To: Board of Commissioners  Planning Board

From: Jeremiah Combs, Planner

Date: July 8, 2022

Re: PD #2022-4  Pace Development Group  Parcel ID# 51877, 02664, and 02482

The following information is for use by the Lincoln County Board of Commissioners and the Planning Board at their joint meeting/public hearing on November 7th.

Request

The applicant is requesting the rezoning of 113.27 acres from R-T (Transitional Residential) to PD-R (Planned Development-Residential) to permit a subdivision with up to 199 single-family detached homes. Under the Lincoln County Unified Development Ordinance, any proposed subdivision with 50 or more lots is subject to approval through the planned development process. The applicant is also proposing lots smaller in size than the minimum area permitted in the R-T district. A concept plan and a PD-R report with terms and conditions for the proposed development have been submitted as part of the rezoning application and would serve as the master plan for the development if the rezoning request is approved. The PD-R report includes commitments by the applicant to provide certain traffic improvements. The improvements are based on a traffic impact analysis that is included with the application. In addition, the applicant has provided minutes from a community involvement meeting that was held on June 29, 2022.

Site Area and Description

The subject property is located on the west side of N. Little Egypt Road at the intersection with Optimist Club Road in Catawba Springs Township. The property is adjoined by the Creek Park subdivision to the south and the Verdict Ridge subdivision to the west. The property is also adjoined by various parcels zoned R-T (Transitional Residential) and R-SF (Residential Single-Family). Land uses in this area include residential, recreational, and civic uses.
Public Utilities

The applicant is proposing to serve the development with public water and public sewer. The applicant has been advised that Lincoln County currently could not allocate sewer capacity for the proposed development.

Land Use Plan and UDO Conformance

The subject property is part of an area designated by the Lincoln County Land Use Plan as Single-Family Neighborhood, suitable for densities up to 2.0 dwelling units per acre. The proposed density for this development is 1.76 units per acre.

The UDO requires that a planned development include a minimum of 12.5% recreation and open space. Approximately 54% of the acreage in this proposed development would be reserved as recreation and open space. The proposed master plan complies with the planned development standards for a 20-foot undisturbed project boundary buffer and external sidewalks. The proposed master plan also complies with the UDO’s subdivision standards for internal sidewalks and street trees.

The applicant is requesting waivers from the subdivision standards in Section 5.4.4.C and Section 5.4.11.B of the Unified Development Ordinance, to permit an internal road connectivity ratio less than 1.4 and to permit a cul-de-sac longer than 1000 feet. Pursuant to authority vested in Section 9.6.9 of the UDO, the Planning Board will hold an evidentiary hearing on the requested waivers.
PART I
Applicant Name: Brian Pace, Pace Development Group
Applicant Address: 6719-C Fairview Road, Charlotte, NC 28210
Applicant Phone Number: 704-365-1208
Property Owner Name: Ventosa Group, LLC & East Lincoln Land Company, Inc.
Property Owner Address: PO Box 9, Lincolnton NC 28093
Property Owner Phone Number: 704-560-9576 & 980-721-1527

PART II
Property Location: Western section of Lincoln County off of Little Egypt Road north of NC73 and west of NC16.
Property ID (10 digits): 3693635420, 369375039, 3693758542
Property size: 113.27 acres
Parcel # (5 digits): 51877, 02664, 02482
Deed Book(s): 2640, 1069
Page(s): 376, 122

PART III
Existing Zoning District: R-T
Proposed Zoning District: PD-R

Briefly describe how the property is being used and any existing structures.
The property consists of wooded land with an existing gas substation.

Briefly described the proposed planned development.
Little Egypt Road Subdivision is a proposed master planned single family residential community consisting of single family detached homes.

*SEE PLANNING DEPT. FOR PLANNED DEVELOPMENT FEES.*

I hereby certify that all knowledge of the information provided for this application and attachments is true and correct to the best of my knowledge.

Applicant's Signature: ___________________________ Date: 6-1-2022
UNITY PRESERVE SUBDIVISION
PD-R REPORT
LITTLE EGYPT ROAD
LINCOLN COUNTY, NC

1. PROJECT INFORMATION

Unity Preserve Subdivision is a proposed single family residential community consisting of single family detached homes on an approximately 113.27 acre site on the west side of Little Egypt Road (see Preliminary Development Rezoning Plan). The project will include Parcel ID numbers 3693635420, 3693755039 & 3693758542. The current plan features a total of up to 199 single family lots with a density of up to 1.77 units per acre.

Access to the site will be from Little Egypt Road, as generally depicted on the Preliminary Development Rezoning Plan. Land uses surrounding the site consist of single family residential homes. The Preliminary Development Rezoning Plan with vicinity map is included for reference.

A key feature of the proposed community will be the ample open spaces, existing streams, and the community walking paths. Approximately +/- 50% of the site will be left undeveloped as natural buffer area and/or passive and active open space.

The property is currently zoned R-T. Proposed zoning will be PD-R. The property is not located in a regulated watershed, so density is not limited.

2. GENERAL PROVISIONS

The Preliminary Development Rezoning Plan is intended to reflect a generalized arrangement of the site in terms of lot layout, street network, and open space areas. Final lot configuration, placement and size of the individual site elements, streets alignments, etc. may be altered or modified within the limits of the Lincoln County Unified Development Ordinance and the standards established within these conditional notes during the design development (platting) and construction documentation phases. The Petitioner reserves the right to make minor modifications and adjustments to the approved Preliminary Development Rezoning Plan, including minor reconfiguration of lots and street layout, subject to staff approval, provided that the total number of residential units does not exceed the maximum permitted. Any major modifications will require resubmittal to the Board of Commissioners per section 9.5.12 of the UDO.

3. DEVELOPMENT STANDARDS

Pursuant to Sections 2.4.9 and 9.5 of the Lincoln County Unified Development Ordinance entitled Planned Development Districts and Planned Development Review respectively; the Petitioner seeks to obtain approval of the use of the following Development Standards concurrently with the approval of the Rezoning Petition. These standards, as established both by the conditional notes as set out below and as depicted on the Preliminary Development Rezoning Plan shall be followed for the development of the property. Unless otherwise approved as part of these conditional notes, the Lincoln County Unified Development Ordinance shall prevail when developing the site.
Each home shall contain no less than 2 different materials on front elevations exclusive of trim. These materials may consist of brick, stucco, stone, architectural concrete, cement fiber board, vinyl siding, wood, or shakes.

A. PERMITTED USES

1) The project shall be limited to detached single family residential dwellings along with any incidental or accessory uses and amenity.

2) Uses on the Common Open Space (COS) may include pool, clubhouse, landscaping, fences, walls, berms, pedestrian trails, recreational uses, entry signage, monuments, and storm water BMPs (if required).

