



SUBDIVISION REPORT - CONCEPT

▶ **FILE #:** 4-SF-21-C

AGENDA ITEM #: 30

AGENDA DATE: 4/8/2021

▶ **SUBDIVISION:** CALLAHAN DEVELOPMENT / PUBLIC ACCESS ROAD & INTERSECTION IMPROVEMENTS

▶ **APPLICANT/DEVELOPER:** WILBANKS, LLC

OWNER(S): Wilbanks, LLC

TAX IDENTIFICATION: 68 044, 04401, 04501, 04502 , 046, 054, 05401, 055, 05602, 072 & 07201 [View map on KGIS](#)

JURISDICTION: City and County City 3 / County 7

STREET ADDRESS: 900 Callahan Rd. (0, 726 & 728 Callahan Rd., 6300, 6302, 6303 & 6318 Keck Rd., and 6601 & 6621 Wilbanks Rd.)

▶ **LOCATION:** Southeast side of Callahan Rd., north side of Keck Rd.

SECTOR PLAN: Northwest City

GROWTH POLICY PLAN: Urban Growth Area

WATERSHED: Beaver Creek

▶ **APPROXIMATE ACREAGE:** 90 acres

▶ **ZONING:** LI, CB, C-H-1, C-H-2, C-G-1, AG

▶ **EXISTING LAND USE:** Vacant land, Agricultural, Warehouse/distribution

▶ **PROPOSED USE:** Public Access Road & Intersection Improvements

SURROUNDING LAND USE AND ZONING: North: Shipping facility - I-G (General industrial)
South: Vacant land, single detached dwelling - A (Agricultural)
East: I-75 Interstate / PC (Planned Commercial) & A (Agricultural)
West: Commercial, Office/warehouse - CB (Business and Manufacturing)

▶ **NUMBER OF LOTS:** 5

SURVEYOR/ENGINEER: Cannon & Cannon, Inc.

ACCESSIBILITY: Access is via Callahan Rd a four lane divided with center median Minor arterial road with 75 ft of pavement and 110ft of right-of-way.

▶ **SUBDIVISION VARIANCES REQUIRED:** None

STAFF RECOMMENDATION:

▶ **APPROVE the Concept Plan subject to 4 conditions.**

1. Connection to sanitary sewer and meeting any other relevant requirements of the utility provider.
2. Provision of street names which are consistent with the Uniform Street Naming and Addressing System within Knoxville (Ord. O-280-90).
3. Implementation of any street and intersection improvements and recommendations outlined in the Traffic Impact Study and Site Access Study prepared by Cannon & Cannon, Inc., as last revised on March 22, 2021, and approved by the Knox County Department of Engineering and Public Works, City of Knoxville Department of Engineering, and Planning Commission staff. Any recommended improvements to be made by the

developer will be determined by the agency(s) with jurisdiction, including the design details and timing of the installation of the improvements, shall be worked out during the design plan stage for the subdivision.

4. Installation of the traffic signal at the new intersection with Callahan Drive if required by the Knoxville Department of Engineering during the design plan phase. The Knoxville Department of Engineering may require the traffic volumes to be validated during the time of permitting.

COMMENTS:

This proposal is a new road to provide access to an industrial development with 5 lots. This development includes property that is in the City and County which will require coordination for the review and permitting of the road and future development of the site. A rezoning application has been submitted for this site and is also on the April Planning Commission agenda (4-M-21-RZ). The rezoning is not necessary to allow the Planning Commission to approve the new road, however, it will be needed for the property to be developed as proposed because approximately one-third of the site is currently zoned AG (General Agricultural).

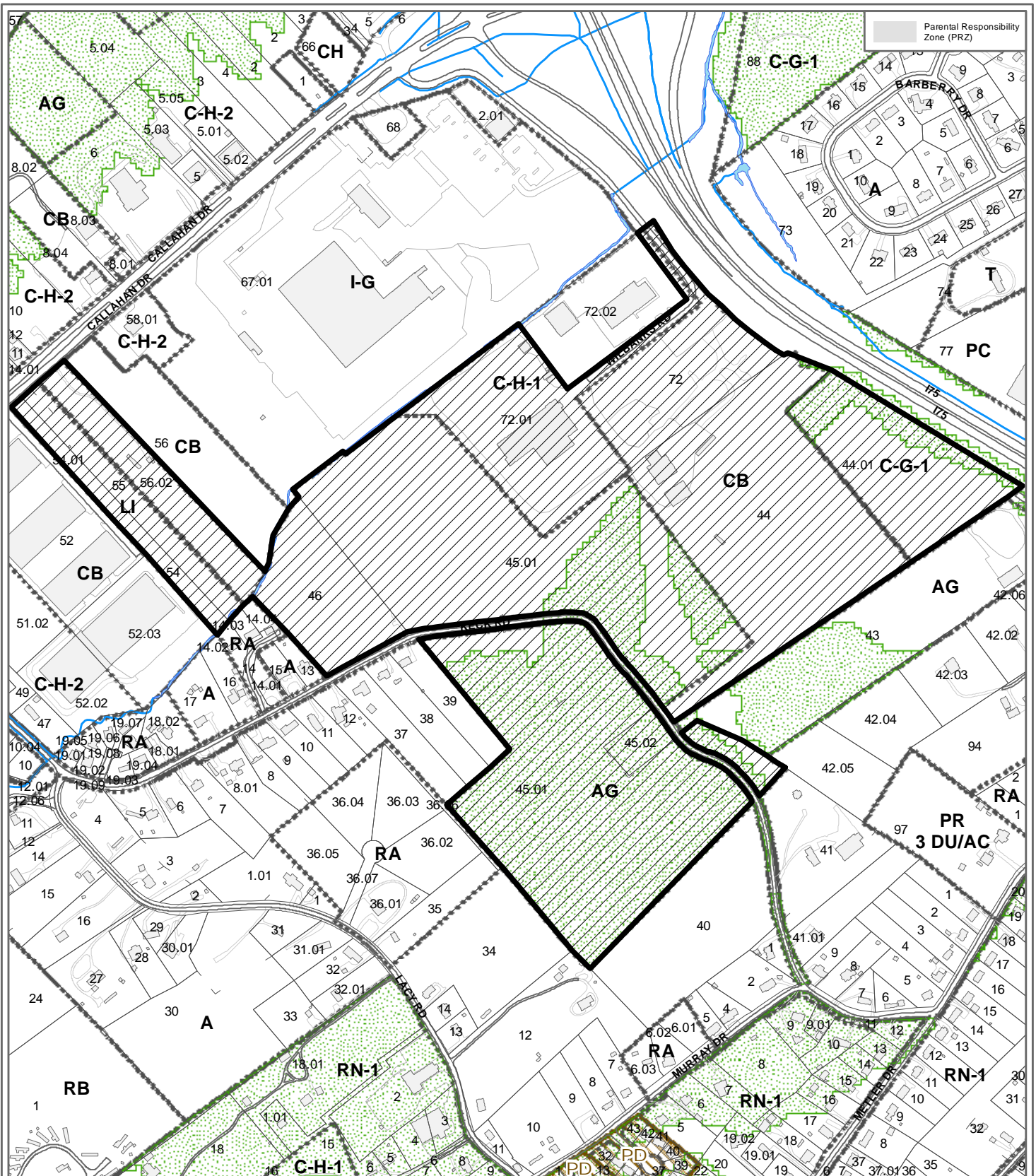
The Callahan Industrial Development Traffic Impact and Site Access Study (Cannon & Cannon, revised March 22, 2021) assumes a build-out scenario of 575,000 sqft of warehousing and distribution development with a single access point along Callahan Drive. The traffic study recommends the installation of a three-phase traffic signal at the new intersection. The proposed intersection is approximately one-quarter mile from the existing traffic signal at the I-75 southbound ramps. The City of Knoxville Department of Engineering is supportive of the request for a traffic signal, however, because the current traffic counts are lower than normal due to the pandemic and had to be adjusted using past traffic count data, the traffic volumes need to be validated during permitting to ensure the traffic signal is warranted as the traffic volumes begin to normalize.

The new intersection will require modification of two properties that are not controlled by the applicant but the applicant is in discussions with those property owners and has indicated they are will to allow the modifications so the intersection and traffic signal can be installed. The adjacent property to the west will have its eastern driveway access to Callahan Drive removed because it is too close to the new road and a right turn lane will be installed. The right turn lane may also cross over onto this property which will require right-of-way dedication. There will be two driveway connections from the adjacent property to the new road and will improve the access to this property, especially the businesses to the rear of the site. The driveway for the car dealership across Callahan Road will need to be moved to the east side of their property so it aligns with the new intersection. This will require their detention pond to be moved to the west.

ESTIMATED TRAFFIC IMPACT: A traffic impact study was prepared by the applicant. The findings of that study were used in formulating the recommendations of this staff report.

ESTIMATED STUDENT YIELD: Not applicable.

Knoxville-Knox County Planning Commission's approval or denial of this request is final, unless the action is appealed to Knox County Chancery Court. The date of the Knox County Chancery Court appeal hearing will depend on when the appeal application is filed.



**4-SF-21-C
CONCEPT PLAN**

Subdivision: Callahan Development / Public
Access Road & Intersection
Improvements



Approval of Concept Plan

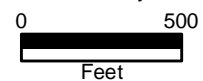
Map No: 68

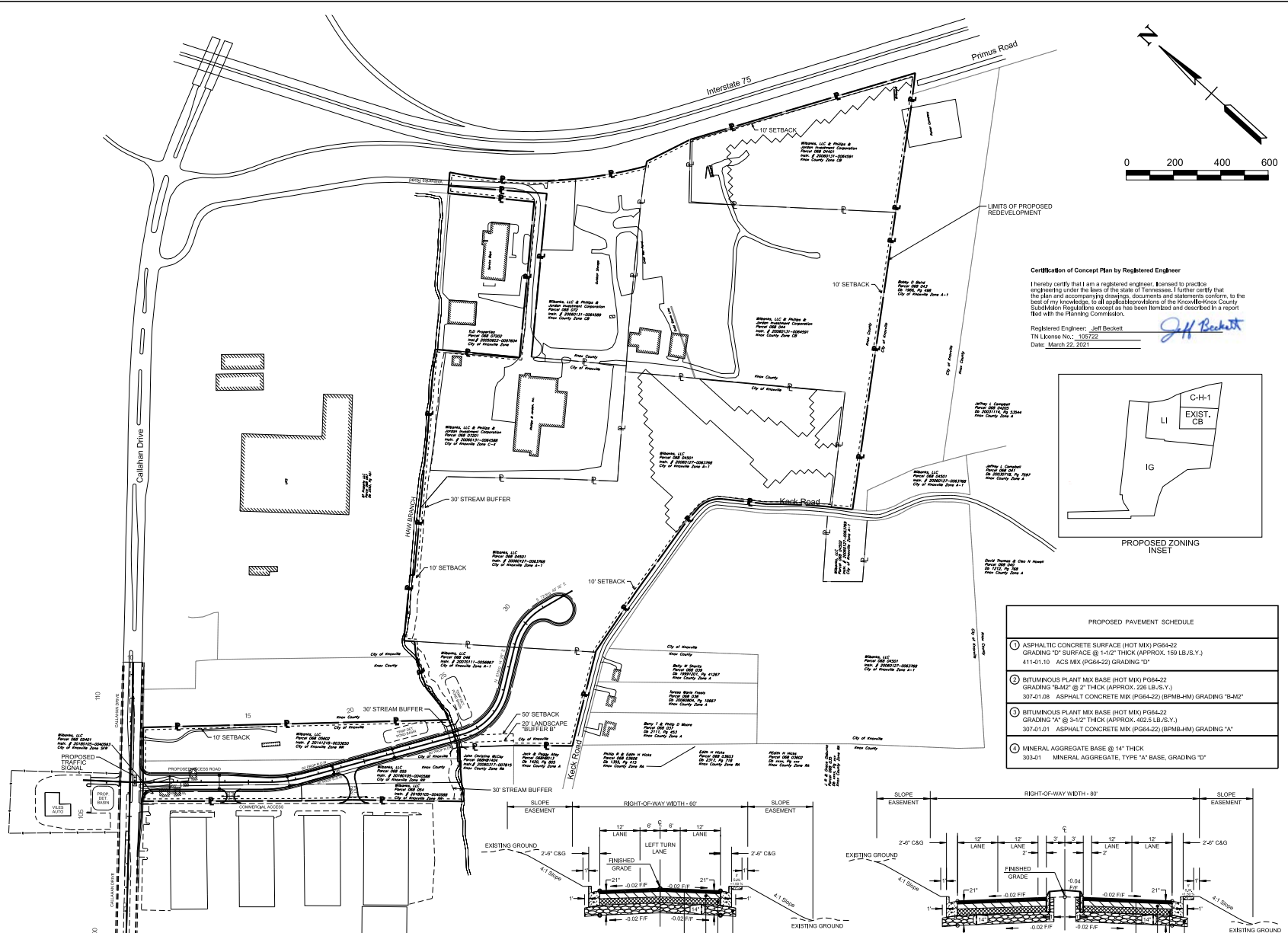
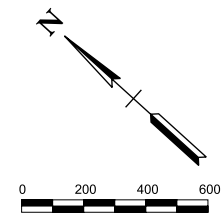
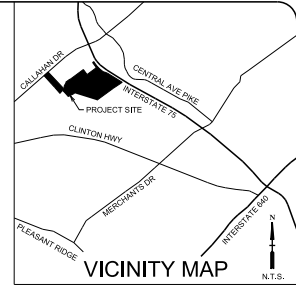
Jurisdiction: City and County

