

# STAFF REPORT

2045 Land Use Map Amendment and Rezoning #19CZ02 Morris Acres PUD

October 15, 2019 Town Council Meeting



**Note: Staff has been made aware that the applicant intends to request that the Town Council refer this rezoning to the November 12, 2019 Planning Board meeting for another public hearing as there will be substantial changes to the rezoning that the applicant desires to submit. The applicant has been made aware that a new neighborhood meeting is required to be held prior to the Planning Board meeting. If referred back to Planning Board, staff will send out new public notices for both the Planning Board and Town Council public hearings. Therefore, a continuance is not requested or required.**

All property owners within three hundred (300) feet of this rezoning have been notified per UDO Sec. 2.2.11 *Public Notification*.

### **BACKGROUND INFORMATION:**

**Location:** 0, 7208, 7208B Morris Acres Road  
**Applicant/Owner:** Kaplan Residential/Edith S. Morris  
**Agent:** Jason Barron, Morningstar Law Group

### **PROJECT DESCRIPTION:**

**Acreeage:** 17.4376 ± acres  
**PINs:** 0732289587, 0732382530, & 0732382709  
**Current Zoning:** Rural Residential (RR)  
**Proposed Zoning:** Planned Unit Development-Conditional Zoning (PUD-CZ)  
**Current 2045 Land Use Map:** Medium Density Residential  
**Proposed 2045 Land Use Map:** High Density Residential  
**Town Limits:** 0732382709 is in the ETJ; 0732289587 & 0732382530 are in Town limits

### **Adjacent Zoning & Land Uses:**

	<b>Zoning</b>	<b>Land Use</b>
<b>North:</b>	Rural Residential (RR); Medium Density-Conditional Use (MD-CU #94CU01)	Single-family residential; Vacant
<b>South:</b>	Planned Unit Development-Conditional Zoning (PUD-CZ #15CZ22)	Morris Acres Road; Multi-family (Flats @ 540); Single-family residential (Beaver Creek @ 540 Townhomes)
<b>East:</b>	Medium Density-Conditional Use (MD-CU #94CU01); Conservation Buffer (CB)	Single-family residential (Walden Creek); Vacant
<b>West:</b>	Rural Residential (RR)	Morris Acres Road; Vacant

### **Existing Conditions:**

The subject properties are located on the north side of Morris Acres Road, just east of NC 540. There are several existing structures on the properties related to the historically rural residential setting of these properties.

### **Neighborhood Meeting:**

The applicant conducted a neighborhood meeting on January 24, 2019. The neighborhood meeting report is attached.



**2045 LAND USE MAP:**

The 2045 Land Use Map identifies the properties subject to this rezoning as Medium Density Residential. The rezoning to Planned Unit Development-Conditional Zoning, as proposed, is not consistent with the Medium Density Residential classification. Therefore, the applicant is also proposing a 2045 Land Use Map amendment to change the classification to High Density Residential.

This proposed Land Use Map amendment is generally consistent with the Advance Apex staff recommendation (not adopted) for Medium/High Density Residential and High Density Residential classifications in this area. The location is appropriate for such uses due to the proximity to NC 540 Hwy, the adjacent Flats at 540 multi-family development, Beaver Creek @ 540 townhome development, and proximity to a future transit corridor. The recommended change in land use was not adopted with Advance Apex on February 5, 2019, but there was an understanding that three parcels (Morris Acres, Heelan, and Jenks/Wimberly) which remained unchanged from the 2030 Peak Plan), could be looked at in the future with a site-specific rezoning petition with conditions that could mitigate concerns.

Appropriate transitions from lesser to higher density residential can be achieved in a variety of ways, including stepping up density from lower to higher, transitioning with different housing types, or providing wider landscape buffers between multi-family to single-family homes. It is good practice to look at how an appropriate transition can be done during the rezoning stage as conditions can be added that go above UDO architectural, buffer, and/or RCA standards.

Morris Acres Road is included within Advance Apex’s Transit Oriented Development (TOD) Context Area. Transit Oriented Development calls for a mix of land uses including residential, office, retail, civic, and commercial; Medium/High Density Residential to High Density Residential land use; and a transit stop within a quarter- to half-mile radius. TOD typically dictates transit-supportive densities, which is a minimum of seven (7) units per acre for a circulator bus service and a minimum 15 units per acre for fixed route bus service. The Morris Acres PUD proposes an overall density that supports future transit.

Without the proposed 2045 Land Use Map amendment, this site could be rezoned to MD-CZ or PUD-CZ and develop as single-family residential with a likely density of four (4) dwelling units per acre and with a 20’ perimeter buffer required. Townhomes could be a permitted use with a rezoning to PUD-CZ with a density up to seven (7) units per acre (122 units). Single-family detached and townhome residential development patterns typically require increased infrastructure costs with the need for an internal street network, making it more likely that the existing pasture would be developed either with this parcel or an adjacent parcel.

**PROPOSED ZONING CONDITIONS:**

**Limitation of Uses:**

The Rezoned Lands may be used for, and only for, the uses listed immediately below. The permitted uses are subject to the limitations and regulations stated in the UDO and any additional limitations or regulations stated below. For convenience, some relevant sections of the UDO may be referenced; such references do not imply that other sections of the UDO do not apply.

**Permitted Uses and Limitations:**

- |                                 |                   |
|---------------------------------|-------------------|
| 1. Multi-family or apartment    | 4. Park, active   |
| 2. Greenway                     | 5. Park, passive  |
| 3. Recreation Facility, private | 6. Utility, minor |



**Proposed Design Controls:**

1. **Maximum Density**

The PUD text indicates a maximum residential density for the project of 17.0 dwelling units per acre and no more than 297 total units. Within the proposed 3-acre Medium Density Transition Area (as depicted on the PUD Preliminary Layout Plan), density shall be limited to 4.0 dwelling units per acre and no more than 12 total units within this area.

2. **Maximum Height of the Buildings and Number of Stories**

Maximum height – Four (4) stories above grade, with a basement level 5<sup>th</sup> story or 65’.

Buildings within the Medium Density Transition Area shall be no more than three (3) stories with a maximum height of 45’ and shall be townhome-style multi-family units (i.e. side-by-side residences, not flats).

3. **Minimum Building Setbacks**

- From Building to Building – 10’
- From Buffer/RCA – 10’ for Buildings; 5’ for Parking Areas
- From Walden Woods Lots – 150’ from any lot within Walden Woods containing a dwelling unit
- Within the Medium Density Transition Area, no building shall be constructed closer than 275’ from the nearest home on Flints Pond Circle.

4. **Percentage of Built Upon Area**

The UDO allows for a maximum 70% of built upon area in a PUD project and the Morris Acres PUD will not exceed that amount.

5. **Parking**

The PUD indicates that parking will be provided per the standards in the UDO which are as follows:

- 1.5 spaces per 1-2 bedroom unit (*a minimum of 50% du shall be one-bedroom units*)
- 1.8 spaces per 3+ bedroom unit (*a maximum of 10% du shall be three-bedroom units*)

6. **Resource Conservation Area**

The PUD is providing at least 29.9% (5.09 acres) of the total area for Resource Conservation Area and landscape buffers. The minimum RCA required is 20% (3.49 acres).

The PUD also sets aside 1.77 acres of passive open space in the northeast corner of the subject property in addition to the 29.9% RCA, which preserves additional land above the minimum required while providing additional separation of development from adjacent single-family residential to the east and vacant land to the north. In this area, no buildings or other structures shall be permitted, with the exception of passive recreational amenities.



7. **Buffers**

<b>Perimeter Buffers:</b>	<b>Required</b>	<b>Proposed</b>
Western property boundary	10' Type B	30' Type A
Eastern property boundary	20' Type B	50' Undisturbed
Eastern property boundary, abutting Town of Apex property	10' Type A	50' Type A with 8-ft solid privacy fence*
Adjacent to riparian buffers within Medium Density Transition Area	N/A	10' evergreen planting strip
Southern property boundary	30' Type B	30' Type A
Northern property boundary	20' Type B	20' Type A

\*The Preliminary Layout Sheet in the PUD plan set indicates that the fence will be located further inside the subject property than the 50' buffer along a portion of the eastern property line.

**Architectural Standards:**

1. Vinyl siding will not be used except for vinyl windows and limited decorative element use. Residential areas will utilize brick, stone, and Hardi-plank siding.
2. Siding materials will be varied in type and/or color on 30% of each façade on each building.
3. Windows that are not recessed shall be trimmed. Windows shall vary in size and/or type.
4. Recesses and projections shall be provided for at least 50% of each facade on each building. Building facades shall have horizontal relief achieved by the use of recesses and projections.
5. Four of the following decorative features shall be used on each building: decorative shake, board and batten siding, decorative porch rails and posts, shutters, decorative functional foundation and roof vents, recessed windows, decorative windows, decorative brick or stone, decorative gables, decorative cornices, or metal roofing.
6. A varied color palette shall be utilized throughout the development to include a minimum of three color families for siding and shall include varied trim, shutter, and accent colors complementing the siding color.
7. The rear and side elevations of the units that can be seen from the right-of-way shall have trim around the windows.
8. Additionally, the following conditions shall apply to the building(s) located in the Medium Density Transition Area, as identified on the PUD Preliminary Sheet:
  - a. The roof of each unit shall be horizontally and/or vertically distinct from any adjacent unit so as to avoid the appearance of a single mass.
  - b. Front facing garage doors must have windows, decorative details, or carriage-style adornments.
  - c. Entrances for units with front-facing garage shall have a prominent covered porch/stoop area leading to the front door.
  - d. The front façade of any front-loaded garage shall not protrude farther than one foot forward of (i) the front façade of the dwelling unit, or (ii) the front porch of the dwelling unit, whichever is closer to the right-of-way from which the dwelling unit is addressed.



Additionally, the following conditions shall also apply:

1. A maximum of 297 residential units shall be permitted upon the property.
2. Along the eastern boundary of the subject property, extending from Morris Acres Road to the southern edge of the riparian buffer around the existing farm pond, the following shall be installed and maintained:
  - a. A fifty-foot (50') Type A vegetative buffer; and
  - b. An at least eight feet (8') tall solid privacy fence. The final location of the fence within the 50' Type A buffer will be determined at the time of site plan.
3. In the 3.00 acre Medium Density Residential Transition Area as depicted on the Preliminary Layout Plan, the following conditions shall apply:
  - a. The maximum height for buildings shall be three (3) stories up to a foot height of forty-five feet (45');
  - b. Only townhome style units (i.e., side-by-side rather than stacked multifamily) may be permitted; and
  - c. The maximum development density within this area shall be four (4) dwelling units per acre, and no more than 12 dwelling units in total.
4. In the area identified as "Passive Open Space" on the PUD Plan, no buildings or other structures shall be permitted, with the exception of passive recreational amenities.
5. A minimum of fifty percent (50%) of the dwelling units shall be one-bedroom units, and a maximum of ten percent (10%) of the dwelling units shall be three-bedroom units.
6. For a period of at least twenty (20) years from the date of the issuance of the certificate of occupancy, at least five percent (5%) of the units developed on the site shall be preserved as affordable housing units at 60% of Wake County's area median income.
7. All buildings constructed on the property shall provide solar conduit for the installation of rooftop solar panels.
8. A 6' x 6' Public Art easement to the Town of Apex shall be provided along the Morris Acres Road frontage of the subject property. The precise location for this easement will be determined at the time of site plan review.

**Pedestrian Connectivity:**

The project will provide a 10' wide side path along the north side of Morris Acres Road, consistent with Bike Apex. An internal pedestrian connection to the preserved Passive Space in the northeast corner of the site is also proposed, as conceptually depicted on the Preliminary Layout Sheet. The pedestrian network will be evaluated during site plan review and shall be consistent with the UDO.

**Public Facilities:**

The proposed PUD shall meet all Public Facilities requirements as set forth in UDO Section 2.3.4.F.1.f. Such facilities will be designed according to sound engineering standards, and shall comply with Town of Apex Sewer and Water Master Plan and the Town of Apex Standards and Specifications.

All units within the project will be served by the Town of Apex for water and sanitary sewer. The utility design will be finalized at the time of Major Site Plan review and approval based upon available facilities adjacent to the site at that time. A conceptual utility plan is included in the PUD plan for reference. Electricity will be provided by Apex Electric. Phone, cable, and gas will be provided by the developer and shall meet the Town of Apex standards as outlined in the UDO.



This PUD shall meet all stormwater management requirements for quality and quantity treatment in accordance with Section 6.1.7 of the UDO, such that:

- Post development peak runoff shall not exceed pre-development peak runoff conditions for the 1 year, 10 year, and 25 year 24-hour storm events.
- This PUD shall convey as much stormwater runoff from the site development as practical, including required Stormwater Control Measures (SCM's), to the existing 48" RCP culvert located in the southeastern corner of the site along Morris Acres Road. The direct storm drainage connection to the existing 48" RCP culvert is subject to final approval by the Town of Apex, NCDOT or any other regulatory agency. In the event that this direct storm drainage connection is not approved, then this PUD shall meet and exceed existing stormwater management requirements for quality and quantity treatment provided in Section 6.1.7 of the UDO, such that post development peak runoff shall not exceed pre-development peak runoff conditions for the 1 year, 10 year, 25 year, and 100 year 24-hour storm events.

### **APEX TRANSPORTATION PLAN/ACCESS and CIRCULATION:**

The proposed PUD is consistent with the Apex Transportation Plan. The proposed PUD includes two (2) points of access onto Morris Acres Road, an existing 3-lane Thoroughfare on the *Thoroughfare and Collector Street Plan*. This project shall provide minimum frontage widening based on ½ of a 3-lane thoroughfare section with side path and public right-of-way dedication based on an eighty foot (80') right-of-way along Morris Acres Road. The site will promote connectivity to undeveloped property with a cross access easement to the north.

Roadway improvements, subject to modification and final approval by the Town of Apex and NCDOT, are part of the site plan and construction plan approval process. A traffic study has been performed as part of this PUD rezoning consistent with the Town's standards for the same. Based upon the traffic impact analysis, the traffic from this development alone will not decrease the current Level of Service (LOS) for any intersection or approach as compared to the land remaining undeveloped and does not warrant off-site road improvements based on the UDO.

Wayfinding measures at the site shall be provided by the applicant in an effort to facilitate the movement of vehicles and pedestrians to and within the development.

Town of Apex staff has requested from NCDOT that the acceleration and deceleration lanes on US 64 for Morris Acres Road be extended to improve traffic flow on and off US 64 and reduce delays, as well as for improved wayfinding signs in the vicinity of Morris Acres Road and US 64.

### **MARKET RATE MULTI-FAMILY AND AFFORDABLE HOUSING:**

Market rate multi-family statistics in Apex were provided by the Triangle Apartment Association. Based on their most recent numbers:

- Average market rate rent in Apex is \$1,300 per month; up 5.2% since 2018.
- Average household income of those living in the units is \$122,000; more than twice as much as the Wake County AMI for an individual and 44.7% above Wake County AMI for a family of four.
- Rental units are 48% full at delivery, meaning the buildings are half full the first day the buildings can be occupied.

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- Vacancy rate in Apex is 6.2%; a healthy vacancy rate is 7-8%.
- Highest growth in apartment dwellers in Apex by age range is 55+ at 35.6%.
- Second highest growth in apartment dwellers by age range is 20-29 at 23.8%.

This data points to the fact that there are not enough market rate apartments in Apex today. The lack of market rate housing only exacerbates the need for affordable housing as the market rate units are taken by those most able to pay rents above the fair market value of the units.

While the Town of Apex does not currently have an affordable housing policy in place, the proposed condition that 5% of the units be preserved as affordable housing at 60% of Wake County's Area Median Income (AMI) for 20 years marks the first time a market rate project proposes to provide affordable units. This type of inclusionary zoning by way of rezoning condition is allowed by state law and addresses the Peak Plan 2030 goal for "a variety of housing types available to a range of incomes" which was prioritized in the 2013 Town Council-adopted plan.

The following is recent Wake County data that frames the discussion regarding affordability:

Wake County AMI	Individual	Family of four
100%	\$59,100	\$84,300
80% (workforce)	\$47,280	\$67,440
70%	\$41,370	\$59,010
60% (affordable)	\$35,460	\$50,580

To put these numbers in perspective, the following chart gives the average annual salaries for the Raleigh area:

Job	Average Annual Salary
WCPSS school teacher <sup>1</sup>	\$46,178 <sup>2</sup>
Police officer	\$41,822 <sup>2</sup>
Entry level bookkeeper	\$34,817 <sup>2</sup>
City planner	\$45,758 <sup>3</sup>
Firefighter	\$44,602 <sup>3</sup>
Administrative assistant	\$39,662 <sup>3</sup>
Grocery store stock clerk	\$31,855 <sup>3</sup>
Preschool teacher	\$30,698 <sup>3</sup>

For rents to be considered affordable for a particular household, the household income is divided by 40 to get the per month rental amount.<sup>4</sup> For example, a WCPSS teacher making the average salary of \$46,178 could afford \$1,154.45 in rent by themselves.

<sup>1</sup> Average of elementary, middle, and high school teacher salaries

<sup>2</sup> Payscale.com

<sup>3</sup> Salary.com

<sup>4</sup> Realtor.com



**PARKS, RECREATION, AND CULTURAL RESOURCES ADVISORY COMMISSION:**

The Parks, Recreation, and Cultural Resources Advisory Commission recommended a fee-in-lieu at their May 29, 2019 meeting. If the rezoning is approved, the fee rate will be set based on the date of PUD approval and will be applied to the number of units proposed at the time of Major Site Plan approval.

**PLANNING STAFF RECOMMENDATION:**

Planning staff recommends approval of the 2045 Land Use Map amendment and Rezoning #19CZ02 Morris Acres PUD with the conditions offered by the applicant.

**PLANNING BOARD RECOMMENDATION:**

The Planning Board held a Public Hearing on August 12, 2019 and continued their vote to September 9, 2019 where they opened up public comment on new conditions; they recommended approval of the 2045 Land Use Map Amendment and Rezoning #19CZ02 by a vote of 4-3. The Planning Board report to Town Council is attached.

**ANALYSIS STATEMENT OF THE REASONABLENESS OF THE PROPOSED REZONING:**

This Statement will address consistency with the Town’s comprehensive and other applicable plans, reasonableness, and effect on public interest:

***2045 Land Use Map Amendment:***

With the conditions offered by the applicant in the PUD document, approval of the 2045 Land Use Map amendment from Medium Density Residential to High Density Residential is reasonable. The proposed Land Use Map amendment is generally consistent with the Advance Apex staff recommendation (not previously adopted) for Medium/High Density Residential and High Density Residential classifications in this area. The location is appropriate for the proposed multi-family use and density due to the proximity of NC 540 Hwy, the adjacent Flats at 540 and Beaver Creek @ 540 Townhomes developments, and proximity to a future transit corridor. While staff’s recommendation was not adopted with Advance Apex on February 5, 2019, there was an understanding by Council at the time that a LUM amendment could be reviewed for this property in conjunction with a specific rezoning request at a later date.

The associated rezoning includes a 3-acre Medium Density Transition Area on the eastern side of the site, south of the stream and closest to existing single-family residential development. Within this transition area, the density is restricted to four (4) units per acre, building height is limited to three (3) stories (45 feet), and the units are required to be constructed to look like side-by-side townhomes, similar to the townhomes located across Morris Acres Road and on the southeast side of the adjacent single-family neighborhood. This area, along with the additional buffer and screening measures, provides the transition in density and building height for this area previously envisioned by staff during Advance Apex.

Furthermore, the Morris Acres PUD provides nearly 10% additional RCA above the required amount as well as additional passive open space, something that is not typically possible for lower density development to achieve as it spreads outward instead of upward. Without the proposed 2045 Land Use Map amendment, this site would likely develop as a single-family and/or townhome development which typically requires increased infrastructure costs with the need for an internal street network. This makes it more likely that the existing pasture would be developed either with this parcel or an adjacent parcel.

For these reasons, staff supports the proposed 2045 Land Use Map amendment provided it is done in conjunction with a rezoning offering these types of conditions.





**Rezoning #19CZ02**

The proposed rezoning is reasonable and in the public interest because it proposes appropriate land uses and provides an adequate transition in the height and density of the proposed multi-family use from the existing single-family residential development to the east. The provision of a Medium Density Transition Area, with limited densities and a townhome style product, provides the physical transition from the single-family detached neighborhood to the east and from the townhome and multi-family developments to the south. The PUD also sets aside nearly 10% more Resource Conservation Area (RCA) than required by the UDO plus additional passive open space.

The development potential without the provisions of the Morris Acres PUD may indeed provide a less dense product, but that could serve as a loss to the future transit corridor in this area which demands increased densities to support its existence. Typical single-family or townhome development of the site would likely not preserve the same amount of open space and would permit development utilizing all available land. This PUD provides for a combination of multi-family development and open space while offering a transition in height and density from the existing single-family to the east.

While the Town of Apex does not currently have an affordable housing policy in place, the proposed condition that 5% of the units be preserved as affordable housing at 60% of Wake County’s Area Median Income (AMI) for 20 years marks the first time a market rate project proposes to provide affordable units. This type of inclusionary zoning by way of rezoning condition is allowed by state law and addresses the Peak Plan 2030 goal for “a variety of housing types available to a range of incomes” which was prioritized in the 2013 Town Council-adopted plan. Providing 5% of the units at 60% AMI would serve the public interest by providing affordable housing for first responders, teachers, and other important workers in the community.

**PLANNED UNIT DEVELOPMENT DISTRICT AND CONDITIONAL ZONING STANDARDS:**

**Standards**

In return for greater flexibility in site design requirements, Planned Development (PD) Districts are expected to deliver exceptional quality community designs that preserve critical environmental resources; provide high quality community amenities; incorporate creative design in the layout of buildings, Resource Conservation Area and circulation; ensure compatibility with surrounding land uses and neighborhood character; provide high quality architecture; and provide greater efficiency in the layout and provision of roads, utilities, and other infrastructure. The Planned Development (PD) Districts shall not be used as a means of circumventing the Town’s adopted land development regulations for routine developments.

1) *Planned Unit Development (PUD-CZ) District*

In approving a Planned Development (PD) Zoning District designation for a PUD-CZ, the Town Council shall find the PUD-CZ district designation and PD Plan for PUD-CZ demonstrates compliance with the following standards:

a) *Development parameters*

- (i) The uses proposed to be developed in the PD Plan for PUD-CZ are those uses permitted in Sec. 4.2.2 Use Table.
- (ii) The uses proposed in the PD Plan for PUD-CZ can be entirely residential, entirely non-residential, or a mix of residential and non-residential uses, provided a minimum percentage of non-residential land area is included in certain mixed use areas as specified on the 2045 Land Use Map. The location of uses proposed by the PUD-CZ must be shown in the PD Plan



with a maximum density for each type of residential use and a maximum square footage for each type of non-residential use.

- (iii) The dimensional standards in Sec. 5.1.3 *Table of Intensity and Dimensional Standards, Planned Development Districts* may be varied in the PD Plan for PUD-CZ. The PUD-CZ shall demonstrate compliance with all other dimensional standards of the UDO, North Carolina Building Code, and North Carolina Fire Code.
  - (iv) The development proposed in the PD Plan for PUD-CZ encourages cluster and compact development to the greatest extent possible that is interrelated and linked by pedestrian ways, bikeways and other transportation systems. At a minimum, the PD Plan must show sidewalk improvements as required by the Apex Transportation Plan and the *Town of Apex Standard Specifications and Standard Details*, and greenway improvements as required by the Town of Apex Parks, Recreation, Greenways, and Open Space Plan and the Apex Transportation Plan. In addition, sidewalks shall be provided on both sides of all streets for single-family detached homes.
  - v) The design of development in the PD Plan for PUD-CZ results in land use patterns that promote and expand opportunities for walkability, connectivity, public transportation, and an efficient compact network of streets. Cul-de-sacs shall be avoided unless the design of the subdivision and the existing or proposed street system in the surrounding area indicate that a through street is not essential in the location of the proposed cul-de-sac, or where sensitive environmental areas such as streams, floodplains, and wetlands would be substantially disturbed by making road connections.
  - (vi) The development proposed in the PD Plan for PUD-CZ is compatible with the character of surrounding land uses and maintains and enhances the value of surrounding properties.
  - (vii) The development proposed in the PD Plan for PUD-CZ has architectural and design standards that are exceptional and provide higher quality than routine developments. All residential uses proposed in a PD Plan for PUD-CZ shall provide architectural elevations representative of the residential structures to be built to ensure the Standards of this Section are met.
- b) *Off-street parking and loading.* The PD Plan for PUD-CZ shall demonstrate compliance with the standards of Sec. 8.3 *Off-Street Parking and Loading*, except that variations from these standards may be permitted if a comprehensive parking and loading plan for the PUD-CZ is submitted as part of the PD Plan that is determined to be suitable for the PUD-CZ, and generally consistent with the intent and purpose of the off-street parking and loading standards.
- c) *RCA.* The PD Plan for PUD-CZ shall demonstrate compliance with Sec. 8.1.2 *Resource Conservation Area*, except that the percentage of RCA required under Sec. 8.1.2 may be reduced by the Town Council by no more than two percent (2%) provided that:
- (i) The PD Plan for PUD-CZ includes a non-residential component; or
  - (ii) The PD Plan for PUD-CZ has an overall density of 6 residential units per acre or more.



- d) *Landscaping.* The PD Plan for PUD-CZ shall demonstrate compliance with the standards of Sec. 8.2 *Landscaping, Buffering and Screening*, except that variations from these standards may be permitted where it is demonstrated that the proposed landscaping sufficiently buffers uses from each other, ensures compatibility with land uses on surrounding properties, creates attractive streetscapes and parking areas and is consistent with the character of the area. In no case shall a buffer be less than one half of the width required by Sec. 8.2 or 10 feet in width, whichever is greater.
- e) *Signs.* Signage in the PD Plan for PUD-CZ shall demonstrate compliance with Sec. 8.7 *Signs*, except that the standards can be varied if a master signage plan is submitted for review and approval concurrent with the PD plan and is determined by the Town Council to be suitable for the PUD-CZ and generally consistent with the intent and purpose of the sign standards of the UDO. The master signage plan shall have design standards that are exceptional and provide for higher quality signs than those in routine developments and shall comply with Sec. 8.7.2 *Prohibited Signs*.
- f) *Public facilities.* The improvements standards and guarantees applicable to the public facilities that will serve the site shall comply with Article 7: *Subdivision* and Article 14: *Parks, Recreation, Greenways, and Open Space*.
- (i) The PD Plan for PUD-CZ demonstrates a safe and adequate on-site transportation circulation system. The on-site transportation circulation system shall be integrated with the off-site transportation circulation system of the Town. The PD Plan for PUD-CZ shall be consistent with the Apex Transportation Plan and the *Town of Apex Standard Specifications and Standard Details* and show required right-of-way widths and road sections. A Traffic Impact Analysis (TIA) shall be required per Sec. 13.19.
- (ii) The PD Plan for PUD-CZ demonstrates a safe and adequate on-site system of potable water and wastewater lines that can accommodate the proposed development, and are efficiently integrated into off-site potable water and wastewater public improvement plans. The PD Plan shall include a proposed water and wastewater plan.
- (iii) Adequate off-site facilities for potable water supply, sewage disposal, solid waste disposal, electrical supply, fire protection and roads shall be planned and programmed for the development proposed in the PD Plan for PUD-CZ, and the development is conveniently located in relation to schools and police protection services.
- (iv) The PD Plan shall demonstrate compliance with the parks and recreation requirements of Sec. Article 14: *Parks, Recreation, Greenways, and Open Space* and Sec. 7.3.1 *Privately-owned Play Lawns* if there is a residential component in the PUD-CZ.
- g) *Natural resource and environmental protection.* The PD Plan for PUD-CZ demonstrates compliance with the current regulatory standards of this Ordinance related to natural resource and environmental protection in Sec. 6.1 *Watershed Protection Overlay District*, Sec. 6.2 *Flood Damage Prevention Overlay District*, and Sec. 8.1 *Resource Conservation*.



- h) *Storm water management.* The PD Plan shall demonstrate that the post-development rate of on-site storm water discharge from the entire site shall not exceed pre-development levels in accordance with Sec. 6.1.7 of the UDO.
- i) *Phasing.* The PD Plan for PUD-CZ shall include a phasing plan for the development. If development of the PUD-CZ is proposed to occur in more than one phase, then guarantees shall be provided that project improvements and amenities that are necessary and desirable for residents of the project, or that are of benefit to the Town, are constructed with the first phase of the project, or, if this is not possible, then as early in the project as is technically feasible.
- j) *Consistency with 2045 Land Use Map.* The PD Plan for PUD-CZ demonstrates consistency with the goals and policies established in the Town's 2045 Land Use.
- k) *Complies with the UDO.* The PD Plan for PUD-CZ demonstrates compliance with all other relevant portions of the UDO.

**CONDITIONAL ZONING STANDARDS:**

The Planning Board shall find the Planned Unit Development-Conditional Zoning (PUD-CZ) designation demonstrates compliance with the following standards. 2.3.3.F:

**Legislative Considerations**

The applicant shall propose site-specific standards and conditions that take into account the following considerations, which are considerations that are relevant to the legislative determination of whether or not the proposed conditional zoning district rezoning request is in the public interest. These considerations do not exclude the legislative consideration of any other factor that is relevant to the public interest.

- 1) *Consistency with 2045 Land Use Map.* The proposed Conditional Zoning (CZ) District use's appropriateness for its proposed location and consistency with the purposes, goals, objectives, and policies of the 2045 Land Use Map.
- 2) *Compatibility.* The proposed Conditional Zoning (CZ) District use's appropriateness for its proposed location and compatibility with the character of surrounding land uses.
- 3) *Zoning district supplemental standards.* The proposed Conditional Zoning (CZ) District use's compliance with Sec 4.4 *Supplemental Standards*, if applicable.
- 4) *Design minimizes adverse impact.* The design of the proposed Conditional Zoning (CZ) District use's minimization of adverse effects, including visual impact of the proposed use on adjacent lands; and avoidance of significant adverse impacts on surrounding lands regarding trash, traffic, service delivery, parking and loading, odors, noise, glare, and vibration and not create a nuisance.
- 5) *Design minimizes environmental impact.* The proposed Conditional Zoning District use's minimization of environmental impacts and protection from significant deterioration of water and air resources, wildlife habitat, scenic resources, and other natural resources.



6) *Impact on public facilities.* The proposed Conditional Zoning (CZ) District use's avoidance of having adverse impacts on public facilities and services, including roads, potable water and wastewater facilities, parks, schools, police, fire and EMS facilities.

7) *Health, safety, and welfare.* The proposed Conditional Zoning (CZ) District use's effect on the health, safety, or welfare of the residents of the Town or its ETJ.

8) *Detrimental to adjacent properties.* Whether the proposed Conditional Zoning (CZ) District use is substantially detrimental to adjacent properties.

9) *Not constitute nuisance or hazard.* Whether the proposed Conditional Zoning (CZ) District use constitutes a nuisance or hazard due to traffic impact or noise, or because of the number of persons who will be using the Conditional Zoning (CZ) District use.

10) *Other relevant standards of this Ordinance.* Whether the proposed Conditional Zoning (CZ) District use complies with all standards imposed on it by all other applicable provisions of this Ordinance for use, layout, and general development characteristics.



May 24, 2019

Kevin Dean, PE  
Kimley-Horn and Associates, Inc.  
421 Fayetteville St, Suite 600  
Raleigh, NC 27601

Subject: **Staff summary and comments for The Wayforth at Apex TIA and Addendum, 04/30/2019**

Mr. Dean:

Please review the following summary of my comments and recommendations. You may schedule a meeting with me and your client to discuss at your convenience.

#### Study Area

The TIA proposes to study access to the development at the following two intersections.

- Morris Acres Road and Reedybrook Crossing/North Site Driveway (unsignalized)
- Morris Acres Road and South Site Driveway (unsignalized)

The following intersections were also studied in the TIA:

- Jenks Road and Morris Acres Road (unsignalized)
- Morris Acres Road and Creekside Landing Drive (signalized)
- Morris Acres Road and US 64 Westbound (unsignalized)

#### Trip Generation

The proposed Wayforth at Apex development is anticipated to consist of 300 apartments. The development is anticipated to generate approximately 26 new trips entering and 74 new trips exiting the site during the weekday A.M. peak hour and 77 new trips entering and 50 new trips exiting the site during the P.M. peak hour. The development is expected to add a total of 1,634 new weekday trips to the adjacent roadway network.

**TOWN OF APEX**

*The Peak of Good Living*

PO Box 250 Apex, NC 27502 | (919) 249-3400 | [www.apexnc.org](http://www.apexnc.org)

### Background traffic

Background traffic consists of 3% annual background traffic growth compounded to build out year 2022. Additionally 10% of site trips from the adjacent Beaver Creek Residential development (540 Townes) are included in the analysis, as the development was almost entirely built-out at the time this study was completed.

### Trip Distribution and Assignment

The distribution to and from the development are as follows:

- 25% from the east on US 64
- 25% from the east on Jenks Road
- 25% from the west on Jenks Road
- 25% from the south on Creekside Landing Drive
  
- 50% to the east on Jenks Road
- 25% to the west on US 64
- 15% to the south on Creekside Landing Drive
- 10% to the west on Jenks Road

### Traffic Capacity Analysis and Recommendations

Level of Service (LOS) is a grade of A through F assigned to an intersection, approach, or movement to describe how well or how poorly it operates. LOS A through D is considered acceptable for peak hour operation. LOS E or F describes potentially unacceptable operation and developers may be required to mitigate their anticipated traffic impact to improve LOS based on the Apex Unified Development Ordinance (UDO).

Tables 1 through 5 describe the levels of service (LOS) for the scenarios analyzed in the TIA. "NA" is shown when the scenario does not apply. The scenarios are as follows:

- **Existing 2018** - Existing year 2018 traffic.
- **No Build 2022** – Projected year (2022) with background growth, and approved development traffic from others.
- **Build 2022** – Projected year (2022) with background traffic and site build-out traffic including recommended improvements where applicable.

**Morris Acres Road and Reedybrook Crossing/North Site Driveway (unsignalized)**

<b>Table 1. A.M. / P.M. Unsignalized Peak Hour Levels of Service Morris Acres Road and Reedybrook Crossing/North Site Driveway</b>			
	<b>Existing 2018</b>	<b>No Build 2022</b>	<b>Build 2022</b>
<b><u>Overall</u></b>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<b><i>Eastbound (Reedybrook Crossing)</i></b>	<i>A / B<sup>2</sup></i>	<i>A / B<sup>2</sup></i>	<i>B / B<sup>2</sup></i>
<b><i>Westbound (North Site Driveway)</i></b>	<i>NA</i>	<i>NA</i>	<i>B / B<sup>2</sup></i>
<b><i>Northbound (Morris Acres Road)</i></b>	<i>A / A<sup>1</sup></i>	<i>A / A<sup>1</sup></i>	<i>A / A<sup>1</sup></i>
<b><i>Southbound (Morris Acres Road)</i></b>	<i>NA</i>	<i>NA</i>	<i>A / A<sup>1</sup></i>

1. Level of service for major street left turn movements
2. Level of service for minor street stop controlled approaches

TIA recommendations:

- The TIA recommends construction of a full movement stop-controlled site driveway with one lane of ingress and one lane of egress that aligns with Reedybrook Crossing at Morris Acres Road.

Apex staff recommendations:

- Apex staff agree with the recommendation. All approaches at this intersection are projected to operate at LOS B or better with no operational issues in the build condition. Morris Acres Road already provides a left turn lane both directions at the proposed driveway since it was constructed as a three-lane road.

**Morris Acres Road and South Site Driveway (unsignalized)**

<b>Table 2. A.M. / P.M. Unsignalized Peak Hour Levels of Service Morris Acres Road and South Site Driveway</b>	
	<b>Build 2022</b>
<b><u>Overall</u></b>	<u>NA</u>
<b><i>Westbound (South Site Driveway)</i></b>	<i>A / B<sup>2</sup></i>
<b><i>Northbound (Morris Acres Road)</i></b>	<i>NA</i>
<b><i>Southbound (Morris Acres Road)</i></b>	<i>A / A<sup>1</sup></i>

1. Level of service for major street left turn movements
2. Level of service for minor street stop controlled approaches



TIA recommendations:

- The TIA recommends construction of a full movement stop-controlled site driveway with one lane of ingress and one lane of egress approximately 500 feet south of Reedybrook Crossing.

Apex staff recommendations:

- Apex staff agree with the recommendation. All approaches at this proposed intersection are projected to operate at LOS B or better with no operational issues in the build condition. Morris Acres Road already provides a left turn lane at the proposed driveway since it was constructed as a three-lane road.

**Jenks Road and Morris Acres Road (unsignalized)**

<b>Table 3. A.M. / P.M. Unsignalized Peak Hour Levels of Service Jenks Road and Morris Acres Road</b>			
	<b>Existing 2018</b>	<b>No Build 2022</b>	<b>Build 2022</b>
<b><u>Overall</u></b>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<b><i>Eastbound (Jenks Road)</i></b>	NA	NA	NA
<b><i>Westbound (Jenks Road)</i></b>	A / A <sup>1</sup>	A / A <sup>1</sup>	A / A <sup>1</sup>
<b><i>Northbound (Morris Acres Road)</i></b>	B / C <sup>2</sup>	B / C <sup>2</sup>	B / C <sup>2</sup>

1. Level of service for major street left turn movements
2. Level of service for minor street stop controlled approaches

TIA recommendations:

- The TIA does not recommend any improvements at this intersection. All approaches are anticipated to operate at LOS C or better with or without the development.

Apex staff recommendations:

- Apex staff agree with the recommendation. Left turn lanes are already provided on both roadways and no additional turn lanes are recommended.

**Morris Acres Road and Creekside Landing Drive (Signalized)**

<b>Table 4. A.M. / P.M. Signalized Peak Hour Levels of Service Morris Acres Road and Creekside Landing Drive</b>			
	<b>Existing 2018</b>	<b>No Build 2022</b>	<b>Build 2022</b>
<b><u>Overall</u></b>	<u>A / A</u>	<u>A / A</u>	<u>A / A</u>
<b><i>Eastbound (Reedybrook Crossing)</i></b>	A / A	A / A	A / A
<b><i>Northbound (Morris Acres Road)</i></b>	A / A	A / A	A / A
<b><i>Southbound (Morris Acres Road)</i></b>	A / A	A / B	A / B

TIA recommendations:

- The TIA does not recommend any improvements at this signalized intersection. All approaches are anticipated to operate at LOS B or better with or without the development.

Apex staff recommendations:

- Apex staff agree with the recommendation. There are already left turn lanes provided on both roadways and no additional turn lanes are recommended.

**Morris Acres Road and US 64 Westbound (unsignalized)**

<b>Table 5. A.M. / P.M. Unsignalized Peak Hour Levels of Service Morris Acres Road and US 64 Westbound</b>			
	<b>Existing 2018</b>	<b>No Build 2022</b>	<b>Build 2022</b>
<b><u>Overall</u></b>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<b><i>Westbound (US 64)</i></b>	NA	NA	NA
<b><i>Southbound (Morris Acres Road)</i></b>	D / D <sup>1</sup>	E / E <sup>1</sup>	E / E <sup>1</sup>

1. Level of service for minor street stop controlled approaches

TIA recommendations:

- The TIA does not recommend any improvements at this channelized intersection.

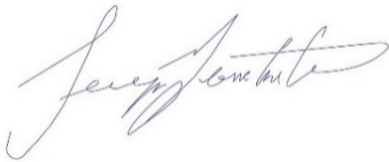
Apex staff recommendations:

- The right-out onto westbound US-64 is anticipated to operate at LOS E with average delays of over 45 seconds per vehicle and 95<sup>th</sup> percentile queues of 5 vehicles in both the A.M. and P.M. peak hours. Staff concurs with no roadway improvements being

required of this site approval according to the requirements of the UDO. However, the Town or NCDOT should consider future construction of an 800-foot long acceleration lane with a 300-foot taper on US 64 and lengthening of the right-turn deceleration lane. Town staff have already submitted these improvements to NCDOT for consideration of funding under one of their grant programs. The acceleration lane will eliminate the stop condition and the delays associated with the stop on Morris Acres Road while the longer deceleration lane will provide improved operations for the exit from US 64.

Please coordinate with the NCDOT District Engineer's Office concerning recommended improvements. Town staff will be available for meetings with NCDOT staff to discuss improvements on state maintained roadways as needed. All recommendations are subject to review by Town Council prior to approval.

Sincerely,

A handwritten signature in cursive script, appearing to read "Serge Grebenschikov".

Serge Grebenschikov  
Traffic Engineer  
919-372-7448

Rezoning #19CZ02

540



The Flats at 540

540 Townes

CitiSide

Walden Creek

GREENLEVEL CHURCH RD

WALDEN WOODS DR

BRISTERS SPRING WAY

WALDEN CREEK DR

RABBIT WALK LN

TUNISIAN DR

FLINTSPOND CIR

REEDYBROOK CRSG

KYNER ALY

PEAKSIDE DR

**PLANNED UNIT DEVELOPMENT APPLICATION**

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

Application #: 19CZ02  
Fee Paid: \$ 2370

Submittal Date: 2/1/19  
Check # \_\_\_\_\_

**PETITION TO AMEND THE OFFICIAL ZONING DISTRICT MAP**

Project Name: Morris Acres PUD

Address(es): 0, 7208, and 7208B Morris Acres Road

PIN(s) 0732-28-9587; 0732-38-2530; and 0732-38-2709

\_\_\_\_\_ Acreage: 16.95

Current Zoning: RR Proposed Zoning: PUD-CZ

Current 2030 LUM Designation: Medium Density Residential

Requested 2030 LUM Designation: High Density Residential

See next page for LUM amendment

If any portion of the project is shown as mixed use (3 or more stripes on the 2030 Land Use Map) provide the following:

Area classified as mixed use: \_\_\_\_\_ Acreage: \_\_\_\_\_

Area proposed as non-residential development: \_\_\_\_\_ Acreage: \_\_\_\_\_

Percent of mixed use area proposed as non-residential: \_\_\_\_\_ Percent: \_\_\_\_\_

**Applicant Information**

Name: Kaplan Residential

Address: 1111 Kane Concourse Ste 302

City: Bay Harbor Islands State: FL Zip: 33154

Phone: 305.901.2202 E-mail: \_\_\_\_\_

**Owner Information**

Name: Edith S Morris

Address: 7208 Morris Acres Road

City: Apex State: NC Zip: 27523

Phone: \_\_\_\_\_ E-mail: \_\_\_\_\_

**Agent Information**

Name: Jason Barron

Address: 421 Fayetteville Street | Ste 530

City: Raleigh State: NC Zip: 27601

Phone: 919-590-0371 E-mail: jbarron@morningstarlawgroup.com

Other contacts: Nil Ghosh - nghosh@morningstarlawgroup.com

**PLANNED UNIT DEVELOPMENT APPLICATION**

Application #:

19C202

Submittal Date:

**2030 LAND USE MAP AMENDMENT (if applicable)**

The applicant does hereby respectfully request the Town Council amend the 2030 Land Use Map. In support of this request, the following facts are shown:

The area sought to be amended on the 2030 Land Use Map is located at:

0, 7208, and 7208B Morris Acres Road

Current 2030 Land Use Classification:

Medium Density Residential

Proposed 2030 Land Use Classification:

High Density Residential

What conditions justify the passage of the amendment to the 2030 Land Use Map? Discuss the existing use classifications of the subject area in addition to the adjacent land use classifications.