B. DENSITY

Gross residential density for the project will not exceed 1.76 units per acre with curb and gutter streets. Open space areas shall be included in the calculations for gross residential density.

C. LOT STANDARDS

Residential lots will have the following minimum setbacks:

- Front Minimum Setback: 30 feet
- Garage Minimum Setback: 20 feet (from right of way)
- Side Minimum Setback: Aggregate 10 feet building separation
- Side Corner Minimum Setback: 10 feet
- Rear Minimum Setback: 30 feet

Building height shall be limited to 40 feet. Lot platting will meet Lincoln County subdivision regulations.

Overhanging roof, eave, gutter, chimneys, bay windows, cornice or other architectural features and awnings may extend into required yards in conjunction with yard encroachments discussed in section 2.6.10.B in the UDO.

D. GENERAL SITE DESIGN

The following items are offered as part of this development:

1) Streets within the subdivision shall be designed per NCDOT standards. Public roadways will be dedicated to NCDOT for maintenance once density requirements are met. Private roadways will be maintained by the homeowner’s association.

2) The project will contain the following amenity features. These proposed amenities will be installed prior to the recording of the plat for Phase 2.
   a. Landscape areas
   b. Enhanced entry
   c. Natural pedestrian soft surface trails along the creek and throughout the development.
d. A signage plan shall be submitted at the time construction drawings are prepared for the first section of the development. Signage shall conform to standards of the Lincoln County Unified Development Ordinance. Signage shall be monumentation constructed of stone or brick material with integrated fencing or other similar mixture of materials at the petitioner's discretion, which complement the architectural characteristics of the neighborhood.

3) The proposed development includes a 20’ buffer around the perimeter of the project per section 3.4.6 of the UDO. A minimum of a 50’ common open space buffer with 20’ vegetated buffer will be provided around the property perimeter as shown on the Preliminary Development Rezoning Plan. This perimeter buffer will be supplemented with evergreen plantings where there are gaps in remaining existing vegetation. Existing vegetation will be used to meet the buffer requirements where possible.

4) Canopy street trees, with a minimum of 1.5 inch caliper at time of planting, shall be placed at the rate of one canopy tree per lot or one canopy tree for every 40 linear feet (spaced a maximum of 50 feet apart) along both sides of the proposed streets. Driveway locations and street intersections may vary the placement of street trees.

5) Decorative lighting shall be used throughout the project.

6) Mailbox kiosks will be located and reviewed by the Postmaster.

7) Telephone, cable TV, electricity, and natural gas will be provided by local utility companies. Utilities within the community shall be placed underground. The main feed lines and transformers from the main road may be located above ground.

8) Garbage collection will be provided by a private service and included in homeowner association dues.

9) Open Space
   a. The project will exceed the minimum 12.5% common open space requirement by offering a minimum of +/-50% common open space in the development. Common open space will be provided as generally depicted on the Preliminary Development Rezoning Plan. A portion of the open space will be active open space.
   b. The project will offer a 50 ft wide perimeter common open space buffer with 20 ft wide Class B undisturbed/planted buffers as required by the Lincoln County UDO.

E. STORMWATER COMPLIANCE

The development will be subject to Lincoln County’s storm water management regulations in place at the time of preliminary plat submittal. Storm water BMPs are currently not proposed but will be used if required by 401/404 state permits. Stream buffers shall be provided along all jurisdictional streams in accordance with NCDEQ and Lincoln County requirements.

The Petitioner will work with staff to provide a thorough explanation on how site stormwater will be managed on site in an effort to mitigate off site run off during peak storm events.
F. ESTABLISHMENT OF A HOME OWNERS ASSOCIATION

A Home Owners Association shall be established and will be responsible for maintaining all rights-of-way, landscaping, signs, amenity features, storm water BMPs (if required), trails and common open space areas. The documents covering the structure of the association shall be filed with the recorded final plat.

G. RESTRICTIVE COVENANTS

Restrictive Covenants will be created and recorded prior to final plat recordation, to establish, among other items, permitted uses and maintenance responsibility of the homeowners association. Restrictive covenants will include language that ensures stream buffers, perimeter buffers, and setback areas are protected.

H. VEHICULAR ACCESS AND ROAD IMPROVEMENTS

Vehicular access: Access will be provided via two main entrances along Little Egypt Road as generally depicted on the Preliminary Development Rezoning Plan. The local residential streets will have a 50’ right-of-way with a minimum of a five-foot sidewalk and six foot planting median on one side of the street only as depicted on the Preliminary Development Rezoning Plan. Access locations depicted on the Preliminary Development Rezoning Plan are subject to NCDOT approval and may be modified as needed to meet NCDOT requirements.

Emergency access is provided for the Phase 2 area to meet emergency vehicular access requirements. A minimum 20 ft wide all weather access will be provided.

Improvements to Existing Roads: A Traffic Impact Study (TIS) has been prepared for this project and is in the process of being reviewed by NCDOT. Improvements by developer required by NCDOT will be installed per their requirements. Improvements will be installed prior to recording of Phase 1. Below is a list of the improvements detailed in the TIS. Some of these improvements are recommended below to accommodate the site trips and mitigate existing and projected deficiencies in the future No Build Conditions. These improvements are necessitated by the collective impacts of the background traffic growth, off-site developments, and site trips. In the event that individual off-site developments are delayed or canceled, the roadway improvements may be re-evaluated as the traffic demands may differ from those analyzed in this study.

North Little Egypt Road and Proposed Access A (Southern Main Entrance Drive):

- Construct Proposed Access A with one ingress lane and one egress lane (a combined eastbound left-right turn lane).
- Construct a northbound left turn lane on North Little Egypt Road with 100 feet of storage and appropriate taper length.

North Little Egypt Road and Proposed Access B (Northern Main Entrance Drive):

- Construct Proposed Access B with one ingress lane and one egress lane (a combined eastbound left-right turn lane).
- Construct a northbound left turn lane on North Little Egypt Road with 100 feet of storage and appropriate taper length.
North Little Egypt Road and Optimist Club Road:

- Construct a separate westbound turn lane on Optimist Club Road with 100 feet of storage and appropriate taper length.

I. PERMITTING

The Petitioner understands that all permits from Lincoln County and appropriate agencies must be obtained prior to grading or construction activities.

J. CONSTRUCTION SCHEDULE AND PHASING

This proposed residential community shall be constructed in two (2) phases, and phase lines are preliminarily identified on the Preliminary Development Rezoning Plan. Construction of infrastructure will begin in early 2023. The subsequent second phase will be completed within an additional two years given favorable market conditions.

