	0%	10%	0%	30%
Outbound Project Traffic	0	37	0	0	74	0	0	0	0	37	0	112
Total External Site Traffic	102	105	0	0	108	34	0	0	0	37	0	112
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	55	41	0	0	41	39	0	0	0	42	0	58
Total Pass-By Traffic	55	41	0	0	41	39	0	0	0	42	0	58
Total Project Traffic - Pod 2	157	146	0	0	149	73	0	0	0	79	0	170
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	47	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	61	0	0	0	0	0	0	0
Total External Site Traffic	0	47	0	0	61	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	47	0	0	61	0	0	0	0	0	0	0
TOTAL MASTER PLAN TRAFFIC	**157**	**261**	**0**	**0**	**309**	**73**	**0**	**0**	**0**	**79**	**0**	**170**

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**Site Driveway #4 (east)**
E/W Street:	**Pine Ridge Parkway**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #4 (east) Northbound			Phase 5 Driveway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	103	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	43	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	103	0	0	43	0	0	0	0	0	0	0
Project Traffic - Pod 2												
Percent Assignment Inbound	15%	5%	0%	0%	20%	5%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	60	20	0	0	80	20	0	0	0	0	0	0
Percent Assignment Outbound	0%	20%	0%	0%	5%	0%	0%	0%	0%	5%	0%	15%
Outbound Project Traffic	0	54	0	0	13	0	0	0	0	13	0	40
Total Project Traffic - Pod 2	60	74	0	0	93	20	0	0	0	13	0	40
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	48%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	74	16	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	48%	0%	10%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	42	0	9	0	0	0	0	0
Total Project Traffic - Pod 3	0	74	16	0	42	0	9	0	0	0	0	0
TOTAL MASTER PLAN TRAFFIC	**60**	**251**	**16**	**0**	**178**	**20**	**9**	**0**	**0**	**13**	**0**	**40**

PM PEAK HOUR

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #4 (east) Northbound			Phase 5 Driveway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	68	0	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	58%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	99	0	0	0	0	0	0	0
Total External Site Traffic	0	68	0	0	99	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 1	0	68	0	0	99	0	0	0	0	0	0	0
Project Traffic - Pod 2												
Percent Assignment Inbound	15%	5%	0%	0%	20%	5%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	51	17	0	0	68	17	0	0	0	0	0	0
Percent Assignment Outbound	0%	20%	0%	0%	5%	0%	0%	0%	0%	5%	0%	15%
Outbound Project Traffic	0	74	0	0	19	0	0	0	0	19	0	56
Total External Site Traffic	51	91	0	0	87	17	0	0	0	19	0	56
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	24	58	0	0	55	8	0	0	0	8	0	25
Total Pass-By Traffic	24	58	0	0	55	8	0	0	0	8	0	25
Total Project Traffic - Pod 2	75	149	0	0	142	25	0	0	0	27	0	81
Project Traffic - Pod 3												
Percent Assignment Inbound	0%	48%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	39	8	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	48%	0%	10%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	51	0	11	0	0	0	0	0
Total External Site Traffic	0	39	8	0	51	0	11	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic - Pod 3	0	39	8	0	51	0	11	0	0	0	0	0
TOTAL MASTER PLAN TRAFFIC	**75**	**256**	**8**	**0**	**292**	**25**	**11**	**0**	**0**	**27**	**0**	**81**

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Master Plan Build-out**
Ct. Date	
N/S Street:	**Pine Ridge Parkway**
E/W Street:	**Old Morganton Road**

	AM In	AM Out	PM In	PM Out
Pod 1 External Trips:	177	74	117	170
Pod 1 Pass-by Trips:	0	0	56	64
Pod 2 External Trips:	399	268	340	372
Pod 2 Pass-by Trips	0	0	157	167
Pod 3 External Trips:	155	87	81	106
Pod 3 Pass-by Trips:	0	0	35	38

AM PEAK HOUR

Description	Old Morganton Road Eastbound			Old Morganton Road Westbound			Pine Ridge Parkway Northbound			Pine Ridge Parkway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	25%	33%	0%	0%	0%	15%
Inbound Project Traffic	0	0	0	0	0	0	44	58	0	0	0	27
Percent Assignment Outbound	15%	0%	25%	0%	0%	0%	0%	0%	0%	0%	33%	0%
Outbound Project Traffic	11	0	19	0	0	0	0	0	0	0	24	0
Total Project Traffic - Pod 1	11	0	19	0	0	0	44	58	0	0	24	27
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	32%	3%
Inbound Project Traffic	0	0	12	0	0	0	0	0	0	0	128	12
Percent Assignment Outbound	3%	0%	0%	0%	0%	0%	3%	32%	0%	0%	0%	0%
Outbound Project Traffic	8	0	0	0	0	0	8	86	0	0	0	0
Total Project Traffic - Pod 2	8	0	12	0	0	0	8	86	0	0	128	12
Project Traffic - Pod 3												
Percent Assignment Inbound	2%	5%	0%	0%	0%	0%	0%	35%	10%	5%	5%	0%
Inbound Project Traffic	3	8	0	0	0	0	0	54	16	8	8	0
Percent Assignment Outbound	0%	0%	0%	10%	5%	5%	0%	5%	0%	0%	35%	2%
Outbound Project Traffic	0	0	0	9	4	4	0	4	0	0	30	2
Total Project Traffic - Pod 3	3	8	0	9	4	4	0	58	16	8	38	2
20% Reduction for Interaction between Pods	-4	-2	-6	-2	-1	-1	-10	-40	-3	-2	-38	-8
TOTAL MASTER PLAN TRAFFIC	**18**	**6**	**25**	**7**	**3**	**3**	**42**	**162**	**13**	**6**	**152**	**33**

PM PEAK HOUR

Description	Old Morganton Road Eastbound			Old Morganton Road Westbound			Pine Ridge Parkway Northbound			Pine Ridge Parkway Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Project Traffic - Pod 1												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	25%	33%	0%	0%	0%	15%
Inbound Project Traffic	0	0	0	0	0	0	29	39	0	0	0	18
Percent Assignment Outbound	15%	0%	25%	0%	0%	0%	0%	0%	0%	0%	33%	0%
Outbound Project Traffic	26	0	43	0	0	0	0	0	0	0	56	0
Total External Site Traffic	26	0	43	0	0	0	29	39	0	0	56	18
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	32	0	0	0	0	0	0	0	0	0	0	28
Total Pass-By Traffic	32	0	0	0	0	0	0	0	0	0	0	28
Total Project Traffic - Pod 1	58	0	43	0	0	0	29	39	0	0	56	46
Project Traffic - Pod 2												
Percent Assignment Inbound	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	32%	3%
Inbound Project Traffic	0	0	10	0	0	0	0	0	0	0	109	10
Percent Assignment Outbound	3%	0%	0%	0%	0%	0%	3%	32%	0%	0%	0%	0%
Outbound Project Traffic	11	0	0	0	0	0	11	119	0	0	0	0
Total External Site Traffic	11	0	10	0	0	0	11	119	0	0	109	10
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	67	0	0	63	0
Total Pass-By Traffic	0	0	0	0	0	0	0	67	0	0	63	0
Total Project Traffic - Pod 2	11	0	10	0	0	0	11	186	0	0	172	10
Project Traffic - Pod 3												
Percent Assignment Inbound	2%	5%	0%	0%	0%	0%	0%	35%	10%	5%	5%	0%
Inbound Project Traffic	2	4	0	0	0	0	0	28	8	4	4	0
Percent Assignment Outbound	0%	0%	0%	10%	5%	5%	0%	5%	0%	0%	35%	2%
Outbound Project Traffic	0	0	0	11	5	5	0	5	0	0	37	2
Total External Site Traffic	2	4	0	11	5	5	0	33	8	4	41	2
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	19	0	0	0	18	0	0
Total Pass-By Traffic	0	0	0	0	0	19	0	0	0	18	0	0
Total Project Traffic - Pod 3	2	4	0	11	5	24	0	33	8	22	41	2
30% Reduction for Interaction between Pods	-21	-1	-16	-3	-2	-7	-12	-77	-2	-7	-81	-17
TOTAL MASTER PLAN TRAFFIC	**50**	**3**	**37**	**8**	**3**	**17**	**28**	**181**	**6**	**15**	**188**	**41**

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Appendix E:
Intersection Spreadsheets –
2024 Build-Out

Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	Pine Ridge Commercial
Location:	Southern Pines, NC
Scenario:	2024 Build-out Year
Ct. Date	February 11, 2020
N/S Street:	US 15/501
E/W Street:	Brucewood Road/Stein Mart Driveway

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2021
Growth Factor (Buildout):	0.061208	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.93

Description	Stein Mart Driveway Eastbound Left	Through	Right	Brucewood Road Westbound Left	Through	Right	US 15/501 Northbound Left	Through	Right	US 15/501 Southbound Left	Through	Right
2020 Traffic Count	7	3	0	84	7	13	2	894	92	12	930	16
1% Growth to 2021	0	0	0	1	0	0	0	9	1	0	9	0
2021 Existing Traffic	7	3	0	85	7	13	2	903	93	12	939	16
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.061	0.000	0.061	0.000	0.061	0.061	0.061	0.061	0.000
2024 Background Growth	0	0	0	5	0	1	0	55	6	1	57	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	4	0	0	0	0	21	0	0	0
Sandhills Pediatrics	0	0	0	2	0	0	0	0	7	0	0	0
Southern Pines Elementary	0	0	0	12	0	0	0	0	16	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	14	0	0	22	0
Legends Apartments Expansion	0	0	0	11	0	0	0	0	4	0	0	0
Total Committed Traffic	0	0	0	29	0	0	0	14	48	0	22	0
2024 Background Traffic	7	3	0	119	7	14	2	972	147	13	1018	16
2024 Weighted Background PHF:	0.93	0.93	0.93	0.89	0.93	0.93	0.93	0.93	0.88	0.93	0.93	0.93
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	4	0	0	0	0	0	0	65	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	2%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	49	3	0	0	0
Total Project Traffic	0	0	0	4	0	0	0	49	3	0	65	0
Project Trips % of 2024 Buildout Traffic	0%	0%	0%	3%	0%	0%	0%	5%	2%	0%	6%	0%
2024 Buildout Total	7	3	0	123	7	14	2	1021	150	13	1083	16
2024 Weighted Build-out PHF:	0.93	0.93	0.93	0.89	0.93	0.93	0.93	0.93	0.88	0.93	0.93	0.93
Percent Impact (Approach)		0.0%			2.8%			4.4%			5.8%	

Overall Percent Impact (2024)

PM PEAK HOUR
PM PHF = 0.97

Description	Stein Mart Driveway Eastbound Left	Through	Right	Brucewood Road Westbound Left	Through	Right	US 15/501 Northbound Left	Through	Right	US 15/501 Southbound Left	Through	Right
2020 Traffic Count	46	27	31	231	27	65	32	1060	287	78	1139	53
1% Growth to 2021	0	0	0	2	0	1	0	11	3	1	11	1
2021 Existing Traffic	46	27	31	233	27	66	32	1071	290	79	1150	54
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.061	0.000	0.061	0.000	0.061	0.061	0.061	0.061	0.000
2024 Background Growth	0	0	0	14	0	4	0	66	18	5	70	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	20	0	0	0	0	11	0	0	0
Sandhills Pediatrics	0	0	0	9	0	0	0	0	3	0	0	0
Southern Pines Elementary	0	0	0	3	0	0	0	0	3	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	23	0	0	19	0
Legends Apartments Expansion	0	0	0	7	0	0	0	0	11	0	0	0
Total Committed Traffic	0	0	0	39	0	0	0	23	28	0	19	0
2024 Background Traffic	46	27	31	286	27	70	32	1160	336	84	1239	54
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	7	0	0	0	0	0	0	100	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	2%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	106	7	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	7	0	0	0	106	7	0	100	0
Project Trips % of 2024 Buildout Traffic	0%	0%	0%	2%	0%	0%	0%	8%	2%	0%	7%	0%
2024 Buildout Total	46	27	31	293	27	70	32	1266	343	84	1339	54
Percent Impact (Approach)		0.0%			1.8%			6.9%			6.8%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	Pine Ridge Commercial
Location:	Southern Pines, NC
Scenario:	2024 Build-out Year
Ct. Date	September 15, 2016
N/S Street:	US 15/501
E/W Street:	Partner Circle/Pine Ridge Parkway

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2021
Growth Factor (Buildout):	0.061208	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.92

Description	Partner Circle Eastbound			Pine Ridge Parkway Westbound			US 15/501 Northbound				US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	Left	Through	Right
2016 Traffic Count	4	0	20	5	0	3	0	8	0	6	3	0	12
US 15/501 Through Vol. Balancing (from Brucewood)	0	0	0	0	0	0	0	0	981	0	0	999	0
1% Growth to 2021	0	0	0	0	0	0	0	0	10	0	0	10	0
2021 Existing Traffic	4	0	20	5	0	3	0	8	991	6	3	1009	12
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.000	0.000	0.061	0.000
2024 Background Growth	0	0	0	0	0	0	0	0	61	0	0	62	0
Committed Projects													
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	21	0	0	4	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	7	0	0	2	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	16	0	0	12	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	14	0	0	22	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	4	0	0	11	0
Total Committed Traffic	0	0	0	0	0	0	0	0	62	0	0	51	0
2024 Background Traffic	4	0	20	5	0	3	0	8	1114	6	3	1122	12
2024 Weighted Background PHF:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.92	0.92	0.92
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	32%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	61	70	0	0
Percent Assignment Outbound	0%	0%	0%	28%	0%	32%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	46	0	52	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	46	0	52	0	0	0	61	70	0	0
Project Trips % of 2024 Buildout Traffic	0%	0%	0%	90%	0%	95%	0%	0%	0%	91%	96%	0%	0%
2024 Buildout Total	4	0	20	51	0	55	0	8	1114	67	73	1122	12
2024 Weighted Build-out PHF:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.92	0.92	0.92
Percent Impact (Approach)		0.0%			92.5%				5.1%			5.8%	

Overall Percent Impact (2024)

PM PEAK HOUR
PM PHF = 0.96

Description	Partner Circle Eastbound			Pine Ridge Parkway Westbound			US 15/501 Northbound				US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	Left	Through	Right
2016 Traffic Count	4	0	46	1	0	4	0	56	0	0	0	0	14
US 15/501 Through Vol. Balancing (from Brucewood)	0	0	0	0	0	0	0	0	1371	0	0	1387	0
1% Growth to 2021	0	0	2	0	0	0	0	3	14	0	0	14	1
2021 Existing Traffic	4	0	48	1	0	4	0	59	1385	0	0	1401	15
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.000	0.000	0.061	0.000
2024 Background Growth	0	0	0	0	0	0	0	0	85	0	0	86	0
Committed Projects													
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	11	0	0	20	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	3	0	0	9	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	3	0	0	3	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	23	0	0	19	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	11	0	0	7	0
Total Committed Traffic	0	0	0	0	0	0	0	0	51	0	0	58	0
2024 Background Traffic	4	0	48	1	0	4	0	59	1521	0	0	1545	15
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	32%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	93	106	0	0
Percent Assignment Outbound	0%	0%	0%	28%	0%	32%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	99	0	113	0	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	-46	0	0	-46	0
Pass-By Capture Assignment	0	0	0	48	0	48	0	0	0	46	46	0	0
Total Pass-By Traffic	0	0	0	48	0	48	0	0	-46	46	46	-46	0
Total Project Traffic	0	0	0	147	0	161	0	0	-46	139	152	-46	0
Project Trips % of 2024 Buildout Traffic	0%	0%	0%	99%	0%	98%	0%	0%	-3%	100%	100%	-3%	0%
2024 Buildout Total	4	0	48	148	0	165	0	59	1475	139	152	1499	15
Percent Impact (Approach)		0.0%			98.4%				5.6%			6.4%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2024 Build-out Year**
Ct. Date	**April 27, 2021**
N/S Street:	**US 15/501**
E/W Street:	**Murray Hill Road**

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.92

Description	Murray Hill Road Eastbound			Murray Hill Road Westbound			US 15/501 Northbound				US 15/501 Southbound			
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2021 Traffic Count	23	27	11	48	87	176	0	20	780	44	0	116	746	46
15% COVID-19 Adjustment Factor	3	4	2	7	13	26	0	3	117	7	0	17	112	7
2021 Existing Traffic	26	31	13	55	100	202	0	23	897	51	0	133	858	53
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	2	2	1	3	6	12	0	1	55	3	0	8	53	3
Committed Projects														
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	21	0	0	0	4	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	7	0	0	0	2	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	16	0	0	0	12	0
Southern Pines Retail Center	0	0	0	12	0	0	0	0	10	10	0	22	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	4	0	0	0	11	0
Total Committed Traffic	0	0	0	12	0	0	0	0	58	10	0	22	29	0
2024 Background Traffic	28	33	14	70	106	214	0	24	1010	64	0	163	940	56
2024 Weighted Background PHF:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.92	0.92	0.91	0.92
Project Traffic														
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	0%	25%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	7	0	0	55	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	5	41	0
Total Project Traffic	0	0	0	0	0	7	0	0	55	0	0	5	41	0
Project Trips % of 2024 Buildout Traffic	0%	0%	0%	0%	0%	3%	0%	0%	5%	0%	0%	3%	4%	0%
2024 Buildout Total	28	33	14	70	106	221	0	24	1065	64	0	168	981	56
2024 Weighted Build-out PHF:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.92	0.92	0.91	0.92
Percent Impact (Approach)		0.0%			1.8%				4.8%				3.8%	

Overall Percent Impact (2024)

PM PEAK HOUR
PM PHF = 0.93

Description	Murray Hill Road Eastbound			Murray Hill Road Westbound			US 15/501 Northbound				US 15/501 Southbound			
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2021 Traffic Count	80	143	34	84	54	253	0	23	1060	97	0	185	961	27
15% COVID-19 Adjustment Factor	12	21	5	13	8	38	0	3	159	15	0	28	144	4
2021 Existing Traffic	92	164	39	97	62	291	0	26	1219	112	0	213	1105	31
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	6	10	2	6	4	18	0	2	75	7	0	13	68	2
Committed Projects														
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	11	0	0	0	20	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	3	0	0	0	9	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	3	0	0	0	3	0
Southern Pines Retail Center	0	0	0	27	0	0	0	0	8	8	0	26	-7	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	11	0	0	0	7	0
Total Committed Traffic	0	0	0	27	0	0	0	0	36	8	0	26	32	0
2024 Background Traffic	98	174	41	130	66	309	0	28	1330	127	0	252	1205	33
Project Traffic														
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	0%	25%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	10	0	0	83	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	11	88	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	10	0	0	83	0	0	11	88	0
Project Trips % of 2024 Buildout Traffic	0%	0%	0%	0%	0%	3%	0%	0%	6%	0%	0%	4%	7%	0%
2024 Buildout Total	98	174	41	130	66	319	0	28	1413	127	0	263	1293	33
Percent Impact (Approach)		0.0%			1.9%				5.3%				6.2%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	Pine Ridge Commercial
Location:	Southern Pines, NC
Scenario:	2024 Build-out Year
Ct. Date	February 11, 2020
N/S Street:	Brucewood Road
E/W Street:	Morganton Road

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2021
Growth Factor (Buildout):	0.061208	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.91

Description	Morganton Road Eastbound Left	Through	Right	Morganton Road Westbound Left	Through	Right	Brucewood Road Northbound Left	Through	Right	Brucewood Road Southbound Left	Through	Right
2020 Traffic Count	19	615	74	71	644	28	50	10	71	40	7	32
1% Growth to 2021	0	6	1	1	6	0	1	0	1	0	0	0
2021 Existing Traffic	19	621	75	72	650	28	51	10	72	40	7	32
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	1	38	5	4	40	2	3	1	4	2	0	2
Committed Projects												
Pinehurst Medical Morganton Park North	65	0	0	2	12	0	0	21	0	14	4	6
Sandhills Pediatrics	21	0	0	0	0	16	0	7	0	5	2	6
Southern Pines Elementary	28	0	0	0	0	119	0	16	0	88	12	21
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	4	0	0	0	0	1	0	4	0	9	11	12
Total Committed Traffic	118	0	0	2	12	136	0	48	0	116	29	45
Morganton Park Elementary School Diversion	0	0	0	0	0	-119	0	0	0	0	0	0
2024 Background Traffic	138	659	80	78	702	47	54	59	76	158	36	79
2024 Weighted Background PHF:	0.83	0.91	0.91	0.91	0.91	(0.13)	0.91	0.80	0.91	0.68	0.77	0.80
Project Traffic												
Percent Assignment Inbound	0%	5%	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%
Inbound Project Traffic	0	11	0	0	0	0	0	0	7	4	0	0
Percent Assignment Outbound	0%	0%	0%	3%	5%	2%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	5	8	3	0	0	0	0	0	0
Total Project Traffic	0	11	0	5	8	3	0	0	7	4	0	0
Project Trips % of 2024 Buildout Traffic	0%	2%	0%	6%	1%	6%	0%	0%	8%	2%	0%	0%
2024 Buildout Total	138	670	80	83	710	50	54	59	83	162	36	79
2024 Weighted Build-out PHF:	0.83	0.91	0.91	0.91	0.91	2.10	0.91	0.80	0.91	0.69	0.77	0.80
Percent Impact (Approach)		1.2%			1.9%			3.6%			1.4%	

Overall Percent Impact (2024)

PM PEAK HOUR
PM PHF = 0.93

Description	Morganton Road Eastbound Left	Through	Right	Morganton Road Westbound Left	Through	Right	Brucewood Road Northbound Left	Through	Right	Brucewood Road Southbound Left	Through	Right
2020 Traffic Count	43	602	146	155	602	62	192	28	211	28	21	31
1% Growth to 2021	0	6	1	2	6	0	2	0	2	0	0	0
2021 Existing Traffic	43	608	147	157	608	62	194	28	213	28	21	31
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	3	37	9	10	37	4	12	2	13	2	1	2
Committed Projects												
Pinehurst Medical Morganton Park North	34	0	0	10	59	0	0	11	0	69	20	29
Sandhills Pediatrics	10	0	0	0	0	8	0	3	0	20	9	26
Southern Pines Elementary	5	0	0	0	0	19	0	3	0	22	3	5
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	13	0	0	0	0	4	0	11	0	6	7	8
Total Committed Traffic	62	0	0	10	59	31	0	28	0	117	39	68
Morganton Park Elementary School Diversion	0	0	0	0	0	-19	0	0	0	0	0	0
2024 Background Traffic	108	645	156	177	704	78	206	58	226	147	61	101
Project Traffic												
Percent Assignment Inbound	0%	5%	0%	0%	0%	0%	0%	0%	3%	2%	0%	0%
Inbound Project Traffic	0	17	0	0	0	0	0	0	10	7	0	0
Percent Assignment Outbound	0%	0%	0%	3%	5%	2%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	11	18	7	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	17	0	11	18	7	0	0	10	7	0	0
Project Trips % of 2024 Buildout Traffic	0%	3%	0%	6%	2%	8%	0%	0%	4%	5%	0%	0%
2024 Buildout Total	108	662	156	188	722	85	206	58	236	154	61	101
Percent Impact (Approach)		1.8%			3.6%			2.0%			2.2%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	Pine Ridge Commercial
Location:	Southern Pines, NC
Scenario:	2024 Build-out Year
Ct. Date	Turns from 3/2018 at Henley; thrus balanced with Brucewood
N/S Street:	S. Stephens Street Extension/Pine Ridge Parkway
E/W Street:	Morganton Road

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2021
Growth Factor (Buildout):	0.061208	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.91

Description	Morganton Road Eastbound Left	Through	Right	Morganton Road Westbound Left	Through	Right	Pine Ridge Parkway Northbound Left	Through	Right	S. Stephens Street Extension Southbound Left	Through	Right
2018 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	726	0	0	743	0	0	0	0	0	0	0
1% Growth to 2021	0	7	0	0	7	0	0	0	0	0	0	0
2021 Existing Traffic	0	733	0	0	750	0	0	0	0	0	0	0
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	45	0	0	46	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	14	0	0	51	0	0	0	0	0	0	0
Sandhills Pediatrics	0	5	0	0	16	0	0	0	0	0	0	0
Southern Pines Elementary	0	88	0	0	119	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	9	0	0	3	0	0	0	0	0	0	0
Total Committed Traffic	0	116	0	0	189	0	0	0	0	0	0	0
S. Henley Street Traffic Diversion	31	-31	0	0	-37	19	0	0	0	11	0	37
2024 Background Traffic	31	863	0	0	948	19	0	0	0	11	0	37
2024 Weighted Background PHF:	0.91	0.87	0.91	0.91	0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	22	55	0	0	0	0	0	0	11	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	10%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	16	8	41	0	0	0
Total Project Traffic	0	0	22	55	0	0	16	8	41	0	11	0
Project Trips % of 2024 Buildout Traffic	0%	0%	100%	100%	0%	0%	100%	100%	100%	0%	100%	0%
2024 Buildout Total	31	863	22	55	948	19	16	8	41	11	11	37
2024 Weighted Build-out PHF:	0.91	0.87	0.91	0.91	0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Impact (Approach)		2.4%			5.4%			100.0%			18.6%	

Overall Percent Impact (2024)

PM PEAK HOUR
PM PHF = 0.9

Description	Morganton Road Eastbound Left	Through	Right	Morganton Road Westbound Left	Through	Right	Pine Ridge Parkway Northbound Left	Through	Right	S. Stephens Street Extension Southbound Left	Through	Right
2018 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	841	0	0	819	0	0	0	0	0	0	0
1% Growth to 2021	0	8	0	0	8	0	0	0	0	0	0	0
2021 Existing Traffic	0	849	0	0	827	0	0	0	0	0	0	0
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	52	0	0	51	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	69	0	0	26	0	0	0	0	0	0	0
Sandhills Pediatrics	0	20	0	0	8	0	0	0	0	0	0	0
Southern Pines Elementary	0	22	0	0	19	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	6	0	0	9	0	0	0	0	0	0	0
Total Committed Traffic	0	117	0	0	62	0	0	0	0	0	0	0
S. Henley Street Traffic Diversion	61	-61	0	0	-34	38	0	0	0	25	0	34
2024 Background Traffic	61	957	0	0	906	38	0	0	0	25	0	34
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	33	83	0	0	0	0	0	0	17	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	10%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	35	18	88	0	0	0
Pass-By Capture Reduction	0	-30	0	0	-30	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	30	30	0	0	32	0	32	0	0	0
Total Pass-By Traffic	0	-30	30	30	-30	0	32	0	32	0	0	0
Total Project Traffic	0	-30	63	113	-30	0	67	18	120	0	17	0
Project Trips % of 2024 Buildout Traffic	0%	-3%	100%	100%	-3%	0%	100%	100%	100%	0%	100%	0%
2024 Buildout Total	61	927	63	113	876	38	67	18	120	25	17	34
Percent Impact (Approach)		3.1%			8.1%			100.0%			22.4%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2024 Build-out Year**
Ct. Date	**Balanced with Int. #2 (US 15/501 @ Partner Circle)**
N/S Street:	**Site Driveway #1 (west)**
E/W Street:	**Pine Ridge Parkway**

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	Pine Ridge Parkway Eastbound Left	Through	Right	Pine Ridge Parkway Westbound Left	Through	Right	Site Driveway #1 (west) Northbound Left	Through	Right	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic												
Percent Assignment Inbound	0%	40%	20%	5%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	87	44	11	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	40%	0%	20%	0%	5%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	66	0	33	0	8	0	0	0
Total Project Traffic	0	87	44	11	66	0	33	0	8	0	0	0
Project Trips % of 2024 Buildout Traffic	0%	100%	100%	100%	100%	0%	100%	0%	100%	0%	0%	0%
2024 Buildout Total	0	87	44	11	66	0	33	0	8	0	0	0
2024 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		100.0%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

PM PEAK HOUR
PM PHF = 0.9

Description	Pine Ridge Parkway Eastbound Left	Through	Right	Pine Ridge Parkway Westbound Left	Through	Right	Site Driveway #1 (west) Northbound Left	Through	Right	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	40%	20%	5%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	133	66	16	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	40%	0%	20%	0%	5%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	141	0	71	0	18	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	61	30	16	64	0	33	0	16	0	0	0
Total Pass-By Traffic	0	61	30	16	64	0	33	0	16	0	0	0
Total Project Traffic	0	194	96	32	205	0	104	0	34	0	0	0
Project Trips % of 2024 Buildout Traffic	0%	100%	100%	100%	100%	0%	100%	0%	100%	0%	0%	0%
2024 Buildout Total	0	194	96	32	205	0	104	0	34	0	0	0
Percent Impact (Approach)		100.0%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	Pine Ridge Commercial
Location:	Southern Pines, NC
Scenario:	2024 Build-out Year
Ct. Date	Balanced with Int. #2 (US 15/501 @ Partner Circle)
N/S Street:	Site Driveway #2 (west-center)
E/W Street:	Pine Ridge Parkway

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2021
Growth Factor (Buildout):	0.061208	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	Pine Ridge Parkway Eastbound Left	Through	Right	Pine Ridge Parkway Westbound Left	Through	Right	Site Driveway #2 (west-center) Northbound Left	Through	Right	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic												
Percent Assignment Inbound	0%	20%	20%	15%	5%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	44	43	33	11	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	5%	0%	0%	20%	0%	20%	0%	15%	0%	0%	0%
Outbound Project Traffic	0	8	0	0	33	0	33	0	25	0	0	0
Total Project Traffic	0	52	43	33	44	0	33	0	25	0	0	0
Project Trips % of 2024 Buildout Traffic	0%	100%	100%	100%	100%	0%	100%	0%	100%	0%	0%	0%
2024 Buildout Total	0	52	43	33	44	0	33	0	25	0	0	0
2024 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		100.0%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

PM PEAK HOUR
PM PHF = 0.9

Description	Pine Ridge Parkway Eastbound Left	Through	Right	Pine Ridge Parkway Westbound Left	Through	Right	Site Driveway #2 (west-center) Northbound Left	Through	Right	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	20%	20%	15%	5%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	66	67	50	16	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	5%	0%	0%	20%	0%	20%	0%	15%	0%	0%	0%
Outbound Project Traffic	0	18	0	0	71	0	71	0	53	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	31	46	30	31	0	48	0	24	0	0	0
Total Pass-By Traffic	0	31	46	30	31	0	48	0	24	0	0	0
Total Project Traffic	0	115	113	80	118	0	119	0	77	0	0	0
Project Trips % of 2024 Buildout Traffic	0%	100%	100%	100%	100%	0%	100%	0%	100%	0%	0%	0%
2024 Buildout Total	0	115	113	80	118	0	119	0	77	0	0	0
Percent Impact (Approach)		100.0%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

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Intersection Analysis Sheet

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2024 Build-out Year**
Ct. Date	**Balanced with Int. #2 (US 15/501 @ Partner Circle)**
N/S Street:	**Site Driveway #3 (east-center)**
E/W Street:	**Pine Ridge Parkway**

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	Pine Ridge Parkway Eastbound Left	Through	Right	Pine Ridge Parkway Westbound Left	Through	Right	Site Driveway #3 (east-center) Northbound Left	Through	Right	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic												
Percent Assignment Inbound	0%	10%	10%	15%	20%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	22	22	32	44	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	20%	0%	0%	10%	0%	10%	0%	15%	0%	0%	0%
Outbound Project Traffic	0	33	0	0	16	0	16	0	25	0	0	0
Total Project Traffic	0	55	22	32	60	0	16	0	25	0	0	0
Project Trips % of 2024 Buildout Traffic	0%	100%	100%	100%	100%	0%	100%	0%	100%	0%	0%	0%
2024 Buildout Total	0	55	22	32	60	0	16	0	25	0	0	0
2024 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		100.0%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

PM PEAK HOUR
PM PHF = 0.9

Description	Pine Ridge Parkway Eastbound Left	Through	Right	Pine Ridge Parkway Westbound Left	Through	Right	Site Driveway #3 (east-center) Northbound Left	Through	Right	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	10%	10%	15%	20%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	33	33	50	66	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	20%	0%	0%	10%	0%	10%	0%	15%	0%	0%	0%
Outbound Project Traffic	0	71	0	0	35	0	35	0	53	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	40	15	15	46	0	16	0	24	0	0	0
Total Pass-By Traffic	0	40	15	15	46	0	16	0	24	0	0	0
Total Project Traffic	0	144	48	65	147	0	51	0	77	0	0	0
Project Trips % of 2024 Buildout Traffic	0%	100%	100%	100%	100%	0%	100%	0%	100%	0%	0%	0%
2024 Buildout Total	0	144	48	65	147	0	51	0	77	0	0	0
Percent Impact (Approach)		100.0%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	Pine Ridge Commercial
Location:	Southern Pines, NC
Scenario:	2024 Build-out Year
Ct. Date	Balanced with Int. #2 (US 15/501 @ Partner Circle)
N/S Street:	Site Driveway #4 (east)
E/W Street:	Pine Ridge Parkway

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2021
Growth Factor (Buildout):	0.061208	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	Pine Ridge Parkway Eastbound Left	Through	Right	Pine Ridge Parkway Westbound Left	Through	Right	Site Driveway #4 (east) Northbound Left	Through	Right	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	5%	35%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	22	11	76	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	35%	0%	0%	0%	0%	10%	0%	5%	0%	0%	0%
Outbound Project Traffic	0	57	0	0	0	0	16	0	8	0	0	0
Total Project Traffic	0	57	22	11	76	0	16	0	8	0	0	0
Project Trips % of 2024 Buildout Traffic	0%	100%	100%	100%	100%	0%	100%	0%	100%	0%	0%	0%
2024 Buildout Total	0	57	22	11	76	0	16	0	8	0	0	0
2024 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		100.0%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

PM PEAK HOUR
PM PHF = 0.9

Description	Pine Ridge Parkway Eastbound Left	Through	Right	Pine Ridge Parkway Westbound Left	Through	Right	Site Driveway #4 (east) Northbound Left	Through	Right	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	5%	35%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	33	17	116	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	35%	0%	0%	0%	0%	10%	0%	5%	0%	0%	0%
Outbound Project Traffic	0	124	0	0	0	0	35	0	17	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	64	0	0	61	0	0	0	0	0	0	0
Total Pass-By Traffic	0	64	0	0	61	0	0	0	0	0	0	0
Total Project Traffic	0	188	33	17	177	0	35	0	17	0	0	0
Project Trips % of 2024 Buildout Traffic	0%	100%	100%	100%	100%	0%	100%	0%	100%	0%	0%	0%
2024 Buildout Total	0	188	33	17	177	0	35	0	17	0	0	0
Percent Impact (Approach)		100.0%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Appendix F:
Intersection Spreadsheets –
2031 Build-Out

Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	**February 11, 2020**
N/S Street:	**US 15/501**
E/W Street:	**Brucewood Road/Stein Mart Driveway**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.93

Description	Stein Mart Driveway Eastbound			Brucewood Road Westbound			US 15/501 Northbound			US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2020 Traffic Count	7	3	0	84	7	13	2	894	92	12	930	16
1% Growth to 2021	0	0	0	1	0	0	0	9	1	0	9	0
2021 Existing Traffic	7	3	0	85	7	13	2	903	93	12	939	16
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.061	0.000	0.061	0.000	0.061	0.061	0.061	0.061	0.000
2024 Background Growth	0	0	0	5	0	1	0	55	6	1	57	0
Growth Factor 1.0% per year, Build to 10-year	0.000	0.000	0.000	0.072	0.000	0.072	0.000	0.072	0.072	0.072	0.072	0.000
2031 Background Growth	0	0	0	6	0	1	0	69	7	1	72	0
Committed Projects												
Morganton Park South Master Plan	0	0	0	0	0	0	0	102	0	0	176	0
Pinehurst Medical Morganton Park North	0	0	0	4	0	0	0	0	21	0	0	0
Sandhills Pediatrics	0	0	0	2	0	0	0	0	7	0	0	0
Southern Pines Elementary	0	0	0	12	0	0	0	0	16	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	14	0	0	22	0
Legends Apartments Expansion	0	0	0	11	0	0	0	0	4	0	0	0
Total Committed Traffic	0	0	0	29	0	0	0	116	48	0	198	0
2031 Background Traffic	7	3	0	125	7	15	2	1143	154	14	1266	16
2031 Weighted Background PHF:	0.93	0.93	0.93	0.89	0.93	0.93	0.93	0.93	0.89	0.93	0.93	0.93
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	4	0	0	0	0	0	0	65	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	2%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	49	3	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	4	0	0	0	49	3	0	65	0
Project Trips % of 2031 Buildout Traffic	0%	0%	0%	3%	0%	0%	0%	4%	2%	0%	5%	0%
2031 Buildout Total	7	3	0	129	7	15	2	1192	157	14	1331	16
2031 Weighted Build-out PHF:	0.93	0.93	0.93	0.89	0.93	0.93	0.93	0.93	0.89	0.93	0.93	0.93
Percent Impact (Approach)		0.0%			2.6%			3.8%			4.8%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.97

Description	Stein Mart Driveway Eastbound			Brucewood Road Westbound			US 15/501 Northbound			US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2020 Traffic Count	46	27	31	231	27	65	32	1060	287	78	1139	53
1% Growth to 2021	0	0	0	2	0	1	0	11	3	1	11	1
2021 Existing Traffic	46	27	31	233	27	66	32	1071	290	79	1150	54
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.061	0.000	0.061	0.000	0.061	0.061	0.061	0.061	0.000
2024 Background Growth	0	0	0	14	0	4	0	66	18	5	70	0
Growth Factor 1.0% per year, Build to 10-year	0.000	0.000	0.000	0.072	0.000	0.072	0.000	0.072	0.072	0.072	0.072	0.000
2031 Background Growth	0	0	0	18	0	5	0	82	22	6	88	0
Committed Projects												
Morganton Park South Master Plan	0	0	0	0	0	0	0	139	0	0	113	0
Pinehurst Medical Morganton Park North	0	0	0	20	0	0	0	0	11	0	0	0
Sandhills Pediatrics	0	0	0	9	0	0	0	0	3	0	0	0
Southern Pines Elementary	0	0	0	3	0	0	0	0	3	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	23	0	0	19	0
Legends Apartments Expansion	0	0	0	7	0	0	0	0	11	0	0	0
Total Committed Traffic	0	0	0	39	0	0	0	162	28	0	132	0
2031 Background Traffic	46	27	31	304	27	75	32	1381	358	90	1440	54
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	30%	0%
Inbound Project Traffic	0	0	0	7	0	0	0	0	0	0	100	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	30%	2%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	106	7	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	7	0	0	0	106	7	0	100	0
Project Trips % of 2031 Buildout Traffic	0%	0%	0%	2%	0%	0%	0%	7%	2%	0%	6%	0%
2031 Buildout Total	46	27	31	311	27	75	32	1487	365	90	1540	54
Percent Impact (Approach)		0.0%			1.7%			6.0%			5.9%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	**September 15, 2016**
N/S Street:	**US 15/501**
E/W Street:	**U-Turn north of Partner Circle**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	U-Turn north of Partner Circle Eastbound			U-Turn north of Partner Circle Westbound			US 15/501 Northbound				US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	Left	Through	Right
2016 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0	0
US 15/501 Through Vol. Balancing (from Brucewood)	0	0	0	0	0	0	0	0	988	0	0	1014	0
1% Growth to 2021	0	0	0	0	0	0	0	0	10	0	0	10	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	998	0	0	1024	0
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	61	0	0	63	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	76	0	0	78	0
Committed Projects													
Morganton Park South Master Plan	0	0	0	0	0	0	96	0	102	0	0	176	0
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	21	0	0	4	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	7	0	0	2	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	16	0	0	12	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	14	0	0	22	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	4	0	0	11	0
Total Committed Traffic	0	0	0	0	0	0	96	0	164	0	0	227	0
US 15/501 Superstreet Diversions (2031 only)	0	0	0	0	0	0	5	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	101	0	1299	0	0	1392	0
2031 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	32%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	70	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	28%	0%	32%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	46	0	52	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	46	0	52	0	0	70	0
Project Trips % of 2031 Buildout Traffic	0%	0%	0%	0%	0%	0%	31%	0%	4%	0%	0%	5%	0%
2031 Buildout Total	0	0	0	0	0	0	147	0	1351	0	0	1462	0
2031 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		-			-				6.5%			4.8%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.9

Description	U-Turn north of Partner Circle Eastbound			U-Turn north of Partner Circle Westbound			US 15/501 Northbound				US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	Left	Through	Right
2016 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0	0
US 15/501 Through Vol. Balancing (from Brucewood)	0	0	0	0	0	0	0	0	1379	0	0	1401	0
1% Growth to 2021	0	0	0	0	0	0	0	0	14	0	0	14	0
2021 Existing Traffic	0	0	0	0	0	0	0	0	1393	0	0	1415	0
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	85	0	0	87	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	107	0	0	108	0
Committed Projects													
Morganton Park South Master Plan	0	0	0	0	0	0	162	0	139	0	0	113	0
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	11	0	0	20	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	3	0	0	9	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	3	0	0	3	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	23	0	0	19	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	11	0	0	7	0
Total Committed Traffic	0	0	0	0	0	0	162	0	190	0	0	171	0
US 15/501 Superstreet Diversions (2031 only)	0	0	0	0	0	0	1	0	0	0	0	0	0
2031 Background Traffic	0	0	0	0	0	0	163	0	1775	0	0	1781	0
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	32%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	106	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	28%	0%	32%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	99	0	113	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	0	99	0	113	0	0	106	0
Project Trips % of 2031 Buildout Traffic	0%	0%	0%	0%	0%	0%	38%	0%	6%	0%	0%	6%	0%
2031 Buildout Total	0	0	0	0	0	0	262	0	1888	0	0	1887	0
Percent Impact (Approach)		-			-				9.9%			5.6%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	**September 15, 2016**
N/S Street:	**US 15/501**
E/W Street:	**Partner Circle/Pine Ridge Parkway**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.92

Description	Partner Circle Eastbound Left	Partner Circle Eastbound Through	Partner Circle Eastbound Right	Pine Ridge Parkway Westbound Left	Pine Ridge Parkway Westbound Through	Pine Ridge Parkway Westbound Right	US 15/501 Northbound U-Turn	US 15/501 Northbound Left	US 15/501 Northbound Through	US 15/501 Northbound Right	US 15/501 Southbound Left	US 15/501 Southbound Through	US 15/501 Southbound Right
2016 Traffic Count	4	0	20	5	0	3	0	8	0	6	3	0	12
US 15/501 Through Vol. Balancing (from Brucewood)	0	0	0	0	0	0	0	0	981	0	0	999	0
1% Growth to 2021	0	0	0	0	0	0	0	0	10	0	0	10	0
2021 Existing Traffic	4	0	20	5	0	3	0	8	991	6	3	1009	12
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.000	0.000	0.061	0.000
2024 Background Growth	0	0	0	0	0	0	0	0	61	0	0	62	0
Growth Factor 1.0% per year, Build to 10-year	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072	0.000	0.000	0.072	0.000
2031 Background Growth	0	0	0	0	0	0	0	0	76	0	0	77	0
Committed Projects													
Morganton Park South Master Plan	0	0	0	0	0	198	0	0	0	164	176	96	0
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	21	0	0	4	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	7	0	0	2	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	16	0	0	12	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	14	0	0	22	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	4	0	0	11	0
Total Committed Traffic	0	0	0	0	0	198	0	0	62	164	176	147	0
US 15/501 Superstreet Diversions (2031 only)	-4	0	4	-5	0	5	188	0	4	0	0	5	0
2031 Background Traffic	0	0	24	0	0	206	188	8	1194	170	179	1300	12
2031 Weighted Background PHF:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.92	0.92	0.92
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	32%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	61	70	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%	0%	28%	0%
Outbound Project Traffic	0	0	0	0	0	98	0	0	0	0	0	46	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	98	0	0	0	61	70	46	0
Project Trips % of 2031 Buildout Traffic	#DIV/0!	0%	0%	#DIV/0!	0%	32%	0%	0%	0%	26%	28%	3%	0%
2031 Buildout Total	0	0	24	0	0	304	188	8	1194	231	249	1346	12
2031 Weighted Build-out PHF:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.92	0.92	0.92
Percent Impact (Approach)		0.0%			32.2%				3.8%			7.2%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.96

Description	Partner Circle Eastbound Left	Partner Circle Eastbound Through	Partner Circle Eastbound Right	Pine Ridge Parkway Westbound Left	Pine Ridge Parkway Westbound Through	Pine Ridge Parkway Westbound Right	US 15/501 Northbound U-Turn	US 15/501 Northbound Left	US 15/501 Northbound Through	US 15/501 Northbound Right	US 15/501 Southbound Left	US 15/501 Southbound Through	US 15/501 Southbound Right
2016 Traffic Count	4	0	46	1	0	4	0	56	0	0	0	0	14
US 15/501 Through Vol. Balancing (from Brucewood)	0	0	0	0	0	0	0	0	1371	0	0	1387	0
1% Growth to 2021	0	0	2	0	0	0	0	3	14	0	0	14	1
2021 Existing Traffic	4	0	48	1	0	4	0	59	1385	0	0	1401	15
Growth Factor 2.0% per year to Build-out	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.000	0.000	0.061	0.000
2024 Background Growth	0	0	0	0	0	0	0	0	85	0	0	86	0
Growth Factor 1.0% per year, Build to 10-year	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072	0.000	0.000	0.072	0.000
2031 Background Growth	0	0	0	0	0	0	0	0	106	0	0	107	0
Committed Projects													
Morganton Park South Master Plan	0	0	0	0	0	333	0	0	-33	139	146	94	0
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	11	0	0	20	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	3	0	0	9	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	3	0	0	3	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	23	0	0	19	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	11	0	0	7	0
Total Committed Traffic	0	0	0	0	0	333	0	0	18	139	146	152	0
US 15/501 Superstreet Diversions (2031 only)	-4	0	4	-1	0	1	208	0	4	0	0	1	0
2031 Background Traffic	0	0	52	0	0	338	208	59	1598	139	146	1747	15
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	32%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	93	106	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	60%	0%	0%	0%	0%	0%	28%	0%
Outbound Project Traffic	0	0	0	0	0	212	0	0	0	0	0	99	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	-46	0	0	-46	0
Pass-By Capture Assignment	0	0	0	0	0	97	0	0	0	46	46	48	0
Total Pass-By Traffic	0	0	0	0	0	97	0	0	-46	46	46	2	0
Total Project Traffic	0	0	0	0	0	309	0	0	-46	139	152	101	0
Project Trips % of 2031 Buildout Traffic	#DIV/0!	0%	0%	#DIV/0!	0%	48%	0%	0%	-3%	50%	51%	5%	0%
2031 Buildout Total	0	0	52	0	0	647	208	59	1552	278	298	1848	15
Percent Impact (Approach)		0.0%			47.8%				4.4%			11.7%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	Pine Ridge Commercial
Location:	Southern Pines, NC
Scenario:	2031 Horizon Year
Ct. Date	April 27, 2021
N/S Street:	US 15/501
E/W Street:	Murray Hill Road

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2021
Growth Factor (Buildout):	0.061208	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.92

Description	Murray Hill Road Eastbound Left	Through	Right	Murray Hill Road Westbound Left	Through	Right	US 15/501 Northbound U-Turn	Left	Through	Right	US 15/501 Southbound U-Turn	Left	Through	Right
2021 Traffic Count	23	27	11	48	87	176	0	20	780	44	0	116	746	46
15% COVID-19 Adjustment Factor	3	4	2	7	13	26	0	3	117	7	0	17	112	7
2021 Existing Traffic	26	31	13	55	100	202	0	23	897	51	0	133	858	53
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	2	2	1	3	6	12	0	1	55	3	0	8	53	3
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	2	2	1	4	8	15	0	2	69	4	0	10	66	4
Committed Projects														
Morganton Park South Master Plan	0	0	0	0	0	18	0	0	146	0	0	10	86	0
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	21	0	0	0	4	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	7	0	0	0	2	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	16	0	0	0	12	0
Southern Pines Retail Center	0	0	0	12	0	0	0	0	10	10	0	22	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	4	0	0	0	11	0
Total Committed Traffic	0	0	0	12	0	18	0	0	204	10	0	32	115	0
US 15/501 Superstreet Diversions (2031 only)	-30	-35	65	-74	-114	188	111	0	30	35	4	0	74	114
2031 Background Traffic	0	0	80	0	0	435	111	26	1255	103	4	183	1166	174
2031 Weighted Background PHF:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.92	0.92	0.92	0.92
Project Traffic														
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	0%	25%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	7	0	0	55	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	5	41	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	7	0	0	55	0	0	5	41	0
Project Trips % of 2031 Buildout Traffic	#DIV/0!	#DIV/0!	0%	#DIV/0!	#DIV/0!	2%	0%	0%	4%	0%	0%	3%	3%	0%
2031 Buildout Total	0	0	80	0	0	442	111	26	1310	103	4	188	1207	174
2031 Weighted Build-out PHF:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.92	0.92	0.92	0.92	0.92
Percent Impact (Approach)		0.0%			1.6%			3.5%				2.9%		

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.93

Description	Murray Hill Road Eastbound Left	Through	Right	Murray Hill Road Westbound Left	Through	Right	US 15/501 Northbound U-Turn	Left	Through	Right	US 15/501 Southbound U-Turn	Left	Through	Right
2021 Traffic Count	80	143	34	84	54	253	0	23	1060	97	0	185	961	27
15% COVID-19 Adjustment Factor	12	21	5	13	8	38	0	3	159	15	0	28	144	4
2021 Existing Traffic	92	164	39	97	62	291	0	26	1219	112	0	213	1105	31
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	6	10	2	6	4	18	0	2	75	7	0	13	68	2
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	7	13	3	7	5	22	0	2	93	9	0	16	85	2
Committed Projects														
Morganton Park South Master Plan	0	0	0	0	0	11	0	0	94	0	0	13	116	0
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	11	0	0	0	20	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	3	0	0	0	9	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	3	0	0	0	3	0
Southern Pines Retail Center	0	0	0	27	0	0	0	0	8	8	0	26	-7	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	11	0	0	0	7	0
Total Committed Traffic	0	0	0	27	0	11	0	0	130	8	0	39	148	0
US 15/501 Superstreet Diversions (for 2031 BG only)	-105	-187	292	-137	-71	208	239	0	105	187	0	0	137	71
2031 Background Traffic	0	0	336	0	0	550	239	30	1622	323	0	281	1543	106
Project Traffic														
Percent Assignment Inbound	0%	0%	0%	0%	0%	3%	0%	0%	25%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	10	0	0	83	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	25%	0%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	11	88	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	0	0	0	10	0	0	83	0	0	11	88	0
Project Trips % of 2031 Buildout Traffic	#DIV/0!	#DIV/0!	0%	#DIV/0!	#DIV/0!	2%	0%	0%	5%	0%	0%	4%	5%	0%
2031 Buildout Total	0	0	336	0	0	560	239	30	1705	323	0	292	1631	106
Percent Impact (Approach)		0.0%			1.8%			3.6%				4.9%		

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	**February 11, 2020**
N/S Street:	**Brucewood Road**
E/W Street:	**Morganton Road**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.91

Description	Morganton Road Eastbound Left	Through	Right	Morganton Road Westbound Left	Through	Right	Brucewood Road Northbound Left	Through	Right	Brucewood Road Southbound Left	Through	Right
2020 Traffic Count	19	615	74	71	644	28	50	10	71	40	7	32
1% Growth to 2021	0	6	1	1	6	0	1	0	1	0	0	0
2021 Existing Traffic	19	621	75	72	650	28	51	10	72	40	7	32
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	1	38	5	4	40	2	3	1	4	2	0	2
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	1	48	6	5	50	2	4	1	5	3	1	2
Committed Projects												
Morganton Park South Master Plan	0	22	7	0	11	2	6	5	0	7	5	0
Pinehurst Medical Morganton Park North	65	0	0	2	12	0	0	21	0	14	4	6
Sandhills Pediatrics	21	0	0	0	0	16	0	7	0	5	2	6
Southern Pines Elementary	28	0	0	0	0	119	0	16	0	88	12	21
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	4	0	0	0	0	1	0	4	0	9	11	12
Total Committed Traffic	118	22	7	2	23	138	6	53	0	123	34	45
Morganton Park Elementary School Diversion	0	0	0	0	0	-119	0	0	0	0	0	0
2031 Background Traffic	139	729	93	83	763	51	64	65	81	168	42	81
2031 Weighted Background PHF:	0.83	0.91	0.91	0.91	0.91	(0.05)	0.91	0.81	0.91	0.70	0.79	0.80
Project Traffic												
Percent Assignment Inbound	0%	5%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Inbound Project Traffic	0	11	0	0	0	0	0	0	0	4	0	0
Percent Assignment Outbound	0%	0%	0%	0%	5%	2%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	8	3	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	11	0	0	8	3	0	0	0	4	0	0
Project Trips % of 2031 Buildout Traffic	0%	1%	0%	0%	1%	6%	0%	0%	0%	2%	0%	0%
2031 Buildout Total	139	740	93	83	771	54	64	65	81	172	42	81
2031 Weighted Build-out PHF:	0.83	0.91	0.91	0.91	0.91	2.01	0.91	0.81	0.91	0.70	0.79	0.80
Percent Impact (Approach)		1.1%			1.2%			0.0%			1.4%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.93

Description	Morganton Road Eastbound Left	Through	Right	Morganton Road Westbound Left	Through	Right	Brucewood Road Northbound Left	Through	Right	Brucewood Road Southbound Left	Through	Right
2020 Traffic Count	43	602	146	155	602	62	192	28	211	28	21	31
1% Growth to 2021	0	6	1	2	6	0	2	0	2	0	0	0
2021 Existing Traffic	43	608	147	157	608	62	194	28	213	28	21	31
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	3	37	9	10	37	4	12	2	13	2	1	2
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	3	47	11	12	47	5	15	2	16	2	2	2
Committed Projects												
Morganton Park South Master Plan	0	15	4	0	14	3	8	6	0	4	3	0
Pinehurst Medical Morganton Park North	34	0	0	10	59	0	0	11	0	69	20	29
Sandhills Pediatrics	10	0	0	0	0	8	0	3	0	20	9	26
Southern Pines Elementary	5	0	0	0	0	19	0	3	0	22	3	5
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	13	0	0	0	0	4	0	11	0	6	7	8
Total Committed Traffic	62	15	4	10	73	34	8	34	0	121	42	68
Morganton Park Elementary School Diversion	0	0	0	0	0	-19	0	0	0	0	0	0
2031 Background Traffic	111	707	171	189	765	86	229	66	242	153	66	103
Project Traffic												
Percent Assignment Inbound	0%	5%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Inbound Project Traffic	0	17	0	0	0	0	0	0	0	7	0	0
Percent Assignment Outbound	0%	0%	0%	0%	5%	2%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	18	7	0	0	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	17	0	0	18	7	0	0	0	7	0	0
Project Trips % of 2031 Buildout Traffic	0%	2%	0%	0%	2%	8%	0%	0%	0%	4%	0%	0%
2031 Buildout Total	111	724	171	189	783	93	229	66	242	160	66	103
Percent Impact (Approach)		1.7%			2.3%			0.0%			2.1%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	**Turns from 3/2018 at Henley; thrus balanced with Brucewood**
N/S Street:	**S. Stephens Street Extension/Pine Ridge Parkway**
E/W Street:	**Morganton Road**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.91

Description	Morganton Road Eastbound			Morganton Road Westbound			Pine Ridge Parkway Northbound			S. Stephens Street Extension Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2018 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	726	0	0	743	0	0	0	0	0	0	0
1% Growth to 2021	0	7	0	0	7	0	0	0	0	0	0	0
2021 Existing Traffic	0	733	0	0	750	0	0	0	0	0	0	0
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	45	0	0	46	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	56	0	0	57	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	0	0	26	146	0	0	14	17	86	0	30	0
Pinehurst Medical Morganton Park North	0	14	0	0	51	0	0	0	0	0	0	0
Sandhills Pediatrics	0	5	0	0	16	0	0	0	0	0	0	0
Southern Pines Elementary	0	88	0	0	119	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	9	0	0	3	0	0	0	0	0	0	0
Total Committed Traffic	0	116	26	146	189	0	14	17	86	0	30	0
S. Henley Street Traffic Diversion	31	-31	0	0	-37	19	0	0	0	11	0	37
2031 Background Traffic	31	919	26	146	1005	19	14	17	86	11	30	37
2031 Weighted Background PHF:	0.91	0.87	0.91	0.91	0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Project Traffic												
Percent Assignment Inbound	0%	0%	7%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	15	55	0	0	0	0	0	0	11	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	7%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	11	8	41	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	15	55	0	0	11	8	41	0	11	0
Project Trips % of 2031 Buildout Traffic	0%	0%	37%	27%	0%	0%	44%	32%	32%	0%	27%	0%
2031 Buildout Total	31	919	41	201	1005	19	25	25	127	11	41	37
2031 Weighted Build-out PHF:	0.91	0.87	0.91	0.91	0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Impact (Approach)		1.5%			4.5%			33.9%			12.4%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.9

Description	Morganton Road Eastbound			Morganton Road Westbound			Pine Ridge Parkway Northbound			S. Stephens Street Extension Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2018 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	841	0	0	819	0	0	0	0	0	0	0
1% Growth to 2021	0	8	0	0	8	0	0	0	0	0	0	0
2021 Existing Traffic	0	849	0	0	827	0	0	0	0	0	0	0
Growth Factor 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	52	0	0	51	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	65	0	0	63	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	0	-54	70	148	-54	0	78	23	173	0	19	0
Pinehurst Medical Morganton Park North	0	69	0	0	26	0	0	0	0	0	0	0
Sandhills Pediatrics	0	20	0	0	8	0	0	0	0	0	0	0
Southern Pines Elementary	0	22	0	0	19	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	6	0	0	9	0	0	0	0	0	0	0
Total Committed Traffic	0	63	70	148	8	0	78	23	173	0	19	0
S. Henley Street Traffic Diversion	61	-61	0	0	-34	38	0	0	0	25	0	34
2031 Background Traffic	61	968	70	148	915	38	78	23	173	25	19	34
Project Traffic												
Percent Assignment Inbound	0%	0%	7%	25%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	23	83	0	0	0	0	0	0	17	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	7%	5%	25%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	25	18	88	0	0	0
Pass-By Capture Reduction	0	-30	0	0	-30	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	30	30	0	0	32	0	32	0	0	0
Total Pass-By Traffic	0	-30	30	30	-30	0	32	0	32	0	0	0
Total Project Traffic	0	-30	53	113	-30	0	57	18	120	0	17	0
Project Trips % of 2031 Buildout Traffic	0%	-3%	43%	43%	-3%	0%	42%	44%	41%	0%	47%	0%
2031 Buildout Total	61	938	123	261	885	38	135	41	293	25	36	34
Percent Impact (Approach)		2.0%			7.0%			41.6%			17.9%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	**Balanced with Int. #2 (US 15/501 @ Partner Circle)**
N/S Street:	**Site Driveway #1 (west)**
E/W Street:	**Pine Ridge Parkway**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #1 (west) Northbound			Southbound		
	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	0	424	0	0	248	0	0	0	0	0	0	0
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	424	0	0	248	0	0	0	0	0	0	0
2031 Background Traffic	0	424	0	0	248	0	0	0	0	0	0	0
2031 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic												
Percent Assignment Inbound	0%	40%	20%	5%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	87	44	11	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	40%	0%	20%	0%	5%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	66	0	33	0	8	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	87	44	11	66	0	33	0	8	0	0	0
Project Trips % of 2031 Buildout Traffic	0%	17%	100%	100%	21%	0%	100%	0%	100%	0%	0%	0%
2031 Buildout Total	0	511	44	11	314	0	33	0	8	0	0	0
2031 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		23.6%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.9

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #1 (west) Northbound			Southbound		
	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	0	406	0	0	476	0	0	0	0	0	0	0
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	0	406	0	0	476	0	0	0	0	0	0	0
2031 Background Traffic	0	406	0	0	476	0	0	0	0	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	40%	20%	5%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	133	66	17	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	40%	0%	20%	0%	5%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	141	0	71	0	18	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	61	30	15	64	0	32	0	16	0	0	0
Total Pass-By Traffic	0	61	30	15	64	0	32	0	16	0	0	0
Total Project Traffic	0	194	96	32	205	0	103	0	34	0	0	0
Project Trips % of 2031 Buildout Traffic	0%	32%	100%	100%	30%	0%	100%	0%	100%	0%	0%	0%
2031 Buildout Total	0	600	96	32	681	0	103	0	34	0	0	0
Percent Impact (Approach)		41.7%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	**Balanced with Int. #2 (US 15/501 @ Partner Circle)**
N/S Street:	**Site Driveway #2 (west-center)**
E/W Street:	**Pine Ridge Parkway**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #2 (west-center) Northbound			Phase 5 West Driveway Southbound		
	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	32	393	0	0	227	40	0	0	0	27	0	21
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	32	393	0	0	227	40	0	0	0	27	0	21
2031 Background Traffic	32	393	0	0	227	40	0	0	0	27	0	21
2031 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic												
Percent Assignment Inbound	0%	20%	20%	15%	5%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	44	44	33	11	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	5%	0%	0%	20%	0%	20%	0%	15%	0%	0%	0%
Outbound Project Traffic	0	8	0	0	33	0	33	0	25	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	52	44	33	44	0	33	0	25	0	0	0
Project Trips % of 2031 Buildout Traffic	0%	12%	100%	100%	16%	0%	100%	0%	100%	0%	0%	0%
2031 Buildout Total	32	445	44	33	271	40	33	0	25	27	0	21
2031 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		18.4%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.9

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #2 (west-center) Northbound			Phase 5 West Driveway Southbound		
	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	43	364	0	0	430	50	0	0	0	54	0	47
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	43	364	0	0	430	50	0	0	0	54	0	47
2031 Background Traffic	43	364	0	0	430	50	0	0	0	54	0	47
Project Traffic												
Percent Assignment Inbound	0%	20%	20%	15%	5%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	66	66	50	17	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	5%	0%	0%	20%	0%	20%	0%	15%	0%	0%	0%
Outbound Project Traffic	0	18	0	0	71	0	71	0	53	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	31	46	30	31	0	48	0	24	0	0	0
Total Pass-By Traffic	0	31	46	30	31	0	48	0	24	0	0	0
Total Project Traffic	0	115	112	80	119	0	119	0	77	0	0	0
Project Trips % of 2031 Buildout Traffic	0%	24%	100%	100%	22%	0%	100%	0%	100%	0%	0%	0%
2031 Buildout Total	43	479	112	80	549	50	119	0	77	54	0	47
Percent Impact (Approach)		35.8%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	**Balanced with Int. #2 (US 15/501 @ Partner Circle)**
N/S Street:	**Site Driveway #3 (east-center)**
E/W Street:	**Pine Ridge Parkway**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #3 (east-center) Northbound			Phase 5 East Driveway Southbound		
	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	120	300	0	0	187	40	0	0	0	27	0	80
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	120	300	0	0	187	40	0	0	0	27	0	80
2031 Background Traffic	120	300	0	0	187	40	0	0	0	27	0	80
2031 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic												
Percent Assignment Inbound	0%	10%	10%	15%	20%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	22	22	33	44	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	20%	0%	0%	10%	0%	10%	0%	15%	0%	0%	0%
Outbound Project Traffic	0	33	0	0	16	0	16	0	25	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	55	22	33	60	0	16	0	25	0	0	0
Project Trips % of 2031 Buildout Traffic	0%	15%	100%	100%	24%	0%	100%	0%	100%	0%	0%	0%
2031 Buildout Total	120	355	22	33	247	40	16	0	25	27	0	80
2031 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		15.5%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.9

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #3 (east-center) Northbound			Phase 5 East Driveway Southbound		
	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	157	261	0	0	309	73	0	0	0	79	0	170
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	157	261	0	0	309	73	0	0	0	79	0	170
2031 Background Traffic	157	261	0	0	309	73	0	0	0	79	0	170
Project Traffic												
Percent Assignment Inbound	0%	10%	10%	15%	20%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	33	33	50	66	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	20%	0%	0%	10%	0%	10%	0%	15%	0%	0%	0%
Outbound Project Traffic	0	71	0	0	35	0	35	0	53	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	40	15	15	46	0	16	0	24	0	0	0
Total Pass-By Traffic	0	40	15	15	46	0	16	0	24	0	0	0
Total Project Traffic	0	144	48	65	147	0	51	0	77	0	0	0
Project Trips % of 2031 Buildout Traffic	0%	36%	100%	100%	32%	0%	100%	0%	100%	0%	0%	0%
2031 Buildout Total	157	405	48	65	456	73	51	0	77	79	0	170
Percent Impact (Approach)		31.5%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	**Balanced with Int. #2 (US 15/501 @ Partner Circle)**
N/S Street:	**Site Driveway #4 (east)**
E/W Street:	**Pine Ridge Parkway**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #4 (east) Northbound			Phase 7 Driveway Southbound		
	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	60	251	16	0	178	20	9	0	0	13	0	40
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	60	251	16	0	178	20	9	0	0	13	0	40
2031 Background Traffic	60	251	16	0	178	20	9	0	0	13	0	40
2031 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	5%	35%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	22	11	76	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	35%	0%	0%	0%	0%	10%	0%	5%	0%	0%	0%
Outbound Project Traffic	0	57	0	0	0	0	16	0	8	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	57	22	11	76	0	16	0	8	0	0	0
Project Trips % of 2031 Buildout Traffic	0%	19%	58%	100%	30%	0%	64%	0%	100%	0%	0%	0%
2031 Buildout Total	60	308	38	11	254	20	25	0	8	13	0	40
2031 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		19.5%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.9

Description	Pine Ridge Parkway Eastbound			Pine Ridge Parkway Westbound			Site Driveway #4 (east) Northbound			Phase 7 Driveway Southbound		
	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	75	256	8	0	292	25	11	0	0	27	0	81
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	75	256	8	0	292	25	11	0	0	27	0	81
2031 Background Traffic	75	256	8	0	292	25	11	0	0	27	0	81
Project Traffic												
Percent Assignment Inbound	0%	0%	10%	5%	35%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	33	17	116	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	35%	0%	0%	0%	0%	10%	0%	5%	0%	0%	0%
Outbound Project Traffic	0	124	0	0	0	0	35	0	18	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	64	0	0	61	0	0	0	0	0	0	0
Total Pass-By Traffic	0	64	0	0	61	0	0	0	0	0	0	0
Total Project Traffic	0	188	33	17	177	0	35	0	18	0	0	0
Project Trips % of 2031 Buildout Traffic	0%	42%	80%	100%	38%	0%	76%	0%	100%	0%	0%	0%
2031 Buildout Total	75	444	41	17	469	25	46	0	18	27	0	81
Percent Impact (Approach)		39.5%			#VALUE!			#VALUE!			#VALUE!	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	218	164	332	353
Pass-By Trips:	0	0	152	161

