All property owners, tenants, and neighborhood associations within 300 feet of this rezoning have been notified per UDO Sec. 2.2.11 *Public Notification*.

BACKGROUND INFORMATION:

Location: 8200 Jenks Road
Applicant/Agent: Collier Marsh, FC Apex, LLC./Kevin Woodley, Buvemo Investments
Owners: Strickland, R Michael Trustee of Family Trust (Will of C H Young Jr)

PROJECT DESCRIPTION:

Acreage: ±11.74 acres
PIN: 0722577336
Current Zoning: Rural Residential (RR)
Proposed Zoning: Planned Unit Development-Conditional Zoning (PUD-CZ)
Current 2045 Land Use Map: Office Employment/Commercial Services
If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential/Office Employment/Commercial Services
Town Limits: ETJ

Adjacent Zoning & Land Uses:

	Zoning	Land Use
North:	Rural Residential (RR)	Cary-Apex Water Treatment Plant
South:	Planned Unit Development-Conditional Zoning (PUD-CZ #18CZ31)	Jenks Rd; Multi-family Residential (Westford Apartments); Vacant
East:	Planned Unit Development-Conditional Zoning (PUD-CZ #18CZ31)	Vacant
West:	Rural Residential (RR)	Vacant

EXISTING CONDITIONS:

The property is situated on the north side of Jenks Road, between Wimberly Road and US 64. The property is vacant and heavily wooded.

NEIGHBORHOOD MEETING:

The applicant conducted a neighborhood meeting on November 17, 2021. The neighborhood meeting report is attached.

WCPSS Coordination:

A Letter of Impact from Wake County Public School System (WCPSS) was not requested for this rezoning due to proposed age restriction.

2045 LAND USE MAP:

The 2045 Land Use Map designates the subject property as Office Employment/Commercial Services. The proposed rezoning to Planned Unit Development-Conditional Zoning (PUD-CZ) includes a mix of age-restricted residential uses and commercial uses consistent with the designated Office Employment/Commercial Services land uses. At least 30% of the area to be rezoned is proposed for

commercial uses. Therefore, if the property is rezoned as proposed, the 2045 LUM will automatically be amended to High Density Residential/Office Employment/Commercial Services per NCGS 160D-605(a).

PLANNED UNIT DEVELOPMENT PLAN:
The applicant is proposing a Planned Unit Development Plan with uses and development standards as follows:

Permitted Uses:
The development will include office, retail and residential uses. The Rezoned Lands may be used for, and only for, the uses listed below. The permitted uses are subject to the limitation and regulations stated in the UDO and any additional limitation 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.

Residential* Tract:
- Congregate Living Facility**
- Multi-family or Apartment (age-restricted)
- Greenway
- Recreation Facility, private
- Park, active
- Park, passive
- Utility, minor

*All residential uses in the Residential District shall be age-restricted as follows: 100% of all occupied units shall have as a resident at least one person age 55 or older.

**Congregate Living Facility as defined in UDO Section 4.3.1.C shall be modified as follows: A residential land use consisting of any building or section thereof, residence, private home, boarding home, or home for the aged, whether or not operated for profit, which provides one or more of the following amenities or services for persons not related to the owner or administrator by blood or marriage: food service, trash service, local transportation services, community library, programmed activities, salon services, and other personal services. The term shall not mean "nursing home," "intermediate care facility," or similar facility that provides medical care and support services to persons not capable of independent living.

Commercial Tract:
- Day care facility
- Restaurant, drive-through
- Restaurant, general
- Medical or dental office or clinic
- Office, business or professional
- Publishing office
- Research facility
- Hotel or Motel
- Artisan Studio
- Barber and beauty shop
- Book store
- Convenience store
- Convenience store with gas sales
- Dry cleaners and laundry service
- Farmer's Market
- Financial institution
- Floral shop
- Gas and fuel, retail
- Glass sales
- Greenhouse or nursery, retail
- Grocery, general
- Grocery, specialty
- Health/fitness center or spa
- Kennel
- Newsstand or gift shop
- Personal service
- Pharmacy
- Printing and copying service
- Real estate sales
- Repair services, limited
- Retail sales, general
- Studio for art
- Tailor shop
- Upholstery shop
- Pet services
- Veterinary clinic or hospital
- Utility, minor

Proposed Design Controls:

Density

The PD Plan proposes an overall maximum residential density of 160 dwelling units and a minimum of 3.522 acres of Commercial area.

Height

The maximum building height shall be:

Residential:	60' (5 stories)
Non-residential:	50'

Setbacks

Proposed Minimum Setbacks		
Residential	Front*	0'
	Side	10'
	Rear	10'
	Corner side (Jenks Rd)	10'
Non-Residential	Front (Jenks Rd)	10'
	Side	10'
	Rear**	10'
	Corner side	50'

*Measured from Residential/Commercial District boundary
**Measured from Residential/Commercial District boundary

Buffers

All landscaping for this PUD shall comply with Section 8.2 Landscaping, of the Town of Apex UDO. Refer to PUD Preliminary Layout Plan for perimeter and streetscape buffers. In the event that the Commercial District and Residential District are subdivided, buffers and screening shall not be required along the shared property line between the Residential District and the Commercial District.

The following buffers are proposed by this PUD:

Perimeter Buffers			
		UDO Required	Proposed
Residential*	Rear (north)	15' Type B (adjacent to Cary/Town of Apex Water Treatment Plant) & 20' Type B (adjacent to PIN 0722673959)	20' Type A
	Side (west)	10' Type B	20' Type A
	Front (Jenks Rd)	30' Type B Undisturbed or 50' Type A/B Disturbed	30' Type E Undisturbed or 50' Type E Disturbed
	Front (internal)	None	None
Non-Residential**	Side (west)	30' Type B	20' Type A

	Rear (internal)	None	None
	Front (Jenks Rd)	30' Type E Undisturbed or 50' Type E Disturbed	30' Type E

* *Based on Class 4 (Congregate living) Land Use Class for Section 8.2.6 Buffering*

** *Based on Class 5 Land Use Class for Section 8.2.6 Buffering*

*** Notwithstanding any contrary UDO provision or language in this PUD, if the Property is subdivided, there shall be no minimum setback or buffer requirement along the future shared property line between the Residential District and the Commercial District.

Built Upon Area
The PUD shall comply with the UDO.

Resource Conservation Area
The Development shall include a minimum of 25% RCA. RCA area shall comply with Section 8.1 of the UDO.

Parking
Development in the Residential District shall include a minimum of 1 and a maximum of 1.5 off-street motor vehicle parking spaces per dwelling unit. Development in the Residential District shall include a minimum of 6 bicycle parking spaces. Development in the Commercial District shall comply with parking requirements in Section 8.3 of the UDO.

Architectural Standards
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 development plan submittal. The following conditions shall apply:

A. Residential Development

1. Vinyl siding is not permitted; however, vinyl windows, decorative elements and trim are permitted.
2. 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, decorative windows, decorative brick or stone, decorative gables, decorative cornices, or metal roofing.
3. Proposed materials and styles will be of a similar palette to provide consistency of character along with visual interest. Exterior materials that may be incorporated into any of the residential building products include:
    - Cementitious lap, board and batten, and/or shake and shingle siding
    - Stone or synthetic stone
    - Brick
4. Additional building materials may be included with administrative staff approval. Substitute materials shall be allowed by staff as long as they are determined by the Director of Planning and Community Development to be substantially similar.

B. Commercial Development

1. Architectural treatments such as varying roof forms, façade articulation, breaks in roof, walls with texture materials and ornamental details shall be incorporated to add visual interest.
2. Large expanses of blank walls, greater than 25' in length or height, shall be broken up with windows or other architectural features to reduce visual impacts.
3. Roof features may include flat roofs with parapet, hip roofs or awnings with metal or canvas material.
4. Windows and storefront glazing shall be divided to be either square or vertical in proportion so that each section is taller than it is wide.
5. Non-residential exteriors shall incorporate variation in materials. The primary (front) façade and other façades located along a public right-of-way may include:
   a. Brick and/or stone masonry
   b. Decorative concrete block (integral color or textured)
   c. Stone accents
   d. Aluminum storefronts with anodized or pre-finished colors
   e. EIFS cornices, and parapet trim
   f. EIFS or synthetic stucco shall not be used in the first four feet above grade and shall be limited to only 25% of each building façade
   g. Precast concrete
   h. Soffit and fascia materials to be considered include EIFS with crown trim elements
   i. Cementitious siding
6. Rear elevations of non-residential buildings facing opaque landscape buffers or not visible from vehicular use areas or public rights-of-way may incorporate decorative concrete masonry, metal coping, or EIFS trim.

PUBLIC FACILITIES:

The project's construction will consist of the extension of public facilities to serve the site. All public facilities and infrastructure shall comply with the Town of Apex Sewer and Water Master Plans and the Town of Apex Standards and Specifications.

STORMWATER MANAGEMENT:

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.
- Treatment for the first one inch (1") of runoff will provide 85% removal of total suspended solids.

Acceptable stormwater structures shall include detention ponds, constructed wetlands, bio-retention areas, or other approved devices consistent with the NC DEQ Stormwater Design Manual and the Town of Apex UDO**.**

AFFORDABLE HOUSING

A minimum of six (6) of the residential units (either Congregate Living Facility units as modified herein, or age-restricted (55 yrs. and older) multifamily/apartment units) constructed within the Development shall be designated as low-income restricted units (the "Affordable Units"). The bedroom mix of the Affordable Units shall include (4) one-bedroom units and two (2) two-bedroom units.

The Affordable Units shall be made available for rental such that the maximum rent limits per bedroom size and household income limits shall be no greater than sixty percent (60%) of the U.S. Department of Housing and Urban Development (HUD) Area Median Income (AMI) as stipulated by the most recently published North Carolina Housing Finance Agency (NCHFA) Low-Income Housing Tax Credit (LIHTC) Multifamily Tax Subsidy Program (MTSP) income and rent limits for the Wake Metropolitan area.

The Affordable Units shall be restricted for an affordability period of five (5) years starting from the date of issuance of the first residential Certificate of Occupancy (the "Affordable Period") for the development. During the Affordable Period, the property owner shall be responsible for performing all administration duties to ensure compliance with this Affordable Housing condition and shall submit annual compliance reports to the Town verifying compliance with this Affordable Housing condition. Following completion of the Affordable Period, this Affordable Housing condition shall expire, the property owner shall be relieved of all obligations set forth in this Affordable Housing condition, and the Affordable Units may be freely marketed and leased at market-rate rents.

An affordable housing deed restriction shall be recorded against the property prior to the date of issuance of the first residential Certificate of Occupancy to memorialize these Affordable Housing terms.

APEX TRANSPORTATION PLAN/ACCESS and CIRCULATION:
The proposed PUD is consistent with the Apex Transportation Plan. The proposed development provides access to Jenks Road. Future development will include extending Lowell Road westward to serve the development and providing a stub street(s) to serve future development. A 10' Side Path will be constructed along Jenks Road and 5' sidewalks will be provided along all internal streets. Developer shall construct and dedicate roadway frontage widening along Jenks Road consisting of the remaining half of a four-lane divided roadway with curb and gutter and 10' Side Path based on Apex and NCDOT standards on a minimum 110' public right-of-way typical section. 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 shall be finalized at the time of Master Subdivision Plan or Minor Site Plan review and approval.

Roadway improvements are subject to modification and final approval by the Town of Apex and NCDOT as part of the Minor Site Plan, Master Subdivision Plan, and construction plan approval process. A Traffic Impact Analysis (TIA) has been performed as part of this PUD rezoning consistent with the Town's standards for the same. Based upon the recommendations of the TIA and approval by Town staff and NCDOT, the final transportation improvement zoning conditions shall be provided as noted below.

The following conditions regarding transportation improvements apply and shall be completed in the first phase 1 of development:

Jenks Road and Lowell Road / Site Drive 1

1. Construct an eastbound approach (Site Drive 1) with one ingress lane and two egress lanes, striped as a left-turn lane with at least 75 feet of storage and a shared through/right-turn lane.
2. Provide a northbound left-turn lane with at least 50 feet of storage and appropriate decel and taper.
3. Provide stop control at the eastbound approach.

Jenks Road and Site Drive 2

1. Construct a right-in/right-out southbound approach with one ingress lane and one egress lane.
2. Provide stop control at the southbound approach.

ENVIRONMENTAL ADVISORY BOARD:

The Apex Environmental Advisory Board (EAB) held a pre-application meeting for this rezoning on November 18, 2021. The zoning conditions suggested by the EAB are listed below along with the applicant's response to each condition.

EAB Suggested Condition	**Applicant's Response**
Pet waste stations shall be installed, at least two.	Added in Residential District
Install signage near environmental sensitive areas in order to: • Reduce pet waste near SCM drainage areas; and • Eliminate fertilizer near SCM drainage areas.	Added
Solar conduit shall be included in building designs.	Added in Residential District
EV charging stations shall be installed according to the UDO requirement.	PUD conforms with UDO parking requirements
Light sensors shall be installed on exterior lights.	Added in Residential District
Outdoor lighting shall be shielded in a way that focuses lighting to the ground.	Added in Residential District
Recommend that roof structures be designed to accommodate solar PV systems.	Added in Residential District
Recommend a minimum of 40 kW of solar PV be installed during construction.	Not Added
Install pervious pavements where practicable (e.g. when parking maximums are exceeded).	Not Added
Increase perimeter buffer requirements, especially in transitional areas between the PUDs (nonresidential to residential areas).	Added
Recommend adding Planting and Landscaping standard (II. c, d and f) options such as planting pollinator-friendly flora, native flora, diverse and abundant pollinator bird food sources, and planting warm season grasses.	Added native-only plantings

EAB Conditions:

1. A minimum of two (2) educational signs about wetlands shall be installed near environmentally sensitive areas;
2. A minimum of two (2) pet waste stations shall be installed within the Residential District;
3. Solar conduit shall be included in Residential District building designs;
4. Light sensors shall be installed on exterior lights within the Residential District; and
5. Outdoor lighting within the Residential District shall be shielded in a way that focuses lighting to the ground.
6. The project shall install conduit for solar energy systems for all residential and accessory buildings. These roofs shall also be engineered to support the weight of a future rooftop solar PV system.
7. The project commits to planting only native plants. Landscaping shall be coordinated and approved by the Planning Department at site or subdivision review.

PARKS, RECREATION, AND CULTURAL RESOURCES ADVISORY COMMISSION:
The Parks, Recreation, and Cultural Resources Advisory Commission reviewed the Arden at Summit Pines PUD project at their February 23, 2022 meeting. The Commission made a recommendation for a fee-in-lieu of dedication. The recommendation is based on the 2021-2022 rates and proposed maximum lot count provided:

Multi-family or Apartment Units: $2,226.05 x 160 = $356,168.00

Staff note: The fee-in-lieu rate is based on the date of PUD approval, not on the date of the Commission's recommendation.

PLANNING BOARD RECOMMENDATION:
The Planning Board held a public hearing on May 9, 2022 and unanimously voted to recommend approval with conditions offered by the applicant.

PLANNING STAFF RECOMMENDATION:
Planning staff recommends approval of the rezoning with conditions as proposed by the applicant.

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:

The 2045 Land Use Map designates the site as Office Employment/Commercial Services. The proposed rezoning includes a mix of age-restricted residential uses and non-residential uses consistent with the Office Employment/Commercial Services land use designation. At least 30% of the area to be rezoned is proposed for commercial uses. Therefore, if the property is rezoned as proposed, the 2045 LUM will automatically be amended to High Density Residential/Office Employment/Commercial Services per NCGS 160D-605(a).

The proposed rezoning is reasonable and in the public interest because the rezoning will allow the project to be developed with age-restricted residential uses accompanied by non-residential development along the thoroughfare frontage, which complements the land use at Westford across Jenks Road. Additionally, the PUD requires that the residential be age-restricted housing with a minimum of six (6) affordable units.

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 2030 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 ten percent (10%) provided that the PD Plan for PUD-CZ includes one or more of the following:

(i) A non-residential component; or

(ii) An overall density of 7 residential units per acre or more; or

(iii) Environmental measures including but not limited to the following:

(a) The installation of a solar photovoltaic (PV) system on a certain number or percentage of single-family or townhouse lots or on a certain number or percentage of multifamily, mixed-use, or nonresidential buildings. All required solar installation shall be completed or under construction prior to 90% of the building permits being issued for the approved number of lots or buildings. For single-family or townhouse installations, the lots on which these homes are located shall be identified on the Master Subdivision Plat, which may be amended;

(b) The installation of a geothermal system for a certain number or percentage of units within the development; or

(c) Energy efficiency standards that exceed minimum Building Code requirements (i.e. SEER rating for HVAC).

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 2030 Land Use.

k) *Complies with the UDO.* The PD Plan for PUD-CZ demonstrates compliance with all other relevant portions of the UDO.

Legislative Considerations

The Town Council shall find the PUD-CZ designation demonstrates compliance with the following standards. Sec. 2.3.3.F:

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 2030 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 2030 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.

March 18, 2022

Caroline Cheeves
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609

Subject: **Staff summary and comments for the Arden at Apex TIA, 3/7/2022**

Ms. Cheeves:

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 studied access to the proposed development at the following two (2) intersections:

- Jenks Road and Lowell Road/ Site Drive 1
- Jenks Road and Site Drive 2

Additionally, the TIA studied the following three (3) intersections in the TIA

- US Hwy 64 and Jenks Road / Richardson Road
- US Hwy 64 and U-turn (west of Jenks Road)
- Jenks Road and Wimberly Road

Trip Generation

The proposed development is expected to consist of a senior living community with up to 163 multi-family housing units, and a strip retail plaza up to 10,000 square feet in size. The development is projected to generate approximately 18 new trips entering and 33 new trips exiting the site during the weekday A.M. peak hour and 49 new trips entering and 44 new trips exiting the site during the weekday P.M. peak hour. The development is projected to add a total of 1,148 daily trips onto the adjacent roadway network.

Background traffic

Background traffic consists of 3% annual background traffic growth compounded to build out year 2024, and the following adjacent developments:

- Alderwood (75% of overall build-out traffic)
- Parks at Wimberly (75% of overall build-out traffic)
- Westford Residential (25% of overall build-out traffic)

Trip Distribution and Assignment

The trip distributions to and from the development are as follows:

- 50% to/from the east via US Hwy 64
- 25% to/from the west via US Hwy 64
- 25% to/from the east via 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 2021** - Existing year 2021 traffic counts.
- **No Build 2024 –** Projected year (2024) with background traffic growth.
- **Build 2024 –** Projected year (2024) with background traffic, and site build-out including recommended improvements where applicable.

Jenks Road and Lowell Road/ Site Drive 1

Table 1. A.M. / P.M. Unsignalized Peak Hour Levels of Service Jenks Road and Lowell Road/ Site Drive 1			
	Existing 2021	**No Build 2024**	**Build 2024**
Overall	NA	NA	NA
Eastbound (Site Drive 1)	*NA*	*NA*	*B / B[1]*
Westbound (Lowell Road)	*B / B[1]*	*B / B[1]*	*B / B[1]*
Northbound (Jenks Road)	*NA*	*NA*	*A / A[2]*
Southbound (Jenks Road)	*A / A[2]*	*A / A[2]*	*A / A[2]*

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements on free-flowing approaches.

TIA recommendations:

- The TIA recommends construction of a stop-controlled, eastbound approach (Site Drive 1) with one ingress lane and two egress lanes, striped as a left-turn lane with at least 75 feet of storage and a shared through/right-turn lane. Additionally, the TIA recommends construction of a northbound left-turn lane with at least 50 feet of storage and appropriate deceleration length and taper on Jenks Road.

Apex staff recommendations:

- Apex staff concur with the recommendations in the TIA. The minor street stop-controlled approaches are projected to operate at LOS B or better during both peak hours in the Build scenario. Additionally, the exclusive left turn lanes on all four approaches, are projected to provide adequate storage capacity for left turn movements at this intersection.

Jenks Road and Site Drive 2

Table 2. A.M. / P.M. Unsignalized Peak Hour Levels of Service Jenks Road and Site Drive 2	
	Build 2024
Overall	NA
Eastbound (Jenks Road)	*NA*
Westbound (Jenks Road)	*NA*
Southbound (Site Drive 2)	*A / A*[1]

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements on free-flowing approaches.

TIA recommendations:

- The TIA recommends construction of Site Drive 2 as stop-controlled, right-in, right-out access driveway with one lane of ingress and one lane of egress, approximately 500 feet northeast of Lowell Road/ Site Drive 1 on Jenks Road.

Apex staff recommendations:

- Apex staff concur with the recommendation in the TIA. The stop-controlled, right-out approach is projected to operate at LOS A during both peak hours, with minimal delays and minimal queuing. To restrict access to right-in / right-out only, Apex staff recommends construction of a median island in the center lane of Jenks Road.

US Hwy 64 and Jenks Road / Richardson Road

Table 3. A.M. / P.M. Peak Hour Levels of Service US Hwy 64 and Jenks Road / Richardson Road			
	Existing 2021	**Signalized**	
		No Build 2024	**Build 2024**
Overall (Super street north side)	NA	B / B	B / B
Eastbound Left (US Hwy 64)	*E / F[2]*	*A / A*	*A / A*
Westbound (US Hwy 64)	*NA*	*A / B*	*A / B*
Southbound (Jenks Road)	*C / C[1]*	*C / C*	*C / D*
Overall (Super street south side)	NA	A / A	A / A
Eastbound (US Hwy 64)	*NA*	*A / A*	*A / A*
Westbound Left (US Hwy 64)	*F / F[2]*	*B / C*	*B / C*
Northbound (Richardson Road)	*F / F[1]*	*C / C*	*C / C*

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements at Superstreet approaches.

TIA recommendations:

- The TIA recommends no improvements at this intersection. As part of committed background improvements by other developers, this super-street intersection is projected to be upgraded with a traffic signal and additional turn lanes in the near future. As such, these improvements will improve operations to overall LOS B or better in both peak hours. The addition of development traffic is not projected to impact operations after the signal and turn lane upgrades.

Apex staff recommendations:

- Apex staff concur with the recommendations in the TIA. Both the north and south sides of the signalized super-street are projected to operate at LOS B or better with all turn lanes adequately meeting turn movement demands in the Build scenario. Per the UDO, no improvements are warranted of this development.
- It should also be noted that the Synchro analysis of existing conditions overestimated the current level of service and delay at the intersection. Due to the way the super-street was modeled in the software package, critical headways on the major-street left turn movements were overestimated leading to a perception of a worse level of service than actual field conditions entail. When critical headways were adjusted to be representative of major-street left turns crossing two lanes by Town staff, the operations for the major street left turn movements were improved to LOS C with queues between 1-3 vehicles in the peak hours, which is representative of existing field conditions.

US Hwy 64 and U-turn (west of Jenks Road)

Table 4. A.M. / P.M. Peak Hour Levels of Service US Hwy 64 and U-turn (west of Jenks Road)			
	Existing 2021	**Signalized**	
		No Build 2024	**Build 2024**
Overall	NA	NA	NA
Eastbound (US Hwy 64)	*NA*	*B / B*	*B / B*
Westbound U-turn (US Hwy 64)	*C / C*[2]	*A / A*	*A / A*

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements at Superstreet approaches.

TIA recommendations:

- The TIA recommends no improvements at this intersection. As part of committed background improvements by other developers, this super-street intersection is projected to be upgraded with a traffic signal. This upgrade will improve operations to overall LOS B or better in both peak hours. The addition of development traffic is not projected to impact operations after the signal is installed.

Apex staff recommendations:

- Apex staff concur with the recommendations in the TIA. The signalized U-turn is projected to operate at LOS B or better with all turn lanes adequately meeting turn movement demands in the Build scenario. Per the UDO, no improvements are warranted of this development.

Jenks Road and Wimberly Road

Table 5. A.M. / P.M. Unsignalized Peak Hour Levels of Service Jenks Road and Wimberly Road			
	Existing 2021	**No Build 2024**	**Build 2024**
Overall	NA	NA	NA
Eastbound (Jenks Road)	*A / A*[2]	*A / A*[2]	*A / A*[2]
Westbound (Jenks Road)	*A / A*[2]	*A / A*[2]	*A / A*[2]
Northbound (Wimberly Road)	*A / B*[1]	*B / B*[1]	*B / B*[1]
Southbound (Wimberly Road)	*B / B*[1]	*B / B*[1]	*B / B*[1]

1. Level of service for stop-controlled minor street approaches.
2. Level of service for left turn movements on free-flowing approaches.

TIA recommendations:

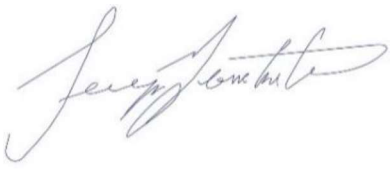
- The TIA recommends no improvements at this intersection. As part of background improvements committed by other developers, a southbound right turn lane with 50 feet of storage and appropriate deceleration length and taper is to be constructed at this intersection.

Apex staff recommendations:

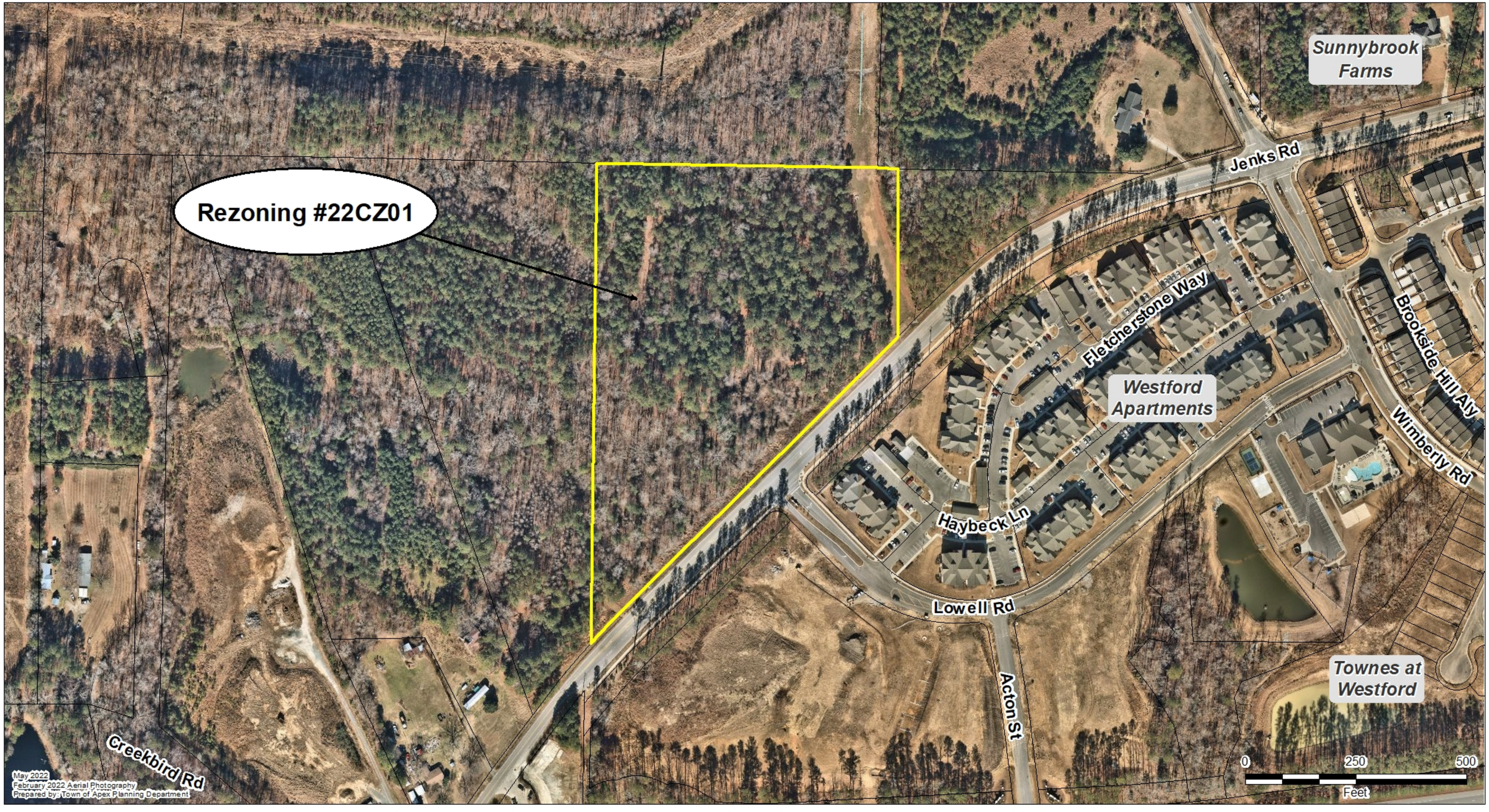
- Apex staff concur with the recommendation in the TIA. All approaches are projected to operate at LOS B or better. 95th percentile queues are projected to be less than 50 feet for all turning movements in the peak hours. Average vehicle delays are not projected to exceed more than 15 seconds per vehicle on the stop-controlled approaches.

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,



Serge Grebenschikov
Traffic Engineer
919-372-7448


Rezoning #22CZ01
Sunnybrook Farms
Jenks Rd
Fletcherstone Way
Brookside Hill Aly
Wimberly Rd
Westford Apartments
Haybeck Ln
Lowell Rd
Acton St
Townes at Westford
Creekbird Rd
May 2022
February 2022 Aerial Photography
Prepared by: Town of Apex Planning Department
0
250
500
Feet

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 #: [illegible] Submittal Date: January 3, 2022

Fee Paid $ 1720 Check # Charge

PETITION TO AMEND THE OFFICIAL ZONING DISTRICT MAP

Project Name: Arden at Summit Pines

Address(es): 8200 Jenks Road, Apex, NC 27523

PIN(s) 0722577336

Acreage: 11.74

Current Zoning: Rural Residential (RR) Proposed Zoning: Planned Unit Development Conditional Zoning (PUD-CZ)

Current 2045 LUM Designation: Office Employment and Commercial Services

Is the proposed rezoning consistent with the 2045 LUM Classification(s)? Yes ☐ No ■

*A FLUM amendment is proposed to add High Density Residential to the FLUM designation

If any portion of the project is shown as mixed use (3 or more stripes on the 2045 Land Use Map) provide the following:

Area classified as mixed use: Acreage: 11.74

Area proposed as non-residential development: Acreage: 3.522

Percent of mixed use area proposed as non-residential: Percent: 30%

Applicant Information

Name: FC Apex, LLC c/o Collier Marsh

Address: 301 Fayetteville Street, Suite 1400

City: Raleigh State: NC Zip: 27601

Phone: (919) 835-4663 E-mail: colliermarsh@parkerpoe.com

Owner Information

Name: R. Michael Strickland, as Trustee of the Charles H Young, Jr. Family Trust

Address: 138 Wee Loch Drive

City: Cary State: NC Zip: 27511-3885

Phone: 919-782-6860 E-mail: Mike.Strickland@youngmoorelaw.com

Agent Information

Name: FC Apex, LLC c/o Collier Marsh

Address: 301 Fayetteville Street, Suite 1400

City: Raleigh State: NC Zip: 27601

Phone: (919) 835-4663 E-mail: colliermarsh@parkerpoe.com

Other contacts:

PLANNED UNIT DEVELOPMENT APPLICATION

Application #: _____ Submittal Date: January 3, 2022

PLANNED UNIT DEVELOPMENT DISTRICT 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. The PD text and plan should demonstrate how the standards of Sec. 2.3.4.F are met be the proposed rezoning.

LEGISLATIVE CONSIDERATIONS - CONDITIONAL ZONING

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. Use additional pages as needed.

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.

The property is designated as Office Employment/Commercial Services on the FLUM. The proposed rezoning includes a request to amend the FLUM designation to Office Employment/Commercial Services/High Density Residential. The proposed Planned Unit Development will facilitate the development of senior housing and commercial uses along Jenks Road in furtherance of the Comprehensive Plan's goal to place commercial services on thoroughfares and near residential communities. The Commercial District will be a minimum of 30% of the site as shown on the Concept Plan.

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

The uses permitted by the PUD - including the senior housing community and commercial uses - are compatible with the character of existing and planned uses in the surrounding area. This area of the Town's ETJ is at an intersection between growing sections of northwest Apex and historically rural western Wake County. Although adjacent properties to the north and west are currently undeveloped, the Property is directly across the street from the Westford PUD. The Villages at Westford Apartments are directly across Jenks Road to the southeast. The Villages at Westford Apartments are a 296 unit apartment complex, with a clubhouse and pool, that were constructed in 2019 as part of the Westford PUD. Further South across Jenks Road is an undeveloped portion of the Westford PUD referred to as area A1. Under the Westford PUD, Area A1 could be developed for a variety of residential or commercial uses including Multi-Family, Single Family, Restaurant, Office, Convenience Store with Gas Sales, and Grocery Store. Arden at Summit Pines will be compatible with the existing Westford Apartments and future development of the Westford PUD because it will provide complimentary uses to the existing and proposed uses of the Westford PUD. Arden at Summit Pines' age restricted Residential District will provide a greater variety of housing options and Arden at Summit Pines' Commercial District offers a greater mix of nonresidential uses that will serve and support residential development in the area. Design standards are also proposed to respect the existing character of the surrounding area.

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

The proposed development will comply with Section 4.4 Supplemental Standards, to the extent these regulations do not conflict with regulations contained in the PUD.

PETITION PROCESS INFORMATION

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.

Trash, parking and loading, and odors will be screened from adjacent uses as required by the UDO and as set forth in the PUD. More intense commercial uses are only permitted in the Commercial District which fronts on Jenks Road. Additionally, the PUD includes several architectural standards which commit to quality building materials and design to minimize adverse visual effects on neighboring properties.

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.

The property is not within a designated current or future 100 year floodplain but is located within the Beaver Creek and White Oak Creek Drainage Basins. Accordingly, the Property is within the Primary Watershed Protection Overlay District as shown on the Town of Apex Watershed Protection Map. This PUD will comply with all built upon area, vegetated conveyances, structural SCMs and riparian stream buffer requirements of UDO Section 6.1.7. The PUD will include a minimum 25% Resource Conservation Area. Further, the PUD contains additional environmental commitments including installation of wetland educational signs, pet waste stations, solar conduit, electric vehicle charging stations, light sensors on exterior lights, and light shields on outdoor lighting.

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.

Public water and sewer facilities are available to the property. The proposed development will meet all Public Facilities requirements in UDO Section 2.3.4(F)(1)(f).

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.

The requested PUD will improve the public health and welfare by facilitating the development of needed senior housing in close proximity to future commercial services. It will also improve welfare by facilitating the development of commercial uses along Jenks Road, a thoroughfare. The PUD will improve traffic flow by providing traffic improvements along Jenks Road and facilitating a future east/west connector street as set forth in the PUD.

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

Uses permitted under the PUD will not be substantially detrimental to adjacent properties. The Congregate Living Facility use is limited to 160 senior housing units and Commercial Uses are only permitted in the Commercial District and limited by design standards contained in the PUD.

PETITION PROCESS INFORMATION

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.

The proposed PUD will not constitute a hazard due to traffic or noise. Traffic impacts will be mitigated by road improvements contained in the PUD. Other potential negative impacts are mitigated by the maximum density and other design guidelines contained in the PUD.

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.

The PUD will be governed by the regulations contained in the attached PUD and Concept Plan. The PUD will comply with all other regulations of the UDO to the extent they do not conflict with the PUD regulations.

DEVELOPMENT NAME APPROVAL APPLICATION

Application #: _____ Submittal Date: _____

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 #: _____ Submittal Date: _____

Proposed Subdivision/Development Information

Description of location: 8200 Jenks Road

Nearest intersecting roads: Jenks Road/Lowell Road

Wake County PIN(s): 0722577336

Township: White Oak

Contact Information (as appropriate)

Contact person: Kevin Woodley; c/o Collier Marsh

Phone number: 919-835-4663 Fax number: N/A

Address: 301 Fayetteville Street, Raleigh, NC 27601

E-mail address: colliermarsh@parkerpoe.com

Owner: R. Michael Strickland, as Trustee of the Charles H Young, Jr. Family Trust

Phone number: _____ Fax number: _____

Address: 138 Wee Loch Drive, Cary, NC 27511

E-mail address: _____

Proposed Subdivision/Development Name

1st Choice: Arden at Summit Pines

2nd Choice *(Optional)*: _____

Town of Apex Staff Approval:

_____ _____

Town of Apex Planning Department Staff 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

8200 Jenks Road

_____

_____

(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.

FC Apex, LLC, 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: FC Apex, LLC	TOWN OF APEX
BY: _____ Authorized Agent	BY: _____ Authorized Agent
DATE: 12/26/21	DATE: _____

AGENT AUTHORIZATION FORM

Application #: _____ Submittal Date: _____

R. Michael Strickland, Trustee of the Family Trust under Item VI of the Will of Charles H. Young, Jr. is the owner* of the property for which the attached application is being submitted.

- ☑ Land Use Amendment
- ☑ Rezoning: For Conditional Zoning and Planned Development rezoning applications, this authorization includes express consent to zoning conditions that are agreed to by the Agent which will apply if the application is approved.
- ☐ Site Plan
- ☐ Subdivision
- ☐ Variance
- ☑ Other: Annexation Petition

The property address is: 8200 Jenks Road, Apex, NC 27523

The agent for this project is: Kevin Woodley

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

Agent Name: Kevin Woodley

Address: 7315 Wisconsin Avenue, Suite 925W, Bethesda, Maryland 20814

Telephone Number: 301-654-8802

E-Mail Address: kwoodley@buvermo.com

Signature(s) of Owner(s)*

R. Michael Strickland, Trustee of the Family Trust under Item VI of the Will of Charles H. Young, Jr.

R Michael Strickland Trustee

R. Michael Strickland, Trustee — 12/21/21 Date

Martha Heafner

Martha Heafner — 12-27-21 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.

Pursuant to Article 40 of Chapter 66 of the North Carolina General Statutes (the Uniform Electronic Transactions Act) this application and all documents related hereto containing an electronic or digitized signature are legally binding in the same manner as are hard copy documents executed by hand signature. The parties hereby consent to use electronic or digitized signatures in accordance with the Town's Electronic Signature Policy and intend to be bound by the application and any related documents. If electronic signatures are used the application shall be delivered in an electronic record capable of retention by the recipient at the time of receipt.

AFFIDAVIT OF OWNERSHIP

Application #: _____ Submittal Date: _____

The undersigned, Kevin Woodley (the "Affiant") first being duly sworn, hereby swears or affirms as follows:

1. Affiant is over eighteen (18) years of age and authorized to make this Affidavit. The Affiant is the authorized agent of all owners of the property located at 8200 Jenks Road and legally described in **Exhibit "A"** attached hereto and incorporated herein (the "Property").
2. This Affidavit of Ownership is made for the purpose of filing an application for development approval with the Town of Apex.
3. If Affiant is the authorized agent of the owner(s) of the Property, Affiant possesses documentation indicating the agency relationship granting the Affiant the authority to apply for development approval on behalf of the owner(s).
4. To Affiant's knowledge, no claim or action has been brought against against the owners of the property which questions title or right to possession of the property, nor is any claim or action pending against Affiant or owner(s) in court regarding possession of the Property.
5. This the 29 day of December, 2021.

By: _____
Kevin Woodley

STATE OF ~~NORTH CAROLINA~~ Virginia
COUNTY OF Fairfax

I, the undersigned, a Notary Public in and for the County of Fairfax, hereby certify that Kevin Woodley, Affiant, personally known to me or known to me by said Affiant's presentation of said Affiant's Kevin Woodley, personally appeared before me this day and acknowledged the due and voluntary execution of the foregoing Affidavit.

JOSHUA MITCHELL HAMES
NOTARY PUBLIC
REGISTRATION #7833042
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES AUGUST 31, 2023

[NOTARY SEAL]

_____
Notary Public
State of ~~North Carolina~~ Virginia
My Commission Expires: 08/31/2023

EXHIBIT A
To
Affidavit of Ownership
8200 Jenks Road
Legal Description

BEGINNING AT AN IRON ROD ON THE NORTH RIGHT OF WAY OF JENKS ROAD (NCSR 1601) WAKE COUNTY, NC APPROXIMATELY 721 FEET NORTH OF THE INTERSECTION OF JENKS ROAD AND U.S. HIGHWAY 64 AND HAVING A NC STATE PLANE NAD 83 (NSRS 2011) COORDINATE VALUE OF N: 726,615.24 E: 2,025,311. 55 AND BEING THE POINT OF BEGINNING. THENCE FROM THE POINT OF BEGINNING N 00° 37' 29" E 432.30' TO AN IRON ROD SET. THENCE N 01° 57' 10" E 668.64' TO AN IRON BAR FOUND AT THE NORTHWEST CORNER OF THE PARCEL. THENCE S 88° 55' 43" E 682.49' TO AN IRON BAR FOUND AT THE NORTHEAST CORNER OF THE PARCEL. THENCE S 00° 21' 58" W 380.02' TO AN IRON PIN FOUND ON THE NORTH RIGHT OF WAY OF JENKS ROAD. THENCE ALONG THE NORTH RIGHT OF WAY OF JENKS ROAD THE FOLLOWING COURSES:

S 44° 34' 19" W105.01' TO AN IRON ROD SET

S 45° 15' 51" W 376.98' TO AN IRON ROD SET

S 45° 13' 33" W 395.43' TO AN IRON ROD SET

S 44° 33' 52" W 63.09' TO AN IRON ROD SET

S 42° 51' 20" W 60.24' TO AN IRON ROD SET BEING THE POINT OF BEGINNING. PARCEL CONTAINS 511,581 SF OR 11.744 ACRES.

WAKE COUNTY PUBLIC SCHOOL SYSTEM

Wake County Residential Development Notification

Please complete each section of this form and submit with your application.

Town of Apex staff will enter this information into the online WCPSS form.

Please send any questions about this form to:

studentassignment-gis-group@wcpss.net

Developer Company *Information*	
Company *Name*	FC Apex, LLC
Company Phone *Number*	301-654-8802
Developer Representative *Name*	Kevin Woodley
Developer Representative *Phone Number*	301-654-8802
Developer Representative *Email*	kwoodley@buvermo.com

New Residential Subdivision *Information*	
Date of Application for Subdivision	TBD
City, Town or Wake County Jurisdiction	Town of Apex
Name of Subdivision	Arden at Summit Pines
Address of Subdivision (if unknown enter nearest cross streets)	8200 Jenks Road
REID(s)	0035451
PIN(s)	0722577336

Projected Dates *Information*	
Subdivision *Completion Date*	2023
Subdivision *Projected First Occupancy Date*	2024

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																	
Townhomes																	
Condos																	
Apartments	159	**159**						TBD	TBD	TBD	TBD	2024	159				
Other																	

Revised 08/10/2018

NOTICE OF ELECTRONIC 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.

November 12, 2021
Date

Dear Neighbor:
You are invited to an electronic neighborhood meeting to review and discuss the development proposal at

8200 Jenks Road, Apex, NC 27523 — Address(es)
0722577336 — PIN(s)

in accordance with the Town of Apex Electronic Neighborhood Meeting procedures. This meeting is intended to be 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. If you are unable to attend, you may contact the applicant before or after the meeting is held. 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. If at all feasible given emergency declarations, limits on in-person gatherings, and social distancing, an additional in-person Neighborhood Meeting may be scheduled and held prior to a public hearing or staff decision on the application.

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

	Application Type	Approving Authority
◉	Rezoning (including Planned Unit Development)	Town Council
○	Major Site Plan	Town Council (QJPH*)
○	Special Use Permit	Town Council (QJPH*)
○	Residential Master Subdivision Plan (excludes exempt subdivisions)	Technical Review Committee (staff)

*Quasi-Judicial Public Hearing: The Town Council cannot discuss the project prior to the public hearing.

The following is a description of the proposal (also see attached map(s) and/or plan sheet(s)):
The applicant proposed to rezone the property to Planned Unit Development - Conditional Zoning that will include a combination of senior living and commercial uses. Additional information will be provided at the meeting.

Estimated submittal date: December 1, 2021

MEETING INFORMATION:

Property Owner(s) name(s):	Michael R. Strickland, as Trustee of the Charles H Young, Jr. Family Trust
Applicant(s):	FC Apex, LLC c/o Collier Marsh
Contact information (email/phone):	colliermarsh@parkerpoe.com; (919) 835-4663
Electronic Meeting invitation/call in info:	See accompanying letter with Zoom instructions
Date of meeting**:	November 17, 2021
Time of meeting**:	6:00 PM - 8:00 PM

MEETING AGENDA TIMES:
Welcome: 6:00 PM Project Presentation: between 6:00 - 8:00 PM Question & Answer: between 6:00 - 8:00 PM

**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.

November 12, 2021

Re: Notice of Virtual Neighborhood Meeting

Neighboring Property Owners:

You are invited to attend a neighborhood meeting on November 29, 2021 from 6–8pm. The purpose of the meeting is to discuss an upcoming application to rezone a parcel of land located at 8200 Jenks Road, Apex, NC 27523 (PIN 0722577336) (the "Property"). The Property is currently zoned Rural Residential (RR) and is proposed to be rezoned to Planned Unit Development-Conditional Zoning (PUD-CZ).

The applicant is proposing a rezoning to Planned Unit Development Conditional Zoning and proposes a combination of senior living and commercial uses. During the meeting, the applicant will describe the nature of this rezoning request and field any questions from the public. Enclosed are: (1) a vicinity map outlining the location of the subject parcel; (2) a zoning map of the subject area; (3) a preliminary concept plan of the Planned Unit Development; (4) a project contact information sheet; and (5) a common construction issues & who to call information sheet.

The meeting will be held virtually. You can participate online via Zoom or by telephone. To participate in the Zoom online meeting:

Visit:	https://zoom.us./join
Enter the following meeting ID:	823 5712 5752
Enter the following password:	512847

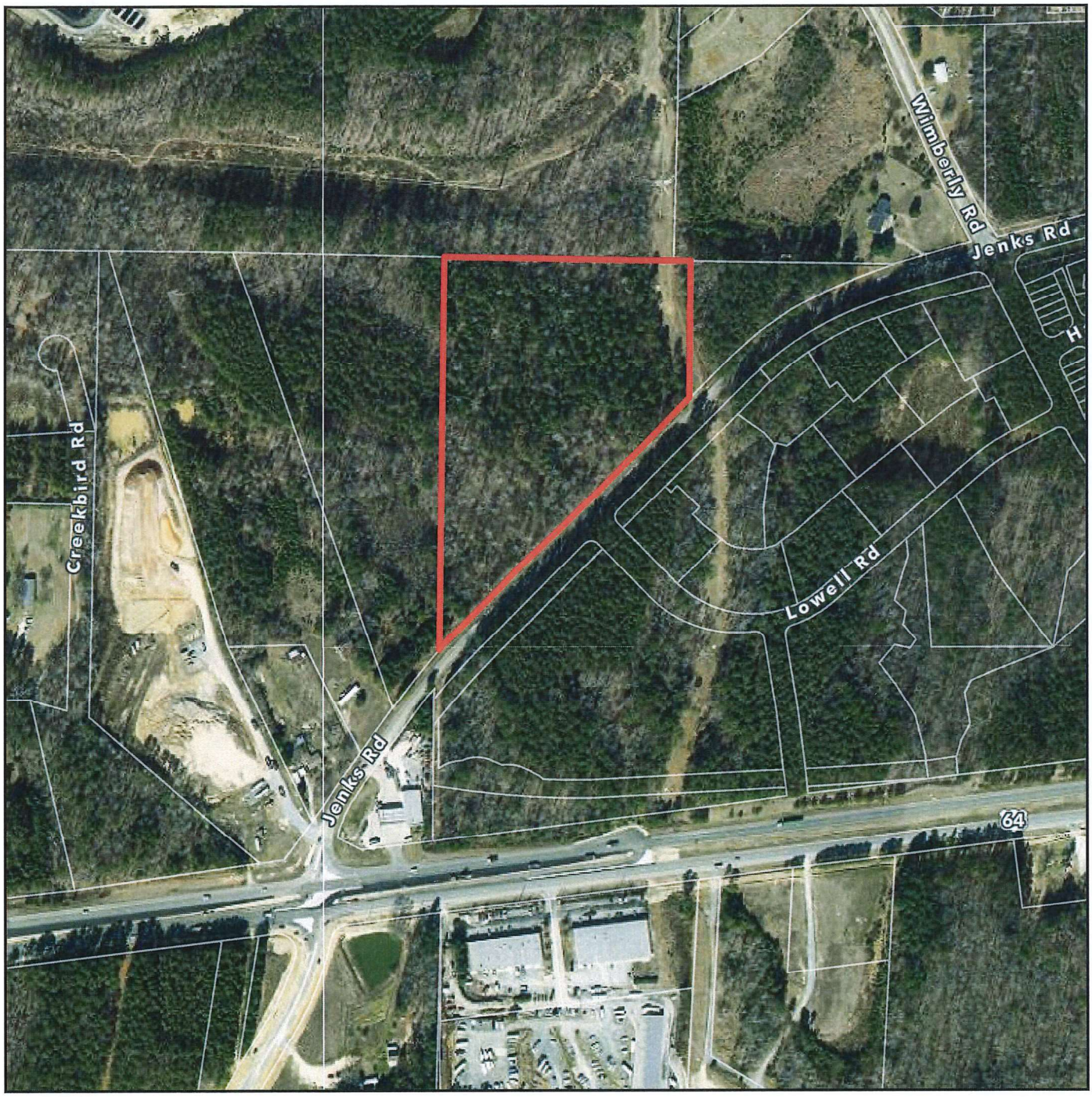
To participate by telephone:

Dial:	1 929 205 6099
Enter the following meeting ID:	823 5712 5752 #
Enter the Participant ID:	#
Enter the Meeting password:	512847 #

If you have any questions about this rezoning, please contact me at (919) 835-4663 or via email at colliermarsh@parkerpoe.com.

Thank you,

Collier Marsh



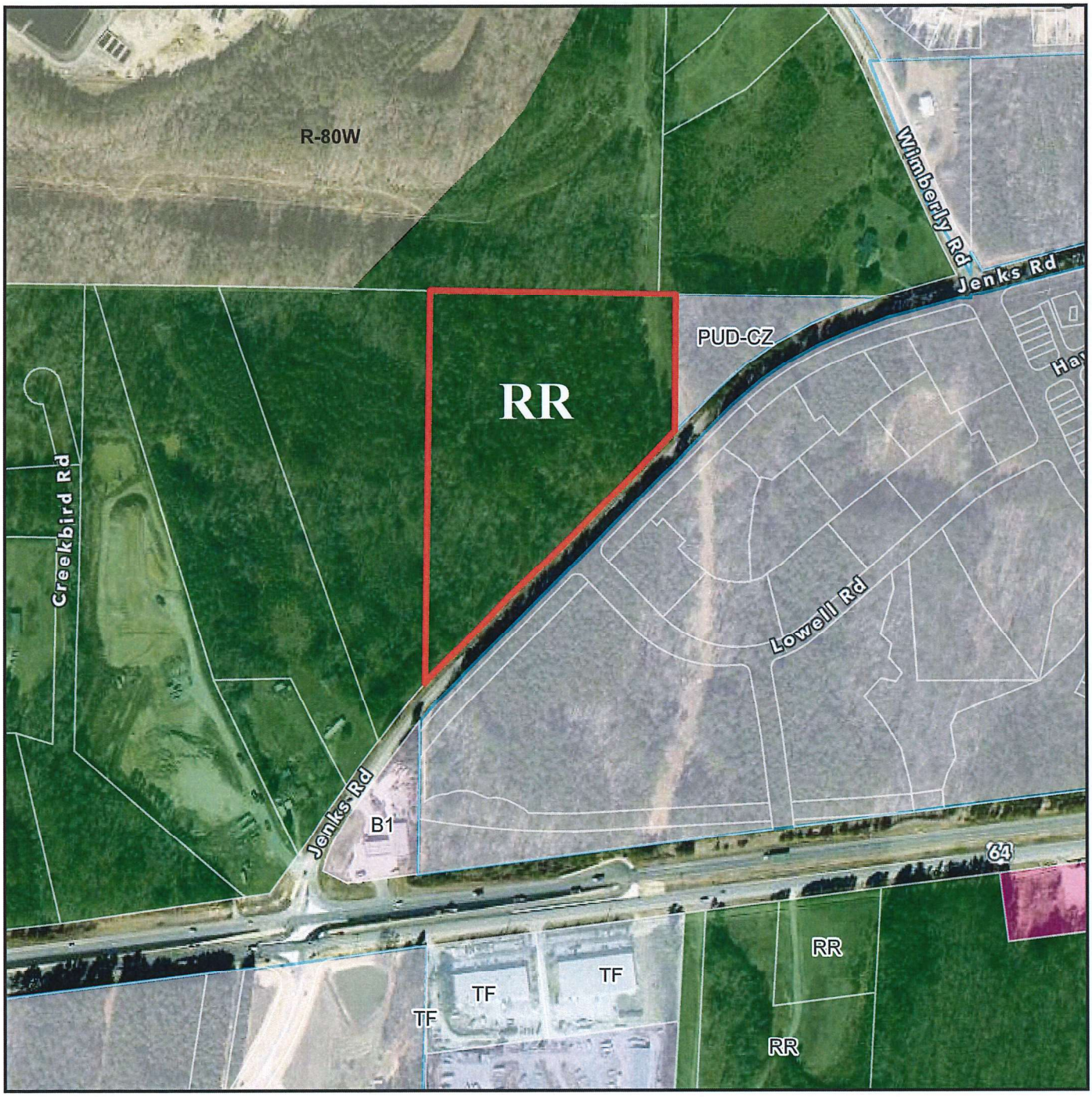
8200 Jenks Road

Vicinity Map

N

0 200 400 800 ft

1 inch equals 400 feet



8200 Jenks Road

Zoning Map

Current Zoning: RR

N

0 200 400 800 ft

1 inch equals 400 feet

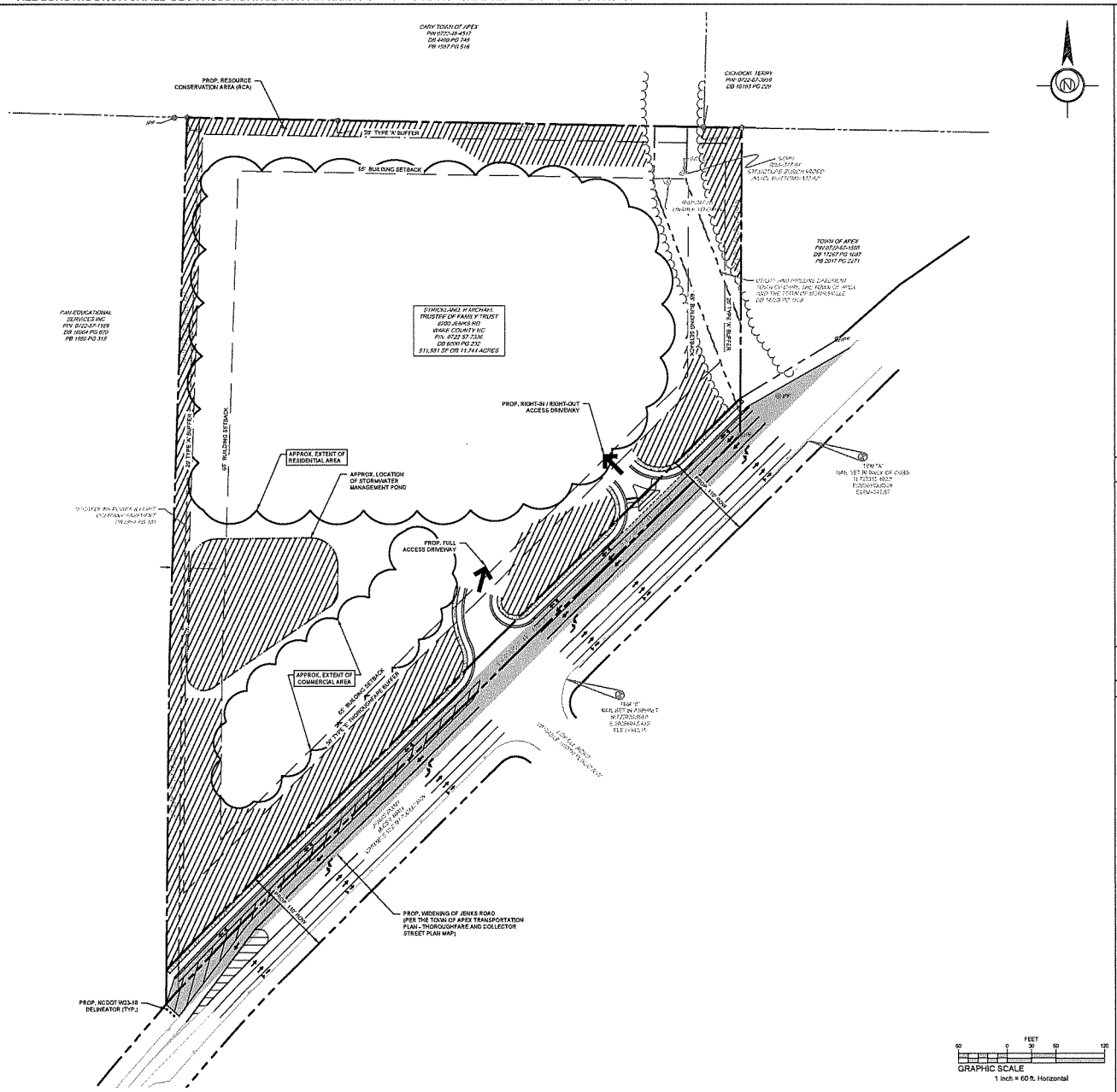
Disclaimer

*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.*

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT TOWN OF APEX STANDARDS AND SPECIFICATIONS

NOTES:

1. REFER TO THE PUD DOCUMENT (SECTION 4.0) FOR A COMPLETE LIST OF ALLOWABLE USES FOR EACH TRACT OR DEVELOPMENT AREA..
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 OFFICE. SUCH AREAS MAY INCLUDE BUT ARE NOT LIMITED TO COMMON PROPERTY LINES OR NEAR PUBLIC AREAS (SIDEWALKS ETC.) 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. ALL REQUIRED SITE ELEMENTS SHOWN WITHIN A PARTICULAR PHASE MUST BE INSTALLED BEFORE A FINAL CERTIFICATE OF OCCUPANCY MAY BE ISSUED FOR ANY BUILDINGS WITHIN THAT PHASE.
3. NO SIGNS ARE APPROVED AS PART OF PUD-CZ PLAN APPROVAL. A SEPARATE SIGN PERMIT MUST BE OBTAINED. MULTIPLE USE LOTS, NON-RESIDENTIAL SUBDIVISIONS, AND MULTIPLE TENANT LOTS MUST SUBMIT A MASTER SIGN PLAN FOR APPROVAL.
4. THE BALANCE OF THE REQUIRED RCA NEEDED TO ACHIEVE THE 25% TOTAL FOR THE DEVELOPMENT WILL OCCUR WITHIN THE SUBSEQUENT TRACTS IN CONJUNCTION WITH THE RESPECTIVE SUBDIVISION APPLICATIONS.
5. THE FINAL WIDTH OF THE BUFFERS SHALL MEET THE TOWN OF APEX DEVELOPMENT STANDARDS (SEC. 8.2.6 OF THE UDO).
6. PROVIDE 5' MINIMUM PEDESTRIAN CONNECTION BETWEEN THE INTERNAL PUD PEDESTRIAN NETWORK.
7. PLAN SHEETS ARE INTENDED FOR ILLUSTRATIVE USE ONLY.



LEGEND

- DELINEATES PROP. RESOURCE CONSERVATION AREA
- DELINEATES PROP. FULL DEPTH ASPHALT
- DELINEATES MILL AND OVERLAY
- PROP. SITE ACCESS
- DELINEATES APPROX. LIMITS OF STORMWATER MANAGEMENT POND

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

ESE CONSULTANTS
ENGINEERING · PLANNING · SURVEYING · ENVIRONMENTAL
ESE of North Carolina, PC
5400 Trinity Road, Suite 204
Raleigh, NC 27607
T: 919-221-6800
License # C-2973

REV	DATE	DESCRIPTION	DRAWN

PRELIMINARY SITE PLAN

ARDEN AT APEX
PLANNED UNIT DEVELOPMENT
TOWN OF APEX, WAKE COUNTY, NORTH CAROLINA

DATE: 10/29/2021	SCALE: 1" = 60'
DESIGN: JJS	DRAWN: KNB
JOB NO.: 21264	FILE NAME: BUVERMO
SHEET NO.: CS1001	

NOT FOR CONSTRUCTION

PROJECT CONTACT INFORMATION

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.

Development Contacts:

Project Name: Arden at Apex Zoning: Rural Residential (RR)

Location: 8200 Jenks Road, Apex, NC 27523

Property PIN(s): 0722577336 Acreage/Square Feet: 11.83 acres

Property Owner: Michael R. Strickland, Trustee of Martha Young Heafner Family Trust

Address: 138 Wee Loch Drive

City: Cary State: NC Zip: 27511-3885

Phone: _____ Email: _____

Developer: FC Apex LLC c/o Collier Marsh

Address: 301 Fayetteville Street, Suite 1400

City: Raleigh State: NC Zip: 27601

Phone: 919-835-4663 Fax: 919-834-4564 Email: colliermarsh@parkerpoe.com

Engineer: ESE of North Carolina, PC

Address: 900 Perimeter Park Drive, Suite B3

City: Morrisville State: NC Zip: 27560

Phone: 919-417-3051 Fax: _____ Email: jbrown3@eseconsultants.com

Builder (if known): _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ Email: _____

Please note that Town staff will not have complete information about a proposed development until the application is submitted for review. If you have a question about Town development standards and how they relate to the proposed development, please contact the appropriate staff person listed below.

Town of Apex Department Contacts

Planning Department Main Number (Provide development name or location to be routed to correct planner)	(919) 249-3426
Parks, Recreation & Cultural Resources Department Angela Reincke, Parks Planner	(919) 249-7468
Public Works - Transportation Russell Dalton, Senior Transportation Engineer	(919) 249-3358
Water Resources Department Jessica Bolin, Senior Engineer (Stormwater, Sedimentation & Erosion Control) Stan Fortier, Senior Engineer (Stormwater, Sedimentation & Erosion Control) James Gregg, Utility Engineer (Water & Sewer)	 (919) 249-3537 (919) 249-1166 (919) 249-3324
Electric Utilities Division Rodney Smith, Electric Technical Services Manager	(919) 249-3342

ELECTRONIC NEIGHBORHOOD MEETING ATTENDANCE 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 Format: Remote via Zoom

Date of meeting: November 29, 2021 Time of meeting: 6:00 PM - 8:00 PM

Property Owner(s) name(s): R. Michael Strickland, Trustee

Applicant(s): Kevin Woodley

Please list Electronic Neighborhood Meeting Attendees who provided their name and/or contact information either during the meeting or via phone/email before or after the meeting.

	NAME/ORGANIZATION	ADDRESS	PHONE #	EMAIL	SEND PLANS & UPDATES
1.	Collier Marsh, Parker Poe	301 Fayetteville Street, Raleigh, NC 27601		colliermarsh@parkerpoe.com	
2.	Matthew Carpenter, Parker Poe	301 Fayetteville Street, Raleigh, NC 27601		matthewcarpenter@parkerpoe.com	
3.	Kevin Woodley, FC Apex, LLC	7315 Wisconsin Avenue, Suite 925W, Bethesda, Maryland 20814		kwoodley@buvermo.com	
4.	Justin Brown, ESE	5400 Trinity Road, Suite 204 Raleigh, NC 27607		jbrown3@eseconsultants.com	
5.	Paul Stephenson (Neighbor)	110 Mackenan Drive, Cary, NC 27511	not provided	not provided	n/a
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					

Use additional sheets, if necessary.

SUMMARY OF DISCUSSION FROM THE ELECTRONIC 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): R. Michael Strickland Trustee

Applicant(s): Kevin Woodley

Contact information (email/phone): _____

Meeting Format: Remote via Zoom

Date of meeting: November 29, 2021 Time of meeting: 6:00 PM - 8:00 PM

Please summarize the questions/comments and your response from the Electronic 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 is planned for the development?

Applicant's Response:
Approximately 159 senior housing units on the residential portion and general commercial uses on the commercial portion fronting on Jenks Road.

Question/Concern #2:
N/A

Applicant's Response:
N/A

Question/Concern #3:
N/A

Applicant's Response:
N/A

Question/Concern #4:
N/A

Applicant's Response:
N/A

AFFIDAVIT OF CONDUCTING AN ELECTRONIC NEIGHBORHOOD MEETING 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, Collier Marsh, do hereby declare as follows:
Print Name

1. I have conducted an Electronic Neighborhood Meeting for the proposed Rezoning, Major Site Plan, Residential 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 Electronic Neighborhood Meeting.

3. The meeting was conducted via Remote via Zoom (indicate format of meeting) on November 29, 2021 (date) from 6:00 PM (start time) to 8:00 PM (end time).

4. I have included the mailing list, meeting invitation, attendance 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.

12/28/21
Date

By: _____
Collier Marsh

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Matthew J. Carpenter, a Notary Public for the above State and County, on this the 28th day of December, 20 21.

SEAL

_____
Notary Public

Matthew J. Carpenter
Print Name

My Commission Expires: 2/7/2024

MATTHEW JOEL CARPENTER
Notary Public
Wake
County
NORTH CAROLINA

Notice List for Neighborhood Meeting

SITE ADDRESS	PIN_NUM	OWNER	MAILING ADDRESS		
15000 FLETCHERSTONE WAY	0722676531	BB MF VILLAGE WEST OWNER LLC	REVANTAGE TAX	PO BOX A3878	CHICAGO IL 60690-3878
1400 WIMBERLY RD	0722484517	CARY TOWN OF APEX TOWN OF	PO BOX 8005	CARY NC 27512-8005	
8108 JENKS RD	0722673959	CICHOCKI, TERRY	8108 JENKS RD	APEX NC 27523-9423	
8321 JENKS RD	0722562228	COC REAL ESTATE CO LLC	110 MACKENAN DR STE 300	CARY NC 27511-7901	
8300 JENKS RD	0722571169	PAN-EDUCATIONAL SERVICES INC	1220 GOODWIN RD	APEX NC 27523-6778	
8200 JENKS RD	0722577335	STRICKLAND, R MICHAEL TRUSTEE OF FAMILY TRUST (WILL OF C H YOUNG JR)	MARTHA YOUNG HEAFNER	138 WEE LOCH DR	CARY NC 27511-3885
8170 JENKS RD	0722671588	TOWN OF APEX	PO BOX 250	APEX NC 27502-0250	
3300 US 64 HWY W	0722660502	WESTFORD COMMERCIAL WEH LP	2900 LINDEN LN STE 300	SILVER SPRING MD 20910-1265	
8308 JENKS RD	0722477065	WHITFIELD, DORIS JENKS	3633 BACHELOR CREEK RD	ASHEBORO NC 27205-2141	
		Current Tenant	13101 Fletcherstone WAY	APEX NC 27523	
		Current Tenant	13102 Fletcherstone WAY	APEX NC 27523	
		Current Tenant	13103 Fletcherstone WAY	APEX NC 27523	
		Current Tenant	13104 Fletcherstone WAY	APEX NC 27523	
		Current Tenant	13105 Fletcherstone WAY	APEX NC 27523	
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Current Tenant	11307 Haybeck LN	APEX NC 27523
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Current Tenant	6308 Jenks RD	APEX NC 27523

EXHIBIT A
Concept Plan

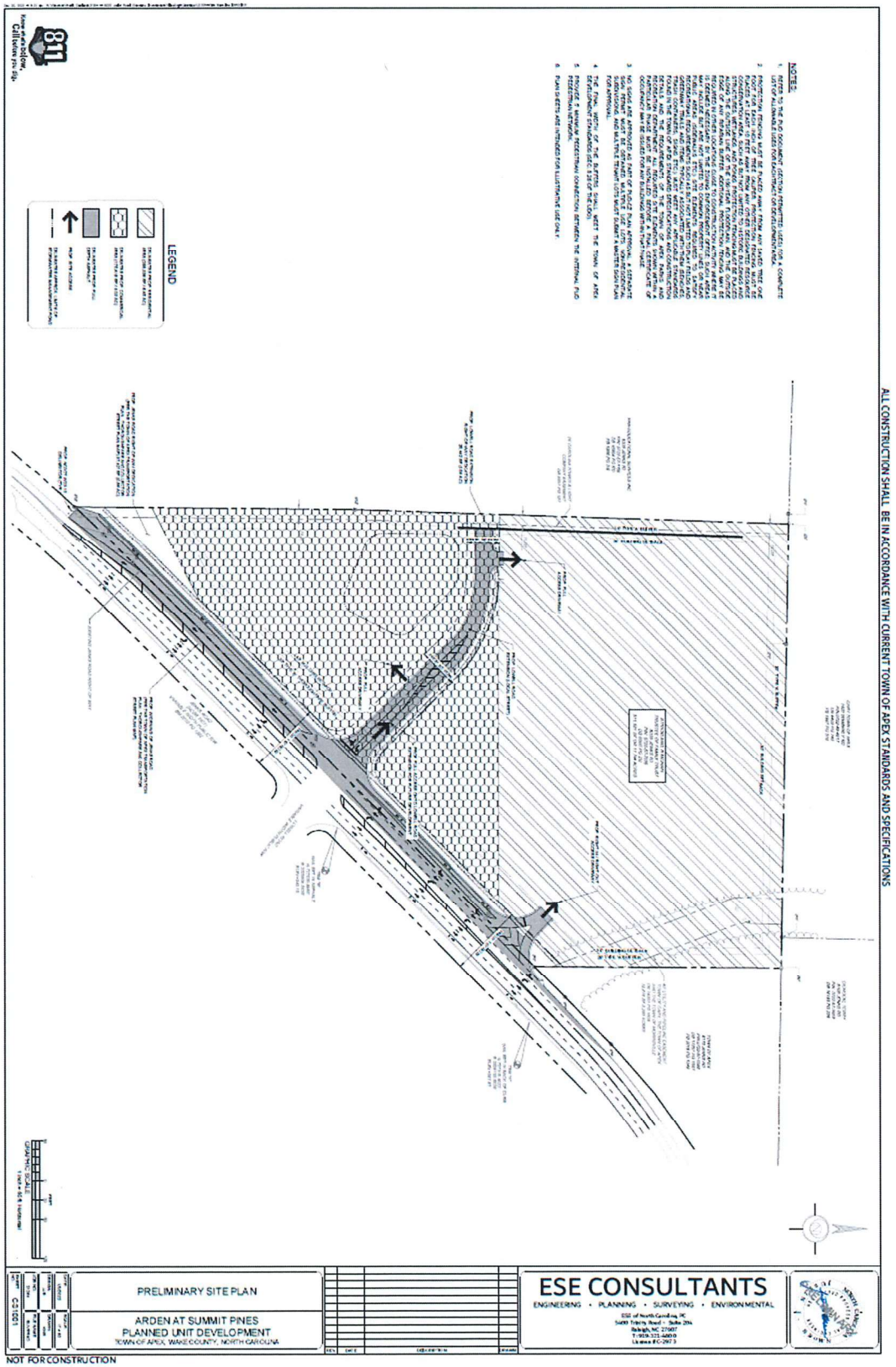

EXHIBIT B
Legal Description
The Property

BEGINNING AT AN IRON ROD ON THE NORTH RIGHT OF WAY OF JENKS ROAD (NCSR 1601) WAKE COUNTY, NC APPROXIMATELY 721 FEET NORTH OF THE INTERSECTION OF JENKS ROAD AND U.S. HIGHWAY 64 AND HAVING A NC STATE PLANE NAD 83 (NSRS 2011) COORDINATE VALUE OF N: 726,615.24 E: 2,025,311. 55 AND BEING THE POINT OF BEGINNING. THENCE FROM THE POINT OF BEGINNING N 00° 37' 29" E 432.30' TO AN IRON ROD SET. THENCE N 01° 57' 10" E 668.64' TO AN IRON BAR FOUND AT THE NORTHWEST CORNER OF THE PARCEL. THENCE S 88° 55' 43" E 682.49' TO AN IRON BAR FOUND AT THE NORTHEAST CORNER OF THE PARCEL. THENCE S 00° 21' 58" W 380.02' TO AN IRON PIN FOUND ON THE NORTH RIGHT OF WAY OF JENKS ROAD. THENCE ALONG THE NORTH RIGHT OF WAY OF JENKS ROAD THE FOLLOWING COURSES:

S 44° 34' 19" W105.01' TO AN IRON ROD SET

S 45° 15' 51" W 376.98' TO AN IRON ROD SET

S 45° 13' 33" W 395.43' TO AN IRON ROD SET

S 44° 33' 52" W 63.09' TO AN IRON ROD SET

S 42° 51' 20" W 60.24' TO AN IRON ROD SET BEING THE POINT OF BEGINNING. PARCEL CONTAINS 511,581 SF OR 11.744 ACRES.

