

August 5, 2020

Mr. Andrew Cibor, PE, PTOE
City of Asheville Traffic Engineer
P.O. Box 7148
Asheville, North Carolina 28802

Subject: Traffic Impact Assessment for Enclave Asheville
Asheville, North Carolina

Dear Mr. Cibor:

This letter summarizes the findings of the Traffic Impact Assessment (TIA) performed by Ramey Kemp Associates (RKA) for the Enclave Asheville multi-family residential development that is to be constructed on Piney Mountain Drive in Asheville, North Carolina. The purpose of this study is to determine the potential impact created by the additional traffic generated by the multi-family development, which is anticipated to be completed by the end of 2023. In order to accomplish this objective, the study intersections were analyzed under existing (2020), future (2023) 'no-build' and 'build' traffic conditions during the weekday AM, Midday, and PM peak hours. The study area consisted of the following intersections:

- Tunnel Road (US 70/74A) and Chunns Cove Road (SR 2244) - Signalized
- Chunns Cove Road and Interstate 240 (I-240) Ramps - Unsignalized
- Chunns Cove Road and Piney Mountain Drive - Unsignalized

Refer to the attached appendix for the approved NCDOT TIA Scoping Checklist.

Background

The site is currently undeveloped and is located south of The Church at Asheville on Piney Mountain Drive. Access to the site is to be provided via two (2) new full movement connections on Piney Mountain Drive located approximately 1,900 feet and 3,100 feet south of Chunns Cove Road, respectively.

Tunnel Road (US 70/74A) is a five-lane facility that is maintained by the North Carolina Department of Transportation (NCDOT) and has a posted speed limit of 35 miles per hour (mph) in the study area. A center two-way left turn lane is provided on the northbound and southbound approaches at Chunns Cove Road. Tunnel Road carries approximately 12,500 vehicles per day north of Chunns Cove Road and 15,000 vehicles vpd south of Chunns Cove Road according to 2018 NCDOT Annual Average Daily Traffic (AADT) data [which is the most recent available].

Chunns Cove Road (SR 2244) is a two-lane facility that is maintained by the NCDOT and has posted speed limits of 30 mph and 35 mph north and south of Piney Mountain Drive, respectively. An exclusive right



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

September 28, 2020

Chase Smith, P.E. – Ramey Kemp Associates

Prepared for:

Enclave Asheville Phase 2

McCall Capital

531 S. Main St., Suite 207

Greenville, SC 29601

SUBJECT: ****FINAL DECISION**** *Enclave Asheville Phase 2*- Piney Mountain Drive
(City of Asheville street) residential development TIA and Site Plan review
located in Asheville, Buncombe County Division 13.

The District Office has performed a TIA and Site Plan review of the subject residential development located on Piney Mountain Drive (City of Asheville street) off SR-2244 (Chunns Cove Rd) and I-240 in Asheville.

The District Office has determined the following listed improvement(s) (please see attached document) are required to be done in accordance with the *Policy on Street and Driveway Access to North Carolina Highways*. All improvements and documentation shall be shown on the plans and provided as part of the package submitted to the NCDOT District Office for review and approval of a Driveway Access Permit. Local authority approval sign off shall be obtained prior to submittal (City of Asheville).

All work is to be done in strict compliance with the North Carolina Department of Transportation Standards and Specifications. At your convenience, please submit for a driveway access permit in accordance and provide all necessary documentation. Feel free to give us a call at the District Office (828) 298-2741 if you would like to discuss further.

Sincerely,

DocuSigned by:

A handwritten signature in blue ink that reads "Christopher D. Medlin".

6D92D71E27C94A3
Christopher D. Medlin, PE
District Engineer

CDM/nkd
Attachments

NC DEPARTMENT OF TRANSPORTATION
DIVISION 13 DISTRICT II OFFICE
ASHEVILLE, NC 28802

Telephone: (828) 298-2741
Fax: (828) 299-3747
Customer Service: 1-877-368-4968

11 OLD CHARLOTTE HWY.
ASHEVILLE, NC 28803

Website: www.ncdot.gov



Enclave Asheville Phase 2 TIA

SC-2020-077

Buncombe County

The North Carolina Department of Transportation (NCDOT) has completed a review of the subject site. The comments and requirements contained in this review are based on data for background conditions presented in the sealed Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities (City of Asheville).

Key Dates

Initially Received by CMS	08/5/2020
Date of Latest Information Received by CMS	09/4/2020
Date of Preliminary Review Accepting TIA for Review	09/8/2020
Sealed TIA Prepared by Ramey Kemp & Associates	09/4/2020
Site Plan Prepared by Civil Design Concepts, PA	07/6/2020

Proposed Development

According to the TIA, the proposed Enclave Asheville Phase 2 development is located on Piney Mountain Dr off SR 2244 (Chunns Cove Rd) and I-240 in Asheville, Buncombe County. The TIA states the development is to be constructed by 2023 and is to consist of the following:

Land Use	Land Use Code	Size
Multifamily Housing (Mid-Rise)	221	360

Trip Generation - Unadjusted Volumes During a Typical Weekday

Based on appropriate methodology outlined in the *ITE Trip Generation Manual, 10th Ed.*

	IN	OUT	TOTAL
AM Peak Hour	31	89	120
PM Peak Hour	92	60	152
Daily Trips			1960

Requested Access Points

Driveway	Public Roadway	Access Type
Phase 1 Access	Piney Mountain Dr (city street)	All-Movement
Phase 2 Access	Piney Mountain Dr (city street)	All-Movement

TIP Projects in Study Area

Project	Description	Let Date
I-5901	I-240-mile marker 4 to mile marker 9. Pavement rehabilitation.	01/18/2022



Study Area

Study Area and Proposed Site Location - ↑ N



Photo Credit: Google Maps

French Broad River MPO Comprehensive Transportation Plan

Route	Facility Vision
I-240	Freeway – Existing
US 70 (Tunnel Rd)	Other Major Thoroughfare – Existing
SR 2244 (Chunns Cove Rd)	Minor Thoroughfare – Existing



TIA Comments

The following items vary from our recommended practices (some comments were satisfied after the initial TIA submittal):

- The PEF used several values for Peak Hour Factor (PHF) in the analyses. Unless sufficient information is given to support another value, 0.90 for signalized intersections should be used.
- For left-turn signal phases, protected/permissive phasing was used in the analysis for one or more intersections without clarification or justification.
- Cycle lengths used for one or more intersections were below the minimums recommended without further clarification or justification. Determination of the number of signal phases should follow NCDOT Signals and Geometrics procedures.
- A SimTraffic Queuing and Blocking Report should be included in the TIA to quantify overall queuing through the network of signals.
- Hand write the date with the signature when signing and sealing the document.
- Internal Protected Stem lengths for each proposed driveway should be provided in the TIA in conformance with requirements in the Driveway Manual
- All link termini should extend a reasonable distance beyond the last node (typically 1000 feet) to ensure adequate queuing can be calculated in SimTraffic.
- Use the "Error Check" tool before running SimTraffic to ensure that there are no anomalies that may alter SimTraffic modeling results.
- Analysis of all lanes with finite storage should include an appropriate default taper of 100 feet or more in the analysis.



General Reference

For reference to various documents applicable to this review please reference the following links: <https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx> and https://connect.ncdot.gov/resources/safety/Teppl/Pages/Teppl-Topic.aspx?Topic_List=C37.

It should be noted that poor LOS and excessive queuing may persist throughout network after recommended developer and outside mitigation.

Analysis of all lanes with finite storage should include an appropriate default taper of 100 feet or more in the analysis. Our storage distances in our reports are minimums that do not include deceleration or taper distances.

Any signing and pavement marking revisions/modifications or improvements necessitated by the development should be the responsibility of the developer unless otherwise noted.

It should be noted that the comments and requirements contained in this review are subject to the approval of the local authorities (City of Asheville).

Please submit for a driveway access permit in Accordance with the Policy on Street and Driveway Access to North Carolina Highways. Local authority's sign off shall be obtained prior to submittal.



Requirements

Legend

- | | |
|---|---|
| ❶ | Improvement by Developer. NCDOT concurs with recommendation. |
| ❷ | Improvement by Developer. Additional or modified requirement. |

Piney Mountain Dr – Corridor Analysis

Piney Mountain Dr is a city street under the jurisdiction of the City of Asheville.

Piney Mountain Dr & Proposed Phase 1 Site Access Driveway

Proposed Stop-Controlled Intersection

- **WB Proposed Phase 1 Site Access Driveway**
 - Two-lane cross-section: one ingress, one egress ❶
 - Egress: Shared Left/Right-Turn Lane ❶

Piney Mountain Dr & Proposed Phase 2 Site Access Driveway

Proposed Stop-Controlled Intersection

- **WB Proposed Phase 2 Site Access Driveway**
 - Two-lane cross-section: one ingress, one egress ❶
 - Egress: Shared Left/Right-Turn Lane ❶

Other Intersections

For the following intersections below, no geometric improvements are required for site traffic. ❶

- SR 2244 (Chunns Cove Rd) & Piney Mountain Dr
- SR 2244 (Chunns Cove Rd) & I-240 Ramps
- US 70 (Tunnel Rd) & Innsbruck Mall Access/SR 2244 (Chunns Cove Rd)

□

turn lane is provided on the westbound approach at the Tunnel Road intersection, while an exclusive left turn lane is provided on the southbound approach at the I-240 On-Ramp.

Piney Mountain Drive is a two-lane facility with no outlet and a posted speed limit of 35 mph.

Existing lane configurations (number of traffic lanes on the intersection approach), storage capacities, and other intersection and roadway information were collected through field reconnaissance by RKA. Refer to the attached appendix for the site location map, site plan, and an illustration of the existing lane geometrics and traffic control at the study intersections.

Traffic Analysis Procedure

The study intersections were analyzed using the methodology outlined in the Highway Capacity Manual (HCM) published by the Transportation Research Board. The computer software package, Synchro (Version 10.3) was utilized to perform all analyses. Synchro was developed by Trafficware Corporation and allows the user to input data into the Synchro software and calculate the output based on methodologies in the HCM.

The HCM defines capacity as “the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions.” Level of service (LOS) is a term used to represent different driving conditions and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers.” Level of service varies from LOS “A” representing free flow to LOS “F” where greater vehicle delays are evident.

For signalized intersections, Synchro provides LOS calculations for all approaches and an overall resulting LOS. Capacity analysis results for unsignalized intersections do not provide an overall LOS, but rather a LOS for movements and/or approaches that have a conflicting movement. Delay and LOS are the design criteria for this analysis.

Refer to Table 1 for HCM levels of service and related average control delay per vehicle. Control delay as defined by the HCM includes “initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.” As shown in Table 1, an average control delay of 30 seconds at an unsignalized intersection results in level of service D operation at the intersection.

TABLE 1
Highway Capacity Manual Levels of Service and Delay

Signalized Intersection		Unsignalized Intersection	
Level of Service	Average Control Delay Per Vehicle (Seconds)	Level of Service	Average Control Delay Per Vehicle (Seconds)
A	0-10	A	0-10
B	10-20	B	10-15
C	20-35	C	15-25
D	35-55	D	25-35
E	55-80	E	35-50
F	>80	F	>50

Existing Traffic Conditions

Existing traffic data was collected at the study intersections during the AM (7:00 to 9:00) and PM (4:00 to 6:00) peak periods on a normal weekday in 2017 when school was in session. Please note that the traffic volumes were balanced upwards between the study intersections. In order to estimate existing (2020) traffic volumes, a compounded annual growth rate of 0.5% [per NCDOT and the City] was applied to the balanced 2017 traffic volumes. Refer to the attached appendix for an illustration of the existing (2020) peak hour traffic volumes. Refer to the attached appendix for a copy of the raw traffic count data.

Future 'No-Build' Traffic Conditions

In order to account for the growth of traffic and subsequent traffic conditions at a future year, background traffic projections are needed. Background traffic is the component of traffic due to growth of the community and surrounding area that is anticipated to occur regardless of whether the site is developed. Through coordination with NCDOT and the City, a compounded annual growth rate of 0.5% was applied to the 2020 traffic volumes to project background traffic volumes for the horizon year 2023. Refer to the attached appendix for an illustration of the future (2023) 'no-build' peak hour traffic volumes.

Trip Generation

The average weekday daily as well as the AM and PM peak hour site trips were calculated utilizing the 10th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. Traffic was generated according to the peak hour of adjacent street traffic, utilizing the number of dwelling units as the independent variable for the mid-rise multi-family housing land use (ITE Code 221). ITE equations were used to generate trips for the proposed land. It is estimated that the proposed development could generate 1,960 total trips (entering and exiting) during a typical 24-hour weekday period. Of these daily traffic volumes, it is anticipated that the site could generate 120 trips (31 entering and 89 exiting) during the AM

peak hour and 152 trips (92 entering and 60 exiting) during the PM peak hour. Refer to Table 2 for a breakdown of the site generated traffic volumes

TABLE 2
Site Trip Generation

ITE Land Use (Code)	Independent Variable	Average Daily Traffic (vpd)	AM Peak Hour (vph)		PM Peak Hour (vph)	
			Enter	Enter	Enter	Exit
Mid-Rise Multi-Family Housing (221)	360 dwelling units	1,960	31	89	92	60

Trip Distribution and Assignment

Site trip distribution percentages used for this study were developed based on existing traffic patterns and engineering judgment. The primary site trip distribution is estimated as:

- 40% to/from the north via Tunnel Road
- 20% to/from the south via Tunnel Road
- 35% to/from the south via Interstate 240
- 5% to/from the west via the Innsbruck Mall Access

Refer to the attached appendix for illustrations of the site trip distribution and site trip assignment.

Future 'Build' Traffic Conditions

In order to estimate traffic conditions with the site developed, the site traffic was combined with the future 'no-build peak hour volumes. Refer to the attached appendix for an illustration of the future (2023) 'build' peak hour traffic volumes.

Capacity Analysis

All existing and future traffic conditions were analyzed utilizing existing lane geometrics and traffic control at the study intersections. Per the City of Asheville, the study intersections were analyzed utilizing the peak hour factor (PHF) for each individual approach obtained from the existing traffic counts. In addition, no right turns on red were permitted at the signalized study intersection. Since the signalized intersection is located in a closed loop system, existing signal phasing and timing information was obtained from NCDOT. The existing cycle lengths, phase splits, and offsets obtained from the coordination plans were utilized for all existing and future traffic analysis at this intersection. Based on the timing information provided by NCDOT, the signal operates with a cycle length of 90 seconds during the AM peak period and 110 seconds during the PM peak period. Protected-permissive phasing is provided for the northbound and southbound left turn movements on Tunnel Road, while split-side phasing is provided for the eastbound

and westbound approaches of the Innsbruck Mall Access and Chunns Cove Road. Overlap phasing is provided for the westbound right turn movement on Chunns Cove Road in conjunction with the southbound left turn movement on Tunnel Road. Refer to the attached appendix for a copy of the signal plan and timing data. Please note that for movements in which 'zero' volumes exist, a peak hour volume of 4 vehicles (1 per 15 minute period) was assumed for all analyses.

Refer to Tables 3-7 for summaries of the analysis results for the weekday AM and PM peak hours at each of the study intersections. Refer to the attached appendix for detailed capacity analysis results, as well as an illustration of the 95th percentile queues provided by Synchro under future (2023) 'build' conditions.

Tunnel Road (US 70/74A) and Chunns Cove Road (SR 2244)

Capacity analysis indicates that the signalized intersection is expected to operate at an overall LOS C during the AM and PM peak hours under all existing and future traffic conditions. In addition, all intersection approaches are expected to operate at LOS D or better. Refer to Table 3 for a summary of the capacity analysis results. Detailed Synchro analysis reports can be found in the attached appendix.

TABLE 3
Analysis Results for Tunnel Road and Innsbruck Mall Access/Chunns Cove Road

A P P R O A C H	Lane Configuration	Existing Traffic Conditions		Future 'No-Build' Traffic Conditions		Future 'Build' Traffic Conditions	
		Approach	Overall	Approach	Overall	Approach	Overall
AM PEAK HOUR							
NB	1 LT, 1 TH, 1 TH-RT	B (16.9)	C (22.3)	B (17.1)	C (22.4)	B (18.8)	C (23.5)
SB	1 LT, 1 TH, 1 TH-RT	B (12.1)		B (12.2)		B (13.1)	
EB	1 LT, 1 TH-RT	D (40.1)		D (40.1)		D (40.1)	
WB	1 LT, 1 TH-RT	D (35.6)		D (35.5)		C (34.7)	
PM PEAK HOUR							
NB	1 LT, 1 TH, 1 TH-RT	C (27.1)	C (28.8)	C (25.7)	C (28.6)	C (28.0)	C (30.1)
SB	1 LT, 1 TH, 1 TH-RT	C (20.5)		C (20.9)		C (22.1)	
EB	1 LT, 1 TH-RT	D (52.4)		D (53.3)		D (54.2)	
WB	1 LT, 1 TH-RT	D (42.3)		D (43.1)		C (42.8)	

Chunns Cove Road (SR 2244) and Interstate 240 Ramps

Capacity analysis of the unsignalized intersection indicates the that major street southbound left turn movement [on Chunns Cove Road] is expected to experience minor delays [of less than 9.0 seconds per

vehicle] and operate at LOS A during the AM and PM peak hours under all existing and future traffic conditions. The stop-controlled westbound approach [of the I-240 Off-Ramp] is expected to experience moderate overall delays [of less than 29.0 seconds per vehicle] and operate at LOS D or better during the peak hours with the exception of the PM peak hour under future 'build' conditions. Although the delay on the westbound approach of the I-240 Off-Ramp is expected to increase and the level of service is expected to decrease from 'no-build' to 'build' conditions, the stop-controlled approach is expected to operate at a level of operation that is not uncommon at unsignalized intersections, especially during peak times of the day when traffic volumes are the heaviest. Because of this, and the fact that exclusive turn lanes are currently provided on Chunns Cove Road and the ramp, no mitigation is recommended. Refer to Table 4 for a summary of the capacity analysis results. Detailed Synchro analysis reports can be found in the attached appendix.

TABLE 4
Analysis Results for Chunns Cove Road and I-240 Ramps

A P P R O A C H	Lane Configuration	Existing Traffic Conditions		Future 'No-Build' Traffic Conditions		Future 'Build' Traffic Conditions	
		Approach	Overall	Approach	Overall	Approach	Overall
AM PEAK HOUR							
NB SB ¹ WB ²	1 TH-RT 1 LT, 1 TH 1 LT, 1 RT	- A (7.8) C (17.3)	-	- A (7.8) C (17.7)	-	- A (8.0) D (28.5)	-
PM PEAK HOUR							
NB SB ¹ WB ²	1 TH-RT 1 LT, 1 TH 1 LT, 1 RT	- A (8.3) D (25.8)	-	- A (8.4) D (26.9)	-	- A (8.7) E (44.9)	-

1. Level of Service for left-turn movement on major approach.

2. Level of service for minor-street approach.

Chunns Cove Road (SR 2244) and Piney Mountain Drive

Capacity analysis of the unsignalized intersection indicates that the major street southbound left turn movement [on Chunns Cove Road] is expected to experience minor delays [of less than 8.0 seconds per vehicle] and operate at LOS A during the AM and PM peak hours under all existing and future traffic conditions. The stop-controlled westbound approach [of Piney Mountain Drive] is expected to experience minor to moderate overall delays [of less than 16.5 seconds per vehicle] and operate at LOS C or better

during the peak hours. Refer to Table 5 for a summary of the capacity analysis results. Detailed Synchro analysis reports can be found in the attached appendix.

