Newton Bridge Road Residential

Traffic Impact Study

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3-25-2025

Executive Summary

The purpose of this study is to evaluate the potential traffic impacts of the proposed *Newton Bridge Road Residential* development. The site is in Athens-Clarke County, Georgia and located along the east side of Newton Bridge Road near Vincent Drive. The existing site is undeveloped. Based on the site plan (see Appendix B) the development will include up to 350 residential homes (184 attached units and 166 detached units). Two main driveways are proposed along Newton Bridge Road, one that will create a fourth leg with the existing intersection at Vincent Drive and one that will create a fourth leg with the existing intersection at Deer Trail.

Figure 1 illustrates the site location and the proposed driveway locations on an aerial map. Newton Bridge Road is a two lane roadway with a posted speed limit of 45-mph adjacent to the site. Vincent Drive is a two-lane roadway with a 45-mph posted speed limit. Deer Trail is a two-lane residential street with a 25-mph posted speed limit.

For the purposes of the traffic study, the analysis included the expected completion (build-out) of the development by year 2029. This study performed an analysis of existing and future no-build traffic conditions at five study intersections: Newton Bridge Road at Vincent Drive/Proposed Driveway #1, Newton Bridge Road at Deer Trail/Proposed Driveway #2, Newton Bridge Road/Barber Street at N Chase Street/Dairy Road, N Chase Street at US 129 Westbound Ramps, and N Chase Street at US 129 Eastbound Ramps. The future build conditions analysis (with the Newton Bridge Road Residential development) was performed for the year 2029 as well as a future 5-year 2034 analysis. The traffic study also included a review of Georgia DOT requirements and Athens-Clarke County regulations for required turn lanes at the site driveways.

The project volumes were calculated based on the Institute of Transportation Engineers' (ITE) Trip Generation Manual, Eleventh Edition. The most applicable ITE land use (LU) codes were LU 210 (Single-Family Detached) and LU 211 (Single-Family Attached), which provided weekday, AM, and PM peak hour trips. The estimated total project volumes are 3,009 vehicles per day (1,505 entering and 1,504 exiting), 213 vehicles during the AM peak hour (59 entering and 154 exiting) and 271 vehicles during the PM peak hour (164 entering and 107 exiting).

The results of the existing year 2025 traffic analysis indicate the study intersections are currently operating with acceptable levels of service during the AM and PM peak hours except for two time periods at two intersections. The Vincent Drive stop-control approach at Newton Bridge Road has a LOS E during the PM peak hour. The US 129 Eastbound exit ramp at N Chase Street has a LOS F during the AM peak hour. It is important to note, low level of service for stop-control approaches is not uncommon at major cross streets, where turning vehicles have to wait to find gaps in the through traffic.

The results for the future year 2029 No Build Conditions (without the Newton Bridge Road residential development) indicate the study intersections are expected to continue operating with acceptable levels of service during the AM and PM peak hours except for one intersection of Newton Bridge Road at Vincent Drive. During the PM peak hour the Vincent Drive stop-control approach at Newton Bridge Road has a LOS E during the PM peak hour. It is important to note, low level of service for stop-control approaches is not uncommon at major cross streets, where turning vehicles have to wait to find gaps in

the through traffic. It is important to note, improvements from GDOT PI 0015390 (installation of roundabouts at the two US 129 interchange ramp intersections along N Chase Street) were included in the No Build Conditions.

The results for the future year 2029 Build Conditions (with the Newton Bridge Road Residential development) indicate the study intersections are expected to continue operating with acceptable levels of service during the AM and PM peak hours the study intersections are expected to continue operating with acceptable levels of service during the AM and PM peak hours except for two intersections. At the Newton Bridge Road at Vincent Drive/Proposed Driveway #1, the two stop-control approaches will operate at LOS F during one or two peak hours. Alternatives to reduce approach delay were considered, including all-way stop control, a traffic signal, or a roundabout. The all-way stop control indicated high vehicle delay. A traffic signal is not expected to meet MUTCD volume warrants. Therefore, the development proposes installing a single-lane roundabout at the intersection to enhance operations. With the installation of a roundabout, Newton Bridge Road at Vincent Drive/Proposed Driveway #1 is expected to operate with acceptable levels of service during the AM and PM peak hours. The installation of a roundabout greatly reduces average vehicle delay on all four approaches, provides a safety enhancement, and accommodates future growth in the area.

Additionally, the stop-control approach at proposed driveway #2 is expected to operate with an acceptable level of service during the AM peak hour and a low level of service (LOS F) during the PM peak hour. It is important to note, low level of service for stop-control approaches is not uncommon at major cross streets, where turning vehicles have to wait to find gaps in the through traffic. Additionally, the residents exiting the development have the option to use driveway #1 at the proposed roundabout as an alternative. Therefore, no additional improvements are recommended.

The traffic impact study additionally includes the intersection capacity results for the 'five-year forecast' beyond the build out year for the development. The results of the future year 2034 Build Conditions (with the Newton Bridge Road Residential development) indicate the study intersections are expected to continue operating with acceptable levels of service except for the stop-control approach at proposed driveway #2 during the PM peak hour.

The traffic impact study identified the following geometric and access improvements recommendations to accommodate the proposed Newton Bridge Road Residential development:

- Newton Bridge Road at Vincent Drive/Proposed Driveway #1
    - Install a single-lane roundabout, with one-lane entry on all four approaches
- Newton Bridge Road at Deer Trail/Proposed Driveway #2
    - Construct the driveway as the fourth leg of the intersection; driveway to be stop-control
    - Provide one exit lane (one shared left-turn/through/right-turn lane)
    - Construct a northbound right-turn deceleration lane along Newton Bridge Road

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1. Existing Conditions

1.1 Site Conditions

The proposed development is located on primarily undeveloped property. **Figure 1** provides a general location map. **Figure 2** is an aerial that shows the site location and the proposed site driveways. (Figures included in Appendix A) Access to the property is proposed to be provided at two locations. (The site plan is included in Appendix B). The proposed residential development will include up to 350 homes (184 attached units and 166 detached units).

1.2 Roadway Conditions

Newton Bridge Road is a two-lane roadway with a posted speed limit of 45 mph in the area of the proposed development. Newton Bridge Road is a four-lane roadway to the south of Kathwood Drive. For the purposes of this study, Newton Bridge Road is a north-south oriented roadway north of Kathwood Drive and an east-west oriented roadway at the study intersection of N Chase Street. Georgia DOT classifies Newton Bridge Road as a minor arterial.

Vincent Drive is a two-lane roadway with a posted speed limit of 45 mph in the area of the proposed development. Vincent Drive is an east-west oriented roadway for the purposes of this study and Georgia DOT classifies Vincent Drive as a major collector.

Deer Trail is a two-lane residential roadway with a posted speed limit of 25 mph in the area of the proposed development. Deer Trail is an east-west oriented roadway for the purposed of this study and Georgia DOT classifies Deer Trail as a local road.

N Chase Street is a four-lane roadway with a posted speed limit of 45 mph. N Chase Street is a north-south oriented roadway for the purposes of this study and Georgia DOT classifies N Chase Street as a minor arterial.

US 129 is a four-lane divided highway with a posted speed limit of 65 mph. US 129 is an east-west oriented roadway for the purposes of this study and Georgia DOT classifies US 129 as a principal arterial.

The intersections of Newton Bridge Road at Vincent Drive and Newton Bridge Road at Deer Trail are 3-leg T-intersections that operate with side-street stop-control with single lane approaches in each direction.

The intersection of Newton Bridge Road/Barber Street at N Chase Street/Dairy Road is a signalized 4-leg intersection with the following lane configuration:

- Northbound N Chase St: one left-turn lane and one shared left-turn/through/right-turn lane
- Southbound Dairy Rd: one shared left-turn/through lane and one right-turn lane
- Eastbound Newton Bridge Rd: one shared left-turn/through lane and one right-turn lane
- Westbound Newton Bridge Rd: one shared left-turn/through lane and one shared through/right-turn lane

The intersection of N Chase Street at US 129 Westbound Ramps is a signalized 4-leg intersection with the following lane configuration:

- Northbound N Chase St: one shared left-turn/through lane and one through lane

- Southbound N Chase St: one through lane and one shared through/right-turn lane
- Westbound US 129 WB Off Ramp: one left-turn lane and one right-turn lane

The intersection of N Chase Street at US 129 Eastbound Ramps operates with side-street stop-control with the following lane configuration:

- Northbound N Chase St: one through lane and one shared through/right-turn lane
- Southbound N Chase St: one left-turn lane and one through lane
- Eastbound US 129 EB Off Ramp: one left-turn lane and one right-turn lane

1.3 Traffic Volumes

Traffic counts were collected on Thursday, February 27, 2025, for use in the traffic analysis. Athens-Clarke County public schools were in session. The traffic data collected included:

- 7-9 AM and 4-6 PM turning movement count at the study intersections

It is important to note, Holland Youth Sports Complex Park is located along Vincent Drive just west of Newton Bridge Road. The Complex hosts a majority of youth soccer and baseball which were both in season during the collection period. Therefore, the afternoon traffic volumes are expected to be higher than compared to off-season traffic.

Historical traffic volume data available from the GDOT TADA source was utilized to inform the annual growth factor. The three locations are indicated in Appendix D. The three locations are:

- GDOT Count Station #059-0613 is located on Vincent Drive, west of Newton Bridge Road
- GDOT Count Station #059-0183 is located on Newton Bridge Road, south of Vincent Drive
- GDOT Count Station #059-0185 is located on Newton Bridge Road, south of Fritz Mar Lane

Figure 3 (in Appendix A) illustrates the existing 2025 traffic volumes. These volumes were used in the traffic analysis. The traffic counts are included in the Appendix C. The 2025 traffic volumes are indicated in the Intersection Volume Development table included in the Appendix E.

2. Future Conditions

2.1 Future No-Build Traffic Volumes

Future traffic volumes were developed by reviewing the historical traffic volumes roadways within the vicinity of the project and historic population growth in the county. Three GDOT count stations in the area were reviewed. The annual historic compound growth rate was 1.5% between the three GDOT count stations. The calculations are included in Appendix D. Athens-Clarke County's population growth rate was most recently reported as 0.98% per year in 2020. The Governor's Office of Planning and Budget developed population projections indicate an estimated growth of 1.38% by 2029 in Athens-Clarke County.

Considering this data, a 1.5% per year growth rate to account for background traffic volume growth was used in the traffic study. For the purposes of this study the proposed development is expected to be completed and opened by 2029. A 1.5% per year growth rate was applied to the 2025 existing volumes to calculate year 2029 no-build traffic volumes.

For the 'five-year forecast' beyond the build out year for the development, the same 1.5% per year growth rate was applied to calculate the year 2034 no-build traffic volumes.

2.2 Future Roadway Conditions

A review of Georgia DOT and Athens-Clarke County planned, and programmed transportation projects was performed using Georgia DOT's GeoPI database. There is one planned/programmed project near the development site:

- PI 0015390 CR 1037/Chase St from CR 478/Barber St to CSX #639916G
    - Enhancement project that adds sidewalks and side path along Chase Street as well as intersection and operational improvements (roundabouts) at the US 129 interchange ramp intersections and Oneta Street
    - Per approved concept report (included in Appendix G), open year is 2028 and right of way is authorized for September 2025

Since the PI project's open year is 2028, the improvements at the US 129 interchange ramps (the installation of roundabouts) were included in the traffic impact study 2029 no-build and build analysis.

3. Proposed Development Traffic

Project traffic was calculated for the proposed development. Project traffic is defined as the vehicular trips expected to be generated by the development and distributed over the roadway network.

3.1 Trip Generation

The project driveway volumes were calculated based on the Institute of Transportation Engineers' (ITE) Trip Generation Manual, Eleventh Edition. Based on information provided by the developer, the development will include up to 350 residential homes (184 attached and 166 detached).

The most applicable ITE land use (LU) codes were LU 210 (Single-Family Detached) and LU 211 (Single-Family Attached), which provided weekday, AM, and PM peak hour trips. Additionally, due to the development type, no pass-by reductions or internal capture reductions were included in the traffic analysis. **Table 1** below summarizes the trips expected daily, during the AM peak hour, and during the PM peak hour for the development.

Table 1: Proposed Site Trip Generation

Land Use (ITE Code)	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
		Two-Way Total	Enter	Exit	Total	Enter	Exit	Total
Single-Family Detached (210)	166	1,657	31	92	123	104	61	165
Single-Family Attached (215)	184	1,352	28	62	90	60	46	106
Total Trips		**3,009**	**59**	**154**	**213**	**164**	**107**	**271**

3.2 Trip Distribution and Assignment

An overall trip distribution and assignment of project trips was based on existing traffic patterns and a review of land uses and the street network in the area. This information was used to apply the project traffic volumes at the study intersections and development driveway.

The directional distribution for the proposed development is estimated to be:

- Distribution:
  - 5% to the north along Newton Bridge Road
  - 10% to the west along Vincent Drive
  - 5% to the west along Kathwood Drive
  - 25% to the south along Barber Street
  - 25% to the south along N Chase Street
  - 15% to the west along US 129
  - 15% to the east along US 129

Figure 4 (in Appendix A) illustrates the project trip distribution and the distribution is included in the intersection volume development (in Appendix E)

3.3 Future Build Traffic Volumes

The 2029 future Build traffic volumes were calculated by adding the proposed development (Newton Bridge Road residential) traffic volumes to the projected year 2029 No-Build traffic volumes. **Figure 5** (in Appendix A) illustrates the year 2029 Build traffic volumes.

Additionally, 2034 future Build traffic volumes were calculated in the same manner for the 'five-year forecast' beyond the build out year for the development.

4. Capacity Analysis

Capacity analysis was performed at the study intersections for the weekday AM and PM peak hours. Intersection Level of Service (LOS) was calculated based on the methodologies contained in the Highway Capacity Manual, 6th Edition. The Synchro Studio software or SIDRA software(for roundabouts), which utilizes the HCM 6th Edition methodology was utilized to perform the analysis.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a specified period under prevailing roadway, traffic, and control conditions. Level of service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorist's perceptions. The Highway Capacity Manual defines six levels of service, LOS A through LOS F. Level of service A indicates excellent operations with little delay to motorists, while level of service F indicates extremely long delays.

Level of service for unsignalized intersections is calculated for the average control delay incurred for vehicles on the stop control approach, compared to the average control delay per vehicle for all approaches at a signalized intersection. Control delay for vehicles include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. **Table 2** below indicates the relationship between delay and LOS for signalized and unsignalized intersections (and roundabouts), respectively. Level-of-service "E" is typically considered to be the limit of acceptable delay.

Several factors affect the controlled delay for unsignalized intersections, including the availability of gaps in the cross-street traffic, and acceptable gap time to make the movement from the stop position. For stop-control intersections, LOS E and F exist when there are insufficient gaps in traffic, resulting in long delays. Low level of service for stop-control approaches is not uncommon at major cross-streets.

Table 2: Level of Service Criteria

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

4.1 Existing Conditions Capacity Analysis

Capacity analysis was performed for the year 2025 Existing Conditions and includes existing traffic volumes at the three study intersections. The existing traffic conditions and volumes are illustrated in **Figure 3**. **Table 3** summarizes the results of the existing capacity analysis.