Project:	**Pine Ridge Commercial**
Location:	**Southern Pines, NC**
Scenario:	**2031 Horizon Year**
Ct. Date	
N/S Street:	**Pine Ridge Parkway**
E/W Street:	**Old Morganton Road Extension**

Annual Growth Rate (Buildout):	2.0%	**Existing Year:**	2021
Growth Factor (Buildout):	0.061208	**Buildout Year:**	2024
Annual Growth Rate (10 Year Projection):	1.0%	**10 Year Projection:**	2031
Growth Factor (10 Year Projection):	0.072135		

AM PEAK HOUR
AM PHF = 0.9

Description	Old Morganton Road Extension Eastbound			Old Morganton Road Extension Westbound			Pine Ridge Parkway Northbound			Pine Ridge Parkway Southbound		
	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
1% Growth to 2021	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	18	6	25	7	3	3	42	162	13	6	152	33
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	18	6	25	7	3	3	42	162	13	6	152	33
2031 Background Traffic	18	6	25	7	3	3	42	162	13	6	152	33
2031 Weighted Background PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Project Traffic												
Percent Assignment Inbound	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	37%	0%
Inbound Project Traffic	0	0	7	0	0	0	0	0	0	0	81	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	3%	37%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	5	61	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	0	0	0	0	0
Total Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	7	0	0	0	5	61	0	0	81	0
Project Trips % of 2031 Buildout Traffic	0%	0%	22%	0%	0%	0%	11%	27%	0%	0%	35%	0%
2031 Buildout Total	18	6	32	7	3	3	47	223	13	6	233	33
2031 Weighted Build-out PHF:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Impact (Approach)		12.5%			0.0%			23.3%			29.8%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

PM PEAK HOUR
PM PHF = 0.9

Description	Old Morganton Road Extension Eastbound			Old Morganton Road Extension Westbound			Pine Ridge Parkway Northbound			Pine Ridge Parkway Southbound		
	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
1% Growth to 2021	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 2.0% per year to Build-out	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061	0.061
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
2031 Background Growth	0	0	0	0	0	0	0	0	0	0	0	0
Committed Projects												
Morganton Park South Master Plan	50	3	37	8	3	17	28	181	6	15	188	41
Pinehurst Medical Morganton Park North	0	0	0	0	0	0	0	0	0	0	0	0
Sandhills Pediatrics	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Elementary	0	0	0	0	0	0	0	0	0	0	0	0
Southern Pines Retail Center	0	0	0	0	0	0	0	0	0	0	0	0
Legends Apartments Expansion	0	0	0	0	0	0	0	0	0	0	0	0
Total Committed Traffic	50	3	37	8	3	17	28	181	6	15	188	41
2031 Background Traffic	50	3	37	8	3	17	28	181	6	15	188	41
Project Traffic												
Percent Assignment Inbound	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	37%	0%
Inbound Project Traffic	0	0	10	0	0	0	0	0	0	0	123	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	3%	37%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	11	131	0	0	0	0
Pass-By Capture Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	0	0	0	0	0	64	0	0	61	0
Total Pass-By Traffic	0	0	0	0	0	0	0	64	0	0	61	0
Total Project Traffic	0	0	10	0	0	0	11	195	0	0	184	0
Project Trips % of 2031 Buildout Traffic	0%	0%	21%	0%	0%	0%	28%	52%	0%	0%	49%	0%
2031 Buildout Total	50	3	47	8	3	17	39	376	6	15	372	41
Percent Impact (Approach)		10.0%			0.0%			48.9%			43.0%	

Overall Percent Impact (2024)

Overall Percent Impact (2031)

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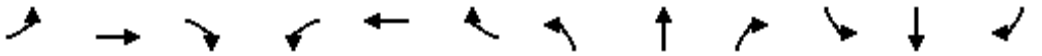
Appendix G:
Synchro Output:
Existing (2021)



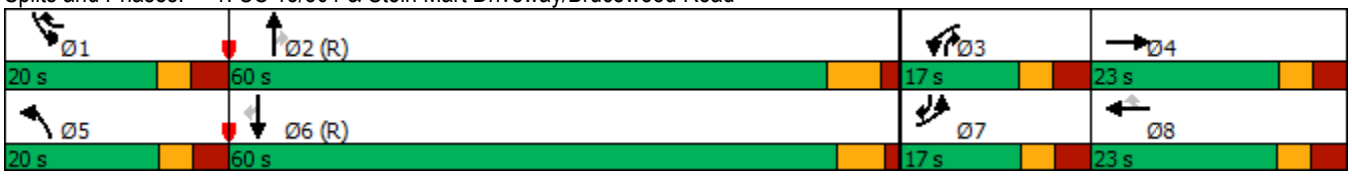
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	4	85	7	13	4	903	93	12	939	16
Future Volume (vph)	7	4	4	85	7	13	4	903	93	12	939	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-4%			4%	
Storage Length (ft)	0		0	150		100	550		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	25			50			100			150		
Satd. Flow (prot)	2918	1465	0	3416	1853	1575	1787	3575	1599	3364	3468	1552
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2918	1465	0	3416	1853	1575	1787	3575	1599	3364	3468	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				91			100			89
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		250			294			1296			1924	
Travel Time (s)		8.5			5.7			19.6			29.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	20%	20%	20%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	8	0	91	8	14	4	971	100	13	1010	17
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)		36			36			22			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.01	1.01	1.01	0.97	0.97	0.97	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	15.0	20.0	15.0	15.0	19.0	15.0
Total Split (s)	17.0	23.0		17.0	23.0	20.0	20.0	60.0	17.0	20.0	60.0	17.0
Total Split (%)	14.2%	19.2%		14.2%	19.2%	16.7%	16.7%	50.0%	14.2%	16.7%	50.0%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.9	3.0	3.0	4.2	3.0

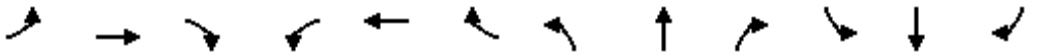
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	3.3	3.3		3.4	3.4	3.4	3.2	1.7	3.4	3.4	1.5	3.3
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.4	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	8.5	8.3		8.9	8.8	16.8	8.2	90.4	106.3	8.4	95.8	111.2
Actuated g/C Ratio	0.07	0.07		0.07	0.07	0.14	0.07	0.75	0.89	0.07	0.80	0.93
v/c Ratio	0.04	0.08		0.36	0.06	0.05	0.03	0.36	0.07	0.06	0.36	0.01
Control Delay	52.4	41.9		56.8	52.3	0.3	68.2	4.2	0.1	52.8	5.4	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	41.9		56.8	52.3	0.3	68.2	4.2	0.1	52.8	5.4	0.0
LOS	D	D		E	D	A	E	A	A	D	A	A
Approach Delay		47.1			49.5			4.1			5.9	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	3	3		35	6	0	3	70	0	5	64	0
Queue Length 95th (ft)	11	19		61	22	0	m6	m83	m0	15	262	0
Internal Link Dist (ft)		170			214			1216			1844	
Turn Bay Length (ft)				150		100	550		200	300		100
Base Capacity (vph)	291	223		341	277	380	223	2692	1441	420	2768	1463
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04		0.27	0.03	0.04	0.02	0.36	0.07	0.03	0.36	0.01

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 49 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 7.5 Intersection LOS: A
Intersection Capacity Utilization 49.1% ICU Level of Service A
Analysis Period (min) 15
Description: Signal No. 08-0775
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 15/501 & Stein Mart Driveway/Brucewood Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	20	5	4	4	8	991	6	4	1009	12
Future Volume (vph)	4	4	20	5	4	4	8	991	6	4	1009	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			4%	
Storage Length (ft)	200		0	0		0	50		0	50		175
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	50			25			100			100		
Satd. Flow (prot)	1770	1863	1583	0	1751	0	1805	3606	0	1734	3468	1552
Flt Permitted	0.950				0.981		0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	0	1751	0	1805	3606	0	1734	3468	1552
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		503			325			929			1296	
Travel Time (s)		11.4			7.4			14.1			19.6	
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)	4	4	22	0	13	0	9	1084	0	4	1097	13
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)		24			12			12			12	
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	0.97	0.97	0.97	1.03	1.03	1.03
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 44.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	20	5	4	4	8	991	6	4	1009	12
Future Vol, veh/h	4	4	20	5	4	4	8	991	6	4	1009	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	0	-	-	-	50	-	-	50	-	175
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-4	-	-	4	-
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	22	5	4	4	9	1077	7	4	1097	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1664	2207	549	1658	2217	542	1110	0	0	1084	0	0
Stage 1	1105	1105	-	1099	1099	-	-	-	-	-	-	-
Stage 2	559	1102	-	559	1118	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	63	44	480	64	43	485	625	-	-	639	-	-
Stage 1	225	285	-	227	287	-	-	-	-	-	-	-
Stage 2	481	286	-	481	281	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	57	43	480	55	42	485	625	-	-	639	-	-
Mov Cap-2 Maneuver	57	43	-	55	42	-	-	-	-	-	-	-
Stage 1	222	283	-	224	283	-	-	-	-	-	-	-
Stage 2	463	282	-	449	279	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	33.7	72.6	0.1	0
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	625	-	-	57	43	480	67	639	-	-
HCM Lane V/C Ratio	0.014	-	-	0.076	0.101	0.045	0.211	0.007	-	-
HCM Control Delay (s)	10.8	-	-	73.3	97.9	12.9	72.6	10.7	-	-
HCM Lane LOS	B	-	-	F	F	B	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.3	0.1	0.7	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	31	13	55	100	202	23	897	51	133	858	53
Future Volume (vph)	26	31	13	55	100	202	23	897	51	133	858	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1783	0	0	1724	0	1770	3511	0	1770	3507	0
Flt Permitted		0.581			0.940		0.950			0.950		
Satd. Flow (perm)	0	1055	0	0	1634	0	1770	3511	0	1770	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			49			7			8	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		978			1140			936			929	
Travel Time (s)		19.1			22.2			14.2			14.1	
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	76	0	0	389	0	25	1030	0	145	991	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			12			12	
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	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	55		20	55		60	306		60	306	
Trailing Detector (ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Position(ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Size(ft)	20	60		20	60		60	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	5.0		0.0	5.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	65.0		25.0	70.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		16.7%	54.2%		20.8%	58.3%	
Yellow Time (s)	3.8	3.8		4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.9	1.9		1.8	1.8		2.6	1.0		2.8	1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-0.7			-0.8		-0.6	-0.5		-0.8	-0.5	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		25.0			25.0		12.0	66.0		14.0	73.0	
Actuated g/C Ratio		0.21			0.21		0.10	0.55		0.12	0.61	
v/c Ratio		0.34			1.03		0.14	0.53		0.70	0.46	
Control Delay		40.4			94.3		49.3	18.9		65.0	15.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		40.4			94.3		49.3	18.9		65.0	15.7	
LOS		D			F		D	B		E	B	
Approach Delay		40.4			94.3			19.7			22.0	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)		44			~289		17	253		111	225	
Queue Length 95th (ft)		93			#488		45	350		173	402	
Internal Link Dist (ft)		898			1060			856			849	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		226			379		221	1933		295	2136	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.34			1.03		0.11	0.53		0.49	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 3 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 32.2 Intersection LOS: C
Intersection Capacity Utilization 68.6% ICU Level of Service C
Analysis Period (min) 15
Description: Signal No. 08-0468

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: US 15/501 & Murray Hill Road

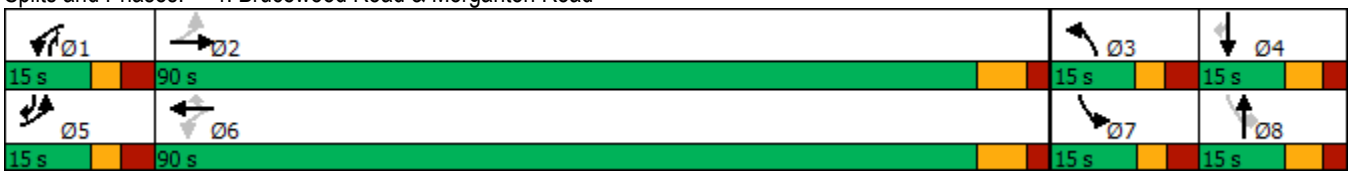


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	621	75	72	650	28	51	10	72	40	7	32
Future Volume (vph)	19	621	75	72	650	28	51	10	72	40	7	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3390	0	1796	3592	1607	3382	1835	1560	1734	1825	1552
Flt Permitted	0.358			0.276			0.950					
Satd. Flow (perm)	650	3390	0	522	3592	1607	3359	1835	1560	1825	1825	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				131			86			86
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1002			1186			672			676	
Travel Time (s)		15.2			18.0			13.1			13.2	
Confl. Peds. (#/hr)			2	2			1					1
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
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	764	0	79	714	31	56	11	79	44	8	35
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)		18			18			28			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.97	0.97	0.97	1.02	1.02	1.02	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	15.0	90.0		15.0	90.0	90.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	11.1%	66.7%		11.1%	66.7%	66.7%	11.1%	11.1%	11.1%	11.1%	11.1%	11.1%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	None
Act Effct Green (s)	33.1	27.9		34.5	33.1	32.6	9.1	9.1	13.7	10.3	9.2	10.3
Actuated g/C Ratio	0.65	0.54		0.67	0.65	0.64	0.18	0.18	0.27	0.20	0.18	0.20
v/c Ratio	0.03	0.41		0.14	0.31	0.03	0.09	0.03	0.16	0.12	0.02	0.09
Control Delay	5.4	12.0		5.4	10.6	0.0	24.6	25.9	6.1	20.8	25.9	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	12.0		5.4	10.6	0.0	24.6	25.9	6.1	20.8	25.9	0.6
LOS	A	B		A	B	A	C	C	A	C	C	A
Approach Delay		11.9			9.7			14.7			13.1	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)	2	90		7	84	0	7	3	0	12	2	0
Queue Length 95th (ft)	12	192		32	176	0	28	19	26	38	16	2
Internal Link Dist (ft)		922			1106			592			596	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	664	3390		631	3592	1607	719	390	528	412	388	430
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.23		0.13	0.20	0.02	0.08	0.03	0.15	0.11	0.02	0.08

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 51.2			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 47.7%		ICU Level of Service A	
Analysis Period (min) 15			
Description: Signal No. 08-0743			

Splits and Phases: 4: Brucewood Road & Morganton Road



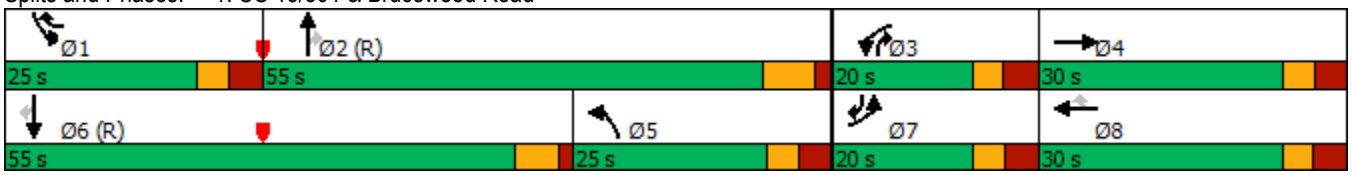
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	27	31	233	27	66	32	1071	290	79	1150	54
Future Volume (vph)	46	27	31	233	27	66	32	1071	290	79	1150	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-4%			4%	
Storage Length (ft)	0		0	150		100	550		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	25			50			100			150		
Satd. Flow (prot)	3433	1714	0	3416	1853	1575	1805	3610	1615	3364	3468	1552
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1714	0	3416	1853	1575	1805	3610	1615	3364	3468	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				132			278			84
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		250			294			1296			1924	
Travel Time (s)		8.5			5.7			19.6			29.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	60	0	240	28	68	33	1104	299	81	1186	56
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)		36			36			22			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.01	1.01	1.01	0.97	0.97	0.97	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	15.0	20.0	15.0	15.0	19.0	15.0
Total Split (s)	20.0	30.0		20.0	30.0	25.0	25.0	55.0	20.0	25.0	55.0	20.0
Total Split (%)	15.4%	23.1%		15.4%	23.1%	19.2%	19.2%	42.3%	15.4%	19.2%	42.3%	15.4%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.9	3.0	3.0	4.2	3.0
All-Red Time (s)	3.3	3.3		3.4	3.4	3.4	3.2	1.7	3.4	3.4	1.5	3.3

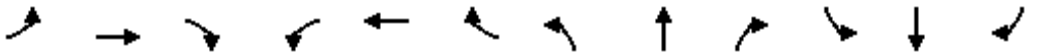
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.4	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	11.8	8.9		13.2	13.0	24.2	15.3	81.7	99.9	8.9	80.6	95.3
Actuated g/C Ratio	0.09	0.07		0.10	0.10	0.19	0.12	0.63	0.77	0.07	0.62	0.73
v/c Ratio	0.15	0.41		0.69	0.15	0.17	0.16	0.49	0.23	0.35	0.55	0.05
Control Delay	57.3	39.9		67.0	53.6	0.9	42.6	12.1	0.2	62.1	19.3	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	39.9		67.0	53.6	0.9	42.6	12.1	0.2	62.1	19.3	0.6
LOS	E	D		E	D	A	D	B	A	E	B	A
Approach Delay		47.5			52.5			10.3			21.1	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	19	23		101	22	0	19	142	0	34	370	0
Queue Length 95th (ft)	40	68		145	51	0	m23	m196	m0	60	475	4
Internal Link Dist (ft)		170			214			1216			1844	
Turn Bay Length (ft)				150		100	550		200	300		100
Base Capacity (vph)	452	355		394	356	524	277	2268	1323	517	2149	1221
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.17		0.61	0.08	0.13	0.12	0.49	0.23	0.16	0.55	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 15 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 20.4		Intersection LOS: C	
Intersection Capacity Utilization 55.5%		ICU Level of Service B	
Analysis Period (min) 15			
Description: Signal No. 08-0775			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 15/501 & Brucewood Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	48	4	4	4	59	1385	4	4	1401	15
Future Volume (vph)	4	4	48	4	4	4	59	1385	4	4	1401	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			4%	
Storage Length (ft)	200		0	0		0	50		0	50		175
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	50			25			100			100		
Satd. Flow (prot)	1770	1863	1583	0	1750	0	1805	3610	0	1734	3468	1552
Flt Permitted	0.950				0.984		0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	0	1750	0	1805	3610	0	1734	3468	1552
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		503			325			929			1296	
Travel Time (s)		11.4			7.4			14.1			19.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	4	50	0	12	0	61	1447	0	4	1459	16
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)		24			12			12			12	
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	0.97	0.97	0.97	1.03	1.03	1.03
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 56.2%		ICU Level of Service B	
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	48	4	4	4	59	1385	4	4	1401	15
Future Vol, veh/h	4	4	48	4	4	4	59	1385	4	4	1401	15
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	200	-	0	-	-	-	50	-	-	50	-	175
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-4	-	-	4	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	4	50	4	4	4	61	1443	4	4	1459	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2313	3036	730	2307	3050	724	1475	0	0	1447	0	0
Stage 1	1467	1467	-	1567	1567	-	-	-	-	-	-	-
Stage 2	846	1569	-	740	1483	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	20	13	365	21	12	368	453	-	-	464	-	-
Stage 1	134	190	-	116	170	-	-	-	-	-	-	-
Stage 2	323	170	-	375	187	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	12	11	365	11	10	368	453	-	-	464	-	-
Mov Cap-2 Maneuver	12	11	-	11	10	-	-	-	-	-	-	-
Stage 1	116	188	-	100	147	-	-	-	-	-	-	-
Stage 2	269	147	-	314	185	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	77.4	$ 509.8	0.6	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	453	-	-	12	11	365	15	464	-	-
HCM Lane V/C Ratio	0.136	-	-	0.347	0.379	0.137	0.833	0.009	-	-
HCM Control Delay (s)	14.2	-	-	-$ 419.7	$ 466.9	16.4	$ 509.8	12.8	-	-
HCM Lane LOS	B	-	-	F	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.9	0.9	0.5	2	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	164	39	97	62	291	26	1219	112	213	1105	31
Future Volume (vph)	92	164	39	97	62	291	26	1219	112	213	1105	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1802	0	0	1699	0	1770	3493	0	1770	3525	0
Flt Permitted		0.479			0.727		0.950			0.950		
Satd. Flow (perm)	0	876	0	0	1249	0	1770	3493	0	1770	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			64			11			3	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		978			1140			936			929	
Travel Time (s)		19.1			22.2			14.2			14.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	0	0	484	0	28	1431	0	229	1221	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			12			12	
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	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	55		20	55		60	306		60	306	
Trailing Detector (ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Position(ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Size(ft)	20	60		20	60		60	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	5.0		0.0	5.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	32.0	32.0		32.0	32.0		23.0	72.0		26.0	75.0	
Total Split (%)	24.6%	24.6%		24.6%	24.6%		17.7%	55.4%		20.0%	57.7%	
Yellow Time (s)	3.8	3.8		4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.9	1.9		1.8	1.8		2.6	1.0		2.8	1.0	

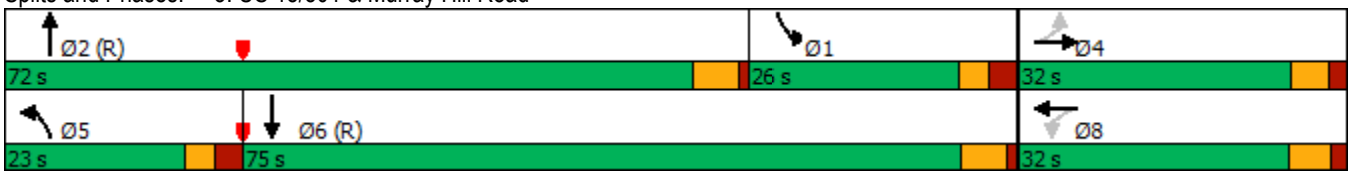
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-0.7			-0.8		-0.6	-0.5		-0.8	-0.5	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		27.0			27.0		7.8	67.0		21.0	85.2	
Actuated g/C Ratio		0.21			0.21		0.06	0.52		0.16	0.66	
v/c Ratio		1.71			1.56		0.26	0.79		0.80	0.53	
Control Delay		374.6			298.4		64.7	29.7		72.2	10.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		374.6			298.4		64.7	29.7		72.2	10.4	
LOS		F			F		E	C		E	B	
Approach Delay		374.6			298.4			30.4			20.2	
Approach LOS		F			F			C			C	
Queue Length 50th (ft)		~392			~535		23	501		206	382	
Queue Length 95th (ft)		#583			#754		56	597		#329	284	
Internal Link Dist (ft)		898			1060			856			849	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		185			310		245	1805		285	2311	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		1.71			1.56		0.11	0.79		0.80	0.53	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 19 (15%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.71
Intersection Signal Delay: 90.8 Intersection LOS: F
Intersection Capacity Utilization 93.0% ICU Level of Service F
Analysis Period (min) 15
Description: Signal No. 08-0468

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: US 15/501 & Murray Hill Road

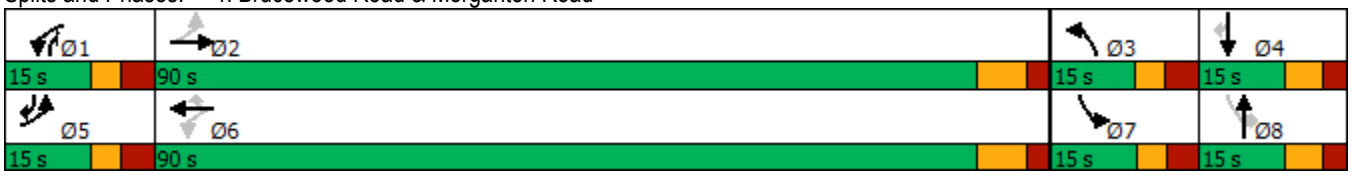


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	608	147	157	608	62	194	28	213	28	21	31
Future Volume (vph)	43	608	147	157	608	62	194	28	213	28	21	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3351	0	1814	3628	1623	3382	1835	1560	1734	1825	1552
Flt Permitted	0.403			0.204			0.950			0.738		
Satd. Flow (perm)	731	3351	0	389	3628	1586	3382	1835	1560	1347	1825	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42				131			229			86
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1002			1186			672			676	
Travel Time (s)		15.2			18.0			13.1			13.2	
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	812	0	169	654	67	209	30	229	30	23	33
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)		18			18			28			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.97	0.97	0.97	1.02	1.02	1.02	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	15.0	90.0		15.0	90.0	90.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	11.1%	66.7%		11.1%	66.7%	66.7%	11.1%	11.1%	11.1%	11.1%	11.1%	11.1%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min		None	Min	Min	None	None	None	None	None	None
Act Effct Green (s)	32.9	24.1		36.8	31.6	30.6	9.8	9.9	24.5	12.6	8.8	13.1
Actuated g/C Ratio	0.52	0.38		0.58	0.50	0.48	0.15	0.16	0.39	0.20	0.14	0.21
v/c Ratio	0.09	0.62		0.39	0.36	0.08	0.40	0.11	0.31	0.09	0.09	0.09
Control Delay	7.1	18.2		9.3	13.2	0.5	29.9	29.4	4.4	21.0	31.1	0.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	18.2		9.3	13.2	0.5	29.9	29.4	4.4	21.0	31.1	0.4
LOS	A	B		A	B	A	C	C	A	C	C	A
Approach Delay		17.6			11.5			17.4			15.8	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	5	104		18	80	0	34	9	0	9	7	0
Queue Length 95th (ft)	22	214		63	163	3	84	38	47	30	32	0
Internal Link Dist (ft)		922			1106			592			596	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	561	3351		461	3628	1586	556	302	764	354	300	427
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.24		0.37	0.18	0.04	0.38	0.10	0.30	0.08	0.08	0.08

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 63.4			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 15.1		Intersection LOS: B	
Intersection Capacity Utilization 54.9%		ICU Level of Service A	
Analysis Period (min) 15			
Description: Signal No. 08-0743			

Splits and Phases: 4: Brucewood Road & Morganton Road



Appendix H:
Synchro Output:
2024 Background

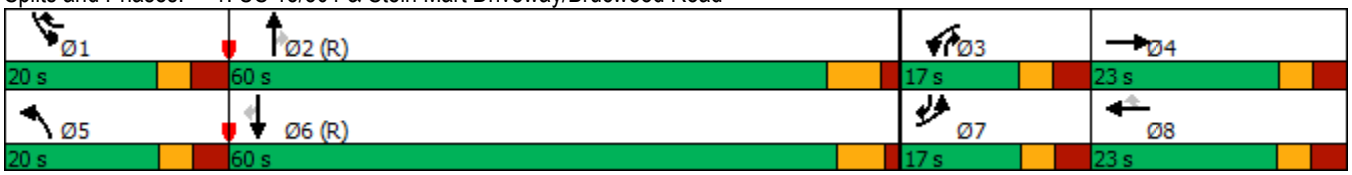
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	4	119	7	14	4	972	147	13	1018	16
Future Volume (vph)	7	4	4	119	7	14	4	972	147	13	1018	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-4%			4%	
Storage Length (ft)	0		0	150		100	550		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	2918	1465	0	3416	1853	1575	1787	3575	1599	3364	3468	1552
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2918	1465	0	3416	1853	1575	1787	3575	1599	3364	3468	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				91			158			89
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		254			285			1295			1917	
Travel Time (s)		8.7			5.6			19.6			29.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	20%	20%	20%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	8	0	128	8	15	4	1045	158	14	1095	17
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)		36			36			22			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.01	1.01	1.01	0.97	0.97	0.97	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	15.0	20.0	15.0	15.0	19.0	15.0
Total Split (s)	17.0	23.0		17.0	23.0	20.0	20.0	60.0	17.0	20.0	60.0	17.0
Total Split (%)	14.2%	19.2%		14.2%	19.2%	16.7%	16.7%	50.0%	14.2%	16.7%	50.0%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.9	3.0	3.0	4.2	3.0

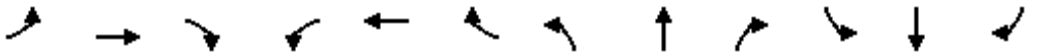
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	3.3	3.3		3.4	3.4	3.4	3.2	1.7	3.4	3.4	1.5	3.3
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.4	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	8.9	8.3		9.7	9.1	17.2	8.2	89.6	106.3	8.4	95.0	110.9
Actuated g/C Ratio	0.07	0.07		0.08	0.08	0.14	0.07	0.75	0.89	0.07	0.79	0.92
v/c Ratio	0.04	0.08		0.46	0.06	0.05	0.03	0.39	0.11	0.06	0.40	0.01
Control Delay	51.9	41.9		58.0	51.4	0.3	68.2	4.2	0.1	52.8	6.0	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	41.9		58.0	51.4	0.3	68.2	4.2	0.1	52.8	6.0	0.0
LOS	D	D		E	D	A	E	A	A	D	A	A
Approach Delay		46.9			51.9			3.9			6.5	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	3	3		50	6	0	3	72	0	5	78	0
Queue Length 95th (ft)	11	19		80	22	0	m5	m84	m1	16	305	0
Internal Link Dist (ft)		174			205			1215			1837	
Turn Bay Length (ft)				150		100	550		200	300		100
Base Capacity (vph)	291	223		341	277	384	223	2668	1438	420	2745	1453
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04		0.38	0.03	0.04	0.02	0.39	0.11	0.03	0.40	0.01

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 49 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 8.2 Intersection LOS: A
Intersection Capacity Utilization 51.0% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 15/501 & Stein Mart Driveway/Brucwood Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	20	5	4	4	8	1114	6	4	1122	12
Future Volume (vph)	4	4	20	5	4	4	8	1114	6	4	1122	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			4%	
Storage Length (ft)	200		0	0		0	50		0	50		175
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	1863	1583	0	1751	0	1805	3606	0	1734	3468	1552
Flt Permitted	0.950				0.981		0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	0	1751	0	1805	3606	0	1734	3468	1552
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		519			510			921			1295	
Travel Time (s)		11.8			9.9			14.0			19.6	
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)	4	4	22	0	13	0	9	1218	0	4	1220	13
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			12			12	
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	0.97	0.97	0.97	1.03	1.03	1.03
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 47.7%		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	4	4	20	5	4	4	8	1114	6	4	1122	12
Future Vol, veh/h	4	4	20	5	4	4	8	1114	6	4	1122	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	0	-	-	-	50	-	-	50	-	175
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-4	-	-	4	-
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	22	5	4	4	9	1211	7	4	1220	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1854	2464	610	1853	2474	609	1233	0	0	1218	0	0
Stage 1	1228	1228	-	1233	1233	-	-	-	-	-	-	-
Stage 2	626	1236	-	620	1241	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	46	30	437	46	29	438	561	-	-	568	-	-
Stage 1	189	249	-	187	247	-	-	-	-	-	-	-
Stage 2	439	246	-	442	245	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	39	29	437	38	28	438	561	-	-	568	-	-
Mov Cap-2 Maneuver	39	29	-	38	28	-	-	-	-	-	-	-
Stage 1	186	247	-	184	243	-	-	-	-	-	-	-
Stage 2	420	242	-	410	243	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	46.7	85.8	0.1	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	561	-	-	39	29	437	53	568	-	-
HCM Lane V/C Ratio	0.016	-	-	0.111	0.15	0.05	0.164	0.008	-	-
HCM Control Delay (s)	11.5	-	-	108.6	149.9	13.7	85.8	11.4	-	-
HCM Lane LOS	B	-	-	F	F	B	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.5	0.2	0.5	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	33	14	70	106	214	24	1010	64	163	940	56
Future Volume (vph)	28	33	14	70	106	214	24	1010	64	163	940	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1783	0	0	1726	0	1770	3507	0	1770	3511	0
Flt Permitted		0.555			0.921		0.950			0.950		
Satd. Flow (perm)	0	1008	0	0	1605	0	1770	3507	0	1770	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			46			8			8	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		970			1045			1325			921	
Travel Time (s)		18.9			20.4			20.1			14.0	
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	81	0	0	424	0	26	1168	0	177	1083	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			12			12	
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	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	55		20	55		60	306		60	306	
Trailing Detector (ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Position(ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Size(ft)	20	60		20	60		60	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	5.0		0.0	5.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	65.0		25.0	70.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		16.7%	54.2%		20.8%	58.3%	
Yellow Time (s)	3.8	3.8		4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.9	1.9		1.8	1.8		2.6	1.0		2.8	1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-0.7			-0.8		-0.6	-0.5		-0.8	-0.5	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		25.0			25.0		12.0	64.3		15.7	73.0	
Actuated g/C Ratio		0.21			0.21		0.10	0.54		0.13	0.61	
v/c Ratio		0.37			1.15		0.15	0.62		0.77	0.51	
Control Delay		41.9			131.2		49.4	21.6		67.8	16.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		41.9			131.2		49.4	21.6		67.8	16.7	
LOS		D			F		D	C		E	B	
Approach Delay		41.9			131.2			22.2			23.9	
Approach LOS		D			F			C			C	
Queue Length 50th (ft)		48			~356		18	318		136	267	
Queue Length 95th (ft)		99			#561		46	419		207	436	
Internal Link Dist (ft)		890			965			1245			841	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		217			370		221	1883		295	2139	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.37			1.15		0.12	0.62		0.60	0.51	

Intersection Summary

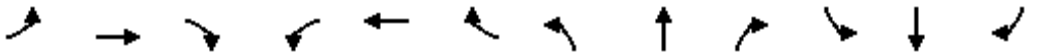
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 3 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 39.1 Intersection LOS: D
Intersection Capacity Utilization 76.2% ICU Level of Service D
Analysis Period (min) 15
Description: Signal No. 08-0468

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: US 15/501 & Murray Hill Road



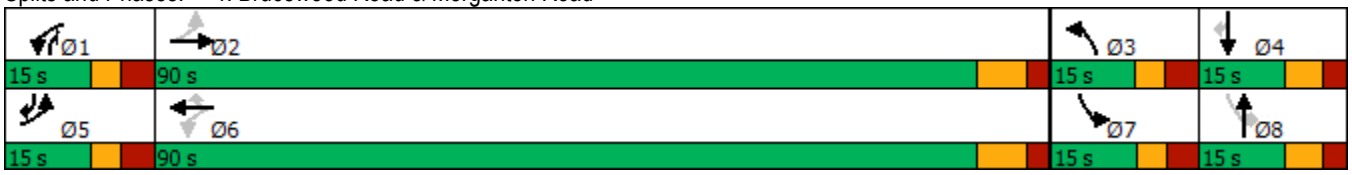


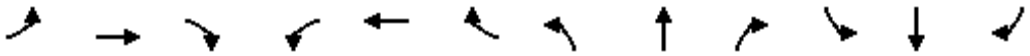
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	659	80	78	702	47	54	59	76	158	36	79
Future Volume (vph)	138	659	80	78	702	47	54	59	76	158	36	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3390	0	1796	3592	1607	3382	1835	1560	1734	1825	1552
Flt Permitted	0.284			0.270			0.950			0.702		
Satd. Flow (perm)	516	3390	0	510	3592	1607	3360	1835	1560	1281	1825	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				131			86			99
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		986			1215			307			806	
Travel Time (s)		14.9			18.4			6.0			15.7	
Confl. Peds. (#/hr)			2	2			1					1
Peak Hour Factor	0.83	0.91	0.91	0.91	0.91	0.91	0.91	0.80	0.91	0.68	0.77	0.80
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	812	0	86	771	52	59	74	84	232	47	99
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)		18			18			28			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.97	0.97	0.97	1.02	1.02	1.02	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	15.0	90.0		15.0	90.0	90.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	11.1%	66.7%		11.1%	66.7%	66.7%	11.1%	11.1%	11.1%	11.1%	11.1%	11.1%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max		None	Max	Max	None	Max	None	None	Max	None
Act Effct Green (s)	95.5	85.5		94.5	85.0	84.0	9.3	35.4	49.9	45.4	38.8	48.7
Actuated g/C Ratio	0.60	0.53		0.59	0.53	0.52	0.06	0.22	0.31	0.28	0.24	0.30
v/c Ratio	0.43	0.45		0.23	0.41	0.06	0.30	0.18	0.15	0.59	0.11	0.19
Control Delay	16.4	23.4		13.6	23.4	0.1	76.3	52.2	7.6	53.3	50.5	7.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	23.4		13.6	23.4	0.1	76.3	52.2	7.6	53.3	50.5	7.5
LOS	B	C		B	C	A	E	D	A	D	D	A
Approach Delay		22.2			21.1			41.5			40.9	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	70	263		34	249	0	30	64	0	193	40	0
Queue Length 95th (ft)	96	318		58	299	0	57	100	40	200	66	32
Internal Link Dist (ft)		906			1135			227			726	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	382	1816		382	1903	903	210	404	549	390	441	535
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.45		0.23	0.41	0.06	0.28	0.18	0.15	0.59	0.11	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 160.4			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 26.3		Intersection LOS: C	
Intersection Capacity Utilization 67.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Brucewood Road & Morganton Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	863	4	4	948	19	4	4	4	11	4	37
Future Volume (vph)	31	863	4	4	948	19	4	4	4	11	4	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3536	0	1770	3529	0	1770	1723	0	0	1665	0
Flt Permitted	0.950			0.950			0.950				0.990	
Satd. Flow (perm)	1770	3536	0	1770	3529	0	1770	1723	0	0	1665	0
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		978			1095			673			1303	
Travel Time (s)		14.8			16.6			13.1			25.4	
Peak Hour Factor	0.91	0.87	0.91	0.91	0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	996	0	4	1123	0	4	8	0	0	57	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			24			12	
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		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	863	4	4	948	19	4	4	4	11	4	37
Future Vol, veh/h	31	863	4	4	948	19	4	4	4	11	4	37
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	100	-	-	100	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	87	91	91	86	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	992	4	4	1102	21	4	4	4	12	4	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1123	0	0	996	0	0	1623	2193	498	1687	2185	562
Stage 1	-	-	-	-	-	-	1062	1062	-	1121	1121	-
Stage 2	-	-	-	-	-	-	561	1131	-	566	1064	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	618	-	-	690	-	-	68	45	518	61	45	470
Stage 1	-	-	-	-	-	-	239	298	-	220	280	-
Stage 2	-	-	-	-	-	-	480	277	-	476	298	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	618	-	-	690	-	-	55	42	518	53	42	470
Mov Cap-2 Maneuver	-	-	-	-	-	-	55	42	-	53	42	-
Stage 1	-	-	-	-	-	-	226	282	-	208	278	-
Stage 2	-	-	-	-	-	-	429	275	-	439	282	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	63.3	49.4
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	55	78	618	-	-	690	-	-	136
HCM Lane V/C Ratio	0.08	0.113	0.055	-	-	0.006	-	-	0.42
HCM Control Delay (s)	76.1	56.9	11.2	-	-	10.3	-	-	49.4
HCM Lane LOS	F	F	B	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.3	0.4	0.2	-	-	0	-	-	1.8

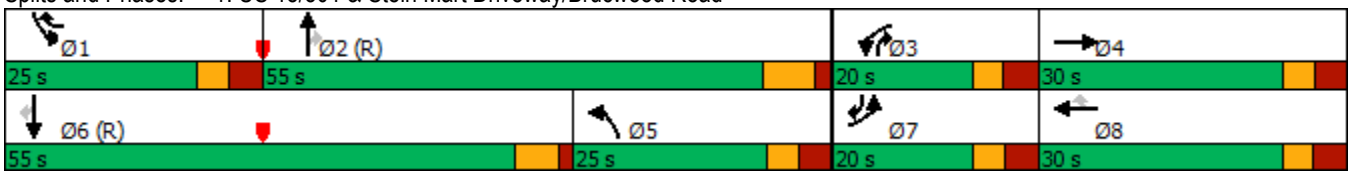
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	27	31	286	27	70	32	1160	336	84	1239	54
Future Volume (vph)	46	27	31	286	27	70	32	1160	336	84	1239	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-4%			4%	
Storage Length (ft)	0		0	150		100	550		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1714	0	2856	1853	1575	1805	3610	1615	3364	3468	1552
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1714	0	2856	1853	1575	1805	3610	1615	3364	3468	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				132			297			84
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		254			285			1295			1917	
Travel Time (s)		8.7			5.6			19.6			29.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	22%	2%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	60	0	295	28	72	33	1196	346	87	1277	56
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)		36			36			22			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.01	1.01	1.01	0.97	0.97	0.97	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	15.0	20.0	15.0	15.0	19.0	15.0
Total Split (s)	20.0	30.0		20.0	30.0	25.0	25.0	55.0	20.0	25.0	55.0	20.0
Total Split (%)	15.4%	23.1%		15.4%	23.1%	19.2%	19.2%	42.3%	15.4%	19.2%	42.3%	15.4%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.9	3.0	3.0	4.2	3.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	3.3	3.3		3.4	3.4	3.4	3.2	1.7	3.4	3.4	1.5	3.3
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.4	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	12.3	8.9		14.9	14.1	25.4	15.3	79.9	99.8	9.0	78.9	94.2
Actuated g/C Ratio	0.09	0.07		0.11	0.11	0.20	0.12	0.61	0.77	0.07	0.61	0.72
v/c Ratio	0.14	0.41		0.90	0.14	0.17	0.16	0.54	0.26	0.37	0.61	0.05
Control Delay	57.0	39.9		87.3	53.1	0.9	45.3	14.3	0.4	62.4	20.9	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.0	39.9		87.3	53.1	0.9	45.3	14.3	0.4	62.4	20.9	0.6
LOS	E	D		F	D	A	D	B	A	E	C	A
Approach Delay		47.4			69.1			11.9			22.6	
Approach LOS		D			E			B			C	
Queue Length 50th (ft)	19	23		128	22	0	20	180	0	37	423	0
Queue Length 95th (ft)	40	68		#212	51	0	m21	m240	m11	64	531	4
Internal Link Dist (ft)		174			205			1215			1837	
Turn Bay Length (ft)				150		100	550		200	300		100
Base Capacity (vph)	466	355		329	356	536	277	2219	1309	517	2105	1208
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.17		0.90	0.08	0.13	0.12	0.54	0.26	0.17	0.61	0.05

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 15 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 23.8 Intersection LOS: C
Intersection Capacity Utilization 59.1% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 15/501 & Stein Mart Driveway/Brucwood Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	48	4	4	4	59	1521	4	4	1545	15
Future Volume (vph)	4	4	48	4	4	4	59	1521	4	4	1545	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			4%	
Storage Length (ft)	200		0	0		0	50		0	50		175
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	1863	1583	0	1750	0	1805	3610	0	1734	3468	1552
Flt Permitted	0.950				0.984		0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	0	1750	0	1805	3610	0	1734	3468	1552
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		519			510			921			1295	
Travel Time (s)		11.8			9.9			14.0			19.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	4	50	0	12	0	61	1588	0	4	1609	16
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			12			12	
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	0.97	0.97	0.97	1.03	1.03	1.03
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 59.9%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	4	48	4	4	4	59	1521	4	4	1545	15
Future Vol, veh/h	4	4	48	4	4	4	59	1521	4	4	1545	15
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	200	-	0	-	-	-	50	-	-	50	-	175
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-4	-	-	4	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	4	50	4	4	4	61	1584	4	4	1609	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2533	3327	805	2523	3341	794	1625	0	0	1588	0	0
Stage 1	1617	1617	-	1708	1708	-	-	-	-	-	-	-
Stage 2	916	1710	-	815	1633	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	14	8	325	14	8	331	396	-	-	410	-	-
Stage 1	108	161	-	95	145	-	-	-	-	-	-	-
Stage 2	293	144	-	338	158	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	6	7	325	6	7	331	396	-	-	410	-	-
Mov Cap-2 Maneuver	6	7	-	6	7	-	-	-	-	-	-	-
Stage 1	91	159	-	80	123	-	-	-	-	-	-	-
Stage 2	236	122	-	276	156	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	143	$ 874.8	0.6	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	EBLn3	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	396	-	-	6	7	325	10	410	-	-
HCM Lane V/C Ratio	0.155	-	-	0.694	0.595	0.154	1.25	0.01	-	-
HCM Control Delay (s)	15.8	-	-	-$ 974.7	$ 810.4	18.1	$ 874.8	13.9	-	-
HCM Lane LOS	C	-	-	F	F	C	F	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-	1.1	1.1	0.5	2.3	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	174	41	130	66	309	28	1330	127	252	1205	33
Future Volume (vph)	98	174	41	130	66	309	28	1330	127	252	1205	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1802	0	0	1703	0	1770	3493	0	1770	3525	0
Flt Permitted		0.533			0.681		0.950			0.950		
Satd. Flow (perm)	0	975	0	0	1175	0	1770	3493	0	1770	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			55			11			3	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		970			1045			1325			921	
Travel Time (s)		18.9			20.4			20.1			14.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	336	0	0	543	0	30	1567	0	271	1331	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			12			12	
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	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	55		20	55		60	306		60	306	
Trailing Detector (ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Position(ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Size(ft)	20	60		20	60		60	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	5.0		0.0	5.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	32.0	32.0		32.0	32.0		23.0	72.0		26.0	75.0	
Total Split (%)	24.6%	24.6%		24.6%	24.6%		17.7%	55.4%		20.0%	57.7%	
Yellow Time (s)	3.8	3.8		4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.9	1.9		1.8	1.8		2.6	1.0		2.8	1.0	

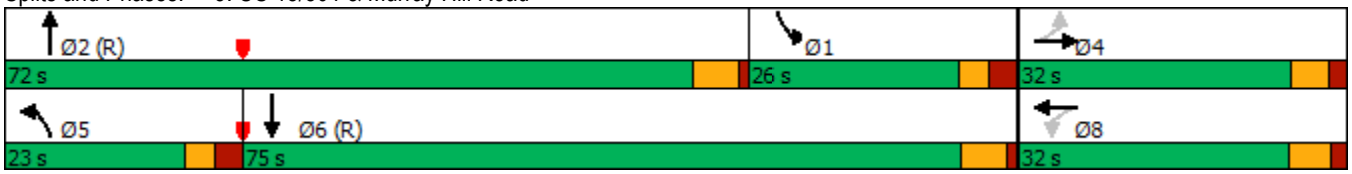
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-0.7			-0.8		-0.6	-0.5		-0.8	-0.5	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		27.0			27.0		7.9	67.0		21.0	85.2	
Actuated g/C Ratio		0.21			0.21		0.06	0.52		0.16	0.66	
v/c Ratio		1.63			1.89		0.28	0.87		0.95	0.58	
Control Delay		338.1			440.9		65.2	33.9		90.9	11.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		338.1			440.9		65.2	33.9		90.9	11.4	
LOS		F			F		E	C		F	B	
Approach Delay		338.1			440.9			34.5			24.8	
Approach LOS		F			F			C			C	
Queue Length 50th (ft)		~408			~667		25	586		244	426	
Queue Length 95th (ft)		#603			#894		57	701		m#394	374	
Internal Link Dist (ft)		890			965			1245			841	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		206			287		245	1805		285	2310	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		1.63			1.89		0.12	0.87		0.95	0.58	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 19 (15%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.89
Intersection Signal Delay: 109.8 Intersection LOS: F
Intersection Capacity Utilization 104.0% ICU Level of Service G
Analysis Period (min) 15
Description: Signal No. 08-0468

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: US 15/501 & Murray Hill Road



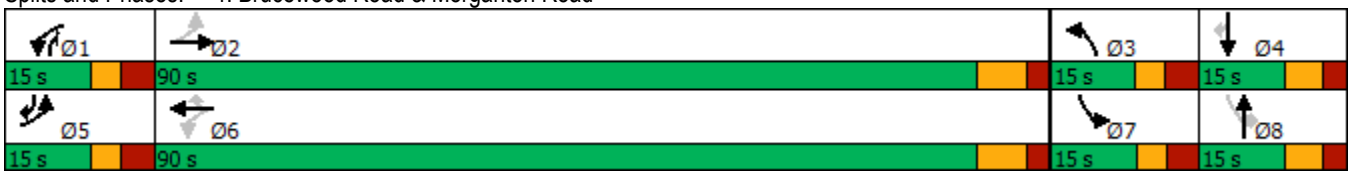
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	645	156	177	704	78	206	58	226	147	61	101
Future Volume (vph)	108	645	156	177	704	78	206	58	226	147	61	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3351	0	1796	3592	1607	3382	1835	1560	1734	1825	1552
Flt Permitted	0.295			0.248			0.950			0.717		
Satd. Flow (perm)	535	3351	0	469	3592	1571	3382	1835	1560	1309	1825	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42				131			243			109
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		986			1215			307			806	
Travel Time (s)		14.9			18.4			6.0			15.7	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	862	0	190	757	84	222	62	243	158	66	109
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)		18			18			28			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.97	0.97	0.97	1.02	1.02	1.02	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	15.0	90.0		15.0	90.0	90.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	11.1%	66.7%		11.1%	66.7%	66.7%	11.1%	11.1%	11.1%	11.1%	11.1%	11.1%

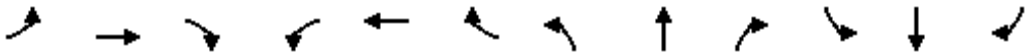
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max		None	Max	Max	None	Max	None	None	Max	None
Act Effct Green (s)	94.7	85.0		95.3	85.3	84.3	10.0	35.4	50.4	45.4	35.4	50.1
Actuated g/C Ratio	0.59	0.53		0.59	0.53	0.53	0.06	0.22	0.31	0.28	0.22	0.31
v/c Ratio	0.30	0.48		0.53	0.40	0.09	1.06	0.15	0.37	0.40	0.16	0.19
Control Delay	14.4	23.5		18.5	23.1	0.6	146.7	51.7	6.0	46.0	51.9	7.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	23.5		18.5	23.1	0.6	146.7	51.7	6.0	46.0	51.9	7.2
LOS	B	C		B	C	A	F	D	A	D	D	A
Approach Delay		22.5			20.4			70.7			34.5	
Approach LOS		C			C			E			C	
Queue Length 50th (ft)	47	278		80	243	0	~130	53	0	126	57	0
Queue Length 95th (ft)	76	336		119	293	4	#222	98	65	192	102	47
Internal Link Dist (ft)		906			1135			227			726	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	391	1795		361	1910	888	210	404	656	396	402	562
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.48		0.53	0.40	0.09	1.06	0.15	0.37	0.40	0.16	0.19

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 160.4
Natural Cycle: 125
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 32.0 Intersection LOS: C
Intersection Capacity Utilization 59.9% ICU Level of Service B
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Brucewood Road & Morganton Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	957	4	4	906	38	4	4	4	25	4	34
Future Volume (vph)	61	957	4	4	906	38	4	4	4	25	4	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3536	0	1770	3518	0	1770	1723	0	0	1692	0
Flt Permitted	0.950			0.950			0.950				0.980	
Satd. Flow (perm)	1770	3536	0	1770	3518	0	1770	1723	0	0	1692	0
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		978			1095			673			1303	
Travel Time (s)		14.8			16.6			13.1			25.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1067	0	4	1049	0	4	8	0	0	70	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			24			12	
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		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	61	957	4	4	906	38	4	4	4	25	4	34
Future Vol, veh/h	61	957	4	4	906	38	4	4	4	25	4	34
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	100	-	-	100	-	-	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	68	1063	4	4	1007	42	4	4	4	28	4	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1049	0	0	1067	0	0	1715	2258	534	1706	2239	525
Stage 1	-	-	-	-	-	-	1201	1201	-	1036	1036	-
Stage 2	-	-	-	-	-	-	514	1057	-	670	1203	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	659	-	-	649	-	-	58	41	491	59	42	497
Stage 1	-	-	-	-	-	-	196	256	-	248	307	-
Stage 2	-	-	-	-	-	-	511	300	-	413	256	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	659	-	-	649	-	-	45	37	491	49	37	497
Mov Cap-2 Maneuver	-	-	-	-	-	-	45	37	-	49	37	-
Stage 1	-	-	-	-	-	-	176	230	-	222	305	-
Stage 2	-	-	-	-	-	-	462	298	-	360	230	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0	74.3	118
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	45	69	659	-	-	649	-	-	92
HCM Lane V/C Ratio	0.099	0.129	0.103	-	-	0.007	-	-	0.761
HCM Control Delay (s)	93.6	64.7	11.1	-	-	10.6	-	-	118
HCM Lane LOS	F	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.3	0.4	0.3	-	-	0	-	-	3.9

Appendix I:
Synchro Output:
2024 Build-Out

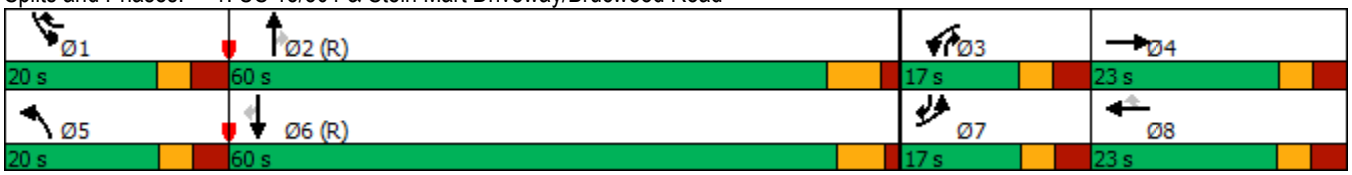
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	4	123	7	14	4	1021	150	13	1083	16
Future Volume (vph)	7	4	4	123	7	14	4	1021	150	13	1083	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-4%			4%	
Storage Length (ft)	0		0	150		100	550		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	2918	1465	0	3416	1853	1575	1787	3575	1599	3364	3468	1552
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2918	1465	0	3416	1853	1575	1787	3575	1599	3364	3468	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				91			161			89
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		254			285			1295			1917	
Travel Time (s)		8.7			5.6			19.6			29.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	20%	20%	20%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	8	0	132	8	15	4	1098	161	14	1165	17
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)		36			36			22			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.01	1.01	1.01	0.97	0.97	0.97	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	15.0	20.0	15.0	15.0	19.0	15.0
Total Split (s)	17.0	23.0		17.0	23.0	20.0	20.0	60.0	17.0	20.0	60.0	17.0
Total Split (%)	14.2%	19.2%		14.2%	19.2%	16.7%	16.7%	50.0%	14.2%	16.7%	50.0%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.9	3.0	3.0	4.2	3.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	3.3	3.3		3.4	3.4	3.4	3.2	1.7	3.4	3.4	1.5	3.3
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.4	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	9.0	8.3		9.8	9.1	17.2	8.2	89.5	106.3	8.4	94.9	110.9
Actuated g/C Ratio	0.08	0.07		0.08	0.08	0.14	0.07	0.75	0.89	0.07	0.79	0.92
v/c Ratio	0.04	0.08		0.47	0.06	0.05	0.03	0.41	0.11	0.06	0.42	0.01
Control Delay	51.9	41.9		58.2	51.4	0.3	80.2	1.4	0.3	52.8	6.2	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	41.9		58.2	51.4	0.3	80.2	1.4	0.3	52.8	6.2	0.0
LOS	D	D		E	D	A	F	A	A	D	A	A
Approach Delay		46.9			52.2			1.5			6.7	
Approach LOS		D			D			A			A	
Queue Length 50th (ft)	3	3		51	6	0	3	7	0	5	86	0
Queue Length 95th (ft)	11	19		82	22	0	m7	90	1	16	333	0
Internal Link Dist (ft)		174			205			1215			1837	
Turn Bay Length (ft)				150		100	550		200	300		100
Base Capacity (vph)	291	223		341	277	384	223	2666	1437	420	2743	1453
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04		0.39	0.03	0.04	0.02	0.41	0.11	0.03	0.42	0.01

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 49 (41%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 7.1 Intersection LOS: A
Intersection Capacity Utilization 52.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 15/501 & Stein Mart Driveway/Brucwood Road



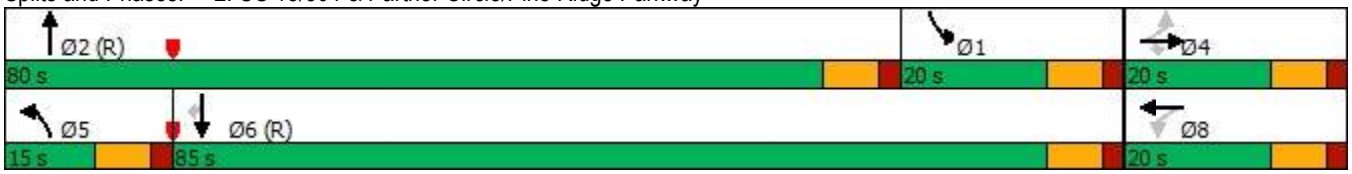
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	20	51	4	55	8	1114	67	73	1122	12
Future Volume (vph)	4	4	20	51	4	55	8	1114	67	73	1122	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			4%	
Storage Length (ft)	0		0	0		0	550		200	300		100
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	1863	1583	1770	1600	0	1805	3578	0	1734	3468	1552
Flt Permitted	0.715			0.755			0.950			0.950		
Satd. Flow (perm)	1332	1863	1583	1406	1600	0	1805	3578	0	1734	3468	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164		60			10				100
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		519			510			921			1295	
Travel Time (s)		11.8			9.9			14.0			19.6	
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)	4	4	22	55	64	0	9	1284	0	79	1220	13
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			24			12			12	
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	0.97	0.97	0.97	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	1		1	0	1
Detector Template	Left	Thru	Right	Left	Thru		Left			Left		Right
Leading Detector (ft)	20	100	20	20	100		20	306		20	0	20
Trailing Detector (ft)	0	0	0	0	0		0	300		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	300		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0		15.0	19.0		15.0	19.0	19.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0		15.0	80.0		20.0	85.0	85.0
Total Split (%)	16.7%	16.7%	16.7%	16.7%	16.7%		12.5%	66.7%		16.7%	70.8%	70.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	12.0	12.0	12.0	12.0	12.0		9.1	85.8		13.8	98.9	98.9
Actuated g/C Ratio	0.10	0.10	0.10	0.10	0.10		0.08	0.72		0.12	0.82	0.82
v/c Ratio	0.03	0.02	0.07	0.39	0.30		0.07	0.50		0.40	0.43	0.01
Control Delay	47.5	47.2	0.5	58.1	17.2		78.1	4.9		51.5	3.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.5	47.2	0.5	58.1	17.2		78.1	4.9		51.5	3.7	0.0
LOS	D	D	A	E	B		E	A		D	A	A
Approach Delay		13.0			36.1			5.4			6.5	
Approach LOS		B			D			A			A	
Queue Length 50th (ft)	3	3	0	41	3		7	83		58	74	0
Queue Length 95th (ft)	14	14	0	82	44		m9	m93		109	147	m0
Internal Link Dist (ft)		439			430			841			1215	
Turn Bay Length (ft)							550			300		100
Base Capacity (vph)	166	232	341	175	252		150	2560		216	2858	1296
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.02	0.02	0.06	0.31	0.25		0.06	0.50		0.37	0.43	0.01

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 25 (21%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 7.4 Intersection LOS: A
Intersection Capacity Utilization 60.8% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 15/501 & Partner Circle/Pine Ridge Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	33	14	70	106	221	24	1065	64	168	981	56
Future Volume (vph)	28	33	14	70	106	221	24	1065	64	168	981	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1783	0	0	1725	0	1770	3507	0	1770	3511	0
Flt Permitted		0.547			0.922		0.950			0.950		
Satd. Flow (perm)	0	993	0	0	1605	0	1770	3507	0	1770	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			48			7			8	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		970			1045			1325			921	
Travel Time (s)		18.9			20.4			20.1			14.0	
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	81	0	0	431	0	26	1228	0	183	1127	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			12			12	
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	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	55		20	55		60	306		60	306	
Trailing Detector (ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Position(ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Size(ft)	20	60		20	60		60	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	5.0		0.0	5.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	65.0		25.0	70.0	
Total Split (%)	25.0%	25.0%		25.0%	25.0%		16.7%	54.2%		20.8%	58.3%	
Yellow Time (s)	3.8	3.8		4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.9	1.9		1.8	1.8		2.6	1.0		2.8	1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-0.7			-0.8		-0.6	-0.5		-0.8	-0.5	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		25.0			25.0		12.0	64.0		16.0	73.0	
Actuated g/C Ratio		0.21			0.21		0.10	0.53		0.13	0.61	
v/c Ratio		0.38			1.16		0.15	0.66		0.78	0.53	
Control Delay		42.2			135.3		49.4	22.7		66.3	19.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		42.2			135.3		49.4	22.7		66.3	19.2	
LOS		D			F		D	C		E	B	
Approach Delay		42.2			135.3			23.2			25.8	
Approach LOS		D			F			C			C	
Queue Length 50th (ft)		48			~365		18	347		141	276	
Queue Length 95th (ft)		99			#569		46	452		217	507	
Internal Link Dist (ft)		890			965			1245			841	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		214			372		221	1873		295	2139	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.38			1.16		0.12	0.66		0.62	0.53	

Intersection Summary

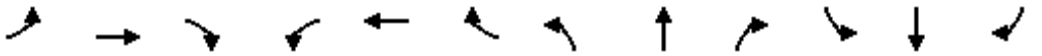
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 3 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 40.5 Intersection LOS: D
Intersection Capacity Utilization 78.4% ICU Level of Service D
Analysis Period (min) 15
Description: Signal No. 08-0468

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: US 15/501 & Murray Hill Road



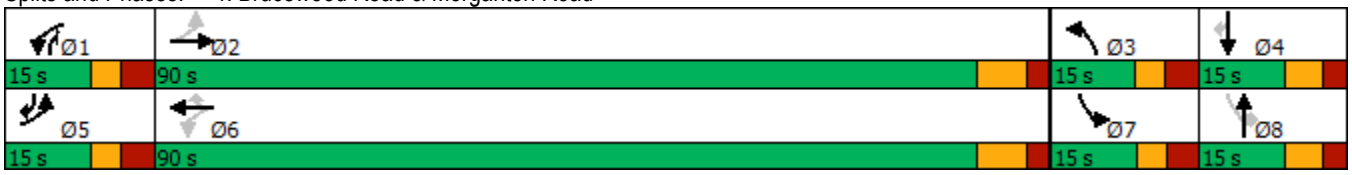


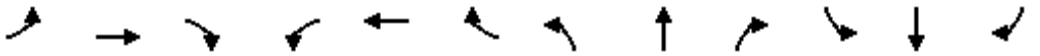
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	670	80	83	710	50	54	59	83	162	36	79
Future Volume (vph)	138	670	80	83	710	50	54	59	83	162	36	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3390	0	1796	3592	1607	3382	1835	1560	1734	1825	1552
Flt Permitted	0.280			0.265			0.950			0.702		
Satd. Flow (perm)	509	3390	0	501	3592	1607	3360	1835	1560	1281	1825	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				131			91			99
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		986			1215			307			806	
Travel Time (s)		14.9			18.4			6.0			15.7	
Confl. Peds. (#/hr)			2	2			1					1
Peak Hour Factor	0.83	0.91	0.91	0.91	0.91	0.91	0.91	0.80	0.91	0.68	0.77	0.80
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	824	0	91	780	55	59	74	91	238	47	99
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)		18			18			28			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.97	0.97	0.97	1.02	1.02	1.02	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	15.0	90.0		15.0	90.0	90.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	11.1%	66.7%		11.1%	66.7%	66.7%	11.1%	11.1%	11.1%	11.1%	11.1%	11.1%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max		None	Max	Max	None	Max	None	None	Max	None
Act Effct Green (s)	95.4	85.5		94.5	85.0	84.0	9.3	35.4	49.9	45.4	38.8	48.7
Actuated g/C Ratio	0.59	0.53		0.59	0.53	0.52	0.06	0.22	0.31	0.28	0.24	0.30
v/c Ratio	0.44	0.45		0.25	0.41	0.06	0.30	0.18	0.17	0.61	0.11	0.19
Control Delay	16.5	23.6		13.8	23.5	0.1	76.3	52.2	7.7	54.0	50.5	7.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	23.6		13.8	23.5	0.1	76.3	52.2	7.7	54.0	50.5	7.5
LOS	B	C		B	C	A	E	D	A	D	D	A
Approach Delay		22.4			21.1			40.5			41.6	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	70	269		36	253	0	30	64	0	199	40	0
Queue Length 95th (ft)	96	324		61	303	0	57	100	44	204	66	32
Internal Link Dist (ft)		906			1135			227			726	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	379	1814		377	1903	903	210	404	552	390	441	535
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.45		0.24	0.41	0.06	0.28	0.18	0.16	0.61	0.11	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 160.4			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 26.4		Intersection LOS: C	
Intersection Capacity Utilization 68.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Brucewood Road & Morganton Road