TABLE 5
Analysis Results for Chunns Cove Road and Piney Mountain Drive

A P P R O A C H	Lane Configuration	Existing Traffic Conditions		Future 'No-Build' Traffic Conditions		Future 'Build' Traffic Conditions	
		Approach	Overall	Approach	Overall	Approach	Overall
AM PEAK HOUR							
NB SB ¹ WB ²	1 TH-RT 1 LT, 1 TH 1 LT, 1 RT	- A (7.7) B (10.8)	-	- A (7.7) B (10.8)	-	- A (7.8) B (12.9)	-
PM PEAK HOUR							
NB SB ¹ WB ²	1 TH-RT 1 LT, 1 TH 1 LT, 1 RT	- A (7.7) B (13.1)	-	- A (7.7) B (13.3)	-	- A (7.9) C (16.3)	-

1. Level of Service for left-turn movement on major approach.
2. Level of service for minor-street approach.

Piney Mountain Drive and Site Drive 1

Capacity analysis of the unsignalized intersection indicates that the major street southbound left turn movement [on Piney Mountain Drive] is expected to experience minor delays [of less than 8.0 seconds per vehicle] and operate at LOS A during the AM and PM peak hours under all existing and future traffic conditions. The stop-controlled westbound approach [of Site Drive 1] is expected to experience minor overall delays [of less than 10.0 seconds per vehicle] and operate at LOS A during the peak hours. Refer to Table 6 for a summary of the capacity analysis results. Detailed Synchro analysis reports can be found in the attached appendix.

TABLE 6
Analysis Results for Piney Mountain Drive and Site Drive 1

A P P R O A C H	Lane Configuration	Future 'Build' Traffic Conditions	
		Approach	Overall
AM PEAK HOUR			
NB SB ¹ WB ²	1 TH-RT 1 LT-TH 1 LT-RT	- A (7.4) A (9.0)	-
PM PEAK HOUR			
NB SB ¹ WB ²	1 TH-RT 1 LT-TH 1 LT-1 RT	- A (7.8) A (9.9)	-

1. Level of Service for left-turn movement on major approach.
2. Level of service for minor-street approach.

Piney Mountain Drive and Site Drive 2

Capacity analysis of the unsignalized intersection indicates that the major street southbound left turn movement [on Piney Mountain Drive] is expected to experience minor delays [of less than 8.0 seconds per vehicle] and operate at LOS A during the AM and PM peak hours under all existing and future traffic conditions. The stop-controlled westbound approach [of Site Drive 2] is expected to experience minor overall delays [of less than 10.0 seconds per vehicle] and operate at LOS A during the peak hours. Refer to Table 7 for a summary of the capacity analysis results. Detailed Synchro analysis reports can be found in the attached appendix.

TABLE 7
Analysis Results for Piney Mountain Drive and Phase 2 Access

A P P R O A C H	Lane Configuration	Future 'Build' Traffic Conditions	
		Approach	Overall
AM PEAK HOUR			
NB SB ¹ WB ²	1 TH-RT 1 LT-TH 1 LT-RT	- A (7.3) A (8.8)	-
PM PEAK HOUR			
NB SB ¹ WB ²	1 TH-RT 1 LT-TH 1 LT-1 RT	- A (7.7) A (9.6)	-

1. Level of Service for left-turn movement on major approach.
2. Level of service for minor-street approach.

Queuing Analysis

Based on the 95th percentile queues [calculated by Synchro], it appears that the existing turn lane storages provided on Tunnel Road and Chunns Cove Road are adequate. Queues on Tunnel Road and Chunns Cove Road under 'build' conditions are not expected to increase by more than 40 feet when compared to the 'no-build' conditions. Additionally, queues on the westbound stop-controlled approaches of the I-240 Off-Ramp and Piney Mountain Drive at Chunns Cove Road under 'build' conditions are not expected to increase by more than 65 feet when compared to the 'no-build' conditions. Refer to Figure 9 for an illustration of the proposed lane configurations with the 95th percentile queues expected for each lane.

Conclusions

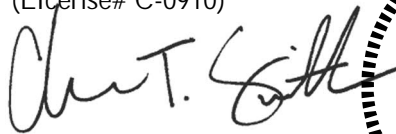
In conclusion, the multi-family residential development is not expected to have a significant impact on the operation of the adjacent transportation network. Based on the findings of this traffic impact assessment, the signalized intersection of Tunnel Road and Chunns Cove Road is expected to operate at an overall LOS C or better during the weekday AM and PM peak hours under all existing and future traffic conditions. In addition, all intersection approaches are expected to operate at LOS D or better. As for the unsignalized intersections, all main street left turn movements are expected to operate at LOS A during the peak hours under existing and all future traffic conditions. Furthermore, each of the stop-controlled approaches are

expected to operate at LOS D or better, with the exception of the westbound approach of the I-240 Off-Ramp during the PM peak hour under 'build' conditions. As stated previously, the greater delays and poorer levels of operation are not uncommon for stop-controlled approaches during peak times when traffic volumes are the heaviest. Finally, there does not appear to be any queuing problems associated with the addition of the development traffic.

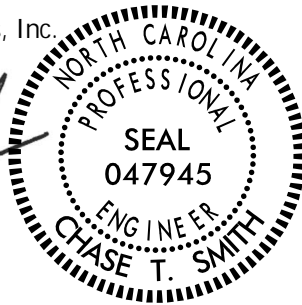
Sincerely,

Ramey Kemp and Associates, Inc.

(License# C-0910)



Chase Smith, PE



APPENDIX

APPROVED NCDOT SCOPING CHECKLIST



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



A Traffic Impact Analysis (TIA) may be required for developments based on the site trip generation estimates, site context, or at the discretion of the NCDOT District Engineer. The Applicant or the TIA Consultant shall submit this form along with the site plan to the District Engineer to determine the TIA need and, if a TIA is required, initiate the TIA scoping process. Without an approved scope, the TIA is incomplete and will be rejected until the study is revised to conform to NCDOT's TIA requirements.

Project Name: Enclave Asheville Phase 2 **Previous Name:** If Applicable _____
Location: Piney Mountain Drive **County:** Buncombe **Municipality:** Asheville
Project Description: Phase 2 of Enclave Asheville Multi-family Development located on Piney Mountain Drive.
Client is approved 220 units under Phase 1 and is proposing a total of 360 units [140 units in Phase 2].

Project Contact:	Applicant	TIA Consultant
Company Name	<u>McCall Capital</u>	<u>Ramey Kemp Associates</u>
Contact Person	<u>Marcus S. McCall</u>	<u>Chase Smith</u>
Phone Number	<u>864-370-0037</u>	<u>336-725-5470</u>
Email	<u>mm@mccallcap.com</u>	<u>csmith@rameykemp.com</u>
Mailing Address	<u>531 S. Main St., Suite 207</u> <u>Greenville, SC 29601</u>	<u>621 Jonestown Road, Suite 221</u> <u>Winston Salem, NC 27103</u>

Site Plan Prepared By: Civil Design Concepts, Pa **Site Plan Date:** July 6, 2020
 See site plan/vicinity map requirements on page 2.
Parcel Size: _____ Acre(s) **Anticipated Build-Out Year:** 2023

Weekday Site Trip Generation - Do NOT adjust for mode split, pass-by, internal capture, or diverted trips.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
221	Midrise Multifam	360	DU	1960	Adj. Street	31	89	120	92	60	152	Other Data**
Total				1960		31	89	120	92	60	152	

Refer to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#) for acceptable trip calculation methods and data sources.

**Explain local or other data sources, if used: _____


- ☐ The estimated site trips meet NCDOT's TIA trip threshold of 3,000 daily trips.
- ☐ The estimated site trips meet the municipal TIA trip threshold of _____
- ☐ This project is located in a known [STIP](#) and/ or local CIP project # _____
- ☐ This project includes a rezoning request.



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



- ☐ The proposed site access is located within 1,000 feet of an interchange.
- ☐ The Applicant requests for a new or modified control-of-access break.
- ☐ The Applicant requests for a new or modified median break.


Applicant's Signature

Marcus S. McCall
Print Name

7/17/2020
Date

Site Plan/Vicinity Map Requirement for TIA Need Screening: While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Name: _____ **Project Reference Number:** _____

- ☐ **A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.
- ☐ **A TIA is Required by NCDOT,** per the [Policy on Street and Driveway Access to North Carolina Highways](#).

If either or both of the boxes above are checked, the Applicant/TIA Consultant is hereby requested to fill out as much as possible of the following TIA scoping checklist, and return it along with the supporting documents to NCDOT prior to the scoping meeting.

- ☐ **A TIA is NOT required.** This decision is based on the development information presented above. Changes in the development plan will require re-evaluation of the TIA need, and may necessitate a TIA. The Applicant should inform the District Engineer of any significant changes in a timely fashion to avoid delays or rejections of the driveway permit / encroachment agreement applications.



NCDOT Traffic Impact Analysis Need Screening / Scoping Request



Additional Comments:

The TIA need decision is made by the NCDOT Division ____ District ____ on ____.

NCDOT District Representative's Signature

Email concurrence may be used in lieu of the signature.

Print Name



NCDOT TIA Scoping Checklist



Project Name: Enclave Asheville Phase 2

TIA Scoping Date: 7-6-2020

☐ **TIA Need Screening Forms are Attached.** Project Reference #: _____ Decision Date: _____

☒ **Site Plan and Access**

☒ Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.

Refer to NCDOT's [Policy on Street and Driveway Access to North Carolina Highways](#) pages 14 and 15 for site plan requirements.

☒ Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Piney Mtn	Conventional Full-Mvmt	Uncontrolled	3100	East	Chunns Cove
Access B	Piney Mtn	Conventional Full-Mvmt	Uncontrolled	1900	East	Chunns Cove
Access C						
Access D						
Access E						
Access F						
Access G						
Access H						

Existing Access	Existing Intersection of		Access Modification	Proposed Interconnectivity (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1			Please Select	Connector 1		
Access 2				Connector 2		
Access 3				Connector 3		
Access 4				Connector 4		

☐ Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).



Proposed K-12 School Site

- ☐ NCDOT [MSTA School Traffic Calculator](#) for Select School Type shall be used.
- ☐ Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).
- ☐ Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.
- ☐ Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).

NCDOT TIA Scoping Checklist



☒ Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
221	MidRise Multifam	360	DU	1960	Adj. Street	31	89	120	92	60	152	ITE Equation
Unadjusted Site Trips				1960		31	89	120	92	60	152	
Internal Capture Trips (Attach Calculation Sheets)												Please Select
Internal Capture % of Unadjusted Site Trips				%	%			%				
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
		Not Applicable		%	%			%			ITE Rate	
				%	%			%				
				%	%			%				
				%	%			%				
				%	%			%				
Pass-By Trips (Attach Calculation Sheets)												
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips												
Diverted Trips, if Applicable and Justifiable												Please Select

****Explain local or other data sources, if used:**

NOTE: Ultimate build out [Phase 1 + Phase 2] is expected to be up to 360 units. The client is currently approved for 220 units under Phase 1.

☐ Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
					Please Select							Please Select
Total Existing Site Trips												X



NCDOT TIA Scoping Checklist



☒ Trip Distribution

- ☒ Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).
- ☐ Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

If required by the District Engineer, the following additional diagrams shall also be submitted:

- ☐ Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)
- ☐ Inter-Development Trips (if 'internal' trips cross public streets)
- ☐ Pass-By Trips
- ☐ Diverted Trips
- ☐ Each Analysis Period

☐ Mode Split

- ☐ Provide Data Source and Justification

Mode Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

- ☐ Identify proper infrastructure and accommodation for other modes of travel.

☒ Analysis Peak Periods:

- ☒ Weekday AM Peak 7-9 AM
- ☒ Weekday PM Peak 4-6 PM
- ☐ Weekday Midday Peak _____
- ☐ Weekday PM School Peak _____
- ☐ Weekend _____ Peak _____
- ☐ Other _____



NCDOT TIA Scoping Checklist



☒ Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under “Site Plan and Access” on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	Tunnel	Chunns Cove	Signal	Use Existing Counts	3/23/17	0.5%	
#2	Chunns Cove	I-240	2-Way Stop	Use Existing Counts	3/23/17	0.5%	
#3	Chunns Cove	Piney Mountain	2-Way Stop	Use Existing Counts	3/23/17	0.5%	
#4							
#5							
#6							
#7							
#8							
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101			Please Select	Please Select		Please Select	
#102							
#103							
#104							
#105							

The following data will be collected:

- ☐ New traffic turning movement counts in ☐ 15-min intervals ☐ 5-min intervals (near schools)
Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.
- ☐ To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:
intersections numbered: _____
and access points numbered: _____
- ☐ Traffic Forecast Data for TIP: _____
- ☒ Roadway/Intersection Configuration & Traffic Control
- ☒ Traffic Signal Phasing & Timing Data
- ☐ Crash Data: _____ Period: _____
- ☐ Other: _____



NCDOT TIA Scoping Checklist



☒ Future Year Conditions

☒ Project Build-Out Year: 2023

☐ Future Analysis Year(s): _____

- ☐ Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description		Year Complete
Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements

☒ Annual Growth Factor: 0.5 %

Justification/Data Source: per Congestion Management's comments; negligible growth on Tunnel Road

☐ Local Comprehensive Transportation Plan Compliance

- ☐ Identify Applicable Local Transportation Planning Documents

- ☐ Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #



NCDOT TIA Scoping Checklist



☒ Study Method

The traffic analysis shall follow the current [*NCDOT Congestion Management Capacity Analysis Guidelines*](#), [*Policy on Street and Driveway Access to North Carolina Highways*](#), and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:
- ☐ 5. TIP Design Year Analysis _____
- ☐ 6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

- ☐ Signal Warrant Analysis for accesses/intersections _____
- ☐ Multi-Modal Level of Service Analysis
- ☐ School Loading Zone Traffic Simulation
- ☐ Phasing Analysis (scope separately as needed)
- ☐ Safety/Crash Analysis
- ☐ Control-of-Access Modification Justification
- ☐ Median Break / Modification Justification
- ☐ Other _____

☒ Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS).

To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

- ☐ Div. Traffic Engr ☐ Regional Traffic Engr ☐ Congestion Management ☐ Other _____

Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required		Please Select	
Draft TIA Report	Required			
Final Sealed TIA Report	Required			

- ☐ **Additional Comments** (municipal TIA requirements, approved variations from NCDOT guidelines)



NCDOT TIA Scoping Checklist



Agreement by All Parties

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire 12 months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

APPLICANT

Signature

Marcus McCall

Print Name

7/17/2020

Date

TIA CONSULTANT

Signature

Chase Smith

Print Name

7-6-2020

Date

LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

Signature

Print Name

Date

Email concurrence may be used in lieu of the signature.

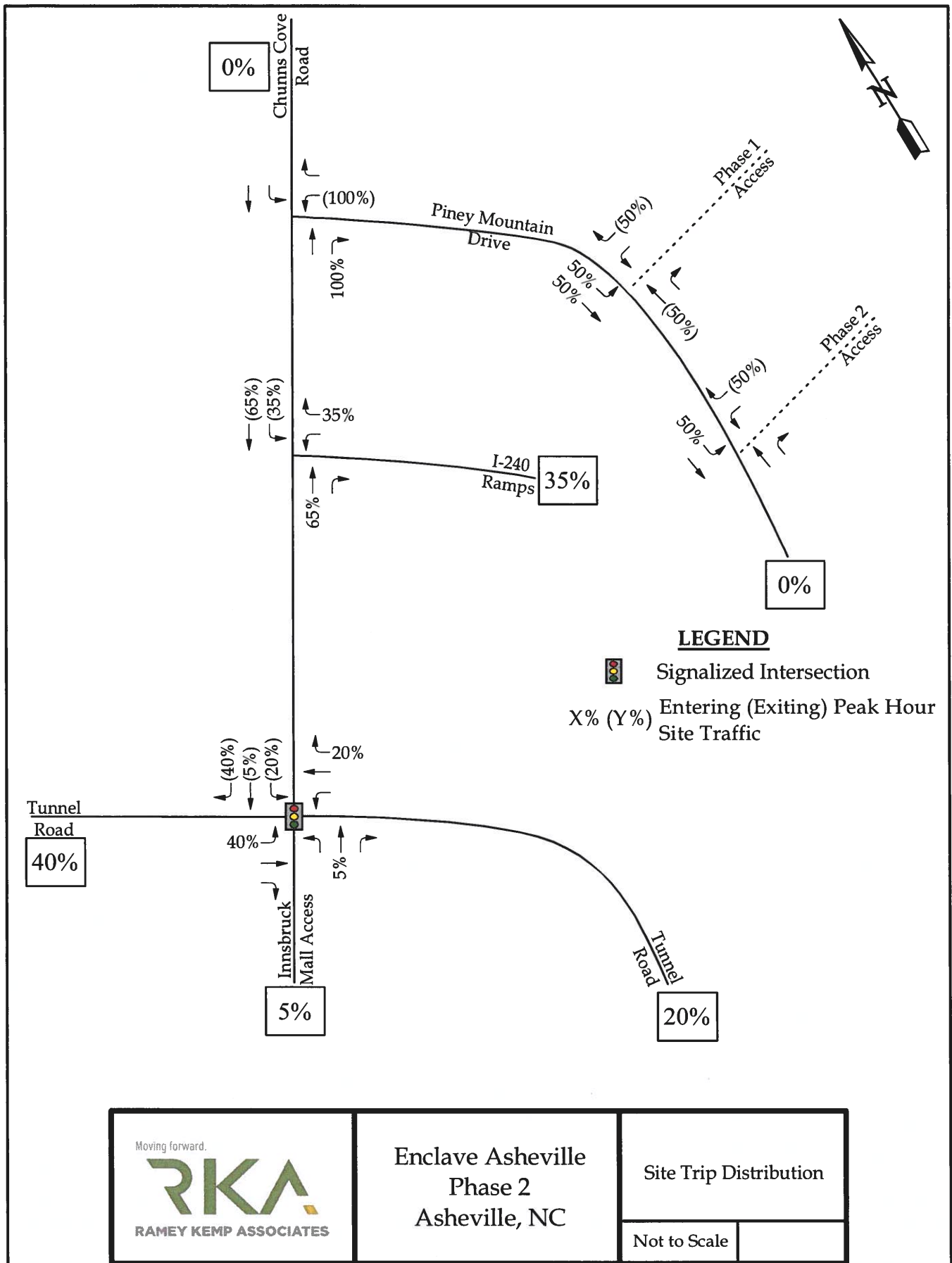
NCDOT DISTRICT REPRESENTATIVE

Reviewed and approved by the NCDOT Division _____ District _____ on _____.

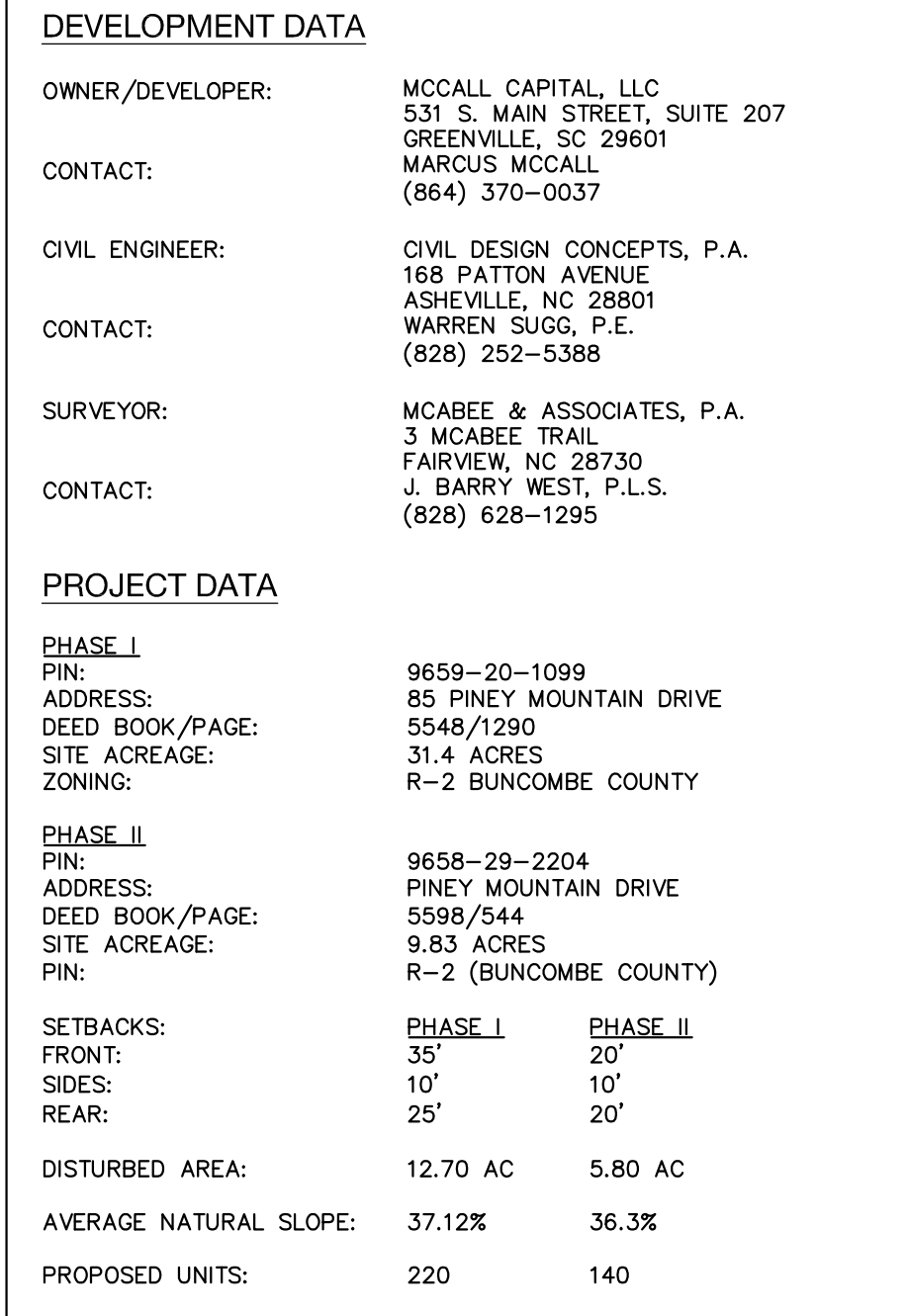
Signature

Print Name

Email concurrence may be used in lieu of the signature.



1. ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL REGULATORY STANDARDS AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS.
2. **SINLGE-PHASE CONSTRUCTION.**
3. ALL WORK MUST BE PERFORMED BY A NORTH CAROLINA LICENSED CONTRACTOR.
4. PROPOSED DEVELOPMENT WILL BE PROVIDED WITH UTILITIES VIA EXISTING RIGHT-OF-WAYS AND PROPOSED UTILITY EASEMENTS. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES PRIOR TO CONSTRUCTION; AND TO NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL BURIED UTILITIES HAVE NOT BEEN SHOWN ON THE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION.
5. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES AND NEWLY COMPLETED WORK DURING CONSTRUCTION. ANY DAMAGE INCURRED DURING OR RESULTING FROM CONSTRUCTION ACTIVITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.
6. PROPOSED DRIVES WITHIN THE DEVELOPMENT TO BE **PRIVATE INTERNAL DRIVES**. ALL STRIPING AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICE (MUTCD). DRIVEWAY MAINTENANCE IS THE FINANCIAL RESPONSIBILITY OF THE DEVELOPER.
7. TOPOGRAPHICAL INFORMATION SHOWN PROPOSED FROM PHOTOGRAMMETRIC METHODS.
8. THE DEVELOPMENT SHOWN ON THIS PLAN WILL BE SERVED BY MSD SEWER AND CITY OF ASHEVILLE WATER (SEE UTILITY PLAN FOR PRELIMINARY WATER AND SEWER LAYOUTS). PROVISIONS WILL BE MADE BY THE DEVELOPER FOR ELECTRICAL, TELEPHONE, CABLE, AND/OR NATURAL GAS SERVICE.
9. APPROVED EROSION CONTROL AND STORMWATER MANAGEMENT PLAN TO BE OBTAINED PRIOR TO BEGINNING ANY PHASE OF CONSTRUCTION. EROSION CONTROL DEVICES WILL BE MAINTAINED FOR THE DEVELOPMENT OF THE DEVELOPMENT PERIOD BY THE RESPONSIBLE PARTY.
10. **NO PORTION OF THE SITE LIES WITHIN THE 100-YR FEMA FLOODPLAIN.**
11. CONSTRUCTION LIKELY TO BEGIN IN THE **SUMMER OF 2020**; AND BE COMPLETED IN **APPROXIMATELY 12 MONTHS**.



OWNER/DEVELOPER: MCCALL CAPITAL, LLC
531 S. MAIN STREET, SUITE 207
GREENVILLE, SC 29601

CONTACT: MARCUS MCCALL
(864) 370-0037

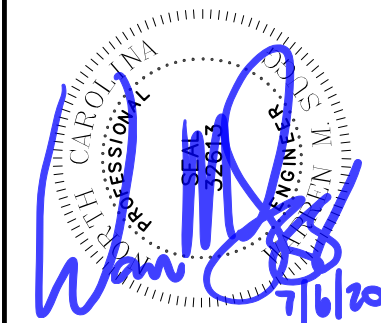
CIVIL ENGINEER: CIVIL DESIGN CONCEPTS, P.A.
168 PATTON AVENUE
ASHEVILLE, NC 28801

CONTACT: WARREN SUGG, P.E.
(828) 252-5388

SURVEYOR: MCABEE & ASSOCIATES, P.A.
3 MCABEE TRAIL
FARVIEW, NC 28730

CONTACT: J. BARRY WEST, P.L.S.
(828) 628-1295

PHASE I		
PIN:	9659-20-1099	
ADDRESS:	85 PINEY MOUNTAIN DRIVE	
DEED BOOK/PAGE:	5598/1290	
SITE ACREAGE:	31.4 ACRES	
ZONING:	R-2 BUNCOMBE COUNTY	
PHASE II		
PIN:	9658-29-2204	
ADDRESS:	PINEY MOUNTAIN DRIVE	
DEED BOOK/PAGE:	5598/544	
SITE ACREAGE:	9.83 ACRES	
PIN:	R-2 (BUNCOMBE COUNTY)	
SETBACKS:	PHASE I	PHASE II
FRONT:	35'	20'
SIDES:	10'	10'
REAR:	25'	20'
DISTURBED AREA:	12.70 AC	5.80 AC
AVERAGE ANNUAL SLOPE:	37.12%	36.3%
PROPOSED UNITS:	220	140

[illegible]

**ENCLAVE
PHASE II**

MCCALL CAPITAL LLC - BINCOMBE COUNTY, NORTH CAROLINA

SHEET

C200

Chase Smith

From: Dorato, Nicholas K <nkdorato@ncdot.gov>
Sent: Thursday, July 23, 2020 11:55 AM
To: Chase Smith
Cc: Jay Clapp; Andrew Cibor; Reese, Michael P; Olson, David W; Sanderson, Angela; Ken Putnam; Roberts, James P; Benton, Gregory E; Medlin, Christopher D; Henderson, Anna G; Gallo, Robert S
Subject: RE: [External] RE: Enclave Asheville Phase II (SC-2020-077)
Attachments: Scoping Review SC-2020-077 Enclave Asheville Phase II.pdf; NCDOT Traffic Impact Analysis w.signature 07.17.2020.pdf

Importance: High

Chase,

NCDOT has reviewed the scoping checklist for the proposed Enclave Asheville Phase II Development. We find the provided information reasonable. The District office concurs with the scoping checklist for the proposed Development. This email concurrence may be used in lieu of the approval signature. Please submit TIA in accordance to NCDOT policies and procedures and provide all applicable information. Thanks in advance.

Thanks,

Nick Dorato
Engineering Technician III
North Carolina Department of Transportation
Division 13 District 2

8282982741 office
nkdorato@ncdot.gov

11 Old Charlotte Hwy
Asheville, NC 28803



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Chase Smith <csmith@rameykemp.com>
Sent: Friday, July 17, 2020 2:50 PM
To: Dorato, Nicholas K <nkdorato@ncdot.gov>
Cc: Jay Clapp <jclapp@rameykemp.com>; Andrew Cibor <acibor@ashevillenc.gov>; Reese, Michael P <mikereese@ncdot.gov>; Olson, David W <dwolson@ncdot.gov>; Sanderson, Angela <amsanderson@ncdot.gov>; Ken Putnam <kputnam@ashevillenc.gov>; Roberts, James P <paulroberts@ncdot.gov>; Benton, Gregory E

Chase Smith

From: Andrew Cibor <acibor@ashevillenc.gov>
Sent: Friday, May 22, 2020 8:41 AM
To: Chase Smith
Cc: Reese, Michael P; Dorato, Nicholas K; Ken Putnam; Medlin, Christopher D; Roberts, James P; Olson, David W; Jay Clapp
Subject: Re: [External] RE: Enclave Asheville Phase II (SC-2020-077)

Yes - with the clarifications/direction provided in this email exchange.
Thank you

Andrew Cibor, PE, PTOE
City of Asheville | Transportation Department
(828) 259-5943 | acibor@ashevillenc.gov

On Thu, May 21, 2020 at 7:12 PM Chase Smith <csmith@rameykemp.com> wrote:

Awesome. Shall we consider this to be the City's concurrence with the provided checklist?

Chase Smith, PE

Traffic Engineering Project Manager

D 336 714 0112 | T 336 725 5470

rameykemp.com

From: Andrew Cibor <acibor@ashevillenc.gov>
Sent: Thursday, May 21, 2020 5:43 PM
To: Chase Smith <csmith@rameykemp.com>
Cc: Reese, Michael P <mikereese@ncdot.gov>; Dorato, Nicholas K <nkdorato@ncdot.gov>; Ken Putnam <kputnam@ashevillenc.gov>; Medlin, Christopher D <cdmedlin@ncdot.gov>; Roberts, James P <paulroberts@ncdot.gov>; Olson, David W <dwolson@ncdot.gov>; Jay Clapp <jclapp@rameykemp.com>
Subject: Re: [External] RE: Enclave Asheville Phase II (SC-2020-077)

Thank you Chase. That sounds good to me.

Andrew Cibor, PE, PTOE

City of Asheville | Transportation Department

(828) 259-5943 | acibor@ashevillenc.gov

On Thu, May 21, 2020 at 5:36 PM Chase Smith <csmith@rameykemp.com> wrote:

Good Afternoon Andrew,

Thanks for your comments!

We can use 0.5% if everyone is one board with that. In terms of how we will distribute Phase 1 trips and Phase 2 trips, we will utilize the trip distribution from the previously approved study. Then at the site driveways, it is likely that all of Phase 1 traffic will use the first driveway on Piney Mountain [I agree with you that the only folks utilizing the Phase 2 access will be Phase 2 residents]. We assumed a 50/50 split for Phase 2 at the driveways due to the location of the existing mail kiosk and other amenities that are located in the Phase 1 portion of the development, which is more accessible via the access first access.

Chase Smith, PE

Traffic Engineering Project Manager

D 336 714 0112 | T 336 725 5470

rameykemp.com

From: Andrew Cibor <acibor@ashevillenc.gov>

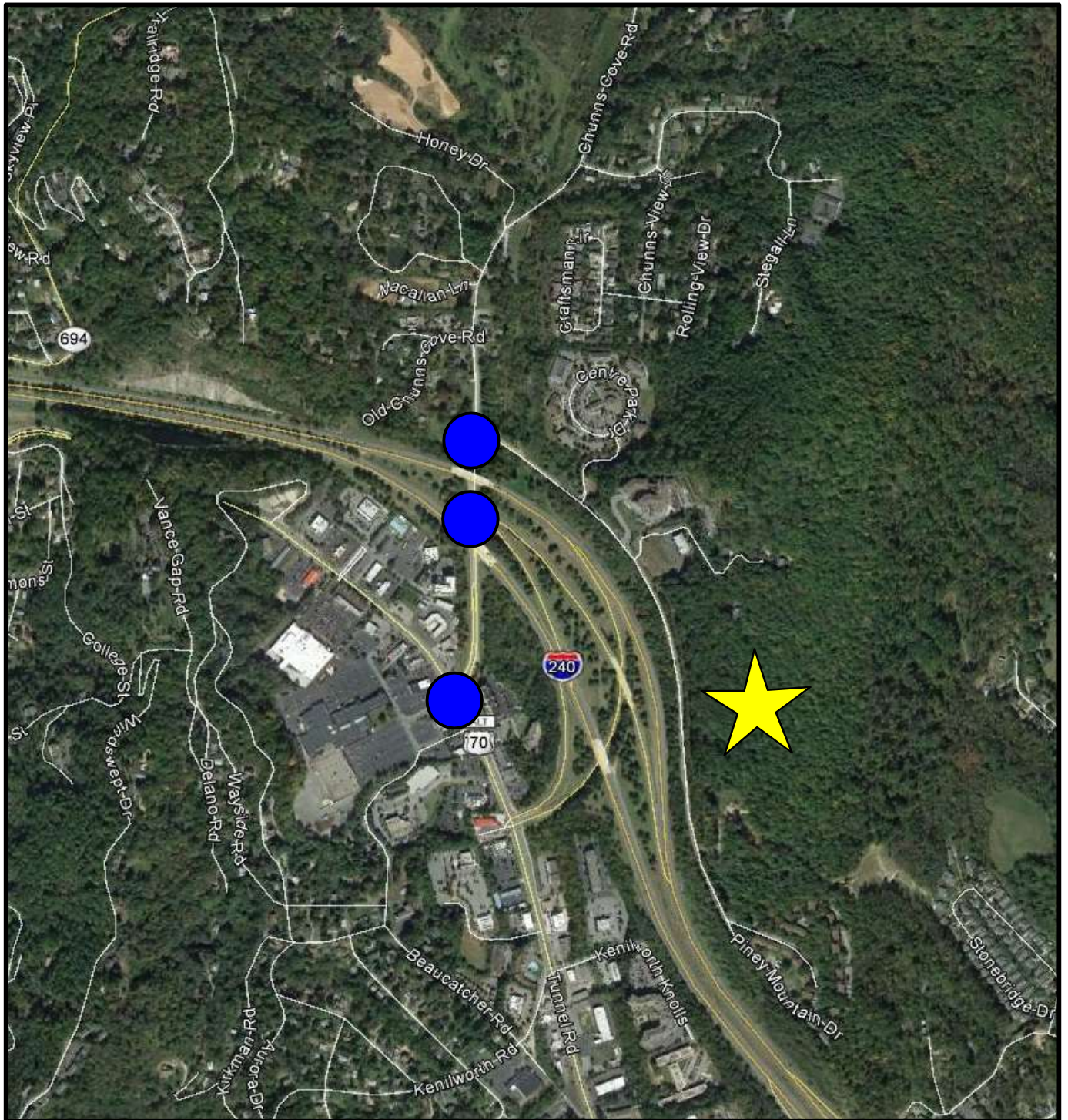
Sent: Thursday, May 21, 2020 4:52 PM

To: Chase Smith <csmith@rameykemp.com>

Cc: Reese, Michael P <mikereese@ncdot.gov>; Dorato, Nicholas K <nkdorato@ncdot.gov>; Ken Putnam <kputnam@ashevillenc.gov>; Medlin, Christopher D <cdmedlin@ncdot.gov>; Roberts, James P <paulroberts@ncdot.gov>; Olson, David W <dwolson@ncdot.gov>; Jay Clapp <jclapp@rameykemp.com>

Subject: Re: [External] RE: Enclave Asheville Phase II (SC-2020-077)

FIGURES



LEGEND



Site Location



Existing Study Intersection

Moving forward.