PAYMENT DATE
01/05/2022

COLLECTION STATION
Paralee Smith

RECEIVED FROM
ARQC

TOWN OF APEX
P O BOX 250
APEX, NC 27502
(919) 362-8676 - Utility Payments
(919) 249-3418 - Permits Only
(919) 249-3426 - Planning & Zoning Only

BATCH NO.
2022-00002095

RECEIPT NO.
2022-00127433

CASHIER
Paralee Smith

DESCRIPTION
Annexation Summit at Arden Pines - 2022-00000002 & Rezoning #22CZ01 Arden at Summit Pines PUD - 2022-00000002 Credit card

PAYMENT CODE	RECEIPT DESCRIPTION	TRANSACTION AMOUNT
PPC	PROJECT PLANNING CENTER FEES Annexation Summit at Arden Pines - 2022-00000002	$200.00
PPC	PROJECT PLANNING CENTER FEES Rezoning #22CZ01 Arden at Summit Pines PUD - 2022-00000002	$1,720.00

Payments:

Type	Detail	Amount
Other		$1,920.00

Total Amount: **$1,920.00**

Customer Copy

ARDEN AT SUMMIT PINES

Planned Unit Development

Apex, North Carolina

Submittal Dates

First Submittal:	January 3, 2022
Second Submittal:	February 11, 2022
Third Submittal:	March 11, 2022
Fourth Submittal:	April 8, 2022
Fifth Submittal:	April 27, 2022

Developer

FC Apex, LLC
7315 Wisconsin Avenue, Suite 925 W
Bethesda, MD 20814

Civil Engineer

ESE of North Carolina, PC
5400 Trinity Road, Suite 204
Raleigh, NC 27607

Land Use Attorneys

Parker Poe Adams & Bernstein LLP
301 Fayetteville Street, Suite 1400
Raleigh, NC 27602

ESE CONSULTANTS
ENGINEERING · PLANNING · SURVEYING · ENVIRONMENTAL

Parker Poe

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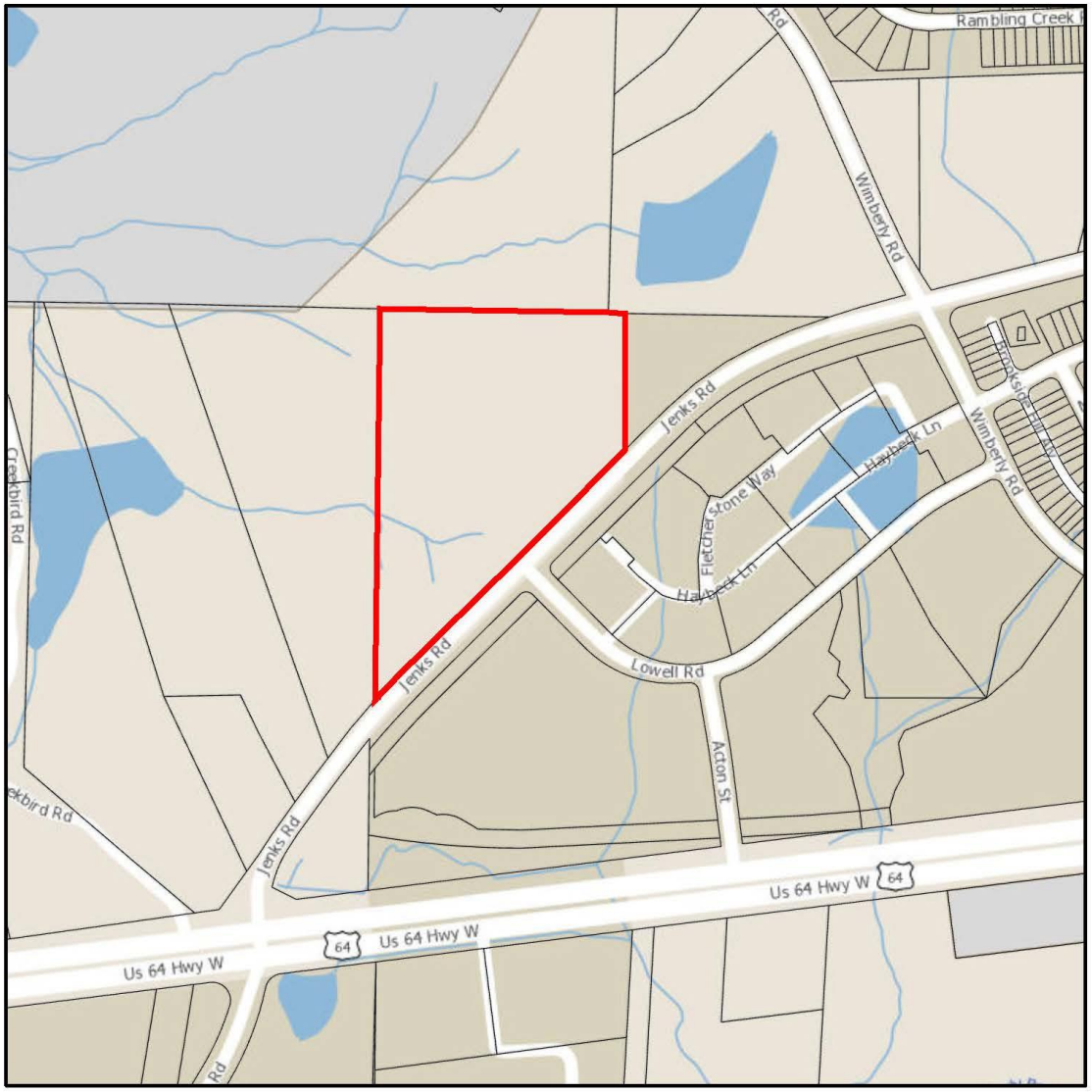
VICINITY MAP



N

0 215 430 860 ft

1 inch = 400 feet

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.*

PROJECT DATA

Name of Project:	Arden at Summit Pines
Property Owner:	R. Michael Strickland, Trustee of the Family Trust under Item VI of the Will of Charles H. Young, Jr. 138 Wee Loch Drive Cary, NC 27511
Developer:	FC Apex, LLC 7315 Wisconsin Avenue, Suite 925 W Bethesda, MD 20814
Prepared by:	Parker Poe Adams & Bernstein LLP 301 Fayetteville Street, Suite 1400 Raleigh, NC 27601 ESE of North Carolina, PC 5400 Trinity Road, Suite 204 Raleigh, NC 27607
Current Zoning:	Rural Residential (RR)
Proposed Zoning:	Planned Unit Development-Conditional Zoning (PUD-CZ)
Current 2045 Land Use Map Designation:	Office Employment/Commercial Services
Proposed 2045 Land Use Map Designation	Office Employment/Commercial Services/ High Density Residential
Site Address:	8200 Jenks Road, Apex, NC 27523
Property Identification Number:	0722577336
Total Acreage:	11.744 acres
Area Designated as Mixed Use on 2045 LUM:	None
Area Proposed as Non-Residential:	30% or greater

PURPOSE STATEMENT

This document and the accompanying exhibits submitted herewith (collectively, the "PUD") are provided pursuant to the Town of Apex Unified Development Ordinance ("UDO") Planned Unit Development provisions. The PUD addresses the development of a 11.74 acre site fronting on Jenks Road, less than one quarter mile from the intersection of Jenks Road and US 64 W (the "Property"). The Property is undeveloped and within the Town's Extraterritorial Planning jurisdiction. Arden at Summit Pines will be a mixed use development with two districts: the Residential District and the Commercial District.

Arden at Summit Pines' Residential District will be an active adult, age-restricted community with congregate-care style living, controlled access, interior corridors and elevators, walking paths, fitness centers, and natural areas (the "Development"). Arden at Summit Pines will offer residents the opportunity to live independently in a community designed to fit the resident's needs. Arden at Summit Pines will offer amenities such as a community dining room, craft/business center, library, and other amenities catered towards an active senior demographic. To ensure affordability to middle market senior residents, Arden at Summit Pines will provide some services through third party partnerships including access to care and personal services such as dining, housekeeping, transportation, home and grounds maintenance, and security. Arden at Summit Pines also ensures affordability through commitments to provide Affordable Housing units within the community. The PUD is intended to create flexibility in design and land uses to deliver a high quality senior living community to meet the burgeoning demand for senior housing. The Residential District shall be limited to a maximum of 160 residential dwelling units.

Arden at Summit Pines' Commercial District proposes office, retail sales, and retail services in a prominent location along the site's Jenks Road frontage. This proposed commercial district ensures mixed uses within the development and fulfills the Apex Comprehensive Plan's ("Peak Plan") goal of placing commercial services on thoroughfares and near residential communities. The Commercial District will be a minimum of 30% of the site as shown on the Concept Plan.

CONSISTENCY WITH PLANNED UNIT DEVELOPMENT STANDARDS

(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

RESPONSE: The uses permitted within The Arden PUD are uses listed in UDO Section 4.2.2. Permitted uses within each District are set forth in Section 5 of the PUD.

(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.

RESPONSE: The PUD is separated into two districts – the Residential District and the Commercial District. Maximum densities for each district are established by the PUD. The Development will include a minimum of 30% of the site as non-residential area as shown on the Concept Plan.

(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.

RESPONSE: This PUD specifies intensity and dimensional standards for the Residential District and Commercial District. The PUD's standards are consistent with the UDO's vision for Planned Unit Developments. Except as specifically stated in this PUD, Arden at Summit Pines will comply with all other requirements of the UDO and will comply with all applicable requirements of the North Carolina Building Code and the 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 Advance Apex: The 2045 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 Advance Apex: The 2045 Transportation Plan. In addition, sidewalks shall be provided on both sides of all streets for single-family detached homes.

RESPONSE: As shown on the attached Concept Plan, Arden at Summit Pines will feature sidewalks and pedestrian paths throughout. Sidewalks will connect the Residential District to the Commercial District, increasing walkability between uses. The PUD also commits to significant Right of Way dedication and roadway improvements called for by the Transportation Plan.

(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.

RESPONSE: As shown in the Concept Plan, Arden at Summit Pines will feature sidewalks and pedestrian paths throughout. Sidewalks will connect the Residential District to the Commercial District, increasing walkability between uses. Arden at Summit Pines will not include cul-de-sacs.

(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.

Arden at Summit Pines is compatible with the character of the existing and planned uses in the surrounding area. This area of the Town's ETJ is at the intersection between growing sections of northwest Apex and historically rural, western Wake County. Although adjacent properties to the north and west are currently undeveloped, the Property is directly across the street from the Westford PUD. The Villages at Westford Apartments are directly across Jenks Road to the southeast. The Villages at Westford Apartments are a 296 unit apartment complex, with a clubhouse and pool, that were constructed in 2019 as part of the Westford PUD. Further South across Jenks Road is an undeveloped portion of the Westford PUD referred to as area A1. Under the Westford PUD, Area A1 could be developed for a variety of residential or commercial uses including Multi-Family, Single Family, Restaurant, Office, Convenience Store with Gas Sales, and Grocery Store.

Arden at Summit Pines will be compatible with the existing Westford Apartments and future development of the Westford PUD because it will provide complimentary uses to the existing and proposed uses of the Westford PUD. Arden at Summit Pines' age restricted Residential District will provide a greater variety of housing options and Arden at Summit Pines' Commercial District offers a greater mix of nonresidential uses that will serve and support residential development in the area. Design standards are also proposed to respect the existing character of the surrounding area.

(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.

Arden at Summit Pines will feature high quality and thoughtful design. Architectural standards, design controls, and conceptual elevations are included in this PUD.

CONSISTENCY WITH CONDITIONAL ZONING STANDARDS

Arden at Summit Pines is consistent with the conditional zoning standards set forth in UDO Section 2.3.3.F.1-10. Please see the accompanying PUD-CZ Application for the statements of consistency addressing each standard.

PERMITTED 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.

COMMERCIAL DISTRICT

The following uses shall be permitted in the Commercial District:

Restaurant, drive through	Permitted
Restaurant, general	Permitted
Medical or dental office or clinic	Permitted
Medical or dental laboratory	Permitted
Office, business or professional	Permitted
Publishing office	Permitted
Research facility	Permitted
Hotel or Motel	Permitted
Artisan Studio	Permitted
Barber and beauty shop	Permitted
Book store	Permitted
Convenience store	Permitted
Convenience store with gas sales	Permitted
Dry cleaners and laundry service	Permitted
Farmer's market	Permitted
Financial institution	Permitted
Floral shop	Permitted
Gas and fuel, retail	Permitted
Glass sales	Permitted
Greenhouse or nursery, retail	Permitted
Grocery, general	Permitted
Grocery, specialty	Permitted
Health/fitness center or spa	Permitted
Kennel	Permitted
Newsstand or gift shop	Permitted
Personal service	Permitted
Pharmacy	Permitted
Printing and copying service	Permitted

Real estate sales	Permitted
Repair services, limited	Permitted
Retail sales, general	Permitted
Studio for art	Permitted
Tailor shop	Permitted
Upholstery shop	Permitted
Pet services	Permitted
Day care facility	Permitted
Veterinary Clinic or Hospital	Permitted
Utility, minor	Permitted

RESIDENTIAL DISTRICT

The following uses shall be permitted in the Residential District:

Residential*	
Congregate Living Facility**	Permitted
Multi-family or Apartment (age-restricted)	Permitted
Utility, minor	Permitted
Recreational Uses	
Park, active	Permitted
Greenway	Permitted
Park, passive	Permitted
Recreation facility, private	Permitted

*All residential uses in the Residential District shall be age-restricted as follows: 100% of all occupied units shall have as a resident at least one person age 55 or older.

**Congregate Living Facility as defined in UDO Section 4.3.1.C shall be modified as follows: A residential land use consisting of any building or section thereof, residence, private home, boarding home, or home for the aged, whether or not operated for profit, which provides one or more of the following amenities or services for persons not related to the owner or administrator by blood or marriage: food service, trash service, local transportation services, community library, programmed activities, salon services, and other personal services. The term shall not mean “nursing home,” “intermediate care facility,” or similar facility that provides medical care and support services to persons not capable of independent living.

AFFORDABLE HOUSING

A minimum of six (6) of the residential units (either Congregate Living Facility units as modified herein, or age-restricted (55 yrs. and older) multifamily/apartment units) constructed within the Development shall be designated as low-income restricted units (the "Affordable Units"). The bedroom mix of the Affordable Units shall include (4) one-bedroom units and two (2) two-bedroom units.

The Affordable Units shall be made available for rental such that the maximum rent limits per bedroom size and household income limits shall be no greater than sixty percent (60%) of the U.S. Department of Housing and Urban Development (HUD) Area Median Income (AMI) as stipulated by the most recently published North Carolina Housing Finance Agency (NCHFA) Low-Income Housing Tax Credit (LIHTC) Multifamily Tax Subsidy Program (MTSP) income and rent limits for the Wake Metropolitan area.

The Affordable Units shall be restricted for an affordability period of five (5) years starting from the date of issuance of the first residential Certificate of Occupancy (the "Affordable Period") for the development. During the Affordable Period, the property owner shall be responsible for performing all administration duties to ensure compliance with this Affordable Housing condition and shall submit annual compliance reports to the Town verifying compliance with this Affordable Housing condition. Following completion of the Affordable Period, this Affordable Housing condition shall expire, the property owner shall be relieved of all obligations set forth in this Affordable Housing condition, and the Affordable Units may be freely marketed and leased at market-rate rents.

An affordable housing deed restriction shall be recorded against the property prior to the date of issuance of the first residential Certificate of Occupancy to memorialize these Affordable Housing terms.

DESIGN CONTROLS

UNIVERSAL DESIGN CONTROLS

Total Project Area	11.74 acres
Maximum Built-Upon Area	70% of gross site acreage
Minimum Resource Conservation Area	25% of gross site acreage

RESIDENTIAL DISTRICT DESIGN CONTROLS

Proposed Land Area	Maximum 6.87 acres
Maximum Residential Density	160 units
Required District Boundary Buffers	
Side Buffer	20 ft. Type A
Rear Buffer	20 ft. Type A
Front Buffer	None
Corner Side Buffer (Jenks Road)*	30 ft Type E Thoroughfare Buffer, Undisturbed / 50' Type E Thoroughfare Buffer, Disturbed
Minimum Setbacks**	
Front Setback***	None
Side Setback	10 ft.
Rear Setback	10 ft.
Corner Side Setback (Jenks Road)	10 ft.
Maximum Height	60 ft. (5 stories)

* Only along Jenks Road frontage.

** Notwithstanding any contrary UDO provision or language in this PUD, if the Property is subdivided, there shall be no minimum setback or buffer requirement along the future shared property line between the Residential District and the Commercial District.

***Measured from Residential/Commercial District boundary

COMMERCIAL DISTRICT DESIGN CONTROLS

Proposed Land Area	Minimum 3.522 acres
Required District Boundary Buffers	
Side Buffer	20 ft. Type A
Rear Buffer	None
Front Buffer	30 ft. Type E Thoroughfare Buffer, Undisturbed / 50' Type E Thoroughfare Buffer, Disturbed
Minimum Setbacks*	
Front Setback (Jenks Road)	10 ft.
Side Setback	10 ft.
Rear Setback**	10 ft.
Corner Side Setback	10 ft.
Maximum Height	50 ft.

*Notwithstanding any contrary UDO provision or language in this PUD, if the Property is subdivided, there shall be no minimum setback or buffer requirement along the future shared property line between the Residential District and the Commercial District.

**Measured from Residential/Commercial District boundary

LANDSCAPING, BUFFERING, AND SCREENING

All landscaping for this PUD shall comply with Section 8.2 Landscaping, of the Town of Apex UDO. Refer to PUD Preliminary Layout Plan for perimeter and streetscape buffers. In the event that the Commercial District and Residential District are subdivided, Buffers and screening shall not be required along the shared property line between the Residential District and the Commercial District.

ARCHITECTURAL STANDARDS

Arden at Summit Pines 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. Elevations included are conceptual examples. Final elevations must comply with these architectural standards but may vary from the conceptual elevations. Further details shall be provided at the time of Residential Master Subdivision Plan or Site Plan submittal.

Residential areas envisioned for Arden at Summit Pines will be comprised of age restricted congregate care style units with controlled access, interior corridors and elevators. While each of the architectural offerings proposed will have their own identity, a number of common threads will link the neighborhood, including color palettes, materials, and roofing. Elevations have been included below in an effort to represent the bulk, massing, scale, and architectural style of the development.

RESIDENTIAL DISTRICT DESIGN GUIDELINES

- Vinyl siding is not permitted; however, vinyl windows, decorative elements, and trim are permitted.
- 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
    - decorative windows
    - decorative brick or stone
    - decorative gables
    - decorative cornices
    - metal roofing

PROPOSED RESIDENTIAL MATERIALS

Proposed materials and styles will be of a similar palette to provide consistency of character along with visual interest. Exterior materials that may be incorporated into any of the residential building products include:

- Cementitious lap, board and batten, and/or shake and shingle siding
- Stone or synthetic stone
- Brick

Additional building materials may be included with administrative staff approval. Substitute materials shall be allowed by staff as long as they are determined by the Director of Planning and Community Development to be substantially similar.

REPRESENTATIVE RESIDENTIAL BUILDING ELEVATIONS

COMMERCIAL DISTRICT DESIGN GUIDELINES

- Architectural treatments such as varying roof forms, façade articulation, breaks in roof, walls with texture materials and ornamental details shall be incorporated to add visual interest.
- Large expanses of blank walls, greater than 25' in length or height, shall be broken up with windows or other architectural features to reduce visual impacts.
- Roof features may include flat roofs with parapet, hip roofs or awnings with metal or canvas material.

  Windows and storefront glazing shall be divided to be either square or vertical in proportion so that each section is taller than it is wide.

PROPOSED COMMERCIAL DISTRICT MATERIALS

Non-residential exteriors shall incorporate variation in materials. The primary (front) façade and other façades located along a public right-of-way may include:

- Brick and/or stone masonry
- Decorative concrete block (integral color or textured)
- Stone accents
- Aluminum storefronts with anodized or pre-finished colors
- EIFS cornices, and parapet trim
- EIFS or synthetic stucco shall not be used in the first four feet above grade and shall be limited to only 25% of each building façade
- Precast concrete
- Soffit and fascia materials to be considered include EIFS with crown trim elements
- Cementitious siding

Rear elevations of non-residential buildings facing opaque landscape buffers or not visible from vehicular use areas or public rights-of-way may incorporate decorative concrete masonry, metal coping, or EIFS trim.

REPRESENTATIVE COMMERCIAL DISTRICT BUILDING ELEVATIONS

PARKING AND LOADING

Development in the Residential District shall include a minimum of 1 and a maximum of 1.5 off-street motor vehicle parking spaces per dwelling unit. Development in the Residential District shall include a minimum of 6 bicycle parking spaces. Development in the Commercial District shall comply with parking requirements in Section 8.3 of the UDO**.**

SIGNAGE

Signage shall comply with UDO Section 8.7.

NATURAL RESOURCES AND ENVIRONMENTAL DATA

RIVER BASINS AND WATERSHED PROTECTION OVERLAY DISTRICTS

This project is located within the Beaver Creek and White Oak Creek Drainage Basins. Accordingly, the Property is within the Primary Watershed Protection Overlay District as shown on the Town of Apex Watershed Protection Map. This PUD will comply with all built upon area, vegetated conveyances, structural SCMs and riparian stream buffer requirements of UDO Section 6.1.7.

Resource Conservation Areas (RCA)

The Development shall include a minimum of 25% RCA. RCA area shall comply with Section 8.1 of the UDO.

Floodplain

The project site does not sit within a designated current or future 100 year floodplain as shown on the Town of Apex FEMA map and FIRM Panel 3720073100J, dated May 2, 2006.

Historic Structures

The Property is currently vacant and there are no known historic structures present within the project boundary.

Environmental Commitments Summary

The following environmental conditions shall apply to the Development:

- A minimum of two (2) educational signs about wetlands shall be installed near environmentally sensitive areas;
- A minimum of two (2) pet waste stations shall be installed within the Residential District;
- Solar conduit shall be included in Residential District building designs;

- Light sensors shall be installed on exterior lights within the Residential District; and
- Outdoor lighting within the Residential District shall be shielded in a way that focuses lighting to the ground.
- The project shall install conduit for solar energy systems for all residential and accessory buildings. These roofs shall also be engineered to support the weight of a future rooftop solar PV system.
- The project commits to planting only native plants. Landscaping shall be coordinated and approved by the Planning Department at site or subdivision review.

STORMWATER MANAGEMENT

The Development 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 one (1) year, ten (10) year, and Twenty-four (24)-hour storm events.
- Treatment for the first one inch (1") of runoff will provide 85% removal of total suspended solids.

Acceptable stormwater structures shall include detention ponds, constructed wetlands, bio-retention areas, or other approved devices consistent with the NC DEQ Stormwater Design Manual and the Town of Apex UDO**.**

PARKS AND RECREATION

Arden at Summit Pines was reviewed by the Parks, Recreation, and Cultural Resources Advisory Commission at its February 23, 2022 meeting. The Commission recommended the following fee-in-lieu for the project:

Number of Units*	Housing Type	Fee Per Unit**	Total Fees
160	Multifamily or Apartment	$2226.05	$356,168.00

*Final unit count will be determined at the time of Master Subdivision.

**Fees are based upon approval date and run with project.

PUBLIC FACILITIES

The proposed PUD shall meet all Public Facilities requirements as set forth in UDO Section 2.3.4(F)(1)(f) and shall be designed according to sound engineering standards. Road and utility infrastructure shall be as follows:

GENERAL ROADWAY INFRASTRUCTURE

Except as set forth herein, all proposed roadway infrastructure and right-of-way dedications will be consistent with the Town of Apex Comprehensive Transportation Plan and Bicycle and Pedestrian System Plan in effect as of the submission date of this rezoning.

TRANSPORTATION IMPROVEMENTS

The following conditions regarding transportation improvements apply and shall be completed in the first phase 1 of development:

- Jenks Road and Lowell Road / Site Drive 1
    - Construct an eastbound approach (Site Drive 1) with one ingress lane and two egress lanes, striped as a left-turn lane with at least 75 feet of storage and a shared through/right-turn lane.
    - Provide a northbound left-turn lane with at least 50 feet of storage and appropriate decel and taper.
    - Provide stop control at the eastbound approach.
- Jenks Road and Site Drive 2
    - Construct a right-in/right-out southbound approach with one ingress lane and one egress lane and a monolithic concrete median island based on NCDOT standards in the center lane of Jenks Road to prohibit left turning traffic..
    - Provide stop control at the southbound approach.
- Construct and dedicate roadway frontage widening along Jenks Road consisting of the remaining half of a four-lane divided roadway with curb and gutter and minimum 10-foot Side Path based on Apex and NCDOT standards on a minimum 110’ public right-of-way typical section.
- Construct and dedicate a public street from Jenks Road at Lowell Road to the western property boundary, providing public access to the west from Jenks Road, based on a 27’ curb & gutter typical section with minimum 5-foot sidewalks on both sides on a minimum 50-foot public right-of-way.

WATER AND SANITARY SEWER

All lots within the project will be served by Town of Apex for water and sanitary sewer. The utility design will be finalized at the time of Master Subdivision Plan or Site Plan approval and be based on available facilities adjacent to the site at that time. The design will meet the current Town of Apex master plans for water and sewer.

OTHER UTILITIES

Electricity will be provided by Apex Electric. Phone, cable, and gas will provided by the Developer and shall meet UDO standards.

PHASING

The Development will be completed in up to three phases. Final locations of phases will be determined at the time of Master Subdivision Plan Review and Approval. Provided, however that the Development may be completed in more than three phases or less than three phases.

CONSISTENCY WITH LAND USE PLAN

The proposed land use will be consistent with Advance Apex 2045: The Apex Comprehensive Plan, adopted in February 2019, upon approval of this PUD. The Future Land Use Map designates the Property as Office Employment/Commercial Services and this PUD updates the designation to Office Employment/Commercial Services/High Density Residential.

COMPLIANCE WITH 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). This PUD shall be the primary governing document for the development of Arden at Summit Pines. All standards and regulations in this PUD shall control over general standards of the UDO. Provided, however, that if a specific regulation is not addressed in this PUD, UDO regulations shall control.

ARDEN AT SUMMIT PINES
PLANNED UNIT DEVELOPMENT

TOWN OF APEX, WAKE COUNTY, NORTH CAROLINA
1/3/2022
REVISED: 04/27/2022

PREPARED FOR:
OWNER/DEVELOPER
FC APEX, LLC
7315 WISCONSIN AVE., SUITE 925W
BETHESDA, MD 20814

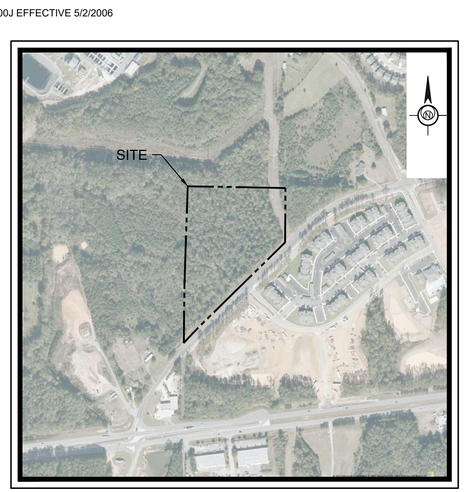
Sheet List Table	
Sheet Number	Sheet Title
CS0001	COVER SHEET
CS0201	EXISTING CONDITIONS
CS1001	PRELIMINARY SITE PLAN
CS1002	PHASING PLAN
CS1701	PRELIMINARY UTILITY PLAN
CS1702	PRELIMINARY STORMWATER MANAGEMENT PLAN

SITE DATA:

PIN:	0722577336
PROPERTY OWNER:	R. MICHAEL STRICKLAND, TRUSTEE OF FAMILY TRUST(WILL OF C H YOUNG JR)
TOTAL ACRES:	11.74 AC
CURRENT ZONING:	RR
PROPOSED ZONING	PUD-CZ
ROW DEDICATION:	32,325 SF / 0.74 AC
GROSS SITE AREA:	511,581 SF / 11.74 AC
RCA REQUIRED:	511,581 SF X 25% = 127,895.25 SF
RCA PROVIDED:	127,940 SF (25.01%)
MAXIMUM RESIDENTIAL LAND AREA:	6.87 AC
MAXIMUM RESIDENTIAL DENSITY:	160 UNITS
MINIMUM RESIDENTIAL SETBACKS:	
FRONT*	NONE
SIDE	10 FT
REAR	10 FT
CORNER (JENKS ROAD)	10 FT
MAXIMUM RESIDENTIAL BUILDING HEIGHT:	60 FT (5 STORIES)
MINIMUM COMMERCIAL LAND AREA:	3.52 AC
MINIMUM COMMERCIAL SETBACKS:	
FRONT (JENKS ROAD)	10 FT
SIDE	10 FT
REAR*	10 FT
CORNER	10 FT
MAXIMUM COMMERCIAL BUILDING HEIGHT:	50 FT

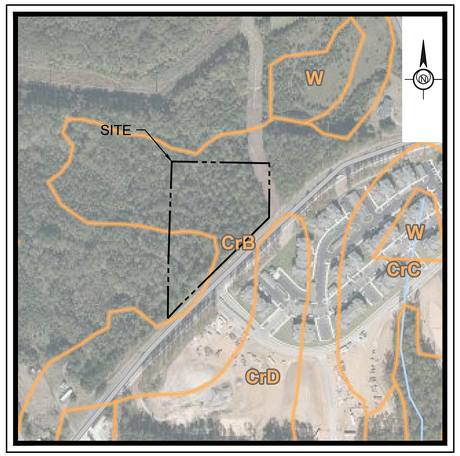
* MEASURED FROM RESIDENTIAL/COMMERCIAL DISTRICT BOUNDARY

CURRENT 2045 LAND USE MAP DESIGNATION:	OFFICE EMPLOYMENT COMMERCIAL SERVICES
PROPOSED 2045 LAND USE MAP DESIGNATION:	OFFICE EMPLOYMENT COMMERCIAL SERVICES HIGH DENSITY RESIDENTIAL
AREA DESIGNATED AS MIXED USE ON 2045 LUM:	NONE
AREA OF MIXED USE PROPERTY PROPOSED AS NON-RESIDENTIAL DEVELOPMENT:	37.5%
MAXIMUM BUILT UPON AREA:	8.22 AC (70%)
PROPOSED BUILT UPON AREA:	8.22 AC (70%)
REQUIRED RESIDENTIAL PARKING SPACES:	1 PER DWELLING UNIT (MINIMUM) 1.5 PER DWELLING UNIT (MAXIMUM)
REQUIRED NON-RESIDENTIAL PARKING SPACES:	SHALL COMPLY WITH UDO SECTION 8.3
REQUIRED BICYCLE PARKING:	SHALL COMPLY WITH UDO SECTION 8.3
WATERSHED PROTECTION OVERLAY DISTRICT:	PRIMARY
FEMA FLOODPLAIN:	ZONE X MAP NO. 3720072200J EFFECTIVE 5/2/2006
HISTORIC STRUCTURES:	NONE
GRADING:	MASS GRADING



AERIAL MAP
1" = 500'

LOCATION MAP
1" = 2000'



SOILS MAP
1" = 500'

CONTACTS

DEVELOPER:	FC APEX, LLC 7315 WISCONSIN AVE., SUITE 925W BETHESDA, MD 20814 PHONE: (301) 654-8801 ATTN: KEVIN WOODLEY kwoodley@buvermo.com
CIVIL ENGINEER:	ESE OF NORTH CAROLINA, PC 5400 TRINITY ROAD, SUITE 204 RALEIGH, NC 27607 PHONE: (704) 497-0983 ATTN: SCOTT KRUSELL, PE skrusell@eseconsultants.com

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PREPARED BY:

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NORTH CAROLINA PROFESSIONAL SEAL 052869 ENGINEER SCOTT KRUSELL
04/27/2022

REV	DATE	DESCRIPTION	DRAWN
4	04/27/2022	REVS PER TOWN COMMENTS	SMK
3	04/08/2022	REVS PER TOWN COMMENTS	SMK
2	03/11/2022	REVS PER TOWN COMMENTS	SMK
1	02/11/2022	REVS PER TOWN COMMENTS	SMK

COVER SHEET

ARDEN AT SUMMIT PINES
PLANNED UNIT DEVELOPMENT
TOWN OF APEX, WAKE COUNTY, NORTH CAROLINA

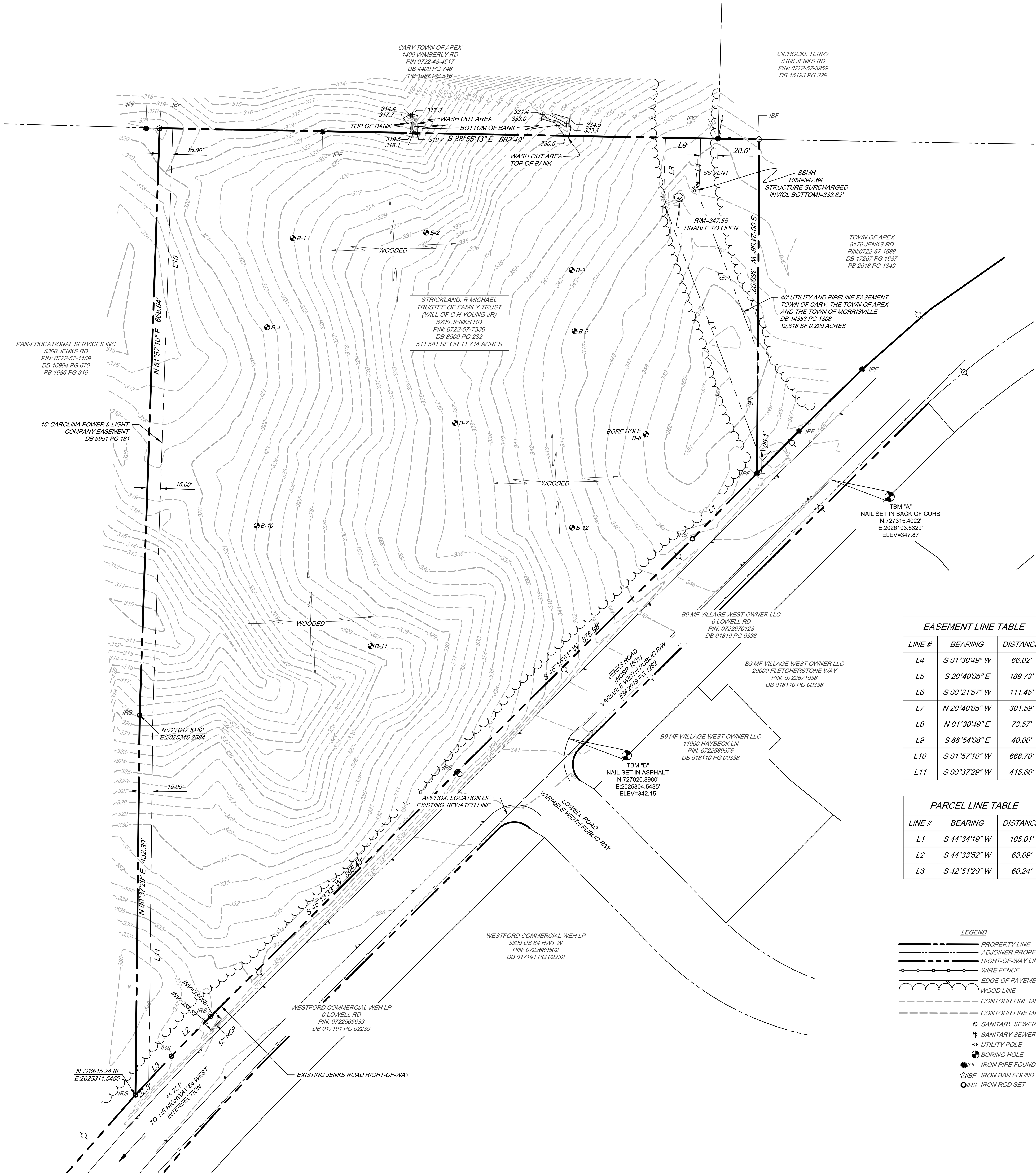
DATE: 1/3/2022	SCALE: N.T.S.
DESIGN: BM	DRAWN: KNB
JOB NO.: 21264	FILE NAME: BUVERMO
SHEET NO.: CS0001	

NOT FOR CONSTRUCTION

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT TOWN OF APEX STANDARDS AND SPECIFICATIONS

NOTES:

1. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY PENNONI ASSOCIATES INC. DATED 9/27/21.
2. THE SUBJECT PROPERTY IS LOCATED WITHIN THE PRIMARY WATERSHED PROTECTION OVERLAY DISTRICT.
3. THIS SITE IS NOT LOCATED IN THE 100-YEAR FLOODPLAIN PER FEMA FIRM PANEL 3720072200J EFFECTIVE 5/02/2006.
4. BASED UPON A JURISDICTIONAL DETERMINATION REQUEST, FILED WITH USACE ON 9/08/21 AND CONCURRENCE EMAIL ON 09/13/21 BY LYLE PHILLIPS OF USACE; STREAMS AND WETLANDS WERE NOT IDENTIFIED DURING THE DELINEATION (SAW-2021-01939).
5. PROPETY DESCRIPTIONS SOUTH OF JENKS ROAD BASED ON WAKE COUNTY IMAPS DATA.



EASEMENT LINE TABLE		
LINE #	BEARING	DISTANCE
L4	S 01°30'49" W	66.02'
L5	S 20°40'05" E	189.73'
L6	S 00°21'57" W	111.45'
L7	N 20°40'05" W	301.59'
L8	N 01°30'49" E	73.57'
L9	S 88°54'08" E	40.00'
L10	S 01°57'10" W	668.70'
L11	S 00°37'29" W	415.60'

PARCEL LINE TABLE		
LINE #	BEARING	DISTANCE
L1	S 44°34'19" W	105.01'
L2	S 44°33'52" W	63.09'
L3	S 42°51'20" W	60.24'

LEGEND

- PROPERTY LINE
- ADJOINER PROPERTY LINE
- RIGHT-OF-WAY LINE
- WIRE FENCE
- EDGE OF PAVEMENT
- WOOD LINE
- CONTOUR LINE MINOR
- CONTOUR LINE MAJOR
- SANITARY SEWER MANHOLE
- SANITARY SEWER VENT
- UTILITY POLE
- BORING HOLE
- IPF IRON PIPE FOUND
- IBF IRON BAR FOUND
- IRS IRON ROD SET

FEET 60 0 30 60 120

GRAPHIC SCALE
1 inch = 60 ft, Horizontal

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License # C-2973

REV.	DATE	DESCRIPTION	DRAWN
4	04/27/2022	REVS PER TOWN COMMENTS	SAK
3	04/08/2022	REVS PER TOWN COMMENTS	SAK
2	03/11/2022	REVS PER TOWN COMMENTS	SAK
1	02/11/2022	REVS PER TOWN COMMENTS	SAK

EXISTING CONDITIONS

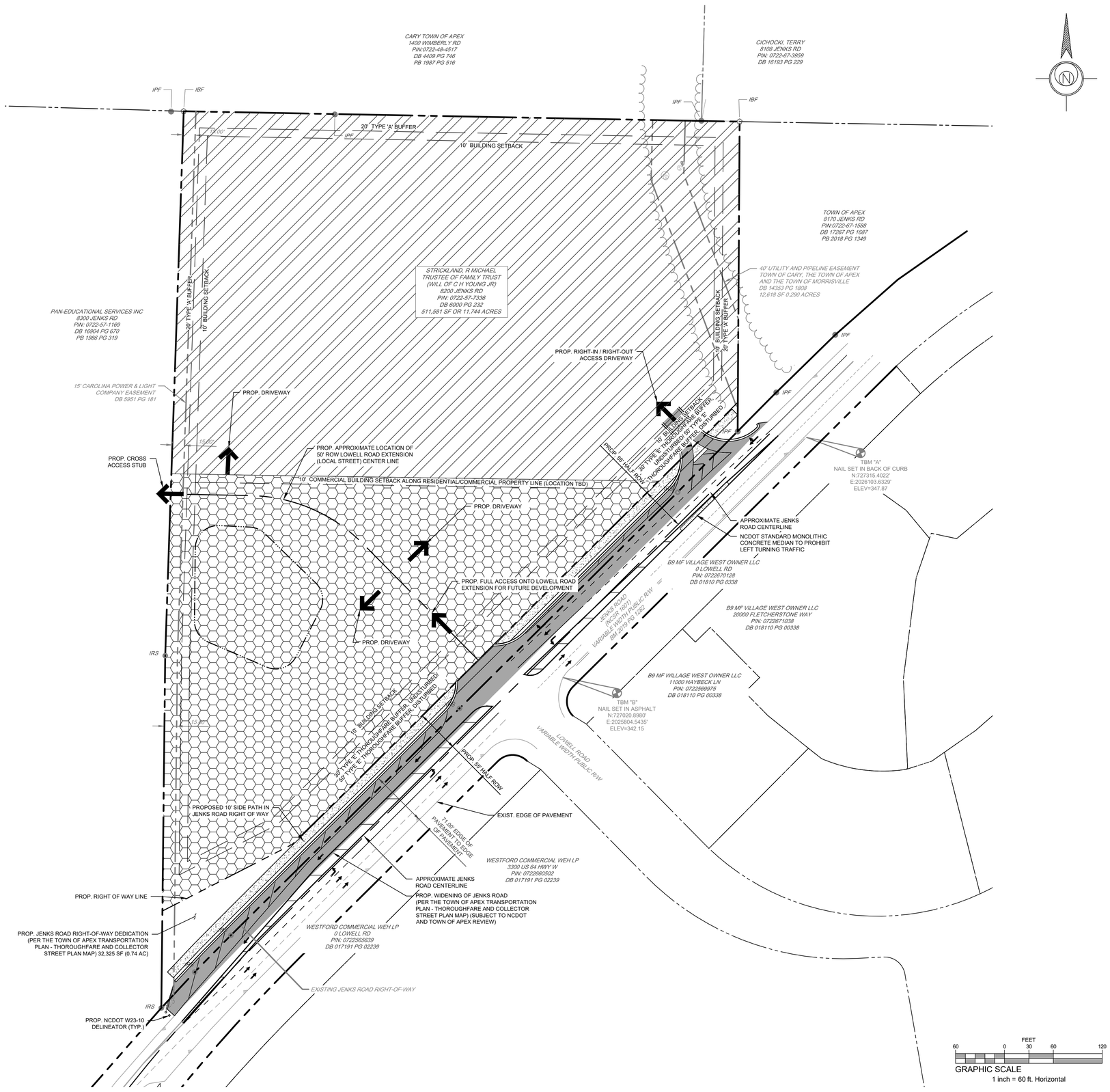
ARDEN AT SUMMIT PINES
PLANNED UNIT DEVELOPMENT
TOWN OF APEX, WAKE COUNTY, NORTH CAROLINA

DATE: 1/3/2022	SCALE: 1" = 60'
DESIGN: BM	DRAWN: KNB
JOB NO.: 21264	FILE NAME: BUVERMO
SHEET NO.: CS0201	

NOT FOR CONSTRUCTION

NOTES:

1. REFER TO THE PUD DOCUMENT (SECTION PERMITTED USES) FOR A COMPLETE LIST OF ALLOWABLE USES FOR EACH TRACT OR DEVELOPMENT AREA..
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 OFFICE; SUCH AREAS MAY INCLUDE BUT ARE NOT LIMITED TO COMMON PROPERTY LINES OR NEAR PUBLIC AREAS (SIDEWALKS ETC.) 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. ALL REQUIRED SITE ELEMENTS SHOWN WITHIN A PARTICULAR PHASE MUST BE INSTALLED BEFORE A FINAL CERTIFICATE OF OCCUPANCY MAY BE ISSUED FOR ANY BUILDINGS WITHIN THAT PHASE.
3. NO SIGNS ARE APPROVED AS PART OF PUD-CZ PLAN APPROVAL. A SEPARATE SIGN PERMIT MUST BE OBTAINED. MULTIPLE USE LOTS, NON-RESIDENTIAL SUBDIVISIONS, AND MULTIPLE TENANT LOTS MUST SUBMIT A MASTER SIGN PLAN FOR APPROVAL.
4. THE FINAL WIDTH OF THE BUFFERS SHALL MEET THE TOWN OF APEX DEVELOPMENT STANDARDS (SEC. 8.2.6 OF THE UDO).
5. PROVIDE 5' MINIMUM PEDESTRIAN CONNECTION BETWEEN THE INTERNAL PUD PEDESTRIAN NETWORK.
6. SHOWN JENKS ROADWAY IMPROVEMENTS ARE PRELIMINARY. FINAL IMPROVEMENTS TO BE REVIEWED AND APPROVED BY NCDOT AND TOWN OF APEX.
7. PLAN SHEETS ARE INTENDED FOR ILLUSTRATIVE USE ONLY.



LEGEND

- DELINEATES APPROXIMATE RESIDENTIAL AREA
- DELINEATES APPROXIMATE COMMERCIAL AREA
- DELINEATES PROP. FULL DEPTH ASPHALT
- PROP. SITE ACCESS
- DELINEATES APPROX. LIMITS OF STORMWATER MANAGEMENT POND

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052869 KENNELL
04/27/2022

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3	04/08/2022	REVS PER TOWN COMMENTS	SAK
2	03/11/2022	REVS PER TOWN COMMENTS	SAK
1	02/11/2022	REVS PER TOWN COMMENTS	SAK

PRELIMINARY SITE PLAN

ARDEN AT SUMMIT PINES
PLANNED UNIT DEVELOPMENT
TOWN OF APEX, WAKE COUNTY, NORTH CAROLINA

DATE: 1/3/2022	SCALE: 1" = 60'
DESIGN: BM	DRAWN: KNB
JOB NO.: 21264	FILE NAME: BUVERMO
SHEET NO.: CS1001	

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Apr 27, 2022 - 10:51 am N:\Projects\North Carolina\21264-6300 Jenks Road (Buvermo Investments)\Cad\Civil\Drawings\21264-Site Base.dwg BKROELL

PHASING NOTES:

OFF-SITE ROADWAY IMPROVEMENTS:

1. A TRAFFIC IMPACT ANALYSIS (TIA) FOR THE ENTIRE DEVELOPMENT IS UNDER REVIEW BY THE TOWN OF APEX AND THE NCDOT. RECOMMENDATIONS FOR ACCESS AND ROADWAY IMPROVEMENTS REQUIRED TO SUPPORT THE ENTIRETY OF THE PROPOSED DEVELOPMENT PROGRAM ARE INCLUDED IN THE TIA.
2. AGREED UPON ACCESS AND ROADWAY IMPROVEMENTS NECESSARY TO SUPPORT EACH DEVELOPMENT TRACT, MUST BE IN PLACE PRIOR TO THE INITIAL CERTIFICATE OF OCCUPANCY (CO) FOR EACH RESPECTIVE PHASE OR TRACT ASSOCIATED WITH THOSE IMPROVEMENTS UNLESS AN ALTERNATE TRIP THRESHOLD ANALYSIS IS PROVIDED. ALL PHASING IMPROVEMENTS ARE SUBJECT TO FINAL APPROVAL FROM NCDOT.

PHASING OF UTILITY INFRASTRUCTURE IMPROVEMENTS:

1. SANITARY SEWER SERVICE WILL BE STUBBED FROM THE OFF-SITE INTERCEPTOR AND WILL BE DISTRIBUTED THROUGHOUT THE DEVELOPMENT BASED ON THE FINAL UTILITY PLAN.
2. WATER SERVICE WILL BE INSTALLED ALONG LOWELL ROAD EXTENSION AT SUCH TIME THAT WATER FLOWS REQUIRE THE SUBJECT INFRASTRUCTURE.

PHASING OF RESOURCE CONSERVATION AREAS (RCA): RCA AREAS ASSOCIATED WITH THE DEVELOPMENT PARCELS WILL BE DEFINED AND PLATTED AS REQUIRED IN SECTION 8.1 OF THE UDO AND AS PROVIDED FOR WITHIN THE PUD.

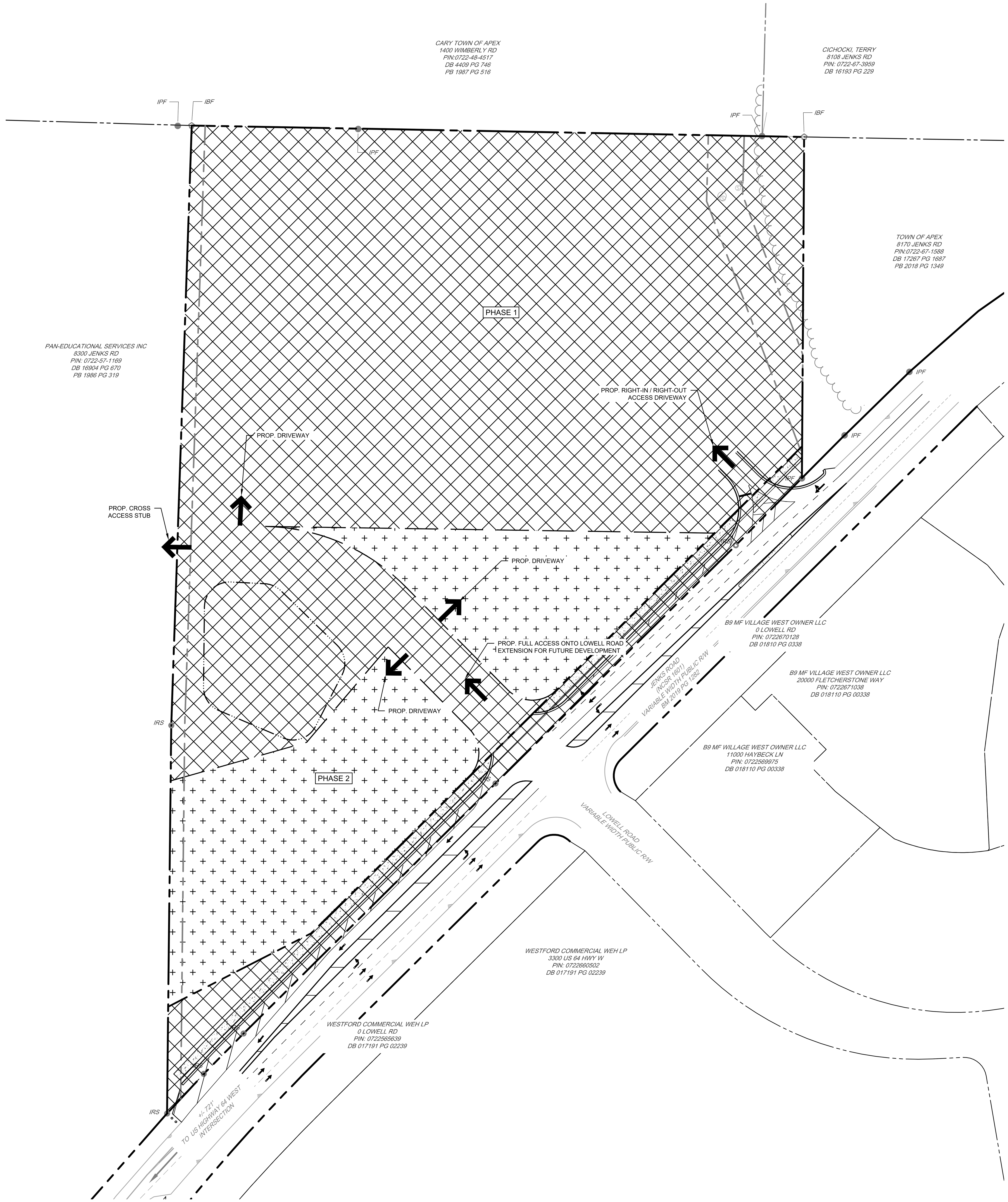
1. REQUIRED LANDSCAPING, BUFFERING, AND SCREENING ASSOCIATED WITH THE OVERALL PUD WILL BE PROVIDED IN CONJUNCTION WITH THE SUBDIVISION OF EACH INDIVIDUAL DEVELOPMENT TRACT SUCH THAT CUMULATIVELY, THE TOTAL AMOUNT OF RCA FOR THE PUD WILL EQUAL TO OR GREATER THAN 25% AT BUILD-OUT.
2. RCA AREAS ASSOCIATED WITH THE PERIMETER PROPERTY BOUNDARIES OF THE PROJECT WILL BE ESTABLISHED, AND PLATTED WITH THE FIRST SUBDIVISION OR SITE PLAN APPLICATIONS.
3. RCA FOR DEDICATED OPEN SPACE SHALL BE DELINEATED AND PLATTED IN CONJUNCTION WITH THE FIRST SUBDIVISION OR SITE PLAN APPLICATION.

PHASING OF STREETSCAPE IMPROVEMENTS: LANDSCAPING AND SIDEWALKS ASSOCIATED WITH REQUIRED STREETSCAPE IMPROVEMENTS SHALL BE INSTALLED ALONG, AND LIMITED TO, THE FRONTAGE OF EACH DEVELOPMENT TRACT ADJACENT TO JENKS ROAD IN CONJUNCTION WITH EACH RESPECTIVE SUBDIVISION OR SITE PLAN APPLICATION.

PHASING OF BUFFER PLANTINGS: BUFFER PLANTINGS, WHERE REQUIRED, SHALL BE PLANTED IN CONJUNCTION WITH, AND LIMITED TO THE DEVELOPMENT TRACT FRONTAGE, FOR EACH APPROVED SUBDIVISION OR SITE PLAN APPLICATION.

PHASING OF ROADWAY IMPROVEMENTS: A TRAFFIC IMPACT ANALYSIS (TIA) FOR THE ENTIRE DEVELOPMENT IS IN REVIEW BY THE TOWN OF APEX AND THE NCDOT. RECOMMENDATIONS FOR ACCESS AND ROADWAY IMPROVEMENTS REQUIRED TO SUPPORT THE ENTIRETY OF THE PROPOSED DEVELOPMENT PROGRAMS ARE INCLUDED IN THE TIA.

VARIOUS PORTIONS OF THE COMMITTED IMPROVEMENTS MAY BE REQUIRED TO ADEQUATELY SERVE NEW DEVELOPMENT AS IT COMES ON LINE AND PRIOR TO TOTAL PROJECT BUILD-OUT. EACH SITE PLAN APPLICATION WITHIN THE PUD SHALL BE REQUIRED TO SUBMIT A TRANSPORTATION MEMO, WITH REFERENCE TO THE APPROVED TIA, FOR REVIEW BY THE TOWN OF APEX, AND DETERMINATION AS TO THE APPROPRIATE ROADWAY IMPROVEMENTS NEEDED TO SERVE THE USE AND INTENSITY OF DEVELOPMENT PROPOSED AT THAT TIME, AS WELL AS DEVELOPMENT ALREADY IN PLACE WITHIN THE PUD, FOR EACH SUBSEQUENT SITE PLAN APPLICATION UNTIL FULL IMPLEMENTATION OF REQUIRED IMPROVEMENTS. AGREED UPON IMPROVEMENTS MUST BE IN PLACE PRIOR TO INITIAL CERTIFICATE OF OCCUPANCY FOR EACH RESPECTIVE PHASE OR TRACT ASSOCIATED WITH THOSE IMPROVEMENTS UNLESS AN ALTERNATE TRIP ANALYSIS IS PROVIDED. ALL PHASING IMPROVEMENTS ARE SUBJECT TO FINAL APPROVAL FROM NCDOT.



LEGEND

[crosshatch]	DELINEATES PHASE 1
[+ pattern]	DELINEATES PHASE 2
[arrow]	PROP. SITE ACCESS
[dash-dot line]	DELINEATES APPROX. LIMITS OF STORMWATER MANAGEMENT POND

Know what's **below.** **Call** before you dig. (811)

GRAPHIC SCALE (FEET: 60, 0, 30, 60, 120)
1 inch = 60 ft. Horizontal

Apr 27, 2022 - 9:09 am N:\Projects\North Carolina\21264-8300 Jenks Road (Buvermo Investments)\Engineering\Drawings\21264-Site Base.dwg SKRUSELL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052889 SCOTT A. KRUSELL 04/27/2022

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REV.	DATE	DESCRIPTION	DRAWN
4	04/27/2022	REVS PER TOWN COMMENTS	SAK
3	04/08/2022	REVS PER TOWN COMMENTS	SAK
2	03/11/2022	REVS PER TOWN COMMENTS	SAK
1	02/11/2022	REVS PER TOWN COMMENTS	SAK

PHASING PLAN

ARDEN AT SUMMIT PINES
PLANNED UNIT DEVELOPMENT
TOWN OF APEX, WAKE COUNTY, NORTH CAROLINA

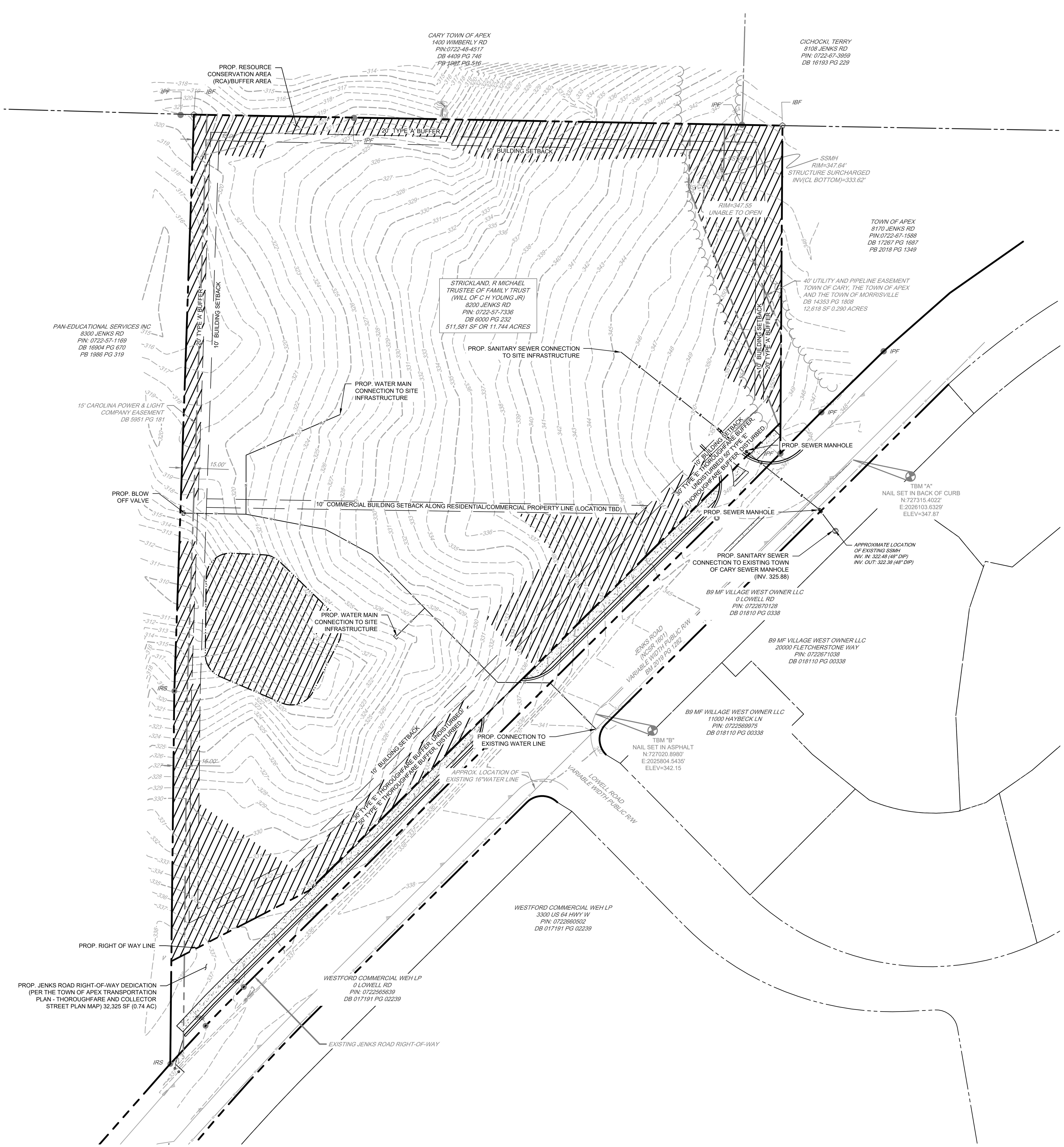
DATE: 1/3/2022	SCALE: 1" = 60'
DESIGN: BM	DRAWN: KNB
JOB NO.: 21264	FILE NAME: BUVERMO
SHEET NO.: CS1002	

NOT FOR CONSTRUCTION

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT TOWN OF APEX STANDARDS AND SPECIFICATIONS

UTILITY NOTES:

1. WATER AND SEWER UTILITY MAINS WILL BE OWNED BY THE TOWN OF APEX.
2. UTILITY LAYOUT FOR WATER AND SEWER IS CONCEPTUAL. FINAL DESIGN WILL BE DETERMINED IN CONJUNCTION WITH THE OVERALL DEVELOPMENT PLAN AND DESIGNED PER THE TOWN OF APEX STANDARDS AND SPECIFICATIONS.
3. WATER SERVICE WILL BE STUBBED AT THE PROPERTY LINE FROM LOWELL ROAD EXTENSION.
4. SANITARY SEWER SERVICE WILL BE STUBBED FROM THE ON-SITE INTERCEPTOR AND WILL BE DISTRIBUTED THROUGHOUT THE DEVELOPMENT BASED ON THE FINAL UTILITY PLAN.
5. CONTACT RODNEY SMITH, TOWN OF APEX ELECTRIC UTILITIES DIVISION, AT 362-8166 FOR ELECTRIC SERVICE (TEMPORARY AND PERMANENT).
6. ALL UTILITY EASEMENTS SHALL BE PROVIDED AS NECESSARY. DELINEATIONS WILL BE DETERMINED WITH FINAL DESIGN AT SITE PLAN STAGE.
7. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION WAS TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY PENNONI ASSOCIATES INC. DATED 9/27/21.



GRAPHIC SCALE

1 inch = 60 ft. Horizontal

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04/27/2022

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2	03/11/2022	REVS PER TOWN COMMENTS	SAK
1	02/11/2022	REVS PER TOWN COMMENTS	SAK

PRELIMINARY UTILITY PLAN

ARDEN AT SUMMIT PINES
PLANNED UNIT DEVELOPMENT
8200 JENKS ROAD

DATE: 1/3/2022	SCALE: 1" = 60'
DESIGN: BM	DRAWN: KNB
JOB NO.: 21264	FILE NAME: BUVERMO
SHEET NO.: CS1701	

NOT FOR CONSTRUCTION

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT TOWN OF APEX STANDARDS AND SPECIFICATIONS

STORMWATER NOTES:

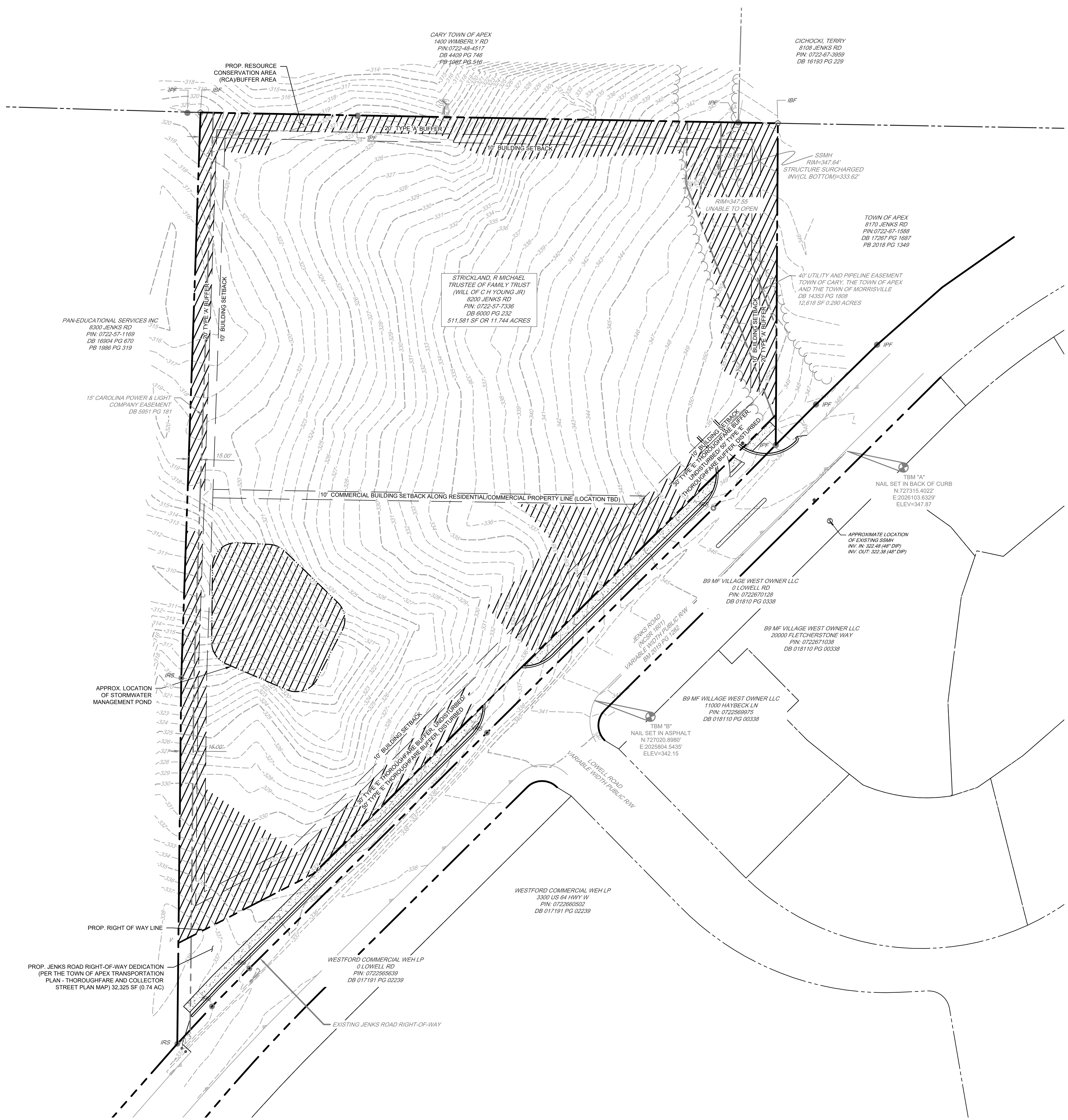
1. STORMWATER MANAGEMENT MEASURES FOR QUALITY AND QUANTITY TREATMENT WILL BE PROVIDED FOR WITH EITHER INDIVIDUAL DEVELOPMENT TRACTS OR REGIONAL FACILITIES FOR THE OVERALL DEVELOPMENT AND SHALL MEET APPLICABLE STORMWATER QUALITY AND QUANTITY TREATMENT IN ACCORDANCE WITH SECTION 6.1 OF THE UDO.

2. POST-DEVELOPMENT RUNOFF FLOW LEAVING NEWLY DEVELOPED SITES SHALL NOT EXCEED PRE-DEVELOPMENT PEAK RUNOFF CONDITIONS FOR THE 1-YEAR AND 10-YEAR 24-HOUR STORM EVENT PEAK FLOWS IN ACCORDANCE WITH THE APEX UDO.

3. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION WAS TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY PENNONI ASSOCIATES INC. DATED 9/27/21.

4. THIS SITE IS NOT LOCATED IN THE 100-YEAR FLOODPLAIN PER FEMA FIRM PANEL 3720072200J EFFECTIVE 05/02/2006.

5. BASED UPON A JURISDICTIONAL DETERMINATION REQUEST, FILED WITH USACE ON 9/08/21 AND CONCURRENCE EMAIL ON 09/13/21 BY LYLE PHILLIPS OF USACE; STREAMS AND WETLANDS WERE NOT IDENTIFIED DURING THE DELINEATION (SAW-2021-01939).



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

GRAPHIC SCALE
FEET
60 0 30 60 120
1 inch = 60 ft. Horizontal

SEAL 052889 NORTH CAROLINA PROFESSIONAL ENGINEER
04/27/2022

ESE CONSULTANTS
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License # C-2973

REV.	DATE	DESCRIPTION	DRAWN
4	04/27/2022	REVS PER TOWN COMMENTS	SAK
3	04/08/2022	REVS PER TOWN COMMENTS	SAK
2	03/11/2022	REVS PER TOWN COMMENTS	SAK
1	02/11/2022	REVS PER TOWN COMMENTS	SAK

PRELIMINARY STORMWATER MANAGEMENT PLAN

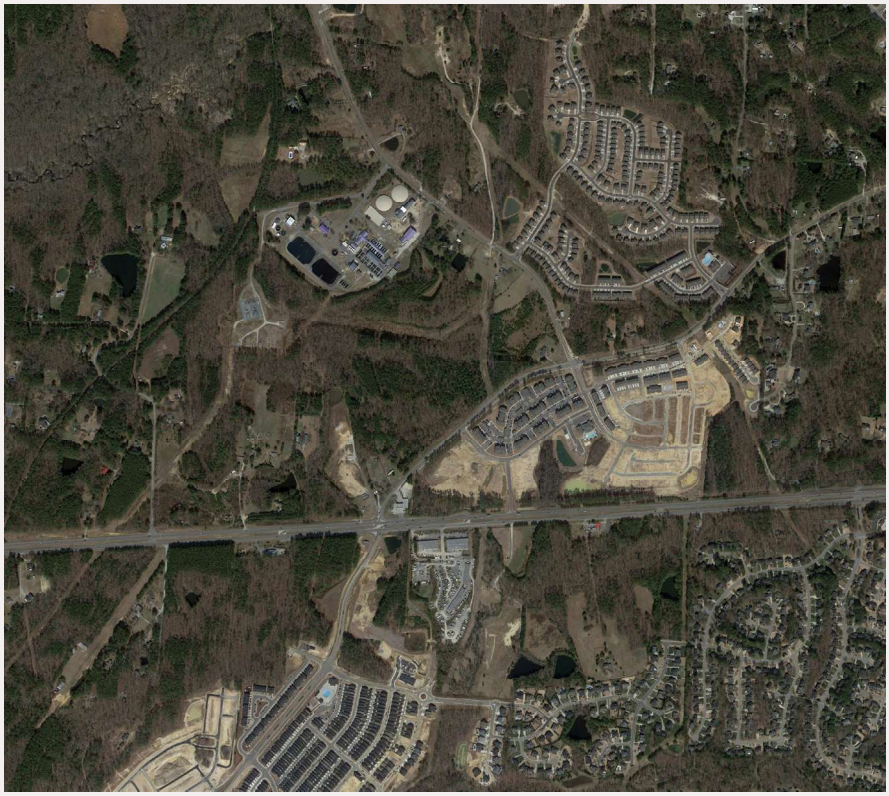
ARDEN AT SUMMIT PINES PLANNED UNIT DEVELOPMENT
8200 JENKS ROAD

DATE: 1/3/2022	SCALE: 1" = 60'
DESIGN: BM	DRAWN: KNB
JOB NO.: 21264	FILE NAME: BUVERMO
SHEET NO.: CS1702	

NOT FOR CONSTRUCTION

RAMEY KEMP ASSOCIATES

TOGETHER WE ARE LIMITLESS



Arden at Apex

Traffic Impact Analysis

Apex, North Carolina

RKA

rameykemp.com

TRAFFIC IMPACT ANALYSIS

FOR

ARDEN AT APEX

LOCATED

IN

APEX, NORTH CAROLINA

Prepared For:
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MARCH 2022

RKA Project No. 21605

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TRAFFIC IMPACT ANALYSIS
ARDEN AT APEX
APEX, NORTH CAROLINA

1. INTRODUCTION

The contents of this report present the findings of the Traffic Impact Analysis (TIA) conducted for the proposed Arden at Apex mixed-use development to be located at 8200 Jenks Road in Apex, North Carolina. The purpose of this study is to determine the potential impacts to the surrounding transportation system created by traffic generated by the proposed development, as well as recommend improvements to mitigate the impacts.

The proposed development, anticipated to be completed in 2024, is assumed to consist of the following uses:

- 163 adult senior housing – attached
- 10,000 sq. ft. of retail – to be analyzed as "Strip Retail Plaza"

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2021 Existing Traffic Conditions
- 2024 No-Build Traffic Conditions
- 2024 Build Traffic Conditions

1.1. Site Location and Study Area

The development is proposed to be located at 8200 Jenks Road in Apex, North Carolina. Refer to Figure 1 for the site location map.