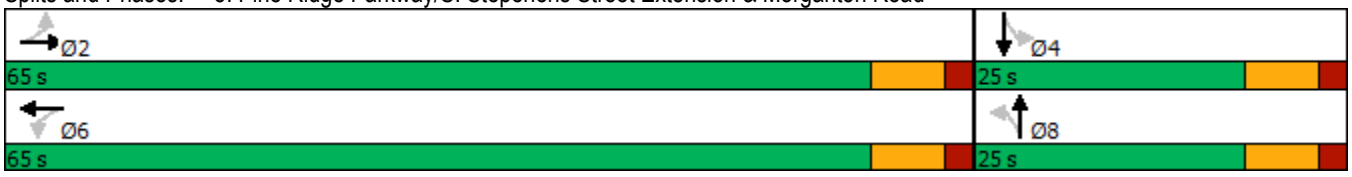
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	863	22	55	948	19	16	8	41	11	11	37
Future Volume (vph)	31	863	22	55	948	19	16	8	41	11	11	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3525	0	1770	3529	0	1770	1630	0	0	1689	0
Flt Permitted	0.224			0.261			0.715				0.922	
Satd. Flow (perm)	417	3525	0	486	3529	0	1332	1630	0	0	1571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4			45			41	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		978			1095			673			1303	
Travel Time (s)		14.8			16.6			13.1			25.4	
Peak Hour Factor	0.91	0.87	0.91	0.91	0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	1016	0	60	1123	0	18	54	0	0	65	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			24			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template										Left		
Leading Detector (ft)	40	306		40	306		40	40		20	40	
Trailing Detector (ft)	0	300		0	300		0	0		0	0	
Detector 1 Position(ft)	0	300		0	300		0	0		0	0	
Detector 1 Size(ft)	40	6		40	6		40	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	27.5	27.5		27.5	27.5		9.3	9.3			9.3	
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.24	0.24			0.24	
v/c Ratio	0.11	0.40		0.17	0.45		0.06	0.13			0.16	
Control Delay	6.2	5.4		6.7	5.7		13.6	7.3			8.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	6.2	5.4		6.7	5.7		13.6	7.3			8.7	
LOS	A	A		A	A		B	A			A	
Approach Delay		5.4			5.8			8.9			8.7	
Approach LOS		A			A			A			A	
Queue Length 50th (ft)	3	67		6	77		3	1			4	
Queue Length 95th (ft)	14	104		23	118		16	22			28	
Internal Link Dist (ft)		898			1015			593			1223	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	417	3525		486	3529		700	877			845	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.08	0.29		0.12	0.32		0.03	0.06			0.08	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 38.5
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 5.8 Intersection LOS: A
Intersection Capacity Utilization 59.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Pine Ridge Parkway/S. Stepehens Street Extension & Morganton Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	87	44	11	66	33	8
Future Volume (vph)	87	44	11	66	33	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	125		0	100
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3362	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3362	0	1770	3539	1770	1583
Link Speed (mph)	35			35	25	
Link Distance (ft)	357			715	498	
Travel Time (s)	7.0			13.9	13.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	146	0	12	73	37	9
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	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 19.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	87	44	11	66	33	8
Future Vol, veh/h	87	44	11	66	33	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	100
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	97	49	12	73	37	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	146	0	183	73
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	61	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1434	-	789	974
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1434	-	783	974
Mov Cap-2 Maneuver	-	-	-	-	783	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	946	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	783	974	-	-	1434	-
HCM Lane V/C Ratio	0.047	0.009	-	-	0.009	-
HCM Control Delay (s)	9.8	8.7	-	-	7.5	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	52	43	33	44	33	25
Future Volume (vph)	52	43	33	44	33	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	100		0	100
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3299	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3299	0	1770	3539	1770	1583
Link Speed (mph)	35			35	25	
Link Distance (ft)	715			641	498	
Travel Time (s)	13.9			12.5	13.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	37	49	37	28
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	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 18.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	43	33	44	33	25
Future Vol, veh/h	52	43	33	44	33	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	48	37	49	37	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	106	0	181	53
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	99	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1483	-	791	1003
Stage 1	-	-	-	-	932	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1483	-	771	1003
Mov Cap-2 Maneuver	-	-	-	-	771	-
Stage 1	-	-	-	-	932	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	771	1003	-	-	1483	-
HCM Lane V/C Ratio	0.048	0.028	-	-	0.025	-
HCM Control Delay (s)	9.9	8.7	-	-	7.5	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	55	22	32	60	16	25
Future Volume (vph)	55	22	32	60	16	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	125		0	100
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3391	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3391	0	1770	3539	1770	1583
Link Speed (mph)	35			35	25	
Link Distance (ft)	641			439	501	
Travel Time (s)	12.5			8.6	13.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	85	0	36	67	18	28
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	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	18.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	55	22	32	60	16	25
Future Vol, veh/h	55	22	32	60	16	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	100
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	61	24	36	67	18	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	85	0	179	43
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	106	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1509	-	793	1018
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1509	-	774	1018
Mov Cap-2 Maneuver	-	-	-	-	774	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	885	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	774	1018	-	-	1509	-
HCM Lane V/C Ratio	0.023	0.027	-	-	0.024	-
HCM Control Delay (s)	9.8	8.6	-	-	7.4	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	57	22	11	76	16	8
Future Volume (vph)	57	22	11	76	16	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	115		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3394	0	1770	3539	1722	0
Flt Permitted			0.950		0.968	
Satd. Flow (perm)	3394	0	1770	3539	1722	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	439			817	497	
Travel Time (s)	8.6			15.9	13.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	0	12	84	27	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	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	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	57	22	11	76	16	8
Future Vol, veh/h	57	22	11	76	16	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	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	63	24	12	84	18	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	87	0	141	44
Stage 1	-	-	-	-	75	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1507	-	838	1017
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	949	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1507	-	831	1017
Mov Cap-2 Maneuver	-	-	-	-	831	-
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	941	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	-	-	1507	-
HCM Lane V/C Ratio	0.03	-	-	0.008	-
HCM Control Delay (s)	9.2	-	-	7.4	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

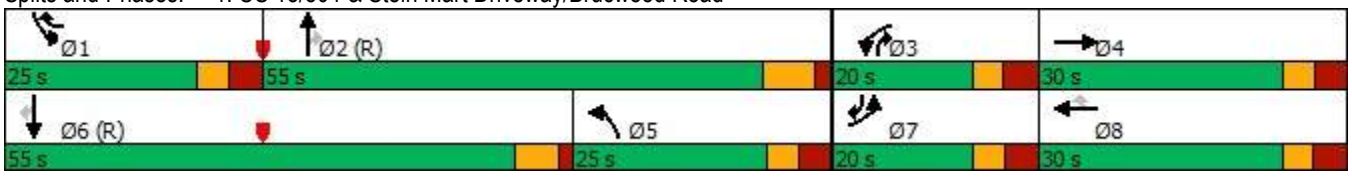
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	27	31	293	27	70	32	1266	343	84	1339	54
Future Volume (vph)	46	27	31	293	27	70	32	1266	343	84	1339	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			1%			-4%			4%	
Storage Length (ft)	0		0	150		100	550		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1714	0	2856	1853	1575	1805	3610	1615	3364	3468	1552
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1714	0	2856	1853	1575	1805	3610	1615	3364	3468	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32				132			278			84
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		254			285			1295			1917	
Travel Time (s)		8.7			5.6			19.6			29.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	22%	2%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	60	0	302	28	72	33	1305	354	87	1380	56
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)		36			36			22			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.01	1.01	1.01	0.97	0.97	0.97	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	15.0	20.0	15.0	15.0	19.0	15.0
Total Split (s)	20.0	30.0		20.0	30.0	25.0	25.0	55.0	20.0	25.0	55.0	20.0
Total Split (%)	15.4%	23.1%		15.4%	23.1%	19.2%	19.2%	42.3%	15.4%	19.2%	42.3%	15.4%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.9	3.0	3.0	4.2	3.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	3.3	3.3		3.4	3.4	3.4	3.2	1.7	3.4	3.4	1.5	3.3
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.4	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	12.3	8.9		15.0	14.2	25.6	15.3	79.8	99.8	9.0	78.8	94.1
Actuated g/C Ratio	0.09	0.07		0.12	0.11	0.20	0.12	0.61	0.77	0.07	0.61	0.72
v/c Ratio	0.14	0.41		0.92	0.14	0.17	0.16	0.59	0.27	0.37	0.66	0.05
Control Delay	57.0	39.9		89.4	53.0	0.9	47.3	17.9	1.3	62.4	22.2	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.0	39.9		89.4	53.0	0.9	47.3	17.9	1.3	62.4	22.2	0.6
LOS	E	D		F	D	A	D	B	A	E	C	A
Approach Delay		47.4			71.0			15.0			23.7	
Approach LOS		D			E			B			C	
Queue Length 50th (ft)	19	23		131	22	0	19	218	2	37	480	0
Queue Length 95th (ft)	40	68		#218	51	0	m28	341	m33	64	601	4
Internal Link Dist (ft)		174			205			1215			1837	
Turn Bay Length (ft)				150		100	550		200	300		100
Base Capacity (vph)	466	355		329	356	538	277	2216	1304	517	2102	1218
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.17		0.92	0.08	0.13	0.12	0.59	0.27	0.17	0.66	0.05

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 15 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 60.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 15/501 & Stein Mart Driveway/Brucwood Road



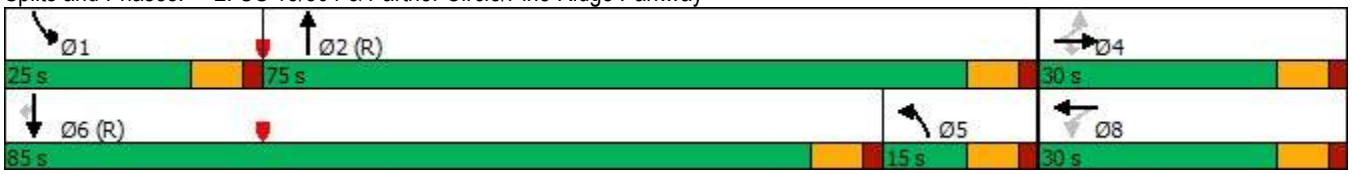
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	48	148	4	165	59	1475	139	152	1499	15
Future Volume (vph)	4	4	48	148	4	165	59	1475	139	152	1499	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-4%			4%	
Storage Length (ft)	0		0	0		0	550		200	300		100
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	1863	1583	1770	1589	0	1805	3563	0	1734	3468	1552
Flt Permitted	0.431			0.755			0.950			0.950		
Satd. Flow (perm)	803	1863	1583	1406	1589	0	1805	3563	0	1734	3468	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		172			12				92
Link Speed (mph)		30			35			45			45	
Link Distance (ft)		519			510			921			1295	
Travel Time (s)		11.8			9.9			14.0			19.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	4	50	154	176	0	61	1681	0	158	1561	16
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			24			12			12	
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	0.97	0.97	0.97	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	1		1	0	1
Detector Template	Left	Thru	Right	Left	Thru		Left			Left		Right
Leading Detector (ft)	20	100	20	20	100		20	306		20	0	20
Trailing Detector (ft)	0	0	0	0	0		0	300		0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	300		0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		7.0	12.0	12.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0		15.0	19.0		15.0	19.0	19.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0		15.0	75.0		25.0	85.0	85.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	23.1%		11.5%	57.7%		19.2%	65.4%	65.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lead/Lag							Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Act Effct Green (s)	20.6	20.6	20.6	20.6	20.6		9.8	76.6		17.8	87.4	87.4
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.08	0.59		0.14	0.67	0.67
v/c Ratio	0.03	0.01	0.13	0.69	0.44		0.45	0.80		0.67	0.67	0.01
Control Delay	44.0	43.2	0.7	67.6	10.7		41.2	6.6		77.6	6.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.2		0.0	0.0	0.0
Total Delay	44.0	43.2	0.7	67.6	10.7		41.2	6.8		77.6	6.1	0.0
LOS	D	D	A	E	B		D	A		E	A	A
Approach Delay		6.6			37.2			8.0			12.6	
Approach LOS		A			D			A			B	
Queue Length 50th (ft)	3	3	0	123	3		51	181		131	142	0
Queue Length 95th (ft)	13	13	0	194	66		m46	m293		m186	m158	m0
Internal Link Dist (ft)		439			430			841			1215	
Turn Bay Length (ft)							550			300		100
Base Capacity (vph)	154	358	426	270	444		138	2105		268	2332	1073
Starvation Cap Reductn	0	0	0	0	0		0	59		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.03	0.01	0.12	0.57	0.40		0.44	0.82		0.59	0.67	0.01

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 8 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 12.5 Intersection LOS: B
Intersection Capacity Utilization 81.0% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 15/501 & Partner Circle/Pine Ridge Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	174	41	130	66	319	28	1413	127	263	1293	33
Future Volume (vph)	98	174	41	130	66	319	28	1413	127	263	1293	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	0		0	0		0	150		0	150		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1802	0	0	1703	0	1770	3497	0	1770	3525	0
Flt Permitted		0.526			0.685		0.950			0.950		
Satd. Flow (perm)	0	962	0	0	1180	0	1770	3497	0	1770	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			57			11			3	
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		970			1045			1325			921	
Travel Time (s)		18.9			20.4			20.1			14.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	336	0	0	554	0	30	1656	0	283	1425	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			12			12	
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	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left								
Leading Detector (ft)	20	55		20	55		60	306		60	306	
Trailing Detector (ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Position(ft)	0	-5		0	-5		0	300		0	300	
Detector 1 Size(ft)	20	60		20	60		60	6		60	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	5.0		0.0	5.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	12.0		7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		14.0	19.0		14.0	19.0	
Total Split (s)	32.0	32.0		32.0	32.0		23.0	72.0		26.0	75.0	
Total Split (%)	24.6%	24.6%		24.6%	24.6%		17.7%	55.4%		20.0%	57.7%	
Yellow Time (s)	3.8	3.8		4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.9	1.9		1.8	1.8		2.6	1.0		2.8	1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		-0.7			-0.8		-0.6	-0.5		-0.8	-0.5	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)		27.0			27.0		7.9	67.0		21.0	85.2	
Actuated g/C Ratio		0.21			0.21		0.06	0.52		0.16	0.66	
v/c Ratio		1.66			1.91		0.28	0.92		0.99	0.62	
Control Delay		348.4			448.6		65.2	38.0		100.0	11.9	
Queue Delay		0.0			0.0		0.0	0.6		0.0	0.0	
Total Delay		348.4			448.6		65.2	38.6		100.0	11.9	
LOS		F			F		E	D		F	B	
Approach Delay		348.4			448.6			39.1			26.5	
Approach LOS		F			F			D			C	
Queue Length 50th (ft)		~410			~682		25	651		255	528	
Queue Length 95th (ft)		#606			#910		57	774		#439	494	
Internal Link Dist (ft)		890			965			1245			841	
Turn Bay Length (ft)							150			150		
Base Capacity (vph)		203			290		245	1807		285	2310	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	27		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		1.66			1.91		0.12	0.93		0.99	0.62	

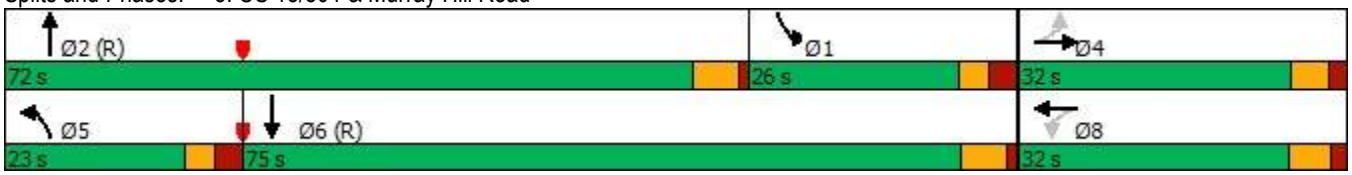
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 19 (15%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.91
Intersection Signal Delay: 111.3 Intersection LOS: F
Intersection Capacity Utilization 107.5% ICU Level of Service G
Analysis Period (min) 15
Description: Signal No. 08-0468

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: US 15/501 & Murray Hill Road



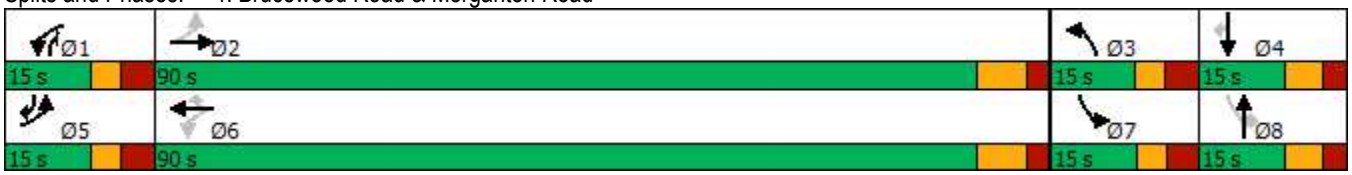
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	662	156	188	722	85	206	58	236	154	61	101
Future Volume (vph)	108	662	156	188	722	85	206	58	236	154	61	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3351	0	1796	3592	1607	3382	1835	1560	1734	1825	1552
Flt Permitted	0.287			0.241			0.950			0.717		
Satd. Flow (perm)	521	3351	0	456	3592	1571	3382	1835	1560	1309	1825	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41				131			246			109
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		986			1215			307			806	
Travel Time (s)		14.9			18.4			6.0			15.7	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	880	0	202	776	91	222	62	254	166	66	109
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)		18			18			28			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.97	0.97	0.97	1.02	1.02	1.02	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	15.0	90.0		15.0	90.0	90.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	11.1%	66.7%		11.1%	66.7%	66.7%	11.1%	11.1%	11.1%	11.1%	11.1%	11.1%

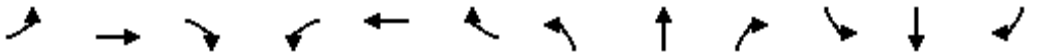
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max		None	Max	Max	None	Max	None	None	Max	None
Act Effct Green (s)	94.7	85.0		95.3	85.3	84.3	10.0	35.4	50.4	45.4	35.4	50.1
Actuated g/C Ratio	0.59	0.53		0.59	0.53	0.53	0.06	0.22	0.31	0.28	0.22	0.31
v/c Ratio	0.31	0.49		0.57	0.41	0.10	1.06	0.15	0.39	0.42	0.16	0.19
Control Delay	14.5	23.8		19.9	23.3	1.0	146.7	51.7	6.8	46.7	51.9	7.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	23.8		19.9	23.3	1.0	146.7	51.7	6.8	46.7	51.9	7.2
LOS	B	C		B	C	A	F	D	A	D	D	A
Approach Delay		22.7			20.7			69.7			35.1	
Approach LOS		C			C			E			D	
Queue Length 50th (ft)	47	287		86	251	0	~130	53	6	133	57	0
Queue Length 95th (ft)	76	345		126	301	9	#222	98	74	200	102	47
Internal Link Dist (ft)		906			1135			227			726	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	383	1795		354	1910	888	210	404	658	396	402	562
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.49		0.57	0.41	0.10	1.06	0.15	0.39	0.42	0.16	0.19

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 160.4
Natural Cycle: 125
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 32.0 Intersection LOS: C
Intersection Capacity Utilization 61.4% ICU Level of Service B
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Brucewood Road & Morganton Road



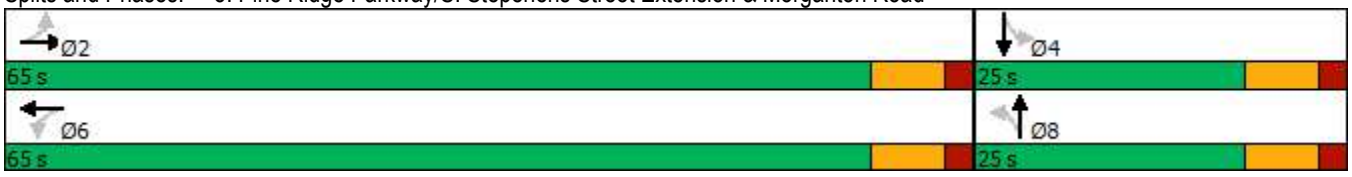


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	927	63	113	876	38	67	18	120	25	17	34
Future Volume (vph)	61	927	63	113	876	38	67	18	120	25	17	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3504	0	1770	3518	0	1770	1621	0	0	1723	0
Flt Permitted	0.241			0.210			0.702				0.840	
Satd. Flow (perm)	449	3504	0	391	3518	0	1308	1621	0	0	1471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			10			133			38	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		978			1095			673			1303	
Travel Time (s)		14.8			16.6			13.1			25.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1100	0	126	1015	0	74	153	0	0	85	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			24			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template										Left		
Leading Detector (ft)	40	306		40	306		40	40		20	40	
Trailing Detector (ft)	0	300		0	300		0	0		0	0	
Detector 1 Position(ft)	0	300		0	300		0	0		0	0	
Detector 1 Size(ft)	40	6		40	6		40	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	25.6	25.6		25.6	25.6		10.8	10.8			10.8	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.23	0.23			0.23	
v/c Ratio	0.28	0.57		0.59	0.53		0.25	0.32			0.23	
Control Delay	9.1	8.1		20.6	7.7		19.3	7.8			13.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	9.1	8.1		20.6	7.7		19.3	7.8			13.0	
LOS	A	A		C	A		B	A			B	
Approach Delay		8.2			9.1			11.5			13.0	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	8	77		17	69		12	3			8	
Queue Length 95th (ft)	29	146		76	131		59	50			50	
Internal Link Dist (ft)		898			1015			593			1223	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	439	3426		382	3440		587	801			681	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.15	0.32		0.33	0.30		0.13	0.19			0.12	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 47			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 9.0		Intersection LOS: A	
Intersection Capacity Utilization 68.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 5: Pine Ridge Parkway/S. Stepehens Street Extension & Morganton Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	194	96	32	205	104	34
Future Volume (vph)	194	96	32	205	104	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	125		0	100
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3362	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3362	0	1770	3539	1770	1583
Link Speed (mph)	35			35	25	
Link Distance (ft)	357			715	501	
Travel Time (s)	7.0			13.9	13.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	323	0	36	228	116	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	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 27.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	194	96	32	205	104	34
Future Vol, veh/h	194	96	32	205	104	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	100
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	216	107	36	228	116	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	323	0	456	162
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	186	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1234	-	533	854
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	827	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1234	-	518	854
Mov Cap-2 Maneuver	-	-	-	-	518	-
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	803	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	518	854	-	-	1234	-
HCM Lane V/C Ratio	0.223	0.044	-	-	0.029	-
HCM Control Delay (s)	13.9	9.4	-	-	8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	115	113	80	118	119	77
Future Volume (vph)	115	113	80	118	119	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	100		0	100
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3277	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3277	0	1770	3539	1770	1583
Link Speed (mph)	35			35	25	
Link Distance (ft)	715			641	499	
Travel Time (s)	13.9			12.5	13.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	254	0	89	131	132	86
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	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 27.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	113	80	118	119	77
Future Vol, veh/h	115	113	80	118	119	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	100
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	128	126	89	131	132	86

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	254	0	435	127
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	244	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1308	-	549	900
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1308	-	512	900
Mov Cap-2 Maneuver	-	-	-	-	512	-
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	721	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	512	900	-	-	1308	-
HCM Lane V/C Ratio	0.258	0.095	-	-	0.068	-
HCM Control Delay (s)	14.5	9.4	-	-	8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	1	0.3	-	-	0.2	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	144	48	65	147	51	77
Future Volume (vph)	144	48	65	147	51	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	125		0	100
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3408	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3408	0	1770	3539	1770	1583
Link Speed (mph)	35			35	25	
Link Distance (ft)	641			439	502	
Travel Time (s)	12.5			8.6	13.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	0	72	163	57	86
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	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 22.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	144	48	65	147	51	77
Future Vol, veh/h	144	48	65	147	51	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	100
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	160	53	72	163	57	86

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	213	0	413	107
Stage 1	-	-	-	-	187	-
Stage 2	-	-	-	-	226	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1355	-	567	926
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	790	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1355	-	537	926
Mov Cap-2 Maneuver	-	-	-	-	537	-
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	748	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	537	926	-	-	1355	-
HCM Lane V/C Ratio	0.106	0.092	-	-	0.053	-
HCM Control Delay (s)	12.5	9.3	-	-	7.8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.3	-	-	0.2	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	188	33	17	177	35	17
Future Volume (vph)	188	33	17	177	35	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	115		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			100		100	
Satd. Flow (prot)	3458	0	1770	3539	1722	0
Flt Permitted			0.950		0.967	
Satd. Flow (perm)	3458	0	1770	3539	1722	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	439			817	498	
Travel Time (s)	8.6			15.9	13.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	246	0	19	197	58	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	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 22.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.5

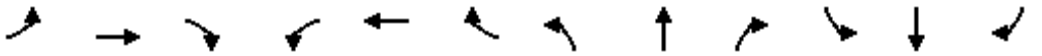
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	188	33	17	177	35	17
Future Vol, veh/h	188	33	17	177	35	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	115	-	0	-
Veh in Median Storage, #	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	209	37	19	197	39	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	246	0	365	123
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	137	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1317	-	608	905
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	875	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1317	-	599	905
Mov Cap-2 Maneuver	-	-	-	-	599	-
Stage 1	-	-	-	-	788	-
Stage 2	-	-	-	-	863	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	673	-	-	1317	-
HCM Lane V/C Ratio	0.086	-	-	0.014	-
HCM Control Delay (s)	10.9	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Appendix J:
Synchro Output:
2031 Background



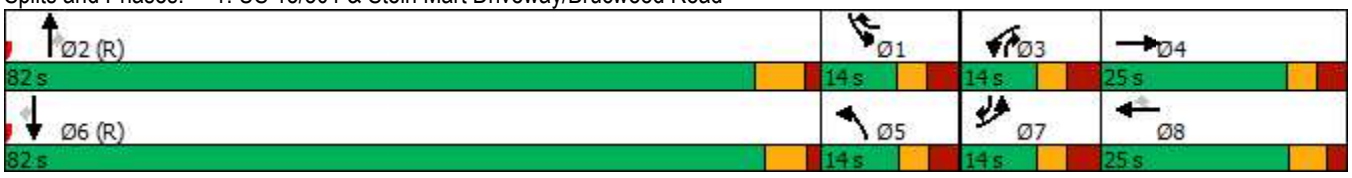
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	4	125	7	15	4	1143	154	14	1266	16
Future Volume (vph)	7	4	4	125	7	15	4	1143	154	14	1266	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		100	350		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1723	0	3433	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1723	0	3433	1863	1583	1770	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				81			169			78
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		254			285			568			1917	
Travel Time (s)		8.7			5.6			8.6			29.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	8	0	139	8	17	4	1270	171	16	1407	18
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)		36			36			22			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0		14.0	25.0	14.0	14.0	19.0	14.0	14.0	25.0	14.0
Total Split (s)	14.0	25.0		14.0	25.0	14.0	14.0	82.0	14.0	14.0	82.0	14.0
Total Split (%)	10.4%	18.5%		10.4%	18.5%	10.4%	10.4%	60.7%	10.4%	10.4%	60.7%	10.4%
Yellow Time (s)	3.0	3.0		3.0	3.8	3.0	3.0	4.9	3.0	3.0	4.2	3.0
All-Red Time (s)	3.3	3.3		3.4	2.2	3.4	3.2	1.7	3.4	3.4	1.5	3.3
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.0	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	8.8	8.3		9.2	8.3	10.3	8.2	105.1	120.3	8.4	110.4	125.2
Actuated g/C Ratio	0.07	0.06		0.07	0.06	0.08	0.06	0.78	0.89	0.06	0.82	0.93
v/c Ratio	0.04	0.07		0.59	0.07	0.09	0.04	0.46	0.12	0.08	0.49	0.01
Control Delay	59.6	47.3		71.8	60.7	0.9	60.5	7.2	0.5	60.6	5.8	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	47.3		71.8	60.7	0.9	60.5	7.2	0.5	60.6	5.8	0.0
LOS	E	D		E	E	A	E	A	A	E	A	A
Approach Delay		53.4			63.9			6.5			6.3	
Approach LOS		D			E			A			A	
Queue Length 50th (ft)	3	3		61	7	0	3	195	0	6	116	0
Queue Length 95th (ft)	12	21		97	24	0	16	347	8	19	408	0
Internal Link Dist (ft)		174			205			488			1837	
Turn Bay Length (ft)				150		100	350		200	300		100
Base Capacity (vph)	234	258		238	276	202	118	2753	1419	228	2894	1490
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.03		0.58	0.03	0.08	0.03	0.46	0.12	0.07	0.49	0.01

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 52 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 55.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: US 15/501 & Stein Mart Driveway/Brucwood Road



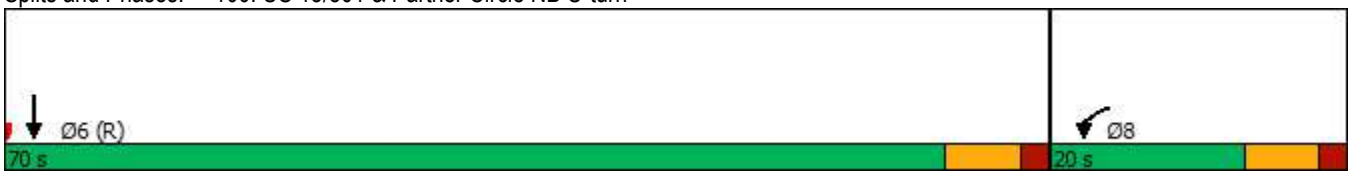


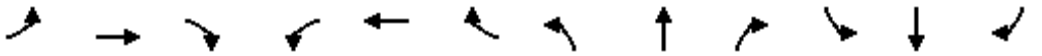
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	101	0	0	0	0	1392
Future Volume (vph)	101	0	0	0	0	1392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	0	0	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	0	0	3539
Right Turn on Red	No	Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	60		281			116
Travel Time (s)	1.4		4.3			1.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	0	0	0	0	1547
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			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)	15	9		9	15	
Number of Detectors	1					1
Detector Template						
Leading Detector (ft)	40					76
Trailing Detector (ft)	0					70
Detector 1 Position(ft)	0					70
Detector 1 Size(ft)	40					6
Detector 1 Type	Cl+Ex					Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases						
Detector Phase	8					6
Switch Phase						
Minimum Initial (s)	7.0					10.0
Minimum Split (s)	14.0					17.0
Total Split (s)	20.0					70.0
Total Split (%)	22.2%					77.8%
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Recall Mode	None					C-Max
Act Effct Green (s)	12.6					71.2
Actuated g/C Ratio	0.14					0.79
v/c Ratio	0.45					0.55
Control Delay	28.5					5.8
Queue Delay	0.0					0.0
Total Delay	28.5					5.8
LOS	C					A
Approach Delay	28.5					5.8
Approach LOS	C					A
Queue Length 50th (ft)	38					171
Queue Length 95th (ft)	48					243
Internal Link Dist (ft)	1		201			36
Turn Bay Length (ft)						
Base Capacity (vph)	295					2800
Starvation Cap Reductn	0					0
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.38					0.55

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 7.3		Intersection LOS: A	
Intersection Capacity Utilization 81.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 100: US 15/501 & Partner Circle NB U-turn





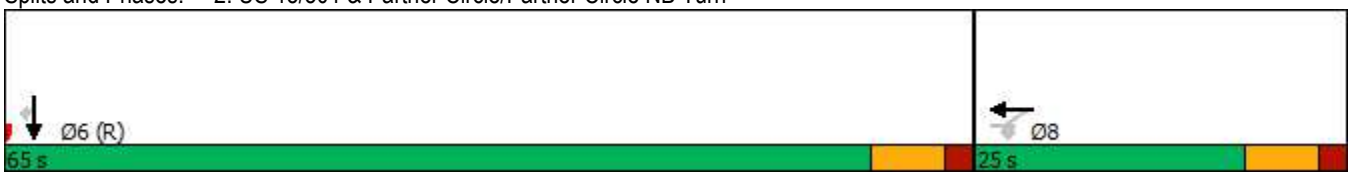
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	24	188	8	0	0	0	0	0	1300	12
Future Volume (vph)	0	0	24	188	8	0	0	0	0	0	1300	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		150
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	1611	0	1777	0	0	0	0	0	3539	1583
Flt Permitted					0.954							
Satd. Flow (perm)	0	0	1611	0	1777	0	0	0	0	0	3539	1583
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)			60									48
Link Speed (mph)		30			45			45			45	
Link Distance (ft)		478			301			595			323	
Travel Time (s)		10.9			4.6			9.0			4.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	27	0	218	0	0	0	0	0	1444	13
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			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1	1	1						1	0
Detector Template				Left								
Leading Detector (ft)			40	20	40						306	0
Trailing Detector (ft)			0	0	0						300	0
Detector 1 Position(ft)			0	0	0						300	0
Detector 1 Size(ft)			40	20	40						6	20
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex						Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)			0.0	0.0	0.0						0.0	0.0
Detector 1 Queue (s)			0.0	0.0	0.0						0.0	0.0
Detector 1 Delay (s)			0.0	0.0	0.0						0.0	0.0
Turn Type			Perm	Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases			8	8								6
Detector Phase			8	8	8						6	6
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	14.0
Minimum Split (s)			14.0	14.0	14.0						21.0	21.0
Total Split (s)			25.0	25.0	25.0						65.0	65.0
Total Split (%)			27.8%	27.8%	27.8%						72.2%	72.2%
Yellow Time (s)			5.0	5.0	5.0						5.0	5.0
All-Red Time (s)			2.0	2.0	2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0

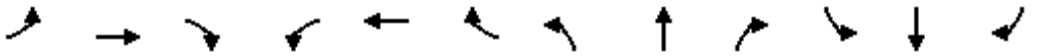
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode			None	None	None						C-Max	C-Max
Act Effct Green (s)			17.3		17.3						62.7	62.7
Actuated g/C Ratio			0.19		0.19						0.70	0.70
v/c Ratio			0.08		0.64						0.59	0.01
Control Delay			2.0		41.8						6.2	0.0
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			2.0		41.8						6.2	0.0
LOS			A		D						A	A
Approach Delay		2.0			41.8						6.2	
Approach LOS		A			D						A	
Queue Length 50th (ft)			0		121						134	0
Queue Length 95th (ft)			6		m192						148	m0
Internal Link Dist (ft)		398			221			515			243	
Turn Bay Length (ft)												150
Base Capacity (vph)			404		394						2467	1118
Starvation Cap Reductn			0		0						0	0
Spillback Cap Reductn			0		0						0	0
Storage Cap Reductn			0		0						0	0
Reduced v/c Ratio			0.07		0.55						0.59	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 81 (90%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 65.1%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 15/501 & Partner Circle/Partner Circle NB Turn





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	179	0	0	0	206	0	1194	170	0	0	0
Future Volume (vph)	0	179	0	0	0	206	0	1194	170	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	0		2	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1863	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						135			162			
Link Speed (mph)		45			30			45			45	
Link Distance (ft)		324			458			294			599	
Travel Time (s)		4.9			10.4			4.5			9.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	0	229	0	1327	189	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			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1				1		1	1			
Detector Template									Right			
Leading Detector (ft)		40				40		306	20			
Trailing Detector (ft)		0				0		300	0			
Detector 1 Position(ft)		0				0		300	0			
Detector 1 Size(ft)		40				40		6	20			
Detector 1 Type		Cl+Ex				Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0				0.0		0.0	0.0			
Detector 1 Queue (s)		0.0				0.0		0.0	0.0			
Detector 1 Delay (s)		0.0				0.0		0.0	0.0			
Turn Type		NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases						4			2			
Detector Phase		4				4		2	2			
Switch Phase												
Minimum Initial (s)		7.0				7.0		14.0	14.0			
Minimum Split (s)		25.0				25.0		21.0	21.0			
Total Split (s)		25.0				25.0		65.0	65.0			
Total Split (%)		27.8%				27.8%		72.2%	72.2%			
Yellow Time (s)		5.0				5.0		5.0	5.0			
All-Red Time (s)		2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None				None		C-Max	C-Max			
Act Effct Green (s)		16.4				16.4		63.6	63.6			
Actuated g/C Ratio		0.18				0.18		0.71	0.71			
v/c Ratio		0.59				0.37		0.53	0.16			
Control Delay		43.7				14.8		1.5	0.2			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		43.7				14.8		1.5	0.2			
LOS		D				B		A	A			
Approach Delay		43.7			14.8			1.3				
Approach LOS		D			B			A				
Queue Length 50th (ft)		118				25		22	0			
Queue Length 95th (ft)		191				57		30	m0			
Internal Link Dist (ft)		244			378			214			519	
Turn Bay Length (ft)									100			
Base Capacity (vph)		414				724		2502	1166			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.48				0.32		0.53	0.16			

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 2 (2%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 7.2 Intersection LOS: A
Intersection Capacity Utilization 50.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: US 15/501 & Partner Circle SB Turn/Pine Ridge Parkway

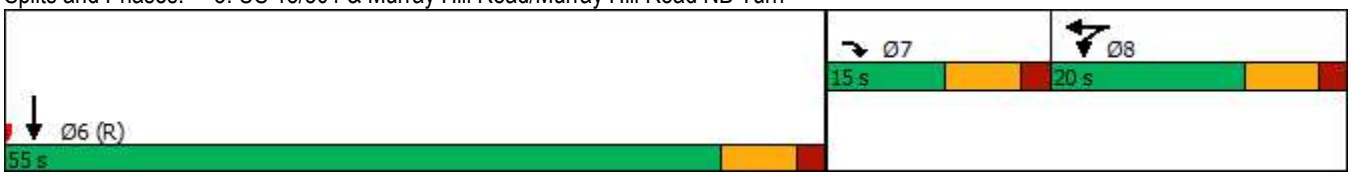


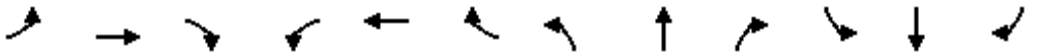
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	80	111	26	0	0	0	0	0	1166	174
Future Volume (vph)	0	0	80	111	26	0	0	0	0	0	1166	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	2787	1770	1863	0	0	0	0	0	3472	0
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	2787	1770	1863	0	0	0	0	0	3472	0
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)			224								29	
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		975			380			1636			332	
Travel Time (s)		19.0			5.8			24.8			5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	89	123	29	0	0	0	0	0	1489	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												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1	1	1						1	
Detector Template				Left								
Leading Detector (ft)			40	40	40						306	
Trailing Detector (ft)			0	0	0						300	
Detector 1 Position(ft)			0	0	0						300	
Detector 1 Size(ft)			40	40	40						6	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex						Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)			0.0	0.0	0.0						0.0	
Detector 1 Queue (s)			0.0	0.0	0.0						0.0	
Detector 1 Delay (s)			0.0	0.0	0.0						0.0	
Turn Type			Prot	Split	NA						NA	
Protected Phases			7	8	8						6	
Permitted Phases												
Detector Phase			7	8	8						6	
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	
Minimum Split (s)			14.0	14.0	14.0						21.0	
Total Split (s)			15.0	20.0	20.0						55.0	
Total Split (%)			16.7%	22.2%	22.2%						61.1%	
Yellow Time (s)			5.0	5.0	5.0						5.0	
All-Red Time (s)			2.0	2.0	2.0						2.0	
Lost Time Adjust (s)			-2.0	-2.0	-2.0						-2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)			5.0	5.0	5.0						5.0	
Lead/Lag			Lead	Lag	Lag							
Lead-Lag Optimize?			Yes	Yes	Yes							
Recall Mode			None	None	None						C-Max	
Act Effct Green (s)			9.0	13.1	13.1						55.7	
Actuated g/C Ratio			0.10	0.15	0.15						0.62	
v/c Ratio			0.19	0.48	0.11						0.69	
Control Delay			0.8	41.0	32.9						9.2	
Queue Delay			0.0	0.0	0.0						0.0	
Total Delay			0.8	41.0	32.9						9.2	
LOS			A	D	C						A	
Approach Delay		0.8			39.5						9.2	
Approach LOS		A			D						A	
Queue Length 50th (ft)			0	65	14						132	
Queue Length 95th (ft)			0	115	38						228	
Internal Link Dist (ft)		895			300			1556			252	
Turn Bay Length (ft)			150									
Base Capacity (vph)			508	300	315						2159	
Starvation Cap Reductn			0	0	0						0	
Spillback Cap Reductn			0	0	0						0	
Storage Cap Reductn			0	0	0						0	
Reduced v/c Ratio			0.18	0.41	0.09						0.69	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 62.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: US 15/501 & Murray Hill Road/Murray Hill Road NB Turn





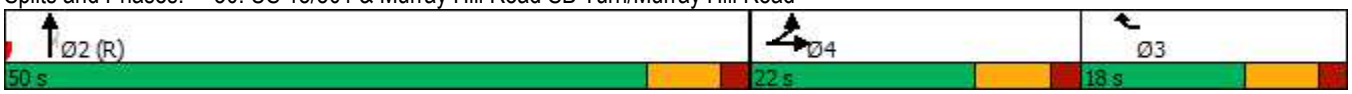
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	183	0	0	0	435	0	1255	103	0	0	0
Future Volume (vph)	4	183	0	0	0	435	0	1255	103	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		150	0		0
Storage Lanes	1		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	1863	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	1770	1863	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						516			133			
Link Speed (mph)		45			35			45			45	
Link Distance (ft)		370			1048			336			669	
Travel Time (s)		5.6			20.4			5.1			10.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	203	0	0	0	483	0	1394	114	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)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1				1		1	1			
Detector Template	Left											
Leading Detector (ft)	40	40				40		306	40			
Trailing Detector (ft)	0	0				0		300	0			
Detector 1 Position(ft)	0	0				0		300	0			
Detector 1 Size(ft)	40	40				40		6	40			
Detector 1 Type	Cl+Ex	Cl+Ex				Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0				0.0		0.0	0.0			
Detector 1 Queue (s)	0.0	0.0				0.0		0.0	0.0			
Detector 1 Delay (s)	0.0	0.0				0.0		0.0	0.0			
Turn Type	Split	NA				Prot		NA	Perm			
Protected Phases	4	4				3		2				
Permitted Phases									2			
Detector Phase	4	4				3		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				5.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				12.0		21.0	21.0			
Total Split (s)	22.0	22.0				18.0		50.0	50.0			
Total Split (%)	24.4%	24.4%				20.0%		55.6%	55.6%			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0				-2.0		-2.0	-2.0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0				5.0		5.0	5.0			
Lead/Lag	Lead	Lead				Lag						
Lead-Lag Optimize?	Yes	Yes				Yes						
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)	15.4	15.4				8.9		50.7	50.7			
Actuated g/C Ratio	0.17	0.17				0.10		0.56	0.56			
v/c Ratio	0.01	0.64				0.65		0.70	0.12			
Control Delay	20.0	33.8				7.2		17.4	1.9			
Queue Delay	0.0	0.0				0.0		0.0	0.0			
Total Delay	20.0	33.8				7.2		17.4	1.9			
LOS	B	C				A		B	A			
Approach Delay		33.5			7.2			16.2				
Approach LOS		C			A			B				
Queue Length 50th (ft)	2	109				0		281	0			
Queue Length 95th (ft)	m3	178				36		418	20			
Internal Link Dist (ft)		290			968			256			589	
Turn Bay Length (ft)						250			150			
Base Capacity (vph)	334	351				844		1992	949			
Starvation Cap Reductn	0	0				0		0	0			
Spillback Cap Reductn	0	0				0		0	0			
Storage Cap Reductn	0	0				0		0	0			
Reduced v/c Ratio	0.01	0.58				0.57		0.70	0.12			

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 15.9 Intersection LOS: B
Intersection Capacity Utilization 68.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: US 15/501 & Murray Hill Road SB Turn/Murray Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	729	93	83	763	51	64	65	81	168	42	81
Future Volume (vph)	139	729	93	83	763	51	64	65	81	168	42	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3392	0	1814	3628	1623	3382	1835	1560	1734	1825	1552
Flt Permitted	0.197			0.203			0.950			0.710		
Satd. Flow (perm)	358	3392	0	388	3628	1623	3382	1835	1560	1296	1825	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				131			90			90
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		986			1215			686			806	
Travel Time (s)		14.9			18.4			13.4			15.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	913	0	92	848	57	71	72	90	187	47	90
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)		18			18			28			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.97	0.97	0.97	1.02	1.02	1.02	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	20.0	65.0		15.0	60.0	60.0	15.0	40.0	15.0	15.0	40.0	20.0
Total Split (%)	14.8%	48.1%		11.1%	44.4%	44.4%	11.1%	29.6%	11.1%	11.1%	29.6%	14.8%
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max		None	Max	Max	None	Max	None	None	Max	None
Act Effct Green (s)	72.6	60.0		66.4	56.9	55.9	9.3	35.4	49.9	45.4	38.8	56.3
Actuated g/C Ratio	0.54	0.44		0.49	0.42	0.41	0.07	0.26	0.37	0.34	0.29	0.42
v/c Ratio	0.48	0.60		0.32	0.55	0.08	0.30	0.15	0.14	0.40	0.09	0.13
Control Delay	20.2	30.1		17.7	31.4	0.2	63.2	39.4	5.9	33.6	38.4	5.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.2	30.1		17.7	31.4	0.2	63.2	39.4	5.9	33.6	38.4	5.3
LOS	C	C		B	C	A	E	D	A	C	D	A
Approach Delay		28.7			28.4			33.7			26.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	64	312		37	292	0	30	49	0	115	31	0
Queue Length 95th (ft)	102	382		65	368	0	56	91	36	178	65	34
Internal Link Dist (ft)		906			1135			606			726	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	349	1516		298	1531	749	250	481	639	468	524	727
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.60		0.31	0.55	0.08	0.28	0.15	0.14	0.40	0.09	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 134.9			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 28.7		Intersection LOS: C	
Intersection Capacity Utilization 57.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Brucewood Road & Morganton Road



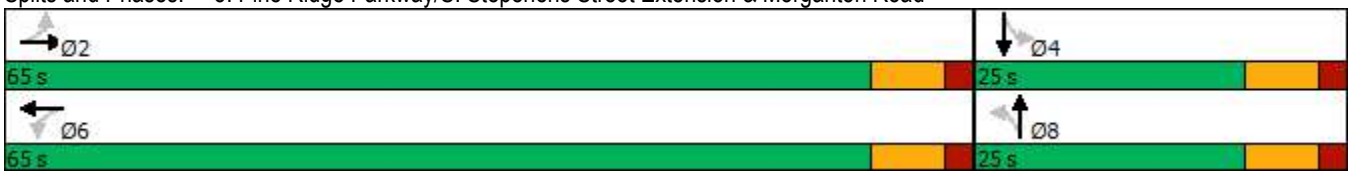
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	919	26	146	1005	19	14	17	86	11	30	37
Future Volume (vph)	31	919	26	146	1005	19	14	17	86	11	30	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3525	0	1770	3529	0	1770	1630	0	0	1731	0
Flt Permitted	0.214			0.243			0.701				0.928	
Satd. Flow (perm)	399	3525	0	453	3529	0	1306	1630	0	0	1618	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			4			96			41	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		978			1095			673			1303	
Travel Time (s)		14.8			16.6			13.1			25.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	1050	0	162	1138	0	16	115	0	0	86	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			24			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template										Left		
Leading Detector (ft)	40	306		40	306		40	40		20	40	
Trailing Detector (ft)	0	300		0	300		0	0		0	0	
Detector 1 Position(ft)	0	300		0	300		0	0		0	0	
Detector 1 Size(ft)	40	6		40	6		40	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	

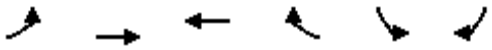
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	31.1	31.1		31.1	31.1		10.6	10.6			10.6	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.22	0.22			0.22	
v/c Ratio	0.13	0.45		0.55	0.49		0.05	0.26			0.22	
Control Delay	5.7	6.0		14.8	6.3		21.6	9.7			14.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	5.7	6.0		14.8	6.3		21.6	9.7			14.7	
LOS	A	A		B	A		C	A			B	
Approach Delay		6.0			7.4			11.2			14.7	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	3	70		23	80		3	3			8	
Queue Length 95th (ft)	14	126		85	141		23	50			57	
Internal Link Dist (ft)		898			1015			593			1223	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	382	3373		433	3377		603	804			769	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.09	0.31		0.37	0.34		0.03	0.14			0.11	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 47.3
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 7.2 — Intersection LOS: A
Intersection Capacity Utilization 62.0% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Pine Ridge Parkway/S. Stepehens Street Extension & Morganton Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	32	393	227	40	27	21
Future Volume (vph)	32	393	227	40	27	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	3539	3461	0	1704	0
Flt Permitted	0.950				0.972	
Satd. Flow (perm)	1770	3539	3461	0	1704	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		715	641		372	
Travel Time (s)		13.9	12.5		10.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	437	296	0	53	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		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)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.2%		ICU Level of Service A	
Analysis Period (min) 15			

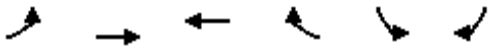
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	32	393	227	40	27	21
Future Vol, veh/h	32	393	227	40	27	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	-	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	36	437	252	44	30	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	296	0	-	0	565	148
Stage 1	-	-	-	-	274	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1262	-	-	-	455	872
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	733	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1262	-	-	-	442	872
Mov Cap-2 Maneuver	-	-	-	-	442	-
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	733	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1262	-	-	-	564
HCM Lane V/C Ratio	0.028	-	-	-	0.095
HCM Control Delay (s)	7.9	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	120	300	187	40	27	80
Future Volume (vph)	120	300	187	40	27	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	3539	3447	0	1655	0
Flt Permitted	0.950				0.988	
Satd. Flow (perm)	1770	3539	3447	0	1655	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		641	439		314	
Travel Time (s)		12.5	8.6		8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	333	252	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		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)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.5%		ICU Level of Service A	
Analysis Period (min) 15			

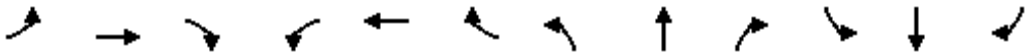
Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	300	187	40	27	80
Future Vol, veh/h	120	300	187	40	27	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	133	333	208	44	30	89

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	252	0	-	0	663	126
Stage 1	-	-	-	-	230	-
Stage 2	-	-	-	-	433	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1310	-	-	-	394	901
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	621	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1310	-	-	-	354	901
Mov Cap-2 Maneuver	-	-	-	-	354	-
Stage 1	-	-	-	-	706	-
Stage 2	-	-	-	-	621	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1310	-	-	-	648
HCM Lane V/C Ratio	0.102	-	-	-	0.183
HCM Control Delay (s)	8.1	-	-	-	11.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	251	16	4	178	20	9	4	4	13	4	40
Future Volume (vph)	60	251	16	4	178	20	9	4	4	13	4	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	115		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3507	0	1770	3486	0	0	1758	0	0	1665	0
Flt Permitted	0.950			0.950				0.973			0.989	
Satd. Flow (perm)	1770	3507	0	1770	3486	0	0	1758	0	0	1665	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		439			817			501			326	
Travel Time (s)		8.6			15.9			13.7			8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	297	0	4	220	0	0	18	0	0	62	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												
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 24.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	251	16	4	178	20	9	4	4	13	4	40
Future Vol, veh/h	60	251	16	4	178	20	9	4	4	13	4	40
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	175	-	-	115	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	67	279	18	4	198	22	10	4	4	14	4	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	220	0	0	297	0	0	531	650	149	493	648	110
Stage 1	-	-	-	-	-	-	422	422	-	217	217	-
Stage 2	-	-	-	-	-	-	109	228	-	276	431	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1346	-	-	1261	-	-	431	387	871	459	388	922
Stage 1	-	-	-	-	-	-	580	587	-	765	722	-
Stage 2	-	-	-	-	-	-	885	714	-	707	581	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1346	-	-	1261	-	-	390	366	871	434	367	922
Mov Cap-2 Maneuver	-	-	-	-	-	-	390	366	-	434	367	-
Stage 1	-	-	-	-	-	-	551	558	-	727	720	-
Stage 2	-	-	-	-	-	-	834	712	-	663	552	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.2	13.5	10.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	440	1346	-	-	1261	-	-	677
HCM Lane V/C Ratio	0.043	0.05	-	-	0.004	-	-	0.094
HCM Control Delay (s)	13.5	7.8	-	-	7.9	-	-	10.9
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	6	25	7	4	4	42	162	13	6	152	33
Future Volume (vph)	18	6	25	7	4	4	42	162	13	6	152	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1703	0	0	1756	0	0	3472	0	0	3440	0
Flt Permitted		0.982			0.976			0.990			0.998	
Satd. Flow (perm)	0	1703	0	0	1756	0	0	3472	0	0	3440	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		576			544			817			673	
Travel Time (s)		13.1			12.4			15.9			13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	16	0	0	241	0	0	213	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			12			12	
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	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

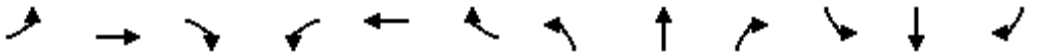
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Vol, veh/h	18	6	25	7	4	4	42	162	13	6	152	33
Future Vol, veh/h	18	6	25	7	4	4	42	162	13	6	152	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	7	28	8	4	4	47	180	14	7	169	37

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	388	490	103	383	501	97	206	0	0	194	0	0
Stage 1	202	202	-	281	281	-	-	-	-	-	-	-
Stage 2	186	288	-	102	220	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	545	477	932	550	471	940	1363	-	-	1377	-	-
Stage 1	781	733	-	702	677	-	-	-	-	-	-	-
Stage 2	798	672	-	893	720	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	520	456	932	510	450	940	1363	-	-	1377	-	-
Mov Cap-2 Maneuver	520	456	-	510	450	-	-	-	-	-	-	-
Stage 1	751	729	-	675	651	-	-	-	-	-	-	-
Stage 2	758	646	-	853	716	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	11.7	1.6	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1363	-	-	657	558	1377	-	-
HCM Lane V/C Ratio	0.034	-	-	0.083	0.03	0.005	-	-
HCM Control Delay (s)	7.7	0.1	-	11	11.7	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	-	-



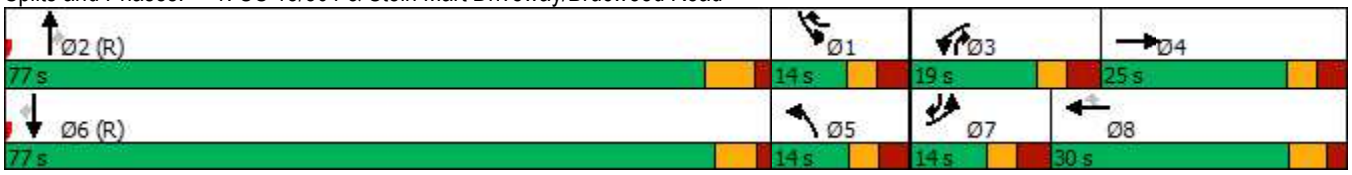
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	27	31	304	27	75	32	1381	358	90	1440	54
Future Volume (vph)	46	27	31	304	27	75	32	1381	358	90	1440	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		100	350		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1714	0	3433	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1714	0	3433	1863	1583	1770	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34				80			326			78
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		254			285			568			1917	
Travel Time (s)		8.7			5.6			8.6			29.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	64	0	338	30	83	36	1534	398	100	1600	60
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)		36			36			22			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	25.0		14.0	25.0	14.0	14.0	25.0	14.0	14.0	25.0	14.0
Total Split (s)	14.0	25.0		19.0	30.0	14.0	14.0	77.0	19.0	14.0	77.0	14.0
Total Split (%)	10.4%	18.5%		14.1%	22.2%	10.4%	10.4%	57.0%	14.1%	10.4%	57.0%	10.4%
Yellow Time (s)	3.0	3.0		3.0	3.8	3.0	3.0	4.9	3.0	3.0	4.2	3.0
All-Red Time (s)	3.3	3.3		3.4	2.2	3.4	3.2	1.7	3.4	3.4	1.5	3.3
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.0	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	12.3	9.0		14.3	12.3	17.8	8.7	85.6	100.9	8.7	88.3	102.6
Actuated g/C Ratio	0.09	0.07		0.11	0.09	0.13	0.06	0.63	0.75	0.06	0.65	0.76
v/c Ratio	0.16	0.44		0.93	0.18	0.30	0.32	0.68	0.31	0.45	0.69	0.05
Control Delay	59.6	41.8		92.2	57.1	10.3	68.0	18.7	1.3	67.6	18.5	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	41.8		92.2	57.1	10.3	68.0	18.7	1.3	67.6	18.5	0.6
LOS	E	D		F	E	B	E	B	A	E	B	A
Approach Delay		49.7			74.8			16.1			20.7	
Approach LOS		D			E			B			C	
Queue Length 50th (ft)	22	26		154	24	2	31	448	7	44	483	0
Queue Length 95th (ft)	44	73		#250	56	39	68	565	22	75	610	5
Internal Link Dist (ft)		174			205			488			1837	
Turn Bay Length (ft)				150		100	350		200	300		100
Base Capacity (vph)	324	282		363	345	281	118	2244	1265	228	2314	1226
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.23		0.93	0.09	0.30	0.31	0.68	0.31	0.44	0.69	0.05

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 25.1 Intersection LOS: C
Intersection Capacity Utilization 63.5% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 15/501 & Stein Mart Driveway/Brucwood Road



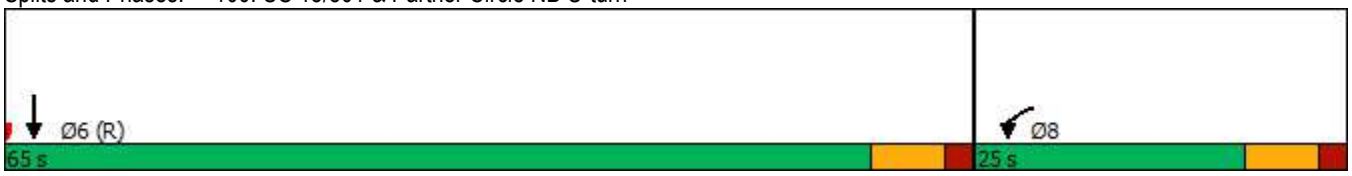


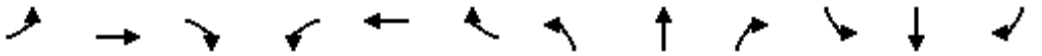
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	163	0	0	0	0	1781
Future Volume (vph)	163	0	0	0	0	1781
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	0	0	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	0	0	3539
Right Turn on Red	No	Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	60		281			116
Travel Time (s)	1.4		4.3			1.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	181	0	0	0	0	1979
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			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)	15	9		9	15	
Number of Detectors	1					1
Detector Template						
Leading Detector (ft)	40					76
Trailing Detector (ft)	0					70
Detector 1 Position(ft)	0					70
Detector 1 Size(ft)	40					6
Detector 1 Type	Cl+Ex					Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases						
Detector Phase	8					6
Switch Phase						
Minimum Initial (s)	7.0					10.0
Minimum Split (s)	14.0					17.0
Total Split (s)	25.0					65.0
Total Split (%)	27.8%					72.2%
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Recall Mode	None					C-Max
Act Effct Green (s)	16.0					64.0
Actuated g/C Ratio	0.18					0.71
v/c Ratio	0.57					0.79
Control Delay	33.7					12.2
Queue Delay	0.0					0.0
Total Delay	33.7					12.2
LOS	C					B
Approach Delay	33.7					12.2
Approach LOS	C					B
Queue Length 50th (ft)	47					334
Queue Length 95th (ft)	68					510
Internal Link Dist (ft)	1		201			36
Turn Bay Length (ft)						
Base Capacity (vph)	393					2515
Starvation Cap Reductn	0					0
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.46					0.79

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 105.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 100: US 15/501 & Partner Circle NB U-turn





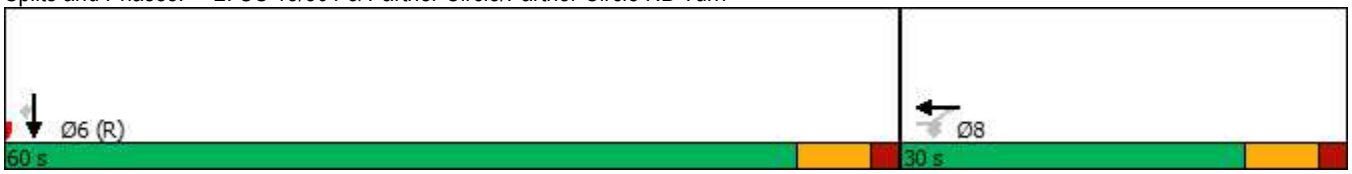
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	52	208	59	0	0	0	0	0	1747	15
Future Volume (vph)	0	0	52	208	59	0	0	0	0	0	1747	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		150
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	1611	0	1794	0	0	0	0	0	3539	1583
Flt Permitted					0.963							
Satd. Flow (perm)	0	0	1611	0	1794	0	0	0	0	0	3539	1583
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)			48									48
Link Speed (mph)		30			45			45			45	
Link Distance (ft)		478			301			595			323	
Travel Time (s)		10.9			4.6			9.0			4.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	58	0	297	0	0	0	0	0	1941	17
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			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1	1	1						1	0
Detector Template				Left								
Leading Detector (ft)			40	20	40						306	0
Trailing Detector (ft)			0	0	0						300	0
Detector 1 Position(ft)			0	0	0						300	0
Detector 1 Size(ft)			40	20	40						6	20
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex						Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)			0.0	0.0	0.0						0.0	0.0
Detector 1 Queue (s)			0.0	0.0	0.0						0.0	0.0
Detector 1 Delay (s)			0.0	0.0	0.0						0.0	0.0
Turn Type			Perm	Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases			8	8								6
Detector Phase			8	8	8						6	6
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	14.0
Minimum Split (s)			14.0	14.0	14.0						21.0	21.0
Total Split (s)			30.0	30.0	30.0						60.0	60.0
Total Split (%)			33.3%	33.3%	33.3%						66.7%	66.7%
Yellow Time (s)			5.0	5.0	5.0						5.0	5.0
All-Red Time (s)			2.0	2.0	2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode			None	None	None						C-Max	C-Max
Act Effct Green (s)			21.2		21.2						58.8	58.8
Actuated g/C Ratio			0.24		0.24						0.65	0.65
v/c Ratio			0.14		0.70						0.84	0.02
Control Delay			10.5		43.6						12.5	0.1
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			10.5		43.6						12.5	0.1
LOS			B		D						B	A
Approach Delay		10.5			43.6						12.4	
Approach LOS		B			D						B	
Queue Length 50th (ft)			4		165						487	0
Queue Length 95th (ft)			32		m197						527	m0
Internal Link Dist (ft)		398			221			515			243	
Turn Bay Length (ft)												150
Base Capacity (vph)			482		498						2311	1050
Starvation Cap Reductn			0		0						0	0
Spillback Cap Reductn			0		0						0	0
Storage Cap Reductn			0		0						0	0
Reduced v/c Ratio			0.12		0.60						0.84	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 17 (19%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 16.3		Intersection LOS: B	
Intersection Capacity Utilization 81.2%		ICU Level of Service D	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 15/501 & Partner Circle/Partner Circle NB Turn



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	146	0	0	0	338	0	1598	139	0	0	0
Future Volume (vph)	0	146	0	0	0	338	0	1598	139	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	0		2	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1863	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						52			99			
Link Speed (mph)		45			30			45			45	
Link Distance (ft)		324			458			294			599	
Travel Time (s)		4.9			10.4			4.5			9.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	162	0	0	0	376	0	1776	154	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			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1				1		1	1			
Detector Template									Right			
Leading Detector (ft)		40				40		306	20			
Trailing Detector (ft)		0				0		300	0			
Detector 1 Position(ft)		0				0		300	0			
Detector 1 Size(ft)		40				40		6	20			
Detector 1 Type		Cl+Ex				Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0				0.0		0.0	0.0			
Detector 1 Queue (s)		0.0				0.0		0.0	0.0			
Detector 1 Delay (s)		0.0				0.0		0.0	0.0			
Turn Type		NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases						4			2			
Detector Phase		4				4		2	2			
Switch Phase												
Minimum Initial (s)		7.0				7.0		14.0	14.0			
Minimum Split (s)		25.0				25.0		21.0	21.0			
Total Split (s)		25.0				25.0		65.0	65.0			
Total Split (%)		27.8%				27.8%		72.2%	72.2%			
Yellow Time (s)		5.0				5.0		5.0	5.0			
All-Red Time (s)		2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None				None		C-Max	C-Max			
Act Effct Green (s)		17.3				17.3		62.7	62.7			
Actuated g/C Ratio		0.19				0.19		0.70	0.70			
v/c Ratio		0.45				0.65		0.72	0.14			
Control Delay		36.2				34.1		3.0	0.1			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		36.2				34.1		3.0	0.1			
LOS		D				C		A	A			
Approach Delay		36.2			34.1			2.8				
Approach LOS		D			C			A				
Queue Length 50th (ft)		96				96		30	0			
Queue Length 95th (ft)		m125				143		m29	m0			
Internal Link Dist (ft)		244			378			214			519	
Turn Bay Length (ft)									100			
Base Capacity (vph)		414				659		2466	1133			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.39				0.57		0.72	0.14			

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 89 (99%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 9.8 Intersection LOS: A
Intersection Capacity Utilization 64.3% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: US 15/501 & Partner Circle SB Turn/Pine Ridge Parkway

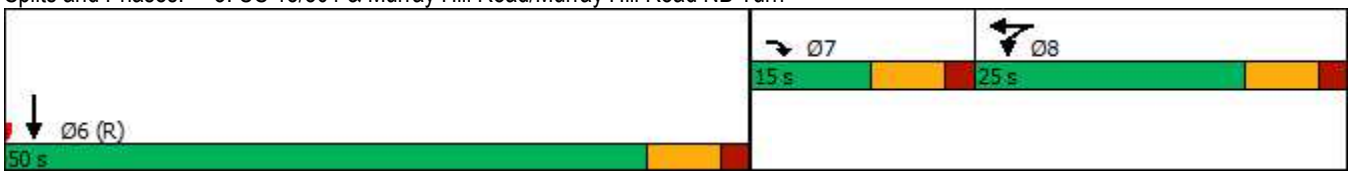


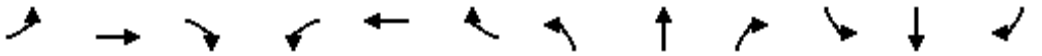
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	336	239	30	0	0	0	0	0	1543	106
Future Volume (vph)	0	0	336	239	30	0	0	0	0	0	1543	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	2787	1770	1863	0	0	0	0	0	3504	0
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	2787	1770	1863	0	0	0	0	0	3504	0
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)			133								11	
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		975			380			1636			332	
Travel Time (s)		19.0			5.8			24.8			5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	373	266	33	0	0	0	0	0	1832	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												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1	1	1						1	
Detector Template				Left								
Leading Detector (ft)			40	40	40						306	
Trailing Detector (ft)			0	0	0						300	
Detector 1 Position(ft)			0	0	0						300	
Detector 1 Size(ft)			40	40	40						6	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex						Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)			0.0	0.0	0.0						0.0	
Detector 1 Queue (s)			0.0	0.0	0.0						0.0	
Detector 1 Delay (s)			0.0	0.0	0.0						0.0	
Turn Type			Prot	Split	NA						NA	
Protected Phases			7	8	8						6	
Permitted Phases												
Detector Phase			7	8	8						6	
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	
Minimum Split (s)			14.0	14.0	14.0						21.0	
Total Split (s)			15.0	25.0	25.0						50.0	
Total Split (%)			16.7%	27.8%	27.8%						55.6%	
Yellow Time (s)			5.0	5.0	5.0						5.0	
All-Red Time (s)			2.0	2.0	2.0						2.0	
Lost Time Adjust (s)			-2.0	-2.0	-2.0						-2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)			5.0	5.0	5.0						5.0	
Lead/Lag			Lead	Lag	Lag							
Lead-Lag Optimize?			Yes	Yes	Yes							
Recall Mode			None	None	None						C-Max	
Act Effct Green (s)			10.0	18.4	18.4						46.6	
Actuated g/C Ratio			0.11	0.20	0.20						0.52	
v/c Ratio			0.87	0.73	0.09						1.01	
Control Delay			47.7	46.1	28.7						34.1	
Queue Delay			0.0	0.0	0.0						0.0	
Total Delay			47.7	46.1	28.7						34.1	
LOS			D	D	C						C	
Approach Delay		47.7			44.2						34.1	
Approach LOS		D			D						C	
Queue Length 50th (ft)			77	139	15						~604	
Queue Length 95th (ft)			#165	224	39						#727	
Internal Link Dist (ft)		895			300			1556			252	
Turn Bay Length (ft)			150									
Base Capacity (vph)			427	393	414						1818	
Starvation Cap Reductn			0	0	0						0	
Spillback Cap Reductn			0	0	0						0	
Storage Cap Reductn			0	0	0						0	
Reduced v/c Ratio			0.87	0.68	0.08						1.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 38 (42%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 37.3		Intersection LOS: D	
Intersection Capacity Utilization 113.5%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: US 15/501 & Murray Hill Road/Murray Hill Road NB Turn