K. MODEL HOMES / SALES OFFICES

Model homes may be constructed within residential areas. Mobile temporary sales offices shall be allowed at the developer’s discretion and shall be subject to any special permits required by Lincoln County.

L. WATER AND SEWER AVAILABILITY

The Petitioner understands that water and sewer availability must be approved by Lincoln County prior to development. It is the Petitioner’s responsibility to incur all permit fees, availability fees, infrastructure costs for providing the water and sewer throughout the project for all buildings.

Water is available along North Little Egypt Road. Relocation of the existing water line along the property frontage may be required due to lane widening for turn lanes. Any water line relocation will be coordinated with Lincoln County and NCDOT.

Gravity sewer is available along Killian Creek through an existing 15-inch diameter trunk line. Based on evaluation of existing as-built information, the existing gravity sewer line has sufficient capacity to handle the additional flow from this subdivision. Sanitary sewer easements to the trunk line have been obtained to the property line and are transferable to Lincoln County.

All utility installation will be performed in accordance with County standards.

M. APPLICABLE ORDINANCES & PLANS

Development will be subject to the standards and requirements of the Lincoln County UDO in effect at the date of submission of the application for rezoning. The development is also subject to the Lincoln County Land Use Plan and recommendations thereof.
N. BINDING EFFECT

All conditions applicable to the development of the property approved with this rezoning, unless amended by the manner provided in the UDO, shall be binding to the Petitioner and subsequent owners of the site and their assignees.

O. AMENDMENTS TO THE APPROVED CONDITIONAL DISTRICT PLAN

It is understood that the owner of the property must apply for any future amendments to the Development Standards, Conditional Notes and in accordance to the provisions of the UDO.
Parcel ID # 51877, 02664, & 02482

- Property Location(s)

See Attached Application for Parcel Information
Land Use Plan
- Open Space (OS)
- Rural Living (RL)
- Industrial Center (IC)
- Large Lot Residential (LLR)
- Single-Family Neighborhood (SFN)
- Multifamily Neighborhood (MFN)
- Rural Crossroads (RC)
- Suburban Commercial (SC)
- Suburban Office (SO)
- Special District (SD)
- Walkable Neighborhood (WN)
- Walkable Activity Center (WC)
- Town Home Community (THC)

Parcel ID # 51877, 02664, & 02482
- Property Location(s)

See Attached Application for Parcel Information
UNITY PRESERVE
COMMUNITY MEETING SUMMARY
JUNE 29, 2022
6:30 pm – 8:00 pm

PUBLIC NOTICE:
Lincoln County advertised a written notice of the date, time and location of the Community Meeting to area residents.

DATE, TIME AND LOCATION OF MEETING:
The Community Meeting for Unity Preserve was held on Wednesday, June 29, 2022 from 6:30 p.m. to 8:00 p.m at the East Lincoln Community Center at 8160 Optimist Club Road, Denver, NC 28137.

PERSONS IN ATTENDANCE AT MEETING:
The Community Meeting was attended by approximately 55 persons. The attendees included residential neighbors in the area as well as a Planning Board member and previous commissioner.

INTRODUCTION & SUMMARY OF PROJECT:
Items presented at the Neighborhood Meeting included a PowerPoint presentation (Exhibit A).

DISCUSSION POINTS & QUESTIONS RAISED BY MEETING PARTICIPANTS:
- The Community Meeting was held in order to update neighbors about the project and timing of next steps.
- Pace Development has filed a rezoning application with Lincoln County to rezone the property from RT to PD-R that would allow for the development of a single-family residential community. The project would include up to 199 homes. The proposed density for the site is about 1.76 Dwelling Units/Acre.
- The initial rezoning application was filed with the County on June 2, 2022.
- Mr. Pace introduced the team and gave a background of Pace Development.
- Mr. Pace presented some architectural design concepts.
- Mr. Pace presented an aerial image of the property, future land use map, illustrative plan, and rezoning plan.
- Mr. Pace gave an overview of the rezoning plan with proposed density and open space percentage.
- Mr. Pace provided a list of area developments and their densities that ranged from 1.79 to 2.6 units per acre.
- Mr. Pace provided an overview of the required road improvements per the TIA which includes left turn lanes at the two entrances and a left turn lane on Optimist Club Road at N. Little Egypt Road.
- The Pace Team was made available for questions following the presentation.
- The questions from attendees included:
  1. Eddie and Scott Knox of Verdict Ridge asked about how Pace would be handing off the storm systems on the project. They were especially concerned because they had some fairway damage after a heavy rain event caused massive erosion from the
Meritage site. I explained we would take our storm pipe exits and velocities into special consideration. Possibly adding energy slowing mechanisms like level spreaders, etc. at the end of our flared end. I also assured them we would stay better on top of our erosion control measures.

2. A resident from Verdict Ridge asked about controlling traffic on Little Egypt. Mr. Pace responded that Pace would be following our traffic study for all the improvements recommended.

3. A resident from the Creek Park community that asked about spacing of homes from their cul-de-sac homes. Mr. Pace scaled off the plan and responded that the project was well over 500 ft apart across the ravine.

4. A resident asked price points of homes.

5. A member of the Planning Board that attended commented that he really liked our vision and said if Pace was doing everything described he thought it would be a great community for the County.

6. A few residents also asked for distances of the project from their property.

7. A resident asked about connection from Creek Park to Unity Preserve. Due to the significant topo, environmental concerns with a stream crossing, as well as future power line easement, there would not be a connection.
EXHIBIT A

COMMUNITY MEETING PRESENTATION
UNITY PRESERVE
AGENDA

I. TEAM INTRODUCTION

II. ABOUT PACE

III. UNITY PRESERVE
INTRODUCTION

- **Pace Development**
  - Brian Pace
  - Susan Foster
  - Eric Smith
  - David Faulkner

- **ESP Associates – Land Planning / Rezoning / Civil Engineering**
  - Larry Mazzella
  - Dan Brewer
• Pace has been a locally owned and operated family business since 1995.

• Our team has created countless communities across Mecklenburg, Cabarrus, Lincoln and Union County. Creating well over 25,000 homes over our 30 year history. This includes a long list of award winning neighborhoods such as Skybrook in Huntersville, High Gate in Weddington and Lawson in Waxhaw.

• Pace understands family commitment and has great respect for the rich history of any area we create family communities within.

• We plan our communities for quality of life, not maximum density. We focus on Open space enjoyment. Our communities typically include lifestyle-enhancing amenities, green spaces, walking trails and natural escapes which offer our neighbors places to exercise and actively explore.
Pace has a long history of creating communities in Lincoln County as well.

Pace helped create the communities of Trilogy at Lake Norman for Shea Homes, Farms at Ingleside for DR Horton Homes and is in the process of helping create the neighborhood of Carrington for Eastwood Homes.