The study area for the TIA was determined through coordination with the North Carolina Department of Transportation (NCDOT) and the Town of Apex (Town) and consists of the following intersections:

- US 64 and Jenks Road / Richardson Road
- US 64 and U-turn (west of Jenks Road)
- Jenks Road and Wimberly Road

- Jenks Road and Lowell Road / Site Drive 1
- Jenks Road and Site Drive 2

Refer to Appendix A for the approved scoping documentation.

1.2. Proposed Land Use and Site Access

The site is expected to be located at 8200 Jenks Road. The proposed development, anticipated to be completed in 2024, is assumed to consist of the following uses:

- 163 adult senior housing – attached
- 10,000 sq. ft. of retail – to be analyzed as "Strip Retail Plaza"

Site access to the is proposed via one (1) right-in / right-out driveway along Jenks Road and one (1) connection to Jenks Road and Lowell Road. Refer to Figure 2 for a copy of the preliminary site plan.

1.3. Adjacent Land Uses

The proposed development is located in an area consisting primarily of undeveloped land and residential development.

1.4. Existing Roadways

Existing lane configurations (number of traffic lanes on each intersection approach), lane widths, storage capacities, and other intersection and roadway information within the study area are shown in Figure 3. Table 1 provides a summary of this information, as well.

Table 1: Existing Roadway Inventory

Road Name	Route Number	Typical Cross Section	Speed Limit	Maintained By	2019 AADT (vpd)
Jenks Road	N/A	2-lane undivided	45 mph	Town	N/A
US 64		4-lane divided	55 mph	NCDOT	27,000
Wimberly Road	SR 1603	2-lane undivided	45 mph	NCDOT	1,600
Lowell Road	N/A	2-lane undivided	25 mph (assumed)	Town	N/A

N

LEGEND

- Proposed Site Location
- Study Intersection
- Study Area

Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	Site Location Map Scale: Not to Scale | Figure 1

DIRECTIONAL CURB RAMP (TYP.);
SEE DETAIL 2 SHEET C8.01

REGULAR DUTY ASPHALT;
SEE DETAIL 2 SHEET C8.02

BENCH SEATING

INTERNAL CONCRETE SIDEWALK
(TYP.). SEE DETAIL 5 SHEET C8.00

HEAVY DUTY ASPHALT;
SEE DETAIL 2 SHEET C8.02

ACCESSIBLE RAMP (TYP.)
SEE DETAIL 7 SHEET C8.00

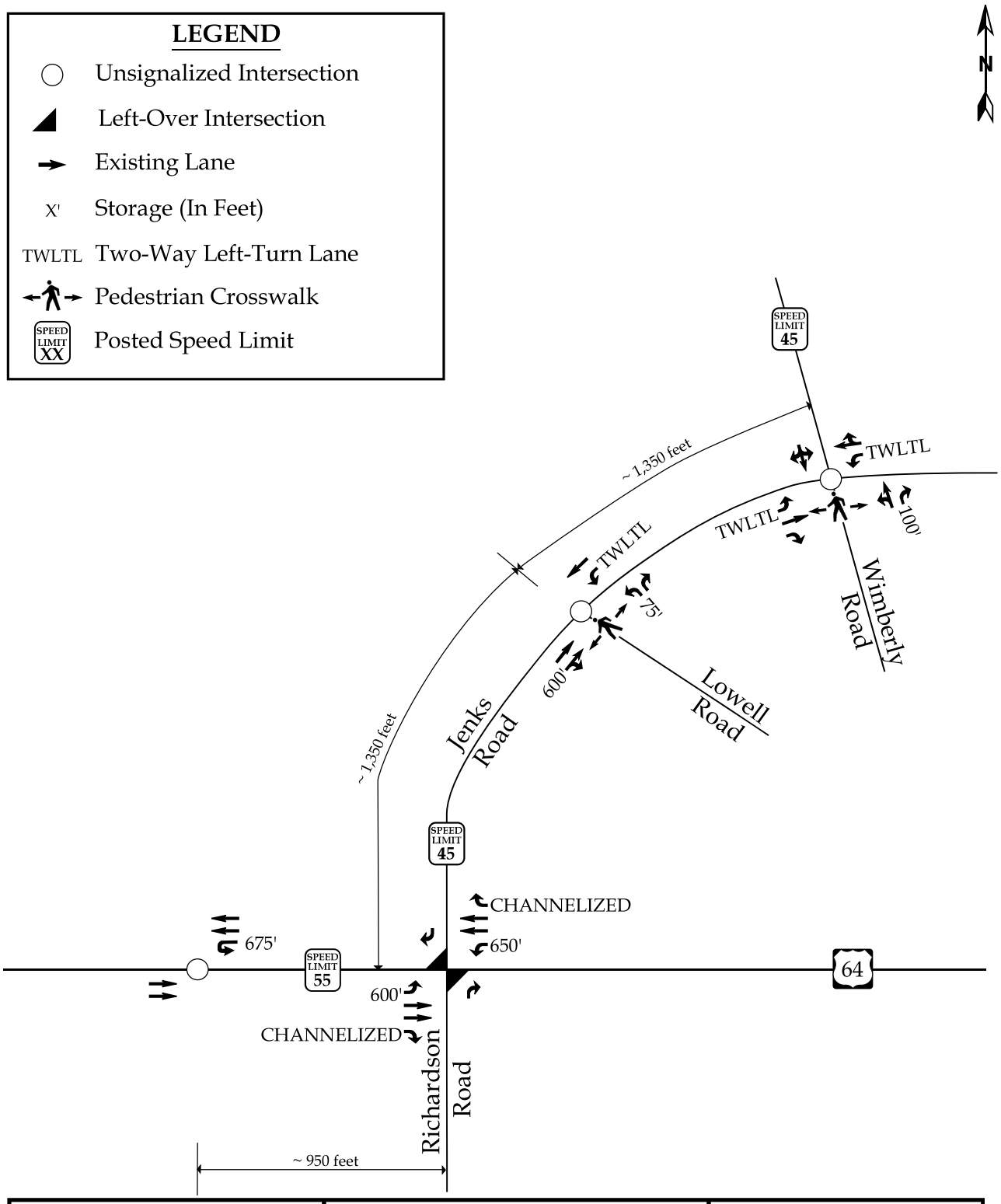
GARAGE PARKING (TYP.)

PARKING

BUILDING

Lowell Rd

Jenks Rd



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	2021 Existing Lane Configurations Scale: Not to Scale | Figure 3

2. 2021 EXISTING PEAK HOUR CONDITIONS

2.1. 2021 Existing Peak Hour Traffic Volumes

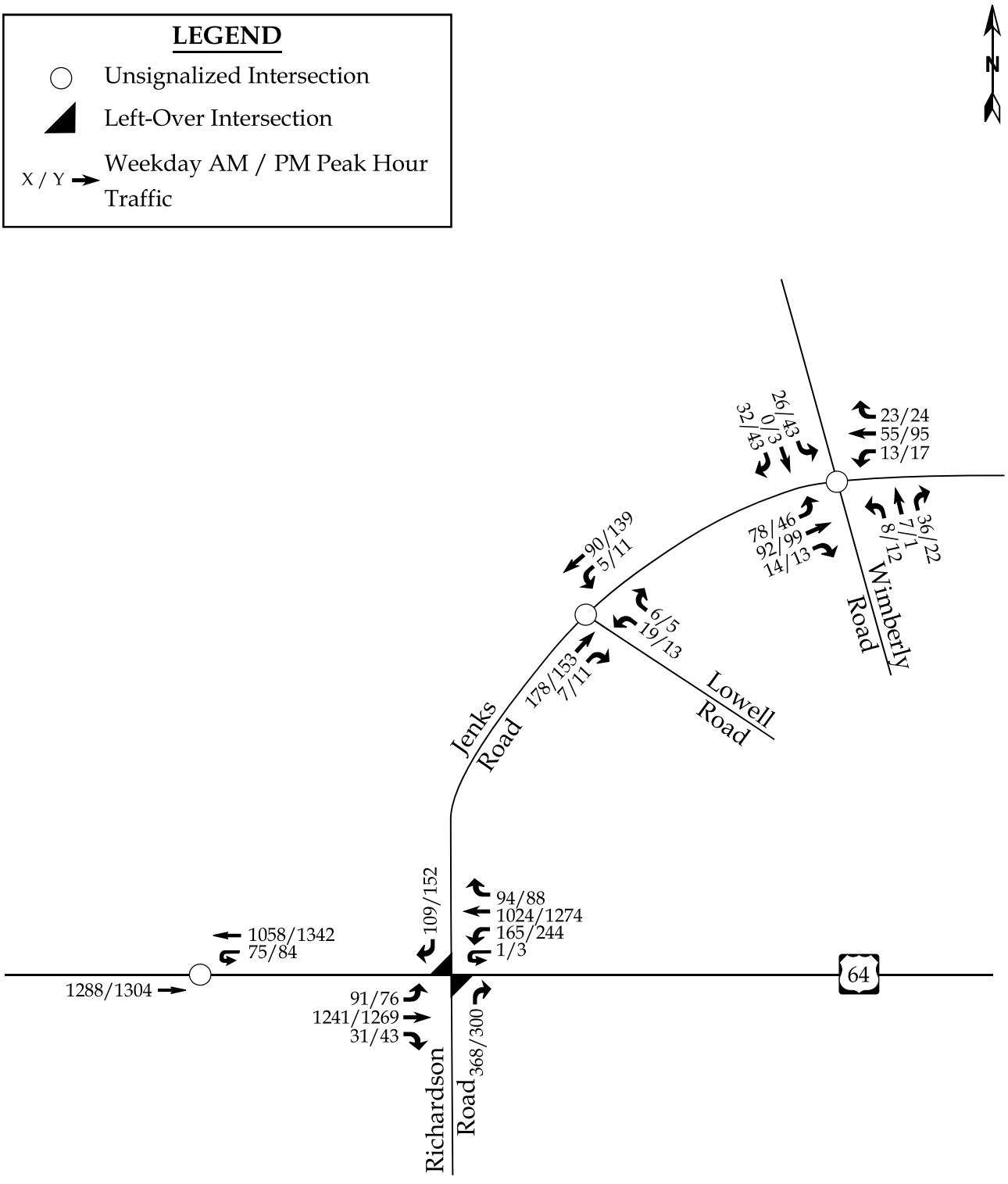
Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in October of 2021 by Burns Service, Inc. during a typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods:

- US 64 and Jenks Road
- US 64 and U-turn (west of Jenks Road)
- Jenks Road and Wimberly Road
- Jenks Road and Lowell Road

Weekday AM and PM traffic volumes were balanced between study intersections, where appropriate. Refer to Figure 4 for 2021 existing weekday AM and PM peak hour traffic volumes. A copy of the count data is located in Appendix B of this report.

2.2. Analysis of 2021 Existing Peak Hour Traffic Conditions

The 2021 existing weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections under existing roadway conditions. The results of the analysis are presented in Section 7 of this report.



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	2021 Existing Peak Hour Traffic Scale: Not to Scale | Figure 4

3. 2024 NO-BUILD PEAK HOUR CONDITIONS

In order to account for growth of traffic and subsequent traffic conditions at a future year, no-build traffic projections are needed. No-build traffic is the component of traffic due to the growth of the community and surrounding area that is anticipated to occur regardless of whether or not the proposed development is constructed. No-build traffic is comprised of existing traffic growth within the study area and additional traffic created as a result of adjacent approved developments.

3.1. Ambient Traffic Growth

Through coordination with the Town and NCDOT, it was determined that an annual growth rate of 3% would be used to generate 2024 projected weekday AM and PM peak hour traffic volumes. Refer to Figure 5 for 2024 projected peak hour traffic.

3.2. Adjacent Development Traffic

Through coordination with the Town and NCDOT, the following adjacent developments were identified to be included as an approved adjacent development in this study:

- Alderwood
- Parks at Wimberly
- Westford

Table 2, on the following page, provides a summary of the adjacent developments.

Table 2: Adjacent Development Information

Development Name	Location	Build-Out Year	Land Use / Intensity	TIA Performed
Alderwood	Northeast of the Jenks Road – Wimberly Road intersection	2025	• 80 townhomes • 14,000 sq. ft. daycare center • 8,000 sq. ft. medical office	March 2021 by Kimley-Horn
Parks at Wimberly	East side of Wimberly Road, between Green Level West Road and Jenks Road	2025	• 70 single family homes • 50 townhomes	November 2019 by Mott MacDonald
Westford	North side of US 64 and east of Jenks Road	2019	• 300 apartment units • 225 townhomes • 90 single family detached homes	December 2016 by Kimley-Horn

It should be noted that it was assumed 75% of the Alderwood development would be built out by 2024 and thus, only 75% of this adjacent development's traffic would be considered as background traffic during the weekday AM and PM peak hours under no-build (2024) and build (2024) analysis scenarios.

The Parks at Wimberly adjacent development is expected to construct a southbound right-turn lane with 50 feet of storage at the intersection of Jenks Road and Wimberly Road. It was assumed that by 2024, only 75% of the adjacent development would be built, thus only 75% of full trip generation for the Parks at Wimberly was considered background traffic for the weekday AM and PM peak hours under no-build (2024) and build (2024) analysis scenarios.

The Westford adjacent development TIA includes traffic signals at the intersections of US 64 and Jenks Road / Richardson Road & US 64 and U-turn (West of Jenks Road) as background improvements. Additionally, an additional northbound right-turn lane with 300 feet of storage and an additional westbound left-turn lane at the intersection of US 64 and Jenks Road / Richardson Road were included as background improvements in the Westford TIA. It should be noted that, the Westford development was approximately 75% built out when

existing traffic counts were conducted. Thus, 25% of the full trip generation was considered as background traffic during the weekday AM and PM peak hours under no-build (2024) and build (2024) analysis scenarios.

It should be noted that the adjacent developments were approved, during scoping, by the Town and NCDOT. Adjacent development trips are shown in Figure 6. Adjacent development information can be found in Appendix C.

3.3. Future Roadway Improvements

Based on coordination with the NCDOT and the Town, it was determined that the roadway improvements associated with the Sweetwater and Westford developments should be considered in this study. Both the Sweetwater and Westford developments are committed to installing a traffic signal at the intersections of US 64 and Jenks Road / Richardson Road & US 64 and U-turn (West of Jenks Road). Additionally, turn lane improvements at the intersection of US 64 and Jenks Road / Richardson Road will also be analyzed under future traffic conditions.

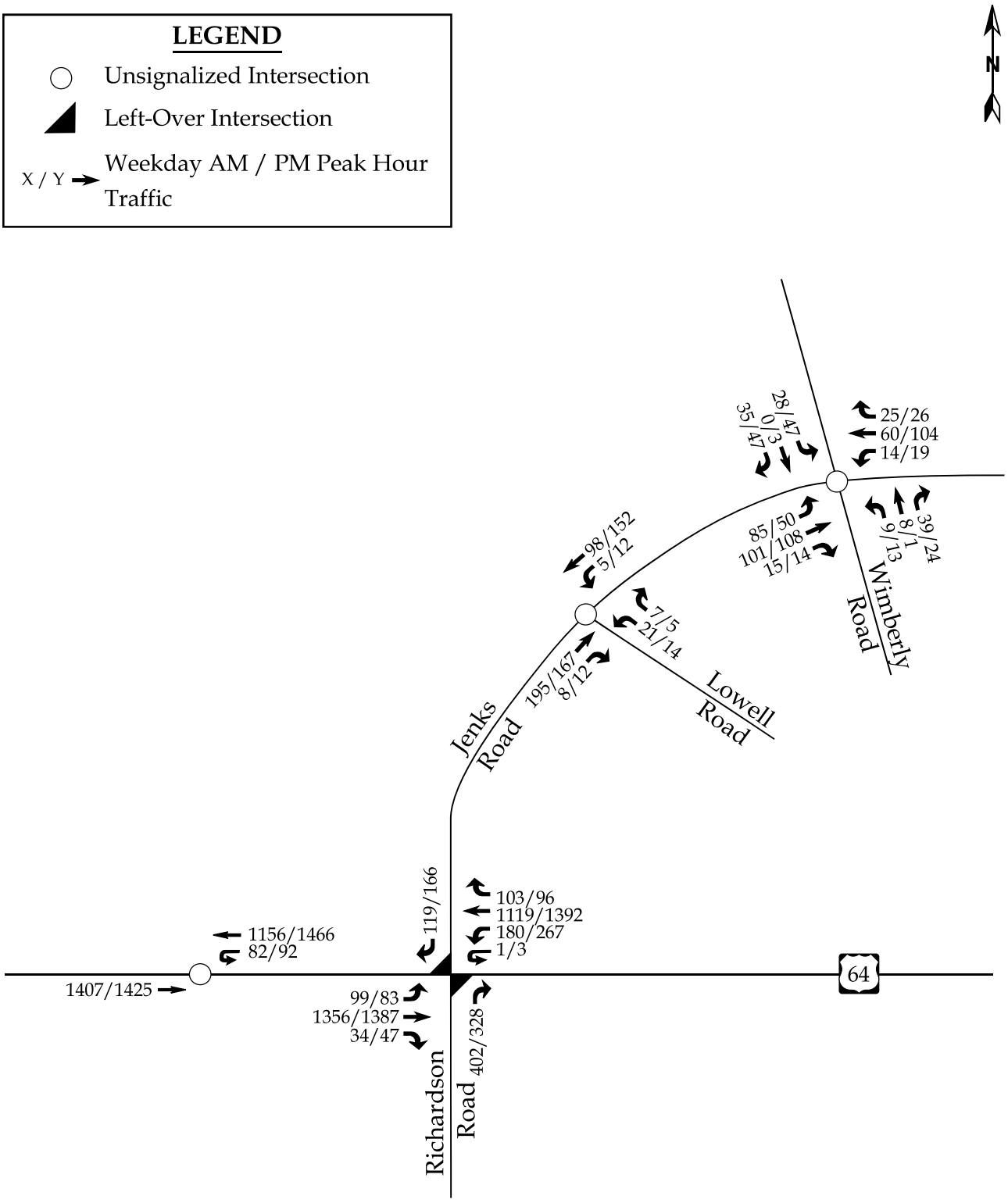
The signal plans for these intersections can be found in Appendix D.

3.4. 2024 No-Build Peak Hour Traffic Volumes

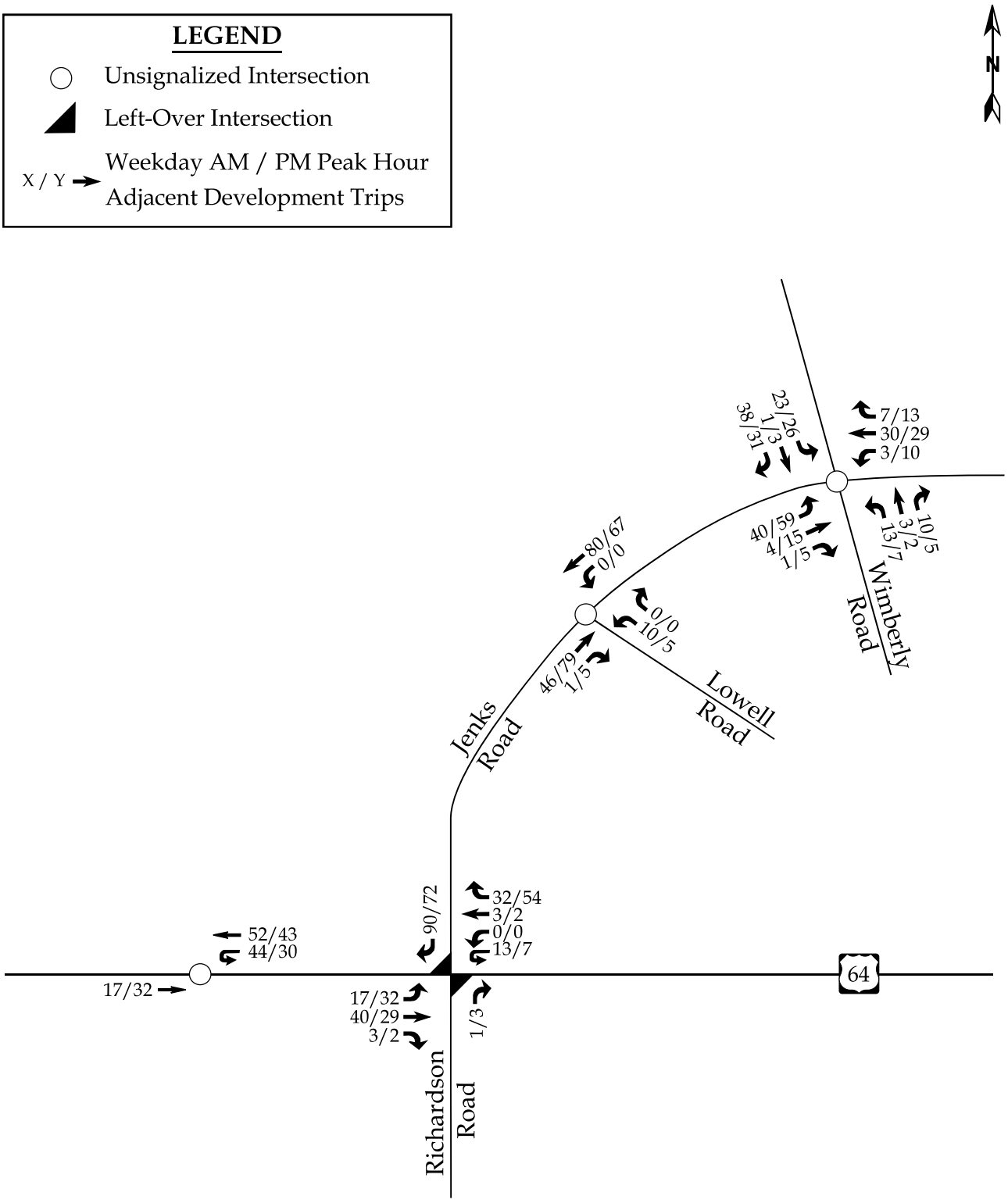
The 2024 no-build traffic volumes were determined by projecting the 2021 existing peak hour traffic to the year 2024, and adding the adjacent development trips. Refer to Figure 7 for an illustration of the 2024 no-build peak hour traffic volumes at the study intersections.

3.5. Analysis of 2024 No-Build Peak Hour Traffic Conditions

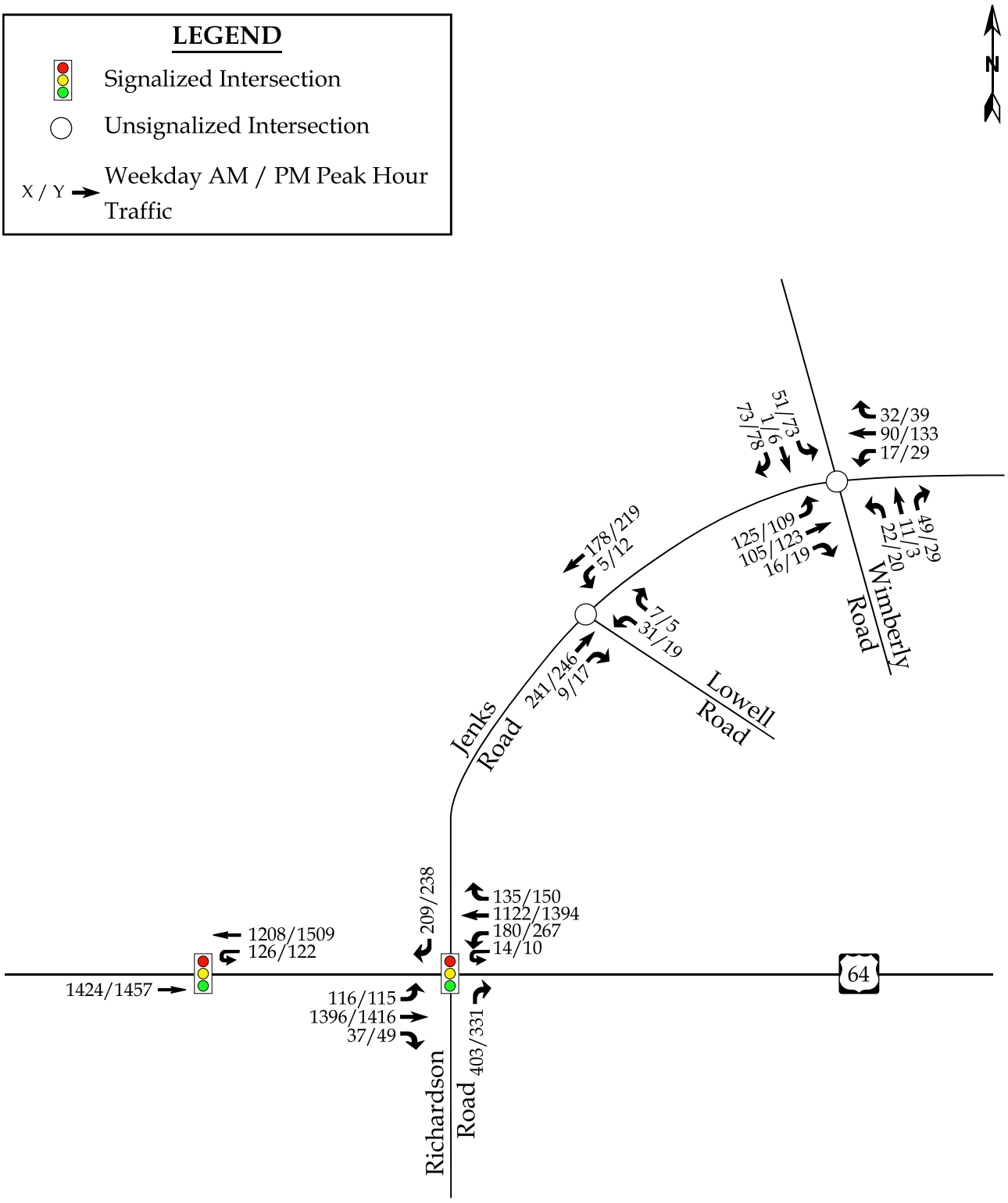
The 2024 no-build AM and PM peak hour traffic volumes at the study intersections were analyzed with future geometric roadway conditions and traffic control. The analysis results are presented in Section 7 of this report.



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	2024 Projected Peak Hour Traffic Scale: Not to Scale | Figure 5



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	Peak Hour Adjacent Developement Trips Scale: Not to Scale | Figure 6



Moving forward.
RKA
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Arden at Apex
Apex, NC

2024 No-Build
Peak Hour Traffic

Scale: Not to Scale | Figure 7

4. SITE TRIP GENERATION AND DISTRIBUTION

4.1. Trip Generation

The proposed development is assumed to consist of 163 adult senior homes (multifamily) and a 10,000 sq. ft. shopping center. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 11th Edition. It should be noted that the Strip Retail Plaza land use was used to generate site trips as the proposed development is expected to have less than 40,000 sq. ft. of retail. Table 3 provides a summary of the trip generation potential for the site.

Table 3: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Adult Senior Housing – Multifamily (252)	163 units	496	11	21	23	18
Strip Retail Plaza (822)	10,000 sq. ft.	652	17	12	39	39
Total Trips		**1,148**	**18**	**33**	**62**	**57**
Pass-By Trips: Strip Retail Plaza (34% PM)*			--	--	*-13*	*-13*
Total Primary Trips			**18**	**33**	**49**	**44**

*Pass-by percentages from LUC 820 were used for the Strip Retail Plaza land use.

It is estimated that the proposed development will generate approximately 1,148 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 51 trips (18 entering and 33 exiting) will occur during the weekday AM peak hour and 119 trips (62 entering and 57 exiting) will occur during the weekday PM peak hour.

Pass-by trips were also taken into consideration in this study. Pass-by trips are made by the traffic already using the adjacent roadway, entering the site as an intermediate stop on their way to another destination. Pass-by trips are expected to account for approximately 26 trips

(13 entering and 13 exiting) during the weekday PM peak hour. It should be noted that the pass-by trips were balanced, as it is likely that these trips would enter and exit in the same hour.

The total primary site trips are the calculated site trips after the reduction for internal capture and pass-by trips. Primary site trips are expected to generate approximately 51 trips (18 entering and 33 exiting) during the weekday AM peak hour and 93 trips (49 entering and 44 exiting) during the weekday PM peak hour.

4.2. Site Trip Distribution and Assignment

Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment.

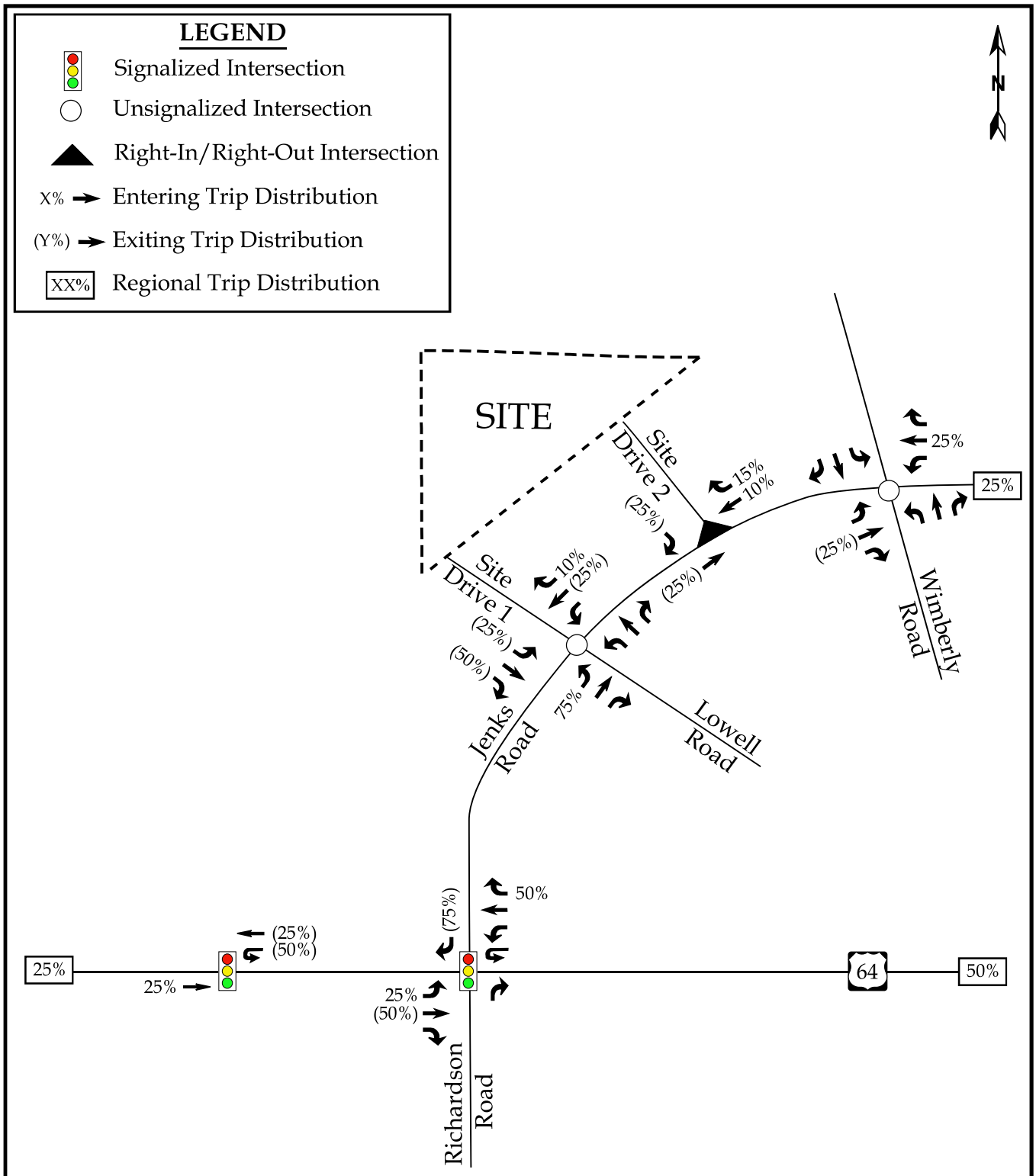
It is estimated that the site trips will be regionally distributed as follows:

- 50% to/from the east via US 64
- 25% to/from the west via US 64
- 25% to/from the east via Jenks Road

The site trip distribution is shown in Figure 8. Refer to Figure 9A for the residential site trip assignment and Figure 9B for the commercial site trip assignment.

The pass-by site trips were distributed based on existing traffic patterns with consideration given to the proposed driveway access and site layout. Refer to Figure 10 for the pass-by site trip distribution. Pass-by site trips are shown in Figure 11.

The total site trips were determined by adding the primary site trips and the pass-by site trips. Refer to Figure 12 for the total peak hour site trips at the study intersections.

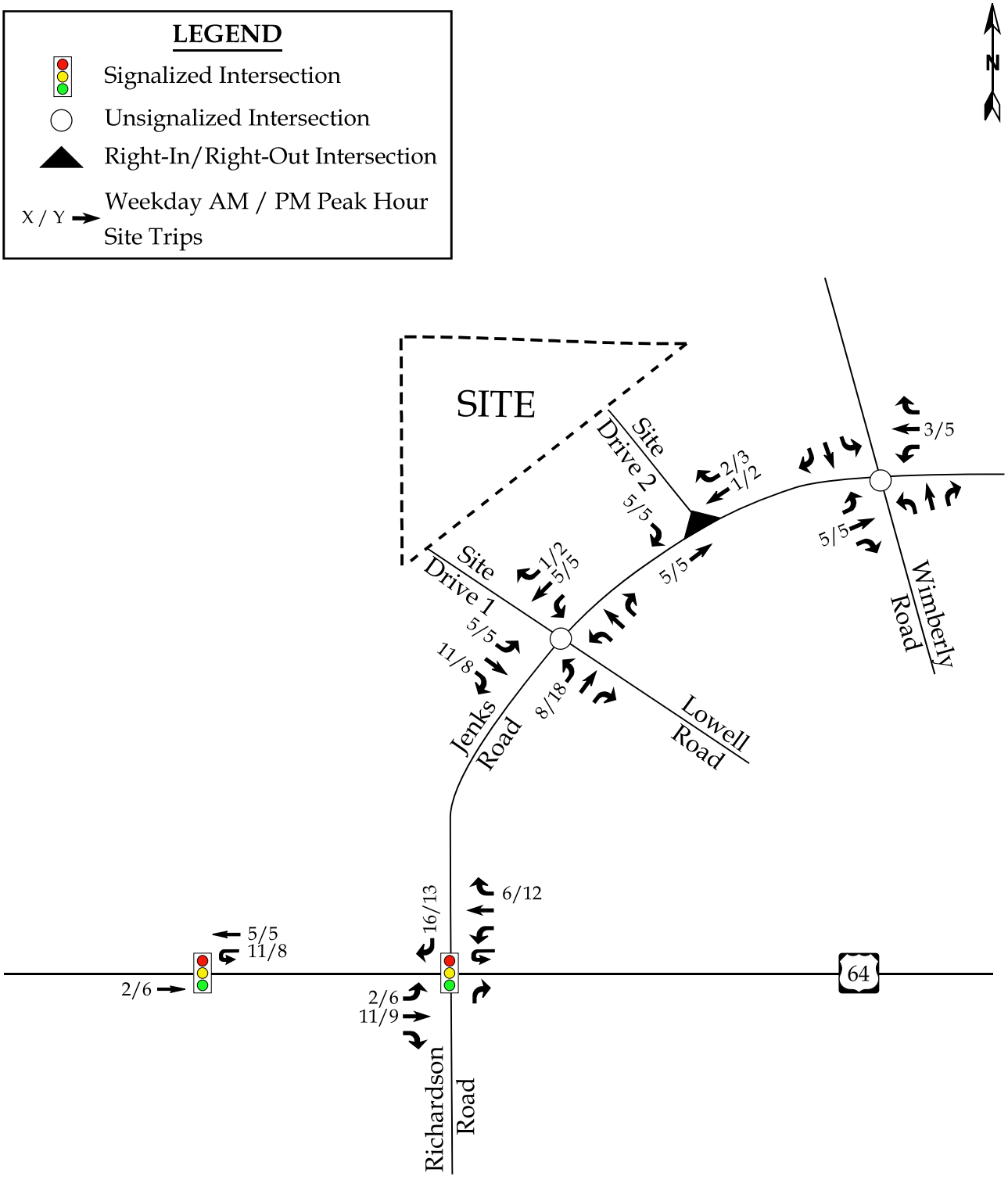


Moving forward. RKA RAMEY KEMP ASSOCIATES

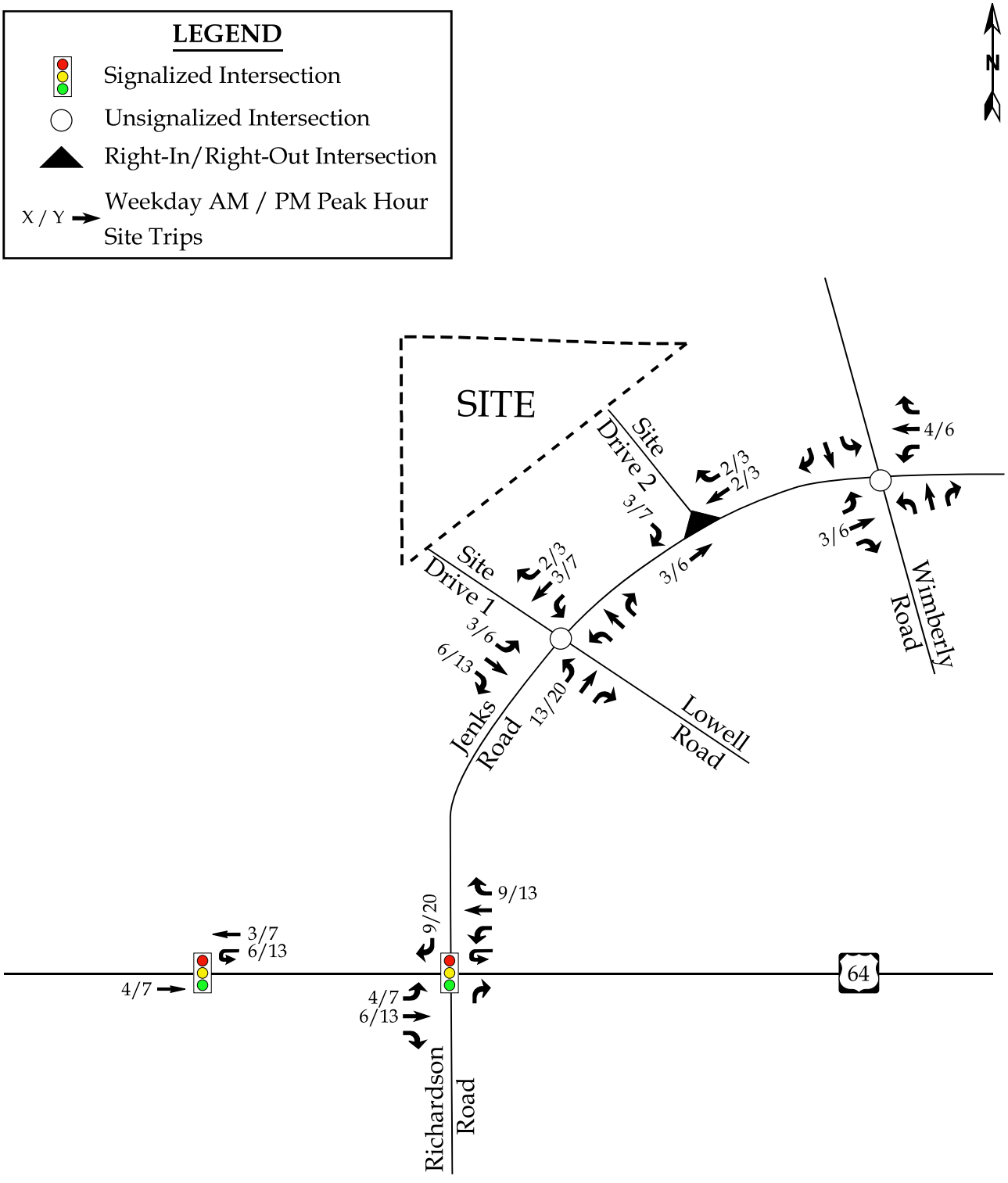
Arden at Apex
Apex, NC

Site Trip Distribution

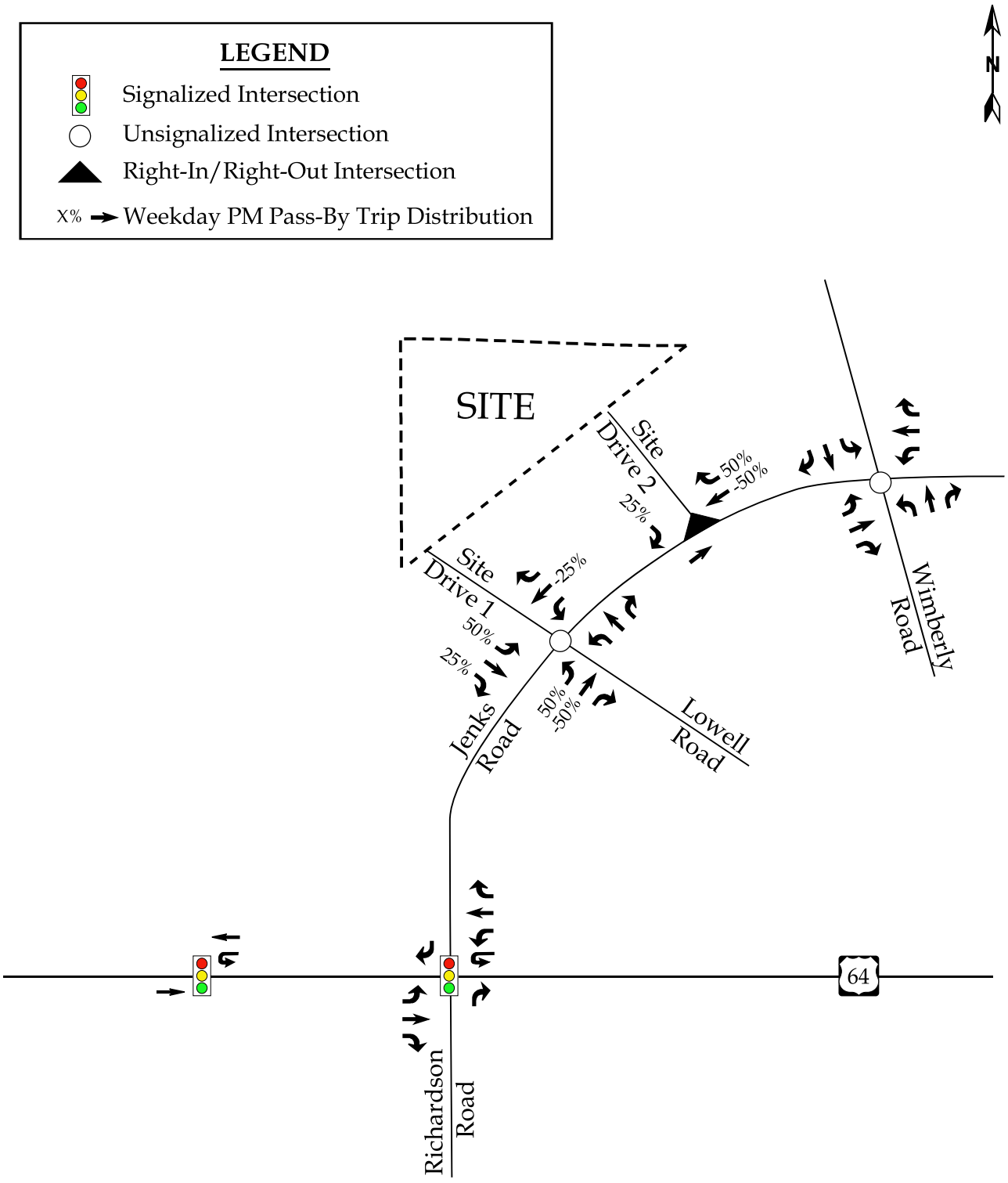
Scale: Not to Scale | Figure 8



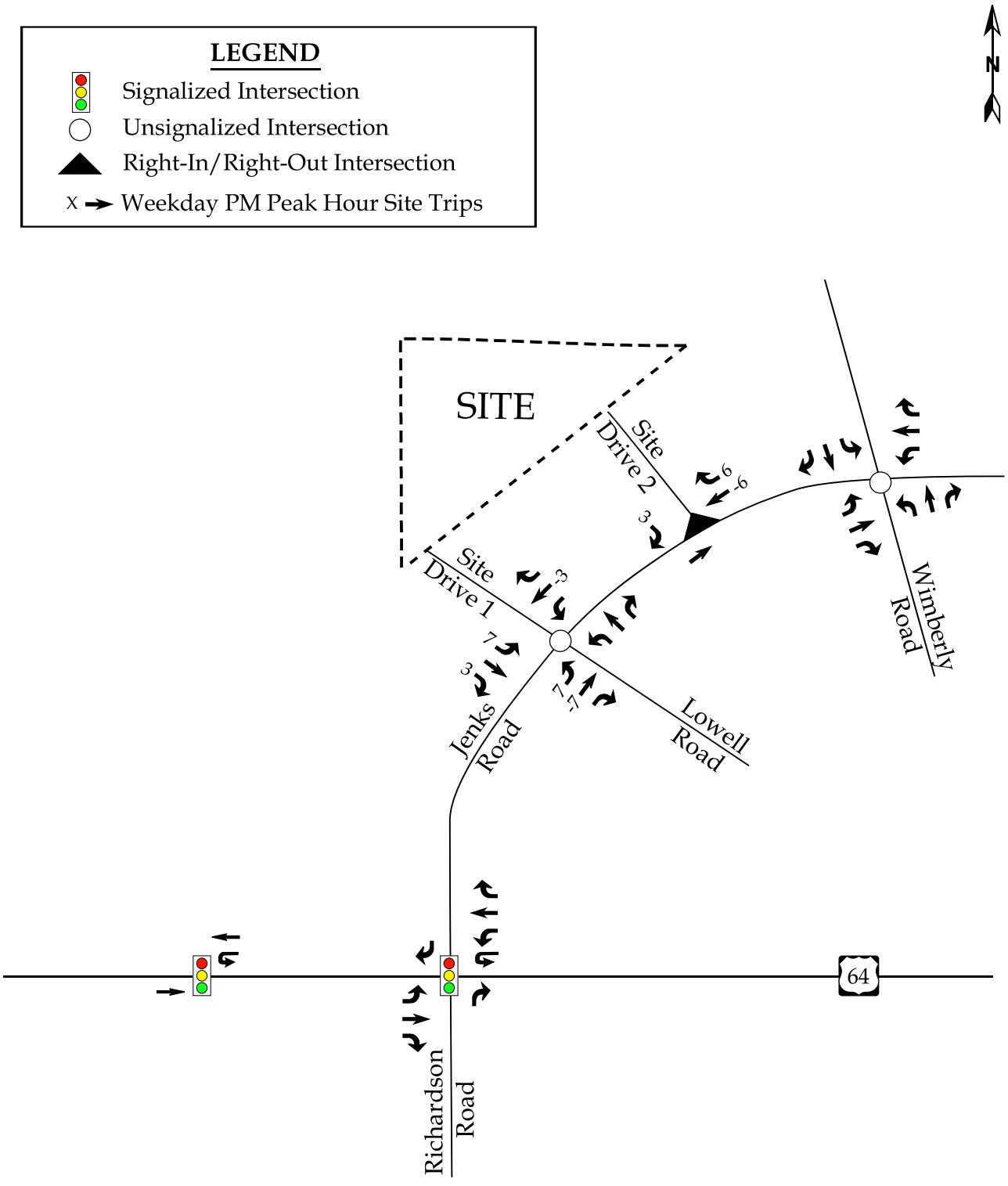
Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	Residential Site Trip Assignment Scale: Not to Scale | Figure 9A



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	Commercial Site Trip Assignment Scale: Not to Scale | Figure 9B



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	Pass-By Site Trip Distribution Scale: Not to Scale | Figure 10



Moving forward.
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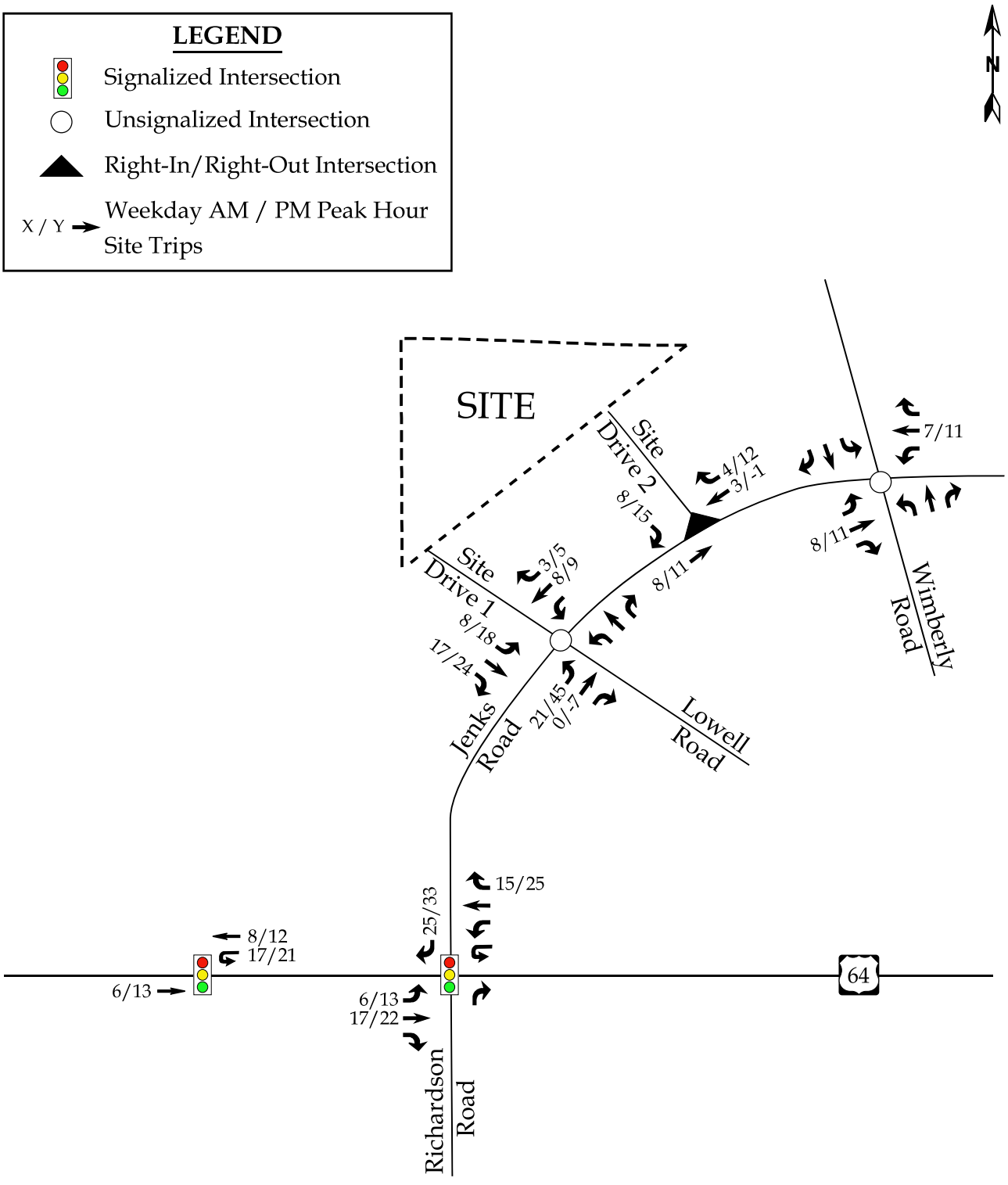
Arden at Apex
Apex, NC

Pass-By Site
Trip Assignment

Scale: Not to Scale | Figure 11



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	Total Site Trip Assignment Scale: Not to Scale | Figure 12

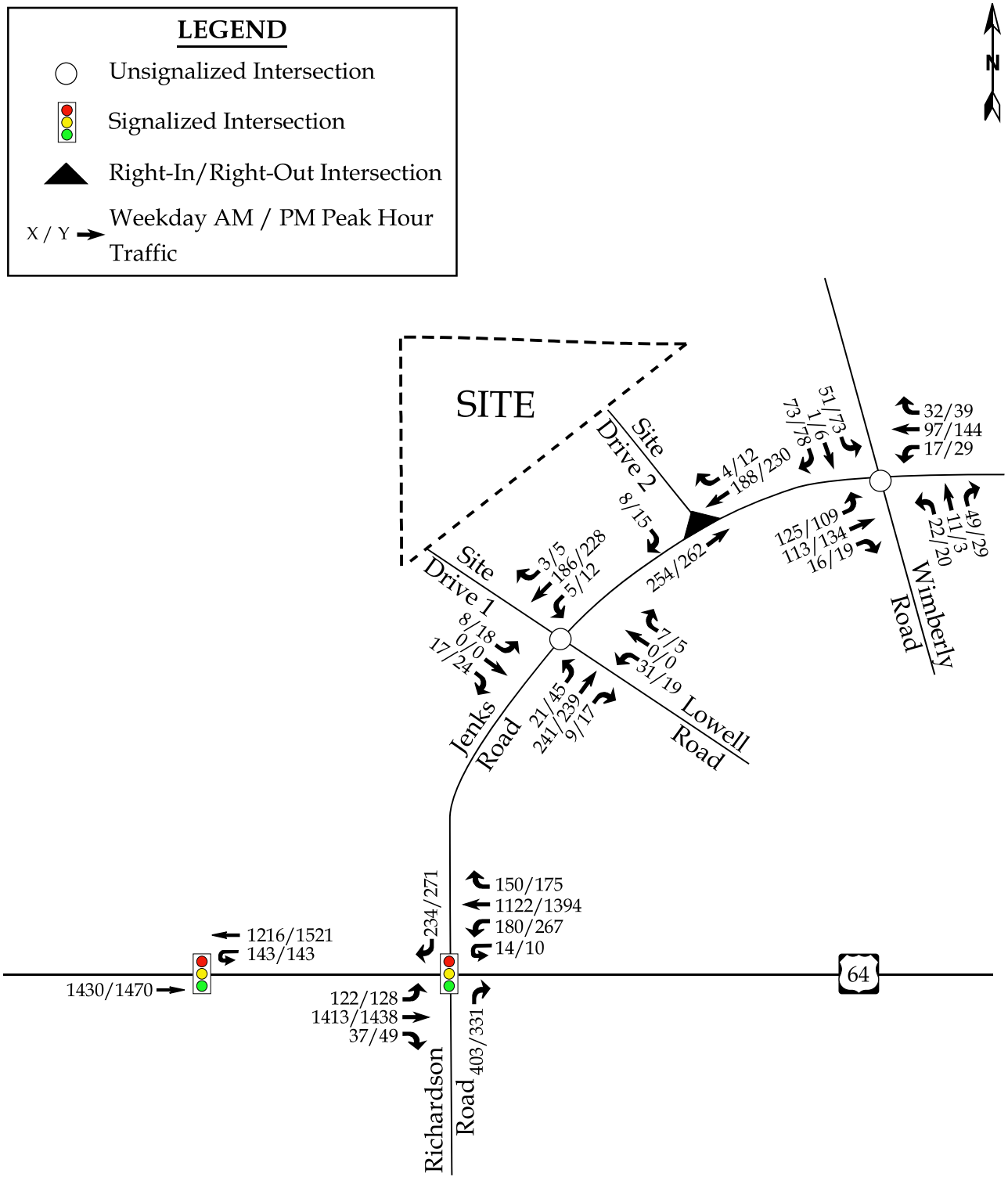
5. 2024 BUILD TRAFFIC CONDITIONS

5.1. 2024 Build Peak Hour Traffic Volumes

To estimate traffic conditions with the site fully built-out, the total site trips were added to the 2024 no-build traffic volumes to determine the 2024 build traffic volumes. Refer to Figure 13 for an illustration of the 2024 build peak hour traffic volumes with the proposed site fully developed.

5.2. Analysis of 2024 Build Peak Hour Traffic Conditions

Study intersections were analyzed with the 2024 build traffic volumes using the same methodology previously discussed for existing and no-build traffic conditions. Intersections were analyzed with improvements necessary to accommodate future traffic volumes. The results of the capacity analysis for each intersection are presented in Section 7 of this report.



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	2024 Build Peak Hour Traffic Scale: Not to Scale | Figure 13

6. TRAFFIC ANALYSIS PROCEDURE

Study intersections were analyzed using the methodology outlined in the *Highway Capacity Manual* (HCM), 6th Edition published by the Transportation Research Board. Capacity and level of service are the design criteria for this traffic study. A computer software package, Synchro (Version 10.3), was used to complete the analyses for most of the study area intersections. Please note that the unsignalized capacity analysis does not provide an overall level of service for an intersection; only delay for an approach with a conflicting movement.

The HCM defines capacity as "the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions." Level of service (LOS) is a term used to represent different driving conditions, and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers." Level of service varies from Level "A" representing free flow, to Level "F" where breakdown conditions are evident. Refer to Table 4 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes "initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay". An average control delay of 50 seconds at a signalized intersection results in LOS "D" operation at the intersection.

Table 4: Highway Capacity Manual – Levels-of-Service and Delay

UNSIGNALIZED INTERSECTION		SIGNALIZED INTERSECTION	
LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)
A	0-10	A	0-10
B	10-15	B	10-20
C	15-25	C	20-35
D	25-35	D	35-55
E	35-50	E	55-80
F	>50	F	>80

6.1. Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to the NCDOT Congestions Management Guidelines.

7. CAPACITY ANALYSIS

7.1. US 64 [EB-WB] and Jenks Road [SB] / Richardson Road [NB]

The existing unsignalized intersection of US 64 and Jenks Road was analyzed under 2021 existing, 2024 no-build, and 2024 build traffic conditions with lane configurations and traffic control shown in Table 5. It should be noted that this intersection was analyzed as a Reduced Conflict Intersection (RCI). Node 1 refers to the intersection of US 64 and Jenks Road. Node 11 refers to the intersection of US 64 and Richardson Road. Refer to Table 5 for a summary of the analysis results. Refer to Appendix E for the Synchro capacity analysis reports.

Table 5: Analysis Summary of US 64 and Jenks Road / Richardson Road

ANALYSIS SCENARIO	NODE	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
				Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	1	WB NB SB	2 TH, 1 RT 1 TH* 1 RT	-- E[1] C[2]	N/A	-- F[1] C[2]	N/A
	11	EB NB SB	2 TH, 1 RT 1 RT 1 TH**	-- F[2] F[1]	N/A	-- F[2] F[1]	N/A
2024 No-Build <u>Signalized</u>	1	WB NB SB	2 TH, 1 RT 1 TH* 1 RT	A A C	B (11)	B A C	B (13)
	11	EB NB SB	2 TH, 1 RT <u>2</u> RT <u>2</u> TH**	A C B	A (9)	A C C	A (9)
2024 Build <u>Signalized</u>	1	WB NB SB	2 TH, 1 RT 1 TH* 1 RT	A A C	B (11)	B A D	B (14)
	11	EB NB SB	2 TH, 1 RT <u>2</u> RT <u>2</u> TH**	A C B	A (9)	A C C	A (9)

*Due to Synchro limitations, the eastbound left-turn movement was analyzed as a northbound through movement.
**Due to Synchro limitations, the westbound left-turn movement was analyzed as a southbound through movement.
<u>Background improvements to this intersection are shown underlined.</u>
1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis of 2021 existing traffic conditions indicates the minor-street approach at the intersection of US 64 and Jenks Road (Node 1) currently operates at LOS C during both peak hours analyzed. The minor-street approach at the intersection of US 64 and Richardson Road (Node 11) currently operates at LOS F. The major-street left-turn movement at both nodes analyzed are expected to operate at LOS F during both peak hours, which exception of the eastbound left-turn movement which currently operates at LOS E.

Under future traffic conditions, traffic signals at this intersection are expected to be installed prior to 2024. Final signal plans for this intersection have been completed in 2021 and can be found in Appendix D. With signalization, the intersection is expected to operate at LOS B or better during the weekday AM and PM peak hours.

It should be noted that maximum queues in SimTraffic are expected to extend beyond the eastbound left-turn storage; however, this may be due to vehicles destined to turn left that are held in the through lane queue. Additionally, based on SimTraffic, the proposed development is not expected to add to the maximum queue by more than one (1) vehicle.

Due to the minimal impact the site traffic is expected to have on the intersection, no improvements are recommended.

7.2. US 64 [EB-WB] and U-turn (West of Jenks Road) [SB]

The existing unsignalized intersection of US 64 and U-turn (west of Jenks Road) was analyzed under 2021 existing, 2024 no-build, and 2024 build traffic conditions with existing lane configurations and traffic control. Refer to Table 6 for a summary of the analysis results. Refer to Appendix F for the Synchro capacity analysis reports.

Table 6: Analysis Summary of US 64 and U-turn (West of Jenks Road)

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB WB	2 TH 1 UT*	-- C[1]	N/A	-- C[1]	N/A
2024 No-Build Signalized	EB WB	2 TH 1 UT*	B A	B (12)	B A	B (13)
2024 Build Signalized	EB WB	2 TH 1 UT*	B A	B (12)	B A	B (13)

*Due to Synchro limitations, the westbound U-turn movement was analyzed as a southbound left-turn movement.
Background improvements to this intersection are shown underlined.
1. Level of service for major-street left-turn movement.

Capacity analysis of 2021 existing traffic conditions indicates the major-street left-turn movement currently operates at LOS C during the weekday AM and PM peak hours. Under future traffic conditions, this intersection is expected to be signalized. Final signal plans for this intersection have been completed in 2021 and can be found in Appendix D. With signalization, this intersection is expected to operate at LOS B during both peak hours analyzed. Due to the minimal impact the site traffic is expected to have on the intersection, no improvements are recommended.

7.3. Jenks Road [EB-WB] and Wimberly Road [NB-SB]

The existing unsignalized intersection of Jenks Road and Wimberly Road was analyzed under 2021 existing, 2024 no-build, and 2024 build traffic conditions with the lane configurations and traffic control shown in Table 7. Refer to Table 7 for a summary of the analysis results. Refer to Appendix G for the Synchro capacity analysis reports.

Table 7: Analysis Summary of Jenks Road and Wimberly Road

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB WB NB SB	1 LT, 1 TH, 1 RT 1 LT, 1 TH-RT 1 LT-TH, 1 RT 1 LT-TH-RT	A[1] A[1] A[2] B[2]	N/A	A[1] A[1] B[2] B[2]	N/A
2024 No-Build	EB WB NB SB	1 LT, 1 TH, 1 RT 1 LT, 1 TH-RT 1 LT-TH, 1 RT 1 LT-TH, <u>1 RT</u>	A[1] A[1] B[2] B[2]	N/A	A[1] A[1] B[2] B[2]	N/A
2024 Build	EB WB NB SB	1 LT, 1 TH, 1 RT 1 LT, 1 TH-RT 1 LT-TH, 1 RT 1 LT-TH, <u>1 RT</u>	A[1] A[1] B[2] B[2]	N/A	A[1] A[1] B[2] B[2]	N/A

<u>Improvements by adjacent developments are shown underlined.</u>
1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis of all traffic conditions indicates the minor-street approaches and major-street left-turn movements are expected to operate at LOS B or better during the weekday AM and PM peak hours. It should be noted that a southbound right-turn lane with 50 feet of storage is expected to be constructed at this intersection and was analyzed under future traffic conditions. Based on SimTraffic, there is expected to be minimal queuing at this intersection. Due to the minimal impact the site traffic is expected to have on the intersection, no improvements are recommended.

7.4. Jenks Road [NB-SB] and Lowell Road [WB] / Site Drive 1 [EB]

The existing unsignalized intersection of Jenks Road and Lowell Road was analyzed under 2021 existing, 2024 no-build, and 2024 build traffic conditions with the lane configurations and traffic control shown in Table 8. Refer to Table 8 for a summary of the analysis results. Refer to Appendix H for the Synchro capacity analysis reports.

Table 8: Analysis Summary of Jenks Road and Lowell Road / Site Drive 1

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	WB NB SB	1 LT, 1 RT 1 TH, 1 TH-RT 1 LT, 1 TH	B[2] -- A[1]	N/A	B[2] -- A[1]	N/A
2024 No-Build	WB NB SB	1 LT, 1 RT 1 TH, 1 TH-RT 1 LT, 1 TH	B[2] -- A[1]	N/A	B[2] -- A[1]	N/A
2024 Build	**EB** WB NB SB	**1 LT, 1 TH-RT** 1 LT, 1 **TH-**RT **1 LT**, 1 TH, 1 TH-RT 1 LT, 1 TH-**RT**	B[2] B[2] A[1] A[1]	N/A	B[2] B[2] A[1] A[1]	N/A

Improvements by developer are shown in bold.
1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis of all traffic conditions indicates the minor-street approaches and major-street left-turn movements are expected to operate at LOS B or better during the weekday AM and PM peak hours. Based on SimTraffic, there is expected to be minimal queuing at this intersection.

Turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*. An eastbound left-turn lane is recommended at the northbound approach along Jenks Road.

7.5. Jenks Road [EB-WB] and Site Drive 2 [SB]

The proposed right-in / right-out intersection of Jenks Road and Site Drive 2 was analyzed under 2024 build traffic conditions with the lane configurations and traffic control shown in Table 9. Refer to Table 9 for a summary of the analysis results. Refer to Appendix I for the Synchro capacity analysis reports.

Table 9: Analysis Summary of Jenks Road and Site Drive 2

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2024 Build	EB WB **SB**	2 TH 1 TH-**RT** **1 RT**	-- -- A[1]	N/A	-- -- A[1]	N/A

Improvements to lane configurations are shown in bold.
1. Level of service for minor-street approach.

Capacity analysis of 2024 build traffic conditions indicates the minor-street approach at the intersection is expected to operate at LOS A during the weekday AM and PM peak hours. Based on SimTraffic, there is expected to be minimal queuing at this intersection.

Turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*; however, due to the low turning movement volumes at this driveway, no turn lanes are recommended at this intersection.

8. CONCLUSIONS

This Traffic Impact Analysis was conducted to determine the potential traffic impacts of the proposed mixed-use development, to be located at 8200 Jenks Road in Apex, North Carolina. The proposed development is expected to be built out in 2024. Site access to the is proposed via one (1) right-in / right-out driveway along Jenks Road and one (1) connection to Jenks Road and Lowell Road.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2021 Existing Traffic Conditions
- 2024 No-Build Traffic Conditions
- 2024 Build Traffic Conditions

Trip Generation

It is estimated that the proposed development will generate approximately 51 primary trips (18 entering and 33 exiting) during the weekday AM peak hour and 93 primary trips (49 entering and 44 exiting) during the weekday PM peak hour.

Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to NCDOT Congestion Management Guidelines. Refer to section 6.1 of this report for a detailed description of any adjustments to these guidelines made throughout the analysis.

Intersection Capacity Analysis Summary

All the study area intersections (including the proposed site driveways) are expected to operate at acceptable levels-of-service under existing and future year conditions with the exception of the intersections listed below. A summary of the study area intersections that are expected to need improvements are as follows:

US 64 and Jenks Road / Richardson Road

The minor-street approach at the intersection of US 64 and Richardson Road (Node 11) currently operates at LOS F. The major-street left-turn movement at both nodes analyzed are expected to operate at LOS F during both peak hours, which exception of the eastbound left-turn movement which currently operates at LOS E.

Under future traffic conditions, traffic signals at this intersection are expected to be installed prior to 2024. Final signal plans for this intersection have been completed in 2021 and can be found in Appendix D. With signalization, the intersection is expected to operate at LOS B or better during the weekday AM and PM peak hours.

It should be noted that maximum queues in SimTraffic are expected to extend beyond the eastbound left-turn storage; however, this may be due to vehicles destined to turn left that are held in the through lane queue. Additionally, based on SimTraffic, the proposed development is not expected to add to the maximum queue by more than one (1) vehicle.

Due to the minimal impact the site traffic is expected to have on the intersection, no improvements are recommended.

9. RECOMMENDATIONS

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 14 for an illustration of the recommended lane configuration for the proposed development.

Adjacent Development Improvements

Parks at Wimberly

Jenks Road and Wimberly Road

- Construct a southbound right-turn lane with 50 feet of storage.

Background Improvements by Others

US 64 and Jenks Road / Richardson Road

- Install a traffic signal and coordinate timings along US 64.
- Construct an additional northbound right-turn lane with 300 feet of storage.
- Construct an additional westbound left-turn lane.

US 64 and U-turn (west of Jenks Road)

- Install a traffic signal and coordinate timings along US 64.

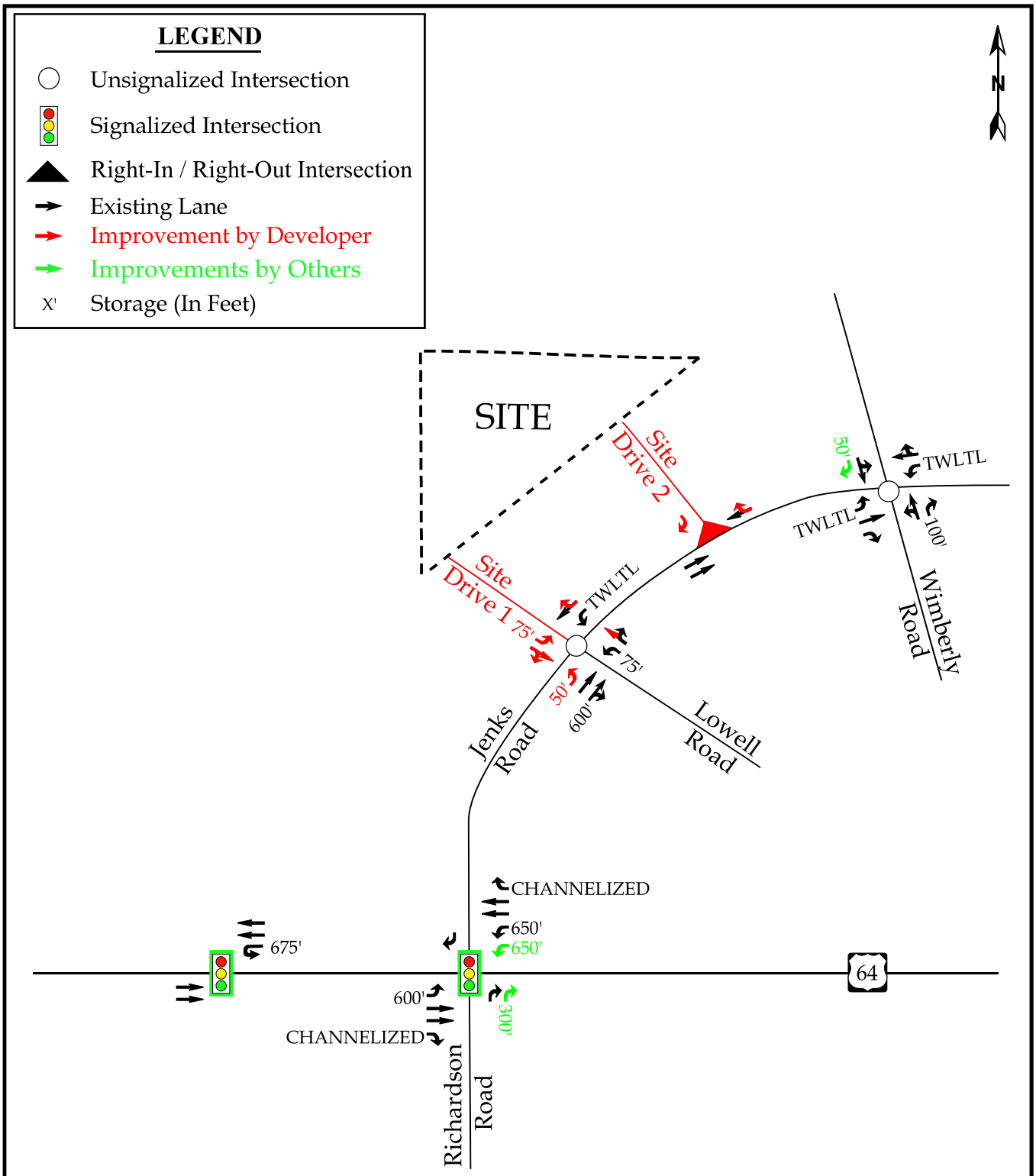
Recommended Improvements by Developer

Jenks Road and Lowell Road / Site Drive 1

- Construct an eastbound approach (Site Drive 1) with one ingress lane and two egress lanes, striped as a left-turn lane with at least 75 feet of storage and a shared through/right-turn lane.
- Provide a northbound left-turn lane with at least 50 feet of storage and appropriate decel and taper.
- Provide stop control at the eastbound approach.