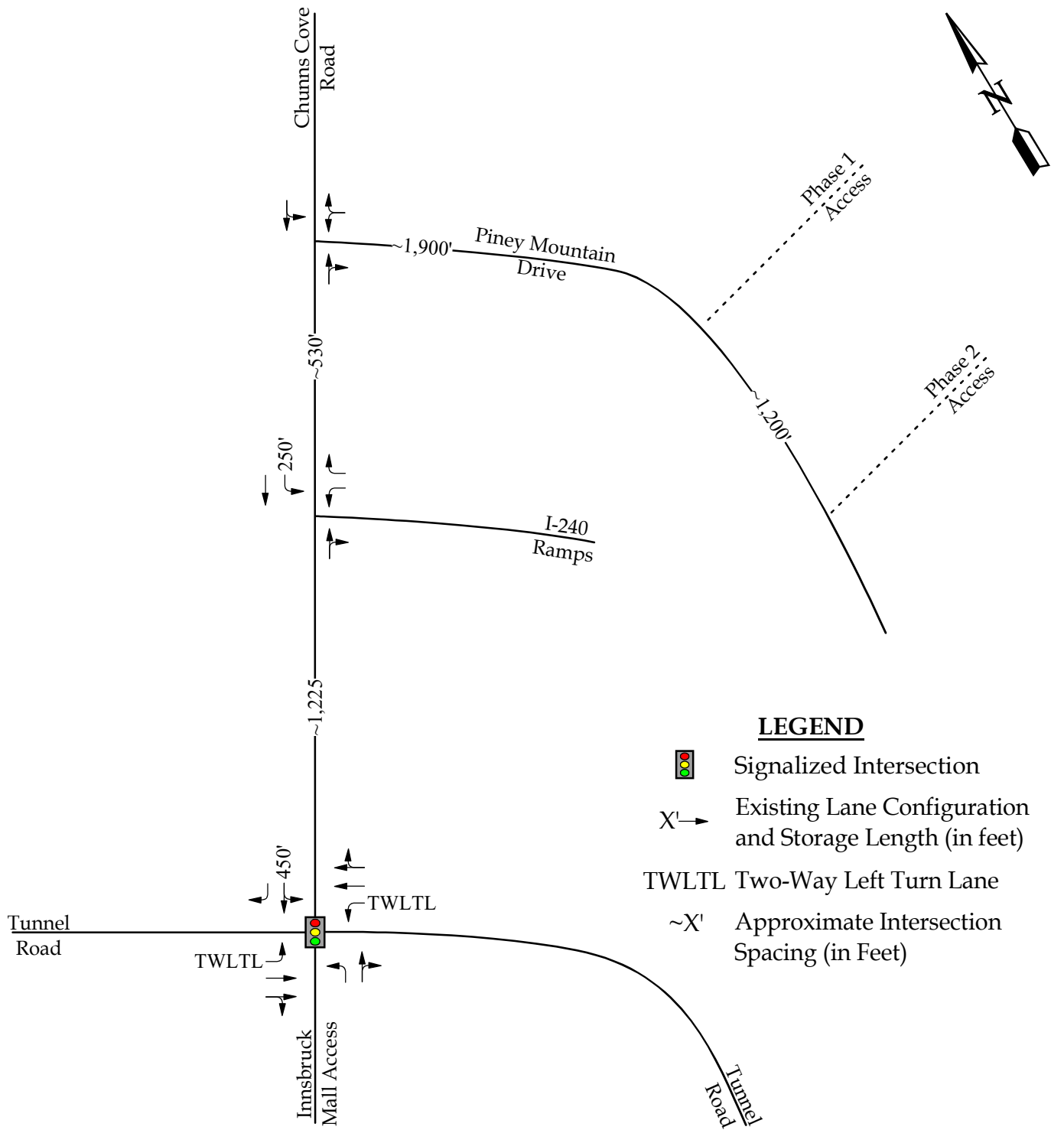
RAMEY KEMP ASSOCIATES

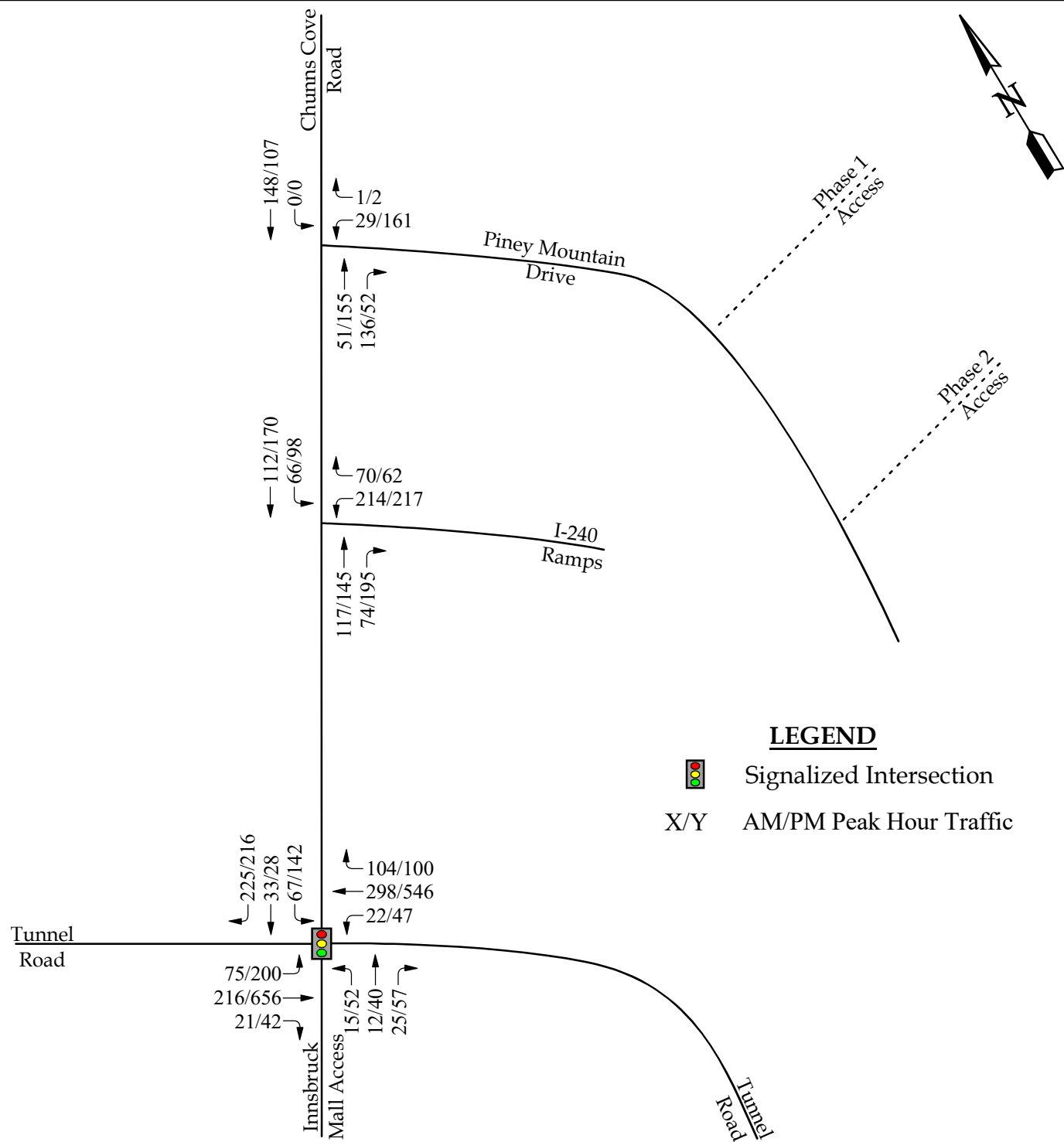
Enclave Asheville
Phase 2
Asheville, NC

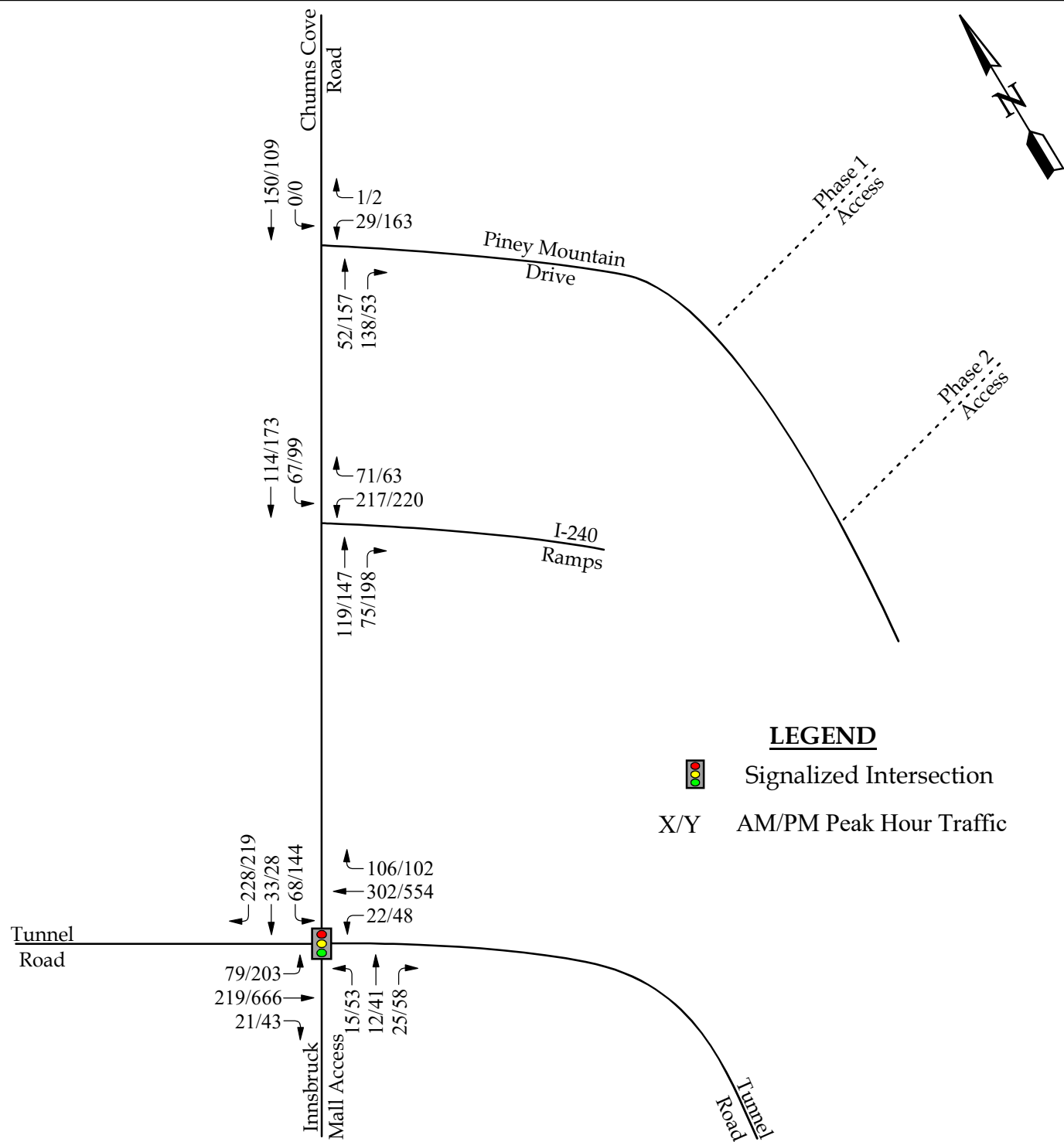
Site Location Map

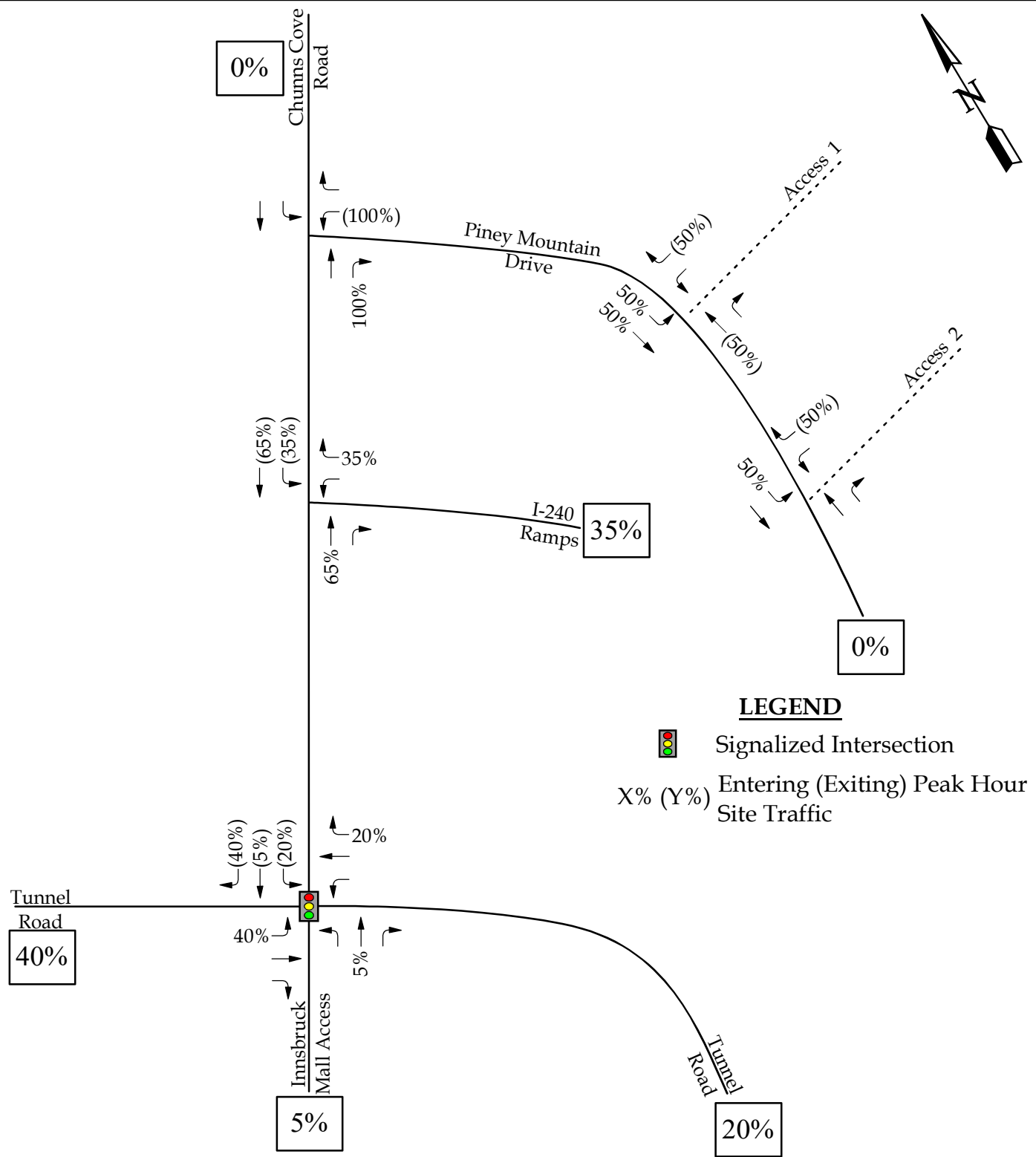
Not to Scale

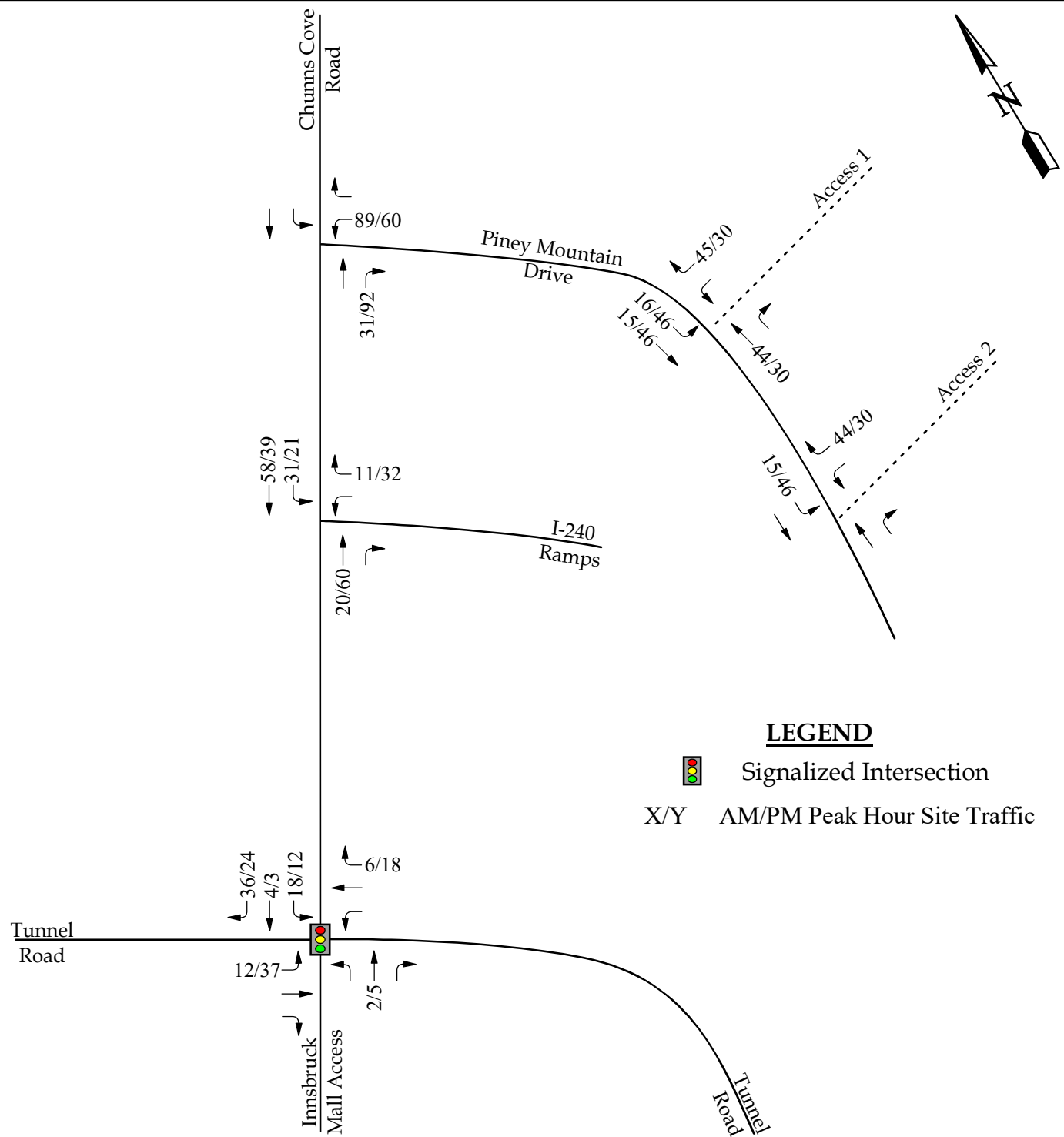
Figure 1

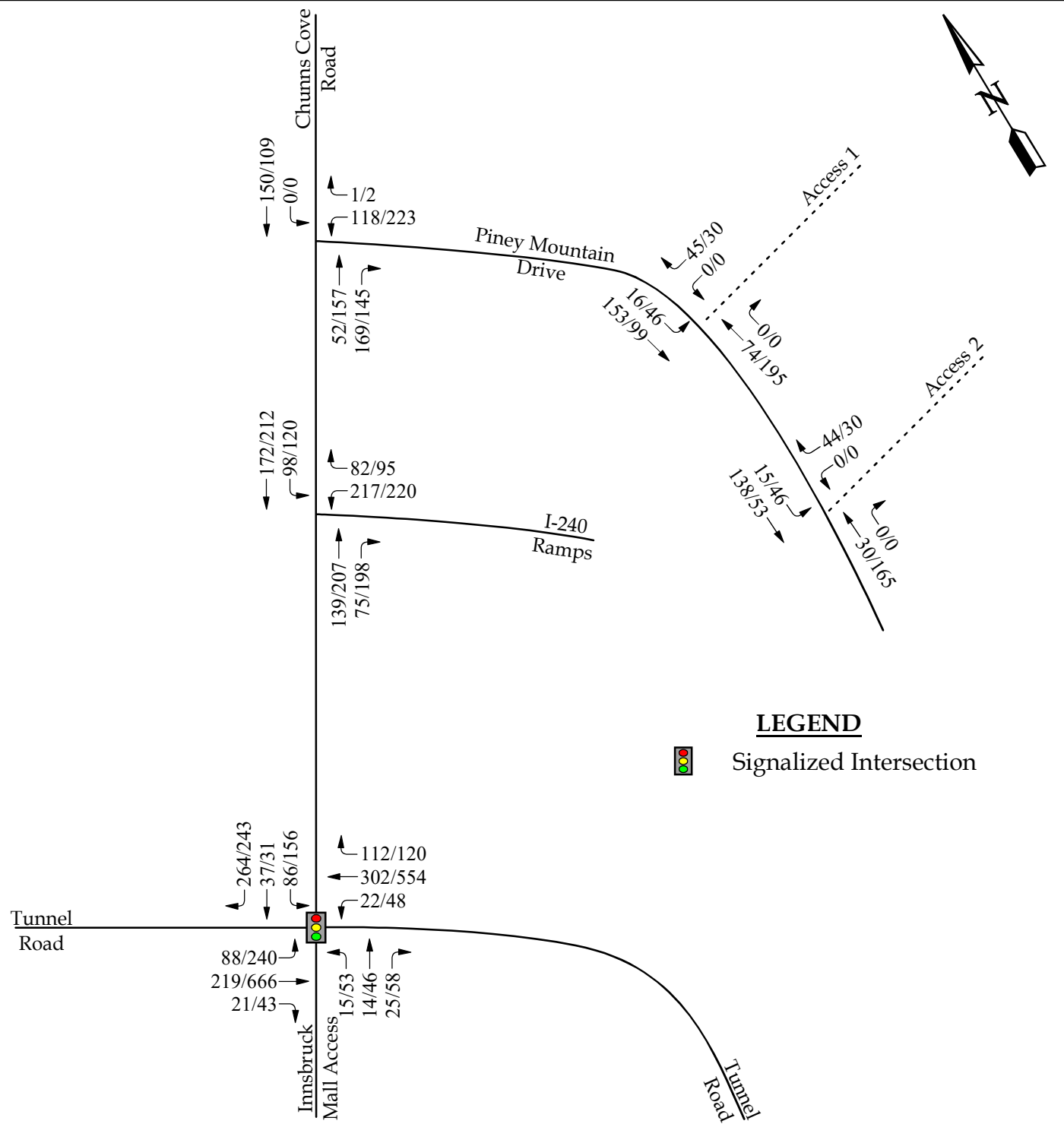












X/Y

AM/PM Peak Hour Traffic

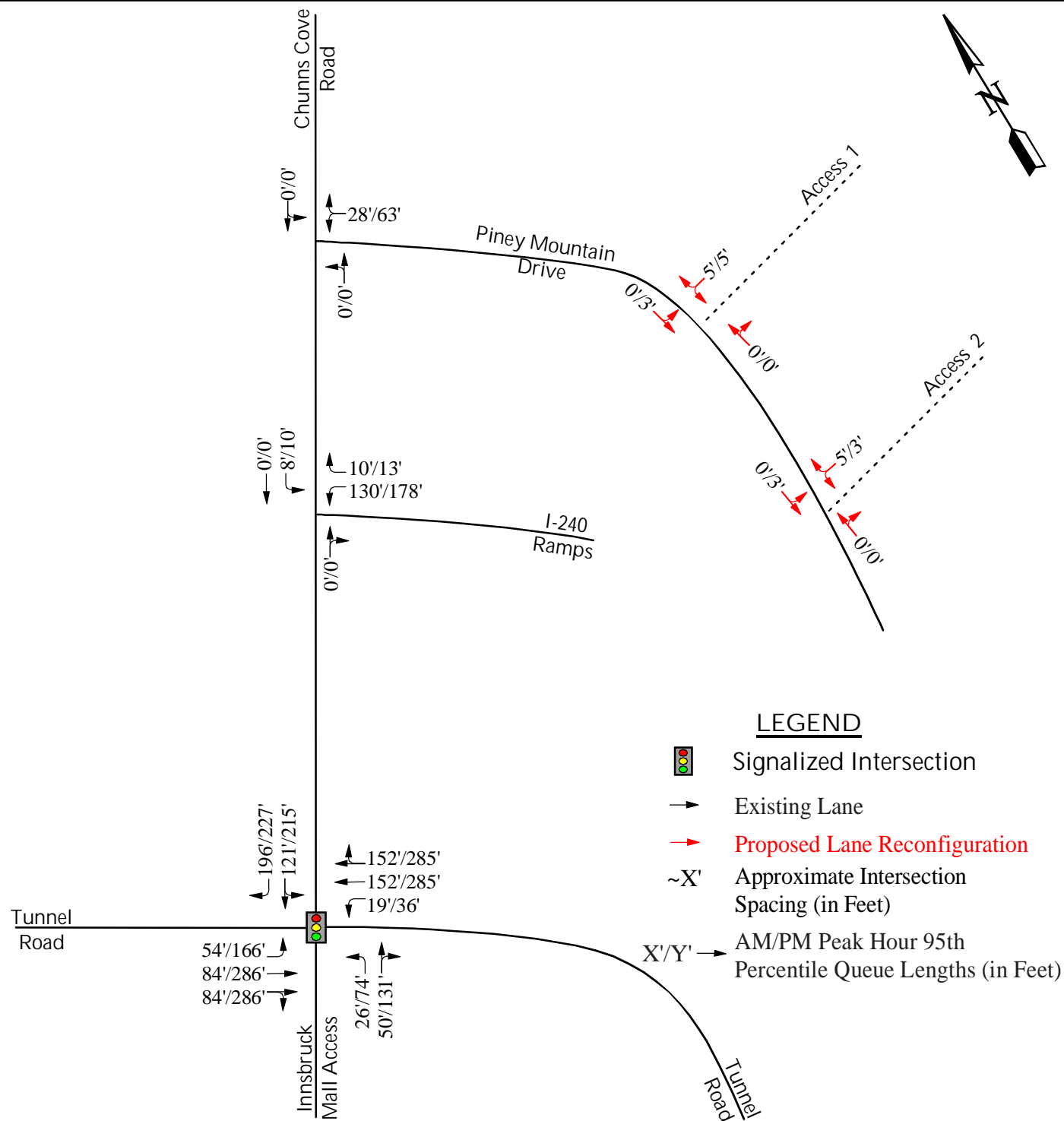


Enclave Asheville
Phase 2
Asheville, NC

Future (2023) 'Build'
Traffic Volumes

Not to Scale

Figure 8



TRAFFIC COUNT DATA

Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Tunnel Road and Chunns Cove Road AM Peak