The Town of Apex currently is in the process of adopting an updated Land Use Plan with a 2045 horizon. The draft proposal for this new plan indicated that these parcels would be designated as High Density Residential. This draft already has been recommended for approval by the Town's Planning Board and is expected to be passed by Council in February. Consistent with the recommendations in the draft 2045 Land Use Plan, the applicant seeks to modify the future designation from Medium Density Residential to High Density Residential.

# CERTIFIED LIST OF NEIGHBORING PROPERTY OWNERS

Application #: 19CZ02

Submittal Date: 2/1/19

Provide a certified list of property owners subject to this application and all property owners within 300' of the subject property and HOA Contacts.

	Owner's Name	PIN		Owner's Name	PIN
		0732-37-1960; 0732-37-4927; 0732-37-5626; 0732-38-0119; 0732-38-1079; 0732-38-2217		MADHVANI, VIRAT K MADHVANI, KAJAL V	0732-37-3978
1	540 TOWNES HOA, INC		32	MAGNOLIA PROPERTY MANAGEMENT LLC	0732-37-4900
2	ADDEN, NICOLE	0732-39-8073	33		
3	ALPS LP	0732-38-7152	34	MCSWAIN, CHASE ALEXANDER	0732-38-1102
4	ANKNEY, CHRISTINA L ANKNEY, JOHN ASTOR	0732-38-8153	35	MISTRY, DHANSUKH MISTRY, SHILA D	0732-38-1071
5	APEX TOWN OF	0732-38-7570; 0732-39-7559	36	MORRIS, EDITH S	0732-28-9587; 0732-38-2530; 0732-38-2709
6	BARK, GI CHAN	0732-38-1244	37	MORRIS, WILMA LEE	0732-29-5482; 0732-29-8556
7	BEAVER CREEK CROSSING LLC	0732-28-6392	38	MULCAHY, JOHN M MULCAHY, MICHELE A	0732-39-6483
8	BECKER, GARY A BECKER, BARBARA J	0732-38-9017	39	NC DOT TRNPK AUTHORITY	0732-29-5017; 0732-28-4334
9	BUTTERWORTH, JAMES D BUTTERWORTH, BARBARA A	0732-39-8254	40	PARKER, DAVID PARKER, ROBYN	0732-38-7613
10	CAUTHEN, JOHNSON JR CAUTHEN, DEBORAH	0732-39-6202	41	PETERSON, DAVID R PETERSON, GAIL C	0732-39-8344
11	CHEN, WANLING	0732-38-2191	42	PULIJALA, DHEERAJ KUMAR PULIJALA, CHAITANYA	0732-38-3061
12	CHING, LEUNG YIN	0732-38-9347	43	PYNE, CRAIG A GALIEN, KIMBERLY L	0732-39-6402
13	CHO, EUNA K CHO, REX H	0732-38-2024	44	RAJARAM, NARAYAN K UTHAMARAJAN, ARTHI	0732-38-1216
14	CITISIDE AT BEAVER CREEK CROSSING HOA INC (Charleston Mngmt)	0732-37-7766	45	RAMSEY, FRANCES B	0732-38-2147
15	DIAZ, CYNTHIA I COLON CADENA, ARGYL I RAMIREZ	0732-38-0249	46	SAFIAN, DAVID SAFIAN, MICHELLE	0732-38-8289
16	FALKANGER, JEFFREY J FALKANGER, KERRY C	0732-39-7014	47	SARTORI, JEANETTE	0732-28-9182
17	GAYLES, ANTHONY DARON	0732-38-0268	48	SIMMONS, RYAN KENNETH SIMMONS, KRYSTAL MARIE	0732-38-7292
18	GREEN ACRES OF APEX LLC	0732-39-3853	49	SINGH, ISHA	0732-38-1092
19	GROSSER, DONALD B JR GROSSER, CYNTHIA S	0732-38-9588	50	SMITH, DERMOT J SMITH, JENNIFER R	0732-38-2164
20	HARPER, PAUL MARK HARPER, RENAE KEY	0732-39-6197	51	ST AMANT, STEVEN	0732-38-1272
21	HOUSTON, MICHAEL J HOUSTON, KRISTIN A	0732-38-0310	52	STEVENS, GREGORY W STEVENS, YOKO FUSE	0732-38-7923
22	ISAACS, DANIEL J	0732-48-0708	53	V & V PROPERTY GROUP LLC	0732-37-3986
23	KAPLAN, PETER KAPLAN, ERIN B	0732-39-7472	54	VACCA, STACY ELLEN	0732-38-1121
24	KOESTER, JOHN D KOESTER, JOHANNA P	0732-38-9603	55	VOJTICEK, BRANDON M VOJTICEK, LEIGH ANN	0732-38-7723
25	LAO, TERENCE LAO, CATHERINE	0732-38-3044	56	WARD, JUDITH F	0732-48-0456

26	LAXMANA, RAJINEESH KUMAR VUMMIDISINGH LAXMANA, SREE HARSHITHA VUMMIDISINGH	0732-28-9185	57	WEISS, GEOFFREY L	0732-38-7823
27	LIN, SEN	0732-38-0174	58	WEST, DONALD EUGENE II WILLIAMS, STACEY D WILLIAMS,	0732-38-0287
28	LIU, XINGJUN XING, JUN	0732-38-2119	59	JOHN C	0732-39-8164
29	LU, HAIRONG	0732-38-1049	60	WRIGHT, STEVEN C	0732-38-3018
30	LU, XIAOYUAN WAN, PENG	0732-37-3993	61	ZHANG, DONG	0732-38-2173
31	LUO, JING OUYANG, WEN	0732-38-1281			

I, Nil Ghosh, certify that this is an accurate listing of all property owners and property owners within 300' of the subject property.

Date: 1/29/19 By: *Nil Ghosh*

Durham  
COUNTY OF WAKE STATE OF NORTH CAROLINA

Sworn and subscribed before me, Terri Lee Tolley, a Notary Public for the above State and County, on this the 29th day of January, 20 19.

*Terri Lee Tolley*  
Notary Public  
Terri Lee Tolley  
Print Name

SEAL



My Commission Expires: 8/25/2023



**CERTIFIED LIST OF NEIGHBORING PROPERTY OWNERS**

Application #: \_\_\_\_\_

Submittal Date: \_\_\_\_\_

Provide a certified list of property owners subject to this application and all property owners within 300' of the subject property and HOA Contacts.

	Owner's Name	PIN
1.	Golden Apple Tree, LLC	0732-38-1049
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____
11.	_____	_____
12.	_____	_____
13.	_____	_____
14.	_____	_____
15.	_____	_____

I, Nil Ghosh, certify that this is an accurate listing of all property owners and property owners within 300' of the subject property.

Date: 6/21/19  
DURHAM

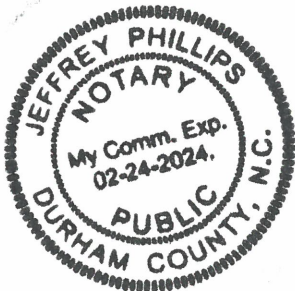
By: [Signature]

COUNTY OF ~~WAKE~~ STATE OF NORTH CAROLINA

Sworn and subscribed before me, Jeffrey Phillips, a Notary Public for the above State and County, on this the 21<sup>st</sup> day of June, 2019.

[Signature]  
 Notary Public  
Jeffrey Phillips  
 Print Name

SEAL



My Commission Expires: 02-24-2024

## DEVELOPMENT NAME APPROVAL APPLICATION

Application #: 19C202

Submittal Date: 2/1/19

Fee for Initial Submittal: No Charge

Fee for Name Change after Approval: \$500\*

### Purpose

To provide a consistent and clearly stated procedure for the naming of subdivisions and/or developments and entrance roadways (in conjunction with *Town of Apex Address Policy*) so as to allow developers to define and associate the theme or aesthetics of their project(s) while maintaining the Town's commitment to preserving the quality of life and safety for all residents of Apex proper and extraterritorial jurisdiction.

### Guidelines

- ✓ The subdivision/development name shall not duplicate, resemble, or present confusion with an existing subdivision/development within Apex corporate limits or extraterritorial jurisdiction except for the extension of an existing subdivision/development of similar or same name that shares a continuous roadway.
- ✓ The subdivision/development name shall not resemble an existing street name within Apex corporate limits or extraterritorial jurisdiction unless the roadway is a part of the subdivision/development or provides access to the main entrance.
- ✓ The entrance roadway of a proposed subdivision/development shall contain the name of the subdivision/development where this name does not conflict with the Town of Apex *Road Name Approval Application* and *Town of Apex Address Policy* guidelines.
- ✓ The name "Apex" shall be excluded from any new subdivision/development name.
- ✓ Descriptive words that are commonly used by existing developments will be scrutinized more seriously in order to limit confusion and encourage distinctiveness. A list of commonly used descriptive words in Apex's jurisdiction is found below.
- ✓ The proposed subdivision/development name must be requested, reviewed and approved during preliminary review by the Town.
- ✓ A \$500.00 fee will be assessed to the developer if a subdivision/development name change is requested after official submittal of the project to the Town.\*

\*The imposed fee offsets the cost of administrative changes required to alleviate any confusion for the applicant, Planning staff, other Town departments, decision-making bodies, concerned utility companies and other interested parties. There is no charge for the initial name submittal.

### Existing Development Titles, Recurring

	Residential	Non-Residential
10 or more	Creek, Farm(s), Village(s),	Center/Centre
6 to 9	Crossing(s), Park, Ridge, Wood(s)	Commons, Park
3 to 5	Acres, Estates, Glen(s), Green*, Hills	Crossing(s), Plaza, Station, Village(s)

\*excludes names with Green Level

**DEVELOPMENT NAME APPROVAL APPLICATION**

Application #: 19C202

Submittal Date: 2/1/19

**Proposed Subdivision/Development Information**

Description of location: 0, 7208, and 7208B Morris Acres Rd

Nearest intersecting roads: Morris Acres Road at Reedybrook Crsg

Wake County PIN(s): 0732-28-9587; 0732-38-2530; and 0732-38-2709

Township: White Oak

**Contact Information (as appropriate)**

Contact person: Jason Barron

Phone number: 919-590-0371 Fax number: \_\_\_\_\_

Address: 421 Fayetteville Street | Ste 530, Raleigh, NC 27601

E-mail address: jbarron@morningstarlawgroup.com

Owner: \_\_\_\_\_

Phone number: \_\_\_\_\_ Fax number: \_\_\_\_\_

Address: \_\_\_\_\_

E-mail address: \_\_\_\_\_

**Proposed Subdivision/Development Name**

1<sup>st</sup> Choice: \_\_\_\_\_

2<sup>nd</sup> Choice (Optional): \_\_\_\_\_

**Town of Apex Staff Approval:**

\_\_\_\_\_  
Town of Apex Planning Department Staff

\_\_\_\_\_  
Date

**STREET NAME APPROVAL APPLICATION**

Application #: \_\_\_\_\_

Submittal Date: \_\_\_\_\_

Wake County Approval Date: \_\_\_\_\_

**Guidelines:**

- No names duplicating or sounding similar to existing road names
- Avoid difficult to pronounce names
- No individuals' names
- Avoid proper names of a business, e.g. Hannaford Drive
- Limit names to 14 characters in length
- No directionals, e.g. North, South, East, West
- No punctuation marks, e.g. periods, hyphens, apostrophes, etc.
- Avoid using double suffixes, e.g. Deer Path Lane
- All names must have an acceptable suffix, e.g. Street, Court, Lane, Path, etc.
- Use only suffixes which are Town of Apex approved
- Town of Apex has the right to deny any street name that is determined to be inappropriate

**Information:**

Description of location: 0, 7208, and 7208B Morris Acres Rd

Nearest intersecting roads: Morris Acres Road at Reedybrook Crsg

Wake County PIN(s): 0732-28-9587; 0732-38-2530; and 0732-38-2709

Township: White Oak

**Contact information (as appropriate)**

Contact person: Jason Barron

Phone number: 919-590-0371 Fax number: \_\_\_\_\_

Address: 421 Fayetteville Street | Ste 530, Raleigh, NC 27601

E-mail address: jbarron@morningstarlawgroup.com

Owner: Edith S Morris

Phone number: \_\_\_\_\_ Fax number: \_\_\_\_\_

Address: 0, 7208 and 7208B Morris Acres Road

E-mail address: \_\_\_\_\_

# STREET NAME APPROVAL APPLICATION

Application #: \_\_\_\_\_

Submittal Date: \_\_\_\_\_

# of roads to be named: \_\_\_\_\_

Please submit twice as many road names as needed, with preferred names listed first. Proposed road names should be written exactly as one would want them to appear. Town of Apex Planning Department staff will send all approved street names to the Wake County GIS Department for county approval. Please allow several weeks for approval. Upon approval Wake County GIS – Street Addressing will inform you of the approved street names.

Example: Road Name      Suffix

Hunter                  Street

1	Nathan Drive	11	_____
2	_____	12	_____
3	_____	13	_____
4	_____	14	_____
5	_____	15	_____
6	_____	16	_____
7	_____	17	_____
8	_____	18	_____
9	_____	19	_____
10	_____	20	_____

## TOWN OF APEX STAFF APPROVAL

Town of Apex Staff Approval

Date

## WAKE COUNTY STAFF APPROVAL:

GIS certifies that \_\_\_\_\_ names indicated by checkmark  are approved.  
Please disregard all other names.

Comments:

Wake County GIS Staff Approval

Date

**TOWN OF APEX UTILITIES OFFER AND AGREEMENT**

Application #: \_\_\_\_\_ Submittal Date: \_\_\_\_\_

**Town of Apex  
73 Hunter Street  
P.O. Box 250 Apex, NC 27502  
919-249-3400**

WAKE COUNTY, NORTH CAROLINA CUSTOMER SELECTION AGREEMENT

\_\_\_\_\_  
0, 7208, and 7208B Morris Acres Rd

\_\_\_\_\_  
(the "Premises")

The Town of Apex offers to provide you with electric utilities on the terms described in this Offer & Agreement. If you accept the Town's offer, please fill in the blanks on this form and sign and we will have an Agreement once signed by the Town.

Kaplan Residential \_\_\_\_\_, the undersigned customer ("Customer") hereby irrevocably chooses and selects the Town of Apex (the "Town") as the permanent electric supplier for the Premises. Permanent service to the Premises will be preceded by temporary service if needed.

The sale, delivery, and use of electric power by Customer at the Premises shall be subject to, and in accordance with, all the terms and conditions of the Town's service regulations, policies, procedures and the Code of Ordinances of the Town.

Customer understands that the Town, based upon this Agreement, will take action and expend funds to provide the requested service. By signing this Agreement the undersigned signifies that he or she has the authority to select the electric service provider, for both permanent and temporary power, for the Premises identified above.

Any additional terms and conditions to this Agreement are attached as Appendix 1. If no appendix is attached this Agreement constitutes the entire agreement of the parties.

Acceptance of this Agreement by the Town constitutes a binding contract to purchase and sell electric power.

Please note that under North Carolina General Statute §160A-332, you may be entitled to choose another electric supplier for the Premises.

Upon acceptance of this Agreement, the Town of Apex Electric Utilities Division will be pleased to provide electric service to the Premises and looks forward to working with you and the owner(s).

ACCEPTED:

CUSTOMER: \_\_\_\_\_

TOWN OF APEX

BY: \_\_\_\_\_  
Authorized Agent

BY: \_\_\_\_\_  
Authorized Agent

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

**AGENT AUTHORIZATION FORM**

Application #: \_\_\_\_\_ Submittal Date: \_\_\_\_\_

Edith S Morris is the owner of the property for which the attached application is being submitted:

- Land Use Amendment
- Rezoning
- Site Plan
- Subdivision
- Variance
- Other: \_\_\_\_\_

The property is located at: 0, 7208, and 7208B Morris Acres Rd

The agent for this project is: Jason Barron

I am the owner of the property and will be acting as my own agent

Agent Name: Jason Barron

Address: 421 Fayetteville Street | Ste 530, Raleigh, NC 27601

Telephone Number: 919-590-0371

Fax Number: \_\_\_\_\_

E-Mail Address: jbarron@morningstarlawgroup.com

Signature(s) of Owner(s)

*Edith S. Morris*

Edith S. Morris  
Type or print name

1-28-2019  
Date

\_\_\_\_\_  
Type or print name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Type or print name

\_\_\_\_\_  
Date

Attach additional sheets if there are additional owners.

**\*Owner of record as shown on the latest equalized assessment rolls of Wake County. (An option to purchase does not constitute ownership). If ownership has been recently transferred, a copy of the deed must accompany this authorization.**



Please complete each section and return by email or fax to all:

**WCPSS**  
Debra Adams  
[dbadams@wcpss.net](mailto:dbadams@wcpss.net)

Judy Stafford  
[istafford1@wcpss.net](mailto:istafford1@wcpss.net)

Fax: 919-431-7302

**WAKE**  
Mike Ping  
[Mike.ping@wakegov.com](mailto:Mike.ping@wakegov.com)

Fax: 919-856-6389

Developer Company Information	
Company Name	Kaplan Residential
Company Phone Number	305.901.2202
Developer Representative Name	Jason Barron
Developer Representative Phone Number	919-590-0371
Developer Representative Email	jbarron@morningstarlawgroup.com

New Residential Subdivision Information	
Date of Application for Subdivision	2/1/19
City, Town or Wake County Jurisdiction	Apex
Name of Subdivision	
Address of Subdivision (if unknown enter nearest cross streets)	Morris Acres Rd at Reedybrook Crsg
REID(s)	
PIN(s)	0732-28-9587; 0732-38-2530; and 0732-38-2709

Projected Dates Information	
Subdivision Completion Date	2021
Subdivision Projected First Occupancy Date	2020

Lot by Lot Development Information																	
Unit Type	Total # of Units	Senior Living	Studio	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom	Square Foot Range		Price Range		Anticipated Completion Units & Dates					
								Min	Max	Low	High	Year	# Units	Year	# Units	Year	# Units
Single Family	0																
Townhomes	0																
Condos	0																
Apartments	303											2020	84	2021	219		
Other	0																



# NOTICE OF NEIGHBORHOOD MEETING

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

1/11/19

Date

Dear Neighbor:

You are invited to a neighborhood meeting to review and discuss the development proposal at  
0, 7208, 72088 Morris Acres Road ( 0732-28-9587; 0732-38-2530; and 0732-38-2709 )  
Address(es) PIN(s)

in accordance with the Town of Apex Neighborhood Meeting procedures. The Neighborhood Meeting is intended as a way for the applicant to discuss the project and review the proposed plans with adjacent neighbors and neighborhood organizations before the submittal of an application to the Town. This provides neighbors an opportunity to raise questions and discuss any concerns about the impacts of the project before it is officially submitted. Once an application has been submitted to the Town, it may be tracked using the [Interactive Development Map](#) or the [Apex Development Report](#) located on the Town of Apex website at [www.apexnc.org](http://www.apexnc.org).

A Neighborhood Meeting is required because this project includes (check all that apply):

- Rezoning (including Planned Unit Development);
- Major Site Plan;
- Master Subdivision Plan (excludes minor or exempt subdivision); or
- Special Use Permit

The following is a description of the proposal (also see attached map(s) and/or plan sheet(s)):

Rezoning to PUD is requested in order to allow the development of an approximately 300 unit multifamily development with multiple buildings, each up to 5 stories tall.

Estimated submittal date: 2/1/19

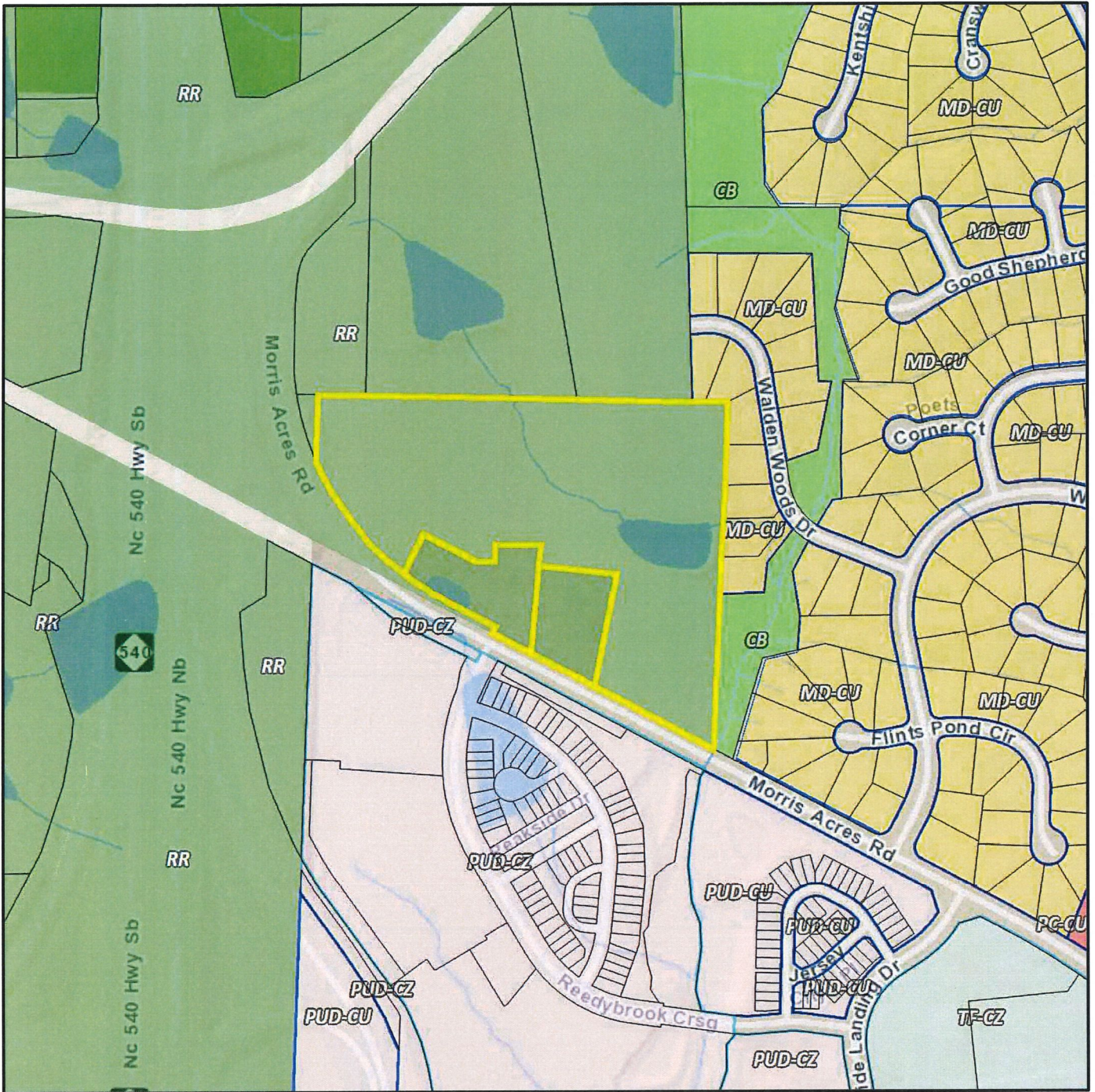
## MEETING INFORMATION:

Property Owner(s) name(s):	Edith S Morris
Applicant(s):	Jason Barron - Attorney for Applicant
Contact information (email/phone):	jbarron@morningstarlawgroup.com / 919.590.0371
Meeting Address:	237 N Salem St. Apex, NC 27502
Date of meeting*:	1/24/19
Time of meeting*:	6:00pm

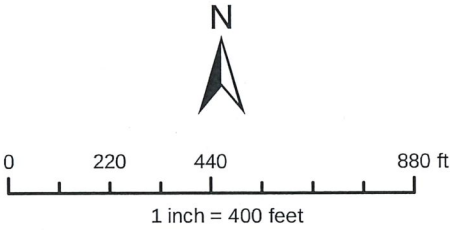
## MEETING AGENDA TIMES:

Welcome:	6:00 - 6:05
Project Presentation:	6:06 - 6:15
Question & Answer:	6:15 - on

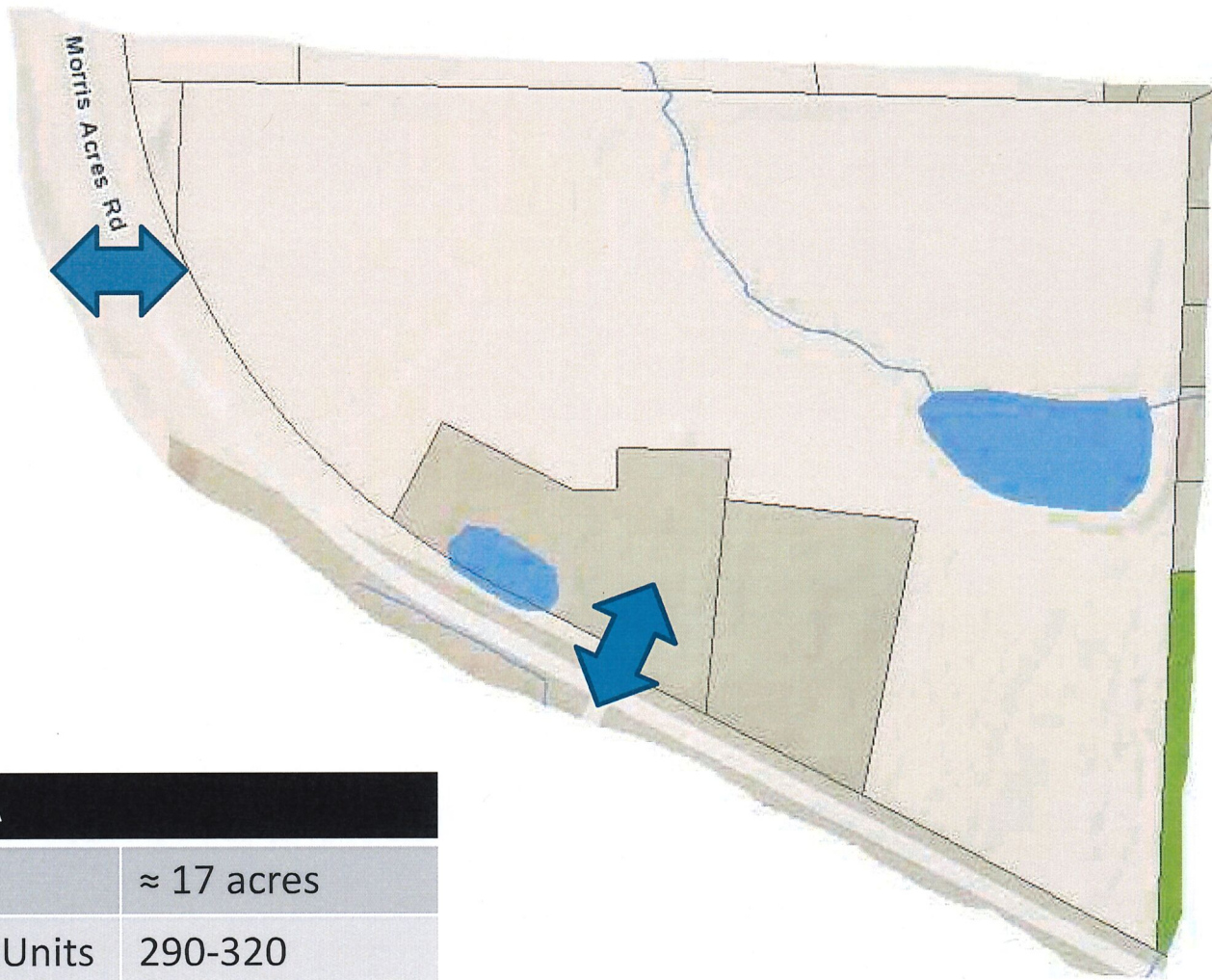
\*Meetings shall occur between 5:00 p.m. - 9:00 p.m. on a Monday through Thursday (excluding Town recognized holidays). If you have questions about the general process for this application, please contact the Planning Department at 919-249-3426. You may also find information about the Apex Planning Department and on-going planning efforts at <http://www.apexnc.org/180/Planning>.



Vicinity and Zoning Map



**Disclaimer**  
 iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are NOT surveys. No warranties, expressed or implied, are provided for the data therein, its use, or its interpretation.



SITE DATA	
Acreage	≈ 17 acres
Proposed Units	290-320

 - Proposed Vehicular Connection(s)

# NEIGHBORHOOD MEETING SIGN-IN SHEET

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

Meeting Address: 237 N Salem St. Apex, NC 27502  
 Date of meeting: 1/24/19 Time of meeting: 6:00 PM  
 Property Owner(s) name(s): Edith S Morris  
 Applicant(s): Jason Barron - Attorney for Applicant

Please print your name below, state your address and/or affiliation with a neighborhood group, and provide your phone number and email address. Providing your name below does not represent support or opposition to the project; it is for documentation purposes only.

	NAME/ORGANIZATION	ADDRESS	PHONE #	EMAIL	SEND PLANS & UPDATES
1.	Jim Lopez	Walden Creek	—	—	—
2.	Jeff Pickover	Walden Creek	—	—	—
3.	Debi Cawthon	Walden Creek			
4.	Johnson Cawthon	Walden Creek			
5.	Susan Cormier	Walden Creek			
6.	Andy Chinboukas	Walden Creek			
7.	Bosann Chinboukas	Walden Creek			
8.	Patti Edwards	Walden Creek			
9.	Diana Hanning	Walden Creek			
10.	Don Grosser	Walden Creek			
11.	Andrew Scholied	Walden Creek.			
12.	ROBERT WARNER	WALDEN CREEK			
13.	Phyllis Townsend	White Pond Ct/Walden Townes			
14.	JIM TOWNSEND	" " "			

Use additional sheets, if necessary.

# NEIGHBORHOOD MEETING SIGN-IN SHEET

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Meeting Address: 237 N Salem St. Apex, NC 27502

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Property Owner(s) name(s): Edith S Morris

Applicant(s): Jason Barron - Attorney for Applicant

Please print your name below, state your address and/or affiliation with a neighborhood group, and provide your phone number and email address. Providing your name below does not represent support or opposition to the project; it is for documentation purposes only.

	NAME/ORGANIZATION	ADDRESS	PHONE #	EMAIL	SEND PLANS & UPDATES
1.	BANDHOLZ	2405 RABBIT WALK			
2.	Jonathan Schisler	2006 Walden Globe Rm			
3.	Bradley Carey	2204 Oak Stream Ln			
4.	Chris Kiper	2326 Walden Creek Dr.			
5.	John + Cindy Leitzow	700 Julianney Ln			
6.	MORGAN HURT	1611 SQUAW WALDEN, APEX			
7.	Dora Schmitt	2216 Echo Glen Ln			
8.	Gus GREEN	2500 FLINTS POND CR			
9.	Astr Ankney	2507 Flints Pond Cir			
10.	Jonathan Edwards	1901 Deveron ct			
11.	Dave Safian	2506 Flints Pond Cir			
12.	CRAIG PINE	2528 Walden Woods Dr			
13.	Mike Kilmarton	2406 Rabbit Walk Ln			
14.	Gus Carey	2306 Bristers Spring Way			

Use additional sheets, if necessary.

# NEIGHBORHOOD MEETING SIGN-IN SHEET

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Meeting Address: 237 N Salem St. Apex, NC 27502

Date of meeting: 1/24/19 Time of meeting: 6:00 PM

Property Owner(s) name(s): Edith S Morris

Applicant(s): Jason Barron - Attorney for Applicant

Please print your name below, state your address and/or affiliation with a neighborhood group, and provide your phone number and email address. Providing your name below does not represent support or opposition to the project; it is for documentation purposes only.

	NAME/ORGANIZATION	ADDRESS	PHONE #	EMAIL	SEND PLANS & UPDATES
1.	BURAK ERYIGIT	2208 GOOD SHEPHERD			
2.	CHRISTY HETTFELD	2219 WALDEN CREEK DR.			
3.	MIKE ROSEN AIA	2300 WALDEN CREEK			
4.	KATHERINE NUTT	2325 WALDEN CREEK DR.			
5.	JIM BUTTERWORTH	2520 WALDEN WOODS DR.			
6.	ANDREW GEORGE	2314 WALDEN CREEK DR.			
7.	JOHN KOESTER	2505 WALDEN WOODS DR.			
8.	JOHANNA KOESTER	2505 WALDEN WOODS DR.			
9.	J.J. FALKANGER	2517 WALDEN WOODS			
10.	KERRY FALKANGER	2517 WALDEN WOODS			
11.	DAN ISAACS	2502 WALDEN WOODS			
12.	JOHN WILLIAMS	2518 WALDEN WOODS DR.			
13.	MARC MULLIN	2113 ECHO GLEN LN			
14.	RYAN SIMMONS	2508 FLINTS POND			

Use additional sheets, if necessary.

# NEIGHBORHOOD MEETING SIGN-IN SHEET

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Meeting Address: 237 N Salem St. Apex, NC 27502

Date of meeting: 1/24/19 Time of meeting: 6:00 PM

Property Owner(s) name(s): Edith S Morris

Applicant(s): Jason Barron - Attorney for Applicant

Please print your name below, state your address and/or affiliation with a neighborhood group, and provide your phone number and email address. Providing your name below does not represent support or opposition to the project; it is for documentation purposes only.

	NAME/ORGANIZATION	ADDRESS	PHONE #	EMAIL	SEND PLANS & UPDATES
1.	CRYSTAL SIMMONS	2508 FLINTS POND CIR			
2.	Paul + Renae Harper	3519 WALDEN WOODS DRIVE			
3.	Erin Kaplan	2524 WALDEN WOODS DR			
4.	NANCY + PAT FARLEY	505 TRELAGONEY LN. CARY			
5.	Sharon Malley	2817 Kentshire PL			
6.	Erika Chapman	2808 Kentshire Pl.			
7.	Pamela Green	2018 WALDEN GLADE			
8.	IRENA REA	2201 HENNIKER ST			
9.	Gail Peterson	2532 Walden Woods Dr			
10.	LINDA HEBERT	2110 WHITE POND CT			
11.	BRANDON VOJTICEK	2511 WALDEN WOODS DR			
12.	Jason Morris	7208 Morris Acres Rd.			
13.	Edith Morris	7208 Morris Acres Rd.			
14.	Michael DuBrau	2503 Cranswick place			

Use additional sheets, if necessary.

# NEIGHBORHOOD MEETING SIGN-IN SHEET

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

Meeting Address: 237 N Salem St. Apex, NC 27502

Date of meeting: 1/24/19 Time of meeting: 6:00 PM

Property Owner(s) name(s): Edith S Morris

Applicant(s): Jason Barron - Attorney for Applicant

Please print your name below, state your address and/or affiliation with a neighborhood group, and provide your phone number and email address. Providing your name below does not represent support or opposition to the project; it is for documentation purposes only.

	NAME/ORGANIZATION	ADDRESS	PHONE #	EMAIL	SEND PLANS & UPDATES
1.	ANNA COHEN	1602 SHEPHERDS GLADE	[REDACTED]	[REDACTED]	✓
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					

Use additional sheets, if necessary.

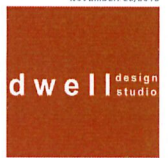




CONCEPT IMAGERY

# MORRIS APEX

APEX, NORTH CAROLINA



NOVEMBER/20/2016

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# SUMMARY OF DISCUSSION FROM THE NEIGHBORHOOD MEETING

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

Property Owner(s) name(s): Edith Morris  
Applicant(s): Jason Barron - Attorney for Applicant  
Contact information (email/phone): jbarron@morningstarlawgroup.com / 919-590-0371  
Meeting Address: 237 N Salem St. Apex, NC  
Date of meeting: 1/24/19 Time of meeting: 6:00PM

Please summarize the questions/comments and your response from the Neighborhood Meeting in the spaces below (attach additional sheets, if necessary). Please state if/how the project has been modified in response to any concerns. The response should not be "Noted" or "No Response". There has to be documentation of what consideration the neighbor's concern was given and justification for why no change was deemed warranted.

Question/Concern #1:

There was a concern raised about building height

Applicant's Response:

The notice indicated building heights of up to 5 stories, but it was explained that the buildings generally are only 4 stories. Because of the topo in some areas, a 5th "basement" story is possible, which is why the max height was listed as 5 stories. In reality, the top of each building will appear to be only 4-stories high.

Question/Concern #2:

What type of road improvements will you all be doing and when?

Applicant's Response:

A TIA has been submitted which may recommend offsite road improvements, but for now, the only thing we know for certain is that we will be required to widen Morris Acres Road to a 3-lane section for our entire frontage. That improvement, plus any others committed to as a result of the TIA, will be required to be built before we can get a CO.

Question/Concern #3:

What can be done about existing flooding problems and how will SW be handled?

Applicant's Response:

The design and engineering for stormwater controls are done at time of site plan. We will meet the Town's requirements for quantity and quality of runoff from the site. At this stage, we can look into the existing flooding issues you all experience. It may be possible for us to address some of that issue at the zoning stage, but we need to study it first.

Question/Concern #4:

What kind of buffers will you have?

Applicant's Response:

We will have a 25' wide Type A buffer around the perimeter of the property. On the southeast side, there is a Town owned parcel which creates additional separation in that area. On the northeast side, we are committing to preserving that area as passive open space which will not be developed.

# SUMMARY OF DISCUSSION FROM THE NEIGHBORHOOD MEETING

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Property Owner(s) name(s): Edith Morris  
Applicant(s): Jason Barron - Attorney for Applicant  
Contact information (email/phone): jbarron@morningstarlawgroup.com / 919-590-0371  
Meeting Address: 237 N Salem St. Apex, NC  
Date of meeting: 1/24/19 Time of meeting: 6:00PM

Please summarize the questions/comments and your response from the Neighborhood Meeting in the spaces below (attach additional sheets, if necessary). Please state if/how the project has been modified in response to any concerns. The response should not be "Noted" or "No Response". There has to be documentation of what consideration the neighbor's concern was given and justification for why no change was deemed warranted.

Question/Concern #1:

Why is this a quasi-judicial case? What exceptions to the UDO are you seeking?

Applicant's Response:

Our rezoning is not quasi-judicial; it is a legislative approval. We are not seeking any exception to the UDO at this time. The site plan, which will come after rezoning, is a quasi-judicial approval, but not due to any exception or variance we are seeking. In Apex, all Major Site Plans are quasi-judicial, even if not variance or exception is sought.

Question/Concern #2:

Can you put a fence along the perimeter?

Applicant's Response:

We are open to doing that, but some people have expressed that they do not want a fence. Depending on where the fence proponents are, we may be able to put a fence along a portion of the perimeter and keep it off of the areas where people do not want a fence. We will look into adding this.

Question/Concern #3:

How will this project affect our property values?

Applicant's Response:

We have not had an appraiser study that, but there are very few projects which negatively affect property value. Our expectation is that this project would not hurt your property values.

Question/Concern #4:

Do any of these examples on the concept imagery handout apply to this project?

Applicant's Response:

All of these are examples of what this developer has built elsewhere, but not all will apply to this site. Some will. We are required to include sample elevations with our rezoning submittal, so you will see some of these again as part of our submittal.

# SUMMARY OF DISCUSSION FROM THE NEIGHBORHOOD MEETING

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Property Owner(s) name(s): Edith Morris  
Applicant(s): Jason Barron - Attorney for Applicant  
Contact information (email/phone): jbarron@morningstarlawgroup.com / 919-590-0371  
Meeting Address: 237 N Salem St. Apex, NC  
Date of meeting: 1/24/19 Time of meeting: 6:00PM

Please summarize the questions/comments and your response from the Neighborhood Meeting in the spaces below (attach additional sheets, if necessary). Please state if/how the project has been modified in response to any concerns. The response should not be "Noted" or "No Response". There has to be documentation of what consideration the neighbor's concern was given and justification for why no change was deemed warranted.

Question/Concern #1:

What will the time line be for construction?

Applicant's Response:

From today, we would anticipate about 2 years before breaking ground. The project will most likely be developed in a single phase which may take about 18 to 24 months to complete.

Question/Concern #2:

Is there enough parking?

Applicant's Response:

Based on this developer's experience and what we are seeing in the market, we believe that Apex's standard parking ratio for multi-family will provide adequate parking for this use. Moreover, it is important that we put enough parking on this site because there is no opportunity for shared parking with any adjacent development.

Question/Concern #3:

Will there be sidewalks?

Applicant's Response:

Yes. We are required to build sidewalk along our Morris Acres Road frontage and there will be sidewalks internal to the site.

Question/Concern #4:

Applicant's Response:

# AFFIDAVIT OF CONDUCTING A NEIGHBORHOOD MEETING, SIGN-IN SHEET AND ISSUES/RESPONSES SUBMITTAL

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

I, Nil Ghosh, do hereby declare as follows:  
Print Name

1. I have conducted a Neighborhood Meeting for the proposed Rezoning, Major Site Plan, Master Subdivision Plan, or Special Use Permit in accordance with UDO Sec. 2.2.7 *Neighborhood Meeting*.
2. The meeting invitations were mailed to the Apex Planning Department, all property owners within 300 feet of the subject property and any neighborhood association that represents citizens in the area via first class mail a minimum of 10 days in advance of the Neighborhood Meeting.
3. The meeting was conducted at 237 N Salem St, Apex, NC 27502 (location/address) on 1/24/19 (date) from 6:00PM (start time) to 8:00PM (end time).
4. I have included the mailing list, meeting invitation, sign-in sheet, issue/response summary, and zoning map/reduced plans with the application.
5. I have prepared these materials in good faith and to the best of my ability.

1/29/19  
Date

By: [Signature]

STATE OF NORTH CAROLINA  
COUNTY OF ~~WAKE~~ Durham

Sworn and subscribed before me, Terri Lee Tolley, a Notary Public for the above State and County, on this the 29th day of January, 2019.