Today we bring you our first Pace Development signature community: Unity Preserve.

Through our meticulous land planning processes we attempt to keep grading and clearing activity to a minimum. With this focus on the engineering details, we have been able to create communities and homes which appear to have been “planted” not “bull dozed” into the landscape.

Our community design also focuses on a commitment to sustainable investment for our family’s futures as well. We do this through well planned architecture and homes built to last for generations to come. We hand pick our builder partners and are intimately involved in the architectural design of any community.
ARCHITECTURAL DESIGN CONCEPTS
SITE LOCATION AND AERIAL

- Site Acreage:
  - +/-113.27 Acres
- Existing Zoning:
  - R-T
- Proposed Zoning:
  - PD-R
FUTURE LAND USE MAP: SURROUNDING AREA

- Adopted Land Use Plan permits up to 2 units per acre.
LAND PLANNING DETAILS

Planning Details
• Total Acres: +/-114 acres
• Existing Zoning: R-T
• Proposed Zoning: PD-R

• Total # Lots: up to 199 lots
  • 70’ lots = +/- 23 estate homesites
  • 55’ lots = +/- 176 homesites

• DUA = 1.76 DUA

• Setbacks: 30’ Front/Rear  5’ Side (10’ corner side)

Open Space:
• Required Open Space: +/- 14.526 Acres (12.5%) Min.
• Proposed Open Space: +/- 61.47 Acres (54.3%)
• Buffers: 50’ Buffer where lots run along Little Egypt Road
• Street trees on each side of the street.
Nearby Projects

- **KILLIAN CREEK**
  - 59 Lots
  - 2.27 DU/Acre
  - 25% Common Open Space

- **CREEK PARK**
  - 170 Lots
  - 2.00 DU/Acre
  - 25% Common Open Space

- **THE FARMS AT INGLESIDE**
  - 283 Lots
  - 2.15 DU/Acre
  - 32.9% Common Open Space

- **CANOPY CREEK**
  - 152 Lots
  - 2.6 DU/Acre
  - 25% Common Open Space

- **BELLA VISTA**
  - 220 Lots
  - 1.79 DU/Acre
  - 51.4% Common Open Space
TRAFFIC STUDY

Site Access A
- Construct a northbound left-turn lane on N. Little Egypt Road with 100ft of storage.

Site Access B
- Construct a northbound left-turn lane on N. Little Egypt Road with 100ft of storage.

Optimist Club Road at N. Little Egypt Road
- Construct a westbound left-turn lane on Optimist Club Road with 100ft of storage.
WELCOME TO UNITY PRESERVE!

ANY QUESTIONS?
TRAFFIC IMPACT ANALYSIS
N. LITTLE EGYPT

N. Little Egypt Road south of Optimist Club Road

Denver, North Carolina

for

Pace Development Group

May 2022

456-009 (C-2165)
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EXECUTIVE SUMMARY

Pace Development Group is proposing to construct a residential development with 215 Single-Family lots located on west of N. Little Egypt Road and south of Optimist Club Road in Denver, North Carolina. The development is anticipated to be completed in 2027. Therefore, this study evaluates the buildout year 2027.

This report provides analysis of the traffic operations within the area of influence, according to the standards set by the North Carolina Department of Transportation’s (NCDOT) “Policy on Street and Driveway Access to North Carolina Highways, Chapter 4 Part C” and the Lincoln County’s Transportation Impact Analysis Procedures Manual requirements. It provides intersection improvements needed for mitigating traffic impacts. This study evaluates the following scenarios:

- Existing Conditions
- 2027 No Build Conditions
- 2027 Build Conditions
- 2037 Build + 10 Conditions

The area of influence as indicated by NCDOT, and Lincoln County staff includes the following two existing intersections and two proposed access locations:

1. NC 73 & N. Little Egypt Road (Signalized)
2. N. Little Egypt Road & Optimist Club Road (Unsignalized)
3. N. Little Egypt Road & Proposed Access “A” (Unsignalized)
4. N. Little Egypt Road & Proposed Access “B” (Unsignalized)

According to the latest site plan by ESP Associates, Inc. (see Preliminary Concept Plan B), access to the project is expected to occur via two full movement access locations on N. Little Egypt Road:

- Proposed Access “A” (Full Movement) – unsignalized access located on N. Little Egypt Road approximately 2,970 feet south of Optimist Club Road
- Proposed Access “B” (Full Movement) – unsignalized access located on N. Little Egypt Road approximately 1,170 feet south of Optimist Club Road

The trip generation results indicate that the site is expected to generate 158 AM peak hour trips and 212 PM peak hour trips.

With the results of our analyses (the specifics are described in the Traffic Analysis section of this report) we suggest the following improvements/modifications at the study intersections/ proposed accesses:
2027 Build Results/Suggested Recommendations:

When comparing the results of the 2027 No Build traffic and the 2027 Build traffic, one of the two existing study intersections are within the allowable parameters during both peak hours.

1. NC 73 & N. Little Egypt Road (Signalized)
   - No suggested improvements

2. N. Little Egypt Road & Optimist Club Road (Unsignalized)
   - Construct a separate westbound left turn lane on Optimist Club Road with 100 feet of storage

3. N. Little Egypt Road & Access “A” (Unsignalized)
   We propose the following access configuration:
   - One ingress lane and one egress lane (a combined eastbound left-right turn lane) on proposed Access “A”
   - Construct a northbound left-turn lane on N. Little Egypt Road with 100 feet of storage

4. N. Little Egypt Road & Access “B” (Unsignalized)
   We propose the following access configuration:
   - One ingress lane and one egress lane (a combined eastbound left-right turn lane) on proposed Access “B”
   - Construct a northbound left-turn lane on N. Little Egypt Road with 100 feet of storage

In summary, the N. Little Egypt site will increase the amount of traffic on the adjacent roadways, the suggested intersection improvement and proposed access configurations will mitigate the additional site generated trips on the area roadways and improve the conditions for the traveling public as well as the future residents of the proposed residential community.
PROPOSED DEVELOPMENT

Pace Development Group is proposing to construct a residential development with 215 Single-Family lots located on west of N. Little Egypt Road and south of Optimist Club Road in Denver, North Carolina. The development is anticipated to be completed in 2027. Therefore, this study evaluates the buildout year 2027.