Site Code :

Start Date : 3/23/2017

Page No : 1

Groups Printed- Cars +

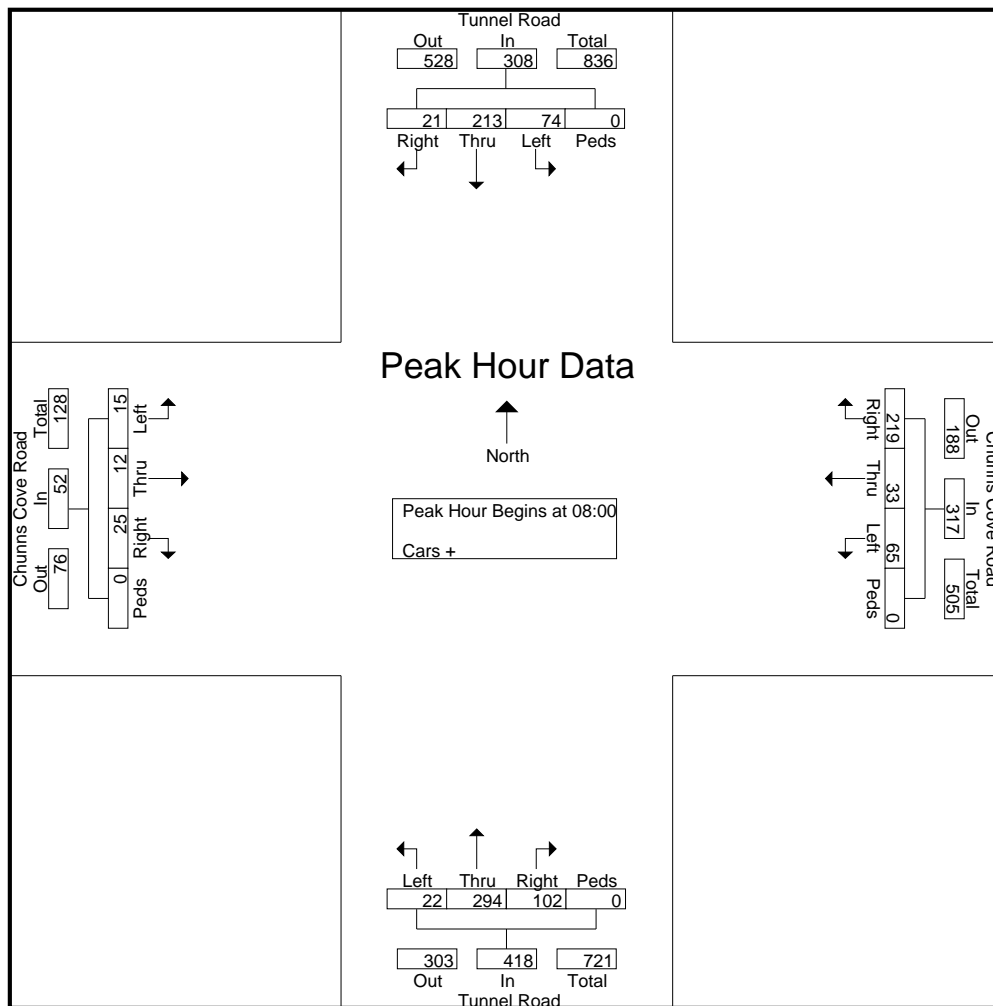
	Tunnel Road Southbound					Chunns Cove Road Westbound					Tunnel Road Northbound					Chunns Cove Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00	0	2	0	0	2	22	2	11	0	35	19	30	6	0	55	0	0	0	0	0	92
07:15	0	32	8	0	40	31	8	6	0	45	18	49	3	0	70	2	3	2	0	7	162
07:30	5	29	19	0	53	51	1	15	0	67	27	55	4	0	86	5	3	4	0	12	218
07:45	2	36	17	0	55	70	5	20	0	95	16	75	1	0	92	4	1	3	0	8	250
Total	7	99	44	0	150	174	16	52	0	242	80	209	14	0	303	11	7	9	0	27	722
08:00	1	41	20	0	62	59	14	18	0	91	22	77	2	0	101	2	2	5	0	9	263
08:15	6	49	22	0	77	53	6	11	0	70	21	72	5	0	98	6	2	3	0	11	256
08:30	4	70	17	0	91	55	5	15	0	75	33	74	8	0	115	8	6	4	0	18	299
08:45	10	53	15	0	78	52	8	21	0	81	26	71	7	0	104	9	2	3	0	14	277
Total	21	213	74	0	308	219	33	65	0	317	102	294	22	0	418	25	12	15	0	52	1095
Grand Total	28	312	118	0	458	393	49	117	0	559	182	503	36	0	721	36	19	24	0	79	1817
Apprch %	6.1	68.1	25.8	0		70.3	8.8	20.9	0		25.2	69.8	5	0		45.6	24.1	30.4	0		
Total %	1.5	17.2	6.5	0	25.2	21.6	2.7	6.4	0	30.8	10	27.7	2	0	39.7	2	1	1.3	0	4.3	

Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Tunnel Road and Chunns Cove Road AM Peak
Site Code :
Start Date : 3/23/2017
Page No : 2

	Tunnel Road Southbound					Chunns Cove Road Westbound					Tunnel Road Northbound					Chunns Cove Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	1	41	20	0	62	59	14	18	0	91	22	77	2	0	101	2	2	5	0	9	263
08:15	6	49	22	0	77	53	6	11	0	70	21	72	5	0	98	6	2	3	0	11	256
08:30	4	70	17	0	91	55	5	15	0	75	33	74	8	0	115	8	6	4	0	18	299
08:45	10	53	15	0	78	52	8	21	0	81	26	71	7	0	104	9	2	3	0	14	277
Total Volume	21	213	74	0	308	219	33	65	0	317	102	294	22	0	418	25	12	15	0	52	1095
% App. Total																					
PHF	.525	.761	.841	.000	.846	.928	.589	.774	.000	.871	.773	.955	.688	.000	.909	.694	.500	.750	.000	.722	.916



Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Tunnel Road and Chunns Cove Road PM Peak

Site Code :

Start Date : 3/23/2017

Page No : 1

Groups Printed- Cars +

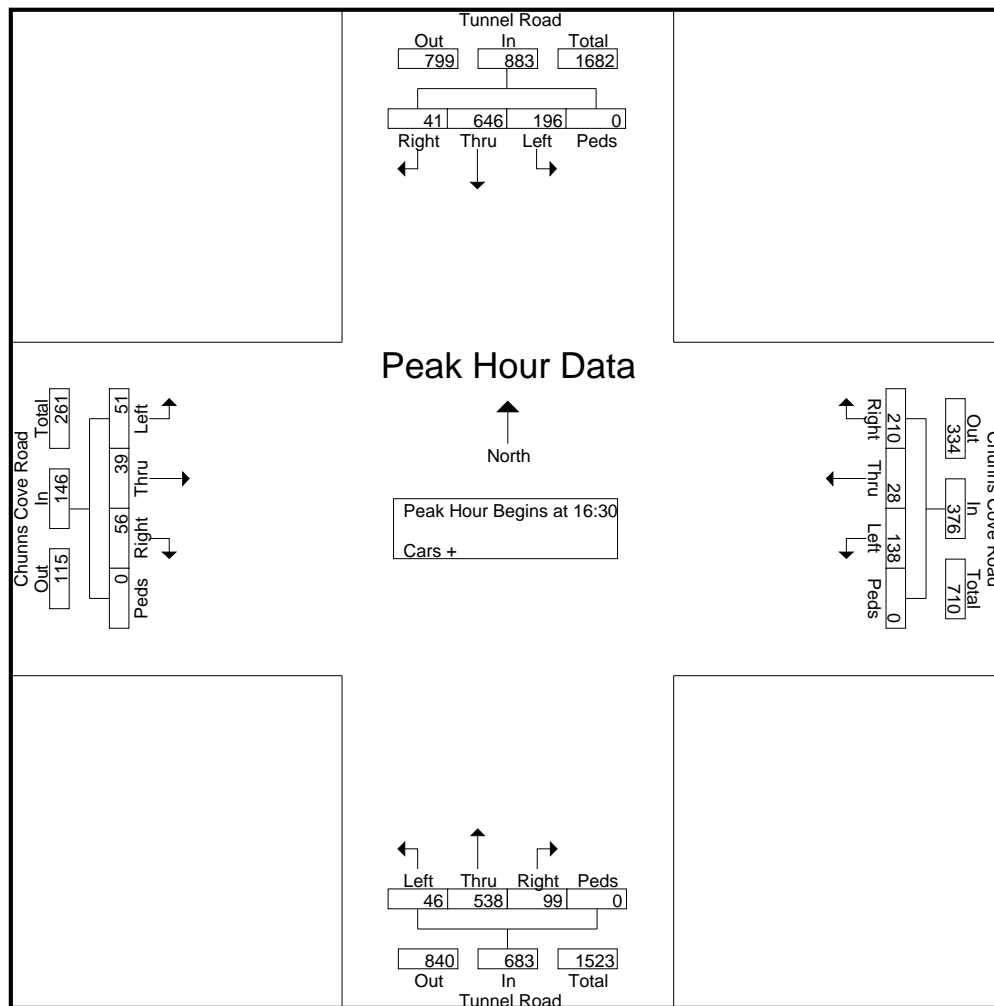
	Tunnel Road Southbound					Chunns Cove Road Westbound					Tunnel Road Northbound					Chunns Cove Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
16:00	9	130	54	0	193	48	8	24	0	80	29	128	10	0	167	8	9	15	0	32	472
16:15	10	143	39	0	192	48	8	24	0	80	21	100	10	0	131	16	8	7	0	31	434
16:30	7	143	53	0	203	49	2	42	0	93	24	121	6	0	151	13	8	15	0	36	483
16:45	12	158	52	0	222	54	6	36	0	96	20	136	9	0	165	14	9	12	0	35	518
Total	38	574	198	0	810	199	24	126	0	349	94	485	35	0	614	51	34	49	0	134	1907
17:00	9	159	44	0	212	47	8	26	0	81	32	157	18	0	207	13	13	13	0	39	539
17:15	13	186	47	0	246	60	12	34	0	106	23	124	13	0	160	16	9	11	0	36	548
17:30	7	147	38	0	192	43	7	31	0	81	20	125	9	0	154	11	12	15	0	38	465
17:45	8	148	50	0	206	47	5	26	0	78	24	113	12	0	149	7	12	5	0	24	457
Total	37	640	179	0	856	197	32	117	0	346	99	519	52	0	670	47	46	44	0	137	2009
Grand Total	75	1214	377	0	1666	396	56	243	0	695	193	1004	87	0	1284	98	80	93	0	271	3916
Apprch %	4.5	72.9	22.6	0		57	8.1	35	0		15	78.2	6.8	0		36.2	29.5	34.3	0		
Total %	1.9	31	9.6	0	42.5	10.1	1.4	6.2	0	17.7	4.9	25.6	2.2	0	32.8	2.5	2	2.4	0	6.9	

Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Tunnel Road and Chunns Cove Road PM Peak
Site Code :
Start Date : 3/23/2017
Page No : 2

	Tunnel Road Southbound					Chunns Cove Road Westbound					Tunnel Road Northbound					Chunns Cove Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	7	143	53	0	203	49	2	42	0	93	24	121	6	0	151	13	8	15	0	36	483
16:45	12	158	52	0	222	54	6	36	0	96	20	136	9	0	165	14	9	12	0	35	518
17:00	9	159	44	0	212	47	8	26	0	81	32	157	18	0	207	13	13	13	0	39	539
17:15	13	186	47	0	246	60	12	34	0	106	23	124	13	0	160	16	9	11	0	36	548
Total Volume	41	646	196	0	883	210	28	138	0	376	99	538	46	0	683	56	39	51	0	146	2088
% App. Total																					
PHF	.788	.868	.925	.000	.897	.875	.583	.821	.000	.887	.773	.857	.639	.000	.825	.875	.750	.850	.000	.936	.953



Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Chunns Cove Road and I-240 Ramp AM Peak

Site Code :

Start Date : 3/23/2017

Page No : 1

Groups Printed- Cars +

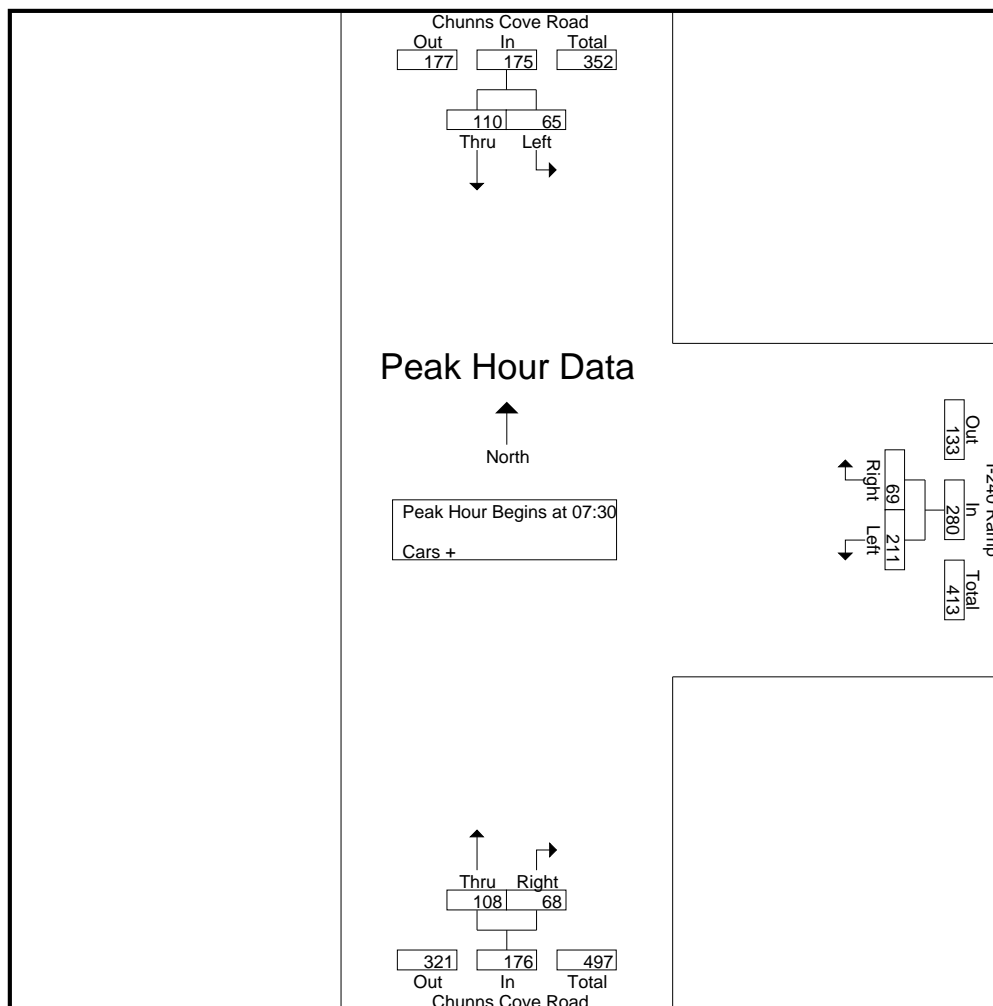
	Chunns Cove Road Southbound			I-240 Ramp Westbound			Chunns Cove Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00	11	10	21	4	24	28	11	21	32	81
07:15	17	16	33	17	30	47	15	27	42	122
07:30	24	24	48	20	47	67	15	32	47	162
07:45	39	22	61	20	53	73	13	26	39	173
Total	91	72	163	61	154	215	54	106	160	538
08:00	19	13	32	16	67	83	22	25	47	162
08:15	28	6	34	13	44	57	18	25	43	134
08:30	31	12	43	9	47	56	17	39	56	155
08:45	34	14	48	10	42	52	13	39	52	152
Total	112	45	157	48	200	248	70	128	198	603
Grand Total	203	117	320	109	354	463	124	234	358	1141
Apprch %	63.4	36.6		23.5	76.5		34.6	65.4		
Total %	17.8	10.3	28	9.6	31	40.6	10.9	20.5	31.4	

Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Chunns Cove Road and I-240 Ramp AM Peak
Site Code :
Start Date : 3/23/2017
Page No : 2

	Chunns Cove Road Southbound			I-240 Ramp Westbound			Chunns Cove Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30										
07:30	24	24	48	20	47	67	15	32	47	162
07:45	39	22	61	20	53	73	13	26	39	173
08:00	19	13	32	16	67	83	22	25	47	162
08:15	28	6	34	13	44	57	18	25	43	134
Total Volume	110	65	175	69	211	280	68	108	176	631
% App. Total	62.9	37.1		24.6	75.4		38.6	61.4		
PHF	.705	.677	.717	.863	.787	.843	.773	.844	.936	.912



Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Chunns Cove Road and I-240 Ramp PM Peak

Site Code :