[Signature]  
Notary Public  
Terri Lee Tolley  
Print Name

My Commission Expires: 8/25/2023

# Morris Acres PUD

PD PLAN

APEX, NORTH CAROLINA

Submitted: February 2019

Revised: February 28, 2019

Revised: May 10, 2019

Revised: June 7, 2019

Revised: June 27, 2019

Revised: July 31, 2019

Revised: August 6, 2019

Revised: August 23, 2019

PREPARED BY:



## **Section 1: Table of Contents – PUD Text**

Section 1: Table of Contents

Section 2: Vicinity Map

Section 3: Project Data

Section 4: Purpose Statement

Section 5: Permitted Uses

Section 6: Design Controls

Section 7: Architectural Controls

Section 8: Parking and Loading

Section 9: Signage

Section 10: Natural Resource and Environmental Data

Section 11: Stormwater Management

Section 12: Parks and Recreation

Section 13: Public Facilities

Section 14: Phasing Plan

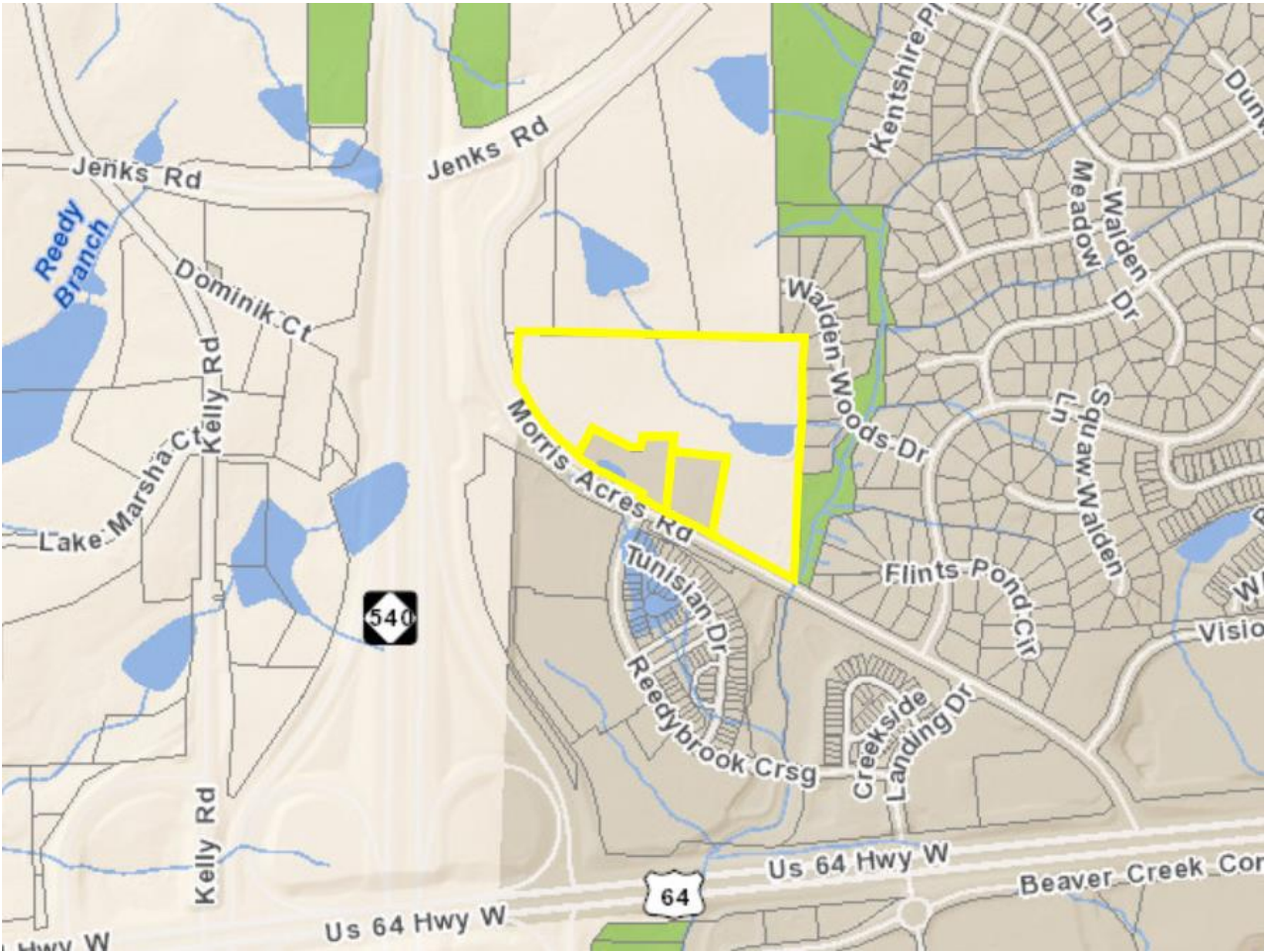
Section 15: Consistency with 2045 Land Use Plan

Section 16: Compliance with UDO

Section 17: Compliance with Apex Bicycle Plan

Section 18: Public Art

## Section 2: Vicinity Map



The Morris Acres PUD is located in the Town of Apex, east of I-540, south of Jenks Road, and north of US-64. The properties are located on the north side of Morris Acres Road. To the north are large tracts of agricultural land with frontage on Jenks Road. Directly south is Morris Acres Road, and across Morris Acres Road is the 540 Townes Townhome community. East of the project site is the large Walden Creek single-family neighborhood built in the late 90's and early 2000's. Morris Acres Road and I-540 are directly west of the project.



### Section 3: Project Data

**A. Name of Project:**

Morris Acres PUD

**B. Property Owners:**

Edith S. Morris

**Prepared By:**

Jason Barron, Partner  
Morningstar Law Group  
421 Fayetteville St | Ste 530  
Raleigh, NC 27601

**C. Current Zoning Designation:**

Rural Residential (RR)

**D. Proposed Zoning Designation:**

Planned Unit Development – Conditional Zoning (PUD-CZ)

**E. Current 2045 Land Use Map Designation:**

Medium Density Residential (< 6 units/acre)

**F. Proposed 2045 Land Use Map Designation:**

High Density Residential

**G. Proposed Use**

Up to 297 dwelling units and associated open space, recreational amenities and infrastructure.

**H. Size of Project**

Wake County Tax Identification Number	Acreage
0732-28-9587; 0732-38-2530; and 0732-38-2709	17.44 acres

## Section 4: Purpose Statement

The Morris Acres PUD development will be a multi-building apartment community with buildings that are up to four (4) stories or less entirely above grade (i.e., where basement units are feasible, some sides of buildings may be up to five (5) stories). The maximum building height shall be sixty-five feet (65') measured to the top of any pitched roof. Given the proximity of the subject property to the existing residences in Walden Woods (located to the east of the site), there shall be a minimum building setback of one hundred fifty feet (150') from any lot within Walden Woods containing a dwelling unit, and no structures on the property can be located any closer than two hundred seventy five feet (275') from the nearest home that is located on Flints Pond Circle. Additionally, in the medium density residential transition area as shown on the PUD Preliminary Layout Plan (the "Medium Density Transition Area"), the maximum height of buildings shall be three (3) stories up to a maximum height of forty-five feet (45'), a maximum of four (4) dwelling units per acre shall be permitted, and only townhome style multifamily units (i.e., side-by-side residences rather than stacked apartments) shall be permitted. Further, a Type A buffer shall be established along the eastern boundary of the subject property from Morris Acres Road to the southern edge of the riparian buffer around the existing farm pond on the subject property, a 10' wide evergreen planting strip shall be provided adjacent to riparian areas in the southeastern portion of the site, and a solid privacy fence at least eight feet (8') in height shall be installed within the Medium Density Residential Transition Area to provide beneficial screening from the proposed use to the adjacent community. Additionally, the northeastern corner of the subject property, north and east of the existing creek and pond, is to be preserved as permanent passive open space. Lastly, at least five percent (5%) of the units shall be affordable housing units at sixty percent (60%) of Wake County AML for a period of at least twenty (20) years, and all of the buildings shall be prewired for solar.

This concept is consistent with the Town's stated PUD goal to provide site specific, high quality neighborhoods that exhibit natural feature preservation as well as compatibility with, and connectivity to, surrounding land uses. More specifically, this plan will:

- Allow uses that are compatible with Section 4.2.2, *Use Table* of the UDO
- Provide for the preservation of existing open space areas.
- Provide appropriate buffering and screening from the proposed use to the existing residential areas.
- Offer multifamily style living near interstate I-540 in an area where there are not many options for the same.
- Demonstrate dimensional standards that are consistent with the UDO, and where variations occur, said variations will be included herein and subject to Council approval.
- Provide a high quality community that is linked by a network of connected streets and pedestrian sidewalks that promotes connectivity, walkability and healthy lifestyles.
- Exhibit character and quality that is compatible with surrounding communities, which is expected to enhance the value of surrounding land uses.

- Provide significant open space and walkable trails to promote pedestrian activity, while appropriately buffering adjacent residential areas

All site-specific standards and conditions of this PUD Plan shall be consistent with all Conditional Zoning (CZ) District standards set forth in the UDO Section 2.3.3, *Conditional Zoning Districts* and UDO Section 2.3.4.F.1, *Planned Unit Development (PUD-CZ) District*. The proposed PUD will provide a development density that is consistent with principles found throughout the recently updated Advance Apex 2045. Through various policies, the Peak Plan 2030 works to ensure that there are appropriate transitions between uses. The proposed PUD Plan does just that, by transitioning from I-540 on the west to the single-family Walden Creek community east of the site. Thus, the plan is consistent with several policies contained within the Peak Plan 2030.

## Section 5: Permitted Uses

The development will only include residential and supporting uses. Specifically, the permitted uses include:

- Multi-family or apartment
- Greenway
- Recreation Facility, private
- Park, active
- Park, passive
- Utility, minor

Additionally, the following conditions shall also apply:

- A maximum of 297 residential units shall be permitted upon the property.
- Along the eastern boundary of the subject property, extending from Morris Acres Road to the southern edge of the riparian buffer around the existing farm pond, the following shall be installed and maintained:
  - A fifty-foot (50') Type A vegetative buffer; and
  - An at least eight feet (8') tall solid privacy fence. The final location of the fence within the 50' Type A buffer will be determined at the time of site plan.
- In the 3.00 acre Medium Density Residential Transition Area as depicted on the Preliminary Layout Plan, the following conditions shall apply:
  - The maximum height for buildings shall be three (3) stories, up to a foot height of forty-five feet (45');
  - Only townhome style units (i.e., side-by-side rather than stacked multifamily) may be permitted; and
  - The maximum development density within this area shall be four (4) dwelling units per acre, and no more than 12 dwelling units in total.
- In the area identified as "Passive Open Space" on the PUD Plan, no buildings or other structures shall be permitted, with the exception of passive recreational amenities.
- A minimum of fifty percent (50%) of the dwelling units shall be one-bedroom units,

and a maximum of ten percent (10%) of the dwelling units shall be three-bedroom units.

- F. For a period of at least twenty (20) years from the date of the issuance of the certificate of occupancy, at least five percent (5%) of the units developed on the site shall be preserved as affordable housing units at sixty percent (60%) of Wake County's area median income.
- G. All buildings constructed on the property shall provide solar conduit for the installation of rooftop solar panels.

## Section 6: Proposed Design Controls

**A. Maximum Non-Residential Densities (SF per non-residential use)** This PUD does not provide for any non-residential land uses (see Section 5, *Permitted Uses*).

### B. Residential Densities and Design Controls

**Density** - The overall gross density shall not exceed 17.0 units per acre. The gross density within the Medium Density Transition Area shall not exceed 4.0 units per acre.

**Design Controls** – Dimensional standards below shall apply to all residential uses, and at a minimum, will comply with the following:

Maximum Density: 17.0 Units/Acre  
(includes RCA and rights-of-way)

Maximum Number of Units: 297

Maximum Built-Upon Area: 70%

Minimum Lot Size: n/a

Minimum Lot Width: n/a

Maximum Building Height: Four (4) stories  
above grade, with a basement level (5<sup>th</sup> story)  
or 65'

*Note: Porches, patios, decks and other accessory structures may encroach into building setbacks as allowed by the Town of Apex UDO.*

Minimum Building Setbacks:

- From Building to Building: 10 feet
- From Buffer/RCA: 10 feet for Buildings  
5 feet for Parking Areas

Additional Setback: 150 feet from any lot within Walden Woods containing a dwelling unit

Within Medium Density Transition Area:

- Max Building Height: 3 stories (45')
- Maximum Density: 4.0 units/acre
- Setback: no building shall be constructed closer than 275' from the nearest home on Flints Pond Circle

### C. Buffers

Perimeter Buffers

North boundary:	20-foot Type A
South boundary (Morris Acres Road):	30-foot Type A
West boundary (along 0732-29-5017):	30-foot Type A
East boundary	
Where Abutting Town of Apex Property:	50-foot Type A with ≥8-ft solid privacy fence
Adjacent to riparian buffers within Medium Density Transition Area:	10' wide evergreen planting strip
Otherwise:	50-foot undisturbed

*Note: Where perimeter buffers coincide with stream buffers or 100-year floodplain, existing vegetation will be used to meet the buffer width and opacity.*

### Thoroughfare Buffers

As depicted on the PD Plan, a 30' Type A Buffer shall be established along Morris Acres Road.

## Section 7: Proposed Architectural Controls

The proposed development offers the following architectural controls to ensure a consistency of character throughout the development, while allowing for enough variety to create interest and avoid monotony. Changes to the exterior materials, roof, windows, doors, process, trim, etc. are allowable with administrative approval at the staff level. Further details shall be provided at the time of Site Plan submittal. The following conditions shall apply:

- A. Vinyl siding will not be used except for vinyl windows and limited decorative element use. Residential areas will utilize brick, stone, and Hardi-plank siding.
- B. Siding materials will be varied in type and/or color on 30% of each façade on each building.
- C. Windows that are not recessed shall be trimmed. Windows shall vary in size and/or type.
- D. Recesses and projections shall be provided for at least 50% of each facade on each building. Building facades shall have horizontal relief achieved by the use of recesses and projections.
- E. Four of the following decorative features shall be used on each building: decorative shake, board and batten siding, decorative porch rails and posts, shutters, decorative functional foundation and roof vents, recessed windows, decorative windows, decorative brick or stone, decorative gables, decorative cornices, or metal roofing.
- F. A varied color palette shall be utilized throughout the development to include a minimum of three color families for siding and shall include varied trim, shutter, and accent colors complementing the siding color.
- G. The rear and side elevations of the units that can be seen from the right-of-way shall have trim around the windows.
- H. Additionally, the following conditions shall apply to the building(s) located in the Medium Density Transition Area, as identified on the PUD Preliminary Sheet:
  - 1. The roof of each unit shall be horizontally and/or vertically distinct from any adjacent unit so as to avoid the appearance of a single mass.
  - 2. Front facing garage doors must have windows, decorative details, or carriage-style adornments.
  - 3. Entrances for units with front-facing garages shall have a prominent covered porch/stoop area leading to the front door.
  - 4. The front façade of any front-loaded garage shall not protrude farther than one foot forward of (i) the front façade of the dwelling unit, or (ii) the front porch of the dwelling unit, whichever is closer to the right-of-way from which the dwelling unit is addressed.

## Section 8: Parking and Loading

Parking for the development shall be per Town of Apex UDO.

## Section 9: Signage

All signage for this PUD shall comply with Section 8.7, *Signs*, of the Town of Apex UDO.

## **Section 10: Natural Resource and Environmental Data**

### **A. River Basins and Watershed Protection Overlay Districts**

The project is located within the Beaver Creek drainage basin, which is within the Cape Fear River Basin.

### **B. Resource Conservation Areas (RCA) – Required and Provided**

This PUD will be subject to, and meet the requirements of Section 8.1.2 of the UDO, *Resource Conservation Area* and Section 2.3.4, *Planned Development Districts*.

The Site is located on the east side of the 540 corridor and therefore is required to preserve a minimum of 30% Resource Conservation Area (RCA). Designated RCA areas will be consistent with the items listed in Section 8.1.2(B) of the Town's UDO. Preserved streams, wetlands, and associated riparian buffers provide the primary RCA's throughout the site. Additional RCA area provided include stormwater management areas, perimeter buffers, and greenway trails within the walkable community.

### **C. Any historic structures present**

As confirmed by the North Carolina State Historic Preservation Office and Capital Area Preservation, Inc. there are no historic structures present within the project boundary.

## **Section 11: Stormwater Management**

- A. This PUD shall meet all stormwater management requirements for quality and quantity treatment in accordance with Section 6.1.7 of the UDO, such that:
  - Post development peak runoff shall not exceed pre-development peak runoff conditions for the 1 year, 10 year, and 25 year 24-hour storm events.
- B. This PUD shall convey as much stormwater runoff from the site development as practical, including required Stormwater Control Measures (SCM'), to the existing 48" RCP culvert located in the southeastern corner of the site along Morris Acres Road. The direct storm drainage connection to the existing 48" RCP culvert is subject to final approval by the Town of Apex, NCDOT or any other regulatory agency. In the event that this direct storm drainage connection is not approved, then this PUD shall meet and exceed existing stormwater management requirements for quality and quantity treatment provided in Section 6.1.7 of the UDO, such that post development peak runoff shall not exceed pre-development peak runoff conditions for the 1 year, 10 year, 25 year, and 100 year 24-hour storm events

## **Section 12: Parks and Recreation**

The Parks, Recreation, and Cultural Resources Advisory Commission recommended a fee-in-lieu for the project at the May 29, 2019 meeting.

## **Section 13: Public Facilities**

The proposed PUD shall meet all Public Facilities requirements as set forth in UDO Section 2.3.4(F)(1)(f) and be designed according to sound engineering standards, and shall comply with Town of Apex Sewer and Water Master Plan and the Town of Apex Standards and Specifications. Specifically, road and utility infrastructure shall be as follows:

- **General Roadway Infrastructure**

Developer shall provide minimum frontage widening based on ½ of a 3-lane thoroughfare section with side path and public right-of-way dedication based on an eighty foot (80') right-of-way along Morris Acres Road. The road network will promote connectivity wherever possible to adjacent neighborhoods and undeveloped property. Further, cul-de-sacs will be avoided except where environmental features make through streets unfeasible. Sidewalks will be provided on both sides of streets internal to the site and along street frontage.

Please refer to the concept plan of the PUD plan for proposed access points, stub streets and planned vehicular connectivity. All access and circulation is conceptual and will be finalized at the time of Major Site Plan review and approval.

- **Transportation Improvements**

5. Roadway improvements are subject to modification and final approval by the Town of Apex and NCDOT as part of the site plan and construction plan approval process. A traffic study has been performed as part of this PUD rezoning consistent with the Town's standards for the same. Based upon the traffic study, no offsite improvements are recommended for this development.

- **Wayfinding Improvements**

Wayfinding measures at the site shall be provided in an effort to facilitate the movement of vehicles and pedestrians to and within the development.

- **Water and Sanitary Sewer**

All lots within the project will be served by the Town of Apex for water and sanitary sewer. The utility design will be finalized at the time of Major Site Plan review and approval based upon available facilities adjacent to the site at that time. A conceptual utility plan is included in the PUD plan for reference.

- **Other Utilities**

Electricity will be provided by Apex Electric. Phone, cable and gas will be provided by the developer and shall meet the Town of Apex standards as outlined in the UDO.

## **Section 14: Phasing Plan**

This PUD may be completed in up to three (3) phases, with construction anticipated to begin in 2020. Project phasing will be planned to ensure the points of access are



provided in accordance with the UDO.

### **Section 15: Consistency with the 2045 Land Use Map**

The proposed land use is consistent with the 2045 Land Use Map, if the Land Use Map Amendment is approved.

### **Section 16: Compliance with the UDO**

The development standards adopted for this PUD are in compliance with those set forth in the current version of the Town's Unified Development Ordinance (UDO). Any deviations from UDO requirements have been specifically defined within this document.

### **Section 17: Compliance with Comprehensive Transportation Plan and Bicycle Plan**

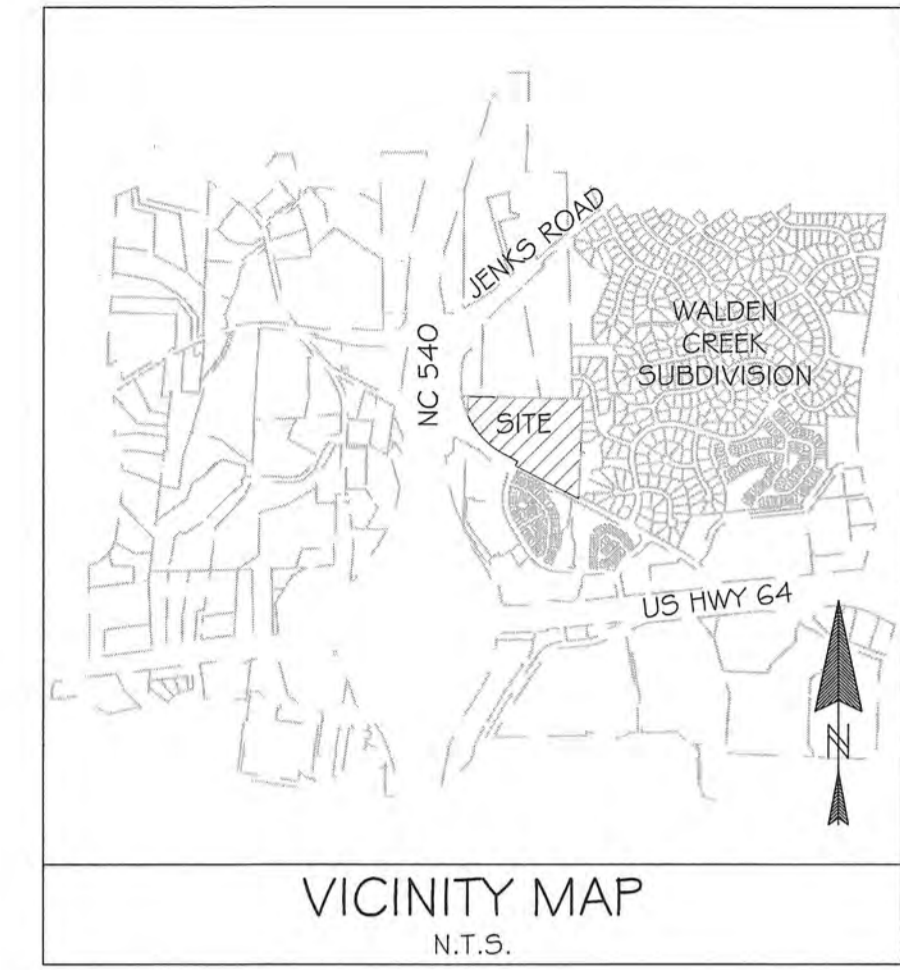
Major Site Plans for any development to be made pursuant to this amendment to the Official Zoning District Map shall comply with the adopted Comprehensive Transportation Plan in effect at the time of the Major Site Plan approval as provided for in the Unified Development Ordinance. Further, development of the Property shall be consistent with the Town's adopted Bicycle Plan.

### **Section 18: Public Art**

The applicant shall provide a 6' x 6' Public Art easement to the Town of Apex along the Morris Acres Road frontage of the subject property. The precise location for this easement will be determined at the time of site plan review.



# MORRIS TRACT PLANNED UNIT DEVELOPMENT



SITE DATA	
PROJECT NAME	MORRIS TRACT
PREPARER'S CONTACT INFORMATION	JONES & CROSSEN ENGINEERING, PLLC P.O. BOX 1062 APEX, NORTH CAROLINA 27502 PHONE - (919) 387-1174 FAX - (919) 387-3375 CONTACT PERSON - PETER D. CROSSEN
OWNER / DEVELOPER CONTACT INFORMATION	KAPLAN RESIDENTIAL 1111 KANE CONCOURSE, SUITE 302 BAY HARBOR, FLORIDA 33154 PHONE - (305) 901-2203 CONTACT PERSON - MORRIS KAPLAN
CURRENT ZONING	RR
CURRENT 2045 LAND USE MAP DESIGNATION	MEDIUM DENSITY RESIDENTIAL
PROPOSED ZONING DESIGNATION	PUD-CZ
PROPOSED 2045 LAND USE MAP DESIGNATION	HIGH DENSITY RESIDENTIAL
WAKE COUNTY PINS	0732: 38-2709, 38-2530, 28-9587
TOTAL PROJECT AREA	17.44 ACRES
AREA IN MORRIS ACRES ROAD R/W DEDICATION	0.64 ACRE
NET SITE AREA	16.80 ACRES
MAXIMUM NUMBER OF UNITS	297 UNITS (17.0 UNITS/ACRE)
PROPOSED NUMBER OF UNITS	297 UNITS (17.0 UNITS/ACRE)
REQUIRED RCA / BUFFER AREA	3.49 ACRES (20.0%)
PROVIDED RCA / BUFFER AREA	5.09 ACRES (29.9%)
MAXIMUM BUILT UPON AREA FOR PUD	70% OR 12.21 ACRES
MAXIMUM BUILDING HEIGHT	65' (4-STORIES ABOVE GRADE WITH A BASEMENT LEVEL)
OFF STREET PARKING	TOWN OF APEX UDO REQUIREMENTS
PUBLIC RECREATION REQUIREMENT	MULTI-FAMILY ATTACHED
WATERSHED INFORMATION	PRIMARY; BEAVER CREEK BASIN
HISTORIC STRUCTURE?	NO
FEMA FLOODPLAIN INFORMATION	MAP #3720073300J - PROJECT IS NOT WITHIN 100 YEAR FLOODPLAIN
MEDIUM DENSITY TRANSITION AREA	MAX. BUILDING HEIGHT - 3 STORIES (45') MAXIMUM DENSITY - 4 UNITS/ACRE

PERMITTED USE:	
·	MULTI-FAMILY OR APARTMENT
·	GREENWAY
·	RECREATION FACILITY, PRIVATE
·	PARK, ACTIVE
·	PARK, PASSIVE
·	UTILITY, MINOR

MINIMUM BUILDING SETBACKS	
FROM BUILDING TO BUILDING	10'
FROM BUFFER/RCA	10'
FROM WALDEN WOODS LOTS	150'
FROM PLINTS POND CIRCLE RESIDENTIAL STRUCTURES	275'

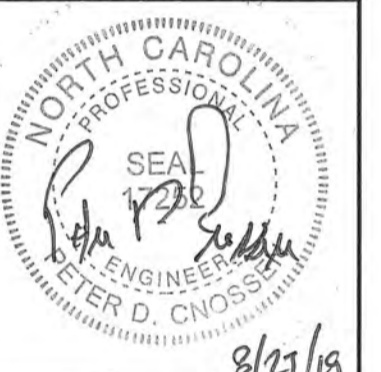
PD PLAN - DRAWING SHEET INDEX	
1	COVER SHEET
2	PRELIMINARY LAYOUT PLAN
3	EXISTING CONDITIONS PLAN
4	PRELIMINARY UTILITY PLAN

REVISIONS  
05/22/19 RCA & SETBACKS

PRELIMINARY PLANS  
NOT FOR CONSTRUCTION

THIS SHEET IS FOR  
ILLUSTRATIVE PURPOSES ONLY

221 N. SALEM ST.  
SUITE 001  
PO BOX 1062  
APEX, NC 27502  
Office: 919-387-1174  
Registration: P-0151  
[www.jonescrossen.com](http://www.jonescrossen.com)

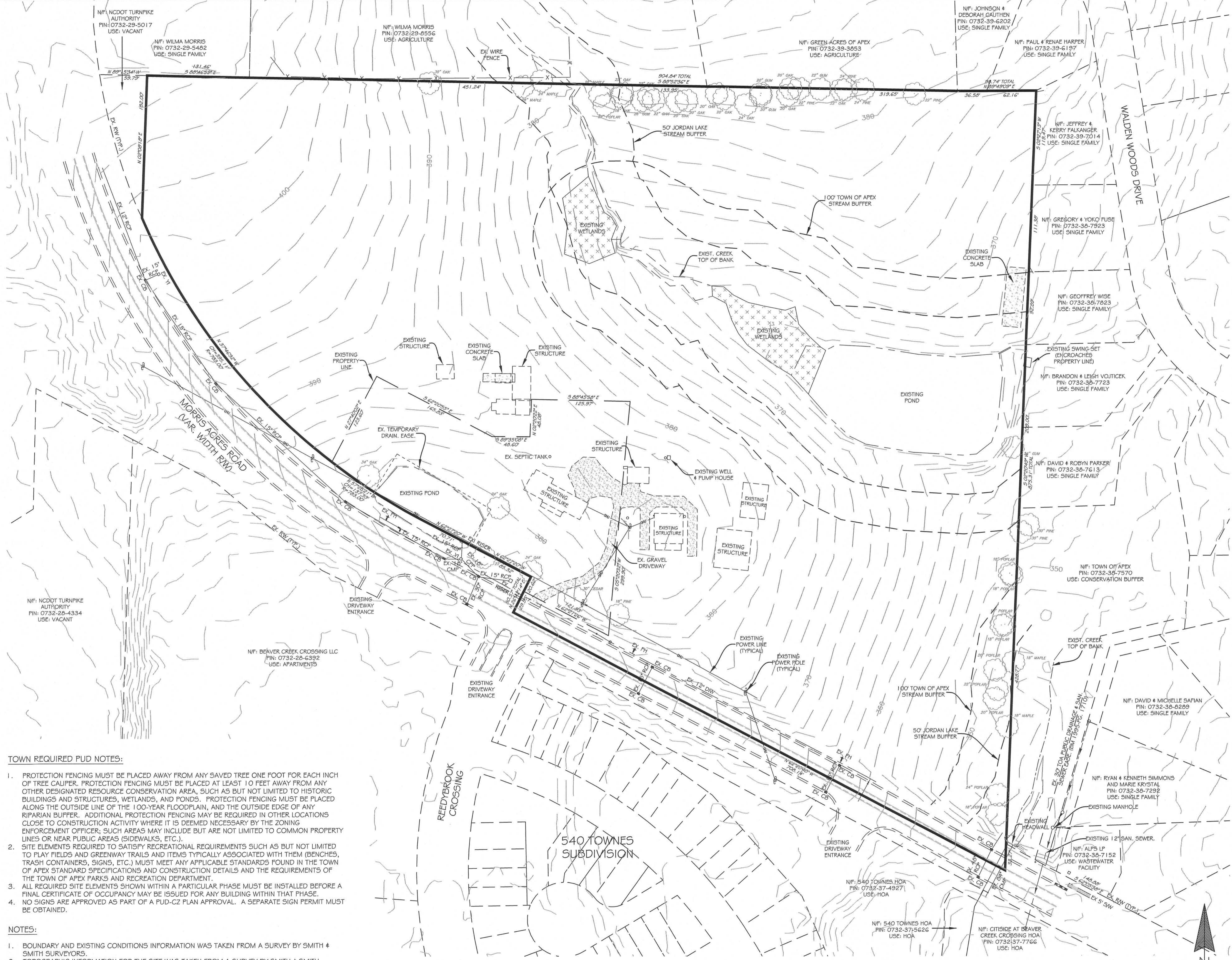


MORRIS TRACT  
PD PLANS  
COVER SHEET

WAKE COUNTY, NORTH CAROLINA

TOWN OF APEX

SCALE	1" = 100'	DRAWN	PDC
DATE	FEBRUARY 1, 2019		
REVISION	DATE	DESCRIPTION	
03/07/19		1st TRC COMMENTS	
05/10/19		2nd TRC COMMENTS	
06/06/19		3rd TRC COMMENTS	
06/27/19		4th TRC COMMENTS	
07/30/19		5th TRC COMMENTS	
08/06/19		6th TRC COMMENTS	
SHEET	1		
PROJECT	1846		



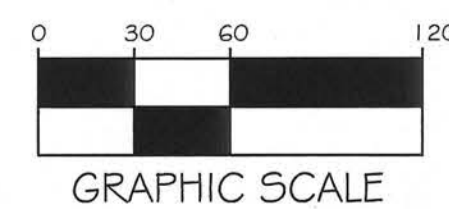
**TOWN REQUIRED PUD NOTES:**

1. PROTECTION FENCING MUST BE PLACED AWAY FROM ANY SAVED TREE ONE FOOT FOR EACH INCH OF TREE CALIPER. PROTECTION FENCING MUST BE PLACED AT LEAST 10 FEET AWAY FROM ANY OTHER DESIGNATED RESOURCE CONSERVATION AREA, SUCH AS BUT NOT LIMITED TO HISTORIC BUILDINGS AND STRUCTURES, WETLANDS, AND PONDS. PROTECTION FENCING MUST BE PLACED ALONG THE OUTSIDE LINE OF THE 100-YEAR FLOODPLAIN, AND THE OUTSIDE EDGE OF ANY RIPARIAN BUFFER. ADDITIONAL PROTECTION FENCING MAY BE REQUIRED IN OTHER LOCATIONS CLOSE TO CONSTRUCTION ACTIVITY WHERE IT IS DEEMED NECESSARY BY THE ZONING ENFORCEMENT OFFICER; SUCH AREAS MAY INCLUDE BUT ARE NOT LIMITED TO COMMON PROPERTY LINES OR NEAR PUBLIC AREAS (SIDEWALKS, ETC.).
2. SITE ELEMENTS REQUIRED TO SATISFY RECREATIONAL REQUIREMENTS SUCH AS BUT NOT LIMITED TO PLAY FIELDS AND GREENWAY TRAILS AND ITEMS TYPICALLY ASSOCIATED WITH THEM (BENCHES, TRASH CONTAINERS, SIGNS, ETC.) MUST MEET ANY APPLICABLE STANDARDS FOUND IN THE TOWN OF APEX STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS AND THE REQUIREMENTS OF THE TOWN OF APEX PARKS AND RECREATION DEPARTMENT.
3. ALL REQUIRED SITE ELEMENTS SHOWN WITHIN A PARTICULAR PHASE MUST BE INSTALLED BEFORE A FINAL CERTIFICATE OF OCCUPANCY MAY BE ISSUED FOR ANY BUILDING WITHIN THAT PHASE.
4. NO SIGNS ARE APPROVED AS PART OF A PUD-CZ PLAN APPROVAL. A SEPARATE SIGN PERMIT MUST BE OBTAINED.

**NOTES:**

1. BOUNDARY AND EXISTING CONDITIONS INFORMATION WAS TAKEN FROM A SURVEY BY SMITH & SMITH SURVEYORS.
2. TOPOGRAPHIC INFORMATION FOR THE SITE WAS TAKEN FROM A SURVEY BY SMITH & SMITH SURVEYORS. THE TOPO OUTSIDE THE SITE WAS TAKEN FROM TOWN OF APEX LIDAR WHICH WAS BLENDED WITH THE FIELD TOPO AT THE PROPERTY BOUNDARY.
3. THE SITE HAS BEEN EVALUATED FOR THE EXISTENCE OF WETLANDS AND STREAMS BY ENVIRONMENTAL SERVICES, INC. THE LOCATION OF THESE ENVIRONMENTAL FEATURES INCLUDING STREAM BUFFERS ARE SHOWN AS SURVEYED. TOWN OF APEX PROJECT ID IS APEX 18-011.
4. THE EXISTING POND AND TEMPORARY DRAINAGE EASEMENT ALONG MORRIS ACRES ROAD ARE RECORDED IN DB 14372, PG. 82.
5. NCDOT APPROVAL TO REMOVE EXISTING POND AND TEMPORARY DRAINAGE EASEMENT FROM SITE SHALL BE HANDLED AT THE TIME OF MASTER PLAN APPROVAL.

**PRELIMINARY PLANS  
NOT FOR CONSTRUCTION**



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SCALE	1"=60'	DRWING	PDC
DATE	FEBRUARY 1, 2019		
REVISION	03/07/19	1st TRC COMMENTS	
SHEET	3		
TOTAL	1846		

**TOWN REQUIRED PUD NOTES:**

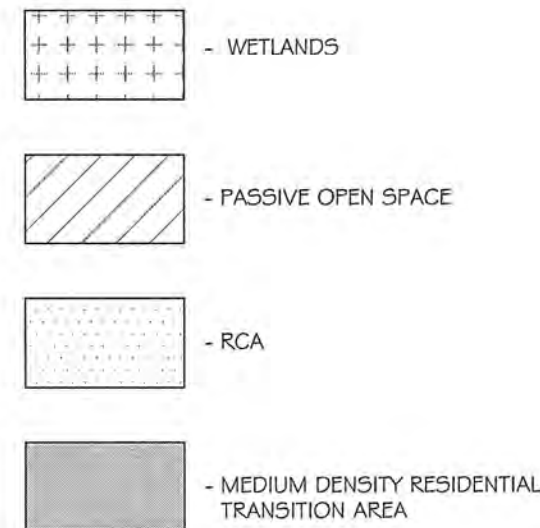
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**PLANNING NOTES:**

1. PRIMARY AND SECONDARY ENTRANCE LOCATIONS SHOWN HEREON ARE PRELIMINARY AND MAY CHANGE AT THE TIME OF MASTER PLAN APPROVAL.
2. THE RESOURCE CONSERVATION AREA (RCA) SHOWN HEREON IS PRELIMINARY AND MAY CHANGE AT THE TIME OF MASTER PLAN APPROVAL.
3. THE MAINTENANCE OF RCA, LANDSCAPE BUFFERS, PASSIVE OPEN SPACE, COMMON AREAS, AND THE STORMWATER DEVICES SHALL BE THE RESPONSIBILITY OF THE PROPERTY ASSOCIATION.
4. ALL SIGNAGE SHALL COMPLY WITH TOA UDO SECTION 8.7. SIGNS
5. THE PUD SHALL MEET TOWN OF APEX STORMWATER REQUIREMENTS OUTLINED IN TOA UDO SECTION 6.1.7 SUCH THAT POST-DEVELOPMENT RUNOFF SHALL NOT EXCEED THE PRE-DEVELOPMENT RUNOFF FOR THE 1-YEAR AND 10-YEAR, 24 HOUR STORM EVENTS.
6. THE PEDESTRIAN PATH IS FOR INTERNAL SIDEWALK CONNECTION TO ACCESS THE PASSIVE OPEN SPACE. THE LOCATION SHOWN IS PRELIMINARY AND MAY CHANGE AT THE TIME OF MASTER PLAN APPROVAL.
7. THE PEDESTRIAN PATH ACCESS TO THE PASSIVE OPEN SPACE IS PRIVATE AND SHALL BE MAINTAINED BY THE PROPERTY ASSOCIATION.
8. PERMITTING FOR THE PEDESTRIAN PATH STREAM CROSSING SHALL BE HANDLED AT THE TIME OF CONSTRUCTION DRAWING APPROVAL.

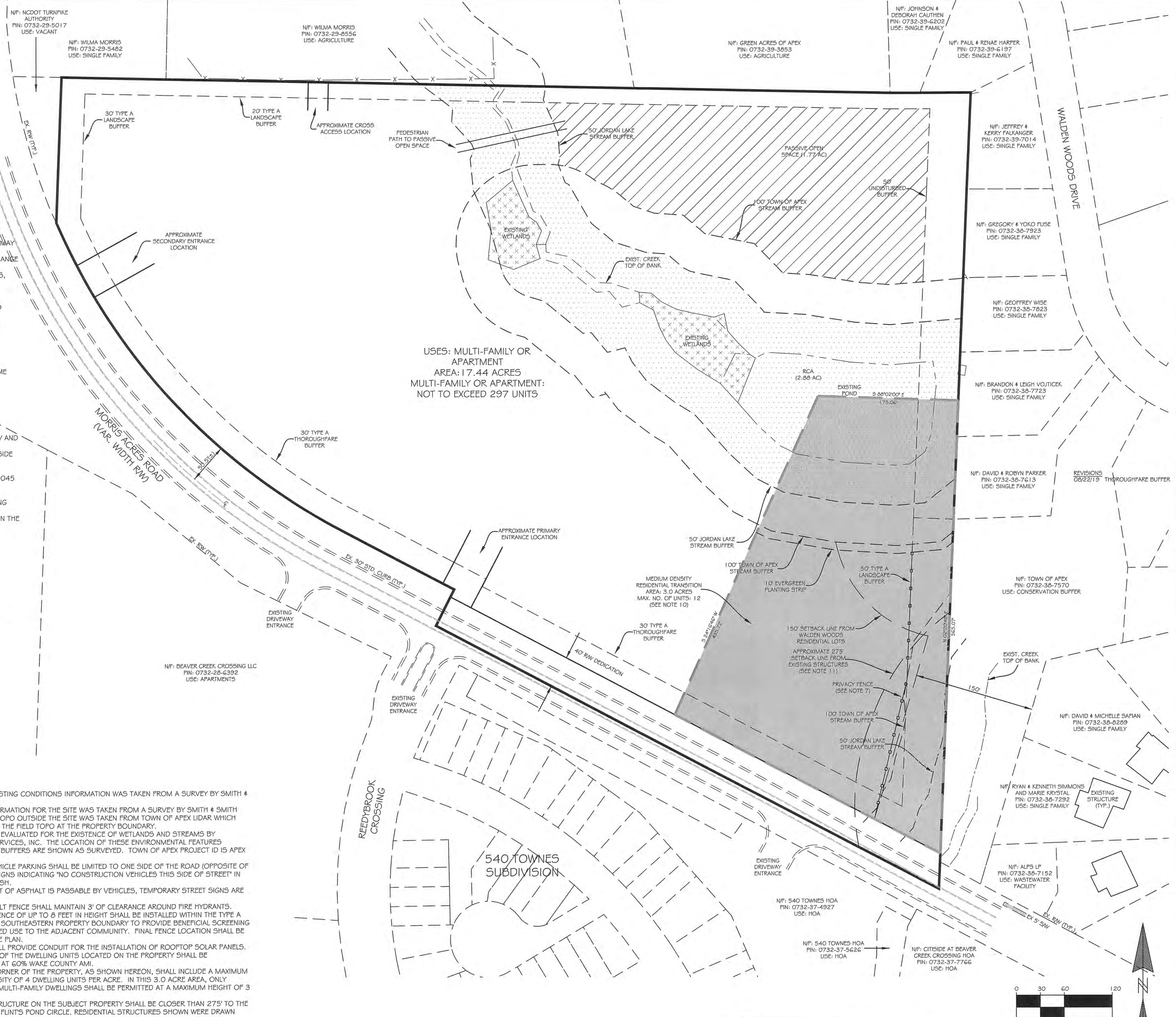
**TRANSPORTATION ELEMENTS:**

1. MORRIS ACRES ROAD IS A TOWN OF APEX 3-LANE THOROUGHFARE REQUIRING AN 80' RW AND 41' B-B STREET SECTION.
2. DEVELOPER SHALL DEDICATE 40' OF RW AS SHOWN HEREON AND CONSTRUCT 10' WIDE SIDE PATH ALONG THE FRONTAGE TO COMPLETE HALF OF THE 3-LANE THOROUGHFARE STREET SECTION.
3. THE 10' WIDE SIDE PATH SHALL COMPLY WITH THE TERMINOLOGY IN ADVANCE APEX THE 2045 PLAN.
4. THE PRIMARY AND SECONDARY ENTRANCE LOCATIONS SHOWN HEREON ARE FOR PRIVATE ACCESS. ENTRANCE LOCATIONS ARE PRELIMINARY AND SHALL BE AT APPROPRIATE SPACING PER TOA UDO REQUIREMENTS.
5. THE CROSS ACCESS LOCATION SHOWN HEREON IS PRELIMINARY AND MAY BE ADJUSTED ON THE SITE PLAN SUBMITTAL.

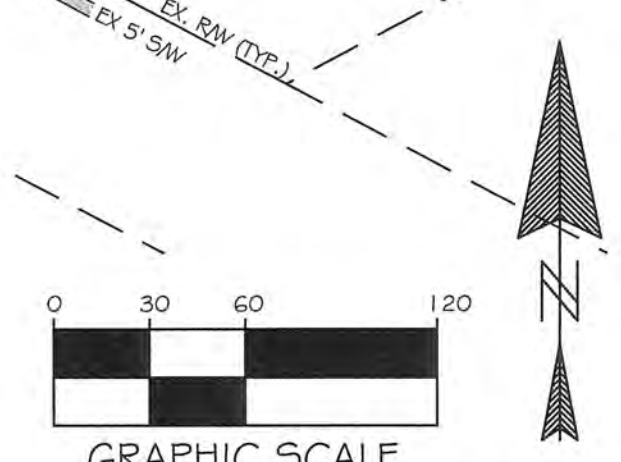


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4. CONSTRUCTION VEHICLE PARKING SHALL BE LIMITED TO ONE SIDE OF THE ROAD (OPPOSITE OF FIRE HYDRANTS). SIGNS INDICATING "NO CONSTRUCTION VEHICLES THIS SIDE OF STREET" IN ENGLISH AND SPANISH.
5. ONCE THE FIRST LIFT OF ASPHALT IS PASSABLE BY VEHICLES, TEMPORARY STREET SIGNS ARE REQUIRED.
6. INSTALLATION OF SILT FENCE SHALL MAINTAIN 3' OF CLEARANCE AROUND FIRE HYDRANTS.
7. A SOLID PRIVACY FENCE OF UP TO 8 FEET IN HEIGHT SHALL BE INSTALLED WITHIN THE TYPE A BUFFER ALONG THE SOUTHEASTERN PROPERTY BOUNDARY TO PROVIDE BENEFICIAL SCREENING FROM THE PROPOSED USE TO THE ADJACENT COMMUNITY. FINAL FENCE LOCATION SHALL BE DETERMINED AT SITE PLAN.
8. ALL BUILDINGS SHALL PROVIDE CONDUIT FOR THE INSTALLATION OF ROOFTOP SOLAR PANELS.
9. A MINIMUM OF 5% OF THE DWELLING UNITS LOCATED ON THE PROPERTY SHALL BE AFFORDABLE UNITS AT 60% WAKE COUNTY AMI.
10. THE SOUTHEAST CORNER OF THE PROPERTY, AS SHOWN HEREON, SHALL INCLUDE A MAXIMUM DEVELOPMENT DENSITY OF 4 DWELLING UNITS PER ACRE. IN THIS 3.0 ACRE AREA, ONLY TOWNHOME STYLE MULTI-FAMILY DWELLINGS SHALL BE PERMITTED AT A MAXIMUM HEIGHT OF 3 STORIES (45').
11. NO RESIDENTIAL STRUCTURE ON THE SUBJECT PROPERTY SHALL BE CLOSER THAN 275' TO THE NEAREST HOME ON FLINT'S POND CIRCLE. RESIDENTIAL STRUCTURES SHOWN WERE DRAWN USING AERIAL INFORMATION FROM IMAPS AND SHOULD BE CONSIDERED APPROXIMATE.