Jenks Road and Site Drive 2

- Construct a right-in/right-out southbound approach with one ingress lane and one egress lane.
- Provide stop control at the southbound approach.



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	Recommended Lane Configurations Scale: Not to Scale | Figure 11

TECHNICAL APPENDIX

APPENDIX A

SCOPING DOCUMENTATION

RAMEY KEMP ASSOCIATES
Moving forward.

T 919 872 5115

5808 Faringdon Place
Raleigh, NC 27609

November 4, 2021

Serge Grebenschikov, PE
Traffic Engineer
Public Works & Transportation – Traffic
73 Hunter Street, 3rd Fl
PO Box 250
Apex, NC 27502

Reference: Arden at Apex
Apex, North Carolina

Subject: Memorandum of Understanding for TIA Report

Dear Mr. Grebenschikov:

The following is a Memorandum of Understanding (MOU) outlining the proposed scope of work and assumptions related to the Traffic Impact Analysis (TIA) for the proposed Arden at Apex mixed-use development, located at 8200 Jenks Road in Apex, North Carolina. The development is anticipated to consist of 163 adult senior homes (multifamily) and a 10,000 sq. ft. shopping center. The development is expected to be fully built-out by 2024. Access to the site is proposed via one (1) right-in / right-out driveway along Jenks Road and one (1) connection to Jenks Road and Lowell Road. Refer to the attached preliminary site plan.

Study Area

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

- US 64 and Jenks Road
- US 64 and U-Turn (west of Jenks Road)
- Jenks Road and Wimberly Road
- Jenks Road and Lowell Road / Site Drive

Analysis Scenarios

All capacity analyses will be performed utilizing Synchro (Version 10.3). All study intersections will be analyzed during the weekday AM and PM peak hours under the following proposed traffic scenarios:

- 2021 Existing Traffic Conditions
- 2024 No-Build Traffic Conditions
- 2024 Build Traffic Conditions
- 2024 Build Traffic Conditions with Improvements

Existing Traffic Volumes

Peak hour counts were conducted at all study intersections in October of 2021, during weekday AM (7:00 to 9:00 AM) and weekday PM (4:00 to 6:00 PM) peak hours. It should be noted that during scoping it was determined that no growth rate factor for COVID-19 would be needed to adjust the traffic counts collected.

No-Build Traffic Volumes

Per coordination with NCDOT and the Town, no-build traffic volumes will be determined by projecting 2021 existing traffic volumes to 2024 using a 3% annually compounded growth rate.

It was determined through coordination with the review agencies that the following developments would be included as adjacent developments in this study:

- Alderwood
- Parks at Wimberly
- Westford

Additionally, the future roadway improvements associated with adjacent developments at the study intersections will be considered in this study.

Trip Generation

Average weekday daily and peak hour trips for the proposed site were calculated utilizing methodology contained within the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition. It should be noted that the Strip Retail Plaza land use was used to generate site trips as the proposed development is expected to have less than 40,000 sq. ft. of retail. Refer to Table 1, on the following page, for a detailed breakdown of the trip generation for the proposed development. Refer to the attachments for the ITE 11th Edition Land Use Code (LUC) breakdowns.

Table 1: Trip Generation Summary

Land Use	Intensity	Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Adult Senior Housing - Multifamily (252)	163 units	496	11	21	23	18
Strip Retail Plaza (822)	10,000 sq. ft.	652	17	12	39	39
Total Trips		**1,148**	**18**	**33**	**62**	**57**
Pass-By Trips: Strip Retail Plaza (34% PM)*			-	-	*-13*	*-13*
Total Primary Trips			**18**	**33**	**49**	**44**

*Pass-by percentages from LUC 820 were used for the Strip Retail Plaza land use.

It is estimated that the proposed development will generate approximately 1,148 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 51 trips (18 entering and 33 exiting) will occur during the weekday AM peak hour and 119 trips (62 entering and 57 exiting) will occur during the weekday PM peak hour.

Pass-by trips were also taken into consideration. These trips are expected to account for approximately 26 trips (13 entering and 13 exiting) during the weekday PM peak hour. It should be noted that internal capture for this proposed development is expected to be minimal; therefore, it will not be included in this study.

The total primary site trips are expected to generate 51 trips (18 entering and 33 exiting) during the weekday AM peak hour and 93 trips (49 entering and 44 exiting) during the weekday PM peak hour.

Trip Distribution

The site trips were distributed based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment. A summary of the proposed site trip distribution is below:

- 50% to/from the east via US 64
- 25% to/from the west via US 64
- 25% to/from the east via Jenks Road

Refer to the attachments for the figures showing the anticipated site trip and pass-by distributions for the site.

Report

The Traffic Impact Analysis report will be prepared based on the Town and NCDOT guidelines. If you find this memorandum of understanding acceptable, please let me know so that we may include it in the TIA report. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,
Ramey Kemp & Associates, Inc.

Caroline Cheeves

Caroline Cheeves, PE
NC Traffic Project Manager

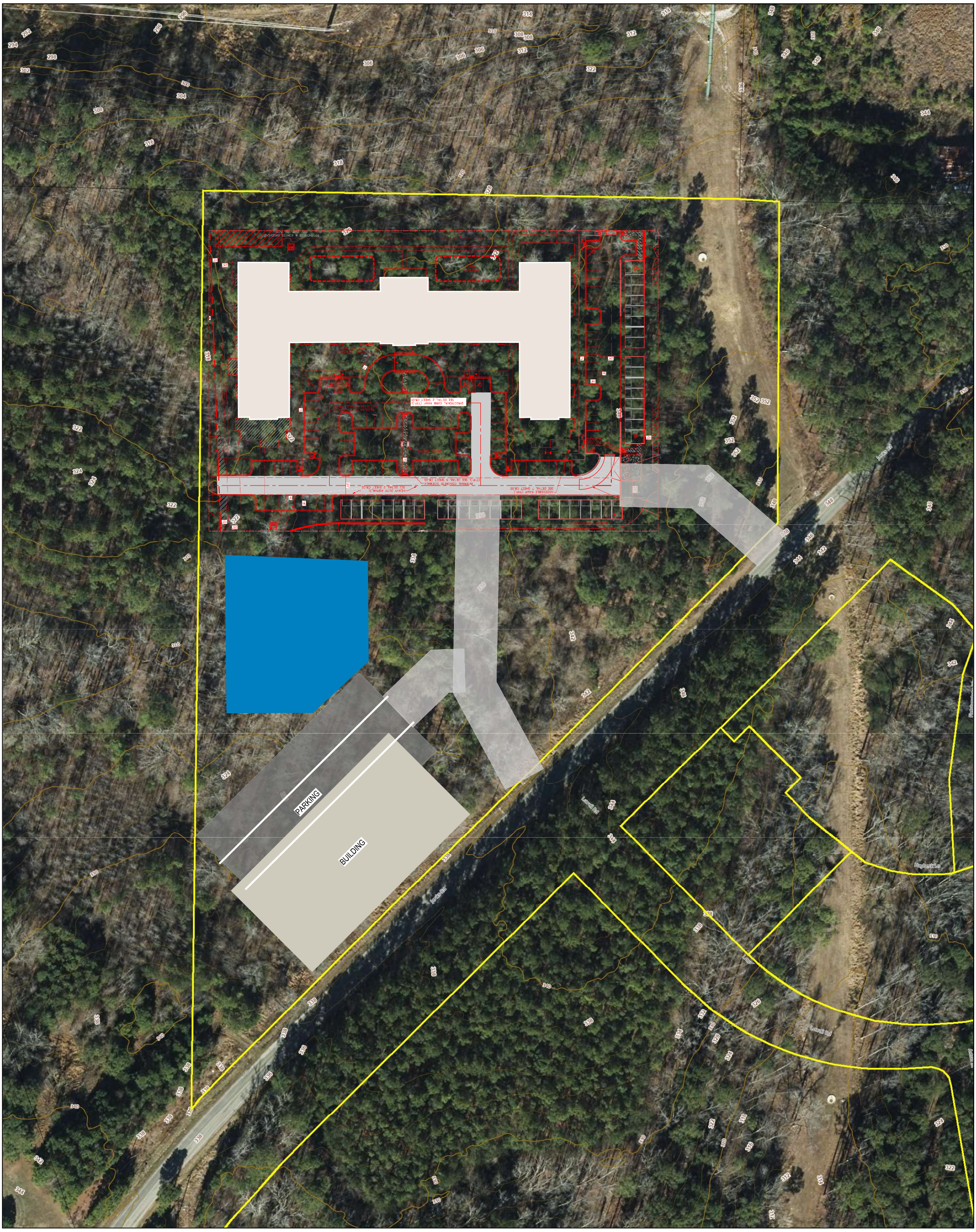
Attachments: Site Location Map Figure
Site Plan
2021 Existing Traffic Volumes Figure
Site Trip Distribution Figure
Pass-By Trip Distribution Figure
Count Information
11th Edition Trip Generation Information

N

LEGEND

- Proposed Site Location
- Study Intersection
- Study Area

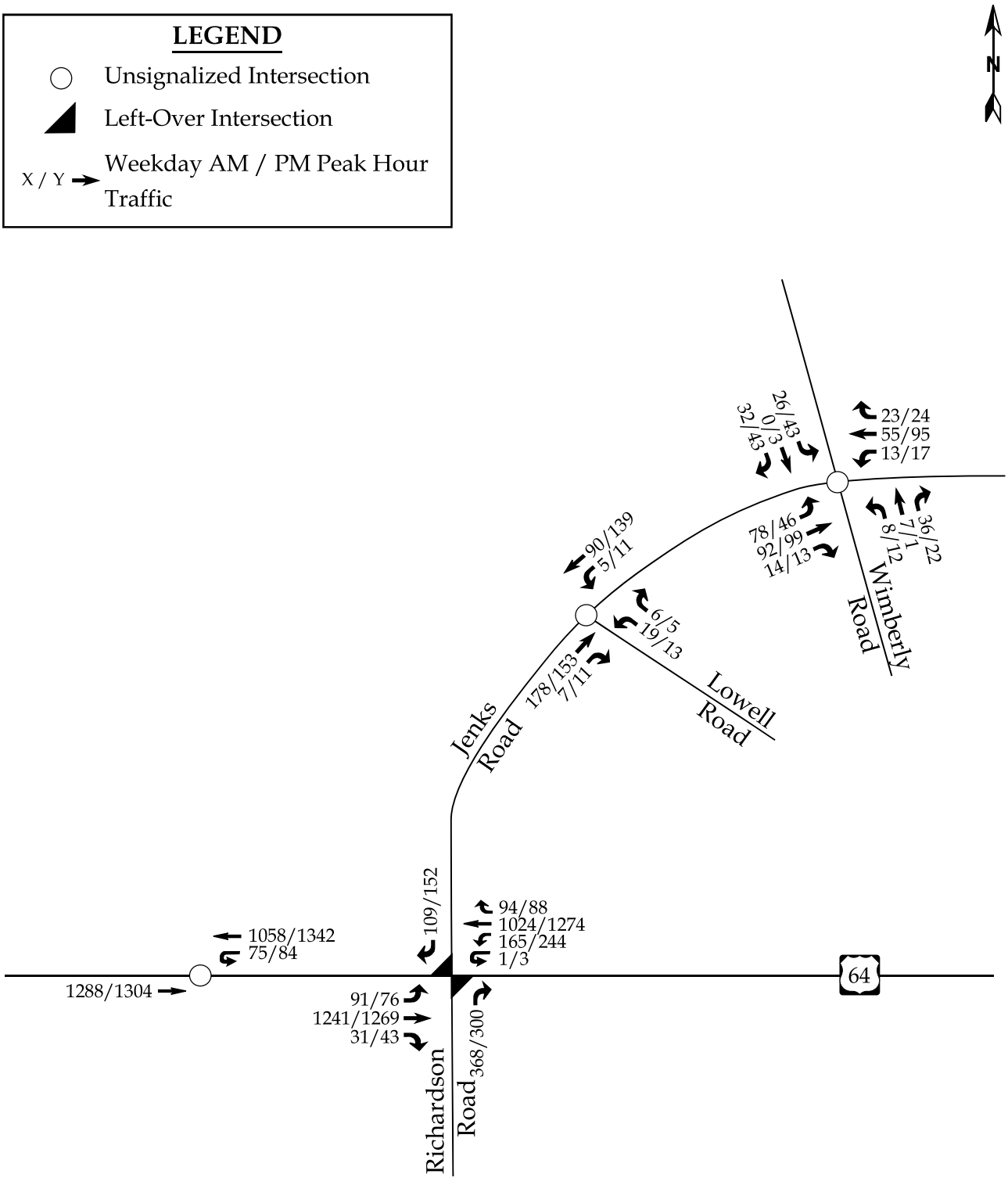
Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	Site Location Map Scale: Not to Scale | Figure 1



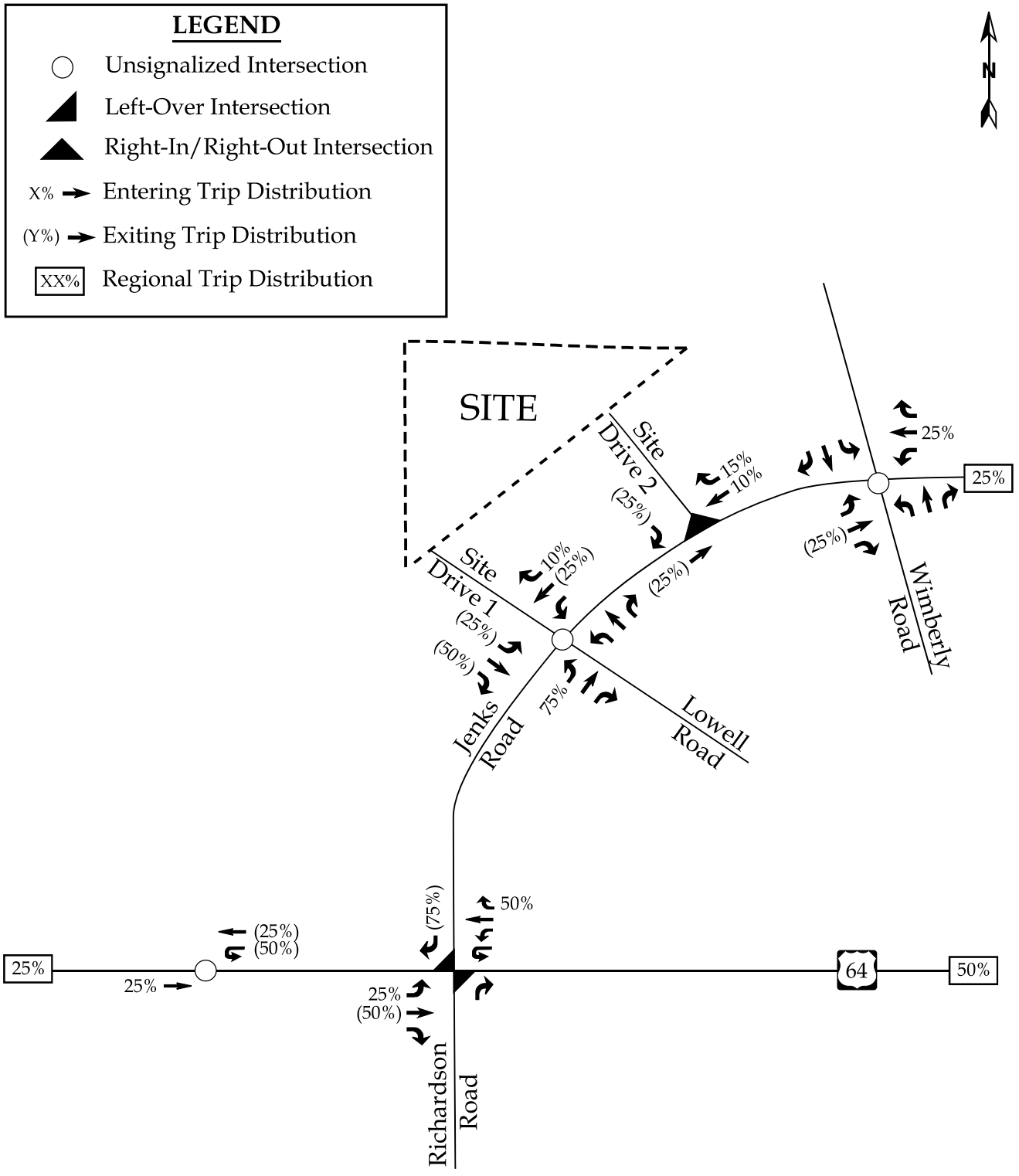
N

0 55 110 220 ft

1 inch = 50 feet

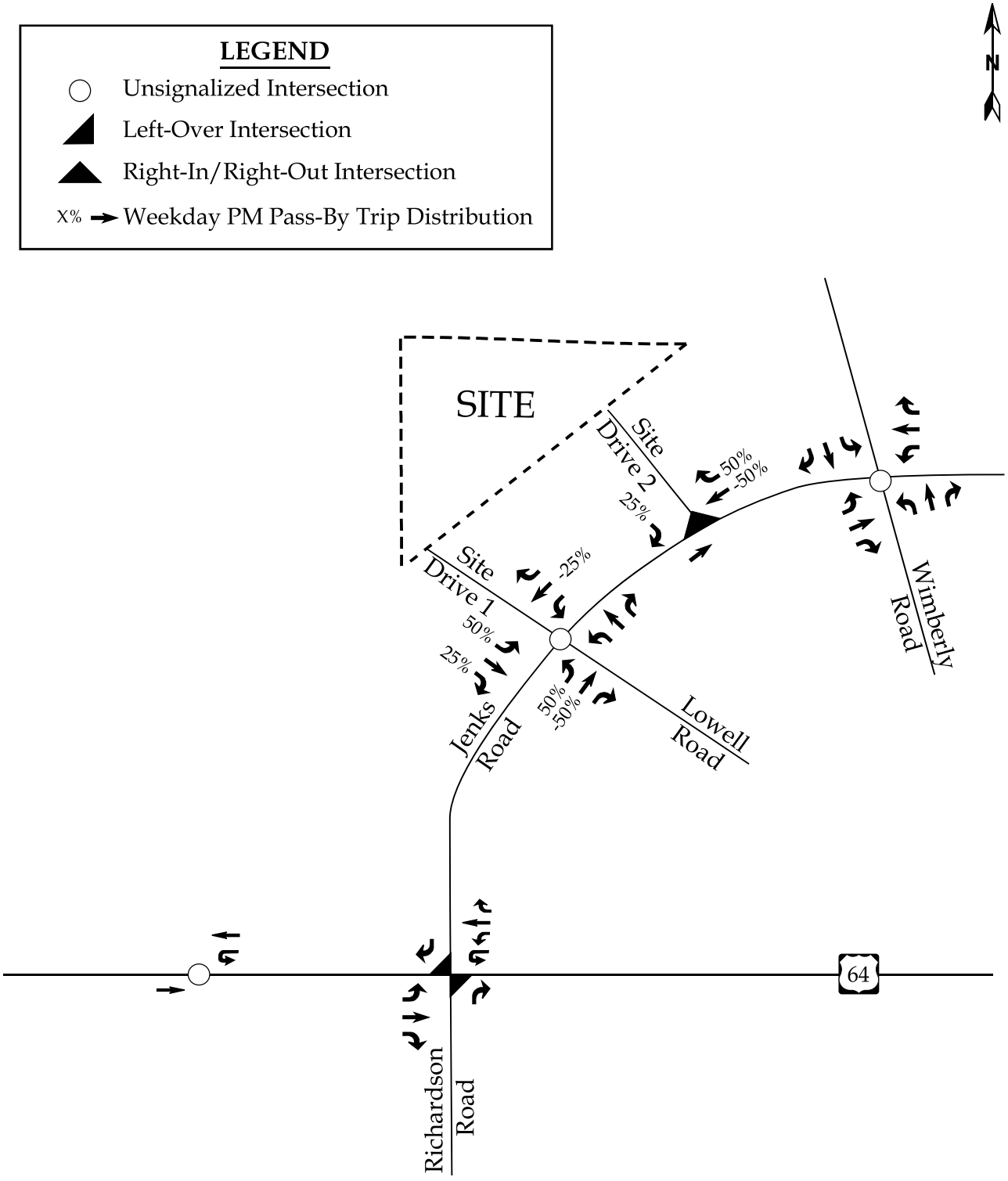


Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	2021 Existing Peak Hour Traffic Scale: Not to Scale | Figure 4



Moving forward. RKA RAMEY KEMP ASSOCIATES

Arden at Apex Apex, NC	Site Trip Distribution	
	Scale: Not to Scale	Figure 8



Moving forward. RKA RAMEY KEMP ASSOCIATES	Arden at Apex Apex, NC	Pass-By Site Trip Distribution Scale: Not to Scale | Figure 10

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Wimberley)AM Peak
Site Code :
Start Date : 11/1/2021
Page No : 1

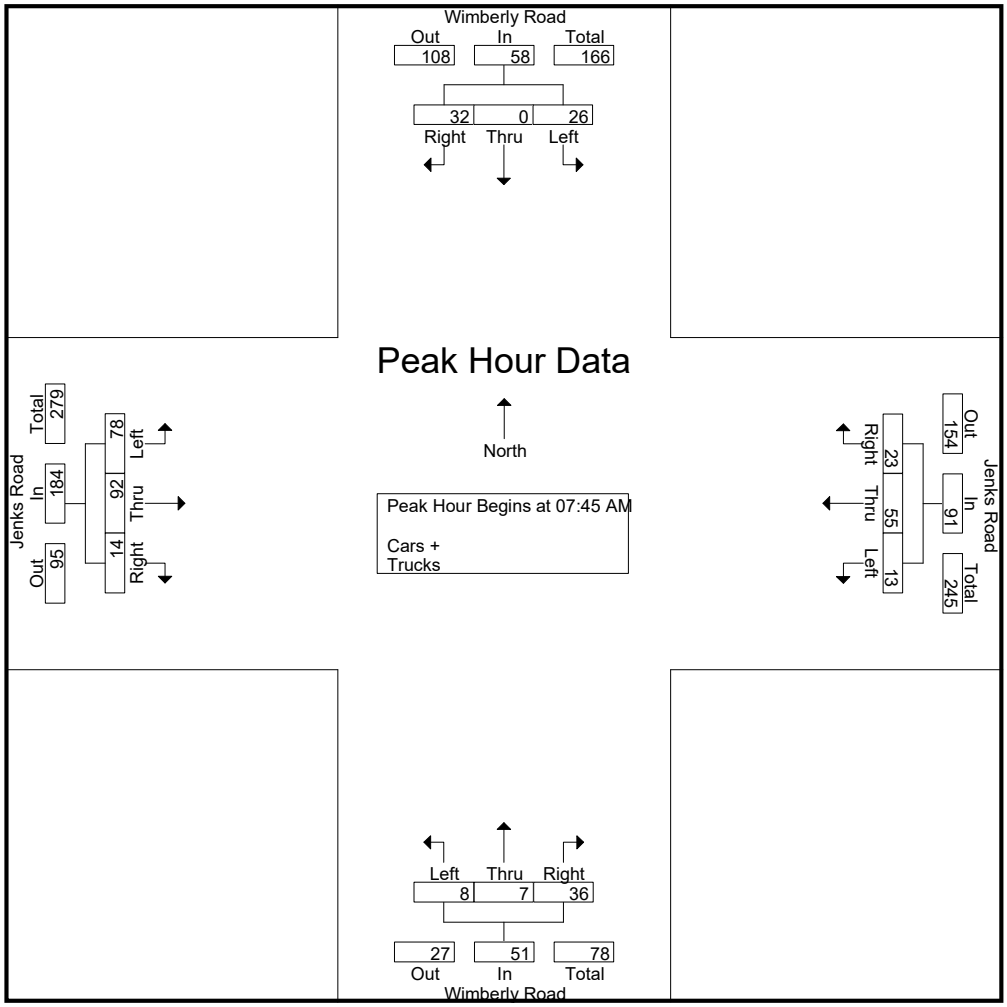
Groups Printed- Cars + - Trucks

	Wimberley Road Southbound				Jenks Road Westbound				Wimberly Road Northbound				Jenks Road Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	2	0	7	9	4	6	1	11	12	3	2	17	0	18	18	36	73
07:15 AM	11	0	10	21	2	9	2	13	11	2	1	14	1	24	12	37	85
07:30 AM	12	0	9	21	4	4	0	8	4	0	1	5	1	35	13	49	83
07:45 AM	8	0	7	15	4	8	5	17	4	1	1	6	4	17	25	46	84
Total	33	0	33	66	14	27	8	49	31	6	5	42	6	94	68	168	325
08:00 AM	9	0	4	13	8	14	2	24	6	1	1	8	4	36	20	60	105
08:15 AM	9	0	4	13	6	18	3	27	8	2	1	11	4	18	12	34	85
08:30 AM	6	0	11	17	5	15	3	23	18	3	5	26	2	21	21	44	110
08:45 AM	9	1	9	19	4	8	3	15	8	0	2	10	0	22	17	39	83
Total	33	1	28	62	23	55	11	89	40	6	9	55	10	97	70	177	383
Grand Total	66	1	61	128	37	82	19	138	71	12	14	97	16	191	138	345	708
Apprch %	51.6	0.8	47.7		26.8	59.4	13.8		73.2	12.4	14.4		4.6	55.4	40		
Total %	9.3	0.1	8.6	18.1	5.2	11.6	2.7	19.5	10	1.7	2	13.7	2.3	27	19.5	48.7	
Cars +	64	1	60	125	36	74	19	129	71	12	10	93	16	184	130	330	677
% Cars +	97	100	98.4	97.7	97.3	90.2	100	93.5	100	100	71.4	95.9	100	96.3	94.2	95.7	95.6
Trucks	2	0	1	3	1	8	0	9	0	0	4	4	0	7	8	15	31
% Trucks	3	0	1.6	2.3	2.7	9.8	0	6.5	0	0	28.6	4.1	0	3.7	5.8	4.3	4.4

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Wimberley)AM Peak
Site Code :
Start Date : 11/1/2021
Page No : 2

	Wimberly Road Southbound				Jenks Road Westbound				Wimberly Road Northbound				Jenks Road Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	8	0	7	15	4	8	**5**	17	4	1	1	6	**4**	17	**25**	46	84
08:00 AM	**9**	0	4	13	**8**	14	2	24	6	1	1	8	4	**36**	20	**60**	105
08:15 AM	9	0	4	13	6	**18**	3	**27**	8	2	1	11	4	18	12	34	85
08:30 AM	6	0	**11**	**17**	5	15	3	23	**18**	**3**	**5**	**26**	2	21	21	44	**110**
Total Volume	32	0	26	58	23	55	13	91	36	7	8	51	14	92	78	184	384
% App. Total	55.2	0	44.8		25.3	60.4	14.3		70.6	13.7	15.7		7.6	50	42.4		
PHF	.889	.000	.591	.853	.719	.764	.650	.843	.500	.583	.400	.490	.875	.639	.780	.767	.873



TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Wimberley)PM Peak
Site Code :
Start Date : 10/28/2021
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Groups Printed- Cars + - Trucks

	Wimberley Road Southbound				Jenks Road Westbound				Wimberly Road Northbound				Jenks Road Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
04:00 PM	15	3	11	29	1	13	10	24	6	0	2	8	1	17	11	29	90
04:15 PM	16	2	8	26	6	14	7	27	6	0	1	7	0	18	7	25	85
04:30 PM	9	2	9	20	7	20	10	37	4	2	2	8	2	18	13	33	98
04:45 PM	11	1	12	24	5	25	3	33	6	1	6	13	0	21	17	38	108
Total	51	8	40	99	19	72	30	121	22	3	11	36	3	74	48	125	381
05:00 PM	13	0	11	24	6	21	3	30	4	0	2	6	4	32	11	47	107
05:15 PM	14	0	9	23	4	23	2	29	7	0	2	9	3	26	8	37	98
05:30 PM	5	2	11	18	9	20	9	38	5	0	2	7	6	20	10	36	99
05:45 PM	11	1	9	21	8	19	5	32	9	0	0	9	2	19	6	27	89
Total	43	3	40	86	27	83	19	129	25	0	6	31	15	97	35	147	393
Grand Total	94	11	80	185	46	155	49	250	47	3	17	67	18	171	83	272	774
Apprch %	50.8	5.9	43.2		18.4	62	19.6		70.1	4.5	25.4		6.6	62.9	30.5		
Total %	12.1	1.4	10.3	23.9	5.9	20	6.3	32.3	6.1	0.4	2.2	8.7	2.3	22.1	10.7	35.1	
Cars +	94	11	80	185	46	155	49	250	47	3	17	67	18	170	83	271	773
% Cars +	100	100	100	100	100	100	100	100	100	100	100	100	100	99.4	100	99.6	99.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0	0.4	0.1

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Wimberley)PM Peak
Site Code :
Start Date : 10/28/2021
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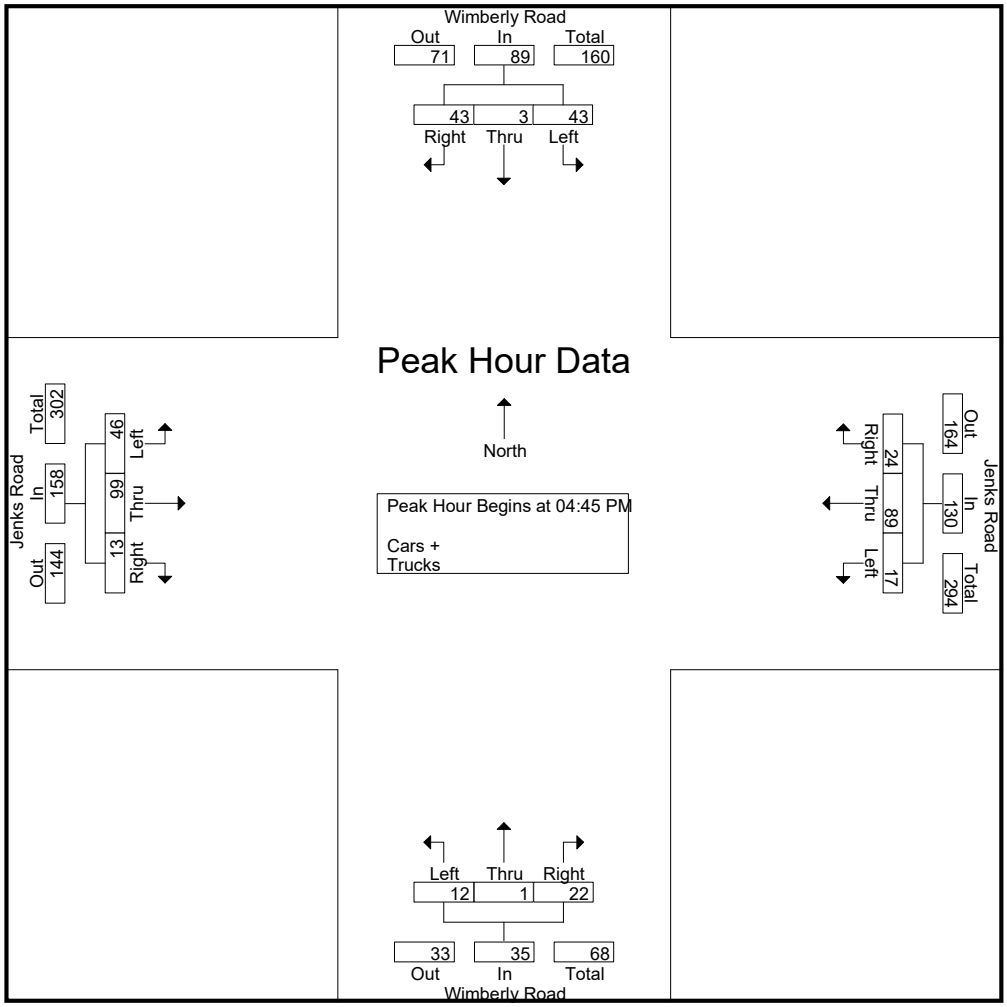
	Wimberly Road Southbound				Jenks Road Westbound				Wimberly Road Northbound				Jenks Road Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	11	1	**12**	**24**	5	**25**	3	33	6	**1**	**6**	**13**	0	21	**17**	38	**108**
05:00 PM	13	0	11	24	6	21	3	30	4	0	2	6	4	**32**	11	**47**	107
05:15 PM	**14**	0	9	23	4	23	2	29	**7**	0	2	9	3	26	8	37	98
05:30 PM	5	**2**	11	18	**9**	20	**9**	**38**	5	0	2	7	**6**	20	10	36	99
Total Volume	43	3	43	89	24	89	17	130	22	1	12	35	13	99	46	158	412
% App. Total	48.3	3.4	48.3		18.5	68.5	13.1		62.9	2.9	34.3		8.2	62.7	29.1		
PHF	.768	.375	.896	.927	.667	.890	.472	.855	.786	.250	.500	.673	.542	.773	.676	.840	.954



TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and Jenks)AM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

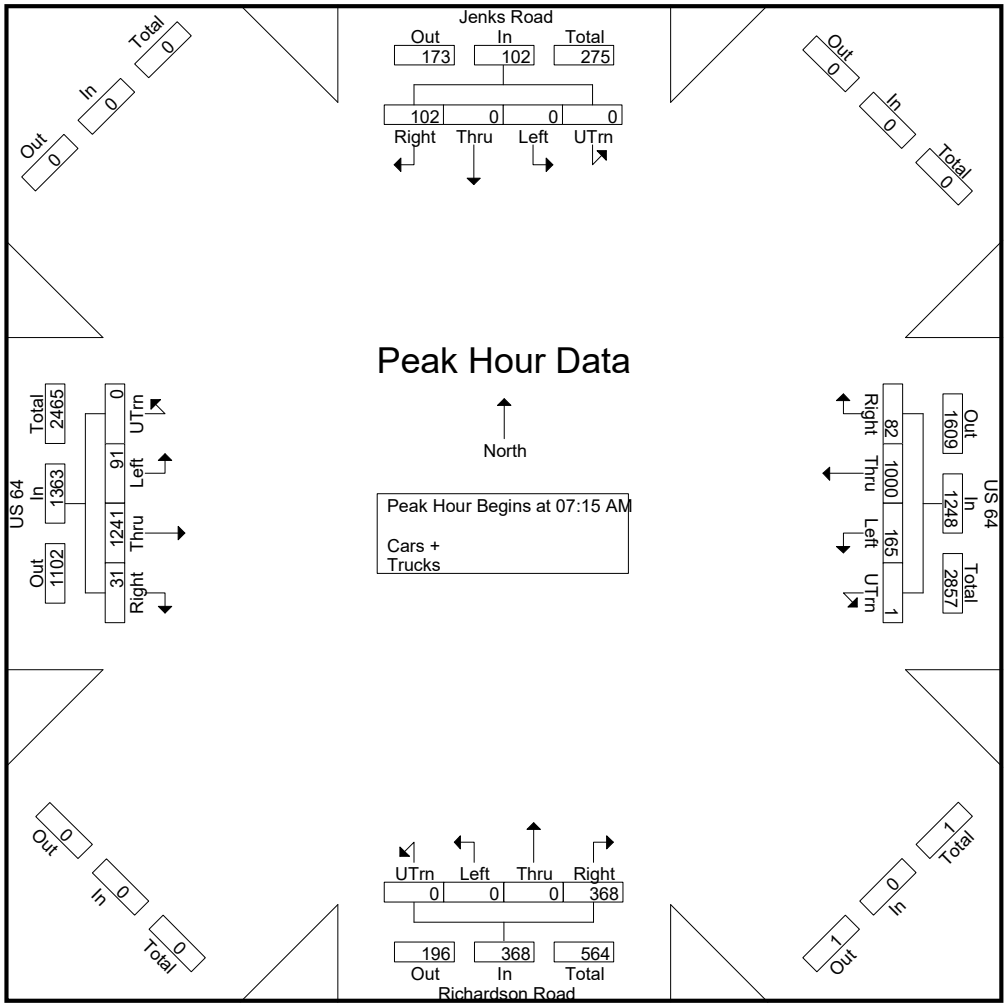
Groups Printed- Cars + - Trucks

	Jenks Road Southbound					US 64 Westbound					Richardson Road Northbound					US 64 Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
07:00 AM	19	0	0	0	19	19	225	33	0	277	74	0	0	0	74	4	253	15	0	272	642
07:15 AM	29	0	0	0	29	21	218	30	0	269	98	0	0	0	98	6	307	26	0	339	735
07:30 AM	22	0	0	0	22	14	253	36	1	304	106	0	0	0	106	6	341	21	0	368	800
07:45 AM	24	0	0	0	24	21	239	46	0	306	84	0	0	0	84	8	289	26	0	323	737
Total	94	0	0	0	94	75	935	145	1	1156	362	0	0	0	362	24	1190	88	0	1302	2914
08:00 AM	27	0	0	0	27	26	290	53	0	369	80	0	0	0	80	11	304	18	0	333	809
08:15 AM	33	0	0	0	33	12	238	47	2	299	71	0	0	0	71	16	276	26	0	318	721
08:30 AM	30	0	0	0	30	18	246	49	0	313	96	0	0	0	96	8	285	20	0	313	752
08:45 AM	29	0	0	0	29	18	267	45	0	330	90	0	0	0	90	7	263	16	0	286	735
Total	119	0	0	0	119	74	1041	194	2	1311	337	0	0	0	337	42	1128	80	0	1250	3017
Grand Total	213	0	0	0	213	149	1976	339	3	2467	699	0	0	0	699	66	2318	168	0	2552	5931
Apprch %	100	0	0	0		6	80.1	13.7	0.1		100	0	0	0		2.6	90.8	6.6	0		
Total %	3.6	0	0	0	3.6	2.5	33.3	5.7	0.1	41.6	11.8	0	0	0	11.8	1.1	39.1	2.8	0	43	
Cars +	211	0	0	0	211	137	1890	328	3	2358	697	0	0	0	697	66	2225	164	0	2455	5721
% Cars +	99.1	0	0	0	99.1	91.9	95.6	96.8	100	95.6	99.7	0	0	0	99.7	100	96	97.6	0	96.2	96.5
Trucks	2	0	0	0	2	12	86	11	0	109	2	0	0	0	2	0	93	4	0	97	210
% Trucks	0.9	0	0	0	0.9	8.1	4.4	3.2	0	4.4	0.3	0	0	0	0.3	0	4	2.4	0	3.8	3.5

TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and Jenks)AM Peak
Site Code :
Start Date : 10/28/2021
Page No : 2

	Jenks Road Southbound					US 64 Westbound					Richardson Road Northbound					US 64 Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**29**	0	0	0	**29**	21	218	30	0	269	98	0	0	0	98	6	307	**26**	0	339	735
07:30 AM	22	0	0	0	22	14	253	36	**1**	304	**106**	0	0	0	**106**	6	**341**	21	0	**368**	800
07:45 AM	24	0	0	0	24	21	239	46	0	306	84	0	0	0	84	8	289	26	0	323	737
08:00 AM	27	0	0	0	27	**26**	**290**	**53**	0	**369**	80	0	0	0	80	**11**	304	18	0	333	**809**
Total Volume	102	0	0	0	102	82	1000	165	1	1248	368	0	0	0	368	31	1241	91	0	1363	3081
% App. Total	100	0	0	0		6.6	80.1	13.2	0.1		100	0	0	0		2.3	91	6.7	0		
PHF	.879	.000	.000	.000	.879	.788	.862	.778	.250	.846	.868	.000	.000	.000	.868	.705	.910	.875	.000	.926	.952



TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and Jenks)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

Groups Printed- Cars + - Trucks

	Jenks Road Southbound					US 64 Westbound					Richardson Road Northbound					US 64 Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
04:00 PM	35	0	0	0	35	12	302	56	0	370	50	0	0	0	50	6	237	18	0	261	716
04:15 PM	36	0	0	0	36	18	341	50	0	409	64	0	0	0	64	12	312	17	0	341	850
04:30 PM	35	0	0	0	35	14	318	62	0	394	75	0	0	0	75	11	292	19	0	322	826
04:45 PM	41	0	0	0	41	19	295	63	2	379	69	0	0	0	69	17	355	16	0	388	877
Total	147	0	0	0	147	63	1256	231	2	1552	258	0	0	0	258	46	1196	70	0	1312	3269
05:00 PM	40	0	0	0	40	19	315	58	1	393	90	0	0	0	90	4	316	17	0	337	860
05:15 PM	36	0	0	0	36	18	346	61	0	425	66	0	0	0	66	11	299	24	0	334	861
05:30 PM	25	0	0	0	25	20	293	61	2	376	57	0	0	0	57	12	271	15	0	298	756
05:45 PM	36	0	0	0	36	13	287	55	0	355	61	0	0	0	61	5	281	15	0	301	753
Total	137	0	0	0	137	70	1241	235	3	1549	274	0	0	0	274	32	1167	71	0	1270	3230
Grand Total	284	0	0	0	284	133	2497	466	5	3101	532	0	0	0	532	78	2363	141	0	2582	6499
Apprch %	100	0	0	0		4.3	80.5	15	0.2		100	0	0	0		3	91.5	5.5	0		
Total %	4.4	0	0	0	4.4	2	38.4	7.2	0.1	47.7	8.2	0	0	0	8.2	1.2	36.4	2.2	0	39.7	
Cars +	282	0	0	0	282	132	2456	465	5	3058	529	0	0	0	529	78	2309	141	0	2528	6397
% Cars +	99.3	0	0	0	99.3	99.2	98.4	99.8	100	98.6	99.4	0	0	0	99.4	100	97.7	100	0	97.9	98.4
Trucks	2	0	0	0	2	1	41	1	0	43	3	0	0	0	3	0	54	0	0	54	102
% Trucks	0.7	0	0	0	0.7	0.8	1.6	0.2	0	1.4	0.6	0	0	0	0.6	0	2.3	0	0	2.1	1.6

TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and Jenks)PM Peak
Site Code :
Start Date : 10/28/2021
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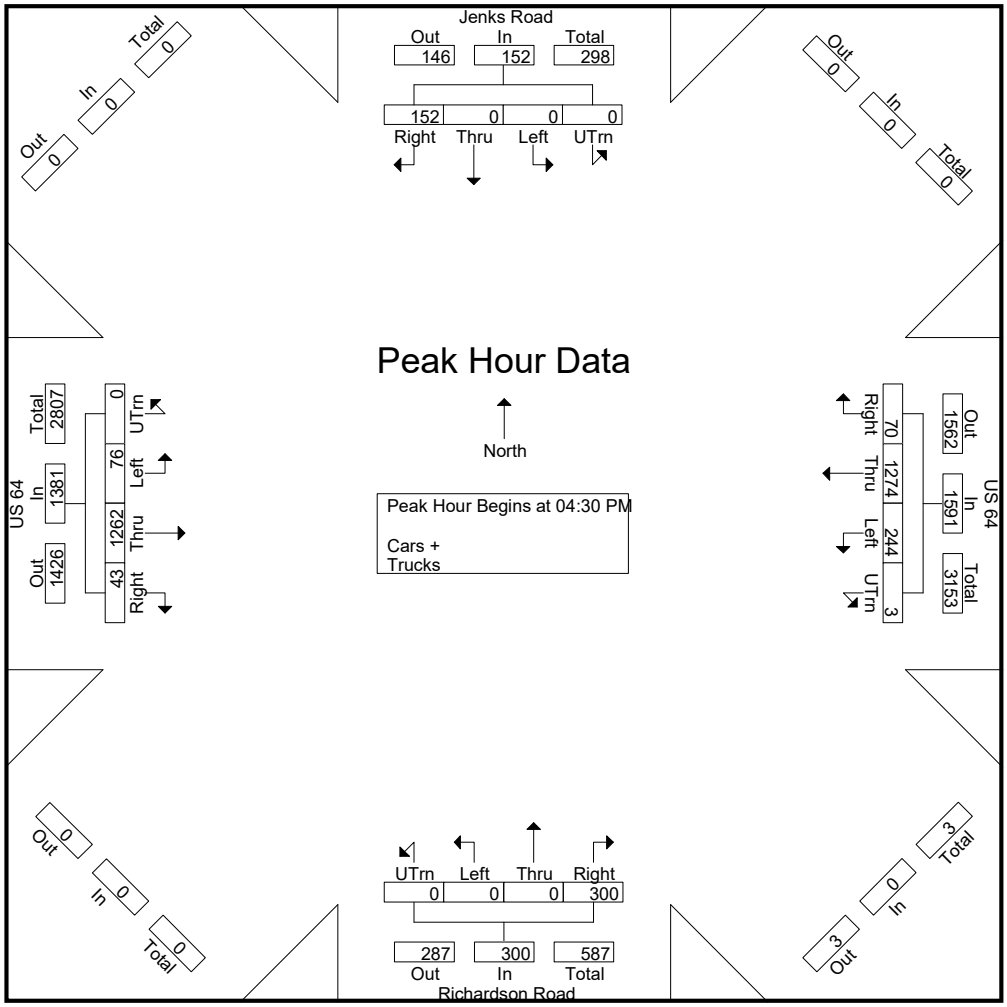
	Jenks Road Southbound					US 64 Westbound					Richardson Road Northbound					US 64 Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	35	0	0	0	35	14	318	62	0	394	75	0	0	0	75	11	292	19	0	322	826
04:45 PM	**41**	0	0	0	**41**	**19**	295	**63**	**2**	379	69	0	0	0	69	**17**	**355**	16	0	**388**	**877**
05:00 PM	40	0	0	0	40	19	315	58	1	393	**90**	0	0	0	**90**	4	316	17	0	337	860
05:15 PM	36	0	0	0	36	18	**346**	61	0	**425**	66	0	0	0	66	11	299	**24**	0	334	861
Total Volume	152	0	0	0	152	70	1274	244	3	1591	300	0	0	0	300	43	1262	76	0	1381	3424
% App. Total	100	0	0	0		4.4	80.1	15.3	0.2		100	0	0	0		3.1	91.4	5.5	0		
PHF	.927	.000	.000	.000	.927	.921	.921	.968	.375	.936	.833	.000	.000	.000	.833	.632	.889	.792	.000	.890	.976



TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and U Turn)AM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

Groups Printed- Cars + - Trucks

	US 64 Westbound			US 64 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. Total
07:00 AM	236	8	244	264	0	264	508
07:15 AM	227	20	247	319	0	319	566
07:30 AM	259	16	275	352	0	352	627
07:45 AM	245	18	263	305	0	305	568
Total	967	62	1029	1240	0	1240	2269
08:00 AM	292	25	317	308	0	308	625
08:15 AM	255	16	271	302	0	302	573
08:30 AM	256	20	276	293	0	293	569
08:45 AM	284	12	296	274	0	274	570
Total	1087	73	1160	1177	0	1177	2337
Grand Total	2054	135	2189	2417	0	2417	4606
Apprch %	93.8	6.2		100	0		
Total %	44.6	2.9	47.5	52.5	0	52.5	
Cars +	1969	132	2101	2323	0	2323	4424
% Cars +	95.9	97.8	96	96.1	0	96.1	96
Trucks	85	3	88	94	0	94	182
% Trucks	4.1	2.2	4	3.9	0	3.9	4

TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and U Turn)AM Peak
Site Code :
Start Date : 10/28/2021
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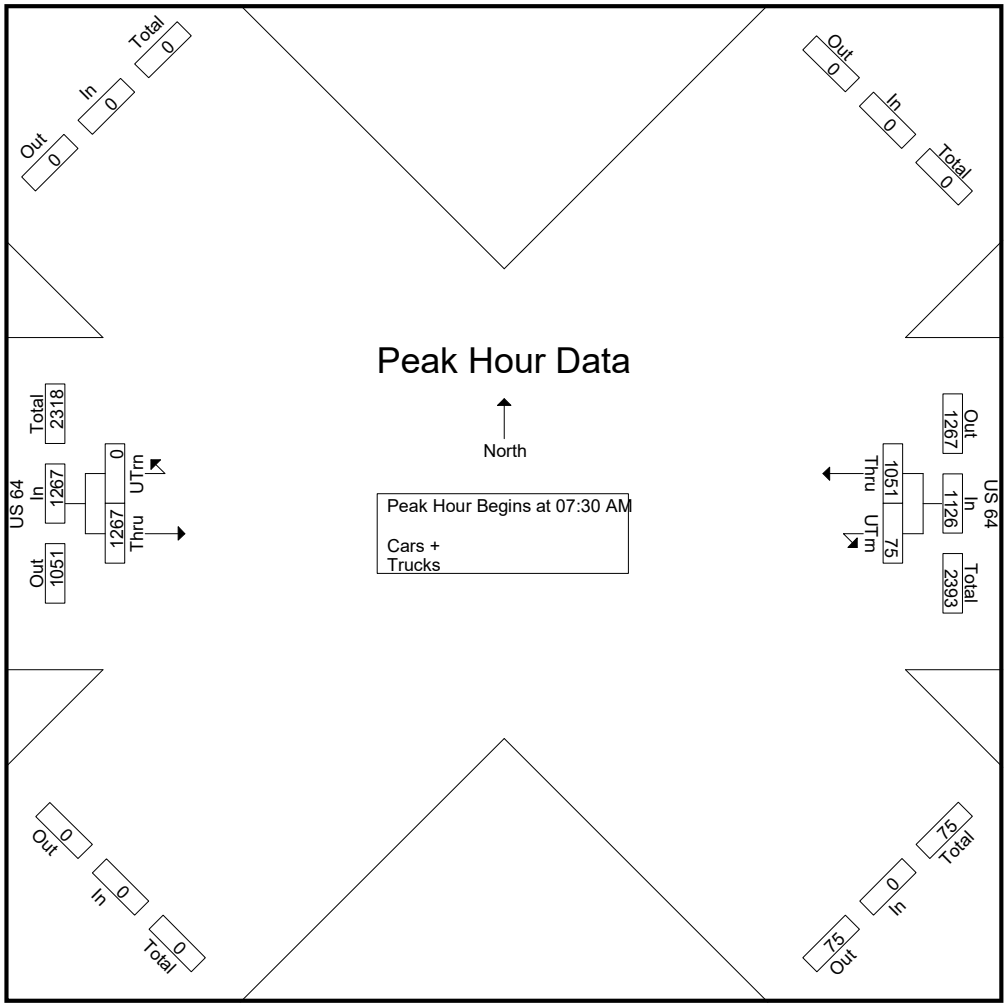
	US 64 Westbound			US 64 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1							
Peak Hour for Entire Intersection Begins at 07:30 AM							
07:30 AM	259	16	275	**352**	0	**352**	**627**
07:45 AM	245	18	263	305	0	305	568
08:00 AM	**292**	**25**	**317**	308	0	308	625
08:15 AM	255	16	271	302	0	302	573
Total Volume	1051	75	1126	1267	0	1267	2393
% App. Total	93.3	6.7		100	0		
PHF	.900	.750	.888	.900	.000	.900	.954



TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and U Turn)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

Groups Printed- Cars + - Trucks

	US 64 Westbound			US 64 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. Total
04:00 PM	320	17	337	244	0	244	581
04:15 PM	359	18	377	323	0	323	700
04:30 PM	342	11	353	311	0	311	664
04:45 PM	305	31	336	357	0	357	693
Total	1326	77	1403	1235	0	1235	2638
05:00 PM	330	24	354	313	0	313	667
05:15 PM	337	25	362	309	0	309	671
05:30 PM	303	15	318	283	0	283	601
05:45 PM	306	17	323	284	0	284	607
Total	1276	81	1357	1189	0	1189	2546
Grand Total	2602	158	2760	2424	0	2424	5184
Apprch %	94.3	5.7		100	0		
Total %	50.2	3	53.2	46.8	0	46.8	
Cars +	2559	158	2717	2370	0	2370	5087
% Cars +	98.3	100	98.4	97.8	0	97.8	98.1
Trucks	43	0	43	54	0	54	97
% Trucks	1.7	0	1.6	2.2	0	2.2	1.9

TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and U Turn)PM Peak
Site Code :
Start Date : 10/28/2021
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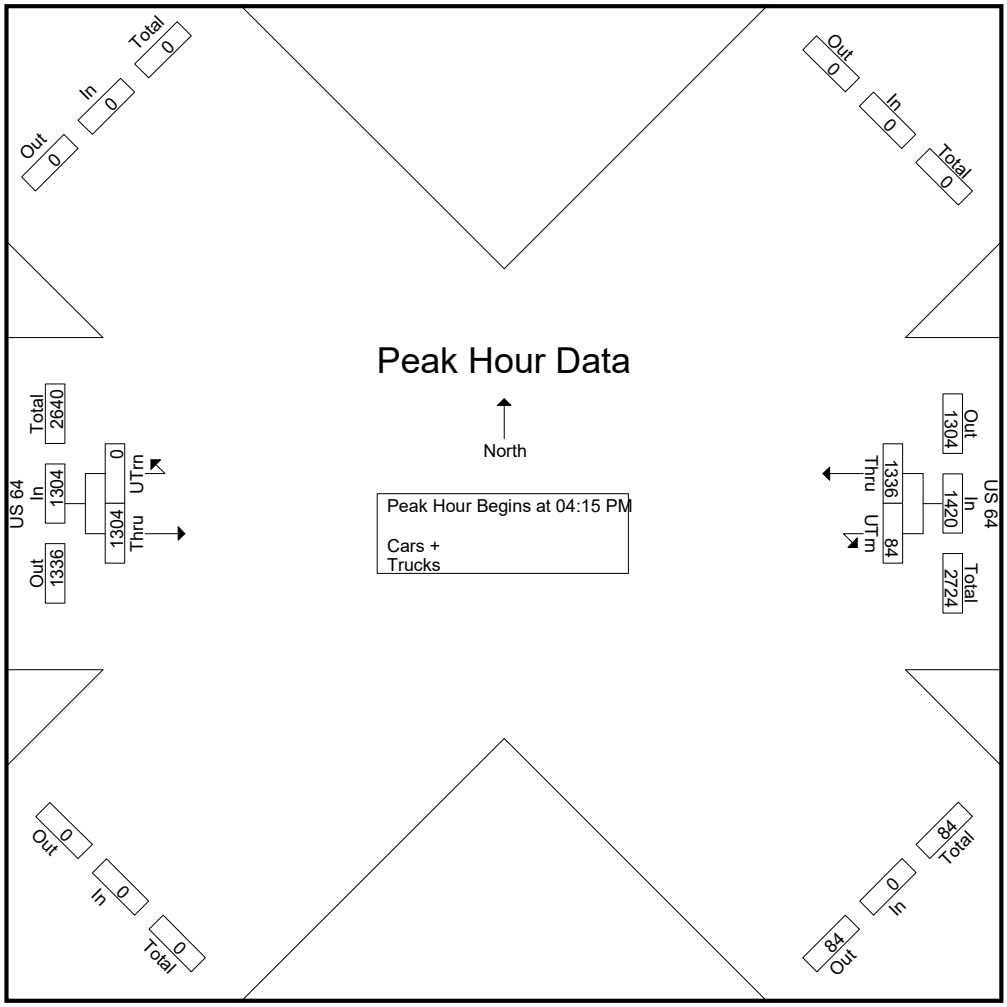
	US 64 Westbound			US 64 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1							
Peak Hour for Entire Intersection Begins at 04:15 PM							
04:15 PM	**359**	18	**377**	323	0	323	**700**
04:30 PM	342	11	353	311	0	311	664
04:45 PM	305	**31**	336	**357**	0	**357**	693
05:00 PM	330	24	354	313	0	313	667
Total Volume	1336	84	1420	1304	0	1304	2724
% App. Total	94.1	5.9		100	0		
PHF	.930	.677	.942	.913	.000	.913	.973



TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Lowell)AM Peak
Site Code :
Start Date : 11/28/2021
Page No : 1

Groups Printed- Cars + - Trucks

	Jenks Road Southbound			Lowell road Westbound			Jenks Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	11	0	11	2	9	11	0	35	35	57
07:15 AM	21	1	22	2	8	10	2	37	39	71
07:30 AM	18	0	18	7	4	11	0	39	39	68
07:45 AM	17	1	18	0	5	5	2	48	50	73
Total	67	2	69	11	26	37	4	159	163	269
08:00 AM	21	3	24	2	4	6	3	41	44	74
08:15 AM	25	1	26	1	4	5	1	36	37	68
08:30 AM	24	0	24	3	6	9	1	41	42	75
08:45 AM	16	0	16	3	4	7	2	37	39	62
Total	86	4	90	9	18	27	7	155	162	279
Grand Total	153	6	159	20	44	64	11	314	325	548
Apprch %	96.2	3.8		31.2	68.8		3.4	96.6		
Total %	27.9	1.1	29	3.6	8	11.7	2	57.3	59.3	
Cars +	153	6	159	20	44	64	11	314	325	548
% Cars +	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Lowell)AM Peak
Site Code :
Start Date : 11/28/2021
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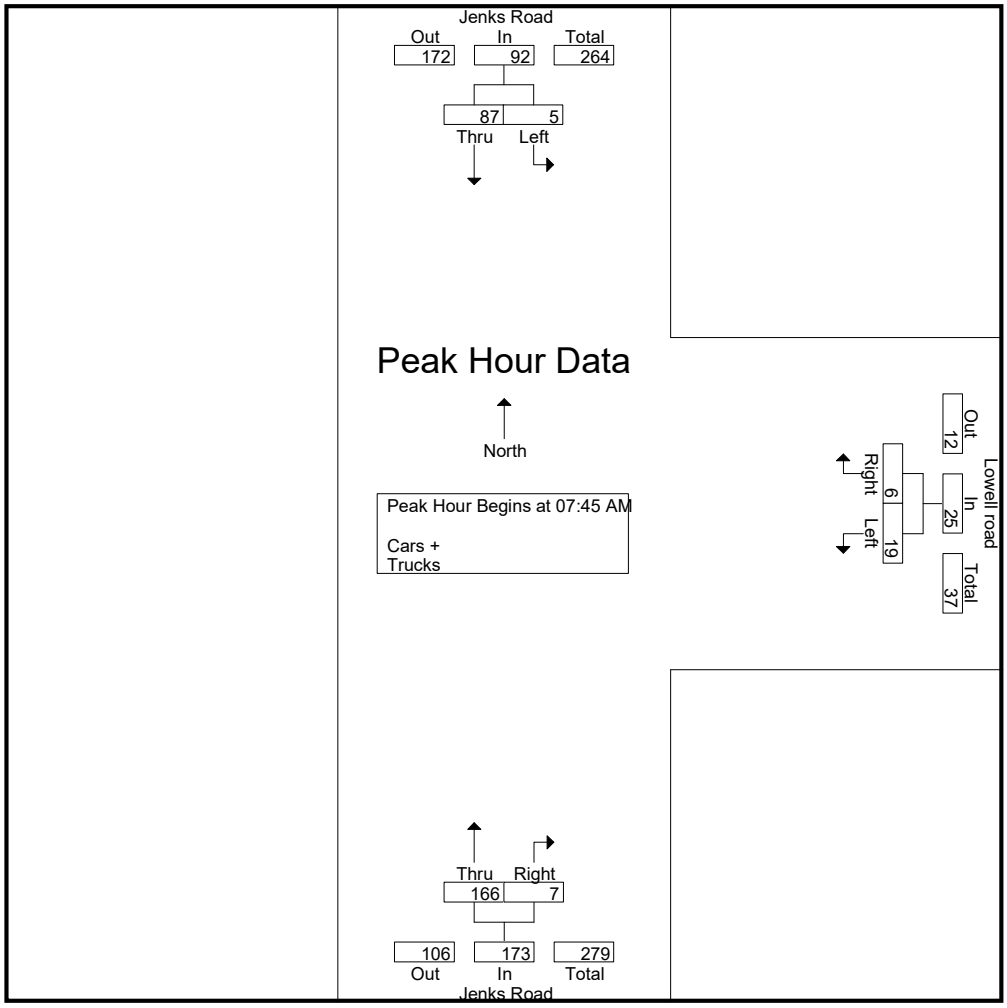
	Jenks Road Southbound			Lowell road Westbound			Jenks Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	17	1	18	0	5	5	2	**48**	**50**	73
08:00 AM	21	**3**	24	2	4	6	**3**	41	44	74
08:15 AM	**25**	1	**26**	1	4	5	1	36	37	68
08:30 AM	24	0	24	**3**	**6**	**9**	1	41	42	**75**
Total Volume	87	5	92	6	19	25	7	166	173	290
% App. Total	94.6	5.4		24	76		4	96		
PHF	.870	.417	.885	.500	.792	.694	.583	.865	.865	.967



TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Lowell)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

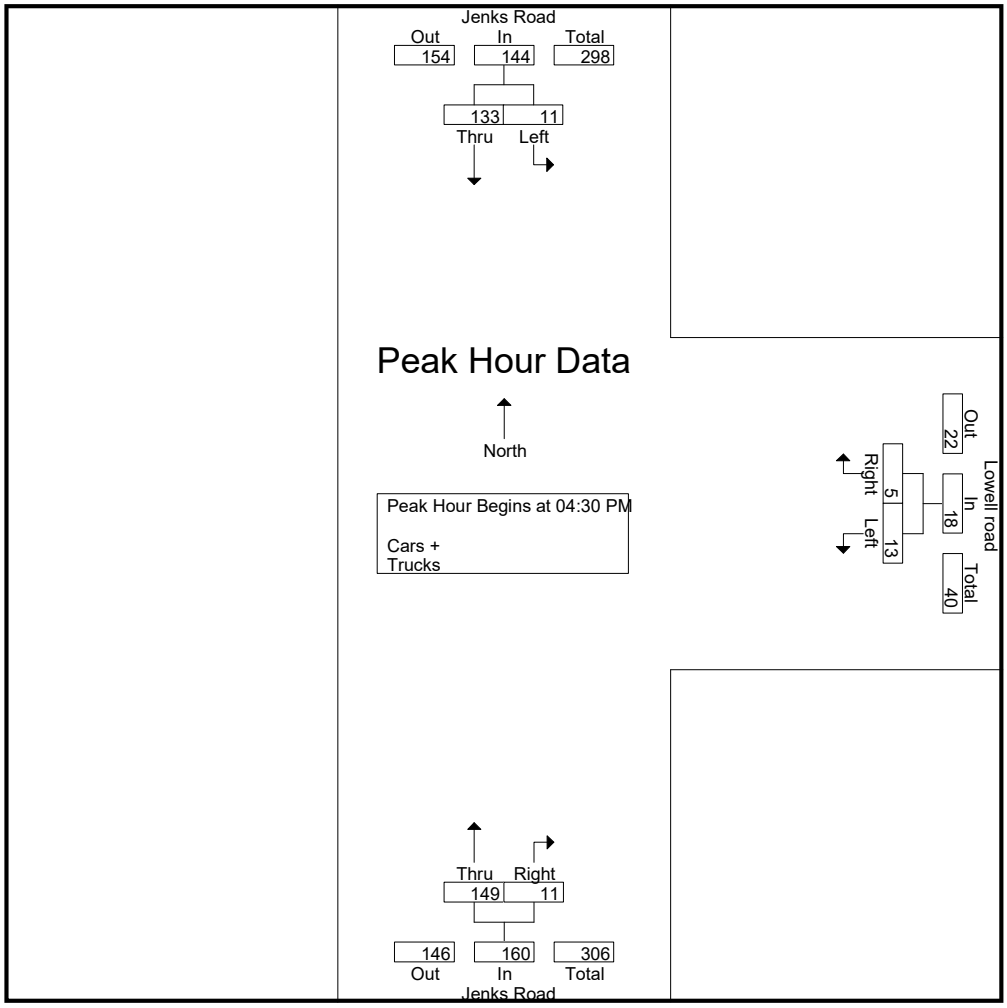
Groups Printed- Cars + - Trucks

	Jenks Road Southbound			Lowell road Westbound			Jenks Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
04:00 PM	30	0	30	2	1	3	0	27	27	60
04:15 PM	30	2	32	1	1	2	2	25	27	61
04:30 PM	30	1	31	0	5	5	6	33	39	75
04:45 PM	35	4	39	1	3	4	0	35	35	78
Total	125	7	132	4	10	14	8	120	128	274
05:00 PM	33	2	35	2	1	3	4	45	49	87
05:15 PM	35	4	39	2	4	6	1	36	37	82
05:30 PM	24	2	26	0	1	1	2	32	34	61
05:45 PM	29	0	29	5	3	8	3	22	25	62
Total	121	8	129	9	9	18	10	135	145	292
Grand Total	246	15	261	13	19	32	18	255	273	566
Apprch %	94.3	5.7		40.6	59.4		6.6	93.4		
Total %	43.5	2.7	46.1	2.3	3.4	5.7	3.2	45.1	48.2	
Cars +	246	15	261	13	19	32	18	254	272	565
% Cars +	100	100	100	100	100	100	100	99.6	99.6	99.8
Trucks	0	0	0	0	0	0	0	1	1	1
% Trucks	0	0	0	0	0	0	0	0.4	0.4	0.2

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Lowell)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 2

	Jenks Road Southbound			Lowell road Westbound			Jenks Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	30	1	31	0	**5**	5	**6**	33	39	75
04:45 PM	**35**	**4**	**39**	1	3	4	0	35	35	78
05:00 PM	33	2	35	**2**	1	3	4	**45**	**49**	**87**
05:15 PM	35	4	39	2	4	**6**	1	36	37	82
Total Volume	133	11	144	5	13	18	11	149	160	322
% App. Total	92.4	7.6		27.8	72.2		6.9	93.1		
PHF	.950	.688	.923	.625	.650	.750	.458	.828	.816	.925



Land Use: 252
Senior Adult Housing—Multifamily

Description

Senior adult housing–multifamily sites are independent living developments that are called various names including retirement communities, age-restricted housing, and active adult communities. The development has a specific age restriction for its residents, typically a minimum of 55 years of age for at least one resident of the household.

Residents in these communities are typically considered active and requiring little to no medical supervision. The percentage of retired residents varies by development. The development may include amenities such as a golf course, swimming pool, 24-hour security, transportation, and common recreational facilities. They generally lack centralized dining and on-site health facilities.

The dwelling units share both floors and walls with other units in the residential building. Senior adult housing—single-family (Land Use 251), congregate care facility (Land Use 253), assisted living (Land Use 254), and continuing care retirement community (Land Use 255) are related land uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, and the 2000s in Alberta (CAN), California, Maryland, New Hampshire, New Jersey, Ontario (CAN), and Pennsylvania.