According to the latest site plan by ESP Associates, Inc. (see Preliminary Concept Plan B), access to the project is expected to occur via two full movement access locations on N. Little Egypt Road:

- **Proposed Access “A” (Full Movement)** – unsignalized access located on N. Little Egypt Road approximately 2,970 feet south of Optimist Club Road
- **Proposed Access “B” (Full Movement)** – unsignalized access located on N. Little Egypt Road approximately 1,170 feet south of Optimist Club Road
AREA CONDITIONS

The area of influence as indicated by NCDOT, and Lincoln County staff includes the following two existing intersections and two proposed access locations:

1. NC 73 & N. Little Egypt Road (Signalized)
2. N. Little Egypt Road & Optimist Club Road (Unsignalized)
3. N. Little Egypt Road & Proposed Access “A” (Unsignalized)
4. N. Little Egypt Road & Proposed Access “B” (Unsignalized)

According to the latest NCDOT Roadway Functional Classification data, N. Little Egypt Road is classified as a local roadway, with a posted speed limit of 45 mph. N. Little Egypt Road is a two-lane undivided facility with appropriate left and right turn lanes within the vicinity of the site. No curb/gutter, sidewalk or planting strip are present on either side of the roadway.

Morning (7:00-9:00 AM) and afternoon (4:00-6:00 PM) peak period turning movement counts were conducted for all study intersections on Tuesday March 22, 2022 (all while school was in session). See Appendix for raw count data sheets.

In addition to the intersection TMCs, geospatial information provided by NCDOT’s ArcGIS portal (Go! NC) were collected such as Annual Average Daily Traffic (AADT) and crash frequency.

AADT for two-way volumes on roadways within the area of influence are depicted in Table 1 based on the latest data.

<table>
<thead>
<tr>
<th>Roadway</th>
<th>AADT (Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Little Egypt Rd north of NC 73</td>
<td>2,900 (2016)</td>
</tr>
<tr>
<td>N. Little Egypt Rd north of Optimist Club Rd</td>
<td>870 (2016)</td>
</tr>
</tbody>
</table>

Crash frequency per intersection is reported in Table 2 with data ranging from January 1, 2017, to December 31, 2021.
Table 2: Crash Data from 2017-2021

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Severity Type</th>
<th>Total Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>K &amp; A Injury Crashes</td>
<td>B &amp; C Injury Crashes</td>
</tr>
<tr>
<td>N. Little Egypt Rd &amp; NC 73</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes: K: Fatality A: A injury type (disabling) B: B injury type (evident) C: injury type (possible) PDO: Property Damage Only

Figure 2 shows the existing traffic volumes for the AM and PM peak hours and Figure 3 includes the directional distribution for site traffic (which was approved by NCDOT and Lincoln County staff).
EXISTING PEAK HOUR TRAFFIC VOLUMES

Project #: 456-009

Date: MAY 2022

Redraw: REG

Traffic Signal
Stop Sign Control
Directional Movement

VOLUMES: AM (PM)

Figure 2

Count volumes collected at all intersections on Tuesday, March 22, 2022.
PROJECTED TRAFFIC

The daily and peak-hour trip generation data for the site is presented in Table 3. Values derived for the anticipated trips generated by the site are obtained from the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017.

Table 3: Site Trip Generation

<table>
<thead>
<tr>
<th>Land Use [ITE Code]</th>
<th>Weekday Daily</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enter</td>
<td>Exit</td>
<td>Total</td>
</tr>
<tr>
<td>Proposed Development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Family Detached Housing [210]</td>
<td>215</td>
<td>DUs</td>
<td>2,103</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References:

The trip generation results indicate that the site is expected to generate 158 AM peak hour trips and 212 PM peak hour trips.

The projected background traffic volumes used in the analyses were developed from the existing peak hour TMCs. Per NCDOT, a 2% per year growth rate was used for the 2027 background volumes. The No Build volumes for AM and PM peaks are presented in Figure 4.

The trip assignments for the 2027 morning and afternoon peak hour traffic volumes are presented in Figures 5 and 6 for AM and PM peak hours, respectively. The No Build traffic is indicated to the far left of the movement arrows followed by the site traffic in parentheses. The two volumes are added to obtain the projected total traffic for that movement:

Background + (Site) = Build
Figure 4

2027 NO BUILD PEAK HOUR TRAFFIC VOLUMES

Existing count volumes grown by 2% compounded annually in order to obtain 2027 No Build volumes.

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Figure 5

2027 BUILD AM PEAK HOUR TRAFFIC VOLUMES

VOLUMES: No Build (Site) Build

LEGEND
Traffic Signal
Stop Sign Control
Directional Movement

Access "B"
Full Mvmt.
0 (18) 18
0 (12) 12

Access "A"
Full Mvmt.
0 (41) 41
0 (47) 47

Optimist Club Rd

N Little Egypt Rd

NC 73

N. Little Egypt TIA

PACE DEVELOPMENT
6719-C FAIRVIEW ROAD
CHARLOTTE, NC 28210

MAY 2022

SCALE: NTS
PROJECT #: 455-009
DESIGNED BY: PAH
CHECKED BY: RBS

229 (0) 229
81 (18) 99

75 (6) 81
34 (53) 87

236 (14) 248

330 (47) 377

21 (0) 21

844 (0) 844
22 (0) 22

44 (0) 44
29 (0) 29

156 (2) 158
316 (0) 316

N Little Egypt Rd

N. Little Egypt Rd

282 (16) 298
524 (0) 524
51 (0) 51

145 (4) 149

44 (0) 44
29 (0) 29
75 (0) 75

0 (14) 14
0 (14) 14

0 (6) 6

0 (6) 6
LEGEND

- Traffic Signal
- Stop Sign Control
- Directional Movement

VOLUMES: No Build (Site) Build

Figure 6
TRAFFIC ANALYSIS

The intersections identified within the area of influence were analyzed to identify the traffic impact that the development has under the buildout year scenario (2027). The traffic analysis evaluates following measures of effectiveness’ (MOEs) and their respective criteria at the intersections assuming the future year conditions of 2027.

Level of service (LOS) of an intersection or approach is a qualitative MOE of traffic operations. It is a measure of average control delay in time within a peak period. The Transportation Research Board’s Highway Capacity Manual\(^1\) (HCM) defines the LOS thresholds established for signalized and unsignalized intersections per the following exhibits:

<table>
<thead>
<tr>
<th>Intersection LOS</th>
<th>Exhibit 19-8 Signalized Intersection Control Delay per Vehicle (sec/vehicle)</th>
<th>Exhibit 20-2 Unsignalized Intersection Control Delay per Vehicle (sec/vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt;10.0</td>
<td>&lt; 10.0</td>
</tr>
<tr>
<td>B</td>
<td>&gt; 10.0 and ≤ 20.0</td>
<td>&gt; 10.0 and ≤ 15.0</td>
</tr>
<tr>
<td>C</td>
<td>&gt; 20.0 and ≤ 35.0</td>
<td>&gt; 15.0 and ≤ 25.0</td>
</tr>
<tr>
<td>D</td>
<td>&gt; 35.0 and ≤ 55.0</td>
<td>&gt; 25.0 and ≤ 35.0</td>
</tr>
<tr>
<td>E</td>
<td>&gt; 55.0 and ≤ 80.0</td>
<td>&gt; 35.0 and ≤ 50.0</td>
</tr>
<tr>
<td>F</td>
<td>&gt;80.0</td>
<td>&gt; 50.0</td>
</tr>
</tbody>
</table>