**PRELIMINARY PLANS  
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**Jones & Cossen**  
ENGINEERING, PLLC

Civil Engineering | Construction Management | Land Planning

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Registration: P-0151  
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02/19

MORRIS TRACT  
PD PLANS

PRELIMINARY LAYOUT PLAN

WAKE COUNTY, NORTH CAROLINA

TOWN OF APEX

SCALE: 1" = 60'

DRAWN: PDC

DATE: FEBRUARY 1, 2019

REVISIONS:

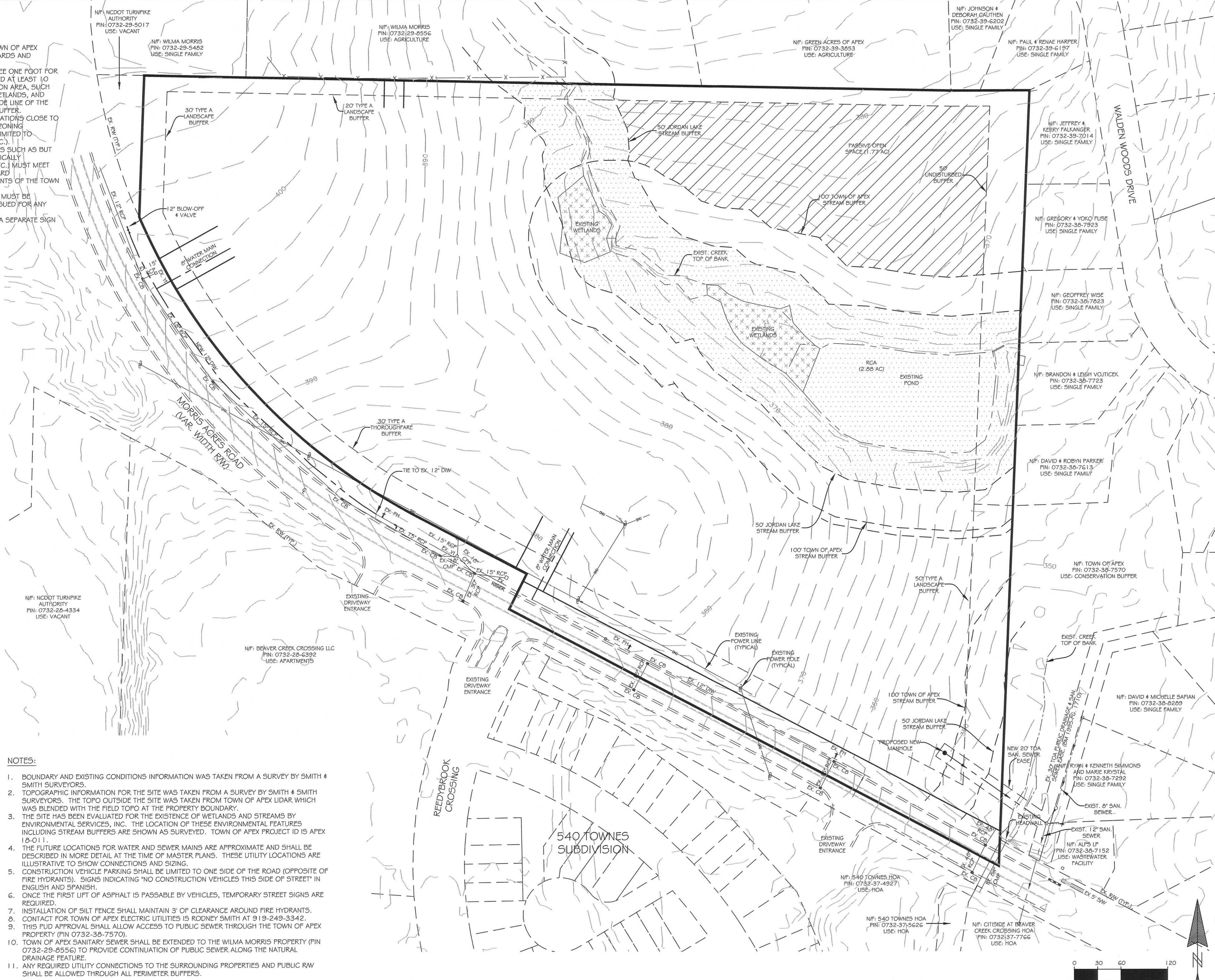
DATE	DESCRIPTION
03/07/19	1st TRC COMMENTS
05/10/19	2nd TRC COMMENTS
06/06/19	3rd TRC COMMENTS
06/27/19	4th TRC COMMENTS
07/30/19	5th TRC COMMENTS
08/06/19	6th TRC COMMENTS

SHEET: 2

PROJECT: 1846

**TOWN REQUIRED PUD NOTES:**

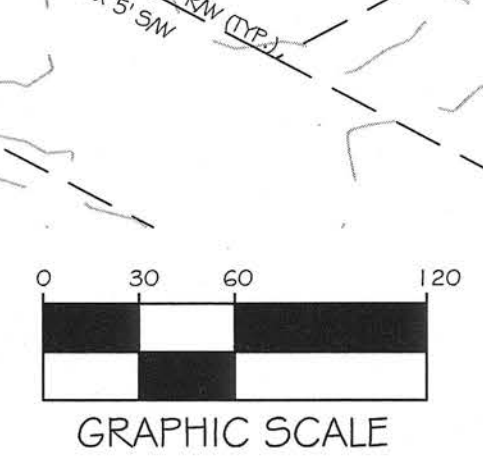
1. ALL UTILITY DESIGNS AND EXTENSIONS SHALL COMPLY WITH THE TOWN OF APEX SEWER AND WATER MASTER PLANS AND THE TOWN OF APEX STANDARDS AND SPECIFICATIONS.
2. PROTECTION FENCING MUST BE PLACED AWAY FROM ANY SAVED TREE ONE FOOT FOR EACH INCH OF TREE CALIPER. PROTECTION FENCING MUST BE PLACED AT LEAST 10 FEET AWAY FROM ANY OTHER DESIGNATED RESOURCE CONSERVATION AREA, SUCH AS BUT NOT LIMITED TO HISTORIC BUILDINGS AND STRUCTURES, WETLANDS, AND PONDS. PROTECTION FENCING MUST BE PLACED ALONG THE OUTSIDE LINE OF THE 100-YEAR FLOODPLAIN, AND THE OUTSIDE EDGE OF ANY RIPARIAN BUFFER. ADDITIONAL PROTECTION FENCING MAY BE REQUIRED IN OTHER LOCATIONS CLOSE TO CONSTRUCTION ACTIVITY WHERE IT IS DEEMED NECESSARY BY THE ZONING ENFORCEMENT OFFICER; SUCH AREAS MAY INCLUDE BUT ARE NOT LIMITED TO COMMON PROPERTY LINES OR NEAR PUBLIC AREAS (SIDEWALKS, ETC.).
3. SITE ELEMENTS REQUIRED TO SATISFY RECREATIONAL REQUIREMENTS SUCH AS BUT NOT LIMITED TO PLAY FIELDS AND GREENWAY TRAILS AND ITEMS TYPICALLY ASSOCIATED WITH THEM (BENCHES, TRASH CONTAINERS, SIGNS, ETC.) MUST MEET ANY APPLICABLE STANDARDS FOUND IN THE TOWN OF APEX STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS AND THE REQUIREMENTS OF THE TOWN OF APEX PARKS AND RECREATION DEPARTMENT.
4. ALL REQUIRED SITE ELEMENTS SHOWN WITHIN A PARTICULAR PHASE MUST BE INSTALLED BEFORE A FINAL CERTIFICATE OF OCCUPANCY MAY BE ISSUED FOR ANY BUILDING WITHIN THAT PHASE.
5. NO SIGNS ARE APPROVED AS PART OF A PUD-CZ PLAN APPROVAL. A SEPARATE SIGN PERMIT MUST BE OBTAINED.



**NOTES:**

1. BOUNDARY AND EXISTING CONDITIONS INFORMATION WAS TAKEN FROM A SURVEY BY SMITH & SMITH SURVEYORS.
2. TOPOGRAPHIC INFORMATION FOR THE SITE WAS TAKEN FROM A SURVEY BY SMITH & SMITH SURVEYORS. THE TOPO OUTSIDE THE SITE WAS TAKEN FROM TOWN OF APEX LIDAR WHICH WAS BLENDED WITH THE FIELD TOPO AT THE PROPERTY BOUNDARY.
3. THE SITE HAS BEEN EVALUATED FOR THE EXISTENCE OF WETLANDS AND STREAMS BY ENVIRONMENTAL SERVICES, INC. THE LOCATION OF THESE ENVIRONMENTAL FEATURES INCLUDING STREAM BUFFERS ARE SHOWN AS SURVEYED. TOWN OF APEX PROJECT ID IS APEX 18-011.
4. THE FUTURE LOCATIONS FOR WATER AND SEWER MAINS ARE APPROXIMATE AND SHALL BE DESCRIBED IN MORE DETAIL AT THE TIME OF MASTER PLANS. THESE UTILITY LOCATIONS ARE ILLUSTRATIVE TO SHOW CONNECTIONS AND SIZING.
5. CONSTRUCTION VEHICLE PARKING SHALL BE LIMITED TO ONE SIDE OF THE ROAD (OPPOSITE OF FIRE HYDRANTS). SIGNS INDICATING "NO CONSTRUCTION VEHICLES THIS SIDE OF STREET" IN ENGLISH AND SPANISH.
6. ONCE THE FIRST LIFT OF ASPHALT IS PASSABLE BY VEHICLES, TEMPORARY STREET SIGNS ARE REQUIRED.
7. INSTALLATION OF SILT FENCE SHALL MAINTAIN 3' OF CLEARANCE AROUND FIRE HYDRANTS.
8. CONTACT FOR TOWN OF APEX ELECTRIC UTILITIES IS RODNEY SMITH AT 919-249-3342.
9. THIS PUD APPROVAL SHALL ALLOW ACCESS TO PUBLIC SEWER THROUGH THE TOWN OF APEX PROPERTY (PIN 0732-38-7570).
10. TOWN OF APEX SANITARY SEWER SHALL BE EXTENDED TO THE WILMA MORRIS PROPERTY (PIN 0732-29-8556) TO PROVIDE CONTINUATION OF PUBLIC SEWER ALONG THE NATURAL DRAINAGE FEATURE.
11. ANY REQUIRED UTILITY CONNECTIONS TO THE SURROUNDING PROPERTIES AND PUBLIC RW SHALL BE ALLOWED THROUGH ALL PERIMETER BUFFERS.

**PRELIMINARY PLANS  
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MORRIS TRACT  
PD PLANS  
PRELIMINARY UTILITY PLAN

SCALE	1"=60'	DRAWN	PDC
DATE	FEBRUARY 1, 2019		
REVISION	03/07/19	1st TRC COMMENTS	
	05/10/19	2nd TRC COMMENTS	
	06/27/19	4th TRC COMMENTS	
SHEET	4		
PROJECT	1846		

 Traffic Impact Analysis

# The Wayforth at Apex Apex, NC

Prepared for:

Kaplan Residential

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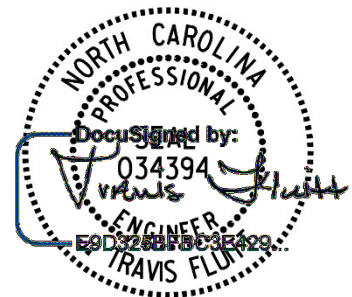
**Kimley»»Horn**

Traffic Impact Analysis  
for  
The Wayforth at Apex  
Apex, North Carolina

Prepared for:  
Kaplan Residential  
Bay Harbor, FL

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

January 2019  
013249000



1/21/2019



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Executive Summary

Kimley-Horn and Associates, Inc. has performed a Traffic Impact Analysis for The Wayforth at Apex, a proposed apartment project located on the east side of Morris Acres Road between Jenks Road and Walden Creek Drive in Apex, North Carolina. The property is currently occupied by a few single-family homes and as currently envisioned will consist of approximately 300 apartments. The development is proposed to be accessed via three driveways on Morris Acres Road, and build-out of the project is anticipated in the year 2022.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development. The traffic conditions studied include the existing (2018) traffic condition as well as the projected (2022) background and build-out traffic conditions.

As shown in Table ES-1, the proposed development has the potential to generate 1,634 new trips during a typical weekday with 100 new trips during the AM peak hour and 127 new trips during the PM peak hour.

Table ES-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)	300	d.u.	817	817	26	74	77	50

Capacity analyses were performed using Synchro Version 9.2 software. Table ES-2 summarizes the operation of the study intersections for the AM and PM peak hour traffic conditions.

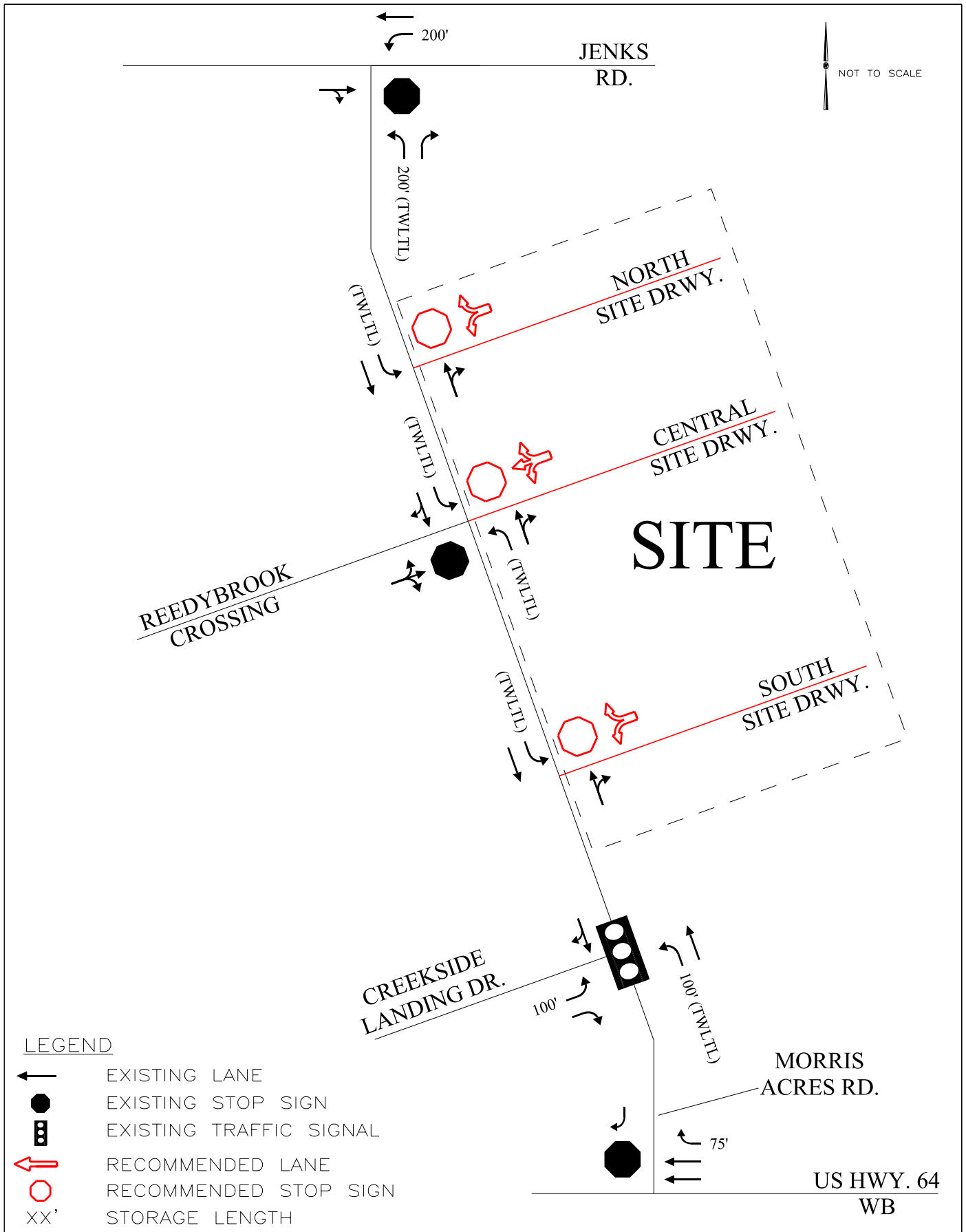
Table ES-2 Level-of-Service Summary		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Jenks Road at Morris Acres Road (Unsignalized)		
Existing (2018) Traffic	NB - B (11.3) WBL - A (7.8)	NB - B (14.6) WBL - A (8.1)
Background (2022) Traffic	NB - B (11.8) WBL - A (7.9)	NB - C (16.6) WBL - A (8.2)
Build-out (2022) Traffic	NB - B (11.9) WBL - A (7.9)	NB - C (17.6) WBL - A (8.3)

Table ES-2 (cont.) Level-of-Service Summary		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Morris Acres Road at Reedybrook Crossing/Central Site Driveway (Unsignalized)		
Existing (2018) Traffic	EB - A (9.4) NBL - A (7.3)	EB - B (10.2) NBL - A (7.6)
Background (2022) Traffic	EB - A (9.5) NBL - B (7.3)	EB - B (10.4) NBL - A (7.7)
Build-out (2022) Traffic	EB - B (10.2) WB - B (10.2) NBL - A (7.4) SBL - A (7.6)	EB - B (12.6) WB - B (12.5) NBL - A (7.7) SBL - A (8.0)
Morris Acres Road at Creekside Landing Drive (Signalized)		
Existing (2018) Traffic	A (4.6)	A (6.7)
Background (2022) Traffic	A (4.7)	A (7.1)
Build-out (2022) Traffic	A (5.0)	A (7.8)
US 64 Westbound at Morris Acres Road (Unsignalized)		
Existing (2018) Traffic	SB - D (27.9)	SB - D (28.8)
Background (2022) Traffic	SB - E (41.8)	SB - E (43.6)
Build-out (2022) Traffic	SB - E (49.4)	SB - E (48.8)
Morris Acres Road at North Site Driveway (Unsignalized)		
Build-out (2022) Traffic	WB - A (9.8) SBL - A (7.7)	WB - B (10.6) SBL - A (8.0)
Morris Acres Road at South Site Driveway (Unsignalized)		
Build-out (2022) Traffic	WB - A (9.7) SBL - A (7.6)	WB - B (10.8) SBL - A (8.0)

With the exception of southbound Morris Acres Road at US 64 Westbound, analyses indicate that all of the study intersections are expected to operate at an acceptable LOS at project build-out with only minor increases in delays and queues associated with the addition of site traffic. The intersection of US 64 Westbound at Morris Acres road is expected to operate with moderate delays on Morris Acres Road in the year 2022 with or without the proposed project in place.

No roadway improvements are recommended to be performed to accommodate projected site traffic volumes.

The build-out roadway laneage is shown on Figure ES-1.



THE WAYFORTH AT APEX  
 APEX, NC  
 TRAFFIC CAPACITY ANALYSIS

BUILD-OUT  
 ROADWAY LANEAGE

FIGURE  
 ES-1

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## 1.0 Introduction

Kimley-Horn and Associates, Inc. has performed a Traffic Impact Analysis for The Wayforth at Apex, a proposed apartment project located on the east side of Morris Acres Road between Jenks Road and Walden Creek Drive in Apex, North Carolina. The property is currently occupied by a few single-family homes and as currently envisioned will consist of approximately 300 apartments. The development is proposed to be accessed via three driveways on Morris Acres Road, and build-out of the project is anticipated in the year 2022.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development. The traffic conditions studied include the existing (2018) traffic condition as well as the projected (2022) background and build-out traffic conditions.

Town of Apex and North Carolina Department of Transportation (NCDOT) transportation staff provided background data and were consulted regarding the elements to be covered in this analysis. The approved Memorandum of Understanding is included in the Appendix of this report.

## 2.0 Inventory

### 2.1 Study Area

The study area for this development includes the following intersections:

- é Jenks Road at Morris Acres Road
- é Morris Acres Road at Reedybrook Crossing/Central Site Driveway
- é Morris Acres Road at Creekside Landing Drive
- é Morris Acres Road at US 64 Westbound
- é Morris Acres Road at North Site Driveway
- é Morris Acres Road at South Site Driveway

Figure 1 shows the site location. The preliminary site plan is shown on Figure 2.

### 2.2 Existing Conditions

The Wayforth at Apex development is proposed to be located generally east of Morris Acres Road between Jenks Road and Walden Creek Drive in Apex, North Carolina. Roadways in the study area include US 64, Jenks Road, Creekside Landing Drive, and Morris Acres Road (formerly Green Level Church Road). The existing roadway laneage is shown in Figure 3.

US 64 is a 4-lane divided highway with a posted speed limit of 55 mph near Morris Acres Road. On US 64 Westbound, the reported 2017 average daily traffic (ADT) volume was approximately 31,000 vehicles per day (vpd) west of Morris Acres Road. US 64 is designated as a freeway on the Town of Apex Thoroughfare and Collector Street Plan.

Jenks Road is a 2-lane undivided roadway with a posted speed limit of 45 mph in the vicinity of Morris Acres Road. The estimated 2018 ADT volume is approximately 6,000 vpd west of Morris Acres Road. Jenks Road is designated to be a 3-lane thoroughfare section per the Town of Apex Thoroughfare and Collector Street Plan.

Creekside Landing Drive is a 2-lane undivided roadway with a posted speed limit of 25 mph. The estimated 2018 ADT volume is approximately 3,500 vpd. Morris Acres Road is designated to be a minor collector on the Town of Apex Thoroughfare and Collector Street Plan.

Morris Acres Road (formerly Green Level Church Road) is a 3-lane undivided roadway in the vicinity of the site with a posted speed limit of 45 mph. The estimated 2018 ADT volume is approximately 3,000 vpd at Jenks Road. Morris Acres Road has already been widened to the designated 3-lane thoroughfare per the Town of Apex Thoroughfare and Collector Street Plan.





NOT TO SCALE

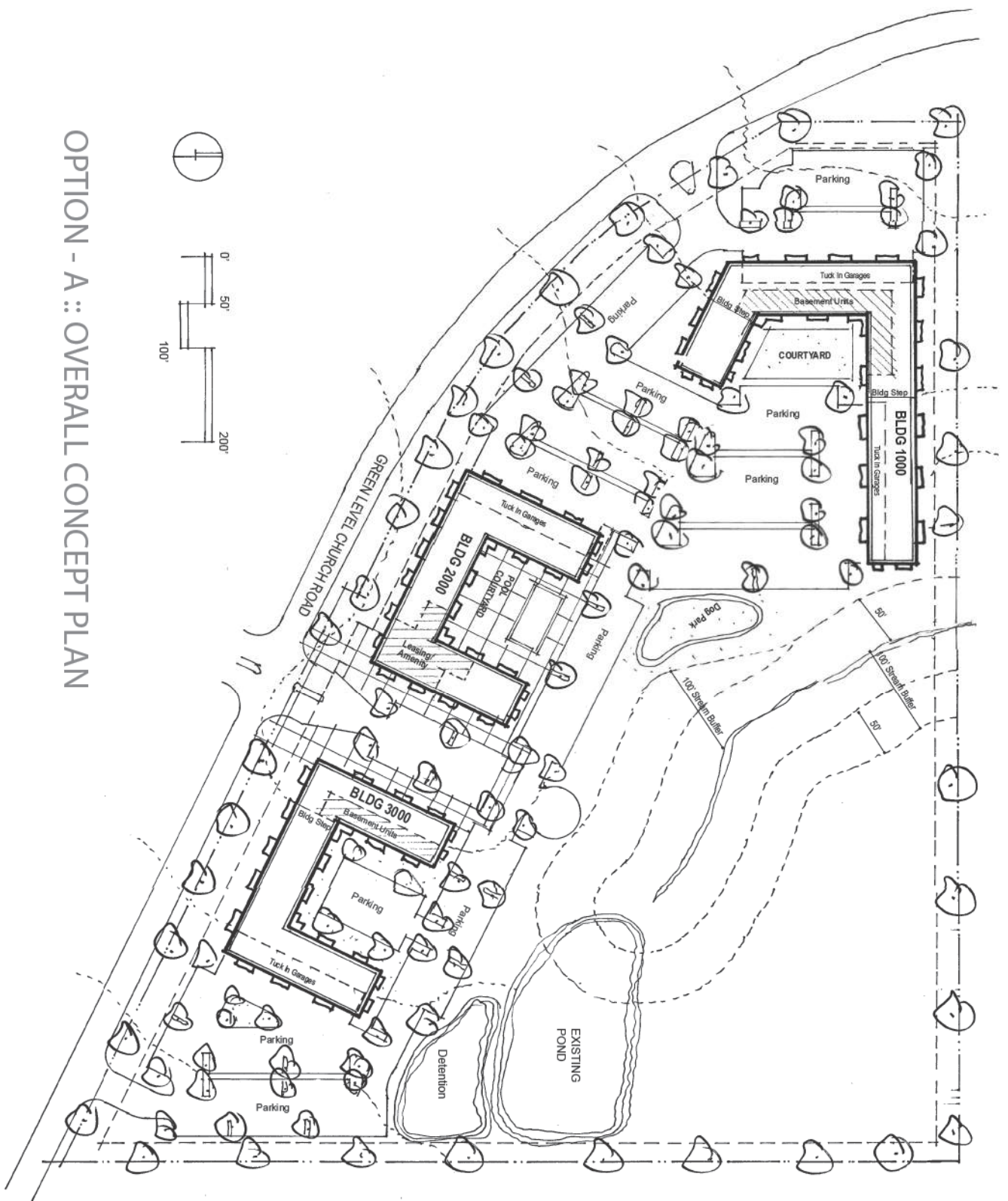


THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

SITE LOCATION

FIGURE  
1

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OPTION - A :: OVERALL CONCEPT PLAN

MORRIS APEX DENSITY STUDY  
APEX, NORTH CAROLINA

**PROJECT DATA**

RESIDENTIAL - 1,000 SF Average

BUILDING 1000	- 102 Units (4/5 Story)
BUILDING 2000	- 88 Units (4/5 Story)
BUILDING 3000	- 113 Units (4/5 Story)
<b>TOTAL</b>	<b>- 303 Units</b>

Leasing and Amenity in Bldg 2000  
- 7,500 SF

**PARKING**

SURFACE PARKING	- 408 SPACES
TUCK UNDER GARAGES	- 47 SPACES
<b>TOTAL</b>	<b>- 455 SPACES (1.5 Spaces/Unit)</b>



PAGE 1

Revised 10/25/18

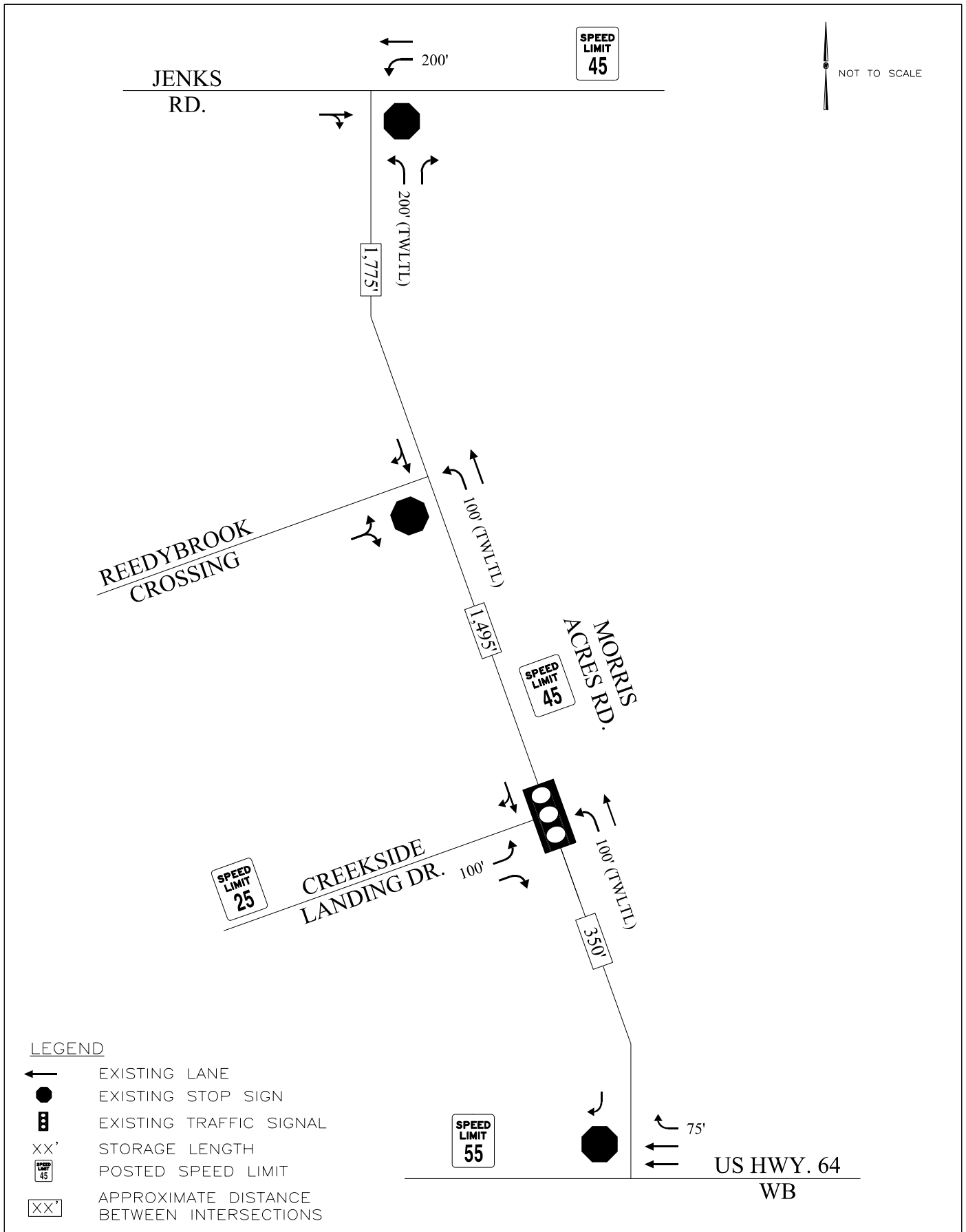
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THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

PROPOSED SITE PLAN

FIGURE  
2



THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

EXISTING ROADWAY LANEAGE

FIGURE  
3

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### 3.0 Traffic Generation

The traffic generation potential of 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 will consist of approximately 300 apartments. Table 3.0 summarizes the estimated traffic generation for the proposed development.

Table 3.0 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)	300	d.u.	817	817	26	74	77	50

Table 3.0 shows the proposed development has the potential to generate 1,634 new trips during a typical weekday with 100 new trips during the AM peak hour and 127 new trips during the PM peak hour.

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

#### 4.0 Site Traffic Distribution

The projected site-generated trips were assigned to the surrounding roadway network. The directional distribution and assignment for this development were based on a review of surrounding land uses and traffic patterns in the study area. As the intersection of Morris Acres Road at US 64 Westbound is limited to right-in/right-out access, separate inbound and outbound distributions were developed for the site in conjunction with Town of Apex staff to account for anticipated travel paths.

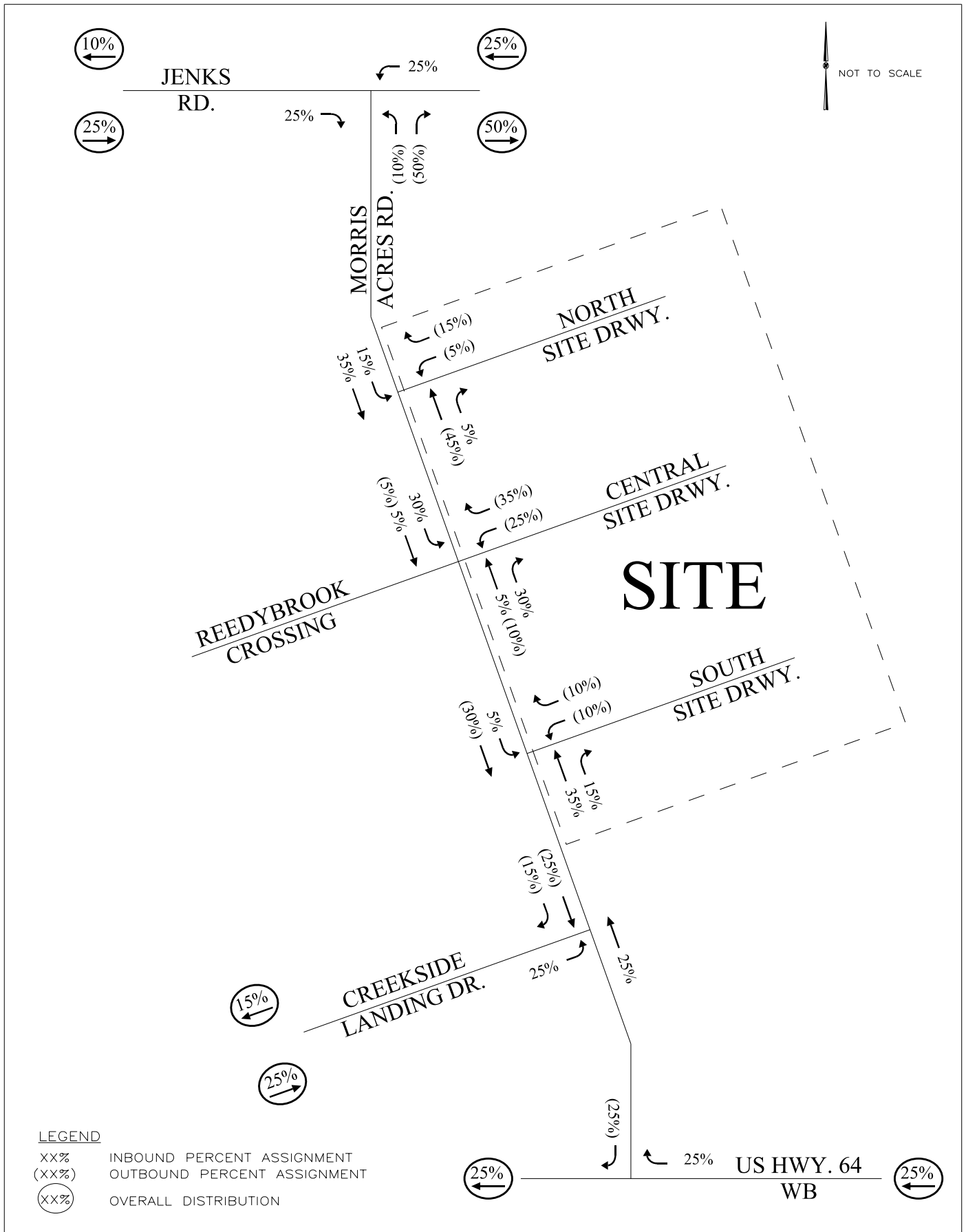
The inbound site traffic distribution used for the site was:

- é 25% from the east on US 64
- é 25% from the east on Jenks Road
- é 25% from the west on Jenks Road
- é 25% from the south on Creekside Landing Drive

The outbound site traffic distribution used for the site was:

- é 50% to the east on Jenks Road
- é 25% to the west on US 64
- é 15% to the south on Creekside Landing Drive
- é 10% to the west on Jenks Road

The site traffic distribution and percent assignment for site are shown on Figure 4.



THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

SITE TRAFFIC DISTRIBUTION  
AND PERCENT ASSIGNMENT

FIGURE  
4

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## 5.0 Projected Traffic Volumes

### 5.1 Existing Traffic

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

¿ Jenks Road at Morris Acres Road	October 23, 2018
¿ Morris Acres Road at Creekside Landing Drive	October 23, 2018
¿ Morris Acres Road at US 64 Westbound	October 23, 2018

The existing AM and PM peak hour traffic volumes are shown on Figures 5 and 6, and the traffic count data are included in the Appendix. No turning movement counts were performed at the intersection of Morris Acres Road at Reedybrook Crossing. However, as the development is approximately 90% occupied (discussed below), existing volumes onto/off of Reedybrook Crossing were assumed to be equal to 90% of the site traffic volume on those movements as indicated in the TIA for that project.

### 5.2 Historic Growth Traffic

Historic growth traffic is the increase in traffic due to usage increases and non-specific growth throughout the area. An annual growth rate of 3% was applied to the existing volumes up to the year 2022. Background growth calculations are detailed on intersection spreadsheets in the Appendix of this report.

### 5.3 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 Apex, the Beaver Creek Phase 4 Residential (540 Townes) project was the only development identified for inclusion in the analysis as background traffic.

Per the Beaver Creek Residential Development TIA (Stantec, August 2015), the project proposes the construction of approximately 300 apartments and 50 townhomes along Morris Acres Road (Green Level Church Road) north of US 64 with a build-out year of 2020. As the development was almost entirely built-out when traffic counts were performed, only 10% of site trips from this development were included at off-site intersections as background traffic.

Background traffic volumes consisting of existing, historic growth, and approved development traffic, are shown on Figures 5 and 6 for the AM and PM peak hours, respectively.

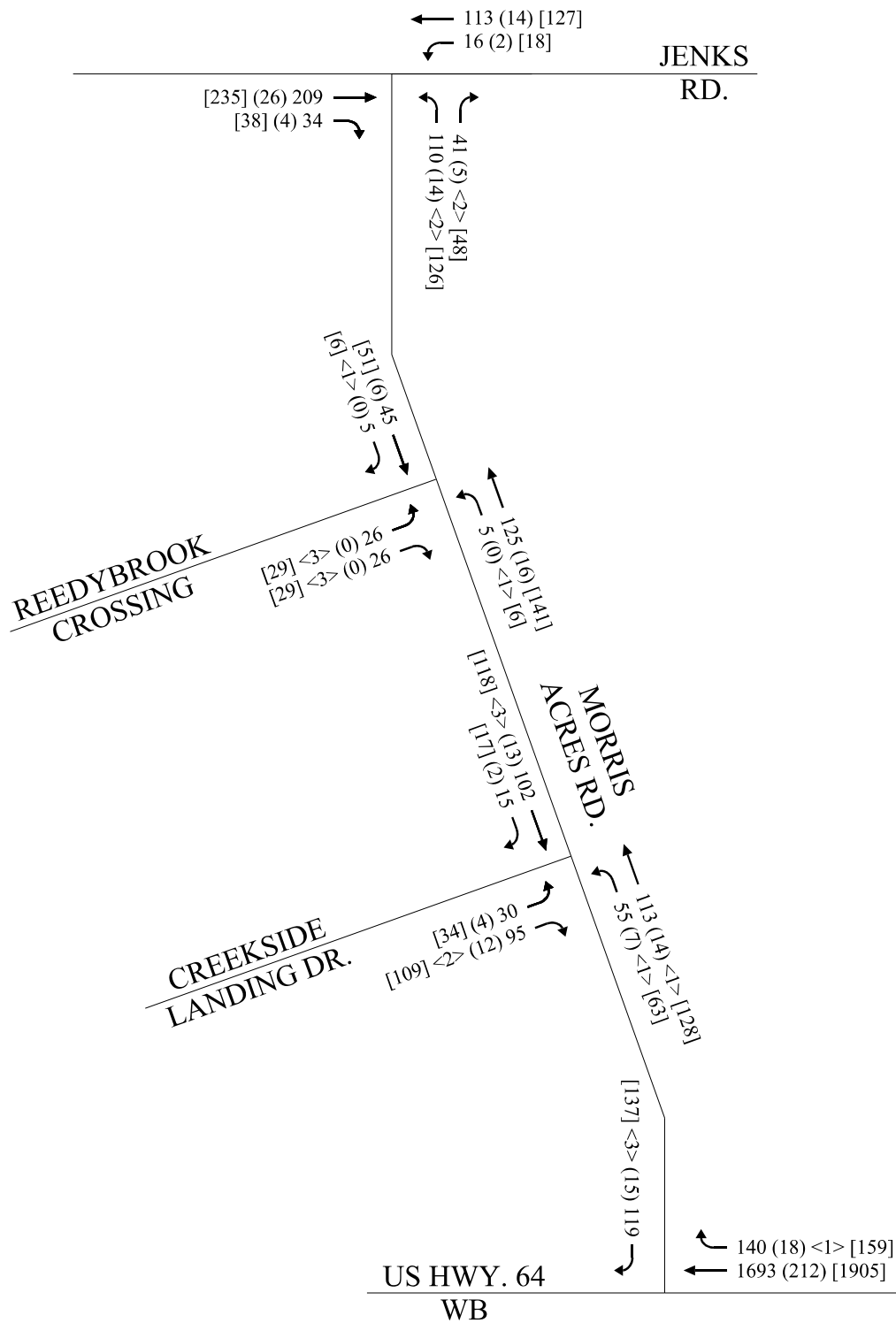
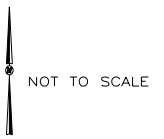
#### 5.4 Site Traffic

The projected site traffic was generated and assigned to the adjacent roadway network according to the distribution discussed previously in Section 4.0. The site traffic volumes for the AM and PM peak hours are shown in Figures 7 and 8, respectively.

#### 5.5 Build-Out Traffic

To obtain the projected (2022) build-out traffic volumes, the projected site traffic were added to the projected (2022) background traffic. Traffic volume calculations are detailed in intersection spreadsheets in the Appendix of this report. Figures 7 and 8 show the projected (2022) AM and PM peak hour build-out traffic volumes, respectively.