Original Print Date: 3/10/2021

Revised:

Knoxville - Knoxville Planning Commission * City / County Building * Knoxville, TN 37902

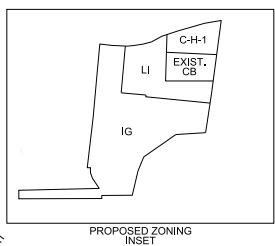




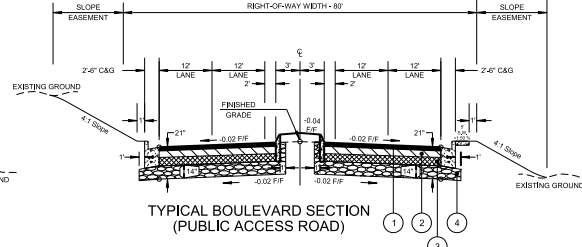
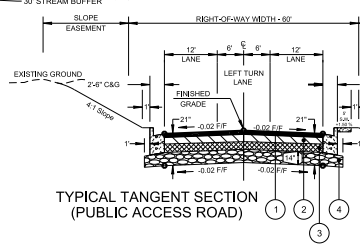
Certification of Concept Plan by Registered Engineer

I hereby certify that I am a registered engineer, licensed to practice engineering under the laws of the state of Tennessee. I further certify that the plan and accompanying drawings, documents and statements conform to the best of my knowledge to all applicable provisions of the Knoxville County Subdivision Regulations except as has been itemized and described in a report filed with the Planning Commission.

Registered Engineer: *Jeff Beckett*
 TN License No.: 156722
 Date: March 22, 2021



PROPOSED PAVEMENT SCHEDULE	
1	ASPHALTIC CONCRETE SURFACE (HOT MIX) PG64-22 GRADING "D" SURFACE @ 1-1/2" THICK (APPROX. 159 LB./S.Y.) 411-01.10 ACS MIX (PG64-22) GRADING "D"
2	BITUMINOUS PLANT MIX BASE (HOT MIX) PG64-22 GRADING "B&D" @ 2" THICK (APPROX. 226 LB./S.Y.) 307-01.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB4-M) GRADING "B&D"
3	BITUMINOUS PLANT MIX BASE (HOT MIX) PG64-22 GRADING "A" @ 3-1/2" THICK (APPROX. 402.5 LB./S.Y.) 307-01.01 ASPHALT CONCRETE MIX (PG64-22) (BPMB4-M) GRADING "A"
4	MINERAL AGGREGATE BASE @ 14" THICK 303-01 MINERAL AGGREGATE, TYPE "A" BASE, GRADING "D"

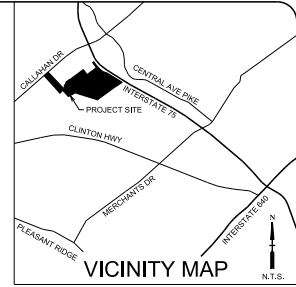
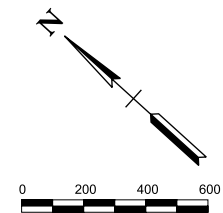
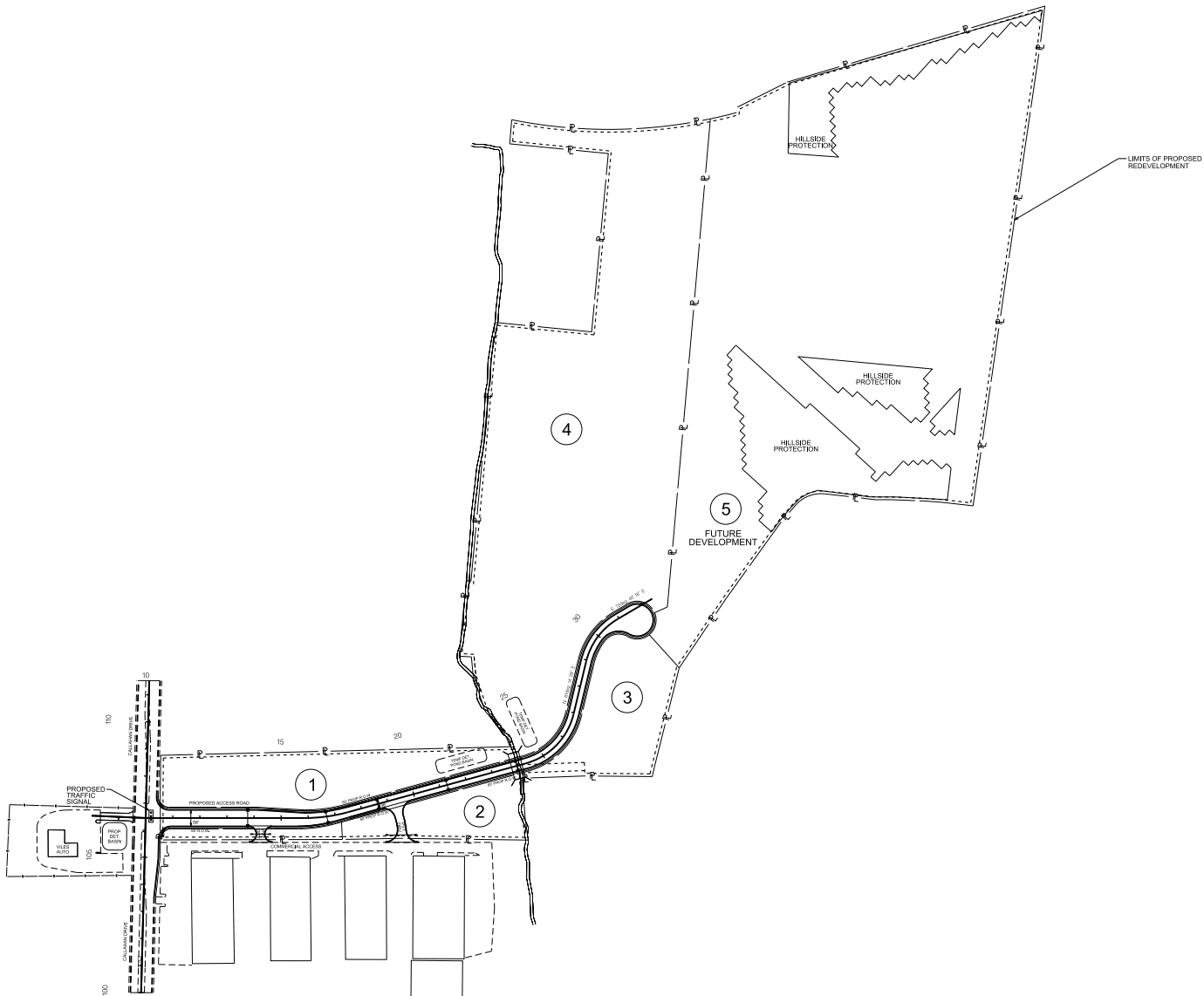


- GENERAL NOTES**
- PROPERTY REFLECTS PARCELS;
 CITY OF KNOXVILLE:
 068 05602 - 726 CALLAHAN DRIVE, KNOXVILLE, TN 37912
 068 044 - 6302 KECK ROAD, KNOXVILLE, TN 37912
 068 04501 - 6318 KECK ROAD, KNOXVILLE, TN 37912
 068 04401 - 6302 KECK ROAD, KNOXVILLE, TN 37912
 KNOX COUNTY:
 068 05401 - 500 CALLAHAN DRIVE, KNOXVILLE, TN 37912
 068 054 - 0 CALLAHAN DRIVE, KNOXVILLE, TN 37912
 068 055 - 728 CALLAHAN DRIVE, KNOXVILLE, TN 37912
 068 0721 - 6921 WILBANKS ROAD, KNOXVILLE, TN 37912
 068 07201 - 6601 WILBANKS ROAD, KNOXVILLE, TN 37912
 068 044 - 6300 KECK ROAD, KNOXVILLE, TN 37912
 TOTAL ACRES = 90+-, 5 LOTS
 - CURRENT ZONING:
 LI C4-2, AG, CB, C4-1, C-G-1
 CITY BLOCK #33963 & #33960
 - PROPOSED ZONING:
 IG, GENERAL INDUSTRIAL ZONING DISTRICT
 C4-1, HIGHWAY COMMERCIAL
 LI, LIGHT INDUSTRIAL
 EXISTING "CB", BUSINESS AND MANUFACTURING ZONE
- PUBLIC UTILITIES**
- WATER: HALLSDALE POWELL UTILITY DISTRICT
 SEWER: HALLSDALE POWELL UTILITY DISTRICT
 ELECTRIC: KNOXVILLE UTILITIES BOARD
 GAS: KNOXVILLE UTILITIES BOARD
 PHONE: AT&T