Table 3: Existing Year (2025) Level of Service

Intersection	Intersection Control	Approach	AM Peak Hour LOS (Delay*)	PM Peak Hour LOS (Delay*)
1) Newton Bridge Road at Vincent Drive	Side-Street Stop-Control	EB – Vincent Dr	C (17)	E (45)
2) Newton Bridge Road at Deer Trail	Side-Street Stop-Control	EB – Deer Trail	B (13)	B (13)
3) Newton Bridge Road/Barber Street at N Chase Street/Dairy Road	Signalized	**Overall**	**B (14)**	**B (14)**
		NB – Chase St	B (13)	B (13)
		SB – Dairy Rd	C (21)	B (20)
		EB – Newton	B (17)	B (15)
		WB – Barber	B (15)	B (14)
4) N Chase Street at US 129 Westbound Ramps	Signalized	**Overall**	**B (15)**	**B (12)**
		NB – Chase	B (14)	B (11)
		SB – Chase	B (13)	A (7)
		WB – US 129 WB Off Ramp	B (19)	C (26)
5) N Chase Street at US 129 Eastbound Ramps	Side-Street Stop-Control	EB – US 129 EB Off Ramp	F (59)	C (22)

**Average vehicle delay in seconds*

The existing study intersections are currently operating with acceptable levels of service during the AM and PM peak hours except for two time periods at two intersections. The Vincent Drive stop-control approach at Newton Bridge Road has a LOS E during the PM peak hour. The US 129 Eastbound exit ramp at N Chase Street has a LOS F during the AM peak hour. It is important to note, low level of service for stop-control approaches is not uncommon at major cross streets, where turning vehicles have to wait to find gaps in the through traffic.

4.2 No Build Conditions Capacity Analysis

Capacity analysis was performed for the year 2029 Future Conditions and includes the No-Build traffic volumes and existing traffic conditions as well as the proposed improvements from PI 0015390 (roundabouts at two US 129 interchange ramp intersections). **Table 4** summarizes the results of the capacity analysis.

Table 4: No Build Year (2029) Level of Service

Intersection	Intersection Control	Approach	AM Peak Hour LOS (Delay*)	PM Peak Hour LOS (Delay*)
1) Newton Bridge Road at Vincent Drive	Side-Street Stop-Control	EB – Vincent Dr	C (18)	E (78)
2) Newton Bridge Road at Deer Trail	Side-Street Stop-Control	EB – Deer Trail	B (14)	B (13)
3) Newton Bridge Road/Barber Street at N Chase Street/Dairy Road	Signalized	**Overall**	**B (15)**	**B (15)**
		NB – Chase St	B (14)	B (14)
		SB – Dairy Rd	C (22)	B (21)
		EB – Newton	B (17)	B (16)
		WB – Barber	B (15)	B (15)
4) N Chase Street at US 129 Westbound Ramps	Roundabout	**Overall**	**C (16)**	**A (10)**
		NB – Chase	A (4)	A (5)
		SB – Chase	D (27)	B (12)
		WB – US 129 WB Off Ramp	B (12)	B (11)
5) N Chase Street at US 129 Eastbound Ramps	Roundabout	**Overall**	**A (9)**	**A (6)**
		NB – Chase	A (4)	A (4)
		SB – Chase	A (7)	A (6)
		EB – US 129 EB Off Ramp	C (23)	B (11)

**Average vehicle delay in seconds*

By the year 2029 No Build conditions, the study intersections are expected to continue operating with acceptable levels of service during the AM and PM peak hours except for one intersection of Newton Bridge Road at Vincent Drive. During the PM peak hour the Vincent Drive stop-control approach at Newton Bridge Road has a LOS E during the PM peak hour. It is important to note, low level of service for stop-control approaches is not uncommon at major cross streets, where turning vehicles have to wait to find gaps in the through traffic.

4.3 Build Conditions Capacity Analysis

Capacity analysis was performed for the year 2029 Future Build Conditions and includes the No-Build traffic volumes, the proposed improvements from PI 0015390 (roundabouts at two US 129 interchange ramp intersections), plus the Newton Bridge Road residential development volumes. The Build traffic conditions and volumes are illustrated in **Figure 5**. **Table 5** summarizes the results of the capacity analysis.

Table 5: Build Year (2029) Level of Service

Intersection	Intersection Control	Approach	AM Peak Hour LOS (Delay*)	PM Peak Hour LOS (Delay*)
1) Newton Bridge Road at Vincent Drive/Proposed Driveway #1	Side-Street Stop-Control	EB – Vincent Dr	C (20)	F (241)
		WB – Driveway #1	F (64)	F (>300)
2) Newton Bridge Road at Deer Trail/Proposed Driveway #2	Side-Street Stop-Control	EB – Deer Trail	B (15)	C (17)
		WB – Driveway #2	D (29)	F (81)
3) Newton Bridge Road/Barber Street at N Chase Street/Dairy Road	Signalized	**Overall**	**B (16)**	**B (16)**
		NB – Chase St	B (15)	B (14)
		SB – Dairy Rd	C (24)	C (23)
		EB – Newton	B (18)	B (17)
		WB – Barber	B (16)	B (16)
4) N Chase Street at US 129 Westbound Ramps	Roundabout	**Overall**	**C (22)**	**B (12)**
		NB – Chase	A (4)	A (5)
		SB – Chase	E (41)	B (15)
		WB–US 129 WB Off Ramp	B (13)	B (14)
5) N Chase Street at US 129 Eastbound Ramps	Roundabout	**Overall**	**B (10)**	**A (6)**
		NB – Chase	A (4)	A (5)
		SB – Chase	A (7)	A (6)
		EB – US 129 EB Off Ramp	D (28)	B (12)

**Average vehicle delay in seconds*

By the year 2029 Build conditions, the study intersections are expected to continue operating with acceptable levels of service during the AM and PM peak hours except for two intersections. At the Newton Bridge Road at Vincent Drive/Proposed Driveway #1, the two stop-control approaches will operate at LOS F during one or two peak hours. Alternatives to reduce approach delay were considered, including all-way stop control, a traffic signal, or a roundabout. The all-way stop control indicated high vehicle delay. A traffic signal is not expected to meet MUTCD volume warrants. Therefore, the development proposes installing a single-lane roundabout at the intersection to enhance operations. The next section presents the capacity analysis results.

Additionally, the stop-control approach at proposed driveway #2 is expected to operate with an acceptable level of service during the AM peak hour and a low level of service (LOS F) during the PM peak hour. It is important to note, low level of service for stop-control approaches is not uncommon at major cross streets, where turning vehicles have to wait to find gaps in the through traffic. Additionally, the residents exiting the development have the option to use driveway #1 at the proposed roundabout as an alternative.

4.4 Build Conditions with Improvement Capacity Analysis

Capacity analysis was performed for the year 2029 Future Build Conditions for the proposed single-lane roundabout improvement. **Table 6** summarizes the results of the capacity analysis.

Table 6: Build Year w/Improvement (2029) Level of Service				
Intersection	Intersection Control	Approach	AM Peak Hour LOS (Delay*)	PM Peak Hour LOS (Delay*)
1) Newton Bridge Road at Vincent Drive/Proposed Driveway #1	Roundabout	**Overall**	**A (8)**	**A (10)**
		NB – Newton	A (4)	B (11)
		SB – Newton	A (8)	B (12)
		EB – Vincent	B (11)	A (7)
		WB – Prop Drwy #1	A (4)	A (9)

**Average vehicle delay in seconds*

With the installation of a roundabout, Newton Bridge Road at Vincent Drive/Proposed Driveway #1 is expected to operate with acceptable levels of service during the AM and PM peak hours. The installation of a roundabout greatly reduces average vehicle delay on all four approaches, provides a safety enhancement, and accommodates future growth in the area.

4.5 Future 5-Year Conditions Capacity Analysis

Capacity analysis was performed for the 'five-year forecast' beyond the build out year for the development. The year 2034 Future Build Conditions includes the No-Build traffic volumes the proposed improvements from PI 0015390 (roundabouts at US 129 interchange ramp intersections), plus the Newton Bridge Road residential development volumes as well as proposed improvements identified in the year 2029 analysis. The 2034 Build traffic conditions and volumes are illustrated in **Figure 6**. **Table 7** summarizes the results of the capacity analysis.

Table 7: Future Year (2034) Level of Service

Intersection	Intersection Control	Approach	AM Peak Hour LOS (Delay*)	PM Peak Hour LOS (Delay*)
1) Newton Bridge Road at Vincent Drive/Proposed Driveway #1	Roundabout	**Overall**	**A (8)**	**B (11)**
		NB – Newton	A (5)	B (12)
		SB – Newton	A (8)	B (14)
		EB – Vincent	B (12)	A (8)
		WB – Driveway #1	A (5)	A (9)
2) Newton Bridge Road at Deer Trail/Proposed Driveway #2	Side-Street Stop-Control	EB – Deer Trail	C (16)	C (18)
		WB – Driveway #2	D (33)	F (119)
3) Newton Bridge Road/Barber Street at N Chase Street/Dairy Road	Signalized	**Overall**	**B (17)**	**B (17)**
		NB – Chase St	B (15)	B (15)
		SB – Dairy Rd	C (26)	C (25)
		EB – Newton	B (19)	B (18)
		WB – Barber	B (16)	B (17)
4) N Chase Street at US 129 Westbound Ramps	Roundabout	**Overall**	**D (34)**	**B (15)**
		NB – Chase	A (4)	A (6)
		SB – Chase	F (70)	C (21)
		WB – US 129 WB Off Ramp	C (15)	C (17)
5) N Chase Street at US 129 Eastbound Ramps	Roundabout	**Overall**	**B (13)**	**A (7)**
		NB – Chase	A (5)	A (6)
		SB – Chase	A (7)	A (6)
		EB – US 129 EB Off Ramp	E (41)	B (14)

**Average vehicle delay in seconds*

The intersection capacity results for the 'five-year forecast' beyond the build out year for the development. The results of the future year 2034 Build Conditions (with the Newton Bridge Road residential development) indicate the study intersections are expected to continue operating with acceptable levels of service except for one location. The proposed development driveway #2 is expected to operating with a low level of service (LOS F) during the PM peak hour. It is important to note, low level of service for stop-control approaches is not uncommon at major cross streets, where turning vehicles have to wait to find gaps in the through traffic. Additionally, the residents exiting the development have the option to use driveway #1 at the proposed roundabout as an alternative.

5. Recommendations

Recommendations for access for the proposed development are based on existing conditions, the proposed development use, and expected traffic volumes. The need for dedicated turn lanes at the proposed development driveway and appropriate traffic control (i.e. stop control) were reviewed. Recommendations included reviewing Georgia DOT requirements and Athens-Clarke County subdivision regulations for required turn lanes, knowledge of general transportation standards, and engineering judgment. Specifics of the driveway design will need to follow Athens-Clarke County requirements for the proposed driveways.

5.1 Turn Lane Analysis at Site Driveways

The Georgia DOT Driveway and Encroachment Control Manual was reviewed for the proposed full-movement driveways along Newton Bridge Road. The GDOT driveway manual, Section 4I, Auxiliary Turn Lanes, provides minimum volumes requiring right-turn or left-turn deceleration lanes. The year 2029 Build traffic volumes were compared to the Georgia DOT driveway requirements for right-turn and left-turn deceleration lanes. The most recently collected daily volume on Newton Bridge Road per GDOT station #059-0183 was 8,548 vehicles per day in 2024.

Right-Turn Deceleration Lane Criteria

Based on the 45-mph speed limit, two-lane roadway, and more than 6,000 ADT (Average Daily Traffic) on Newton Bridge Road, Table 4-6 indicates a dedicated right-turn lane is required if there are more than 75 right-turn vehicles per day. The estimated daily northbound right-turn entering the site at proposed driveway #1 is 463 vehicles per day. This volume MEETS the GDOT criteria to install a right-turn deceleration lane at the proposed driveway #1; however, since a roundabout is proposed at the intersection, no right-turn lane is recommended. The estimated daily northbound right-turn entering the site at proposed driveway #2 is 1,082 vehicles per day. This volume MEETS the GDOT criteria to install a right-turn deceleration lane at the proposed driveway #2.

*Calculation at Driveway #1: 3,009 daily trips / 2 = 1,545 entering trips * 0.15 (percentage of vehicles turning right at driveway #1) = 231 vehicles*

*Calculation at Driveway #2: 3,009 daily trips / 2 = 1,545 entering trips * 0.70 (percentage of vehicles turning right at driveway #1) = 1,082 vehicles*

Left-turn Lane Criteria

Based on the 45-mph speed limit, two-lane roadway, and more than 6,000 ADT (Average Daily Traffic) on Newton Bridge Road, Table 4-7a indicates a dedicated left-turn lane is required if there are more than 175 left-turn vehicles per day. The estimated daily southbound left-turn entering the site at the proposed driveway #1 is 31 vehicles per day. This volume does NOT meet the GDOT criteria to install a dedicated left-turn deceleration lane at the proposed driveway #1. The estimated daily southbound left-turn entering the site at proposed driveway #2 is 124 vehicles per day and does NOT meet the GDOT criteria to install a dedicated left-turn deceleration lane.

*Calculation: 3,009 daily trips / 2 = 1,545 * 0.02 (percentage of vehicles turning left at driveway #1) = 31 vehicles*

*Calculation: 3,009 daily trips / 2 = 1,545 * 0.08 (percentage of vehicles turning left at driveway #1) = 124 vehicles*

5.2 Recommended Geometric and Access Improvements

The following geometric and access recommendations are provided to accommodate the Newton Bridge Road Residential development:

- Newton Bridge Road at Vincent Drive/Proposed Driveway #1
  - Install a single-lane roundabout, with one-lane entry on all four approaches
- Newton Bridge Road at Deer Trail/Proposed Driveway #2
  - Construct the driveway as the fourth leg of the intersection; driveway to be stop-control
  - Provide one exit lane (one shared left-turn/through/right-turn lane)
  - Construct a northbound right-turn deceleration lane along Newton Bridge Road