**LEGEND**

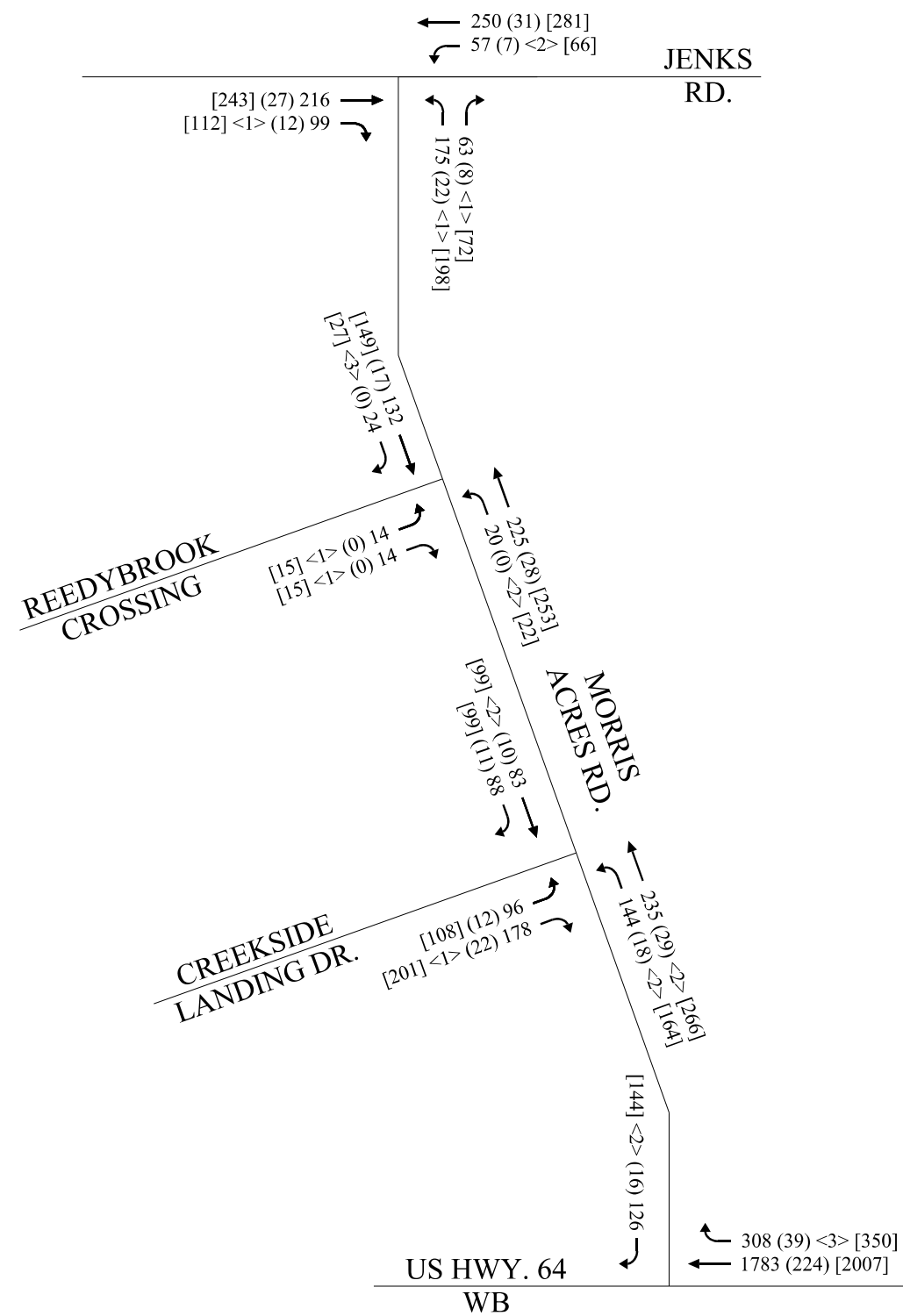
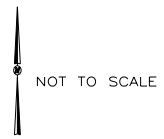
- XX EXISTING TRAFFIC
- (XX) BACKGROUND GROWTH
- <XX> APPROVED DEVELOPMENT TRAFFIC
- [XX] TOTAL BACKGROUND TRAFFIC



THE WAYFORTH AT APEX  
 APEX, NC  
 TRAFFIC CAPACITY ANALYSIS

EXISTING AND PROJECTED (2022)  
 BACKGROUND AM PEAK HOUR  
 TRAFFIC VOLUMES

FIGURE  
 5



- LEGEND**
- XX EXISTING TRAFFIC
  - (XX) BACKGROUND GROWTH
  - <XX> APPROVED DEVELOPMENT TRAFFIC
  - [XX] TOTAL BACKGROUND TRAFFIC

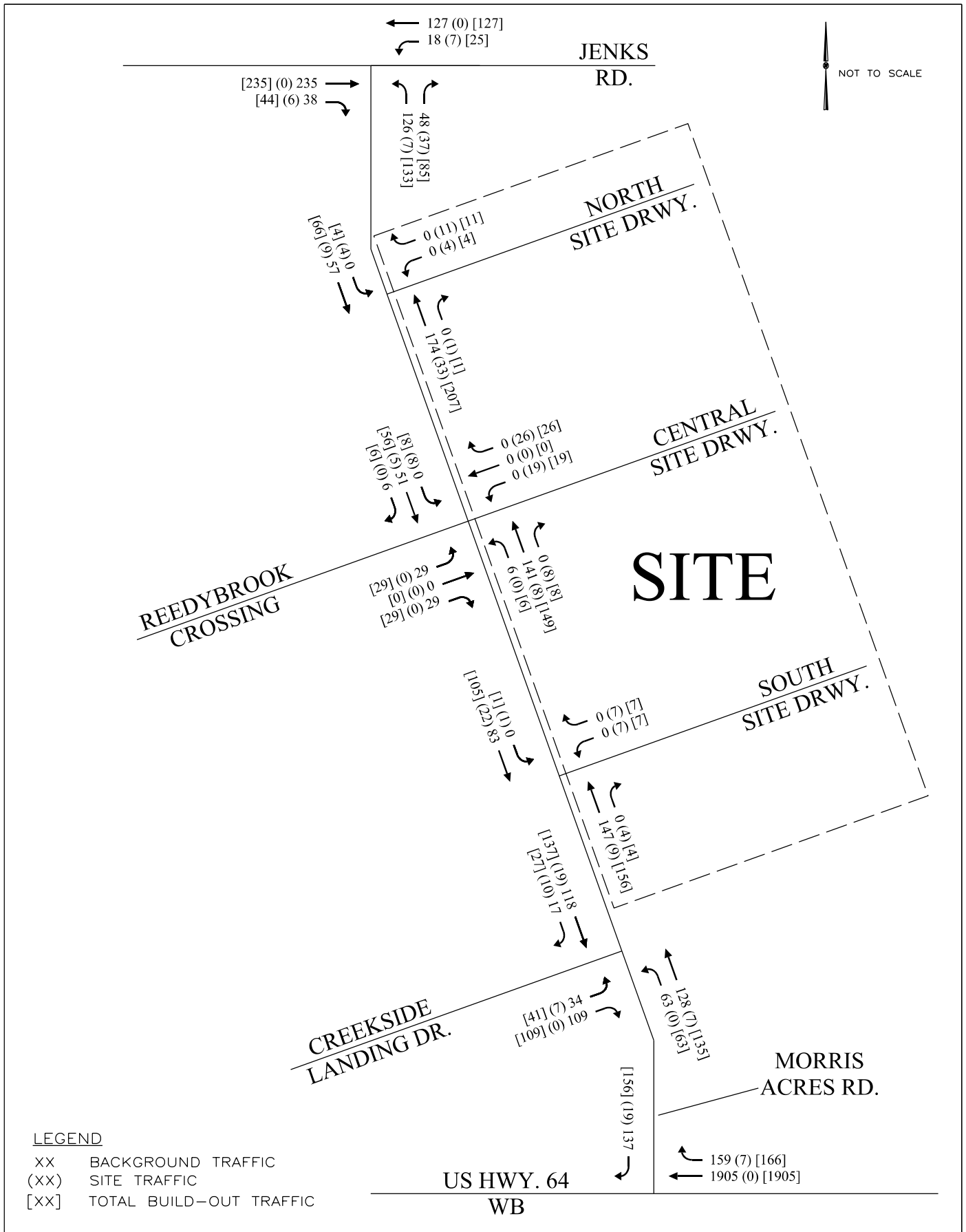


THE WAYFORTH AT APEX  
 APEX, NC  
 TRAFFIC CAPACITY ANALYSIS

EXISTING AND PROJECTED (2022)  
 BACKGROUND PM PEAK HOUR  
 TRAFFIC VOLUMES

FIGURE  
 6

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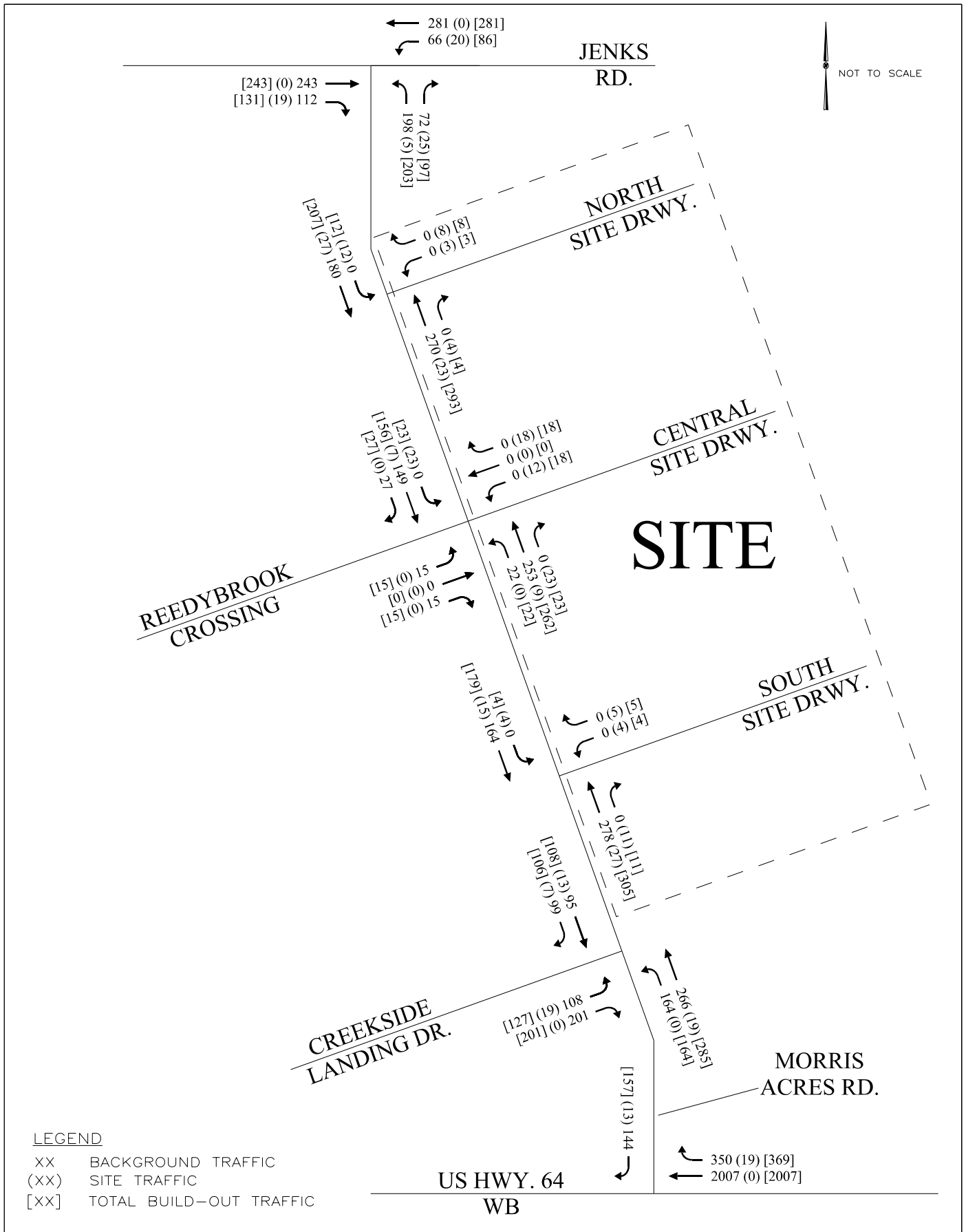


THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

PROJECTED (2022) BUILD-OUT  
AM PEAK HOUR  
TRAFFIC VOLUMES

FIGURE  
7

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**LEGEND**

- XX BACKGROUND TRAFFIC
- (XX) SITE TRAFFIC
- [XX] TOTAL BUILD-OUT TRAFFIC



THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

PROJECTED (2022) BUILD-OUT  
PM PEAK HOUR  
TRAFFIC VOLUMES

FIGURE  
8

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## 6.0 Capacity Analysis

Capacity analyses (see Appendix) were performed for the AM and PM peak hours for the existing traffic condition and the projected (2022) background and build-out traffic conditions using Synchro Version 9.2 software to determine the operating characteristics of the adjacent road network and the impacts of the proposed project.

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 9.2 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-A lists the LOS control delay thresholds published in the Highway Capacity Manual for signalized and unsignalized intersections.

Level-of-Service	Signalized Intersections - Control Delay Per Vehicle [sec/veh]	Unsignalized Intersections - Average Control Delay [sec/veh]
A	≦ 10	≦ 10
B	> 10 - 20	> 10 - 15
C	> 20 - 35	> 15 - 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 35 - 50
F	> 80	> 50

Existing peak hour factors (PHF) were used at all existing intersections for all conditions except at new intersections, where a PHF of 0.90 was used. The existing signal plan provided by NCDOT was referenced to obtain signal timings, which were not adjusted as part of this analysis, and right-turns on red were allowed where currently allowed.

Capacity analyses were performed for the existing (2018) traffic condition and the projected (2022) background and build-out traffic conditions for the following intersections:

- é Jenks Road at Morris Acres Road
- é Morris Acres Road at Reedybrook Crossing/Central Site Driveway
- é Morris Acres Road at Creekside Landing Drive
- é Morris Acres Road at US 64 Westbound
- é Morris Acres Road at North Site Driveway
- é Morris Acres Road at South Site Driveway

Table 6.0-B summarizes the LOS and delay (seconds per vehicle) for all of the study intersections for the existing (2018) traffic condition and the projected (2022) background and build-out traffic conditions. All capacity analyses are included in the Appendix and are briefly summarized in the following sub-sections.

Table 6.0-B Level-of-Service Summary		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Jenks Road at Morris Acres Road (Unsignalized)		
Existing (2018) Traffic	NB - B (11.3) WBL - A (7.8)	NB - B (14.6) WBL - A (8.1)
Background (2022) Traffic	NB - B (11.8) WBL - A (7.9)	NB - C (16.6) WBL - A (8.2)
Build-out (2022) Traffic	NB - B (11.9) WBL - A (7.9)	NB - C (17.6) WBL - A (8.3)
Morris Acres Road at Reedybrook Crossing/Central Site Driveway (Unsignalized)		
Existing (2018) Traffic	EB - A (9.4) NBL - A (7.3)	EB - B (10.2) NBL - A (7.6)
Background (2022) Traffic	EB - A (9.5) NBL - B (7.3)	EB - B (10.4) NBL - A (7.7)
Build-out (2022) Traffic	EB - B (10.2) WB - B (10.2) NBL - A (7.4) SBL - A (7.6)	EB - B (12.6) WB - B (12.5) NBL - A (7.7) SBL - A (8.0)
Morris Acres Road at Creekside Landing Drive (Signalized)		
Existing (2018) Traffic	A (4.6)	A (6.7)
Background (2022) Traffic	A (4.7)	A (7.1)
Build-out (2022) Traffic	A (5.0)	A (7.8)
US 64 Westbound at Morris Acres Road (Unsignalized)		
Existing (2018) Traffic	SB - D (27.9)	SB - D (28.8)
Background (2022) Traffic	SB - E (41.8)	SB - E (43.6)
Build-out (2022) Traffic	SB - E (49.4)	SB - E (48.8)

Table 6.0-B (cont.) Level-of-Service Summary		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Morris Acres Road at North Site Driveway (Unsignalized)		
Build-out (2022) Traffic	WB - A (9.8) SBL - A (7.7)	WB - B (10.6) SBL - A (8.0)
Morris Acres Road at South Site Driveway (Unsignalized)		
Build-out (2022) Traffic	WB - A (9.7) SBL - A (7.6)	WB - B (10.8) SBL - A (8.0)

6.1 Jenks Road at Morris Acres Road

Analyses indicate that the unsignalized intersection of Jenks Road at Morris Acres Road currently operates with short delays on the minor street approach (Morris Acres Road) in both the AM and PM peak hours. The intersection is expected to continue to operate with short delays and queues in the year 2022 with or without the proposed project in place, and no roadway improvements are recommended to accommodate projected site traffic.

Table 6.1 summarizes the operation of the intersection of Jenks Road at Morris Acres Road for the existing (2018) and projected (2022) background and build-out traffic conditions.

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2018) Traffic	NB - B (11.3) WBL - A (7.8)	NB - B (14.6) WBL - A (8.1)
Background (2022) Traffic	NB - B (11.8) WBL - A (7.9)	NB - C (16.6) WBL - A (8.2)
Build-out (2022) Traffic	NB - B (11.9) WBL - A (7.9)	NB - C (17.6) WBL - A (8.3)



6.2 Morris Acres Road at Reedybrook Crossing/Central Site Driveway

Analyses indicates that the intersection of Morris Acres Road at Reedybrook Crossing currently operates with short delays on the minor street approach (Reedybrook Crossing) in both the AM and PM peak hours, and the intersection is expected to continue to operate with short delays in the background traffic condition.

The Wayforth at Apex proposes to construct a site driveway aligning with Reedybrook Crossing, providing one ingress lane and one egress lane. Analyses indicate that at project build-out both minor street approaches (Reedybrook Crossing and the Central Site Driveway) are expected to operate with short delays and queues. No roadway improvements are recommended to be performed as part of this development

Table 6.2 summarizes the operation of the intersection of Morris Acres Road at Reedybrook Crossing/Central Site Driveway for the existing (2018) and projected (2022) background and build-out traffic conditions.

Table 6.2 Level-of-Service Morris Acres Road at Reedybrook Crossing/Central Site Driveway (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2018) Traffic	EB - A (9.4) NBL - A (7.3)	EB - B (10.2) NBL - A (7.6)
Background (2022) Traffic	EB - A (9.5) NBL - B (7.3)	EB - B (10.4) NBL - A (7.7)
Build-out (2022) Traffic	EB - B (10.2) WB - B (10.2) NBL - A (7.4) SBL - A (7.6)	EB - B (12.6) WB - B (12.5) NBL - A (7.7) SBL - A (8.0)

6.3 Morris Acres Road at Creekside Landing Drive

Analyses indicate that the signalized intersection of Morris Acres Road at Creekside Landing Drive currently operates at LOS A in both the AM and PM peak hours. The intersection is expected to continue to operate at LOS A in the year 2022 with or without the proposed project in place, and no queuing issues are expected at this intersection. No roadway improvements are recommended to be performed at this intersection to accommodate projected site traffic volumes.

Table 6.3 summarizes the operation of the intersection of Morris Acres Road at Creekside Landing Drive for the existing (2018) and projected (2022) background and build-out traffic conditions.

Table 6.3 Level-of-Service Morris Acres Road at Creekside Landing Drive (Signalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2018) Traffic	A (4.6)	A (6.7)
Background (2022) Traffic	A (4.7)	A (7.1)
Build-out (2022) Traffic	A (5.0)	A (7.8)

6.4 Morris Acres Road at US 64 Westbound

Analyses indicate that the unsignalized intersection of Morris Acres Road at US 64 Westbound currently operates with moderate delays on the minor street approach (Morris Acres Road) in both the AM and PM peak hours. The intersection is expected to continue to operate with moderate delays on the minor street approach in the year 2022 with or without the proposed project in place. As only slight increases in queues and delays are expected at this intersection with the addition of site traffic, no roadway improvements are recommended to be performed at this intersection.

Table 6.4 summarizes the operation of the intersection of Morris Acres Road at US 64 Westbound for the existing (2018) and projected (2022) background and build-out traffic conditions.

Table 6.4 Level-of-Service Morris Acres Road at US 64 Westbound (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2018) Traffic	SB - D (27.9)	SB - D (28.8)
Background (2022) Traffic	SB - E (41.8)	SB - E (43.6)
Build-out (2022) Traffic	SB - E (49.4)	SB - E (48.8)

6.5 Morris Acres Road at North Site Driveway

A full-movement site driveway is proposed to be constructed on Morris Acres Road approximately 750 feet north of Reedybrook Crossing. Analyses indicate that the intersection is expected to operate with short delays and queues on the minor street approach (North Site Driveway) at project build-out. No roadway improvements are recommended to be performed as part of this development

Table 6.5 summarizes the operation of the intersection of Morris Acres Road at North Site Driveway for the projected (2022) build-out traffic condition.

Table 6.5 Level-of-Service Morris Acres Road at North Site Driveway (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-out (2022) Traffic	WB - A (9.8) SBL - A (7.7)	WB - B (10.6) SBL - A (8.0)

6.6 Morris Acres Road at South Site Driveway

A full-movement site driveway is proposed to be constructed on Morris Acres Road approximately 500 feet south of Reedybrook Crossing. Analyses indicate that the intersection is expected to operate with short delays and queues on the minor street approach (South Site Driveway) at project build-out. No roadway improvements are recommended to be performed as part of this development

Table 6.6 summarizes the operation of the intersection of Morris Acres Road at South Site Driveway for the projected (2022) build-out traffic condition.

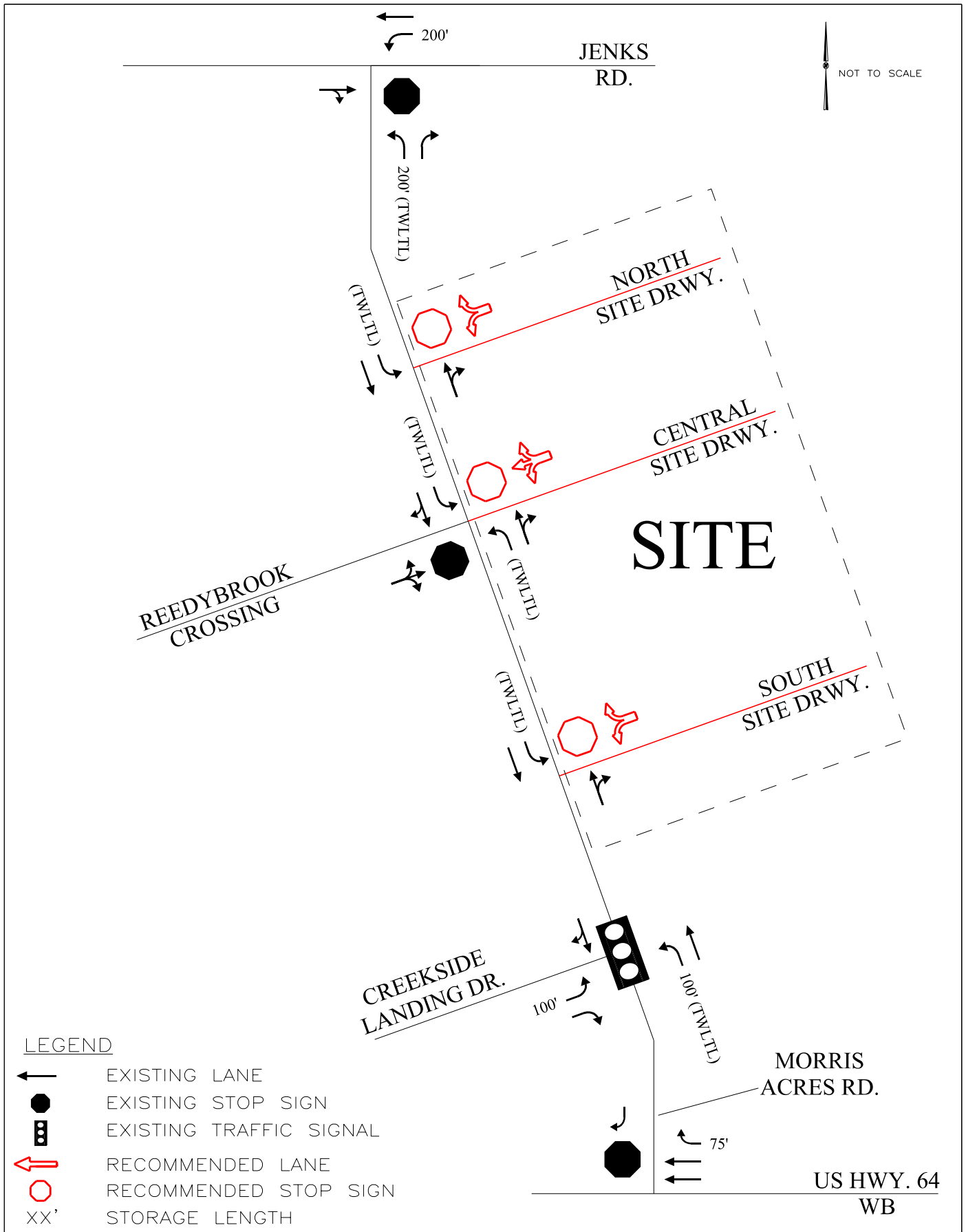
Table 6.6 Level-of-Service Morris Acres Road at South Site Driveway (Unsignalized)		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Build-out (2022) Traffic	WB - A (9.7) SBL - A (7.6)	WB - B (10.8) SBL - A (8.0)

## 7.0 Recommendations

With the exception of southbound Morris Acres Road at US 64 Westbound, analyses indicate that all of the study intersections are expected to operate at an acceptable LOS at project build-out with only minor increases in delays and queues associated with the addition of site traffic. The intersection of US 64 Westbound at Morris Acres road is expected to operate with moderate delays on Morris Acres Road in the year 2022 with or without the proposed project in place.

No roadway improvements are recommended to be performed to accommodate projected site traffic volumes.

The build-out roadway laneage is shown on Figure 9.



**LEGEND**

- ← EXISTING LANE
- EXISTING STOP SIGN
- ⬛ EXISTING TRAFFIC SIGNAL
- ➔ RECOMMENDED LANE
- RECOMMENDED STOP SIGN
- XX' STORAGE LENGTH



THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

BUILD-OUT  
ROADWAY LANEAGE

FIGURE  
9

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# Appendix



Appendix A:  
Assumptions Memorandum

Preliminary Assumptions  
The Wayforth at Apex Apartments - Traffic Impact Analysis  
Apex, North Carolina

KHA will perform analyses for The Wayforth at Apex development, a proposed apartments project located on the east side of Morris Acres Road (formerly Green Level Church Road) between Jenks Road and Creekside Landing in Apex, North Carolina. The following assumptions will be used in the analysis of the site:

The study area will consist of the following intersections:

- é Jenks Road at Morris Acres Road
- é Morris Acres Road at Creekside Landing Drive
- é US 64 at Morris Acres Road
- é Morris Acres Road at Reedybrook Crossing/Central Site Driveway
- é Morris Acres Road at North Site Driveway
- é Morris Acres Road at South Site Driveway

The study scenarios will consist of:

- ¿ Existing (2018)
- ¿ Background (2022)
- ¿ Build-out (2022)

Based on discussions with the Town of Apex and the North Carolina Department of Transportation (NCDOT), the 540 Townes development located on the west side of Morris Acres Road (which is partially built-out and occupied) was identified for inclusion in this analysis as background traffic. Traffic for this development will be obtained from the Beaver Creek Residential Development TIA (Stantec, July 2015).

In addition to the approved development traffic, an annual growth rate of 3% will also be applied to the existing traffic volumes up to the year 2022.

Separate entering and existing directional distributions will be used for the site based on a review of surrounding land uses and the existing roadway network. The following overall distribution will be used for entering traffic:

- ¿ 25% from the east on US 64
- ¿ 25% from the east on Jenks Road
- ¿ 25% from the west on Jenks Road
- ¿ 25% from the south on Creekside Landing Drive

The following overall distribution will be used for entering traffic:

- ¿ 50% to the east on Jenks Road
- ¿ 25% to the west on US 64
- ¿ 15% to the south on Creekside Landing Drive
- ¿ 10% to the west on Jenks Road

The property is currently occupied by a few single-family homes, and as currently envisioned the development will consist of approximately 305 apartments. Trips will be generated using ITE Trip Generation 10<sup>th</sup> Edition rates. See attached trip generation table.

**The Wayforth at Apex**  
**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)	305 d.u.	1,662	831	831	102	27	75	129	79	50

# The Wayforth at Apex - Site Driveway Locations



# Appendix B: Trip Generation

The Wayforth at Apex  
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)	300 d.u.	1,634	817	817	100	26	74	127	77	50

Appendix C:  
Traffic Count Data

Morris Acres Road/and Jenks Road AM and PM Peak Hour Traffic Count  
 Count Performed: Tuesday, October 23, 2018

Start Time	0			Jenks Road			Morris Acres Road			Jenks Road			Intersection Volume
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	0	2	15	0	28	0	13	0	53	9	120
7:15	0	0	0	2	21	0	26	0	13	0	38	9	109
7:30	0	0	0	2	37	0	24	0	13	0	54	9	139
7:45	0	0	0	4	31	0	37	0	13	0	55	3	143
8:00	0	0	0	4	23	0	29	0	9	0	54	9	128
8:15	0	0	0	6	22	0	20	0	6	0	46	13	113
8:30	0	0	0	3	27	0	18	0	15	0	45	11	119
8:45	0	0	0	4	28	0	15	0	17	0	53	12	129

16:00	0	0	0	11	39	0	36	0	16	0	47	24	173
16:15	0	0	0	16	47	0	38	0	12	0	39	24	176
16:30	0	0	0	9	45	0	48	0	16	0	38	14	170
16:45	0	0	0	11	59	0	35	0	17	0	41	21	184
17:00	0	0	0	10	65	0	41	0	15	0	47	23	201
17:15	0	0	0	15	52	0	44	0	20	0	45	31	207
17:30	0	0	0	15	67	0	43	0	11	0	63	28	227
17:45	0	0	0	17	66	0	47	0	17	0	61	17	225

Peak Hour	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR	Volume
7:00 - 8:00	0	0	0	10	104	0	115	0	52	0	200	30	511
7:15 - 8:15	0	0	0	12	112	0	116	0	48	0	201	30	519
7:30 - 8:30	0	0	0	16	113	0	110	0	41	0	209	34	523
7:45 - 8:45	0	0	0	17	103	0	104	0	43	0	200	36	503
8:00 - 9:00	0	0	0	17	100	0	82	0	47	0	198	45	489

Peak Hour	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR	Volume
16:00 - 17:00	0	0	0	47	190	0	157	0	61	0	165	83	703
16:15 - 17:15	0	0	0	46	216	0	162	0	60	0	165	82	731
16:30 - 17:30	0	0	0	45	221	0	168	0	68	0	171	89	762
16:45 - 17:45	0	0	0	51	243	0	163	0	63	0	196	103	819
17:00 - 18:00	0	0	0	57	250	0	175	0	63	0	216	99	860

Peak-Hour Traffic Volumes													
Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Volume
7:30 - 8:30	110	0	41	0	0	0	0	209	34	16	113	0	523
17:00 - 18:00	175	0	63	0	0	0	0	216	99	57	250	0	860

Peak-Hour Factor by Movement													
Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	PHF
7:30 - 8:30	0.743	-	0.788	-	-	-	-	0.950	0.654	0.667	0.764	-	0.914
17:00 - 18:00	0.931	-	0.788	-	-	-	0.250	0.857	0.798	0.838	0.933	-	0.947

Peak-Hour Factor by Approach					
Peak Hour	NB	SB	EB	WB	PHF
7:30 - 8:30	0.76	-	0.96	0.83	0.91
17:00 - 18:00	0.93	-	0.87	0.93	0.95

Heavy Vehicle Percentage by Movement													
Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	%HV
7:30 - 8:30	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
17:00 - 18:00	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Heavy Vehicle Percentage by Approach					
Peak Hour	NB	SB	EB	WB	%HV
7:30 - 8:30	0%	0%	0%	0%	0%
17:00 - 18:00	0%	0%	0%	0%	0%



**Morris Acres Road and Creekside Landing Drive/ AM and PM Peak Hour Traffic Count**  
 Count Performed: Tuesday, October 23, 2018

Start Time	Morris Acres Road			0			Morris Acres Road			Creekside Landing Drive			Intersection Volume
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	19	5	0	0	0	11	25	0	3	0	20	83
7:15	0	25	8	0	0	0	10	26	0	4	0	28	101
7:30	0	40	3	0	0	0	10	27	0	5	0	21	106
7:45	0	17	1	0	0	0	19	28	0	15	0	23	103
8:00	0	20	3	0	0	0	16	32	0	6	0	23	100
8:15	0	31	6	0	0	0	7	18	0	2	0	31	95
8:30	0	14	8	0	0	0	14	26	0	5	0	27	94
8:45	0	18	9	0	0	0	21	21	0	8	0	24	101

16:00	0	19	20	0	0	0	35	27	0	32	0	35	168
16:15	0	26	19	0	0	0	41	42	0	21	0	42	191
16:30	0	14	12	0	0	0	35	59	0	22	0	44	186
16:45	0	17	19	0	0	0	42	44	0	19	0	43	184
17:00	0	19	16	0	0	0	37	55	0	20	0	50	197
17:15	0	29	26	0	0	0	29	59	0	31	0	43	217
17:30	0	20	23	0	0	0	39	47	0	15	0	39	183
17:45	0	15	23	0	0	0	39	74	0	30	0	46	227

Peak Hour	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR	Volume
7:00 - 8:00	0	101	17	0	0	0	50	106	0	27	0	92	393
7:15 - 8:15	0	102	15	0	0	0	55	113	0	30	0	95	410
7:30 - 8:30	0	108	13	0	0	0	52	105	0	28	0	98	404
7:45 - 8:45	0	82	18	0	0	0	56	104	0	28	0	104	392
8:00 - 9:00	0	83	26	0	0	0	58	97	0	21	0	105	390

Peak Hour	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR	Volume
16:00 - 17:00	0	76	70	0	0	0	153	172	0	94	0	164	729
16:15 - 17:15	0	76	66	0	0	0	155	200	0	82	0	179	758
16:30 - 17:30	0	79	73	0	0	0	143	217	0	92	0	180	784
16:45 - 17:45	0	85	84	0	0	0	147	205	0	85	0	175	781
17:00 - 18:00	0	83	88	0	0	0	144	235	0	96	0	178	824

Peak-Hour Traffic Volumes													
Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Volume
7:15 - 8:15	55	113	0	0	102	15	30	0	95	0	0	0	410
17:00 - 18:00	144	235	0	0	83	88	96	0	178	0	0	0	824

Peak-Hour Factor by Movement													
Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	PHF
7:15 - 8:15	0.724	0.883	-	-	0.638	0.469	0.500	-	0.848	-	-	-	0.967
17:00 - 18:00	0.923	0.794	-	-	0.716	0.846	0.613	-	0.890	-	-	-	0.907

Peak-Hour Factor by Approach					
Peak Hour	NB	SB	EB	WB	PHF
7:15 - 8:15	0.88	0.68	0.82	-	0.97
17:00 - 18:00	0.84	0.78	0.90	-	0.91

Heavy Vehicle Percentage by Movement													
Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	%HV
7:15 - 8:15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
17:00 - 18:00	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Heavy Vehicle Percentage by Approach					
Peak Hour	NB	SB	EB	WB	%HV
7:15 - 8:15	0%	0%	0%	0%	0%
17:00 - 18:00	0%	0%	0%	0%	0%

**/Morris Acres Road and /US 64 AM and PM Peak Hour Traffic Count**  
 Count Performed: Tuesday, October 23, 2018

Start Time	Morris Acres Road			US 64			0			0			Intersection Volume
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	19	0	300	31	0	0	0	0	0	0	350
7:15	0	0	34	0	320	34	0	0	0	0	0	0	388
7:30	0	0	35	0	399	37	0	0	0	0	0	0	471
7:45	0	0	26	0	450	43	0	0	0	0	0	0	519
8:00	0	0	26	0	428	32	0	0	0	0	0	0	486
8:15	0	0	32	0	416	28	0	0	0	0	0	0	476
8:30	0	0	23	0	370	40	0	0	0	0	0	0	433
8:45	0	0	24	0	372	41	0	0	0	0	0	0	437

16:00	0	0	33	0	394	55	0	0	0	0	0	0	482
16:15	0	0	35	0	417	61	0	0	0	0	0	0	513
16:30	0	0	37	0	415	80	0	0	0	0	0	0	532
16:45	0	0	28	0	416	78	0	0	0	0	0	0	522
17:00	0	0	32	0	456	76	0	0	0	0	0	0	564
17:15	0	0	29	0	459	71	0	0	0	0	0	0	559
17:30	0	0	34	0	450	74	0	0	0	0	0	0	558
17:45	0	0	31	0	418	87	0	0	0	0	0	0	536

Peak Hour	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR	Volume
7:00 - 8:00	0	0	114	0	1,469	145	0	0	0	0	0	0	1,728
7:15 - 8:15	0	0	121	0	1,597	146	0	0	0	0	0	0	1,864
7:30 - 8:30	0	0	119	0	1,693	140	0	0	0	0	0	0	1,952
7:45 - 8:45	0	0	107	0	1,664	143	0	0	0	0	0	0	1,914
8:00 - 9:00	0	0	105	0	1,586	141	0	0	0	0	0	0	1,832

Peak Hour	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR	Volume
16:00 - 17:00	0	0	133	0	1,642	274	0	0	0	0	0	0	2,049
16:15 - 17:15	0	0	132	0	1,704	295	0	0	0	0	0	0	2,131
16:30 - 17:30	0	0	126	0	1,746	305	0	0	0	0	0	0	2,177
16:45 - 17:45	0	0	123	0	1,781	299	0	0	0	0	0	0	2,203
17:00 - 18:00	0	0	126	0	1,783	308	0	0	0	0	0	0	2,217

Peak-Hour Traffic Volumes													
Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Volume
7:30 - 8:30	0	0	0	0	0	119	0	0	0	0	1,693	140	1,952
17:00 - 18:00	0	0	0	0	0	126	0	0	0	0	1,783	308	2,217

Peak-Hour Factor by Movement													
Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	PHF
7:30 - 8:30	-	-	-	-	-	0.850	-	-	-	-	0.941	0.814	0.940
17:00 - 18:00	-	-	-	-	-	0.926	-	-	-	-	0.971	0.885	0.983

Peak-Hour Factor by Approach					
Peak Hour	NB	SB	EB	WB	PHF
7:30 - 8:30	-	0.85	-	0.93	0.94
17:00 - 18:00	-	0.93	-	0.98	0.98

Heavy Vehicle Percentage by Movement													
Peak Hour	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	%HV
7:30 - 8:30	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
17:00 - 18:00	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Heavy Vehicle Percentage by Approach					
Peak Hour	NB	SB	EB	WB	%HV
7:30 - 8:30	0%	0%	0%	0%	0%
17:00 - 18:00	0%	0%	0%	0%	0%

Appendix D:  
Approved Development Data

## **Beaver Creek Residential Development Final Traffic Impact Analysis**

Green Level Church Road and US 64  
Apex, NC



Prepared for:  
RST Development, LLC  
6110 Executive Blvd, Suite 620  
Rockville, Maryland 20852

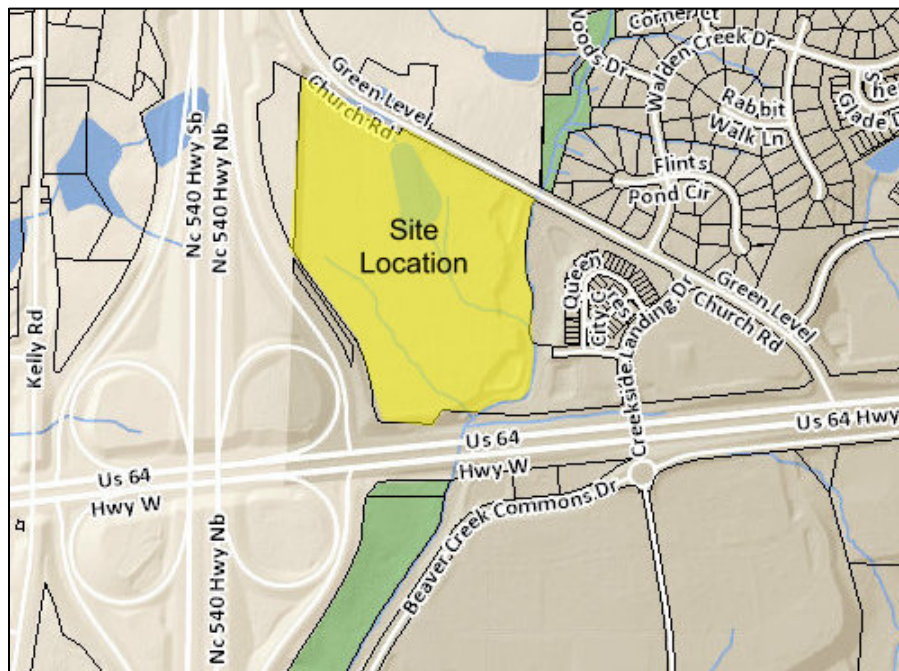
Prepared by:  
Stantec Consulting Services Inc.  
801 Jones Franklin Road  
Suite 300  
Raleigh, NC 27606

July 30, 2015  
Revised August 28, 2015

## 1.0 INTRODUCTION

The proposed Beaver Creek Residential Development is located between US 64 and Green Level Church Road, just east of NC 540, in Apex, NC, as illustrated in Figure 1.

**Figure 1: Proposed Site Location**



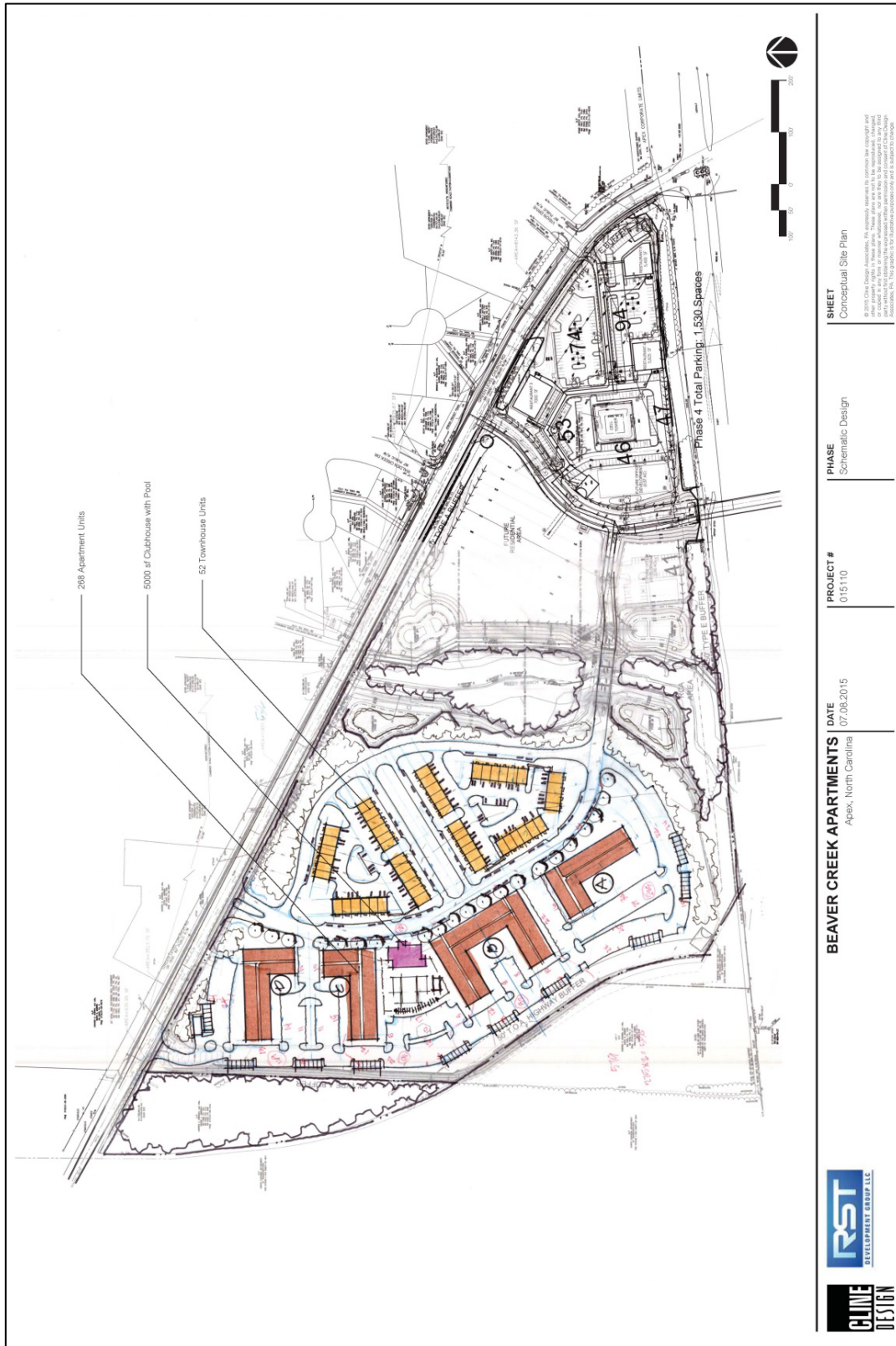
The proposed 27.5 acre site is planned to have up to 300 apartments and 50 townhomes. The proposed site is anticipated to be built-out by the year 2020. A conceptual sketch illustrating the development property and the access locations used in this study is shown on the site plan in Figure 2.