4-SF-21-C
3/22/2021

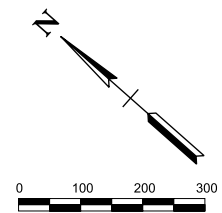
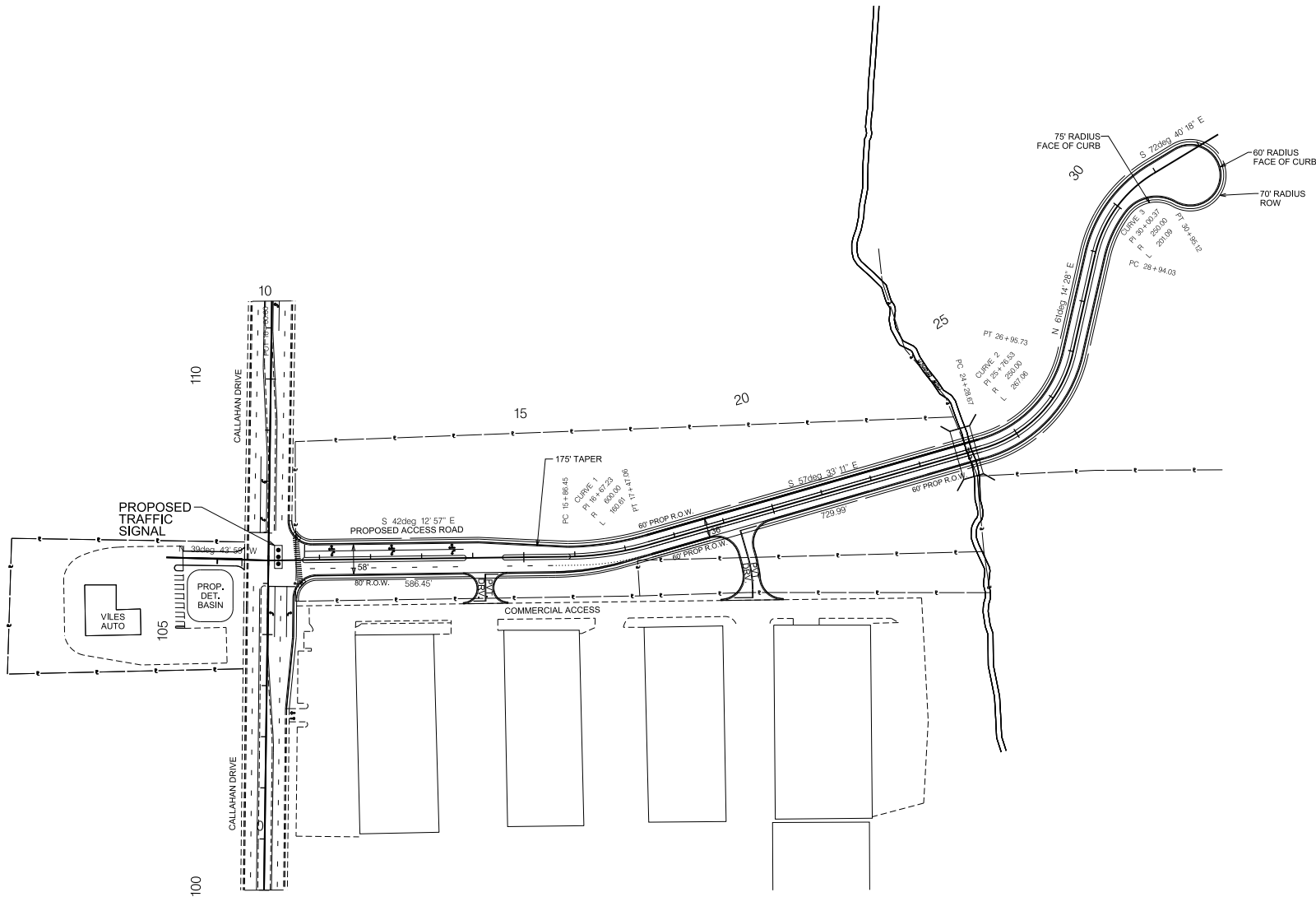
REVISED PER MPC COMMENTS	3-22-2021
REVISIONS	DATE
CANNON & CANNON INC. CONSULTING ENGINEERS - FIELD SURVEYORS 705 855 0700 1555 8550 Kingston Pike www.cannon-cannon.com Knoxville, TN 37919	
CLIENT:	PHILLIPS INFRASTRUCTURE HOLDINGS
PROJECT:	CALLAHAN DEVELOPMENT ACCESS ROAD CONCEPT
CONCEPT PLAN	
CCI PROJECT NO. 01555-0000	
DRAWING DATE: FEBRUARY 19, 2021	
PM	RJB
PC	RJB
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PRELIMINARY



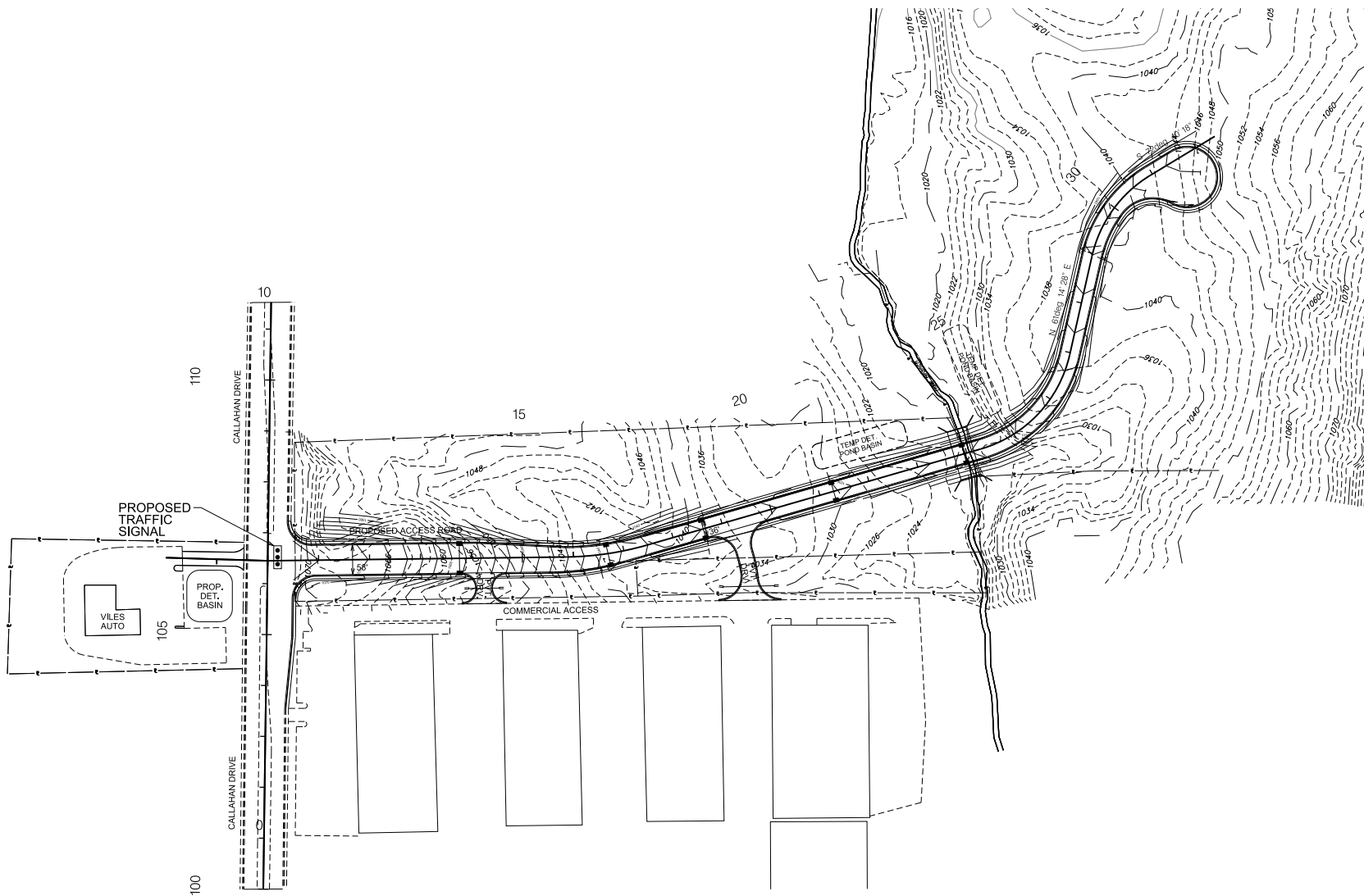
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REVISED PER MPC COMMENTS	3-22-2021
REVISIONS	DATE
 CONSULTING ENGINEERS - FIELD SURVEYORS 865.570.1555 8550 Kingston Pk & Knoxville, TN 37919 www.cannon-cannon.com	
CLIENT:	PHILLIPS INFRASTRUCTURE HOLDINGS
PROJECT:	CALLAHAN DEVELOPMENT ACCESS ROAD CONCEPT
CONCEPT PLAN PROPOSED LOTS	
PRELIMINARY	CCI PROJECT NO. 01555-0000
	DRAWING DATE FEBRUARY 19, 2021
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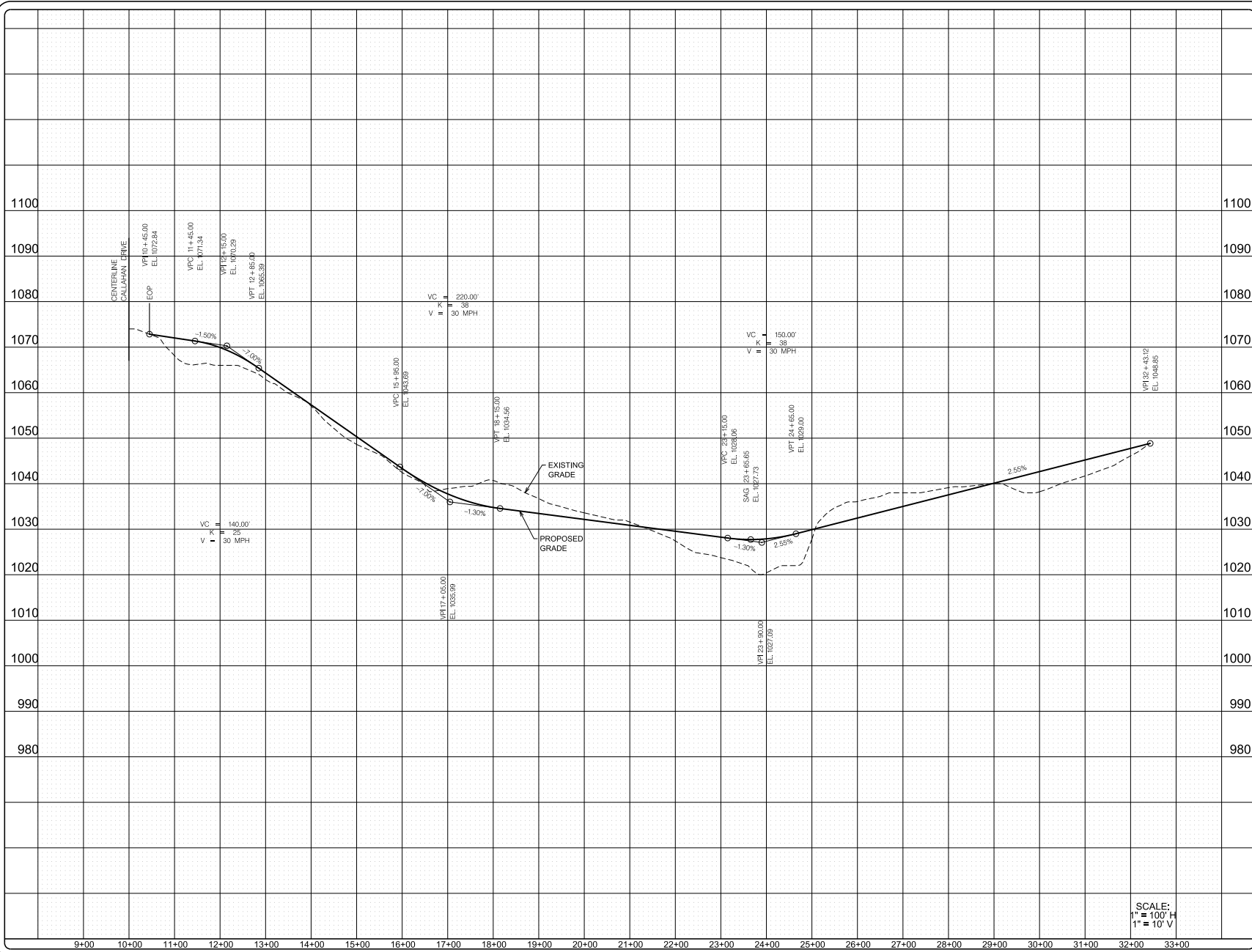
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 CONSULTING ENGINEERS - FIELD SURVEYORS 865.670.1555 8550 Kingston Pike www.cannon-cannon.com Knoxville, TN 37919									
CLIENT:	PHILLIPS INFRASTRUCTURE HOLDINGS								
PROJECT:	CALLAHAN DEVELOPMENT ACCESS ROAD CONCEPT								
CONCEPT PLAN LAYOUT									
PRELIMINARY	CCI PROJECT NO. 01555-000								
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REVISIONS	DATE
 CONSULTING ENGINEERS - FIELD SURVEYORS P.O. Box 865555 8850 Kingston Pk. Houston, TX 77289 www.cannon-cannon.com	
CLIENT:	PHILLIPS INFRASTRUCTURE HOLDINGS
PROJECT:	CALLAHAN DEVELOPMENT ACCESS ROAD CONCEPT
CONCEPT GRADING PLAN	
PRELIMINARY	CCI PROJECT NO. 01555-0000
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3/22/2021