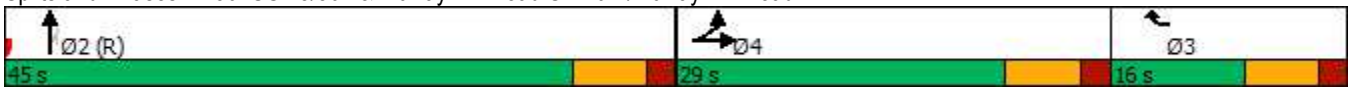
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	281	0	0	0	550	0	1622	323	0	0	0
Future Volume (vph)	0	281	0	0	0	550	0	1622	323	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		150	0		0
Storage Lanes	1		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1863	1863	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted												
Satd. Flow (perm)	1863	1863	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						708			191			
Link Speed (mph)		45			35			45			45	
Link Distance (ft)		370			1048			336			669	
Travel Time (s)		5.6			20.4			5.1			10.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	312	0	0	0	611	0	1802	359	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)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1				1		1	1			
Detector Template	Left											
Leading Detector (ft)	40	40				40		306	40			
Trailing Detector (ft)	0	0				0		300	0			
Detector 1 Position(ft)	0	0				0		300	0			
Detector 1 Size(ft)	40	40				40		6	40			
Detector 1 Type	Cl+Ex	Cl+Ex				Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0				0.0		0.0	0.0			
Detector 1 Queue (s)	0.0	0.0				0.0		0.0	0.0			
Detector 1 Delay (s)	0.0	0.0				0.0		0.0	0.0			
Turn Type	Split	NA				Prot		NA	Perm			
Protected Phases	4	4				3		2				
Permitted Phases									2			
Detector Phase	4	4				3		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				5.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				12.0		21.0	21.0			
Total Split (s)	29.0	29.0				16.0		45.0	45.0			
Total Split (%)	32.2%	32.2%				17.8%		50.0%	50.0%			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0				-2.0		-2.0	-2.0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0				5.0		5.0	5.0			
Lead/Lag	Lead	Lead				Lag						
Lead-Lag Optimize?	Yes	Yes				Yes						
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		21.0				8.4		45.6	45.6			
Actuated g/C Ratio		0.23				0.09		0.51	0.51			
v/c Ratio		0.72				0.68		1.01	0.40			
Control Delay		28.4				5.3		46.8	8.4			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		28.4				5.3		46.8	8.4			
LOS		C				A		D	A			
Approach Delay		28.4			5.3			40.4				
Approach LOS		C			A			D				
Queue Length 50th (ft)		122				0		~528	50			
Queue Length 95th (ft)		m159				21		#775	127			
Internal Link Dist (ft)		290			968			256			589	
Turn Bay Length (ft)						250			150			
Base Capacity (vph)		496				962		1793	896			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.63				0.64		1.01	0.40			

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 32.2 Intersection LOS: C
Intersection Capacity Utilization 111.9% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: US 15/501 & Murray Hill Road SB Turn/Murray Hill Road



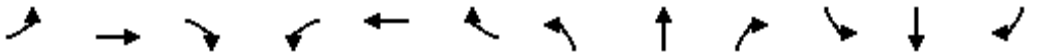
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	707	171	189	765	86	229	66	242	153	66	103
Future Volume (vph)	111	707	171	189	765	86	229	66	242	153	66	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3351	0	1814	3628	1623	3382	1835	1560	1734	1825	1552
Flt Permitted	0.244			0.131			0.950			0.709		
Satd. Flow (perm)	443	3351	0	250	3628	1623	3382	1835	1560	1294	1825	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25				130			128			137
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		986			1215			686			806	
Travel Time (s)		14.9			18.4			13.4			15.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	976	0	210	850	96	254	73	269	170	73	114
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)		18			18			28			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.97	0.97	0.97	1.02	1.02	1.02	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	15.0	55.0		25.0	65.0	65.0	20.0	40.0	25.0	15.0	35.0	15.0
Total Split (%)	11.1%	40.7%		18.5%	48.1%	48.1%	14.8%	29.6%	18.5%	11.1%	25.9%	11.1%
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max		None	Max	Max	None	Max	None	None	Max	None
Act Effct Green (s)	64.1	54.3		73.8	60.0	59.0	14.5	35.4	55.9	45.4	30.9	45.7
Actuated g/C Ratio	0.47	0.40		0.55	0.44	0.44	0.11	0.26	0.41	0.34	0.23	0.34
v/c Ratio	0.41	0.72		0.67	0.53	0.12	0.70	0.15	0.37	0.36	0.18	0.19
Control Delay	19.6	37.3		28.3	28.8	1.7	69.2	39.5	14.8	32.8	43.7	3.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	37.3		28.3	28.8	1.7	69.2	39.5	14.8	32.8	43.7	3.6
LOS	B	D		C	C	A	E	D	B	C	D	A
Approach Delay		35.3			26.5			41.0			25.7	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	50	366		90	281	0	112	50	81	104	52	0
Queue Length 95th (ft)	83	474		159	344	16	159	92	143	163	97	29
Internal Link Dist (ft)		906			1135			606			726	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	305	1360		369	1610	781	375	480	767	467	416	617
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.72		0.57	0.53	0.12	0.68	0.15	0.35	0.36	0.18	0.18

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135.2			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 32.1		Intersection LOS: C	
Intersection Capacity Utilization 63.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Brucewood Road & Morganton Road





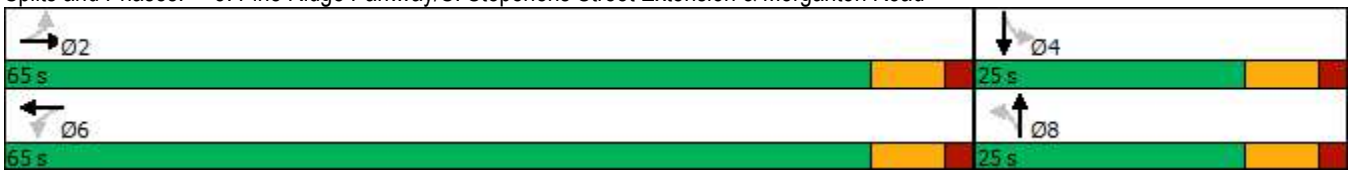
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	968	70	148	915	38	78	23	173	25	19	34
Future Volume (vph)	61	968	70	148	915	38	78	23	173	25	19	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3504	0	1770	3518	0	1770	1617	0	0	1725	0
Flt Permitted	0.227			0.196			0.701				0.831	
Satd. Flow (perm)	423	3504	0	365	3518	0	1306	1617	0	0	1457	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			10			130			38	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		978			1095			673			1303	
Travel Time (s)		14.8			16.6			13.1			25.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1154	0	164	1059	0	87	218	0	0	87	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			24			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template										Left		
Leading Detector (ft)	40	306		40	306		40	40		20	40	
Trailing Detector (ft)	0	300		0	300		0	0		0	0	
Detector 1 Position(ft)	0	300		0	300		0	0		0	0	
Detector 1 Size(ft)	40	6		40	6		40	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	

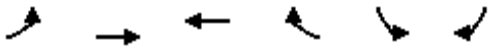
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	32.2	32.2		32.2	32.2		12.8	12.8			12.8	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.23	0.23			0.23	
v/c Ratio	0.28	0.58		0.79	0.53		0.29	0.47			0.24	
Control Delay	9.0	8.1		37.8	7.6		26.7	14.9			17.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	9.0	8.1		37.8	7.6		26.7	14.9			17.4	
LOS	A	A		D	A		C	B			B	
Approach Delay		8.1			11.7			18.3			17.4	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	8	91		31	81		22	22			12	
Queue Length 95th (ft)	34	187		#173	167		84	108			62	
Internal Link Dist (ft)		898			1015			593			1223	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	383	3176		330	3188		527	730			610	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.18	0.36		0.50	0.33		0.17	0.30			0.14	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 56.4
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 11.0 Intersection LOS: B
Intersection Capacity Utilization 73.4% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Pine Ridge Parkway/S. Stepehens Street Extension & Morganton Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	364	430	50	54	47
Future Volume (vph)	43	364	430	50	54	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	3539	3483	0	1700	0
Flt Permitted	0.950				0.974	
Satd. Flow (perm)	1770	3539	3483	0	1700	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		715	641		372	
Travel Time (s)		13.9	12.5		10.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	404	534	0	112	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		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)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.7%		ICU Level of Service A	
Analysis Period (min) 15			

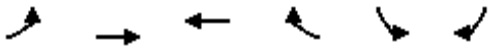
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	364	430	50	54	47
Future Vol, veh/h	43	364	430	50	54	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	125	-	-	-	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	48	404	478	56	60	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	534	0	-	0	804	267
Stage 1	-	-	-	-	506	-
Stage 2	-	-	-	-	298	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1030	-	-	-	321	731
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	727	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1030	-	-	-	306	731
Mov Cap-2 Maneuver	-	-	-	-	306	-
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	727	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1030	-	-	-	419
HCM Lane V/C Ratio	0.046	-	-	-	0.268
HCM Control Delay (s)	8.7	-	-	-	16.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	157	261	309	73	79	170
Future Volume (vph)	157	261	309	73	79	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Satd. Flow (prot)	1770	3539	3437	0	1664	0
Flt Permitted	0.950				0.984	
Satd. Flow (perm)	1770	3539	3437	0	1664	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		641	439		314	
Travel Time (s)		12.5	8.6		8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	174	290	424	0	277	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		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)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

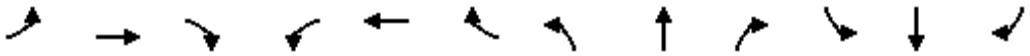
Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	157	261	309	73	79	170
Future Vol, veh/h	157	261	309	73	79	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	174	290	343	81	88	189

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	424	0	-	0	877	212
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	493	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1132	-	-	-	288	793
Stage 1	-	-	-	-	658	-
Stage 2	-	-	-	-	579	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1132	-	-	-	244	793
Mov Cap-2 Maneuver	-	-	-	-	244	-
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	579	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	23.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1132	-	-	-	463
HCM Lane V/C Ratio	0.154	-	-	-	0.598
HCM Control Delay (s)	8.8	-	-	-	23.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.5	-	-	-	3.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	256	8	4	292	25	11	4	4	27	4	81
Future Volume (vph)	75	256	8	4	292	25	11	4	4	27	4	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	115		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3522	0	1770	3497	0	0	1760	0	0	1660	0
Flt Permitted	0.950			0.950				0.971			0.988	
Satd. Flow (perm)	1770	3522	0	1770	3497	0	0	1760	0	0	1660	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		439			817			501			326	
Travel Time (s)		8.6			15.9			13.7			8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	293	0	4	352	0	0	20	0	0	124	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												
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 29.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	256	8	4	292	25	11	4	4	27	4	81
Future Vol, veh/h	75	256	8	4	292	25	11	4	4	27	4	81
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	175	-	-	115	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	83	284	9	4	324	28	12	4	4	30	4	90

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	352	0	0	293	0	0	627	815	147	656	805	176
Stage 1	-	-	-	-	-	-	455	455	-	346	346	-
Stage 2	-	-	-	-	-	-	172	360	-	310	459	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1203	-	-	1265	-	-	368	310	873	351	315	837
Stage 1	-	-	-	-	-	-	554	567	-	643	634	-
Stage 2	-	-	-	-	-	-	813	625	-	675	565	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1203	-	-	1265	-	-	307	288	873	326	292	837
Mov Cap-2 Maneuver	-	-	-	-	-	-	307	288	-	326	292	-
Stage 1	-	-	-	-	-	-	516	528	-	599	632	-
Stage 2	-	-	-	-	-	-	718	623	-	620	526	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.1	15.9	12.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	350	1203	-	-	1265	-	-	579
HCM Lane V/C Ratio	0.06	0.069	-	-	0.004	-	-	0.215
HCM Control Delay (s)	15.9	8.2	-	-	7.9	-	-	12.9
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	4	37	8	4	17	28	181	6	15	188	41
Future Volume (vph)	50	4	37	8	4	17	28	181	6	15	188	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1713	0	0	1690	0	0	3504	0	0	3440	0
Flt Permitted		0.973			0.986			0.994			0.997	
Satd. Flow (perm)	0	1713	0	0	1690	0	0	3504	0	0	3440	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		576			544			817			673	
Travel Time (s)		13.1			12.4			15.9			13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	101	0	0	32	0	0	239	0	0	272	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			12			12	
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	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	4	37	8	4	17	28	181	6	15	188	41
Future Vol, veh/h	50	4	37	8	4	17	28	181	6	15	188	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	4	41	9	4	19	31	201	7	17	209	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	431	536	128	408	556	104	255	0	0	208	0	0
Stage 1	266	266	-	267	267	-	-	-	-	-	-	-
Stage 2	165	270	-	141	289	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	508	449	898	528	438	931	1307	-	-	1360	-	-
Stage 1	716	687	-	715	687	-	-	-	-	-	-	-
Stage 2	821	685	-	847	672	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	478	430	898	484	420	931	1307	-	-	1360	-	-
Mov Cap-2 Maneuver	478	430	-	484	420	-	-	-	-	-	-	-
Stage 1	697	677	-	696	668	-	-	-	-	-	-	-
Stage 2	777	667	-	791	662	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.4	10.8	1.1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1307	-	-	587	654	1360	-	-
HCM Lane V/C Ratio	0.024	-	-	0.172	0.049	0.012	-	-
HCM Control Delay (s)	7.8	0.1	-	12.4	10.8	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.2	0	-	-

Appendix K:
Synchro Output:
2031 Build-Out

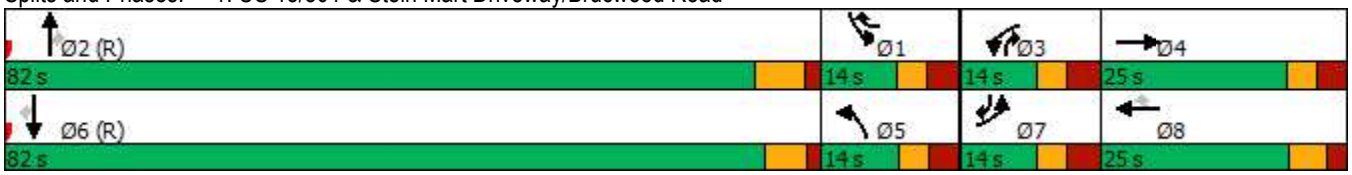
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	4	129	7	15	4	1192	157	14	1331	16
Future Volume (vph)	7	4	4	129	7	15	4	1192	157	14	1331	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		100	350		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1723	0	3433	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1723	0	3433	1863	1583	1770	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				81			165			78
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		254			285			568			1917	
Travel Time (s)		8.7			5.6			8.6			29.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	8	0	143	8	17	4	1324	174	16	1479	18
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	14.0		14.0	25.0	14.0	14.0	19.0	14.0	14.0	25.0	14.0
Total Split (s)	14.0	25.0		14.0	25.0	14.0	14.0	82.0	14.0	14.0	82.0	14.0
Total Split (%)	10.4%	18.5%		10.4%	18.5%	10.4%	10.4%	60.7%	10.4%	10.4%	60.7%	10.4%
Yellow Time (s)	3.0	3.0		3.0	3.8	3.0	3.0	4.9	3.0	3.0	4.2	3.0
All-Red Time (s)	3.3	3.3		3.4	2.2	3.4	3.2	1.7	3.4	3.4	1.5	3.3
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.0	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	8.8	8.3		9.3	8.3	10.3	8.2	105.0	120.3	8.4	110.4	125.2
Actuated g/C Ratio	0.07	0.06		0.07	0.06	0.08	0.06	0.78	0.89	0.06	0.82	0.93
v/c Ratio	0.04	0.07		0.61	0.07	0.09	0.04	0.48	0.12	0.08	0.51	0.01
Control Delay	59.6	47.3		72.4	60.7	0.9	60.5	7.4	0.5	60.6	6.1	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	47.3		72.4	60.7	0.9	60.5	7.4	0.5	60.6	6.1	0.0
LOS	E	D		E	E	A	E	A	A	E	A	A
Approach Delay		53.4			64.6			6.7			6.6	
Approach LOS		D			E			A			A	
Queue Length 50th (ft)	3	3		63	7	0	3	208	1	6	126	0
Queue Length 95th (ft)	12	21		101	24	0	16	370	8	19	443	0
Internal Link Dist (ft)		174			205			488			1837	
Turn Bay Length (ft)				150		100	350		200	300		100
Base Capacity (vph)	234	258		239	276	202	118	2752	1419	228	2893	1478
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.03		0.60	0.03	0.08	0.03	0.48	0.12	0.07	0.51	0.01

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 52 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 9.9 Intersection LOS: A
Intersection Capacity Utilization 57.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: US 15/501 & Stein Mart Driveway/Brucwood Road



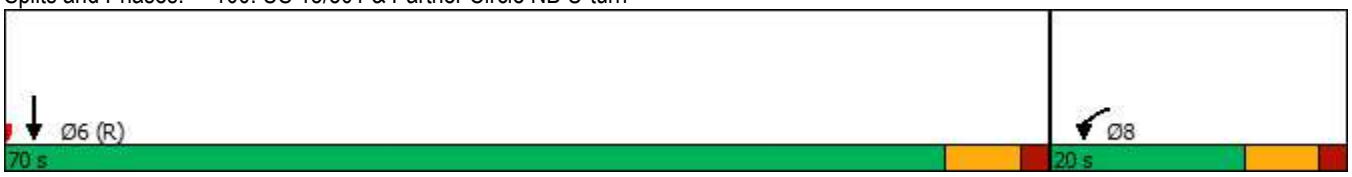


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	147	0	0	0	0	1462
Future Volume (vph)	147	0	0	0	0	1462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	0	0	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	0	0	3539
Right Turn on Red	No	Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	60		281			116
Travel Time (s)	1.4		4.3			1.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	163	0	0	0	0	1624
Number of Detectors	1					1
Detector Template						
Leading Detector (ft)	40					76
Trailing Detector (ft)	0					70
Detector 1 Position(ft)	0					70
Detector 1 Size(ft)	40					6
Detector 1 Type	Cl+Ex					Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases						
Detector Phase	8					6
Switch Phase						
Minimum Initial (s)	7.0					10.0
Minimum Split (s)	14.0					17.0
Total Split (s)	20.0					70.0
Total Split (%)	22.2%					77.8%
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None					C-Max
Act Effct Green (s)	13.8					66.2
Actuated g/C Ratio	0.15					0.74
v/c Ratio	0.60					0.62
Control Delay	25.0					7.3
Queue Delay	0.0					0.0
Total Delay	25.0					7.3
LOS	C					A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach Delay	25.0					7.3
Approach LOS	C					A
Queue Length 50th (ft)	31					209
Queue Length 95th (ft)	47					266
Internal Link Dist (ft)	1		201			36
Turn Bay Length (ft)						
Base Capacity (vph)	295					2604
Starvation Cap Reductn	0					0
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.55					0.62

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 8.9		Intersection LOS: A	
Intersection Capacity Utilization 85.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 100: US 15/501 & Partner Circle NB U-turn



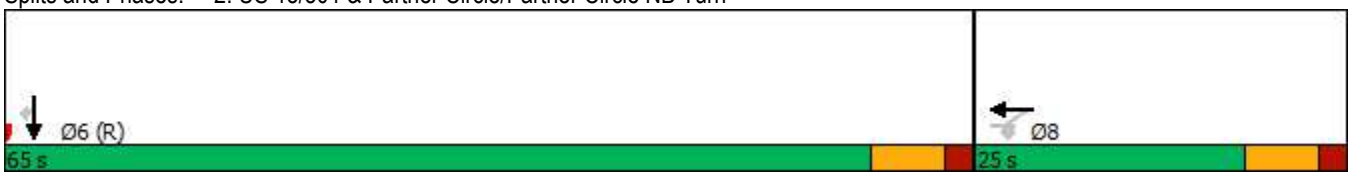
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	24	188	8	0	0	0	0	0	1346	12
Future Volume (vph)	0	0	24	188	8	0	0	0	0	0	1346	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		150
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	1611	0	1777	0	0	0	0	0	3539	1583
Flt Permitted					0.954							
Satd. Flow (perm)	0	0	1611	0	1777	0	0	0	0	0	3539	1583
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)			54									48
Link Speed (mph)		30			45			45			45	
Link Distance (ft)		478			301			595			323	
Travel Time (s)		10.9			4.6			9.0			4.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	27	0	218	0	0	0	0	0	1496	13
Number of Detectors			1	1	1						1	0
Detector Template				Left								
Leading Detector (ft)			40	20	40						306	0
Trailing Detector (ft)			0	0	0						300	0
Detector 1 Position(ft)			0	0	0						300	0
Detector 1 Size(ft)			40	20	40						6	20
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex						Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)			0.0	0.0	0.0						0.0	0.0
Detector 1 Queue (s)			0.0	0.0	0.0						0.0	0.0
Detector 1 Delay (s)			0.0	0.0	0.0						0.0	0.0
Turn Type			Perm	Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases			8	8								6
Detector Phase			8	8	8						6	6
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	14.0
Minimum Split (s)			14.0	14.0	14.0						21.0	21.0
Total Split (s)			25.0	25.0	25.0						65.0	65.0
Total Split (%)			27.8%	27.8%	27.8%						72.2%	72.2%
Yellow Time (s)			5.0	5.0	5.0						5.0	5.0
All-Red Time (s)			2.0	2.0	2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode			None	None	None						C-Max	C-Max
Act Effct Green (s)			17.3		17.3						62.7	62.7
Actuated g/C Ratio			0.19		0.19						0.70	0.70
v/c Ratio			0.08		0.64						0.61	0.01
Control Delay			3.2		44.2						6.0	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			3.2		44.2						6.0	0.1
LOS			A		D						A	A
Approach Delay		3.2			44.2						5.9	
Approach LOS		A			D						A	
Queue Length 50th (ft)			0		121						129	0
Queue Length 95th (ft)			9		m152						231	m0
Internal Link Dist (ft)		398			221			515			243	
Turn Bay Length (ft)												150
Base Capacity (vph)			400		394						2467	1118
Starvation Cap Reductn			0		0						0	0
Spillback Cap Reductn			0		0						0	0
Storage Cap Reductn			0		0						0	0
Reduced v/c Ratio			0.07		0.55						0.61	0.01

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 14 (16%), Referenced to phase 2: and 6:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 10.6 Intersection LOS: B
Intersection Capacity Utilization 66.4% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 15/501 & Partner Circle/Partner Circle NB Turn



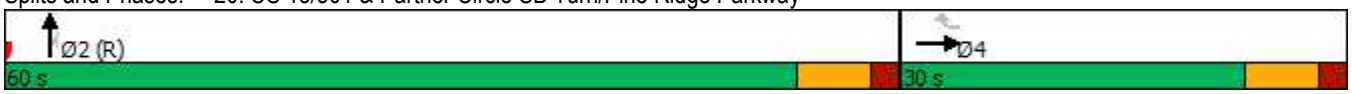
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	249	0	0	0	304	0	1194	231	0	0	0
Future Volume (vph)	0	249	0	0	0	304	0	1194	231	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	0		2	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	1863	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						105			189			
Link Speed (mph)		45			30			45			45	
Link Distance (ft)		324			458			294			599	
Travel Time (s)		4.9			10.4			4.5			9.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	277	0	0	0	338	0	1327	257	0	0	0
Number of Detectors		1				1		1	1			
Detector Template									Right			
Leading Detector (ft)		40				40		306	20			
Trailing Detector (ft)		0				0		300	0			
Detector 1 Position(ft)		0				0		300	0			
Detector 1 Size(ft)		40				40		6	20			
Detector 1 Type		Cl+Ex				Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)		0.0				0.0		0.0	0.0			
Detector 1 Queue (s)		0.0				0.0		0.0	0.0			
Detector 1 Delay (s)		0.0				0.0		0.0	0.0			
Turn Type		NA				Perm		NA	Perm			
Protected Phases		4						2				
Permitted Phases						4			2			
Detector Phase		4				4		2	2			
Switch Phase												
Minimum Initial (s)		7.0				7.0		14.0	14.0			
Minimum Split (s)		25.0				25.0		21.0	21.0			
Total Split (s)		30.0				30.0		60.0	60.0			
Total Split (%)		33.3%				33.3%		66.7%	66.7%			
Yellow Time (s)		5.0				5.0		5.0	5.0			
All-Red Time (s)		2.0				2.0		2.0	2.0			
Lost Time Adjust (s)		-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)		5.0				5.0		5.0	5.0			
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None				None		C-Max	C-Max			
Act Effct Green (s)		20.3				20.3		59.7	59.7			
Actuated g/C Ratio		0.23				0.23		0.66	0.66			
v/c Ratio		0.66				0.48		0.57	0.23			
Control Delay		40.1				22.0		2.8	0.4			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		40.1				22.0		2.8	0.4			
LOS		D				C		A	A			
Approach Delay		40.1			22.0			2.4				
Approach LOS		D			C			A				
Queue Length 50th (ft)		162				63		36	0			
Queue Length 95th (ft)		253				101		69	m0			
Internal Link Dist (ft)		244			378			214			519	
Turn Bay Length (ft)									100			
Base Capacity (vph)		517				850		2348	1113			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.54				0.40		0.57	0.23			

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 2 (2%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 84.7% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: US 15/501 & Partner Circle SB Turn/Pine Ridge Parkway

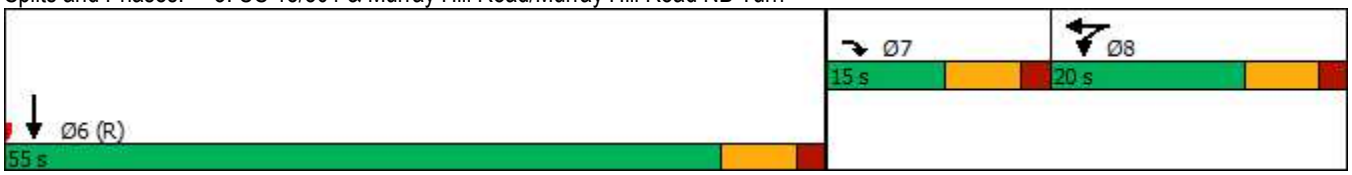


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	80	111	26	0	0	0	0	0	1207	174
Future Volume (vph)	0	0	80	111	26	0	0	0	0	0	1207	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	2787	1770	1863	0	0	0	0	0	3472	0
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	2787	1770	1863	0	0	0	0	0	3472	0
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)			217								28	
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		975			380			1636			332	
Travel Time (s)		19.0			5.8			24.8			5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	89	123	29	0	0	0	0	0	1534	0
Number of Detectors			1	1	1						1	
Detector Template				Left								
Leading Detector (ft)			40	40	40						306	
Trailing Detector (ft)			0	0	0						300	
Detector 1 Position(ft)			0	0	0						300	
Detector 1 Size(ft)			40	40	40						6	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex						Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)			0.0	0.0	0.0						0.0	
Detector 1 Queue (s)			0.0	0.0	0.0						0.0	
Detector 1 Delay (s)			0.0	0.0	0.0						0.0	
Turn Type			Prot	Split	NA						NA	
Protected Phases			7	8	8						6	
Permitted Phases												
Detector Phase			7	8	8						6	
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	
Minimum Split (s)			14.0	14.0	14.0						21.0	
Total Split (s)			15.0	20.0	20.0						55.0	
Total Split (%)			16.7%	22.2%	22.2%						61.1%	
Yellow Time (s)			5.0	5.0	5.0						5.0	
All-Red Time (s)			2.0	2.0	2.0						2.0	
Lost Time Adjust (s)			-2.0	-2.0	-2.0						-2.0	
Total Lost Time (s)			5.0	5.0	5.0						5.0	
Lead/Lag			Lead	Lag	Lag							
Lead-Lag Optimize?			Yes	Yes	Yes							
Recall Mode			None	None	None						C-Max	
Act Effct Green (s)			9.0	13.1	13.1						55.7	
Actuated g/C Ratio			0.10	0.15	0.15						0.62	
v/c Ratio			0.19	0.48	0.11						0.71	
Control Delay			0.9	41.0	32.9						12.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay			0.0	0.0	0.0						0.0	
Total Delay			0.9	41.0	32.9						12.6	
LOS			A	D	C						B	
Approach Delay		0.9			39.5						12.6	
Approach LOS		A			D						B	
Queue Length 50th (ft)			0	65	14						371	
Queue Length 95th (ft)			0	115	38						469	
Internal Link Dist (ft)		895			300			1556			252	
Turn Bay Length (ft)			150									
Base Capacity (vph)			502	300	315						2158	
Starvation Cap Reductn			0	0	0						0	
Spillback Cap Reductn			0	0	0						0	
Storage Cap Reductn			0	0	0						0	
Reduced v/c Ratio			0.18	0.41	0.09						0.71	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 37 (41%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 14.3		Intersection LOS: B	
Intersection Capacity Utilization 63.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: US 15/501 & Murray Hill Road/Murray Hill Road NB Turn



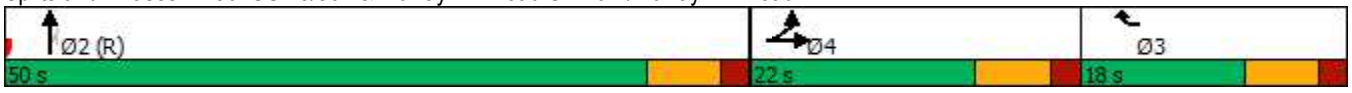
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	188	0	0	0	442	0	1310	103	0	0	0
Future Volume (vph)	4	188	0	0	0	442	0	1310	103	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		150	0		0
Storage Lanes	1		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	1863	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	1770	1863	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						511			133			
Link Speed (mph)		45			35			45			45	
Link Distance (ft)		370			1048			336			669	
Travel Time (s)		5.6			20.4			5.1			10.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	209	0	0	0	491	0	1456	114	0	0	0
Number of Detectors	1	1				1		1	1			
Detector Template	Left											
Leading Detector (ft)	40	40				40		306	40			
Trailing Detector (ft)	0	0				0		300	0			
Detector 1 Position(ft)	0	0				0		300	0			
Detector 1 Size(ft)	40	40				40		6	40			
Detector 1 Type	Cl+Ex	Cl+Ex				Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0				0.0		0.0	0.0			
Detector 1 Queue (s)	0.0	0.0				0.0		0.0	0.0			
Detector 1 Delay (s)	0.0	0.0				0.0		0.0	0.0			
Turn Type	Split	NA				Prot		NA	Perm			
Protected Phases	4	4				3		2				
Permitted Phases									2			
Detector Phase	4	4				3		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				5.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				12.0		21.0	21.0			
Total Split (s)	22.0	22.0				18.0		50.0	50.0			
Total Split (%)	24.4%	24.4%				20.0%		55.6%	55.6%			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0				-2.0		-2.0	-2.0			
Total Lost Time (s)	5.0	5.0				5.0		5.0	5.0			
Lead/Lag	Lead	Lead				Lag						
Lead-Lag Optimize?	Yes	Yes				Yes						
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)	15.6	15.6				9.0		50.4	50.4			
Actuated g/C Ratio	0.17	0.17				0.10		0.56	0.56			
v/c Ratio	0.01	0.65				0.67		0.73	0.12			
Control Delay	20.0	33.1				7.8		18.4	1.9			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0				0.0		0.0	0.0			
Total Delay	20.0	33.1				7.8		18.4	1.9			
LOS	B	C				A		B	A			
Approach Delay		32.8			7.8			17.2				
Approach LOS		C			A			B				
Queue Length 50th (ft)	2	111				0		303	0			
Queue Length 95th (ft)	m2	163				40		450	20			
Internal Link Dist (ft)		290			968			256			589	
Turn Bay Length (ft)						250			150			
Base Capacity (vph)	334	351				839		1983	945			
Starvation Cap Reductn	0	0				0		0	0			
Spillback Cap Reductn	0	0				0		0	0			
Storage Cap Reductn	0	0				0		0	0			
Reduced v/c Ratio	0.01	0.60				0.59		0.73	0.12			

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 16.6		Intersection LOS: B	
Intersection Capacity Utilization 70.0%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: US 15/501 & Murray Hill Road SB Turn/Murray Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	740	93	83	771	54	64	65	81	172	42	81
Future Volume (vph)	139	740	93	83	771	54	64	65	81	172	42	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3392	0	1814	3628	1623	3382	1835	1560	1734	1825	1552
Flt Permitted	0.193			0.198			0.950			0.710		
Satd. Flow (perm)	351	3392	0	378	3628	1623	3382	1835	1560	1296	1825	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				131			90			90
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		986			1215			686			806	
Travel Time (s)		14.9			18.4			13.4			15.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	925	0	92	857	60	71	72	90	191	47	90
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	20.0	65.0		15.0	60.0	60.0	15.0	40.0	15.0	15.0	40.0	20.0
Total Split (%)	14.8%	48.1%		11.1%	44.4%	44.4%	11.1%	29.6%	11.1%	11.1%	29.6%	14.8%
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max		None	Max	Max	None	Max	None	None	Max	None
Act Effct Green (s)	72.6	60.0		66.4	56.9	55.9	9.3	35.4	49.9	45.4	38.8	56.3
Actuated g/C Ratio	0.54	0.44		0.49	0.42	0.41	0.07	0.26	0.37	0.34	0.29	0.42
v/c Ratio	0.49	0.61		0.32	0.56	0.08	0.30	0.15	0.14	0.41	0.09	0.13

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	20.3	30.3		17.8	31.5	0.2	63.2	39.4	5.9	33.8	38.4	5.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	30.3		17.8	31.5	0.2	63.2	39.4	5.9	33.8	38.4	5.3
LOS	C	C		B	C	A	E	D	A	C	D	A
Approach Delay		28.9			28.4			33.7			26.7	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	64	317		37	296	0	30	49	0	118	31	0
Queue Length 95th (ft)	102	388		65	372	0	56	91	36	181	65	34
Internal Link Dist (ft)		906			1135			606			726	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	346	1516		293	1531	749	250	481	639	468	524	727
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.61		0.31	0.56	0.08	0.28	0.15	0.14	0.41	0.09	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 134.9			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Brucewood Road & Morganton Road



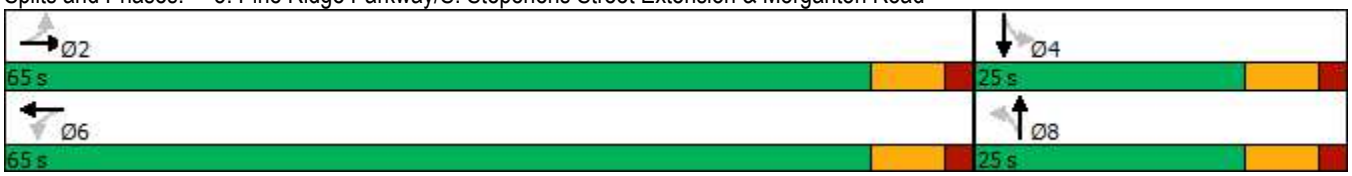
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	919	41	201	1005	19	25	25	127	11	41	37
Future Volume (vph)	31	919	41	201	1005	19	25	25	127	11	41	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3518	0	1770	3529	0	1770	1630	0	0	1748	0
Flt Permitted	0.217			0.239			0.794				0.938	
Satd. Flow (perm)	404	3518	0	445	3529	0	1479	1630	0	0	1649	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			4			141			36	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		978			1095			673			1303	
Travel Time (s)		14.8			16.6			13.1			25.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	1067	0	223	1138	0	28	169	0	0	99	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template										Left		
Leading Detector (ft)	40	306		40	306		40	40		20	40	
Trailing Detector (ft)	0	300		0	300		0	0		0	0	
Detector 1 Position(ft)	0	300		0	300		0	0		0	0	
Detector 1 Size(ft)	40	6		40	6		40	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	42.9	42.9		42.9	42.9		11.2	11.2			11.2	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.17	0.17			0.17	
v/c Ratio	0.13	0.46		0.76	0.49		0.11	0.42			0.32	
Control Delay	5.0	5.6		26.7	5.9		29.4	12.4			22.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	5.0	5.6		26.7	5.9		29.4	12.4			22.7	
LOS	A	A		C	A		C	B			C	
Approach Delay		5.6			9.3			14.8			22.7	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)	4	77		44	86		9	9			21	
Queue Length 95th (ft)	14	136		#211	150		36	66			73	
Internal Link Dist (ft)		898			1015			593			1223	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	356	3108		393	3117		486	631			566	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.10	0.34		0.57	0.37		0.06	0.27			0.17	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 64.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 8.7 Intersection LOS: A
Intersection Capacity Utilization 65.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Pine Ridge Parkway/S. Stepehens Street Extension & Morganton Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	511	44	11	314	33	8
Future Volume (vph)	511	44	11	314	33	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	125		0	100
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3497	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3497	0	1770	3539	1770	1583
Link Speed (mph)	35			35	25	
Link Distance (ft)	357			715	504	
Travel Time (s)	7.0			13.9	13.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	617	0	12	349	37	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	511	44	11	314	33	8
Future Vol, veh/h	511	44	11	314	33	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	100
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	568	49	12	349	37	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	617	0	792	309
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	199	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	959	-	326	687
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	815	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	959	-	322	687
Mov Cap-2 Maneuver	-	-	-	-	322	-
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	804	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	16.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	322	687	-	-	959	-
HCM Lane V/C Ratio	0.114	0.013	-	-	0.013	-
HCM Control Delay (s)	17.6	10.3	-	-	8.8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	445	44	33	271	40	33	4	25	27	4	21
Future Volume (vph)	32	445	44	33	271	40	33	4	25	27	4	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	100		0	0		100	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3490	0	1770	3472	0	0	1783	1583	0	1716	0
Flt Permitted	0.950			0.950				0.957			0.974	
Satd. Flow (perm)	1770	3490	0	1770	3472	0	0	1783	1583	0	1716	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		715			641			475			372	
Travel Time (s)		13.9			12.5			13.0			10.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	543	0	37	345	0	0	41	28	0	57	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	445	44	33	271	40	33	4	25	27	4	21
Future Vol, veh/h	32	445	44	33	271	40	33	4	25	27	4	21
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	125	-	-	100	-	-	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	494	49	37	301	44	37	4	28	30	4	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	345	0	0	543	0	0	818	1010	272	718	1012	173
Stage 1	-	-	-	-	-	-	591	591	-	397	397	-
Stage 2	-	-	-	-	-	-	227	419	-	321	615	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1211	-	-	1022	-	-	268	238	726	316	238	840
Stage 1	-	-	-	-	-	-	460	493	-	600	602	-
Stage 2	-	-	-	-	-	-	755	588	-	665	480	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1211	-	-	1022	-	-	244	223	726	284	223	840
Mov Cap-2 Maneuver	-	-	-	-	-	-	244	223	-	284	223	-
Stage 1	-	-	-	-	-	-	446	478	-	582	580	-
Stage 2	-	-	-	-	-	-	702	567	-	615	466	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.8	17.8	16.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	242	726	1211	-	-	1022	-	-	377
HCM Lane V/C Ratio	0.17	0.038	0.029	-	-	0.036	-	-	0.153
HCM Control Delay (s)	22.9	10.2	8.1	-	-	8.7	-	-	16.3
HCM Lane LOS	C	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0.1	0.1	-	-	0.1	-	-	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	355	22	33	247	40	16	4	25	27	4	80
Future Volume (vph)	120	355	22	33	247	40	16	4	25	27	4	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	125		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3507	0	1770	3465	0	0	1790	1583	0	1660	0
Flt Permitted	0.950			0.950				0.961			0.988	
Satd. Flow (perm)	1770	3507	0	1770	3465	0	0	1790	1583	0	1660	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		641			439			434			314	
Travel Time (s)		12.5			8.6			11.8			8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	418	0	37	318	0	0	22	28	0	123	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.0%		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	120	355	22	33	247	40	16	4	25	27	4	80
Future Vol, veh/h	120	355	22	33	247	40	16	4	25	27	4	80
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	100	-	-	125	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	133	394	24	37	274	44	18	4	28	30	4	89

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	318	0	0	418	0	0	885	1064	209	835	1054	159
Stage 1	-	-	-	-	-	-	672	672	-	370	370	-
Stage 2	-	-	-	-	-	-	213	392	-	465	684	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1239	-	-	1138	-	-	239	221	797	260	225	858
Stage 1	-	-	-	-	-	-	412	453	-	622	619	-
Stage 2	-	-	-	-	-	-	769	605	-	547	447	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1239	-	-	1138	-	-	189	191	797	221	194	858
Mov Cap-2 Maneuver	-	-	-	-	-	-	189	191	-	221	194	-
Stage 1	-	-	-	-	-	-	368	405	-	555	599	-
Stage 2	-	-	-	-	-	-	662	585	-	466	399	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2	0.9	17.2	15.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	189	797	1239	-	-	1138	-	-	470
HCM Lane V/C Ratio	0.118	0.035	0.108	-	-	0.032	-	-	0.262
HCM Control Delay (s)	26.6	9.7	8.3	-	-	8.3	-	-	15.4
HCM Lane LOS	D	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0.1	0.4	-	-	0.1	-	-	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	308	38	11	254	20	25	4	8	13	4	40
Future Volume (vph)	60	308	38	11	254	20	25	4	8	13	4	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	115		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3483	0	1770	3500	0	0	1747	0	0	1665	0
Flt Permitted	0.950			0.950				0.967			0.989	
Satd. Flow (perm)	1770	3483	0	1770	3500	0	0	1747	0	0	1665	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		439			817			499			326	
Travel Time (s)		8.6			15.9			13.6			8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	384	0	12	304	0	0	41	0	0	62	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.2%		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	60	308	38	11	254	20	25	4	8	13	4	40
Future Vol, veh/h	60	308	38	11	254	20	25	4	8	13	4	40
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	175	-	-	115	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	67	342	42	12	282	22	28	4	9	14	4	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	384	0	0	664	825	192	624	835	152
Stage 1	-	-	-	-	-	-	497	497	-	317	317	-
Stage 2	-	-	-	-	-	-	167	328	-	307	518	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1254	-	-	1171	-	-	346	306	817	370	302	867
Stage 1	-	-	-	-	-	-	523	543	-	669	653	-
Stage 2	-	-	-	-	-	-	818	646	-	678	531	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1254	-	-	1171	-	-	309	287	817	344	283	867
Mov Cap-2 Maneuver	-	-	-	-	-	-	309	287	-	344	283	-
Stage 1	-	-	-	-	-	-	495	514	-	634	646	-
Stage 2	-	-	-	-	-	-	763	640	-	629	503	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.3	16.5	12
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	354	1254	-	-	1171	-	-	581
HCM Lane V/C Ratio	0.116	0.053	-	-	0.01	-	-	0.109
HCM Control Delay (s)	16.5	8	-	-	8.1	-	-	12
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0	-	-	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	6	32	7	4	4	47	223	13	6	233	33
Future Volume (vph)	18	6	32	7	4	4	47	223	13	6	233	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1692	0	0	1756	0	0	3486	0	0	3472	0
Flt Permitted		0.984			0.976			0.992			0.999	
Satd. Flow (perm)	0	1692	0	0	1756	0	0	3486	0	0	3472	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		576			544			817			673	
Travel Time (s)		13.1			12.4			15.9			13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	0	0	16	0	0	314	0	0	303	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	6	32	7	4	4	47	223	13	6	233	33
Future Vol, veh/h	18	6	32	7	4	4	47	223	13	6	233	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	7	36	8	4	4	52	248	14	7	259	37

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	522	658	148	506	669	131	296	0	0	262	0	0
Stage 1	292	292	-	359	359	-	-	-	-	-	-	-
Stage 2	230	366	-	147	310	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	438	383	872	449	377	894	1262	-	-	1299	-	-
Stage 1	692	670	-	632	626	-	-	-	-	-	-	-
Stage 2	752	621	-	841	658	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	414	362	872	407	357	894	1262	-	-	1299	-	-
Mov Cap-2 Maneuver	414	362	-	407	357	-	-	-	-	-	-	-
Stage 1	659	666	-	602	596	-	-	-	-	-	-	-
Stage 2	707	591	-	794	654	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	13.2	1.4	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1262	-	-	579	456	1299	-	-
HCM Lane V/C Ratio	0.041	-	-	0.107	0.037	0.005	-	-
HCM Control Delay (s)	8	0.1	-	12	13.2	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-	-

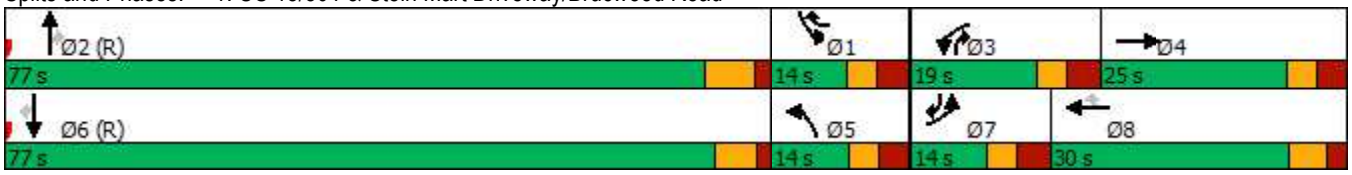
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	27	31	311	27	75	32	1487	365	90	1540	54
Future Volume (vph)	46	27	31	311	27	75	32	1487	365	90	1540	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		100	350		200	300		100
Storage Lanes	2		0	1		1	1		1	2		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	3433	1714	0	3433	1863	1583	1770	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1714	0	3433	1863	1583	1770	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34				80			309			78
Link Speed (mph)		20			35			45			45	
Link Distance (ft)		254			285			568			1917	
Travel Time (s)		8.7			5.6			8.6			29.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	64	0	346	30	83	36	1652	406	100	1711	60
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)		36			36			22			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	0	1	1	0
Detector Template												
Leading Detector (ft)	60	60		60	60	60	50	306	0	50	306	0
Trailing Detector (ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Position(ft)	0	0		0	0	0	-10	300	0	-10	300	0
Detector 1 Size(ft)	60	60		60	60	60	60	6	20	60	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	10.0		0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Detector Phase	7	4		3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	12.0	7.0	7.0	12.0	7.0
Minimum Split (s)	14.0	25.0		14.0	25.0	14.0	14.0	25.0	14.0	14.0	25.0	14.0
Total Split (s)	14.0	25.0		19.0	30.0	14.0	14.0	77.0	19.0	14.0	77.0	14.0
Total Split (%)	10.4%	18.5%		14.1%	22.2%	10.4%	10.4%	57.0%	14.1%	10.4%	57.0%	10.4%
Yellow Time (s)	3.0	3.0		3.0	3.8	3.0	3.0	4.9	3.0	3.0	4.2	3.0
All-Red Time (s)	3.3	3.3		3.4	2.2	3.4	3.2	1.7	3.4	3.4	1.5	3.3
Lost Time Adjust (s)	-1.3	-1.3		-1.4	-1.0	-1.4	-1.2	-1.6	-1.4	-1.4	-0.7	-1.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	None
Act Effct Green (s)	12.3	9.0		14.3	12.3	17.8	8.7	85.6	100.9	8.7	88.3	102.6
Actuated g/C Ratio	0.09	0.07		0.11	0.09	0.13	0.06	0.63	0.75	0.06	0.65	0.76
v/c Ratio	0.16	0.44		0.95	0.18	0.30	0.32	0.74	0.32	0.45	0.74	0.05
Control Delay	59.6	41.8		96.4	57.1	10.3	68.0	20.4	1.5	67.6	20.1	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	41.8		96.4	57.1	10.3	68.0	20.4	1.5	67.6	20.1	0.6
LOS	E	D		F	E	B	E	C	A	E	C	A
Approach Delay		49.7			78.3			17.5			22.0	
Approach LOS		D			E			B			C	
Queue Length 50th (ft)	22	26		158	24	2	31	513	9	44	549	0
Queue Length 95th (ft)	44	73		#258	56	39	68	645	26	75	690	5
Internal Link Dist (ft)		174			205			488			1837	
Turn Bay Length (ft)				150		100	350		200	300		100
Base Capacity (vph)	324	282		363	345	281	118	2244	1261	228	2314	1226
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.23		0.95	0.09	0.30	0.31	0.74	0.32	0.44	0.74	0.05

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 26.3 Intersection LOS: C
Intersection Capacity Utilization 66.4% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 15/501 & Stein Mart Driveway/Brucwood Road



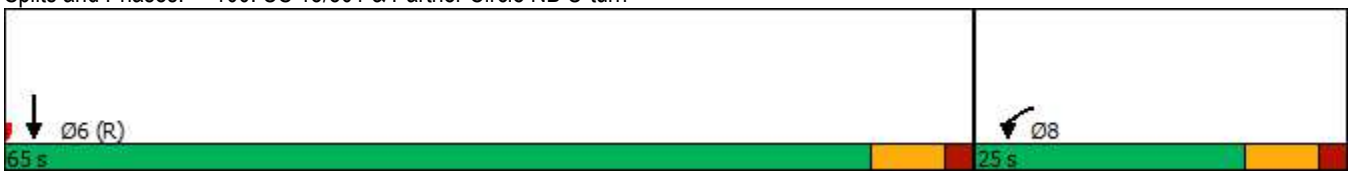


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	262	0	0	0	0	1887
Future Volume (vph)	262	0	0	0	0	1887
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	0	0	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	0	0	0	3539
Right Turn on Red	No	Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	60		281			116
Travel Time (s)	1.4		4.3			1.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	291	0	0	0	0	2097
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			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)	15	9		9	15	
Number of Detectors	1					1
Detector Template						
Leading Detector (ft)	40					76
Trailing Detector (ft)	0					70
Detector 1 Position(ft)	0					70
Detector 1 Size(ft)	40					6
Detector 1 Type	Cl+Ex					Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
Turn Type	Prot					NA
Protected Phases	8					6
Permitted Phases						
Detector Phase	8					6
Switch Phase						
Minimum Initial (s)	7.0					10.0
Minimum Split (s)	14.0					17.0
Total Split (s)	25.0					65.0
Total Split (%)	27.8%					72.2%
Yellow Time (s)	5.0					5.0
All-Red Time (s)	2.0					2.0
Lost Time Adjust (s)	-2.0					-2.0
Total Lost Time (s)	5.0					5.0
Lead/Lag						
Lead-Lag Optimize?						

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Recall Mode	None					C-Max
Act Effct Green (s)	19.0					61.0
Actuated g/C Ratio	0.21					0.68
v/c Ratio	0.78					0.87
Control Delay	45.4					17.3
Queue Delay	0.0					0.0
Total Delay	45.4					17.3
LOS	D					B
Approach Delay	45.4					17.3
Approach LOS	D					B
Queue Length 50th (ft)	98					452
Queue Length 95th (ft)	m120					589
Internal Link Dist (ft)	1		201			36
Turn Bay Length (ft)						
Base Capacity (vph)	393					2399
Starvation Cap Reductn	0					0
Spillback Cap Reductn	0					0
Storage Cap Reductn	0					0
Reduced v/c Ratio	0.74					0.87

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 111.9%		ICU Level of Service H	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 100: US 15/501 & Partner Circle NB U-turn



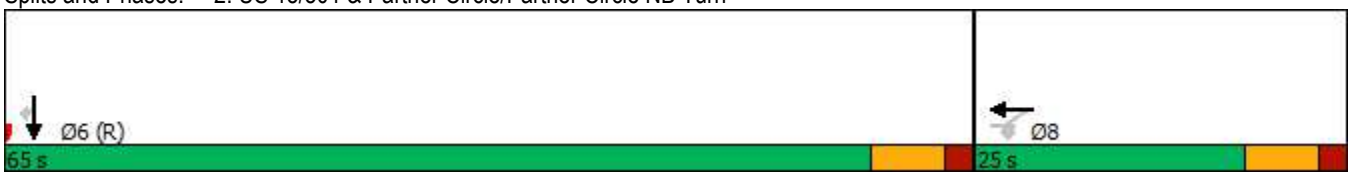
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	52	208	59	0	0	0	0	0	1848	15
Future Volume (vph)	0	0	52	208	59	0	0	0	0	0	1848	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		150
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	1611	0	1794	0	0	0	0	0	3539	1583
Flt Permitted					0.963							
Satd. Flow (perm)	0	0	1611	0	1794	0	0	0	0	0	3539	1583
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)			48									48
Link Speed (mph)		30			45			45			45	
Link Distance (ft)		478			301			595			323	
Travel Time (s)		10.9			4.6			9.0			4.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	58	0	297	0	0	0	0	0	2053	17
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			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1	1	1						1	0
Detector Template				Left								
Leading Detector (ft)			40	20	40						306	0
Trailing Detector (ft)			0	0	0						300	0
Detector 1 Position(ft)			0	0	0						300	0
Detector 1 Size(ft)			40	20	40						6	20
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex						Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)			0.0	0.0	0.0						0.0	0.0
Detector 1 Queue (s)			0.0	0.0	0.0						0.0	0.0
Detector 1 Delay (s)			0.0	0.0	0.0						0.0	0.0
Turn Type			Perm	Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases			8	8								6
Detector Phase			8	8	8						6	6
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	14.0
Minimum Split (s)			14.0	14.0	14.0						21.0	21.0
Total Split (s)			25.0	25.0	25.0						65.0	65.0
Total Split (%)			27.8%	27.8%	27.8%						72.2%	72.2%
Yellow Time (s)			5.0	5.0	5.0						5.0	5.0
All-Red Time (s)			2.0	2.0	2.0						2.0	2.0
Lost Time Adjust (s)			-2.0		-2.0						-2.0	-2.0

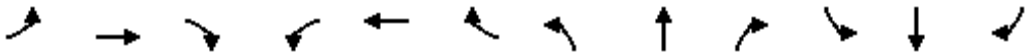
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)			5.0		5.0						5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode			None	None	None						C-Max	C-Max
Act Effct Green (s)			19.0		19.0						61.0	61.0
Actuated g/C Ratio			0.21		0.21						0.68	0.68
v/c Ratio			0.15		0.78						0.86	0.02
Control Delay			12.1		47.9						7.9	0.0
Queue Delay			0.0		0.0						0.0	0.0
Total Delay			12.1		47.9						7.9	0.0
LOS			B		D						A	A
Approach Delay		12.1			47.9						7.8	
Approach LOS		B			D						A	
Queue Length 50th (ft)			5		168						132	0
Queue Length 95th (ft)			35		m209						230	m0
Internal Link Dist (ft)		398			221			515			243	
Turn Bay Length (ft)												150
Base Capacity (vph)			395		398						2397	1087
Starvation Cap Reductn			0		0						0	0
Spillback Cap Reductn			0		0						0	0
Storage Cap Reductn			0		0						0	0
Reduced v/c Ratio			0.15		0.75						0.86	0.02

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 7 (8%), Referenced to phase 2: and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 12.9 Intersection LOS: B
Intersection Capacity Utilization 84.0% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 15/501 & Partner Circle/Partner Circle NB Turn



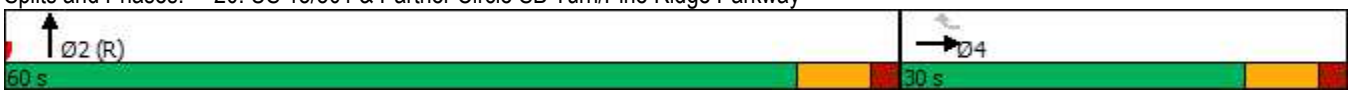


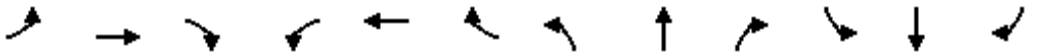
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	298	0	0	0	647	0	1552	278	0	0	0
Future Volume (vph)	0	298	0	0	0	647	0	1552	278	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1863	0	0	0	2787	0	3458	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	0	2787	0	3458	0	0	0	0
Right Turn on Red	No		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						48		42				
Link Speed (mph)		45			30			45			45	
Link Distance (ft)		324			458			294			599	
Travel Time (s)		4.9			10.4			4.5			9.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	331	0	0	0	719	0	2033	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			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1				1		1				
Detector Template												
Leading Detector (ft)		40				40		306				
Trailing Detector (ft)		0				0		300				
Detector 1 Position(ft)		0				0		300				
Detector 1 Size(ft)		40				40		6				
Detector 1 Type		Cl+Ex				Cl+Ex		Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0				0.0		0.0				
Detector 1 Queue (s)		0.0				0.0		0.0				
Detector 1 Delay (s)		0.0				0.0		0.0				
Turn Type		NA				Perm		NA				
Protected Phases		4						2				
Permitted Phases						4						
Detector Phase		4				4		2				
Switch Phase												
Minimum Initial (s)		7.0				7.0		14.0				
Minimum Split (s)		25.0				25.0		21.0				
Total Split (s)		30.0				30.0		60.0				
Total Split (%)		33.3%				33.3%		66.7%				
Yellow Time (s)		5.0				5.0		5.0				
All-Red Time (s)		2.0				2.0		2.0				
Lost Time Adjust (s)		-2.0				-2.0		-2.0				
Total Lost Time (s)		5.0				5.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode		None				None		C-Max				
Act Effct Green (s)		24.8				24.8		55.2				
Actuated g/C Ratio		0.28				0.28		0.61				
v/c Ratio		0.64				0.90		0.95				
Control Delay		38.9				44.7		10.3				
Queue Delay		0.0				0.0		0.0				
Total Delay		38.9				44.7		10.3				
LOS		D				D		B				
Approach Delay		38.9			44.7			10.3				
Approach LOS		D			D			B				
Queue Length 50th (ft)		205				209		40				
Queue Length 95th (ft)		m234				#324		m70				
Internal Link Dist (ft)		244			378			214			519	
Turn Bay Length (ft)												
Base Capacity (vph)		517				808		2135				
Starvation Cap Reductn		0				0		0				
Spillback Cap Reductn		0				0		0				
Storage Cap Reductn		0				0		0				
Reduced v/c Ratio		0.64				0.89		0.95				

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 4 (4%), Referenced to phase 2:NBT and 6:, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 129.4%		ICU Level of Service H	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 20: US 15/501 & Partner Circle SB Turn/Pine Ridge Parkway



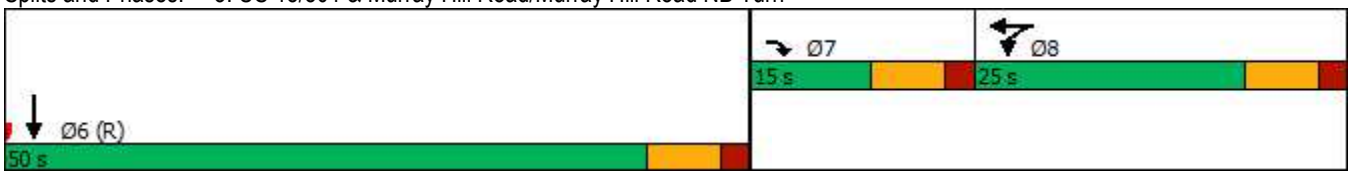


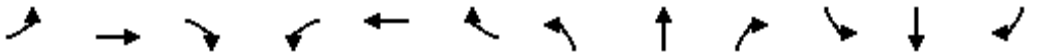
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	336	239	30	0	0	0	0	0	1631	106
Future Volume (vph)	0	0	336	239	30	0	0	0	0	0	1631	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	0	0	2787	1770	1863	0	0	0	0	0	3507	0
Flt Permitted				0.950								
Satd. Flow (perm)	0	0	2787	1770	1863	0	0	0	0	0	3507	0
Right Turn on Red			Yes	No		Yes			Yes			Yes
Satd. Flow (RTOR)			133								11	
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		975			380			1636			332	
Travel Time (s)		19.0			5.8			24.8			5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	373	266	33	0	0	0	0	0	1930	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												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors			1	1	1						1	
Detector Template				Left								
Leading Detector (ft)			40	40	40						306	
Trailing Detector (ft)			0	0	0						300	
Detector 1 Position(ft)			0	0	0						300	
Detector 1 Size(ft)			40	40	40						6	
Detector 1 Type			Cl+Ex	Cl+Ex	Cl+Ex						Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)			0.0	0.0	0.0						0.0	
Detector 1 Queue (s)			0.0	0.0	0.0						0.0	
Detector 1 Delay (s)			0.0	0.0	0.0						0.0	
Turn Type			Prot	Split	NA						NA	
Protected Phases			7	8	8						6	
Permitted Phases												
Detector Phase			7	8	8						6	
Switch Phase												
Minimum Initial (s)			7.0	7.0	7.0						14.0	
Minimum Split (s)			14.0	14.0	14.0						21.0	
Total Split (s)			15.0	25.0	25.0						50.0	
Total Split (%)			16.7%	27.8%	27.8%						55.6%	
Yellow Time (s)			5.0	5.0	5.0						5.0	
All-Red Time (s)			2.0	2.0	2.0						2.0	
Lost Time Adjust (s)			-2.0	-2.0	-2.0						-2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)			5.0	5.0	5.0						5.0	
Lead/Lag			Lead	Lag	Lag							
Lead-Lag Optimize?			Yes	Yes	Yes							
Recall Mode			None	None	None						C-Max	
Act Effct Green (s)			10.0	18.4	18.4						46.6	
Actuated g/C Ratio			0.11	0.20	0.20						0.52	
v/c Ratio			0.87	0.73	0.09						1.06	
Control Delay			47.7	46.1	28.7						52.6	
Queue Delay			0.0	0.0	0.0						0.0	
Total Delay			47.7	46.1	28.7						52.6	
LOS			D	D	C						D	
Approach Delay		47.7			44.2						52.6	
Approach LOS		D			D						D	
Queue Length 50th (ft)			77	139	15						~668	
Queue Length 95th (ft)			#165	224	39						#794	
Internal Link Dist (ft)		895			300			1556			252	
Turn Bay Length (ft)			150									
Base Capacity (vph)			427	393	414						1820	
Starvation Cap Reductn			0	0	0						0	
Spillback Cap Reductn			0	0	0						0	
Storage Cap Reductn			0	0	0						0	
Reduced v/c Ratio			0.87	0.68	0.08						1.06	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 32 (36%), Referenced to phase 2: and 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 50.9		Intersection LOS: D	
Intersection Capacity Utilization 118.3%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 3: US 15/501 & Murray Hill Road/Murray Hill Road NB Turn





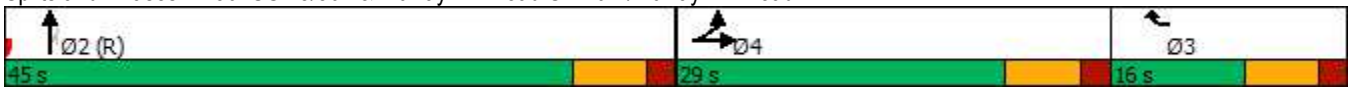
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	292	0	0	0	560	0	1705	323	0	0	0
Future Volume (vph)	0	292	0	0	0	560	0	1705	323	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		150	0		0
Storage Lanes	1		0	0		1	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1863	1863	0	0	0	2787	0	3539	1583	0	0	0
Flt Permitted												
Satd. Flow (perm)	1863	1863	0	0	0	2787	0	3539	1583	0	0	0
Right Turn on Red	No		Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						707			181			
Link Speed (mph)		45			35			45			45	
Link Distance (ft)		370			1048			336			669	
Travel Time (s)		5.6			20.4			5.1			10.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	324	0	0	0	622	0	1894	359	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)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1				1		1	1			
Detector Template	Left											
Leading Detector (ft)	40	40				40		306	40			
Trailing Detector (ft)	0	0				0		300	0			
Detector 1 Position(ft)	0	0				0		300	0			
Detector 1 Size(ft)	40	40				40		6	40			
Detector 1 Type	Cl+Ex	Cl+Ex				Cl+Ex		Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0				0.0		0.0	0.0			
Detector 1 Queue (s)	0.0	0.0				0.0		0.0	0.0			
Detector 1 Delay (s)	0.0	0.0				0.0		0.0	0.0			
Turn Type	Split	NA				Prot		NA	Perm			
Protected Phases	4	4				3		2				
Permitted Phases									2			
Detector Phase	4	4				3		2	2			
Switch Phase												
Minimum Initial (s)	7.0	7.0				5.0		14.0	14.0			
Minimum Split (s)	14.0	14.0				12.0		21.0	21.0			
Total Split (s)	29.0	29.0				16.0		45.0	45.0			
Total Split (%)	32.2%	32.2%				17.8%		50.0%	50.0%			
Yellow Time (s)	5.0	5.0				5.0		5.0	5.0			
All-Red Time (s)	2.0	2.0				2.0		2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0				-2.0		-2.0	-2.0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0				5.0		5.0	5.0			
Lead/Lag	Lead	Lead				Lag						
Lead-Lag Optimize?	Yes	Yes				Yes						
Recall Mode	None	None				None		C-Max	C-Max			
Act Effct Green (s)		21.3				8.4		45.3	45.3			
Actuated g/C Ratio		0.24				0.09		0.50	0.50			
v/c Ratio		0.74				0.69		1.06	0.41			
Control Delay		26.7				5.7		65.0	8.9			
Queue Delay		0.0				0.0		0.0	0.0			
Total Delay		26.7				5.7		65.0	8.9			
LOS		C				A		E	A			
Approach Delay		26.7			5.7			56.0				
Approach LOS		C			A			E				
Queue Length 50th (ft)		137				0		~637	55			
Queue Length 95th (ft)		m173				25		#833	132			
Internal Link Dist (ft)		290			968			256			589	
Turn Bay Length (ft)						250			150			
Base Capacity (vph)		496				961		1781	886			
Starvation Cap Reductn		0				0		0	0			
Spillback Cap Reductn		0				0		0	0			
Storage Cap Reductn		0				0		0	0			
Reduced v/c Ratio		0.65				0.65		1.06	0.41			