The purpose of this report is to evaluate the proposed development in terms of projected traffic conditions, evaluate the ability of the adjacent roadways to accommodate the additional traffic volumes, and to recommend transportation improvements needed to mitigate congestion that may result from the additional site traffic. This report presents trip generation, trip distribution, traffic analyses, and recommendations for transportation improvements needed to meet anticipated traffic demands. This report examines the following scenarios for both the AM and PM peak hours:

- 2015 Existing
- 2020 No-Build
- 2020 Build

# BEAVER CREEK RESIDENTIAL DEVELOPMENT FINAL TRAFFIC IMPACT ANALYSIS

## Figure 2: Site Plan



## 4.0 TRAFFIC GENERATION

The proposed Beaver Creek Residential Development will consist of up to 300 Apartments and 50 Condominiums. Table 2 below shows the number of anticipated trips entering and exiting the site during a typical week day and during the AM and PM peak hours.

**Table 2: ITE Trip Generation Table**

ITE Trip Generation Beaver Creek Residential Development ITE Trip Generation										
Land Use	ITE Site Code	Size		Daily	AM Peak			PM Peak		
				Total	Total	Enter	Exit	Total	Enter	Exit
Apartment	220	300	units	1942	151	30	121	183	119	64
Residential Condominium/Townhouse	230	50	units	352	30	5	25	34	23	11
<b>Total New Trips</b>				2293	181	35	146	217	142	75

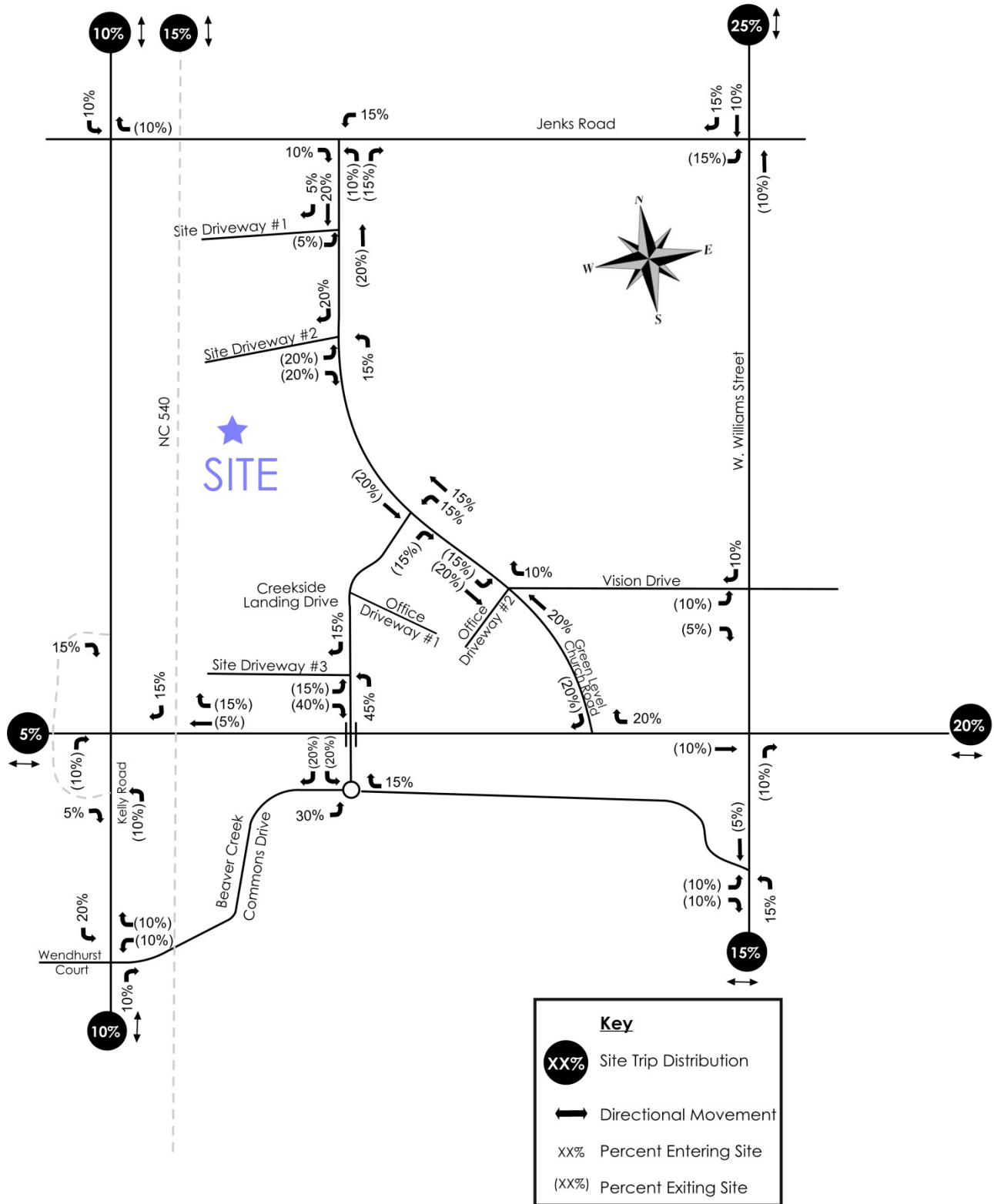
### 4.1 SITE TRIP DISTRIBUTION

In order to accurately determine the effect of the proposed development on the surrounding roadway network, an estimate of the expected distribution of traffic entering and exiting the site is needed. The following percentages were used in both the AM and PM peak hours.

- 5% to/from the west on US 64
- 20% to/from the east on US 64
- 25% to/from the north on W. Williams Street
- 15% to/from the south on W. Williams Street
- 10% to/from the north on Kelly Road
- 10% to/from the south on Kelly Road
- 15% to/from the north on NC 540

These percentages were developed using a combination of input from the Town of Apex, existing traffic volume counts, historic AADTs provided by NCDOT, and engineering judgment. Figure 8 shows the distributions described above as well as the turning movement percentages at each intersection.

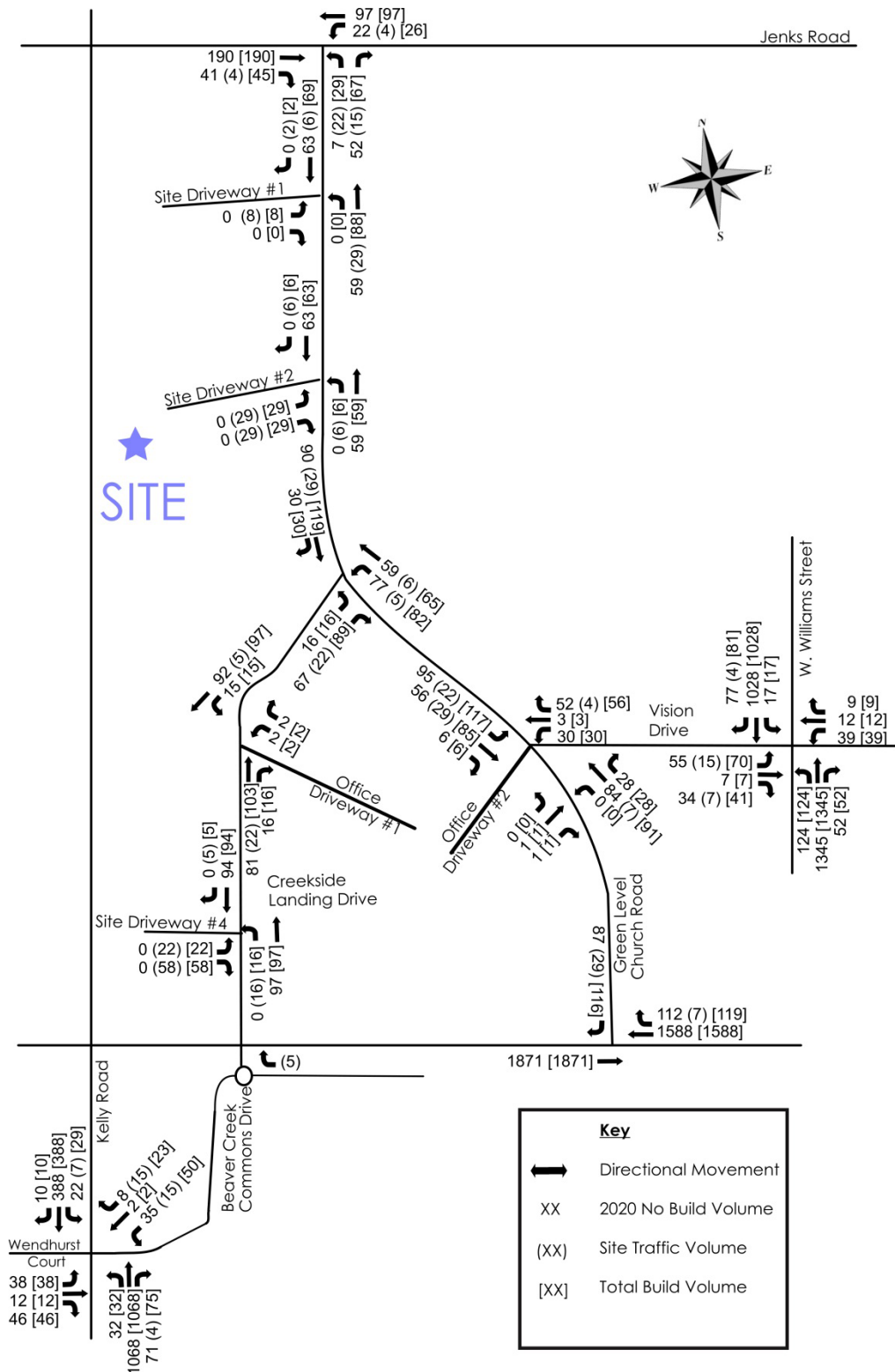
Figure 8: Site Trip Distribution





BEAVER CREEK RESIDENTIAL DEVELOPMENT FINAL TRAFFIC IMPACT ANALYSIS

Figure 9: Future (2020) AM Build Out Traffic Volumes



BEAVER CREEK RESIDENTIAL DEVELOPMENT FINAL TRAFFIC IMPACT ANALYSIS

Figure 10: Future (2020) PM Build Out Traffic Volumes

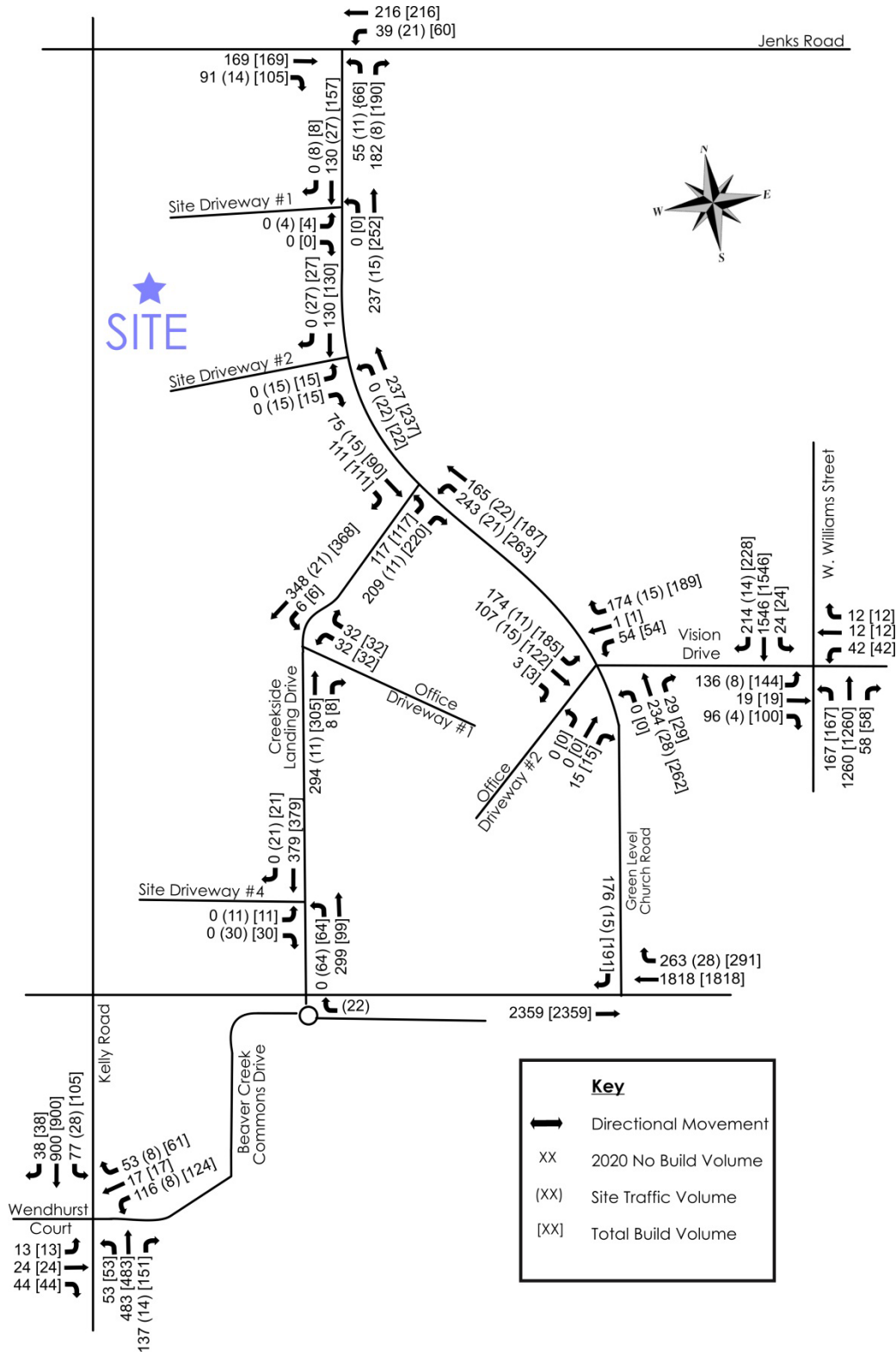
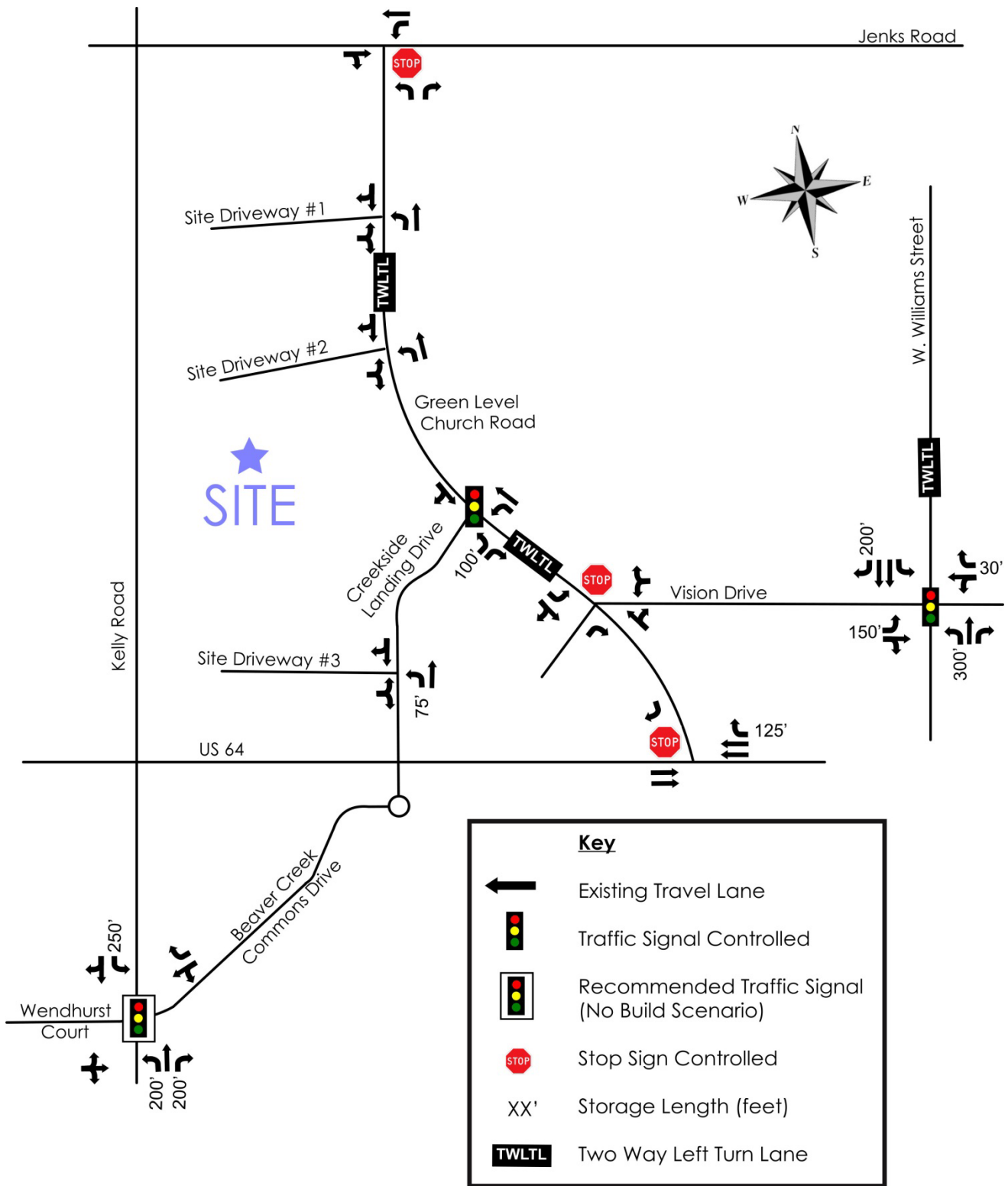


Figure 11: Recommended Geometry



Appendix E:  
Intersection Spreadsheets

## INTERSECTION ANALYSIS SHEET

Project: The Wayforth at Apex  
 Location: Apex, NC  
 Ct. Date: 10/23/2018  
 N/S Street: Morris Acres Road  
 E/W Street: Jenks Road

AM In AM Out PM In PM Out  
 Net New Trips: 26 74 77 50

Annual Growth Rate: 3.0% Existing Year: 2018  
 Growth Factor: 0.125509 Buildout Year: 2022

### AM PEAK HOUR AM PHF = 0.91

Description	Jenks Road Eastbound			Jenks Road Westbound			Morris Acres Road Northbound			Morris Acres Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2018 Traffic Count	0	209	34	16	113	0	110	0	41	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	209	34	16	113	0	110	0	41	0	0	0
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	26	4	2	14	0	14	0	5	0	0	0
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	0	0	0	0	2	0	2	0	0	0
Total Committed Traffic	0	0	0	0	0	0	2	0	2	0	0	0
2022 Background Traffic	0	235	38	18	127	0	126	0	48	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	25%	25%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	6	7	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	10%	0%	50%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	7	0	37	0	0	0
Total Project Traffic	0	0	6	7	0	0	7	0	37	0	0	0
2022 Buildout Total	0	235	44	25	127	0	133	0	85	0	0	0
Percent Impact (Approach)		2.1%			4.6%			20.2%			-	
Overall Percent Impact	8.8%											

### PM PEAK HOUR PM PHF = 0.95

Description	Jenks Road Eastbound			Jenks Road Westbound			Morris Acres Road Northbound			Morris Acres Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2018 Traffic Count	0	216	99	57	250	0	175	0	63	0	0	0
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	0	216	99	57	250	0	175	0	63	0	0	0
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	27	12	7	31	0	22	0	8	0	0	0
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	1	2	0	0	1	0	1	0	0	0
Total Committed Traffic	0	0	1	2	0	0	1	0	1	0	0	0
2022 Background Traffic	0	243	112	66	281	0	198	0	72	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	0%	25%	25%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	19	20	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	10%	0%	50%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	0	0	5	0	25	0	0	0
Total Project Traffic	0	0	19	20	0	0	5	0	25	0	0	0
2022 Buildout Total	0	243	131	86	281	0	203	0	97	0	0	0
Percent Impact (Approach)		5.1%			5.4%			10.0%			-	
Overall Percent Impact	6.6%											

## INTERSECTION ANALYSIS SHEET

Project: The Wayforth at Apex  
 Location: Apex, NC  
 Ct. Date: Balance with Jenks at Morris Acres  
 N/S Street: Morris Acres Road  
 E/W Street: Reedybrook Crossing/Central Site Driveway

AM In AM Out PM In PM Out  
 Net New Trips: 26 74 77 50

Annual Growth Rate: 3.0% Existing Year: 2018  
 Growth Factor: 0.125509 Buildout Year: 2022

### AM PEAK HOUR AM PHF = 0.90

Description	Reedybrook Crossing Eastbound			Central Site Driveway Westbound			Morris Acres Road Northbound			Morris Acres Road 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	26	0	26	0	0	0	5	125	0	0	45	5
2018 Existing Traffic	26	0	26	0	0	0	5	125	0	0	45	5
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.126	0.000
2022 Background Growth	0	0	0	0	0	0	0	16	0	0	6	0
Committed Projects												
Beaver Creek Phase 4 Residential	3	0	3	0	0	0	1	0	0	0	0	1
Total Committed Traffic	3	0	3	0	0	0	1	0	0	0	0	1
2022 Background Traffic	29	0	29	0	0	0	6	141	0	0	51	6
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	5%	30%	30%	5%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	1	8	8	1	0
Percent Assignment Outbound	0%	0%	0%	25%	0%	35%	0%	10%	0%	0%	5%	0%
Outbound Project Traffic	0	0	0	19	0	26	0	7	0	0	4	0
Total Project Traffic	0	0	0	19	0	26	0	8	8	8	5	0
2022 Buildout Total	29	0	29	19	0	26	6	149	8	8	56	6
Percent Impact (Approach)		0.0%			100.0%			9.8%			18.7%	
Overall Percent Impact	22.1%											

### PM PEAK HOUR PM PHF = 0.90

Description	Reedybrook Crossing Eastbound			Central Site Driveway Westbound			Morris Acres Road Northbound			Morris Acres Road 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	14	0	14	0	0	0	20	225	0	0	132	24
2018 Existing Traffic	14	0	14	0	0	0	20	225	0	0	132	24
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.126	0.000
2022 Background Growth	0	0	0	0	0	0	0	28	0	0	17	0
Committed Projects												
Beaver Creek Phase 4 Residential	1	0	1	0	0	0	2	0	0	0	0	3
Total Committed Traffic	1	0	1	0	0	0	2	0	0	0	0	3
2022 Background Traffic	15	0	15	0	0	0	22	253	0	0	149	27
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	5%	30%	30%	5%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	4	23	23	4	0
Percent Assignment Outbound	0%	0%	0%	25%	0%	35%	0%	10%	0%	0%	5%	0%
Outbound Project Traffic	0	0	0	12	0	18	0	5	0	0	3	0
Total Project Traffic	0	0	0	12	0	18	0	9	23	23	7	0
2022 Buildout Total	15	0	15	12	0	18	22	262	23	23	156	27
Percent Impact (Approach)		0.0%			100.0%			10.4%			14.6%	
Overall Percent Impact	16.1%											

## INTERSECTION ANALYSIS SHEET

Project: The Wayforth at Apex  
 Location: Apex, NC  
 Ct. Date: 10/23/2018  
 N/S Street: Morris Acres Road  
 E/W Street: Creekside Landing Drive

AM In   AM Out   PM In   PM Out  
 Net New Trips: 

26	74	77	50
----	----	----	----

Annual Growth Rate: 

3.0%
------

   Existing Year: 

2018
------

  
 Growth Factor: 

0.125509
----------

   Buildout Year: 

2022
------

AM PEAK HOUR  
 AM PHF = 0.97

Description	Creekside Landing Drive Eastbound			- Westbound			Morris Acres Road Northbound			Morris Acres Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2018 Traffic Count	30	0	95	0	0	0	55	113	0	0	102	15
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	30	0	95	0	0	0	55	113	0	0	102	15
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	4	0	12	0	0	0	7	14	0	0	13	2
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	2	0	0	0	1	1	0	0	3	0
Total Committed Traffic	0	0	2	0	0	0	1	1	0	0	3	0
2022 Background Traffic	34	0	109	0	0	0	63	128	0	0	118	17
Project Traffic												
Percent Assignment Inbound	25%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%
Inbound Project Traffic	7	0	0	0	0	0	0	7	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	15%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	19	10
Total Project Traffic	7	0	0	0	0	0	0	7	0	0	19	10
2022 Buildout Total	41	0	109	0	0	0	63	135	0	0	137	27
Percent Impact (Approach)		4.7%			-			3.6%			17.7%	
Overall Percent Impact	8.4%											

PM PEAK HOUR  
 PM PHF = 0.91

Description	Creekside Landing Drive Eastbound			- Westbound			Morris Acres Road Northbound			Morris Acres Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2018 Traffic Count	96	0	178	0	0	0	144	235	0	0	83	88
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing Traffic	96	0	178	0	0	0	144	235	0	0	83	88
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	12	0	22	0	0	0	18	29	0	0	10	11
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	1	0	0	0	2	2	0	0	2	0
Total Committed Traffic	0	0	1	0	0	0	2	2	0	0	2	0
2022 Background Traffic	108	0	201	0	0	0	164	266	0	0	95	99
Project Traffic												
Percent Assignment Inbound	25%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%
Inbound Project Traffic	19	0	0	0	0	0	0	19	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	15%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	13	7
Total Project Traffic	19	0	0	0	0	0	0	19	0	0	13	7
2022 Buildout Total	127	0	201	0	0	0	164	285	0	0	108	106
Percent Impact (Approach)		5.8%			-			4.2%			9.4%	
Overall Percent Impact	5.9%											

## INTERSECTION ANALYSIS SHEET

Project: The Wayforth at Apex  
 Location: Apex, NC  
 Ct. Date: 10/23/2018  
 N/S Street: Morris Acres Road  
 E/W Street: US 64 WB

Net New Trips: 

AM In	AM Out	PM In	PM Out
26	74	77	50

Annual Growth Rate: 

3.0%
------

  
 Growth Factor: 

0.125509
----------

  
 Existing Year: 

2018
------

  
 Buildout Year: 

2022
------

### AM PEAK HOUR AM PHF = 0.94

Description	US 64 WB Eastbound			US 64 WB Westbound			Morris Acres Road Northbound			Morris Acres Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2018 Traffic Count	0	0	0	0	1693	140	0	0	0	0	0	119
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing T traffic	0	0	0	0	1693	140	0	0	0	0	0	119
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	0	0	0	212	18	0	0	0	0	0	15
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	0	0	0	1	0	0	0	0	0	3
Total Committed T traffic	0	0	0	0	0	1	0	0	0	0	0	3
2022 Background Traffic	0	0	0	0	1905	159	0	0	0	0	0	137
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	7	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	19
Total Project Traffic	0	0	0	0	0	7	0	0	0	0	0	19
2022 Buildout T total	0	0	0	0	1905	166	0	0	0	0	0	156
Percent Impact (Approach)	-	-	-	0.3%	-	-	-	-	-	12.2%	-	-
Overall Percent Impact	1.2%											

### PM PEAK HOUR PM PHF = 0.98

Description	US 64 WB Eastbound			US 64 WB Westbound			Morris Acres Road Northbound			Morris Acres Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2018 Traffic Count	0	0	0	0	1783	308	0	0	0	0	0	126
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2018 Existing T traffic	0	0	0	0	1783	308	0	0	0	0	0	126
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	0	0	0	224	39	0	0	0	0	0	16
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	0	0	0	3	0	0	0	0	0	2
Total Committed T traffic	0	0	0	0	0	3	0	0	0	0	0	2
2022 Background Traffic	0	0	0	0	2007	350	0	0	0	0	0	144
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	0	19	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	13
Total Project Traffic	0	0	0	0	0	19	0	0	0	0	0	13
2022 Buildout T total	0	0	0	0	2007	369	0	0	0	0	0	157
Percent Impact (Approach)	-	-	-	0.8%	-	-	-	-	-	8.3%	-	-
Overall Percent Impact	1.3%											



## INTERSECTION ANALYSIS SHEET

Project: The Wayforth at Apex  
 Location: Apex, NC  
 Ct. Date: Balance with Jenks at Morris Acres  
 N/S Street: Morris Acres Road  
 E/W Street: North Site Driveway

AM In   AM Out   PM In   PM Out  
 Net New Trips: 

26	74	77	50
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Annual Growth Rate: 

3.0%
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   Existing Year: 

2018
------

  
 Growth Factor: 

0.125509
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   Buildout Year: 

2022
------

### AM PEAK HOUR AM PHF = 0.90

Description	North Site Driveway Eastbound			North Site Driveway Westbound			Morris Acres Road Northbound			Morris Acres Road 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	0	0	0	0	0	0	151	0	0	50	0
2018 Existing Traffic	0	0	0	0	0	0	0	151	0	0	50	0
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	0	0	0	0	0	0	19	0	0	6	0
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	0	0	0	0	0	4	0	0	1	0
Total Committed Traffic	0	0	0	0	0	0	0	4	0	0	1	0
2022 Background Traffic	0	0	0	0	0	0	0	174	0	0	57	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	5%	15%	35%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	1	4	9	0
Percent Assignment Outbound	0%	0%	0%	5%	0%	15%	0%	45%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	4	0	11	0	33	0	0	0	0
Total Project Traffic	0	0	0	4	0	11	0	33	1	4	9	0
2022 Buildout Total	0	0	0	4	0	11	0	207	1	4	66	0
Percent Impact (Approach)	-	-	-	100.0%	-	-	-	16.4%	-	-	18.6%	-
Overall Percent Impact	21.2%											

### PM PEAK HOUR PM PHF = 0.90

Description	North Site Driveway Eastbound			North Site Driveway Westbound			Morris Acres Road Northbound			Morris Acres Road 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	0	0	0	0	0	0	238	0	0	156	0
2018 Existing Traffic	0	0	0	0	0	0	0	238	0	0	156	0
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	0	0	0	0	0	0	30	0	0	20	0
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	0	0	0	0	0	2	0	0	4	0
Total Committed Traffic	0	0	0	0	0	0	0	2	0	0	4	0
2022 Background Traffic	0	0	0	0	0	0	0	270	0	0	180	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	5%	15%	35%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	4	12	27	0
Percent Assignment Outbound	0%	0%	0%	5%	0%	15%	0%	45%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	3	0	8	0	23	0	0	0	0
Total Project Traffic	0	0	0	3	0	8	0	23	4	12	27	0
2022 Buildout Total	0	0	0	3	0	8	0	293	4	12	207	0
Percent Impact (Approach)	-	-	-	100.0%	-	-	-	9.1%	-	-	17.8%	-
Overall Percent Impact	14.6%											

## INTERSECTION ANALYSIS SHEET

Project: The Wayforth at Apex  
 Location: Apex, NC  
 Ct. Date: Balance with Jenks at Morris Acres  
 N/S Street: Morris Acres Road  
 E/W Street: South Site Driveway

AM In   AM Out   PM In   PM Out  
 Net New Trips: 

26	74	77	50
----	----	----	----

Annual Growth Rate: 

3.0%
------

   Existing Year: 

2018
------

  
 Growth Factor: 

0.125509
----------

   Buildout Year: 

2022
------

### AM PEAK HOUR AM PHF = 0.90

Description	South Site Driveway Eastbound			South Site Driveway Westbound			Morris Acres Road Northbound			Morris Acres Road 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	0	0	0	0	0	0	130	0	0	71	0
2018 Existing Traffic	0	0	0	0	0	0	0	130	0	0	71	0
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	0	0	0	0	0	0	16	0	0	9	0
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	0	0	0	0	0	1	0	0	3	0
Total Committed Traffic	0	0	0	0	0	0	0	1	0	0	3	0
2022 Background Traffic	0	0	0	0	0	0	0	147	0	0	83	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	35%	15%	5%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	9	4	1	0	0
Percent Assignment Outbound	0%	0%	0%	10%	0%	10%	0%	0%	0%	0%	30%	0%
Outbound Project Traffic	0	0	0	7	0	7	0	0	0	0	22	0
Total Project Traffic	0	0	0	7	0	7	0	9	4	1	22	0
2022 Buildout Total	0	0	0	7	0	7	0	156	4	1	105	0
Percent Impact (Approach)	-			100.0%			8.1%			21.8%		
Overall Percent Impact	17.9%											

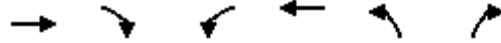
### PM PEAK HOUR PM PHF = 0.90

Description	South Site Driveway Eastbound			South Site Driveway Westbound			Morris Acres Road Northbound			Morris Acres Road 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	0	0	0	0	0	0	244	0	0	145	0
2018 Existing Traffic	0	0	0	0	0	0	0	244	0	0	145	0
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	0	0	0	0	0	0	31	0	0	18	0
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	0	0	0	0	0	2	0	0	1	0
Total Committed Traffic	0	0	0	0	0	0	0	2	0	0	1	0
2022 Background Traffic	0	0	0	0	0	0	0	278	0	0	164	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	35%	15%	5%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	27	11	4	0	0
Percent Assignment Outbound	0%	0%	0%	10%	0%	10%	0%	0%	0%	0%	30%	0%
Outbound Project Traffic	0	0	0	4	0	5	0	0	0	0	15	0
Total Project Traffic	0	0	0	4	0	5	0	27	11	4	15	0
2022 Buildout Total	0	0	0	4	0	5	0	305	11	4	179	0
Percent Impact (Approach)	-			100.0%			12.0%			10.4%		
Overall Percent Impact	13.0%											

Appendix F:  
Synchro Output:  
Existing (2018)

The Wayforth at Apex  
 1: Morris Acres Road & Jenks Road

Existing AM  
 11/16/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻	↻	↻
Traffic Volume (vph)	209	34	16	113	110	41
Future Volume (vph)	209	34	16	113	110	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		200	0
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1827	0	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	0	1770	1863	1770	1583
Link Speed (mph)	45			45	45	
Link Distance (ft)	645			534	1006	
Travel Time (s)	9.8			8.1	15.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	267	0	18	124	121	45
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.1% ICU Level of Service A
Analysis Period (min)	15

The Wayforth at Apex  
1: Morris Acres Road & Jenks Road

Existing AM  
11/16/2018

**Intersection**

Int Delay, s/veh 3.5

**Movement** EBT EBR WBL WBT NBL NBR

Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	209	34	16	113	110	41
Future Vol, veh/h	209	34	16	113	110	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	200	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	230	37	18	124	121	45

**Major/Minor** Major1 Major2 Minor1

Conflicting Flow All	0	0	267	0	407	248
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	159	-
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	-	-	1297	-	600	791
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	870	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1297	-	592	791
Mov Cap-2 Maneuver	-	-	-	-	645	-
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	858	-

**Approach** EB WB NB

HCM Control Delay, s	0	1	11.3
HCM LOS			B

**Minor Lane/Major Mvmt** NBLn1 NBLn2 EBT EBR WBL WBT

Capacity (veh/h)	645	791	-	-	1297	-
HCM Lane V/C Ratio	0.187	0.057	-	-	0.014	-
HCM Control Delay (s)	11.9	9.8	-	-	7.8	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0	-

The Wayforth at Apex  
 2: Morris Acres Road & Reedybrook Crossing

Existing AM  
 11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	26	5	125	45	5
Future Volume (vph)	26	26	5	125	45	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1694	0	1770	1863	1837	0
Flt Permitted	0.976		0.950			
Satd. Flow (perm)	1694	0	1770	1863	1837	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	294			470	758	
Travel Time (s)	8.0			7.1	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	6	139	56	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.6% ICU Level of Service A
Analysis Period (min)	15

The Wayforth at Apex  
2: Morris Acres Road & Reedybrook Crossing

Existing AM  
11/16/2018

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	26	26	5	125	45	5
Future Vol, veh/h	26	26	5	125	45	5
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	-	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	29	29	6	139	50	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	203	53	56	0	0
Stage 1	53	-	-	-	-
Stage 2	150	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	786	1014	1549	-	-
Stage 1	970	-	-	-	-
Stage 2	878	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	783	1014	1549	-	-
Mov Cap-2 Maneuver	771	-	-	-	-
Stage 1	970	-	-	-	-
Stage 2	875	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1549	-	876	-	-
HCM Lane V/C Ratio	0.004	-	0.066	-	-
HCM Control Delay (s)	7.3	-	9.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

The Wayforth at Apex  
3: Morris Acres Road & Creekside Landing Drive

Existing AM  
11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	95	55	113	102	15
Future Volume (vph)	30	95	55	113	102	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			-5%	5%	
Storage Length (ft)	100	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	55		100			
Satd. Flow (prot)	1752	1567	1814	1909	1785	0
Flt Permitted	0.950		0.510			
Satd. Flow (perm)	1752	1567	974	1909	1785	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		98			11	
Link Speed (mph)	25			45	45	
Link Distance (ft)	396			548	1004	
Travel Time (s)	10.8			8.3	15.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	98	57	116	120	0
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	8	1	1	6	2	
Permitted Phases		8	6			
Detector Phase	8	1	1	6	2	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	22.7	12.2	12.2	24.0	23.1	
Total Split (s)	25.0	15.0	15.0	90.0	75.0	
Total Split (%)	21.7%	13.0%	13.0%	78.3%	65.2%	
Yellow Time (s)	3.7	3.5	3.5	5.0	4.1	
All-Red Time (s)	1.0	1.7	1.7	1.0	1.0	
Lost Time Adjust (s)	0.3	-0.2	-0.2	-1.0	-0.1	
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	Min	Min	
Act Effct Green (s)	6.8	9.2	25.8	30.0	16.8	
Actuated g/C Ratio	0.21	0.28	0.79	0.92	0.51	
v/c Ratio	0.09	0.19	0.06	0.07	0.13	
Control Delay	12.6	3.2	2.1	1.7	7.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.6	3.2	2.1	1.7	7.8	
LOS	B	A	A	A	A	
Approach Delay	5.4			1.8	7.8	
Approach LOS	A			A	A	
Queue Length 50th (ft)	4	0	0	0	9	
Queue Length 95th (ft)	22	16	13	22	46	
Internal Link Dist (ft)	316			468	924	
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	1086	637	1027	1909	1785	



The Wayforth at Apex  
 3: Morris Acres Road & Creekside Landing Drive

Existing AM  
 11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
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	0.03	0.15	0.06	0.06	0.07	

Intersection Summary

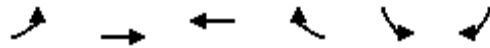
Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	32.7
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.19
Intersection Signal Delay:	4.6
Intersection LOS:	A
Intersection Capacity Utilization	24.2%
ICU Level of Service	A
Analysis Period (min)	15
Description:	05-2280

Splits and Phases: 3: Morris Acres Road & Creekside Landing Drive



The Wayforth at Apex  
 4: US 64 Westbound & Morris Acres Road

Existing AM  
 11/16/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↗		↗
Traffic Volume (vph)	0	0	1693	140	0	119
Future Volume (vph)	0	0	1693	140	0	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			75	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	1611
Link Speed (mph)		55	55		45	
Link Distance (ft)		890	661		383	
Travel Time (s)		11.0	8.2		5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1801	149	0	127
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.8%
ICU Level of Service	B
Analysis Period (min)	15

The Wayforth at Apex  
4: US 64 Westbound & Morris Acres Road

Existing AM  
11/16/2018

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↑		↑
Traffic Vol, veh/h	0	0	1693	140	0	119
Future Vol, veh/h	0	0	1693	140	0	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	75	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1801	149	0	127

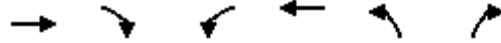
Major/Minor	Major2	Minor2
Conflicting Flow All	-	0
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	-
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	-
Pot Cap-1 Maneuver	-	0
Stage 1	-	0
Stage 2	-	0
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	-
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach	WB	SB
HCM Control Delay, s	0	27.9
HCM LOS		D

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	281
HCM Lane V/C Ratio	-	-	0.451
HCM Control Delay (s)	-	-	27.9
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	2.2

The Wayforth at Apex  
 1: Morris Acres Road & Jenks Road

Existing PM  
 11/16/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻	↻	↻
Traffic Volume (vph)	216	99	57	250	175	63
Future Volume (vph)	216	99	57	250	175	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		200	0
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1785	0	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1785	0	1770	1863	1770	1583
Link Speed (mph)	45			45	45	
Link Distance (ft)	645			534	1006	
Travel Time (s)	9.8			8.1	15.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	331	0	60	263	184	66
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.4% ICU Level of Service A
Analysis Period (min)	15

The Wayforth at Apex  
1: Morris Acres Road & Jenks Road

Existing PM  
11/16/2018

**Intersection**

Int Delay, s/veh 4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	216	99	57	250	175	63
Future Vol, veh/h	216	99	57	250	175	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	200	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	227	104	60	263	184	66

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	332	0	662
Stage 1	-	-	-	-	279
Stage 2	-	-	-	-	383
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1227	-	427
Stage 1	-	-	-	-	768
Stage 2	-	-	-	-	689
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1227	-	406
Mov Cap-2 Maneuver	-	-	-	-	505
Stage 1	-	-	-	-	768
Stage 2	-	-	-	-	655

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	505	760	-	-	1227	-
HCM Lane V/C Ratio	0.365	0.087	-	-	0.049	-
HCM Control Delay (s)	16.2	10.2	-	-	8.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	1.7	0.3	-	-	0.2	-

The Wayforth at Apex  
 2: Morris Acres Road & Reedybrook Crossing

Existing PM  
 11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	14	20	225	132	24
Future Volume (vph)	14	14	20	225	132	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1694	0	1770	1863	1824	0
Flt Permitted	0.976		0.950			
Satd. Flow (perm)	1694	0	1770	1863	1824	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	294			470	758	
Travel Time (s)	8.0			7.1	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	22	250	174	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.1%
Analysis Period (min)	15
	ICU Level of Service A