This report provides analysis of the traffic operations within the area of influence, according to the standards set by the North Carolina Department of Transportation’s (NCDOT) “Policy on Street and Driveway Access to North Carolina Highways, Chapter 4 Part C” and the Lincoln County’s Transportation Impact Analysis Procedures Manual requirements. It provides intersection improvements needed for mitigating traffic impacts. This study evaluates the following scenarios:

- Existing Conditions
- 2027 No Build Conditions
- 2027 Build Conditions
- 2037 Build + 10 Conditions

NCDOT/LINCOLN COUNTY ANALYSIS REQUIREMENTS - In order to determine the mitigation responsibility of the developer, this study compares 2027 Build results to the 2027 No Build results.

Per Chapter 5, Section J of the July 2003 NCDOT Policy on Street and Driveway Access to North Carolina Highways and Lincoln County Unified Development Ordinance Article 9 of requirements, the applicant shall be required to identify mitigation improvements to the roadway network if at least one of the following conditions exists when comparing base network conditions to project conditions:

- *The total average delay at an intersection or an individual approach increases by 25% or greater, while maintaining the same level of service,*
- *The Level of Service (LOS) degrades by at least one level at an intersection or an individual approach,*

• Or the Level of Service is “F” for an intersection or an individual approach.
• Where proposed development lowers any intersection leg impacted by said development below a Grade “C”, the developer will be required to provide those transportation improvements necessary to retain a Grade “C”.
• Where an existing intersection is rated below Grade “C” prior to any proposed development, the developer will be required to maintain existing transportation levels for any/all legs impacted. Final intersection grades shall include the impact of the proposed development.

This section of the NCDOT access policy also states that, mitigation improvements shall be identified when the analysis indicates that the 95th percentile queue exceeds the storage capacity of the existing lane.

Base assumptions for the analysis include:

• A 2% per year background growth rate between the existing and future conditions.
• Observed peak hour factors (PHF) obtained from the collected TMCs were used in all AM analysis scenarios for all intersections due to the proximity to East Lincoln High School and Catawba Springs Elementary School.
• Observed heavy vehicle percentages (from TMCs) were used in all analysis for all intersections, a minimum of 2% was applied to proposed intersections.
• Existing, No Build and Build scenarios were coded based on the following NCDOT Congestion Management Capacity Analysis Guidelines (2015) See Appendix for signal timings:
  • Right turn on red (RTOR) was disabled.
  • Minimum green times were used in all scenarios.
  • Yellow and red times were adjusted to 5 seconds and 2 seconds, respectively with -2 seconds of lost time adjustment.
  • Signals splits and cycle lengths were optimized throughout all scenarios.

SYNCHRO 11.0 was the software tool used in determining the delay, capacity, and corresponding LOS at the study intersections. SimTraffic 11.0, a traffic simulation software application for unsignalized and signalized intersections, was used to calculate the maximum queue lengths at the study intersections. The Synchro and SimTraffic results of each scenario are displayed per intersection and are presented in Tables 4 – 11.
1. NC 73 & N. Little Egypt Road (Signalized)

Table 4: NC 73 & N. Little Egypt Rd Analysis Results

<table>
<thead>
<tr>
<th>Approach</th>
<th>Existing Conditions</th>
<th>2027 No Build Conditions</th>
<th>2027 Build Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intersection</td>
<td>Eastbound - NC 73</td>
<td>Westbound - NC 73</td>
</tr>
<tr>
<td></td>
<td>C 32.4 1.04 C 21.8 0.83</td>
<td>C 99.2 - C 22.0 -</td>
<td>C 29.7 - C 33.4 -</td>
</tr>
<tr>
<td></td>
<td>Intersection</td>
<td>Eastbound - NC 73</td>
<td>Westbound - NC 73</td>
</tr>
<tr>
<td></td>
<td>E 68.4 1.15 D 35.6 1.07</td>
<td>F 115.9 - C 23.6 -</td>
<td>F 32.5 - C 34.0 -</td>
</tr>
<tr>
<td></td>
<td>Intersection</td>
<td>Eastbound - NC 73</td>
<td>Westbound - NC 73</td>
</tr>
<tr>
<td></td>
<td>F 129.7 1.41 E 73.8 1.18</td>
<td>F 195.7 - E 35.8 -</td>
<td>D 53.4 - F 90.1 -</td>
</tr>
<tr>
<td></td>
<td>Intersection</td>
<td>Eastbound - NC 73</td>
<td>Westbound - NC 73</td>
</tr>
<tr>
<td></td>
<td>F 149.3 - F 126.4 -</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Existing Conditions**

Currently, the intersection operates at LOS “C” during both the AM and PM peak hours.

**2027 No Build Conditions**

With the inclusion of growth in the background traffic, the intersection operates at LOS “E” during the AM peak hour and LOS “D” during the PM peak hour.

**2027 Build Conditions**

When comparing the impact of the 2027 Build to the 2027 No Build conditions, the intersection continues to operate at LOS “E” during the AM peak hour and LOS “D” during the PM peak hour. The overall intersection delay increases by 14% in the AM peak hour and 10% in the PM peak hour.

Since the intersection maintains existing transportation levels for all legs impacted, no developer required improvements at this intersection should be deemed necessary.
**2037 Build + 10 Conditions**

Considering the buildout + 10-year conditions, the intersection operates at LOS “F” during the AM peak hour and LOS “E” during the PM peak hour.