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 43.3 Intersection LOS: D
Intersection Capacity Utilization 117.1% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: US 15/501 & Murray Hill Road SB Turn/Murray Hill Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	724	171	189	783	93	229	66	242	160	66	103
Future Volume (vph)	111	724	171	189	783	93	229	66	242	160	66	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-5%			3%			4%	
Storage Length (ft)	275		0	275		50	100		125	100		100
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	100			100			100			50		
Satd. Flow (prot)	1725	3351	0	1814	3628	1623	3382	1835	1560	1734	1825	1552
Flt Permitted	0.235			0.124			0.950			0.709		
Satd. Flow (perm)	427	3351	0	237	3628	1623	3382	1835	1560	1294	1825	1552
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24				130			122			137
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		986			1215			686			806	
Travel Time (s)		14.9			18.4			13.4			15.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	994	0	210	870	103	254	73	269	178	73	114
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)		18			18			28			18	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.03	1.03	1.03	0.97	0.97	0.97	1.02	1.02	1.02	1.03	1.03	1.03
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	0	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	40	306		40	306	0	40	40	40	40	40	40
Trailing Detector (ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	300		0	300	0	0	0	0	0	0	0
Detector 1 Size(ft)	40	6		40	6	20	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	15.0	0.0		15.0	0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Prot	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6		6			8	8		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0		7.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	15.0	50.0		15.0	39.0	39.0	15.0	42.0	15.0	15.0	15.0	15.0
Total Split (s)	15.0	55.0		25.0	65.0	65.0	20.0	40.0	25.0	15.0	35.0	15.0
Total Split (%)	11.1%	40.7%		18.5%	48.1%	48.1%	14.8%	29.6%	18.5%	11.1%	25.9%	11.1%
Yellow Time (s)	3.0	5.0		3.1	5.0	5.0	3.0	3.7	3.1	3.0	3.7	3.0
All-Red Time (s)	3.4	2.3		3.3	2.3	2.3	3.4	2.7	3.3	3.3	2.7	3.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.4	-2.3		-1.4	-2.3	-1.3	-1.4	-1.4	-1.4	-1.3	-1.4	-1.4
Total Lost Time (s)	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max		None	Max	Max	None	Max	None	None	Max	None
Act Effct Green (s)	63.9	54.2		73.8	60.0	59.0	14.5	35.4	56.0	45.4	30.9	45.7
Actuated g/C Ratio	0.47	0.40		0.55	0.44	0.44	0.11	0.26	0.41	0.34	0.23	0.34
v/c Ratio	0.42	0.73		0.68	0.54	0.13	0.70	0.15	0.37	0.38	0.18	0.19
Control Delay	19.9	38.0		29.8	29.1	2.1	69.2	39.5	15.4	33.2	43.7	3.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	38.0		29.8	29.1	2.1	69.2	39.5	15.4	33.2	43.7	3.6
LOS	B	D		C	C	A	E	D	B	C	D	A
Approach Delay		36.0			26.9			41.3			26.1	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	50	377		90	290	0	112	50	84	109	52	0
Queue Length 95th (ft)	83	487		165	354	20	159	92	147	169	97	29
Internal Link Dist (ft)		906			1135			606			726	
Turn Bay Length (ft)	275			275		50	100		125	100		100
Base Capacity (vph)	298	1356		364	1610	781	375	480	764	467	416	617
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.73		0.58	0.54	0.13	0.68	0.15	0.35	0.38	0.18	0.18

Intersection Summary			
Area Type:	Other		
Cycle Length: 135			
Actuated Cycle Length: 135.2			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 32.5		Intersection LOS: C	
Intersection Capacity Utilization 64.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Brucewood Road & Morganton Road



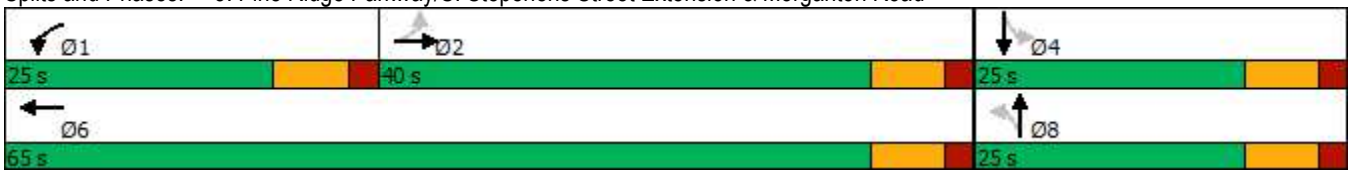
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	938	123	261	885	38	135	41	293	25	36	34
Future Volume (vph)	61	938	123	261	885	38	135	41	293	25	36	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3479	0	1770	3518	0	1770	1619	0	0	1750	0
Flt Permitted	0.280			0.950			0.709				0.355	
Satd. Flow (perm)	522	3479	0	1770	3518	0	1321	1619	0	0	630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			10			326			29	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		978			1095			673			1303	
Travel Time (s)		14.8			16.6			13.1			25.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1179	0	290	1025	0	150	372	0	0	106	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			24			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template										Left		
Leading Detector (ft)	40	306		40	306		40	40		20	40	
Trailing Detector (ft)	0	300		0	300		0	0		0	0	
Detector 1 Position(ft)	0	300		0	300		0	0		0	0	
Detector 1 Size(ft)	40	6		40	6		40	40		20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8			4		
Detector Phase	2	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		7.0	12.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	25.0	25.0		14.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	40.0	40.0		25.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	44.4%	44.4%		27.8%	72.2%		27.8%	27.8%		27.8%	27.8%	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	Min	Min		None	Min		None	None		None	None	
Act Effct Green (s)	31.2	31.2		18.3	54.6		16.0	16.0			16.0	
Actuated g/C Ratio	0.39	0.39		0.23	0.67		0.20	0.20			0.20	
v/c Ratio	0.34	0.87		0.73	0.43		0.57	0.64			0.72	
Control Delay	24.8	31.6		42.7	6.8		40.3	11.4			52.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay	24.8	31.6		42.7	6.8		40.3	11.4			52.5	
LOS	C	C		D	A		D	B			D	
Approach Delay		31.2			14.8			19.7			52.5	
Approach LOS		C			B			B			D	
Queue Length 50th (ft)	25	296		147	111		75	21			40	
Queue Length 95th (ft)	65	#414		#267	162		136	104			#119	
Internal Link Dist (ft)		898			1015			593			1223	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	231	1553		448	2673		334	653			181	
Starvation Cap Reductn	0	0		0	0		0	0			0	
Spillback Cap Reductn	0	0		0	0		0	0			0	
Storage Cap Reductn	0	0		0	0		0	0			0	
Reduced v/c Ratio	0.29	0.76		0.65	0.38		0.45	0.57			0.59	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 80.9
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 83.8% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Pine Ridge Parkway/S. Stepehens Street Extension & Morganton Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	600	96	32	681	103	34
Future Volume (vph)	600	96	32	681	103	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	125		0	100
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	3465	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3465	0	1770	3539	1770	1583
Link Speed (mph)	35			35	25	
Link Distance (ft)	357			715	501	
Travel Time (s)	7.0			13.9	13.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	774	0	36	757	114	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	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 38.7%		ICU Level of Service A	
Analysis Period (min) 15			

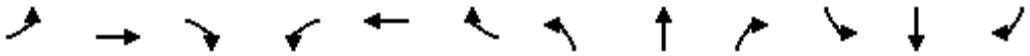
Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	600	96	32	681	103	34
Future Vol, veh/h	600	96	32	681	103	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	100
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	667	107	36	757	114	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	774	0	1172	387
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	451	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	837	-	185	611
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	609	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	837	-	177	611
Mov Cap-2 Maneuver	-	-	-	-	177	-
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	583	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	45.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	177	611	-	-	837	-
HCM Lane V/C Ratio	0.647	0.062	-	-	0.042	-
HCM Control Delay (s)	56.5	11.3	-	-	9.5	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	3.7	0.2	-	-	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	479	112	80	549	50	119	4	77	54	4	47
Future Volume (vph)	43	479	112	80	549	50	119	4	77	54	4	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	100		0	0		100	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3440	0	1770	3493	0	0	1777	1583	0	1705	0
Flt Permitted	0.950			0.950				0.954			0.975	
Satd. Flow (perm)	1770	3440	0	1770	3493	0	0	1777	1583	0	1705	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		715			641			500			372	
Travel Time (s)		13.9			12.5			13.6			10.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	656	0	89	666	0	0	136	86	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												
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 44.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	21.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	479	112	80	549	50	119	4	77	54	4	47
Future Vol, veh/h	43	479	112	80	549	50	119	4	77	54	4	47
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	125	-	-	100	-	-	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	532	124	89	610	56	132	4	86	60	4	52

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	666	0	0	656	0	0	1175	1534	328	1180	1568	333
Stage 1	-	-	-	-	-	-	690	690	-	816	816	-
Stage 2	-	-	-	-	-	-	485	844	-	364	752	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	919	-	-	927	-	-	147	115	668	146	110	663
Stage 1	-	-	-	-	-	-	401	444	-	337	389	-
Stage 2	-	-	-	-	-	-	532	377	-	627	416	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	919	-	-	927	-	-	~ 116	99	668	110	94	663
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 116	99	-	110	94	-
Stage 1	-	-	-	-	-	-	380	421	-	319	352	-
Stage 2	-	-	-	-	-	-	437	341	-	513	394	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.1	136.5	59.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	115	668	919	-	-	927	-	-	174
HCM Lane V/C Ratio	1.188	0.128	0.052	-	-	0.096	-	-	0.67
HCM Control Delay (s)	214.9	11.2	9.1	-	-	9.3	-	-	59.9
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	8.6	0.4	0.2	-	-	0.3	-	-	3.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	405	48	65	456	73	51	4	77	79	4	170
Future Volume (vph)	157	405	48	65	456	73	51	4	77	79	4	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	125		0	0		100	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3483	0	1770	3465	0	0	1779	1583	0	1668	0
Flt Permitted	0.950			0.950				0.955			0.985	
Satd. Flow (perm)	1770	3483	0	1770	3465	0	0	1779	1583	0	1668	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		641			439			498			314	
Travel Time (s)		12.5			8.6			13.6			8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	503	0	72	588	0	0	61	86	0	281	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												
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 55.3%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	41

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	157	405	48	65	456	73	51	4	77	79	4	170
Future Vol, veh/h	157	405	48	65	456	73	51	4	77	79	4	170
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	100	-	-	125	-	-	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	174	450	53	72	507	81	57	4	86	88	4	189

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	588	0	0	503	0	0	1225	1557	252	1267	1543	294
Stage 1	-	-	-	-	-	-	825	825	-	692	692	-
Stage 2	-	-	-	-	-	-	400	732	-	575	851	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	983	-	-	1058	-	-	135	112	748	126	114	702
Stage 1	-	-	-	-	-	-	333	385	-	400	443	-
Stage 2	-	-	-	-	-	-	597	425	-	470	375	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	983	-	-	1058	-	-	78	86	748	88	87	702
Mov Cap-2 Maneuver	-	-	-	-	-	-	78	86	-	88	87	-
Stage 1	-	-	-	-	-	-	274	317	-	329	413	-
Stage 2	-	-	-	-	-	-	402	396	-	338	309	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.4	0.9	62.5	217.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	79	748	983	-	-	1058	-	-	213
HCM Lane V/C Ratio	0.774	0.114	0.177	-	-	0.068	-	-	1.32
HCM Control Delay (s)	135.5	10.4	9.5	-	-	8.7	-	-	217.2
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	3.8	0.4	0.6	-	-	0.2	-	-	15.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	444	41	17	469	25	46	4	18	27	4	81
Future Volume (vph)	75	444	41	17	469	25	46	4	18	27	4	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	115		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
Satd. Flow (prot)	1770	3493	0	1770	3511	0	0	1736	0	0	1660	0
Flt Permitted	0.950			0.950				0.967			0.988	
Satd. Flow (perm)	1770	3493	0	1770	3511	0	0	1736	0	0	1660	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		439			817			501			326	
Travel Time (s)		8.6			15.9			13.7			8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	539	0	19	549	0	0	75	0	0	124	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												
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 37.1%		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	75	444	41	17	469	25	46	4	18	27	4	81
Future Vol, veh/h	75	444	41	17	469	25	46	4	18	27	4	81
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	175	-	-	115	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	83	493	46	19	521	28	51	4	20	30	4	90

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	549	0	0	539	0	0	983	1269	270	988	1278	275
Stage 1	-	-	-	-	-	-	682	682	-	573	573	-
Stage 2	-	-	-	-	-	-	301	587	-	415	705	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1017	-	-	1025	-	-	203	167	728	201	165	722
Stage 1	-	-	-	-	-	-	406	448	-	472	502	-
Stage 2	-	-	-	-	-	-	683	495	-	585	437	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1017	-	-	1025	-	-	161	150	728	177	149	722
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	150	-	177	149	-
Stage 1	-	-	-	-	-	-	373	411	-	433	492	-
Stage 2	-	-	-	-	-	-	581	486	-	517	401	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.3	33.1	18.8
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	202	1017	-	-	1025	-	-	384
HCM Lane V/C Ratio	0.374	0.082	-	-	0.018	-	-	0.324
HCM Control Delay (s)	33.1	8.9	-	-	8.6	-	-	18.8
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.6	0.3	-	-	0.1	-	-	1.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	4	47	8	4	17	39	376	6	15	372	41
Future Volume (vph)	50	4	47	8	4	17	39	376	6	15	372	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1704	0	0	1690	0	0	3514	0	0	3483	0
Flt Permitted		0.976			0.986			0.995			0.998	
Satd. Flow (perm)	0	1704	0	0	1690	0	0	3514	0	0	3483	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		576			544			817			673	
Travel Time (s)		13.1			12.4			15.9			13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	0	0	32	0	0	468	0	0	476	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			12			12	
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	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Vol, veh/h	50	4	47	8	4	17	39	376	6	15	372	41
Future Vol, veh/h	50	4	47	8	4	17	39	376	6	15	372	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	4	52	9	4	19	43	418	7	17	413	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	767	981	230	751	1001	213	459	0	0	425	0	0
Stage 1	470	470	-	508	508	-	-	-	-	-	-	-
Stage 2	297	511	-	243	493	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	292	248	772	299	241	792	1098	-	-	1131	-	-
Stage 1	543	558	-	516	537	-	-	-	-	-	-	-
Stage 2	687	535	-	739	545	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	266	231	772	260	224	792	1098	-	-	1131	-	-
Mov Cap-2 Maneuver	266	231	-	260	224	-	-	-	-	-	-	-
Stage 1	515	547	-	490	510	-	-	-	-	-	-	-
Stage 2	631	508	-	670	534	-	-	-	-	-	-	-

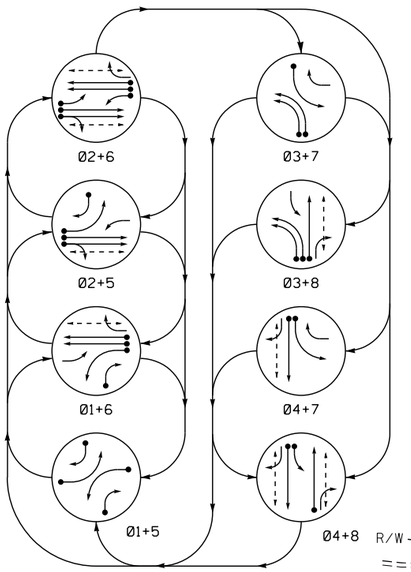
Approach	EB	WB	NB	SB
HCM Control Delay, s	18.4	14.4	1	0.4
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1098	-	-	379	414	1131	-	-
HCM Lane V/C Ratio	0.039	-	-	0.296	0.078	0.015	-	-
HCM Control Delay (s)	8.4	0.2	-	18.4	14.4	8.2	0.1	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.3	0	-	-

Appendix L:
Signal Plans &
Timings

PROJECT REFERENCE NO.	SHEET NO.
Peds	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

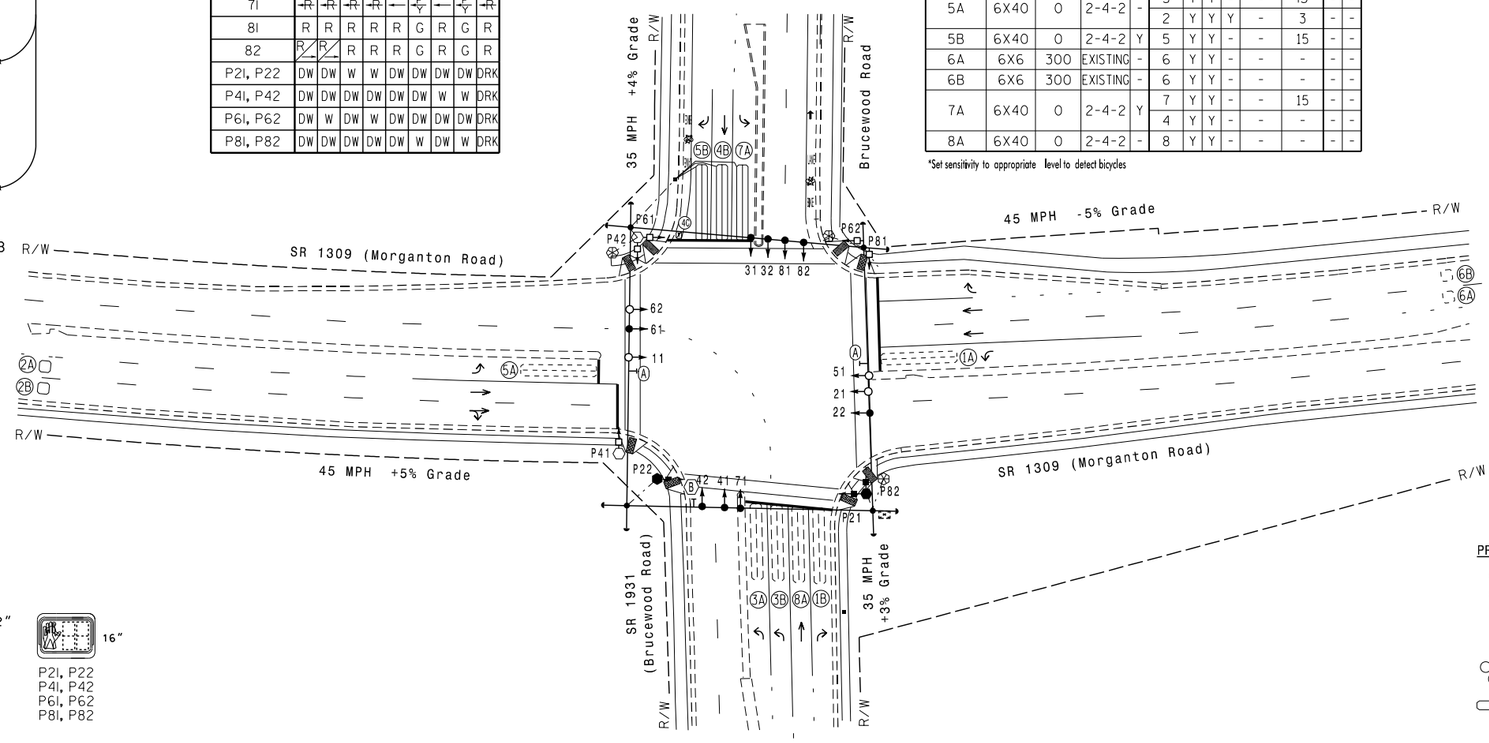
TABLE OF OPERATION

SIGNAL FACE	PHASE 0 1 + 5	0 1 + 6	0 2 + 5	0 2 + 6	0 3 + 7	0 3 + 8	0 4 + 7	0 4 + 8	FLASH
11	←	←	~~F Y~~	~~F Y~~	~~R~~	~~R~~	~~R~~	~~R~~	~~Y~~
21, 22	R	R	G	G	R	R	R	R	Y
31, 32	~~R~~	~~R~~	~~R~~	~~R~~	←	←	~~R~~	~~R~~	~~R~~
41	R	R	R	R	R	R	G	G	R
42	R/→	R	R/→	R	R	R	G	G	R
51	←	~~F Y~~	←	~~F Y~~	~~R~~	~~R~~	~~R~~	~~R~~	~~Y~~
61	R	G	R	G	R	R	R	R	Y
62	R	G	R	G	R/→	R	R/→	R	Y
71	~~R~~	~~R~~	~~R~~	~~R~~	←	~~F Y~~	←	~~F Y~~	~~R~~
81	R	R	R	R	R	G	R	G	R
82	R/→	R/→	R	R	R	G	R	G	R
P21, P22	DW	DW	W	W	DW	DW	DW	DW	DRK
P41, P42	DW	DW	DW	DW	DW	DW	W	W	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DW	DRK
P81, P82	DW	DW	DW	DW	DW	W	DW	W	DRK

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

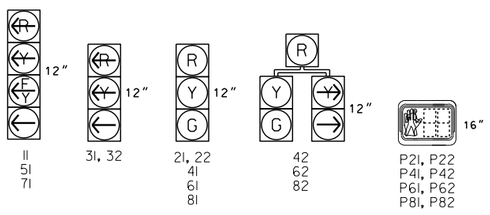
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING: PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	-
					6	Y	Y	Y	-	3	-	-
1B	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	-
2A	6X6	300	5	Y	2	Y	Y	-	-	-	-	-
2B	6X6	300	5	Y	2	Y	Y	-	-	-	-	-
3A	6X40	0	2-4-2	-	3	Y	Y	-	-	-	-	-
3B	6X40	0	2-4-2	-	3	Y	Y	-	-	-	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	-
*4C	5X5	0	2-4-2 DIAGONAL	Y	4	Y	Y	-	-	-	-	-
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
					2	Y	Y	Y	-	3	-	-
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	-
6A	6X6	300	EXISTING	-	6	Y	Y	-	-	-	-	-
6B	6X6	300	EXISTING	-	6	Y	Y	-	-	-	-	-
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-	-
					4	Y	Y	-	-	-	-	-
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	-	-	-

*Set sensitivity to appropriate level to detect bicycles



SIGNAL FACE I.D.

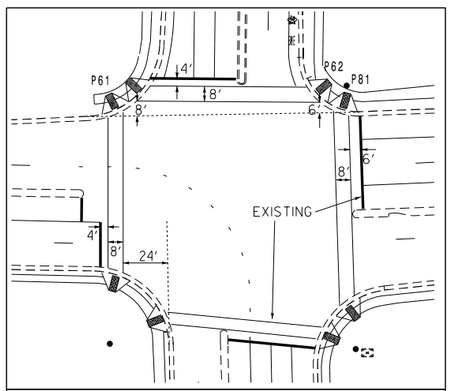
All Heads L.E.D.



OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max Green 1 *	15	90	15	15	15	90	15	15
Yellow Clearance	3.1	5.0	3.0	3.7	3.0	5.0	3.0	3.7
Red Clearance	3.3	2.3	3.7	3.0	3.4	2.3	3.3	3.0
Walk 1 *	-	7	-	7	-	7	-	7
Don't Walk 1	-	20	-	20	-	21	-	25
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	45	-	-	-	45	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

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



Proposed Crosswalk & Stop Line Locations

8 Phase Fully Actuated (Isolated)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Reposition existing signal heads numbered 22 and 61.
6. Set all detector units to presence mode.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Pavement markings are existing unless otherwise shown.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
----------	2-in Underground Conduit	----------
N/A	Right of Way	----------
→	Directional Arrow	→
⊛	Type I Pushbutton Post	⊛
⬡	Type II Signal Pedestal	⬢
N/A	Curb Ramp	◢◣
Ⓑ	Bike Loop Detection	Ⓑ
Ⓐ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓐ
Ⓑ	Right Arrow "ONLY" Sign (R3-5R)	Ⓑ

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SR 1309 (Morganton Road) at SR 1931 (Brucewood Road)
Division 8 Moore County Southern Pines
PLAN DATE: September 2019 REVIEWED BY:
PREPARED BY: C.E. Carter REVIEWED BY:

SCALE 0 40 1"=40'

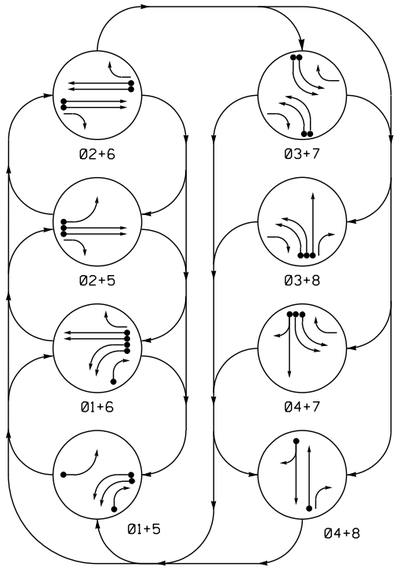
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 034282 ENGINEER CHANGSEOK BAEK
SIGNATURE 10/16/2019 DATE
SIG. INVENTORY NO. 08-0743

16-07-2019 09:31
K:\TPB\Signal\Projects\Morganton Park South Ph. 2\Sig\Sig.dgn_20191016.dgn
cbaek

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

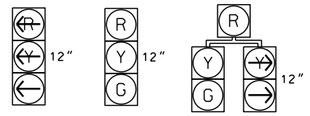
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 0 1 + 5	0 1 + 6	0 2 + 5	0 2 + 6	0 3 + 7	0 3 + 8	0 4 + 7	0 4 + 8	FLASH
11,12	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21	R	R	G	G	R	R	R	R	Y
22	R	R	G	G	R/→	R/→	R	R	Y
31,32	~~R~~	~~R~~	~~R~~	~~R~~	←	←	~~R~~	~~R~~	~~R~~
41,42	R	R	R	R	R	R	G	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
61	R	G	R	G	R	R	R	R	Y
62	R	G	R	G	R/→	R	R/→	R	Y
71,72	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	←	~~R~~	~~R~~
81	R	R	R	R	R	G	R	G	R
82	R/→	R/→	R	R	R	G	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



11, 12	21	22
31, 32	41, 42	62
51	61	82
71, 72	81	

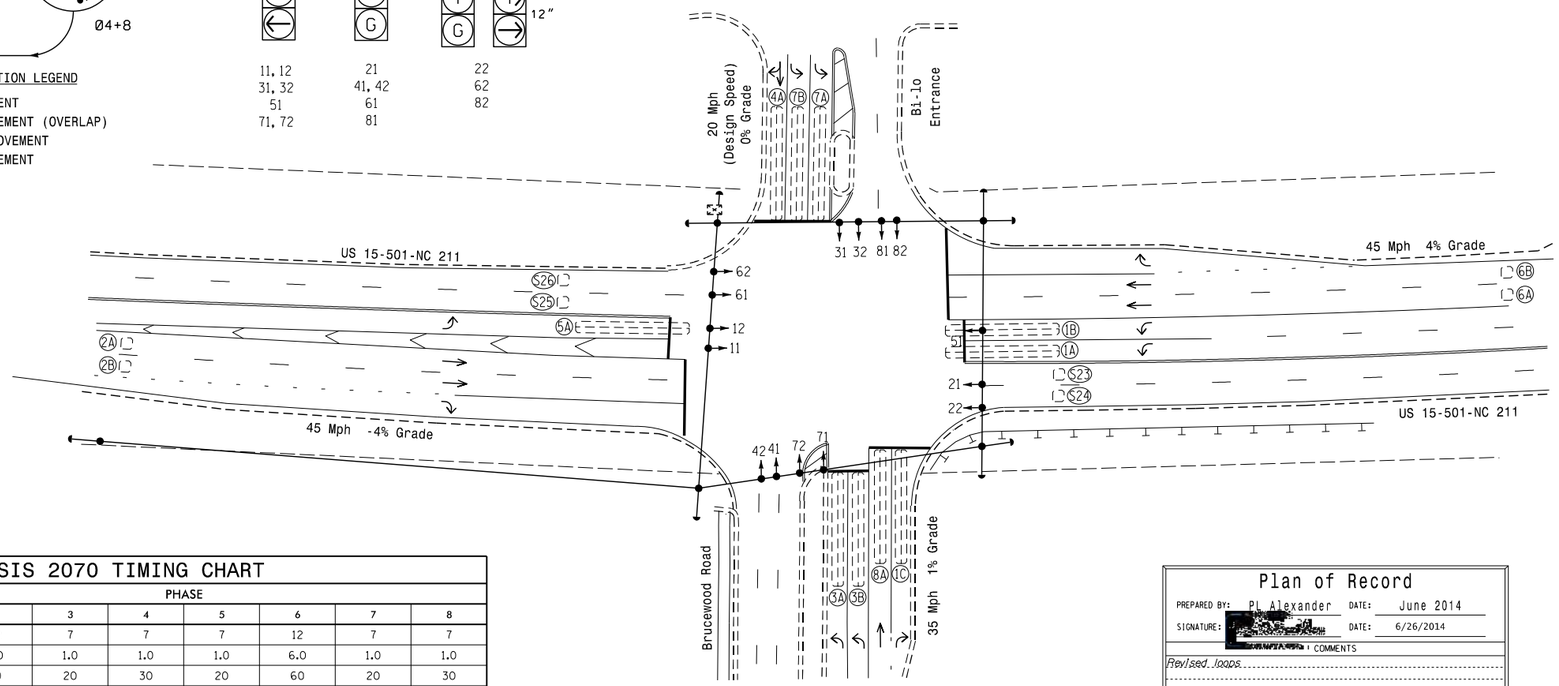
OASIS 2070 LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X60	+10	2-4-2	-	1	Y	Y	-	-	3	-	-
1B	6X60	+10	2-4-2	-	1	Y	Y	-	-	3	-	-
1C	6X60	0	2-4-2	-	1	Y	Y	-	-	15	-	-
2A	6X6	300	4	-	2	Y	Y	-	-	-	-	-
2B	6X6	300	4	-	2	Y	Y	-	-	-	-	-
3A	6X60	0	2-4-2	-	3	Y	Y	-	-	-	-	-
3B	6X60	0	2-4-2	-	3	Y	Y	-	-	-	-	-
4A	6X60	0	2-4-2	-	4	Y	Y	-	-	10	-	-
5A	6X60	+10	2-4-2	-	5	Y	Y	-	-	3	-	-
6A	6X6	300	4	-	6	Y	Y	-	-	-	-	-
6B	6X6	300	4	-	6	Y	Y	-	-	-	-	-
7A	6X60	0	2-4-2	-	7	Y	Y	-	-	-	-	-
7B	6X60	0	2-4-2	-	7	Y	Y	-	-	-	-	-
8A	6X60	0	2-4-2	-	8	Y	Y	-	-	-	-	-
S23	6X6	+185	4	-	-	-	-	-	-	-	Y	-
S24	6X6	+185	4	-	-	-	-	-	-	-	Y	-
S25	6X6	+195	4	-	-	-	-	-	-	-	Y	-
S26	6X6	+195	4	-	-	-	-	-	-	-	Y	-

8 Phase
Fully Actuated
US 1-15-501/NC 211 Closed Loop System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
7. Pavement markings are existing.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data: Controller Asset #: 0775.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
⊣	Pedestrian Signal Head With Push Button & Sign	■
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
- - -	2-in Underground Conduit	- - -
N/A	Right of Way	- - -
→	Directional Arrow	→

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	1.0	6.0	1.0	1.0	1.0	6.0	1.0	1.0
Max Green 1 *	20	60	20	30	20	60	20	30
Yellow Clearance	3.0	4.9	3.0	3.0	3.0	4.2	3.0	3.8
Red Clearance	3.4	1.7	3.4	3.3	3.2	1.5	3.3	2.2
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	20	-	-	-	20	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

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

Plan of Record

PREPARED BY: PL Alexander DATE: June 2014
SIGNATURE: DATE: 6/26/2014
COMMENTS
Revised loops
This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

Plan of Record

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 15-501-NC 211
at
Brucewood Road/Bi-Lo Entrance

Division 8 Moore County Southern Pines
PLAN DATE: June 2006 REVIEWED BY: M. Mahbooba
PREPARED BY: K. Maldonado REVIEWED BY:

REVISIONS	INIT.	DATE
Revised Brucewood Road for 35 MPH	RJZ	8/1/12
Add Volume Density T.Imlog JRS	PLA	7/1/13

SCALE 0 40 1"=40'

Not a certified document as to the Original Document but Only as to the Revisions - This document originally Issued and sealed by Jason P.Galloway,PE. #29904, on 7/20/2006. This document is only certified as to the revisions.

SIG. INVENTORY NO. 08-0775

26-JUN-2014 15:26
S:\Traffic Signal\Signal Design Section\Central Region\Div 8\PDBs\08-0775\080775_sig_dsn_2014mmdd.dgn
patricia.snyder

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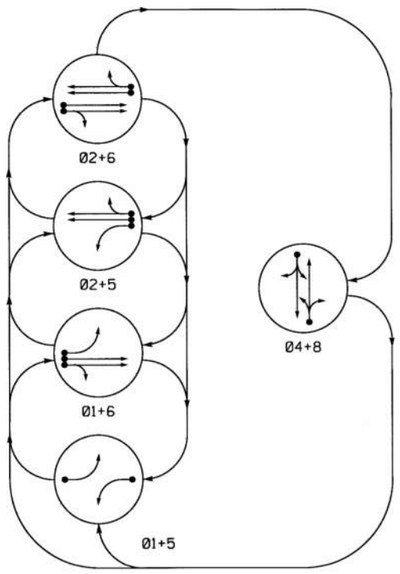
PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

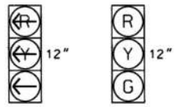
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 0 1 + 5	0 1 + 6	0 2 + 5	0 2 + 6	0 4 + 8	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~
61,62	R	G	R	G	R	Y
81,82	R	R	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



11
51

21,22
41,42
61,62
81,82

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X60	0	2-4-2	-	1	Y	Y	-	-	3	-	-
2A	6X6	300	4	-	2	Y	Y	-	-	-	-	-
2B	6X6	300	4	-	2	Y	Y	-	-	-	-	-
4A	6X60	+5	2-4-2	-	4	Y	Y	-	-	5	-	-
4B	6X15	+5	2-4-2	-	4	Y	Y	-	-	15	-	-
5A	6X60	0	2-4-2	-	5	Y	Y	-	-	3	-	-
6A	6X6	300	4	-	6	Y	Y	-	-	-	-	-
6B	6X6	300	4	-	6	Y	Y	-	-	-	-	-
8A	6X60	+5	2-4-2	-	8	Y	Y	-	-	5	-	-
8B	6X15	+5	2-4-2	-	8	Y	Y	-	-	15	-	-
SD21	6X6	+125	4	-	-	-	-	-	-	-	Y	-
SD22	6X6	+125	4	-	-	-	-	-	-	-	Y	-

5 Phase
Fully Actuated
US 1-15-501/NC 211 CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
7. Closed loop system data: Controller Asset #0468.

OASIS 2070L TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	1.0	6.0	1.0	1.0	6.0	1.0
Max Green 1 *	20	80	20	20	80	20
Yellow Clearance	3.0	4.5	3.8	3.0	4.5	4.0
Red Clearance	2.8	1.0	1.9	2.6	1.0	1.8
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.8 ▽	-	-	1.8 ▽	-
Max Variable Initial *	-	34 ▽	-	-	34 ▽	-
Time Before Reduction *	-	15 ▽	-	-	15 ▽	-
Time To Reduce *	-	25 ▽	-	-	25 ▽	-
Minimum Gap	-	3.0 ▽	-	-	3.0 ▽	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

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

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
○	Pedestrian Signal Head With Push Button & Sign	■
○	Signal Pole with Guy	●, ●
○	Signal Pole with Sidewalk Guy	●, ■
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
	2-in Underground Conduit	
N/A	Right of Way	
→	Directional Arrow	→

Plan of Record

PREPARED BY: PL Alexander DATE: June 2013
SIGNATURE: DATE: 6/26/13
COMMENTS
Revised loops and added system loops

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

Signal Upgrade

REVISION ▽ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 23489 ENGINEER PAMELA K ALEXANDER

6/26/13
SIGNATURE DATE

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

SCALE 0 40 1"=40'

US 15-501-NC 211
at
SR 1204 (Murray Hill Road)

Division 8 Moore County Southern Pines

PLAN DATE:	July 2006	REVIEWED BY:	
PREPARED BY:	MKM/JPG	REVIEWED BY:	

REVISIONS	INIT.	DATE
▽ Add volume density timing	pla	6/12/13

SEAL
Not a certified document as to the Original Document but Only as to the Revisions - This document originally Issued and sealed by Jason P Galloway, 29904 on 7/24/06. This document is only certified as to the revisions.

SIGNATURE DATE

SIG. INVENTORY NO. 08-0468

26-Jun-2013 14:20
S:\Traffic\ITS Signals\IB Term Info\Ig_Complete\0080468_sig_psr_20130626.dgn

800468 - U.S. 15/501 @ MURRAY HILL RD.
2-1 Phase Control Functions Page 1
7/20/2021 8:57 AM

	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Time Min 2	
Time Extension 2	
Time Max 2	
Soft Recall	
Minimum Recall	2 6
Maximum Recall 1	
Maximum Recall 2	
Call Non-Act 1	
Call Non-Act 2	
Omit Phase	
Dual Entry	4 8
No Skip	
Added Extension	
Simultaneous Gap	1 2 3 4 5 6 7 8
Guaranteed Passage	
Green Interval Flash	
Fast Green Flash	
Red Rest	
Backup Protection	
Inhibit Reservice	
Inhibit Max (Coord)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Inhibit Coordination	
Dynamic Max/Max3	
Variable Initial	
Gap Reduction	
Omit Pedestrian	
Time Walk 2	
Time FDWalk 2	

	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Ped Soft Recall	
Ped Recall	
Rest In Walk	
Modified Rest In Walk	
Ped Reservice	
Flashing Walk	
Advanced Walk	
Delayed Walk	
Ped Yellow Clear	
Ped Red Clear	
Startup In Green	2 6
Startup In Yellow	
Startup Red Clear	
First Phases	
Startup Calls	
Startup Ped Calls	
Flash Entry	2 6
Yellow Flash	2 6
Wag Phases	1 3 6 8
Wag Overlaps	
Manual Control	1 2 3 4 5 6 7 8
Manual Control Omit Ped	
Red Detector Lock	
Yellow Detector Lock	2 6
Active Logic 1 - 16	
Active Logic 17 - 32	
Dynamic/Backup	

800468 - U.S. 15/501 @ MURRAY HILL RD.
3 - Phase Timing 1
7/20/2021 8:57 AM

Phase Timing Elements	Phase															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green 1	7	15	7	7	7	15	7	7	0	0	0	0	0	0	0	0
Minimum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Re-service Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extension 1 (Gap 1)	1.5	3.0	0.0	2.0	1.5	3.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extension 2 (Gap 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Green 1	20	60	0	30	20	60	0	30	0	0	0	0	0	0	0	0
Maximum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	3.0	4.5	4.0	3.8	3.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance	2.8	1.0	2.0	1.9	2.6	1.0	2.0	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Advance Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Dont Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max / Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seconds / Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Variable Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt Flash Frequency (0-25.5 Hz)	1.0															

800468 - U.S. 15/501 @ MURRAY HILL RD.
3 - Phase Timing 2
7/20/2021 8:57 AM

Phase Timing Elements	Phase															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green 1	7	12	7	7	7	12	7	7	0	0	0	0	0	0	0	0
Minimum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Re-service Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extension 1 (Gap 1)	1.0	2.0	0.0	1.0	1.0	2.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extension 2 (Gap 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Green 1	20	60	0	30	20	60	0	30	0	0	0	0	0	0	0	0
Maximum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	3.0	4.5	4.0	3.8	3.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance	2.8	1.0	2.0	1.9	2.6	1.0	2.0	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Advance Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Dont Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max / Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seconds / Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Variable Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt Flash Frequency (0-25.5 Hz)	1.0															

800468 - U.S. 15/501 @ MURRAY HILL RD.
4 - Phase Sequence Page 1
7/20/2021 8:57 AM

Rings	Barrier 1				Barrier 2				Barrier 3				Barrier 4			
1	1	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0
2	5	6	0	0	0	8	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

800468 - U.S. 15/501 @ MURRAY HILL RD.
4 - Phase Sequence Page 2
7/20/2021 8:57 AM

Rings	Barrier 1				Barrier 2				Barrier 3				Barrier 4			
1	0	2	1	0	0	4	0	0	0	0	0	0	0	0	0	0
2	5	6	0	0	0	8	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

800468 - U.S. 15/501 @ MURRAY HILL RD.
4 - Phase Sequence Page 3
7/20/2021 8:57 AM

Rings	Barrier 1				Barrier 2				Barrier 3				Barrier 4			
1	1	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0
2	0	6	5	0	0	8	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

800468 - U.S. 15/501 @ MURRAY HILL RD.
9 - Coordination Plan 11
7/20/2021 8:57 AM

Coordination Plan # 11

Cycle length (0-999 sec)	110
Min Transition Cycle (0-999 sec)	90
Max Transition Cycle (0-999 sec)	150

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	4	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	22	60	0	28	22	60	0	28
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:	**(Y/N)**	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:	
Phase Sequence Page (1-12)	3
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:
*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:
*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800468 - U.S. 15/501 @ MURRAY HILL RD.
9 - Coordination Plan 12
7/20/2021 8:57 AM

Coordination Plan # 12

Cycle length (0-999 sec)	120
Min Transition Cycle (0-999 sec)	100
Max Transition Cycle (0-999 sec)	160

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	3	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	25	65	0	30	20	70	0	30
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:	**(Y/N)**	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	3
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:
*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:
*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800468 - U.S. 15/501 @ MURRAY HILL RD.
9 - Coordination Plan 13
7/20/2021 8:57 AM

Coordination Plan # **13**

Cycle length (0-999 sec)	130
Min Transition Cycle (0-999 sec)	110
Max Transition Cycle (0-999 sec)	170

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	19	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	26	72	0	32	23	75	0	32
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:	**(Y/N)**	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	2
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:
*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:
*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800468 - U.S. 15/501 @ MURRAY HILL RD.
9 - Coordination Plan 14
7/20/2021 8:57 AM

Coordination Plan # **14**

Cycle length (0-999 sec)	140
Min Transition Cycle (0-999 sec)	120
Max Transition Cycle (0-999 sec)	180

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	64	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	30	75	0	35	25	80	0	35
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:

	(Y/N)	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	3
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800468 - U.S. 15/501 @ MURRAY HILL RD.
9 - Coordination Plan 15
7/20/2021 8:57 AM

Coordination Plan # **15**

Cycle length (0-999 sec)	95
Min Transition Cycle (0-999 sec)	75
Max Transition Cycle (0-999 sec)	130

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	9	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	20	50	0	25	20	50	0	25
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:

	(Y/N)	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	3
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800468 - U.S. 15/501 @ MURRAY HILL RD.
B - Scheduling Events 1-100
7/20/2021 8:57 AM

Event #	Event Type	Event Details	Pri LMH	Start Date MM	Start Date DD	Stop Date MM	Stop Date DD	Start Time HH	Start Time MM	Stop Time HH	Stop Time MM	DOW Enabled 1 2 3 4 5 6 7	Del When Done	Cont	Event Groups Assigned 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
1	Coordination Plan (1-66)	Free	L	1	1	12	31	7	0	21	0	2 3 4 5 6	N	N	
2	Coordination Plan (1-66)	Free	L	1	1	12	31	9	0	21	0	7	N	N	
3	Coordination Plan (1-66)	Free	L	1	1	12	31	12	0	21	0	1	N	N	
4	Coordination Plan (1-66)	Free	M	1	1	1	1	0	0	24	0	1 2 3 4 5 6 7	N	N	
5	Coordination Plan (1-66)	12-1	M	1	2	12	31	6	30	9	15	2 3 4 5 6	N	N	
6	Coordination Plan (1-66)	11-1	M	1	2	12	31	9	15	11	15	2 3 4 5 6	N	N	
7	Coordination Plan (1-66)	14-1	M	1	2	12	31	11	15	15	30	2 3 4 5 6	N	N	
8	Coordination Plan (1-66)	13-1	M	1	2	12	31	15	30	18	30	2 3 4 5 6	N	N	
9	Coordination Plan (1-66)	11-1	M	1	2	12	31	18	30	19	30	2 3 4 5 6	N	N	
10	Coordination Plan (1-66)	15-1	M	1	2	12	31	19	30	21	0	2 3 4 5 6	N	N	
11	Coordination Plan (1-66)	Free	H	5	23	5	31	0	0	24	0	2	N	N	
12	Coordination Plan (1-66)	Free	H	7	4	7	4	0	0	24	0	1 2 3 4 5 6 7	N	N	
13	Coordination Plan (1-66)	Free	H	9	1	9	7	0	0	24	0	2	N	N	
14	Coordination Plan (1-66)	Free	H	11	22	11	25	0	0	24	0	5	N	N	
15	Coordination Plan (1-66)	Free	H	12	25	12	25	0	0	24	0	1 2 3 4 5 6 7	N	N	
16	None			0	0	0	0	0	0	0	0		N	N	
17	Coordination Plan (1-66)	14-1	M	1	2	12	31	9	0	21	0	7	N	N	
18	Coordination Plan (1-66)	14-1	M	1	2	12	31	12	0	21	0	1	N	N	
19	None			0	0	0	0	0	0	0	0		N	N	
20	None			0	0	0	0	0	0	0	0		N	N	
21	None			0	0	0	0	0	0	0	0		N	N	
22	None			0	0	0	0	0	0	0	0		N	N	
23	None			0	0	0	0	0	0	0	0		N	N	
24	None			0	0	0	0	0	0	0	0		N	N	
25	None			0	0	0	0	0	0	0	0		N	N	
26	None			0	0	0	0	0	0	0	0		N	N	
27	None			0	0	0	0	0	0	0	0		N	N	
28	None			0	0	0	0	0	0	0	0		N	N	
29	None			0	0	0	0	0	0	0	0		N	N	
30	None			0	0	0	0	0	0	0	0		N	N	
31	None			0	0	0	0	0	0	0	0		N	N	
32	None			0	0	0	0	0	0	0	0		N	N	
33	None			0	0	0	0	0	0	0	0		N	N	
34	None			0	0	0	0	0	0	0	0		N	N	
35	None			0	0	0	0	0	0	0	0		N	N	
36	None			0	0	0	0	0	0	0	0		N	N	
37	None			0	0	0	0	0	0	0	0		N	N	
38	None			0	0	0	0	0	0	0	0		N	N	
39	None			0	0	0	0	0	0	0	0		N	N	
40	None			0	0	0	0	0	0	0	0		N	N	
41	None			0	0	0	0	0	0	0	0		N	N	
42	None			0	0	0	0	0	0	0	0		N	N	
43	None			0	0	0	0	0	0	0	0		N	N	
44	None			0	0	0	0	0	0	0	0		N	N	
45	None			0	0	0	0	0	0	0	0		N	N	
46	None			0	0	0	0	0	0	0	0		N	N	
47	None			0	0	0	0	0	0	0	0		N	N	
48	None			0	0	0	0	0	0	0	0		N	N	
49	None			0	0	0	0	0	0	0	0		N	N	
50	None			0	0	0	0	0	0	0	0		N	N	

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
2-1 Phase Control Functions Page 1
7/20/2021 9:01 AM

	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Time Min 2	
Time Extension 2	
Time Max 2	
Soft Recall	
Minimum Recall	2 6
Maximum Recall 1	
Maximum Recall 2	
Call Non-Act 1	
Call Non-Act 2	
Omit Phase	
Dual Entry	4 8
No Skip	
Added Extension	
Simultaneous Gap	1 2 3 4 5 6 7 8
Guaranteed Passage	
Green Interval Flash	
Fast Green Flash	
Red Rest	
Backup Protection	
Inhibit Reservice	
Inhibit Max (Coord)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Inhibit Coordination	
Dynamic Max/Max3	
Variable Initial	
Gap Reduction	
Omit Pedestrian	
Time Walk 2	
Time FDWalk 2	

	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Ped Soft Recall	
Ped Recall	
Rest In Walk	
Modified Rest In Walk	
Ped Reservice	
Flashing Walk	
Advanced Walk	
Delayed Walk	
Ped Yellow Clear	
Ped Red Clear	
Startup In Green	2 6
Startup In Yellow	
Startup Red Clear	
First Phases	
Startup Calls	
Startup Ped Calls	
Flash Entry	2 6
Yellow Flash	
Wag Phases	1 3 6 8
Wag Overlaps	
Manual Control	1 2 3 4 5 6 7 8
Manual Control Omit Ped	
Red Detector Lock	
Yellow Detector Lock	2 6
Active Logic 1 - 16	
Active Logic 17 - 32	
Dynamic/Backup	

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
3 - Phase Timing 1
7/20/2021 9:01 AM

Phase Timing Elements	Phase															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green 1	8	20	8	8	8	20	8	8	0	0	0	0	0	0	0	0
Minimum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Re-service Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extension 1 (Gap 1)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extension 2 (Gap 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Green 1	20	60	25	20	20	60	20	20	0	0	0	0	0	0	0	0
Maximum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	3.0	4.9	3.0	3.0	3.0	4.2	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance	3.4	1.7	3.4	3.3	3.2	1.5	3.3	3.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Advance Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Dont Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max / Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seconds / Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Variable Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt Flash Frequency (0-25.5 Hz)	1.0															

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
3 - Phase Timing 2
7/20/2021 9:01 AM

Phase Timing Elements	Phase															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green 1	7	12	7	7	7	12	7	7	0	0	0	0	0	0	0	0
Minimum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Re-service Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extension 1 (Gap 1)	1.0	2.0	1.0	1.0	1.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extension 2 (Gap 2)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Green 1	20	60	25	20	20	60	20	20	0	0	0	0	0	0	0	0
Maximum Green 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Clearance	3.0	4.9	3.0	3.0	3.0	4.2	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance	3.4	1.7	3.4	3.3	3.2	1.5	3.3	3.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dont Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Advance Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Dont Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max / Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dynamic Max Adjust	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seconds / Actuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Variable Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time Before Reduction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alt Flash Frequency (0-25.5 Hz)	1.0															

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
4 - Phase Sequence Page 1
7/20/2021 9:01 AM

Rings	Barrier 1				Barrier 2				Barrier 3				Barrier 4			
1	1	2	0	0	3	4	0	0	0	0	0	0	0	0	0	0
2	5	6	0	0	7	8	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
4 - Phase Sequence Page 2
7/20/2021 9:01 AM

Rings	Barrier 1				Barrier 2				Barrier 3				Barrier 4			
1	0	2	1	0	3	4	0	0	0	0	0	0	0	0	0	0
2	5	6	0	0	7	8	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
4 - Phase Sequence Page 3
7/20/2021 9:01 AM

Rings	Barrier 1				Barrier 2				Barrier 3				Barrier 4			
1	1	2	0	0	3	4	0	0	0	0	0	0	0	0	0	0
2	0	6	5	0	7	8	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Rings	Barrier 5				Barrier 6				Barrier 7				Barrier 8			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
9 - Coordination Plan 11
7/20/2021 9:01 AM

Coordination Plan # **11**

Cycle length (0-999 sec)	110
Min Transition Cycle (0-999 sec)	90
Max Transition Cycle (0-999 sec)	150

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	53	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	20	52	16	22	20	52	16	22
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:

	(Y/N)	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	2
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
9 - Coordination Plan 12
7/20/2021 9:01 AM

Coordination Plan # **12**

Cycle length (0-999 sec)	120
Min Transition Cycle (0-999 sec)	100
Max Transition Cycle (0-999 sec)	160

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	49	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	20	60	17	23	20	60	17	23
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:

	(Y/N)	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	1
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
9 - Coordination Plan 13
7/20/2021 9:01 AM

Coordination Plan # **13**

Cycle length (0-999 sec)	130
Min Transition Cycle (0-999 sec)	110
Max Transition Cycle (0-999 sec)	170

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	15	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	25	55	20	30	25	55	20	30
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Coordinated Phase	2 6
Float Force Offs	
Hold to Force Off	
Hi Priority Ped	
Dynamic/Backup	

Options:	**(Y/N)**	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:	
Phase Sequence Page (1-12)	3
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:
*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:
*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
9 - Coordination Plan 14
7/20/2021 9:01 AM

Coordination Plan # **14**

Cycle length (0-999 sec)	140
Min Transition Cycle (0-999 sec)	120
Max Transition Cycle (0-999 sec)	180

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	134	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	25	55	25	35	25	55	25	35
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Coordinated Phase	2 6
Float Force Offs	
Hold to Force Off	
Hi Priority Ped	
Dynamic/Backup	

Options:	**(Y/N)**	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:	
Phase Sequence Page (1-12)	1
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
9 - Coordination Plan 15
7/20/2021 9:01 AM

Coordination Plan # **15**

Cycle length (0-999 sec)	95
Min Transition Cycle (0-999 sec)	75
Max Transition Cycle (0-999 sec)	130

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	58	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	17	40	18	20	17	40	20	18
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:	**(Y/N)**	
Split/Timing in percent?	N	
*Permissive Mode (0-4)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window
		4 = Walk

Active Pages:

Phase Sequence Page (1-12)	2
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	1
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

800775 - U.S. 15/501 @ BRUCEWOOD DRIVE
B - Scheduling Events 1-100
7/20/2021 9:01 AM

Event #	Event Type	Event Details	Pri LMH	Start Date MM	Start Date DD	Stop Date MM	Stop Date DD	Start Time HH	Start Time MM	Stop Time HH	Stop Time MM	DOW Enabled 1 2 3 4 5 6 7	Del When Done	Cont	Event Groups Assigned 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
1	Coordination Plan (1-66)	Free	L	1	1	12	31	7	0	21	0	2 3 4 5 6	N	N	
2	Coordination Plan (1-66)	Free	L	1	1	12	31	9	0	21	0	7	N	N	
3	Coordination Plan (1-66)	Free	L	1	1	12	31	12	0	21	0	1	N	N	
4	Coordination Plan (1-66)	Free	M	1	1	1	1	0	0	24	0	1 2 3 4 5 6 7	N	N	
5	Coordination Plan (1-66)	12-1	M	1	2	12	31	6	30	9	15	2 3 4 5 6	N	N	
6	Coordination Plan (1-66)	11-1	M	1	2	12	31	9	15	11	15	2 3 4 5 6	N	N	
7	Coordination Plan (1-66)	14-1	M	1	2	12	31	11	15	15	30	2 3 4 5 6	N	N	
8	Coordination Plan (1-66)	13-1	M	1	2	12	31	15	30	18	30	2 3 4 5 6	N	N	
9	Coordination Plan (1-66)	11-1	M	1	2	12	31	18	30	19	30	2 3 4 5 6	N	N	
10	Coordination Plan (1-66)	15-1	M	1	2	12	31	19	30	21	0	2 3 4 5 6	N	N	
11	Coordination Plan (1-66)	Free	H	5	23	5	31	0	0	24	0	2	N	N	
12	Coordination Plan (1-66)	Free	H	7	4	7	4	0	0	24	0	1 2 3 4 5 6 7	N	N	
13	Coordination Plan (1-66)	Free	H	9	1	9	7	0	0	24	0	2	N	N	
14	Coordination Plan (1-66)	Free	H	11	22	11	25	0	0	24	0	5	N	N	
15	Coordination Plan (1-66)	Free	H	12	25	12	25	0	0	24	0	1 2 3 4 5 6 7	N	N	
16	None			0	0	0	0	0	0	0	0		N	N	
17	Coordination Plan (1-66)	14-1	M	1	2	12	31	9	0	21	0	7	N	N	
18	Coordination Plan (1-66)	14-1	M	1	2	12	31	12	0	21	0	1	N	N	
19	None			0	0	0	0	0	0	0	0		N	N	
20	None			0	0	0	0	0	0	0	0		N	N	
21	None			0	0	0	0	0	0	0	0		N	N	
22	None			0	0	0	0	0	0	0	0		N	N	
23	None			0	0	0	0	0	0	0	0		N	N	
24	None			0	0	0	0	0	0	0	0		N	N	
25	None			0	0	0	0	0	0	0	0		N	N	
26	None			0	0	0	0	0	0	0	0		N	N	
27	None			0	0	0	0	0	0	0	0		N	N	
28	None			0	0	0	0	0	0	0	0		N	N	
29	None			0	0	0	0	0	0	0	0		N	N	
30	None			0	0	0	0	0	0	0	0		N	N	
31	None			0	0	0	0	0	0	0	0		N	N	
32	None			0	0	0	0	0	0	0	0		N	N	
33	None			0	0	0	0	0	0	0	0		N	N	
34	None			0	0	0	0	0	0	0	0		N	N	
35	None			0	0	0	0	0	0	0	0		N	N	
36	None			0	0	0	0	0	0	0	0		N	N	
37	None			0	0	0	0	0	0	0	0		N	N	
38	None			0	0	0	0	0	0	0	0		N	N	
39	None			0	0	0	0	0	0	0	0		N	N	
40	None			0	0	0	0	0	0	0	0		N	N	
41	None			0	0	0	0	0	0	0	0		N	N	
42	None			0	0	0	0	0	0	0	0		N	N	
43	None			0	0	0	0	0	0	0	0		N	N	
44	None			0	0	0	0	0	0	0	0		N	N	
45	None			0	0	0	0	0	0	0	0		N	N	
46	None			0	0	0	0	0	0	0	0		N	N	
47	None			0	0	0	0	0	0	0	0		N	N	
48	None			0	0	0	0	0	0	0	0		N	N	
49	None			0	0	0	0	0	0	0	0		N	N	
50	None			0	0	0	0	0	0	0	0		N	N	

Kimley»Horn

KIMLEY-HORN AND ASSOCIATES, INC
NC License #F-0102



MEMORANDUM

To: James Michel, PE, Town of Southern Pines

From: Travis Fluitt, PE, Kimley-Horn

Date: March 24, 2022

Subject: ***Morganton Park South Apartments, Southern Pines, NC – Trip Generation Memo***

The *Pine Ridge Commercial TIA* (Kimley-Horn, July 2021) analyzed the projected traffic impacts of a mixed-use development consisting of 260 mid-rise multifamily units, 20,000 square feet (SF) of general office space, and 220,000 SF of retail space located between US 15/501 and Morganton Road east of the Southern Pines Village shopping center in Southern Pines, North Carolina.

An updated site plan for the development's residential portion includes 269 mid-rise multifamily units, which is 9 more units than included in the July 2021 TIA. Consistent with the TIA, the trip generation potential of the proposed development was calculated using the data published in *Trip Generation* (Institute of Transportation Engineers, Tenth Edition, 2017). As shown in Table 1 below, the updated development plan has the potential to generate approximately 34 additional daily external trips, 3 additional AM peak hour external trips, and no additional PM peak hour external trips compared to the development studied in the *Pine Ridge Commercial TIA*.

Table 1
Traffic Generation (Vehicles)

LUC	Land Use	Intensity	Daily	AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
220	Multifamily (Low-Rise)	269 d.u.	1,970	23	67	70	45
710	General Office	20,000 s.f.	224	39	6	4	21
820	Shopping Center	220,000 s.f.	10,278	162	100	468	506
Subtotal			11,966	224	173	542	572
Internal Capture			*1,054*	*6*	*6*	*58*	*58*
Total External Trips			11,418	218	167	484	514
Total External Trips from July 2021 TIA			11,384	218	164	484	514
Net Increase			**34**	**0**	**3**	**0**	**0**

Given the minor increase in trip generation potential and that the *Pine Ridge Commercial TIA* also analyzed the future build-out of the entire Pine Ridge Master Plan, the improvements recommended in the *Pine Ridge Commercial TIA* should adequately address the projected site traffic demands of the updated Morganton Park South Apartments site plan.

Should you have any questions or comments, please do not hesitate to contact me at (919) 653-2948 or travis.fluitt@kimley-horn.com.

Attachments: *Trip Generation*

Pine Ridge Commercial

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)	260	d.u.	1,904	952	952	87	23	64	111	68	43
710 General Office Building	20,000	s.f.	224	112	112	45	39	6	25	4	21
820 Shopping Center	220,000	s.f.	10,278	5,139	5,139	262	162	100	974	468	506
Subtotal			**12,406**	**6,203**	**6,203**	**394**	**224**	**170**	**1,110**	**540**	**570**
Internal Capture											
221 Multifamily Housing (Mid-Rise)			464	230	234	2	0	2	51	31	20
710 General Office Building			78	49	29	5	3	2	7	3	4
820 Shopping Center			480	232	248	5	3	2	54	22	32
Internal Capture Total			*1,022*	*511*	*511*	*12*	*6*	*6*	*112*	*56*	*56*
Total External Trips			**11,384**	**5,692**	**5,692**	**382**	**218**	**164**	**998**	**484**	**514**

Morganton Park South Apartments

Table 2 - Trip Generation vs. TIA

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
221 Multifamily Housing (Mid-Rise)	269 d.u.	1,970	985	985	90	23	67	115	70	45
710 General Office Building	20,000 s.f.	224	112	112	45	39	6	25	4	21
820 Shopping Center	220,000 s.f.	10,278	5,139	5,139	262	162	100	974	468	506
Subtotal		**12,472**	**6,236**	**6,236**	**397**	**224**	**173**	**1,114**	**542**	**572**
Internal Capture										
221 Multifamily Housing (Mid-Rise)		480	238	242	2	0	2	53	32	21
710 General Office Building		79	50	29	5	3	2	7	3	4
820 Shopping Center		495	239	256	5	3	2	56	23	33
Internal Capture Total		*1,054*	*527*	*527*	*12*	*6*	*6*	*116*	*58*	*58*
Total External Trips		**11,418**	**5,709**	**5,709**	**385**	**218**	**167**	**998**	**484**	**514**
Total External Trips from TIA		***11,384***	***5,692***	***5,692***	***382***	***218***	***164***	***998***	***484***	***514***
Difference		**34**	**17**	**17**	**3**	**0**	**3**	**0**	**0**	**0**

Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY

GROSS TRIP GENERATION

INPUT

Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Office	112	112	39	6	4	21
Retail	5,139	5,139	162	100	468	506
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	985	985	23	67	70	45
Hotel	0	0	0	0	0	0
	6,236	6,236	224	173	542	572

INTERNAL TRIPS

OUTPUT

Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Office	50	29	3	2	3	4
Retail	239	256	3	2	23	33
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	238	242	0	2	32	21
Hotel	0	0	0	0	0	0
	527	527	6	6	58	58
% Reduction	8.5%		3.0%		10.4%	

EXTERNAL TRIPS

OUTPUT

Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Office	62	83	36	4	1	17
Retail	4,900	4,883	159	98	445	473
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	747	743	23	65	38	24
Hotel	0	0	0	0	0	0
	5,709	5,709	218	167	484	514

From: Cindy Williams
To: BJ Grieve; Pam Graham; Jennifer Hunt
Subject: FW: [External] PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices
Date: Thursday, May 5, 2022 3:33:33 PM

From: JuarezPozos, Dagoberto <djuarezpozos@ncdot.gov>
Sent: Thursday, May 5, 2022 3:26 PM
To: Cindy Williams <CWilliams@southernpines.net>
Subject: RE: [External] PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices

Cindy,

No comments from our end on either one of the two developments.

The development inside the Pine Ridge Site was accounted for in the TIA that we reviewed and the development off of Murray Hill Rd. (Non-SR) does not connect to a an NCDOT road or intersection.

Dago

From: Cindy Williams <CWilliams@southernpines.net>
Sent: Thursday, April 28, 2022 1:41 PM
To: Archie Daniel <adaniel@southernpines.net>; Cindi King <CKing@southernpines.net>; Cory Albers <calbers@southernpines.net>; David Byrd <DByrd@southernpines.net>; James Michel <JMichel@southernpines.net>; Ken Skipper <KSkipper@southernpines.net>; Maurice Holland <mbholland63@gmail.com>; JuarezPozos, Dagoberto <djuarezpozos@ncdot.gov>; ncsandhillsrcw@fws.gov; Pete Campbell <director@rluac.com>; ISTRE, RONALD <ristre@southernpines.net>; Scotty Malta <smalta@moorecountyairport.com>
Cc: Cindy Williams <CWilliams@southernpines.net>
Subject: [External] PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to Report Spam.

Good afternoon,

The attached applications are scheduled to be presented at one of the two May Planning Board meetings scheduled for May 18th and 19th. Please respond with any comments or concerns you may have at your earliest convenience.

Thank you.