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REVISIONS	DATE								
 CONSULTING ENGINEERS - FIELD SURVEYORS P.O. Box 865,878,555 8550 Kingston Pk. Houston, TX 77059									
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PROJECT:	CALLAHAN DEVELOPMENT ACCESS ROAD CONCEPT								
CONCEPT PROFILE									
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CALLAHAN INDUSTRIAL DEVELOPMENT
KNOXVILLE, TENNESSEE

TRAFFIC IMPACT AND SITE ACCESS STUDY

CALLAHAN DRIVE
KNOXVILLE, TENNESSEE

CCI PROJECT NO. 01555-0000

REV 1

PREPARED FOR:

Phillips Infrastructure Holdings
10142 Parkside Drive, Suite 500
Knoxville, TN 37922

SUBMITTED BY:

Cannon & Cannon, Inc.
8550 Kingston Pike
Knoxville, TN 37919
865.670.8555



4-SF-21-C
Revised: 3/22/2021

REVISED
March 22

2021

CALLAHAN INDUSTRIAL DEVELOPMENT

KNOXVILLE, TENNESSEE

TRAFFIC IMPACT AND SITE ACCESS STUDY

CALLAHAN DRIVE
KNOXVILLE, TENNESSEE

CCI PROJECT NO. 01555-0000



REVISION I (03/22/21)

This report replaces the previous version of the traffic impact study dated 12/3/2020 prepared for this project in its entirety. The associated changes are related to comments received from the Knoxville-Knox County Planning, which are located in Appendix F.

PREPARED FOR:

Phillips Infrastructure Holdings
10142 Parkside Drive, Suite 500
Knoxville, TN 37922

SUBMITTED BY:

Cannon & Cannon, Inc.
8550 Kingston Pike
Knoxville, TN 37919
865.670.8555

REVISED
March 22

2021

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EXECUTIVE SUMMARY

This report provides a summary of a traffic impact and site access study that was performed for a proposed industrial development to be located along Callahan Drive in the City of Knoxville, Tennessee. The project site is located approximately one-half mile west of I-75 and south of Callahan Drive behind the existing UPS hub.

The purpose of this study was the evaluation of the traffic operational and safety impacts of the proposed development upon roadways in the vicinity of the project site. Discussion with City of Knoxville, Knox County, and Tennessee Department of Transportation officials resulted in six intersections being identified for detailed study. These are the Callahan Drive intersections with Old Callahan Drive, Yow Commercial Park Driveway, Viles Automotive Group Driveway, I-75 Southbound Ramps, I-75 Northbound Ramps, and Central Avenue Pike. Intersection evaluations such as capacity analyses and signal warrant analyses were conducted at the six study intersections for existing and future conditions, both with and without site generated traffic, in order to determine the anticipated impacts and to establish recommended mitigation measures. Additionally, the proposed site access location was reviewed and recommendations made related to its location and turn lane related needs.

The primary conclusion of this study is that the traffic generated from the proposed development will not have significant impacts at four of the six study intersections. While two of the study intersections indicated unacceptable levels-of-service at full project build-out without improvements, logical improvements are available to address these concerns.

The following is a listing of recommendations that were developed to address concerns that resulted primarily from traffic generated from the project site, or are offered to accommodate development of the site.

1. Construct the site access intersection as indicated on the project site plan, which includes relocation of the access driveways to Yow Commercial / Viles Auto to utilize this new intersection.
2. Install a three-phase traffic signal at this new site access intersection, which would include a left-turn phase into the project site and advance detector loops on the Callahan Drive approaches. This intersection is about one-half mile from the existing traffic signal at the I-75 southbound ramps. The City of Knoxville / Knox County should determine if such spacing justifies signal coordination between these signals, considering the dilemma zone advantages of the advance loops would be lost during hours when coordination is active. One possibility would be to run coordination during peak traffic hours and allow the site signal to run free during other hours.
3. At the proposed new site access intersection,
 - a. Construct the following turn lanes on Callahan Drive:
 - i. Eastbound right-turn lane with 100 feet of storage and a 180-foot bay taper
 - ii. Eastbound left-turn lane with 150 feet of storage and a 180-foot bay taper
 - iii. Westbound left-turn lane with 150 feet of storage and a 180-foot bay taper

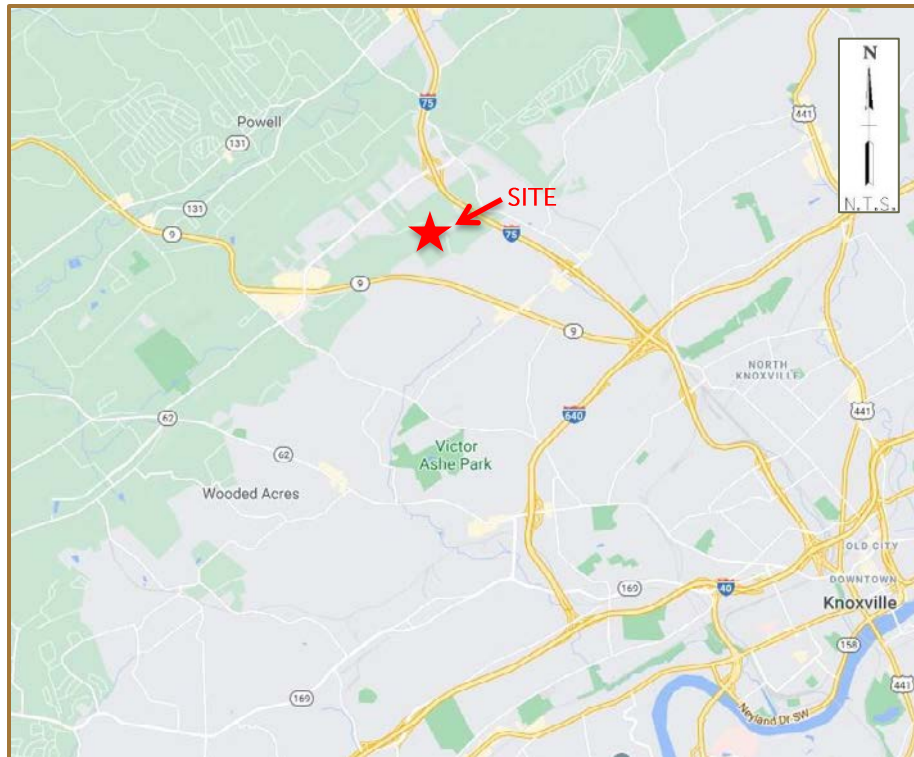
- b. Proposed site access (northbound approach) cross-section:
 - i. Northbound left-turn lane (12') and through / right lane (12')
 - ii. Provide two (2) receiving lanes (12' each) into the proposed site access
 - iii. Median width of 10'
4. Place any site related landscaping and signage at the site access intersection in such a fashion as to maintain the existing intersection sight distances.

The following is a listing of concerns / recommendations that were identified at project study intersections that are primarily existing issues that can expect relatively minor impact from site traffic.

1. The intersection of Callahan Drive and I-75 Northbound ramps is expected to exhibit unacceptable levels-of-service during the PM peak hour for 2025 background and combined traffic conditions. The addition of a second northbound right-turn lane would address this issue.
2. The intersection of Callahan Drive and Central Avenue Pike is expected to exhibit marginal, but acceptable, level-of-service conditions during the PM peak hour for 2025 background and combined traffic conditions. Therefore, we are calling the City of Knoxville's attention to this issue that may require addressing in the near future.

INTRODUCTION & PURPOSE OF STUDY

This report provides a summary of a traffic impact and site access study that was performed for a proposed industrial development to be located along Callahan Drive in the City of Knoxville, Tennessee. The project site is located approximately one-half mile west of I-75 and south of Callahan Drive behind the existing UPS hub. FIGURE 1 is a location map showing the major roadways in the project site vicinity.



**FIGURE 1
LOCATION MAP**

The development plan for this project will consist of 575,000 square feet of warehousing and distribution development. The site proposes a single access point along Callahan Drive. FIGURE 2 is a Conceptual Site Plan detailing the proposed site.

The purpose of this study was the evaluation of the traffic operational and safety impacts of the proposed development upon roadways in the vicinity of the project site. Discussion with City of Knoxville, Knox County, and Tennessee Department of Transportation officials resulted in six intersections being identified for detailed study. These are the Callahan Drive intersections with Old Callahan Drive, Yow Commercial Park Driveway, Viles Automotive Group Driveway, I-75 Southbound Ramps, I-75 Northbound Ramps, and Central Avenue Pike. Intersection evaluations such as capacity analyses and signal warrant analyses were conducted at the six study intersections for existing and future conditions, both with and without site generated traffic, in order to determine the anticipated impacts and to establish recommended mitigation measures. Additionally, the proposed site access location was reviewed and recommendations made related to its location and turn lane related needs.