Start Date : 3/23/2017

Page No : 1

Groups Printed- Cars +

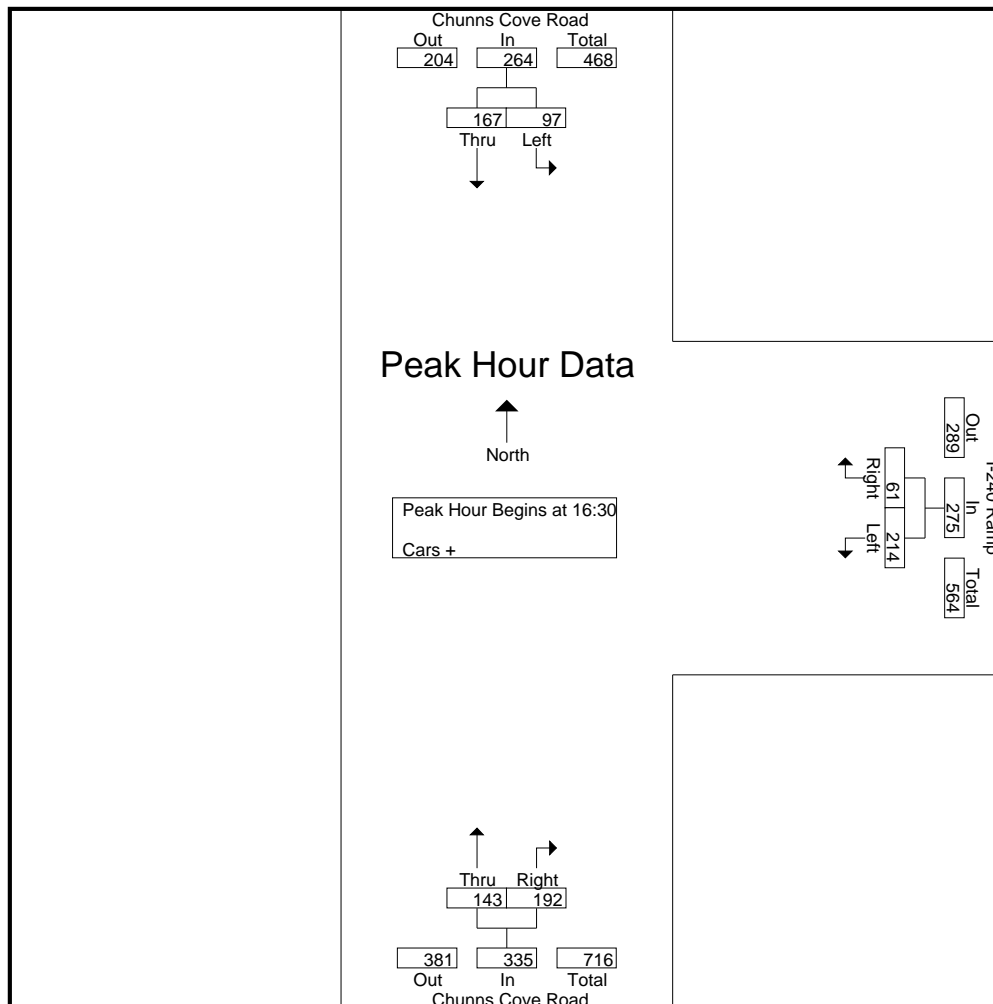
	Chunns Cove Road Southbound			I-240 Ramp Westbound			Chunns Cove Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
16:00	30	21	51	17	55	72	49	39	88	211
16:15	31	19	50	19	50	69	40	26	66	185
16:30	55	22	77	16	43	59	50	34	84	220
16:45	31	23	54	13	61	74	41	36	77	205
Total	147	85	232	65	209	274	180	135	315	821
17:00	39	22	61	19	47	66	53	37	90	217
17:15	42	30	72	13	63	76	48	36	84	232
17:30	37	15	52	11	48	59	33	30	63	174
17:45	24	10	34	14	44	58	36	44	80	172
Total	142	77	219	57	202	259	170	147	317	795
Grand Total	289	162	451	122	411	533	350	282	632	1616
Apprch %	64.1	35.9		22.9	77.1		55.4	44.6		
Total %	17.9	10	27.9	7.5	25.4	33	21.7	17.5	39.1	

Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Chunns Cove Road and I-240 Ramp PM Peak
Site Code :
Start Date : 3/23/2017
Page No : 2

	Chunns Cove Road Southbound			I-240 Ramp Westbound			Chunns Cove Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:30										
16:30	55	22	77	16	43	59	50	34	84	220
16:45	31	23	54	13	61	74	41	36	77	205
17:00	39	22	61	19	47	66	53	37	90	217
17:15	42	30	72	13	63	76	48	36	84	232
Total Volume	167	97	264	61	214	275	192	143	335	874
% App. Total	63.3	36.7		22.2	77.8		57.3	42.7		
PHF	.759	.808	.857	.803	.849	.905	.906	.966	.931	.942



Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Chunns Cove Road and Piney Mountain Drive AM Peak

Site Code :

Start Date : 3/23/2017

Page No : 1

Groups Printed- Cars +

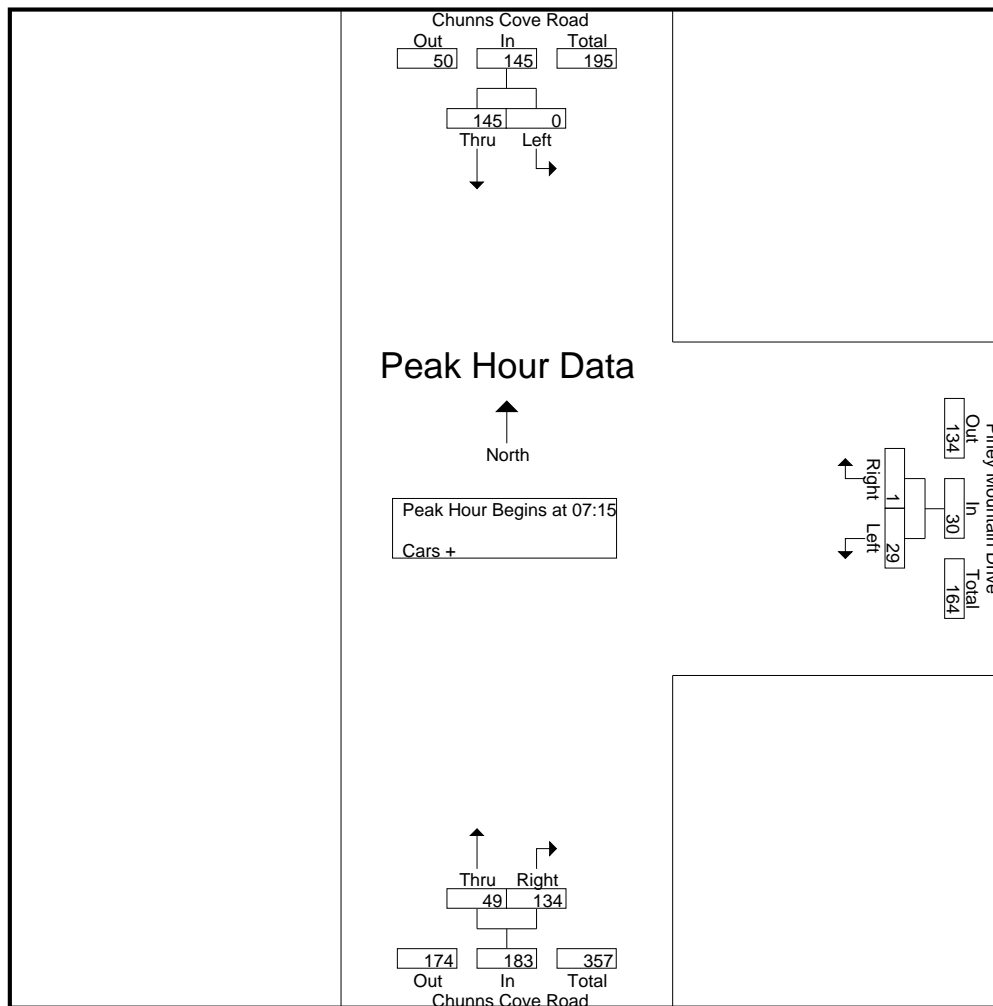
	Chunns Cove Road Southbound			Piney Mountain Drive Westbound			Chunns Cove Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00	17	0	17	0	4	4	16	9	25	46
07:15	30	0	30	0	3	3	34	10	44	77
07:30	43	0	43	0	5	5	38	14	52	100
07:45	50	0	50	0	11	11	28	18	46	107
Total	140	0	140	0	23	23	116	51	167	330
08:00	22	0	22	1	10	11	34	7	41	74
08:15	27	0	27	0	7	7	28	10	38	72
08:30	35	0	35	0	8	8	37	11	48	91
08:45	38	0	38	0	10	10	30	19	49	97
Total	122	0	122	1	35	36	129	47	176	334
Grand Total	262	0	262	1	58	59	245	98	343	664
Apprch %	100	0		1.7	98.3		71.4	28.6		
Total %	39.5	0	39.5	0.2	8.7	8.9	36.9	14.8	51.7	

Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Chunns Cove Road and Piney Mountain Drive AM Peak
Site Code :
Start Date : 3/23/2017
Page No : 2

	Chunns Cove Road Southbound			Piney Mountain Drive Westbound			Chunns Cove Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15										
07:15	30	0	30	0	3	3	34	10	44	77
07:30	43	0	43	0	5	5	38	14	52	100
07:45	50	0	50	0	11	11	28	18	46	107
08:00	22	0	22	1	10	11	34	7	41	74
Total Volume	145	0	145	1	29	30	134	49	183	358
% App. Total	100	0		3.3	96.7		73.2	26.8		
PHF	.725	.000	.725	.250	.659	.682	.882	.681	.880	.836



Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

File Name : Chunns Cove Road and Piney Mountain Drive PM Peak

Site Code :

Start Date : 3/23/2017

Page No : 1

Groups Printed- Cars +

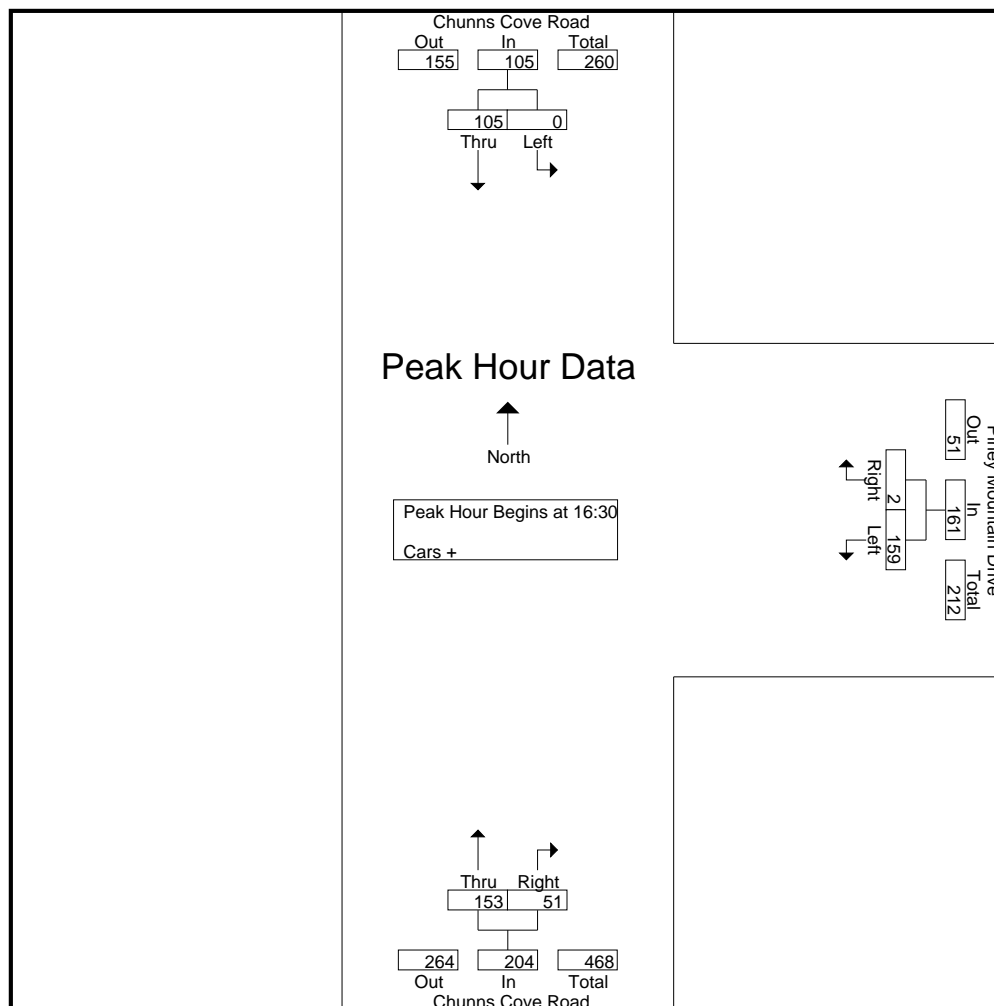
	Chunns Cove Road Southbound			Piney Mountain Drive Westbound			Chunns Cove Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
16:00	21	0	21	0	30	30	24	32	56	107
16:15	18	2	20	0	32	32	18	27	45	97
16:30	26	0	26	0	51	51	17	33	50	127
16:45	19	0	19	0	35	35	15	34	49	103
Total	84	2	86	0	148	148	74	126	200	434
17:00	26	0	26	2	35	37	10	46	56	119
17:15	34	0	34	0	38	38	9	40	49	121
17:30	25	0	25	0	27	27	9	32	41	93
17:45	23	0	23	0	11	11	11	47	58	92
Total	108	0	108	2	111	113	39	165	204	425
Grand Total	192	2	194	2	259	261	113	291	404	859
Apprch %	99	1		0.8	99.2		28	72		
Total %	22.4	0.2	22.6	0.2	30.2	30.4	13.2	33.9	47	

Burns Service Inc.

1202 Langdon Terrace Drive
Raleigh, NC, 27615

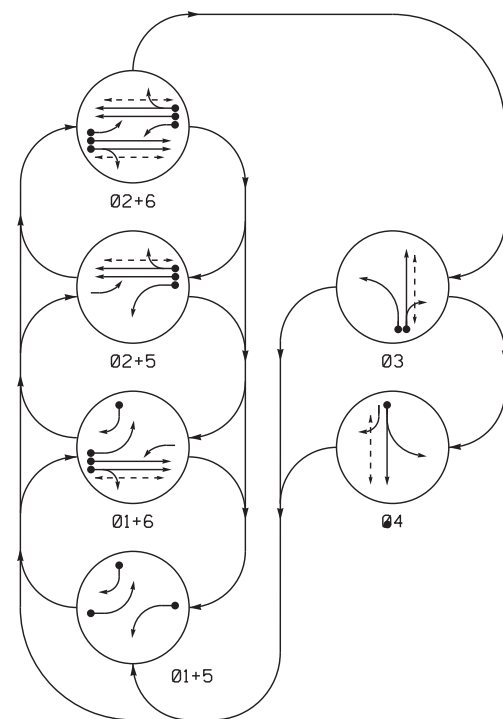
File Name : Chunns Cove Road and Piney Mountain Drive PM Peak
Site Code :
Start Date : 3/23/2017
Page No : 2

	Chunns Cove Road Southbound			Piney Mountain Drive Westbound			Chunns Cove Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:30										
16:30	26	0	26	0	51	51	17	33	50	127
16:45	19	0	19	0	35	35	15	34	49	103
17:00	26	0	26	2	35	37	10	46	56	119
17:15	34	0	34	0	38	38	9	40	49	121
Total Volume	105	0	105	2	159	161	51	153	204	470
% App. Total	100	0		1.2	98.8		25	75		
PHF	.772	.000	.772	.250	.779	.789	.750	.832	.911	.925






SIGNAL PLAN
&
TIMING INFORMATION

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.

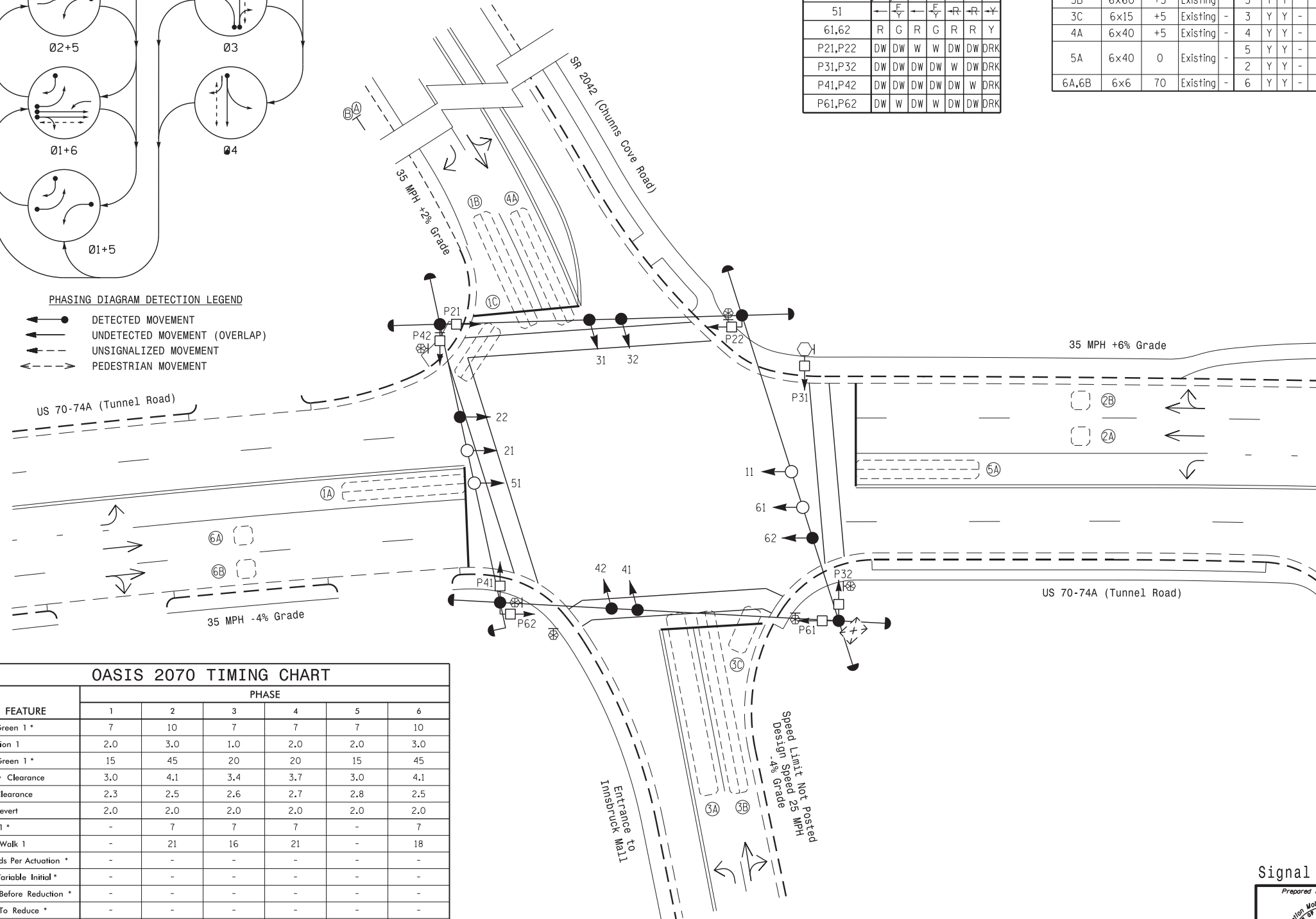
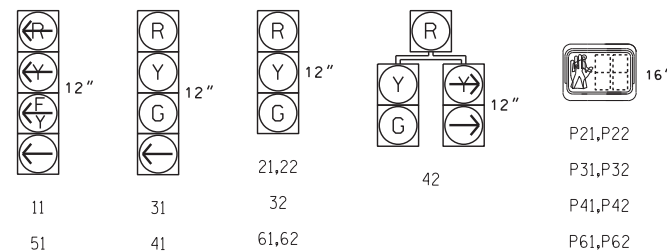


TABLE OF OPERATION

SIGNAL FACE	PHASE						
	0 1 + 5	0 1 + 6	0 2 + 5	0 2 + 6	0 3	0 4	F L A S H
11	←	←	$\frac{F}{Y}$	$\frac{F}{Y}$	←	←	←
21,22	R	R	G	G	R	R	Y
31	R	R	R	R	$\frac{G}{R}$	R	R
32	R	R	R	R	G	R	R
41	R	R	R	R	R	$\frac{G}{R}$	R
42	$\frac{R}{Y}$	$\frac{R}{Y}$	R	R	R	G	R
51	←	$\frac{F}{Y}$	←	$\frac{F}{Y}$	←	←	←
61,62	R	G	R	G	R	R	Y
P21,P22	DW	DW	W	W	DW	DW	DR
P31,P32	DW	DW	DW	DW	W	DW	DR
P41,P42	DW	DW	DW	DW	DW	DW	DR
P61,P62	DW	W	DW	W	DW	DW	DR

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART




























INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP
1A	6x40	0	Existing	-	1	Y	Y	-	-	15	-
1B	6x40	+5	Existing	-	6	Y	Y	-	-	-	-
1C	6x20	+24	Existing	-	1	Y	Y	-	-	15	-
2A,2B	6x6	70	Existing	-	2	Y	Y	-	-	-	-
3A	6x60	+5	Existing	-	3	Y	Y	-	-	3	-
3B	6x60	+5	Existing	-	3	Y	Y	-	-	10	-
3C	6x15	+5	Existing	-	3	Y	Y	-	-	15	-
4A	6x40	+5	Existing	-	4	Y	Y	-	-	3	-
5A	6x40	0	Existing	-	5	Y	Y	-	-	15	-
					2	Y	Y	-	-	-	-
6A,6B	6x6	70	Existing	-	6	Y	Y	-	-	-	-

6 Phase
Fully Actuated
US 70-74 (Tunnel Rd) CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Disable Backup Protect for phase 2+6.
4. Phase 1 and/or phase 5 may be lagged.
5. The order of phase 3 and phase 4 may be reversed.
6. Reposition existing signal heads numbered 22 and 62.
7. Set all detector units to presence mode.
8. Program controller to operate using FYA compact mode.
9. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
10. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
11. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
12. Pavement markings are existing.
13. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
14. Closed loop system data: Controller Asset #0231.