Source Numbers

237, 272, 576, 703, 734, 970, 1060

Senior Adult Housing - Multifamily
(252)

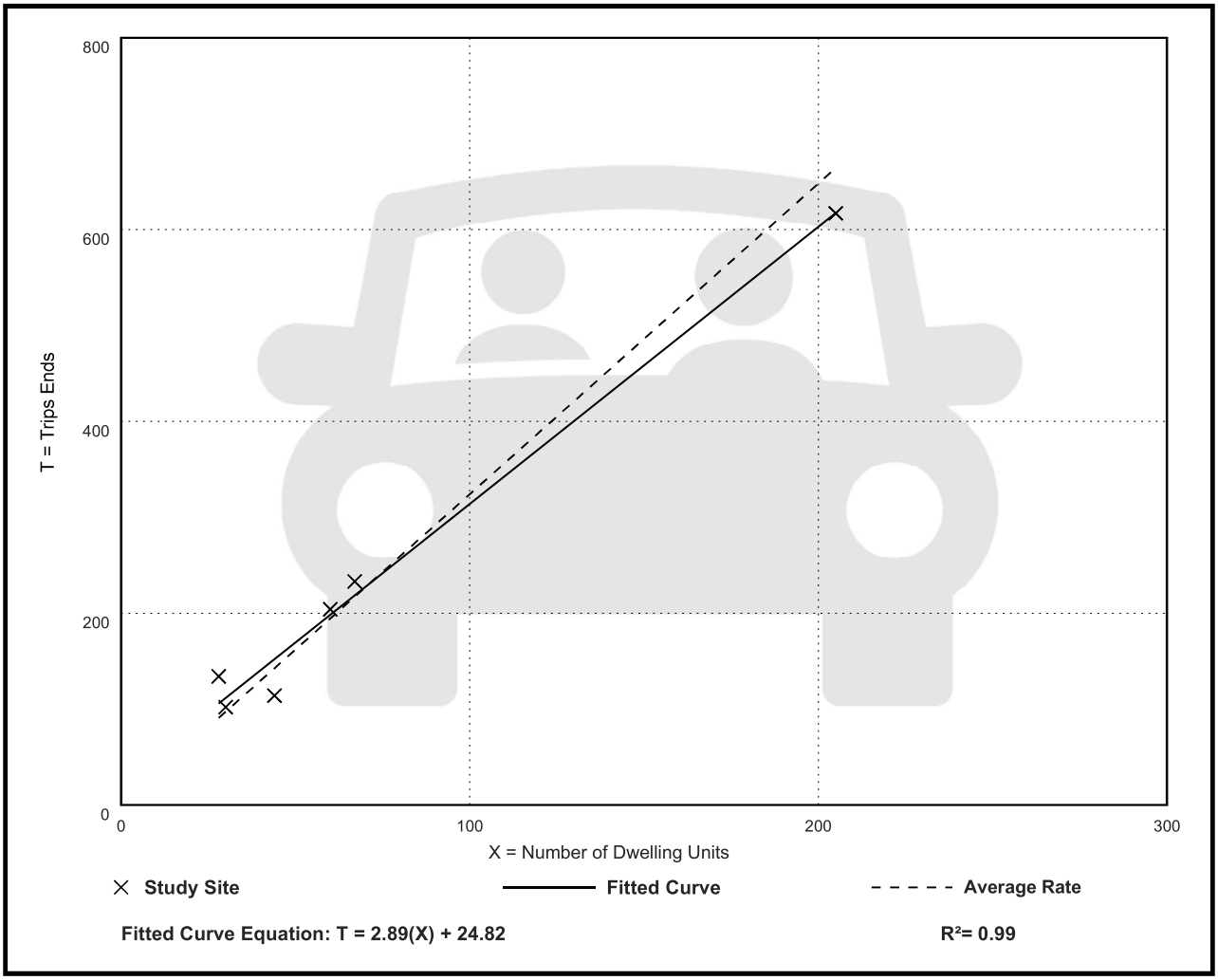
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Dwelling Units: 72
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
3.24	2.59 - 4.79	0.53

Data Plot and Equation



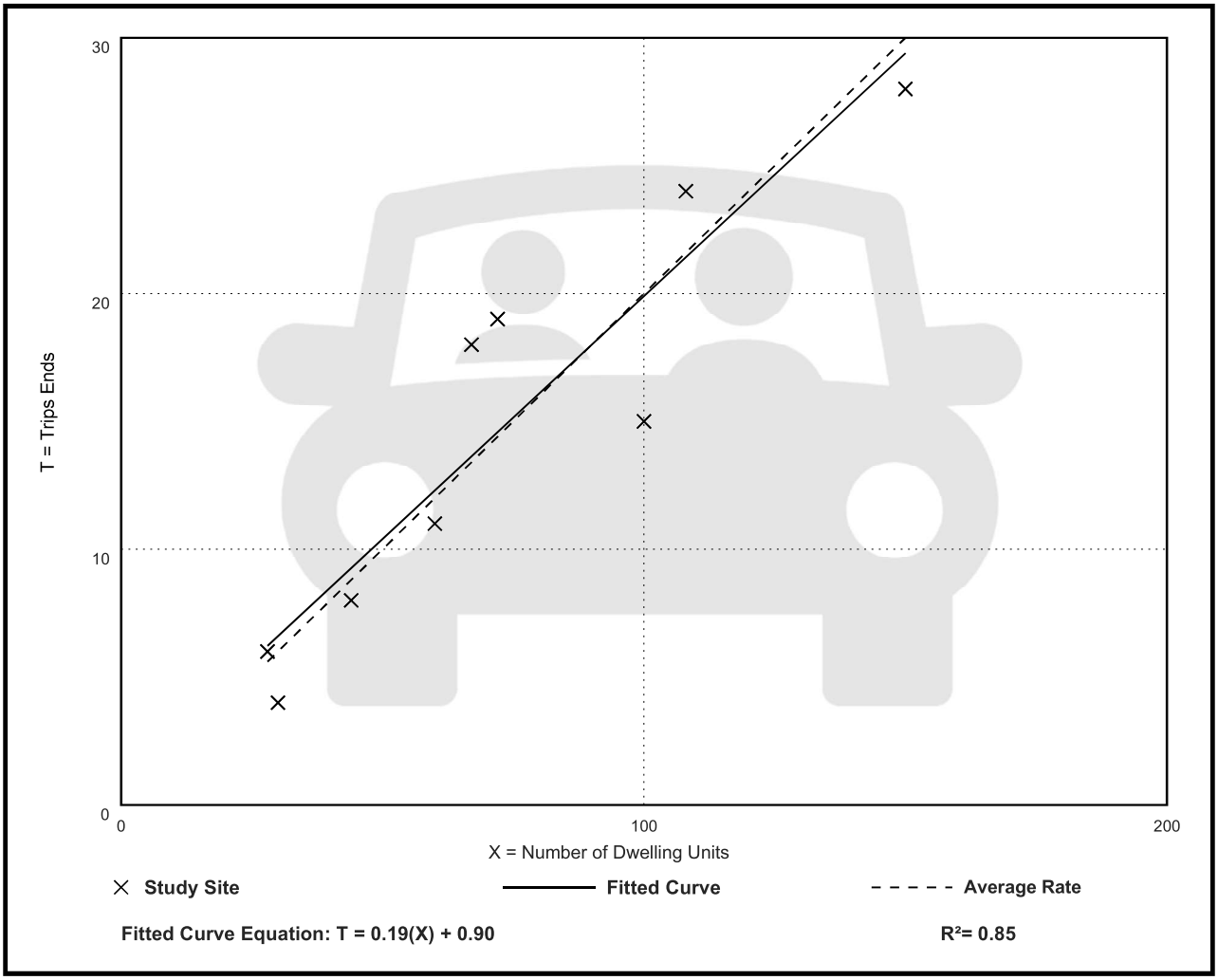
Senior Adult Housing - Multifamily
(252)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 9
Avg. Num. of Dwelling Units: 73
Directional Distribution: 34% entering, 66% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.20	0.13 - 0.27	0.04

Data Plot and Equation



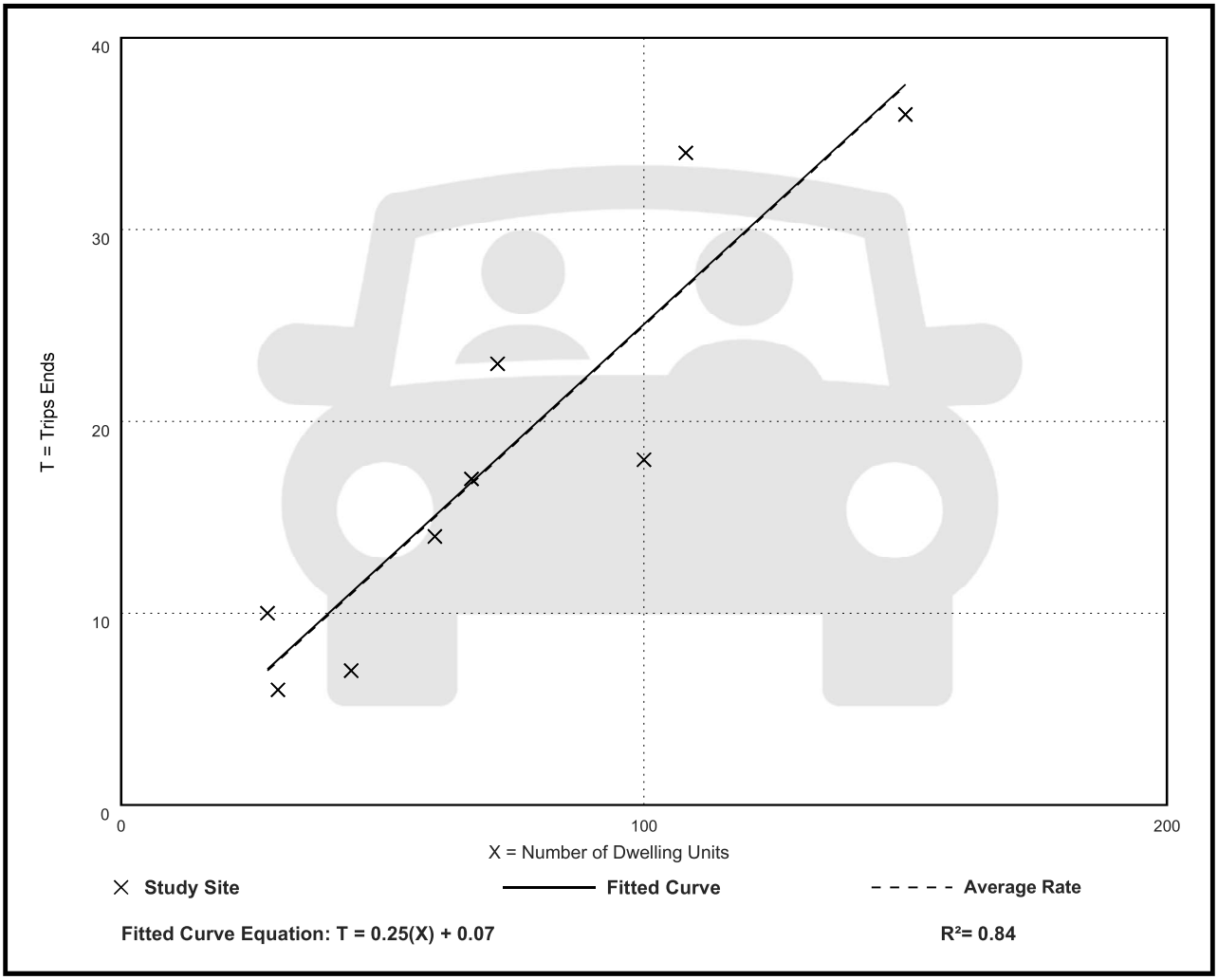
Senior Adult Housing - Multifamily
(252)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 9
Avg. Num. of Dwelling Units: 73
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.25	0.16 - 0.36	0.06

Data Plot and Equation



Senior Adult Housing - Multifamily
(252)

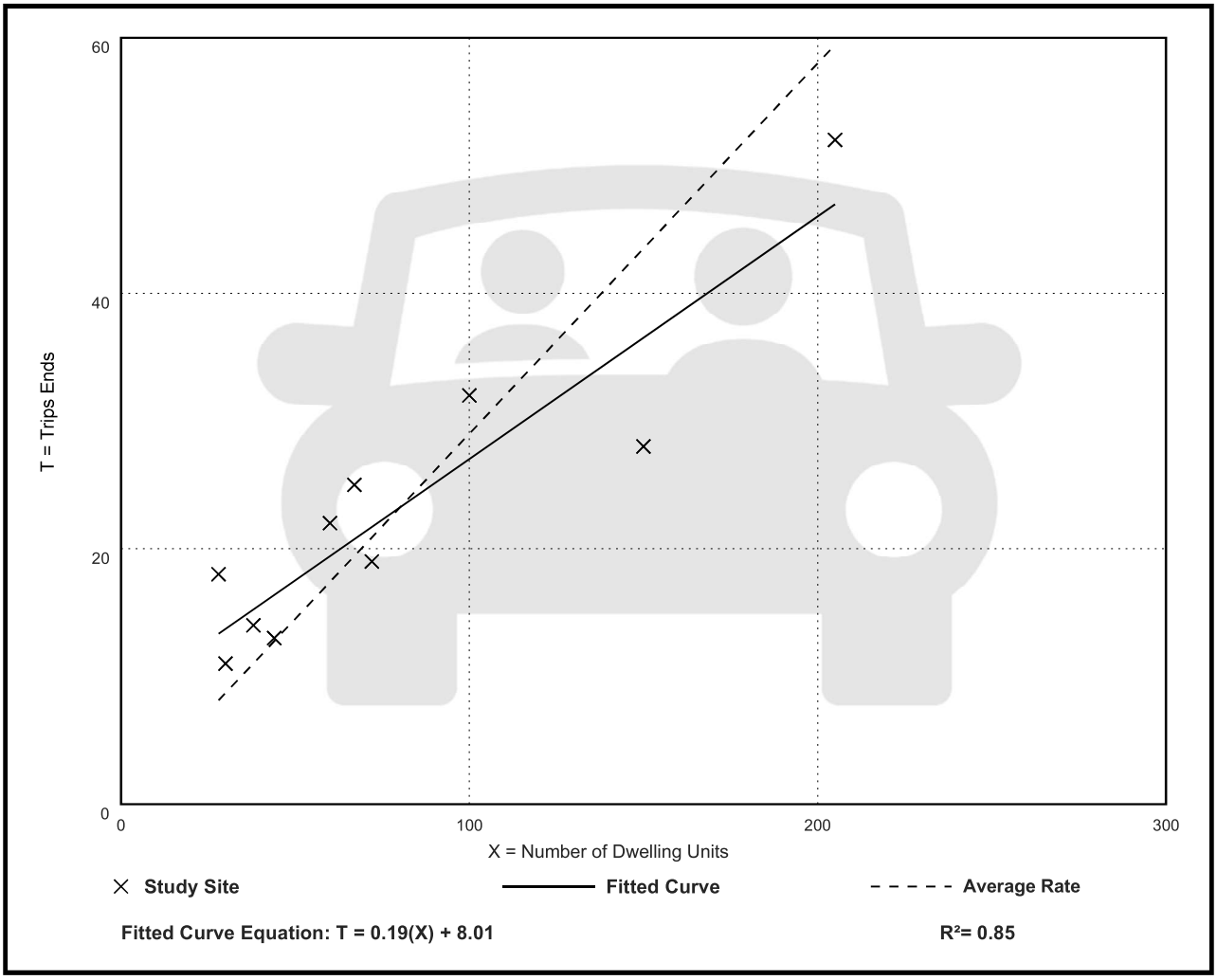
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 10
Avg. Num. of Dwelling Units: 79
Directional Distribution: 45% entering, 55% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.29	0.19 - 0.64	0.10

Data Plot and Equation



Senior Adult Housing - Multifamily
(252)

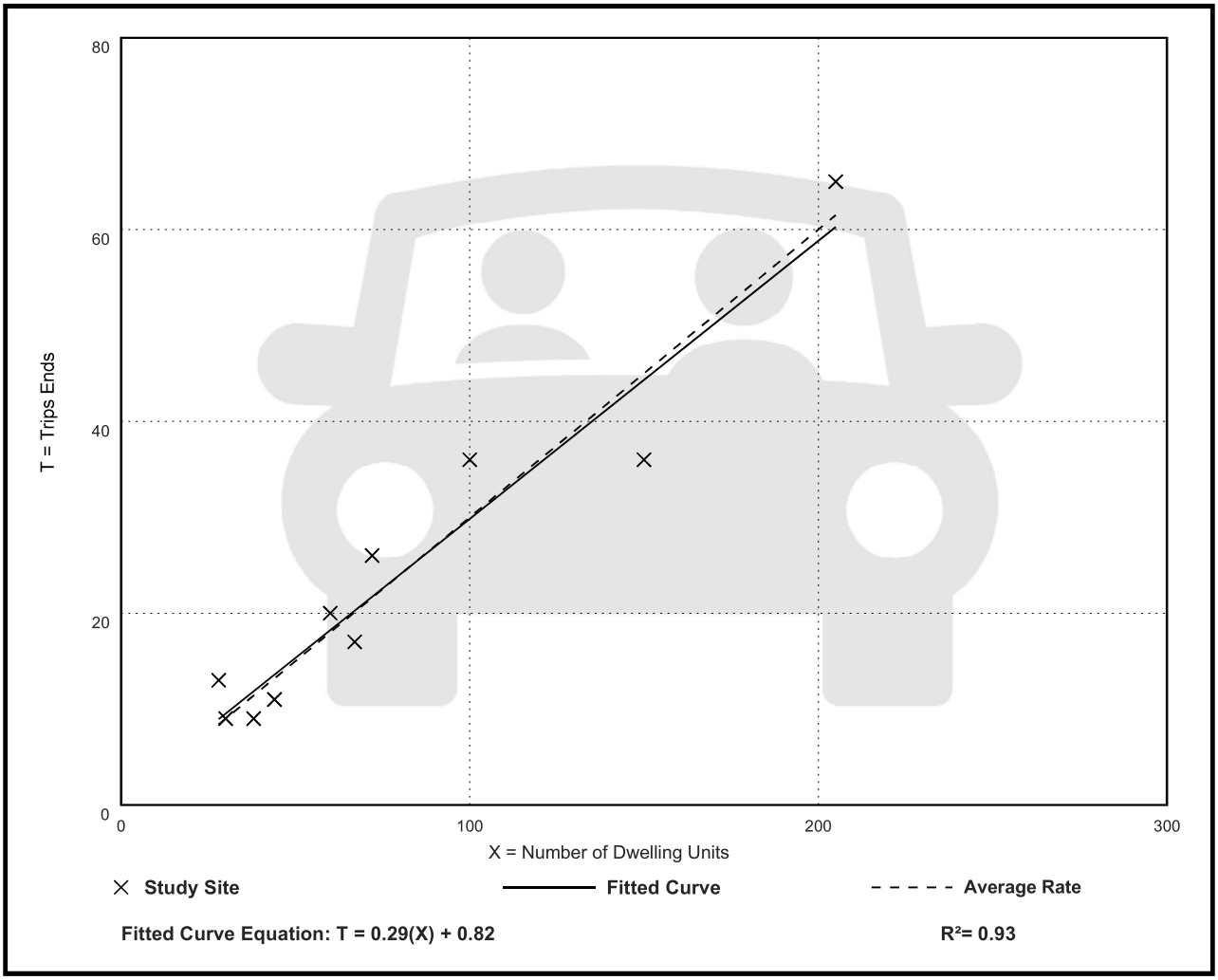
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 10
Avg. Num. of Dwelling Units: 79
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.30	0.24 - 0.46	0.06

Data Plot and Equation



Senior Adult Housing - Multifamily
(252)

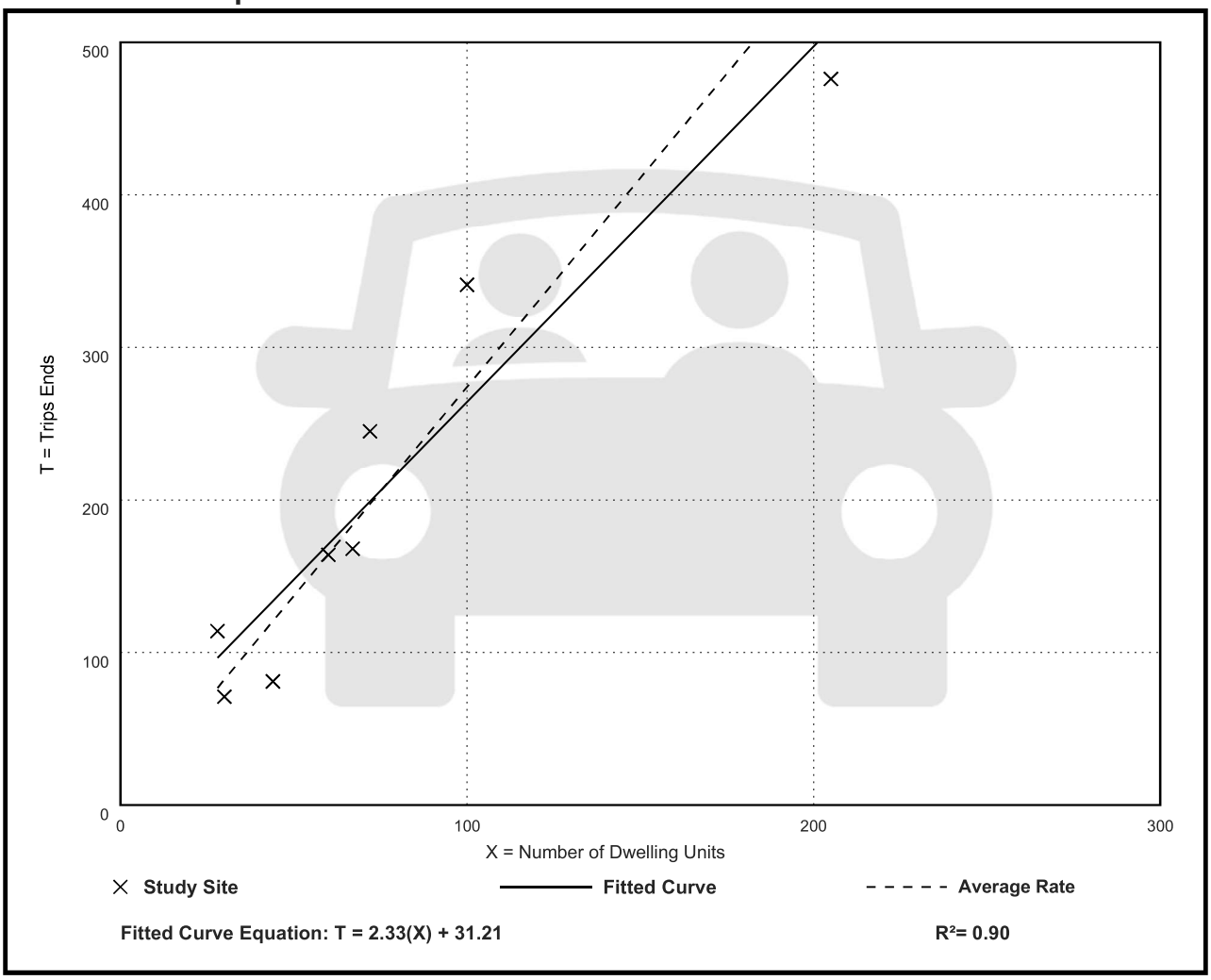
Vehicle Trip Ends vs: Dwelling Units
On a: Saturday

Setting/Location: General Urban/Suburban
Number of Studies: 8
Avg. Num. of Dwelling Units: 76
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
2.74	1.84 - 4.07	0.62

Data Plot and Equation



Senior Adult Housing - Multifamily
(252)

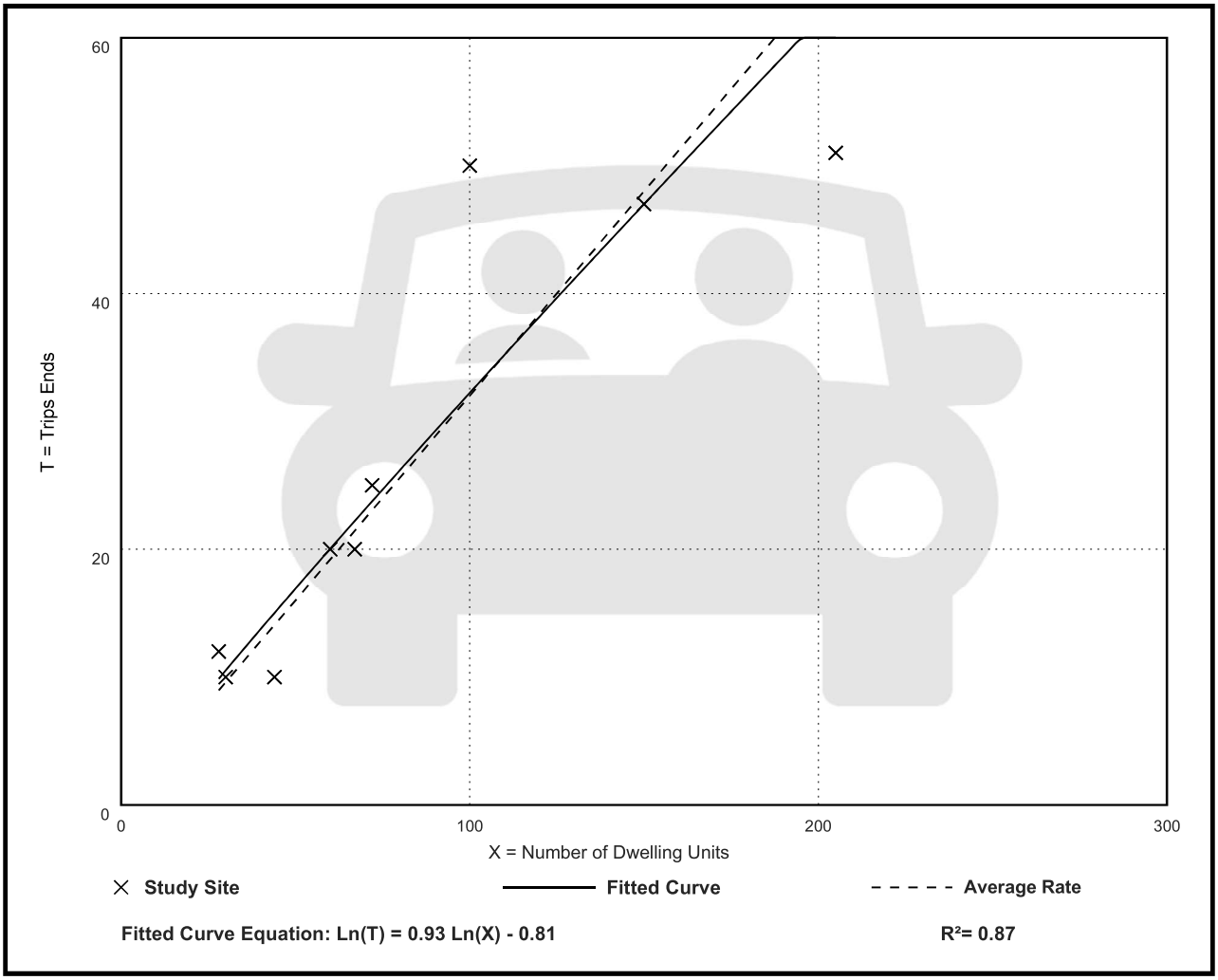
Vehicle Trip Ends vs: Dwelling Units
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 9
Avg. Num. of Dwelling Units: 84
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.32	0.23 - 0.50	0.09

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.93 Ln(X) - 0.81

R^2= 0.87

Senior Adult Housing - Multifamily
(252)

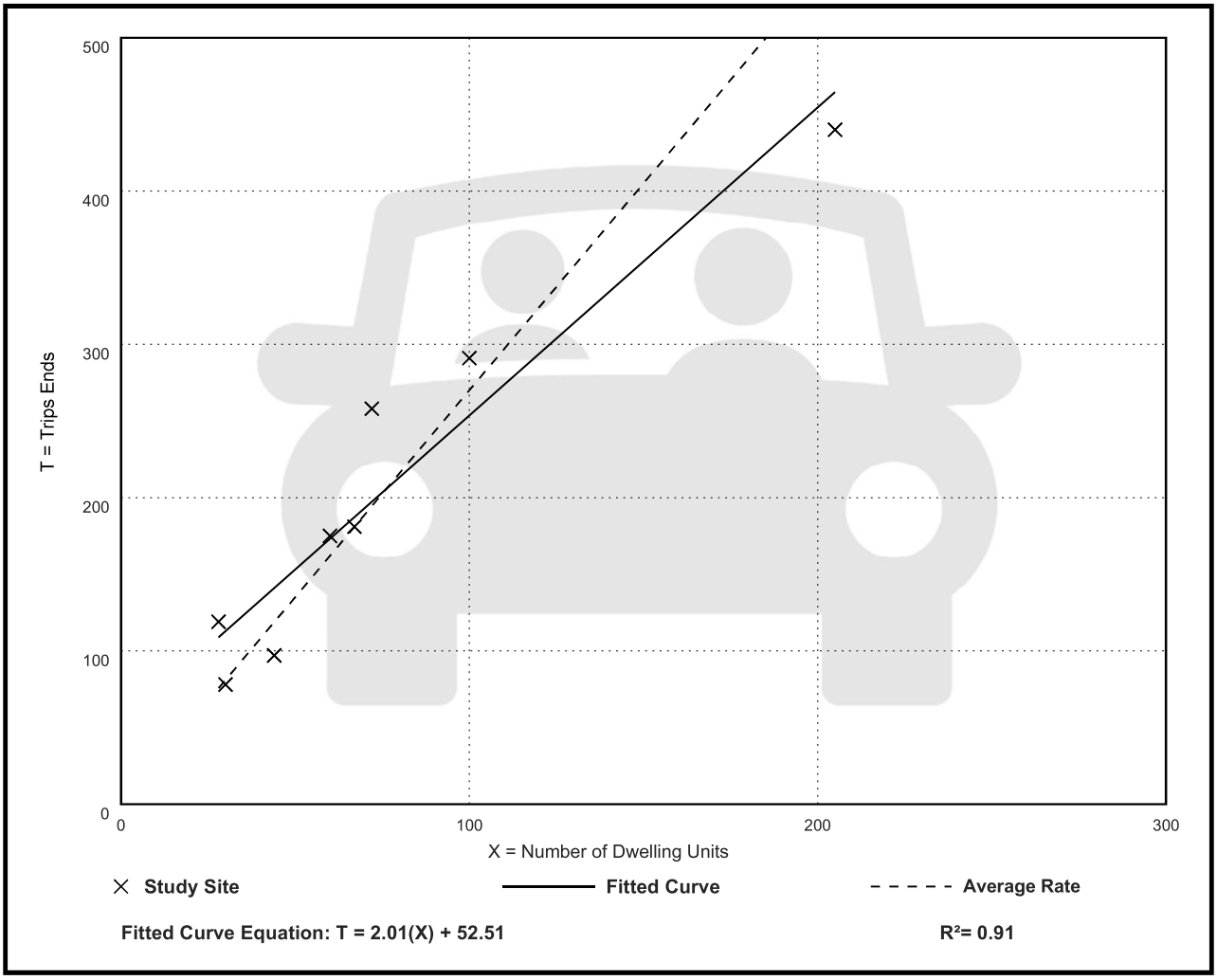
Vehicle Trip Ends vs: Dwelling Units
On a: Sunday

Setting/Location: General Urban/Suburban
Number of Studies: 8
Avg. Num. of Dwelling Units: 76
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
2.70	2.15 - 4.25	0.62

Data Plot and Equation



Senior Adult Housing - Multifamily
(252)

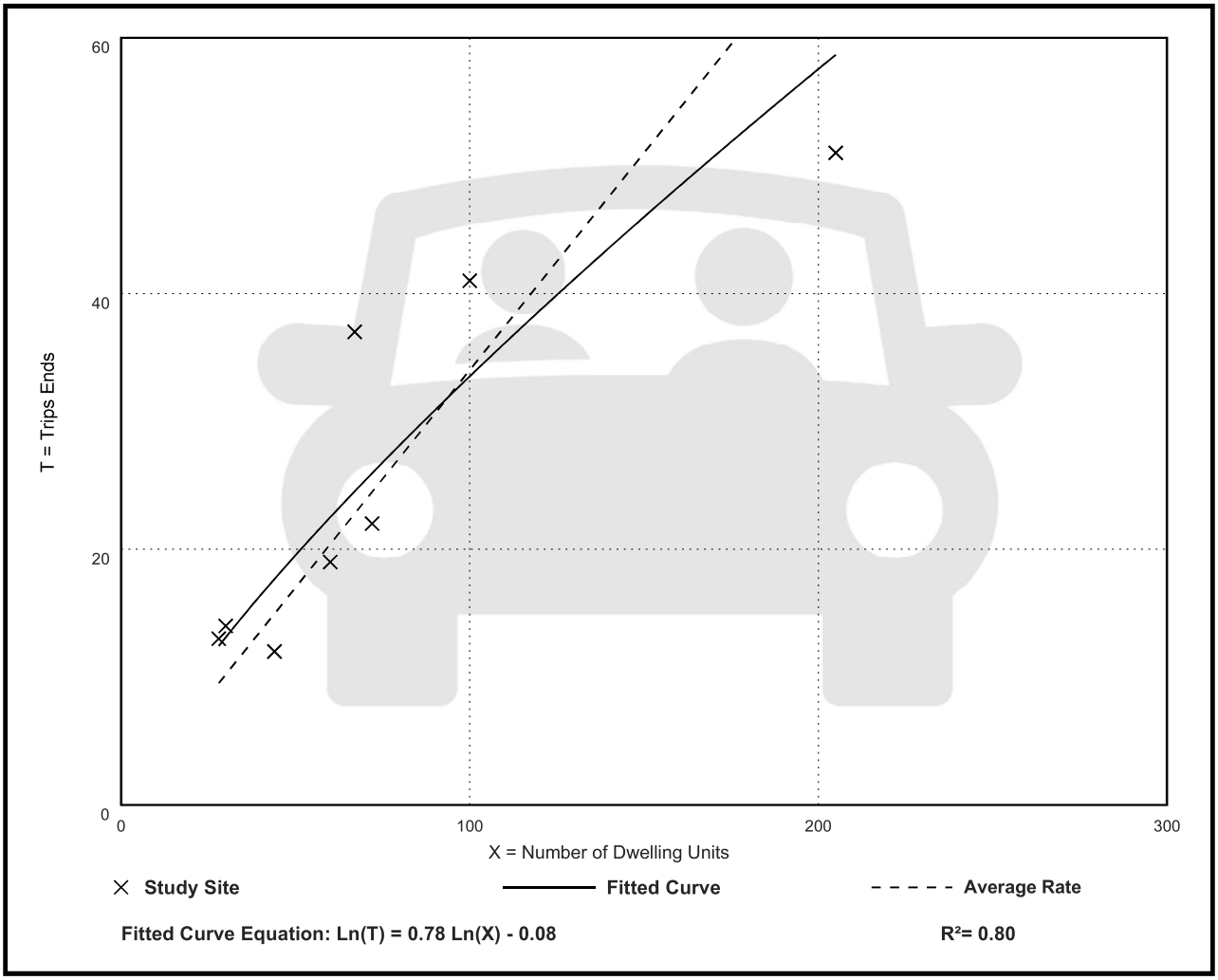
Vehicle Trip Ends vs: Dwelling Units
On a: Sunday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 8
Avg. Num. of Dwelling Units: 76
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.34	0.25 - 0.55	0.11

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.78 Ln(X) - 0.08

R^2= 0.80

Senior Adult Housing - Multifamily
(252)

Walk+Bike+Transit Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

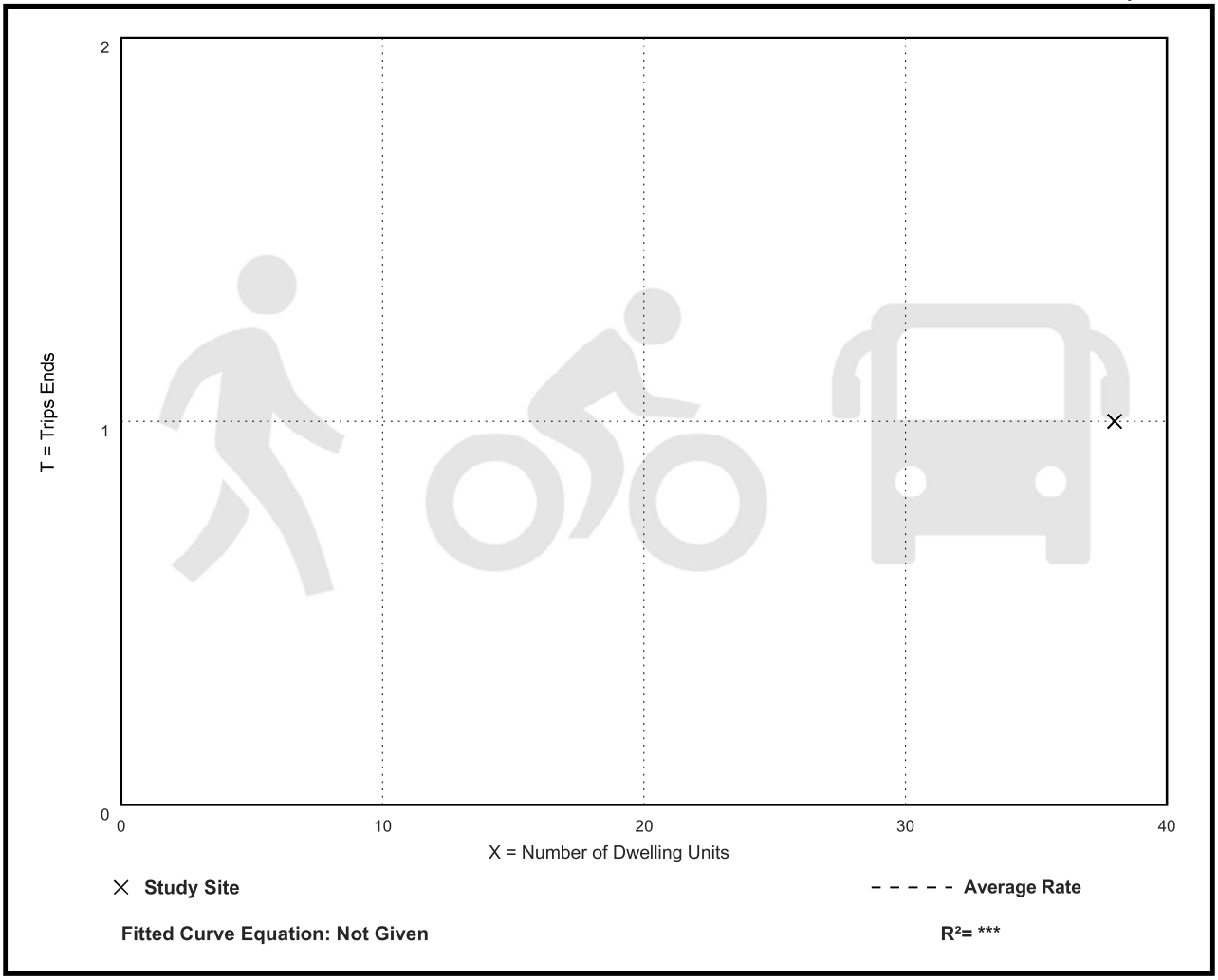
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. Num. of Dwelling Units: 38
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.03	0.03 - 0.03	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= *

Senior Adult Housing - Multifamily
(252)

Walk+Bike+Transit Trip Ends vs: Dwelling Units
On a: Weekday,
PM Peak Hour of Generator

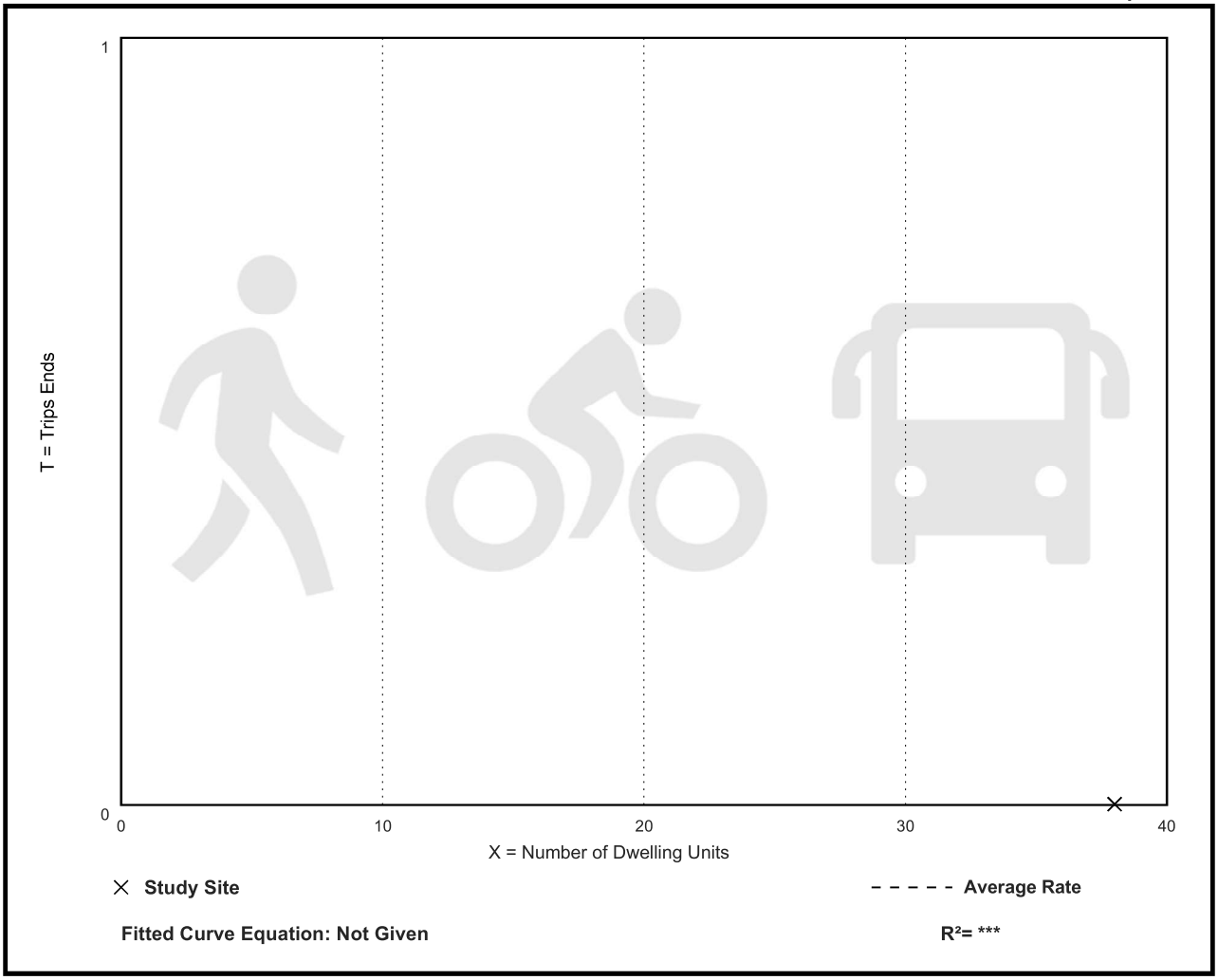
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. Num. of Dwelling Units: 38
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.00	0.00 - 0.00	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

Land Use: 822
Strip Retail Plaza (<40k)

Description

A strip retail plaza is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. Each study site in this land use has less than 40,000 square feet of gross leasable area (GLA). Because a strip retail plaza is open-air, the GLA is the same as the gross floor area of the building.

The 40,000 square feet GFA threshold between strip retail plaza and shopping plaza (Land Use 821) was selected based on an examination of the overall shopping center/plaza database. No shopping plaza with a supermarket as its anchor is smaller than 40,000 square feet GLA.

Shopping center (>150k) (Land use 820), shopping plaza (40-150k) (Land Use 821), and factory outlet center (Land Use 823) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Delaware, Florida, New Jersey, Ontario (CAN), South Dakota, Vermont, Washington, and Wisconsin.

Source Numbers

304, 358, 423, 428, 437, 507, 715, 728, 936, 960, 961, 974, 1009

Strip Retail Plaza (<40k)
(822)

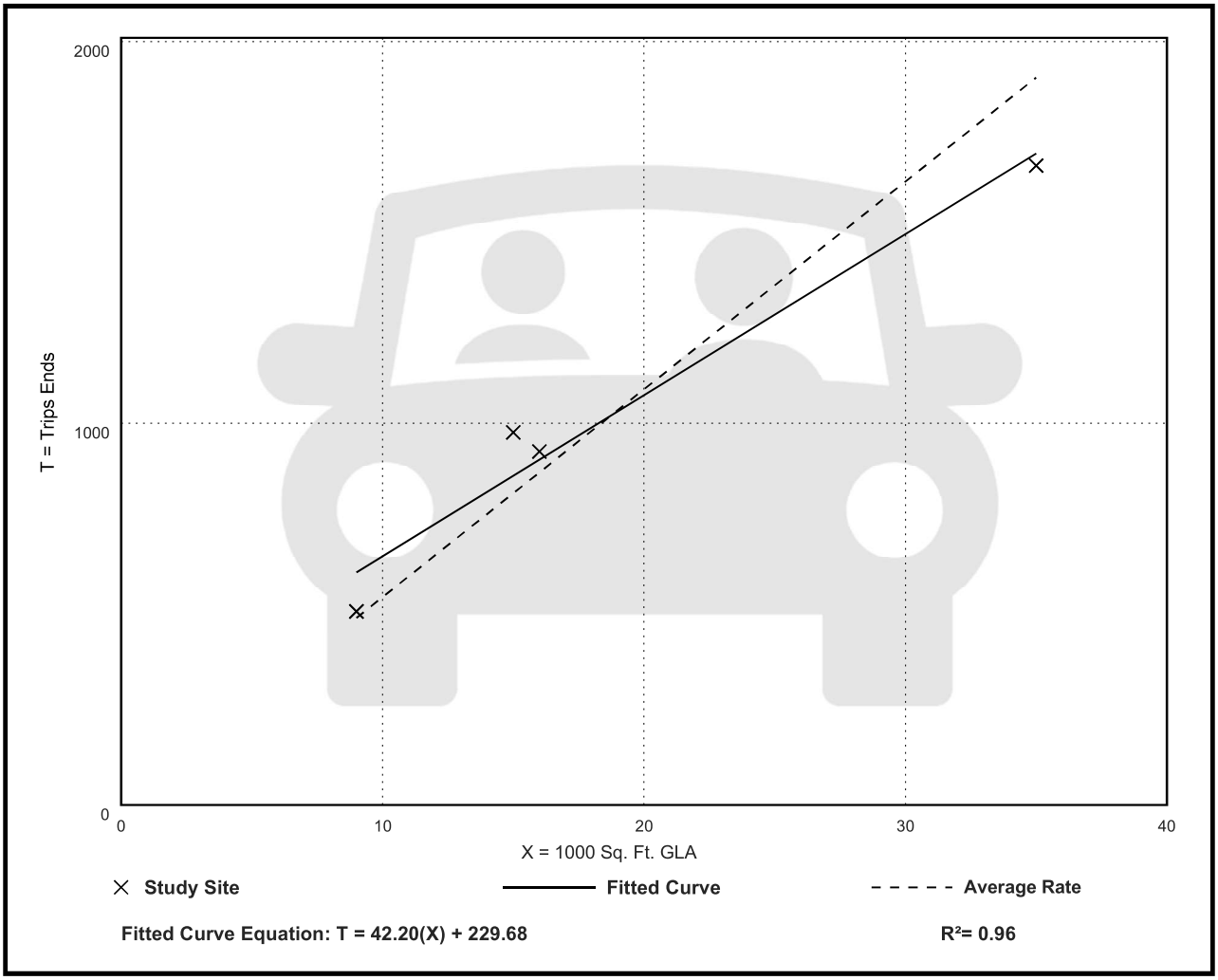
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 4
Avg. 1000 Sq. Ft. GLA: 19
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
54.45	47.86 - 65.07	7.81

Data Plot and Equation



Fitted Curve Equation: T = 42.20(X) + 229.68

R^2= 0.96

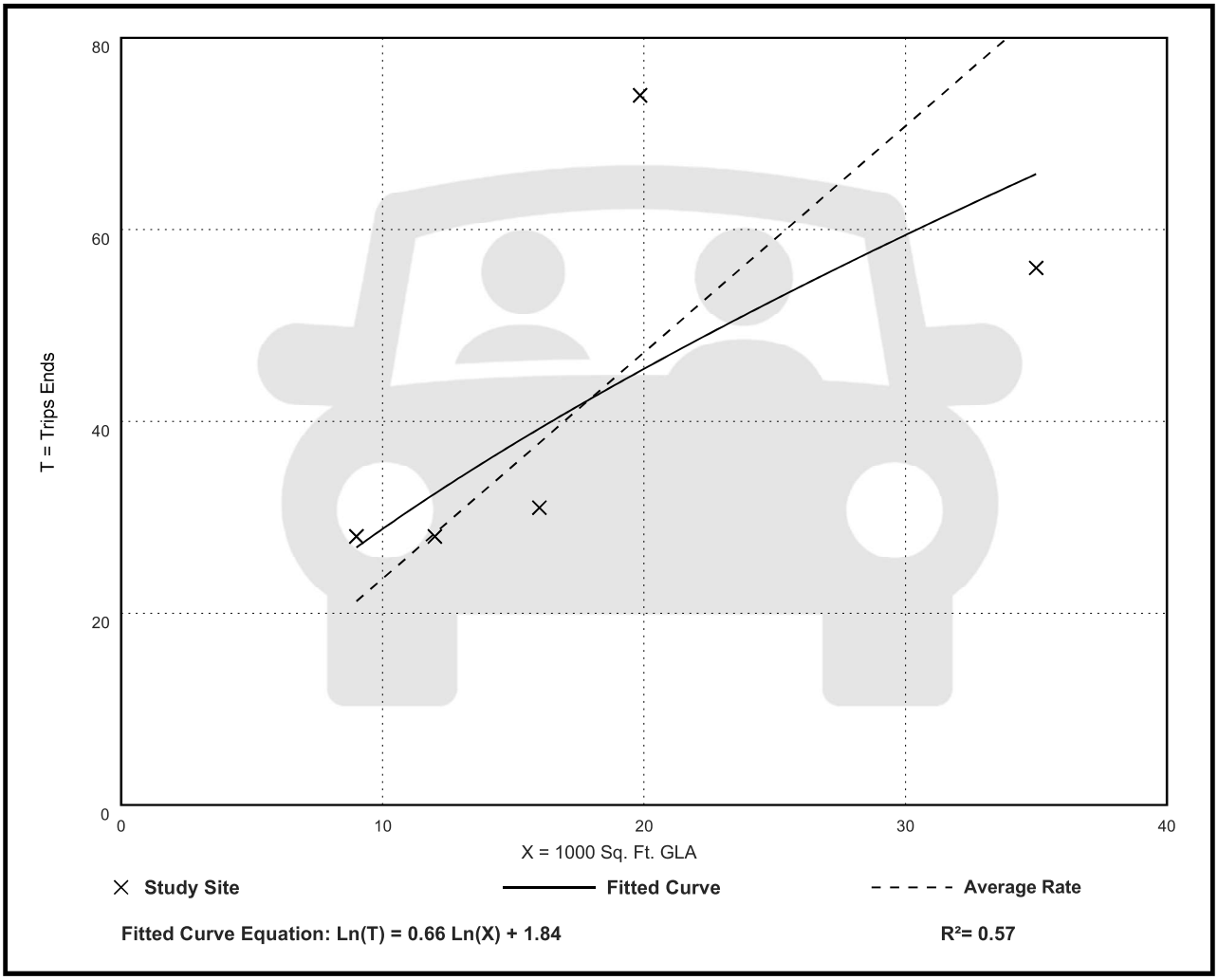
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 18
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.66 Ln(X) + 1.84

R^2= 0.57

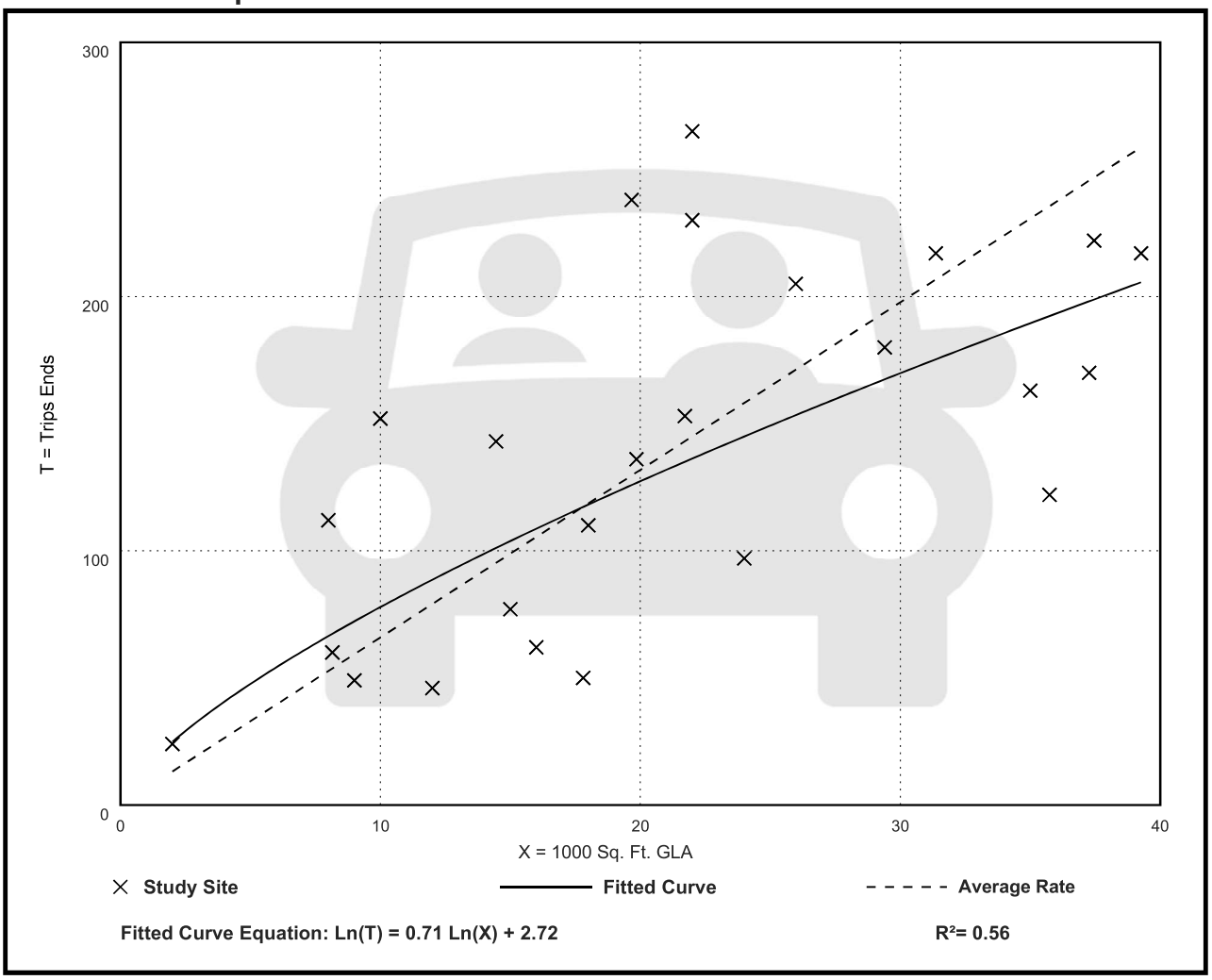
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 25
Avg. 1000 Sq. Ft. GLA: 21
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.71 Ln(X) + 2.72

R^2= 0.56

Strip Retail Plaza (<40k)
(822)

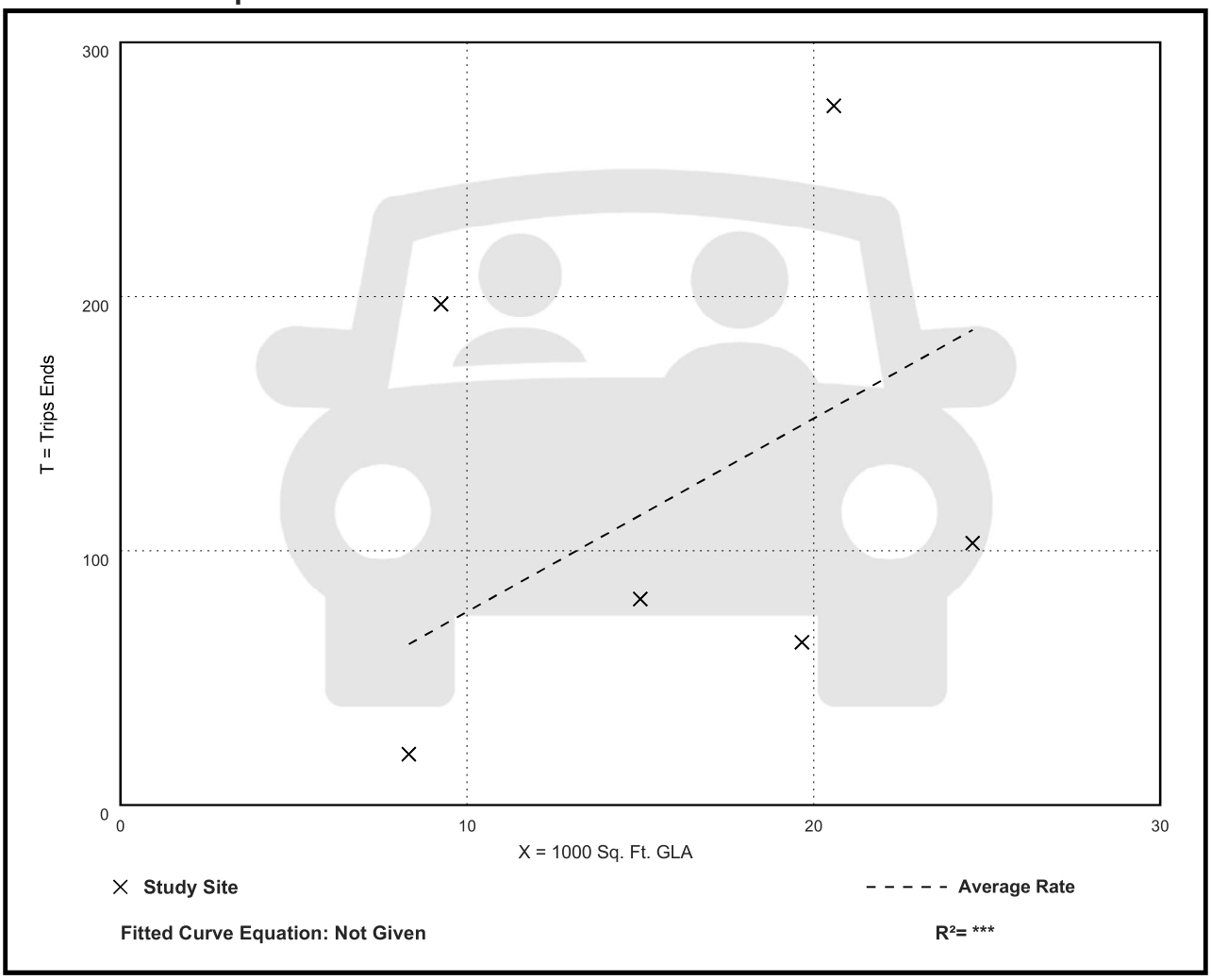
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. 1000 Sq. Ft. GLA: 16
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
7.60	2.40 - 21.30	6.45

Data Plot and Equation



Strip Retail Plaza (<40k)
(822)

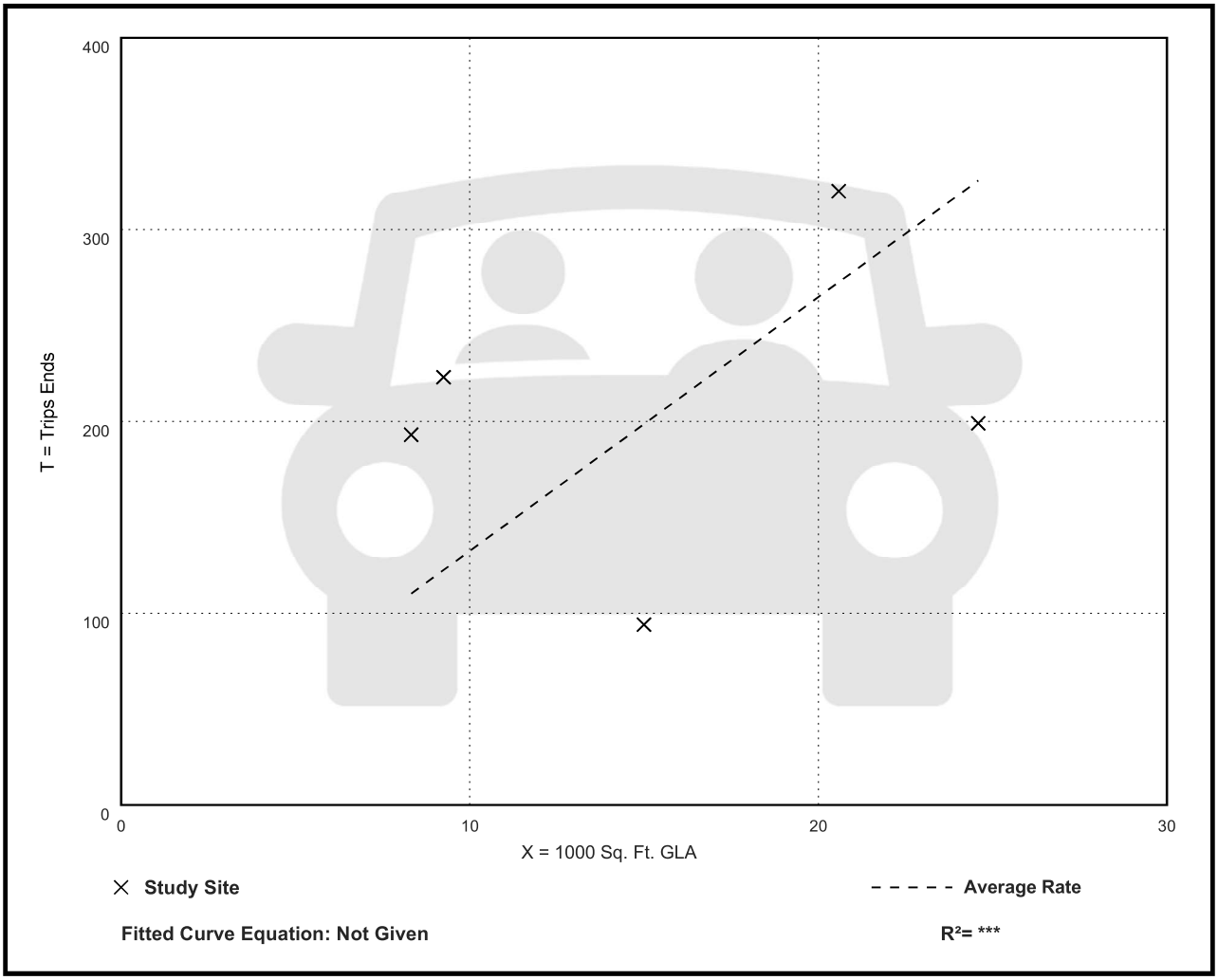
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 16
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
13.24	6.27 - 24.11	7.40

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ***

Strip Retail Plaza (<40k)
(822)

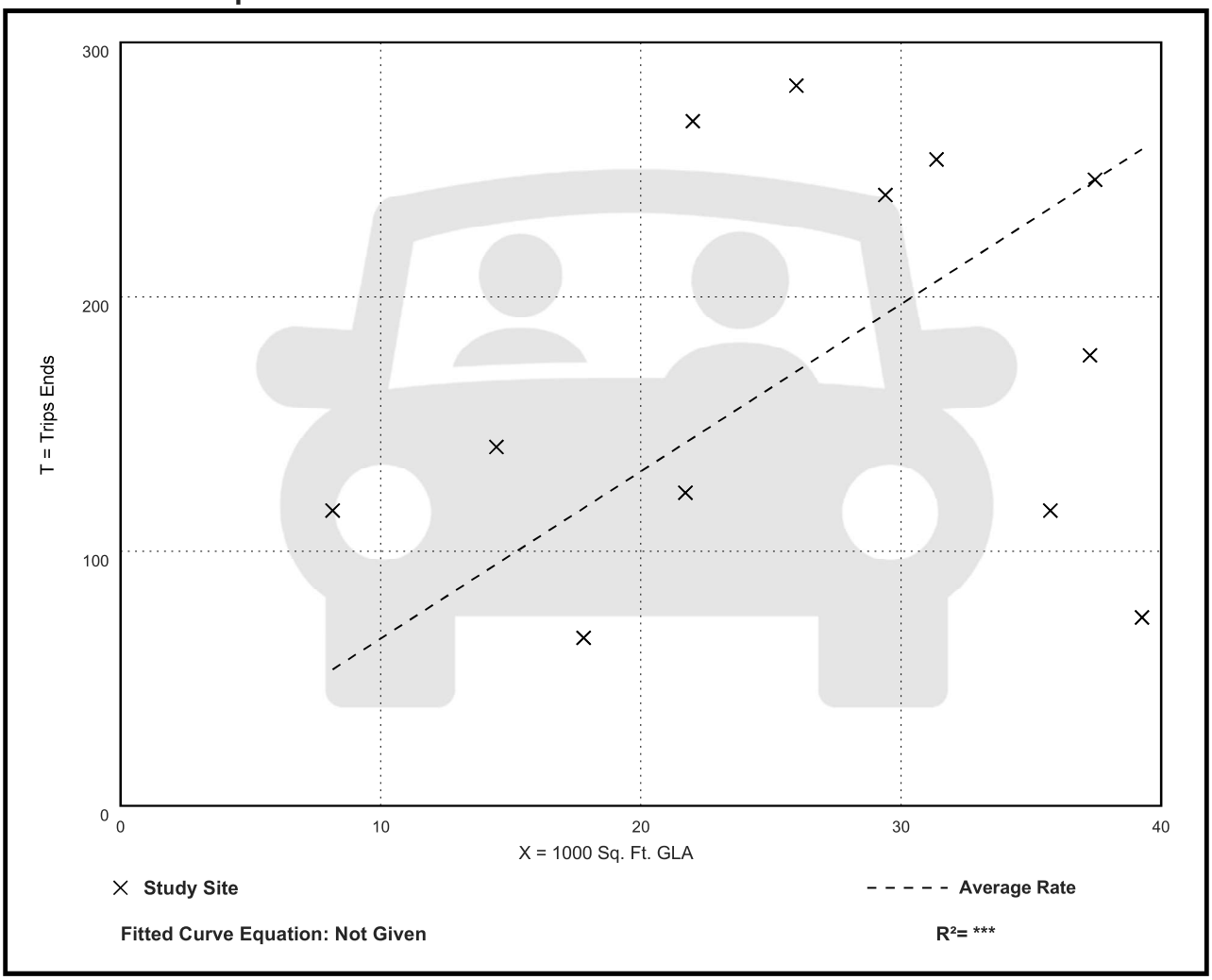
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 12
Avg. 1000 Sq. Ft. GLA: 27
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.57	1.88 - 14.23	3.45

Data Plot and Equation



Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: Employees
On a: Weekday,
AM Peak Hour of Generator

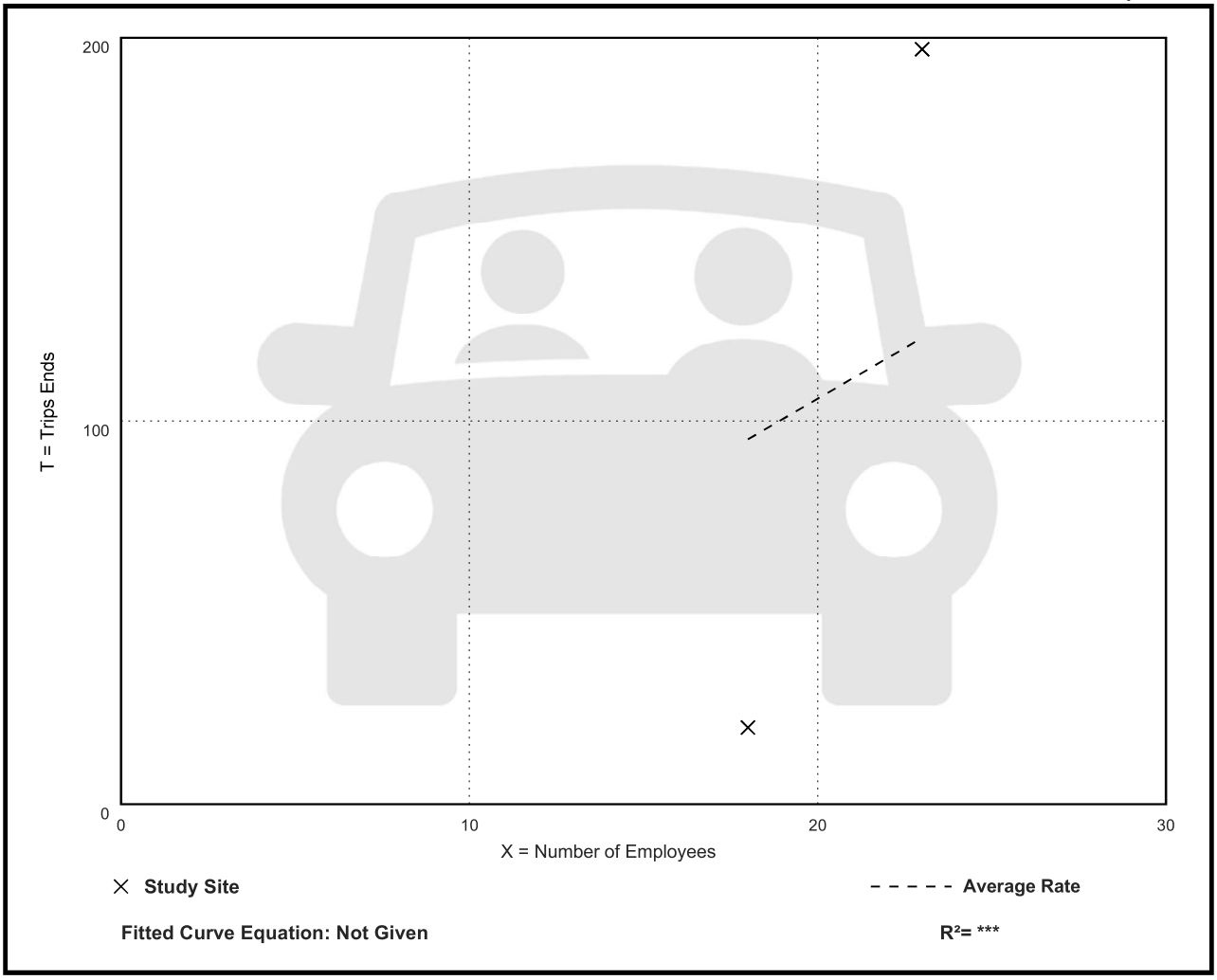
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. Num. of Employees: 21
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
5.29	1.11 - 8.57	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: Employees
On a: Weekday,
PM Peak Hour of Generator

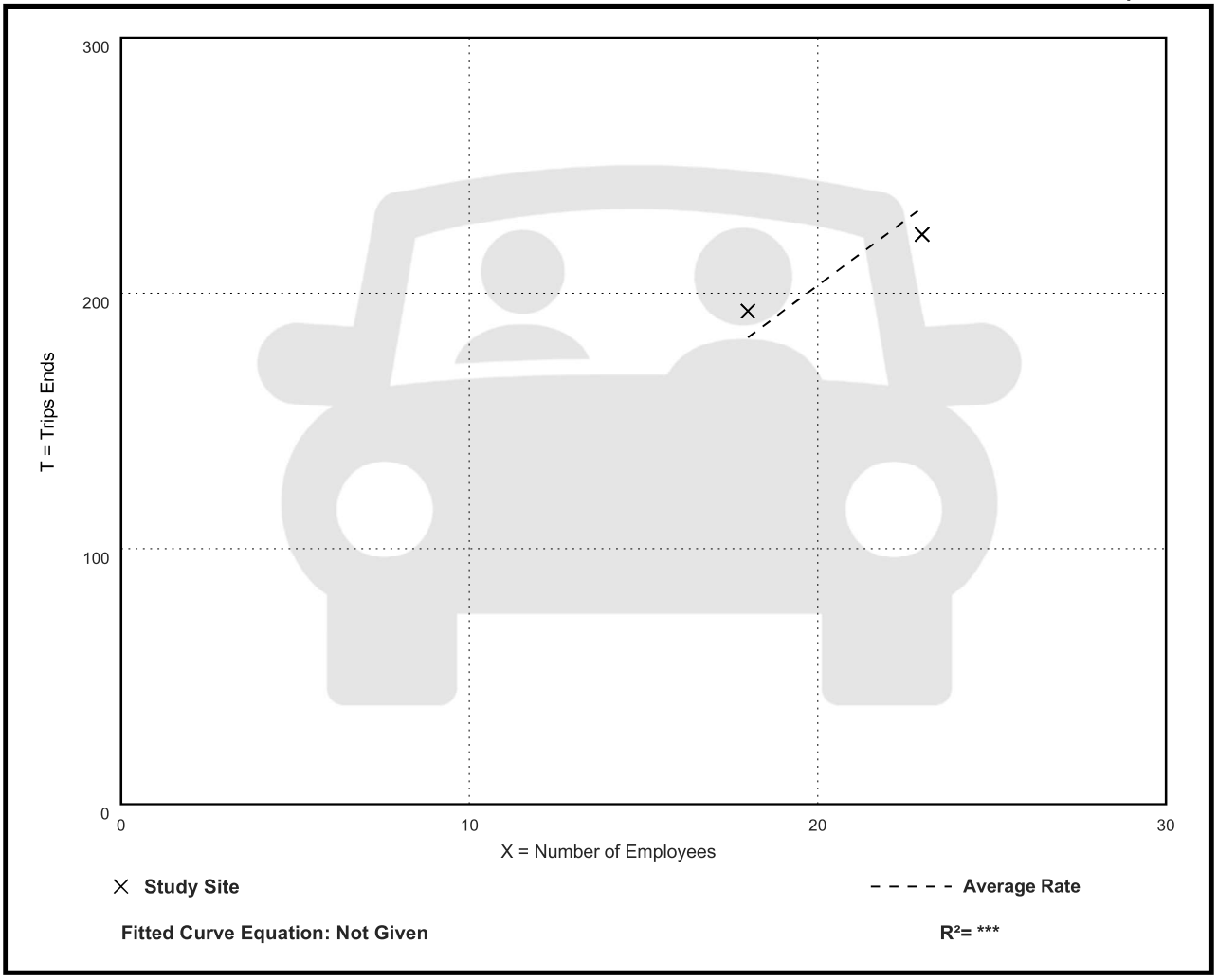
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. Num. of Employees: 21
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
10.15	9.70 - 10.72	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

Strip Retail Plaza (<40k)
(822)

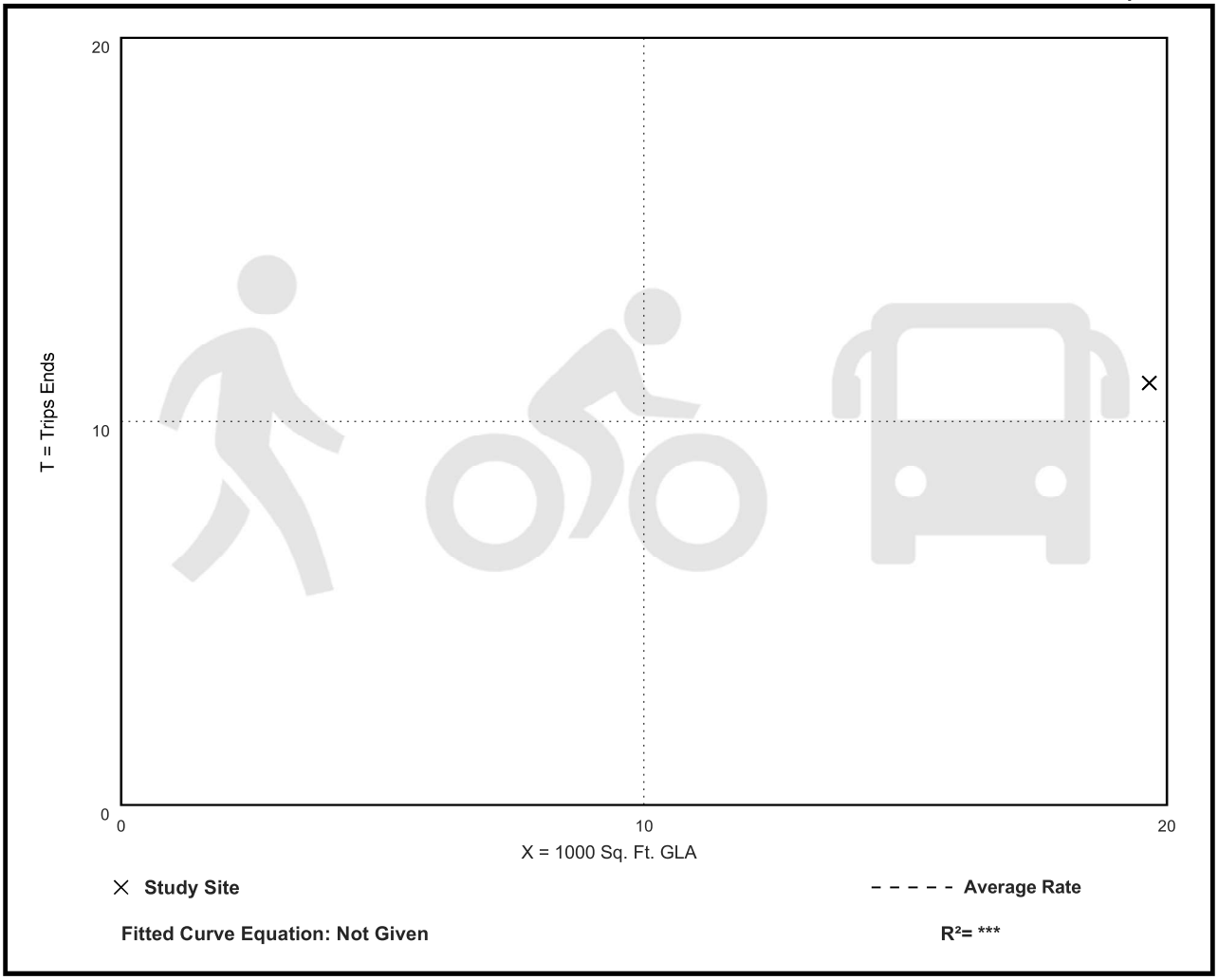
Walk+Bike+Transit Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. 1000 Sq. Ft. GLA: 20
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.56	0.56 - 0.56	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= *