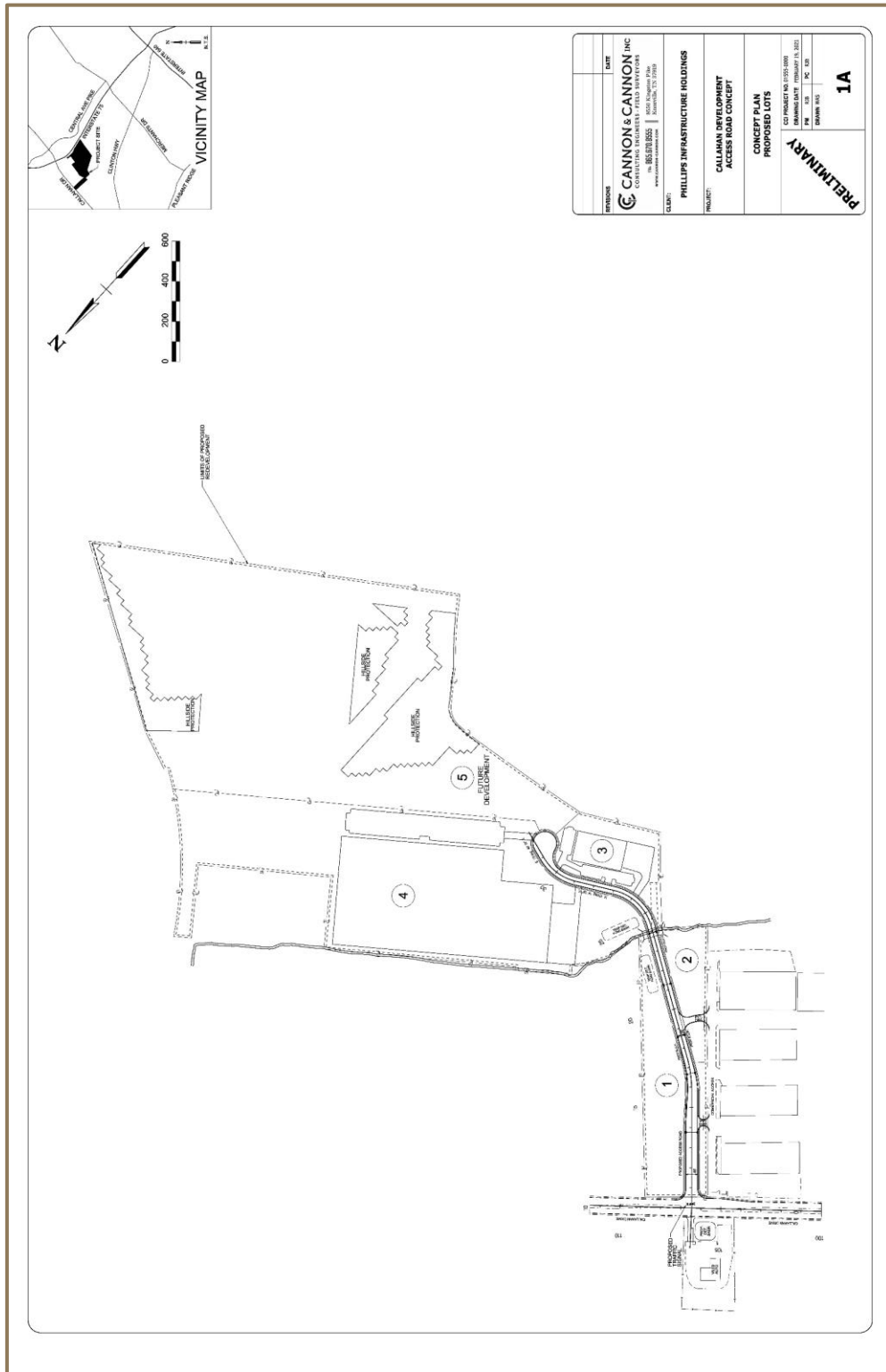


FIGURE 2
CONCEPTUAL SITE PLAN

EXISTING CONDITIONS

EXISTING ROADWAY CONDITIONS

Roadway conditions for the study roadways are summarized as follows:

- Callahan Drive is a multi-lane city maintained divided highway with two lanes in each direction. It is classified as a Minor Arterial by TDOT. Lane widths vary from 11 to 12 feet within the study area. Turn lanes are in place at major intersections and the posted speed limit is 45 mph.
- Old Callahan Drive is a two-lane local street that connects Callahan Drive to Clinton Highway and bypasses significant commercial development along Clinton Highway. Lane widths are 11-feet and the posted speed limit is 30 mph.
- Central Avenue Pike is a two-lane minor arterial that connects Callahan Drive to many residential areas along I-75. Lane widths vary from 11 to 12 feet and the posted speed limit is 40 mph.

Traffic control for the study intersections is as follows:

- Old Callahan Drive at Callahan Drive, I-75 Northbound & Southbound Ramps at Callahan Drive, and Central Avenue Pike at Callahan Drive are signalized intersections.
- Yow Commercial Right-In / Right-out Driveway at Callahan Drive and Viles Automotive / Yow Commercial Driveway at Callahan Drive are currently side-street STOP controlled.

EXISTING SITE CONDITIONS

The project site is located in the southwest quadrant of the interchange of I-75 and Callahan Drive behind the UPS hub. The site is somewhat rolling and slopes upward towards the southern end of the property boundary. FIGURE 3 provides an aerial view of the project site and the surrounding area.



FIGURE 3
EXISTING SITE CONDITIONS

EXISTING TRAFFIC DATA

Three types of existing traffic data were gathered for this study. The Tennessee Department of Transportation (TDOT) collects annual average daily traffic (AADT) data on roadways in the study area. Six count stations were found near the project site that were felt to have particular relevance for this study. The most currently available data from these stations are contained in Table 1.

TABLE 1: ANNUAL AVERAGE DAILY TRAFFIC COUNT SUMMARY

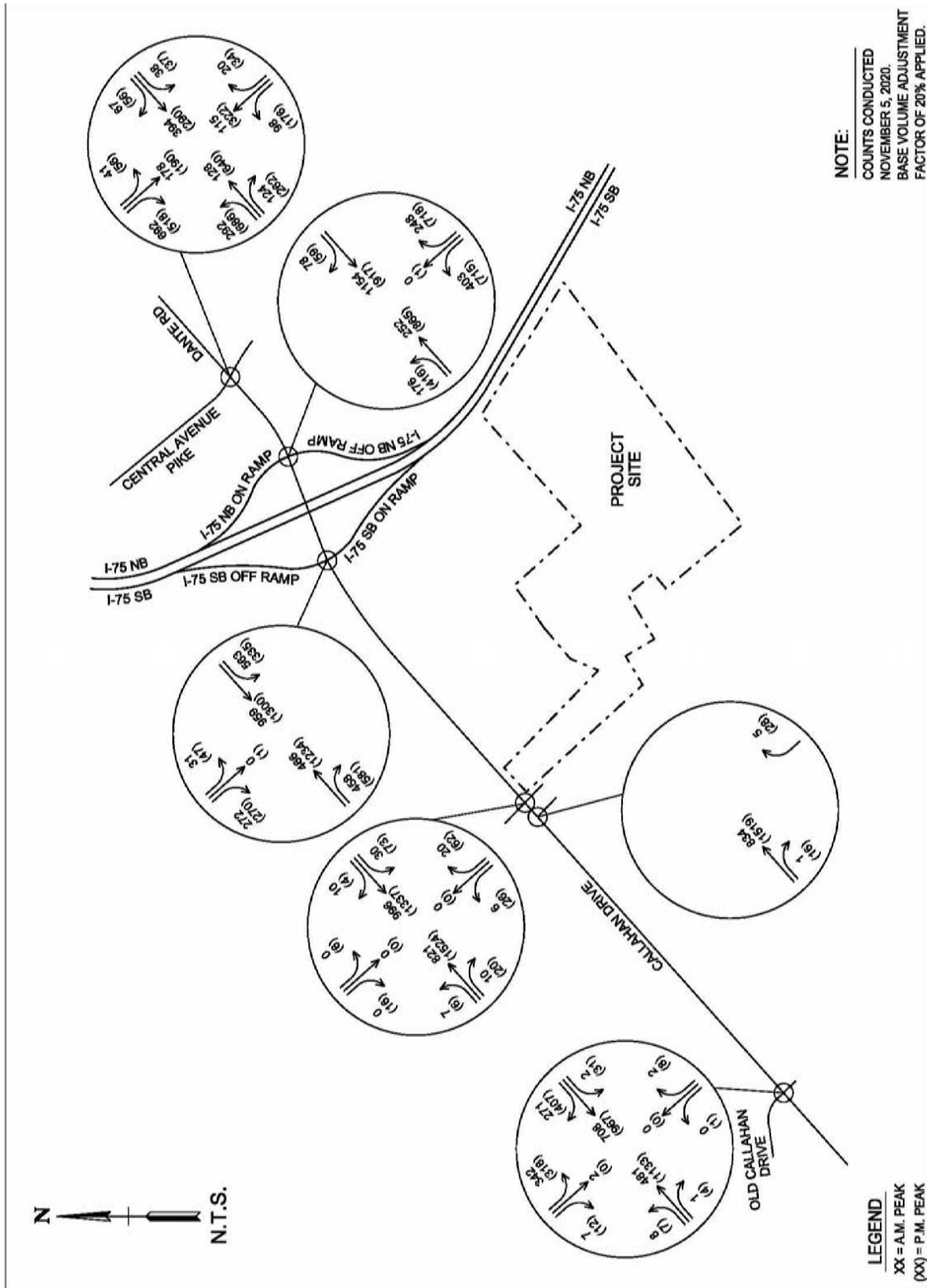
COUNT YEAR	TDOT COUNT STA. 47000393 CALLAHAN - WEST OF I-75	TDOT COUNT STA. 47000167R I-75 NB OFF-RAMP	TDOT COUNT STA. 47000170R I-75 NB ON-RAMP	TDOT COUNT STA. 47000169R I-75 SB OFF-RAMP	TDOT COUNT STA. 47000168R I-75 SB ON-RAMP	TDOT COUNT STA. 47000451 CALLAHAN - EAST OF I-75
2019	28,448	9,994	3,474	3,253	9,277	7,560
2018	26,487	9,371	3,253	3,239	8,921	7,485
2017	26,644	10,339	3,774	3,243	8,318	6,614
2016	26,989	9,799	3,473	3,152	8,229	7,119
2015	26,071	11,759	3,863	3,291	8,355	6,627

In addition to the available AADT data, intersection turning movement traffic counts were conducted at the existing study intersections to determine the current peak hour operating volumes. The traffic counts were conducted during the first week of November 2020. During this time, regional traffic volumes and patterns were recovering from COVID-19 pandemic restrictions including, business and school closures and widespread telecommuting or working from home practices. At the time of the counts, schools were conducting in-school instruction at a reduced student capacity. Due to concerns related to the validity of the intersection turning movement traffic counts, hourly volumes from the 2019 AADT data shown in TABLE 1 were obtained from TDOT in order to validate the results of the intersection turning movement counts conducted in November 2020.

After comparing the hourly volumes from the 2019 TDOT AADT's to the 2020 intersection turning movement counts, the 2020 volumes were found to be roughly 20% lower than the 2019 volumes in some movements. Adjustments were made to the 2020 raw traffic data to arrive at 2020 volumes to be utilized in this study. The 2020 base traffic data is summarized on FIGURE 4, and the raw data traffic count summary sheets, TDOT 2019 hourly volume data, and the raw data traffic count summary sheets are contained in APPENDIX A.

EXISTING CAPACITY ANALYSES / LEVELS-OF-SERVICE

Capacity analyses employing the methods of the *Highway Capacity Manual* were conducted for the existing conditions at the study intersections. These analyses were performed with the 2020 existing traffic volumes and existing intersection traffic control and lane configurations. The EVALUATIONS section of this report may be referenced for tabular summaries of these analyses, while more detailed summaries are presented on the computer printouts contained in APPENDIX C. Also contained in APPENDIX C is a section entitled "Capacity and Level of Service Concepts", which provides a description of the utilized procedures.



BACKGROUND CONDITIONS**BACKGROUND TRAFFIC GROWTH**

The proposed development is anticipated to be constructed in one general phase with completion anticipated by 2025. Therefore, year 2025 was established as the appropriate design / analysis year for the study. In order to determine traffic volumes resulting solely from background traffic growth to year 2025, it was necessary to establish an annual growth rate for existing traffic. The TDOT ADT values previously discussed, as well as knowledge of the area, were used to determine an approximate annual growth rate. Based on the available data, a background annual growth rate of two percent was assumed. FIGURE 5 contains the background traffic volumes that would result from this annual growth rate from year 2020, when the counts were conducted, to year 2025.