The Wayforth at Apex  
 2: Morris Acres Road & Reedybrook Crossing

Existing PM  
 11/16/2018

**Intersection**

Int Delay, s/veh 1

**Movement** EBL EBR NBL NBT SBT SBR

Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	14	14	20	225	132	24
Future Vol, veh/h	14	14	20	225	132	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	-	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	16	16	22	250	147	27

**Major/Minor** Minor2 Major1 Major2

Conflicting Flow All	454	160	173	0	-	0
Stage 1	160	-	-	-	-	-
Stage 2	294	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	564	885	1404	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	555	885	1404	-	-	-
Mov Cap-2 Maneuver	614	-	-	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	744	-	-	-	-	-

**Approach** EB NB SB

HCM Control Delay, s	10.2	0.6	0
HCM LOS	B		

**Minor Lane/Major Mvmt** NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	1404	-	725	-	-
HCM Lane V/C Ratio	0.016	-	0.043	-	-
HCM Control Delay (s)	7.6	-	10.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

The Wayforth at Apex  
 3: Morris Acres Road & Creekside Landing Drive

Existing PM  
 11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	178	144	235	83	88
Future Volume (vph)	96	178	144	235	83	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			-5%	5%	
Storage Length (ft)	100	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	55		100			
Satd. Flow (prot)	1752	1567	1814	1909	1689	0
Flt Permitted	0.950		0.448			
Satd. Flow (perm)	1752	1567	855	1909	1689	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		196			85	
Link Speed (mph)	25			45	45	
Link Distance (ft)	396			548	1004	
Travel Time (s)	10.8			8.3	15.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	105	196	158	258	188	0
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	8	1	1	6	2	
Permitted Phases		8	6			
Detector Phase	8	1	1	6	2	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	22.7	12.2	12.2	24.0	23.1	
Total Split (s)	25.0	15.0	15.0	90.0	75.0	
Total Split (%)	21.7%	13.0%	13.0%	78.3%	65.2%	
Yellow Time (s)	3.7	3.5	3.5	5.0	4.1	
All-Red Time (s)	1.0	1.7	1.7	1.0	1.0	
Lost Time Adjust (s)	0.3	-0.2	-0.2	-1.0	-0.1	
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	Min	Min	
Act Effect Green (s)	7.3	16.8	25.1	26.4	12.3	
Actuated g/C Ratio	0.19	0.43	0.64	0.67	0.31	
v/c Ratio	0.33	0.25	0.22	0.20	0.32	
Control Delay	18.5	2.2	4.8	4.6	9.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.5	2.2	4.8	4.6	9.1	
LOS	B	A	A	A	A	
Approach Delay	7.9			4.7	9.1	
Approach LOS	A			A	A	
Queue Length 50th (ft)	22	0	13	22	17	
Queue Length 95th (ft)	55	21	33	51	58	
Internal Link Dist (ft)	316			468	924	
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	907	872	792	1909	1689	



The Wayforth at Apex  
 3: Morris Acres Road & Creekside Landing Drive

Existing PM  
 11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
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	0.12	0.22	0.20	0.14	0.11	

Intersection Summary

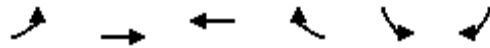
Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	39.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.33
Intersection Signal Delay:	6.7
Intersection LOS:	A
Intersection Capacity Utilization	36.3%
ICU Level of Service	A
Analysis Period (min)	15
Description:	05-2280

Splits and Phases: 3: Morris Acres Road & Creekside Landing Drive



The Wayforth at Apex  
 4: US 64 Westbound & Morris Acres Road

Existing PM  
 11/16/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↑		↑
Traffic Volume (vph)	0	0	1783	308	0	126
Future Volume (vph)	0	0	1783	308	0	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			75	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	1611
Link Speed (mph)		55	55		45	
Link Distance (ft)		890	661		383	
Travel Time (s)		11.0	8.2		5.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1819	314	0	129
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	63.8%
	ICU Level of Service B
Analysis Period (min)	15

**Intersection**

Int Delay, s/veh 1.6

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations			↑↑	↑		↑
Traffic Vol, veh/h	0	0	1783	308	0	126
Future Vol, veh/h	0	0	1783	308	0	126
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	75	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1819	314	0	129

**Major/Minor** Major2 Minor2

Conflicting Flow All	-	0	-	910
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	277
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	277
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach** WB SB

HCM Control Delay, s	0	28.8
HCM LOS		D

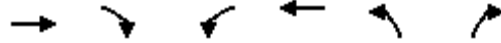
**Minor Lane/Major Mvmt** WBT WBR SBLn1

Capacity (veh/h)	-	-	277
HCM Lane V/C Ratio	-	-	0.464
HCM Control Delay (s)	-	-	28.8
HCM Lane LOS	-	-	D
HCM 95th %tile Q(veh)	-	-	2.3

Appendix G:  
Synchro Output:  
Background (2022)

The Wayforth at Apex  
 1: Morris Acres Road & Jenks Road

Background AM  
 11/16/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	235	38	18	127	126	48
Future Volume (vph)	235	38	18	127	126	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		200	0
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1827	0	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1827	0	1770	1863	1770	1583
Link Speed (mph)	45			45	45	
Link Distance (ft)	645			534	1006	
Travel Time (s)	9.8			8.1	15.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	300	0	20	140	138	53
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.6%
Analysis Period (min)	15
	ICU Level of Service A

The Wayforth at Apex  
1: Morris Acres Road & Jenks Road

Background AM  
11/16/2018

**Intersection**

Int Delay, s/veh 3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	235	38	18	127	126	48
Future Vol, veh/h	235	38	18	127	126	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	200	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	258	42	20	140	138	53

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	300
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1261
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1261
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	616	760	-	-	1261	-
HCM Lane V/C Ratio	0.225	0.069	-	-	0.016	-
HCM Control Delay (s)	12.5	10.1	-	-	7.9	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0	-

The Wayforth at Apex  
 2: Morris Acres Road & Reedybrook Crossing

Background AM  
 11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	29	29	6	141	51	6
Future Volume (vph)	29	29	6	141	51	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1694	0	1770	1863	1835	0
Flt Permitted	0.976		0.950			
Satd. Flow (perm)	1694	0	1770	1863	1835	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	294			470	758	
Travel Time (s)	8.0			7.1	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	7	157	64	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.5%
Analysis Period (min)	15
	ICU Level of Service A

The Wayforth at Apex  
 2: Morris Acres Road & Reedybrook Crossing

Background AM  
 11/16/2018

**Intersection**

Int Delay, s/veh 2.3

**Movement** EBL EBR NBL NBT SBT SBR

Lane Configurations	↔		↔	↑	↑	
Traffic Vol, veh/h	29	29	6	141	51	6
Future Vol, veh/h	29	29	6	141	51	6
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	-	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	32	32	7	157	57	7

**Major/Minor** Minor2 Major1 Major2

Conflicting Flow All	230	60	63	0	-	0
Stage 1	60	-	-	-	-	-
Stage 2	170	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	758	1005	1540	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	860	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	755	1005	1540	-	-	-
Mov Cap-2 Maneuver	751	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	856	-	-	-	-	-

**Approach** EB NB SB

HCM Control Delay, s	9.5	0.3	0
HCM LOS	A		

**Minor Lane/Major Mvmt** NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	1540	-	860	-	-
HCM Lane V/C Ratio	0.004	-	0.075	-	-
HCM Control Delay (s)	7.3	-	9.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



The Wayforth at Apex  
3: Morris Acres Road & Creekside Landing Drive

Background AM  
11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	109	63	128	118	17
Future Volume (vph)	34	109	63	128	118	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			-5%	5%	
Storage Length (ft)	100	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	55		100			
Satd. Flow (prot)	1752	1567	1814	1909	1785	0
Flt Permitted	0.950		0.497			
Satd. Flow (perm)	1752	1567	949	1909	1785	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		112			12	
Link Speed (mph)	25			45	45	
Link Distance (ft)	396			548	1004	
Travel Time (s)	10.8			8.3	15.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	112	65	132	140	0
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	8	1	1	6	2	
Permitted Phases		8	6			
Detector Phase	8	1	1	6	2	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	22.7	12.2	12.2	24.0	23.1	
Total Split (s)	25.0	15.0	15.0	90.0	75.0	
Total Split (%)	21.7%	13.0%	13.0%	78.3%	65.2%	
Yellow Time (s)	3.7	3.5	3.5	5.0	4.1	
All-Red Time (s)	1.0	1.7	1.7	1.0	1.0	
Lost Time Adjust (s)	0.3	-0.2	-0.2	-1.0	-0.1	
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	Min	Min	
Act Effect Green (s)	6.8	9.2	25.5	29.8	16.4	
Actuated g/C Ratio	0.21	0.28	0.79	0.92	0.51	
v/c Ratio	0.10	0.21	0.07	0.08	0.15	
Control Delay	12.6	3.2	2.1	1.7	8.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.6	3.2	2.1	1.7	8.0	
LOS	B	A	A	A	A	
Approach Delay	5.4			1.8	8.0	
Approach LOS	A			A	A	
Queue Length 50th (ft)	4	0	0	0	11	
Queue Length 95th (ft)	24	17	14	24	52	
Internal Link Dist (ft)	316			468	924	
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	1100	652	1017	1909	1785	

The Wayforth at Apex  
 3: Morris Acres Road & Creekside Landing Drive

Background AM  
 11/16/2018

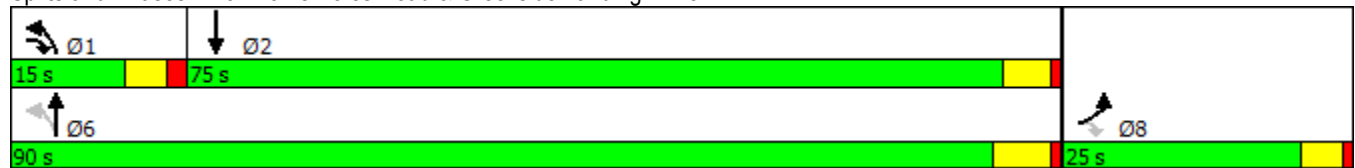


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.03	0.17	0.06	0.07	0.08	

Intersection Summary

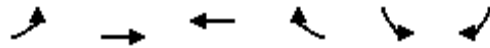
Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	32.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.21
Intersection Signal Delay:	4.7
Intersection LOS:	A
Intersection Capacity Utilization	34.2%
ICU Level of Service	A
Analysis Period (min)	15
Description:	05-2280

Splits and Phases: 3: Morris Acres Road & Creekside Landing Drive



The Wayforth at Apex  
 4: US 64 Westbound & Morris Acres Road

Background AM  
 11/16/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↗		↗
Traffic Volume (vph)	0	0	1905	159	0	137
Future Volume (vph)	0	0	1905	159	0	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			75	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	1611
Link Speed (mph)		55	55		45	
Link Distance (ft)		890	661		383	
Travel Time (s)		11.0	8.2		5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2027	169	0	146
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	67.8% ICU Level of Service C
Analysis Period (min)	15

**Intersection**

Int Delay, s/veh 2.6

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations			↑↑	↑		↑
Traffic Vol, veh/h	0	0	1905	159	0	137
Future Vol, veh/h	0	0	1905	159	0	137
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	75	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2027	169	0	146

**Major/Minor** Major2 Minor2

Conflicting Flow All	-	0	-	1013
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	237
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	237
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

**Approach** WB SB

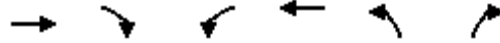
HCM Control Delay, s	0	41.8
HCM LOS		E

**Minor Lane/Major Mvmt** WBT WBR SBLn1

Capacity (veh/h)	-	-	237
HCM Lane V/C Ratio	-	-	0.615
HCM Control Delay (s)	-	-	41.8
HCM Lane LOS	-	-	E
HCM 95th %tile Q(veh)	-	-	3.6

The Wayforth at Apex  
 1: Morris Acres Road & Jenks Road

Background PM  
 11/16/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻	↻	↻
Traffic Volume (vph)	243	112	66	281	198	72
Future Volume (vph)	243	112	66	281	198	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		200	0
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1783	0	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1783	0	1770	1863	1770	1583
Link Speed (mph)	45			45	45	
Link Distance (ft)	645			534	1006	
Travel Time (s)	9.8			8.1	15.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	374	0	69	296	208	76
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.2% ICU Level of Service A
Analysis Period (min)	15

**Intersection**

Int Delay, s/veh 5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	243	112	66	281	198	72
Future Vol, veh/h	243	112	66	281	198	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	200	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	256	118	69	296	208	76

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	374	0	750
Stage 1	-	-	-	-	315
Stage 2	-	-	-	-	435
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1184	-	379
Stage 1	-	-	-	-	740
Stage 2	-	-	-	-	653
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1184	-	357
Mov Cap-2 Maneuver	-	-	-	-	467
Stage 1	-	-	-	-	740
Stage 2	-	-	-	-	615

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	16.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	467	725	-	-	1184	-
HCM Lane V/C Ratio	0.446	0.105	-	-	0.059	-
HCM Control Delay (s)	18.8	10.5	-	-	8.2	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	2.3	0.3	-	-	0.2	-

The Wayforth at Apex  
 2: Morris Acres Road & Reedybrook Crossing

Background PM  
 11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	15	22	253	149	27
Future Volume (vph)	15	15	22	253	149	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		100			
Satd. Flow (prot)	1694	0	1770	1863	1824	0
Flt Permitted	0.976		0.950			
Satd. Flow (perm)	1694	0	1770	1863	1824	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	294			470	758	
Travel Time (s)	8.0			7.1	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	0	24	281	196	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.1% ICU Level of Service A
Analysis Period (min)	15

The Wayforth at Apex  
 2: Morris Acres Road & Reedybrook Crossing

Background PM  
 11/16/2018

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	15	22	253	149	27
Future Vol, veh/h	15	15	22	253	149	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	-	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	17	17	24	281	166	30

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	511	181	196	0	0
Stage 1	181	-	-	-	-
Stage 2	330	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	523	862	1377	-	-
Stage 1	850	-	-	-	-
Stage 2	728	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	514	862	1377	-	-
Mov Cap-2 Maneuver	584	-	-	-	-
Stage 1	850	-	-	-	-
Stage 2	715	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1377	-	696	-	-
HCM Lane V/C Ratio	0.018	-	0.048	-	-
HCM Control Delay (s)	7.7	-	10.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



The Wayforth at Apex  
3: Morris Acres Road & Creekside Landing Drive

Background PM  
11/16/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	108	201	164	266	95	99
Future Volume (vph)	108	201	164	266	95	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			-5%	5%	
Storage Length (ft)	100	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	55		100			
Satd. Flow (prot)	1752	1567	1814	1909	1691	0
Flt Permitted	0.950		0.438			
Satd. Flow (perm)	1752	1567	836	1909	1691	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		221			84	
Link Speed (mph)	25			45	45	
Link Distance (ft)	396			548	1004	
Travel Time (s)	10.8			8.3	15.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	119	221	180	292	213	0
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	8	1	1	6	2	
Permitted Phases		8	6			
Detector Phase	8	1	1	6	2	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	22.7	12.2	12.2	24.0	23.1	
Total Split (s)	25.0	15.0	15.0	90.0	75.0	
Total Split (%)	21.7%	13.0%	13.0%	78.3%	65.2%	
Yellow Time (s)	3.7	3.5	3.5	5.0	4.1	
All-Red Time (s)	1.0	1.7	1.7	1.0	1.0	
Lost Time Adjust (s)	0.3	-0.2	-0.2	-1.0	-0.1	
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	Min	Min	
Act Effect Green (s)	7.5	17.3	25.4	26.7	12.4	
Actuated g/C Ratio	0.19	0.43	0.64	0.67	0.31	
v/c Ratio	0.36	0.27	0.25	0.23	0.37	
Control Delay	19.1	2.2	5.1	4.8	10.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.1	2.2	5.1	4.8	10.3	
LOS	B	A	A	A	B	
Approach Delay	8.1			4.9	10.3	
Approach LOS	A			A	B	
Queue Length 50th (ft)	25	0	15	26	22	
Queue Length 95th (ft)	62	22	38	60	69	
Internal Link Dist (ft)	316			468	924	
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	898	884	782	1909	1691	

The Wayforth at Apex  
 3: Morris Acres Road & Creekside Landing Drive

Background PM  
 11/16/2018

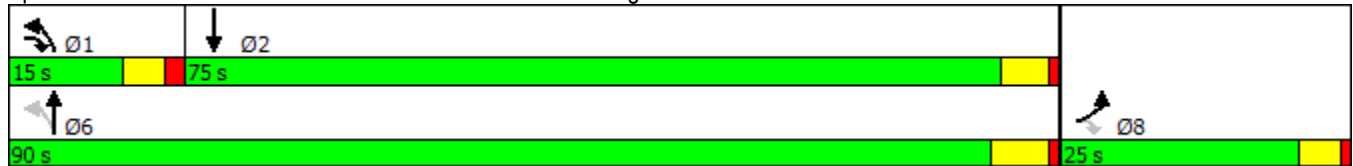


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.25	0.23	0.15	0.13	

Intersection Summary

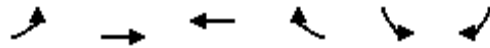
Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	39.9
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.37
Intersection Signal Delay:	7.1
Intersection LOS:	A
Intersection Capacity Utilization	38.6%
ICU Level of Service	A
Analysis Period (min)	15
Description:	05-2280

Splits and Phases: 3: Morris Acres Road & Creekside Landing Drive



The Wayforth at Apex  
 4: US 64 Westbound & Morris Acres Road

Background PM  
 11/16/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↗		↗
Traffic Volume (vph)	0	0	2007	350	0	144
Future Volume (vph)	0	0	2007	350	0	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			75	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	1611
Link Speed (mph)		55	55		45	
Link Distance (ft)		890	661		383	
Travel Time (s)		11.0	8.2		5.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2048	357	0	147
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	71.1% ICU Level of Service C
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↑		↑
Traffic Vol, veh/h	0	0	2007	350	0	144
Future Vol, veh/h	0	0	2007	350	0	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	75	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2048	357	0	147

Major/Minor	Major2	Minor2
Conflicting Flow All	-	0 - 1024
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	-	0 233
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 233
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

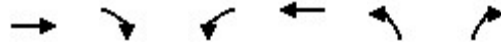
Approach	WB	SB
HCM Control Delay, s	0	43.6
HCM LOS		E

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	233
HCM Lane V/C Ratio	-	-	0.631
HCM Control Delay (s)	-	-	43.6
HCM Lane LOS	-	-	E
HCM 95th %tile Q(veh)	-	-	3.8

Appendix H:  
Synchro Output:  
Build-out (2022)

The Wayforth at Apex  
1: Morris Acres Road & Jenks Road

Build AM  
01/21/2019



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	↔
Traffic Volume (vph)	235	44	25	127	133	85
Future Volume (vph)	235	44	25	127	133	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		200	0
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1824	0	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1824	0	1770	1863	1770	1583
Link Speed (mph)	45			45	45	
Link Distance (ft)	645			534	1006	
Travel Time (s)	9.8			8.1	15.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	306	0	27	140	146	93
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.8%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	4.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	235	44	25	127	133	85
Future Vol, veh/h	235	44	25	127	133	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	200	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	258	48	27	140	146	93

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	307	0	477
Stage 1	-	-	-	-	282
Stage 2	-	-	-	-	195
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1254	-	547
Stage 1	-	-	-	-	766
Stage 2	-	-	-	-	838
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1254	-	535
Mov Cap-2 Maneuver	-	-	-	-	605
Stage 1	-	-	-	-	766
Stage 2	-	-	-	-	820

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	605	757	-	-	1254	-
HCM Lane V/C Ratio	0.242	0.123	-	-	0.022	-
HCM Control Delay (s)	12.8	10.4	-	-	7.9	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.9	0.4	-	-	0.1	-

The Wayforth at Apex  
 2: Morris Acres Road & Reedybrook Crossing/Central Site Driveway

Build AM  
 01/21/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	29	4	29	19	4	26	6	149	8	8	56	6
Future Volume (vph)	29	4	29	19	4	26	6	149	8	8	56	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1703	0	0	1694	0	1770	1848	0	1770	1835	0
Flt Permitted		0.977			0.981		0.950			0.950		
Satd. Flow (perm)	0	1703	0	0	1694	0	1770	1848	0	1770	1835	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		294			267			470			758	
Travel Time (s)		8.0			7.3			7.1			11.5	
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	68	0	0	54	0	7	175	0	9	69	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.0%
ICU Level of Service	A
Analysis Period (min)	15



**Intersection**

Int Delay, s/veh 3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	29	4	29	19	4	26	6	149	8	8	56	6
Future Vol, veh/h	29	4	29	19	4	26	6	149	8	8	56	6
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	-	-	-	-	-	-	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	32	4	32	21	4	29	7	166	9	9	62	7

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	283	271	66	285	270	170	69	0	0	174	0	0
Stage 1	83	83	-	183	183	-	-	-	-	-	-	-
Stage 2	200	188	-	102	87	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	669	636	998	667	636	874	1532	-	-	1403	-	-
Stage 1	925	826	-	819	748	-	-	-	-	-	-	-
Stage 2	802	745	-	904	823	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	638	629	998	637	629	874	1532	-	-	1403	-	-
Mov Cap-2 Maneuver	638	629	-	637	629	-	-	-	-	-	-	-
Stage 1	921	821	-	815	745	-	-	-	-	-	-	-
Stage 2	767	742	-	864	818	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.2		10.2		0.3		0.9	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1532	-	-	767	743	1403	-
HCM Lane V/C Ratio	0.004	-	-	0.09	0.073	0.006	-
HCM Control Delay (s)	7.4	-	-	10.2	10.2	7.6	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-

The Wayforth at Apex  
3: Morris Acres Road & Creekside Landing Drive

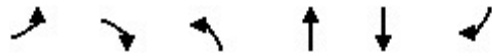
Build AM  
01/21/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	109	63	135	137	27
Future Volume (vph)	41	109	63	135	137	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			-5%	5%	
Storage Length (ft)	100	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	55		100			
Satd. Flow (prot)	1752	1567	1814	1909	1776	0
Flt Permitted	0.950		0.484			
Satd. Flow (perm)	1752	1567	924	1909	1776	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		112			16	
Link Speed (mph)	25			45	45	
Link Distance (ft)	396			548	1004	
Travel Time (s)	10.8			8.3	15.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	112	65	139	169	0
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	8	1	1	6	2	
Permitted Phases		8	6			
Detector Phase	8	1	1	6	2	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	22.7	12.2	12.2	24.0	23.1	
Total Split (s)	25.0	15.0	15.0	90.0	75.0	
Total Split (%)	21.7%	13.0%	13.0%	78.3%	65.2%	
Yellow Time (s)	3.7	3.5	3.5	5.0	4.1	
All-Red Time (s)	1.0	1.7	1.7	1.0	1.0	
Lost Time Adjust (s)	0.3	-0.2	-0.2	-1.0	-0.1	
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	Min	Min	
Act Effct Green (s)	6.8	9.2	25.5	29.8	16.4	
Actuated g/C Ratio	0.21	0.28	0.79	0.92	0.51	
v/c Ratio	0.11	0.21	0.07	0.08	0.19	
Control Delay	12.7	3.2	2.1	1.7	8.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.7	3.2	2.1	1.7	8.0	
LOS	B	A	A	A	A	
Approach Delay	5.8			1.8	8.0	
Approach LOS	A			A	A	
Queue Length 50th (ft)	5	0	0	0	13	
Queue Length 95th (ft)	27	17	14	25	61	
Internal Link Dist (ft)	316			468	924	
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	1100	652	1005	1909	1776	

The Wayforth at Apex  
 3: Morris Acres Road & Creekside Landing Drive

Build AM  
 01/21/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
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	0.04	0.17	0.06	0.07	0.10	

Intersection Summary

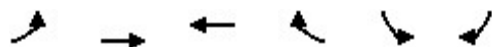
Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	32.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.21
Intersection Signal Delay:	5.0
Intersection LOS:	A
Intersection Capacity Utilization	34.2%
ICU Level of Service	A
Analysis Period (min)	15
Description:	05-2280

Splits and Phases: 3: Morris Acres Road & Creekside Landing Drive



The Wayforth at Apex  
4: US 64 Westbound & Morris Acres Road

Build AM  
01/21/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↗		↗
Traffic Volume (vph)	0	0	1905	166	0	156
Future Volume (vph)	0	0	1905	166	0	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			75	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	1611
Link Speed (mph)		55	55		45	
Link Distance (ft)		890	661		383	
Travel Time (s)		11.0	8.2		5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2027	177	0	166
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	69.0%
Analysis Period (min)	15
	ICU Level of Service C

**Intersection**

Int Delay, s/veh 3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↑		↑
Traffic Vol, veh/h	0	0	1905	166	0	156
Future Vol, veh/h	0	0	1905	166	0	156
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	75	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2027	177	0	166

**Major/Minor**

	Major2	Minor2
Conflicting Flow All	-	0 - 1013
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	-	0 237
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 237
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

**Approach**

	WB	SB
HCM Control Delay, s	0	49.4
HCM LOS		E

**Minor Lane/Major Mvmt**

	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	237
HCM Lane V/C Ratio	-	-	0.7
HCM Control Delay (s)	-	-	49.4
HCM Lane LOS	-	-	E
HCM 95th %tile Q(veh)	-	-	4.6

The Wayforth at Apex  
5: Morris Acres Road & North Site Driveway

Build AM  
01/21/2019



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	11	207	4	4	66
Future Volume (vph)	4	11	207	4	4	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1655	0	1859	0	1770	1863
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1655	0	1859	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	317		758			1006
Travel Time (s)	8.6		11.5			15.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	234	0	4	73
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.1% ICU Level of Service A
Analysis Period (min)	15

**Intersection**

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	↔
Traffic Vol, veh/h	4	11	207	4	4	66
Future Vol, veh/h	4	11	207	4	4	66
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	-	-	-	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	4	12	230	4	4	73

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	314	232	0
Stage 1	232	-	-
Stage 2	82	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	679	807	-
Stage 1	807	-	-
Stage 2	941	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	677	807	-
Mov Cap-2 Maneuver	697	-	-
Stage 1	807	-	-
Stage 2	938	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	774	1333
HCM Lane V/C Ratio	-	-	0.022	0.003
HCM Control Delay (s)	-	-	9.8	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

The Wayforth at Apex  
6: Morris Acres Road & South Site Driveway

Build AM  
01/21/2019



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	7	156	4	4	105
Future Volume (vph)	7	7	156	4	4	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1694	0	1857	0	1770	1863
Flt Permitted	0.976				0.950	
Satd. Flow (perm)	1694	0	1857	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	369		1004			470
Travel Time (s)	10.1		15.2			7.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	177	0	4	117
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.5%
Analysis Period (min)	15
	ICU Level of Service A



**Intersection**

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	↔
Traffic Vol, veh/h	7	7	156	4	4	105
Future Vol, veh/h	7	7	156	4	4	105
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	-	-	-	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	8	8	173	4	4	117

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	302	176	0
Stage 1	176	-	-
Stage 2	126	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	690	867	-
Stage 1	855	-	-
Stage 2	900	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	688	867	-
Mov Cap-2 Maneuver	713	-	-
Stage 1	855	-	-
Stage 2	897	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	782	1398
HCM Lane V/C Ratio	-	-	0.02	0.003
HCM Control Delay (s)	-	-	9.7	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻	↻	↻
Traffic Volume (vph)	243	131	86	281	203	97
Future Volume (vph)	243	131	86	281	203	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		200	0
Storage Lanes		0	1		1	1
Taper Length (ft)			100		100	
Satd. Flow (prot)	1775	0	1770	1863	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1775	0	1770	1863	1770	1583
Link Speed (mph)	45			45	45	
Link Distance (ft)	645			534	1006	
Travel Time (s)	9.8			8.1	15.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	394	0	91	296	214	102
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	46.8%
Analysis Period (min)	15
	ICU Level of Service A

**Intersection**

Int Delay, s/veh 5.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	↔
Traffic Vol, veh/h	243	131	86	281	203	97
Future Vol, veh/h	243	131	86	281	203	97
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	200	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	256	138	91	296	214	102

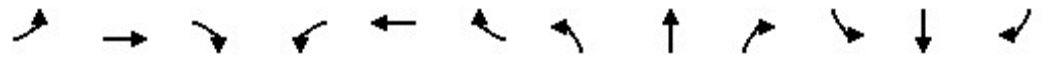
Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	394	0	802
Stage 1	-	-	-	-	325
Stage 2	-	-	-	-	477
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1165	-	353
Stage 1	-	-	-	-	732
Stage 2	-	-	-	-	624
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1165	-	325
Mov Cap-2 Maneuver	-	-	-	-	438
Stage 1	-	-	-	-	732
Stage 2	-	-	-	-	575

Approach	EB	WB	NB
HCM Control Delay, s	0	2	17.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	438	716	-	-	1165	-
HCM Lane V/C Ratio	0.488	0.143	-	-	0.078	-
HCM Control Delay (s)	20.8	10.9	-	-	8.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	2.6	0.5	-	-	0.3	-

The Wayforth at Apex  
 2: Morris Acres Road & Reedybrook Crossing/Central Site Driveway

Build PM  
 01/21/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	15	4	15	12	4	18	22	262	23	23	156	27
Future Volume (vph)	15	4	15	12	4	18	22	262	23	23	156	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1712	0	0	1697	0	1770	1840	0	1770	1822	0
Flt Permitted		0.978			0.983		0.950			0.950		
Satd. Flow (perm)	0	1712	0	0	1697	0	1770	1840	0	1770	1822	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		294			267			470			758	
Travel Time (s)		8.0			7.3			7.1			11.5	
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	38	0	0	37	0	24	317	0	26	203	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.1%
Analysis Period (min)	15
	ICU Level of Service A

**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	15	4	15	12	4	18	22	262	23	23	156	27
Future Vol, veh/h	15	4	15	12	4	18	22	262	23	23	156	27
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	-	-	-	-	-	-	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	17	4	17	13	4	20	24	291	26	26	173	30

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	604	605	188	603	607	304	203	0	0	317	0	0
Stage 1	239	239	-	353	353	-	-	-	-	-	-	-
Stage 2	365	366	-	250	254	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	410	412	854	411	411	736	1369	-	-	1243	-	-
Stage 1	764	708	-	664	631	-	-	-	-	-	-	-
Stage 2	654	623	-	754	697	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	384	396	854	388	395	736	1369	-	-	1243	-	-
Mov Cap-2 Maneuver	384	396	-	388	395	-	-	-	-	-	-	-
Stage 1	751	693	-	652	620	-	-	-	-	-	-	-
Stage 2	621	612	-	719	682	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.6		12.5		0.6		0.9	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1369	-	-	510	519	1243	-
HCM Lane V/C Ratio	0.018	-	-	0.074	0.073	0.021	-
HCM Control Delay (s)	7.7	-	-	12.6	12.5	8	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0.1	-

The Wayforth at Apex  
3: Morris Acres Road & Creekside Landing Drive

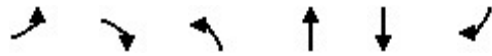
Build PM  
01/21/2019



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	127	201	164	285	108	106
Future Volume (vph)	127	201	164	285	108	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			-5%	5%	
Storage Length (ft)	100	0	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	55		100			
Satd. Flow (prot)	1752	1567	1814	1909	1694	0
Flt Permitted	0.950		0.432			
Satd. Flow (perm)	1752	1567	825	1909	1694	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		221			78	
Link Speed (mph)	25			45	45	
Link Distance (ft)	396			548	1004	
Travel Time (s)	10.8			8.3	15.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	140	221	180	313	235	0
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	8	1	1	6	2	
Permitted Phases		8	6			
Detector Phase	8	1	1	6	2	
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	22.7	12.2	12.2	24.0	23.1	
Total Split (s)	25.0	15.0	15.0	90.0	75.0	
Total Split (%)	21.7%	13.0%	13.0%	78.3%	65.2%	
Yellow Time (s)	3.7	3.5	3.5	5.0	4.1	
All-Red Time (s)	1.0	1.7	1.7	1.0	1.0	
Lost Time Adjust (s)	0.3	-0.2	-0.2	-1.0	-0.1	
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	Min	Min	
Act Effect Green (s)	7.9	17.8	25.8	27.2	12.6	
Actuated g/C Ratio	0.19	0.44	0.63	0.67	0.31	
v/c Ratio	0.41	0.27	0.25	0.25	0.41	
Control Delay	20.1	2.2	5.3	5.1	11.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	20.1	2.2	5.3	5.1	11.6	
LOS	C	A	A	A	B	
Approach Delay	9.1			5.1	11.6	
Approach LOS	A			A	B	
Queue Length 50th (ft)	30	0	16	30	28	
Queue Length 95th (ft)	73	23	40	68	83	
Internal Link Dist (ft)	316			468	924	
Turn Bay Length (ft)	100		100			
Base Capacity (vph)	884	885	771	1909	1694	

The Wayforth at Apex  
 3: Morris Acres Road & Creekside Landing Drive

Build PM  
 01/21/2019

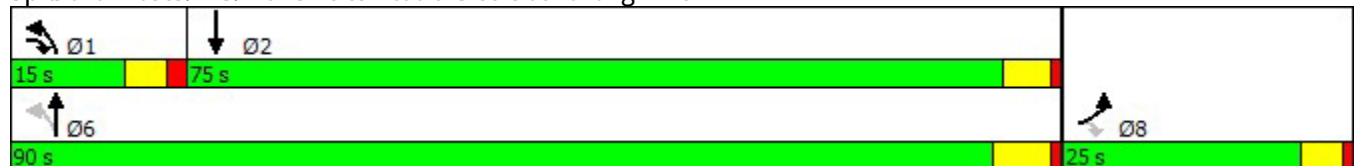


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.25	0.23	0.16	0.14	

Intersection Summary

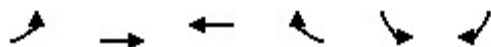
Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	40.7
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.41
Intersection Signal Delay:	7.8
Intersection LOS:	A
Intersection Capacity Utilization	40.8%
ICU Level of Service	A
Analysis Period (min)	15
Description:	05-2280

Splits and Phases: 3: Morris Acres Road & Creekside Landing Drive



The Wayforth at Apex  
 4: US 64 Westbound & Morris Acres Road

Build PM  
 01/21/2019



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↗		↗
Traffic Volume (vph)	0	0	2007	369	0	157
Future Volume (vph)	0	0	2007	369	0	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			75	0	0
Storage Lanes	0			1	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	0	3539	1583	0	1611
Flt Permitted						
Satd. Flow (perm)	0	0	3539	1583	0	1611
Link Speed (mph)		55	55		45	
Link Distance (ft)		890	661		383	
Travel Time (s)		11.0	8.2		5.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2048	377	0	160
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	71.9%
Analysis Period (min)	15
	ICU Level of Service C



**Intersection**

Int Delay, s/veh 3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑	↑		↑
Traffic Vol, veh/h	0	0	2007	369	0	157
Future Vol, veh/h	0	0	2007	369	0	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	75	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2048	377	0	160

**Major/Minor**

	Major2	Minor2
Conflicting Flow All	-	0 - 1024
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	-	0 233
Stage 1	-	0 -
Stage 2	-	0 -
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 233
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

**Approach**

	WB	SB
HCM Control Delay, s	0	48.8
HCM LOS		E

**Minor Lane/Major Mvmt**

	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	233
HCM Lane V/C Ratio	-	-	0.688
HCM Control Delay (s)	-	-	48.8
HCM Lane LOS	-	-	E
HCM 95th %tile Q(veh)	-	-	4.4

The Wayforth at Apex  
 5: Morris Acres Road & North Site Driveway

Build PM  
 01/21/2019



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	8	293	4	12	207
Future Volume (vph)	4	8	293	4	12	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1664	0	1859	0	1770	1863
Flt Permitted	0.985				0.950	
Satd. Flow (perm)	1664	0	1859	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	317		758			1006
Travel Time (s)	8.6		11.5			15.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	330	0	13	230
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	25.7%
Analysis Period (min)	15
	ICU Level of Service A

**Intersection**

Int Delay, s/veh 0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	↔
Traffic Vol, veh/h	4	8	293	4	12	207
Future Vol, veh/h	4	8	293	4	12	207
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	-	-	-	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	4	9	326	4	13	230

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	585	328	0
Stage 1	328	-	-
Stage 2	257	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3,518	3,318	-
Pot Cap-1 Maneuver	473	713	-
Stage 1	730	-	-
Stage 2	786	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	468	713	-
Mov Cap-2 Maneuver	557	-	-
Stage 1	730	-	-
Stage 2	778	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	652	1229
HCM Lane V/C Ratio	-	-	0.02	0.011
HCM Control Delay (s)	-	-	10.6	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

The Wayforth at Apex  
6: Morris Acres Road & South Site Driveway

Build PM  
01/21/2019



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	5	305	11	4	179
Future Volume (vph)	4	5	305	11	4	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1678	0	1853	0	1770	1863
Flt Permitted	0.980				0.950	
Satd. Flow (perm)	1678	0	1853	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	369		1004			470
Travel Time (s)	10.1		15.2			7.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	351	0	4	199
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.7%
Analysis Period (min)	15
	ICU Level of Service A

**Intersection**

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	↔
Traffic Vol, veh/h	4	5	305	11	4	179
Future Vol, veh/h	4	5	305	11	4	179
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	-	-	-	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	4	6	339	12	4	199

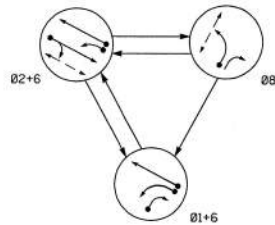
Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	553	345	0
Stage 1	345	-	-
Stage 2	208	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	494	698	-
Stage 1	717	-	-
Stage 2	827	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	492	698	-
Mov Cap-2 Maneuver	572	-	-
Stage 1	717	-	-
Stage 2	824	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	636	1208
HCM Lane V/C Ratio	-	-	0.016	0.004
HCM Control Delay (s)	-	-	10.8	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

# Appendix I: Signal Plans

**PHASING DIAGRAM**

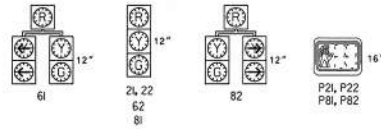


**PHASING DIAGRAM DETECTION LEGEND**  
 ● DETECTED MOVEMENT  
 ○ UNDETECTED MOVEMENT (OVERLAP)  
 - UNSIGNALIZED MOVEMENT  
 - PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE			
	01+6	02+6	08	01+6
21, 22	R	O	R	Y
61	G	R	Y	
62	G	R	Y	
81	R	R	G	R
82	R	R	G	R
P21, P22	DW	W	DW	DW
P81, P82	DW	DW	W	DW

**SIGNAL FACE I.D.**

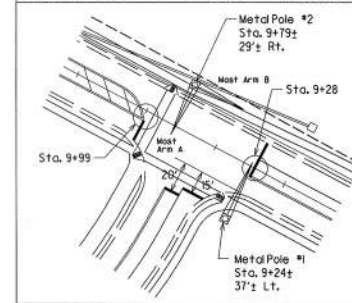
○ Denotes L.E.D.



**2070L LOOP & DETECTOR INSTALLATION**

INDUCTIVE LOOPS				DETECTOR PROGRAMMING								
LOOP	SIZE (FT)	TURNS	DISTANCE FROM STOPBAR (FT)	NEW LOOP	PHASE	CALLING	DIRECTION	PULL TIME (DAY)	EXTEN. LOOP	SWITCH TIME	DELAY TIME	CHG. NR
IA	6X40	2-4-2	0	Y	1	Y	Y	-	-	-	15	Y
IB	6X40	2-4-2	0	Y	1	Y	Y	-	-	-	3	Y
2A	6X6	5	300	Y	2	Y	Y	-	-	-	-	Y
6A	6X6	5	300	Y	6	Y	Y	-	-	-	-	Y
8A	6X40	2-4-2	0	Y	8	Y	Y	-	-	-	3	Y

**Metal Pole and Stop Bar Locations**



**3 Phase Fully Actuated (Isolated)**

**NOTES**

1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006, "Standard Specifications for Roads and Structures" dated July 2006 and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: <http://www.ncdot.org/doh/preconstruct/traffic/tmsbu/>
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
7. Contractor to furnish Metal Poles and Mast Arms to be black powder coated.

FEATURE	PHASE			
	1	2	6	8
Min Green 1 *	7	12	12	7
Extension 1 *	2.0	6.0	6.0	2.0
Max Green 1 *	15	90	90	25
Yellow Clearance	3.5	4.1	5.0	3.7
Red Clearance	1.7	1.0	1.0	1.0
Walk 1 *	-	7	-	7
Don't Walk 1	-	10	-	8
Seconds Per Actuation *	-	2.5	2.5	-
Max Variable Initial *	-	34	34	-
Time Before Reduction *	-	15	15	-
Time To Reduce *	-	30	30	-
Minimum Gap	-	3.0	5.0	-
Recall Mode	-	MIN RECALL	MIN RECALL	-
Vehicle Call Memory	-	YEL LOW	YEL LOW	-
Dual Entry	-	-	-	-
Simultaneous Gap	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	LEGEND	EXISTING
○	Traffic Signal Head	N/A
○	Modified Signal Head Sign	N/A
○	Pedestrian Signal Head With Push Button & Sign	N/A
○	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	→
→	Pavement Marking Arrow	→
○	Metal Pole with Mastarm	○
○	Rigid Metal Conduit	○
○	Pedestrian Signal Pedestal	○
N/A	Wheelchair Ramp	○
○	Green Level Church Rd	○
○	Creekside Landing Dr	○

**New Installation**

**SR 1600 (Green Level Church Rd.) at Creekside Landing Drive**

Division 5 Wake County Apex  
 PLAN DATE: Sept 2008 REVIEWED BY: D.J. Darity  
 PREPARED BY: H.W. SUTCLIFF DEA PROJ. NO.: 04111 (041)

REVISIONS	INIT.	DATE

SIGNATURE: DATE: 11.03.2008  
 SIG. INVENTORY NO. 05-2280

## MEMORANDUM

To: Mr. Sean Brennan, P.E., NCDOT  
Mr. Russell Dalton, P.E., Town of Apex

From: Kevin Dean, P.E.  
Kimley-Horn and Associates, Inc.

Date: April 30, 2019

Subject: The Wayforth at Apex – Traffic Analysis Addendum – Revised Site Access



Kimley-Horn has performed an addendum to the original *Wayforth at Apex TIA* (Kimley-Horn, January 2019) to determine the impacts of a revision to the site access. The original TIA for the development analyzed the site assuming three full-movement access driveways along Morris Acres Road. However, a revised development plan indicates that only two full-movement driveways will be provided, with one driveway aligning with Reedybrook Crossing and another approximately 515 feet to the south. The revised development plan is shown on the attached **Figure 1**.

As this change in access will not have impacts on any off-site intersections, it was confirmed with the Town of Apex that this addendum should only include analysis for the site driveway intersections along Morris Acres Road. It should be noted that as the previously-analyzed "North Site Driveway" is no longer proposed, the "Central Site Driveway" described in the previous analysis has been renamed to "North Site Driveway" for this addendum analysis.

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

### Background Volume Development

AM and PM peak hour background traffic volumes were obtained from the original TIA and were not modified as part of this analysis.

### Trip Generation

Trip generation data was obtained from the original TIA and was not modified as part of this analysis.

### Trip Distribution and Assignment

No changes were made to the overall distribution of site traffic assumed in the original TIA. However, to account for this revised access scenario, site traffic assignment percentages were modified for this addendum. The revised site traffic assignment is shown on the attached **Figure 2**.