LEGEND



- | PROPOSED | | EXISTING |
|---|--|---|
|  | Traffic Signal Head |  N/A |
|  | Modified Signal Head | |
|  | Sign |  N/A |
|  | Pedestrian Signal Head |  N/A |
|  | With Push Button & Sign |  N/A |
|  | Signal Pole with Guy |  N/A |
|  | Signal Pole with Sidewalk Guy |  N/A |
|  | Inductive Loop Detector |  N/A |
|  | Controller & Cabinet |  N/A |
|  | Junction Box |  N/A |
|  | 2-in Underground Conduit |  N/A |
| N/A | Right of Way | N/A |
|  | Directional Arrow |  N/A |
|  | Combined Through and Left Arrow Sign (R3-6L) |  N/A |
|  | Right Arrow "ONLY" Sign (R3-5R) |  N/A |


OASIS 2070 TIMING CHART

OASIS 2070 TIMING CHART						
FEATURE	PHASE					
	1	2	3	4	5	6
Min Green 1 *	7	10	7	7	7	10
Extension 1	2.0	3.0	1.0	2.0	2.0	3.0
Max Green 1 *	15	45	20	20	15	45
Yellow Clearance	3.0	4.1	3.4	3.7	3.0	4.1
Red Clearance	2.3	2.5	2.6	2.7	2.8	2.5
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	7	7	-	7
Don't Walk 1	-	21	16	21	-	18
Seconds Per Actuation *	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	-	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Signal Upgrade

<p>Prepared in the Offices of:</p>  <p>TRANSPORTATION MOBILITY AND SAFETY DIVISION DEPARTMENT OF TRANSPORTATION STATE OF NORTH CAROLINA Special Design Section</p>	<p>US 70-74A (Tunnel Road) at SR 2042 (Chunns Cove Road) / Innsbruck Mall Entrance</p>							
<p>Division 13 Buncombe County Asheville</p>								
<p>PLAN DATE: November 2014 REVIEWED BY: Z.M. Little</p>								
<p>PREPARED BY: C.L. Sweeney REVIEWED BY:</p>								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">REVISONS</th> <th style="width: 20%;">INIT.</th> <th style="width: 20%;">DATE</th> </tr> </thead> <tbody> <tr> <td style="height: 100px;"> </td> <td> </td> <td> </td> </tr> </tbody> </table>			REVISONS	INIT.	DATE			
REVISONS	INIT.	DATE						



750 N.Greenfield Pkwy, Garner, NC 27529

SCALE

0 20

1" = 20'

Drawn by:
Zachary M. Little 1/16/2015

DATE

SIG. INVENTORY NO. 13-0231

Scheduling - Event 1-100

Event			Pri	Start Date	Stop Date	Start Time	Stop Time	DOW Enabled	D
#	Event Type	Event Details	L	MM DD	MM DD	HH MM	HH MM	1 2 3 4 5 6 7	W
1	Coordination Plan (1-66)	1-1	L	1 1	12 31	7 0	9 30	2 3 4 5 6	
2	Coordination Plan (1-66)	2-1	L	1 1	12 31	9 30	11 45	2 3 4 5 6	
3	Coordination Plan (1-66)	3-1	L	1 1	12 31	11 45	17 45	2 3 4 5 6	
4	Coordination Plan (1-66)	2-1	L	1 1	12 31	17 45	21 30	2 3 4 5 6	
5	Coordination Plan (1-66)	Free	L	1 1	12 31	21 30	0 0	2 3 4 5 6	
6	None			0 0	0 0	0 0	0 0		
7	Coordination Plan (1-66)	1-1	L	1 1	12 31	7 30	9 45	7	
8	Coordination Plan (1-66)	2-1	L	1 1	12 31	9 45	12 15	7	
9	Coordination Plan (1-66)	3-1	L	1 1	12 31	12 15	17 45	7	
10	Coordination Plan (1-66)	2-1	L	1 1	12 31	17 45	21 30	7	
11	Coordination Plan (1-66)	Free	L	1 1	12 31	21 30	0 0	7	
12	None			0 0	0 0	0 0	0 0		
13	Coordination Plan (1-66)	1-1	L	1 1	12 31	8 30	11 30	1	
14	Coordination Plan (1-66)	3-1	L	1 1	12 31	11 30	17 0	1	
15	Coordination Plan (1-66)	2-1	L	1 1	12 31	17 0	20 30	1	
16	Coordination Plan (1-66)	Free	L	1 1	12 31	20 30	0 0	1	
17	None			0 0	0 0	0 0	0 0		
18	Coordination Plan (1-66)	Free	H	11 22	11 28	0 0	24 0	5	
19	Coordination Plan (1-66)	Free	H	12 25	12 25	0 0	24 0	1 2 3 4 5 6 7	
20	Coordination Plan (1-66)	Free	M	1 1	1 1	0 0	24 0	1 2 3 4 5 6 7	
21	None			0 0	0 0	0 0	0 0		

[illegible]

Plan 3

Coordination Plan # 3

Cycle length (0-999 sec) 110

Min Transition Cycle (0-999 sec) 100

Max Transition Cycle (0-999 sec) 115

Offset # or Ring:

Offsets (0-999 sec)

Act Coord Phase Min Green

(0-255)

Splits (0-255 sec)

Phase

Split

Phase

Split






















Phase/Function Settings:

CAPACITY ANALYSIS

TUNNEL ROAD (US 70/74A)
&
CHUNNS COVE ROAD (SR 2244)

Enclave Asheville - Phase 2
1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Existing (2020)
Timing Plan: AM Peak













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	12	25	67	33	225	22	298	104	75	216	21
Future Volume (vph)	15	12	25	67	33	225	22	298	104	75	216	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			2%			6%			-4%	
Storage Length (ft)	0		0	450		0	100		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			200			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899				0.850		0.961			0.987	
Flt Protected	0.950				0.968		0.950			0.950		
Satd. Flow (prot)	1805	1708	0	0	1785	1567	1717	3229	0	1805	3470	0
Flt Permitted	0.950				0.968		0.580			0.416		
Satd. Flow (perm)	1805	1708	0	0	1785	1567	1048	3229	0	790	3470	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1042			1213			1288			1065	
Travel Time (s)		28.4			23.6			25.1			20.7	
Peak Hour Factor	0.72	0.72	0.72	0.87	0.87	0.87	0.91	0.91	0.91	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	5%	2%
Adj. Flow (vph)	21	17	35	77	38	259	24	327	114	88	254	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	52	0	0	115	259	24	441	0	88	279	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	3	3		4	4	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	29.0	29.0		34.0	34.0	14.0	14.0	38.0		14.0	34.0	
Total Split (s)	20.0	20.0		19.0	19.0	16.0	16.0	35.0		16.0	35.0	
Total Split (%)	22.2%	22.2%		21.1%	21.1%	17.8%	17.8%	38.9%		17.8%	38.9%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)	9.6	9.6			12.4	25.0	52.2	43.2		57.0	54.0	
Actuated g/C Ratio	0.11	0.11			0.14	0.28	0.58	0.48		0.63	0.60	
v/c Ratio	0.11	0.29			0.47	0.60	0.04	0.28		0.14	0.13	
Control Delay	37.3	41.2			41.4	33.0	9.5	17.3		9.5	12.9	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	37.3	41.2			41.4	33.0	9.5	17.3		9.5	12.9	
LOS	D	D			D	C	A	B		A	B	
Approach Delay		40.1			35.6			16.9			12.1	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	11	28			61	125	5	82		19	33	
Queue Length 95th (ft)	26	49			104	175	18	139		44	80	
Internal Link Dist (ft)		962			1133			1208			985	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	300	284			287	456	713	1551		635	2082	

Enclave Asheville - Phase 2

1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Existing (2020)

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.07	0.18			0.40	0.57	0.03	0.28		0.14	0.13	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 81 (90%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 22.3







Intersection Capacity Utilization 43.8%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service A






















Splits and Phases: 1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

 Ø1	 Ø2 (R)	 Ø3	 Ø4
16 s	35 s	20 s	19 s
 Ø5	 Ø6 (R)		
16 s	35 s		

Enclave Asheville - Phase 2













1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Existing (2020)
Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	40	57	142	28	216	47	546	100	200	656	42
Future Volume (vph)	52	40	57	142	28	216	47	546	100	200	656	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			2%			6%			-4%	
Storage Length (ft)	0		0	450		0	100		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			250			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.912				0.850		0.977			0.991	
Flt Protected	0.950				0.960		0.950			0.950		
Satd. Flow (prot)	1805	1733	0	0	1770	1567	1717	3273	0	1805	3481	0
Flt Permitted	0.950				0.960		0.312			0.227		
Satd. Flow (perm)	1805	1733	0	0	1770	1567	564	3273	0	431	3481	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		1042			1213			1288			1065	
Travel Time (s)		28.4			23.6			25.1			20.7	
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.83	0.83	0.83	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	5%	2%
Adj. Flow (vph)	55	43	61	160	31	243	57	658	120	222	729	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	104	0	0	191	243	57	778	0	222	776	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	3	3		4	4	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	29.0	29.0		34.0	34.0	14.0	14.0	38.0		14.0	34.0	
Total Split (s)	24.0	24.0		23.0	23.0	23.0	17.0	40.0		23.0	46.0	
Total Split (%)	21.8%	21.8%		20.9%	20.9%	20.9%	15.5%	36.4%		20.9%	41.8%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)	12.4	12.4			17.4	36.2	55.6	46.4		64.7	53.8	
Actuated g/C Ratio	0.11	0.11			0.16	0.33	0.51	0.42		0.59	0.49	
v/c Ratio	0.27	0.53			0.68	0.47	0.15	0.56		0.52	0.46	
Control Delay	46.8	55.4			56.2	31.4	12.9	28.2		16.3	21.7	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	46.8	55.4			56.2	31.4	12.9	28.2		16.3	21.7	
LOS	D	E			E	C	B	C		B	C	
Approach Delay		52.4			42.3			27.1			20.5	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	36	71			128	132	16	219		69	194	
Queue Length 95th (ft)	73	122			199	188	36	295		127	285	
Internal Link Dist (ft)		962			1133			1208			985	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	311	299			306	575	425	1380		480	1701	

Enclave Asheville - Phase 2
1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Existing (2020)
Timing Plan: PM Peak







												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.18	0.35			0.62	0.42	0.13	0.56		0.46	0.46	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 21 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 28.8
 Intersection Capacity Utilization 57.9%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road






















 Ø1	 Ø2 (R)	 Ø3	 Ø4
23 s	40 s	24 s	23 s
 Ø5	 Ø6 (R)		
17 s	46 s		

Enclave Asheville

No-Build (2023)

1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Timing Plan: AM Peak













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	12	25	68	33	228	22	302	106	76	219	21
Future Volume (vph)	15	12	25	68	33	228	22	302	106	76	219	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			2%			6%			-4%	
Storage Length (ft)	0		0	450		0	100		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			200			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.899				0.850		0.961			0.987	
Flt Protected	0.950				0.967		0.950			0.950		
Satd. Flow (prot)	1805	1708	0	0	1783	1567	1717	3229	0	1805	3470	0
Flt Permitted	0.950				0.967		0.578			0.411		
Satd. Flow (perm)	1805	1708	0	0	1783	1567	1044	3229	0	781	3470	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		386			1213			1288			1065	
Travel Time (s)		10.5			23.6			25.1			20.7	
Peak Hour Factor	0.72	0.72	0.72	0.87	0.87	0.87	0.91	0.91	0.91	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	5%	2%
Adj. Flow (vph)	21	17	35	78	38	262	24	332	116	89	258	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	52	0	0	116	262	24	448	0	89	283	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	3	3		4	4	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	30.0	30.0		35.0	35.0	14.0	14.0	38.0		14.0	35.0	
Total Split (s)	17.0	17.0		21.0	21.0	14.0	14.0	38.0		14.0	38.0	
Total Split (%)	18.9%	18.9%		23.3%	23.3%	15.6%	15.6%	42.2%		15.6%	42.2%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)	9.6	9.6			12.5	25.1	52.1	43.1		56.9	53.9	
Actuated g/C Ratio	0.11	0.11			0.14	0.28	0.58	0.48		0.63	0.60	
v/c Ratio	0.11	0.29			0.47	0.60	0.04	0.29		0.15	0.14	
Control Delay	37.3	41.2			41.3	33.0	9.5	17.5		9.6	13.0	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	37.3	41.2			41.3	33.0	9.5	17.5		9.6	13.0	
LOS	D	D			D	C	A	B		A	B	
Approach Delay		40.1			35.5			17.1			12.2	
Approach LOS		D			D			B			B	

Enclave Asheville

1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

No-Build (2023)

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	11	28			62	126	5	84		20	34	
Queue Length 95th (ft)	26	49			104	176	18	142		45	81	
Internal Link Dist (ft)		306			1133			1208			985	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	240	227			318	437	671	1558		613	2079	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.09	0.23			0.36	0.60	0.04	0.29		0.15	0.14	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 88 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 22.4










Intersection Capacity Utilization 44.2%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service A

Splits and Phases: 1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road






















					
Ø1	Ø2 (R)		Ø3	Ø4	
14 s	38 s		17 s	21 s	
					
Ø5	Ø6 (R)				
14 s	38 s				

Enclave Asheville

No-Build (2023)

1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Timing Plan: PM Peak













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	41	58	144	28	219	48	554	102	203	666	43
Future Volume (vph)	53	41	58	144	28	219	48	554	102	203	666	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			2%			6%			-4%	
Storage Length (ft)	0		0	450		0	100		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			200			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.912				0.850		0.977			0.991	
Flt Protected	0.950				0.960		0.950			0.950		
Satd. Flow (prot)	1805	1733	0	0	1770	1567	1717	3273	0	1805	3481	0
Flt Permitted	0.950				0.960		0.296			0.230		
Satd. Flow (perm)	1805	1733	0	0	1770	1567	535	3273	0	437	3481	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		386			1213			1288			1065	
Travel Time (s)		10.5			23.6			25.1			20.7	
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.83	0.83	0.83	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	5%	2%
Adj. Flow (vph)	56	44	62	162	31	246	58	667	123	226	740	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	106	0	0	193	246	58	790	0	226	788	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	3	3		4	4	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	30.0	30.0		35.0	35.0	14.0	14.0	38.0		14.0	35.0	
Total Split (s)	19.0	19.0		26.0	26.0	18.0	15.0	47.0		18.0	50.0	
Total Split (%)	17.3%	17.3%		23.6%	23.6%	16.4%	13.6%	42.7%		16.4%	45.5%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)	12.3	12.3			17.6	34.9	57.0	47.8		63.9	53.7	
Actuated g/C Ratio	0.11	0.11			0.16	0.32	0.52	0.43		0.58	0.49	
v/c Ratio	0.28	0.55			0.68	0.49	0.15	0.56		0.56	0.46	
Control Delay	47.3	56.5			55.6	33.2	12.7	26.7		17.3	21.9	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	47.3	56.5			55.6	33.2	12.7	26.7		17.3	21.9	
LOS	D	E			E	C	B	C		B	C	
Approach Delay		53.3			43.1			25.7			20.9	
Approach LOS		D			D			C			C	

Enclave Asheville

1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

No-Build (2023)

Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	37	72			129	137	17	219		71	200	
Queue Length 95th (ft)	74	125			198	204	37	278		128	289	
Internal Link Dist (ft)		306			1133			1208			985	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	236	226			337	514	388	1447		422	1709	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.47			0.57	0.48	0.15	0.55		0.54	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 28.6







Intersection Capacity Utilization 58.4%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service B

Splits and Phases: 1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road






















 Ø1	 Ø2 (R)	 Ø3	 Ø4
18 s	47 s	19 s	26 s
 Ø5	 Ø6 (R)		
15 s	50 s		

Enclave Asheville

Build (2023)

1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Timing Plan: AM Peak













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	14	25	86	37	264	22	302	112	88	219	21
Future Volume (vph)	15	14	25	86	37	264	22	302	112	88	219	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			2%			6%			-4%	
Storage Length (ft)	0		0	450		0	100		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			200			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.903				0.850		0.959			0.987	
Flt Protected	0.950				0.966		0.950			0.950		
Satd. Flow (prot)	1805	1716	0	0	1781	1567	1717	3223	0	1805	3470	0
Flt Permitted	0.950				0.966		0.578			0.402		
Satd. Flow (perm)	1805	1716	0	0	1781	1567	1044	3223	0	764	3470	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		386			1213			1288			1065	
Travel Time (s)		10.5			23.6			25.1			20.7	
Peak Hour Factor	0.72	0.72	0.72	0.87	0.87	0.87	0.91	0.91	0.91	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	5%	2%
Adj. Flow (vph)	21	19	35	99	43	303	24	332	123	104	258	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	54	0	0	142	303	24	455	0	104	283	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	3	3		4	4	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	30.0	30.0		35.0	35.0	14.0	14.0	38.0		14.0	35.0	
Total Split (s)	17.0	17.0		21.0	21.0	14.0	14.0	38.0		14.0	38.0	
Total Split (%)	18.9%	18.9%		23.3%	23.3%	15.6%	15.6%	42.2%		15.6%	42.2%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)	9.6	9.6			13.6	28.3	48.9	39.9		53.3	49.0	
Actuated g/C Ratio	0.11	0.11			0.15	0.31	0.54	0.44		0.59	0.54	
v/c Ratio	0.11	0.30			0.53	0.62	0.04	0.32		0.18	0.15	
Control Delay	37.2	41.2			41.8	31.4	10.3	19.3		10.5	14.1	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	37.2	41.2			41.8	31.4	10.3	19.3		10.5	14.1	
LOS	D	D			D	C	B	B		B	B	
Approach Delay		40.1			34.7			18.8			13.1	
Approach LOS		D			C			B			B	

Enclave Asheville

1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Build (2023)

Timing Plan: AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	11	29			76	147	5	88		24	35	
Queue Length 95th (ft)	26	50			121	196	19	152		54	84	
Internal Link Dist (ft)		306			1133			1208			985	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	240	228			325	492	634	1460		563	1902	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.09	0.24			0.44	0.62	0.04	0.31		0.18	0.15	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 88 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 23.5










Intersection Capacity Utilization 46.6%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service A

Splits and Phases: 1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road






















					
Ø1	Ø2 (R)		Ø3	Ø4	
14 s	38 s		17 s	21 s	
					
Ø5	Ø6 (R)				
14 s	38 s				

Enclave Asheville

Build (2023)