BACKGROUND CAPACITY ANALYSES / LEVELS-OF-SERVICE

Capacity analyses as described in the Existing Conditions section of this report were conducted utilizing the Year 2025 background volumes shown in FIGURE 5 and existing intersection traffic control and lane configurations. The EVALUATIONS section of this report may be referenced for tabular summaries of these analyses, while more detailed summaries are presented on the computer printouts contained in the APPENDIX C.

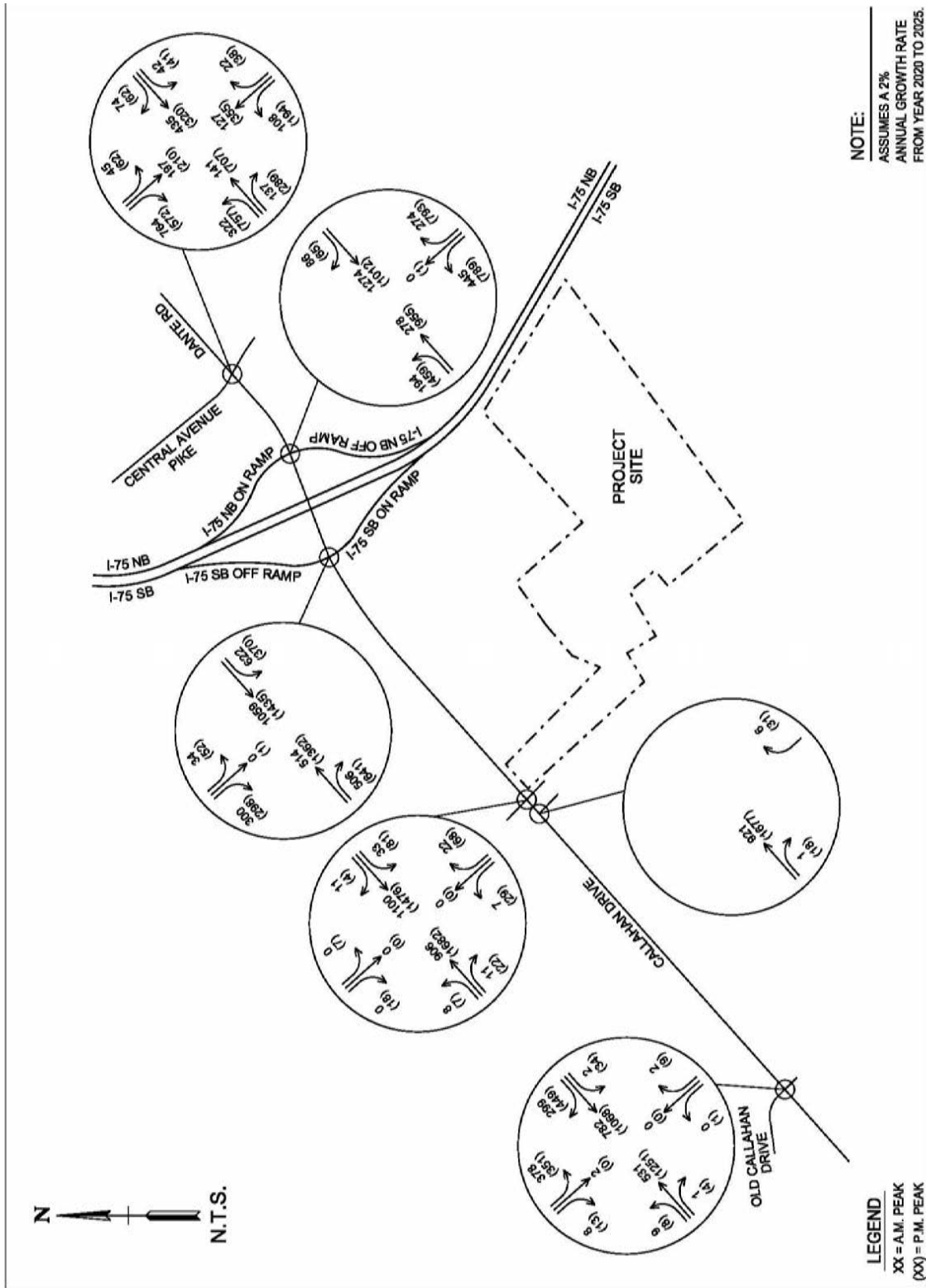


FIGURE 5
 2025 BACKGROUND TRAFFIC VOLUMES

FUTURE CONDITIONS

TRIP GENERATION

In order to estimate the expected traffic volumes to be generated by the proposed development, the procedures recommended by the Institute of Transportation Engineers were utilized. The generated traffic volumes were determined based on the data for the peak hours of adjacent street traffic. See TABLE 2 for a summary of the traffic generated for this project. More detailed information is contained in APPENDIX B.

TABLE 2: TRIP GENERATION SUMMARY									
LAND USE	ITE CODE	SIZE	WEEKDAY (TRIPS/DAY)	AM PEAK HOUR (TRIPS/HOUR)			PM PEAK HOUR (TRIPS/HOUR)		
				IN	OUT	TOTAL	IN	OUT	TOTAL
Industrial Park	130	575,000 SF	1,938	186	44	230	48	182	230
A.M. Peak Hour trip generation is based on Peak Hour of Adjacent Street Traffic, One Hour Between 7 & 9 a.m. P.M. Peak Hour trip generation is based on Peak Hour of Adjacent Street Traffic, One Hour Between 4 & 6 p.m.									

TRIP DISTRIBUTION AND ASSIGNMENT

The proposed trip distribution for this development was determined through a review of existing travel patterns, local knowledge of the study area, proposed site location in relation to surrounding roadway network, and engineering judgement. FIGURE 6 provides a summary of how the above site generated trips would be assigned to the study intersection. FIGURE 7 provides the proposed trip assignment volumes to the studied intersections.

FUTURE TRAFFIC VOLUMES

Future projected traffic volumes for the study intersection were developed by adding the generated and assigned trips shown in FIGURE 7 to the 2025 background traffic volumes developed in the previous section and shown in FIGURE 5. These combined 2025 volumes reflect the existing traffic, the background traffic growth, and the generated traffic from the proposed subdivision. These future volumes are shown on FIGURE 8 and are the combined volumes used in the analyses of future conditions with the proposed development.

FUTURE CAPACITY ANALYSES / LEVELS-OF-SERVICE

Capacity analyses, as described in the Existing Conditions section of this report, were conducted for all future conditions utilizing the traffic volumes shown in build-out scenarios above. These analyses employed appropriate modifications to the existing lane configurations and traffic control, as discussed in the EVALUATIONS section of this report. Tabular summaries of the analysis results and associated discussion are also contained in the EVALUATIONS section. In addition, detailed computer printout summaries of the analyses are contained in APPENDIX C.

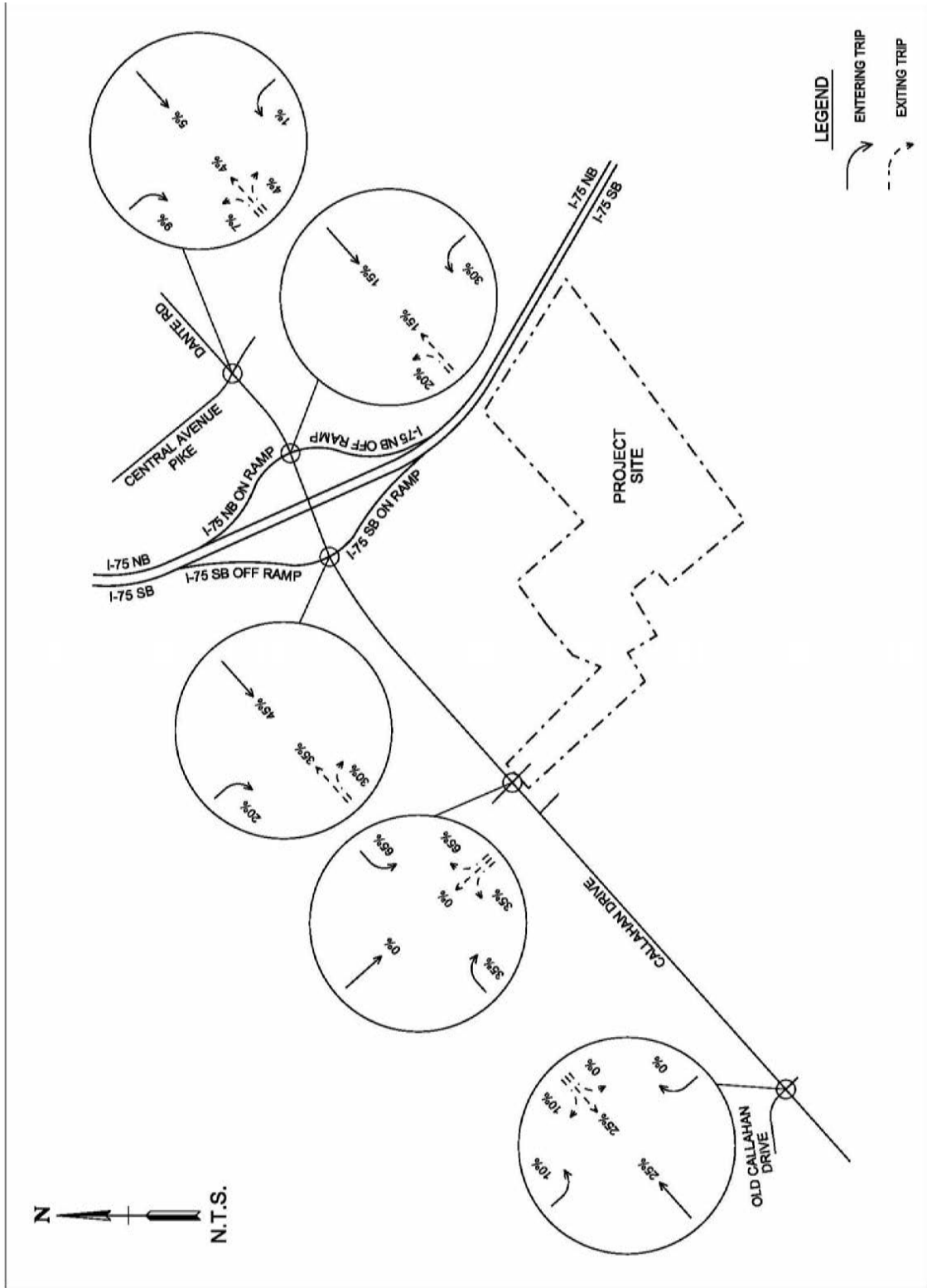
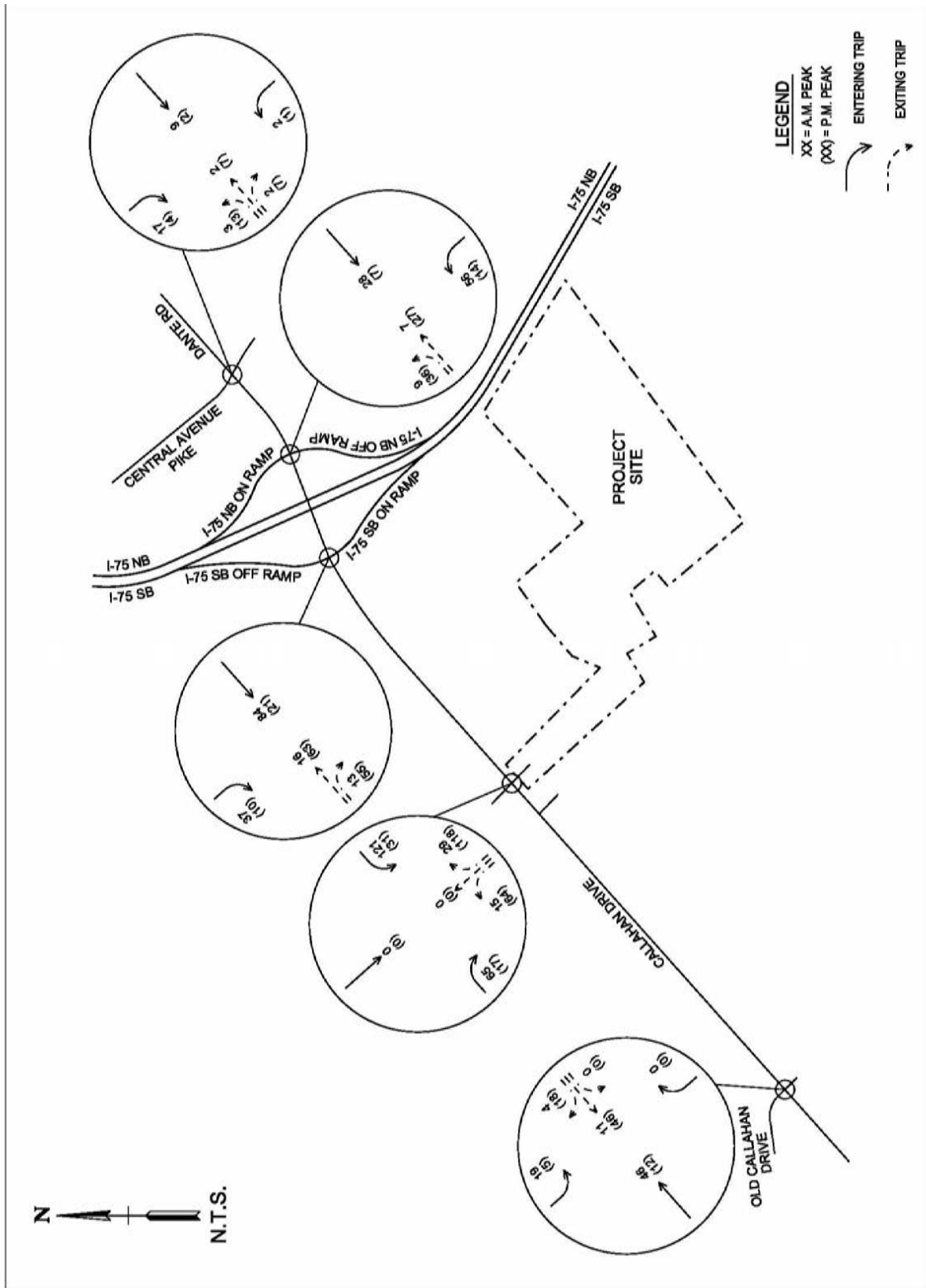