Sincerely,

Cindy Williams, CZO
Planning Department

Town of Southern Pines
801 SE Service Road, Southern Pines, NC 28387
(910) 692-4003

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

Agenda Item

To: **Planning Board**

From: **Jennifer Hunt, Planner I**

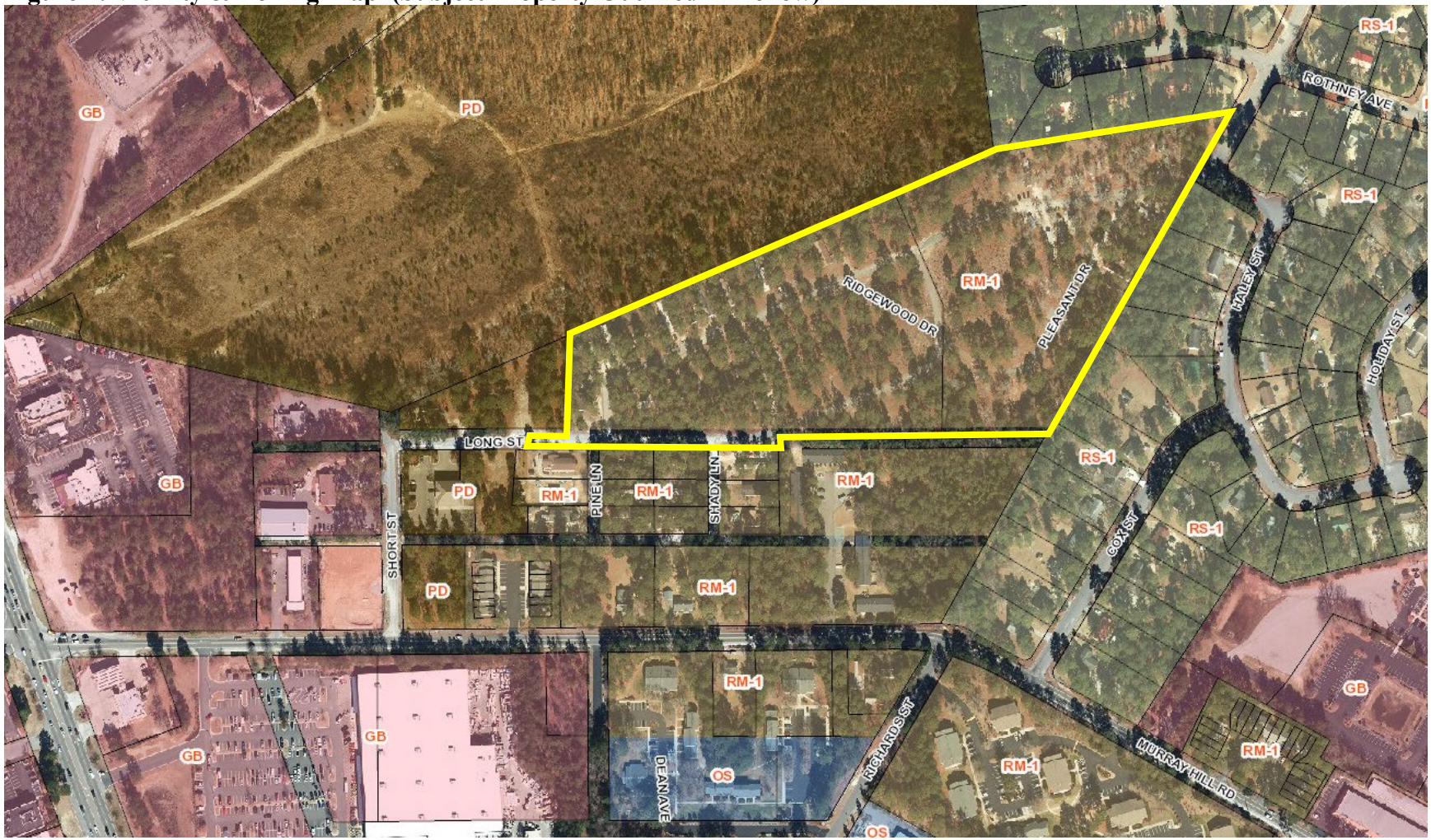
Subject: **SU-03-22: A Special Use Permit for 149 units of Multi-Family Development; This is known as Murray Hill Pines; Owner: CLS Holdings, LLC.; Applicant: Davis Park Leasing c/o Craig Davis Properties, Inc. Authorized Agent, if different from Applicant: Koontz Jones Design c/o Bob Koontz.**

Date: **May 19, 2022**

I. SUMMARY OF APPLICATION REQUEST:

Mr. Greg Jonczyk with Davis Park Leasing and Bob Koontz with Koontz Jones Design submitted an application on behalf of CLS HOLDINGS, LLC for a Special Use Permit, SU-03-22, to develop 149 units that have a "townhome" aesthetic and appearance but there is no subdivision, therefore according to our UDO it is considered a Multi-Family development but not a townhome or multi-family residence. Our UDO has yet to address this unique type of residential product. The Multi-Family development is bordered in the northwest by a Planned Development (Morganton Park South), in the northeast by residential housing where Richards Street is located, and along the southern boundary where Long Street is located (See Figure 1 below). The subject property is located on approximately 17.04-acres in the residential mixed housing (RM-1) zoning district and is designated as traditional mixed use on the future land use map in our comprehensive land use plan. The subject parcels are identified as Moore County PIN 857100555776 (PARID 00050398) and PIN 857100653945 (PARID 00049517). The Moore County tax records list the property owners as CLS Holdings, LLC.

Figure 1: Vicinity & Zoning Map (Subject Property Outlined in Yellow)



II. STAFF REVIEW:

A. Application Review Dates:

- Special Use Permit Application Submitted: April 12, 2022
- Application Complete: April 25, 2022
- Notice of Planning Board Public Hearing:
  - Posted On-site: May 3, 2022
  - Mailed: May 2, 2022
  - Internet: April 28, 2022
  - Publication for The Pilot: April 28, 2022
    - In the Pilot on May 4, 2022 and May 11, 2022
- Planning Board Agenda Meeting: May 12, 2022
- Planning Board Public Hearing: May 19, 2022
- Town Council Agenda Meeting: June 8, 2022
- Town Council Public Hearing: June 14, 2022

B. Criteria for Review:

i. Special Use Permit Criteria (UDO §2.21.6):

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;

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;

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

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;

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,

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.

C. Project Details and Compliance with the Criteria:

i. Description of Proposed Project:

The subject multi-family development, described as Murray Hill Pines, is the redevelopment of an existing property located off Short Street and Ridgewood Drive. The zoning is RM-1 (Residential Mixed Housing) with an allowable ten (10) to twelve (12) dwelling units per acre, with a Special Use Permit required for multi-family development with three or more dwelling units, per UDO Exhibit 3-15. The applicant proposes 149 dwelling

units under single ownership with shared amenities such as a swimming pool, clubhouse building, children's play area, dog park and other passive and active recreational spaces. The units will be developed with a traditional single-family and two-family detached residential neighborhood style instead of the traditional apartment building style.

ii. Special Use Permit Criteria:

a. Regulations of the applicable Zoning District:

The current zone is RM-1, Residential Mixed Use. This zoning district allows ten to twelve (10-12) dwelling units per acre. The maximum units allowed is 203 units. The current proposal is for 149 units. The special use permit is required for multi-family development with three or more dwelling units.

b. Character of the Neighborhood:

Single-family and two-family residences and townhomes are allowed at the proposed density within this zoning district. Therefore, it conforms to the character of the community and will likely not injure the use and enjoyment of the property abutting this development. The proposed multi-family residential development utilizing single-family and two-family attached structures will be consistent with the adjoining properties. The development will resemble a single-family detached and two-family dwelling neighborhood, with buffers along the property boundaries as required in the RM-1 zoning district. This development is unique in that it is "single-family detached" style, but not officially being subdivided. The residential units will be part of a multi-family development for rent not for home ownership.

c. Adequate Public Facilities:

There are **not adequate existing utilities or access** to the site. See figure 2 for the layout of the existing utilities. Access to the site will take place off of Long Street as well as another access point off of Richards Street, to the northeast of the development. Road improvements along Short Street to the main property entrance along Long Street will need to be part of this development project. Short Street and Long Street are paved town streets.

On Monday, May 9, 2022 our Town Engineer sent by email the following comments:

1. The primary entrance to the proposed development will be off of Murray Hill Road at the intersection of Short Street. Short Street currently exists as a Local street which is adequate for up to 200 trips per day as defined in UDO Section 4.11.2 Street Classification (B)(2). The proposed development will add up to 1,172 trips per day. UDO Section 4.11.2 Street Classification (B)(5) defines a road with more than

800 trips per day as a Collector Street. An improved cross section from the development should be extended from the development to the intersection of Murray Hill to mitigate the impacts of the increased traffic.

2. A pedestrian connection to the existing sidewalks on Murray Hill Road should be considered.

3. Analysis of the increased sewer from this development exceeds the available capacity of the existing downstream sewer. It is staffs understanding that the applicant has coordinated with the adjacent commercial development to redirect the sewer through their site. If this cannot be negotiated, the applicant should be responsible for the upgrades to the existing downstream sewer system to accommodate the additional flow.

d. *Impede Orderly Development:*
This proposed development is in the RM-1 zone. It is surrounded by zoning districts RM-1 (Residential Mixed Housing), RS-1 (Residential Single Family) and PD (Planned Development). The RS-1 zoning district is a residential neighborhood with single family homes on a minimum lot size of 10,000 square feet. The RM-1 zoning district, to the south, is a multi-family development community. The PD zoning district to the north is proposed shopping center (where the Target will be). This project will likely not impede on orderly development but may reasonably complement what currently exists in the neighborhood and what may be built in the future.

e. *Public Health, Safety, Comfort or General Welfare:*
This project will improve the existing street standards along Long Street. Buffers will be implemented. There is a 10' buffer requirement in this development per UDO Exhibit 4-2 between the RM-1 and RS-1 zoning district to the east. There is a 20' buffer requirement on this development between the RM-1 and PD zoning district to the north. This helps reduce the noise impact and is preserving the "nature" look and feel. There is a 10' buffer requirement between the RM-1 and RM-1 zoning district on the south. This project meets the standards set forth in the CLRP (Comprehensive Long-Range Plan) and the UDO (Unified Development Ordinance).

f. *Public Interest and Welfare:*
This development is following the density and use requirements as instructed per our UDO. On page 2 of the CLRP, the CLRP "calls for housing that is diverse, affordable and compatible with the neighborhood." Also, on page 4 to page 6 the CLRP calls for a "diverse mix of housing." This project is a diverse mix of housing, however

because it is located adjacent to a new commercial development project (known as Target), will build brand new housing units and the housing units will be for rent and not for ownership. The market rate will dominate the price charged for the rent at the time of development. According to the most recent US Census data from 2016-2020 the median gross rent in Southern Pines was $961. The current rent (as of May 10, 2022) at Eagle Landing (apartment building in Southern Pines) ranges from $1,650 to $1,930 per month. The median income from 2016-2020 is $70,549 in Southern Pines according to the US Census Data.

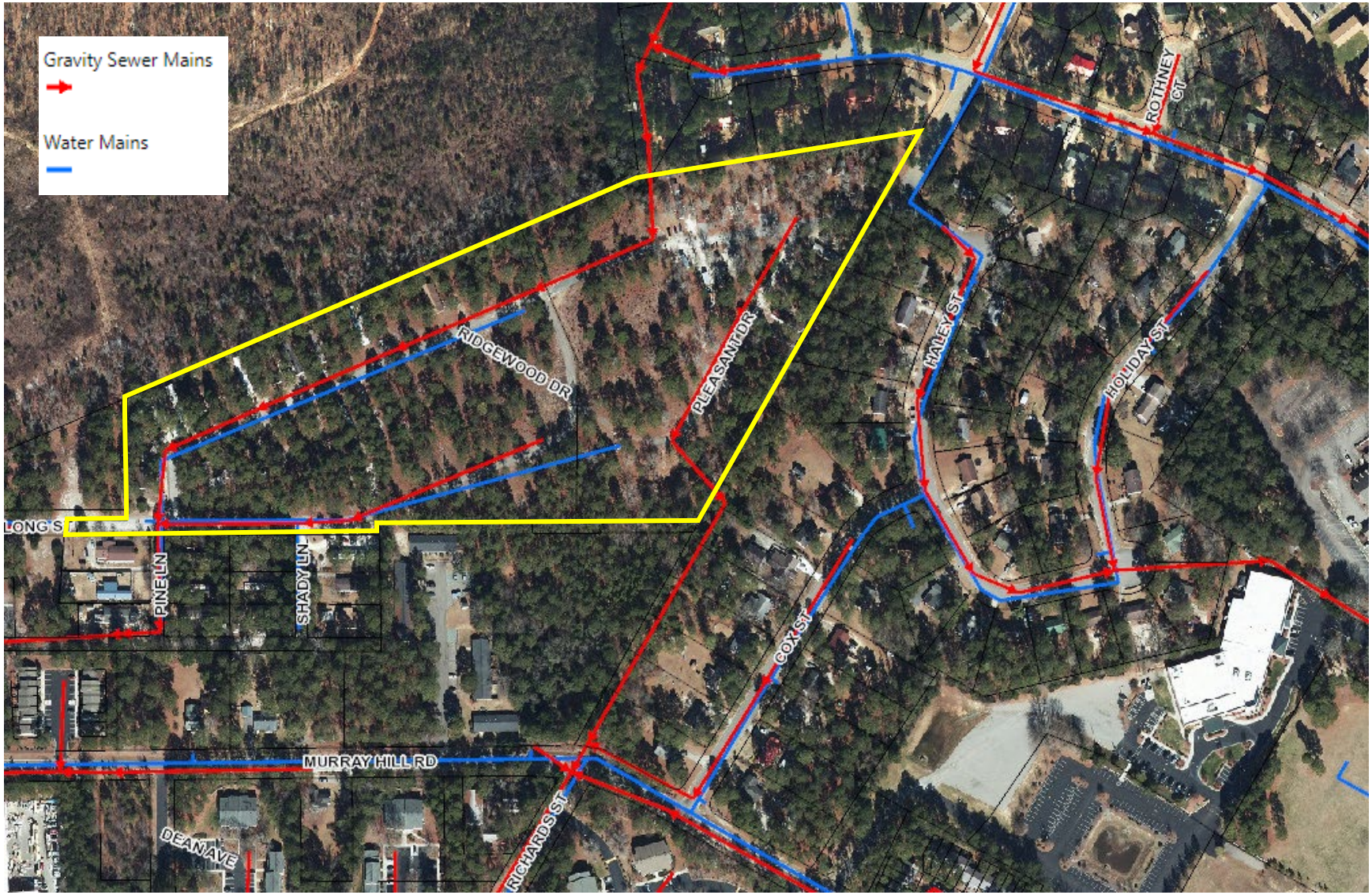


Figure 2: Utilities Infrastructure (Subject Property Outlined in Yellow)

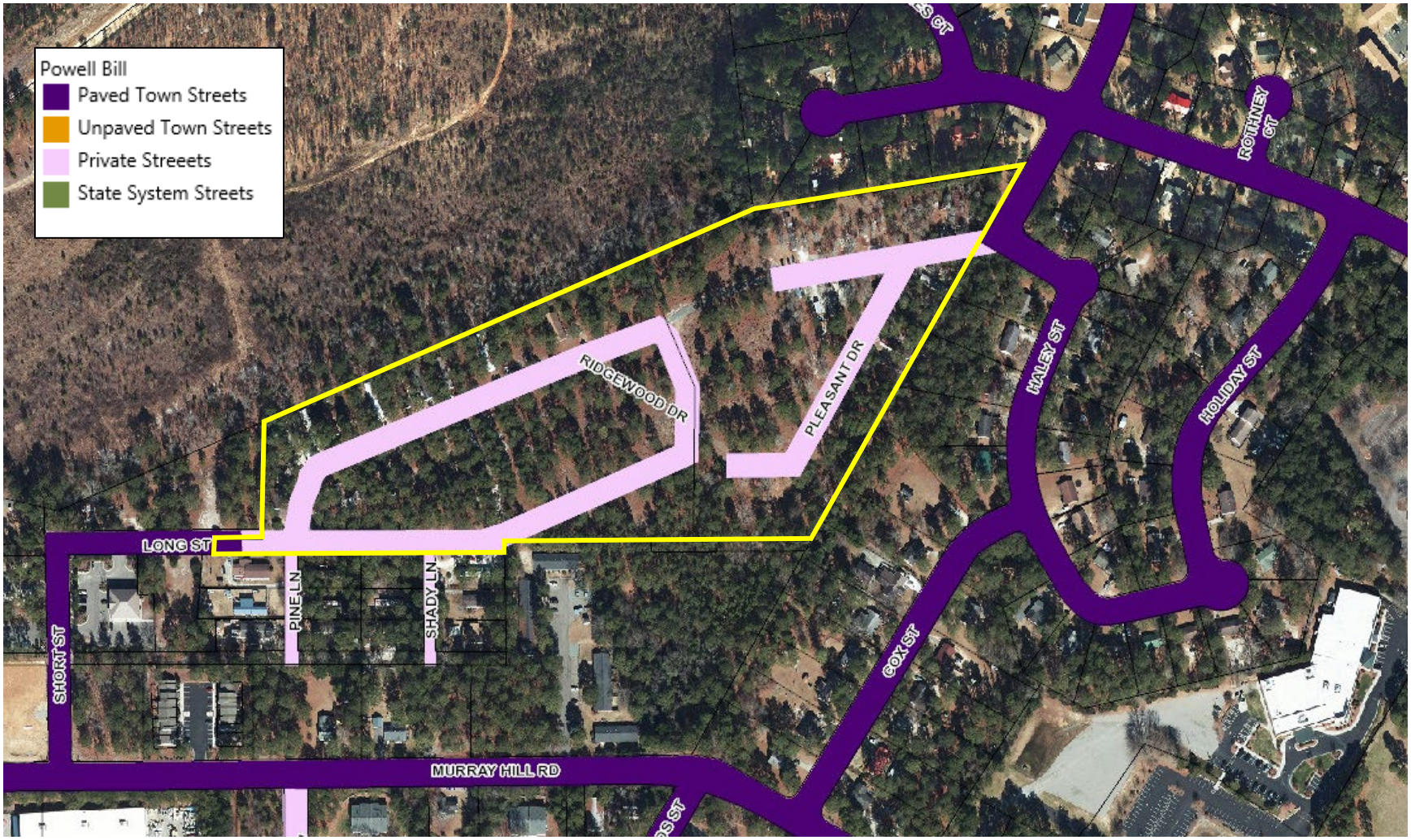


Figure 3: Street Infrastructure and Access (Subject Property Outlined in Yellow)

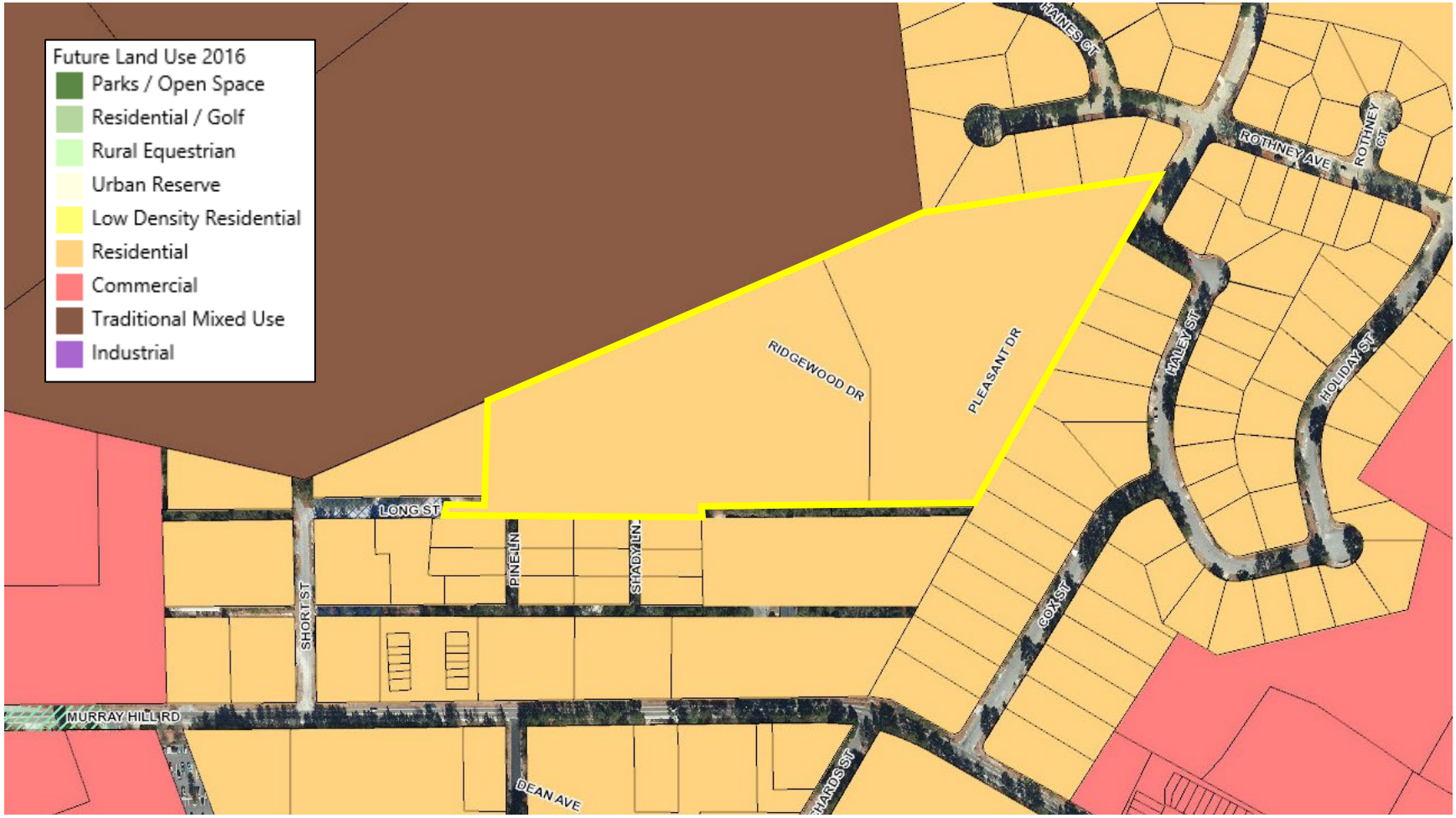


Figure 4: Comprehensive Land Use Plan (CLRP) (Subject Property Outlined in Yellow)

iii. Compliance with the Comprehensive Land Use Plan (CLRP) and other Town adopted plans.

a. Compliance with the CLRP

The area proposed to be developed is designated as Residential on the Future Land Use Map. The proposed use is consistent with the CLRP promoting housing diversity that is an efficient use of land complementing growth of the surrounding area compatible infill development particularly in downtown neighborhoods. The proposed intensity of use is also consistent with the mix of uses in the area and further promotes the transition of the mixed residential uses to be built near commercial uses in the Planned Development to the north. that currently exist on South Bennett Street and Southwest Broad Street. The applicant has provided a narrative addressing a justification for compliance of the proposed Subdivision and Special Use Permit Amendment with the CLRP and they are both attached to this memo.

b. Compliance with Other Adopted Plans

The Comprehensive Recreation & Parks Master Plan shows on page 8 from a large survey taken in 2015 that "Jogging/Walking Trails and Bicycle Trails are ranked as the most desirable facilities to be further developed in Town."

The Town Engineer recommends a pedestrian connection to the existing sidewalks on Murray Hill Road should be considered. There are existing sidewalks along Murray Hill Road. There will also be pedestrian access to the future shopping center (Target) to the north.

iv. General Staff Comments

- The specific review process and criteria for a Special Use Permit are found in §2.21.6 of the UDO and staff has presented an initial commentary on each of the criteria previously in this report.

- Murray Hill Pines has not been through site plan review by the Technical Review Committee. They have been through our Pre-Application meeting with the Technical Review Committee on October 12, 2021 (PA-36-21), November 24, 2021 (PA-46-21) and February 21, 2022 (PA-08-22).

- Multi-family development standards do not apply because these are not multi-family structures or multi-family residences. The development will most likely be built like a townhome, according to one- and two-family dwellings under North Carolina General Statute 160D-702 (b). Architectural compliance does not apply for these types of structures.

- This is the redevelopment of a previous manufactured home park.

- The street cross sections on the south are Long Street and Short Street. Short Street intersects with Murray Hill Road. These roads are paved town roads.

- There is a total of 263 parking spaces provided. The total parking required is 312 spaces. However, the applicant chose to provide less parking. There is a total of 76 spaces in the garage or driveway and 187 spaces of on-site parking.

- Landscaping for Vehicle Use Areas, Section 4.3.6 of the UDO, will apply. Other landscaping requirements be met other than landscape buffers

- According to the TIA, no improvements are recommended to be performed to accommodate projected site traffic. However, it would be a benefit to the community to have a pedestrian connection to Murray Hill Road on the south. There is a pedestrian connection the future commercial development with Target to the north. There are existing sidewalks along Murray Hill Road. Adding the pedestrian connection will enable mobility in this area where existing infrastructure to do so is already in place, in both directions.

A. 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 on April 28, 2022.

- NCDOT did not have any comments.
- RLUAC did not have any comments as of May 3, 2022.

III. ATTACHMENTS:

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

1. Special Use Permit Application
2. Deed
3. Special Use Permit Narrative
4. Special Use Permit Justification
5. Compliance with Comprehensive Long-Range Plan (CLRP)
6. Neighborhood Meeting Report

7. Existing Conditions & Site Plan
8. Elevations & Streetscape
9. Traffic Impact Analysis (TIA)
10. Town Engineer Comments
11. NCDOT No Comments
12. RLUAC No Comments

IV. PLANNING BOARD ACTION:

Pursuant to North Carolina General Statute §160D-301(b)(6) and Unified Development Ordinance §2.5.2, the Planning Board may hold a Preliminary Forum on a matter requiring a quasi-judicial decision by the Town Council. However, no part of the forum or any recommendation may be used as a basis for the deciding board.

Therefore, the Planning Board may wish to use the following motion to identify issues to bring to the attention of the Town Council at the evidentiary hearing.

I move to adopt the following for transmission to the Town Council as a result of the May 12, 2022 Preliminary Forum on application PD-03-22, Murray Hill Pines SUP

The information presented at the forum indicated that the following were issues with the SUP application PD-03-22:

1. Improve Short Street with an improved cross section from the development, extended from the development to the intersection of Murray Hill to mitigate the impacts of increased traffic. Also, to meet the Town of Southern Pines standards accommodating the number of vehicle use trips per day.

2. Consider providing pedestrian connection with sidewalks to Murray Hill Road.

3. Upgrade the existing downstream sewer system to accommodate their additional flow, or provide the agreement from the adjacent commercial development showing they will redirect the sewer through their site.

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

1.

Town of Southern Pines North Carolina — Chartered 1887

Special Use Permit Application

Fee: $_____ Date Paid: _____ Case No.: SU-____-____

Project Information:

Street Address: 490 RIDGEWOOD DRIVE

PIN: 857100555776; 857100653945 Parcel ID: 00050398; 00049517

Site Size: ±17.04 AC Zoning: RM-1

Applicant:

Name(s): DAVIS PARK LEASING C/O CRAIG DAVIS PROPERTIES, INC.

Email: greg.jonczyk@craigdavisproperties.com Phone: (919) 678 4208

Mailing Address: 8000 WESTON PARKWAY, SUITE 360 CARY, NC 27513

Authorized Agent, if different from Applicant:

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

Email: bkoontz@koontzjones.com Phone: 910-684-8487

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

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

Name(s): CLS HOLDINGS, LLC

Email: clsholdings@icloud.com Phone: 919-255-0448

Mailing Address: 222 CENTRAL PARK AVE, SITE E#119 PINEHURST, NC 28374

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 NORTH/EAST side of LONG ST (St./Ave.), between SHORT ST (St./Ave.) and HALEY ST (St./Ave.). The property has a frontage of ±1150 feet and a depth of ±850 feet.

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

RESIDENTIAL MULTI-FAMILY DEVELOPMENT

Date: 4/11/2022

Applicant

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

APPOINTMENT OF AGENT

The undersigned owner(s), DAVIS PARK LEASING C/O CRAIG DAVIS PROPERTIES, 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 11 day of Apr. 6, 2022.

Property Owner

Property Owner

Agent

AGENT

8-27-21

APPOINTMENT OF AGENT

The undersigned owner(s), CLS HOLDINGS, 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 7th day of April, 2022.

Allen Abbott Manager for
CLS Holdings LLC
Property Owner

Property Owner

Agent

8-27-21

ADJACENT PROPERTY OWNERS									
PIN	PARID	NAME	NAME2	ADDRESS	CITY	STATE	ZIP	DEED_BOOK	DEED_PAGE
857111667328	00051767	ALEXANDER, DACHEL D		610 ROTHNEY AVE	SOUTHERN PINES	NC	28387	1096	526
857111653482	00046162	ALFORD, GWENDOLYN D &	PERSON, GLORIA VICTORIA	647 NC HWY 73	WEST END	NC	27376	898	53
857111654520	00046095	ALLEN, SHIRLEY M		170 COX ST	SOUTHERN PINES	NC	28387	93E	590
857111556500	00054199	ALLEYNE, RUBY L		125 SHADY LN	SOUTHERN PINES	NC	28387	2313	247
857111652298	00046829	BLUE, BARBARA J		140 COX ST	SOUTHERN PINES	NC	28387-6205	439	198
857111656649	00047701	CARSWELL, OGLATHA G &	GRAHAM, BRANDON M	302 HALEY ST	SOUTHERN PINES	NC	28387	3871	364
857111668384	00047866	CHILES, JANICE D		560 ROTHNEY RD	SOUTHERN PINES	NC	28387-6251	368	399
857100555776	00050398	CLS HOLDINGS LLC		222 CENTRAL PARK AVE, STE E#119	PINEHURST	NC	28374	3092	437
857100653945	00049517	CLS HOLDINGS LLC		222 CENTRAL PARK AVE, STE E#119	PINEHURST	NC	28374	3092	433
857111551346	00053099	COVINGTON, CAROLYN T		140 PINE LN	SOUTHERN PINES	NC	28387	1225	397
857111669119	00048359	CRUMP, OLIVIA ANN		317 HALEY ST	SOUTHERN PINES	NC	28387-6212	88E	322
857100459493	00052929	CULTURE CLUB, LLC		PO BOX 4393	PINEHURST	NC	28374	3822	251
857110458453	00052928	CULTURE CLUB, LLC		PO BOX 4393	PINEHURST	NC	28374	3822	251
857111556306	00050406	DAVIS, CARRIE P	WOOD, DANIEL WAYNE JR	145 SHADY LN	SOUTHERN PINES	NC	28387	5681	578
857111653335	00048554	DAVIS, ROBERT G		150 COX ST	SOUTHERN PINES	NC	28387	4914	465
857111662329	00048801	DRAKEFORD, JOHNNIE J	DRAKEFORD, SHARON	650 ROTHNEY RD	SOUTHERN PINES	NC	28387-6253	2018E	817
857111656920	00048897	EASTERLING, MICHAEL (HRS)	EASTERLING, MANUELLA	306 HALEY ST	SOUTHERN PINES	NC	28387-6213	V 99	495
857100559314	00052001	EWT 42, LLC		99 FISHERVILLE ROAD	CONCORD	NH	03303	4867	182
857111669289	00049452	FRYE, JAMES E		550 ROTHNEY AVE	SOUTHERN PINES	NC	28387	2008E	575
857111553413	00050405	FRYE, NETTIE		135 PINE LN	SOUTHERN PINES	NC	28387	2666	125
857111666318	00049557	GALBREITH, ZINA J		620 ROTHNEY RD	SOUTHERN PINES	NC	28387	1160	448
857111667018	00050159	HAILEY, DELORES I		310 HALEY ST	SOUTHERN PINES	NC	28387	1103	210
857111663334	00046840	HALL, DEBRA C & LACY B		640 ROTHNEY AVENUE	SOUTHERN PINES	NC	28387	3911	49
857111662583	00050214	HAMPTON, THOMAS	HAMPTON, MARY	660 ROTHNEY RD	SOUTHERN PINES	NC	28387-6253	393	622
857100562348	00049222	HYPERACTIVE COMMERCIAL	INVESTMENTS, LLC	25 SHAW ROAD	PINEHURST	NC	28374	4917	528
857111656979	00049840	IRIAS, MARVA W		9830 AVENSONG CROSSING	CHARLOTTE	NC	28215	4340	79
857111554443	00047268	LILES, CHARLES F SR		130 SHADY LANE	SOUTHERN PINES	NC	28387	5294	307
857111550606	00054443	MASAR, JEFFREY A		295 LONG ST	SOUTHERN PINES	NC	28387	2644	385
857111668505	00055240	MCKOY, ROY A & COSTELLA K		PO BOX 1394	PINEHURST	NC	28374	969	483
857111553510	00046387	MCNEILL, JEAN RORIE		1702 EASTVIEW DR	ABERDEEN	NC	28315-3229	2020E	395
857110455651	00053465	MORRIS PROPERTIES INC		200 SHORT RD	SOUTHERN PINES	NC	28387-6289	511	566
857111654568	00055459	OGLESBY, DAVID &	OGLESBY, BOBBIE	3 DEWBERRY DR	CARTHAGE	NC	28327	4708	478
857111666681	00057163	OGLESBY, DAVID L	OGLESBY, BOBBIE L	3 DEWBERRY DR	CARTHAGE	NC	28327	3797	278
857111554346	00051630	OSTERHAUS, PATRICIA		140 SHADY LANE	SOUTHERN PINES	NC	28387	4978	65
857100551530	00046421	OUTLAW, GEORGE A	OUTLAW, BETTY R	250 LONG STREET	SOUTHERN PINES	NC	28387	5043	298
857100455574	20150313	OVERTON BODY SHOP		110 SANDY AVE	SOUTHERN PINES	NC	28387	4548	521
857110455473	00048142	OVERTON BODY SHOP		110 SANDY AVE	SOUTHERN PINES	NC	28387	4548	522
857111655891	00057274	S & L USA, LLC		PO BOX 4329	PINEHURST	NC	28374	5469	32
857100551433	00050403	SINCLAIR, LESLIE		130 PINE LANE	SOUTHERN PINES	NC	28387	4904	222
857111655606	00055793	SMITH, SARAH F		190 COX ST	SOUTHERN PINES	NC	28387-6205	504	749
857111553306	00050404	SWAGEL, RENEE JEAN		145 PINE LN	SOUTHERN PINES	NC	28387	1048	516
857111668214	00047897	THE 319 HALEY STREET TRUST		PO BOX 1951	CARTHAGE	NC	28327	5250	261
857111556403	00046203	TYMES, DAVID JR	TYMES, PAMELA KAY	135 SHADY LN	SOUTHERN PINES	NC	28387	2659	66
857111664376	00056811	WRIGHT, BETTY JEAN		630 ROTHNEY RD	SOUTHERN PINES	NC	28387	924	118
857111554530	00047100	ZHANG, TIELIANG	ZHANG, MING	211 PLANTATION DR	SOUTHERN PINES	NC	28387	1422	143

CW

McNeill

FOR REGISTRATION REGISTER OF DEEDS
Judy D. Martin
Moore County, NC
September 01, 2006 04:43:56 PM
Book 3092 Page 437-440
FEE: $23.00
NC REVENUE STAMP: $1,390.00
INSTRUMENT # 2006017766



INSTRUMENT # 2006017766

Excise Stamps $1,390.00 Recording Time, Book & Page

Drafted by John M. May, Attorney at Law
120 Applecross Road
Pinehurst, NC 28374
No Title Examination by drafting attorney

Brief Description for Index: 8.44 and 0.50 acres, more or less, Sandhills Township

NORTH CAROLINA GENERAL WARRANTY DEED

THIS GENERAL WARRANTY DEED made this 25th day of August, 2006, by and between **Ellis W. Hawthorne and wife, Barbara A. Hawthorne**, (hereafter "Grantor"), and **CLS Holdings, LLC, a North Carolina limited liability company** (hereafter "Grantee") of 210 Frye Road, Pinehurst, NC 28374.

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 situated in Sandhill Township, Moore County, North Carolina, and more particularly described as follows:

See Exhibit A attached hereto and incorporated herein by reference.

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 Deed Book 1056, Page 120, Moore County Registry.

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.

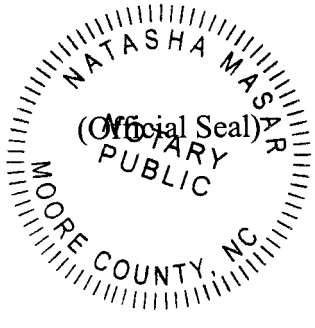
IN WITNESS WHEREOF, the Grantors have hereunto set their hands and seals the day and year first above written.

Ellis W. Hawthorne (SEAL)
Ellis W. Hawthorne

Barbara A. Hawthorne (SEAL)
Barbara A. Hawthorne

STATE OF NORTH CAROLINA
COUNTY OF MOORE

I, Natasha Masar, a Notary Public for said County and State, do hereby certify that Ellis W. Hawthorne and wife, Barbara A. Hawthorne, either ☒ being personally known to me or ☐ proven by satisfactory evidence (said evidence being ☐ driver's license issued by _____ ☐ United States military identification ☐ United States passport or ☐ _____), personally appeared before me this day, and acknowledged the voluntary due execution of the foregoing instrument by he/she/them for the purposes stated therein. Witness my hand and notarial seal, this 1st day of September, 2006.



(Official Seal)

Natasha Masar
Notary Public
By: Natasha Masar

My Commission Expires: 8/28/2010

EXHIBIT "A"

Being all of Tract I and Tract III as shown on a map entitled "Recombination Survey for Ellis W. Hawthorne and G & H Properties, Sandhills Township, Moore County, North Carolina" dated August, 2006 drawn from an actual survey by William E. Craven, Professional Land Surveyor, and recorded in Plat Cabinet 13, Slide 404, of the Moore County Public Registry, reference to which is herewith made.

Tract III of the above-described property is being conveyed subject to an easement of ingress, egress and regress from the lots adjoining Tract III on its southern boundary to the portion of Long Street maintained by the Town of Southern Pines as shown on said plat.

The Grantor also herewith transfers, sells and assigns to the Grantee all of the Grantor's rights, title and interest in and to the lease agreements for the mobile home lots which are a part of the above-described property.

MURRAY HILL PINES
SPECIAL USE PERMIT NARRATIVE

The development of the property described as Murray Hill Pines in the submitted exhibits is a redevelopment of an existing property located off Short Street at Ridgewood Drive in Southern Pines. The +/- 17.04-acre site is comprised of two parcels as indicated on the Existing Conditions Plan. Tract One is approximately 8.96 acres and Tract 2 is approximately 8.08 acres. Both parcels are zoned RM-1 (Residential Single and Multi-Family). Applicant does not propose any rezoning of the Tracts but merely seeks a Special Use Permit for the Combined Tract, known as "Murray Hill Pines," that will allow the proposed number of units in excess of three units per acre, as set forth in the Table of Authorized Land Uses (Exhibit 3-15) set forth in Section 3.7.2. Under the Southern Pines Unified Development Ordinance (the "UDO"), the RM-1 zoning district is intended to "allow primarily Single-Family and Multi-Family Residences at a medium-density (approximately 10-12 Dwelling Units per acre) in areas served by adequate public water and sewer systems", which includes multi-family uses, as stated in Section 3.5.6 of the UDO. The RM-1 district accommodates single-family, single-family attached, and multi-family residential units.

The underlying density on the project permits up to 203 residential dwelling units on the property. This conditional use permit application proposes 149 multi-family residential units on the property. Rather than traditional multi-family apartment buildings, units within the development will be provided in a style consistent with a traditional single-family detached and attached residential neighborhood. The development will meet the development standards for RM-1 district projects. Adequate parking will be provided on site to meet UDO standards for multi-family uses. Two access locations will be provided for the property. The main entrance to the site will be provided from Long Street with the second entrance being located off Richards Street. Long Street will be improved from Short Street to the main entrance to the community. Pedestrian access will be provided to the adjacent retail shopping center.

The multi-family development will consist of a total of 149 residential units with many shared amenities. These amenities will include a swimming pool, clubhouse building, children's play area, dog park and other passive and active recreational spaces. The property falls outside of any high-quality watershed, no wetlands are present on the site and there is no floodplain associated with the property. The property was previously used for a mobile home park and fully developed with water and sewer utilities. These utilities will be modified and improved to accommodate the proposed community. Overall impervious surface to be developed on the property will be approximately 55.2%.

Design elements for the project are described below.

- **Pedestrian Connectivity**
    - Pedestrian connectivity will be provided throughout the community. Pedestrian access will be provided connecting all residential units to a shared sidewalk network within the development. This network of sidewalks will connect residences to amenities throughout the project. A pedestrian connection will be provided to the adjacent shopping center for residents.

- **Parking Areas**
  - The multi-family residential buildings will have a combination of surface parking and internal unit garages at the ratio set forth below. The parking standards are as follows from Section 4.5 of the Town's Udo:

Land Use (Multi-Family)	Minimum Vehicle Parking Spaces	Parking Spaces Required
0-1 bedrooms	1 space per Dwelling Unit (16 Units)	16 spaces
2-3 bedrooms	2 spaces per Dwelling Unit (133 Units)	266 spaces
Visitor Parking	1 space per 5 units	30 spaces

  - Based on the parking standards above, the proposed development would require 312 parking spaces (2.09 spaces per unit). Proposed parking for the development is as follows:

    Parking Proposed: 264 (1.77/Unit) spaces total
    On-Street Parking: 187
    Driveway Parking: 38
    Garage Parking: 38

  - In consultation with the Planning Staff, Applicant seeks to reduce the minimum required number of parking spaces from 312 to 264 but is willing and able to incorporate the full 312 parking spaces if required by the Town.
- **Streets and Access**
  - The main entrance to the site will be provided from Long Street, which will be improved from Short Street to the property entrance to meet NCDOT and Town of Southern Pines construction standards. A secondary access location will be provided from Richards Street. Both entrance locations were previously utilized by the mobile home park for access to the property.
- **Landscaping and Fencing**
  - Landscaping will be provided as required by the Town of Southern Pines UDO for multi-family developments.
  - There are very few trees existing on the property due to its previous development as a mobile home park.
  - 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.
  - A fence is currently located along much of the property boundary shared with adjoining properties to the east. This fence will be extended along the boundary with adjacent properties on the eastern property boundary to the site access drive.

- **Open Space**
  - Multi-family residential development is required to have 10% open space. The property requires 1.65 acres of open space. The development will provide approximately +/- 18.2% (+/- 3.1 acres) open space as indicated on by the hatching on the proposed site plan. This open space will be located in buffer areas, stormwater features, parks and amenity areas throughout the property as indicated on the preliminary plan.

- **Buffers/Setbacks**
  - Buffers and setbacks will be provided at a minimum per the requirements of the RM-1 district standards. All setbacks will be met and in many instances the setbacks for the property exceed the required setback requirements.
    - The RM-1 district requires the following setbacks, along the perimeter of the property, which will be met:
      - Front = 25'
      - Internal Side = 10'
      - External Side = 15'
      - Rear = 30'
  - While the development resembles a single-family detached and attached neighborhood, the development will follow the multi-family development guidelines for setbacks along the overall property boundary. As there will be no subdivided lots, setbacks between buildings will be determined by building code and provide adequate separation for fire safety.
- **Stormwater**
  - Stormwater management best practices will be applied as necessary and required to control stormwater runoff throughout the project. All stormwater will be managed in a series of ponds, basins or other devices as required. All stormwater management devices will be permitted as required with the necessary state and local agencies.
  - Stormwater devices may be located in buffer areas or on an adjacent parcel under common ownership and control of the developer.
- **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**
  - Units will be designed to resemble single family and townhome residences throughout the development. The architectural character will be consistent with the character of Southern Pines. Units will provide front porches and be oriented toward the streets and parking areas. Materials are intended to be cementitious siding material, in various colors, that will blend with other development in Southern Pines and have the appearance of other single-family communities.
- **Signage**
  - A single subdivision sign for the multifamily development will be placed at each of the entrances to the development. One sign each will be placed at the Long Street entrance and the Richards Street entrance.

- 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.

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

EXHIBIT A

Murray Hill Pines
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 RM-1 and would permit multi-family, single-family attached, and single-family detached residential development through a special use permit. The Special Use Permit is required for this property because the development is greater than three dwelling units per the Table of Authorized Land Uses (Exhibit 3-15) set forth in Section 3.7.2 of the UDO. Residential uses are permitted in the RM-1 district at a density of 10-12 dwelling units per acre. This density permitted would allow for 203 residential units to be developed on the 17.04-acre property. The proposed plan includes 149 total residential units, which complies with the regulations of the applicable zoning district and is 54 units (27%) below the permitted density. The proposed development complies with all regulations within the UDO related to the RM-1 district.

(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;

In North Carolina, when a use is allowed as a special use within a zoning district (as in this case where single family and townhomes are allowed uses within the RM-1 zoning district), that automatically creates a prima facie case and a rebuttable presumption that the requested use is in conformity with the surrounding area. Since single family residences and townhomes are allowed at the proposed density with a special use permit, the presumption is that this use conforms to the character of the neighborhood in which it is located and will not injure the use and enjoyment of property in the immediate vicinity.

Notwithstanding the presumption, the proposed single-family residences and townhomes in Murray Hill Pines will resemble single-family and townhome development consistent with adjoining properties. Buildings will front streets and parking areas like traditional single-family and townhome communities. All buildings will meet all UDO standards for building height.

Buffers will be placed along property boundaries that are shared with adjacent properties as required by the RM-1 zoning district. While the development resembles a single-family detached and attached neighborhood, the development will follow the multi-family development setback requirements along the overall property boundary. As there will be no subdivided lots, setbacks between buildings will be determined by building code and provide adequate separation for fire safety.

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 residential development proposed for this neighborhood offers a variety and diversity of residential products within the surrounding neighborhood. This variety in multi-family housing and single-family for rent 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.

(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 and were installed with the previous mobile home park. 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 from Long Street, which will be improved from Short Street to the property entrance to meet NCDOT and Town of Southern Pines construction standards. A secondary access location will be provided from Richards Street. Both entrance locations were previously utilized by the mobile home park for access to the property.

(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 a redevelopment project located adjacent to a proposed shopping center and other single-family residential homes. Properties surrounding this property are zoned RM-1, PD and RS-1. This project will not impede the development of these surrounding properties in meeting their full development potential and meets the standards of the RM-1 zoning district. The plan works to transition density from the adjacent (to the north) shopping center and the single-family residences to the south and east. The project redevelops an existing mobile home park into a multi-family community resembling a single-family and townhome community.

Murray Hill Pines 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 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 the town of 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 from an improved Long Street and Richards Street. Low additional traffic volumes on local Town streets will not create any adverse impact on existing neighborhoods or streets and will be similar to that of the previous mobile home park.

Project buffers will be provided around the entirety of the property and planted to the Town of Southern Pines standards and requirements. 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 RM-1 zoning district classification. Redevelopment of this property from a mobile home park to a multi-family development, which will resemble a single-family and townhome community is consistent with the

surrounding neighborhood and will provide a transition from the adjacent shopping center to the adjacent residential neighborhood.

Any connecting utility and roadway infrastructure, including the improvements to Long Street will be extended and connected as necessary by the developer and dedicated to the Town of Southern Pines. This will benefit the public interest and welfare without adversely affecting any individual interests.

The CLRP calls for "housing that is diverse, affordable and compatible with the neighborhood in which it is developed." (CLRP, p. 2-4). The CLRP also adopts a policy of "encouraging development of a variety of housing types in new residential areas and promoting compatible infill in existing neighborhoods. (CLRP, P-12, p. 2-10). This project does just that. The CLRP explicitly states that the Town should "accommodate a diverse mix of housing." (CLRP, p. 4-6). The CLRP is the public expression of the public interest and welfare from a land planning perspective. Provision of single family for-rent residences and townhomes is consistent with the public interest and welfare as expressed in the CLRP. Applicant also asserts that the demand for such housing exceeds the current supply in the Southern Pines market and that increasing the supply of such housing options available can reduce overall rental rates in the jurisdiction, thereby fulfilling goals of the CLRP.

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.

This project incorporates many goals and objectives of the CLRP and establishes a development pattern that is consistent with these planning and guiding documents. This proposed multi-family development is consistent with the zoning classification. The development pattern also meets the land use goals defined by the CLRP as it is a redevelopment project, makes efficient use of the towns existing infrastructure and encourages housing diversity within 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.

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.

EXHIBIT C

Murray Hill Pines
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 single-family cottages and townhomes 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 supplies new residential units for Southern Pines. There is a portion of market comprised of consumers who desire a single-family home but do not desire a mortgage.

The project's architecture, site design and neighborhood character fit into the surrounding neighborhood and are intended to blend into the Southern Pines vernacular. Elements of building design and scale will be comparable to other single-family and townhome development in the area.

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 single-family homes and townhomes 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.

EXHIBIT C

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 utilizes property currently zoned for multi-family development to provide additional housing opportunities. 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 street connections to the adjoining areas. Access points are consistent with the existing mobile home community and will continue the same traffic pattern. Sidewalks will be added throughout the development to connect all internal amenities and encourage walking within the community.

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 the proposed adjacent shopping center will encourage walking and biking to the new facility and allow residents to shop and dine without driving to the center.

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.

EXHIBIT C

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.

NEIGHBORHOOD MEETING REPORT

DATE: March 23, 2022

PROJECT: Murray Hill Pines

LOCATION: Offices of Koontz Jones Design, located at
150 South Page Street
Southern Pines, North Carolina

SUBMITTED BY: Bob Koontz

ATTENDEES: Bob Koontz, Koontz Jones Design, PLLC
Paul Saathoff, Koontz Jones Design, PLLC
Greg Jonczyk, Craig Davis Properties

An informal Neighborhood Meeting was held on Wednesday March 23, 2022, from 4:00pm to 6:00 pm at the office of Koontz Jones Design, located at 150 South Page Street in Southern Pines. The applicant and project team held this meeting with adjoining property owners to present the project and solicit feedback on the plans for the property which includes 149 multi-family units design in a single-family and townhome style development. All adjoining parcel owners within 200' of the property were notified by letter (see attached copy of the letter) ten (10) days prior to the meeting date.

The meeting was informal in nature to allow adjoining property owners the opportunity to drop by at their convenience to review preliminary plans and ask questions of the development team. No formal presentation was provided. Drawings of the conceptual site plan and conceptual units were provided for review by the adjacent owners. Development team members were available to answer questions regarding the proposed project.

Several of the adjoining property owners took the opportunity to review the plans and discuss the project with the development team. (See attached sign in sheet)

Questions relating to many aspects of the development were raised and responded to by the development team based on the current direction of the plan and the submitted special use permit application. The following is a list of many of the questions posed to the development team:

- Number of Units: The development team provided plans and information describing that there would be 149 multi-family residential units design to resemble a single-family detached community.
- Ingress/egress. It was explained that the proposed development would utilize the two existing entrance locations for the previous mobile home park. One access location would be provided from Long Street, with a second entrance location provided at Richards Street. It was also discussed that Long Street would be improved to meet Town of Southern Pines construction standards for roadways, which appeared to be well received.
- Rental rates. The projected range is uncertain at this time but would be comparable with other new multi-family development and single-family residential rental rates in the area.
- Fencing and pedestrian access: It was asked whether fencing would be provided along the adjoining property boundaries as there is a fence along much of the property boundary today. It was explained that the current fencing would remain in place and could be added to in certain locations with the same type of fencing.



Robert Koontz, RLA

These notes reflect the author's interpretation of the events during the referenced meeting. Any additions or modifications required should be submitted to the author in writing.

March 11, 2022

Dear adjoining property owner,

A Neighborhood Meeting will be held to discuss a proposed Special Use Permit (SUP) application for the property located off Ridgewood Drive, between Richards Street and Long Street in Southern Pines. The property is currently zoned RM-1 - Residential Mixed Housing per the Town of Southern Pines Unified Development Ordinance (UDO). RM-1 zoning allows for residential uses at a medium density (10 – 12 dwelling units per acre), including single-family detached, single-family attached and multi-family units. The SUP application requests multi-family residential units that will be designed in a pattern similar to a single-family detached residential neighborhood.

This meeting is not a public hearing. The purpose of this meeting is to inform neighboring property owners of the proposal and to seek comments. The drop-in meeting will be held on March 23, 2022, between the hours of 4:00 pm and 6:00 pm at the offices of Koontz Jones Design located at 150 South Page Street in Southern Pines. This meeting will be informal, with no scheduled presentation, so feel free to come by at your convenience during the designated hours. Conceptual plans will be made available for review and discussion with members of the project team. Anyone seeking additional information regarding the CDP application may call (910) 684-8487.

Best Regards,

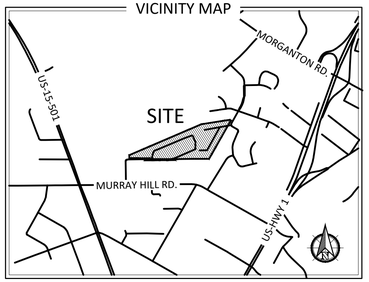


Robert Koontz, PLA

Murray Hill Pines 3/23/2022

Name	Address	Email Address
Jean McNeill	1702 Eastview dr. Aberdeen, N.C. 28315	jeanrmcneill@gmail.com
Oglatha Carswell	302 Haley Street, Southern Pines, N.C. 28387	
Renee Swagel	145 Pinelane Sou. Pines, N.C. 28387	
Carolyn Covington	140 Pine Lane Sou. Pines 28387	
Ruby & Tem Stephen	125 Shady Lane S.P. 28387.	
Janice D. Chiles	560 Rothney Ave SP 28387	
Dierdre Breeden	560 Rothney Ave SP 28387	

VICINITY MAP



LEGEND

- PROPERTY BOUNDARY
- 535 EXISTING MAJOR CONTOUR
- 534 EXISTING MINOR CONTOUR
- ABANDONED RIGHT OF WAY
- BOUNDARY LINE
- BOUNDARY LINE NOT SURVEYED
- EXISTING EASEMENT
- EXISTING FENCE
- EIP EXISTING IRON PIPE
- EIR EXISTING IRON ROD
- IRS IRON ROD SET
- ECM EXISTING CONCRETE MONUMENT
- EPK EXISTING PK NAIL
- SEWER MANHOLE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- TELEPHONE PEDESTAL
- CABLE PEDESTAL
- POWER PEDESTAL
- POWER METER
- LIGHT POLE
- ELECTRICAL TRANSFORMER

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.

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: 8571
MAP(S): 3710857100J
DATE: OCTOBER 17, 2006

ZONING INFORMATION

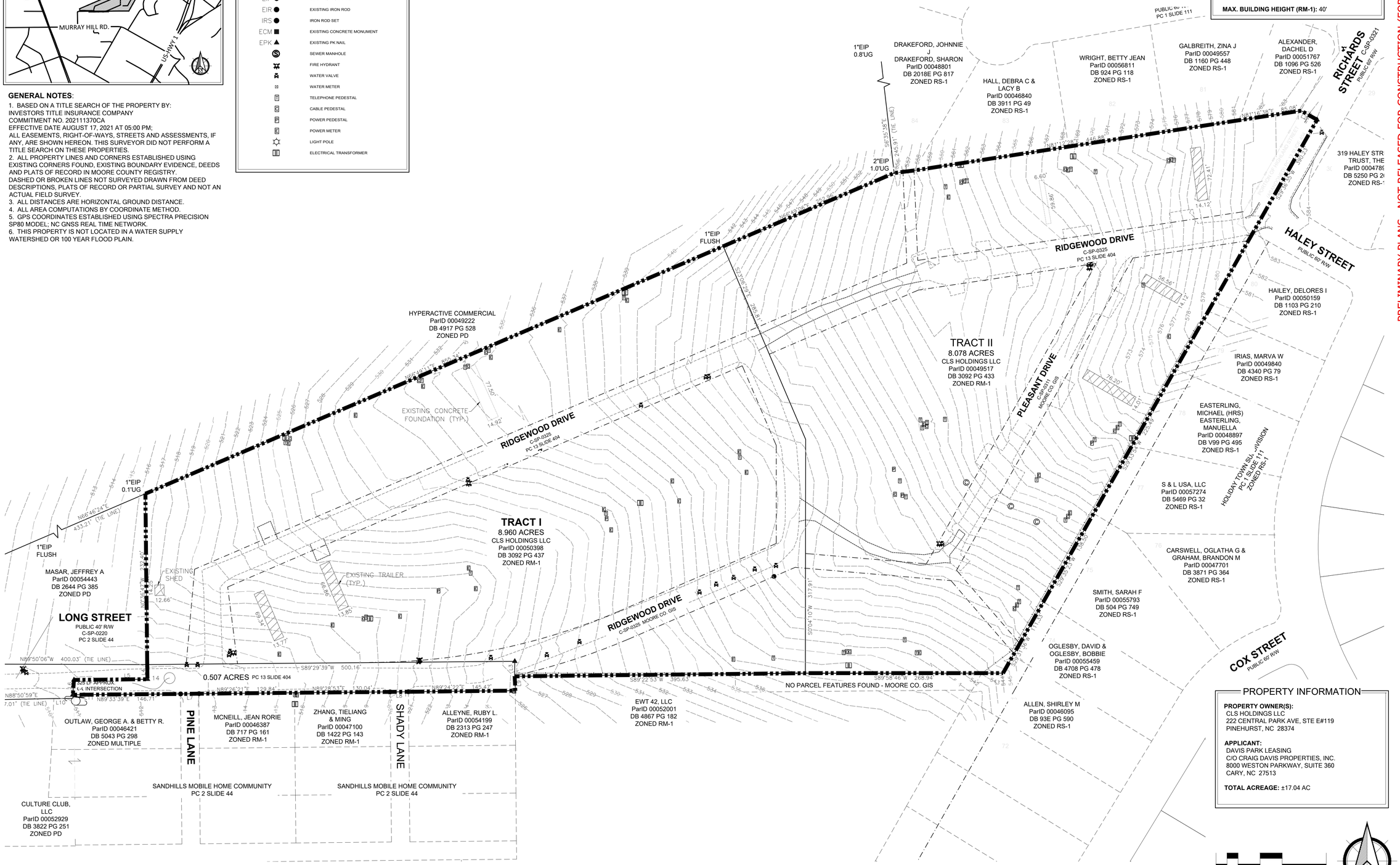
ZONING CLASSIFICATION:
RM-1 - RESIDENTIAL MIXED HOUSING
(10-12 DWELLING UNITS / ACRE)

REQUIRED SETBACKS (RM-1):
FRONT: 25' MINIMUM
INTERIOR SIDE: 10' MINIMUM
EXTERIOR SIDE: 15' MINIMUM
REAR: 30' MINIMUM

MAX. BUILDING HEIGHT (RM-1): 40'

GENERAL NOTES:

1. BASED ON A TITLE SEARCH OF THE PROPERTY BY:
INVESTORS TITLE INSURANCE COMPANY
COMMITMENT NO. 202111370CA
EFFECTIVE DATE AUGUST 17, 2021 AT 05:00 PM;
ALL EASEMENTS, RIGHT-OF-WAYS, STREETS AND ASSESSMENTS, IF ANY, ARE SHOWN HEREON. THIS SURVEYOR DID NOT PERFORM A TITLE SEARCH ON THESE PROPERTIES.
2. ALL PROPERTY LINES AND CORNERS ESTABLISHED USING EXISTING CORNERS FOUND, EXISTING BOUNDARY EVIDENCE, DEEDS AND PLATS OF RECORD IN MOORE COUNTY REGISTRY.
DASHED OR BROKEN LINES NOT SURVEYED DRAWN FROM DEED DESCRIPTIONS, PLATS OF RECORD OR PARTIAL SURVEY AND NOT AN ACTUAL FIELD SURVEY.
3. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCE.
4. ALL AREA COMPUTATIONS BY COORDINATE METHOD.
5. GPS COORDINATES ESTABLISHED USING SPECTRA PRECISION SP80 MODEL; NC GNSS REAL TIME NETWORK.
6. THIS PROPERTY IS NOT LOCATED IN A WATER SUPPLY WATERSHED OR 100 YEAR FLOOD PLAIN.



PROPERTY INFORMATION

PROPERTY OWNER(S):
CLS HOLDINGS LLC
222 CENTRAL PARK AVE, STE E#119
PINEHURST, NC 28374

APPLICANT:
DAVIS PARK LEASING
C/O CRAIG DAVIS PROPERTIES, INC.
8000 WESTON PARKWAY, SUITE 360
CARY, NC 27513

TOTAL ACREAGE: ±17.04 AC

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

KOONTZJONESDesign
LAND PLANNING | LANDSCAPE ARCHITECTURE
150 SOUTH PAGE STREET
SOUTHERN PINES, NC 28387
P: (910) 684-8487
W: www.koontzjonesdesign.com

REVISIONS:

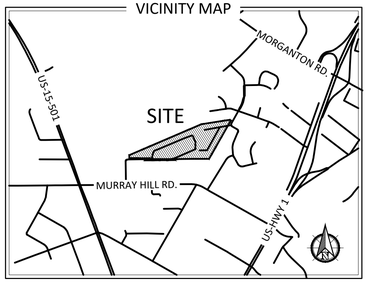
MURRAY HILL PINES
SOUTHERN PINES, NORTH CAROLINA

EXISTING CONDITIONS

DATE: 04-11-2022
DESIGNED BY: REK
DRAWN BY: PJS
CHECKED BY: REK
Q.C. BY: REK
SCALE: 1" = 60'-0"
PROJECT #: KJD21090

SHEET NUMBER#:
L-1.0

VICINITY MAP



LEGEND

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- EXISTING MINOR CONTOUR
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- BOUNDARY LINE
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- SEWER MANHOLE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- TELEPHONE PEDESTAL
- CABLE PEDESTAL
- POWER PEDESTAL
- POWER METER
- LIGHT POLE
- ELECTRICAL TRANSFORMER
- OPEN SPACE
- USEABLE OPEN SPACE
- PROPOSED DRAINAGE FLOW

GENERAL NOTES:

1. BASED ON A TITLE SEARCH OF THE PROPERTY BY: INVESTORS TITLE INSURANCE COMPANY COMMITMENT NO. 202111370CA EFFECTIVE DATE AUGUST 17, 2021 AT 05:00 PM; ALL EASEMENTS, RIGHT-OF-WAYS, STREETS AND ASSESSMENTS, IF ANY, ARE SHOWN HEREON. THIS SURVEYOR DID NOT PERFORM A TITLE SEARCH ON THESE PROPERTIES.
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3. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCE.
4. ALL AREA COMPUTATIONS BY COORDINATE METHOD.
5. GPS COORDINATES ESTABLISHED USING SPECTRA PRECISION SP80 MODEL; NC GNSS REAL TIME NETWORK.
6. THIS PROPERTY IS NOT LOCATED IN A WATER SUPPLY WATERSHED.