Strip Retail Plaza (<40k)
(822)

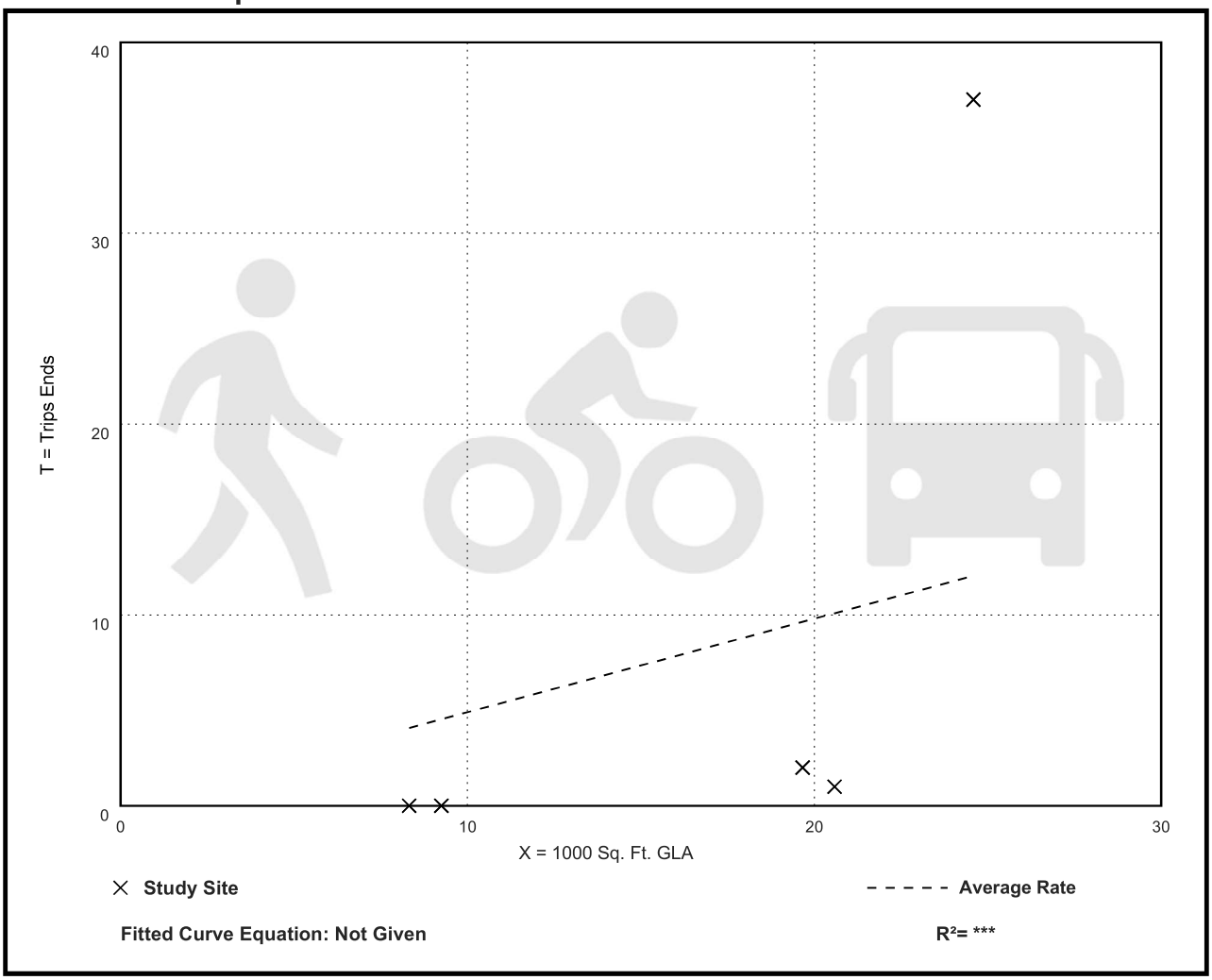
Walk+Bike+Transit Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 16
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.49	0.00 - 1.50	0.74

Data Plot and Equation



Strip Retail Plaza (<40k)
(822)

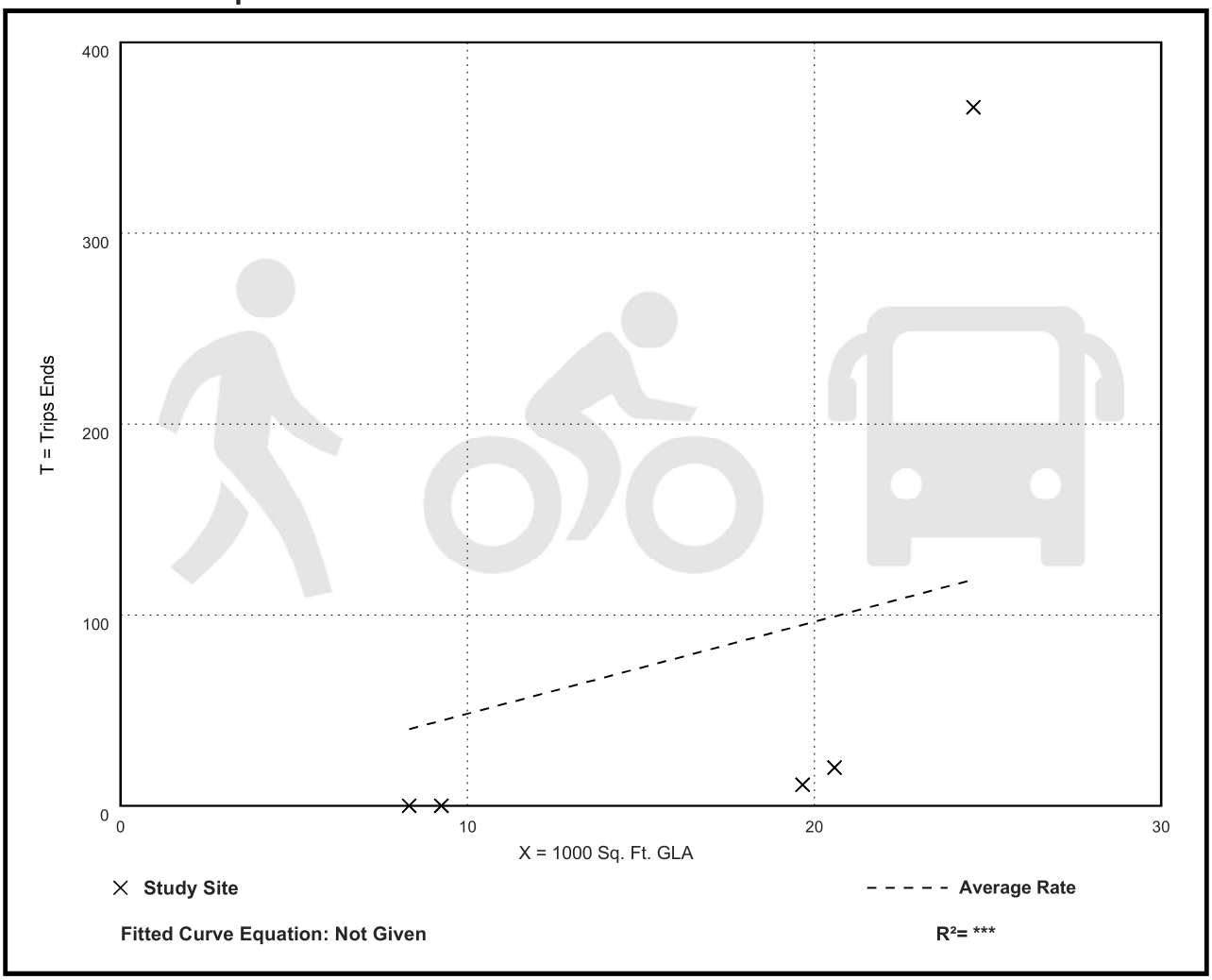
Walk+Bike+Transit Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 16
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
4.82	0.00 - 14.88	7.35

Data Plot and Equation



Strip Retail Plaza (<40k)
(822)

Walk+Bike+Transit Trip Ends vs: Employees
On a: Weekday,
AM Peak Hour of Generator

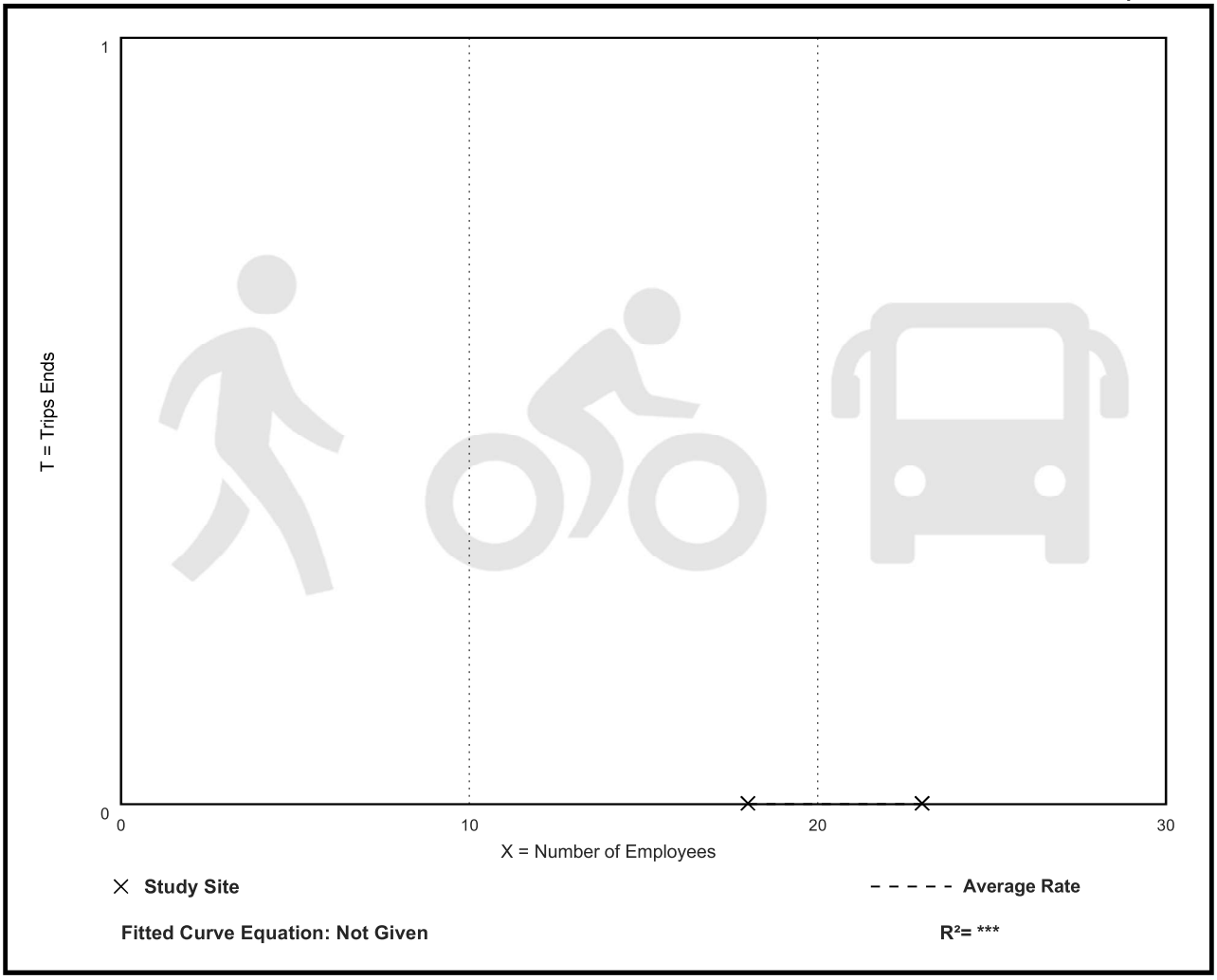
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. Num. of Employees: 21
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.00	0.00 - 0.00	***

Data Plot and Equation

Caution – Small Sample Size



Strip Retail Plaza (<40k)
(822)

Walk+Bike+Transit Trip Ends vs: Employees
On a: Weekday,
PM Peak Hour of Generator

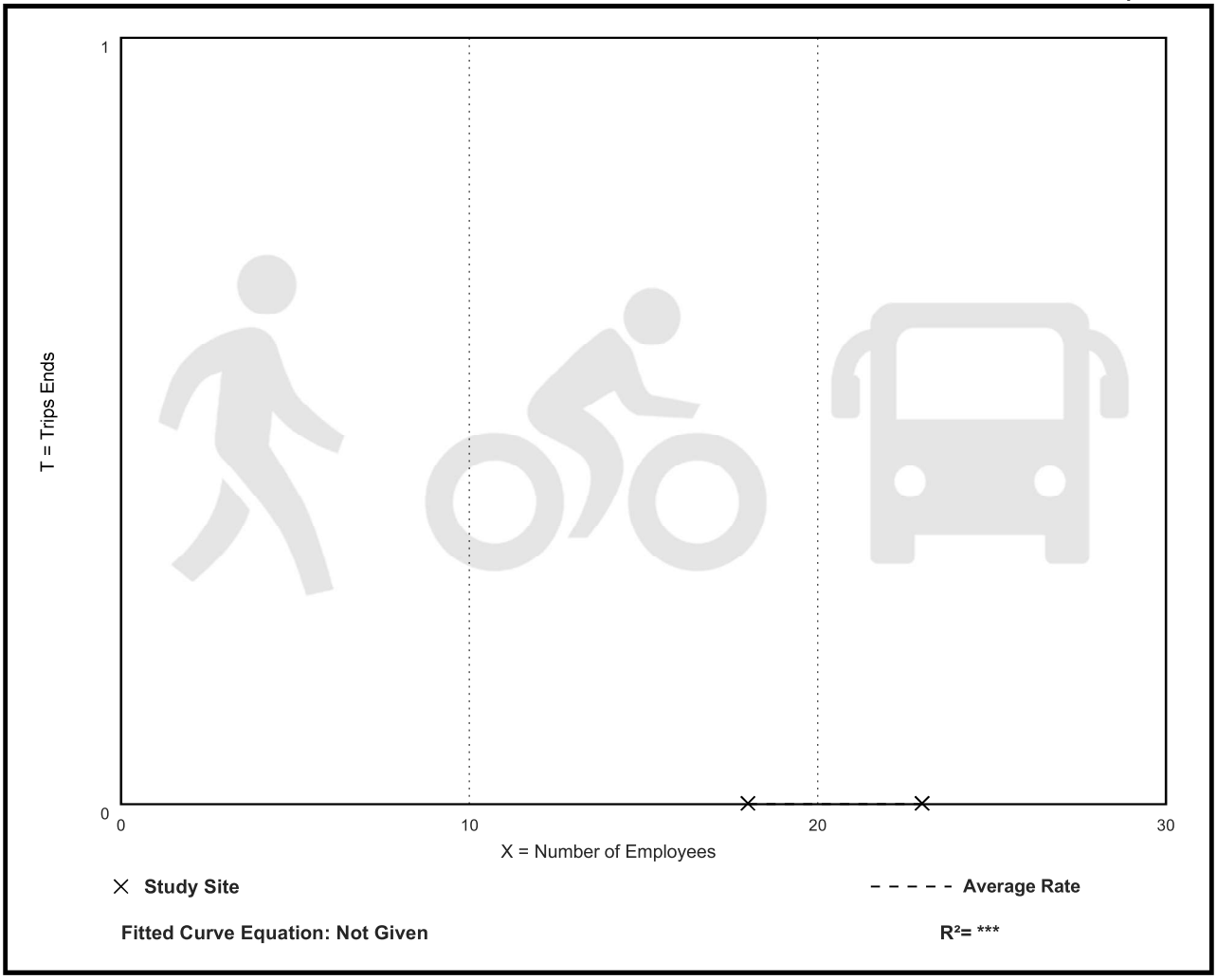
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. Num. of Employees: 21
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.00	0.00 - 0.00	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

APPENDIX B

TRAFFIC COUNTS

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Lowell)AM Peak
Site Code :
Start Date : 11/28/2021
Page No : 1

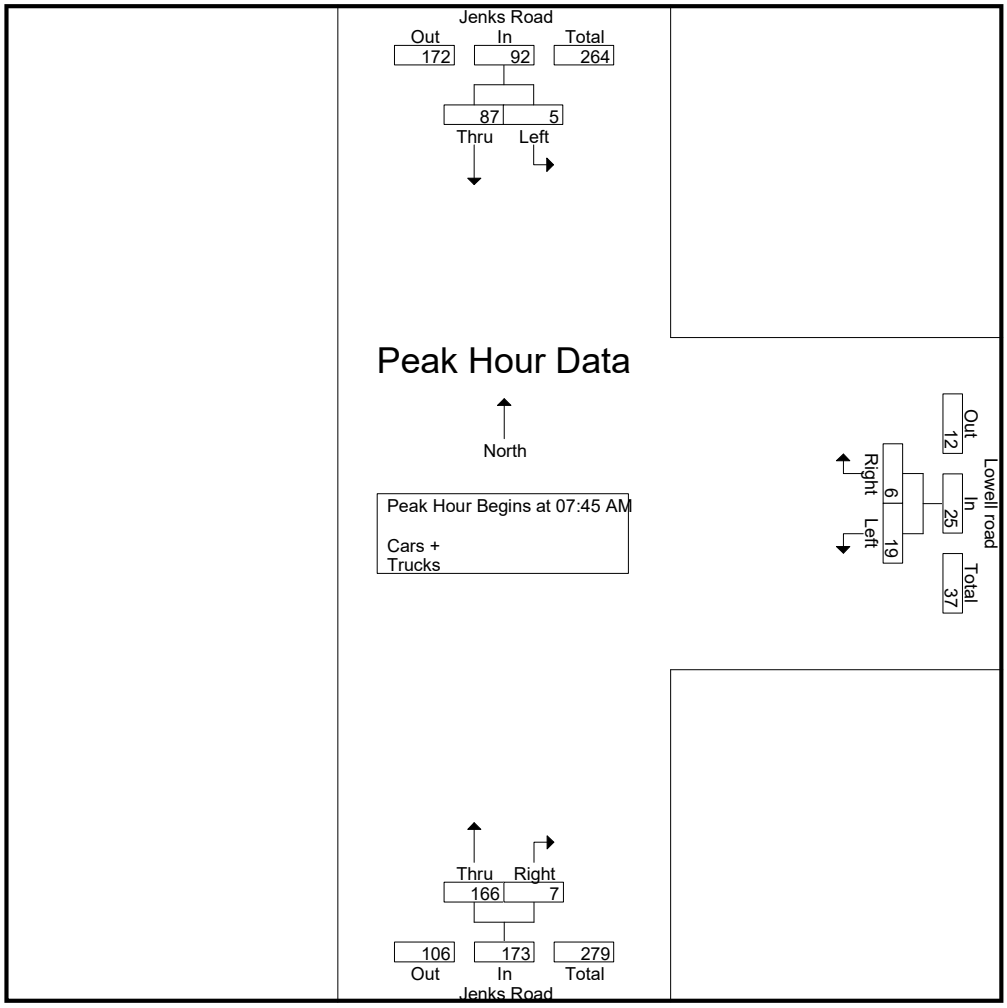
Groups Printed- Cars + - Trucks

	Jenks Road Southbound			Lowell road Westbound			Jenks Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	11	0	11	2	9	11	0	35	35	57
07:15 AM	21	1	22	2	8	10	2	37	39	71
07:30 AM	18	0	18	7	4	11	0	39	39	68
07:45 AM	17	1	18	0	5	5	2	48	50	73
Total	67	2	69	11	26	37	4	159	163	269
08:00 AM	21	3	24	2	4	6	3	41	44	74
08:15 AM	25	1	26	1	4	5	1	36	37	68
08:30 AM	24	0	24	3	6	9	1	41	42	75
08:45 AM	16	0	16	3	4	7	2	37	39	62
Total	86	4	90	9	18	27	7	155	162	279
Grand Total	153	6	159	20	44	64	11	314	325	548
Apprch %	96.2	3.8		31.2	68.8		3.4	96.6		
Total %	27.9	1.1	29	3.6	8	11.7	2	57.3	59.3	
Cars +	153	6	159	20	44	64	11	314	325	548
% Cars +	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Lowell)AM Peak
Site Code :
Start Date : 11/28/2021
Page No : 2

	Jenks Road Southbound			Lowell road Westbound			Jenks Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	17	1	18	0	5	5	2	**48**	**50**	73
08:00 AM	21	**3**	24	2	4	6	**3**	41	44	74
08:15 AM	**25**	1	**26**	1	4	5	1	36	37	68
08:30 AM	24	0	24	**3**	**6**	**9**	1	41	42	**75**
Total Volume	87	5	92	6	19	25	7	166	173	290
% App. Total	94.6	5.4		24	76		4	96		
PHF	.870	.417	.885	.500	.792	.694	.583	.865	.865	.967



TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Lowell)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

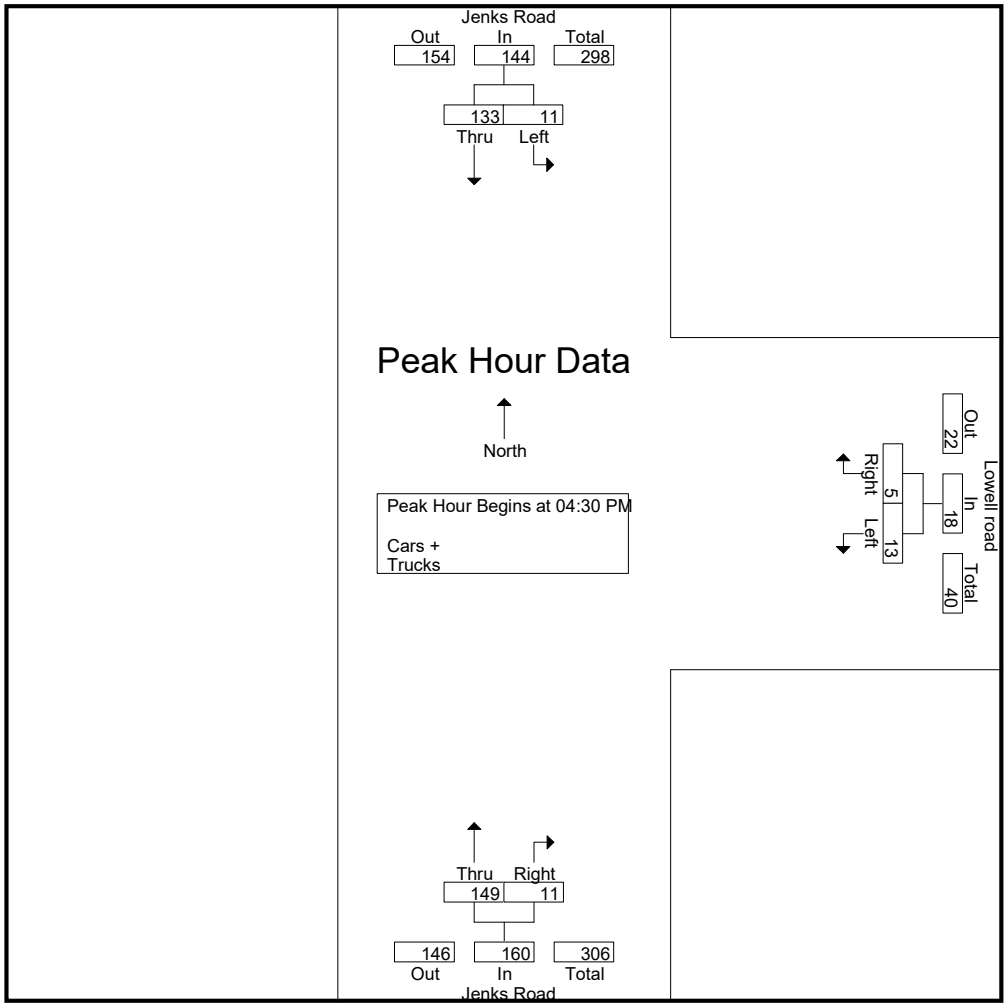
Groups Printed- Cars + - Trucks

	Jenks Road Southbound			Lowell road Westbound			Jenks Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
04:00 PM	30	0	30	2	1	3	0	27	27	60
04:15 PM	30	2	32	1	1	2	2	25	27	61
04:30 PM	30	1	31	0	5	5	6	33	39	75
04:45 PM	35	4	39	1	3	4	0	35	35	78
Total	125	7	132	4	10	14	8	120	128	274
05:00 PM	33	2	35	2	1	3	4	45	49	87
05:15 PM	35	4	39	2	4	6	1	36	37	82
05:30 PM	24	2	26	0	1	1	2	32	34	61
05:45 PM	29	0	29	5	3	8	3	22	25	62
Total	121	8	129	9	9	18	10	135	145	292
Grand Total	246	15	261	13	19	32	18	255	273	566
Apprch %	94.3	5.7		40.6	59.4		6.6	93.4		
Total %	43.5	2.7	46.1	2.3	3.4	5.7	3.2	45.1	48.2	
Cars +	246	15	261	13	19	32	18	254	272	565
% Cars +	100	100	100	100	100	100	100	99.6	99.6	99.8
Trucks	0	0	0	0	0	0	0	1	1	1
% Trucks	0	0	0	0	0	0	0	0.4	0.4	0.2

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Lowell)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 2

	Jenks Road Southbound			Lowell road Westbound			Jenks Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	30	1	31	0	**5**	5	**6**	33	39	75
04:45 PM	**35**	**4**	**39**	1	3	4	0	35	35	78
05:00 PM	33	2	35	**2**	1	3	4	**45**	**49**	**87**
05:15 PM	35	4	39	2	4	**6**	1	36	37	82
Total Volume	133	11	144	5	13	18	11	149	160	322
% App. Total	92.4	7.6		27.8	72.2		6.9	93.1		
PHF	.950	.688	.923	.625	.650	.750	.458	.828	.816	.925



TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Wimberley)AM Peak
Site Code :
Start Date : 11/1/2021
Page No : 1

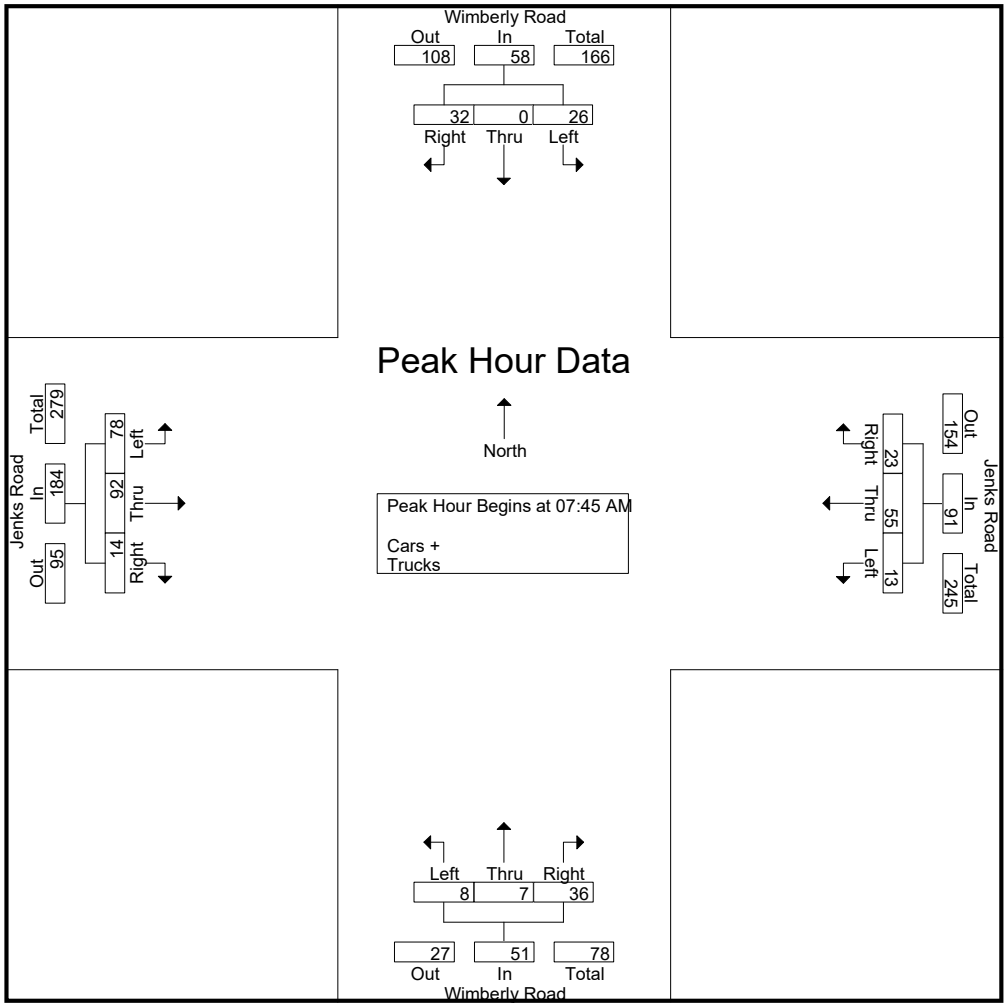
Groups Printed- Cars + - Trucks

	Wimberley Road Southbound				Jenks Road Westbound				Wimberly Road Northbound				Jenks Road Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	2	0	7	9	4	6	1	11	12	3	2	17	0	18	18	36	73
07:15 AM	11	0	10	21	2	9	2	13	11	2	1	14	1	24	12	37	85
07:30 AM	12	0	9	21	4	4	0	8	4	0	1	5	1	35	13	49	83
07:45 AM	8	0	7	15	4	8	5	17	4	1	1	6	4	17	25	46	84
Total	33	0	33	66	14	27	8	49	31	6	5	42	6	94	68	168	325
08:00 AM	9	0	4	13	8	14	2	24	6	1	1	8	4	36	20	60	105
08:15 AM	9	0	4	13	6	18	3	27	8	2	1	11	4	18	12	34	85
08:30 AM	6	0	11	17	5	15	3	23	18	3	5	26	2	21	21	44	110
08:45 AM	9	1	9	19	4	8	3	15	8	0	2	10	0	22	17	39	83
Total	33	1	28	62	23	55	11	89	40	6	9	55	10	97	70	177	383
Grand Total	66	1	61	128	37	82	19	138	71	12	14	97	16	191	138	345	708
Apprch %	51.6	0.8	47.7		26.8	59.4	13.8		73.2	12.4	14.4		4.6	55.4	40		
Total %	9.3	0.1	8.6	18.1	5.2	11.6	2.7	19.5	10	1.7	2	13.7	2.3	27	19.5	48.7	
Cars +	64	1	60	125	36	74	19	129	71	12	10	93	16	184	130	330	677
% Cars +	97	100	98.4	97.7	97.3	90.2	100	93.5	100	100	71.4	95.9	100	96.3	94.2	95.7	95.6
Trucks	2	0	1	3	1	8	0	9	0	0	4	4	0	7	8	15	31
% Trucks	3	0	1.6	2.3	2.7	9.8	0	6.5	0	0	28.6	4.1	0	3.7	5.8	4.3	4.4

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Wimberley)AM Peak
Site Code :
Start Date : 11/1/2021
Page No : 2

	Wimberly Road Southbound				Jenks Road Westbound				Wimberly Road Northbound				Jenks Road Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	8	0	7	15	4	8	**5**	17	4	1	1	6	**4**	17	**25**	46	84
08:00 AM	**9**	0	4	13	**8**	14	2	24	6	1	1	8	4	**36**	20	**60**	105
08:15 AM	9	0	4	13	6	**18**	3	**27**	8	2	1	11	4	18	12	34	85
08:30 AM	6	0	**11**	**17**	5	15	3	23	**18**	**3**	**5**	**26**	2	21	21	44	**110**
Total Volume	32	0	26	58	23	55	13	91	36	7	8	51	14	92	78	184	384
% App. Total	55.2	0	44.8		25.3	60.4	14.3		70.6	13.7	15.7		7.6	50	42.4		
PHF	.889	.000	.591	.853	.719	.764	.650	.843	.500	.583	.400	.490	.875	.639	.780	.767	.873



TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Wimberley)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

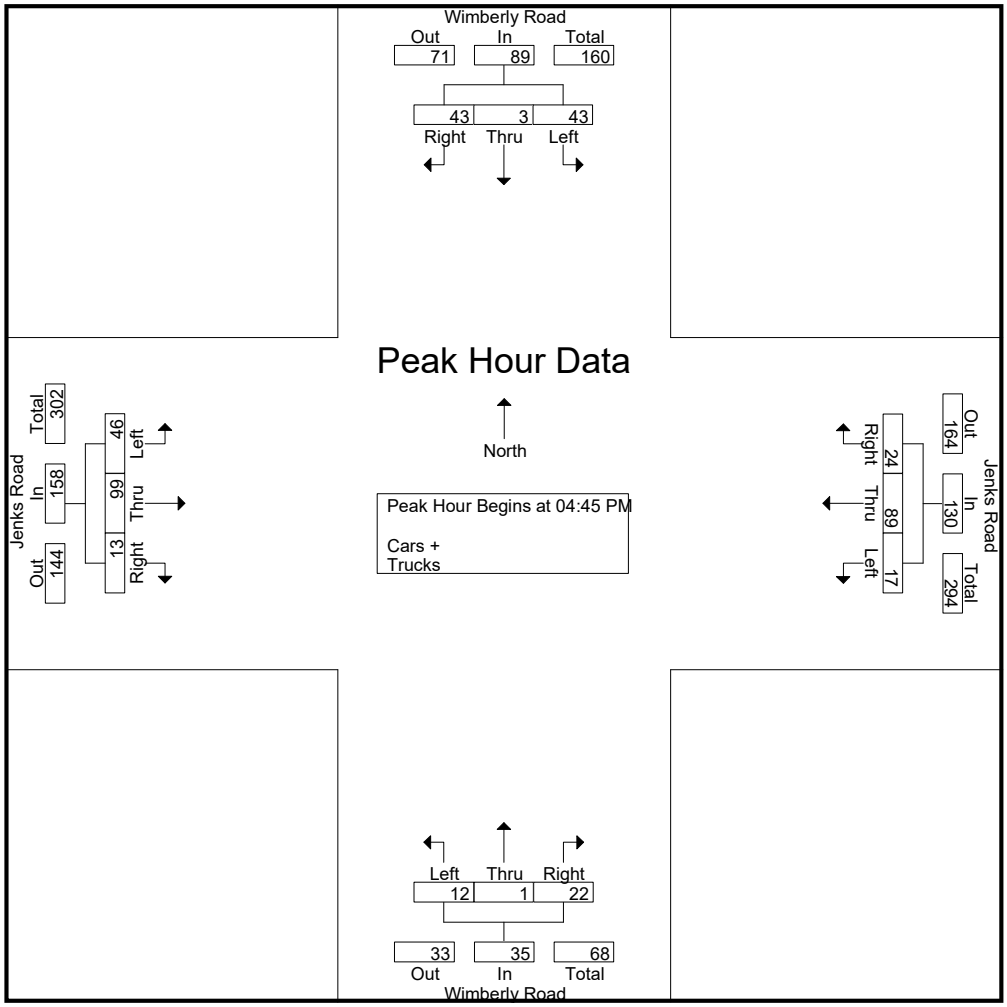
Groups Printed- Cars + - Trucks

	Wimberley Road Southbound				Jenks Road Westbound				Wimberly Road Northbound				Jenks Road Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
04:00 PM	15	3	11	29	1	13	10	24	6	0	2	8	1	17	11	29	90
04:15 PM	16	2	8	26	6	14	7	27	6	0	1	7	0	18	7	25	85
04:30 PM	9	2	9	20	7	20	10	37	4	2	2	8	2	18	13	33	98
04:45 PM	11	1	12	24	5	25	3	33	6	1	6	13	0	21	17	38	108
Total	51	8	40	99	19	72	30	121	22	3	11	36	3	74	48	125	381
05:00 PM	13	0	11	24	6	21	3	30	4	0	2	6	4	32	11	47	107
05:15 PM	14	0	9	23	4	23	2	29	7	0	2	9	3	26	8	37	98
05:30 PM	5	2	11	18	9	20	9	38	5	0	2	7	6	20	10	36	99
05:45 PM	11	1	9	21	8	19	5	32	9	0	0	9	2	19	6	27	89
Total	43	3	40	86	27	83	19	129	25	0	6	31	15	97	35	147	393
Grand Total	94	11	80	185	46	155	49	250	47	3	17	67	18	171	83	272	774
Apprch %	50.8	5.9	43.2		18.4	62	19.6		70.1	4.5	25.4		6.6	62.9	30.5		
Total %	12.1	1.4	10.3	23.9	5.9	20	6.3	32.3	6.1	0.4	2.2	8.7	2.3	22.1	10.7	35.1	
Cars +	94	11	80	185	46	155	49	250	47	3	17	67	18	170	83	271	773
% Cars +	100	100	100	100	100	100	100	100	100	100	100	100	100	99.4	100	99.6	99.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0	0.4	0.1

TRAFFIC DATA COLLECTION

File Name : Apex(Jenks and Wimberley)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 2

	Wimberly Road Southbound				Jenks Road Westbound				Wimberly Road Northbound				Jenks Road Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	11	1	**12**	**24**	5	**25**	3	33	6	**1**	**6**	**13**	0	21	**17**	38	**108**
05:00 PM	13	0	11	24	6	21	3	30	4	0	2	6	4	**32**	11	**47**	107
05:15 PM	**14**	0	9	23	4	23	2	29	**7**	0	2	9	3	26	8	37	98
05:30 PM	5	**2**	11	18	**9**	20	**9**	**38**	5	0	2	7	**6**	20	10	36	99
Total Volume	43	3	43	89	24	89	17	130	22	1	12	35	13	99	46	158	412
% App. Total	48.3	3.4	48.3		18.5	68.5	13.1		62.9	2.9	34.3		8.2	62.7	29.1		
PHF	.768	.375	.896	.927	.667	.890	.472	.855	.786	.250	.500	.673	.542	.773	.676	.840	.954



TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and Jenks)AM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

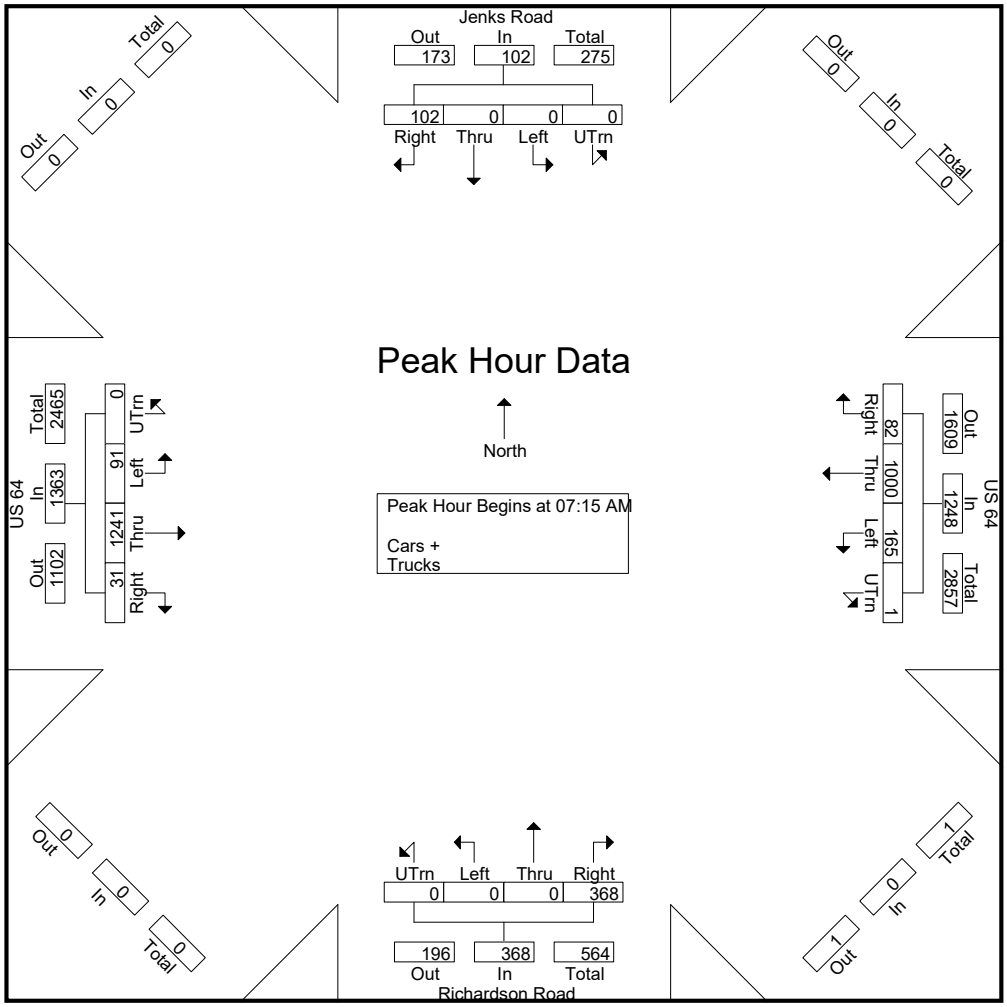
Groups Printed- Cars + - Trucks

	Jenks Road Southbound					US 64 Westbound					Richardson Road Northbound					US 64 Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
07:00 AM	19	0	0	0	19	19	225	33	0	277	74	0	0	0	74	4	253	15	0	272	642
07:15 AM	29	0	0	0	29	21	218	30	0	269	98	0	0	0	98	6	307	26	0	339	735
07:30 AM	22	0	0	0	22	14	253	36	1	304	106	0	0	0	106	6	341	21	0	368	800
07:45 AM	24	0	0	0	24	21	239	46	0	306	84	0	0	0	84	8	289	26	0	323	737
Total	94	0	0	0	94	75	935	145	1	1156	362	0	0	0	362	24	1190	88	0	1302	2914
08:00 AM	27	0	0	0	27	26	290	53	0	369	80	0	0	0	80	11	304	18	0	333	809
08:15 AM	33	0	0	0	33	12	238	47	2	299	71	0	0	0	71	16	276	26	0	318	721
08:30 AM	30	0	0	0	30	18	246	49	0	313	96	0	0	0	96	8	285	20	0	313	752
08:45 AM	29	0	0	0	29	18	267	45	0	330	90	0	0	0	90	7	263	16	0	286	735
Total	119	0	0	0	119	74	1041	194	2	1311	337	0	0	0	337	42	1128	80	0	1250	3017
Grand Total	213	0	0	0	213	149	1976	339	3	2467	699	0	0	0	699	66	2318	168	0	2552	5931
Apprch %	100	0	0	0		6	80.1	13.7	0.1		100	0	0	0		2.6	90.8	6.6	0		
Total %	3.6	0	0	0	3.6	2.5	33.3	5.7	0.1	41.6	11.8	0	0	0	11.8	1.1	39.1	2.8	0	43	
Cars +	211	0	0	0	211	137	1890	328	3	2358	697	0	0	0	697	66	2225	164	0	2455	5721
% Cars +	99.1	0	0	0	99.1	91.9	95.6	96.8	100	95.6	99.7	0	0	0	99.7	100	96	97.6	0	96.2	96.5
Trucks	2	0	0	0	2	12	86	11	0	109	2	0	0	0	2	0	93	4	0	97	210
% Trucks	0.9	0	0	0	0.9	8.1	4.4	3.2	0	4.4	0.3	0	0	0	0.3	0	4	2.4	0	3.8	3.5

TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and Jenks)AM Peak
Site Code :
Start Date : 10/28/2021
Page No : 2

	Jenks Road Southbound					US 64 Westbound					Richardson Road Northbound					US 64 Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**29**	0	0	0	**29**	21	218	30	0	269	98	0	0	0	98	6	307	**26**	0	339	735
07:30 AM	22	0	0	0	22	14	253	36	**1**	304	**106**	0	0	0	**106**	6	**341**	21	0	**368**	800
07:45 AM	24	0	0	0	24	21	239	46	0	306	84	0	0	0	84	8	289	26	0	323	737
08:00 AM	27	0	0	0	27	**26**	**290**	**53**	0	**369**	80	0	0	0	80	**11**	304	18	0	333	**809**
Total Volume	102	0	0	0	102	82	1000	165	1	1248	368	0	0	0	368	31	1241	91	0	1363	3081
% App. Total	100	0	0	0		6.6	80.1	13.2	0.1		100	0	0	0		2.3	91	6.7	0		
PHF	.879	.000	.000	.000	.879	.788	.862	.778	.250	.846	.868	.000	.000	.000	.868	.705	.910	.875	.000	.926	.952



TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and Jenks)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

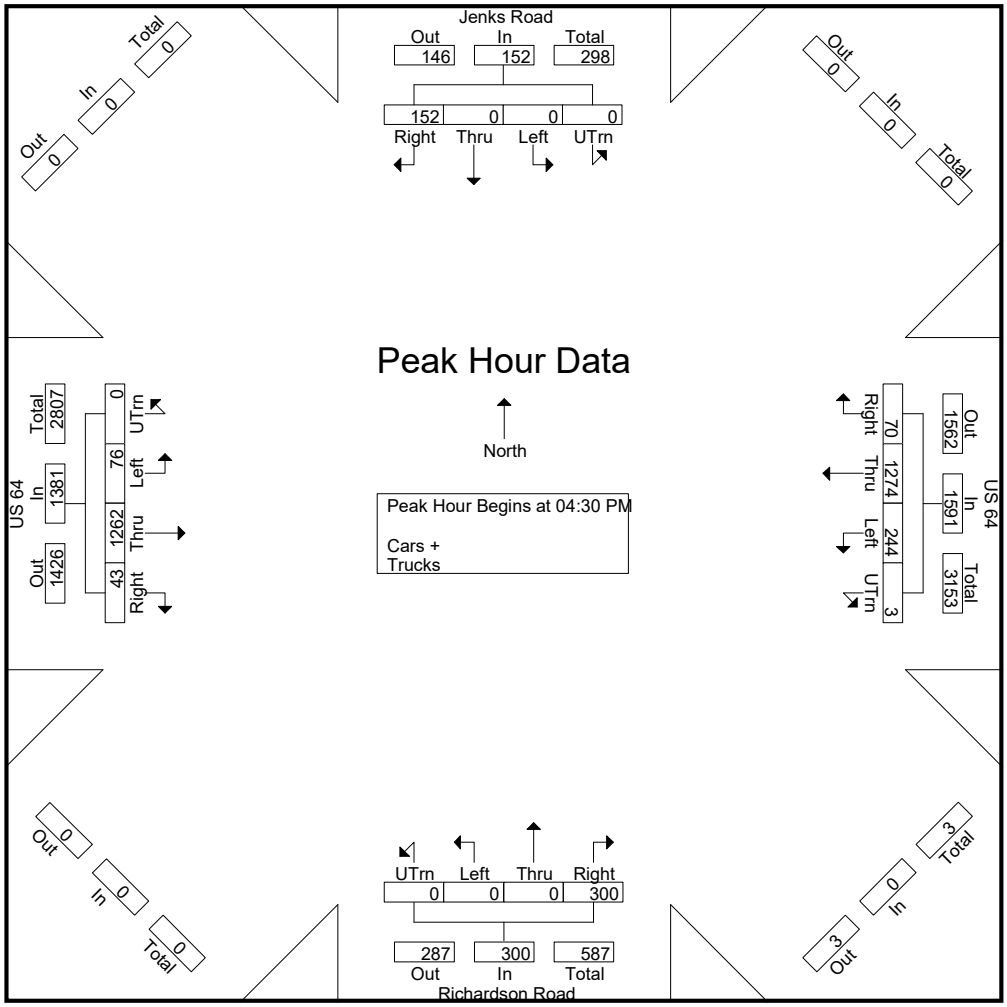
Groups Printed- Cars + - Trucks

	Jenks Road Southbound					US 64 Westbound					Richardson Road Northbound					US 64 Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
04:00 PM	35	0	0	0	35	12	302	56	0	370	50	0	0	0	50	6	237	18	0	261	716
04:15 PM	36	0	0	0	36	18	341	50	0	409	64	0	0	0	64	12	312	17	0	341	850
04:30 PM	35	0	0	0	35	14	318	62	0	394	75	0	0	0	75	11	292	19	0	322	826
04:45 PM	41	0	0	0	41	19	295	63	2	379	69	0	0	0	69	17	355	16	0	388	877
Total	147	0	0	0	147	63	1256	231	2	1552	258	0	0	0	258	46	1196	70	0	1312	3269
05:00 PM	40	0	0	0	40	19	315	58	1	393	90	0	0	0	90	4	316	17	0	337	860
05:15 PM	36	0	0	0	36	18	346	61	0	425	66	0	0	0	66	11	299	24	0	334	861
05:30 PM	25	0	0	0	25	20	293	61	2	376	57	0	0	0	57	12	271	15	0	298	756
05:45 PM	36	0	0	0	36	13	287	55	0	355	61	0	0	0	61	5	281	15	0	301	753
Total	137	0	0	0	137	70	1241	235	3	1549	274	0	0	0	274	32	1167	71	0	1270	3230
Grand Total	284	0	0	0	284	133	2497	466	5	3101	532	0	0	0	532	78	2363	141	0	2582	6499
Apprch %	100	0	0	0		4.3	80.5	15	0.2		100	0	0	0		3	91.5	5.5	0		
Total %	4.4	0	0	0	4.4	2	38.4	7.2	0.1	47.7	8.2	0	0	0	8.2	1.2	36.4	2.2	0	39.7	
Cars +	282	0	0	0	282	132	2456	465	5	3058	529	0	0	0	529	78	2309	141	0	2528	6397
% Cars +	99.3	0	0	0	99.3	99.2	98.4	99.8	100	98.6	99.4	0	0	0	99.4	100	97.7	100	0	97.9	98.4
Trucks	2	0	0	0	2	1	41	1	0	43	3	0	0	0	3	0	54	0	0	54	102
% Trucks	0.7	0	0	0	0.7	0.8	1.6	0.2	0	1.4	0.6	0	0	0	0.6	0	2.3	0	0	2.1	1.6

TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and Jenks)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 2

	Jenks Road Southbound					US 64 Westbound					Richardson Road Northbound					US 64 Eastbound					
Start Time	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Right	Thru	Left	UTrn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	35	0	0	0	35	14	318	62	0	394	75	0	0	0	75	11	292	19	0	322	826
04:45 PM	**41**	0	0	0	**41**	**19**	295	**63**	**2**	379	69	0	0	0	69	**17**	**355**	16	0	**388**	**877**
05:00 PM	40	0	0	0	40	19	315	58	1	393	**90**	0	0	0	**90**	4	316	17	0	337	860
05:15 PM	36	0	0	0	36	18	**346**	61	0	**425**	66	0	0	0	66	11	299	**24**	0	334	861
Total Volume	152	0	0	0	152	70	1274	244	3	1591	300	0	0	0	300	43	1262	76	0	1381	3424
% App. Total	100	0	0	0		4.4	80.1	15.3	0.2		100	0	0	0		3.1	91.4	5.5	0		
PHF	.927	.000	.000	.000	.927	.921	.921	.968	.375	.936	.833	.000	.000	.000	.833	.632	.889	.792	.000	.890	.976



TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and U Turn)AM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

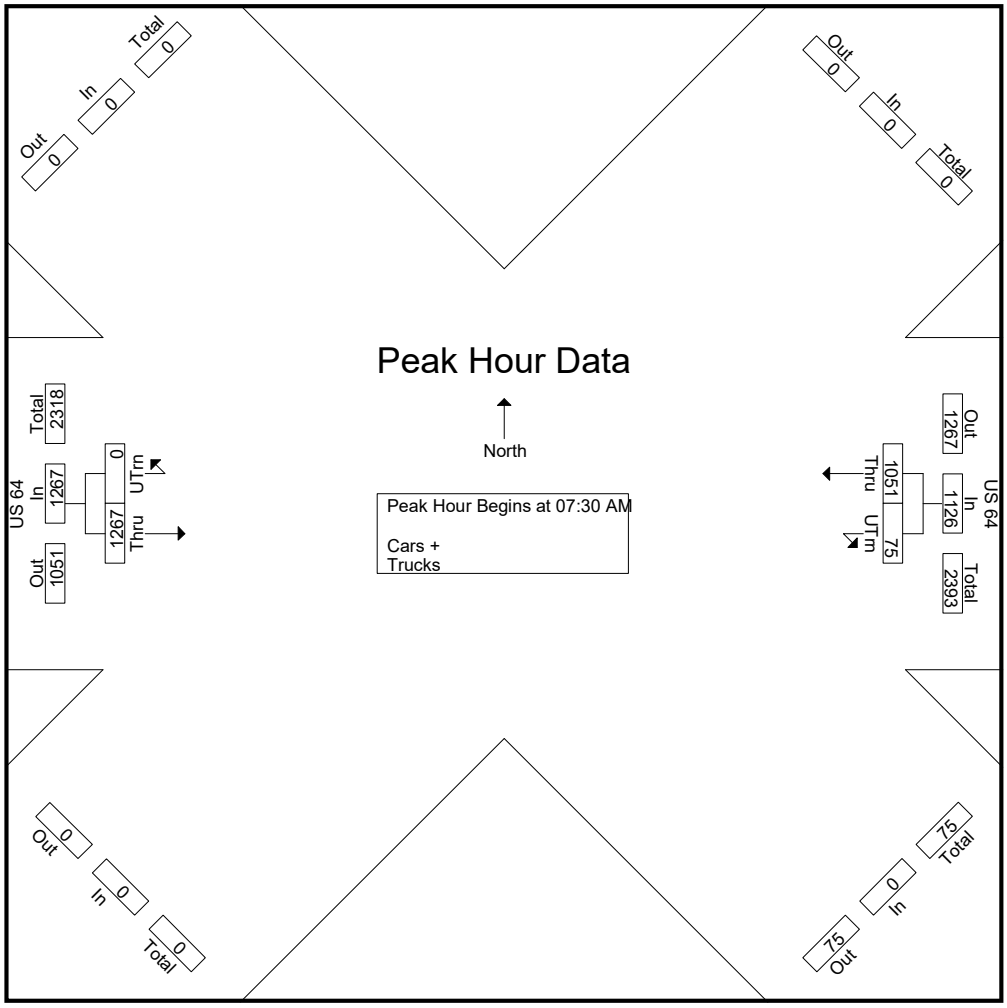
Groups Printed- Cars + - Trucks

	US 64 Westbound			US 64 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. Total
07:00 AM	236	8	244	264	0	264	508
07:15 AM	227	20	247	319	0	319	566
07:30 AM	259	16	275	352	0	352	627
07:45 AM	245	18	263	305	0	305	568
Total	967	62	1029	1240	0	1240	2269
08:00 AM	292	25	317	308	0	308	625
08:15 AM	255	16	271	302	0	302	573
08:30 AM	256	20	276	293	0	293	569
08:45 AM	284	12	296	274	0	274	570
Total	1087	73	1160	1177	0	1177	2337
Grand Total	2054	135	2189	2417	0	2417	4606
Apprch %	93.8	6.2		100	0		
Total %	44.6	2.9	47.5	52.5	0	52.5	
Cars +	1969	132	2101	2323	0	2323	4424
% Cars +	95.9	97.8	96	96.1	0	96.1	96
Trucks	85	3	88	94	0	94	182
% Trucks	4.1	2.2	4	3.9	0	3.9	4

TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and U Turn)AM Peak
Site Code :
Start Date : 10/28/2021
Page No : 2

	US 64 Westbound			US 64 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1							
Peak Hour for Entire Intersection Begins at 07:30 AM							
07:30 AM	259	16	275	**352**	0	**352**	**627**
07:45 AM	245	18	263	305	0	305	568
08:00 AM	**292**	**25**	**317**	308	0	308	625
08:15 AM	255	16	271	302	0	302	573
Total Volume	1051	75	1126	1267	0	1267	2393
% App. Total	93.3	6.7		100	0		
PHF	.900	.750	.888	.900	.000	.900	.954



TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and U Turn)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 1

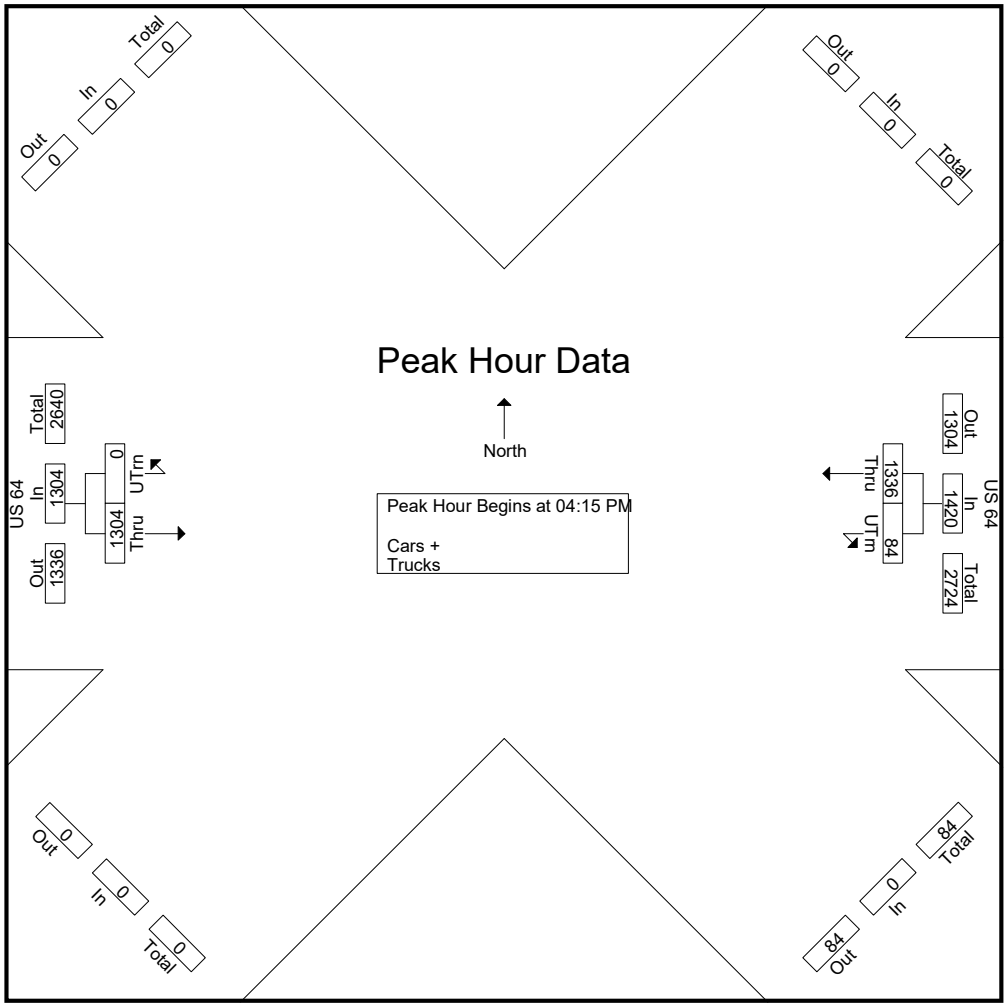
Groups Printed- Cars + - Trucks

	US 64 Westbound			US 64 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. Total
04:00 PM	320	17	337	244	0	244	581
04:15 PM	359	18	377	323	0	323	700
04:30 PM	342	11	353	311	0	311	664
04:45 PM	305	31	336	357	0	357	693
Total	1326	77	1403	1235	0	1235	2638
05:00 PM	330	24	354	313	0	313	667
05:15 PM	337	25	362	309	0	309	671
05:30 PM	303	15	318	283	0	283	601
05:45 PM	306	17	323	284	0	284	607
Total	1276	81	1357	1189	0	1189	2546
Grand Total	2602	158	2760	2424	0	2424	5184
Apprch %	94.3	5.7		100	0		
Total %	50.2	3	53.2	46.8	0	46.8	
Cars +	2559	158	2717	2370	0	2370	5087
% Cars +	98.3	100	98.4	97.8	0	97.8	98.1
Trucks	43	0	43	54	0	54	97
% Trucks	1.7	0	1.6	2.2	0	2.2	1.9

TRAFFIC DATA COLLECTION

File Name : Apex(US 64 and U Turn)PM Peak
Site Code :
Start Date : 10/28/2021
Page No : 2

	US 64 Westbound			US 64 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1							
Peak Hour for Entire Intersection Begins at 04:15 PM							
04:15 PM	**359**	18	**377**	323	0	323	**700**
04:30 PM	342	11	353	311	0	311	664
04:45 PM	305	**31**	336	**357**	0	**357**	693
05:00 PM	330	24	354	313	0	313	667
Total Volume	1336	84	1420	1304	0	1304	2724
% App. Total	94.1	5.9		100	0		
PHF	.930	.677	.942	.913	.000	.913	.973



APPENDIX C

ADJACENT DEVELOPMENT INFORMATION

Traffic Impact Analysis for

The Retreat at the Preserve at White Oak

Apex, North Carolina

Prepared for:

TaylorMorrison

Cary, North Carolina

Prepared by:

Kimley-Horn and Associates, Inc.
NC License #F-0102
300 West Morgan Street, Suite 1500
Durham, NC 27701
(919) 682-3583

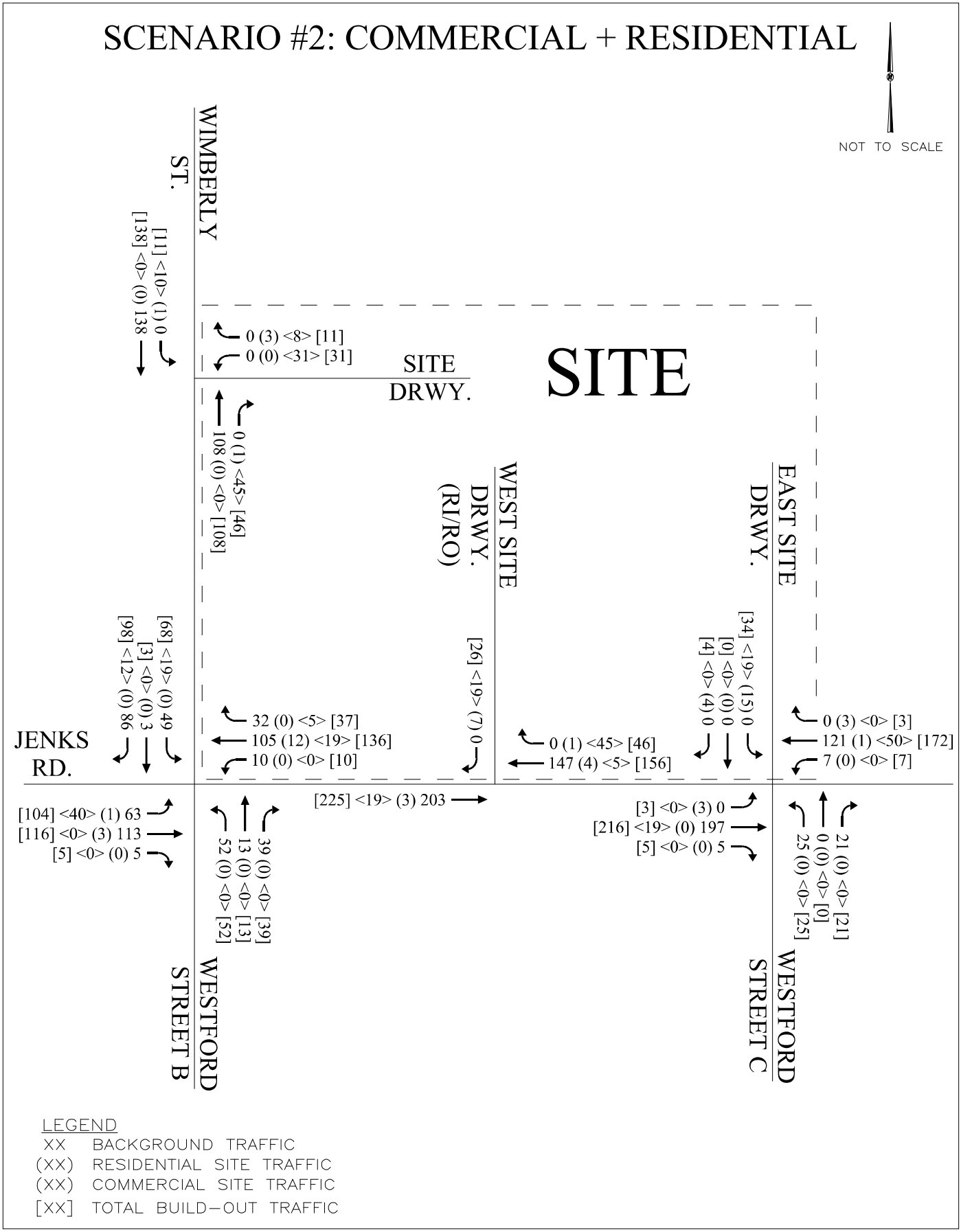
March 2021

017270007

3/26/2021

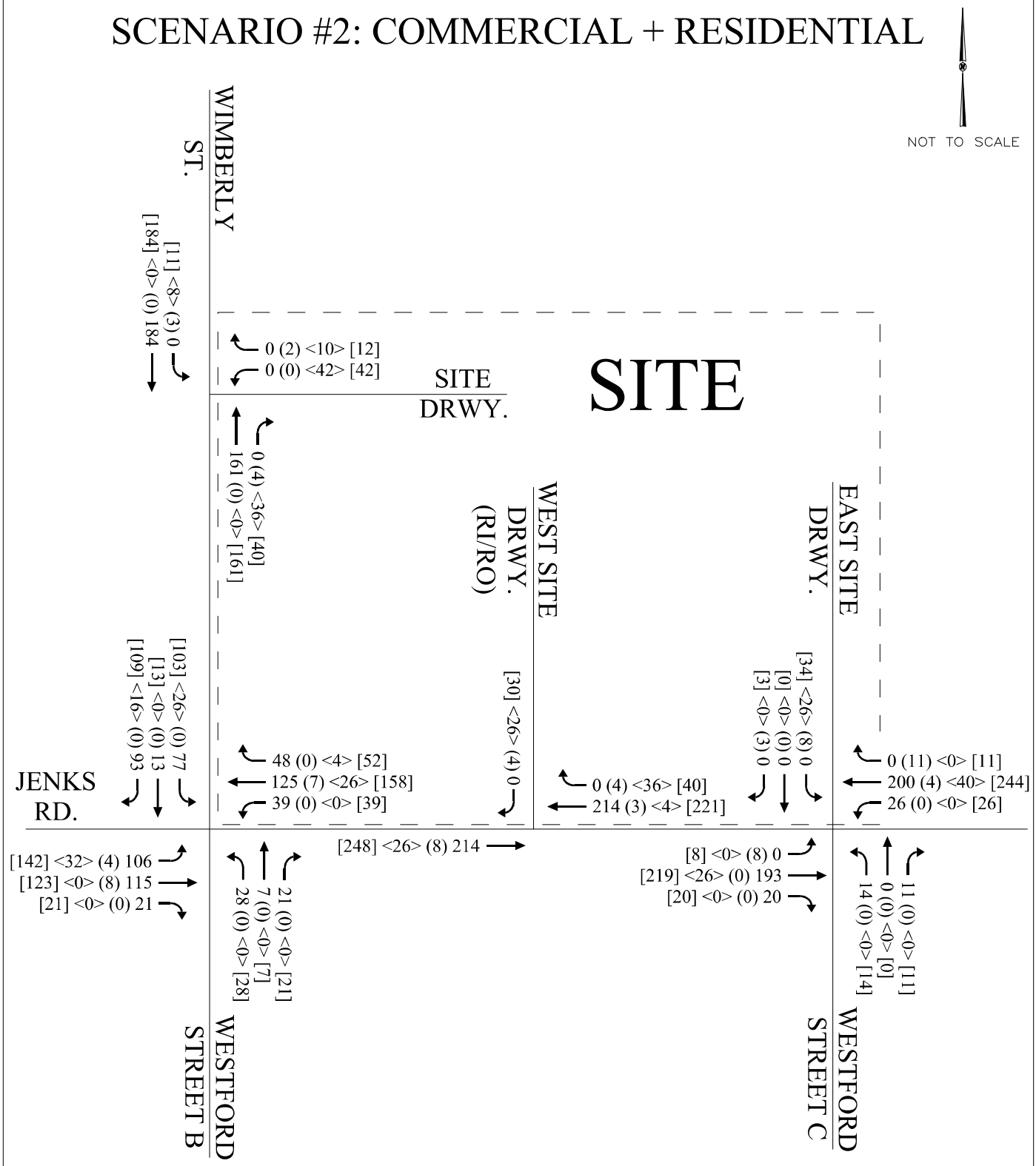
Kimley»Horn	THE RETREAT AT THE PRESERVE AT WHITE OAK APEX, NC TRAFFIC IMPACT ANALYSIS	SITE LOCATION	FIGURE 2.1

SCENARIO #2: COMMERCIAL + RESIDENTIAL



Kimley»Horn	THE RETREAT AT THE PRESERVE AT WHITE OAK APEX, NC TRAFFIC IMPACT ANALYSIS	PROJECTED (2025) BUILD AM PEAK HOUR TRAFFIC VOLUMES – SCENARIO 2 (COMMERCIAL + RESIDENTIAL)	FIGURE 5.5

SCENARIO #2: COMMERCIAL + RESIDENTIAL



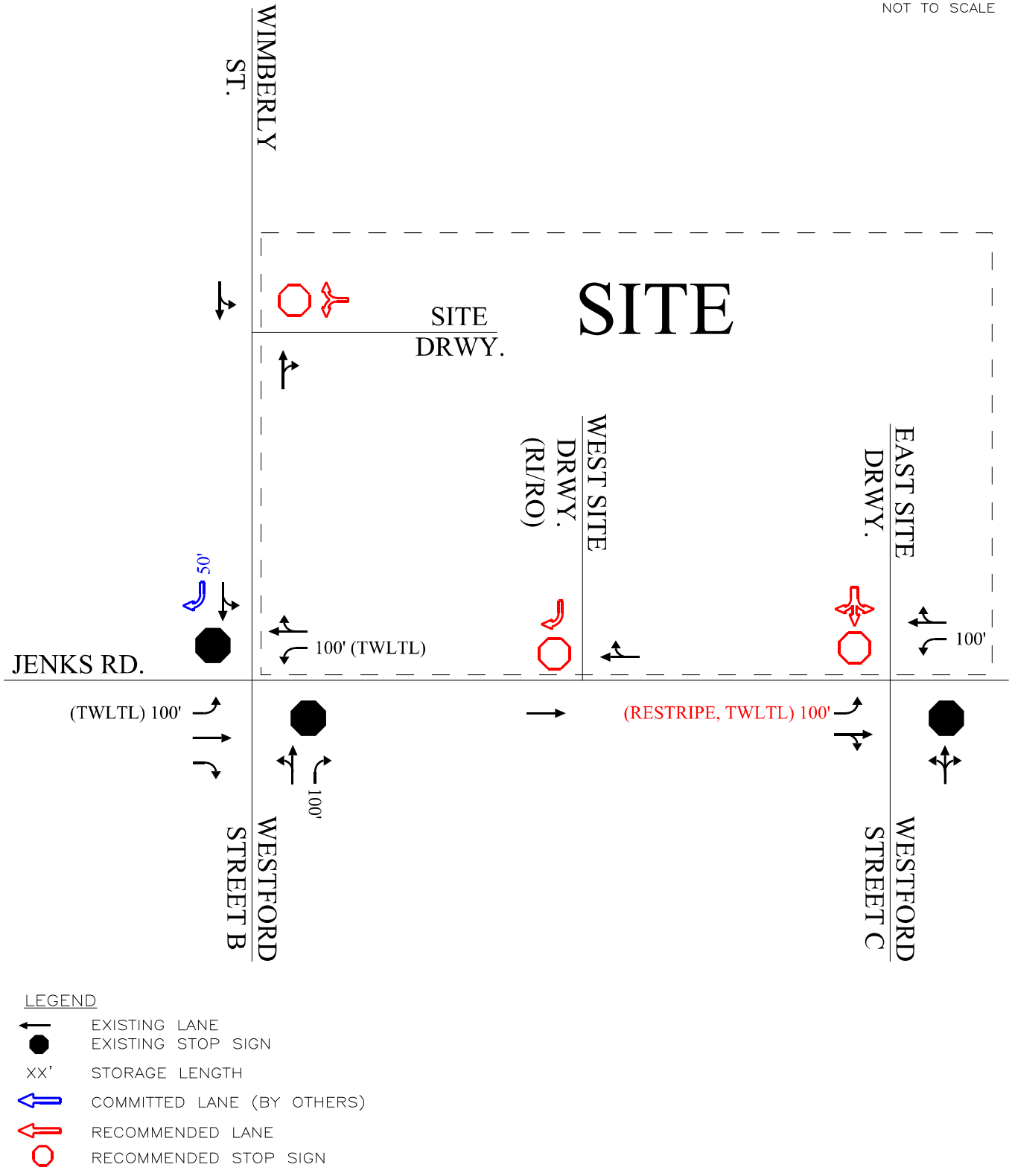
LEGEND

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

Kimley»Horn	THE RETREAT AT THE PRESERVE AT WHITE OAK APEX, NC TRAFFIC IMPACT ANALYSIS	PROJECTED (2025) BUILD PM PEAK HOUR TRAFFIC VOLUMES – SCENARIO 2 (COMMERCIAL + RESIDENTIAL)	FIGURE 5.6

SCENARIO #2: COMMERCIAL + RESIDENTIAL

NOT TO SCALE



Kimley»Horn	THE RETREAT AT THE PRESERVE AT WHITE OAK APEX, NC TRAFFIC IMPACT ANALYSIS	COMMITTED AND RECOMMENDED ROADWAY LANEAGE – SCENARIO #2 (COMMERCIAL + RESIDENTIAL)	FIGURE ES–2

Traffic Impact Analysis

for

Westford

Apex, North Carolina

Prepared for:

The Halle Companies

Apex, North Carolina

Prepared by:

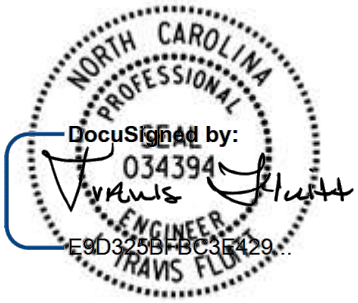
Kimley-Horn and Associates, Inc.