**Table 5: NC 73 & N. Little Egypt Rd Queue Lengths**

<table>
<thead>
<tr>
<th>NC 73 @ N. Little Egypt Road</th>
<th>Storage (ft)</th>
<th>AM PEAK 95th % Queue</th>
<th>Max Queue</th>
<th>PM PEAK 95th % Queue</th>
<th>Max Queue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2027 No Build Conditions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastbound Left-Turn (NC 73)</td>
<td>TERM.</td>
<td>#211'</td>
<td>1008'</td>
<td>54'</td>
<td>74'</td>
</tr>
<tr>
<td>Eastbound Thru-Right Turn (NC 73)</td>
<td>-</td>
<td>#1194'</td>
<td>1019'</td>
<td>524'</td>
<td>324'</td>
</tr>
<tr>
<td>Westbound Left-Turn (NC 73)</td>
<td>150'</td>
<td>#89'</td>
<td>250'</td>
<td>#143'</td>
<td>250'</td>
</tr>
<tr>
<td>Westbound Thru (NC 73)</td>
<td>-</td>
<td>#617'</td>
<td>528'</td>
<td>#1156'</td>
<td>1005'</td>
</tr>
<tr>
<td>Westbound Right-Turn (NC 73)</td>
<td>200'</td>
<td>13'</td>
<td>300'</td>
<td>30'</td>
<td>300'</td>
</tr>
<tr>
<td>Northbound Thru-Left Turn (N. Little Egypt Road)</td>
<td>-</td>
<td>108'</td>
<td>116'</td>
<td>52'</td>
<td>88'</td>
</tr>
<tr>
<td>Northbound Right-Turn (N. Little Egypt Road)</td>
<td>250'</td>
<td>0'</td>
<td>0'</td>
<td>0'</td>
<td>100'</td>
</tr>
<tr>
<td>Southbound Left-Turn (N. Little Egypt Road)</td>
<td>TERM.</td>
<td>#524'</td>
<td>1187'</td>
<td>#299'</td>
<td>640'</td>
</tr>
<tr>
<td>Southbound Thru-Right Turn (N. Little Egypt Road)</td>
<td>150'</td>
<td>68'</td>
<td>250'</td>
<td>52'</td>
<td>249'</td>
</tr>
<tr>
<td><strong>2027 Build Conditions with Improvements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastbound Left-Turn (NC 73)</td>
<td>TERM.</td>
<td>#219'</td>
<td>1008'</td>
<td>71'</td>
<td>83'</td>
</tr>
<tr>
<td>Eastbound Thru-Right Turn (NC 73)</td>
<td>-</td>
<td>#1219'</td>
<td>1024'</td>
<td>535'</td>
<td>391'</td>
</tr>
<tr>
<td>Westbound Left-Turn (NC 73)</td>
<td>150'</td>
<td>#89'</td>
<td>250'</td>
<td>#143'</td>
<td>250'</td>
</tr>
<tr>
<td>Westbound Thru (NC 73)</td>
<td>-</td>
<td>#641'</td>
<td>597'</td>
<td>#1169'</td>
<td>1039'</td>
</tr>
<tr>
<td>Westbound Right-Turn (NC 73)</td>
<td>200'</td>
<td>13'</td>
<td>300'</td>
<td>40'</td>
<td>300'</td>
</tr>
<tr>
<td>Northbound Thru-Left Turn (N. Little Egypt Road)</td>
<td>-</td>
<td>109'</td>
<td>132'</td>
<td>52'</td>
<td>82'</td>
</tr>
<tr>
<td>Northbound Right-Turn (N. Little Egypt Road)</td>
<td>250'</td>
<td>0'</td>
<td>0'</td>
<td>0'</td>
<td>79'</td>
</tr>
<tr>
<td>Southbound Left-Turn (N. Little Egypt Road)</td>
<td>TERM.</td>
<td>#591'</td>
<td>2058'</td>
<td>#349'</td>
<td>839'</td>
</tr>
<tr>
<td>Southbound Thru-Right Turn (N. Little Egypt Road)</td>
<td>150'</td>
<td>75'</td>
<td>250'</td>
<td>53'</td>
<td>250'</td>
</tr>
</tbody>
</table>
**2. N. Little Egypt Road & Optimist Club Road (Unsignalized)**

Table 6: N. Little Egypt Rd & Optimist Club Rd Analysis Results

<table>
<thead>
<tr>
<th>Approach</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOS</td>
<td>Delay (sec/veh)</td>
</tr>
<tr>
<td>Existing Conditions</td>
<td>Intersection</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Westbound - Optimist Club Road</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Northbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Southbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
<tr>
<td>2027 No Build Conditions</td>
<td>Intersection</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Westbound - Optimist Club Road</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Northbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Southbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
<tr>
<td>2027 Build Conditions</td>
<td>Intersection</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Westbound - Optimist Club Road</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Northbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Southbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
<tr>
<td>2027 Build Conditions with Improvements</td>
<td>Intersection</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Westbound - Optimist Club Road</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Northbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Southbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
<tr>
<td>2037 Build Conditions</td>
<td>Intersection</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Westbound - Optimist Club Road</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Northbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Southbound - N. Little Egypt Road</td>
<td>A</td>
</tr>
</tbody>
</table>

**Existing Conditions**

Currently, the worst leg of the intersection (westbound) operates at LOS “F” during the AM peak hour and LOS “B” during the PM peak hour.

**2027 No Build Conditions**

With the inclusion of growth in the background traffic, the worst leg of the intersection (westbound) operates at LOS “F” during the AM peak hour and LOS “B” during the PM peak hour.

**2027 Build Conditions**

When comparing the impact of the 2027 Build to the 2027 No Build conditions, the worst leg of the intersection (westbound) continues to operate at LOS “F” during the AM peak hour and operates at LOS “C” during the PM peak hour. The delay on the worst leg of the intersection increases by 94% in the AM peak hour and 35% in the PM peak hour.
2027 Build Conditions with Improvements

The analysis results indicate the need to identify mitigation at the study intersection as means to improve LOS.

The following improvement was tested and is suggested:

- Construct a separate westbound left turn lane on Optimist Club Road with 100 feet of storage

Assuming this improvement in place, the worst leg of the intersection (westbound) operates at LOS “F” during the AM peak hour and LOS “B” during the PM peak hour.

2037 Build + 10 Conditions

Considering the buildout + 10-year conditions, the worst leg of the intersection (westbound) operates at LOS “F” during the AM peak hour and LOS “B” during the PM peak hour.

Table 7: N. Little Egypt Rd & Optimist Club Rd Queue Lengths

<table>
<thead>
<tr>
<th>Optimist Club Road @ N. Little Egypt Road</th>
<th>Storage (ft)</th>
<th>AM PEAK 95th % Queue</th>
<th>Max Queue</th>
<th>PM PEAK 95th % Queue</th>
<th>Max Queue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2027 No Build Conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Westbound Left-Right Turn (Optimist Club Road)</td>
<td>-</td>
<td>485'</td>
<td>173'</td>
<td>40'</td>
<td>83'</td>
</tr>
<tr>
<td>Northbound Thru-Right Turn (N. Little Egypt Road)</td>
<td>-</td>
<td>0'</td>
<td>9'</td>
<td>0'</td>
<td>0'</td>
</tr>
<tr>
<td>Southbound Thru-Left Turn (N. Little Egypt Road)</td>
<td>-</td>
<td>30'</td>
<td>110'</td>
<td>8'</td>
<td>53'</td>
</tr>
<tr>
<td>2027 Build Conditions with Improvements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Westbound Left-Turn (Optimist Club Road)</td>
<td>100'</td>
<td>258'</td>
<td>104'</td>
<td>33'</td>
<td>74'</td>
</tr>
<tr>
<td>Westbound Right-Turn (Optimist Club Road)</td>
<td>-</td>
<td>38'</td>
<td>122'</td>
<td>20'</td>
<td>68'</td>
</tr>
<tr>
<td>Northbound Thru-Right Turn (N. Little Egypt Road)</td>
<td>-</td>
<td>0'</td>
<td>29'</td>
<td>0'</td>
<td>8'</td>
</tr>
<tr>
<td>Southbound Thru-Left Turn (N. Little Egypt Road)</td>
<td>-</td>
<td>35'</td>
<td>108'</td>
<td>8'</td>
<td>49'</td>
</tr>
</tbody>
</table>
3. N. Little Egypt Road & Access “A” (Unsignalized)