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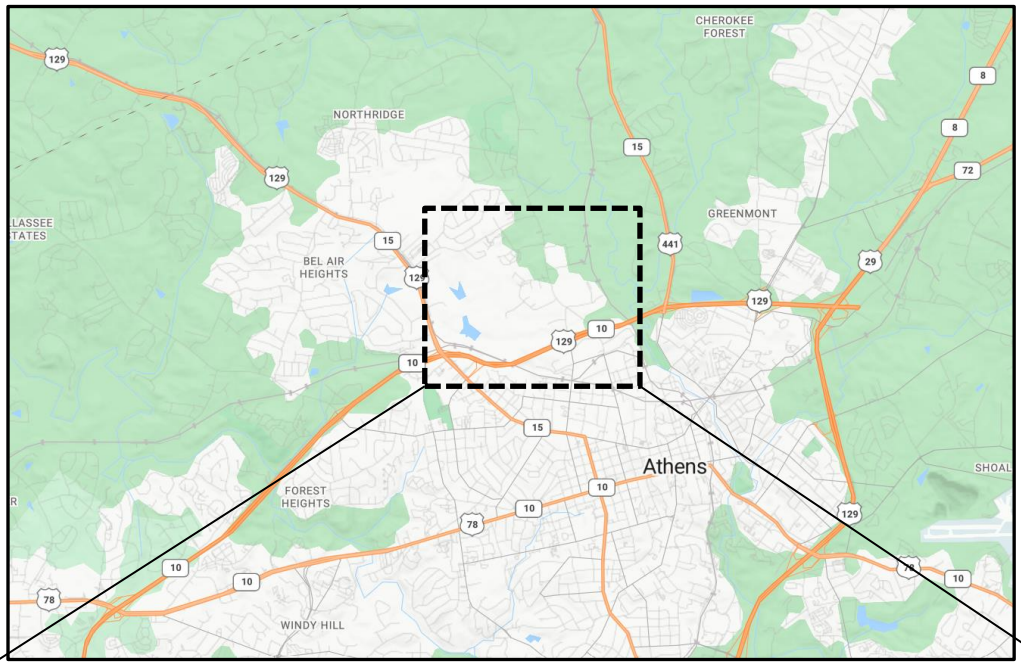
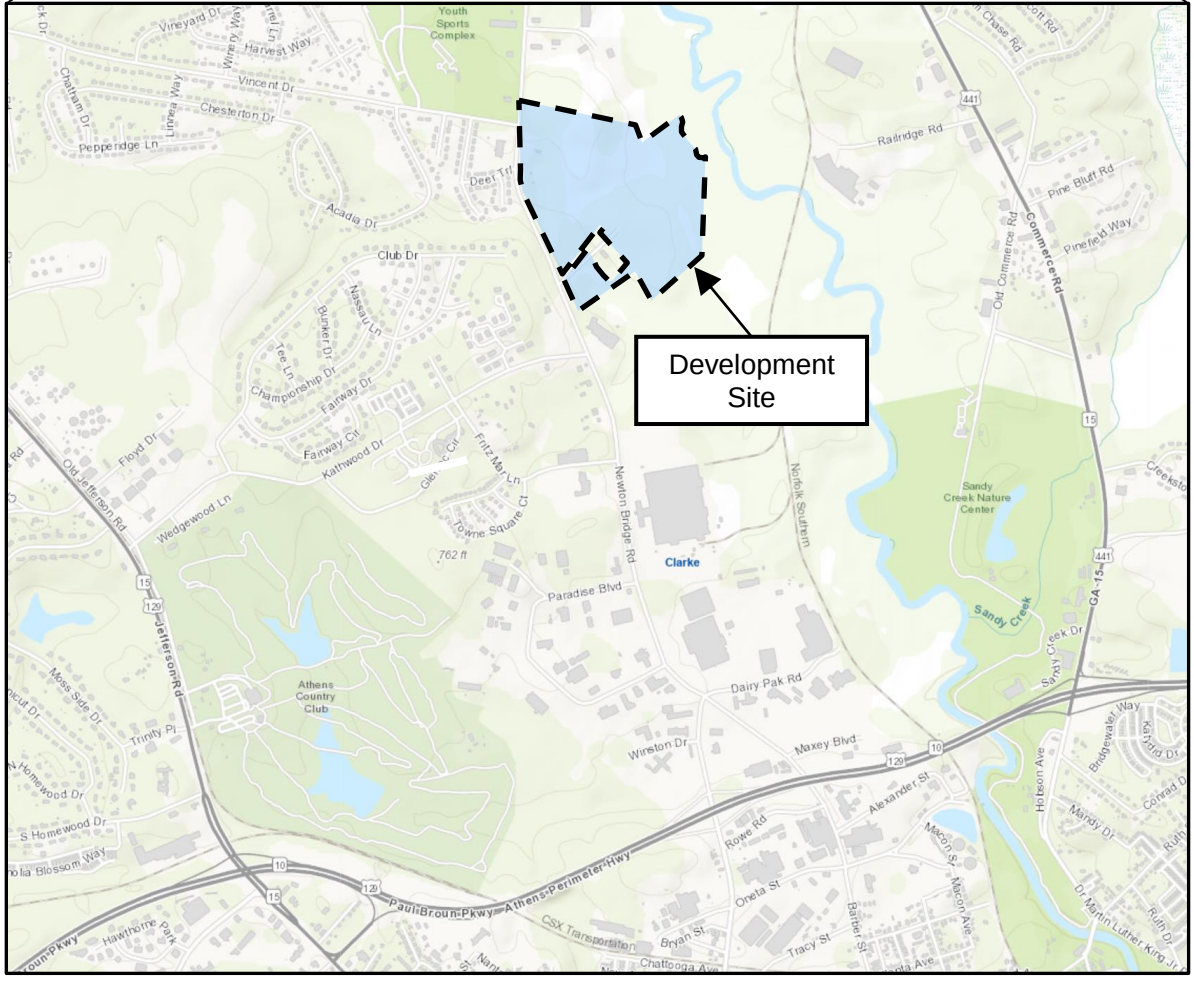
  - Intersection Volume Development
- Appendix F
  - Capacity Analysis Reports
- Appendix G
  - PI 0015390 Concept Report

Appendix A

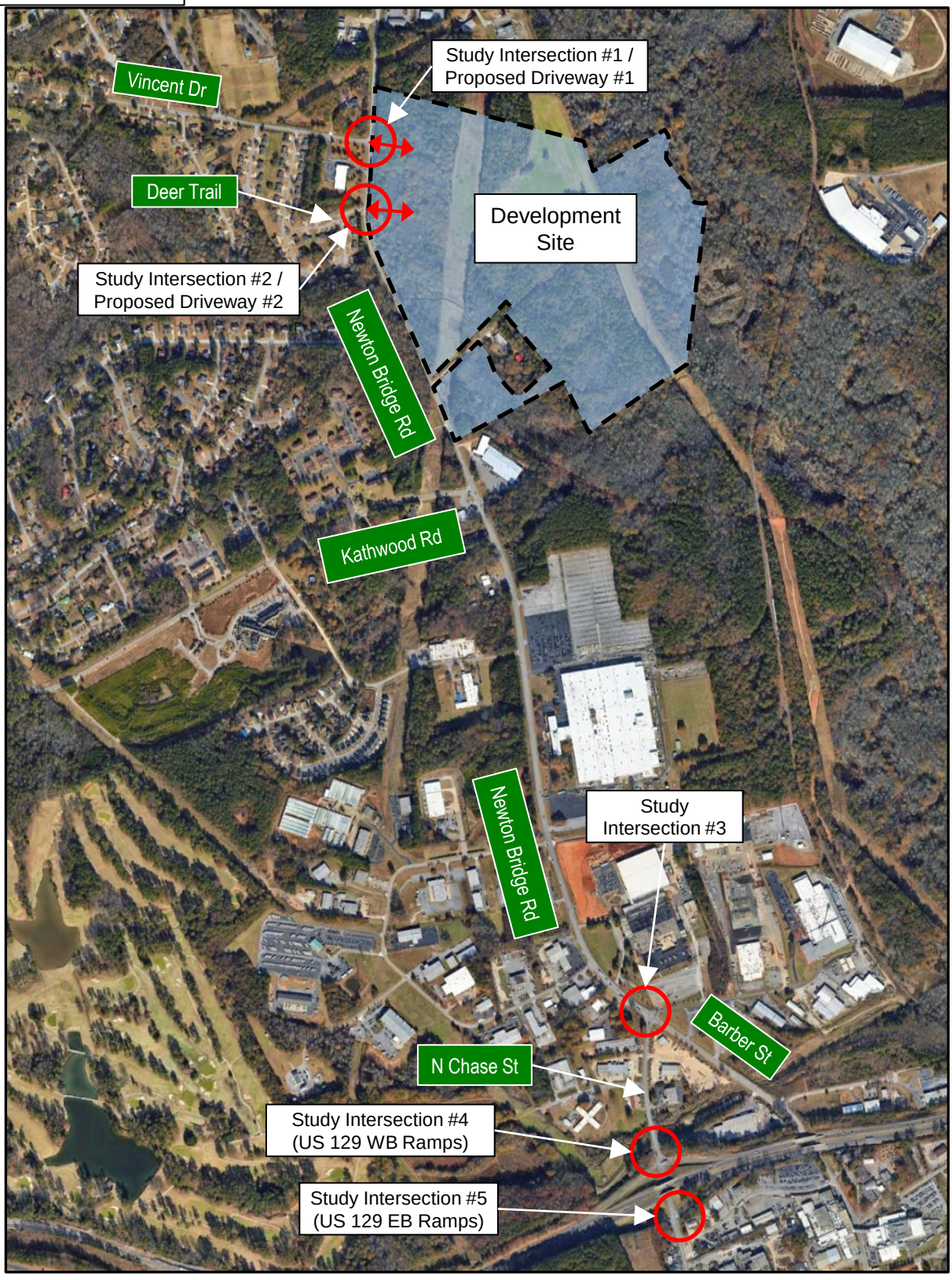
Figures





KCI TECHNOLOGIES	**Traffic Impact Study** **Newton Bridge Road Residential** **Athens-Clarke County, Georgia**	**Location Map**	**Figure 1**

Legend:
Study Intersection



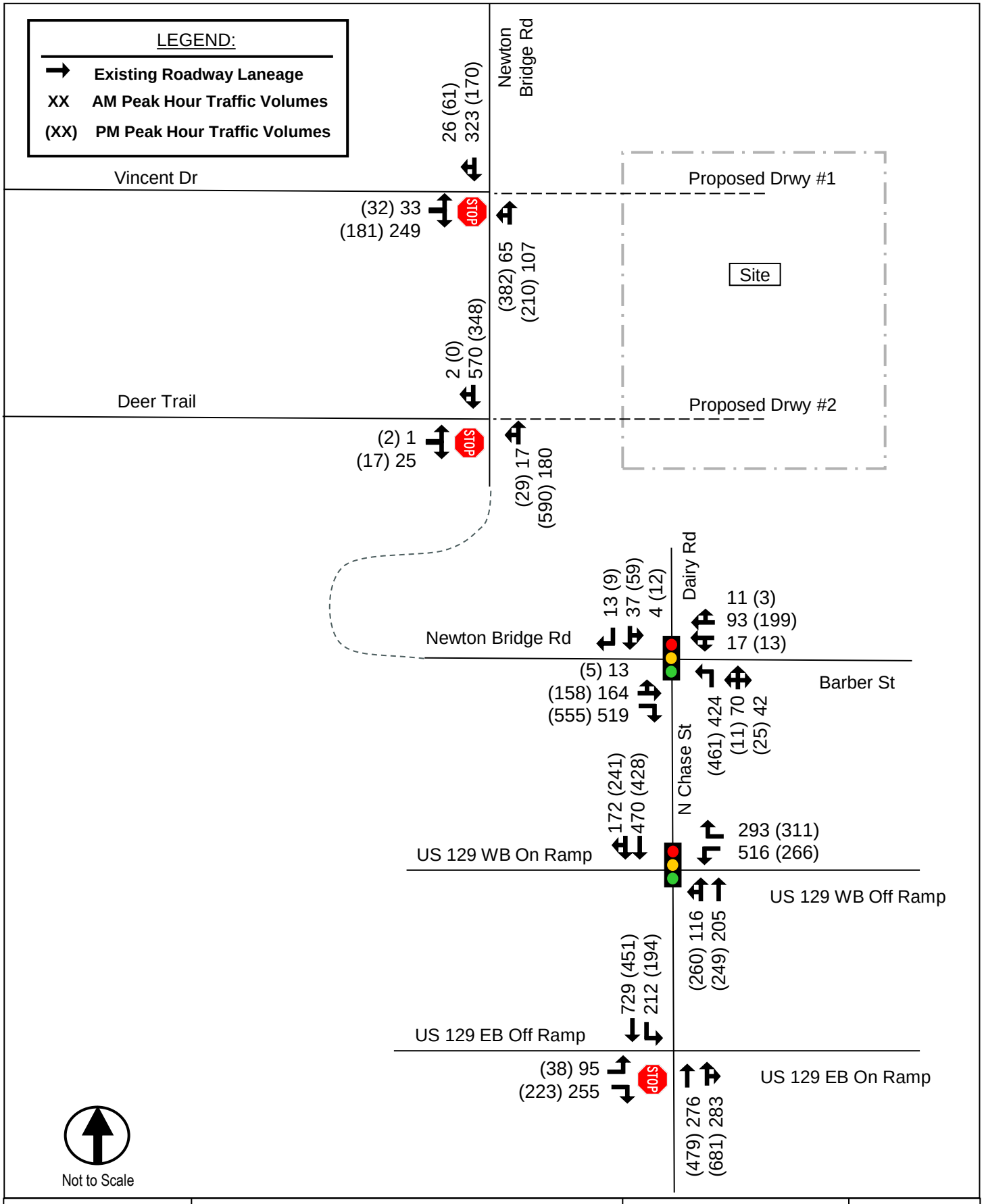
Not to Scale

KCI TECHNOLOGIES

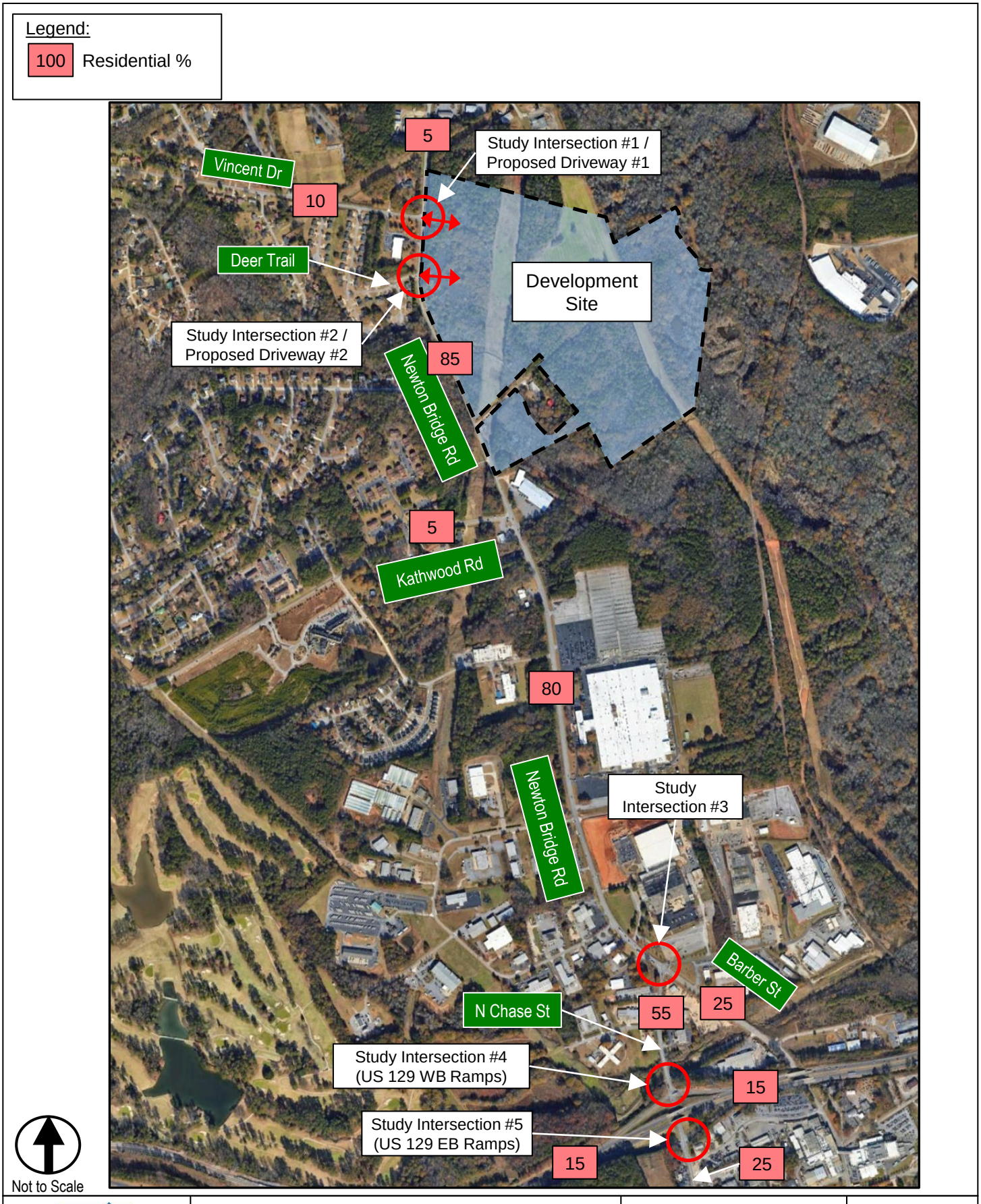
Traffic Impact Study
Newton Bridge Road Residential
Athens-Clarke County, Georgia