FIGURE 6
TRIP DISTRIBUTION



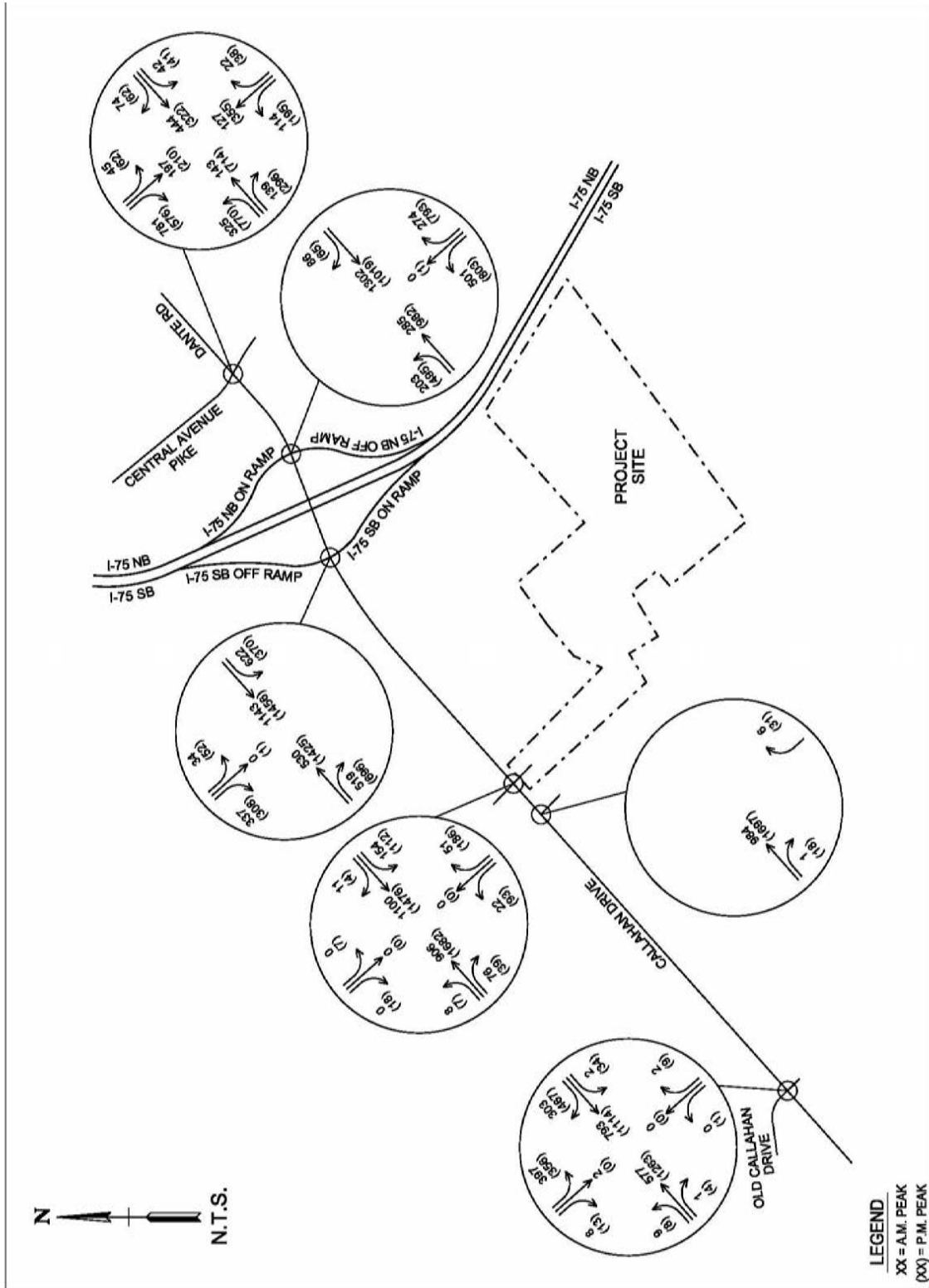


FIGURE 8
COMBINED TRAFFIC VOLUMES (2025)

EVALUATIONS

INTERSECTION CAPACITY ANALYSES

As discussed in the preceding sections of this report, capacity analyses employing the methods of the Highway Capacity Manual (HCM2010) were conducted for the study intersections, including the proposed project site access intersection. These analyses were performed for the previously discussed development scenarios. A summary of the capacity analyses results is shown in TABLE 3, while the resulting conclusions and recommendations are covered in the CONCLUSIONS and RECOMMENDATIONS section of this report.

TABLE 3: CAPACITY ANALYSES SUMMARY – EXISTING (2020), BACKGROUND (2025), & COMBINED (2025)

INTERSECTION	TIME PERIOD	YEAR 2020 EXISTING (LOS/DELAY)	YEAR 2025 BACKGROUND (LOS/DELAY)	YEAR 2025 COMBINED (LOS/DELAY)
Old Callahan Dr. at Callahan Dr. ² TRAFFIC SIGNAL CONTROL	A.M.	B 19.3	C 21.1	C 21.8
	P.M.	C 20.2	C 23.6	C 24.5
Yow Commercial at Callahan Dr. ¹ SIDE STREET STOP CONTROL	A.M.	B 11.6	B 12.1	B 12.9
	P.M.	C 17.9	C 20.2	C 20.7
Yow Commercial / Viles Auto at Callahan Drive (Existing Driveways) ¹ SIDE STREET STOP CONTROL	NB A.M.	B 14.1	C 15.4	C 19.0
	NB P.M.	F 51.0	F N/A ³	F N/A ³
	SB A.M.	A 0.0	A 0.0	F N/A ³
	SB P.M.	D 29.9	F N/A ³	F N/A ³
Site / Yow Commercial / Viles Auto at Callahan Drive (Proposed Site Access) ⁴ ² TRAFFIC SIGNAL CONTROL	A.M.	-	-	A 7.1
	P.M.	-	-	B 13.9
I-75 Southbound Ramps at Callahan Drive ² TRAFFIC SIGNAL CONTROL	A.M.	B 12.0	B 14.1	B 15.0
	P.M.	B 18.2	C 20.4	C 21.9
I-75 Northbound Ramps at Callahan Drive ² TRAFFIC SIGNAL CONTROL	A.M.	C 21.9	C 25.7	C 27.9
	P.M.	D 53.8	E 77.4	F 82.4
I-75 Northbound Ramps at Callahan Drive w/ Dual NB RTL ² TRAFFIC SIGNAL CONTROL	A.M.	-	-	C 27.9
	P.M.	-	-	D 36.3
Central Avenue Pike at Callahan Drive ² TRAFFIC SIGNAL CONTROL	A.M.	B 18.7	C 22.2	C 22.7
	P.M.	D 37.6	D 52.6	D 53.2

¹SIDE STREET STOP CONTROL – Data shown are Level-of-Service and Average Vehicular Delay (seconds) for the critical side street approach utilizing HCM methodology.

²TRAFFIC SIGNAL CONTROL – Data shown are Level-of-Service and Average Vehicular Delay (seconds) for the complete intersection utilizing HCM methodology.

³Delay exceeds HCS calculation thresholds and is indeterminable.

⁴Proposed site access location includes relocation of east drive to Yow Commercial and drive to Viles Auto.

CAPACITY RESULTS SUMMARY

As provided in TABLE 3 above, capacity analyses of anticipated future conditions indicate all but two of the study intersections exhibit operational conditions that are acceptable (LOS of “D” or better). These two problem locations are the intersections on Callahan Drive with Yow Commercial / Viles Auto Drives and the I-75 Northbound ramps. Alternatives were evaluated for each of these which addressed the associated concerns. Specifics are discussed in later sections.

TRAFFIC SIGNAL WARRANT EVALUATION

As mentioned previously, the site access intersection is proposed to be located to the east of the existing Callahan Drive with Yow Commercial / Viles Auto drives intersection, with the associated existing driveways relocated to the site access intersection. In order to address the poor levels-of-service associated with the existing conditions, the installation of a traffic signal is proposed. A signal warrant evaluation was conducted for this location, utilizing the official traffic signal warrants from the *Manual on Uniform Traffic Control Devices*. This evaluation indicated that at least three traffic signal warrants are expected to be satisfied at full build-out of the project site. A spreadsheet summarizing this evaluation is contained in APPENDIX D.