The attached **Figures 3 and 4** show the AM and PM peak hour site traffic and total build-out volumes at the study intersections, and volume development is detailed on the attached intersection spreadsheets.



**Capacity Analysis**

Consistent with the original TIA, capacity analyses were performed using Synchro Version 9.2 software. Synchro intersection level-of-service (LOS) reports are attached. The LOS for the study intersections are summarized in Table 1.

<b>Table 2 Level-of-Service Summary</b>		
<b>Condition</b>	<b>AM Peak Hour LOS (Delay)</b>	<b>PM Peak Hour LOS (Delay)</b>
<b>Morris Acres Road at Reedybrook Crossing/North Site Driveway (Unsignalized)</b>		
Existing (2018) Traffic	EB – A (9.4) NBL – A (7.3)	EB – B (10.2) NBL – A (7.6)
Background (2022) Traffic	EB – A (9.5) NBL – B (7.3)	EB – B (10.4) NBL – A (7.7)
Build-out (2022) Traffic	EB – B (10.2) WB – B (10.3) NBL – A (7.4) SBL – A (7.6)	EB – B (12.8) WB – B (12.6) NBL – A (7.7) SBL – A (8.0)
<b>Morris Acres Road at South Site Driveway (Unsignalized)</b>		
Build-out (2022) Traffic	WB – A (9.7) SBL – A (7.6)	WB – B (10.8) SBL – A (8.0)

Analysis indicates that the site driveway intersections are expected to operate at an acceptable level-of-service at project build-out, and no queueing issues are expected at these intersections.

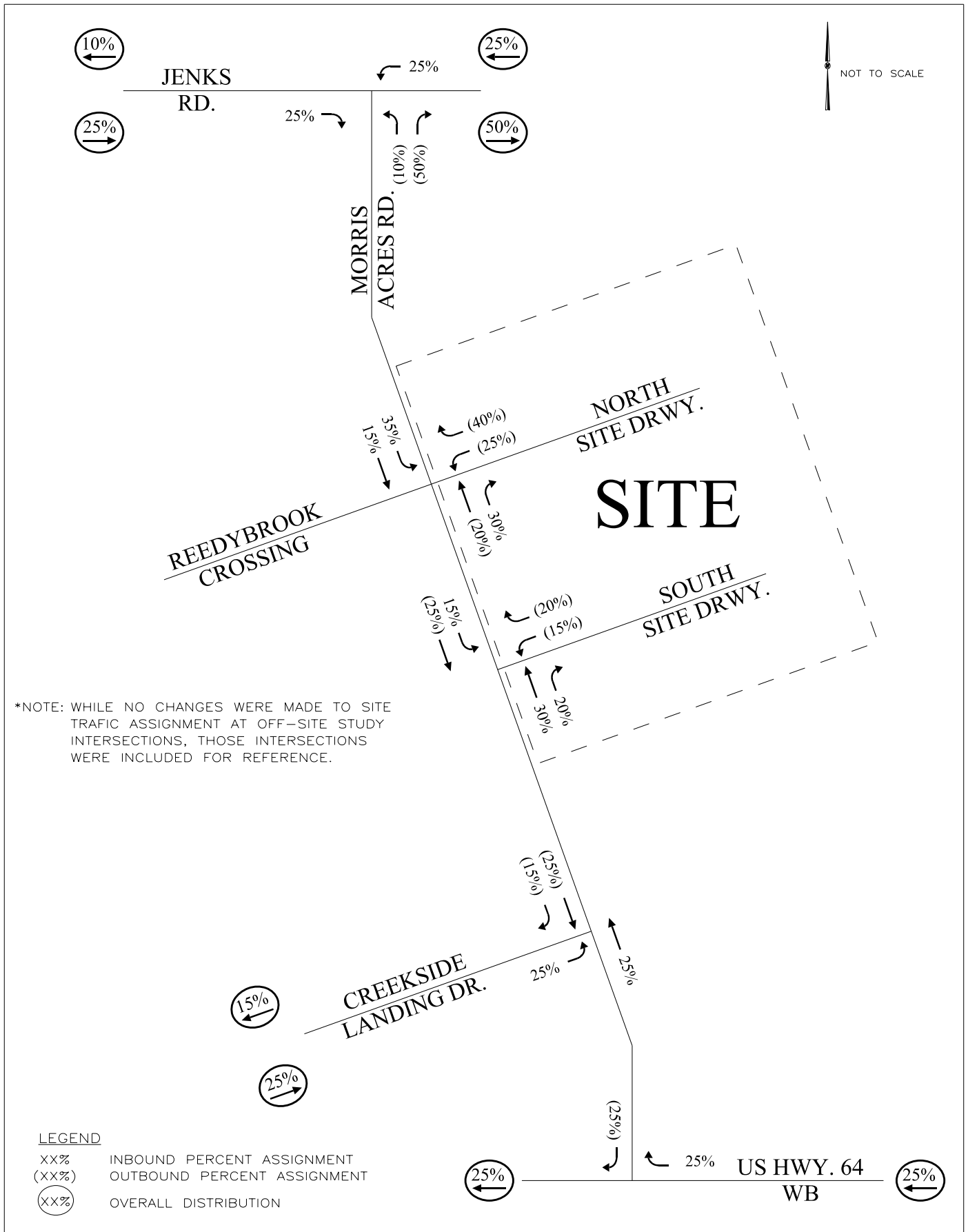
**Recommendations**

Based on the findings of this addendum analysis, and consistent with the original TIA, no roadway improvements are recommended to be performed to accommodate projected site traffic volumes.

The build-out roadway laneage is shown on **Figure 5**.

Should you have any questions or comments, please do not hesitate to contact me at (919) 678-4185 or [kevin.dean@kimley-horn.com](mailto:kevin.dean@kimley-horn.com).

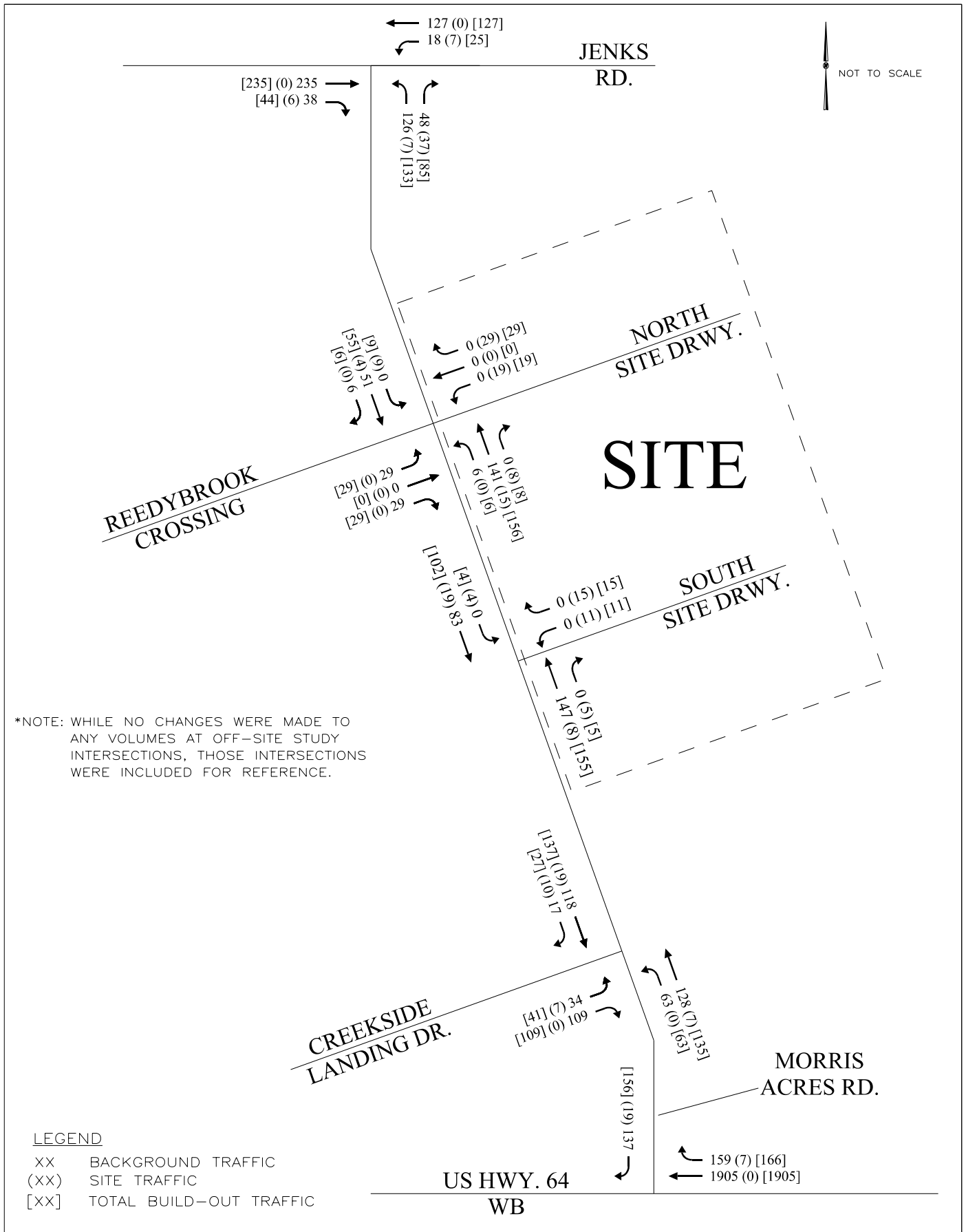




THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

ADDENDUM ANALYSIS –  
SITE TRAFFIC DISTRIBUTION  
AND PERCENT ASSIGNMENT

FIGURE  
2

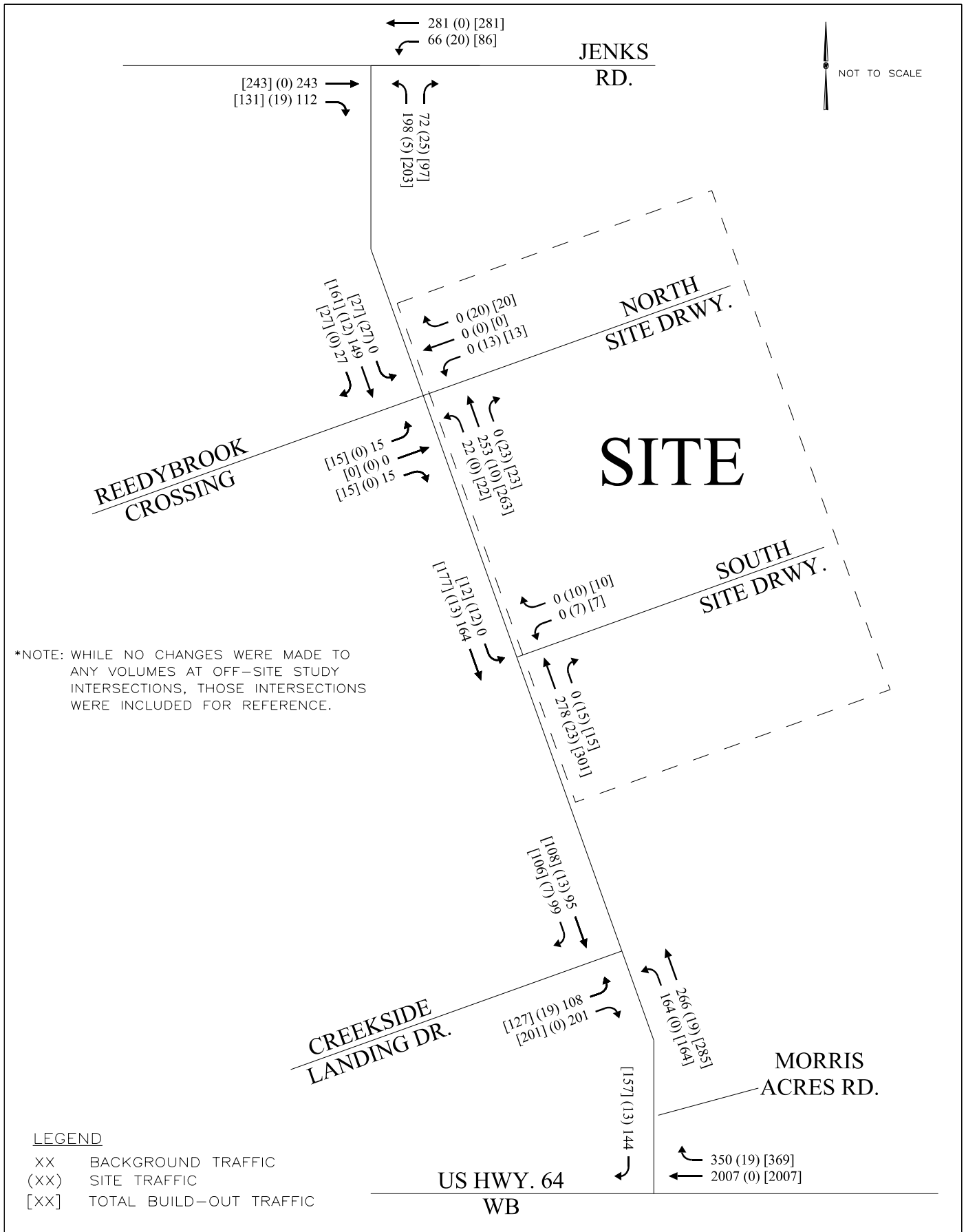


THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

ADDENDUM ANALYSIS –  
PROJECTED (2022) BUILD-OUT  
AM PEAK HOUR TRAFFIC VOLUMES

FIGURE  
3

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.

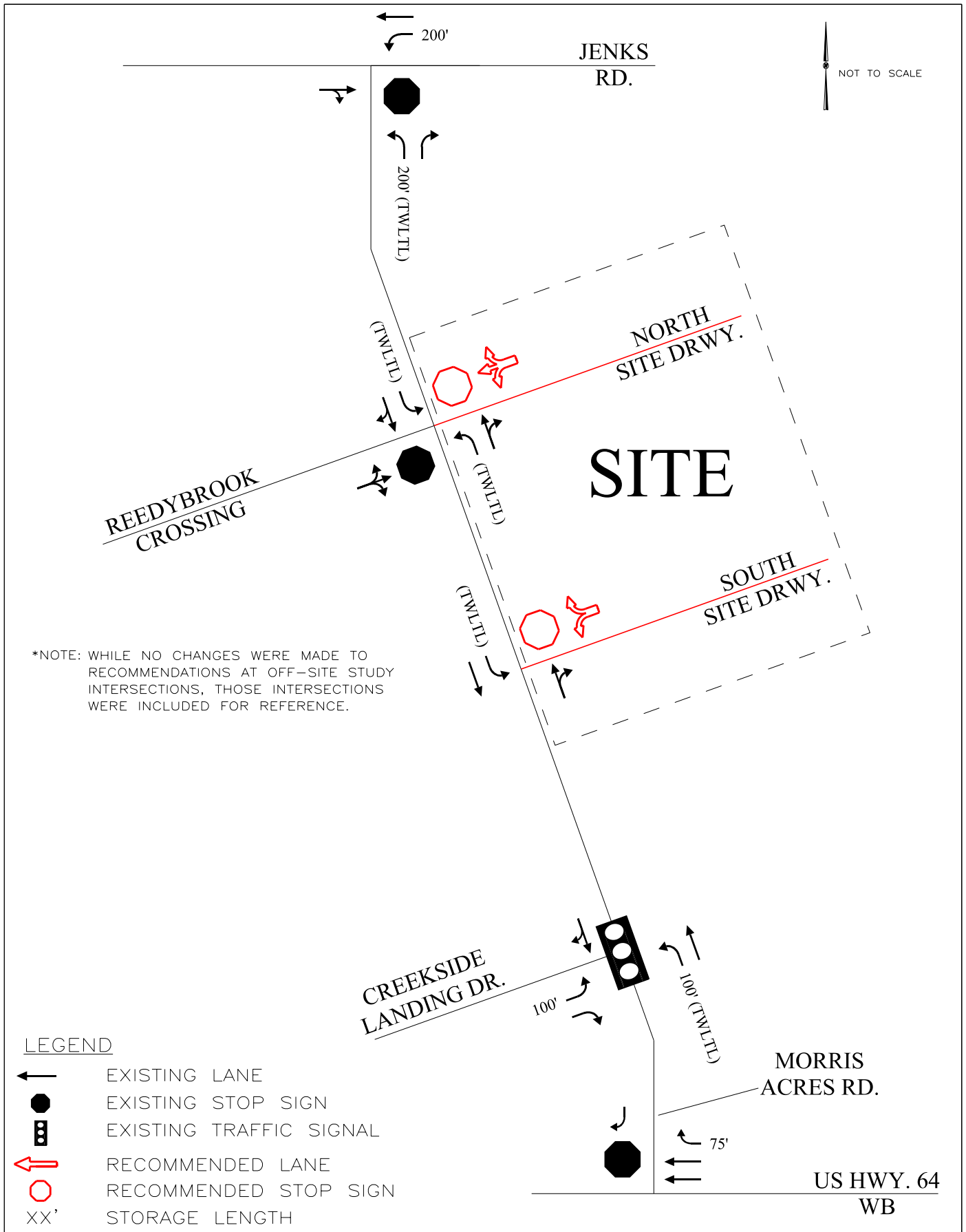


THE WAYFORTH AT APEX  
 APEX, NC  
 TRAFFIC CAPACITY ANALYSIS

ADDENDUM ANALYSIS –  
 PROJECTED (2022) BUILD-OUT  
 PM PEAK HOUR TRAFFIC VOLUMES

FIGURE  
 4

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.



THE WAYFORTH AT APEX  
APEX, NC  
TRAFFIC CAPACITY ANALYSIS

ADDENDUM ANALYSIS –  
BUILD-OUT  
ROADWAY LANEAGE

FIGURE  
5

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.

## INTERSECTION ANALYSIS SHEET

Project:	The Wayforth at Apex
Location:	Apex, NC
Scenario:	Addendum - 2 Site Driveways
Ct. Date:	Balance with Jenks at Morris Acres
N/S Street:	Morris Acres Road
E/W Street:	Reedybrook Crossing/North Site Driveway

Net New Trips:	AM In	AM Out	PM In	PM Out
	26	74	77	50

Annual Growth Rate:	3.0%	Existing Year:	2018
Growth Factor:	0.125509	Buildout Year:	2022

### AM PEAK HOUR AM PHF = 0.90

Description	Reedybrook Crossing			North Site Driveway			Morris Acres Road			Morris Acres Road		
	Eastbound			Westbound			Northbound			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	26	0	26	0	0	0	5	125	0	0	45	5
2018 Existing Traffic	26	0	26	0	0	0	5	125	0	0	45	5
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.126	0.000
2022 Background Growth	0	0	0	0	0	0	0	16	0	0	6	0
<b>Committed Projects</b>												
Beaver Creek Phase 4 Residential	3	0	3	0	0	0	1	0	0	0	0	1
<b>Total Committed Traffic</b>	3	0	3	0	0	0	1	0	0	0	0	1
2022 Background Traffic	29	0	29	0	0	0	6	141	0	0	51	6
<b>Project Traffic</b>												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	30%	35%	15%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	8	9	4	0
Percent Assignment Outbound	0%	0%	0%	25%	0%	40%	0%	20%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	19	0	29	0	15	0	0	0	0
<b>Total Project Traffic</b>	0	0	0	19	0	29	0	15	8	9	4	0
2022 Buildout Total	29	0	29	19	0	29	6	156	8	9	55	6
Percent Impact (Approach)	0.0%			100.0%			13.5%			18.7%		
<b>Overall Percent Impact</b>	24.3%											

### PM PEAK HOUR PM PHF = 0.90

Description	Reedybrook Crossing			North Site Driveway			Morris Acres Road			Morris Acres Road		
	Eastbound			Westbound			Northbound			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	14	0	14	0	0	0	20	225	0	0	132	24
2018 Existing Traffic	14	0	14	0	0	0	20	225	0	0	132	24
Growth Factor (0.03 per year)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126	0.000	0.000	0.126	0.000
2022 Background Growth	0	0	0	0	0	0	0	28	0	0	17	0
<b>Committed Projects</b>												
Beaver Creek Phase 4 Residential	1	0	1	0	0	0	2	0	0	0	0	3
<b>Total Committed Traffic</b>	1	0	1	0	0	0	2	0	0	0	0	3
2022 Background Traffic	15	0	15	0	0	0	22	253	0	0	149	27
<b>Project Traffic</b>												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	30%	35%	15%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	23	27	12	0
Percent Assignment Outbound	0%	0%	0%	25%	0%	40%	0%	20%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	13	0	20	0	10	0	0	0	0
<b>Total Project Traffic</b>	0	0	0	13	0	20	0	10	23	27	12	0
2022 Buildout Total	15	0	15	13	0	20	22	263	23	27	161	27
Percent Impact (Approach)	0.0%			100.0%			10.7%			18.2%		
<b>Overall Percent Impact</b>	18.0%											

## INTERSECTION ANALYSIS SHEET

Project:	The Wayforth at Apex
Location:	Apex, NC
Ct. Date:	Balance with Jenks at Morris Acres
N/S Street:	Morris Acres Road
E/W Street:	South Site Driveway

AM In	AM Out	PM In	PM Out
26	74	77	50

Annual Growth Rate:	3.0%	Existing Year:	2018
Growth Factor:	0.125509	Buildout Year:	2022

### AM PEAK HOUR AM PHF = 0.90

Description	South Site Driveway Eastbound			South Site Driveway Westbound			Morris Acres Road Northbound			Morris Acres Road 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	0	0	0	0	0	0	130	0	0	71	0
2018 Existing Traffic	0	0	0	0	0	0	0	130	0	0	71	0
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	0	0	0	0	0	0	16	0	0	9	0
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	0	0	0	0	0	1	0	0	3	0
Total Committed Traffic	0	0	0	0	0	0	0	1	0	0	3	0
2022 Background Traffic	0	0	0	0	0	0	0	147	0	0	83	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	30%	20%	15%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	8	5	4	0	0
Percent Assignment Outbound	0%	0%	0%	15%	0%	20%	0%	0%	0%	0%	25%	0%
Outbound Project Traffic	0	0	0	11	0	15	0	0	0	0	19	0
Total Project Traffic	0	0	0	11	0	15	0	8	5	4	19	0
2022 Buildout Total	0	0	0	11	0	15	0	155	5	4	102	0
Percent Impact (Approach)	-	-	-	100.0%	-	-	8.1%	-	-	21.8%	-	-
Overall Percent Impact	21.3%											

### PM PEAK HOUR PM PHF = 0.90

Description	South Site Driveway Eastbound			South Site Driveway Westbound			Morris Acres Road Northbound			Morris Acres Road 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	0	0	0	0	0	0	244	0	0	145	0
2018 Existing Traffic	0	0	0	0	0	0	0	244	0	0	145	0
Growth Factor (0.03 per year)	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126	0.126
2022 Background Growth	0	0	0	0	0	0	0	31	0	0	18	0
Committed Projects												
Beaver Creek Phase 4 Residential	0	0	0	0	0	0	0	2	0	0	1	0
Total Committed Traffic	0	0	0	0	0	0	0	2	0	0	1	0
2022 Background Traffic	0	0	0	0	0	0	0	278	0	0	164	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	30%	20%	15%	0%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	23	15	12	0	0
Percent Assignment Outbound	0%	0%	0%	15%	0%	20%	0%	0%	0%	0%	25%	0%
Outbound Project Traffic	0	0	0	7	0	10	0	0	0	0	13	0
Total Project Traffic	0	0	0	7	0	10	0	23	15	12	13	0
2022 Buildout Total	0	0	0	7	0	10	0	301	15	12	177	0
Percent Impact (Approach)	-	-	-	100.0%	-	-	12.0%	-	-	13.2%	-	-
Overall Percent Impact	15.3%											





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	29	4	29	19	4	29	6	156	8	9	55	6
Future Volume (vph)	29	4	29	19	4	29	6	156	8	9	55	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1703	0	0	1690	0	1770	1850	0	1770	1835	0
Flt Permitted		0.977			0.982		0.950			0.950		
Satd. Flow (perm)	0	1703	0	0	1690	0	1770	1850	0	1770	1835	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		294			267			470			758	
Travel Time (s)		8.0			7.3			7.1			11.5	
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	68	0	0	57	0	7	182	0	10	68	0
Sign Control		Stop			Stop			Free			Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	29	4	29	19	4	29	6	156	8	9	55	6
Future Vol, veh/h	29	4	29	19	4	29	6	156	8	9	55	6
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	-	-	-	-	-	-	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	32	4	32	21	4	32	7	173	9	10	61	7

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	293	280	64	294	279	178	68	0	0	182	0	0
Stage 1	84	84	-	191	191	-	-	-	-	-	-	-
Stage 2	209	196	-	103	88	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	659	628	1000	658	629	865	1533	-	-	1393	-	-
Stage 1	924	825	-	811	742	-	-	-	-	-	-	-
Stage 2	793	739	-	903	822	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	625	621	1000	628	622	865	1533	-	-	1393	-	-
Mov Cap-2 Maneuver	625	621	-	628	622	-	-	-	-	-	-	-
Stage 1	920	819	-	807	739	-	-	-	-	-	-	-
Stage 2	755	736	-	863	816	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10.3	0.3	1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	758	741	1393	-	-
HCM Lane V/C Ratio	0.004	-	-	0.091	0.078	0.007	-	-
HCM Control Delay (s)	7.4	-	-	10.2	10.3	7.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0	-	-

The Wayforth at Apex  
 5: Morris Acres Road & South Site Driveway



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	15	155	5	4	102
Future Volume (vph)	11	15	155	5	4	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1681	0	1853	0	1770	1863
Flt Permitted	0.980				0.950	
Satd. Flow (perm)	1681	0	1853	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	369		1004			470
Travel Time (s)	10.1		15.2			7.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	178	0	4	113
Sign Control	Stop		Free			Free

**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	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		Y		Y	Y
Traffic Vol, veh/h	11	15	155	5	4	102
Future Vol, veh/h	11	15	155	5	4	102
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	-	-	-	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	12	17	172	6	4	113

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	297	175	0	0	178
Stage 1	175	-	-	-	-
Stage 2	122	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	694	868	-	-	1398
Stage 1	855	-	-	-	-
Stage 2	903	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	692	868	-	-	1398
Mov Cap-2 Maneuver	715	-	-	-	-
Stage 1	855	-	-	-	-
Stage 2	900	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	796	1398	-
HCM Lane V/C Ratio	-	-	0.036	0.003	-
HCM Control Delay (s)	-	-	9.7	7.6	-
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)	15	4	15	13	4	20	22	263	23	27	161	27
Future Volume (vph)	15	4	15	13	4	20	22	263	23	27	161	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
Satd. Flow (prot)	0	1712	0	0	1696	0	1770	1840	0	1770	1822	0
Flt Permitted		0.978			0.983		0.950			0.950		
Satd. Flow (perm)	0	1712	0	0	1696	0	1770	1840	0	1770	1822	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		294			267			470			758	
Travel Time (s)		8.0			7.3			7.1			11.5	
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	38	0	0	40	0	24	318	0	30	209	0
Sign Control		Stop			Stop			Free			Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.9%
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	15	4	15	13	4	20	22	263	23	27	161	27
Future Vol, veh/h	15	4	15	13	4	20	22	263	23	27	161	27
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	-	-	-	-	-	-	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	17	4	17	14	4	22	24	292	26	30	179	30

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	621	621	194	618	623	305	209	0	0	318	0	0
Stage 1	254	254	-	354	354	-	-	-	-	-	-	-
Stage 2	367	367	-	264	269	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	400	403	847	402	402	735	1362	-	-	1242	-	-
Stage 1	750	697	-	663	630	-	-	-	-	-	-	-
Stage 2	653	622	-	741	687	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	372	386	847	378	385	735	1362	-	-	1242	-	-
Mov Cap-2 Maneuver	372	386	-	378	385	-	-	-	-	-	-	-
Stage 1	737	680	-	651	619	-	-	-	-	-	-	-
Stage 2	618	611	-	704	670	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	12.6	0.5	1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1362	-	-	497	514	1242	-	-
HCM Lane V/C Ratio	0.018	-	-	0.076	0.08	0.024	-	-
HCM Control Delay (s)	7.7	-	-	12.8	12.6	8	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.3	0.1	-	-

The Wayforth at Apex  
 5: Morris Acres Road & South Site Driveway



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	10	301	15	12	177
Future Volume (vph)	7	10	301	15	12	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				100	
Satd. Flow (prot)	1681	0	1850	0	1770	1863
Flt Permitted	0.979				0.950	
Satd. Flow (perm)	1681	0	1850	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	369		1004			470
Travel Time (s)	10.1		15.2			7.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	351	0	13	197
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.8%
	ICU Level of Service A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	↔
Traffic Vol, veh/h	7	10	301	15	12	177
Future Vol, veh/h	7	10	301	15	12	177
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	-	-	-	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	8	11	334	17	13	197

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	566	343	0	0	351
Stage 1	343	-	-	-	-
Stage 2	223	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	486	700	-	-	1208
Stage 1	719	-	-	-	-
Stage 2	814	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	481	700	-	-	1208
Mov Cap-2 Maneuver	564	-	-	-	-
Stage 1	719	-	-	-	-
Stage 2	805	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.5
HCM LOS	B		

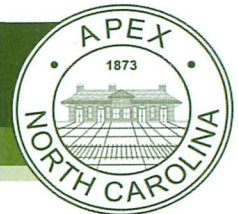
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	637	1208	-
HCM Lane V/C Ratio	-	-	0.03	0.011	-
HCM Control Delay (s)	-	-	10.8	8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-



PLANNING BOARD REPORT TO TOWN COUNCIL

Rezoning #19CZ02 Morris Acres PUD

September 9, 2019 Planning Board Meeting



Planning Board Recommendation:

Motion: To recommend approval of the 2045 Land Use Map amendment and rezoning #19CZ02

Introduced by Planning Board member: Reginald Skinner

Seconded by Planning Board member: Tommy Pate

Approval: the project is consistent with all applicable officially adopted plans and the applicable legislative considerations listed above.

Approval with conditions: the project is not consistent with all applicable officially adopted plans and/or the applicable legislative considerations as noted above, so the following conditions are recommended to be included in the project in order to make it fully consistent:

Conditions as offered by the applicant and presented by staff.

Denial: the project is not consistent with all applicable officially adopted plans.

With 4 Planning Board Member(s) voting "aye"

With 3 Planning Board Member(s) voting "no"

Reasons for dissenting votes:

- Beth Godfrey - relying on Medium Density on 2030 Land Use Map.
- Tina Sherman and Mark Steele - a) relying on Medium Density on 2030 Land Use Map and b) want more affordable housing provided.

This report reflects the recommendation of the Planning Board, this the 9th day of September 2019.

Attest:

Margo J. Bills  
Margo Bills, Planning Board Chair

Dianne F. Khin  
Dianne Khin, Planning Director

# PLANNING BOARD REPORT TO TOWN COUNCIL

Rezoning #19CZ02 Morris Acres PUD

September 9, 2019 Planning Board Meeting



## Report Requirements:

Per NCGS 160A-387, all proposed amendments to the zoning ordinance or zoning map shall have a written report provided from the Planning Board to the Town Council within 30 days of referral of the amendment to the Planning Board, or the Town Council may proceed in its consideration of the amendment without the Planning Board report. Furthermore, in no case is the Town Council bound by the recommendations, if any, of the Planning Board.

Per NCGS 160A-383, the Planning Board shall advise and comment on whether the proposed zoning amendment is consistent with all applicable officially adopted plans, and 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 officially adopted plans shall not preclude consideration or approval of the proposed amendment by the Town Council.

## PROJECT DESCRIPTION:

**Acreage:** ± 17.4376 acres  
**PINs:** 0732289587, 0732382530, 0732382709  
**Current Zoning:** Rural Residential (RR)  
**Proposed Zoning:** Planned Unit Development-Conditional Zoning (PUD-CZ)  
**2045 Land Use Map:** Medium Density Residential  
**Proposed 2045 Land Use Map:** High Density Residential  
**Town Limits:** 0732382709 is in the ETJ; PINs 0732289587 & 0732382530 are in Town limits

## Applicable Officially Adopted Plans:

The Board must state whether the project is consistent or inconsistent with the following officially adopted plans, if applicable. Applicable plans have a check mark next to them.

2045 Land Use Map  
 Consistent       Inconsistent      Reason: with  
amendment to 2045 Land Use Map

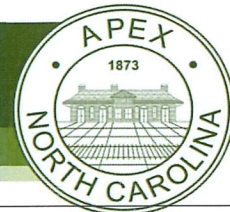
Apex Transportation Plan  
 Consistent       Inconsistent      Reason: \_\_\_\_\_

Parks, Recreation, Open Space, and Greenways Plan  
 Consistent       Inconsistent      Reason: \_\_\_\_\_

# PLANNING BOARD REPORT TO TOWN COUNCIL

Rezoning #19CZ02 Morris Acres PUD

September 9, 2019 Planning Board Meeting



## Legislative Considerations:

The applicant shall propose site-specific standards and conditions that take into account the following considerations, which are considerations that are relevant to the legislative determination of whether or not the proposed conditional zoning district rezoning request is in the public interest. These considerations do not exclude the legislative consideration of any other factor that is relevant to the public interest.

1. *Consistency with 2045 Land Use Map.* The proposed Conditional Zoning (CZ) District use's appropriateness for its proposed location and consistency with the purposes, goals, objectives, and policies of the 2045 Land Use Map.

Consistent

Inconsistent

Reason: with

amendment to 2045 Land Use Map.

2. *Compatibility.* The proposed Conditional Zoning (CZ) District use's appropriateness for its proposed location and compatibility with the character of surrounding land uses.

Consistent

Inconsistent

Reason: \_\_\_\_\_

3. *Zoning district supplemental standards.* The proposed Conditional Zoning (CZ) District use's compliance with Sec. 4.4 Supplemental Standards, if applicable.

Consistent

Inconsistent

Reason: \_\_\_\_\_

4. *Design minimizes adverse impact.* The design of the proposed Conditional Zoning (CZ) District use's minimization of adverse effects, including visual impact of the proposed use on adjacent lands; and avoidance of significant adverse impacts on surrounding lands regarding trash, traffic, service delivery, parking and loading, odors, noise, glare, and vibration and not create a nuisance.

Consistent

Inconsistent

Reason: \_\_\_\_\_

5. *Design minimizes environmental impact.* The proposed Conditional Zoning District use's minimization of environmental impacts and protection from significant deterioration of water and air resources, wildlife habitat, scenic resources, and other natural resources.

Consistent

Inconsistent

Reason: \_\_\_\_\_

PLANNING BOARD REPORT TO TOWN COUNCIL

Rezoning #19CZ02 Morris Acres PUD

September 9, 2019 Planning Board Meeting



6. *Impact on public facilities.* The proposed Conditional Zoning (CZ) District use's avoidance of having adverse impacts on public facilities and services, including roads, potable water and wastewater facilities, parks, schools, police, fire and EMS facilities.

Consistent                       Inconsistent                      Reason: \_\_\_\_\_

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7. *Health, safety, and welfare.* The proposed Conditional Zoning (CZ) District use's effect on the health, safety, or welfare of the residents of the Town or its ETJ.

Consistent                       Inconsistent                      Reason: \_\_\_\_\_

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8. *Detrimental to adjacent properties.* Whether the proposed Conditional Zoning (CZ) District use is substantially detrimental to adjacent properties.

Consistent                       Inconsistent                      Reason: \_\_\_\_\_

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9. *Not constitute nuisance or hazard.* Whether the proposed Conditional Zoning (CZ) District use constitutes a nuisance or hazard due to traffic impact or noise, or because of the number of persons who will be using the Conditional Zoning (CZ) District use.

Consistent                       Inconsistent                      Reason: \_\_\_\_\_

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10. *Other relevant standards of this Ordinance.* Whether the proposed Conditional Zoning (CZ) District use complies with all standards imposed on it by all other applicable provisions of this Ordinance for use, layout, and general development characteristics.

Consistent                       Inconsistent                      Reason: \_\_\_\_\_

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2045 LAND USE MAP AMENDMENT &  
CONDITIONAL ZONING #19CZ02  
Morris Acres PUD

Pursuant to the provisions of North Carolina General Statutes Section 160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Planning Board and Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

**Applicant:** Kaplan Residential  
**Authorized Agent:** Jason Barron, Morningstar Law Group  
**Property Addresses:** 0, 7208, & 7208B Morris Acres Road  
**Acreage:** ± 17.4376  
**Property Identification Numbers (PINs):** 0732289587, 0732382530, & 0732382709  
**Existing 2045 Land Use Map Designation:** Medium Density Residential  
**Proposed 2045 Land Use Map Designation:** High Density Residential  
**Existing Zoning of Property:** Rural Residential (RR)  
**Proposed Zoning of Property:** Planned Unit Development-Conditional Zoning (PUD-CZ)

**Public Hearing Location:** Apex Town Hall  
73 Hunter Street, Apex, North Carolina  
Council Chambers, 2<sup>nd</sup> Floor

**Planning Board Public Hearing Date and Time:** ~~July 8, 2019~~ **August 12, 2019 4:30 P.M.**  
**Town Council Public Hearing Date and Time:** ~~July 16, 2019~~ **August 20, 2019 7:00 P.M.**

**Vicinity Map:**



Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may appear at the public hearing and be heard with respect to the application. Maps showing the location for the above site(s) to be considered in addition to a copy of the [2045 Land Use Map](#) can be inspected at the Apex Town Hall or call 919-249-3426, Department of Planning and Community Development for further information. To view the petition and related documents on-line: <https://www.apexnc.org/DocumentCenter/View/26285>.

Dianne F. Khin, AICP  
Planning Director

Published Dates: June 21, 2019 - ~~July 17, 2019~~ **August 20, 2019**



**TOWN OF APEX**  
POST OFFICE BOX 250  
APEX, NORTH CAROLINA 27502  
PHONE 919-249-3426

**PUBLIC NOTIFICATION  
OF PUBLIC HEARINGS**

**CONTINUED**

2045 LAND USE MAP AMENDMENT &  
CONDITIONAL ZONING #19CZ02  
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### 2045 LAND USE MAP AMENDMENT & CONDITIONAL ZONING #19CZ02 Morris Acres PUD

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**PUBLIC NOTIFICATION  
 OF PUBLIC HEARINGS  
 CONTINUED**

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 CONDITIONAL ZONING #19CZ02  
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**PUBLIC NOTIFICATION  
 OF PUBLIC HEARINGS  
 CONTINUED**

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# TOWN OF APEX

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# PUBLIC NOTIFICATION OF PUBLIC HEARINGS

**CONTINUED**

## 2045 LAND USE MAP AMENDMENT & CONDITIONAL ZONING #19CZ02 Morris Acres PUD

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**Town Council Public Hearing Date and Time:** ~~July 16, 2019 August 20, 2019 September 17, 2019~~ **October 15, 2019 7:00 P.M.**

### Vicinity Map:



Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may appear at the public hearing and be heard with respect to the application. Maps showing the location for the above site(s) to be considered in addition to a copy of the [2045 Land Use Map](#) can be inspected at the Apex Town Hall or call 919-249-3426, Department of Planning and Community Development for further information. To view the petition and related documents on-line: <https://www.apexnc.org/DocumentCenter/View/26285>.

Dianne F. Khin, AICP  
Planning Director

Published Dates: June 21, 2019 - July 17, 2019 ~~August 20, 2019 September 17, 2019~~ **October 15, 2019**



**TOWN OF APEX**  
POST OFFICE BOX 250  
APEX, NORTH CAROLINA 27502  
PHONE 919-249-3426

**PUBLIC NOTIFICATION  
OF PUBLIC HEARINGS  
CONTINUED**

**2045 LAND USE MAP AMENDMENT &  
CONDITIONAL ZONING #19CZ02  
Morris Acres PUD**

Pursuant to the provisions of North Carolina General Statutes Section 160A-364 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Planning Board and Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant: Kaplan Residential  
Authorized Agent: Jason Barron, Morningstar Law Group  
Property Addresses: 0, 7208, & 7208B Morris Acres Road  
Acreage: ± 17.4376  
Property Identification Numbers (PINs): 0732289587, 0732382530, & 0732382709  
Existing 2045 Land Use Map Designation: Medium Density Residential  
Proposed 2045 Land Use Map Designation: High Density Residential  
Existing Zoning of Property: Rural Residential (RR)  
Proposed Zoning of Property: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall  
73 Hunter Street, Apex, North Carolina  
Council Chambers, 2<sup>nd</sup> Floor

Planning Board Public Hearing Date and Time: ~~July 8, 2019~~ August 12, 2019 4:30 P.M.  
Town Council Public Hearing Date and Time: ~~July 16, 2019 August 20, 2019 September 17, 2019~~ **October 15, 2019 7:00 P.M.**

Vicinity Map:



Property owners within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may appear at the public hearing and be heard with respect to the application. Maps showing the location for the above site(s) to be considered in addition to a copy of the [2045 Land Use Map](#) can be inspected at the Apex Town Hall or call 919-249-3426, Department of Planning and Community Development for further information. To view the petition and related documents on-line: <https://www.apexnc.org/DocumentCenter/View/26285>.

Dianne F. Khin, AICP  
Planning Director

Published Dates: June 21, 2019 - ~~July 17, 2019 August 20, 2019 September 17, 2019~~ **October 15, 2019**

JENKS RD

Rezoning #19CZ02

7409

540

7208

MORRIS ACRES RD

WALDEN WOODS DR

WALDEN CREEK DR

FLINTS POND CIR

REDBROOK CRSG

TUNISIAN DR

PEAKSIDE DR

SANTORINE ALY

February, 2019  
October 2018 Aerial Photography  
Prepared by: Town of Apex Planning Department



Public Hearing Sign Posted By

Signature

2/6/19

Date



**TOWN OF APEX**  
 POST OFFICE BOX 250  
 APEX, NORTH CAROLINA 27502  
 PHONE 919-249-3426

**AFFIDAVIT CERTIFYING**  
**Public Notification – Written (Mailed) Notice**  
 Section 2.2.11  
 Town of Apex Unified Development Ordinance

Project Name: Rezoning 19CZ02  
 Project Location: 0, 7208, & 7208B Morris Acres Road  
 Applicant or Authorized Agent: Jason Barron  
 Firm: Morningstar Law Group

This is to certify that I, as Planning Director, mailed or caused to have mailed by first class postage for the above mentioned project **June 21, 2019**, a notice containing the time and place, location, nature and scope of the application, where additional information may be obtained, and the opportunity for interested parties to be heard, to the property owners within 300' of the land subject to notification. I further certify that I relied on information provided to me by the above-mentioned person as to accuracy and mailing addresses of property owners within 300' of the land subject to notification.

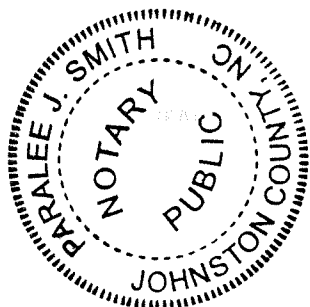
6/21/19  
 Date

*Stianne F. Klein*  
 Planning Director

STATE OF NORTH CAROLINA  
 COUNTY OF WAKE

Sworn and subscribed before me, Paralee J. Smith, a Notary Public for the above State and County, this the 21 day of June, 2019.

*Paralee J. Smith*  
 Notary Public



My Commission Expires: 9/12/2023