Aerial & Access Locations

Figure 2



KCI TECHNOLOGIES	**Traffic Impact Study Newton Bridge Road Residential Athens-Clarke County, Georgia**	**Existing (2025) Traffic Conditions**	**Figure 3**

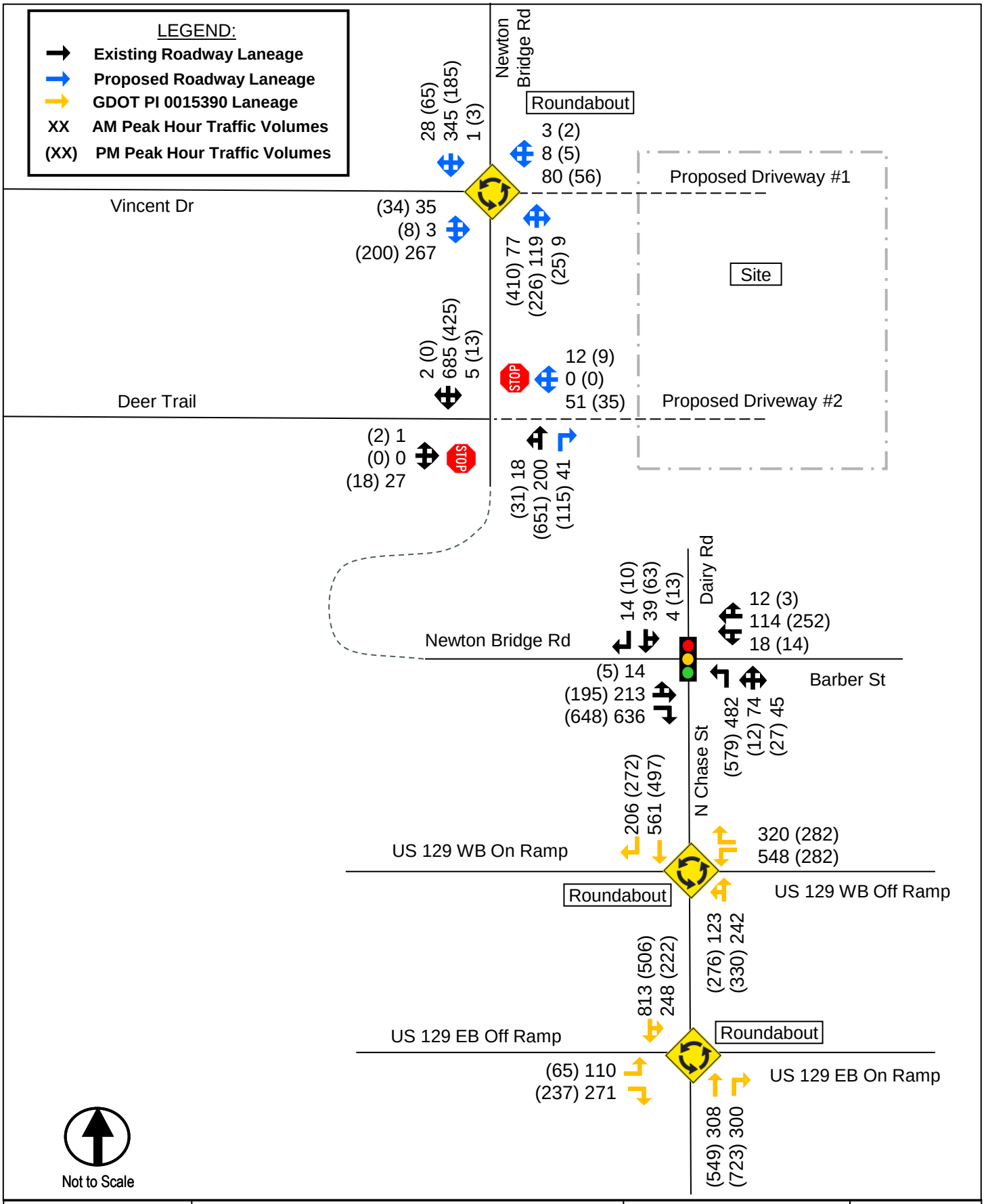


KCI TECHNOLOGIES

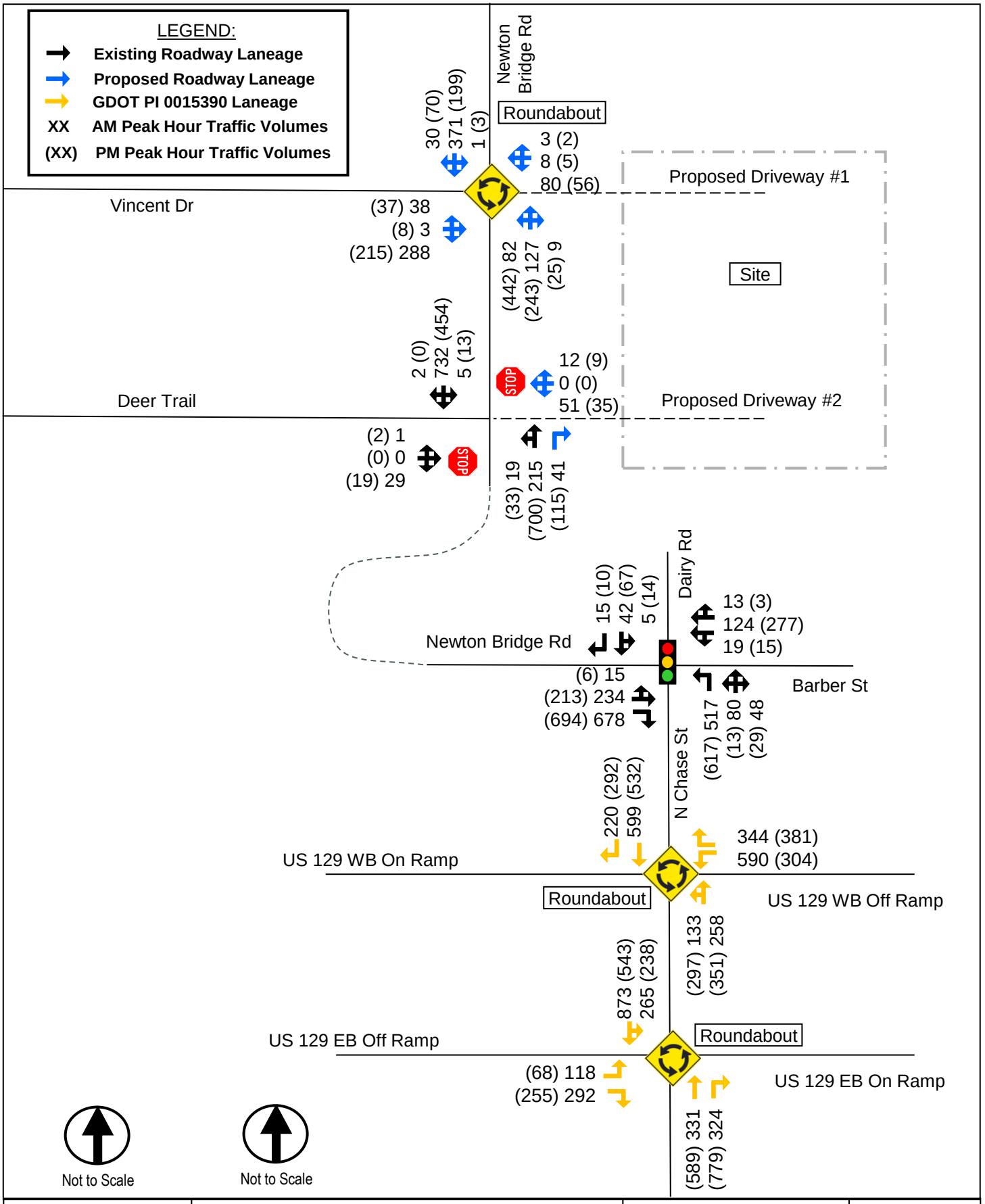
Traffic Impact Study
Newton Bridge Road Residential
Athens-Clarke County, Georgia

Project Trip Distribution

Figure 4



KCI TECHNOLOGIES	**Traffic Impact Study** **Newton Bridge Road Residential** **Athens-Clarke County, Georgia**	**Build (Year 2029) Traffic Conditions**	**Figure 5**



KCI TECHNOLOGIES

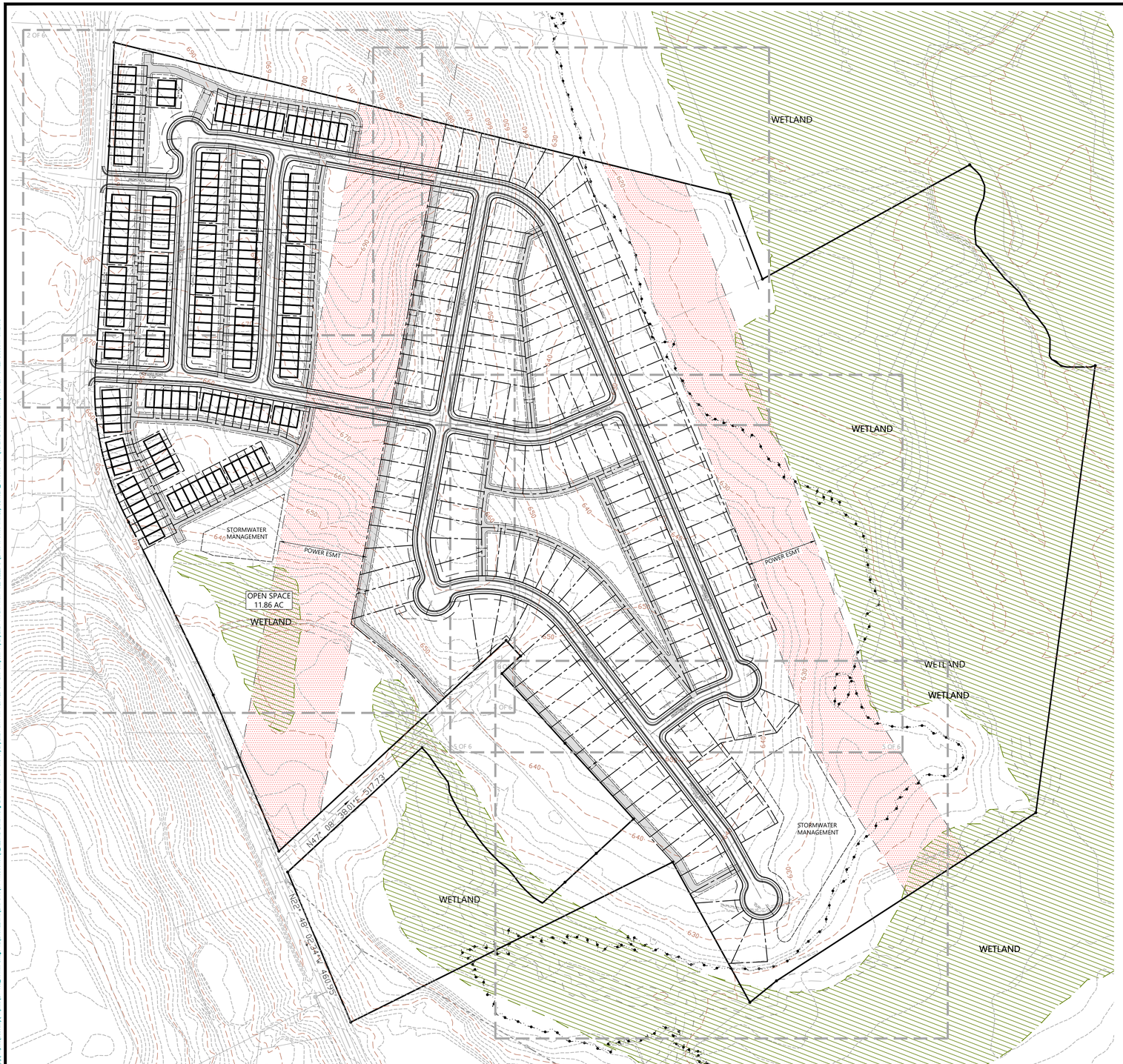
Traffic Impact Study
Newton Bridge Road Residential
Athens-Clarke County, Georgia

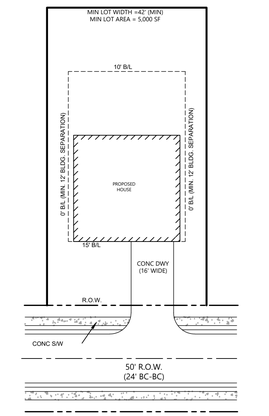
Future 5-Year (Year 2034) Traffic Conditions

Figure 6

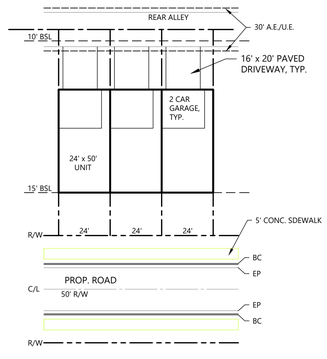
Appendix B

Concept Plan



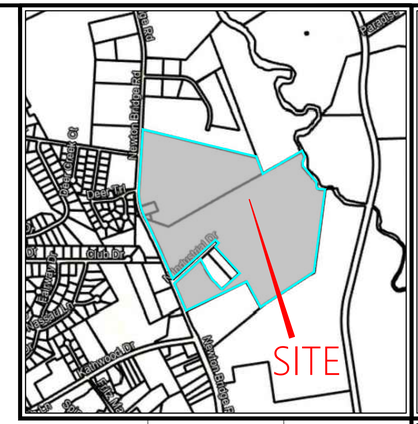


TYPICAL LOT LAYOUT



APPROXIMATE LIMITS OF WETLANDS

POWER EASEMENT



VICINITY MAP

(NOT TO SCALE)

PROJECT DATA

1. PROJECT ACREAGE:
   TOTAL AREA: 120.25 AC
2. ZONING:
   EXISTING ZONING: I - INDUSTRIAL
   PROJECT: RM-1
   ADJACENT: I - INDUSTRIAL
3. TAX PARCEL #: 104 005, 104 005A, 104 006, & 112 006
4. BUILDING SETBACKS:
   FRONT: 15'
   SIDE: 0' (MIN. 12' BUILDING SEPARATION)
   REAR: 10'
5. LOT SUMMARY:
   ALL UNITS ARE 3-BEDROOM
   TOTAL UNITS: **350**
   ATTACHED: 184
   DETACHED: 166
   LOT DENSITY: (350*3)/120.25 = 8.73 BEDROOMS/AC
   MAX DENSITY: 16.0 BEDROOMS/AC
   MAX. LOT COVERAGE: 55%
   MAX. BUILDING HEIGHT: 30'
6. FLOOD PLAIN: A PORTION OF THE PROPERTY DOES LIE WITHIN A FLOOD ZONE ACCORDING TO FIRM COMMUNITY PANEL NUMBER 13059C0015E, DATED 9/15/2022.
7. THE NATIONAL WETLANDS INVENTORY MAP HAS BEEN CONSULTED AND WETLANDS ARE ON OR WITHIN 200' OF THE PROPOSED PROJECT SITE, HOWEVER THERE WILL BE NO PROPOSED INPACTS.
8. WATER SUPPLY: ACC
9. SEWAGE DISPOSAL: ACC
10. ALL PROPOSED LOTS WILL BE SERVED BY PUBLIC SEWER.
11. STORMWATER MANAGEMENT TO BE PROVIDED ON SITE.
12. UNDERGROUND UTILITY SERVICES SUCH AS ELECTRIC, WATER, GAS, SANITARY SEWER LINES OR WELLS MAY OR MAY NOT EXIST AND MAY OR MAY NOT BE SHOWN HEREON.
13. EXISTING CONDITIONS BASED ON SURVEY PREPARED BY PUBLICLY AVAILABLE GIS.
14. SOURCE OF TOPOGRAPHY IS FROM PUBLICLY AVAILABLE GIS SOURCES.
16. 25' UNDISTURBED BUFFER IS REQUIRED FOR ALL STATE WATERS.
17. INITIAL RECEIVING WATERS ARE NORTH OCONEE RIVER.