DRAINAGE NOTES:

1. STORMWATER MANAGEMENT DEVICES WILL FOLLOW THE TOWN OF SOUTHERN PINE'S STANDARDS AND BE APPROVED BY THE TOWN ENGINEER.
2. STORMWATER DEVICES MAY BE LOCATED IN BUFFER AREAS OR ON AN ADJACENT PARCEL UNDER COMMON OWNERSHIP AND CONTROL OF THE DEVELOPER

CAUTION

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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: 8571
MAP(S): 3710857100J
DATE: OCTOBER 17, 2006

ZONING INFORMATION

ZONING CLASSIFICATION (TRACT I):
PD - PLANNED DEVELOPMENT

ZONING CLASSIFICATION (TRACT II & III):
RM-1 - RESIDENTIAL MIXED HOUSING

REQUIRED SETBACKS (RM-1):
FRONT: 25' MINIMUM
INTERIOR SIDE: 10' MINIMUM
EXTERIOR SIDE: 15' MINIMUM
REAR: 30' MINIMUM

MAX. BUILDING HEIGHT (RM-1): 40'



PROPERTY INFORMATION

PROPERTY OWNER(S):
CLS HOLDINGS LLC
222 CENTRAL PARK AVE, STE E#119
PINEHURST, NC 28374

APPLICANT:
DAVIS PARK LEASING
C/O CRAIG DAVIS PROPERTIES, INC.
8000 WESTON PARKWAY, SUITE 360
CARY, NC 27513

TOTAL ACREAGE: ±17.04 AC

TOTAL UNITS:
1 BR MULTI-FAM. DUPLEX = 16 UNITS
2 BR MULTI-FAM. DUPLEX = 22 UNITS
2 BR MULTI-FAM. W/ HEAD-IN PARKING = 73 UNITS
3 BR MULTI-FAM. W/ GARAGE PARKING = 38 UNITS
TOTAL = 149 MULTI-FAM. UNITS (8.74 DU/AC)

TOTAL OPEN SPACE: ±3.1 AC (18.2%)

TOTAL USEABLE OPEN SPACE: ±2.6 AC (15.3%)

REQUIRED PARKING:
-MULTI-FAMILY
1 BEDROOM (16 UNITS)
-1 SPACE PER UNIT = 16 SPACES
2-3 BEDROMM (133 UNITS)
-2 SPACES PER UNIT = 266 SPACES
VISITOR SPACES
-1 SPACE PER 5 UNITS = 30 SPACES
TOTAL PARKING REQUIRED = 312 SPACES

PROVIDED PARKING:
GARAGE/DRIVEWAY = 76 SPACES
ON STREET = 187 SPACES
TOTAL PROVIDED PARKING = 263 SPACES
(1.77 SPACES / UNIT)

TOTAL IMPERVIOUS SURFACE: ±9.4 AC (55.2%)

30' 0' 30' 60' 120'
SCALE: 1" = 60'-0"

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

KOONTZJONESDesign
LAND PLANNING | LANDSCAPE ARCHITECTURE
150 SOUTH PAGE STREET
SOUTHERN PINES, NC 28387
P: (910) 684-8487
W: www.koontzjonesdesign.com

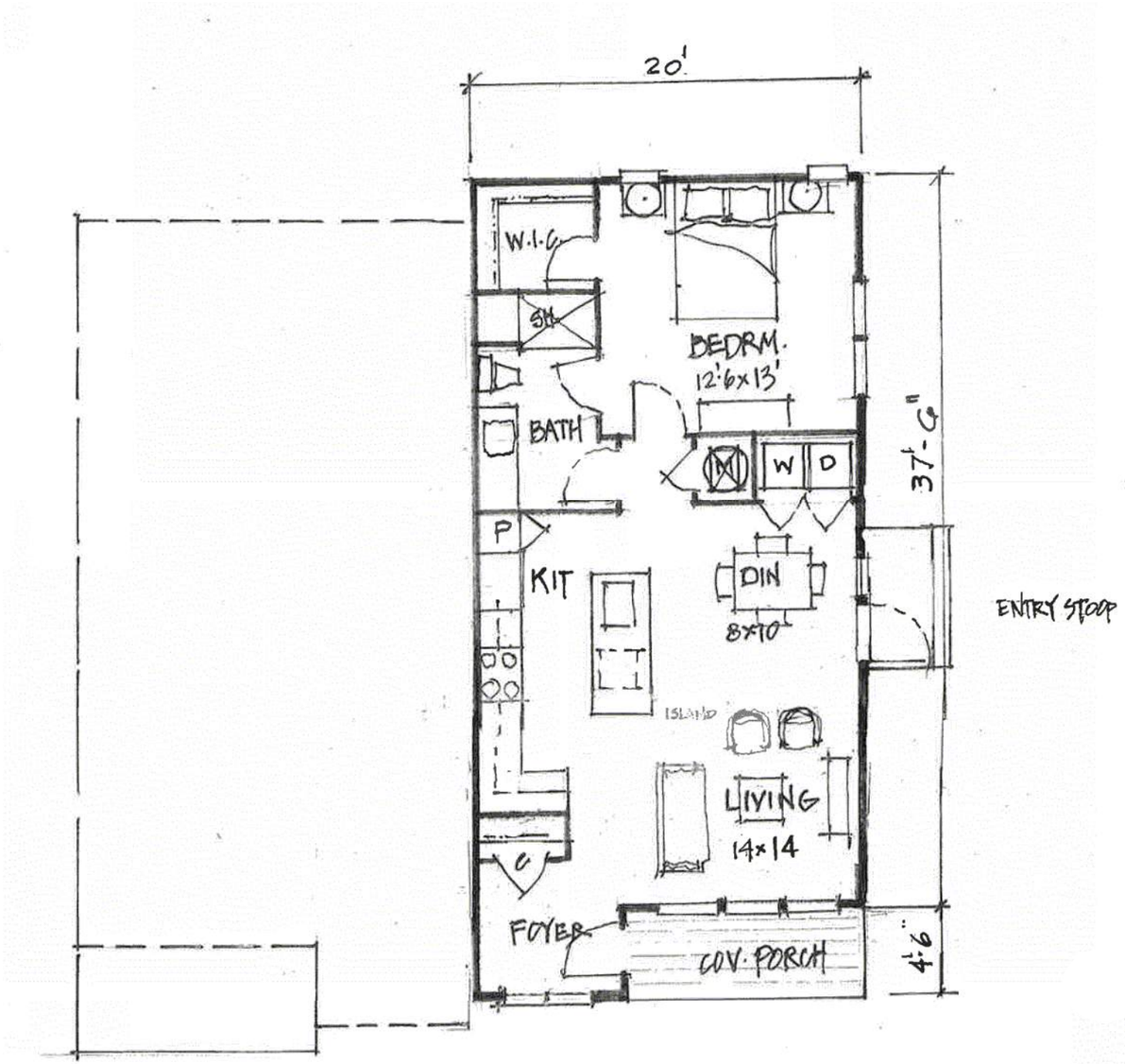
REVISIONS:

MURRAY HILL PINES
SOUTHERN PINES, NORTH CAROLINA

SITE PLAN

DATE: 04-11-2022
ISSUED BY: C.J. REK
DRAWN BY: P.J.S.
CHECKED BY: REK
Q.C. BY: REK
SCALE: 1" = 60'-0"
PROJECT #: KJD21090

SHEET NUMBER#:
L-1.1



FLOOR PLAN (785 SF)



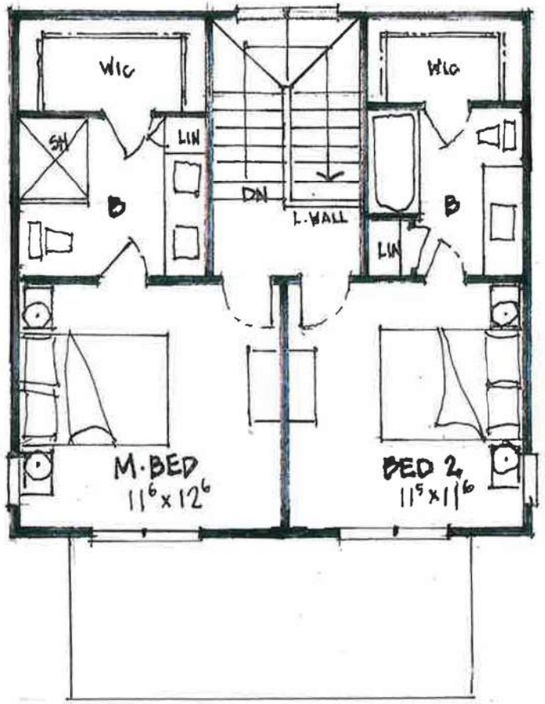
FRONT ELEVATION

-UNIT A - ONE BEDROOM (1-STORY DUPLEX)-

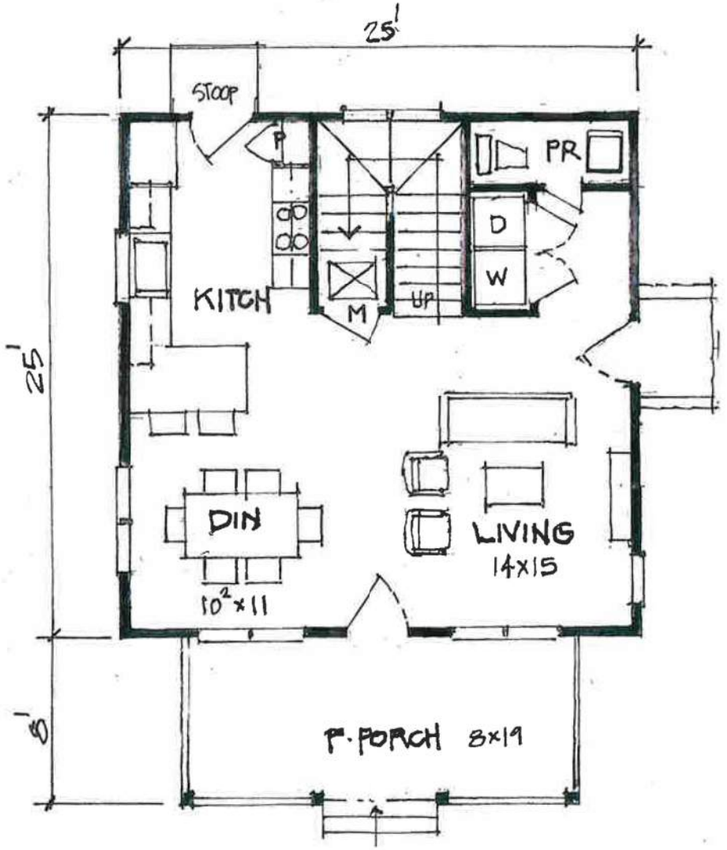
SCALE: NTS

DETACHED MULTI-FAMILY CONCEPT

SGA
NarmourWright
DESIGN



SECOND FLOOR PLAN (565 SF)



FIRST FLOOR PLAN (625 SF)



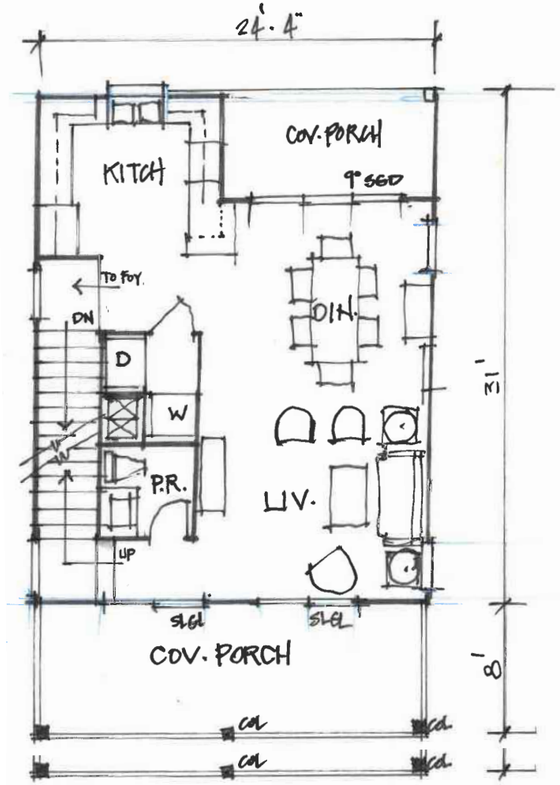
FRONT ELEVATION

-UNIT C - TWO BEDROOM (2-STORY DETACHED)-

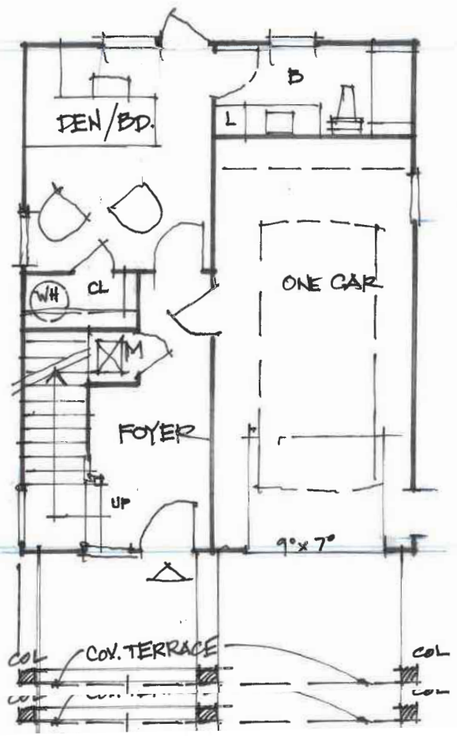
SCALE: NTS

DETACHED MULTI-FAMILY CONCEPT

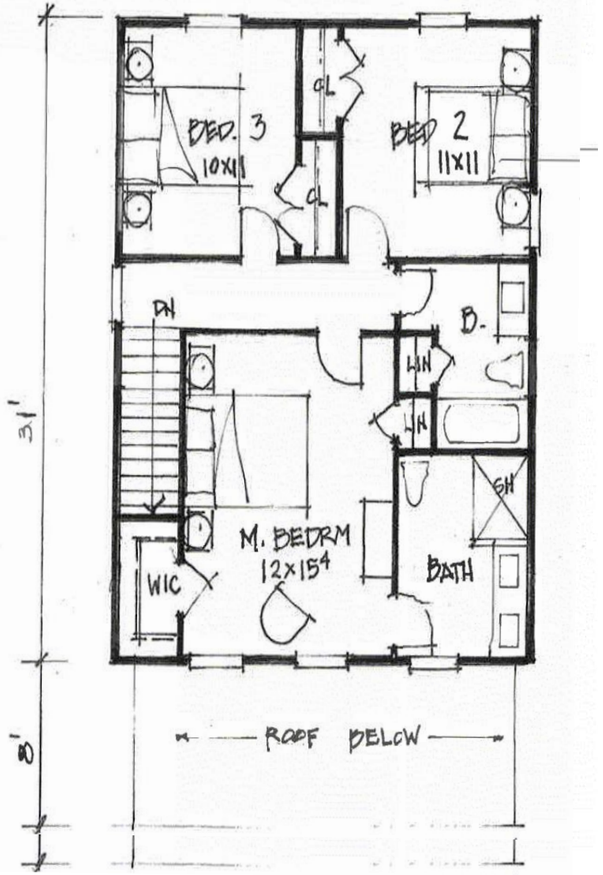
SGA
NarmourWright
DESIGN



FIRST FLOOR PLAN (754 SF)



SECOND FLOOR PLAN (724 SF)



THIRD FLOOR PLAN (724 SF)



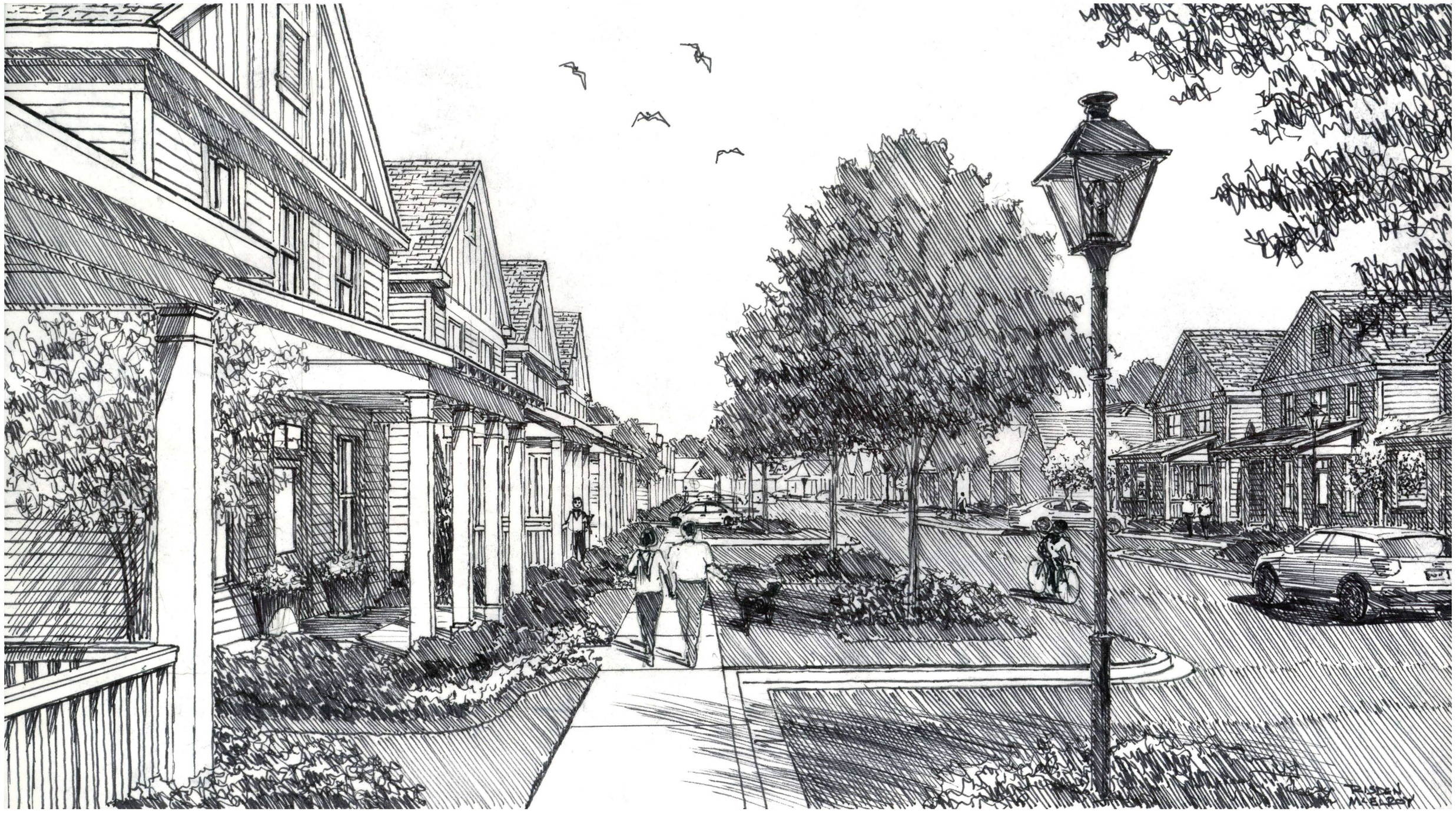
FRONT ELEVATION

-UNIT D - THREE BEDROOM (2-STORY DETACHED)-

SCALE: NTS

DETACHED MULTI-FAMILY CONCEPT

SGA
NarmourWright
DESIGN


R. SEAN
McELROY

Kimley»Horn

KIMLEY-HORN AND ASSOCIATES, INC
NC License #F-0102

NORTH CAROLINA PROFESSIONAL SEAL 034394 ENGINEER TRAVIS FLUITT

DocuSigned by:
Travis Fluitt
E9D326BFBC3F429...
3/15/2022

MEMORANDUM

To: James Michel, PE, Town of Southern Pines

From: Travis Fluitt, PE, Kimley-Horn

Date: March 15, 2022

Subject: ***Murray Hill Pines Multifamily, Southern Pines, NC – Traffic Impact Analysis***

Kimley-Horn has performed a Traffic Impact Analysis (TIA) for the proposed Murray Hill Pines multifamily development, which plans to construct approximately 160 townhome-style multifamily units on the north side of Murray Hill Road at Short Street in Southern Pines, North Carolina. **Figure 1** shows the site location, and **Figure 2** shows the conceptual site plan.

The site is mostly vacant except for a few mobile homes. Site access is proposed via Long Street and the existing connection to Haley Street. Project build-out is anticipated in 2024. The Town of Southern Pines' Unified Development Ordinance (UDO) requires the study of the build-out traffic conditions for both the site build-out and 10-year projections. Therefore, the traffic conditions studied include the existing (2022) and projected (2024 and 2032) background and build-out traffic conditions for the AM and PM peak hours.

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

Existing Conditions

The study area consists of the following intersections:

- Murray Hill Road at Short Street
- Murray Hill Road at Cox Street
- US 1 at Rothney Avenue

Figure 3 shows the existing roadway laneage at the study intersections.

Peak hour (7-9 AM and 4-6 PM) turning movement counts were collected at all three study intersections in December 2021. These counts were not adjusted since they were collected when Moore County public schools were in session. The turning movement count data is attached to this report, and **Figure 4** shows the existing traffic volumes for the AM and PM peak hours.

Background Volume Development

Consistent with recent projects in the vicinity of the site, an annual growth rate of 2% was applied to the existing (2022) volumes up to the 2024 build-out year, and a 1% annual growth rate was applied to the 2024 background traffic volumes up to the 2032 horizon year. Background growth calculations are detailed on the intersection spreadsheets attached to this report.

No approved developments were included in this analysis as background traffic.

Figure 5 shows the projected (2024) background peak hour traffic volumes, and **Figure 6** shows the projected (2032) background peak hour traffic volumes.

Site Trip Generation and Percent Assignment

As currently envisioned, full build-out of the development will consist of approximately 160 townhome-style multifamily dwelling units. The development's trip generation potential was calculated using the data included in the 11th Edition of the *ITE Trip Generation Manual* (2021) except for the daily trips, which were calculated using the rate of 7.32 trips per unit per the Town of Southern Pines UDO.

As shown in Table 1 below, the proposed development is expected to generate approximately 1,172 new trips on a typical weekday, 72 new trips in the AM peak hour, and 89 new trips in the PM peak hour.

Table 1
Traffic Generation (Vehicles)

LUC	Land Use	Intensity	Daily	AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
220	Multifamily (Low-Rise)	160 d.u.	1,172	17	55	56	33

The site-generated traffic was assigned to the roadway network according to the following directional distribution, which was based on a review of surrounding land uses and existing traffic patterns:

- 45% to/from the north on US 1
- 35% to/from the west on Murray Hill Pines Road
- 20% to/from the east on Murray Hill Pines Road

Figure 7 shows the directional distribution and percent assignment for Murray Hill Pines site traffic, and **Figure 8** shows the projected peak hour site traffic volumes at the study intersections.

Build-out Volume Development

The site traffic volumes were added to the projected (2024 and 2032) background traffic volumes to obtain the projected (2024 and 2032) build-out traffic volumes. **Figure 9** shows the projected (2024) build-out peak hour traffic volumes, and **Figure 10** shows the projected (2032) build-out peak hour traffic volumes.

Capacity Analysis

Capacity analyses were performed for the existing (2022) and projected (2024 and 2032) background and build-out traffic conditions using Synchro Version 10 software. Synchro intersection level-of-service (LOS) reports are attached to this report. Table 2 summarizes the LOS at average delays at the study intersections.

Table 2 Level-of-Service Summary		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
Murray Hill Road at Short Street (Unsignalized)		
Existing (2022) Traffic	SB – B (12.0) EBL – A (8.1)	SB – B (13.0) EBL – A (8.0)
Background (2024) Traffic	SB – B (12.2) EBL – A (8.1)	SB – B (13.3) EBL – A (8.1)
Build-out (2024) Traffic	SB – B (12.5) EBL – A (8.2)	SB – B (13.8) EBL – A (8.2)
+10 Background (2032) Traffic	SB – B (12.7) EBL – A (8.2)	SB – B (14.0) EBL – A (8.2)
+10 Build-out (2032) Traffic	SB – B (13.0) EBL – A (8.3)	SB – B (14.7) EBL – A (8.2)
Murray Hill Road at Cox Street (Unsignalized)		
Existing (2022) Traffic	SB – B (12.2) EBL – A (8.1)	SB – B (13.6) EBL – A (8.1)
Background (2024) Traffic	SB – B (12.4) EBL – A (8.2)	SB – B (14.1) EBL – A (8.2)
Build-out (2024) Traffic	SB – B (13.5) EBL – A (8.2)	SB – C (15.3) EBL – A (8.2)
+10 Background (2032) Traffic	SB – B (12.9) EBL – A (8.3)	SB – B (14.9) EBL – A (8.3)
+10 Build-out (2032) Traffic	SB – B (14.3) EBL – A (8.3)	SB – C (16.4) EBL – A (8.3)
US 1 at Rothney Avenue (Unsignalized)		
Existing (2022) Traffic	EB – B (13.5)	EB – B (13.8)
Background (2024) Traffic	EB – B (13.9)	EB – B (14.1)
Build-out (2024) Traffic	EB – B (14.1)	EB – B (14.3)
+10 Background (2032) Traffic	EB – B (14.7)	EB – B (14.9)
+10 Build-out (2032) Traffic	EB – C (15.0)	EB – C (15.2)

Recommendations

As shown in Table 2 above, all of the study intersections are expected to operate with short minor street delays in the existing (2022) and projected (2024 and 2032) background and build-out traffic conditions. The addition of site traffic is anticipated to create only minor delay and queue increases.

No queuing issues are expected at any of the study intersections at project build-out. As shown on the attached charts, no turn lanes are expected to be warranted on Murray Hill Road at Short Street or Cox

Street. Therefore, no improvements are recommended to be performed to accommodate projected site traffic.

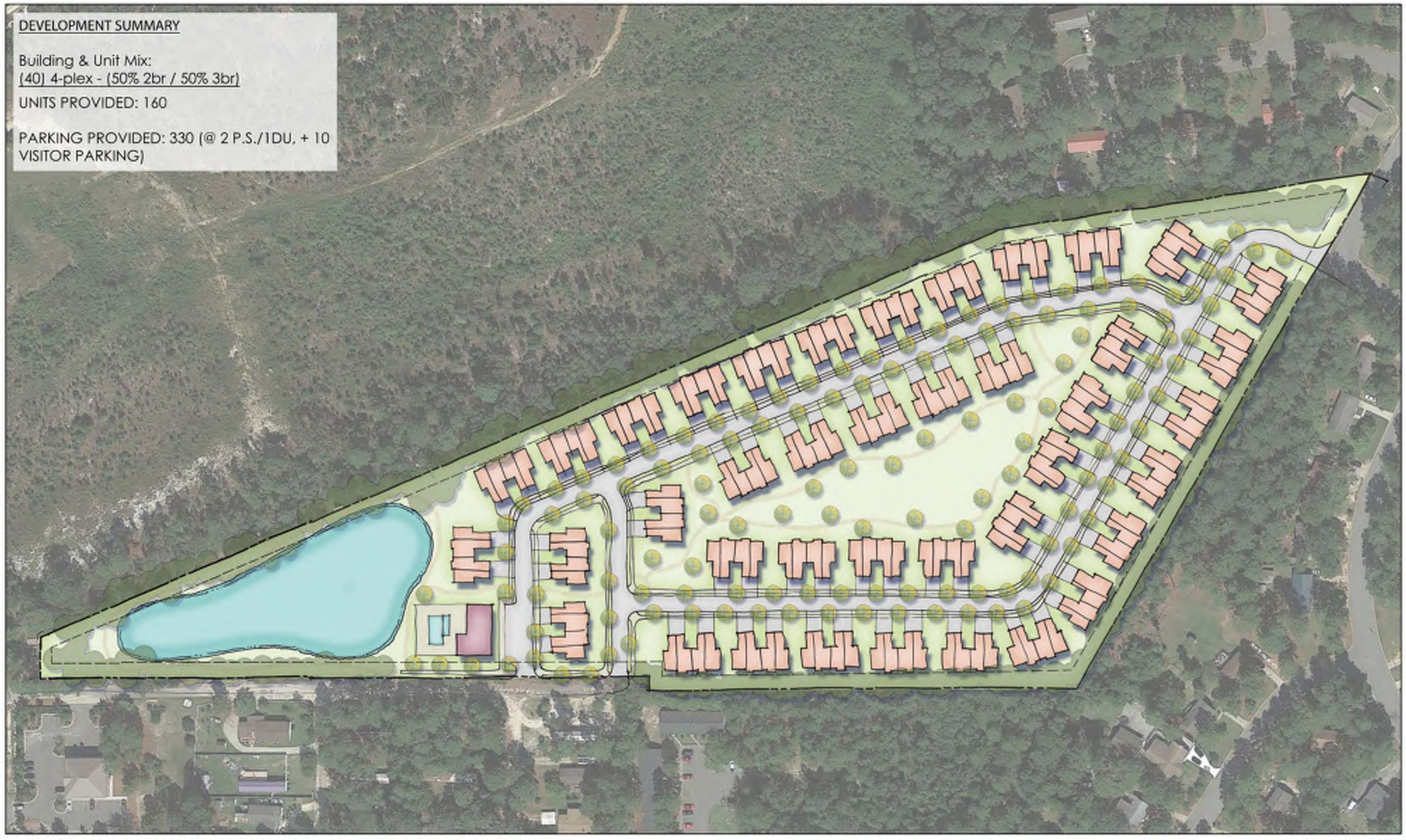
Should you have any questions or comments, please do not hesitate to contact me at (919) 653-2948 or travis.fluitt@kimley-horn.com.

Attachments: *Figures 1-10, Trip Generation, Intersection Spreadsheets, Synchro LOS Reports, Turn Lane Warrant Charts*



Kimley»Horn	MURRAY HILL PINES SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	SITE LOCATION	FIGURE 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.



Note: This plan is conceptual in nature and subject to change.

21-186-02 | 11/16/21

SGA | NarmourWright DESIGN | CDP CRAIG DAVIS PROPERTIES

Southern Pines
Moore County, NC

Concept Plan 5.0
(Townhome w/ Garage Option)

NORTH

SCALE: 1"=60'-0"

FIGURE 2

SITE PLAN

MURRAY HILL PINES
SOUTHERN PINES, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

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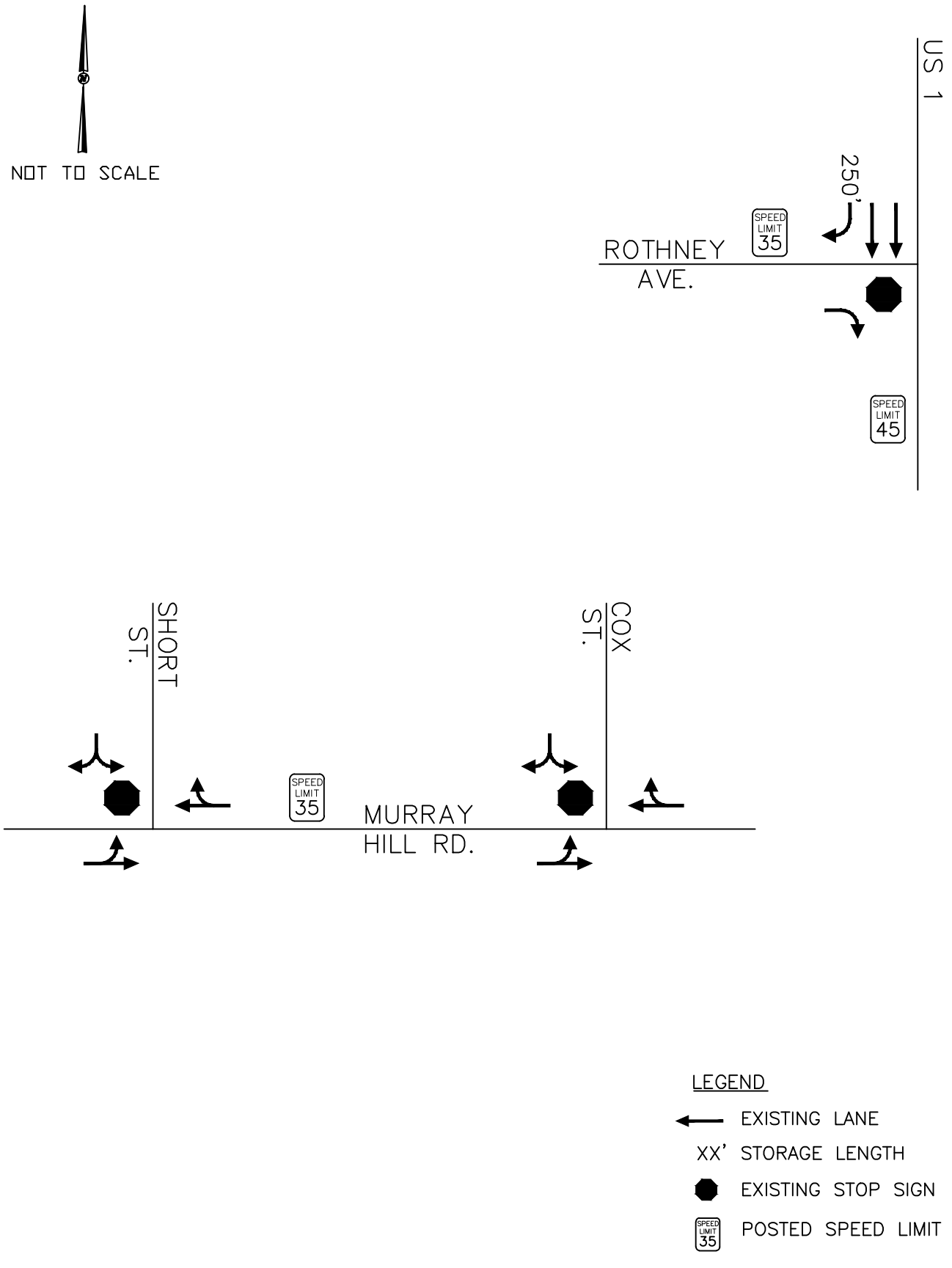

Kimley»Horn	MURRAY HILL PINES SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	EXISTING ROADWAY LANEAGE	FIGURE 3

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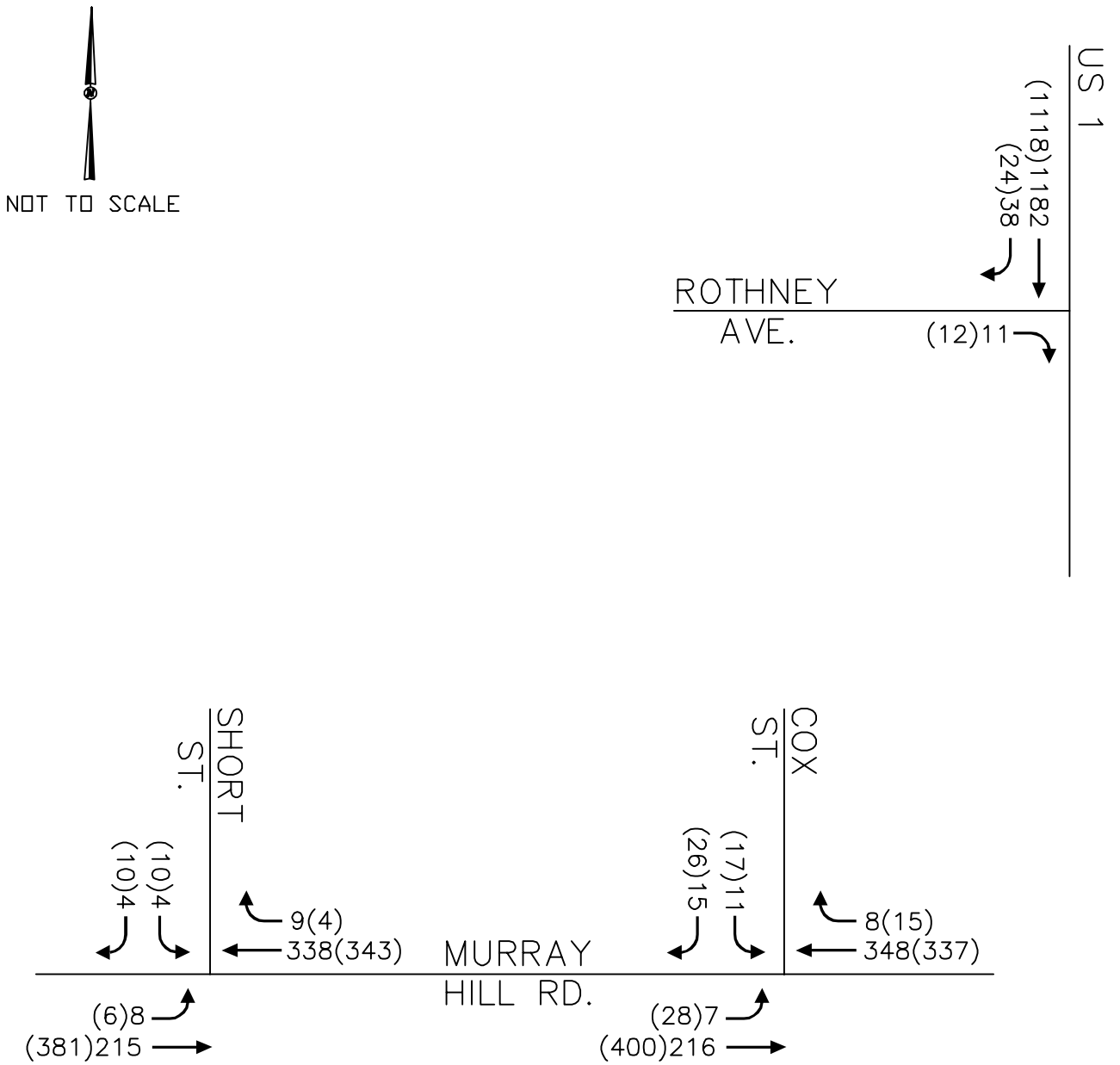

Kimley»Horn	MURRAY HILL PINES SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	EXISTING (2022) AM & PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 4

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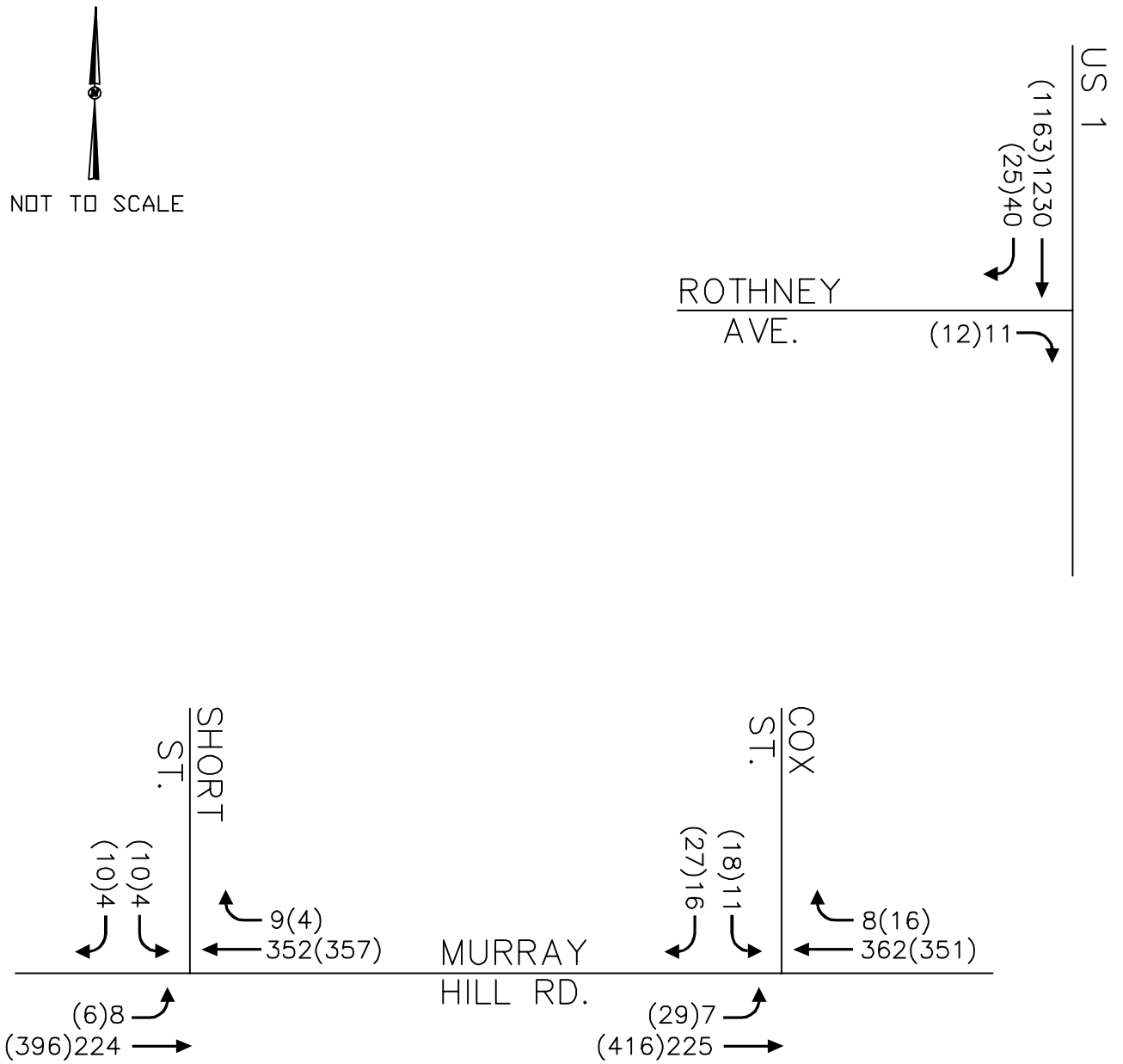

LEGEND

XX AM PEAK HOUR

(XX) PM PEAK HOUR

Kimley»Horn	MURRAY HILL PINES SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	PROJECTED (2024) BACKGROUND AM & PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 5

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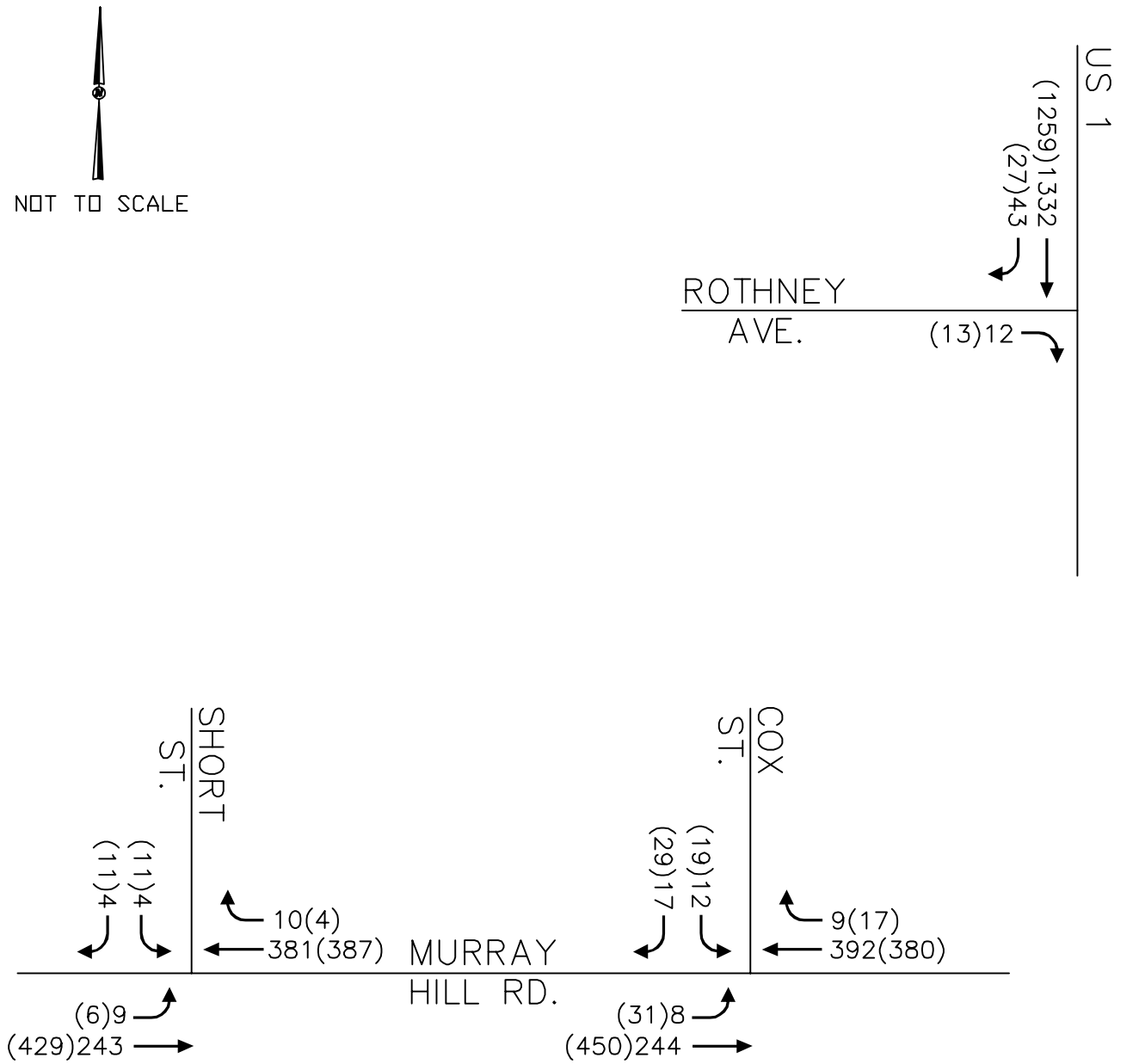

Kimley»Horn	MURRAY HILL PINES SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	PROJECTED (2032) BACKGROUND AM & PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 6

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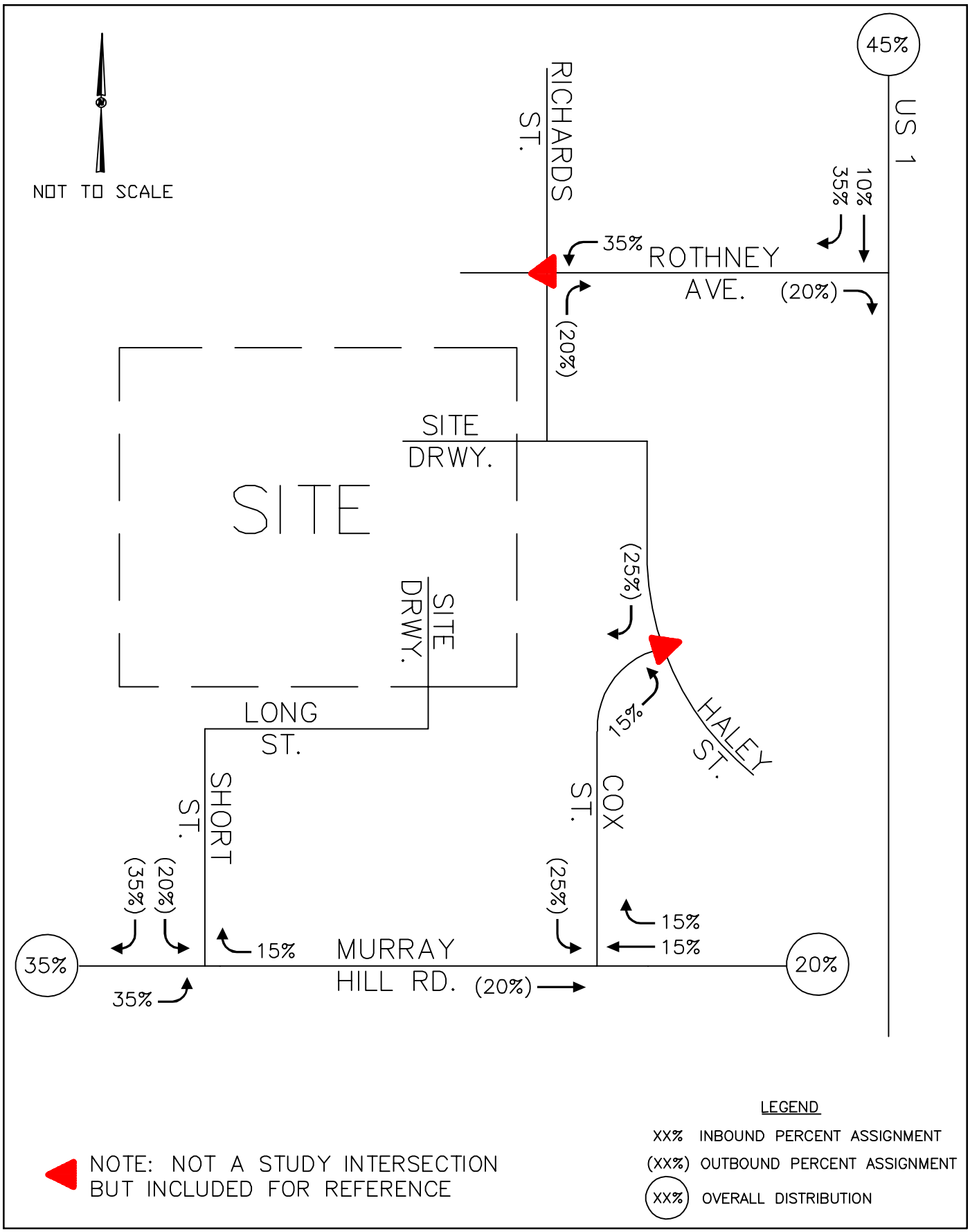

Kimley»Horn	MURRAY HILL PINES SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	SITE TRAFFIC DISTRIBUTION AND PERCENT ASSIGNMENT	FIGURE 7

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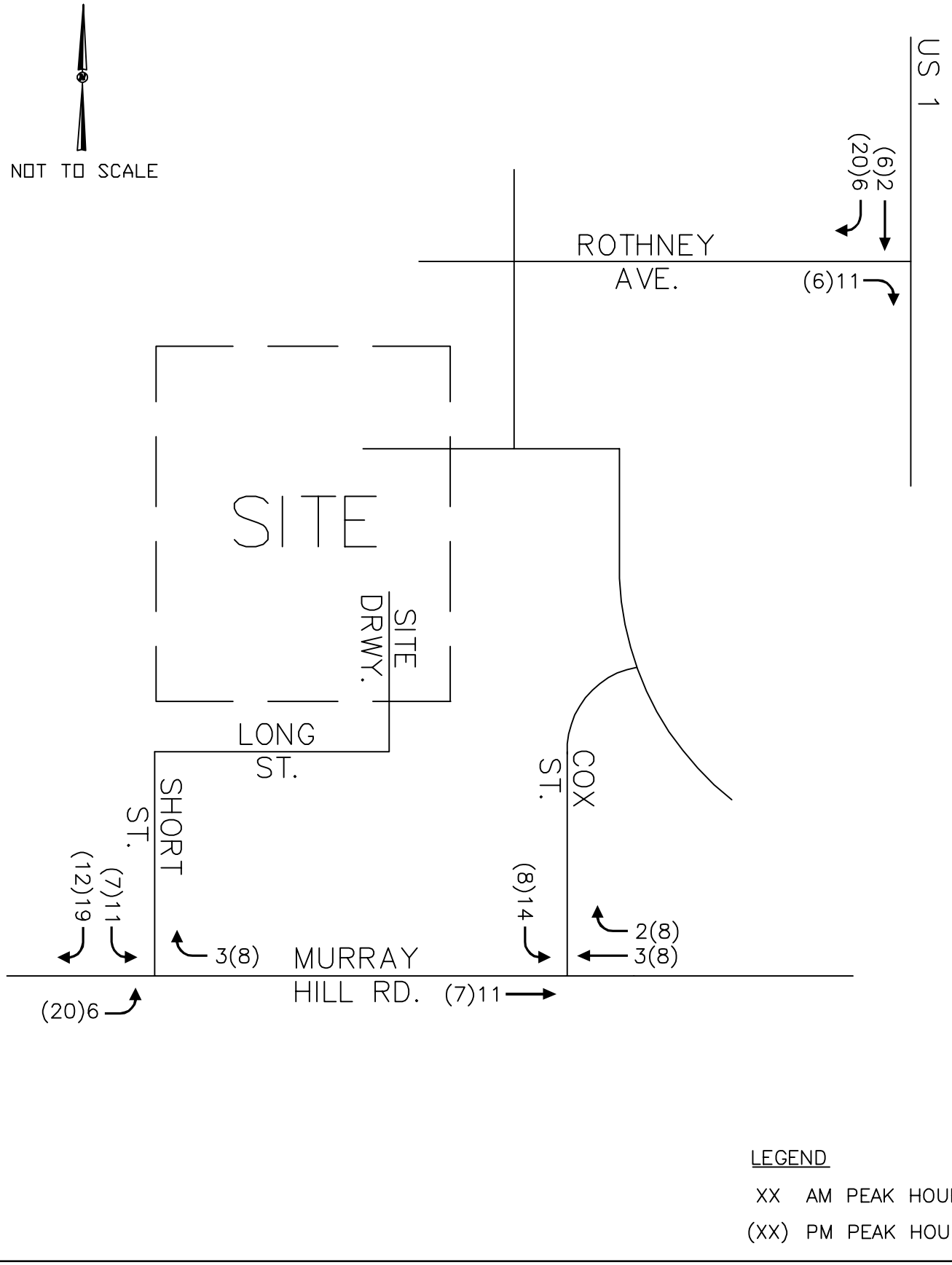

Kimley»Horn	MURRAY HILL PINES SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	PROJECTED AM & PM PEAK HOUR SITE TRAFFIC VOLUMES	FIGURE 8

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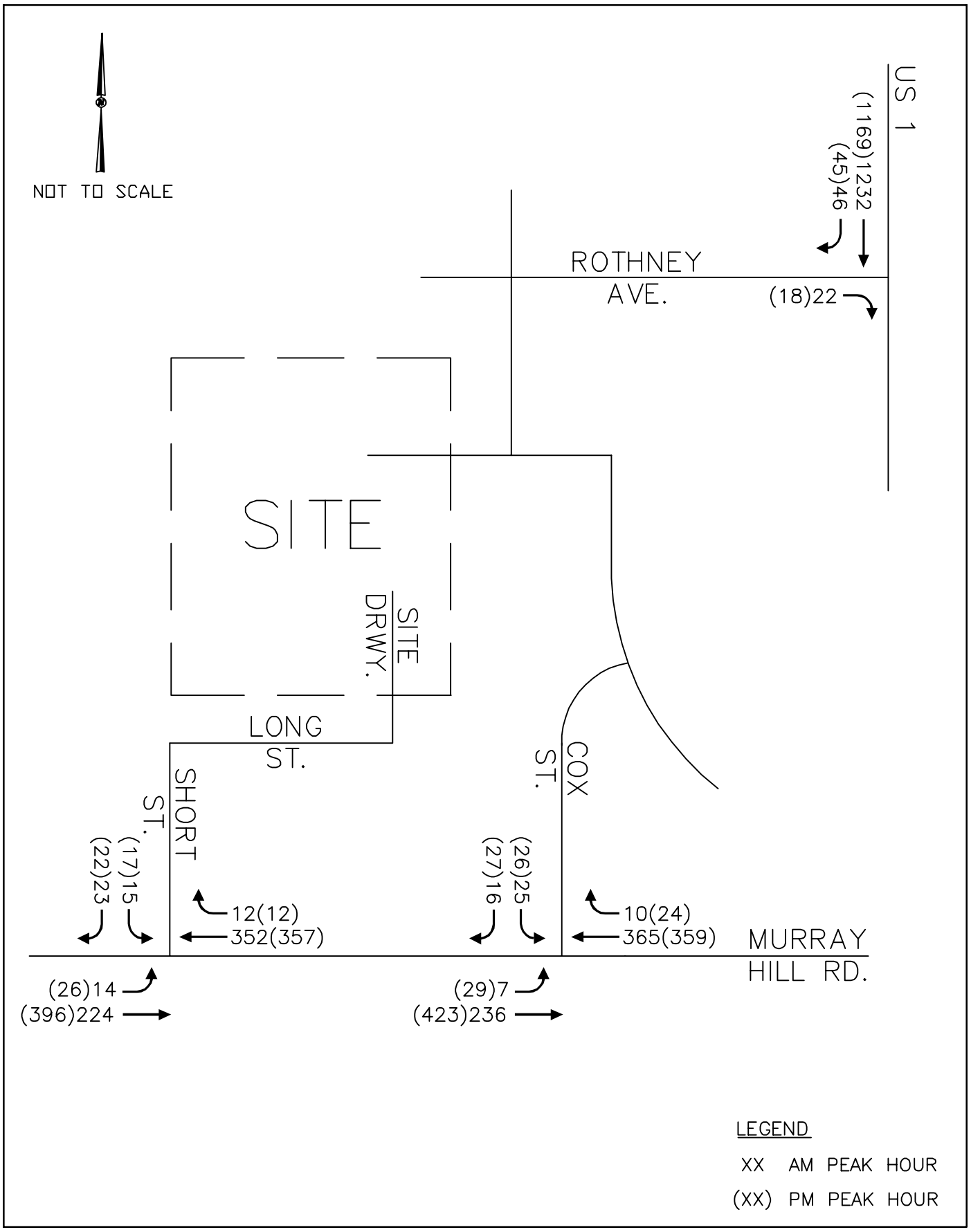

Kimley»Horn	MURRAY HILL PINES SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	PROJECTED (2024) BUILD-OUT AM & PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 9

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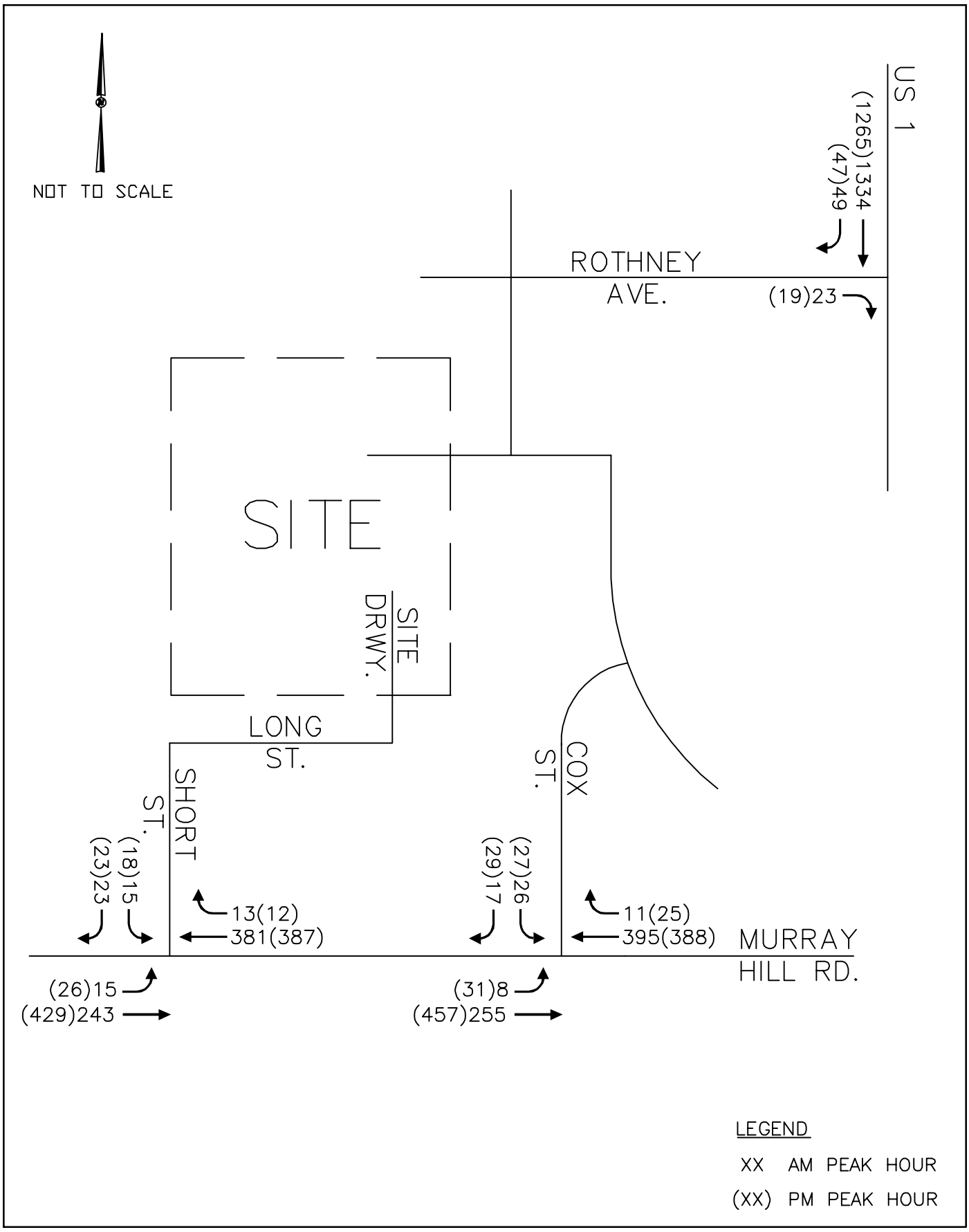


Kimley»Horn	MURRAY HILL PINES SOUTHERN PINES, NC TRAFFIC IMPACT ANALYSIS	PROJECTED (2032) BUILD-OUT AM & PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 10

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.

Appendix

Appendix A:
Trip Generation

Murray Hill Pines Townhomes

Table 1 - Trip Generation

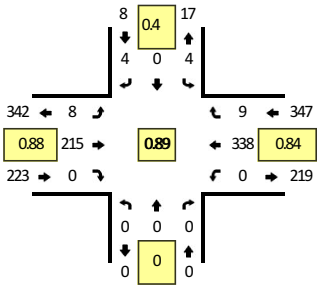
Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
220 Multifamily Housing (Low-Rise)[1]	160 d.u.	1,172	586	586	72	17	55	89	56	33
Total Net New External Trips		**1,172**	**586**	**586**	**72**	**17**	**55**	**89**	**56**	**33**

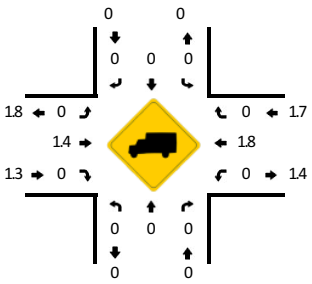
Appendix B:
Traffic Count Data

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

LOCATION: Long St -- Murray Hill Rd | **QC JOB #:** 15647401
CITY/STATE: Southern Pines, NC | **DATE:** Thu, Dec 2 2021

Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:30 AM -- 8:45 AM





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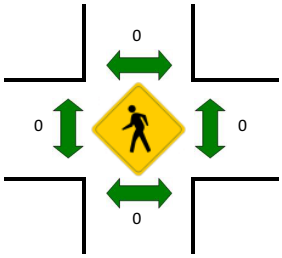
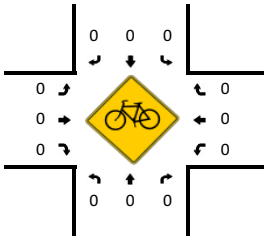
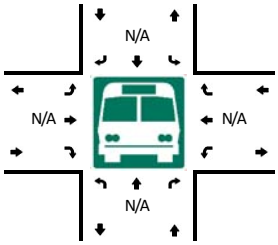
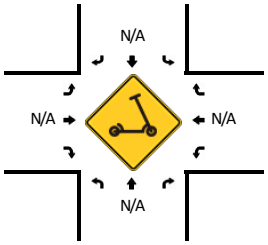












15-Min Count Period Beginning At	Long St (Northbound)				Long St (Southbound)				Murray Hill Rd (Eastbound)				Murray Hill Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	0	2	0	0	28	0	0	0	55	0	0	85	
7:15 AM	0	0	0	0	4	0	2	0	1	31	0	0	0	52	1	0	91	
7:30 AM	0	0	0	0	0	0	0	0	0	30	0	0	0	66	0	0	96	
7:45 AM	0	0	0	0	1	0	1	0	2	39	0	0	0	92	0	0	135	407
8:00 AM	0	0	0	0	1	0	0	0	2	61	0	0	0	87	1	0	152	474
8:15 AM	0	0	0	0	2	0	0	0	2	46	0	0	0	71	0	0	121	504
8:30 AM	0	0	0	0	0	0	0	0	4	56	0	0	0	99	4	0	163	571
8:45 AM	0	0	0	0	1	0	4	0	0	52	0	0	0	81	4	0	142	578

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	16	224	0	0	0	396	16	0	652
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	12	0		24
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

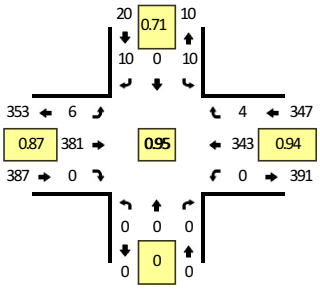
Comments:

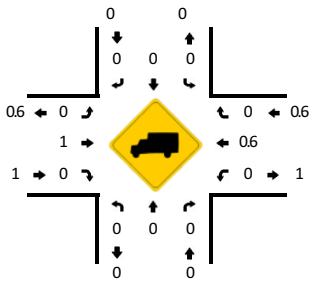
Report generated on 12/8/2021 1:31 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

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

LOCATION: Long St -- Murray Hill Rd | **QC JOB #:** 15647402
CITY/STATE: Southern Pines, NC | **DATE:** Thu, Dec 2 2021

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM





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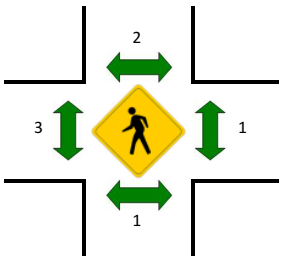
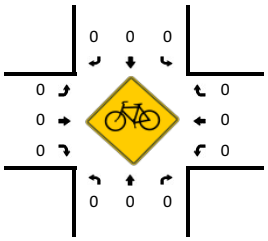
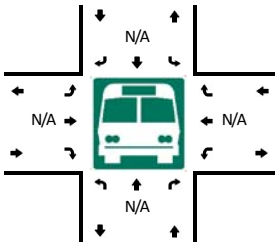
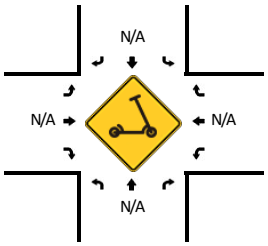












15-Min Count Period Beginning At	Long St (Northbound)				Long St (Southbound)				Murray Hill Rd (Eastbound)				Murray Hill Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	1	0	2	0	2	100	0	0	0	89	0	0	194	
4:15 PM	0	0	0	0	0	0	0	0	2	83	0	0	0	83	2	0	170	
4:30 PM	0	0	0	0	2	0	3	0	1	99	0	0	0	91	1	0	197	
4:45 PM	0	0	0	0	0	0	3	0	2	86	0	0	0	86	1	0	178	739
5:00 PM	0	0	0	0	3	0	4	0	0	111	0	0	0	81	0	0	199	744
5:15 PM	0	0	0	0	5	0	0	0	3	85	0	0	0	85	2	0	180	754
5:30 PM	0	0	0	0	2	0	1	0	1	92	0	0	0	71	1	0	168	725
5:45 PM	0	0	0	0	0	0	2	0	0	75	0	0	0	84	0	0	161	708

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	12	0	16	0	0	444	0	0	0	324	0	0	796
Heavy Trucks	0	0	0		0	0	0		0	4	0		0	0	0		4
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

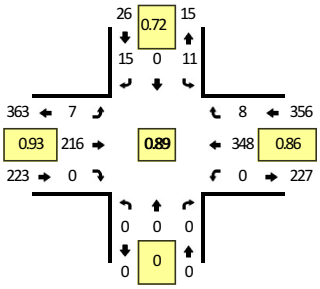
Comments:

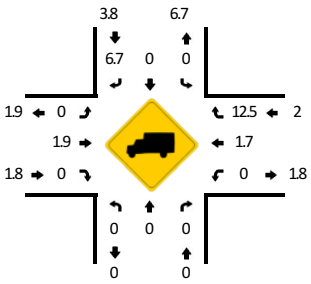
Report generated on 12/8/2021 1:31 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

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

LOCATION: Cox St -- Murray Hill Rd | **QC JOB #:** 15647403
CITY/STATE: Southern Pines, NC | **DATE:** Thu, Dec 2 2021

Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:30 AM -- 8:45 AM





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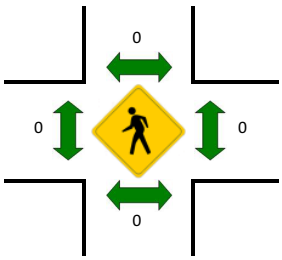
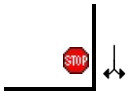
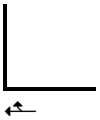
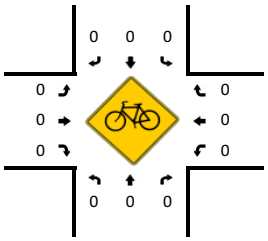
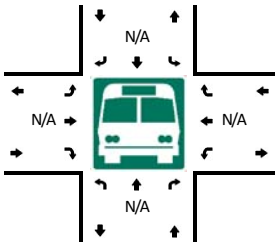
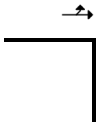




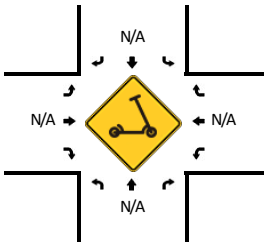












15-Min Count Period Beginning At	Cox St (Northbound)				Cox St (Southbound)				Murray Hill Rd (Eastbound)				Murray Hill Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	4	0	9	0	3	22	0	0	0	47	2	0	87	
7:15 AM	0	0	0	0	1	0	4	0	1	33	0	0	0	45	5	0	89	
7:30 AM	0	0	0	0	5	0	2	0	4	28	0	0	0	65	1	0	105	
7:45 AM	0	0	0	0	5	0	2	0	1	41	0	0	0	99	0	0	148	429
8:00 AM	0	0	0	0	3	0	2	0	3	57	0	0	0	87	2	0	154	496
8:15 AM	0	0	0	0	1	0	3	0	1	50	0	0	0	75	2	0	132	539
8:30 AM	0	0	0	0	4	0	5	0	2	55	0	0	0	101	3	0	170	604
8:45 AM	0	0	0	0	3	0	5	0	1	54	0	0	0	85	1	0	149	605

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	16	0	20	0	8	220	0	0	0	404	12	0	680
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	12	0		24
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

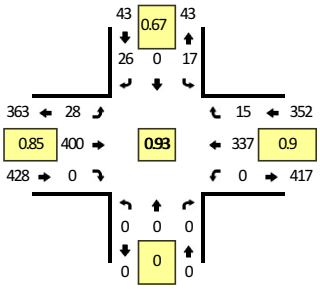
Comments:

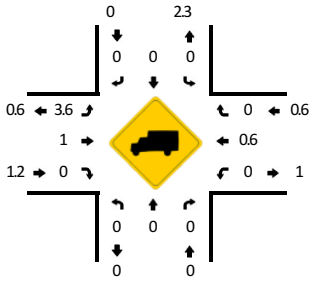
Report generated on 12/8/2021 1:31 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