1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Timing Plan: PM Peak













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	46	58	156	31	243	48	554	120	240	666	43
Future Volume (vph)	53	46	58	156	31	243	48	554	120	240	666	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			2%			6%			-4%	
Storage Length (ft)	0		0	450		0	100		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			250			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.916				0.850		0.973			0.991	
Flt Protected	0.950				0.960		0.950			0.950		
Satd. Flow (prot)	1805	1740	0	0	1770	1567	1717	3262	0	1805	3481	0
Flt Permitted	0.950				0.960		0.304			0.207		
Satd. Flow (perm)	1805	1740	0	0	1770	1567	549	3262	0	393	3481	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		386			1213			1288			1065	
Travel Time (s)		10.5			23.6			25.1			20.7	
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.83	0.83	0.83	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	2%	2%	5%	2%
Adj. Flow (vph)	56	49	62	175	35	273	58	667	145	267	740	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	111	0	0	210	273	58	812	0	267	788	0
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	3	3		4	4	1	5	2		1	6	
Permitted Phases						4	2			6		
Detector Phase	3	3		4	4	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	30.0	30.0		35.0	35.0	14.0	14.0	38.0		14.0	35.0	
Total Split (s)	19.0	19.0		26.0	26.0	18.0	15.0	47.0		18.0	50.0	
Total Split (%)	17.3%	17.3%		23.6%	23.6%	16.4%	13.6%	42.7%		16.4%	45.5%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lead		Lag	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)	12.3	12.3			18.4	37.3	54.6	45.4		63.7	52.9	
Actuated g/C Ratio	0.11	0.11			0.17	0.34	0.50	0.41		0.58	0.48	
v/c Ratio	0.28	0.57			0.71	0.52	0.16	0.60		0.66	0.47	
Control Delay	47.4	57.6			56.5	32.3	13.1	29.0		21.3	22.4	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	47.4	57.6			56.5	32.3	13.1	29.0		21.3	22.4	
LOS	D	E			E	C	B	C		C	C	
Approach Delay		54.2			42.8			28.0			22.1	
Approach LOS		D			D			C			C	

Enclave Asheville

1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road

Build (2023)

Timing Plan: PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	37	75			140	146	17	245		89	204	
Queue Length 95th (ft)	74	131			215	227	36	285		#166	286	
Internal Link Dist (ft)		306			1133			1208			985	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	234	226			340	538	382	1384		412	1683	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.24	0.49			0.62	0.51	0.15	0.59		0.65	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 30.1

Intersection LOS: C

Intersection Capacity Utilization 61.9%

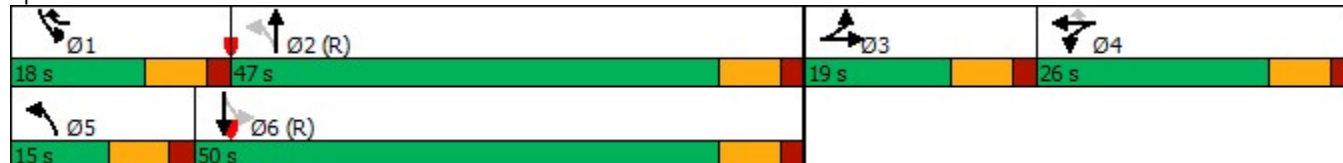
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Tunnel Road & Innsbruck Mall Access/Chunns Cove Road



CHUNNS COVE ROAD (SR 2244)
&
INTERSTATE 240 RAMPS






Enclave Asheville - Phase 2
2: Chunns Cove Road & I-240 On-Ramp & I-240 Off-Ramp

Existing (2020)
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 8.3

Movement WBL WBR NBT NBR SBL SBT NWL NWR

Lane Configurations								
Traffic Vol, veh/h	214	70	117	74	66	112	0	0
Future Vol, veh/h	214	70	117	74	66	112	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	-	None	-	-
Storage Length	0	0	-	-	250	-	-	-
Veh in Median Storage, #0	-	-	0	-	-	0	-	-
Grade, %	0	-	0	-	-	0	0	-
Peak Hour Factor	84	84	94	94	72	72	90	90
Heavy Vehicles, %	2	2	5	2	2	5	2	2
Mvmt Flow	255	83	124	79	92	156	0	0

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	504	164	0	0	203	0
Stage 1	164	-	-	-	-	-
Stage 2	340	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	528	881	-	-	1369	-
Stage 1	865	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	493	881	-	-	1369	-
Mov Cap-2 Maneuver	493	-	-	-	-	-
Stage 1	865	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s/veh	17.3	0	2.9
HCM LOS	C		

Minor Lane/Major Mvmt NBT NBR WBLn1 WBLn2 SBL SBT

Capacity (veh/h)	-	-	493	881	1369	-
HCM Lane V/C Ratio	-	-	0.517	0.095	0.067	-
HCM Control Delay (s)	-	-	19.8	9.5	7.8	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	2.9	0.3	0.2	-






Enclave Asheville - Phase 2
2: Chunns Cove Road & I-240 On-Ramp & I-240 Off-Ramp

Existing (2020)
Timing Plan: PM Peak

Intersection

Int Delay, s/veh 9

Movement WBL WBR NBT NBR SBL SBT NWL NWR

Lane Configurations								
Traffic Vol, veh/h	217	62	145	195	98	170	0	0
Future Vol, veh/h	217	62	145	195	98	170	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	-	None	-	-
Storage Length	0	0	-	-	250	-	-	-
Veh in Median Storage, #0	-	-	0	-	-	0	-	-
Grade, %	0	-	0	-	-	0	0	-
Peak Hour Factor	91	91	93	93	86	86	90	90
Heavy Vehicles, %	2	2	5	2	2	5	2	2
Mvmt Flow	238	68	156	210	114	198	0	0

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	687	261	0	0	366	0
Stage 1	261	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	413	778	-	-	1193	-
Stage 1	783	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	373	778	-	-	1193	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	596	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s25.8		0	3
HCM LOS	D		






Minor Lane/Major Mvmt NBT NBRWBLn1WBLn2 SBL SBT

Capacity (veh/h)	-	-	373	778	1193	-
HCM Lane V/C Ratio	-	-	0.639	0.088	0.096	-
HCM Control Delay (s)	-	-	30.3	10.1	8.3	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	4.2	0.3	0.3	-

Enclave Asheville
2: Chunns Cove Road & I-240 On-Ramp & I-240 Off-Ramp

No-Build (2023)
Timing Plan: AM Peak

Intersection

Int Delay, s/veh	8.5							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Vol, veh/h	217	71	119	75	67	114	0	0
Future Vol, veh/h	217	71	119	75	67	114	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	-	None	-	-
Storage Length	0	0	-	-	250	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0	-	-
Grade, %	0	-	0	-	-	0	0	-
Peak Hour Factor	84	84	94	94	72	72	90	90
Heavy Vehicles, %	2	2	5	2	2	5	2	2
Mvmt Flow	258	85	127	80	93	158	0	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	511	167	0	0	207
Stage 1	167	-	-	-	-
Stage 2	344	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	523	877	-	-	1364
Stage 1	863	-	-	-	-
Stage 2	718	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	487	877	-	-	1364
Mov Cap-2 Maneuver	487	-	-	-	-
Stage 1	863	-	-	-	-
Stage 2	669	-	-	-	-






Approach	WB	NB	SB
HCM Control Delay, s	17.7	0	2.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	487	877	1364	-
HCM Lane V/C Ratio	-	-	0.53	0.096	0.068	-
HCM Control Delay (s)	-	-	20.4	9.5	7.8	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	3.1	0.3	0.2	-

Enclave Asheville
2: Chunns Cove Road & I-240 On-Ramp & I-240 Off-Ramp

No-Build (2023)
Timing Plan: PM Peak

Intersection

Int Delay, s/veh	9.3							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Vol, veh/h	220	63	147	198	99	173	0	0
Future Vol, veh/h	220	63	147	198	99	173	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	-	None	-	-
Storage Length	0	0	-	-	250	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0	-	-
Grade, %	0	-	0	-	-	0	0	-
Peak Hour Factor	91	91	93	93	86	86	90	90
Heavy Vehicles, %	2	2	5	2	2	5	2	2
Mvmt Flow	242	69	158	213	115	201	0	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	696	265	0	0	371
Stage 1	265	-	-	-	-
Stage 2	431	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	408	774	-	-	1188
Stage 1	779	-	-	-	-
Stage 2	655	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	368	774	-	-	1188
Mov Cap-2 Maneuver	368	-	-	-	-
Stage 1	779	-	-	-	-
Stage 2	591	-	-	-	-






Approach	WB	NB	SB
HCM Control Delay, s	26.9	0	3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	368	774	1188
HCM Lane V/C Ratio	-	-	0.657	0.089	0.097
HCM Control Delay (s)	-	-	31.7	10.1	8.4
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	4.5	0.3	0.3

Enclave Asheville
2: Chunns Cove Road & I-240 On-Ramp & I-240 Off-Ramp

Build (2023)
Timing Plan: AM Peak

Intersection

Int Delay, s/veh	11.7							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Vol, veh/h	217	82	139	75	98	172	0	0
Future Vol, veh/h	217	82	139	75	98	172	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	-	None	-	-
Storage Length	0	0	-	-	250	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0	-	-
Grade, %	0	-	0	-	-	0	0	-
Peak Hour Factor	84	84	94	94	72	72	90	90
Heavy Vehicles, %	2	2	5	2	2	5	2	2
Mvmt Flow	258	98	148	80	136	239	0	0

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	699	188	0	0	228
Stage 1	188	-	-	-	-
Stage 2	511	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	406	854	-	-	1340
Stage 1	844	-	-	-	-
Stage 2	602	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	365	854	-	-	1340
Mov Cap-2 Maneuver	365	-	-	-	-
Stage 1	844	-	-	-	-
Stage 2	541	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.5	0	2.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 365 854 1340		-
HCM Lane V/C Ratio	-	- 0.708 0.114 0.102		-
HCM Control Delay (s)	-	- 35.5 9.8 8		-
HCM Lane LOS	-	- E A A		-
HCM 95th %tile Q(veh)	-	- 5.2 0.4 0.3		-

Intersection

Int Delay, s/veh 14.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
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Lane Configurations								
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Traffic Vol, veh/h	220	95	207	198	120	212	0	0
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Future Vol, veh/h	220	95	207	198	120	212	0	0
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Conflicting Peds, #/hr	0	0	0	0	0	0	0	0
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Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free
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RT Channelized	-	None	-	-	-	None	-	-
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Storage Length	0	0	-	-	250	-	-	-
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Veh in Median Storage, #	0	-	0	-	-	0	-	-
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Grade, %	0	-	0	-	-	0	0	-
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Peak Hour Factor	91	91	93	93	86	86	90	90
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Heavy Vehicles, %	2	2	5	2	2	5	2	2
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Mvmt Flow	242	104	223	213	140	247	0	0
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Major/Minor	Minor1	Major1	Major2
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Conflicting Flow All	857	330	0	0	436	0
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Stage 1	330	-	-	-	-	-
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Stage 2	527	-	-	-	-	-
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Critical Hdwy	6.42	6.22	-	-	4.12	-
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Critical Hdwy Stg 1	5.42	-	-	-	-	-
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Critical Hdwy Stg 2	5.42	-	-	-	-	-
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Follow-up Hdwy	3.518	3.318	-	-	2.218	-
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Pot Cap-1 Maneuver	328	712	-	-	1124	-
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Stage 1	728	-	-	-	-	-
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Stage 2	592	-	-	-	-	-
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Platoon blocked, %			-	-		-
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Mov Cap-1 Maneuver	287	712	-	-	1124	-
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Mov Cap-2 Maneuver	287	-	-	-	-	-
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Stage 1	728	-	-	-	-	-
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Stage 2	518	-	-	-	-	-
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Approach	WB	NB	SB
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HCM Control Delay, s	44.9	0	3.1
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HCM LOS	E		
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Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
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Capacity (veh/h)	-	-	287	712	1124	-
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HCM Lane V/C Ratio	-	-	0.842	0.147	0.124	-
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HCM Control Delay (s)	-	-	59.6	10.9	8.7	-
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HCM Lane LOS	-	-	F	B	A	-
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HCM 95th %tile Q(veh)	-	-	7.1	0.5	0.4	-
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CHUNNS COVE ROAD (SR 2244)
&
PINEY MOUNTAIN DRIVE




Enclave Asheville - Phase 2
3: Chunns Cove Road & Piney Mountain Drive

Existing (2020)
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 1.2

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations						
Traffic Vol, veh/h	29	4	51	136	4	148
Future Vol, veh/h	29	4	51	136	4	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #0	-	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	68	68	88	88	73	73
Heavy Vehicles, %	2	2	5	2	2	5
Mvmt Flow	43	6	58	155	5	203

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	349	136	0	0	213	0
Stage 1	136	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	648	913	-	-	1357	-
Stage 1	890	-	-	-	-	-
Stage 2	823	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	645	913	-	-	1357	-
Mov Cap-2 Maneuver	645	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	820	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s10.8		0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt NBT NBRWBLn1 SBL SBT

Capacity (veh/h)	-	-	669	1357	-
HCM Lane V/C Ratio	-	-	0.073	0.004	-
HCM Control Delay (s)	-	-	10.8	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Enclave Asheville - Phase 2
3: Chunns Cove Road & Piney Mountain Drive

Existing (2020)
Timing Plan: PM Peak

Intersection

Int Delay, s/veh 4.8

Movement WBL WBR NBT NBR SBL SBT

Lane Configurations	W	W	N	N	S	S
Traffic Vol, veh/h	161	4	155	52	4	107
Future Vol, veh/h	161	4	155	52	4	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #0	-	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	91	91	77	77
Heavy Vehicles, %	2	2	5	2	2	5
Mvmt Flow	204	5	170	57	5	139

Major/Minor Minor1 Major1 Major2

Conflicting Flow All	348	199	0	0	227	0
Stage 1	199	-	-	-	-	-
Stage 2	149	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	649	842	-	-	1341	-
Stage 1	835	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	646	842	-	-	1341	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	875	-	-	-	-	-

Approach WB NB SB

HCM Control Delay, s13.1	-	0	0.3
HCM LOS	B	-	-

Minor Lane/Major Mvmt NBT NBRWBLn1 SBL SBT




Capacity (veh/h)	-	-	650	1341	-
HCM Lane V/C Ratio	-	-	0.321	0.004	-
HCM Control Delay (s)	-	-	13.1	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0	-

Enclave Asheville
3: Chunns Cove Road & Piney Mountain Drive

No-Build (2023)
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	4	52	138	4	150
Future Vol, veh/h	29	4	52	138	4	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	68	68	88	88	73	73
Heavy Vehicles, %	2	2	5	2	2	5
Mvmt Flow	43	6	59	157	5	205

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	353	138	0
Stage 1	138	-	-
Stage 2	215	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	645	910	-
Stage 1	889	-	-
Stage 2	821	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	642	910	-
Mov Cap-2 Maneuver	642	-	-
Stage 1	889	-	-
Stage 2	818	-	-

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




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	666	1354
HCM Lane V/C Ratio	-	-	0.073	0.004
HCM Control Delay (s)	-	-	10.8	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Enclave Asheville
3: Chunns Cove Road & Piney Mountain Drive

No-Build (2023)
Timing Plan: PM Peak

Intersection

Int Delay, s/veh 4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	163	4	157	53	4	109
Future Vol, veh/h	163	4	157	53	4	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	91	91	77	77
Heavy Vehicles, %	2	2	5	2	2	5
Mvmt Flow	206	5	173	58	5	142

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	354	202	0
Stage 1	202	-	-
Stage 2	152	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	644	839	-
Stage 1	832	-	-
Stage 2	876	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	641	839	-
Mov Cap-2 Maneuver	641	-	-
Stage 1	832	-	-
Stage 2	872	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.3
HCM LOS	B		




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	645	1337
HCM Lane V/C Ratio	-	-	0.328	0.004
HCM Control Delay (s)	-	-	13.3	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.4	0

Enclave Asheville
3: Chunns Cove Road & Piney Mountain Drive

Build (2023)
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	118	4	52	169	4	150
Future Vol, veh/h	118	4	52	169	4	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	68	68	88	88	73	73
Heavy Vehicles, %	2	2	5	2	2	5
Mvmt Flow	174	6	59	192	5	205

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	370	155	0
Stage 1	155	-	-
Stage 2	215	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	630	891	-
Stage 1	873	-	-
Stage 2	821	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	627	891	-
Mov Cap-2 Maneuver	627	-	-
Stage 1	873	-	-
Stage 2	818	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.2
HCM LOS	B		




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	633	1314
HCM Lane V/C Ratio	-	-	0.283	0.004
HCM Control Delay (s)	-	-	12.9	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.2	0

Enclave Asheville
3: Chunns Cove Road & Piney Mountain Drive

Build (2023)
Timing Plan: PM Peak

Intersection

Int Delay, s/veh 6.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	223	4	157	145	4	109
Future Vol, veh/h	223	4	157	145	4	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	79	79	91	91	77	77
Heavy Vehicles, %	2	2	5	2	2	5
Mvmt Flow	282	5	173	159	5	142

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	405	253	0
Stage 1	253	-	-
Stage 2	152	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	602	786	-
Stage 1	789	-	-
Stage 2	876	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	600	786	-
Mov Cap-2 Maneuver	600	-	-
Stage 1	789	-	-
Stage 2	872	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	603	1227
HCM Lane V/C Ratio	-	-	0.477	0.004
HCM Control Delay (s)	-	-	16.3	7.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	2.6	0




PINEY MOUNTAIN DRIVE
&
PROPOSED DEVELOPMENT ACCESS

Enclave Asheville
4: Piney Mountain Drive & Access 1

Build (2023)
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	45	74	4	16	153
Future Vol, veh/h	4	45	74	4	16	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	50	82	4	18	170

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	290	84	0
Stage 1	84	-	-
Stage 2	206	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	701	975	-
Stage 1	939	-	-
Stage 2	829	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	692	975	-
Mov Cap-2 Maneuver	692	-	-
Stage 1	939	-	-
Stage 2	818	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.7
HCM LOS	A		




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	944	1510
HCM Lane V/C Ratio	-	-	0.058	0.012
HCM Control Delay (s)	-	-	9	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Enclave Asheville
5: Piney Mountain Drive & Access 2

Build (2023)
Timing Plan: AM Peak

Intersection

Int Delay, s/veh 2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	44	30	4	15	138
Future Vol, veh/h	4	44	30	4	15	138
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	49	33	4	17	153

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	222	35	0
Stage 1	35	-	-
Stage 2	187	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	766	1038	-
Stage 1	987	-	-
Stage 2	845	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	757	1038	-
Mov Cap-2 Maneuver	757	-	-
Stage 1	987	-	-
Stage 2	835	-	-




Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1007	1574
HCM Lane V/C Ratio	-	-	0.053	0.011
HCM Control Delay (s)	-	-	8.8	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Enclave Asheville
4: Piney Mountain Drive & Access 1

Build (2023)
Timing Plan: PM Peak

Intersection

Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	30	195	4	46	99
Future Vol, veh/h	4	30	195	4	46	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	33	217	4	51	110

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	431	219	0	0	221
Stage 1	219	-	-	-	-
Stage 2	212	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	581	821	-	-	1348
Stage 1	817	-	-	-	-
Stage 2	823	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	558	821	-	-	1348
Mov Cap-2 Maneuver	558	-	-	-	-
Stage 1	817	-	-	-	-
Stage 2	790	-	-	-	-




Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	2.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	778	1348
HCM Lane V/C Ratio	-	-	0.049	0.038
HCM Control Delay (s)	-	-	9.9	7.8
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Enclave Asheville
5: Piney Mountain Drive & Access 2

Build (2023)
Timing Plan: PM Peak

Intersection

Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	30	165	4	46	53
Future Vol, veh/h	4	30	165	4	46	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	33	183	4	51	59

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	346	185	0	0	187
Stage 1	185	-	-	-	-
Stage 2	161	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	651	857	-	-	1387
Stage 1	847	-	-	-	-
Stage 2	868	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	626	857	-	-	1387
Mov Cap-2 Maneuver	626	-	-	-	-
Stage 1	847	-	-	-	-
Stage 2	835	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	821	1387
HCM Lane V/C Ratio	-	-	0.046	0.037
HCM Control Delay (s)	-	-	9.6	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1