N

GRAPHIC SCALE

0' 75' 150' 300' 450'

SCALE: 1" = 150'

24 Hour Contact:
JERRY WOOD
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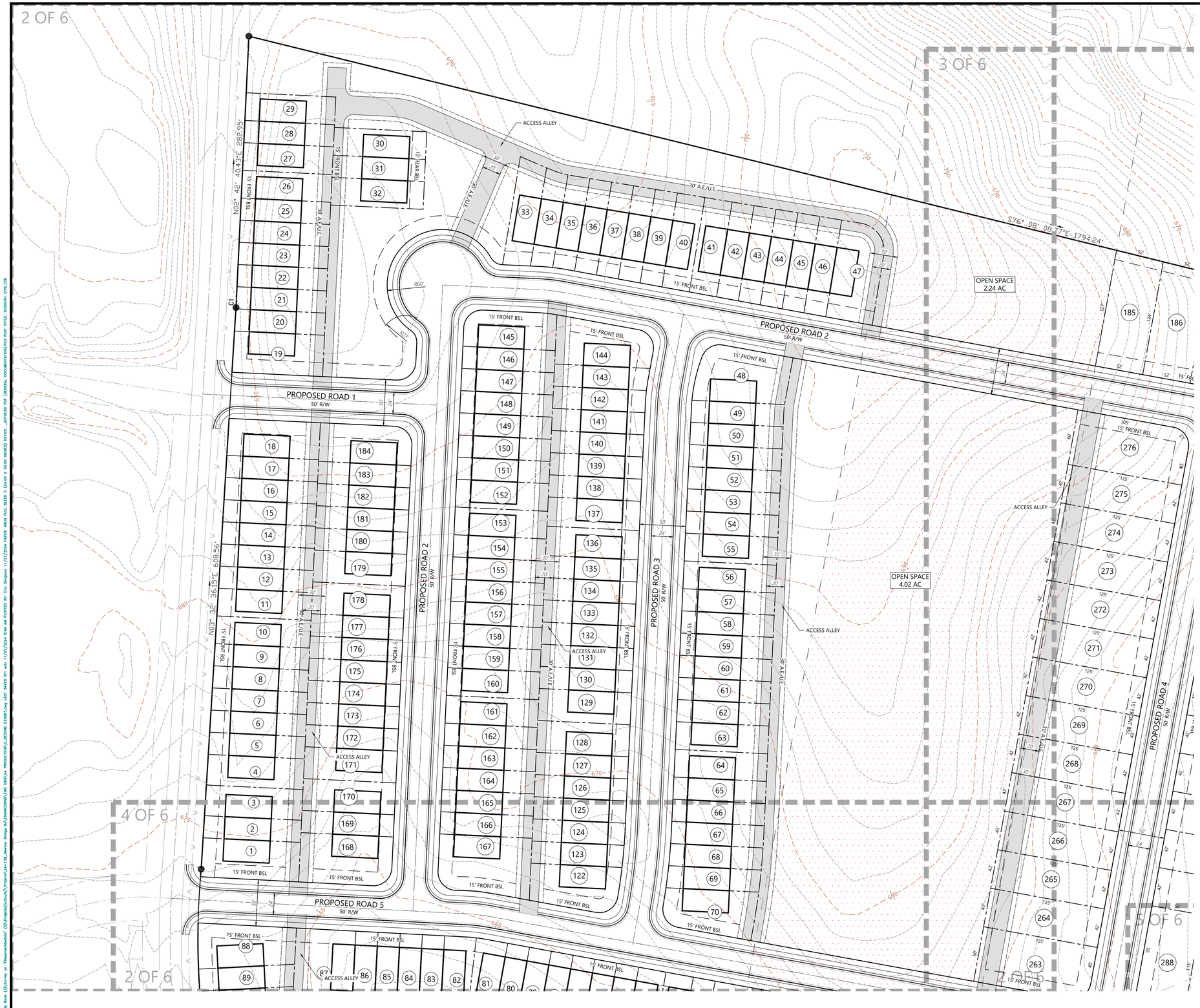

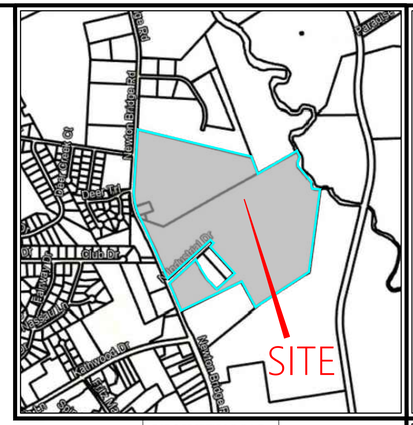

VICINITY MAP

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GRAPHIC SCALE
0' 25' 50' 100' 150'
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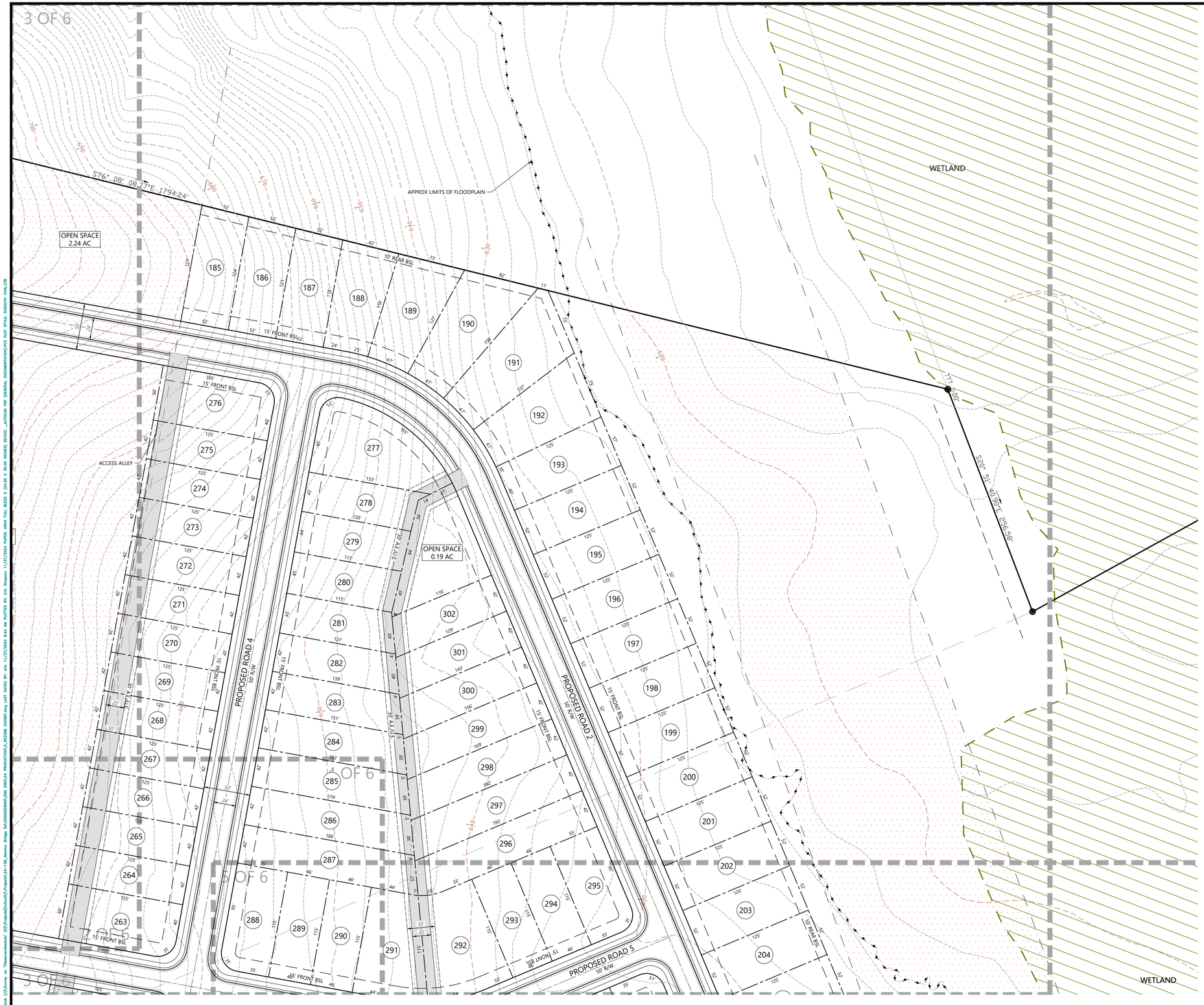

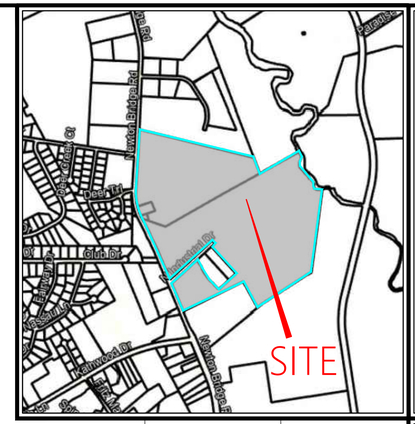

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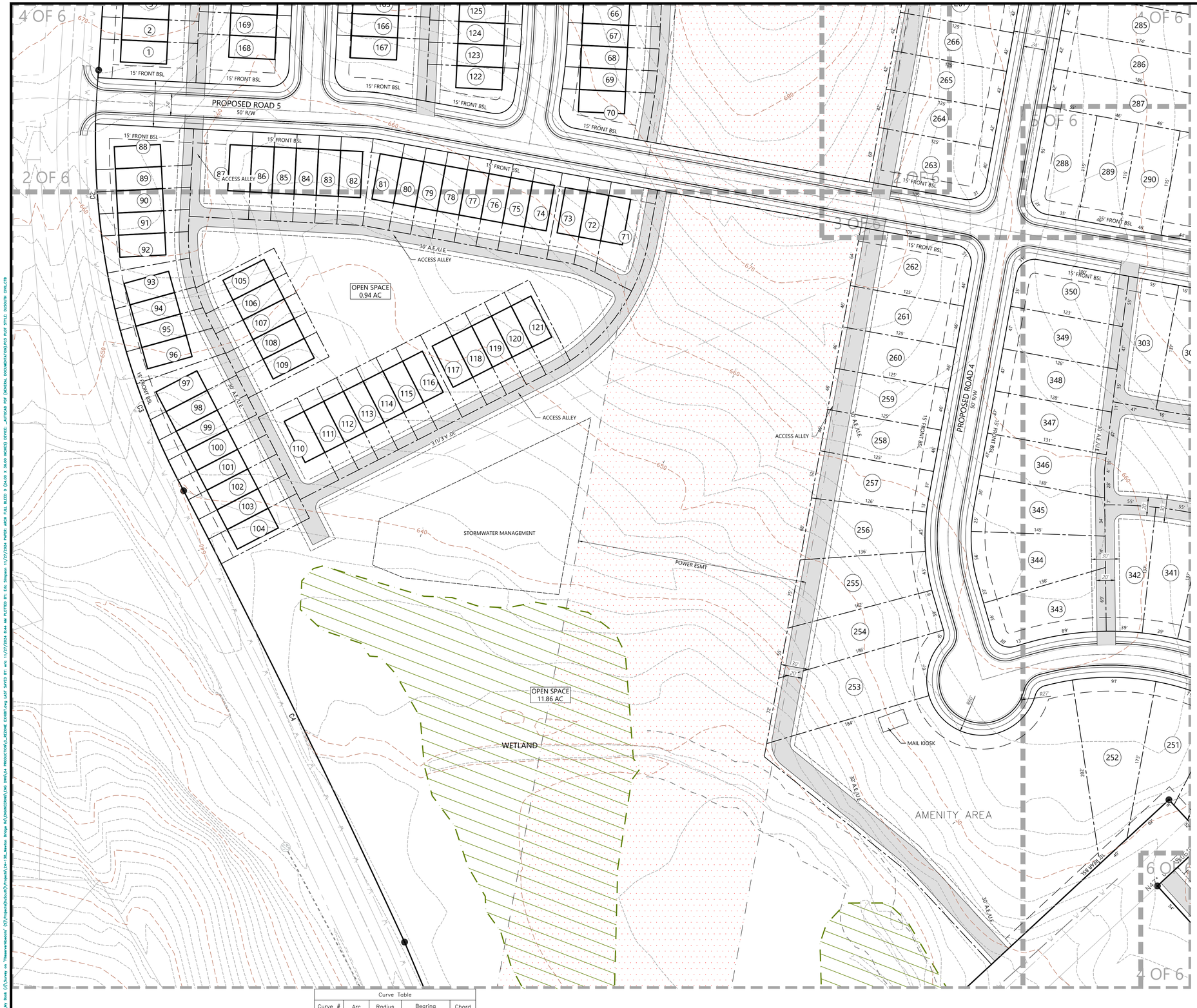

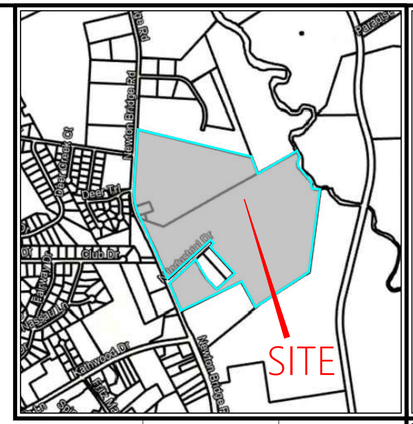

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C2	271.88	805.95	N04° 17' 57"W	270.59
C3	200.25	805.95	N21° 04' 53"W	199.74
C4	544.93	10914.73	N26° 04' 30"W	544.88