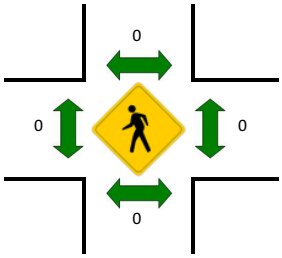
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Cox St -- Murray Hill Rd | **QC JOB #:** 15647404
CITY/STATE: Southern Pines, NC | **DATE:** Thu, Dec 2 2021

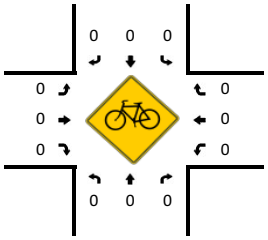
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

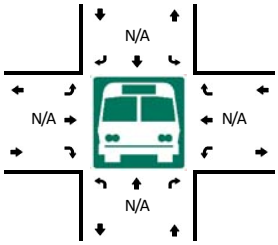




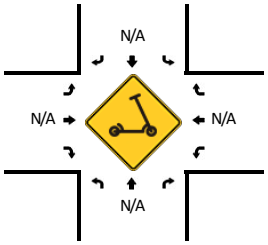












15-Min Count Period Beginning At	Cox St (Northbound)				Cox St (Southbound)				Murray Hill Rd (Eastbound)				Murray Hill Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	5	0	4	0	7	98	0	0	0	98	3	0	215	
4:15 PM	0	0	0	0	4	0	4	0	4	91	0	0	0	80	4	0	187	
4:30 PM	0	0	0	0	2	0	7	0	7	102	0	0	0	84	4	0	206	
4:45 PM	0	0	0	0	4	0	4	0	10	82	0	0	0	91	7	0	198	806
5:00 PM	0	0	0	0	7	0	3	0	10	116	0	0	0	83	2	0	221	812
5:15 PM	0	0	0	0	4	0	12	0	1	100	0	0	0	79	2	0	198	823
5:30 PM	0	0	0	0	1	0	2	0	6	91	0	0	0	78	2	0	180	797
5:45 PM	0	0	0	0	5	0	2	0	5	73	0	0	0	83	6	0	174	773

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	28	0	12	0	40	464	0	0	0	332	8	0	884
Heavy Trucks	0	0	0		0	0	0		0	4	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																	

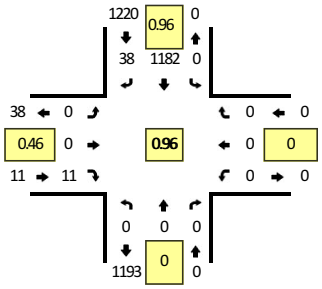
Comments:

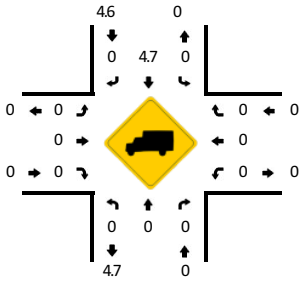
Report generated on 12/8/2021 1:31 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

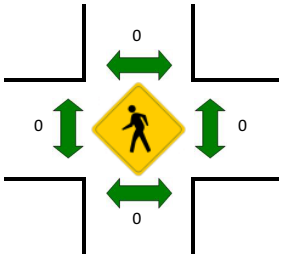
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: US 1 -- Rothney Ave | **QC JOB #:** 15647405
CITY/STATE: Southern Pines, NC | **DATE:** Thu, Dec 2 2021

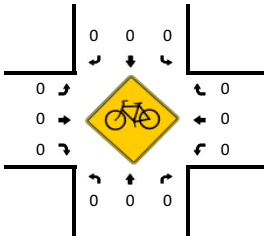
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

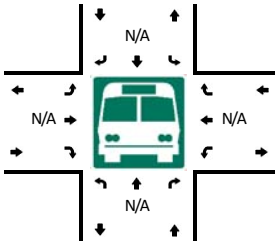




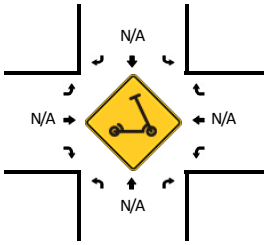












15-Min Count Period Beginning At	US 1 (Northbound)				US 1 (Southbound)				Rothney Ave (Eastbound)				Rothney Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	165	0	0	0	0	3	0	0	0	0	0	168	
7:15 AM	0	0	0	0	0	210	2	0	0	0	0	0	0	0	0	0	212	
7:30 AM	0	0	0	0	0	299	1	0	0	0	0	0	0	0	0	0	300	
7:45 AM	0	0	0	0	0	311	6	0	0	0	3	0	0	0	0	0	320	1000
8:00 AM	0	0	0	0	0	301	8	0	0	0	2	0	0	0	0	0	311	1143
8:15 AM	0	0	0	0	0	271	23	0	0	0	6	0	0	0	0	0	300	1231
8:30 AM	0	0	0	0	0	228	12	0	0	0	32	0	0	0	0	0	272	1203
8:45 AM	0	0	0	0	0	232	8	0	0	0	6	0	0	0	0	0	246	1129

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	1244	24	0	0	0	12	0	0	0	0	0	1280
Heavy Trucks	0	0	0		0	48	0		0	0	0		0	0	0		48
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

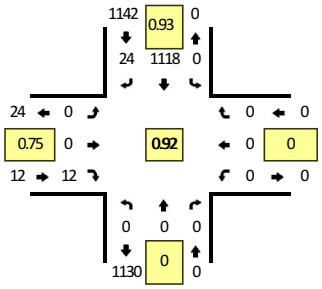
Comments:

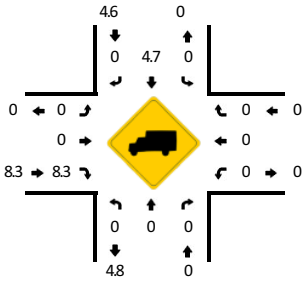
Report generated on 12/8/2021 1:31 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

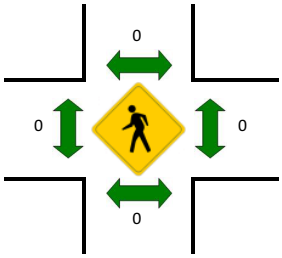
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

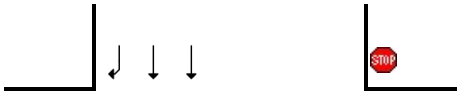
LOCATION: US 1 -- Rothney Ave | **QC JOB #:** 15647406
CITY/STATE: Southern Pines, NC | **DATE:** Thu, Dec 2 2021

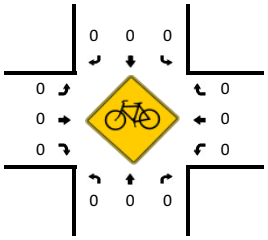
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

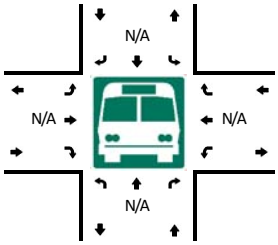




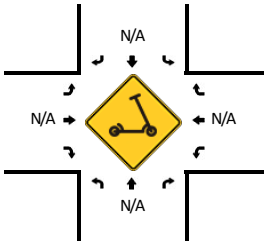












15-Min Count Period Beginning At	US 1 (Northbound)				US 1 (Southbound)				Rothney Ave (Eastbound)				Rothney Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	295	8	0	0	0	4	0	0	0	0	0	307	
4:15 PM	0	0	0	0	0	269	3	0	0	0	2	0	0	0	0	0	274	
4:30 PM	0	0	0	0	0	254	5	0	0	0	2	0	0	0	0	0	261	
4:45 PM	0	0	0	0	0	300	8	0	0	0	4	0	0	0	0	0	312	1154
5:00 PM	0	0	0	0	0	301	3	0	0	0	2	0	0	0	0	0	306	1153
5:15 PM	0	0	0	0	0	233	6	0	0	0	4	0	0	0	0	0	243	1122
5:30 PM	0	0	0	0	0	261	4	0	0	0	3	0	0	0	0	0	268	1129
5:45 PM	0	0	0	0	0	232	6	0	0	0	3	0	0	0	0	0	241	1058

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	1200	32	0	0	0	16	0	0	0	0	0	1248
Heavy Trucks	0	0	0		0	56	0		0	0	0		0	0	0		56
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 12/8/2021 1:31 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Page 1 of 1

Appendix C:
Intersection Spreadsheets

Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	17	55	56	33
Pass-By Trips:	0	0	0	0

Project:	Murray Hill Pines Townhomes
Location:	Southern Pines, NC
Scenario:	2032 Horizon Year
Ct. Date:	December 2, 2021
N/S Street:	Short Street
E/W Street:	Murray Hill Road

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2022
Growth Factor (Buildout):	0.040	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2032
Growth Factor (10 Year Projection):	0.083		

AM PEAK HOUR
AM PHF = 0.89

Description	Murray Hill Road Eastbound			Murray Hill Road Westbound			Northbound			Short Street Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	8	215	0	0	338	9	0	0	0	4	0	4
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	8	215	0	0	338	9	0	0	0	4	0	4
Growth Factor 2.0% per year to Build-out	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
2024 Background Growth	0	9	0	0	14	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
2032 Background Growth	1	19	0	0	29	1	0	0	0	0	0	0
2024 Background Traffic	8	224	0	0	352	9	0	0	0	4	0	4
2032 Background Traffic	9	243	0	0	381	10	0	0	0	4	0	4
Project Traffic												
Percent Assignment Inbound	35%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	6	0	0	0	0	3	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	35%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	11	0	19
Total Project Traffic	6	0	0	0	0	3	0	0	0	11	0	19
2024 Buildout Total	14	224	0	0	352	12	0	0	0	15	0	23
Project Trips % of 2024 Buildout Traffic	43%	0%	0%	0%	0%	25%	0%	0%	0%	73%	0%	83%
2032 Buildout Total	15	243	0	0	381	13	0	0	0	15	0	23
Project Trips % of 2032 Buildout Traffic	40%	0%	0%	0%	0%	23%	0%	0%	0%	73%	0%	83%

Overall Percent Impact (2024) 6.1%
Overall Percent Impact (2032) 5.7%

PM PEAK HOUR
PM PHF = 0.95

Description	Murray Hill Road Eastbound			Murray Hill Road Westbound			Northbound			Short Street Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	6	381	0	0	343	4	0	0	0	10	0	10
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	6	381	0	0	343	4	0	0	0	10	0	10
Growth Factor 2.0% per year to Build-out	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
2024 Background Growth	0	15	0	0	14	0	0	0	0	0	0	0
Growth Factor 1.0% per year, Build to 10-year	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
2032 Background Growth	0	33	0	0	30	0	0	0	0	1	0	1
2024 Background Traffic	6	396	0	0	357	4	0	0	0	10	0	10
2032 Background Traffic	6	429	0	0	387	4	0	0	0	11	0	11
Project Traffic												
Percent Assignment Inbound	35%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	20	0	0	0	0	8	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	35%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	7	0	12
Total Project Traffic	20	0	0	0	0	8	0	0	0	7	0	12
2024 Buildout Total	26	396	0	0	357	12	0	0	0	17	0	22
Project Trips % of 2024 Buildout Traffic	77%	0%	0%	0%	0%	67%	0%	0%	0%	41%	0%	55%
2032 Buildout Total	26	429	0	0	387	12	0	0	0	18	0	23
Project Trips % of 2032 Buildout Traffic	77%	0%	0%	0%	0%	67%	0%	0%	0%	39%	0%	52%

Overall Percent Impact (2024) 5.7%
Overall Percent Impact (2032) 5.3%

\\kimley-horn.com\se_ral1\ral_tpto_traffic\011174039 murray hill pines\t4 - analysis\[murray hill pines - tia data.xls]int 1 - murray hill @ short *1/14/22*

Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	17	55	56	33
Pass-By Trips:	0	0	0	0

Project:	Murray Hill Pines Townhomes
Location:	Southern Pines, NC
Scenario:	2032 Horizon Year
Ct. Date:	December 2, 2021
N/S Street:	Cox Street
E/W Street:	Murray Hill Road

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2022
Growth Factor (Buildout):	0.040	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2032
Growth Factor (10 Year Projection):	0.083		

AM PEAK HOUR
AM PHF = 0.89

Description	Murray Hill Road Eastbound			Murray Hill Road Westbound			Northbound			Cox Street Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	7	216	0	0	348	8	0	0	0	11	0	15
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	7	216	0	0	348	8	0	0	0	11	0	15
Growth Factor 2.0% per year to Build-out	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
2024 Background Growth	0	9	0	0	14	0	0	0	0	0	0	1
Growth Factor 1.0% per year, Build to 10-year	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
2032 Background Growth	1	19	0	0	30	1	0	0	0	1	0	1
2024 Background Traffic	7	225	0	0	362	8	0	0	0	11	0	16
2032 Background Traffic	8	244	0	0	392	9	0	0	0	12	0	17
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	15%	15%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	3	2	0	0	0	0	0	0
Percent Assignment Outbound	0%	20%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%
Outbound Project Traffic	0	11	0	0	0	0	0	0	0	14	0	0
Total Project Traffic	0	11	0	0	3	2	0	0	0	14	0	0
2024 Buildout Total	7	236	0	0	365	10	0	0	0	25	0	16
Project Trips % of 2024 Buildout Traffic	0%	5%	0%	0%	1%	20%	0%	0%	0%	56%	0%	0%
2032 Buildout Total	8	255	0	0	395	11	0	0	0	26	0	17
Project Trips % of 2032 Buildout Traffic	0%	4%	0%	0%	1%	18%	0%	0%	0%	54%	0%	0%

Overall Percent Impact (2024) 4.6%
Overall Percent Impact (2032) 4.2%

PM PEAK HOUR
PM PHF = 0.93

Description	Murray Hill Road Eastbound			Murray Hill Road Westbound			Northbound			Cox Street Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2021 Traffic Count	28	400	0	0	337	15	0	0	0	17	0	26
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	28	400	0	0	337	15	0	0	0	17	0	26
Growth Factor 2.0% per year to Build-out	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
2024 Background Growth	1	16	0	0	14	1	0	0	0	1	0	1
Growth Factor 1.0% per year, Build to 10-year	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
2032 Background Growth	2	34	0	0	29	1	0	0	0	1	0	2
2024 Background Traffic	29	416	0	0	351	16	0	0	0	18	0	27
2032 Background Traffic	31	450	0	0	380	17	0	0	0	19	0	29
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	15%	15%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	8	8	0	0	0	0	0	0
Percent Assignment Outbound	0%	20%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%
Outbound Project Traffic	0	7	0	0	0	0	0	0	0	8	0	0
Total Project Traffic	0	7	0	0	8	8	0	0	0	8	0	0
2024 Buildout Total	29	423	0	0	359	24	0	0	0	26	0	27
Project Trips % of 2024 Buildout Traffic	0%	2%	0%	0%	2%	33%	0%	0%	0%	31%	0%	0%
2032 Buildout Total	31	457	0	0	388	25	0	0	0	27	0	29
Project Trips % of 2032 Buildout Traffic	0%	2%	0%	0%	2%	32%	0%	0%	0%	30%	0%	0%

Overall Percent Impact (2024) 3.5%
Overall Percent Impact (2032) 3.2%

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Intersection Analysis Sheet

	AM In	AM Out	PM In	PM Out
Net New Trips:	17	55	56	33
Pass-By Trips:	0	0	0	0

Project:	Murray Hill Pines Townhomes
Location:	Southern Pines, NC
Scenario:	2032 Horizon Year
Ct. Date:	December 2, 2021
N/S Street:	US 1
E/W Street:	Rothney Avenue

Annual Growth Rate (Buildout):	2.0%	Existing Year:	2022
Growth Factor (Buildout):	0.040	Buildout Year:	2024
Annual Growth Rate (10 Year Projection):	1.0%	10 Year Projection:	2032
Growth Factor (10 Year Projection):	0.083		

AM PEAK HOUR
AM PHF = 0.96

Description	Rothney Avenue Eastbound Left	Through	Right	Westbound Left	Through	Right	Northbound Left	Through	Right	US 1 Southbound Left	Through	Right
2021 Traffic Count	0	0	11	0	0	0	0	0	0	0	1182	38
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	0	0	11	0	0	0	0	0	0	0	1182	38
Growth Factor 2.0% per year to Build-out	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	48	2
Growth Factor 1.0% per year, Build to 10-year	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
2032 Background Growth	0	0	1	0	0	0	0	0	0	0	102	3
2024 Background Traffic	0	0	11	0	0	0	0	0	0	0	1230	40
2032 Background Traffic	0	0	12	0	0	0	0	0	0	0	1332	43
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	35%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	2	6
Percent Assignment Outbound	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	11	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	11	0	0	0	0	0	0	0	2	6
2024 Buildout Total	0	0	22	0	0	0	0	0	0	0	1232	46
Project Trips % of 2024 Buildout Traffic	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	13%
2032 Buildout Total	0	0	23	0	0	0	0	0	0	0	1334	49
Project Trips % of 2032 Buildout Traffic	0%	0%	48%	0%	0%	0%	0%	0%	0%	0%	0%	12%

Overall Percent Impact (2024) 1.5%
Overall Percent Impact (2032) 1.4%

PM PEAK HOUR
PM PHF = 0.92

Description	Rothney Avenue Eastbound Left	Through	Right	Westbound Left	Through	Right	Northbound Left	Through	Right	US 1 Southbound Left	Through	Right
2021 Traffic Count	0	0	12	0	0	0	0	0	0	0	1118	24
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2022 Existing Traffic	0	0	12	0	0	0	0	0	0	0	1118	24
Growth Factor 2.0% per year to Build-out	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040
2024 Background Growth	0	0	0	0	0	0	0	0	0	0	45	1
Growth Factor 1.0% per year, Build to 10-year	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083
2032 Background Growth	0	0	1	0	0	0	0	0	0	0	96	2
2024 Background Traffic	0	0	12	0	0	0	0	0	0	0	1163	25
2032 Background Traffic	0	0	13	0	0	0	0	0	0	0	1259	27
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	35%
Inbound Project Traffic	0	0	0	0	0	0	0	0	0	0	6	20
Percent Assignment Outbound	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	6	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	0	6	0	0	0	0	0	0	0	6	20
2024 Buildout Total	0	0	18	0	0	0	0	0	0	0	1169	45
Project Trips % of 2024 Buildout Traffic	0%	0%	33%	0%	0%	0%	0%	0%	0%	0%	1%	44%
2032 Buildout Total	0	0	19	0	0	0	0	0	0	0	1265	47
Project Trips % of 2032 Buildout Traffic	0%	0%	32%	0%	0%	0%	0%	0%	0%	0%	0%	43%

Overall Percent Impact (2024) 2.6%
Overall Percent Impact (2032) 2.4%

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Appendix D:
Synchro Output:
Existing (2022)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	215	338	9	4	4
Future Volume (vph)	8	215	338	9	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1859	1857	0	1694	0
Flt Permitted		0.998			0.976	
Satd. Flow (perm)	0	1859	1857	0	1694	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	251	390	0	8	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	215	338	9	4	4
Future Vol, veh/h	8	215	338	9	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	242	380	10	4	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	390	0	-	0	645	385
Stage 1	-	-	-	-	385	-
Stage 2	-	-	-	-	260	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1169	-	-	-	437	663
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	783	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1169	-	-	-	433	663
Mov Cap-2 Maneuver	-	-	-	-	433	-
Stage 1	-	-	-	-	682	-
Stage 2	-	-	-	-	783	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1169	-	-	-	524
HCM Lane V/C Ratio	0.008	-	-	-	0.017
HCM Control Delay (s)	8.1	0	-	-	12
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	216	348	8	11	15
Future Volume (vph)	7	216	348	8	11	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1859	1857	0	1649	0
Flt Permitted		0.998			0.980	
Satd. Flow (perm)	0	1859	1857	0	1649	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	251	400	0	29	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	216	348	8	11	15
Future Vol, veh/h	7	216	348	8	11	15
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	4	4
Mvmt Flow	8	243	391	9	12	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	400	0	-	0	655	396
Stage 1	-	-	-	-	396	-
Stage 2	-	-	-	-	259	-
Critical Hdwy	4.12	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.218	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1159	-	-	-	428	649
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	780	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1159	-	-	-	425	649
Mov Cap-2 Maneuver	-	-	-	-	425	-
Stage 1	-	-	-	-	671	-
Stage 2	-	-	-	-	780	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1159	-	-	-	531
HCM Lane V/C Ratio	0.007	-	-	-	0.055
HCM Control Delay (s)	8.1	0	-	-	12.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	11	0	0	1182	38
Future Volume (vph)	0	11	0	0	1182	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1611	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1611	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	11	0	0	1231	40
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	11	0	0	1182	38
Future Vol, veh/h	0	11	0	0	1182	38
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	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	0	11	0	0	1231	40

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	616		-	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	433		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	433		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

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

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	433	-	-
HCM Lane V/C Ratio	0.026	-	-
HCM Control Delay (s)	13.5	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	381	343	4	10	10
Future Volume (vph)	6	381	343	4	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1861	1861	0	1694	0
Flt Permitted		0.999			0.976	
Satd. Flow (perm)	0	1861	1861	0	1694	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Confl. Peds. (#/hr)	2			2	1	3
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	407	365	0	22	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	381	343	4	10	10
Future Vol, veh/h	6	381	343	4	10	10
Conflicting Peds, #/hr	2	0	0	2	1	3
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	401	361	4	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	367	0	-	0	779	368
Stage 1	-	-	-	-	365	-
Stage 2	-	-	-	-	414	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1192	-	-	-	364	677
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	667	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1190	-	-	-	360	674
Mov Cap-2 Maneuver	-	-	-	-	360	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	666	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1190	-	-	-	469
HCM Lane V/C Ratio	0.005	-	-	-	0.045
HCM Control Delay (s)	8	0	-	-	13
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	400	337	15	17	26
Future Volume (vph)	28	400	337	15	17	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1857	1852	0	1678	0
Flt Permitted		0.997			0.981	
Satd. Flow (perm)	0	1857	1852	0	1678	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	460	378	0	46	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	400	337	15	17	26
Future Vol, veh/h	28	400	337	15	17	26
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	430	362	16	18	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	378	0	-	0	860	370
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	490	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1180	-	-	-	326	676
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	616	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1180	-	-	-	315	676
Mov Cap-2 Maneuver	-	-	-	-	315	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	616	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1180	-	-	-	465
HCM Lane V/C Ratio	0.026	-	-	-	0.099
HCM Control Delay (s)	8.1	0	-	-	13.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	12	0	0	1118	24
Future Volume (vph)	0	12	0	0	1118	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1522	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1522	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	8%	2%	2%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	13	0	0	1215	26
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	12	0	0	1118	24
Future Vol, veh/h	0	12	0	0	1118	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	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	2	2	5	5
Mvmt Flow	0	13	0	0	1215	26

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	608		-	0
Stage 1	-	-		-	-
Stage 2	-	-		-	-
Critical Hdwy	-	7.06		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	-	-		-	-
Follow-up Hdwy	-	3.38		-	-
Pot Cap-1 Maneuver	0	424		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	424		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	13.8	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	424	-	-
HCM Lane V/C Ratio	0.031	-	-
HCM Control Delay (s)	13.8	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Appendix E:
Synchro Output:
Background (2024)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	224	352	9	4	4
Future Volume (vph)	8	224	352	9	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1859	1857	0	1694	0
Flt Permitted		0.998			0.976	
Satd. Flow (perm)	0	1859	1857	0	1694	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	261	406	0	8	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	224	352	9	4	4
Future Vol, veh/h	8	224	352	9	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	252	396	10	4	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	406	0	-	0	671	401
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	270	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1153	-	-	-	422	649
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1153	-	-	-	418	649
Mov Cap-2 Maneuver	-	-	-	-	418	-
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	775	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1153	-	-	-	508
HCM Lane V/C Ratio	0.008	-	-	-	0.018
HCM Control Delay (s)	8.1	0	-	-	12.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	225	362	8	11	16
Future Volume (vph)	7	225	362	8	11	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1859	1857	0	1645	0
Flt Permitted		0.998			0.980	
Satd. Flow (perm)	0	1859	1857	0	1645	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	261	416	0	30	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	225	362	8	11	16
Future Vol, veh/h	7	225	362	8	11	16
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	4	4
Mvmt Flow	8	253	407	9	12	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	416	0	-	0	681	412
Stage 1	-	-	-	-	412	-
Stage 2	-	-	-	-	269	-
Critical Hdwy	4.12	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.218	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1143	-	-	-	413	636
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1143	-	-	-	410	636
Mov Cap-2 Maneuver	-	-	-	-	410	-
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	772	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1143	-	-	-	519
HCM Lane V/C Ratio	0.007	-	-	-	0.058
HCM Control Delay (s)	8.2	0	-	-	12.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	11	0	0	1230	40
Future Volume (vph)	0	11	0	0	1230	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1611	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1611	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	11	0	0	1281	42
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	11	0	0	1230	40
Future Vol, veh/h	0	11	0	0	1230	40
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	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	0	11	0	0	1281	42

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	641		-	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	417		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	417		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	13.9	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	417	-	-
HCM Lane V/C Ratio	0.027	-	-
HCM Control Delay (s)	13.9	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	396	357	4	10	10
Future Volume (vph)	6	396	357	4	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1861	1861	0	1694	0
Flt Permitted		0.999			0.976	
Satd. Flow (perm)	0	1861	1861	0	1694	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Confl. Peds. (#/hr)	2			2	1	3
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	423	380	0	22	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	396	357	4	10	10
Future Vol, veh/h	6	396	357	4	10	10
Conflicting Peds, #/hr	2	0	0	2	1	3
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	417	376	4	11	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	382	0	-	0	810	383
Stage 1	-	-	-	-	380	-
Stage 2	-	-	-	-	430	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1176	-	-	-	349	664
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	656	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1174	-	-	-	345	661
Mov Cap-2 Maneuver	-	-	-	-	345	-
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	655	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1174	-	-	-	453
HCM Lane V/C Ratio	0.005	-	-	-	0.046
HCM Control Delay (s)	8.1	0	-	-	13.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	416	351	16	18	27
Future Volume (vph)	29	416	351	16	18	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1857	1852	0	1678	0
Flt Permitted		0.997			0.981	
Satd. Flow (perm)	0	1857	1852	0	1678	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	478	394	0	48	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	416	351	16	18	27
Future Vol, veh/h	29	416	351	16	18	27
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	447	377	17	19	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	394	0	-	0	895	386
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	509	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1165	-	-	-	311	662
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	604	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1165	-	-	-	300	662
Mov Cap-2 Maneuver	-	-	-	-	300	-
Stage 1	-	-	-	-	663	-
Stage 2	-	-	-	-	604	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1165	-	-	-	446
HCM Lane V/C Ratio	0.027	-	-	-	0.108
HCM Control Delay (s)	8.2	0	-	-	14.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	12	0	0	1163	25
Future Volume (vph)	0	12	0	0	1163	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1522	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1522	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	8%	2%	2%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	13	0	0	1264	27
Sign Control	Stop			Free	Free	

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	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	12	0	0	1163	25
Future Vol, veh/h	0	12	0	0	1163	25
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	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	2	2	5	5
Mvmt Flow	0	13	0	0	1264	27

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	632		-	0
Stage 1	-	-		-	-
Stage 2	-	-		-	-
Critical Hdwy	-	7.06		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	-	-		-	-
Follow-up Hdwy	-	3.38		-	-
Pot Cap-1 Maneuver	0	409		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	409		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	14.1	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	409	-	-
HCM Lane V/C Ratio	0.032	-	-
HCM Control Delay (s)	14.1	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Appendix F:
Synchro Output:
Build-out (2024)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	224	352	12	15	23
Future Volume (vph)	14	224	352	12	15	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1857	1855	0	1678	0
Flt Permitted		0.997			0.981	
Satd. Flow (perm)	0	1857	1855	0	1678	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	268	409	0	43	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	224	352	12	15	23
Future Vol, veh/h	14	224	352	12	15	23
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	252	396	13	17	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	409	0	-	0	687	403
Stage 1	-	-	-	-	403	-
Stage 2	-	-	-	-	284	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1150	-	-	-	413	647
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	764	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1150	-	-	-	406	647
Mov Cap-2 Maneuver	-	-	-	-	406	-
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	764	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1150	-	-	-	524
HCM Lane V/C Ratio	0.014	-	-	-	0.081
HCM Control Delay (s)	8.2	0	-	-	12.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	236	365	10	25	16
Future Volume (vph)	7	236	365	10	25	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1861	1855	0	1678	0
Flt Permitted		0.999			0.970	
Satd. Flow (perm)	0	1861	1855	0	1678	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	273	421	0	46	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	236	365	10	25	16
Future Vol, veh/h	7	236	365	10	25	16
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	4	4
Mvmt Flow	8	265	410	11	28	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	421	0	-	0	697	416
Stage 1	-	-	-	-	416	-
Stage 2	-	-	-	-	281	-
Critical Hdwy	4.12	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.218	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1138	-	-	-	404	632
Stage 1	-	-	-	-	661	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1138	-	-	-	401	632
Mov Cap-2 Maneuver	-	-	-	-	401	-
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	762	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1138	-	-	-	468
HCM Lane V/C Ratio	0.007	-	-	-	0.098
HCM Control Delay (s)	8.2	0	-	-	13.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	22	0	0	1232	46
Future Volume (vph)	0	22	0	0	1232	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1611	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1611	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	0	0	1283	48
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	22	0	0	1232	46
Future Vol, veh/h	0	22	0	0	1232	46
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	-	-	-	250
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	0	23	0	0	1283	48

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	642		-	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	417		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	417		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	14.1	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	417	-	-
HCM Lane V/C Ratio	0.055	-	-
HCM Control Delay (s)	14.1	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	26	396	357	12	17	22
Future Volume (vph)	26	396	357	12	17	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1857	1853	0	1685	0
Flt Permitted		0.997			0.979	
Satd. Flow (perm)	0	1857	1853	0	1685	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Confl. Peds. (#/hr)	2			2	1	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	444	389	0	41	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	396	357	12	17	22
Future Vol, veh/h	26	396	357	12	17	22
Conflicting Peds, #/hr	2	0	0	2	1	3
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	417	376	13	18	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	391	0	-	0	857	388
Stage 1	-	-	-	-	385	-
Stage 2	-	-	-	-	472	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1168	-	-	-	328	660
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1166	-	-	-	317	657
Mov Cap-2 Maneuver	-	-	-	-	317	-
Stage 1	-	-	-	-	666	-
Stage 2	-	-	-	-	627	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1166	-	-	-	448
HCM Lane V/C Ratio	0.023	-	-	-	0.092
HCM Control Delay (s)	8.2	0	-	-	13.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	423	359	24	26	27
Future Volume (vph)	29	423	359	24	26	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1857	1846	0	1693	0
Flt Permitted		0.997			0.976	
Satd. Flow (perm)	0	1857	1846	0	1693	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	486	412	0	57	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	423	359	24	26	27
Future Vol, veh/h	29	423	359	24	26	27
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	455	386	26	28	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	412	0	-	0	916	399
Stage 1	-	-	-	-	399	-
Stage 2	-	-	-	-	517	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1147	-	-	-	302	651
Stage 1	-	-	-	-	678	-
Stage 2	-	-	-	-	598	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1147	-	-	-	291	651
Mov Cap-2 Maneuver	-	-	-	-	291	-
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	598	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	15.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1147	-	-	-	405
HCM Lane V/C Ratio	0.027	-	-	-	0.141
HCM Control Delay (s)	8.2	0	-	-	15.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	18	0	0	1169	45
Future Volume (vph)	0	18	0	0	1169	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1522	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1522	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	2%	2%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	20	0	0	1271	49
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	0	1169	45
Future Vol, veh/h	0	18	0	0	1169	45
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	-	-	-	250
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	2	2	5	5
Mvmt Flow	0	20	0	0	1271	49

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	636		-	0
Stage 1	-	-		-	-
Stage 2	-	-		-	-
Critical Hdwy	-	7.06		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	-	-		-	-
Follow-up Hdwy	-	3.38		-	-
Pot Cap-1 Maneuver	0	406		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	406		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	14.3	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	406	-	-
HCM Lane V/C Ratio	0.048	-	-
HCM Control Delay (s)	14.3	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-

Appendix G:
Synchro Output:
Background (2032)

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	9	243	381	10	4	4
Future Volume (vph)	9	243	381	10	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1859	1857	0	1694	0
Flt Permitted		0.998			0.976	
Satd. Flow (perm)	0	1859	1857	0	1694	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	283	439	0	8	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	243	381	10	4	4
Future Vol, veh/h	9	243	381	10	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	273	428	11	4	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	439	0	-	0	727	434
Stage 1	-	-	-	-	434	-
Stage 2	-	-	-	-	293	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1121	-	-	-	391	622
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	757	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1121	-	-	-	387	622
Mov Cap-2 Maneuver	-	-	-	-	387	-
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	757	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1121	-	-	-	477
HCM Lane V/C Ratio	0.009	-	-	-	0.019
HCM Control Delay (s)	8.2	0	-	-	12.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	244	392	9	12	17
Future Volume (vph)	8	244	392	9	12	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	1859	1857	0	1647	0
Flt Permitted		0.998			0.980	
Satd. Flow (perm)	0	1859	1857	0	1647	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	283	450	0	32	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	244	392	9	12	17
Future Vol, veh/h	8	244	392	9	12	17
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	4	4
Mvmt Flow	9	274	440	10	13	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	450	0	-	0	737	445
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	292	-
Critical Hdwy	4.12	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.218	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1110	-	-	-	383	609
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	753	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1110	-	-	-	379	609
Mov Cap-2 Maneuver	-	-	-	-	379	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	753	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1110	-	-	-	487
HCM Lane V/C Ratio	0.008	-	-	-	0.067
HCM Control Delay (s)	8.3	0	-	-	12.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	12	0	0	1332	43
Future Volume (vph)	0	12	0	0	1332	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1611	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1611	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	13	0	0	1388	45
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	12	0	0	1332	43
Future Vol, veh/h	0	12	0	0	1332	43
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	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	0	13	0	0	1388	45

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	694		-	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	385		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	385		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	14.7	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	385	-	-
HCM Lane V/C Ratio	0.032	-	-
HCM Control Delay (s)	14.7	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	429	387	4	11	11
Future Volume (vph)	6	429	387	4	11	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1861	1861	0	1694	0
Flt Permitted		0.999			0.976	
Satd. Flow (perm)	0	1861	1861	0	1694	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Confl. Peds. (#/hr)	2			2	1	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	458	411	0	24	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	429	387	4	11	11
Future Vol, veh/h	6	429	387	4	11	11
Conflicting Peds, #/hr	2	0	0	2	1	3
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	452	407	4	12	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	413	0	-	0	876	414
Stage 1	-	-	-	-	411	-
Stage 2	-	-	-	-	465	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1146	-	-	-	319	638
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1144	-	-	-	315	635
Mov Cap-2 Maneuver	-	-	-	-	315	-
Stage 1	-	-	-	-	663	-
Stage 2	-	-	-	-	631	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1144	-	-	-	421
HCM Lane V/C Ratio	0.006	-	-	-	0.055
HCM Control Delay (s)	8.2	0	-	-	14
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	31	450	380	17	19	29
Future Volume (vph)	31	450	380	17	19	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1857	1852	0	1678	0
Flt Permitted		0.997			0.981	
Satd. Flow (perm)	0	1857	1852	0	1678	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	517	427	0	51	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	450	380	17	19	29
Future Vol, veh/h	31	450	380	17	19	29
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	484	409	18	20	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	427	0	-	0	968	418
Stage 1	-	-	-	-	418	-
Stage 2	-	-	-	-	550	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1132	-	-	-	282	635
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1132	-	-	-	271	635
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	637	-
Stage 2	-	-	-	-	578	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1132	-	-	-	415
HCM Lane V/C Ratio	0.029	-	-	-	0.124
HCM Control Delay (s)	8.3	0	-	-	14.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	13	0	0	1259	27
Future Volume (vph)	0	13	0	0	1259	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1522	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1522	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	2%	2%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	14	0	0	1368	29
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	0	0	1259	27
Future Vol, veh/h	0	13	0	0	1259	27
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	-	-	-	250
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	2	2	5	5
Mvmt Flow	0	14	0	0	1368	29

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	684		-	0
Stage 1	-	-		-	-
Stage 2	-	-		-	-
Critical Hdwy	-	7.06		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	-	-		-	-
Follow-up Hdwy	-	3.38		-	-
Pot Cap-1 Maneuver	0	377		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	377		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	14.9	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	377	-	-
HCM Lane V/C Ratio	0.037	-	-
HCM Control Delay (s)	14.9	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

Appendix H:
Synchro Output:
Build-out (2032)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	15	243	381	13	15	23
Future Volume (vph)	15	243	381	13	15	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1857	1853	0	1678	0
Flt Permitted		0.997			0.981	
Satd. Flow (perm)	0	1857	1853	0	1678	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	290	443	0	43	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	243	381	13	15	23
Future Vol, veh/h	15	243	381	13	15	23
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	273	428	15	17	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	443	0	-	0	743	436
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1117	-	-	-	383	620
Stage 1	-	-	-	-	652	-
Stage 2	-	-	-	-	746	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1117	-	-	-	376	620
Mov Cap-2 Maneuver	-	-	-	-	376	-
Stage 1	-	-	-	-	640	-
Stage 2	-	-	-	-	746	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1117	-	-	-	494
HCM Lane V/C Ratio	0.015	-	-	-	0.086
HCM Control Delay (s)	8.3	0	-	-	13
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	255	395	11	26	17
Future Volume (vph)	8	255	395	11	26	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1859	1855	0	1680	0
Flt Permitted		0.998			0.971	
Satd. Flow (perm)	0	1859	1855	0	1680	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	296	456	0	48	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	255	395	11	26	17
Future Vol, veh/h	8	255	395	11	26	17
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	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	4	4
Mvmt Flow	9	287	444	12	29	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	456	0	-	0	755	450
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	305	-
Critical Hdwy	4.12	-	-	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.218	-	-	-	3.536	3.336
Pot Cap-1 Maneuver	1105	-	-	-	374	605
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	743	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1105	-	-	-	370	605
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	743	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1105	-	-	-	437
HCM Lane V/C Ratio	0.008	-	-	-	0.111
HCM Control Delay (s)	8.3	0	-	-	14.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	23	0	0	1334	49
Future Volume (vph)	0	23	0	0	1334	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1611	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1611	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	24	0	0	1390	51
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	23	0	0	1334	49
Future Vol, veh/h	0	23	0	0	1334	49
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	-	-	-	250
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	5	5
Mvmt Flow	0	24	0	0	1390	51

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	695		-	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	385		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	385		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	15	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	385	-	-
HCM Lane V/C Ratio	0.062	-	-
HCM Control Delay (s)	15	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	26	429	387	12	18	23
Future Volume (vph)	26	429	387	12	18	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1857	1855	0	1685	0
Flt Permitted		0.997			0.978	
Satd. Flow (perm)	0	1857	1855	0	1685	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		798	1122		456	
Travel Time (s)		15.5	21.9		12.4	
Confl. Peds. (#/hr)	2			2	1	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	479	420	0	43	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	429	387	12	18	23
Future Vol, veh/h	26	429	387	12	18	23
Conflicting Peds, #/hr	2	0	0	2	1	3
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	452	407	13	19	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	422	0	-	0	923	419
Stage 1	-	-	-	-	416	-
Stage 2	-	-	-	-	507	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1137	-	-	-	299	634
Stage 1	-	-	-	-	666	-
Stage 2	-	-	-	-	605	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1135	-	-	-	288	631
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	643	-
Stage 2	-	-	-	-	604	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1135	-	-	-	414
HCM Lane V/C Ratio	0.024	-	-	-	0.104
HCM Control Delay (s)	8.2	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	31	457	388	25	27	29
Future Volume (vph)	31	457	388	25	27	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1857	1848	0	1691	0
Flt Permitted		0.997			0.976	
Satd. Flow (perm)	0	1857	1848	0	1691	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		413	997		658	
Travel Time (s)		8.0	19.4		17.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	524	444	0	60	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	457	388	25	27	29
Future Vol, veh/h	31	457	388	25	27	29
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	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	491	417	27	29	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	444	0	-	0	988	431
Stage 1	-	-	-	-	431	-
Stage 2	-	-	-	-	557	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1116	-	-	-	274	624
Stage 1	-	-	-	-	655	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1116	-	-	-	263	624
Mov Cap-2 Maneuver	-	-	-	-	263	-
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	574	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1116	-	-	-	375
HCM Lane V/C Ratio	0.03	-	-	-	0.161
HCM Control Delay (s)	8.3	0	-	-	16.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	19	0	0	1265	47
Future Volume (vph)	0	19	0	0	1265	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0			250
Storage Lanes	0	1	0			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	0	1522	0	0	3438	1538
Flt Permitted						
Satd. Flow (perm)	0	1522	0	0	3438	1538
Link Speed (mph)	35			45	45	
Link Distance (ft)	754			590	904	
Travel Time (s)	14.7			8.9	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	2%	2%	5%	5%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	21	0	0	1375	51
Sign Control	Stop			Free	Free	

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

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	0	0	1265	47
Future Vol, veh/h	0	19	0	0	1265	47
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	-	-	-	250
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	2	2	5	5
Mvmt Flow	0	21	0	0	1375	51

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	688		-	0
Stage 1	-	-		-	-
Stage 2	-	-		-	-
Critical Hdwy	-	7.06		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	-	-		-	-
Follow-up Hdwy	-	3.38		-	-
Pot Cap-1 Maneuver	0	375		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	375		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	15.2	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	375	-	-
HCM Lane V/C Ratio	0.055	-	-
HCM Control Delay (s)	15.2	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-

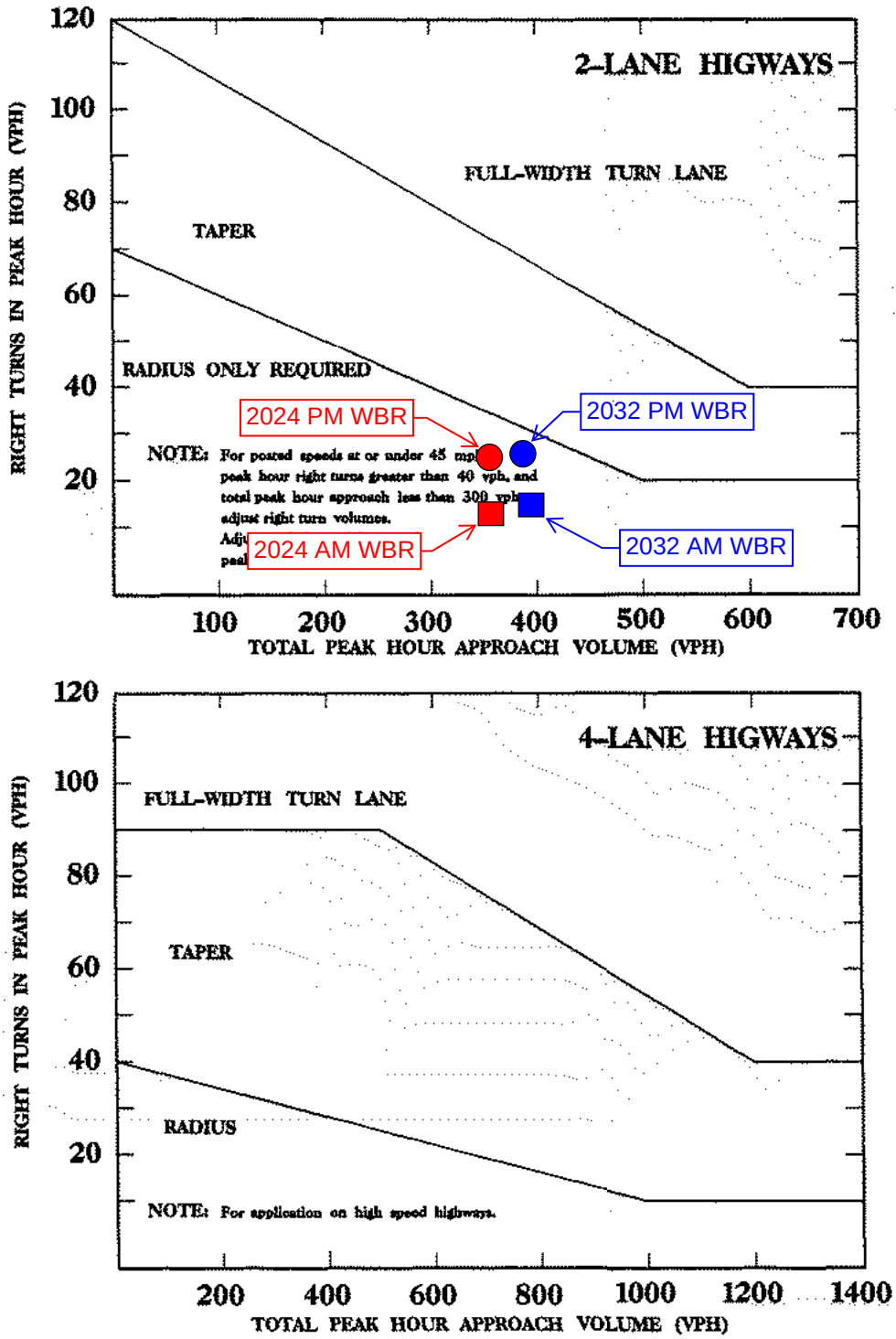
Appendix I:
Turn Lane Warrants

Murray Hill Road at Cox Street

FIGURE 4 **9 - 1**

F – 4 C

RIGHT TURN LANE WARRANTS

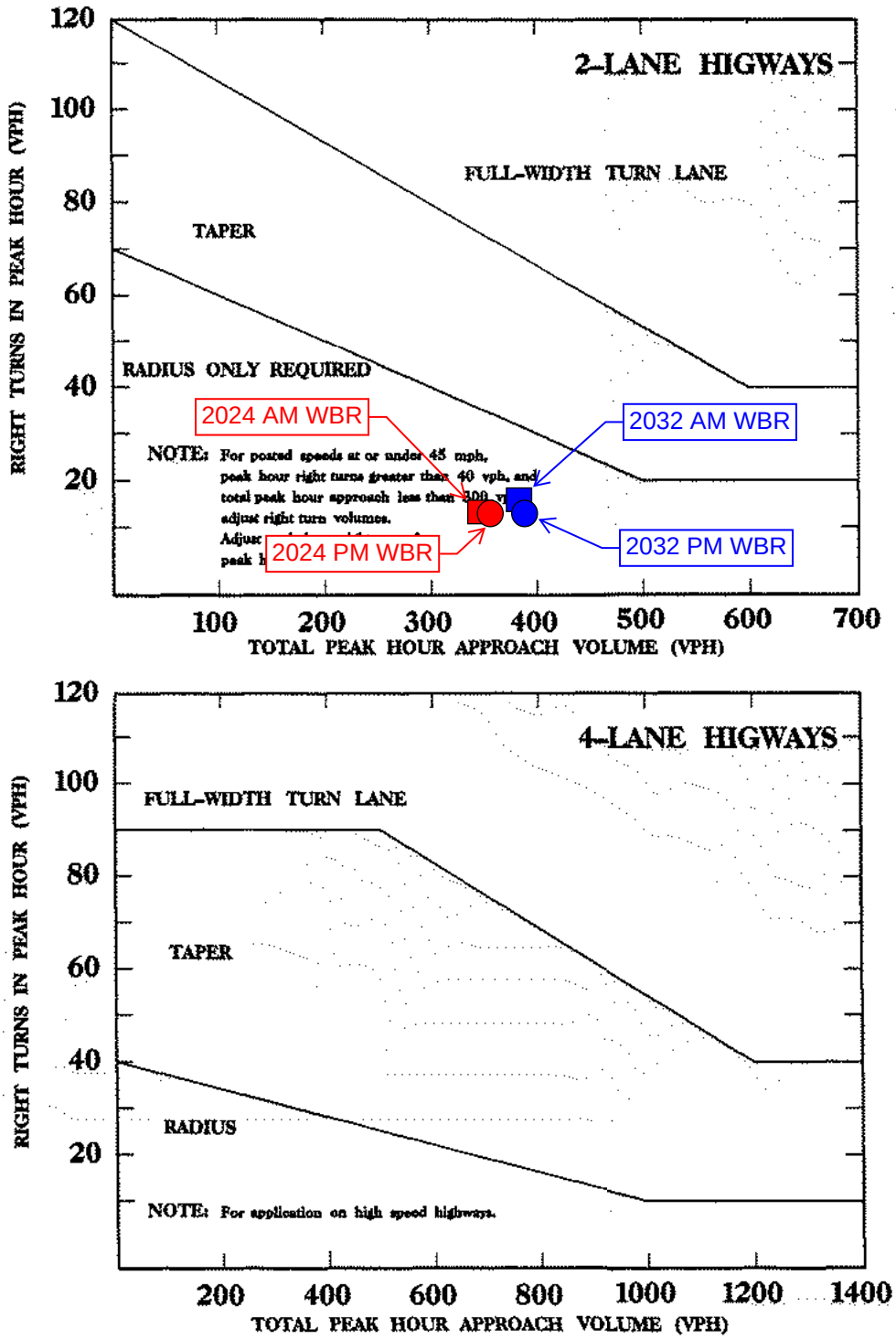


Murray Hill Road at Short Street

FIGURE 4 **9 - 1**

F – 4 C

RIGHT TURN LANE WARRANTS



From: James Michel
To: Jennifer Hunt
Cc: BJ Grieve
Subject: RE: SU-03-22 Murray Hill Pines
Date: Monday, May 9, 2022 9:57:17 AM

Jennifer,

My comments on this are as follows.

1. The primary entrance to the proposed development will be off of Murray Hill Road at the intersection of Short Street. Short Street currently exists as a Local street which is adequate for up to 200 trips per day as defined in UDO Section 4.11.2 Street Classification (B)(2). The proposed development will add up to 1,172 trips per day. UDO Section 4.11.2 Street Classification (B)(5) defines a road with more than 800 trips per day as a Collector Street. An improved cross section from the development should be extended from the development to the intersection of Murray Hill to mitigate the impacts of the increased traffic.
2. A pedestrian connection to the existing sidewalks on Murray Hill Road should be considered.
3. Analysis of the increased sewer from this development exceeds the available capacity of the existing downstream sewer. It is staffs understanding that the applicant has coordinated with the adjacent commercial development to redirect the sewer through their site. If this cannot be negotiated, the applicant should be responsible for the upgrades to the existing downstream sewer system to accommodate the additional flow.

James Michel, PE, MBA
Town of Southern Pines
Town Engineer/Asst. Public Works Director
801 SE Service Road
Southern Pines, NC 28387
(910)692-1983

From: Jennifer Hunt <jhunt@southernpines.net>
Sent: Friday, May 6, 2022 1:58 PM
To: James Michel <JMichel@southernpines.net>
Subject: SU-03-22 Murray Hill Pines

Hi James,

Here are the attachments for Murray Hill Pines application.

Sincerely,

Jennifer Hunt
Planner I
Town of Southern Pines
801 SE Service Road
Southern Pines, NC 28387

Office: (910) 692-4003
Planning Dept. - Ext. 3

From: Cindy Williams
To: BJ Grieve; Pam Graham; Jennifer Hunt
Subject: FW: [External] PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices
Date: Thursday, May 5, 2022 3:33:33 PM

From: JuarezPozos, Dagoberto <djuarezpozos@ncdot.gov>
Sent: Thursday, May 5, 2022 3:26 PM
To: Cindy Williams <CWilliams@southernpines.net>
Subject: RE: [External] PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices

Cindy,

No comments from our end on either one of the two developments.

The development inside the Pine Ridge Site was accounted for in the TIA that we reviewed and the development off of Murray Hill Rd. (Non-SR) does not connect to a an NCDOT road or intersection.

Dago

From: Cindy Williams <CWilliams@southernpines.net>
Sent: Thursday, April 28, 2022 1:41 PM
To: Archie Daniel <adaniel@southernpines.net>; Cindi King <CKing@southernpines.net>; Cory Albers <calbers@southernpines.net>; David Byrd <DByrd@southernpines.net>; James Michel <JMichel@southernpines.net>; Ken Skipper <KSkipper@southernpines.net>; Maurice Holland <mbholland63@gmail.com>; JuarezPozos, Dagoberto <djuarezpozos@ncdot.gov>; ncsandhillsrcw@fws.gov; Pete Campbell <director@rluac.com>; ISTRE, RONALD <ristre@southernpines.net>; Scotty Malta <smalta@moorecountyairport.com>
Cc: Cindy Williams <CWilliams@southernpines.net>
Subject: [External] PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to Report Spam.

Good afternoon,

The attached applications are scheduled to be presented at one of the two May Planning Board meetings scheduled for May 18th and 19th. Please respond with any comments or concerns you may have at your earliest convenience.

Thank you.

Sincerely,

Cindy Williams, CZO
Planning Department

Town of Southern Pines
801 SE Service Road, Southern Pines, NC 28387
(910) 692-4003

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

From: Pam Graham
To: Cindy Williams; BJ Grieve; Jennifer Hunt
Subject: RE: PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices
Date: Tuesday, May 3, 2022 1:44:25 PM

Thanks Cindy.

Pamela Graham, AICP
Principal Planner
Planning Department
Town of Southern Pines
801 SE Service Road, Southern Pines, NC 28387
(910) 692-4003

From: Cindy Williams <CWilliams@southernpines.net>
Sent: Tuesday, May 3, 2022 1:31 PM
To: BJ Grieve <BJGrieve@southernpines.net>; Pam Graham <PGraham@southernpines.net>; Jennifer Hunt <jhunt@southernpines.net>
Subject: FW: PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices

BJ, Pam and Jennifer,

Please see RLUAC's response below.

Sincerely,

Cindy Williams, CZO
Planning Department
Town of Southern Pines
801 SE Service Road, Southern Pines, NC 28387
(910) 692-4003

From: RLUAC Executive Director <director@rluac.com>
Sent: Tuesday, May 3, 2022 1:29 PM
To: Cindy Williams <CWilliams@southernpines.net>
Subject: RE: PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices

Cindy,

RLUAC does not have any comments on these cases.

Thanks,

Vagn

Vagn K. Hansen II, AICP, Executive Director
Regional Land Use Advisory Commission

6205 Raeford Road
Fayetteville, NC 28304
(910) 398-3743
director@rluac.com
www.rluac.com

From: Cindy Williams <CWilliams@southernpines.net>
Sent: Thursday, April 28, 2022 1:41 PM
To: Archie Daniel <adaniel@southernpines.net>; Cindi King <CKing@southernpines.net>; Cory Albers <calbers@southernpines.net>; David Byrd <DByrd@southernpines.net>; James Michel <JMichel@southernpines.net>; Ken Skipper <KSkipper@southernpines.net>; Maurice Holland <mbholland63@gmail.com>; NCDOT <djuarezpozos@ncdot.gov>; ncsandhillsrcw@fws.gov; Pete Campbell <director@rluac.com>; Ron Istre <RIstre@southernpines.net>; Scotty Malta <smalta@moorecountyairport.com>
Cc: Cindy Williams <CWilliams@southernpines.net>
Subject: PD-07-22, SU-03-22 and OA-02-22 TOSP Planning Board Notices

Good afternoon,

The attached applications are scheduled to be presented at one of the two May Planning Board meetings scheduled for May 18th and 19th. Please respond with any comments or concerns you may have at your earliest convenience.

Thank you.

Sincerely,

Cindy Williams, CZO
Planning Department
Town of Southern Pines
801 SE Service Road, Southern Pines, NC 28387
(910) 692-4003

Agenda Item

To: **Planning Board**

From: **Cindy Williams, Planning Technician**

Subject: **OA-02-22: Text Amendments to the Unified Development Ordinance (UDO); Petitioner: Town of Southern Pines Town Council**

Date: **May 18, 2022**

I. SUMMARY OF AMENDMENT REQUEST:

The Town of Southern Pines Town Council is proposing to amend the Unified Development Ordinance (UDO) and is requesting Planning Board review and approval per UDO §2.17.3 and §2.17.7. The proposed amendments will require that multi-family developments with ten (10) or more dwelling units be developed as part of an approved Planned Development.

The Town Council is requesting the following text amendments:

1. To amend UDO §3.7.1(F)(1) by replacing the words "require approval of a Special Use Permit" with the word "shall";

2. to amend UDO §3.7.1(F)(3) by replacing the words "require a Special Use Permit" with the words "shall be developed as part of a PD;"

3. to amend UDO §4.10.8(2) by deleting the language of subsection (2) in its entirety and inserting the following language, and;

   (2) No Multi-Family Development may include ten (10) or more Dwelling Units, except pursuant to a Planned Development approval.

4. to amend UDO §4.10.8(3) by deleting the words "or Special Use Permit."

The specific text of each proposed amendment may be found in the attachments to this staff report.

II. APPLICATION REVIEW:

A. Review Process:

Applications for text amendments are reviewed pursuant to UDO §2.17.

B. Criteria for Review:

When reviewing an application for a UDO text amendment, the hearing bodies (Planning Board and Town Council) shall consider and be guided by the following criteria, as set forth in UDO §2.17.10:

> ***2.17.10. Criteria for UDO Text Amendments***
> *In its review of an application for a UDO text amendment, the Hearing Bodies shall consider the following criteria. No single factor is controlling; instead, each must be weighed in relation to the other standards.*
>
> ***(A) Consistency.*** *The text amendment shall be consistent with the adopted Comprehensive Plan.*
> ***(B) Health, Safety, and Welfare****. The amending ordinance must bear a substantial relationship to the public health, safety, or general welfare, or protect and preserve historical cultural places and areas.*
> ***(C) Public Policy****. Certain public policies in favor of the text amendment may be considered. Examples include a need for affordable housing, economic development, mixed-use development, or sustainable environmental features, which are consistent with the Town, area, neighborhood, or specific plans.*
> ***(D) Other Factors****. The Hearing Body may consider any other factors relevant to a text amendment application under state law.*
> ***(E) Impacts****. The Hearing Bodies shall not regard as controlling any advantages or disadvantages to the individual requesting the change, but shall consider the impact of the proposed amendment on the public at large.*

C. Outside Agency Comments:

- A request for comment was emailed to representatives from the Regional Land Use Advisory Commission (RLUAC), North Carolina Department of Transportation (NCDOT), U.S. Fish and Wildlife Service, and representatives of the Town of Southern Pines on April 28, 2022.
    - As of the completion of the staff report, responses were received from NCDOT and RLUAC, both stating that there were no comments.

III. ATTACHMENTS:

1. Draft Planning Board Resolution to Adopt a Written Recommendation
2. Current sections of the UDO, showing edits in red text.

IV. PLANNING BOARD ACTION:

The Planning Board shall consider the criteria for text amendments found in UDO §2.17.10, including consistency with the Comprehensive Long Range Plan. Per North Carolina General Statute 160D-604(d), prior to consideration of the proposed text amendments by the Town Council, the Planning Board shall advise and comment on whether the proposed amendments are consistent with the Comprehensive Long Range Plan. The Planning Board shall provide a written recommendation to the Town Council that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with the comprehensive plan shall not preclude consideration or approval of the proposed amendments by the Town Council.

To assist the Planning Board in performing this task, Town staff has prepared the following draft motions for the Planning Board's consideration, possible modification as necessary, and adoption:

I move that after reviewing the proposed text amendments to the UDO and considering the criteria for approval of text amendments to the UDO found in UDO §2.17.10:

1. The proposed amendments are consistent with the Comprehensive Long Range Plan for the reasons set forth in Attachment A of staff report OA-02-22;

2. The proposed amendments are consistent with the Comprehensive Long Range Plan for the reasons set forth in Attachment A of staff report OA-02-22 as revised by the Planning Board;

3. The proposed amendments are inconsistent with the Comprehensive Long Range Plan for the reasons set forth in Attachment A of staff report OA-02-22 as revised by the Planning Board;

I further move that the following other matters were considered by the Planning Board and shall be added to Attachment A by Town staff as part of the Planning Board's written recommendation to the Town Council:

1.

And, therefore, I move to:

1. Recommend approval of OA-02-22 to the Town Council.

2. Recommend denial of OA-02-22 to the Town Council.

ATTACHMENT A

PLANNING BOARD
RESOLUTION TO ADOPT A WRITTEN RECOMMENDATION
FOR ORDINANCE AMENDMENT APPLICATION
OA-02-22

WHEREAS, Section 160D-701 of the North Carolina General Statutes specifies that zoning regulations shall be made in accordance with a comprehensive plan and shall be designed to protect the public health, safety and general welfare; and

WHEREAS, Section 160D-604 of the North Carolina General Statutes specifies that the Planning Board shall, with any ordinance amendment or zoning map amendment, advise and comment on whether the proposed action is consistent with the adopted Comprehensive Plan and on other matters as deemed appropriate by the Planning Board, and that the Planning Board shall provide this in the form of a written recommendation to the Town Council; and

WHEREAS, the Planning Board conducted a duly-noticed public hearing during a special meeting held on May 18, 2022 to listen to public comments, ask questions of the Town's Planning staff and to consider ordinance amendment application OA-02-22.

NOW, THEREFORE BE IT RESOLVED that the Planning Board finds and recommends to the Town Council that the revisions to the Unified Development Ordinance (UDO) that have been prepared by town staff at the request of the Town Council are reasonable, in the public interest and are generally consistent with the Town of Southern Pines Comprehensive Long-Range Plan (CLRP). The proposed amendments will require that apartment or condominium developments with ten (10) or more Dwelling Units be developed as part of an approved PD (Planned Development). The proposed revisions implement the goals of involving the community in public decision making. By requiring that large multi-family developments be reviewed and approved as Planned Developments, consideration of those developments will begin with a legislative decision-making process and the community will have more ability to participate and share feedback with decision makers. Therefore the proposed text amendments to achieve broader community involvement in the review of large multi-family developments is reasonable and in the public interest and consistent with the CLRP.

ADOPTED this the 18th day of May, 2022.

_____
Gary Carroll, Chairman

ATTEST:

_____
Cindy Williams
Secretary to the Planning Board

(E) **Combination Uses**

(1) The designation "**ZC**" is used for Combination Uses when one or more of the principle uses requires a Special Use Permit.

(2) Under some circumstances, a second Principal Use may be regarded as accessory to the first and thus a Combination Use is not established. [See section 5.3]

(3) When two or more separately owned or separately operated enterprises occupy the same Lot and all such enterprises fall within the same Principal Use Classification, or the Planning Director finds that the Principal Use Classification are substantially similar, this shall not constitute a Combination Use.

(F) ***Multi-Family Structures and Townhomes***. When used in connection with Multi-Family Residential structures, the designation "**ZC**" means that:

(1) Development of apartments with fewer than ten (10) Dwelling Units may be established pursuant to a zoning permit and Developments of (10) or more Dwelling Units ~~require approval of a Special Use Permit or~~shall be developed as part of a PD.

(2) Townhomes require a Special Use Permit when major subdivision regulations apply and when six (6) or more Townhouse Lots are created.

(3) Condominium Developments ~~require a Special Use Permit~~shall be developed as part of a PD when ten (10) or more Dwelling Units are proposed in a Development Project.

(Ord. # 1919)

3.7.2. Interpretation of Exhibit 3-15

(A) ***Uses Not Specifically Listed***. In the case where a use is not listed in the use matrix, either as a specific LBCS classification or as an example, and such use is not otherwise prohibited by law, the Planning Director shall determine whether a substantially similar use exists in the use matrix. If the Planning Director determines that a substantially similar use exists, then the regulations governing that use shall apply to the particular use not listed. In making the determination, the Planning Director shall endeavor to maintain the national standardization of the LBCS while addressing the Town's particular needs for zoning and land use classification, and shall refer to the following rules of construction:

(1) If a use is listed for a general classification while a more specific classification within the same industry classification is also listed, the specific classification shall govern.

(2) The presumption established by this chapter is that most uses of land are permissible within at least one zoning district in the Town's Planning Jurisdiction. Therefore, because the list of permissible uses set forth in Exhibit 3-15 cannot be all-inclusive; those uses that are listed shall be interpreted liberally by the Planning Director to include other uses that have similar impacts to the listed uses.

(3) If the Planning Director determines that the LBCS Tables do not address the use at the appropriate level of specificity, then he shall refer to the North American Industry Classification System (NAICS), United States, 2007 or latest edition for guidance.

(4) In referring to the NAICS, the Planning Director shall consider the industry description and illustrative examples of the most specific NAICS classification that may apply to the use, and shall compare uses across similar levels of specificity within the same NAICS classification and between NAICS and LBCS classifications.

(5) If a use cannot be interpreted by the Planning Director for inclusion in Exhibit 3-15, that use shall be prohibited. Exhibit 3-15 shall not be interpreted to allow a use in one zoning district when the use in question is more closely related to another specified use that is permissible in other zoning districts.

(6) If, when seeking periodic ratification of interpretations through text amendment to this UDO, the Planning Director's interpretation is reversed by action of the Board of Adjustment, then prior decisions regarding a Development application made in reliance on the Planning Director's interpretation shall be valid, except that nonconforming use regulations of this UDO shall apply.

(b) Gable and hip roofs are allowed; parapets shall be used to conceal flat roofs and rooftop mechanical equipment from public view.

(c) The parapet design shall be a minimum of three (3) feet in height and shall incorporate a three-dimensional cornice treatment.

Rooflines are defined by gables and changes in parapet walls.



4.10.7. Manufactured Home Parks

Manufactured home parks shall comply with the standards in this section in addition to other applicable provisions of this UDO.

(A) The minimum Lot area for a manufactured home park is two (2) acres;

(B) The minimum number of manufactured home spaces for a manufactured home park is ten (10) spaces.

(C) Each manufactured home space shall contain a minimum of six thousand (6,000) square feet.

(D) No manufactured home shall be located closer than twenty (20) feet from another manufactured home or any other Principal Building within the manufactured home park.

(E) No manufactured home shall be located closer than forty (40) feet from a public street right-of-way or fifteen (15) feet from a private, interior manufactured home park street.

(F) Usable open space in each manufactured home park shall be provided in accordance with section 4.9.

(G) Except for management office and/or management services associated with the manufactured home park, no manufactured home shall be used for non-residential purposes.

(H) The area beneath a manufactured home must be fully enclosed with durable skirting within sixty (60) days of placement in the manufactured home park.

4.10.8. Multi-Family Development Standards

(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.

(2) No Multi-Family Development may include ~~more than~~ ten (10) or more Dwelling Units, except pursuant to a Planned Development ~~or Special Use Permit~~ approval.

(3) The Development standards in this section may be modified pursuant to a PD ~~or Special Use Permit~~ approval.

(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.

(Ord. #1714; Ord. # 1919)