NC License #F-0102

421 Fayetteville Street Suite 600

Raleigh, NC 27601

(919) 677-2000



12/7/2016

December 2016

018995001

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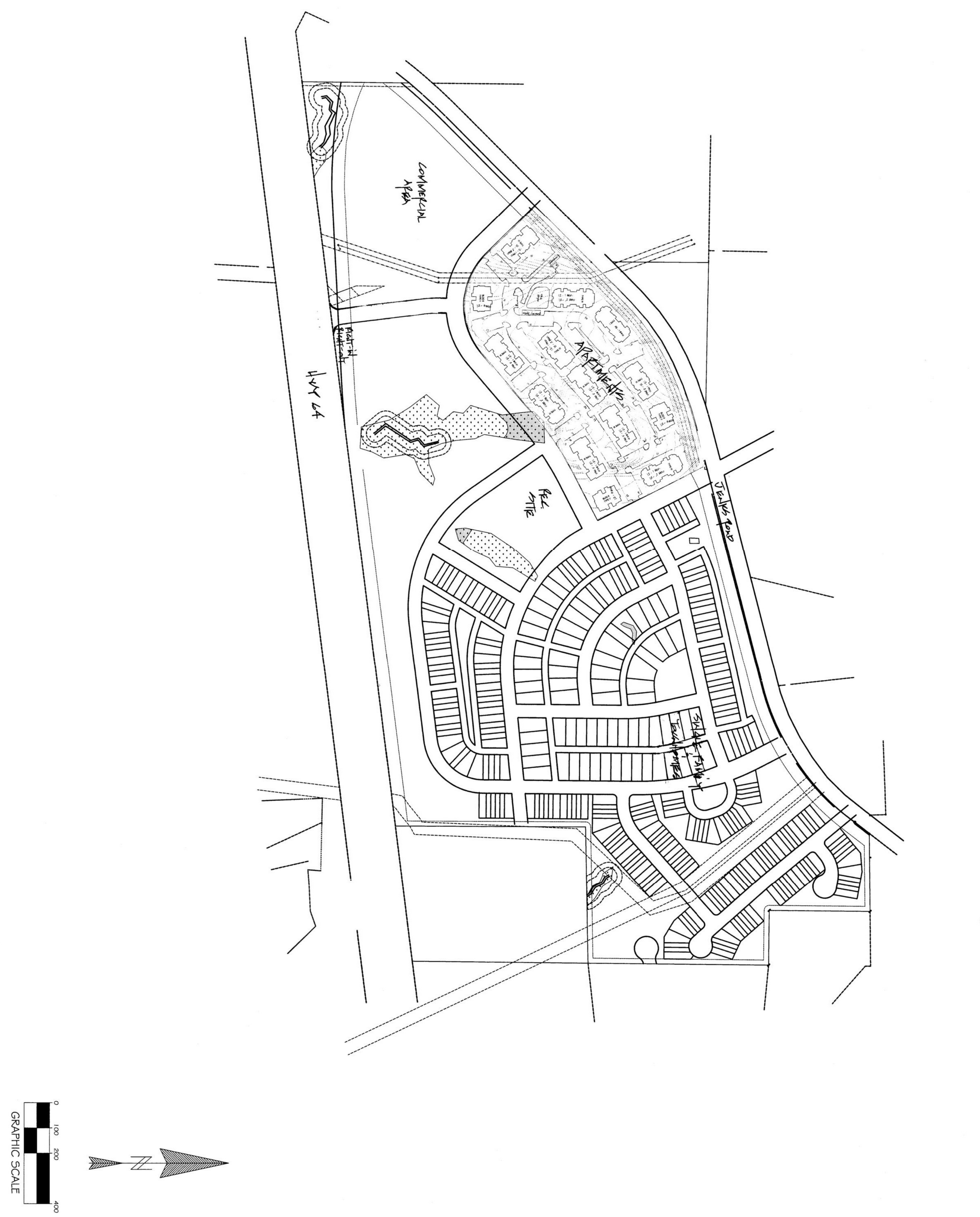

WESTFORD
MASTER SITE PLAN
TOWN OF APEX | WAKE COUNTY, NORTH CAROLINA
PRELIMINARY SITE PLAN

PRELIMINARY PLAN

SCALE 1"=200' | DRAWN PDC
DATE DECEMBER 2, 2016
REVISION
SHEET 1
PROJECT

221 N. SALEM ST.
SUITE 001
PO BOX 1062
APEX, NC 27502
Office: 919-387-1174
Registration: P-0151
www.jonescnossen.com

Jones & Cnossen ENGINEERING, PLLC
Civil Engineering | Construction Management | Land Planning

Kimley»Horn

WESTFORD
APEX, NC
TRAFFIC IMPACT ANALYSIS

CONCEPTUAL SITE PLAN

FIGURE 2

NOT TO SCALE

LEGEND

XX BACKGROUND TRAFFIC

(XX) SITE TRAFFIC

[XX] TOTAL BUILD-OUT TRAFFIC

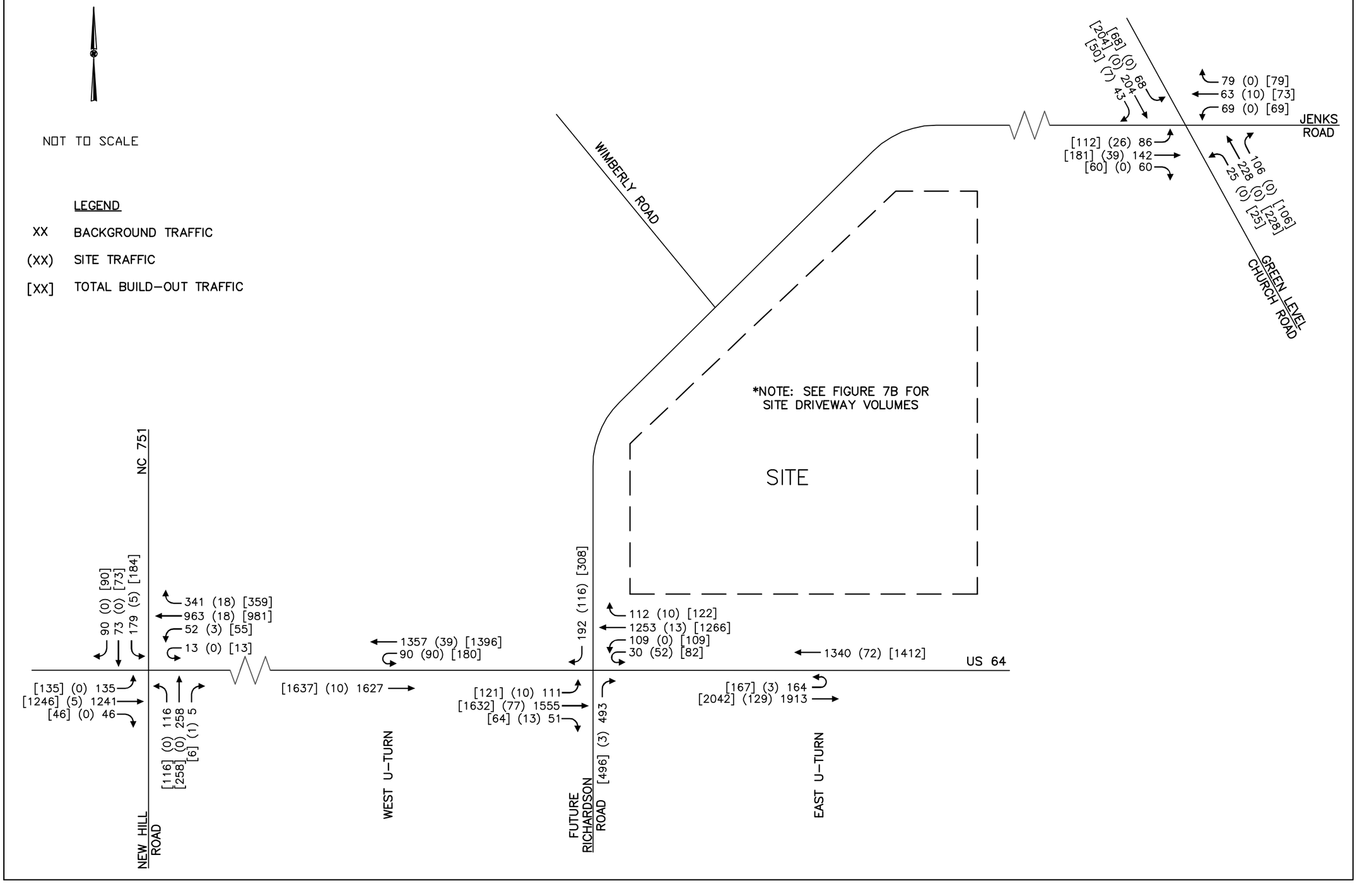

FIGURE 7A

PROJECTED (2019) BUILD-OUT AM PEAK HOUR TRAFFIC VOLUMES EXTERNAL INTERSECTIONS

WESTFORD
APEX, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

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NOT TO SCALE

LEGEND

XX BACKGROUND TRAFFIC

(XX) SITE TRAFFIC

[XX] TOTAL BUILD-OUT TRAFFIC

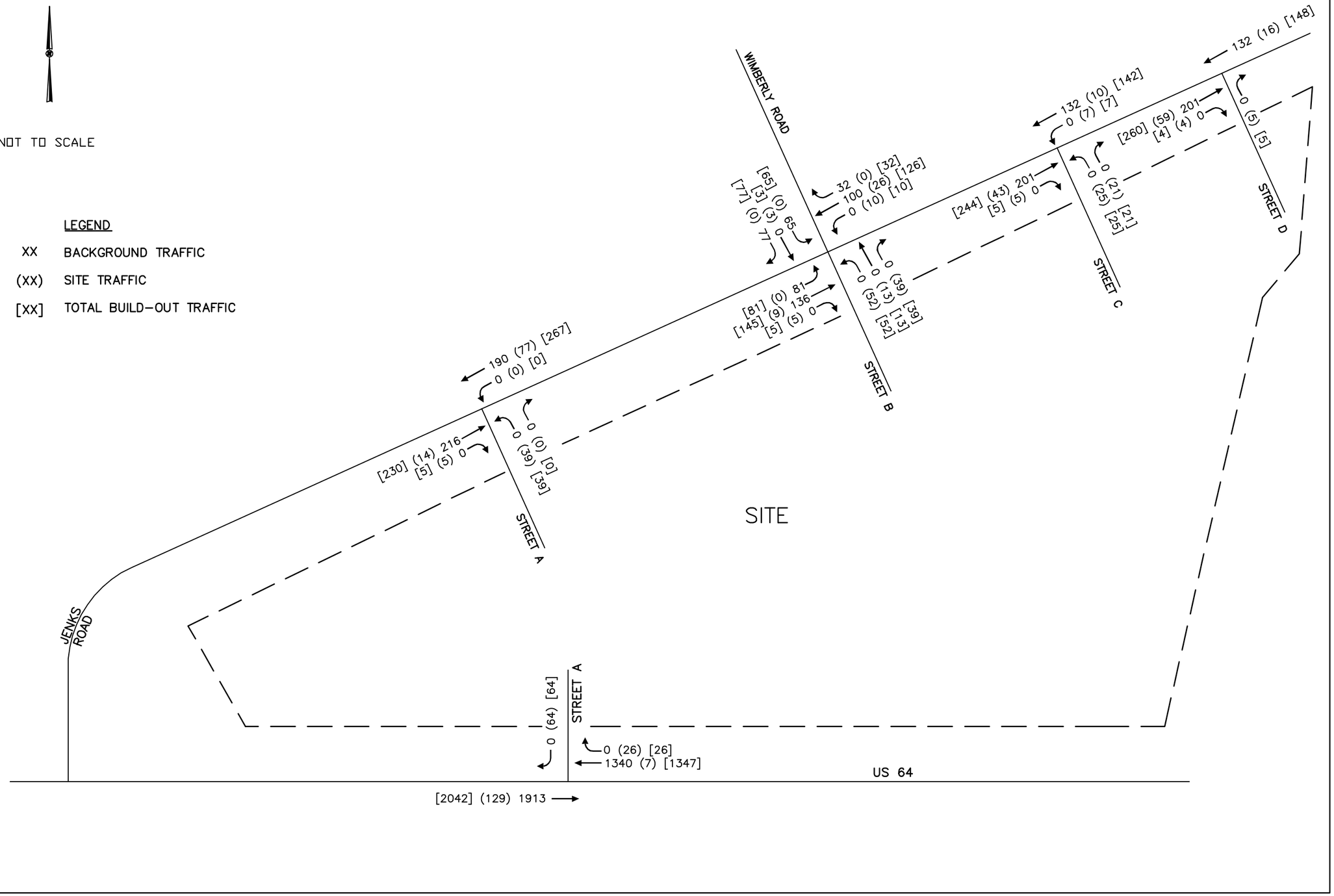

FIGURE 7B

PROJECTED (2019) BUILD-OUT
AM PEAK HOUR TRAFFIC VOLUMES
SITE DRIVEWAYS

WESTFORD
APEX, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

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NOT TO SCALE

LEGEND

XX BACKGROUND TRAFFIC

(XX) SITE TRAFFIC

[XX] TOTAL BUILD-OUT TRAFFIC

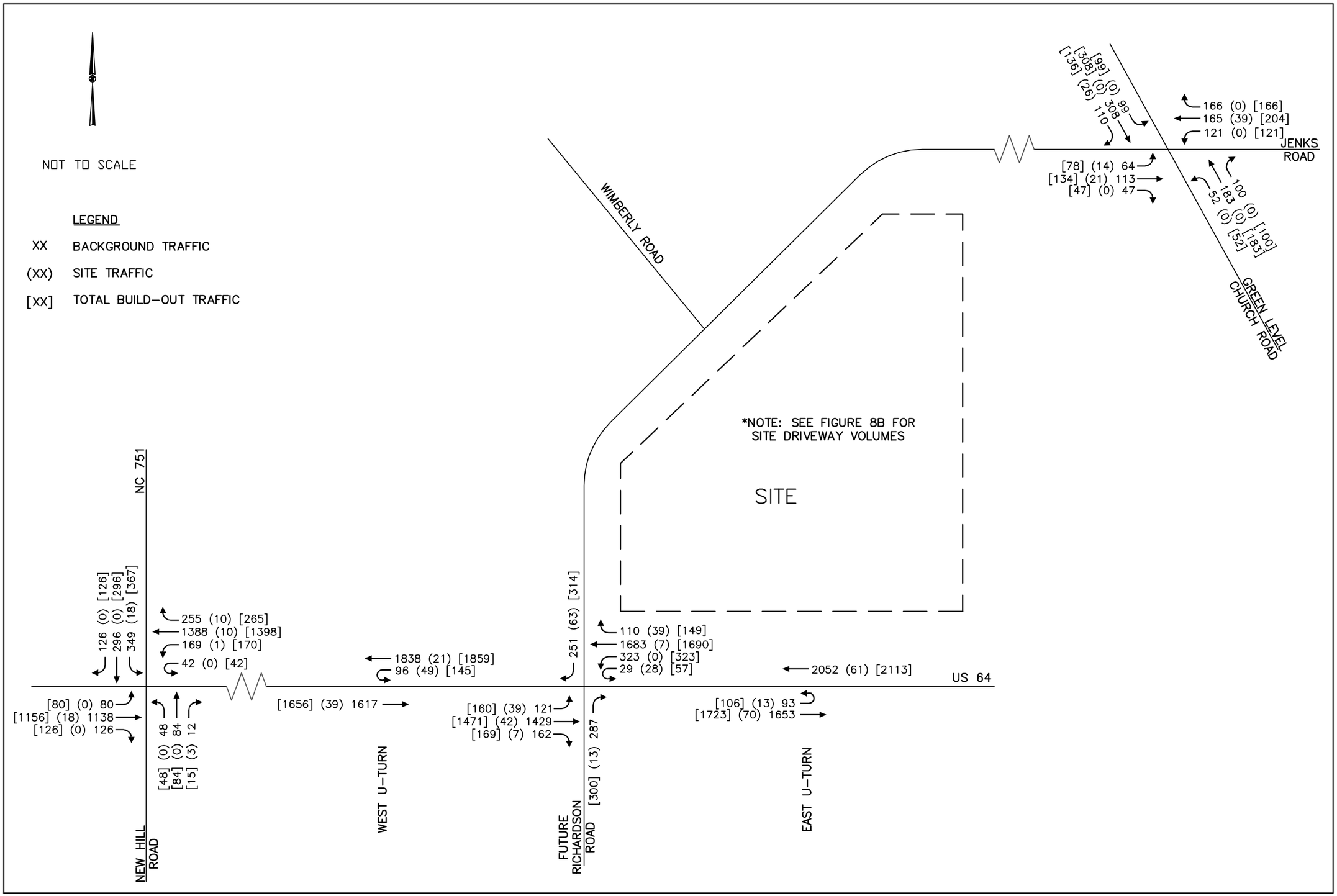

FIGURE 8A

PROJECTED (2019) BUILD-OUT
PM PEAK HOUR TRAFFIC VOLUMES
EXTERNAL INTERSECTIONS

WESTFORD
APEX, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

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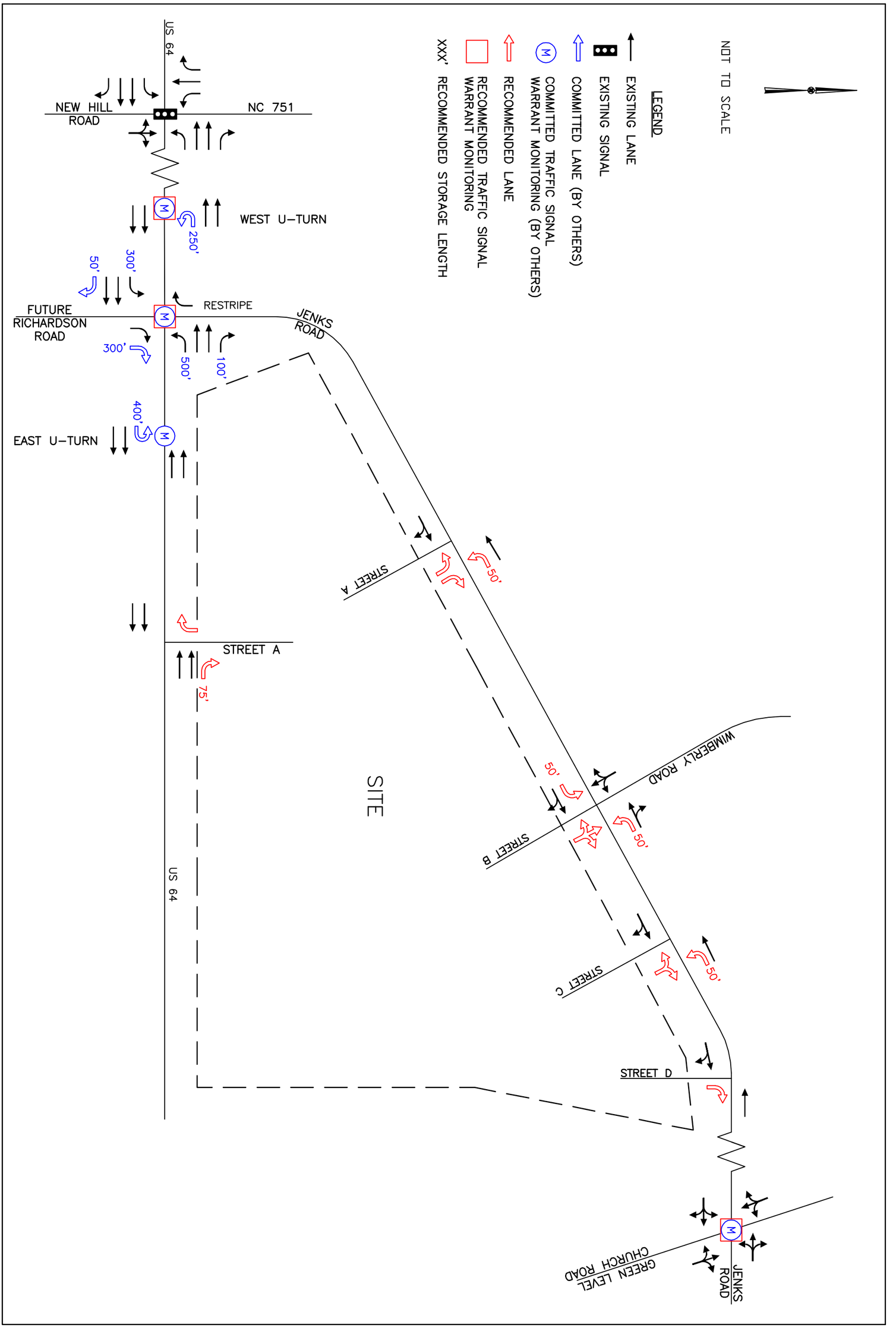

Kimley»Horn	WESTFORD APEX, NC TRAFFIC IMPACT ANALYSIS	RECOMMENDED ROADWAY LANEAGE	FIGURE ES-1

NOT TO SCALE

LEGEND

XX BACKGROUND TRAFFIC

(XX) SITE TRAFFIC

[XX] TOTAL BUILD-OUT TRAFFIC

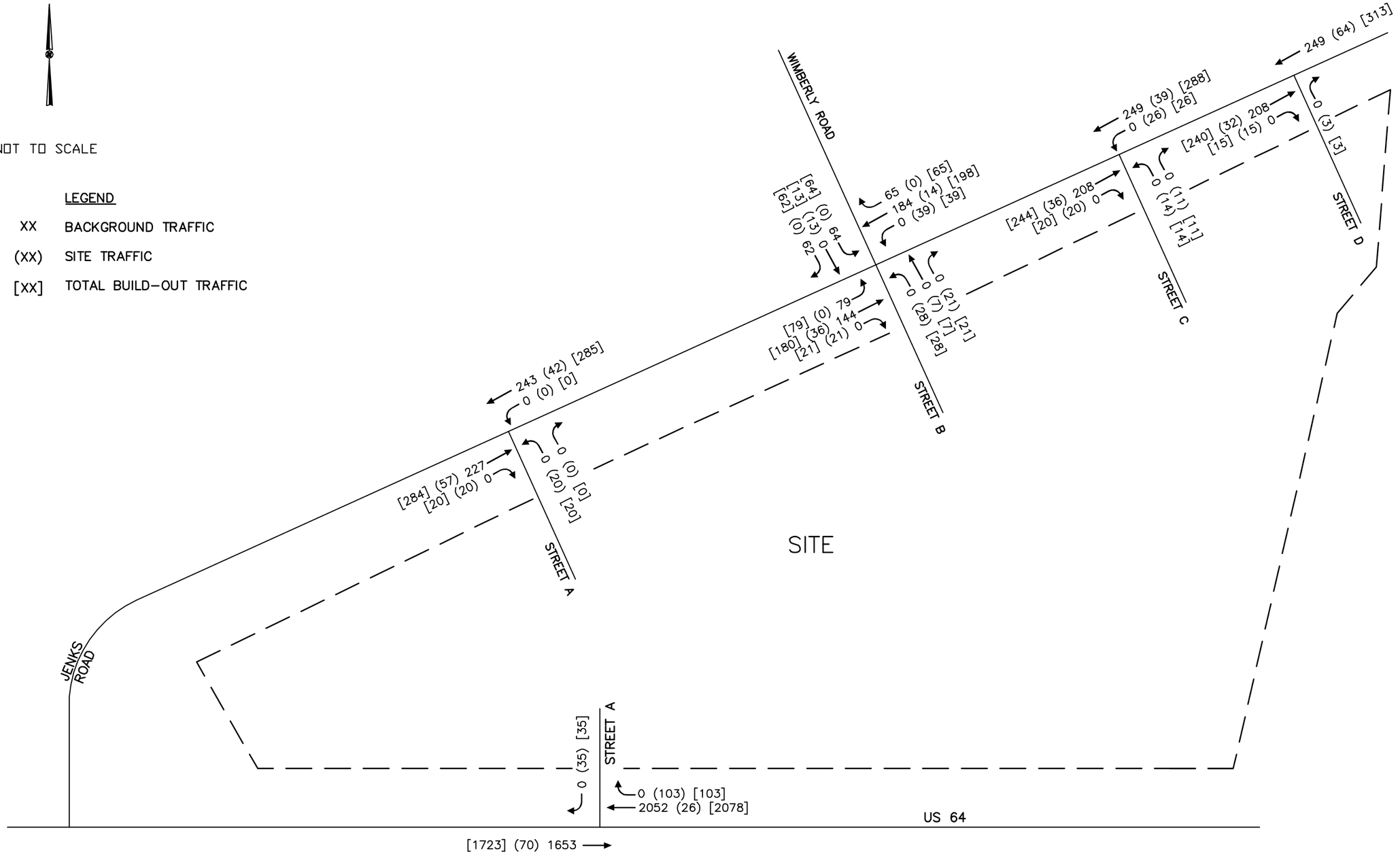

FIGURE 8B

PROJECTED (2019) BUILD-OUT
PM PEAK HOUR TRAFFIC VOLUMES
SITE DRIVEWAYS

WESTFORD
APEX, NC
TRAFFIC IMPACT ANALYSIS

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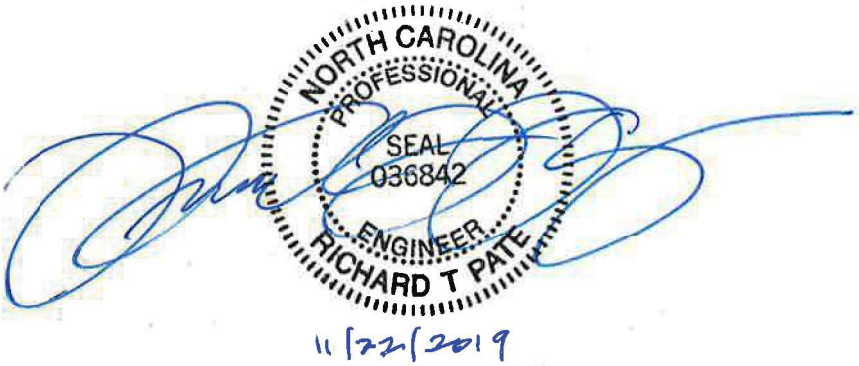
Curry Engineering
205 S Fuquay Avenue
Fuquay-Varina, NC 27526

Wolfe Properties PUD

Traffic Impact Analysis

November 2019



Curry Engineering

Curry
ENGINEERING

WOLFE PROPERTIES PUD

APEX, NORTH CAROLINA
SINGLE FAMILY DETACHED & TOWN HOME SITES

AUGUST 28, 2019

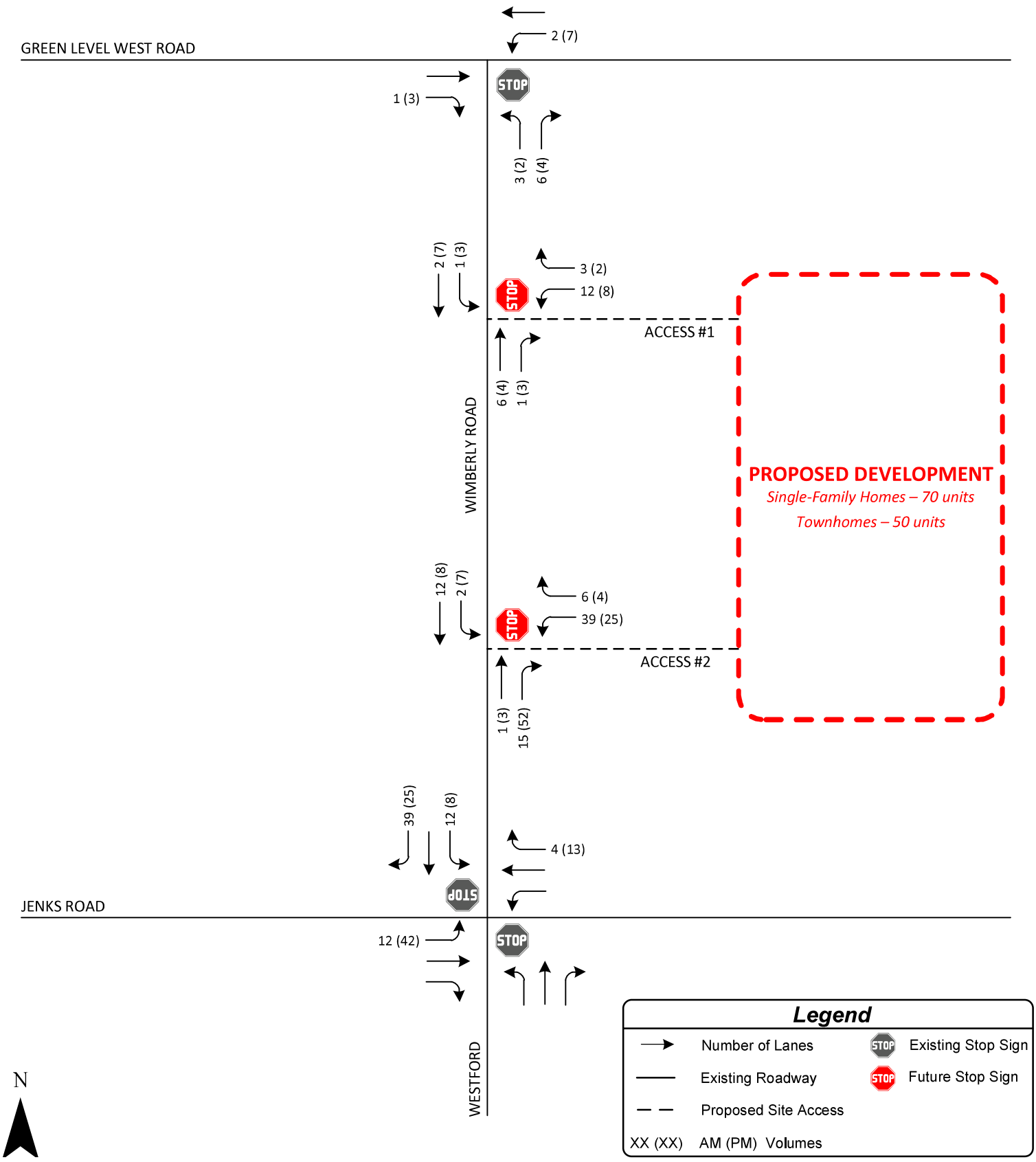
RESIDENTIAL LOT TYPE LEGEND

- SINGLE FAMILY DETACHED
- TOWN HOMES

TOWN OF APEX
WAKE COUNTY R-40W ZONING

SITE AREA	43.39 ac
ZONING	R-40W Low Density
LAND USE	Residential (LDR)
REZONING REQUIRED (Y/N)	Y
REZONING DISTRICT	PUD-CZ
MAXIMUM DENSITY	3 units/ac
MAXIMUM NUMBER OF UNITS	130 units
PROPOSED UNITS	120 units
SINGLE FAMILY DETACHED	70
TOWNHOMES	50
PARKS & RECREATION LAND DEDICATION REQUIRED	3.11 ac (1/30th SF & 1/45th TH)
PARKS & RECREATION LAND DEDICATION PROVIDED	3.74 ac
AREA GAINED FROM PROPERTY SWAP	0.15 ac
PROPERTY AREA AFTER LAND DEDICATION & SWAP	39.80 ac
NEW MAXIMUM DENSITY	39.80 ac
PROPOSED DENSITY	120 units
RESOURCE CONSERVATION AREA REQUIRED	9.95 ac (25%)
RESOURCE CONSERVATION AREA PROVIDED	10.23 ac (25.7%)

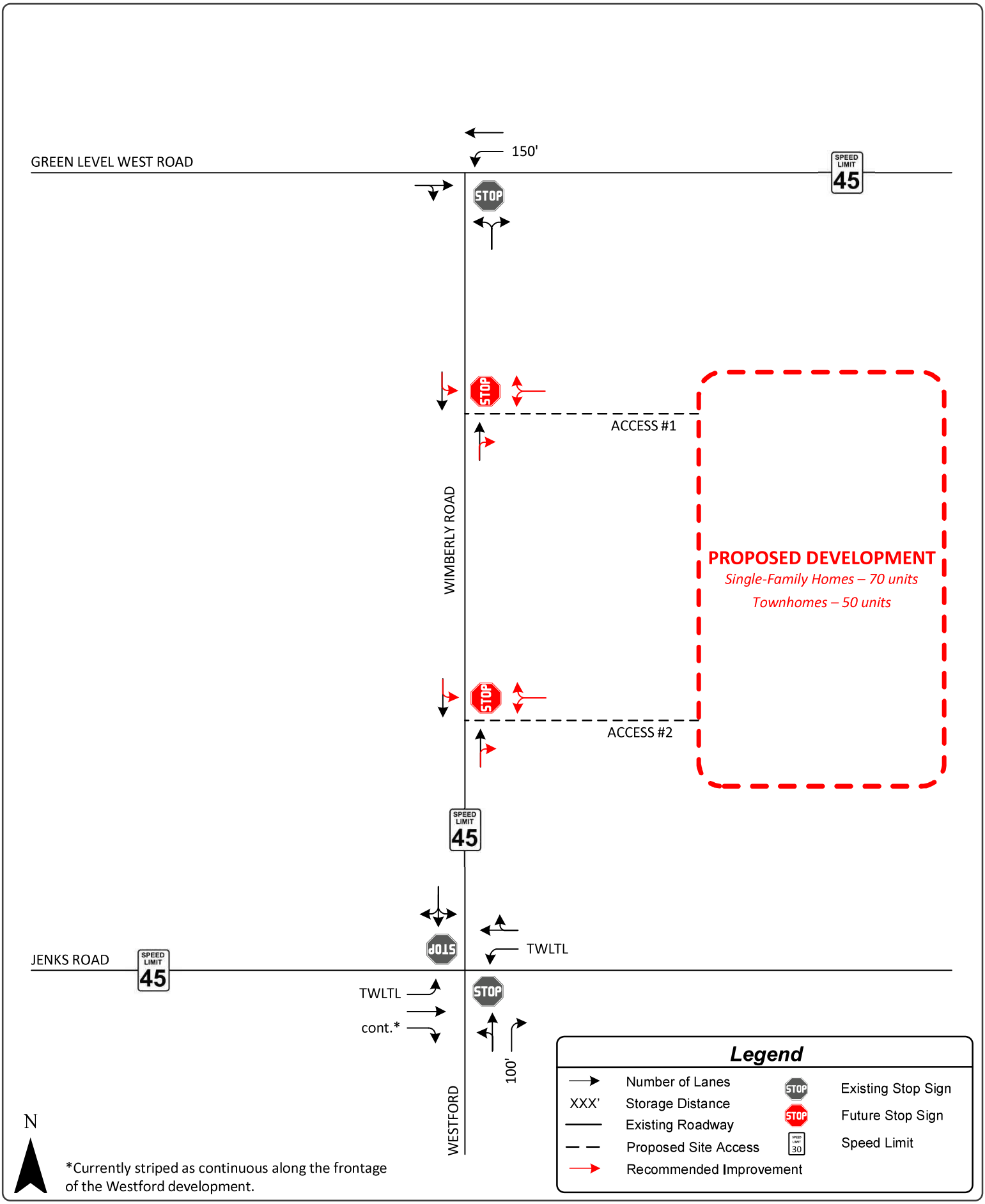
1"=160'-0"
0 80' 160' 320' 480'



Wolfe Property PUD
Apex, NC

Figure 7
Site Trips

MOTT MACDONALD



Wolfe Property PUD
Apex, NC

Figure ES-3
Future (2025) Laneage

MOTT MACDONALD

APPENDIX D

FUTURE ROADWAY IMPROVEMENTS

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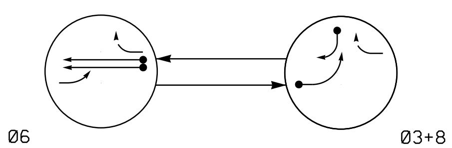
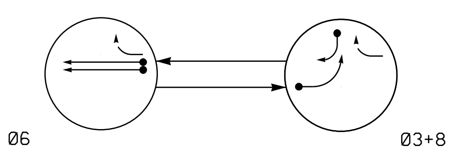
PROJECT REFERENCE NO.	SHEET NO.
36249.4164	Sig-2.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- ◄——● DETECTED MOVEMENT
- ◄—— UNDETECTED MOVEMENT (OVERLAP)
- ◄— — UNSIGNALIZED MOVEMENT
- <— — —> PEDESTRIAN MOVEMENT

DEFAULT PHASING TABLE OF OPERATION

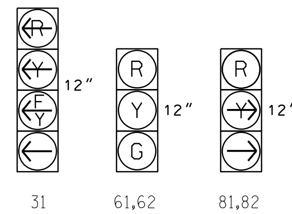
SIGNAL FACE	PHASE Ø6	PHASE Ø3+8	PHASE FLASH
31	← F/Y	←	← Y
61,62	G	R	Y
81,82	R	→	R

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø6	PHASE Ø3+8	PHASE FLASH
31	← R	←	← Y
61,62	G	R	Y
81,82	R	→	R

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

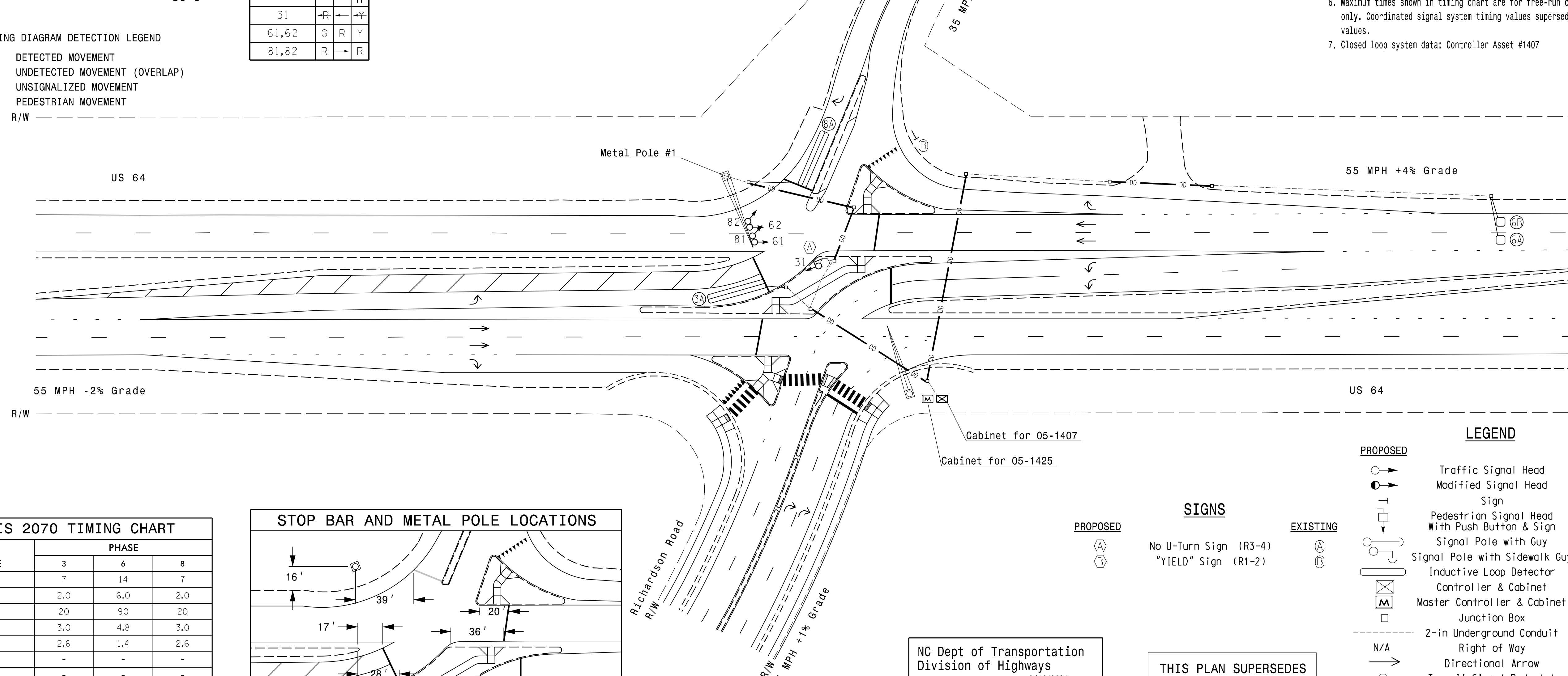
INDUCTIVE LOOPS: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING: PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	15*	-	Y
6A	6X6	420	6	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	420	6	Y	6	Y	Y	-	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	15	-	Y

* Disable delay during Alternate Phasing operation.

2 Phase
Fully Actuated
(US 64 & Jenks/Richardson Road
Closed Loop System)
Signal System: 10534

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: http://connect.ncdot.gov/resources/safety/pages/ITS-Design-Resources.aspx
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. The Division Engineer will determine the hours of use for each phasing plan.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
7. Closed loop system data: Controller Asset #1407

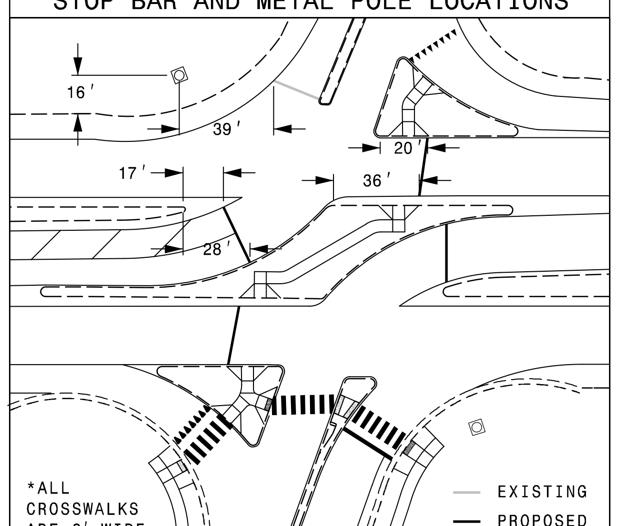


OASIS 2070 TIMING CHART

FEATURE	PHASE 3	PHASE 6	PHASE 8
Min Green 1 *	7	14	7
Extension 1 *	2.0	6.0	2.0
Max Green 1 *	20	90	20
Yellow Clearance	3.0	4.8	3.0
Red Clearance	2.6	1.4	2.6
Walk 1 *	-	-	-
Don't Walk 1	-	-	-
Seconds Per Actuation *	-	1.5	-
Max Variable Initial *	-	46	-
Time Before Reduction *	-	15	-
Time To Reduce *	-	45	-
Minimum Gap	-	3.4	-
Recall Mode	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-
Dual Entry	ON	-	ON
Simultaneous Gap	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP BAR AND METAL POLE LOCATIONS



SIGNS

PROPOSED		EXISTING
Ⓐ	No U-Turn Sign (R3-4)	Ⓐ
Ⓑ	"YIELD" Sign (R1-2)	Ⓑ

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
M	Master Controller & Cabinet	M
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type II Signal Pedestal	
	Metal Pole with Mastarm	
DD	Directional Drill	N/A

NC Dept of Transportation
Division of Highways
Final Drawing Date: 2/16/2021
ITS & Signals Unit

THIS PLAN SUPERSEDES THE PLAN SIGNED AND SEALED ON 10-29-2020.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

New Installation

Prepared For: Transportation Mobility and Safety Division, Signal Design Section

RKA RAMEY KEMP ASSOCIATES
8210 University Executive Park Drive Suite 220 Charlotte, North Carolina 28262

750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40
1"=40'

US 64 WB
at
Jenks Road

Division 5	Wake County	Apex
PLAN DATE: February 2021	REVIEWED BY: WJ Hamilton	
PREPARED BY: ZM Esposito	RKA PROJ. NO.: 19331 (040)	

REVISIONS	INIT.	DATE

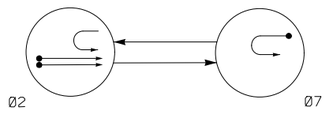
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

SIGNATURE 2/9/2021 DATE

SIG. INVENTORY NO. 05-1407

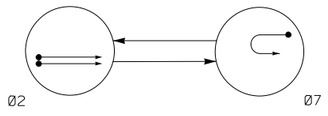
PROJECT REFERENCE NO.	SHEET NO.
36249.4284	SIG. 1.0

DEFAULT PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION			
SIGNAL FACE	PHASE Ø2	PHASE Ø7	PHASE FLASH
21, 22	G	R	Y
71	(R)		(Y)

ALTERNATE PHASING DIAGRAM



ALTERNATE PHASING TABLE OF OPERATION			
SIGNAL FACE	PHASE Ø2	PHASE Ø7	PHASE FLASH
21, 22	G	R	Y
71	(R)		(Y)

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
2B	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
7A	6X40	+5	2-4-2	Y	7	Y	Y	-	-	15*	-	Y

* Disable delay during Alternate Phasing Operation.

2 PHASE
FULLY ACTUATED
(US 64 & Jenks/Richardson Road
Closed Loop System)
Signal System: 10534

NOTES

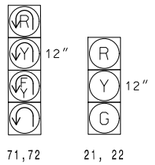
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx
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. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
6. The Division Traffic Engineer will determine the hours of use for each phasing plan.
7. Closed loop system data:
   Controller asset: #1412

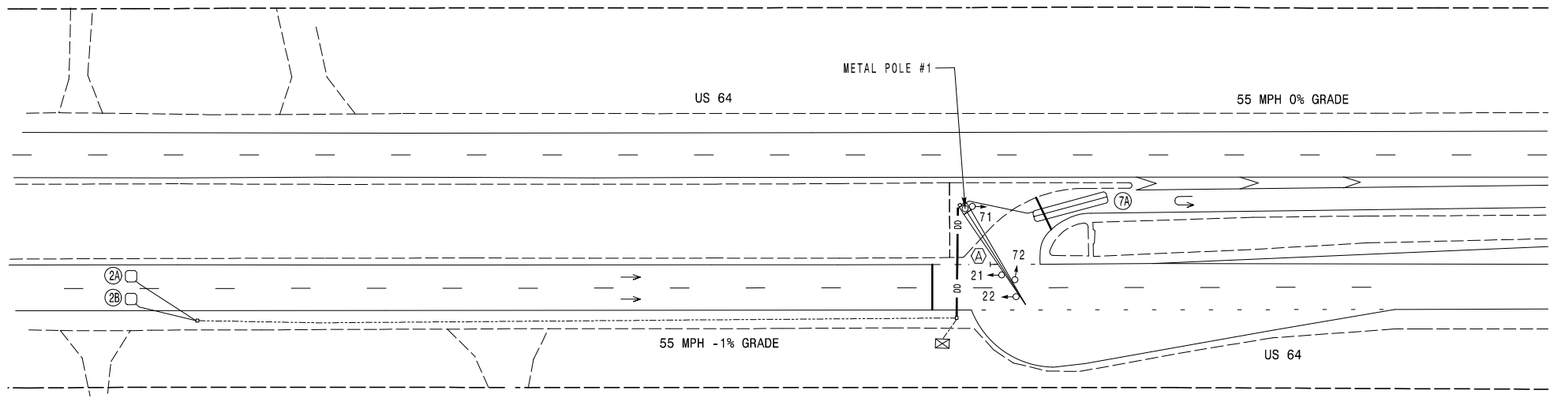
PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE I.D.

All Heads L.E.D.





LEGEND

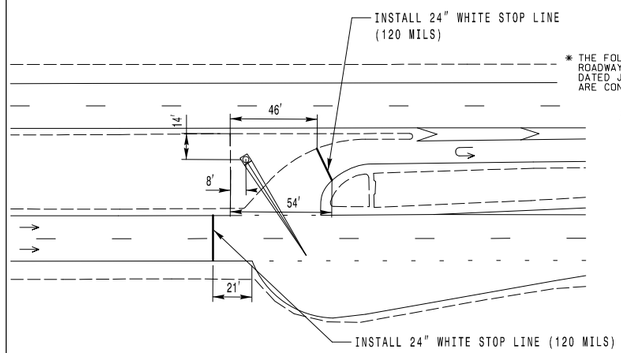
PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Pole with Mastarm	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
DD	Directional Drill	N/A
A	No Left Turn Sign (R3-2)	

OASIS 2070 TIMING CHART

FEATURE	PHASE 2	PHASE 7
Min Green 1 *	14	7
Extension 1 *	6.0	2.0
Max Green 1 *	90	30
Yellow Clearance	5.3	3.0
Red Clearance	1.0	3.3
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	1.5	-
Max Variable Initial *	46	-
Time Before Reduction *	15	-
Time To Reduce *	45	-
Minimum Gap	3.4	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 2 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOPLINE AND POLE LOCATION DIAGRAM AND PAVEMENT MARKING PLAN



2018 ROADWAY STANDARD DRAWINGS AND STANDARD SPECIFICATIONS

* THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - ROADWAY DESIGN UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NUMBER	DESCRIPTION
1205.01	PAVEMENT MARKINGS LINE TYPES
1205.04	PAVEMENT MARKINGS AT SIGNALIZED INTERSECTIONS

PAVEMENT MARKING NOTES:

A. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
B. CONTRACTOR SHALL MILL ANY EXISTING MARKINGS OR SYMBOLS IN CONFLICT WITH PROPOSED MARKINGS.

NC Dept of Transportation
Division of Highways
Final Drawing Date: 6/16/2021
DocuSigned by: Chang Back
ITS & Signals Unit

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for: NCDOT Transportation Mobility and Safety Division, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 64 Eastbound at U-Turn West of Richardson Road

Division 5 | Wake County | Apex

PLAN DATE:	April 2021	REVIEWED BY:	SP Pennington
PREPARED BY:	CF Davis	REVIEWED BY:	KP Baumann

REVISIONS	INIT.	DATE

SCALE: 0 40 — 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044434 KEVIN P. BAUMANN
DocuSigned by: Kevin Baumann EDC7D0A888C8447...
SIGNATURE 6/14/2021 DATE

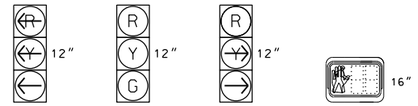
SIG. INVENTORY NO. 05-1412

PLANS PREPARED IN THE OFFICE OF:
Kimley»Horn
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

PROJECT REFERENCE NO.	SHEET NO.
36249.4164	Sig-1.0

SIGNAL FACE I.D.

All Heads L.E.D.



71,72 21,22 73,74 P21,P22 P71,P72

PHASING DIAGRAM

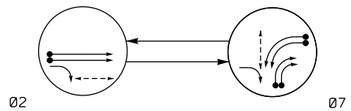


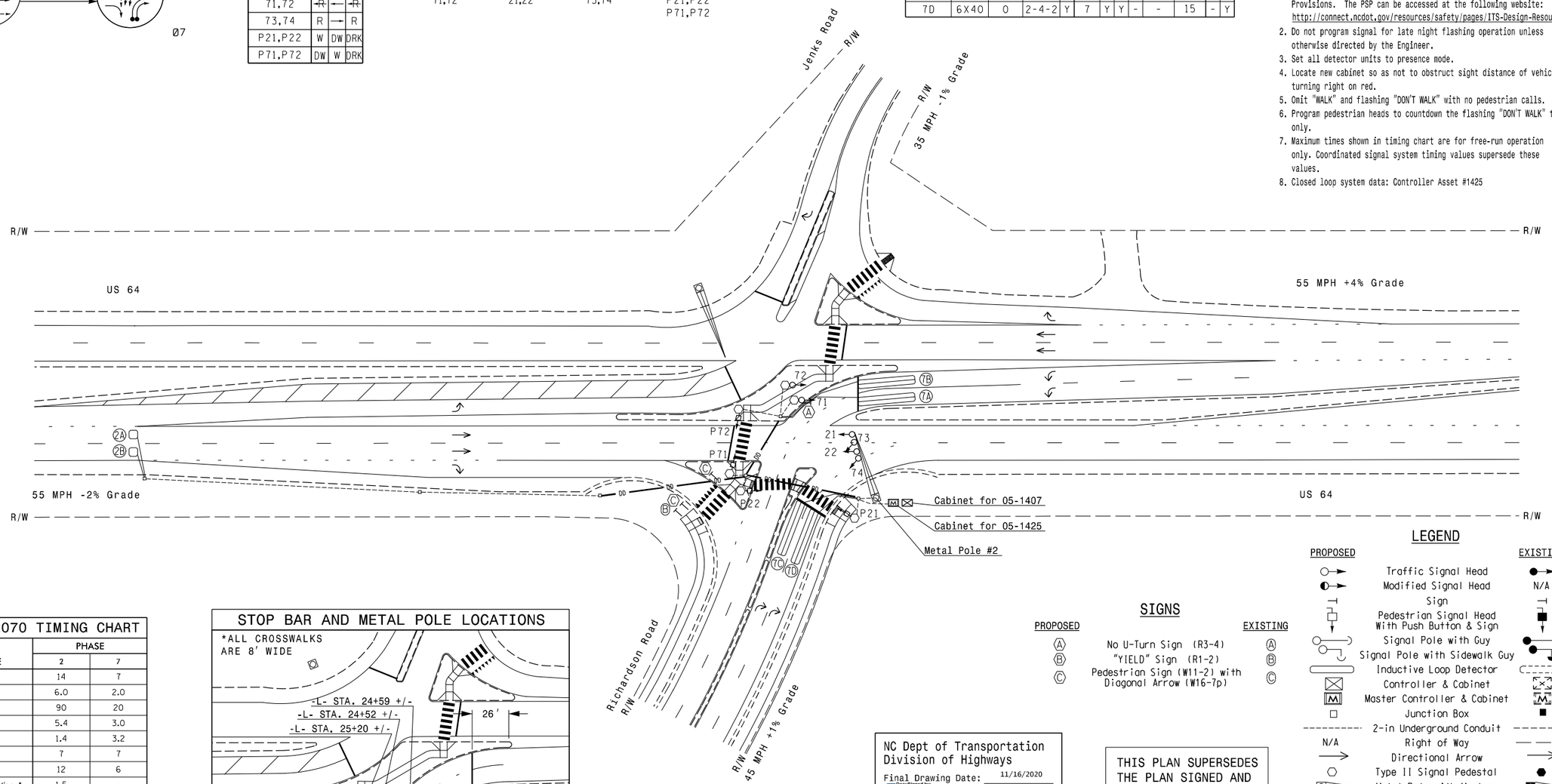
TABLE OF OPERATION			
SIGNAL FACE	PHASE Ø2	PHASE Ø7	FLASH
21,22	G	R	Y
71,72	~~R~~	←	~~R~~
73,74	R	→	R
P21,P22	W	DW	DRK
P71,P72	DW	W	DRK

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS						DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
2B	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y
7B	6X40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y
7C	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-	Y
7D	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-	Y

2 Phase
Fully Actuated
(US 64 & Jenks/Richardson Road
Closed Loop System)
Signal System: 10534

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: http://connect.ncdot.gov/resources/safety/pages/ITS-Design-Resources.aspx
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. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Closed loop system data: Controller Asset #1425



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
M	Master Controller & Cabinet	M
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type II Signal Pedestal	
	Metal Pole with Mastarm	
DD	Directional Drill	N/A

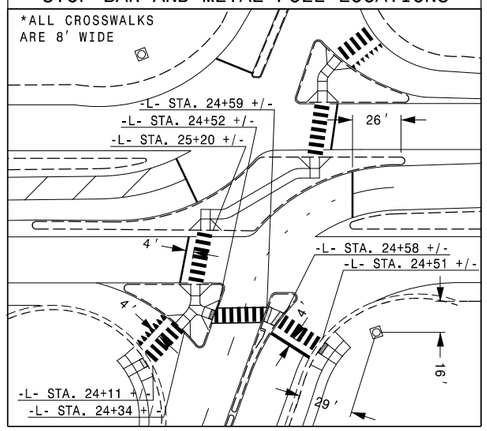
SIGNS

PROPOSED		EXISTING
A	No U-Turn Sign (R3-4)	A
B	"YIELD" Sign (R1-2)	B
C	Pedestrian Sign (W11-2) with Diagonal Arrow (W16-7p)	C

OASIS 2070 TIMING CHART		
FEATURE	PHASE 2	PHASE 7
Min Green 1 *	14	7
Extension 1 *	6.0	2.0
Max Green 1 *	90	20
Yellow Clearance	5.4	3.0
Red Clearance	1.4	3.2
Walk 1 *	7	7
Don't Walk 1	12	6
Seconds Per Actuation *	1.5	-
Max Variable Initial *	46	-
Time Before Reduction *	15	-
Time To Reduce *	45	-
Minimum Gap	3.4	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 2 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP BAR AND METAL POLE LOCATIONS



NC Dept of Transportation
Division of Highways

Final Drawing Date: 11/16/2020

DocuSigned by: Chaingsok Baek

ITS & Signals Unit

THIS PLAN SUPERSEDES THE PLAN SIGNED AND SEALED ON 8-24-2020.

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared For: Traffic Engineering Branch, Mobility and Safety Division, NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, Signal Design Section

750 N.Greenfield Pkwy.Garner,NC 27529

RKA RAMEY KEMP ASSOCIATES
8219 University Executive Park Drive Suite 220 Charlotte, North Carolina 28262
Phone: 7046454560 | www.rameykemp.com | NC License No. C-0910

SCALE 0 40 1"=40'

US 64 EB at Richardson Road

Division 5 Wake County Apex

PLAN DATE: October 2020 REVIEWED BY: WJ Hamilton

PREPARED BY: ZW Esposito RKA PROJ. NO: 19331 (040)

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DocuSigned by: William J. Hamilton 10/29/2020

SIGNATURE DATE

SIG. INVENTORY NO. 05-1425

APPENDIX E

CAPACITY ANALYSIS CALCULATIONS

US 64

&

JENKS ROAD/RICHARDSON ROAD

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↱		↑				↱
Traffic Vol, veh/h	0	0	0	0	1024	94	0	91	0	0	0	109
Future Vol, veh/h	0	0	0	0	1024	94	0	91	0	0	0	109
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	1138	104	0	101	0	0	0	121

Major/Minor	Major2		Minor1			Minor2			
Conflicting Flow All	-	-	0	-	1138	-	-	-	569
Stage 1	-	-	-	-	0	-	-	-	-
Stage 2	-	-	-	-	1138	-	-	-	-
Critical Hdwy	-	-	-	-	6.54	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-	-	-	-
Follow-up Hdwy	-	-	-	-	4.02	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	200	0	0	0	465
Stage 1	0	-	-	0	-	0	0	0	-
Stage 2	0	-	-	0	275	0	0	0	-
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	200	-	-	-	465
Mov Cap-2 Maneuver	-	-	-	-	200	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	275	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	40.1	15.4
HCM LOS		E	C

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	200	-	-	465
HCM Lane V/C Ratio	0.506	-	-	0.26
HCM Control Delay (s)	40.1	-	-	15.4
HCM Lane LOS	E	-	-	C
HCM 95th %tile Q(veh)	2.5	-	-	1

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↱		↑				↱
Traffic Vol, veh/h	0	0	0	0	1274	88	0	76	0	0	0	152
Future Vol, veh/h	0	0	0	0	1274	88	0	76	0	0	0	152
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	1416	98	0	84	0	0	0	169

Major/Minor	Major2			Minor1			Minor2			
Conflicting Flow All	-	-	0	-	1416	-	-	-	708	
Stage 1	-	-	-	-	0	-	-	-	-	
Stage 2	-	-	-	-	1416	-	-	-	-	
Critical Hdwy	-	-	-	-	6.54	-	-	-	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	5.54	-	-	-	-	
Follow-up Hdwy	-	-	-	-	4.02	-	-	-	3.32	
Pot Cap-1 Maneuver	0	-	-	0	136	0	0	0	377	
Stage 1	0	-	-	0	-	0	0	0	-	
Stage 2	0	-	-	0	202	0	0	0	-	
Platoon blocked, %		-	-							
Mov Cap-1 Maneuver	-	-	-	-	136	-	-	-	377	
Mov Cap-2 Maneuver	-	-	-	-	136	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	202	-	-	-	-	

Approach	WB	NB	SB
HCM Control Delay, s	0	67.3	22.1
HCM LOS		F	C

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	136	-	-	377
HCM Lane V/C Ratio	0.621	-	-	0.448
HCM Control Delay (s)	67.3	-	-	22.1
HCM Lane LOS	F	-	-	C
HCM 95th %tile Q(veh)	3.3	-	-	2.2

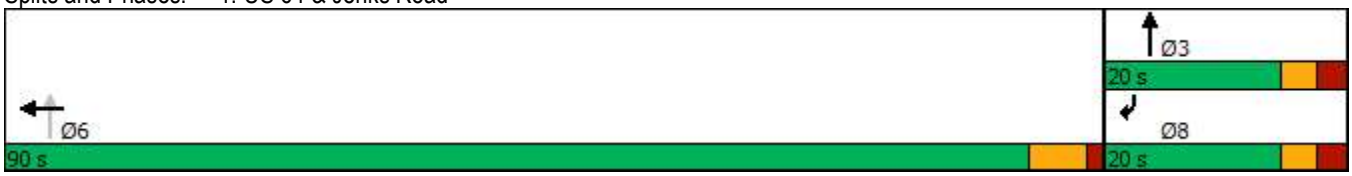
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1122	135	0	116	0	0	0	209
Future Volume (vph)	0	0	0	0	1122	135	0	116	0	0	0	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.865
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3539	1583	0	1863	0	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3539	1583	0	1863	0	0	0	1611
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		867			200			250			1287	
Travel Time (s)		10.7			2.5			3.8			19.5	
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
Adj. Flow (vph)	0	0	0	0	1247	150	0	129	0	0	0	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1247	150	0	129	0	0	0	232
Turn Type					NA	Free		NA				Prot
Protected Phases					6!			3				8
Permitted Phases						Free		6!				
Detector Phase					6			3				8
Switch Phase												
Minimum Initial (s)					14.0			7.0				7.0
Minimum Split (s)					20.2			12.6				12.6
Total Split (s)					90.0			20.0				20.0
Total Split (%)					81.8%			18.2%				18.2%
Maximum Green (s)					83.8			14.4				14.4
Yellow Time (s)					4.8			3.0				3.0
All-Red Time (s)					1.4			2.6				2.6
Lost Time Adjust (s)					-1.2			-0.6				-0.6
Total Lost Time (s)					5.0			5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					6.0			2.0				2.0
Minimum Gap (s)					3.4			2.0				2.0
Time Before Reduce (s)					15.0			0.0				0.0
Time To Reduce (s)					45.0			0.0				0.0
Recall Mode					Min			None				None
Act Effct Green (s)					28.7	53.9		53.9				15.1
Actuated g/C Ratio					0.53	1.00		1.00				0.28
v/c Ratio					0.66	0.09		0.07				0.51
Control Delay					10.9	0.1		0.1				22.7
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					10.9	0.1		0.1				22.7
LOS					B	A		A				C
Approach Delay					9.7			0.1			22.7	
Approach LOS					A			A			C	

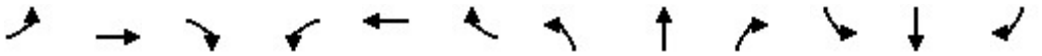
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)					134	0		0				62
Queue Length 95th (ft)					186	0		0				138
Internal Link Dist (ft)		787			120			170			1207	
Turn Bay Length (ft)												
Base Capacity (vph)					3539	1583		1863				451
Starvation Cap Reductn					0	0		0				0
Spillback Cap Reductn					0	0		0				0
Storage Cap Reductn					0	0		0				0
Reduced v/c Ratio					0.35	0.09		0.07				0.51

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 53.9			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 52.3%		ICU Level of Service A	
Analysis Period (min) 15			

! Phase conflict between lane groups.

Splits and Phases: 1: US 64 & Jenks Road





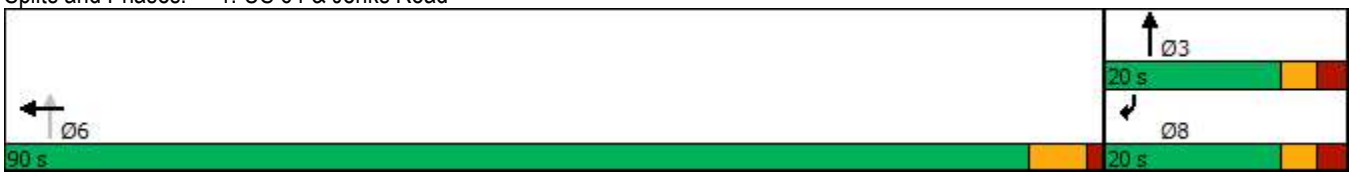
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1394	150	0	115	0	0	0	238
Future Volume (vph)	0	0	0	0	1394	150	0	115	0	0	0	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.865
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3539	1583	0	1863	0	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3539	1583	0	1863	0	0	0	1611
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		867			200			250			1287	
Travel Time (s)		10.7			2.5			3.8			19.5	
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
Adj. Flow (vph)	0	0	0	0	1549	167	0	128	0	0	0	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1549	167	0	128	0	0	0	264
Turn Type					NA	Free		NA				Prot
Protected Phases					6!			3				8
Permitted Phases						Free		6!				
Detector Phase					6			3				8
Switch Phase												
Minimum Initial (s)					14.0			7.0				7.0
Minimum Split (s)					20.2			12.6				12.6
Total Split (s)					90.0			20.0				20.0
Total Split (%)					81.8%			18.2%				18.2%
Maximum Green (s)					83.8			14.4				14.4
Yellow Time (s)					4.8			3.0				3.0
All-Red Time (s)					1.4			2.6				2.6
Lost Time Adjust (s)					-1.2			-0.6				-0.6
Total Lost Time (s)					5.0			5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					6.0			2.0				2.0
Minimum Gap (s)					3.4			2.0				2.0
Time Before Reduce (s)					15.0			0.0				0.0
Time To Reduce (s)					45.0			0.0				0.0
Recall Mode					Min			None				None
Act Effct Green (s)					36.0	61.1		61.1				15.1
Actuated g/C Ratio					0.59	1.00		1.00				0.25
v/c Ratio					0.74	0.11		0.07				0.66
Control Delay					11.7	0.1		0.1				32.2
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					11.7	0.1		0.1				32.2
LOS					B	A		A				C
Approach Delay					10.6			0.1			32.2	
Approach LOS					B			A			C	

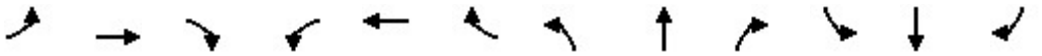
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)					191	0		0				89
Queue Length 95th (ft)					261	0		0				#203
Internal Link Dist (ft)		787			120			170			1207	
Turn Bay Length (ft)												
Base Capacity (vph)					3539	1583		1863				397
Starvation Cap Reductn					0	0		0				0
Spillback Cap Reductn					0	0		0				0
Storage Cap Reductn					0	0		0				0
Reduced v/c Ratio					0.44	0.11		0.07				0.66

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 61.1			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 61.6%		ICU Level of Service B	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 1: US 64 & Jenks Road





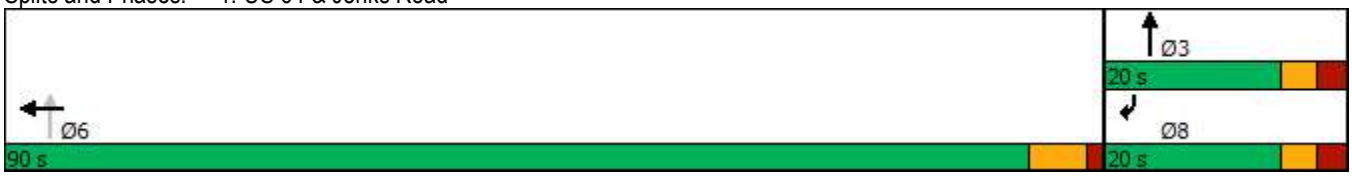
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1122	150	0	122	0	0	0	234
Future Volume (vph)	0	0	0	0	1122	150	0	122	0	0	0	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.865
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3539	1583	0	1863	0	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3539	1583	0	1863	0	0	0	1611
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		867			200			250			1287	
Travel Time (s)		10.7			2.5			3.8			19.5	
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
Adj. Flow (vph)	0	0	0	0	1247	167	0	136	0	0	0	260
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1247	167	0	136	0	0	0	260
Turn Type					NA	Free		NA				Prot
Protected Phases					6!			3				8
Permitted Phases						Free		6!				
Detector Phase					6			3				8
Switch Phase												
Minimum Initial (s)					14.0			7.0				7.0
Minimum Split (s)					20.2			12.6				12.6
Total Split (s)					90.0			20.0				20.0
Total Split (%)					81.8%			18.2%				18.2%
Maximum Green (s)					83.8			14.4				14.4
Yellow Time (s)					4.8			3.0				3.0
All-Red Time (s)					1.4			2.6				2.6
Lost Time Adjust (s)					-1.2			-0.6				-0.6
Total Lost Time (s)					5.0			5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					6.0			2.0				2.0
Minimum Gap (s)					3.4			2.0				2.0
Time Before Reduce (s)					15.0			0.0				0.0
Time To Reduce (s)					45.0			0.0				0.0
Recall Mode					Min			None				None
Act Effct Green (s)					28.7	53.9		53.9				15.1
Actuated g/C Ratio					0.53	1.00		1.00				0.28
v/c Ratio					0.66	0.11		0.07				0.58
Control Delay					10.9	0.1		0.1				24.7
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					10.9	0.1		0.1				24.7
LOS					B	A		A				C
Approach Delay					9.6			0.1			24.7	
Approach LOS					A			A			C	

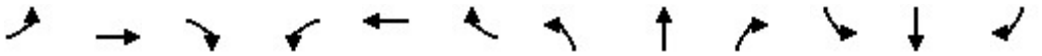
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)					134	0		0				71
Queue Length 95th (ft)					186	0		0				#173
Internal Link Dist (ft)		787			120			170			1207	
Turn Bay Length (ft)												
Base Capacity (vph)					3539	1583		1863				451
Starvation Cap Reductn					0	0		0				0
Spillback Cap Reductn					0	0		0				0
Storage Cap Reductn					0	0		0				0
Reduced v/c Ratio					0.35	0.11		0.07				0.58

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 53.9			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 11.1		Intersection LOS: B	
Intersection Capacity Utilization 53.8%		ICU Level of Service A	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 1: US 64 & Jenks Road





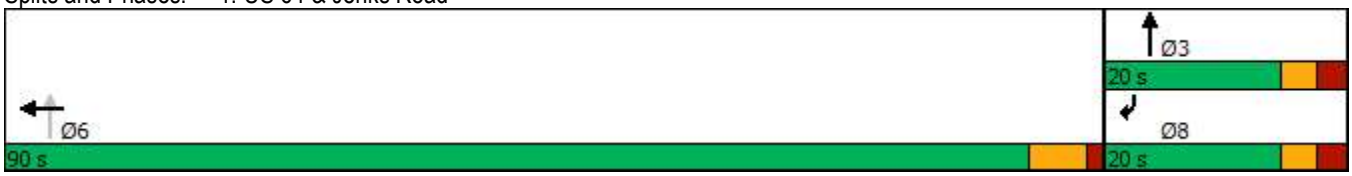
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1394	175	0	128	0	0	0	271
Future Volume (vph)	0	0	0	0	1394	175	0	128	0	0	0	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.865
Flt Protected												
Satd. Flow (prot)	0	0	0	0	3539	1583	0	1863	0	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	3539	1583	0	1863	0	0	0	1611
Right Turn on Red			No			No	No		No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		867			200			250			1287	
Travel Time (s)		10.7			2.5			3.8			19.5	
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
Adj. Flow (vph)	0	0	0	0	1549	194	0	142	0	0	0	301
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1549	194	0	142	0	0	0	301
Turn Type					NA	Free		NA				Prot
Protected Phases					6!			3				8
Permitted Phases						Free		6!				
Detector Phase					6			3				8
Switch Phase												
Minimum Initial (s)					14.0			7.0				7.0
Minimum Split (s)					20.2			12.6				12.6
Total Split (s)					90.0			20.0				20.0
Total Split (%)					81.8%			18.2%				18.2%
Maximum Green (s)					83.8			14.4				14.4
Yellow Time (s)					4.8			3.0				3.0
All-Red Time (s)					1.4			2.6				2.6
Lost Time Adjust (s)					-1.2			-0.6				-0.6
Total Lost Time (s)					5.0			5.0				5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)					6.0			2.0				2.0
Minimum Gap (s)					3.4			2.0				2.0
Time Before Reduce (s)					15.0			0.0				0.0
Time To Reduce (s)					45.0			0.0				0.0
Recall Mode					Min			None				None
Act Effct Green (s)					36.0	61.1		61.1				15.1
Actuated g/C Ratio					0.59	1.00		1.00				0.25
v/c Ratio					0.74	0.12		0.08				0.76
Control Delay					11.7	0.2		0.1				37.7
Queue Delay					0.0	0.0		0.0				0.0
Total Delay					11.7	0.2		0.1				37.7
LOS					B	A		A				D
Approach Delay					10.4			0.1			37.7	
Approach LOS					B			A			D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)					191	0		0				105
Queue Length 95th (ft)					261	0		0				#242
Internal Link Dist (ft)		787			120			170			1207	
Turn Bay Length (ft)												
Base Capacity (vph)					3539	1583		1863				397
Starvation Cap Reductn					0	0		0				0
Spillback Cap Reductn					0	0		0				0
Storage Cap Reductn					0	0		0				0
Reduced v/c Ratio					0.44	0.12		0.08				0.76

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 61.1			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 101.8%		ICU Level of Service G	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 1: US 64 & Jenks Road



Intersection	
Int Delay, s/veh	40.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱						↱		↑	
Traffic Vol, veh/h	0	1241	31	0	0	0	0	0	368	1	165	0
Future Vol, veh/h	0	1241	31	0	0	0	0	0	368	1	165	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16983	-	-	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	0	1379	34	0	0	0	0	0	409	1	183	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	690	690	1379	-
Stage 1	-	-	-	-	-	-	0	0	-
Stage 2	-	-	-	-	-	-	690	1379	-
Critical Hdwy	-	-	-	-	-	6.94	7.54	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	3.52	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	~ 388	331	~ 143	0
Stage 1	0	-	-	0	0	-	-	-	0
Stage 2	0	-	-	0	0	-	401	210	0
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	~ 388	-	~ 143	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 143	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	210	-

Approach	EB	NB	SB
HCM Control Delay, s	0	93.8	229.8
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	388	-	-	143
HCM Lane V/C Ratio	1.054	-	-	1.282
HCM Control Delay (s)	93.8	-	-	229.8
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	13.8	-	-	11.2

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

Intersection	
Int Delay, s/veh	77.8

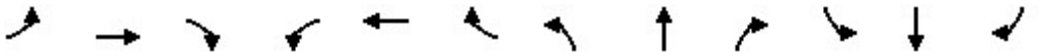
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱						↱		↑	
Traffic Vol, veh/h	0	1269	43	0	0	0	0	0	300	3	244	0
Future Vol, veh/h	0	1269	43	0	0	0	0	0	300	3	244	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16983	-	-	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	0	1410	48	0	0	0	0	0	333	3	271	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	705	705	1410	-
Stage 1	-	-	-	-	-	-	0	0	-
Stage 2	-	-	-	-	-	-	705	1410	-
Critical Hdwy	-	-	-	-	-	6.94	7.54	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	3.52	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	379	323	~ 137	0
Stage 1	0	-	-	0	0	-	-	-	0
Stage 2	0	-	-	0	0	-	393	~ 203	0
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	379	39	~ 137	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	39	~ 137	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	47	~ 203	-

Approach	EB	NB	SB
HCM Control Delay, s	0	54.4	$ 519.7
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	379	-	-	137
HCM Lane V/C Ratio	0.88	-	-	1.979
HCM Control Delay (s)	54.4	-	-	$ 519.7
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	8.7	-	-	21.5

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1396	37	0	0	0	0	0	403	14	180	0
Future Volume (vph)	0	1396	37	0	0	0	0	0	403	14	180	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.95	0.95	1.00
Frt			0.850						0.850			
Flt Protected											0.996	
Satd. Flow (prot)	0	3539	1583	0	0	0	0	0	2787	0	3525	0
Flt Permitted											0.996	
Satd. Flow (perm)	0	3539	1583	0	0	0	0	0	2787	0	3525	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		245			1398			1098			205	
Travel Time (s)		3.0			17.3			16.6			3.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1551	41	0	0	0	0	0	448	16	200	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1551	41	0	0	0	0	0	448	0	216	0
Turn Type		NA	custom						Prot	Split	NA	
Protected Phases		2	2						7!	7!	7	
Permitted Phases			7									
Detector Phase		2	2						7	7	7	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0	7.0	7.0	
Minimum Split (s)		25.8	25.8						19.2	19.2	19.2	
Total Split (s)		40.0	40.0						20.0	20.0	20.0	
Total Split (%)		66.7%	66.7%						33.3%	33.3%	33.3%	
Maximum Green (s)		33.2	33.2						13.8	13.8	13.8	
Yellow Time (s)		5.4	5.4						3.0	3.0	3.0	
All-Red Time (s)		1.4	1.4						3.2	3.2	3.2	
Lost Time Adjust (s)		-1.8	-1.8						-1.2		-1.2	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		6.0	6.0						2.0	2.0	2.0	
Minimum Gap (s)		3.4	3.4						2.0	2.0	2.0	
Time Before Reduce (s)		15.0	15.0						0.0	0.0	0.0	
Time To Reduce (s)		45.0	45.0						0.0	0.0	0.0	
Recall Mode		C-Min	C-Min						None	None	None	
Walk Time (s)		7.0	7.0						7.0	7.0	7.0	
Flash Dont Walk (s)		12.0	12.0						6.0	6.0	6.0	
Pedestrian Calls (#/hr)		0	0						0	0	0	
Act Effct Green (s)		36.2	60.0						13.8		13.8	
Actuated g/C Ratio		0.60	1.00						0.23		0.23	
v/c Ratio		0.73	0.03						0.70		0.27	

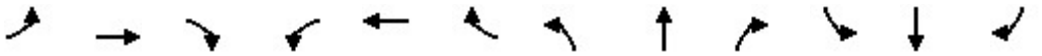
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		2.4	0.0						27.6		19.5	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		2.4	0.0						27.6		19.5	
LOS		A	A						C		B	
Approach Delay		2.3						27.6			19.5	
Approach LOS		A						C			B	
Queue Length 50th (ft)		13	0						82		32	
Queue Length 95th (ft)		16	m0						129		57	
Internal Link Dist (ft)		165			1318			1018			125	
Turn Bay Length (ft)									300			
Base Capacity (vph)		2137	1583						696		881	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.73	0.03						0.64		0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 9.0		Intersection LOS: A	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			

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

! Phase conflict between lane groups.