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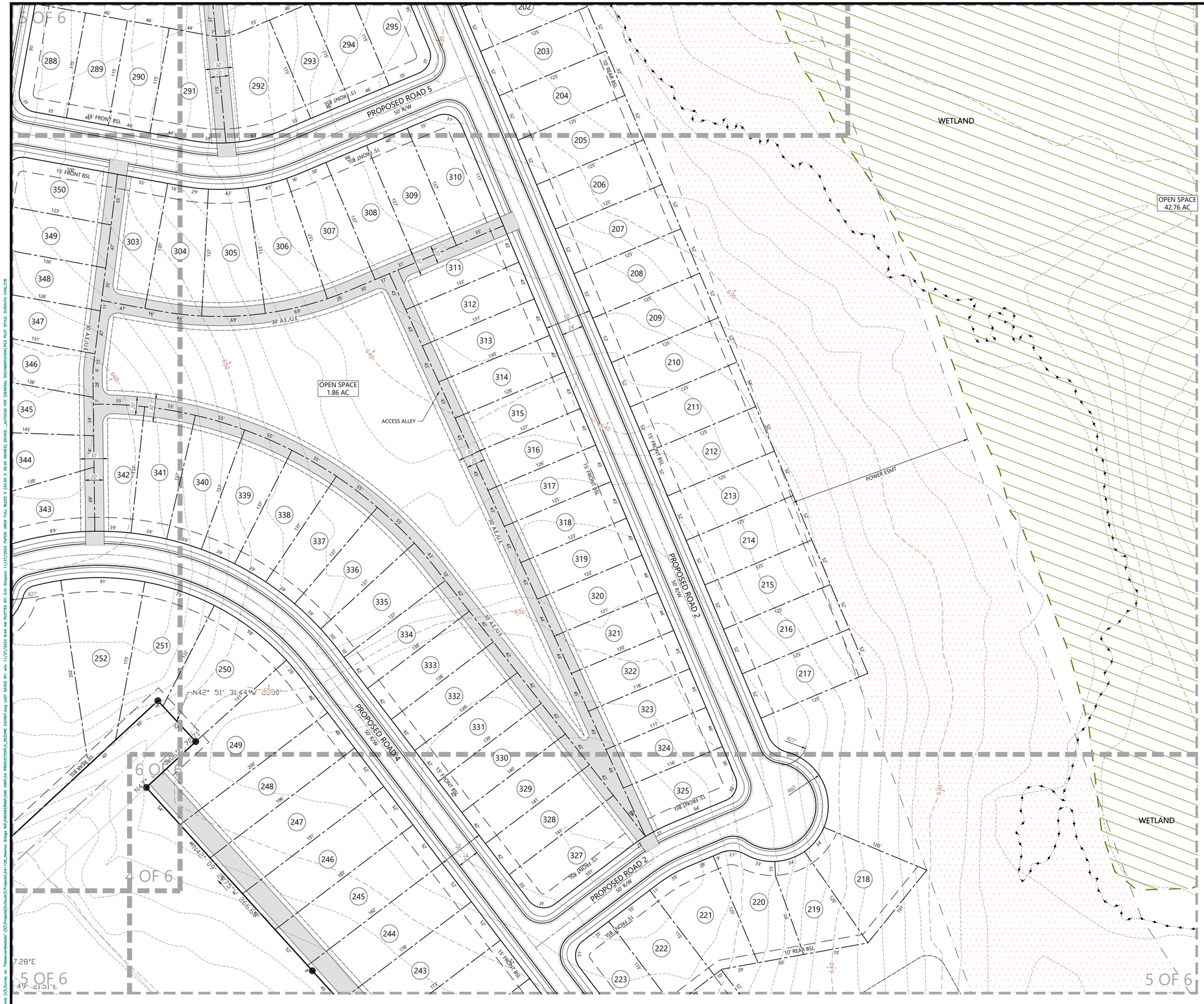

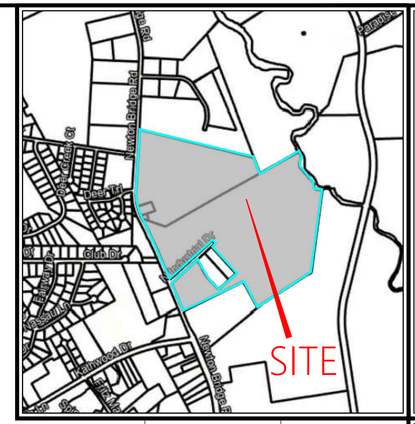

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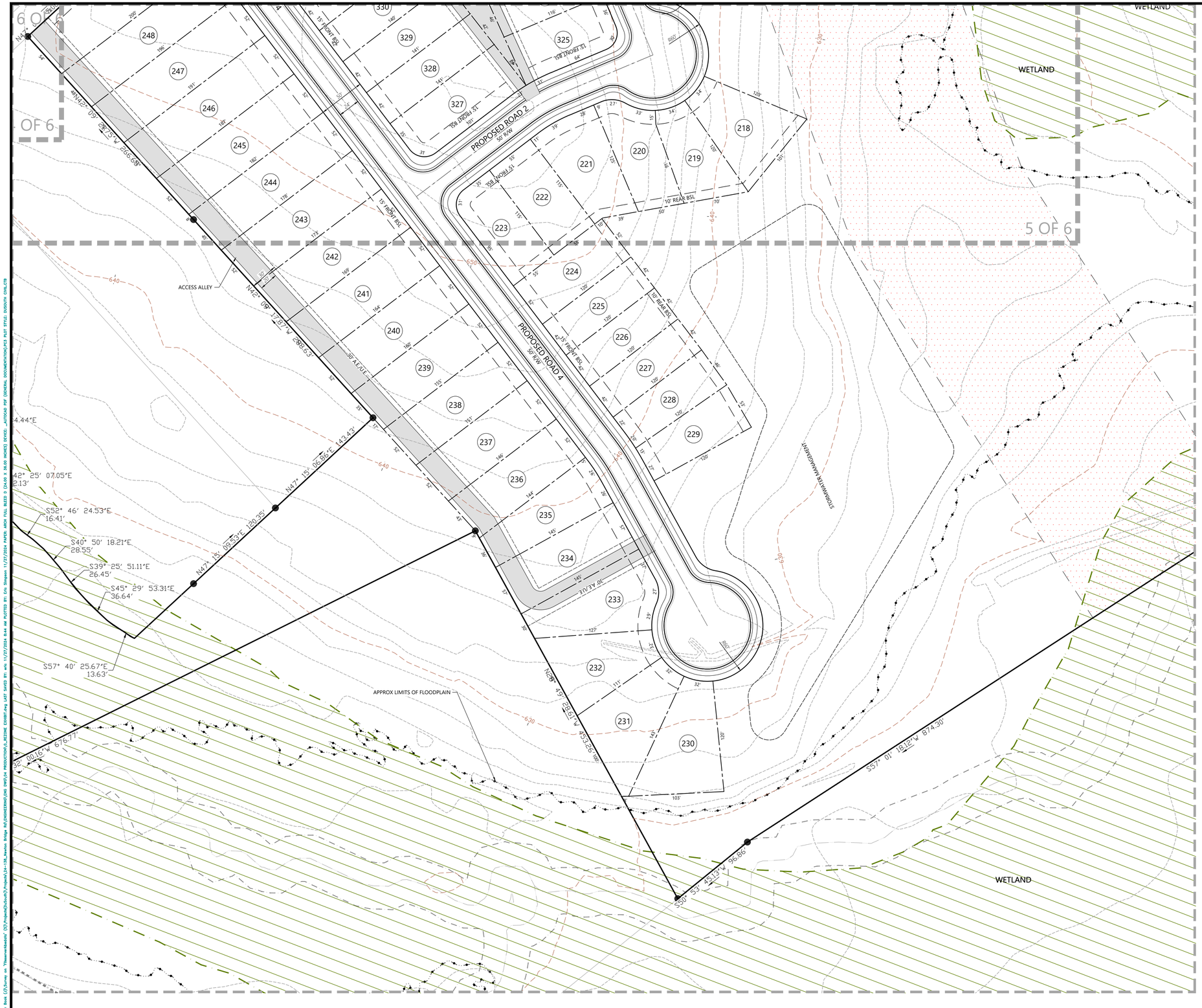

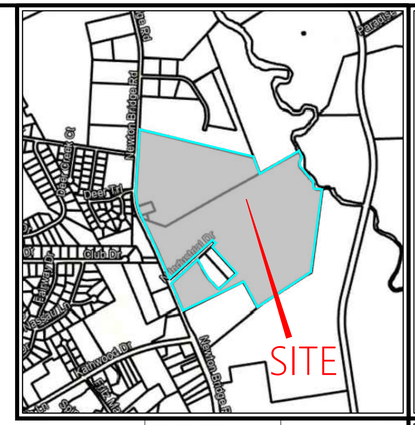

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Appendix C

Traffic Count Data

National Data & Surveying Services

Intersection Turning Movement Count

Location: Newton Bridge Rd & Vincent Dr
City: Athens
Control: 1-Way Stop(EB)

Project ID: 25-180042-001
Date: 2/27/2025

Data - Total

NS/EW Streets:	Newton Bridge Rd				Newton Bridge Rd				Vincent Dr				Vincent Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	19	22	0	0	0	58	3	0	6	0	48	0	0	0	0	0	156
7:15 AM	15	30	0	0	0	70	12	0	6	0	56	0	0	0	0	0	189
7:30 AM	14	15	0	0	0	92	5	0	14	0	70	0	0	0	0	0	210
7:45 AM	15	35	0	0	0	92	4	0	8	0	66	0	0	0	0	0	220
8:00 AM	21	27	0	0	0	69	5	0	5	0	57	0	0	0	0	0	184
8:15 AM	25	23	0	0	0	56	4	0	4	0	59	0	0	0	0	0	171
8:30 AM	25	34	0	0	0	66	5	0	1	0	47	0	0	0	0	0	178
8:45 AM	16	31	0	0	0	54	1	0	6	0	36	0	0	0	0	0	144
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	150	217	0	0	0	557	39	0	50	0	439	0	0	0	0	0	1452
APPROACH %'s :	40.87%	59.13%	0.00%	0.00%	0.00%	93.46%	6.54%	0.00%	10.22%	0.00%	89.78%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	65	107	0	0	0	323	26	0	33	0	249	0	0	0	0	0	803
PEAK HR FACTOR :	0.774	0.764	0.000	0.000	0.000	0.878	0.542	0.000	0.589	0.000	0.889	0.000	0.000	0.000	0.000	0.000	0.913
	0.860				0.899				0.839								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	47	69	0	0	0	40	11	0	11	0	37	0	0	0	0	0	215
4:15 PM	46	62	0	0	0	48	11	0	8	0	41	0	0	0	0	0	216
4:30 PM	48	61	0	0	0	49	12	0	7	0	35	0	0	0	0	0	212
4:45 PM	69	47	0	0	0	41	8	0	12	0	37	0	0	0	0	0	214
5:00 PM	74	55	0	0	0	48	25	0	7	0	49	0	0	0	0	0	258
5:15 PM	141	66	0	0	0	53	16	0	5	0	38	0	0	0	0	0	319
5:30 PM	98	42	0	0	0	28	12	0	8	0	57	0	0	0	0	0	245
5:45 PM	70	36	0	0	0	32	4	0	4	0	44	0	0	0	0	0	190
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	593	438	0	0	0	339	99	0	62	0	338	0	0	0	0	0	1869
APPROACH %'s :	57.52%	42.48%	0.00%	0.00%	0.00%	77.40%	22.60%	0.00%	15.50%	0.00%	84.50%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	382	210	0	0	0	170	61	0	32	0	181	0	0	0	0	0	1036
PEAK HR FACTOR :	0.677	0.795	0.000	0.000	0.000	0.802	0.610	0.000	0.667	0.000	0.794	0.000	0.000	0.000	0.000	0.000	0.812
	0.715				0.791				0.819								

Prepared by National Data & Surveying Services

Newton Bridge Rd & Vincent Dr

Peak Hour Turning Movement Count

ID: 25-180042-001
City: Athens

Day: Thursday
Date: 2/27/2025

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	7:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	4:00 PM - 06:00 PM

SOUTHBOUND (Newton Bridge Rd)

	L	T	R	U	Total	
AM	26	323	0	0	140	AM
NOON	0	0	0	0	0	NOON
PM	61	170	0	0	242	PM

EASTBOUND (Vincent Dr)

AM	NOON	PM	
91	0	443	⇦
0	0	0	↶ 0
33	0	32	↰ 0
0	0	0	→ 1
249	0	181	↷ 0
AM	NOON	PM	

0 1 0 0

WESTBOUND (Vincent Dr)

PM	NOON	AM	
0	0	0	↷ 0
0	0	0	← 0
0	0	0	↱ 0
0	0	0	↶ 0
0	0	0	⇨
PM	NOON	AM	

NORTHBOUND (Newton Bridge Rd)

	L	T	R	U	Total	
PM	351	0	382	210	0	PM
NOON	0	0	0	0	0	NOON
AM	572	0	65	107	0	AM

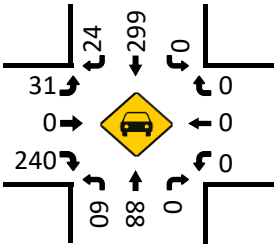
0 0 1 0

CONTROL

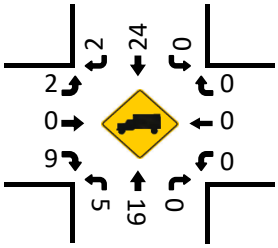
1-Way Stop(EB)

TEV	803 AM	0 NOON	1036 PM
PHF	0.91		0.81

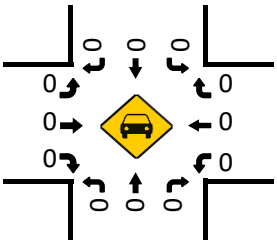
Cars (AM)



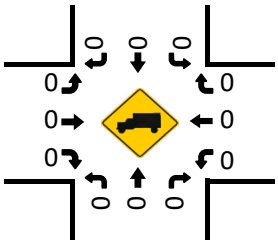
HT (AM)



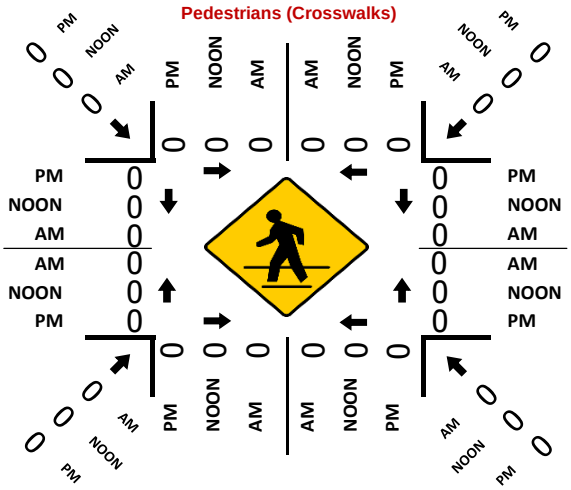
Cars (NOON)



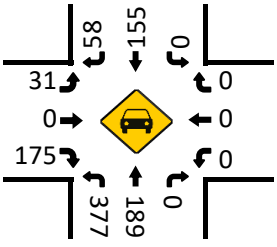
HT (NOON)



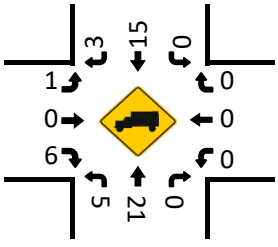
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Project ID: 25-180042-001
Location: Newton Bridge Rd & Vincent Dr
City: Athens