TURN LANE EVALUATION

A turn lane evaluation was conducted for a potential eastbound right-turn lane to enter the project site at the proposed site access intersection. This evaluation, which utilized Knox County turn lane warrants, found that the right-turn lane is warranted. A spreadsheet summarizing this evaluation is contained in APPENDIX E.

Regarding a possible westbound left-turn lane at the project site intersection, such a lane is clearly necessary for both intersection operations and safety. Additionally, since an eastbound left-turn lane of 150 feet is present at the existing Yow commercial access location, it is recommended to keep the same 150 feet of storage at the new proposed site access intersection for the eastbound left movement.

SIGHT DISTANCE REVIEW

Callahan Drive is a relatively straight and flat roadway in the study area, which was constructed to very high geometric standards. Accordingly, sight distance to and from the proposed site access intersection is excellent and well in excess of minimum standards.

RELOCATED MEDIAN OPENING REVIEW

Since an existing median opening along Callahan Drive is proposed to be relocated to the proposed site access location, the TDOT Driveway Manual was reviewed to ensure the new median opening spacing along Callahan Drive still met TDOT design guidelines. The TDOT Driveway Manual recommends a median opening spacing of 660 feet (with a range of 440 feet – 880 feet being acceptable) between median openings along a roadway in an urban area such as Callahan Drive. The existing median opening spacing is roughly 700 feet between the existing Yow Commercial and the adjacent opening to the east. The proposed relocated median opening is anticipated to reduce the median opening spacing to 600 feet. This spacing falls within the acceptable spacing range referenced above.

CONCLUSIONS & RECOMMENDATIONS

The primary conclusion of this study is that the traffic generated from the proposed development will not have significant impacts at four of the six study intersections. While two of the study intersections indicated unacceptable levels-of-service at full project build-out without improvements, logical improvements are available to address these concerns.

The following is a listing of recommendations that were developed to address concerns that resulted primarily from traffic generated from the project site, or are offered to accommodate development of the site.

1. Construct the site access intersection as indicated on the project site plan, which includes relocation of the access driveways to Yow Commercial / Viles Auto to utilize this new intersection.
2. Install a three-phase traffic signal at this new site access intersection, which would include a left-turn phase into the project site and advance detector loops on the Callahan Drive approaches. This intersection is about one-half mile from the existing traffic signal at the I-75 southbound ramps. The City of Knoxville / Knox County should determine if such spacing justifies signal coordination between these signals, considering the dilemma zone advantages of the advance loops would be lost during hours when coordination is active. One possibility would be to run coordination during peak traffic hours and allow the site signal to run free during other hours.
3. At the proposed new site access intersection,
 - a. Construct the following turn lanes on Callahan Drive:
 - i. Eastbound right-turn lane with 100 feet of storage and a 180-foot bay taper
 - ii. Eastbound left-turn lane with 150 feet of storage and a 180-foot bay taper
 - iii. Westbound left-turn lane with 150 feet of storage and a 180-foot bay taper
 - b. Proposed site access (northbound approach) cross-section:
 - i. Northbound left-turn lane (12') and through / right lane (12')
 - ii. Provide two (2) receiving lanes (12' each) into the proposed site access
 - iii. Median width of 10'
4. Place any site related landscaping and signage at the site access intersection in such a fashion as to maintain the existing intersection sight distances.

The following is a listing of concerns / recommendations that were identified at project study intersections that are primarily existing issues that can expect relatively minor impact from site traffic.

1. The intersection of Callahan Drive and I-75 Northbound ramps is expected to exhibit unacceptable levels-of-service during the PM peak hour for 2025 background and combined traffic conditions. The addition of a second northbound right-turn lane would address this issue.
2. The intersection of Callahan Drive and Central Avenue Pike is expected to exhibit marginal, but acceptable, level-of-service conditions during the PM peak hour for 2025 background and combined traffic conditions. Therefore, we are calling the City of Knoxville's attention to this issue that may require addressing in the near future.



Development Request

DEVELOPMENT

- Development Plan
- Planned Development
- Use on Review / Special Use
- Hillside Protection COA

SUBDIVISION

- Concept Plan
- Final Plat

ZONING

- Plan Amendment
 - SP
 - OYP
- Rezoning

Wilbanks, LLC.

Applicant Name		Affiliation
02/19/2021	April 8, 2021	File Number(s) 4-SF-21-C
Date Filed	Meeting Date (if applicable)	

CORRESPONDENCE

All correspondence related to this application should be directed to the approved contact listed below.

- Applicant
- Owner
- Option Holder
- Project Surveyor
- Engineer
- Architect/Landscape Architect

Name		Company	
Jeff Beckett		Cannon & Cannon, Inc.	
Address		City	State
8550 Kingston Pike		Knoxville	TN
Phone		Email	
(865) 670-8555		jbeckett@cannon-cannon.com	
Address		City	State
8550 Kingston Pike		Knoxville	TN
ZIP		37919	

CURRENT PROPERTY INFO

Willbanks, LLC	PO Box 50730, Knoxville, TN 37950	(865) 392-3052
Owner Name (if different)	Owner Address	Owner Phone
900 Callahan Drive	068 05401 (See Concept Plan for 11 Tracts)	
Property Address	Parcel ID	
Hallsdale Powell Utility District	Hallsdale Powell Utility District	N
Sewer Provider	Water Provider	Septic (Y/N)

STAFF USE ONLY

Southeast side of Callahan Road, North side of Keck Rd.		116 ac. +/-
General Location		Tract Size
city: 3, County 7 LI, C-H-2, AG, CB, C-H-1, C-G-1 RR, AgForVac, CO, OT		
<input checked="" type="checkbox"/> City <input type="checkbox"/> County	District	Zoning District
Northwest City	MU-SD nwc-1, LDR, GC	Urban
Planning Sector	Sector Plan Land Use Classification	Growth Policy Plan Designation

DEVELOPMENT REQUEST

- Development Plan
 Use on Review / Special Use
 Hillside Protection COA
 Residential
 Non-Residential

Home Occupation (specify) _____

Other (specify) _____

Related City Permit Number(s)

SUBDIVISION REQUEST

Proposed Subdivision Name _____

Combine Parcels
 Divide Parcel
 Total Number of Lots Created _____

Other (specify) Public Access Road and Intersection Improvements

Attachments / Additional Requirements

Related Rezoning File Number

ZONING REQUEST

Zoning Change _____
 Proposed Zoning

Plan Amendment Change _____
 Proposed Plan Designation(s)

Proposed Density (units/acre) _____

Previous Rezoning Requests _____

Other (specify) _____

Pending Plat File Number

STAFF USE ONLY

PLAT TYPE

- Staff Review
 Planning Commission

ATTACHMENTS

- Property Owners / Option Holders
 Variance Request

ADDITIONAL REQUIREMENTS

- Design Plan Certification (*Final Plat*)
 Use on Review / Special Use (*Concept Plan*)
 Traffic Impact Study
 COA Checklist (*Hillside Protection*)

Fee 1	Total
0108 830.00	830.00
Fee 2	
Fee 3	

AUTHORIZATION

By signing below, I certify I am the property owner, applicant or the owners authorized representative.

Jeff Beckett

Digitally signed by Jeff Beckett
Date: 2021.02.19 13:07:15 -05'00'

Wilbanks, LLC.

2/19/2021

Applicant Signature

Please Print

Date

(865)670-8555

jbeckett@cannon-cannon.com

Phone Number

Email

Marc Payne

Digitally signed by Marc Payne
Date: 2021.02.23 15:21:34 -05'00'

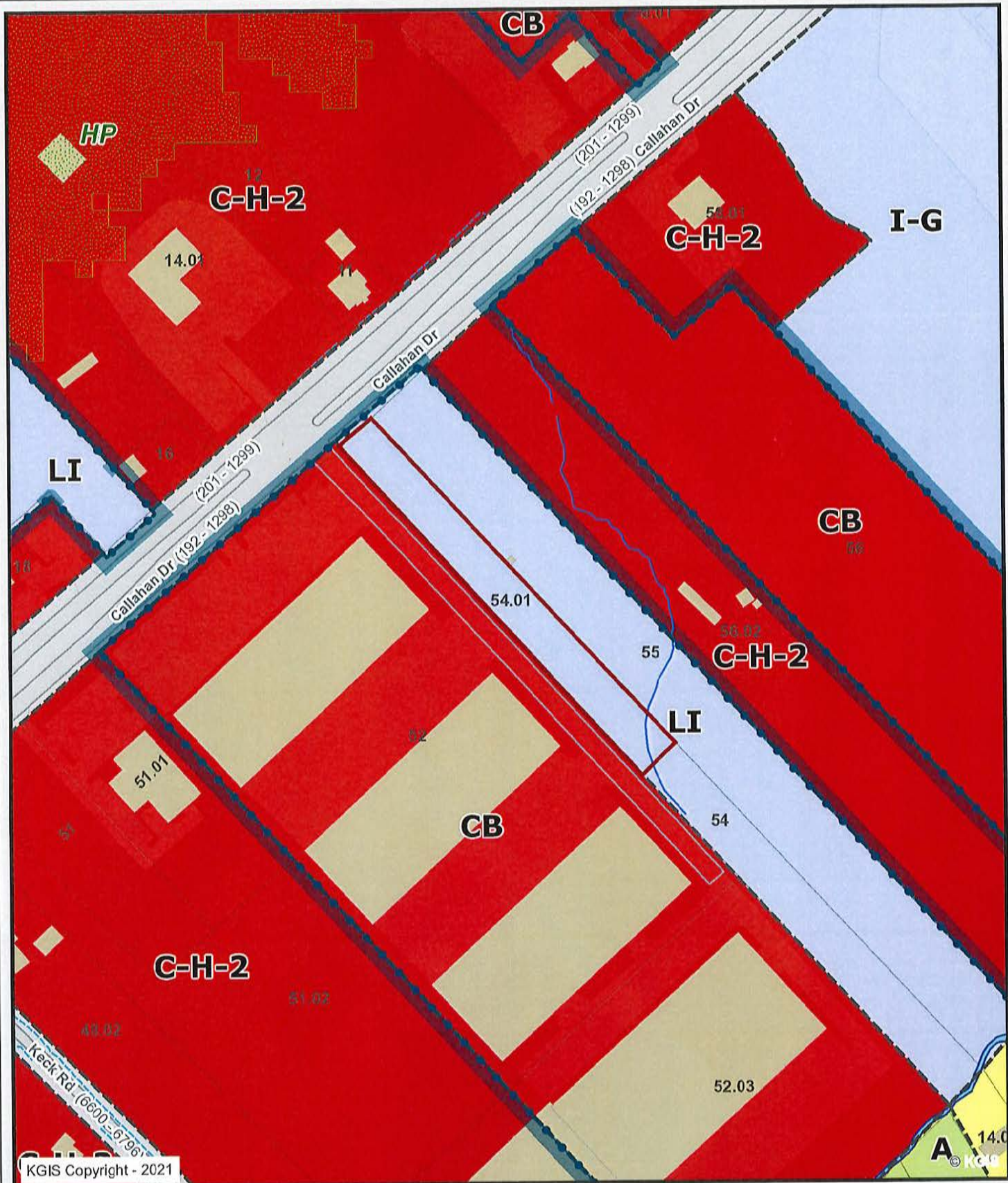
Marc Payne

2/19/2021

Staff Signature

Please Print

Date

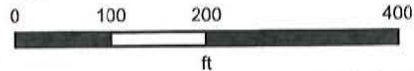


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