Table 8: N. Little Egypt Rd & Access “A” Analysis Results

<table>
<thead>
<tr>
<th>Approach</th>
<th>LOS</th>
<th>AM Peak Hour Delay (sec/veh)</th>
<th>Capacity (v/c)</th>
<th>PM Peak Hour Delay (sec/veh)</th>
<th>Capacity (v/c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersection</td>
<td>NA</td>
<td>NA</td>
<td>-</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Eastbound - Access &quot;A&quot;</td>
<td>B</td>
<td>11.5</td>
<td>-</td>
<td>B</td>
<td>10.8</td>
</tr>
<tr>
<td>Northbound - N. Little Egypt Road</td>
<td>A</td>
<td>1.0</td>
<td>-</td>
<td>A</td>
<td>2.7</td>
</tr>
<tr>
<td>Southbound - N. Little Egypt Road</td>
<td>A</td>
<td>0.0</td>
<td>-</td>
<td>A</td>
<td>0.0</td>
</tr>
</tbody>
</table>

2027 Build Conditions

We propose the following access configuration:

- One ingress lane and one egress lane (a combined eastbound left-right turn lane) on proposed Access "A"
- Construct a northbound left-turn lane on N. Little Egypt Road with 100 feet of storage

Assuming this access configuration in place, the worst leg of the intersection (eastbound) operates at LOS “B” during both the AM and PM peak hours.

2037 Build + 10 Conditions

Considering the buildout + 10-year conditions, the worst leg of the intersection (eastbound) operates at LOS “B” during both the AM and PM peak hours.

Table 9: N. Little Egypt Rd & Access “A” Queue Lengths

<table>
<thead>
<tr>
<th>Access &quot;A&quot;/ @ N. Little Egypt Road</th>
<th>Storage (ft)</th>
<th>AM PEAK 95th % Queue</th>
<th>Max Queue</th>
<th>PM PEAK 95th % Queue</th>
<th>Max Queue</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Access &quot;A&quot;/ @ N. Little Egypt Road</th>
<th>Storage (ft)</th>
<th>95th % Queue</th>
<th>Max Queue</th>
<th>95th % Queue</th>
<th>Max Queue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastbound Left-Right Turn (Access &quot;A&quot;)</td>
<td>-</td>
<td>13’</td>
<td>67’</td>
<td>8’</td>
<td>53’</td>
</tr>
<tr>
<td>Northbound Left-Turn (N. Little Egypt Road)</td>
<td>100’</td>
<td>0’</td>
<td>27’</td>
<td>3’</td>
<td>51’</td>
</tr>
<tr>
<td>Northbound Thru (N. Little Egypt Road)</td>
<td>-</td>
<td>0’</td>
<td>0’</td>
<td>0’</td>
<td>0’</td>
</tr>
<tr>
<td>Southbound Thru-Right Turn (N. Little Egypt Road)</td>
<td>-</td>
<td>0’</td>
<td>0’</td>
<td>0’</td>
<td>0’</td>
</tr>
</tbody>
</table>
4. N. Little Egypt Road & Access “B” (Unsignalized)

Table 10: N. Little Egypt Rd & Access “B” Analysis Results

<table>
<thead>
<tr>
<th>Approach</th>
<th>LOS</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Delay (sec/veh)</td>
<td>Capacity (v/c)</td>
</tr>
<tr>
<td>Intersection</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Eastbound - Access &quot;B&quot;</td>
<td>B</td>
<td>11.1</td>
<td>B</td>
</tr>
<tr>
<td>Northbound - N. Little Egypt Road</td>
<td>A</td>
<td>0.2</td>
<td>A</td>
</tr>
<tr>
<td>Southbound - N. Little Egypt Road</td>
<td>A</td>
<td>0.0</td>
<td>A</td>
</tr>
</tbody>
</table>

2027 Build Conditions

We propose the following access configuration:

- One ingress lane and one egress lane (a combined eastbound left-right turn lane) on proposed Access “B”
- Construct a northbound left-turn lane on N. Little Egypt Road with 100 feet of storage

Assuming this access configuration in place, the worst leg of the intersection (eastbound) operates at LOS “B” during both the AM and PM peak hours.

2037 Build + 10 Conditions

Considering the buildout + 10-year conditions, the worst leg of the intersection (eastbound) operates at LOS “B” during both the AM and PM peak hours.

Table 11: N. Little Egypt Rd & Access “B” Queue Lengths

<table>
<thead>
<tr>
<th>Access &quot;B&quot; @ N. Little Egypt Road</th>
<th>Storage (ft)</th>
<th>AM PEAK 95th % Queue</th>
<th>AM PEAK Max Queue</th>
<th>PM PEAK 95th % Queue</th>
<th>PM PEAK Max Queue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastbound Left-Right Turn (Access &quot;A&quot;)</td>
<td>-</td>
<td>5'</td>
<td>40'</td>
<td>3'</td>
<td>41'</td>
</tr>
<tr>
<td>Northbound Left-Turn (N. Little Egypt Road)</td>
<td>100'</td>
<td>0'</td>
<td>16'</td>
<td>0'</td>
<td>21'</td>
</tr>
<tr>
<td>Northbound Thru (N. Little Egypt Road)</td>
<td>-</td>
<td>0'</td>
<td>0'</td>
<td>0'</td>
<td>0'</td>
</tr>
<tr>
<td>Southbound Thru-Right Turn (N. Little Egypt Road)</td>
<td>-</td>
<td>0'</td>
<td>0'</td>
<td>0'</td>
<td>0'</td>
</tr>
</tbody>
</table>

The existing and suggested laneage is shown on Figures 8 and 9.
CONCLUSIONS

In summary, the N. Little Egypt site will increase the amount of traffic on the adjacent roadways, the suggested intersection improvement and proposed access configurations will mitigate the additional site generated trips on the area roadways and improve the conditions for the traveling public as well as the future residents of the proposed residential community.