Day: Thursday
Date: 2/27/2025

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Newton Bridge Rd Northbound						Newton Bridge Rd Southbound						Vincent Dr Eastbound						Vincent Dr Westbound						
Start Time	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total
7:00 AM	19	22	0	0	0	41	0	58	3	0	0	61	6	0	48	0	0	54	0	0	0	0	0	0	156
7:15 AM	15	30	0	0	0	45	0	70	12	0	0	82	6	0	56	0	0	62	0	0	0	0	0	0	189
7:30 AM	14	15	0	0	0	29	0	92	5	0	0	97	14	0	70	0	0	84	0	0	0	0	0	0	210
7:45 AM	15	35	0	0	0	50	0	92	4	0	0	96	8	0	66	0	0	74	0	0	0	0	0	0	220
Total	63	102	0	0	0	165	0	312	24	0	0	336	34	0	240	0	0	274	0	0	0	0	0	0	775
8:00 AM	21	27	0	0	0	48	0	69	5	0	0	74	5	0	57	0	0	62	0	0	0	0	0	0	184
8:15 AM	25	23	0	0	0	48	0	56	4	0	0	60	4	0	59	0	0	63	0	0	0	0	0	0	171
8:30 AM	25	34	0	0	0	59	0	66	5	0	0	71	1	0	47	0	0	48	0	0	0	0	0	0	178
8:45 AM	16	31	0	0	0	47	0	54	1	0	0	55	6	0	36	0	0	42	0	0	0	0	0	0	144
Total	87	115	0	0	0	202	0	245	15	0	0	260	16	0	199	0	0	215	0	0	0	0	0	0	677
BREAK																									
4:00 PM	47	69	0	0	0	116	0	40	11	0	0	51	11	0	37	0	0	48	0	0	0	0	0	0	215
4:15 PM	46	62	0	0	0	108	0	48	11	0	0	59	8	0	41	0	0	49	0	0	0	0	0	0	216
4:30 PM	48	61	0	0	0	109	0	49	12	0	0	61	7	0	35	0	0	42	0	0	0	0	0	0	212
4:45 PM	69	47	0	0	0	116	0	41	8	0	0	49	12	0	37	0	0	49	0	0	0	0	0	0	214
Total	210	239	0	0	0	449	0	178	42	0	0	220	38	0	150	0	0	188	0	0	0	0	0	0	857
5:00 PM	74	55	0	0	0	129	0	48	25	0	0	73	7	0	49	0	0	56	0	0	0	0	0	0	258
5:15 PM	141	66	0	0	0	207	0	53	16	0	0	69	5	0	38	0	0	43	0	0	0	0	0	0	319
5:30 PM	98	42	0	0	0	140	0	28	12	0	0	40	8	0	57	0	0	65	0	0	0	0	0	0	245
5:45 PM	70	36	0	0	0	106	0	32	4	0	0	36	4	0	44	0	0	48	0	0	0	0	0	0	190
Total	383	199	0	0	0	582	0	161	57	0	0	218	24	0	188	0	0	212	0	0	0	0	0	0	1012
Grand Total	743	655	0	0	0	1398	0	896	138	0	0	1034	112	0	777	0	0	889	0	0	0	0	0	0	3321
Apprch %	53.1	46.9	0.0	0.0	0.0		0.0	86.7	13.3	0.0	0.0		12.6	0.0	87.4	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	22.4	19.7	0.0	0.0	0.0	42.1	0.0	27.0	4.2	0.0	0.0	31.1	3.4	0.0	23.4	0.0	0.0	26.8	0.0	0.0	0.0	0.0	0.0	0.0	
Cars, PU, Vans	729	566	0	0		1295	0	808	129	0		937	105	0	747	0		852	0	0	0	0		0	3084
% Cars, PU, Vans	98.1	86.4	0.0	0.0		92.6	0.0	90.2	93.5	0.0		90.6	93.8	0.0	96.1	0.0		95.8	0.0	0.0	0.0	0.0		0.0	92.9
Heavy trucks	14	89	0	0		103	0	88	9	0		97	7	0	30	0		37	0	0	0	0		0	237
%Heavy trucks	1.9	13.6	0.0	0.0		7.4	0.0	9.8	6.5	0.0		9.4	6.3	0.0	3.9	0.0		4.2	0.0	0.0	0.0	0.0		0.0	7.1

Project ID: 25-180042-001
Location: Newton Bridge Rd & Vincent Dr
City: Athens

PEAK HOURS

Day: Thursday
Date: 2/27/2025

AM

	Newton Bridge Rd Northbound					Newton Bridge Rd Southbound					Vincent Dr Eastbound					Vincent Dr Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM - 09:00 AM																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
7:15 AM	15	30	0	0	45	0	70	12	0	82	6	0	56	0	62	0	0	0	0	0	189
7:30 AM	14	15	0	0	29	0	92	5	0	97	14	0	70	0	84	0	0	0	0	0	210
7:45 AM	15	35	0	0	50	0	92	4	0	96	8	0	66	0	74	0	0	0	0	0	220
8:00 AM	21	27	0	0	48	0	69	5	0	74	5	0	57	0	62	0	0	0	0	0	184
Total Volume	65	107	0	0	172	0	323	26	0	349	33	0	249	0	282	0	0	0	0	0	803
% App. Total	37.8	62.2	0.0	0.0	100	0.0	92.6	7.4	0.0	100	11.7	0.0	88.3	0.0	100	0.0	0.0	0.0	0.0	0	
PHF					0.860					0.899					0.839						0.913
Cars, PU, Vans	60	88	0	0	148	0	299	24	0	323	31	0	240	0	271	0	0	0	0	0	742
% Cars, PU, Vans	92.3	82.2	0.0	0.0	86.0	0.0	92.6	92.3	0.0	92.6	93.9	0.0	96.4	0.0	96.1	0.0	0.0	0.0	0.0	0.0	92.4
Heavy trucks	5	19	0	0	24	0	24	2	0	26	2	0	9	0	11	0	0	0	0	0	61
%Heavy trucks	7.7	17.8	0.0	0.0	14.0	0.0	7.4	7.7	0.0	7.4	6.1	0.0	3.6	0.0	3.9	0.0	0.0	0.0	0.0	0.0	7.6

PM

	Newton Bridge Rd Northbound					Newton Bridge Rd Southbound					Vincent Dr Eastbound					Vincent Dr Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 04:00 PM - 06:00 PM																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
4:45 PM	69	47	0	0	116	0	41	8	0	49	12	0	37	0	49	0	0	0	0	0	214
5:00 PM	74	55	0	0	129	0	48	25	0	73	7	0	49	0	56	0	0	0	0	0	258
5:15 PM	141	66	0	0	207	0	53	16	0	69	5	0	38	0	43	0	0	0	0	0	319
5:30 PM	98	42	0	0	140	0	28	12	0	40	8	0	57	0	65	0	0	0	0	0	245
Total Volume	382	210	0	0	592	0	170	61	0	231	32	0	181	0	213	0	0	0	0	0	1036
% App. Total	64.5	35.5	0.0	0.0	100	0.0	73.6	26.4	0.0	100	15.0	0.0	85.0	0.0	100	0.0	0.0	0.0	0.0	0	
PHF					0.715					0.791					0.819						0.812
Cars, PU, Vans	377	189	0	0	566	0	155	58	0	213	31	0	175	0	206	0	0	0	0	0	985
% Cars, PU, Vans	98.7	90.0	0.0	0.0	95.6	0.0	91.2	95.1	0.0	92.2	96.9	0.0	96.7	0.0	96.7	0.0	0.0	0.0	0.0	0.0	95.1
Heavy trucks	5	21	0	0	26	0	15	3	0	18	1	0	6	0	7	0	0	0	0	0	51
%Heavy trucks	1.3	10.0	0.0	0.0	4.4	0.0	8.8	4.9	0.0	7.8	3.1	0.0	3.3	0.0	3.3	0.0	0.0	0.0	0.0	0.0	4.9

National Data & Surveying Services

Intersection Turning Movement Count

Location: Newton Bridge Rd & Deer Trail
City: Athens
Control: 1-Way Stop(EB)

Project ID: 25-180042-002
Date: 2/27/2025

Data - Total

NS/EW Streets:	Newton Bridge Rd				Newton Bridge Rd				Deer Trail				Deer Trail				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	40	0	0	0	106	0	0	0	0	8	0	0	0	0	0	155
7:15 AM	10	46	0	0	0	125	0	0	0	0	7	0	0	0	0	0	188
7:30 AM	3	31	0	0	0	164	0	0	0	0	9	0	0	0	0	0	207
7:45 AM	3	51	0	0	0	155	2	0	1	0	6	0	0	0	0	0	218
8:00 AM	1	52	0	0	0	126	0	0	0	0	3	0	0	0	0	0	182
8:15 AM	0	47	0	0	0	115	0	0	0	0	2	0	0	0	0	0	164
8:30 AM	2	60	0	0	0	111	0	0	0	0	5	0	0	0	0	0	178
8:45 AM	2	51	0	0	0	91	0	0	0	0	4	0	0	0	0	0	148
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	22	378	0	0	0	993	2	0	1	0	44	0	0	0	0	0	1440
APPROACH %'s :	5.50%	94.50%	0.00%	0.00%	0.00%	99.80%	0.20%	0.00%	2.22%	0.00%	97.78%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	17	180	0	0	0	570	2	0	1	0	25	0	0	0	0	0	795
PEAK HR FACTOR :	0.425	0.865	0.000	0.000	0.000	0.869	0.250	0.000	0.250	0.000	0.694	0.000	0.000	0.000	0.000	0.000	0.912
		0.879				0.872				0.722							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	120	0	0	0	77	1	0	0	0	4	0	0	0	0	0	208
4:15 PM	4	106	0	0	0	90	1	0	0	0	2	0	0	0	0	0	203
4:30 PM	1	111	0	0	0	86	0	0	0	0	2	0	0	0	0	0	200
4:45 PM	7	113	0	0	0	75	0	0	0	0	5	0	0	0	0	0	200
5:00 PM	3	130	0	0	0	100	0	0	0	0	2	0	0	0	0	0	235
5:15 PM	11	212	0	0	0	90	0	0	0	0	8	0	0	0	0	0	321
5:30 PM	8	135	0	0	0	83	0	0	2	0	2	0	0	0	0	0	230
5:45 PM	9	105	0	0	0	75	0	0	1	0	2	0	0	0	0	0	192
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	49	1032	0	0	0	676	2	0	3	0	27	0	0	0	0	0	1789
APPROACH %'s :	4.53%	95.47%	0.00%	0.00%	0.00%	99.71%	0.29%	0.00%	10.00%	0.00%	90.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	29	590	0	0	0	348	0	0	2	0	17	0	0	0	0	0	986
PEAK HR FACTOR :	0.659	0.696	0.000	0.000	0.000	0.870	0.000	0.000	0.250	0.000	0.531	0.000	0.000	0.000	0.000	0.000	0.768
		0.694				0.870				0.594							

Prepared by National Data & Surveying Services

Newton Bridge Rd & Deer Trail

Peak Hour Turning Movement Count

ID: 25-180042-002
City: Athens

Day: Thursday
Date: 2/27/2025

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	7:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	4:00 PM - 06:00 PM

SOUTHBOUND (Newton Bridge Rd)

AM	2	570	0	0	181	AM
NOON	0	0	0	0	0	NOON
PM	0	348	0	0	592	PM

EASTBOUND (Deer Trail)

AM	NOON	PM	
19	0	29	
0	0	0	0
1	0	2	0
0	0	0	1
25	0	17	0
AM	NOON	PM	

WESTBOUND (Deer Trail)

PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	
PM	NOON	AM	

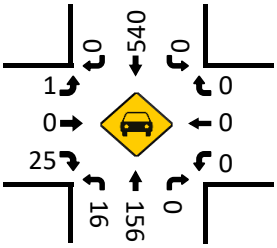
NORTHBOUND (Newton Bridge Rd)

PM	365	0	29	590	0	PM
NOON	0	0	0	0	0	NOON
AM	595	0	17	180	0	AM

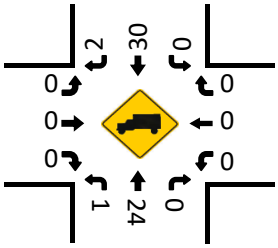
0 1 0 0 (EB) — 0 0 1 0 (NB)

CONTROL			
1-Way Stop(EB)			
TEV	795 AM	0 NOON	986 PM
PHF	0.91		0.77

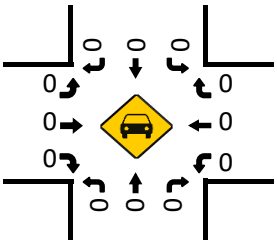
Cars (AM)



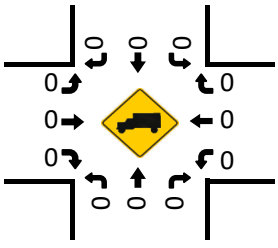
HT (AM)



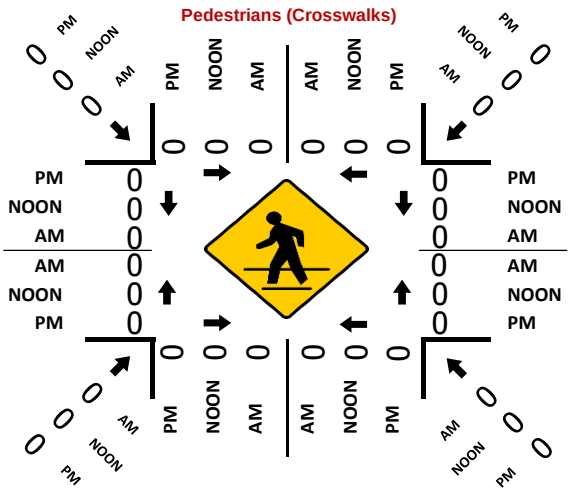
Cars (NOON)



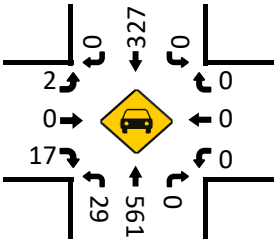
HT (NOON)



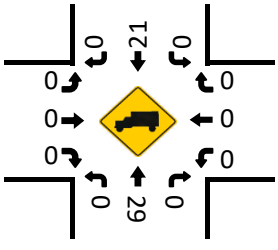
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Project ID: 25-180042-002
Location: Newton Bridge Rd & Deer Trail
City: Athens

Day: Thursday
Date: 2/27/2025

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Newton Bridge Rd Northbound						Newton Bridge Rd Southbound						Deer Trail Eastbound						Deer Trail Westbound						
Start Time	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total
7:00 AM	1	40	0	0	0	41	0	106	0	0	0	106	0	0	8	0	0	8	0	0	0	0	0	0	155
7:15 AM	10	46	0	0	0	56	0	125	0	0	0	125	0	0	7	0	0	7	0	0	0	0	0	0	188
7:30 AM	3	31	0	0	0	34	0	164	0	0	0	164	0	0	9	0	0	9	0	0	0	0	0	0	207
7:45 AM	3	51	0	0	0	54	0	155	2	0	0	157	1	0	6	0	0	7	0	0	0	0	0	0	218
Total	17	168	0	0	0	185	0	550	2	0	0	552	1	0	30	0	0	31	0	0	0	0	0	0	768
8:00 AM	1	52	0	0	0	53	0	126	0	0	0	126	0	0	3	0	0	3	0	0	0	0	0	0	182
8:15 AM	0	47	0	0	0	47	0	115	0	0	0	115	0	0	2	0	0	2	0	0	0	0	0	0	164
8:30 AM	2	60	0	0	0	62	0	111	0	0	0	111	0	0	5	0	0	5	0	0	0	0	0	0	178
8:45 AM	2	51	0	0	0	53	0	91	0	0	0	91	0	0	4	0	0	4	0	0	0	0	0	0	148
Total	5	210	0	0	0	215	0	443	0	0	0	443	0	0	14	0	0	14	0	0	0	0	0	0	672
BREAK																									
4:00 PM	6	120	0	0	0	126	0	77	1	0	0	78	0	0	4	0	0	4	0	0	0	0	0	0	208
4:15 PM	4	106	0	0	0	110	0	90	1	0	0	91	0	0	2	0	0	2	0	0	0	0	0	0	203
4:30 PM	1	111	0	0	0	112	0	86	0	0	0	86	0	0	2	0	0	2	0	0	0	0	0	0	200
4:45 PM	7	113	0	0	0	120	0	75	0	0	0	75	0	0	5	0	0	5	0	0	0	0	0	0	200
Total	18	450	0	0	0	468	0	328	2	0	0	330	0	0	13	0	0	13	0	0	0	0	0	0	811
5:00 PM	3	130	0	0	0	133	0	100	0	0	0	100	0	0	2	0	0	2	0	0	0	0	0	0	235
5:15 PM	11	212	0	0	0	223	0	90	0	0	0	90	0	0	8	0	0	8	0	0	0	0	0	0	321
5:30 PM	8	135	0	0	0	143	0	83	0	0	0	83	2	0	2	0	0	4	0	0	0	0	0	0	230
5:45 PM	9	105	0	0	0	114	0	75	0	0	0	75	1	0	2	0	0	3	0	0	0	0	0	0	192
Total	31	582	0	0	0	613	0	348	0	0	0	348	3	0	14	0	0	17	0	0	0	0	0	0	978
Grand Total	71	1410	0	0	0	1481	0	1669	4	0	0	1673	4	0	71	0	0	75	0	0	0	0	0	0	3229
Apprch %	4.8	95.2	0.0	0.0	0.0		0.0	99.8	0.2	0.0	0.0		5.3	0.0	94.7	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	2.2	43.7	0.0	0.0	0.0	45.9	0.0	51.7	0.1	0.0	0.0	51.8	0.1	0.0	2.2	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	
Cars, PU, Vans	69	1304	0	0		1373	0	1554	1	0		1555	4	0	70	0		74	0	0	0	0		0	3002
% Cars, PU, Vans	97.2	92.5	0.0	0.0		92.7	0.0	93.1	25.0	0.0		92.9	100.0	0.0	98.6	0.0		98.7	0.0	0.0	0.0	0.0		0.0	93.0
Heavy trucks	2	106	0	0		108	0	115	3	0		118	0	0	1	0		1	0	0	0	0		0	227
%Heavy trucks	2.8	7.5	0.0	0.0		7.3	0.0	6.9	75.0	0.0		7.1	0.0	0.0	1.4	0.0		1.3	0.0	0.0	0.0	0.0		0.0	7.0