Splits and Phases: 11: Richardson Road & US 64



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1416	49	0	0	0	0	0	331	10	267	0
Future Volume (vph)	0	1416	49	0	0	0	0	0	331	10	267	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.95	0.95	1.00
Frt			0.850						0.850			
Flt Protected											0.998	
Satd. Flow (prot)	0	3539	1583	0	0	0	0	0	2787	0	3532	0
Flt Permitted											0.998	
Satd. Flow (perm)	0	3539	1583	0	0	0	0	0	2787	0	3532	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		245			1398			1098			205	
Travel Time (s)		3.0			17.3			16.6			3.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1573	54	0	0	0	0	0	368	11	297	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1573	54	0	0	0	0	0	368	0	308	0
Turn Type		NA	custom						Prot	Split	NA	
Protected Phases		2	2						7!	7!	7	
Permitted Phases			7									
Detector Phase		2	2						7	7	7	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0	7.0	7.0	
Minimum Split (s)		25.8	25.8						19.2	19.2	19.2	
Total Split (s)		40.0	40.0						20.0	20.0	20.0	
Total Split (%)		66.7%	66.7%						33.3%	33.3%	33.3%	
Maximum Green (s)		33.2	33.2						13.8	13.8	13.8	
Yellow Time (s)		5.4	5.4						3.0	3.0	3.0	
All-Red Time (s)		1.4	1.4						3.2	3.2	3.2	
Lost Time Adjust (s)		-1.8	-1.8						-1.2		-1.2	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		6.0	6.0						2.0	2.0	2.0	
Minimum Gap (s)		3.4	3.4						2.0	2.0	2.0	
Time Before Reduce (s)		15.0	15.0						0.0	0.0	0.0	
Time To Reduce (s)		45.0	45.0						0.0	0.0	0.0	
Recall Mode		C-Min	C-Min						None	None	None	
Walk Time (s)		7.0	7.0						7.0	7.0	7.0	
Flash Dont Walk (s)		12.0	12.0						6.0	6.0	6.0	
Pedestrian Calls (#/hr)		0	0						0	0	0	
Act Effct Green (s)		37.1	60.0						12.9		12.9	
Actuated g/C Ratio		0.62	1.00						0.22		0.22	
v/c Ratio		0.72	0.03						0.62		0.41	

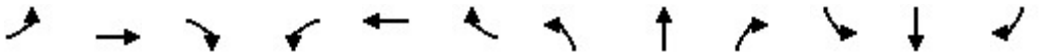
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		2.3	0.0						25.8		21.5	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		2.3	0.0						25.8		21.5	
LOS		A	A						C		C	
Approach Delay		2.2						25.8			21.5	
Approach LOS		A						C			C	
Queue Length 50th (ft)		14	0						68		50	
Queue Length 95th (ft)		17	m0						105		78	
Internal Link Dist (ft)		165			1318			1018			125	
Turn Bay Length (ft)									300			
Base Capacity (vph)		2190	1583						696		883	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.72	0.03						0.53		0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 70.9%		ICU Level of Service C	
Analysis Period (min) 15			

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

! Phase conflict between lane groups.

Splits and Phases: 11: Richardson Road & US 64



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1413	37	0	0	0	0	0	403	14	180	0
Future Volume (vph)	0	1413	37	0	0	0	0	0	403	14	180	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.95	0.95	1.00
Frt			0.850						0.850			
Flt Protected											0.996	
Satd. Flow (prot)	0	3539	1583	0	0	0	0	0	2787	0	3525	0
Flt Permitted											0.996	
Satd. Flow (perm)	0	3539	1583	0	0	0	0	0	2787	0	3525	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		245			1398			1098			205	
Travel Time (s)		3.0			17.3			16.6			3.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1570	41	0	0	0	0	0	448	16	200	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1570	41	0	0	0	0	0	448	0	216	0
Turn Type		NA	custom						Prot	Split	NA	
Protected Phases		2	2						7!	7!	7	
Permitted Phases			7									
Detector Phase		2	2						7	7	7	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0	7.0	7.0	
Minimum Split (s)		25.8	25.8						19.2	19.2	19.2	
Total Split (s)		40.0	40.0						20.0	20.0	20.0	
Total Split (%)		66.7%	66.7%						33.3%	33.3%	33.3%	
Maximum Green (s)		33.2	33.2						13.8	13.8	13.8	
Yellow Time (s)		5.4	5.4						3.0	3.0	3.0	
All-Red Time (s)		1.4	1.4						3.2	3.2	3.2	
Lost Time Adjust (s)		-1.8	-1.8						-1.2		-1.2	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		6.0	6.0						2.0	2.0	2.0	
Minimum Gap (s)		3.4	3.4						2.0	2.0	2.0	
Time Before Reduce (s)		15.0	15.0						0.0	0.0	0.0	
Time To Reduce (s)		45.0	45.0						0.0	0.0	0.0	
Recall Mode		C-Min	C-Min						None	None	None	
Walk Time (s)		7.0	7.0						7.0	7.0	7.0	
Flash Dont Walk (s)		12.0	12.0						6.0	6.0	6.0	
Pedestrian Calls (#/hr)		0	0						0	0	0	
Act Effct Green (s)		36.2	60.0						13.8		13.8	
Actuated g/C Ratio		0.60	1.00						0.23		0.23	
v/c Ratio		0.73	0.03						0.70		0.27	

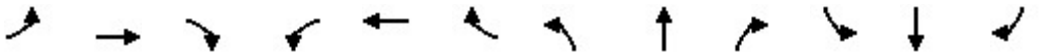
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		2.5	0.0						27.6		19.5	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		2.5	0.0						27.6		19.5	
LOS		A	A						C		B	
Approach Delay		2.5						27.6			19.5	
Approach LOS		A						C			B	
Queue Length 50th (ft)		14	0						82		32	
Queue Length 95th (ft)		17	m0						129		57	
Internal Link Dist (ft)		165			1318			1018			125	
Turn Bay Length (ft)									300			
Base Capacity (vph)		2137	1583						696		881	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.73	0.03						0.64		0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 9.0		Intersection LOS: A	
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

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

! Phase conflict between lane groups.

Splits and Phases: 11: Richardson Road & US 64



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1438	49	0	0	0	0	0	331	10	267	0
Future Volume (vph)	0	1438	49	0	0	0	0	0	331	10	267	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		300	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.95	0.95	1.00
Frt			0.850						0.850			
Flt Protected											0.998	
Satd. Flow (prot)	0	3539	1583	0	0	0	0	0	2787	0	3532	0
Flt Permitted											0.998	
Satd. Flow (perm)	0	3539	1583	0	0	0	0	0	2787	0	3532	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		245			1398			1098			205	
Travel Time (s)		3.0			17.3			16.6			3.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1598	54	0	0	0	0	0	368	11	297	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1598	54	0	0	0	0	0	368	0	308	0
Turn Type		NA	custom						Prot	Split	NA	
Protected Phases		2	2						7!	7!	7	
Permitted Phases			7									
Detector Phase		2	2						7	7	7	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0	7.0	7.0	
Minimum Split (s)		25.8	25.8						19.2	19.2	19.2	
Total Split (s)		40.0	40.0						20.0	20.0	20.0	
Total Split (%)		66.7%	66.7%						33.3%	33.3%	33.3%	
Maximum Green (s)		33.2	33.2						13.8	13.8	13.8	
Yellow Time (s)		5.4	5.4						3.0	3.0	3.0	
All-Red Time (s)		1.4	1.4						3.2	3.2	3.2	
Lost Time Adjust (s)		-1.8	-1.8						-1.2		-1.2	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		6.0	6.0						2.0	2.0	2.0	
Minimum Gap (s)		3.4	3.4						2.0	2.0	2.0	
Time Before Reduce (s)		15.0	15.0						0.0	0.0	0.0	
Time To Reduce (s)		45.0	45.0						0.0	0.0	0.0	
Recall Mode		C-Min	C-Min						None	None	None	
Walk Time (s)		7.0	7.0						7.0	7.0	7.0	
Flash Dont Walk (s)		12.0	12.0						6.0	6.0	6.0	
Pedestrian Calls (#/hr)		0	0						0	0	0	
Act Effct Green (s)		37.1	60.0						12.9		12.9	
Actuated g/C Ratio		0.62	1.00						0.22		0.22	
v/c Ratio		0.73	0.03						0.62		0.41	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		2.5	0.0						25.8		21.5	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		2.5	0.0						25.8		21.5	
LOS		A	A						C		C	
Approach Delay		2.4						25.8			21.5	
Approach LOS		A						C			C	
Queue Length 50th (ft)		15	0						68		50	
Queue Length 95th (ft)		22	m0						105		78	
Internal Link Dist (ft)		165			1318			1018			125	
Turn Bay Length (ft)									300			
Base Capacity (vph)		2190	1583						696		883	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.73	0.03						0.53		0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

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

! Phase conflict between lane groups.

Splits and Phases: 11: Richardson Road & US 64

APPENDIX F

CAPACITY ANALYSIS CALCULATIONS

US 64

&

U-TURN (WEST OF JENKS ROAD)

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↱	
Traffic Vol, veh/h	0	1288	0	0	75	0
Future Vol, veh/h	0	1288	0	0	75	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	16983	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1431	0	0	83	0

Major/Minor	Major1		Minor2	
Conflicting Flow All	-	0	716	-
Stage 1	-	-	0	-
Stage 2	-	-	716	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	365	0
Stage 1	0	-	-	0
Stage 2	0	-	445	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	365	-
Mov Cap-2 Maneuver	-	-	365	-
Stage 1	-	-	-	-
Stage 2	-	-	445	-

Approach	EB	SB
HCM Control Delay, s	0	17.8
HCM LOS		C

Minor Lane/Major Mvmt	EBT	SBLn1
Capacity (veh/h)	-	365
HCM Lane V/C Ratio	-	0.228
HCM Control Delay (s)	-	17.8
HCM Lane LOS	-	C
HCM 95th %tile Q(veh)	-	0.9

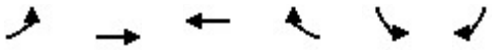
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↰	
Traffic Vol, veh/h	0	1304	0	0	84	0
Future Vol, veh/h	0	1304	0	0	84	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	16983	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1449	0	0	93	0

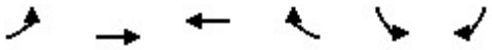
Major/Minor	Major1		Minor2	
Conflicting Flow All	-	0	725	-
Stage 1	-	-	0	-
Stage 2	-	-	725	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	360	0
Stage 1	0	-	-	0
Stage 2	0	-	440	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	360	-
Mov Cap-2 Maneuver	-	-	360	-
Stage 1	-	-	-	-
Stage 2	-	-	440	-

Approach	EB	SB
HCM Control Delay, s	0	18.5
HCM LOS		C

Minor Lane/Major Mvmt	EBT	SBLn1
Capacity (veh/h)	-	360
HCM Lane V/C Ratio	-	0.259
HCM Control Delay (s)	-	18.5
HCM Lane LOS	-	C
HCM 95th %tile Q(veh)	-	1



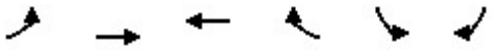
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1424	0	0	126	0
Future Volume (vph)	0	1424	0	0	126	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3539	0	0	1770	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		1221	731		125	
Travel Time (s)		15.1	9.1		1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1582	0	0	140	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1582	0	0	140	0
Turn Type		NA			pm+pt	
Protected Phases		2!			7	
Permitted Phases					2!	
Detector Phase		2			7	
Switch Phase						
Minimum Initial (s)		14.0			14.0	
Minimum Split (s)		20.3			20.3	
Total Split (s)		39.7			20.3	
Total Split (%)		66.2%			33.8%	
Maximum Green (s)		33.4			14.0	
Yellow Time (s)		5.3			5.3	
All-Red Time (s)		1.0			1.0	
Lost Time Adjust (s)		-1.3			-1.3	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		6.0			6.0	
Minimum Gap (s)		3.4			3.4	
Time Before Reduce (s)		15.0			15.0	
Time To Reduce (s)		45.0			45.0	
Recall Mode		C-Min			Min	
Act Effct Green (s)		34.7			60.0	
Actuated g/C Ratio		0.58			1.00	
v/c Ratio		0.77			0.08	
Control Delay		13.0			0.1	
Queue Delay		0.0			0.0	
Total Delay		13.0			0.1	
LOS		B			A	
Approach Delay		13.0			0.1	
Approach LOS		B			A	



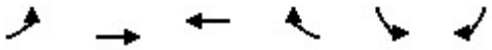
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)		202			0	
Queue Length 95th (ft)		283			0	
Internal Link Dist (ft)		1141	651		45	
Turn Bay Length (ft)						
Base Capacity (vph)		2046			1770	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.77			0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 49 (82%), Referenced to phase 2:EBSB, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 80.3%		ICU Level of Service D	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: US 64 & Western U-Turn



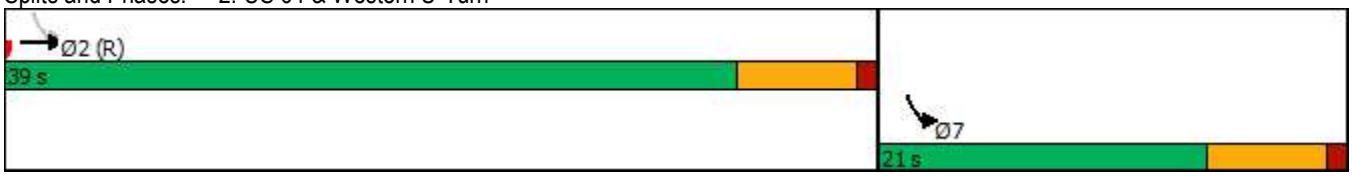
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1457	0	0	122	0
Future Volume (vph)	0	1457	0	0	122	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3539	0	0	1770	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		1221	731		125	
Travel Time (s)		15.1	9.1		1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1619	0	0	136	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1619	0	0	136	0
Turn Type		NA			pm+pt	
Protected Phases		2!			7	
Permitted Phases					2!	
Detector Phase		2			7	
Switch Phase						
Minimum Initial (s)		14.0			14.0	
Minimum Split (s)		20.3			20.3	
Total Split (s)		39.0			21.0	
Total Split (%)		65.0%			35.0%	
Maximum Green (s)		32.7			14.7	
Yellow Time (s)		5.3			5.3	
All-Red Time (s)		1.0			1.0	
Lost Time Adjust (s)		-1.3			-1.3	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		6.0			6.0	
Minimum Gap (s)		3.4			3.4	
Time Before Reduce (s)		15.0			15.0	
Time To Reduce (s)		45.0			45.0	
Recall Mode		C-Min			Min	
Act Effct Green (s)		34.7			60.0	
Actuated g/C Ratio		0.58			1.00	
v/c Ratio		0.79			0.08	
Control Delay		13.5			0.1	
Queue Delay		0.0			0.0	
Total Delay		13.5			0.1	
LOS		B			A	
Approach Delay		13.5			0.1	
Approach LOS		B			A	

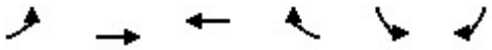


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)		211			0	
Queue Length 95th (ft)		295			0	
Internal Link Dist (ft)		1141	651		45	
Turn Bay Length (ft)						
Base Capacity (vph)		2046			1643	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.79			0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 50 (83%), Referenced to phase 2:EBSB, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 89.5%		ICU Level of Service E	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: US 64 & Western U-Turn



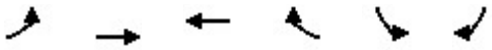


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1430	0	0	143	0
Future Volume (vph)	0	1430	0	0	143	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3539	0	0	1770	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		1221	731		125	
Travel Time (s)		15.1	9.1		1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1589	0	0	159	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1589	0	0	159	0
Turn Type		NA			pm+pt	
Protected Phases		2!			7	
Permitted Phases					2!	
Detector Phase		2			7	
Switch Phase						
Minimum Initial (s)		14.0			14.0	
Minimum Split (s)		20.3			20.3	
Total Split (s)		39.7			20.3	
Total Split (%)		66.2%			33.8%	
Maximum Green (s)		33.4			14.0	
Yellow Time (s)		5.3			5.3	
All-Red Time (s)		1.0			1.0	
Lost Time Adjust (s)		-1.3			-1.3	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		6.0			6.0	
Minimum Gap (s)		3.4			3.4	
Time Before Reduce (s)		15.0			15.0	
Time To Reduce (s)		45.0			45.0	
Recall Mode		C-Min			Min	
Act Effct Green (s)		34.7			60.0	
Actuated g/C Ratio		0.58			1.00	
v/c Ratio		0.78			0.09	
Control Delay		13.1			0.1	
Queue Delay		0.0			0.0	
Total Delay		13.1			0.1	
LOS		B			A	
Approach Delay		13.1			0.1	
Approach LOS		B			A	

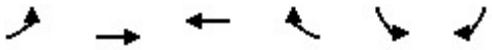
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)		203			0	
Queue Length 95th (ft)		285			0	
Internal Link Dist (ft)		1141	651		45	
Turn Bay Length (ft)						
Base Capacity (vph)		2046			1770	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.78			0.09	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 49 (82%), Referenced to phase 2:EBSB, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 80.6%		ICU Level of Service D	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: US 64 & Western U-Turn



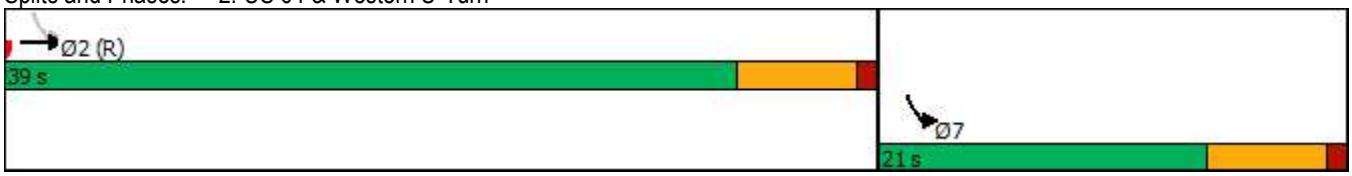
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1470	0	0	143	0
Future Volume (vph)	0	1470	0	0	143	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt						
Flt Protected					0.950	
Satd. Flow (prot)	0	3539	0	0	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	3539	0	0	1770	0
Right Turn on Red				No	No	No
Satd. Flow (RTOR)						
Link Speed (mph)		55	55		45	
Link Distance (ft)		1221	731		125	
Travel Time (s)		15.1	9.1		1.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1633	0	0	159	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1633	0	0	159	0
Turn Type		NA			pm+pt	
Protected Phases		2!			7	
Permitted Phases					2!	
Detector Phase		2			7	
Switch Phase						
Minimum Initial (s)		14.0			14.0	
Minimum Split (s)		20.3			20.3	
Total Split (s)		39.0			21.0	
Total Split (%)		65.0%			35.0%	
Maximum Green (s)		32.7			14.7	
Yellow Time (s)		5.3			5.3	
All-Red Time (s)		1.0			1.0	
Lost Time Adjust (s)		-1.3			-1.3	
Total Lost Time (s)		5.0			5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		6.0			6.0	
Minimum Gap (s)		3.4			3.4	
Time Before Reduce (s)		15.0			15.0	
Time To Reduce (s)		45.0			45.0	
Recall Mode		C-Min			Min	
Act Effct Green (s)		34.7			60.0	
Actuated g/C Ratio		0.58			1.00	
v/c Ratio		0.80			0.09	
Control Delay		13.7			0.1	
Queue Delay		0.0			0.0	
Total Delay		13.7			0.1	
LOS		B			A	
Approach Delay		13.7			0.1	
Approach LOS		B			A	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)		214			0	
Queue Length 95th (ft)		300			0	
Internal Link Dist (ft)		1141	651		45	
Turn Bay Length (ft)						
Base Capacity (vph)		2046			1643	
Starvation Cap Reductn		0			0	
Spillback Cap Reductn		0			0	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.80			0.10	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 50 (83%), Referenced to phase 2:EBSB, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 90.2%		ICU Level of Service E	
Analysis Period (min) 15			
! Phase conflict between lane groups.			

Splits and Phases: 2: US 64 & Western U-Turn



APPENDIX G

CAPACITY ANALYSIS CALCULATIONS

JENKS ROAD

&

WIMBERLY ROAD

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	78	92	14	13	55	23	8	7	36	26	4	32
Future Vol, veh/h	78	92	14	13	55	23	8	7	36	26	4	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	75	-	-	-	-	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	87	102	16	14	61	26	9	8	40	29	4	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	118	0	0	398	391	102	410	394	74
Stage 1	-	-	-	-	-	-	276	276	-	102	102	-
Stage 2	-	-	-	-	-	-	122	115	-	308	292	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1509	-	-	1470	-	-	562	545	953	552	542	988
Stage 1	-	-	-	-	-	-	730	682	-	904	811	-
Stage 2	-	-	-	-	-	-	882	800	-	702	671	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1509	-	-	1470	-	-	511	508	953	496	506	988
Mov Cap-2 Maneuver	-	-	-	-	-	-	511	508	-	496	506	-
Stage 1	-	-	-	-	-	-	688	642	-	852	803	-
Stage 2	-	-	-	-	-	-	838	792	-	626	632	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.2	1.1	9.9	11
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	510	953	1509	-	-	1470	-	-	669
HCM Lane V/C Ratio	0.033	0.042	0.057	-	-	0.01	-	-	0.103
HCM Control Delay (s)	12.3	8.9	7.5	-	-	7.5	-	-	11
HCM Lane LOS	B	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	0.2	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	99	13	17	95	24	12	4	22	43	4	43
Future Vol, veh/h	46	99	13	17	95	24	12	4	22	43	4	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	75	-	-	-	-	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	51	110	14	19	106	27	13	4	24	48	4	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	133	0	0	124	0	0	396	383	110	391	384	120
Stage 1	-	-	-	-	-	-	212	212	-	158	158	-
Stage 2	-	-	-	-	-	-	184	171	-	233	226	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1452	-	-	1463	-	-	564	550	943	568	550	931
Stage 1	-	-	-	-	-	-	790	727	-	844	767	-
Stage 2	-	-	-	-	-	-	818	757	-	770	717	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1452	-	-	1463	-	-	512	524	943	530	524	931
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	524	-	530	524	-
Stage 1	-	-	-	-	-	-	762	702	-	814	757	-
Stage 2	-	-	-	-	-	-	761	747	-	719	692	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.2	0.9	10.3	11.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	515	943	1452	-	-	1463	-	-	667
HCM Lane V/C Ratio	0.035	0.026	0.035	-	-	0.013	-	-	0.15
HCM Control Delay (s)	12.2	8.9	7.6	-	-	7.5	-	-	11.3
HCM Lane LOS	B	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	0.1	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	125	105	16	17	90	32	22	11	49	51	4	73
Future Vol, veh/h	125	105	16	17	90	32	22	11	49	51	4	73
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	75	-	-	-	-	100	-	-	50
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	139	117	18	19	100	36	24	12	54	57	4	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	136	0	0	135	0	0	594	569	117	593	569	118
Stage 1	-	-	-	-	-	-	395	395	-	156	156	-
Stage 2	-	-	-	-	-	-	199	174	-	437	413	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1448	-	-	1449	-	-	417	432	935	417	432	934
Stage 1	-	-	-	-	-	-	630	605	-	846	769	-
Stage 2	-	-	-	-	-	-	803	755	-	598	594	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	1449	-	-	346	385	935	352	385	934
Mov Cap-2 Maneuver	-	-	-	-	-	-	346	385	-	352	385	-
Stage 1	-	-	-	-	-	-	570	547	-	765	759	-
Stage 2	-	-	-	-	-	-	719	745	-	498	537	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.9	0.9	12	12.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	358	935	1448	-	-	1449	-	-	354	934
HCM Lane V/C Ratio	0.102	0.058	0.096	-	-	0.013	-	-	0.173	0.087
HCM Control Delay (s)	16.2	9.1	7.8	-	-	7.5	-	-	17.3	9.2
HCM Lane LOS	C	A	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.3	0.2	0.3	-	-	0	-	-	0.6	0.3

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	109	123	19	29	133	39	20	4	29	73	6	78
Future Vol, veh/h	109	123	19	29	133	39	20	4	29	73	6	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	75	-	-	-	-	100	-	-	50
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	121	137	21	32	148	43	22	4	32	81	7	87

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	191	0	0	158	0	0	660	634	137	642	634	170
Stage 1	-	-	-	-	-	-	379	379	-	234	234	-
Stage 2	-	-	-	-	-	-	281	255	-	408	400	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1383	-	-	1422	-	-	376	397	911	387	397	874
Stage 1	-	-	-	-	-	-	643	615	-	769	711	-
Stage 2	-	-	-	-	-	-	726	696	-	620	602	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1383	-	-	1422	-	-	306	354	911	339	354	874
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	354	-	339	354	-
Stage 1	-	-	-	-	-	-	587	561	-	702	695	-
Stage 2	-	-	-	-	-	-	633	680	-	541	550	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	1.1	12.9	14.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	313	911	1383	-	-	1422	-	-	340	874
HCM Lane V/C Ratio	0.085	0.035	0.088	-	-	0.023	-	-	0.258	0.099
HCM Control Delay (s)	17.6	9.1	7.9	-	-	7.6	-	-	19.2	9.6
HCM Lane LOS	C	A	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.3	0.1	0.3	-	-	0.1	-	-	1	0.3

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	125	113	16	17	97	32	22	11	49	51	4	73
Future Vol, veh/h	125	113	16	17	97	32	22	11	49	51	4	73
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	75	-	-	-	-	100	-	-	50
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	139	126	18	19	108	36	24	12	54	57	4	81

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	144	0	0	144	0	0	611	586	126	610	586	126
Stage 1	-	-	-	-	-	-	404	404	-	164	164	-
Stage 2	-	-	-	-	-	-	207	182	-	446	422	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1438	-	-	1438	-	-	406	422	924	407	422	924
Stage 1	-	-	-	-	-	-	623	599	-	838	762	-
Stage 2	-	-	-	-	-	-	795	749	-	591	588	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1438	-	-	1438	-	-	337	376	924	343	376	924
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	376	-	343	376	-
Stage 1	-	-	-	-	-	-	563	541	-	757	752	-
Stage 2	-	-	-	-	-	-	711	739	-	491	531	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.8	0.9	12.1	12.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	349	924	1438	-	-	1438	-	-	345	924
HCM Lane V/C Ratio	0.105	0.059	0.097	-	-	0.013	-	-	0.177	0.088
HCM Control Delay (s)	16.5	9.1	7.8	-	-	7.5	-	-	17.7	9.3
HCM Lane LOS	C	A	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.3	0.2	0.3	-	-	0	-	-	0.6	0.3

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	109	134	19	29	144	39	20	4	29	73	6	78
Future Vol, veh/h	109	134	19	29	144	39	20	4	29	73	6	78
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	75	-	-	-	-	100	-	-	50
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	121	149	21	32	160	43	22	4	32	81	7	87

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	203	0	0	170	0	0	684	658	149	666	658	182
Stage 1	-	-	-	-	-	-	391	391	-	246	246	-
Stage 2	-	-	-	-	-	-	293	267	-	420	412	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1369	-	-	1407	-	-	363	384	898	373	384	861
Stage 1	-	-	-	-	-	-	633	607	-	758	703	-
Stage 2	-	-	-	-	-	-	715	688	-	611	594	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1369	-	-	1407	-	-	295	342	898	326	342	861
Mov Cap-2 Maneuver	-	-	-	-	-	-	295	342	-	326	342	-
Stage 1	-	-	-	-	-	-	577	554	-	691	687	-
Stage 2	-	-	-	-	-	-	622	672	-	533	542	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.3	1	13.2	14.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	302	898	1369	-	-	1407	-	-	327	861
HCM Lane V/C Ratio	0.088	0.036	0.088	-	-	0.023	-	-	0.268	0.101
HCM Control Delay (s)	18.1	9.2	7.9	-	-	7.6	-	-	20	9.6
HCM Lane LOS	C	A	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.3	0.1	0.3	-	-	0.1	-	-	1.1	0.3

APPENDIX H

CAPACITY ANALYSIS CALCULATIONS

JENKS ROAD

&

LOWELL ROAD/SITE DRIVE 1

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	6	178	7	5	90
Future Vol, veh/h	19	6	178	7	5	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	600	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	21	7	198	8	6	100

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	314	103	0	0	206	0
Stage 1	202	-	-	-	-	-
Stage 2	112	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	666	932	-	-	1364	-
Stage 1	813	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	663	932	-	-	1364	-
Mov Cap-2 Maneuver	663	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	908	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	663	932	1364	-
HCM Lane V/C Ratio	-	-	0.032	0.007	0.004	-
HCM Control Delay (s)	-	-	10.6	8.9	7.7	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	5	153	11	11	139
Future Vol, veh/h	13	5	153	11	11	139
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	600	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	14	6	170	12	12	154

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	354	91	0	0	182	0
Stage 1	176	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	631	949	-	-	1392	-
Stage 1	837	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	625	949	-	-	1392	-
Mov Cap-2 Maneuver	625	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	844	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	625	949	1392	-
HCM Lane V/C Ratio	-	-	0.023	0.006	0.009	-
HCM Control Delay (s)	-	-	10.9	8.8	7.6	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	7	241	9	5	178
Future Vol, veh/h	31	7	241	9	5	178
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	600	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	34	8	268	10	6	198

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	483	139	0	0	278	0
Stage 1	273	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	527	884	-	-	1283	-
Stage 1	749	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	524	884	-	-	1283	-
Mov Cap-2 Maneuver	524	-	-	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	820	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	524	884	1283	-
HCM Lane V/C Ratio	-	-	0.066	0.009	0.004	-
HCM Control Delay (s)	-	-	12.4	9.1	7.8	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	5	246	17	12	219
Future Vol, veh/h	19	5	246	17	12	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	600	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	21	6	273	19	13	243

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	552	146	0	0	292	0
Stage 1	283	-	-	-	-	-
Stage 2	269	-	-	-	-	-
Critical Hdwy	6.63	6.93	-	-	4.13	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	479	875	-	-	1268	-
Stage 1	741	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	474	875	-	-	1268	-
Mov Cap-2 Maneuver	474	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	767	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	474	875	1268	-
HCM Lane V/C Ratio	-	-	0.045	0.006	0.011	-
HCM Control Delay (s)	-	-	12.9	9.1	7.9	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	4	17	31	4	7	21	241	9	5	186	4
Future Vol, veh/h	8	4	17	31	4	7	21	241	9	5	186	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	50	-	600	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	9	4	19	34	4	8	23	268	10	6	207	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	403	545	209	552	542	139	211	0	0	278	0	0
Stage 1	221	221	-	319	319	-	-	-	-	-	-	-
Stage 2	182	324	-	233	223	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	545	445	831	430	447	884	1358	-	-	1283	-	-
Stage 1	781	720	-	668	652	-	-	-	-	-	-	-
Stage 2	803	649	-	769	718	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	527	435	831	410	437	884	1358	-	-	1283	-	-
Mov Cap-2 Maneuver	527	435	-	410	437	-	-	-	-	-	-	-
Stage 1	768	716	-	657	641	-	-	-	-	-	-	-
Stage 2	777	638	-	743	714	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	13.6	0.6	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1358	-	-	527	708	410	644	1283	-	-
HCM Lane V/C Ratio	0.017	-	-	0.017	0.033	0.084	0.019	0.004	-	-
HCM Control Delay (s)	7.7	-	-	11.9	10.3	14.6	10.7	7.8	-	-
HCM Lane LOS	A	-	-	B	B	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.3	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	4	24	9	4	5	45	239	17	12	228	5
Future Vol, veh/h	18	4	24	9	4	5	45	239	17	12	228	5
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	75	-	-	75	-	-	50	-	600	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	20	4	27	10	4	6	50	266	19	13	253	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	517	667	256	674	661	143	259	0	0	285	0	0
Stage 1	282	282	-	376	376	-	-	-	-	-	-	-
Stage 2	235	385	-	298	285	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.23	7.33	6.53	6.93	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	455	379	782	354	382	879	1304	-	-	1276	-	-
Stage 1	724	677	-	618	616	-	-	-	-	-	-	-
Stage 2	748	610	-	710	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	431	361	782	326	364	879	1304	-	-	1276	-	-
Mov Cap-2 Maneuver	431	361	-	326	364	-	-	-	-	-	-	-
Stage 1	696	670	-	595	593	-	-	-	-	-	-	-
Stage 2	709	587	-	674	668	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.9	14.1	1.2	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1304	-	-	431	670	326	540	1276	-	-
HCM Lane V/C Ratio	0.038	-	-	0.046	0.046	0.031	0.019	0.01	-	-
HCM Control Delay (s)	7.9	-	-	13.8	10.6	16.4	11.8	7.9	-	-
HCM Lane LOS	A	-	-	B	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	0.1	0	-	-

APPENDIX I

CAPACITY ANALYSIS CALCULATIONS

JENKS ROAD

&

SITE DRIVE 2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	254	188	4	0	8
Future Vol, veh/h	0	254	188	4	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	282	209	4	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	211
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	-	0	828
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	828
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	828
HCM Lane V/C Ratio	-	-	-	0.011
HCM Control Delay (s)	-	-	-	9.4
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	262	230	12	0	15
Future Vol, veh/h	0	262	230	12	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	291	256	13	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	263
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.319
Pot Cap-1 Maneuver	0	-	-	-	0	775
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	775
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	775
HCM Lane V/C Ratio	-	-	-	0.022
HCM Control Delay (s)	-	-	-	9.7
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0.1

PLANNING BOARD REPORT TO TOWN COUNCIL

Rezoning Case: 22CZ01 Arden at Summit Pines PUD

Planning Board Meeting Date: May 9, 2022

Report Requirements:

Per NCGS §160D-604(b), all proposed amendments to the zoning ordinance or zoning map shall be submitted to the Planning Board for review and comment. If no written report is received from the Planning Board within 30 days of referral of the amendment to the Planning Board, the Town Council may act on the amendment without the Planning Board report. The Town Council is not bound by the recommendations, if any, of the Planning Board.

Per NCGS §160D-604(d), the Planning Board shall advise and comment on whether the proposed action 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: 11.74

PIN(s): 0722577336

Current Zoning: Rural Residential (RR)

Proposed Zoning: Planned Unit Development-Conditional Zoning (PUD-CZ)

Current 2045 Land Use Map: Office Employment/Commercial Services

If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential/Office Employment/Commercial Services

Town Limits: ETJ

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: 2045 Land Use Map will automatically be amended to be consistent if rezoned.

☑ Apex Transportation Plan

☑ Consistent ☐ Inconsistent Reason:

☑ Parks, Recreation, Open Space, and Greenways Plan

☑ Consistent ☐ Inconsistent Reason:

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 Plan*. 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 Plan.
   ☑ Consistent ☐ Inconsistent Reason: _____

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: _____

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: _____

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: _____

8. *Detrimental to adjacent properties.* Whether the proposed Conditional Zoning (CZ) District use is substantially detrimental to adjacent properties.
   ☑ Consistent ☐ Inconsistent Reason: _____

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: _____

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: _____

Planning Board Recommendation:

Motion: To recommend approval with conditions proposed by applicant.

Introduced by Planning Board member: Ryan Akers

Seconded by Planning Board member: Tina Sherman

☐ *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 proposed by applicant.

☐ *Denial*: the project is not consistent with all applicable officially adopted plans and/or the applicable legislative considerations as noted above.

With 8 Planning Board Member(s) voting "aye"

With 0 Planning Board Member(s) voting "no"

Reasons for dissenting votes:

This report reflects the recommendation of the Planning Board, this the 9th day of May 2022.

Attest:

Reginald Skinner, Planning Board Chair

Dianne Khin Digitally signed by Dianne Khin Date: 2022.05.09 17:51:52 -04'00'

Dianne Khin, Director of Planning and Community Development

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION OF PUBLIC HEARINGS
CONDITIONAL ZONING #22CZ01
Arden at Summit Pines PUD

Pursuant to the provisions of North Carolina General Statutes §1600-602 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 of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant/Authorized Agent: Collier Marsh, FC Apex, LLC.,/Kevin Woodley, Buvemo Investments
Property Address: 8200 Jenks Road
Acreage: ±11.74 acres
Property Identification Number (PIN): 0722577336
Current 2045 Land Use Map Designation: Office Employment/Commercial Services
If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential/Office Employment/Commercial Services
Existing Zoning of Properties: Rural Residential (RR)
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chamber, 2nd Floor
73 Hunter Street, Apex, North Carolina

Planning Board Public Hearing Date and Time: May 9, 2022 4:30 PM

You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov. Please visit https://www.apexnc.org/ on the day of the meeting to confirm whether the meeting will be held in-person or remotely.

If you are unable to attend, you may provide a written statement by email to public.hearing@apexnc.org, or submit it to the clerk of the Planning Board, Jeri Pederson (73 Hunter Street or USPS mail - P.O. Box 250, Apex, NC 27502), at least two business days prior to the Planning Board vote. You must provide your name and address for the record. The written statements will be delivered to the Planning Board prior to their vote. Please include the Public Hearing name in the subject line.

In the event that the Planning Board meeting is held remotely or with at least one member attending virtually, written comments may be submitted up to 24 hours prior to the scheduled time of the meeting per NCGS §166A-19.24 according to the methods specified above. Virtual meetings may be viewed via the Town's YouTube livestream at https://www.youtube.com/c/townofapexgov.

A separate notice of the Town Council public hearing on this project will be mailed and posted in order to comply with State public notice requirements.

Vicinity Map:

Property owners, tenants, and neighborhood associations within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/37927.

Dianne F. Khin, AICP

TOWN OF APEX
PO BOX 250
APEX, NORTH CAROLINA 27502
TELÉFONO 919-249-3426

NOTIFICACIÓN PÚBLICA DE AUDIENCIAS PÚBLICAS
ORDENAMIENTO TERRITORIAL CONDICIONAL #22CZ01
Arden at Summit Pines PUD (Desarrollo de Unidad Planificada)

De conformidad con las disposiciones de los Estatutos Generales de Carolina del Norte §160D-602 y con la Sección 2.2.11 de la Ordenanza de Desarrollo Unificado (UDO) del ayuntamiento de Apex, por la presente se notifican las audiencias públicas ante la Junta de Planificación de Apex. El propósito de estas audiencias es considerar lo siguiente:

Solicitante/ Agente autorizado: Collier Marsh, FC Apex, LLC.,/Kevin Woodley, Buvemo Investments
Dirección de las propiedades: 8200 Jenks Road
Superficie: ±11.74 acres
Números de identificación de las propiedades: 0722577336
Designación actual en el Mapa de Uso Territorial para 2045: Office Employment/Commercial Services
Si se aprueba el cambio de zonificación como se propone, el Mapa de Uso Territorial para el 2045 cambiará a: High Density Residential/Office Employment/Commercial Services
Ordenamiento territorial existente de las propiedades: Rural Residential (RR)
Ordenamiento territorial propuesto para las propiedades: Planned Unit Development-Conditional Zoning (PUD-CZ)

Lugar de la audiencia pública: Ayuntamiento de Apex
Cámara del Consejo, 2º piso
73 Hunter Street, Apex, Carolina del Norte

Fecha y hora de la audiencia pública de la Junta de Planificación: 9 de mayo de 2022 4:30 P.M.
Puede asistir a la reunión de manera presencial o seguir la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov. Por favor visite https://www.apexnc.org/ el día de la reunión para confirmar si la reunión se llevará a cabo de manera presencial o remotamente.

Si no puede asistir, puede enviar una declaración escrita por correo electrónico a public.hearing@apexnc.org, o presentarla a la secretaría de la Junta de Planificación, Jeri Pederson (73 Hunter Street o por correo USPS a P.O. Box 250, Apex, NC 27502), al menos dos días hábiles antes de la votación de la Junta de Planificación. Debe proporcionar su nombre y dirección para que conste en el registro. Las declaraciones escritas se entregarán a la Junta de Planificación antes de la votación. No olvide incluir el nombre de la audiencia pública en el asunto.

En caso de que la reunión de la Junta de Planificación se lleve a cabo remotamente o que por lo menos uno de los miembros asista virtualmente, se permite presentar comentarios por escrito hasta 24 horas antes de la hora programada de la reunión según los estatutos de Carolina del Norte NCGS §166A-19.24 siguiendo los métodos especificados anteriormente. Las reuniones virtuales se pueden seguir en la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov.

De conformidad con los requisitos estatales de notificaciones públicas, se enviará por correo y se publicará por separado una notificación de la audiencia pública del Consejo Municipal sobre este proyecto.

Mapa de las inmediaciones:

Los propietarios, inquilinos y asociaciones de vecinos en un radio de 300 pies del Ordenamiento Territorial Condicional propuesto han recibido esta notificación por correo postal de primera clase. Todas las partes interesadas pueden presentar comentarios sobre la solicitud a través de los medios especificados anteriormente. La ubicación de la propiedad también puede verse aquí: https://maps.raleighnc.gov/imaps. Puede ver el Mapa de Uso Territorial para 2045 aquí: www.apexnc.org/DocumentCenter/View/478. Si tiene preguntas o desea obtener más información, puede comunicarse con el Departamento de Planificación y Desarrollo Comunitario al 919-249-3426. Puede ver la solicitud y otros documentos relacionados aquí: https://www.apexnc.org/DocumentCenter/View/37927.

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION OF PUBLIC HEARINGS

CONDITIONAL ZONING #22CZ01
Arden at Summit Pines PUD

Pursuant to the provisions of North Carolina General Statutes §160D-602 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 of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant/Authorized Agent: Collier Marsh, FC Apex, LLC.,/Kevin Woodley, Buvemo Investments
Property Address: 8200 Jenks Road
Acreage: ±11.74 acres
Property Identification Number (PIN): 0722577336
Current 2045 Land Use Map Designation: Office Employment/Commercial Services
If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential/Office Employment/Commercial Services
Existing Zoning of Properties: Rural Residential (RR)
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chamber, 2nd Floor
73 Hunter Street, Apex, North Carolina

Planning Board Public Hearing Date and Time: May 9, 2022 4:30 PM

You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov. Please visit https://www.apexnc.org/ on the day of the meeting to confirm whether the meeting will be held in-person or remotely.

If you are unable to attend, you may provide a written statement by email to public.hearing@apexnc.org, or submit it to the clerk of the Planning Board, Jeri Pederson (73 Hunter Street or USPS mail - P.O. Box 250, Apex, NC 27502), at least two business days prior to the Planning Board vote. You must provide your name and address for the record. The written statements will be delivered to the Planning Board prior to their vote. Please include the Public Hearing name in the subject line.

In the event that the Planning Board meeting is held remotely or with at least one member attending virtually, written comments may be submitted up to 24 hours prior to the scheduled time of the meeting per NCGS §166A-19.24 according to the methods specified above. Virtual meetings may be viewed via the Town's YouTube livestream at https://www.youtube.com/c/townofapexgov.

A separate notice of the Town Council public hearing on this project will be mailed and posted in order to comply with State public notice requirements.

Vicinity Map:

Property owners, tenants, and neighborhood associations within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/37927.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: April 27 – May 9, 2022

TOWN OF APEX
PO BOX 250
APEX, NORTH CAROLINA 27502
TELÉFONO 919-249-3426

NOTIFICACIÓN PÚBLICA DE AUDIENCIAS PÚBLICAS

ORDENAMIENTO TERRITORIAL CONDICIONAL #22CZ01
Arden at Summit Pines PUD (Desarrollo de Unidad Planificada)

De conformidad con las disposiciones de los Estatutos Generales de Carolina del Norte §160D-602 y con la Sección 2.2.11 de la Ordenanza de Desarrollo Unificado (UDO) del ayuntamiento de Apex, por la presente se notifican las audiencias públicas ante la Junta de Planificación de Apex. El propósito de estas audiencias es considerar lo siguiente:

Solicitante/ Agente autorizado: Collier Marsh, FC Apex, LLC.,/Kevin Woodley, Buvemo Investments
Dirección de las propiedades: 8200 Jenks Road
Superficie: ±11.74 acres
Números de identificación de las propiedades: 0722577336
Designación actual en el Mapa de Uso Territorial para 2045: Office Employment/Commercial Services
Si se aprueba el cambio de zonificación como se propone, el Mapa de Uso Territorial para el 2045 cambiará a: High Density Residential/Office Employment/Commercial Services
Ordenamiento territorial existente de las propiedades: Rural Residential (RR)
Ordenamiento territorial propuesto para las propiedades: Planned Unit Development-Conditional Zoning (PUD-CZ)

Lugar de la audiencia pública: Ayuntamiento de Apex
Cámara del Consejo, 2º piso
73 Hunter Street, Apex, Carolina del Norte

Fecha y hora de la audiencia pública de la Junta de Planificación: 9 de mayo de 2022 4:30 P.M.

Puede asistir a la reunión de manera presencial o seguir la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov. Por favor visite https://www.apexnc.org/ el día de la reunión para confirmar si la reunión se llevará a cabo de manera presencial o remotamente.

Si no puede asistir, puede enviar una declaración escrita por correo electrónico a public.hearing@apexnc.org, o presentarla a la secretaría de la Junta de Planificación, Jeri Pederson (73 Hunter Street o por correo USPS a P.O. Box 250, Apex, NC 27502), al menos dos días hábiles antes de la votación de la Junta de Planificación. Debe proporcionar su nombre y dirección para que conste en el registro. Las declaraciones escritas se entregarán a la Junta de Planificación antes de la votación. No olvide incluir el nombre de la audiencia pública en el asunto.

En caso de que la reunión de la Junta de Planificación se lleve a cabo remotamente o que por lo menos uno de los miembros asista virtualmente, se permite presentar comentarios por escrito hasta 24 horas antes de la hora programada de la reunión según los estatutos de Carolina del Norte NCGS §166A-19.24 siguiendo los métodos especificados anteriormente. Las reuniones virtuales se pueden seguir en la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov.

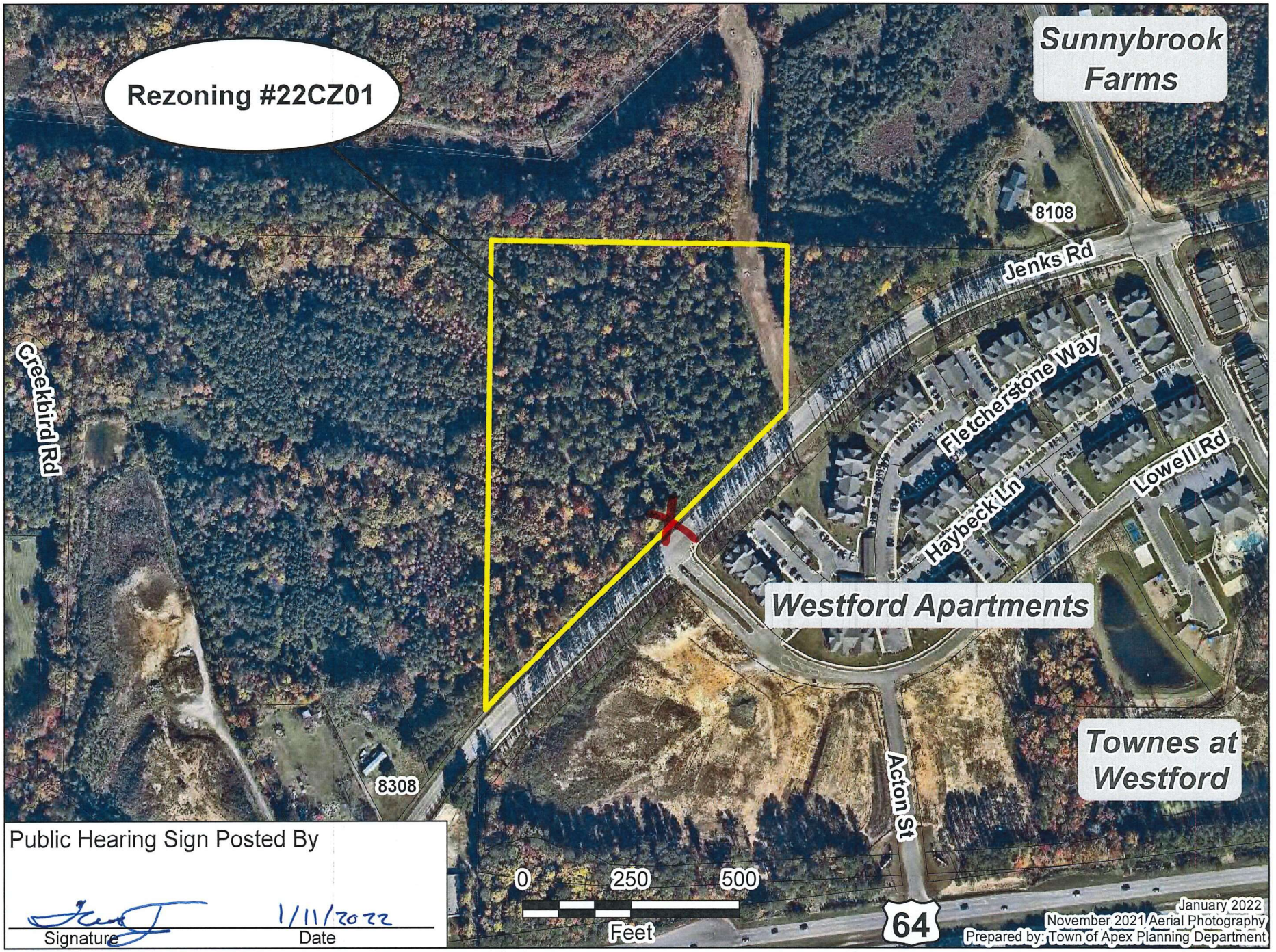
De conformidad con los requisitos estatales de notificaciones públicas, se enviará por correo y se publicará por separado una notificación de la audiencia pública del Consejo Municipal sobre este proyecto.

Mapa de las inmediaciones:

Los propietarios, inquilinos y asociaciones de vecinos en un radio de 300 pies del Ordenamiento Territorial Condicional propuesto han recibido esta notificación por correo postal de primera clase. Todas las partes interesadas pueden presentar comentarios sobre la solicitud a través de los medios especificados anteriormente. La ubicación de la propiedad también puede verse aquí: https://maps.raleighnc.gov/imaps. Puede ver el Mapa de Uso Territorial para 2045 aquí: www.apexnc.org/DocumentCenter/View/478. Si tiene preguntas o desea obtener más información, puede comunicarse con el Departamento de Planificación y Desarrollo Comunitario al 919-249-3426. Puede ver la solicitud y otros documentos relacionados aquí: https://www.apexnc.org/DocumentCenter/View/37927.

Dianne F. Khin, AICP
Directora de Planificación y Desarrollo Comunitario

Fechas de publicación: 27 de abril - 9 de mayo de 2022



Public Hearing Sign Posted By

1/11/2022

Signature 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:	Conditional Zoning #22CZ01 Arden at Summit Pines PUD
Project Location:	8200 Jenks Road
Applicant or Authorized Agent:	Collier Marsh
Firm:	FC Apex, LLC.

This is to certify that I, as Director of Planning and Community Development, mailed or caused to have mailed by first class postage for the above mentioned project on April 27, 2022, 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 and tenants within 300' of the land subject to notification. I further certify that I relied on information from the Wake County Tax Assessor and the Town of Apex Master Address Repository provided to me by Town of Apex GIS Staff as to accuracy and mailing addresses of property owners and tenants within 300' of the land subject to notification.

4/27/2022
Date

Director of Planning and Community Development

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Jeri Chastain-Pederson, a Notary Public for the above State and County, this the 27 day of April, 2022.

JERI CHASTAIN PEDERSON
Notary Public
Wake County, North Carolina
My Commission Expires
March 10, 2024

Jeri Chastain Pederson
Notary Public

My Commission Expires: 03/10/2024

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION
OF PUBLIC HEARINGS
CONDITIONAL ZONING #22CZ01
Arden at Summit Pines PUD

Pursuant to the provisions of North Carolina General Statutes §160D-602 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant/Authorized Agent: Collier Marsh, FC Apex, LLC./Kevin Woodley, Buvemo Investments
Property Address: 8200 Jenks Road
Acreage: ±11.74 acres
Property Identification Number (PIN): 0722577336
Current 2045 Land Use Map Designation: Office Employment/Commercial Services
If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential/Office Employment/Commercial Services
Existing Zoning of Properties: Rural Residential (RR)
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chamber, 2nd Floor
73 Hunter Street, Apex, North Carolina

Comments received prior to the Planning Board public hearing will not be provided to the Town Council. Separate comments for the Town Council public hearing must be provided by the deadline specified below.

Town Council Public Hearing Date and Time: May 24, 2022 6:00 PM

You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov. Please visit www.apexnc.org on the day of the meeting to confirm whether the meeting will be held in-person or remotely.

If you are unable to attend, you may provide a written statement by email to public.hearing@apexnc.org, or submit it to the Office of the Town Clerk (73 Hunter Street or USPS mail - P.O. Box 250, Apex, NC 27502), at least two business days prior to the Town Council vote. You must provide your name and address for the record. The written statements will be delivered to the Town Council members prior to their vote. Please include the Public Hearing name in the subject line.

In the event that the Town Council meeting is held remotely or with at least one member attending virtually, written comments may be submitted up to 24 hours prior to the scheduled time of the meeting per NCGS §166A-19.24 according to the methods specified above. Virtual meetings may be viewed via the Town's YouTube livestream at https://www.youtube.com/c/townofapexgov.

Vicinity Map:

Property owners, tenants, and neighborhood associations within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/37927.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: May 6 - 24, 2022

TOWN OF APEX
PO BOX 250
APEX, NORTH CAROLINA 27502
TELÉFONO 919-249-3426

NOTIFICACIÓN PÚBLICA DE AUDIENCIAS PÚBLICAS
ORDENAMIENTO TERRITORIAL CONDICIONAL #22CZ01
Arden at Summit Pines PUD

De conformidad con las disposiciones de los Estatutos Generales de Carolina del Norte §160D-602 y con la Sección 2.2.11 de la Ordenanza de Desarrollo Unificado (UDO) del ayuntamiento de Apex, por la presente se notifican las audiencias públicas ante el Consejo Municipal del Ayuntamiento de Apex. El propósito de estas audiencias es considerar lo siguiente:

Solicitante/ Agente autorizado: Collier Marsh, FC Apex, LLC./Kevin Woodley, Buvemo Investments
Dirección de las propiedades: 8200 Jenks Road
Superficie: ±11.74 acres
Números de identificación de las propiedades: 0722577336
Designación actual en el Mapa de Uso Territorial para 2045: Office Employment and Commercial Services
Si se aprueba el cambio de zonificación como se propone, el Mapa de Uso Territorial para el 2045 cambiará a: High Density Residential/Office Employment/Commercial Services
Ordenamiento territorial existente de las propiedades: Rural Residential (RR)
Ordenamiento territorial propuesto para las propiedades: Planned Unit Development-Conditional Zoning (PUD-CZ)

Lugar de la audiencia pública: Ayuntamiento de Apex
Cámara del Consejo, 2º piso
73 Hunter Street, Apex, Carolina del Norte

Los comentarios recibidos antes de la audiencia pública de la Junta de Planificación no se proporcionarán al Consejo Municipal. Los comentarios para la audiencia pública del Consejo Municipal deben presentarse por separado en el plazo especificado a continuación.

Fecha y hora de la audiencia pública del Consejo Municipal: 24 de mayo de 2022 6:00 P.M.
Puede asistir a la reunión de manera presencial o seguir la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov. Por favor visite www.apexnc.org el día de la reunión para confirmar si la reunión se llevará a cabo de manera presencial o remotamente.

Si no puede asistir, puede enviar una declaración escrita por correo electrónico a public.hearing@apexnc.org, o presentarla a la oficina del Secretario Municipal (73 Hunter Street o por correo USPS a P.O. Box 250, Apex, NC 27502), al menos dos días hábiles antes de la votación del Consejo Municipal. Debe proporcionar su nombre y dirección para que conste en el registro. Las declaraciones escritas se entregarán al Consejo Municipal antes de la votación. No olvide incluir el nombre de la audiencia pública en el asunto.

En caso de que la reunión del Consejo Municipal se lleve a cabo remotamente o que por lo menos uno de los miembros asista virtualmente, se permite presentar comentarios por escrito hasta 24 horas antes de la hora programada de la reunión según los estatutos de Carolina del Norte NCGS §166A-19.24 siguiendo los métodos especificados anteriormente. Las reuniones virtuales se pueden seguir en la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov.

Mapa de las inmediaciones:

Los propietarios, inquilinos y asociaciones de vecinos en un radio de 300 pies del Ordenamiento Territorial Condicional propuesto han recibido esta notificación por correo postal de primera clase. Todas las partes interesadas pueden presentar comentarios sobre la solicitud a través de los medios especificados anteriormente. La ubicación de la propiedad también puede verse aquí: https://maps.raleighnc.gov/imaps. Puede ver el Mapa de Uso Territorial para 2045 aquí: www.apexnc.org/DocumentCenter/View/478. Si tiene preguntas o desea obtener más información, puede comunicarse con el Departamento de Planificación y Desarrollo Comunitario al 919-249-3426. Puede ver la solicitud y otros documentos relacionados aquí: https://www.apexnc.org/DocumentCenter/View/37927.

Dianne F. Khin, AICP
Directora de Planificación y Desarrollo Comunitario

Fechas de publicación: 6 de mayo - 24 de mayo de 2022

TOWN OF APEX
POST OFFICE BOX 250
APEX, NORTH CAROLINA 27502
PHONE 919-249-3426

PUBLIC NOTIFICATION OF PUBLIC HEARINGS

CONDITIONAL ZONING #22CZ01
Arden at Summit Pines PUD

Pursuant to the provisions of North Carolina General Statutes §160D-602 and to the Town of Apex Unified Development Ordinance (UDO) Section 2.2.11, notice is hereby given of public hearings before the Town Council of the Town of Apex. The purpose of these hearings is to consider the following:

Applicant/Authorized Agent: Collier Marsh, FC Apex, LLC./Kevin Woodley, Buvemo Investments
Property Address: 8200 Jenks Road
Acreage: ±11.74 acres
Property Identification Number (PIN): 0722577336
Current 2045 Land Use Map Designation: Office Employment/Commercial Services
If rezoned as proposed, the 2045 Land Use Map Designation will change to: High Density Residential/Office Employment/Commercial Services
Existing Zoning of Properties: Rural Residential (RR)
Proposed Zoning of Properties: Planned Unit Development-Conditional Zoning (PUD-CZ)

Public Hearing Location: Apex Town Hall
Council Chamber, 2nd Floor
73 Hunter Street, Apex, North Carolina

Comments received prior to the Planning Board public hearing will not be provided to the Town Council. Separate comments for the Town Council public hearing must be provided by the deadline specified below.

Town Council Public Hearing Date and Time: May 24, 2022 6:00 PM

You may attend the meeting in person or view the meeting through the Town's YouTube livestream at: https://www.youtube.com/c/townofapexgov. Please visit www.apexnc.org on the day of the meeting to confirm whether the meeting will be held in-person or remotely.

If you are unable to attend, you may provide a written statement by email to public.hearing@apexnc.org, or submit it to the Office of the Town Clerk (73 Hunter Street or USPS mail - P.O. Box 250, Apex, NC 27502), at least two business days prior to the Town Council vote. You must provide your name and address for the record. The written statements will be delivered to the Town Council members prior to their vote. Please include the Public Hearing name in the subject line.

In the event that the Town Council meeting is held remotely or with at least one member attending virtually, written comments may be submitted up to 24 hours prior to the scheduled time of the meeting per NCGS §166A-19.24 according to the methods specified above. Virtual meetings may be viewed via the Town's YouTube livestream at https://www.youtube.com/c/townofapexgov.

Vicinity Map:

Property owners, tenants, and neighborhood associations within 300 feet of the proposed conditional zoning have been sent this notice via first class mail. All interested parties may submit comments with respect to the application by the means specified above. In addition to the above map, the location of the property may be viewed online at https://maps.raleighnc.gov/imaps. The 2045 Land Use Map may be viewed online at www.apexnc.org/DocumentCenter/View/478. You may call 919-249-3426, Department of Planning and Community Development, with questions or for further information. To view the petition and related documents on-line: https://www.apexnc.org/DocumentCenter/View/37927.

Dianne F. Khin, AICP
Director of Planning and Community Development

Published Dates: May 6 - 24, 2022

TOWN OF APEX
PO BOX 250
APEX, NORTH CAROLINA 27502
TELÉFONO 919-249-3426

NOTIFICACIÓN PÚBLICA DE AUDIENCIAS PÚBLICAS

ORDENAMIENTO TERRITORIAL CONDICIONAL #22CZ01
Arden at Summit Pines PUD

De conformidad con las disposiciones de los Estatutos Generales de Carolina del Norte §160D-602 y con la Sección 2.2.11 de la Ordenanza de Desarrollo Unificado (UDO) del ayuntamiento de Apex, por la presente se notifican las audiencias públicas ante el Consejo Municipal del Ayuntamiento de Apex. El propósito de estas audiencias es considerar lo siguiente:

Solicitante/ Agente autorizado: Collier Marsh, FC Apex, LLC./Kevin Woodley, Buvemo Investments
Dirección de las propiedades: 8200 Jenks Road
Superficie: ±11.74 acres
Números de identificación de las propiedades: 0722577336
Designación actual en el Mapa de Uso Territorial para 2045: Office Employment and Commercial Services
Si se aprueba el cambio de zonificación como se propone, el Mapa de Uso Territorial para el 2045 cambiará a: High Density Residential/Office Employment/Commercial Services
Ordenamiento territorial existente de las propiedades: Rural Residential (RR)
Ordenamiento territorial propuesto para las propiedades: Planned Unit Development-Conditional Zoning (PUD-CZ)

Lugar de la audiencia pública: Ayuntamiento de Apex
Cámara del Consejo, 2º piso
73 Hunter Street, Apex, Carolina del Norte

Los comentarios recibidos antes de la audiencia pública de la Junta de Planificación no se proporcionarán al Consejo Municipal. Los comentarios para la audiencia pública del Consejo Municipal deben presentarse por separado en el plazo especificado a continuación.

Fecha y hora de la audiencia pública del Consejo Municipal: 24 de mayo de 2022 6:00 P.M.

Puede asistir a la reunión de manera presencial o seguir la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov. Por favor visite www.apexnc.org el día de la reunión para confirmar si la reunión se llevará a cabo de manera presencial o remotamente.

Si no puede asistir, puede enviar una declaración escrita por correo electrónico a public.hearing@apexnc.org, o presentarla a la oficina del Secretario Municipal (73 Hunter Street o por correo USPS a P.O. Box 250, Apex, NC 27502), al menos dos días hábiles antes de la votación del Consejo Municipal. Debe proporcionar su nombre y dirección para que conste en el registro. Las declaraciones escritas se entregarán al Consejo Municipal antes de la votación. No olvide incluir el nombre de la audiencia pública en el asunto.

En caso de que la reunión del Consejo Municipal se lleve a cabo remotamente o que por lo menos uno de los miembros asista virtualmente, se permite presentar comentarios por escrito hasta 24 horas antes de la hora programada de la reunión según los estatutos de Carolina del Norte NCGS §166A-19.24 siguiendo los métodos especificados anteriormente. Las reuniones virtuales se pueden seguir en la transmisión en directo por YouTube a través del siguiente enlace: https://www.youtube.com/c/townofapexgov.

Mapa de las inmediaciones:

Los propietarios, inquilinos y asociaciones de vecinos en un radio de 300 pies del Ordenamiento Territorial Condicional propuesto han recibido esta notificación por correo postal de primera clase. Todas las partes interesadas pueden presentar comentarios sobre la solicitud a través de los medios especificados anteriormente. La ubicación de la propiedad también puede verse aquí: https://maps.raleighnc.gov/imaps. Puede ver el Mapa de Uso Territorial para 2045 aquí: www.apexnc.org/DocumentCenter/View/478. Si tiene preguntas o desea obtener más información, puede comunicarse con el Departamento de Planificación y Desarrollo Comunitario al 919-249-3426. Puede ver la solicitud y otros documentos relacionados aquí: https://www.apexnc.org/DocumentCenter/View/37927.

Dianne F. Khin, AICP
Directora de Planificación y Desarrollo Comunitario

Fechas de publicación: 6 de mayo - 24 de mayo de 2022

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:	Conditional Zoning #22CZ01 Arden at Summit Pines PUD
Project Location:	8200 Jenks Road
Applicant or Authorized Agent:	Collier Marsh
Firm:	FC Apex, LLC.

This is to certify that I, as Director of Planning and Community Development, mailed or caused to have mailed by first class postage for the above mentioned project on May 6, 2022, 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 and tenants within 300' of the land subject to notification. I further certify that I relied on information from the Wake County Tax Assessor and the Town of Apex Master Address Repository provided to me by Town of Apex GIS Staff as to accuracy and mailing addresses of property owners and tenants within 300' of the land subject to notification.

5/9/2022
Date

Director of Planning and Community Development

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Jeri Chastain Pederson a Notary Public for the above State and County, this the 9 day of May, 2022.

JERI CHASTAIN PEDERSON
Notary Public
Wake County, North Carolina
My Commission Expires
March 10, 2024

SEAL

Jeri Chastain Pederson
Notary Public

My Commission Expires: 3/10/2024