Project ID: 25-180042-002
Location: Newton Bridge Rd & Deer Trail
City: Athens

PEAK HOURS

Day: Thursday
Date: 2/27/2025

AM

	Newton Bridge Rd Northbound					Newton Bridge Rd Southbound					Deer Trail Eastbound					Deer Trail Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM - 09:00 AM																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
7:15 AM	10	46	0	0	56	0	125	0	0	125	0	0	7	0	7	0	0	0	0	0	188
7:30 AM	3	31	0	0	34	0	164	0	0	164	0	0	9	0	9	0	0	0	0	0	207
7:45 AM	3	51	0	0	54	0	155	2	0	157	1	0	6	0	7	0	0	0	0	0	218
8:00 AM	1	52	0	0	53	0	126	0	0	126	0	0	3	0	3	0	0	0	0	0	182
Total Volume	17	180	0	0	197	0	570	2	0	572	1	0	25	0	26	0	0	0	0	0	795
% App. Total	8.6	91.4	0.0	0.0	100	0.0	99.7	0.3	0.0	100	3.8	0.0	96.2	0.0	100	0.0	0.0	0.0	0.0	0	
PHF					0.879					0.872					0.722						0.912
Cars, PU, Vans	16	156	0	0	172	0	540	0	0	540	1	0	25	0	26	0	0	0	0	0	738
% Cars, PU, Vans	94.1	86.7	0.0	0.0	87.3	0.0	94.7	0.0	0.0	94.4	100.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	92.8
Heavy trucks	1	24	0	0	25	0	30	2	0	32	0	0	0	0	0	0	0	0	0	0	57
%Heavy trucks	5.9	13.3	0.0	0.0	12.7	0.0	5.3	100.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2

PM

	Newton Bridge Rd Northbound					Newton Bridge Rd Southbound					Deer Trail Eastbound					Deer Trail Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 04:00 PM - 06:00 PM																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
4:45 PM	7	113	0	0	120	0	75	0	0	75	0	0	5	0	5	0	0	0	0	0	200
5:00 PM	3	130	0	0	133	0	100	0	0	100	0	0	2	0	2	0	0	0	0	0	235
5:15 PM	11	212	0	0	223	0	90	0	0	90	0	0	8	0	8	0	0	0	0	0	321
5:30 PM	8	135	0	0	143	0	83	0	0	83	2	0	2	0	4	0	0	0	0	0	230
Total Volume	29	590	0	0	619	0	348	0	0	348	2	0	17	0	19	0	0	0	0	0	986
% App. Total	4.7	95.3	0.0	0.0	100	0.0	100.0	0.0	0.0	100	10.5	0.0	89.5	0.0	100	0.0	0.0	0.0	0.0	0	
PHF					0.694					0.870					0.594						0.768
Cars, PU, Vans	29	561	0	0	590	0	327	0	0	327	2	0	17	0	19	0	0	0	0	0	936
% Cars, PU, Vans	100.0	95.1	0.0	0.0	95.3	0.0	94.0	0.0	0.0	94.0	100.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	94.9
Heavy trucks	0	29	0	0	29	0	21	0	0	21	0	0	0	0	0	0	0	0	0	0	50
%Heavy trucks	0.0	4.9	0.0	0.0	4.7	0.0	6.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1

National Data & Surveying Services

Intersection Turning Movement Count

Location: N Chase St/Dairy Park Rd & Newton Bridge Rd/Barber St
City: Athens
Control: Signalized

Project ID: 25-180042-003
Date: 2/27/2025

Data - Total

NS/EW Streets:	N Chase St/Dairy Park Rd				N Chase St/Dairy Park Rd				Newton Bridge Rd/Barber St				Newton Bridge Rd/Barber St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	0	0	0.5	0.5	1	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	69	14	7	0	1	23	4	0	3	21	140	0	1	9	1	0	293
7:15 AM	69	10	16	0	1	7	2	0	2	31	145	0	1	14	4	0	302
7:30 AM	76	7	17	0	1	3	0	0	2	34	172	0	0	13	1	0	326
7:45 AM	106	19	20	0	2	11	0	0	3	53	149	0	4	22	1	0	390
8:00 AM	106	22	12	0	0	8	4	0	4	39	130	0	4	30	3	0	362
8:15 AM	92	14	5	0	2	11	2	0	4	31	110	0	8	17	4	0	300
8:30 AM	120	15	5	0	0	7	7	0	2	41	130	0	1	24	3	0	355
8:45 AM	107	12	3	0	0	2	2	0	1	24	143	0	4	12	1	0	311
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	745	113	85	0	7	72	21	0	21	274	1119	0	23	141	18	0	2639
APPROACH %'s :	79.00%	11.98%	9.01%	0.00%	7.00%	72.00%	21.00%	0.00%	1.49%	19.38%	79.14%	0.00%	12.64%	77.47%	9.89%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	424	70	42	0	4	37	13	0	13	164	519	0	17	93	11	0	1407
PEAK HR FACTOR :	0.883	0.795	0.525	0.000	0.500	0.841	0.464	0.000	0.813	0.774	0.871	0.000	0.531	0.775	0.688	0.000	0.902
	0.924				0.900				0.849				0.818				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	0	0	0.5	0.5	1	0	0	1	1	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	90	5	3	0	0	8	5	0	0	26	129	0	4	30	0	0	300
4:15 PM	95	6	2	0	1	6	0	0	0	19	98	0	4	33	0	0	264
4:30 PM	96	5	8	0	0	8	2	0	2	34	155	0	3	38	2	0	353
4:45 PM	101	3	2	0	2	10	3	0	2	35	140	0	4	39	0	0	341
5:00 PM	128	3	4	0	8	30	2	0	0	59	143	0	1	61	1	0	440
5:15 PM	136	0	11	0	2	11	2	0	1	30	117	0	5	61	0	0	376
5:30 PM	98	1	10	0	0	19	3	0	0	15	106	0	0	44	2	0	298
5:45 PM	84	1	5	0	1	14	1	0	0	24	87	0	4	31	1	0	253
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	828	24	45	0	14	106	18	0	5	242	975	0	25	337	6	0	2625
APPROACH %'s :	92.31%	2.68%	5.02%	0.00%	10.14%	76.81%	13.04%	0.00%	0.41%	19.80%	79.79%	0.00%	6.79%	91.58%	1.63%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	461	11	25	0	12	59	9	0	5	158	555	0	13	199	3	0	1510
PEAK HR FACTOR :	0.847	0.550	0.568	0.000	0.375	0.492	0.750	0.000	0.625	0.669	0.895	0.000	0.650	0.816	0.375	0.000	0.858
	0.845				0.500				0.889				0.814				

Prepared by National Data & Surveying Services

N Chase St/Dairy Park Rd & Newton Bridge Rd/Barber St

Peak Hour Turning Movement Count

ID: 25-180042-003
City: Athens

Day: Thursday
Date: 2/27/2025

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	7:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	4:00 PM - 06:00 PM

SOUTHBOUND (N Chase St/Dairy Park Rd)

AM	13	37	4	0	94	AM
NOON	0	0	0	0	0	NOON
PM	9	59	12	0	19	PM

EASTBOUND (Newton Bridge Rd/Barber St)

AM	NOON	PM		
530	0	669	⇦	
0	0	0	↶	0
13	0	5	↰	0
164	0	158	→	1
519	0	555	↱	1
AM	NOON	PM		

WESTBOUND (Newton Bridge Rd/Barber St)

PM	NOON	AM		
3	0	11	↱	0
199	0	93	←	2
13	0	17	↰	0
0	0	0	↶	0
195	0	210	⇨	
PM	NOON	AM		

NORTHBOUND (N Chase St/Dairy Park Rd)

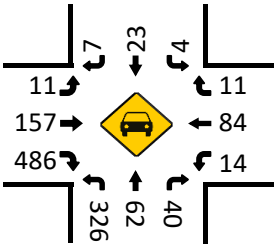
PM	627	0	461	11	25	PM
NOON	0	0	0	0	0	NOON
AM	573	0	424	70	42	AM

⇩	0	1.5	0.5	0
	↶	↰	↑	↱

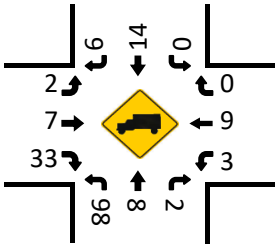
CONTROL			
Signalized			
TEV	1407 AM	0 NOON	1510 PM
PHF	0.90		0.86

⇦	1	0.5	0.5	0	⇧
	↶	↓	↷	↷	

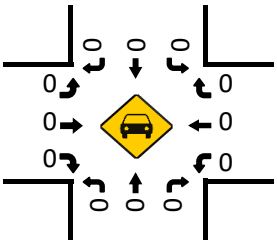
Cars (AM)



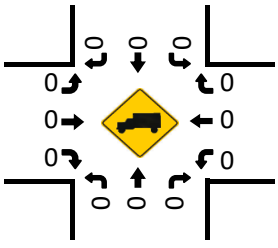
HT (AM)



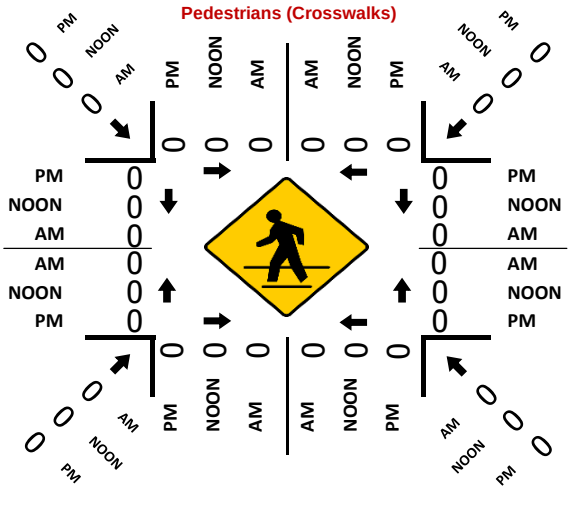
Cars (NOON)



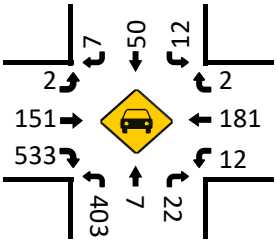
HT (NOON)



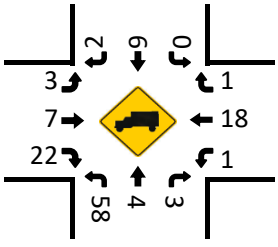
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Project ID: 25-180042-003
Location: N Chase St/Dairy Park Rd & Newton Bridge Rd/Barber St
City: Athens

Day: Thursday
Date: 2/27/2025

Groups Printed - Cars, PU, Vans - Heavy Trucks

	N Chase St/Dairy Park Rd Northbound						N Chase St/Dairy Park Rd Southbound						Newton Bridge Rd/Barber St Eastbound						Newton Bridge Rd/Barber St Westbound						
Start Time	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total
7:00 AM	69	14	7	0	0	90	1	23	4	0	0	28	3	21	140	0	0	164	1	9	1	0	0	11	293
7:15 AM	69	10	16	0	0	95	1	7	2	0	0	10	2	31	145	0	0	178	1	14	4	0	0	19	302
7:30 AM	76	7	17	0	0	100	1	3	0	0	0	4	2	34	172	0	0	208	0	13	1	0	0	14	326
7:45 AM	106	19	20	0	0	145	2	11	0	0	0	13	3	53	149	0	0	205	4	22	1	0	0	27	390
Total	320	50	60	0	0	430	5	44	6	0	0	55	10	139	606	0	0	755	6	58	7	0	0	71	1311
8:00 AM	106	22	12	0	0	140	0	8	4	0	0	12	4	39	130	0	0	173	4	30	3	0	0	37	362
8:15 AM	92	14	5	0	0	111	2	11	2	0	0	15	4	31	110	0	0	145	8	17	4	0	0	29	300
8:30 AM	120	15	5	0	0	140	0	7	7	0	0	14	2	41	130	0	0	173	1	24	3	0	0	28	355
8:45 AM	107	12	3	0	0	122	0	2	2	0	0	4	1	24	143	0	0	168	4	12	1	0	0	17	311
Total	425	63	25	0	0	513	2	28	15	0	0	45	11	135	513	0	0	659	17	83	11	0	0	111	1328
BREAK																									
4:00 PM	90	5	3	0	0	98	0	8	5	0	0	13	0	26	129	0	0	155	4	30	0	0	0	34	300
4:15 PM	95	6	2	0	0	103	1	6	0	0	0	7	0	19	98	0	0	117	4	33	0	0	0	37	264
4:30 PM	96	5	8	0	0	109	0	8	2	0	0	10	2	34	155	0	0	191	3	38	2	0	0	43	353
4:45 PM	101	3	2	0	0	106	2	10	3	0	0	15	2	35	140	0	0	177	4	39	0	0	0	43	341
Total	382	19	15	0	0	416	3	32	10	0	0	45	4	114	522	0	0	640	15	140	2	0	0	157	1258
5:00 PM	128	3	4	0	0	135	8	30	2	0	0	40	0	59	143	0	0	202	1	61	1	0	0	63	440
5:15 PM	136	0	11	0	0	147	2	11	2	0	0	15	1	30	117	0	0	148	5	61	0	0	0	66	376
5:30 PM	98	1	10	0	0	109	0	19	3	0	0	22	0	15	106	0	0	121	0	44	2	0	0	46	298
5:45 PM	84	1	5	0	0	90	1	14	1	0	0	16	0	24	87	0	0	111	4	31	1	0	0	36	253
Total	446	5	30	0	0	481	11	74	8	0	0	93	1	128	453	0	0	582	10	197	4	0	0	211	1367
Grand Total	1573	137	130	0	0	1840	21	178	39	0	0	238	26	516	2094	0	0	2636	48	478	24	0	0	550	5264
Apprch %	85.5	7.4	7.1	0.0	0.0		8.8	74.8	16.4	0.0	0.0		1.0	19.6	79.4	0.0	0.0		8.7	86.9	4.4	0.0	0.0		
Total %	29.9	2.6	2.5	0.0	0.0	35.0	0.4	3.4	0.7	0.0	0.0	4.5	0.5	9.8	39.8	0.0	0.0	50.1	0.9	9.1	0.5	0.0	0.0	10.4	
Cars, PU, Vans	1320	112	121	0		1553	21	151	28	0		200	21	499	1985	0		2505	44	438	23	0		505	4763
% Cars, PU, Vans	83.9	81.8	93.1	0.0		84.4	100.0	84.8	71.8	0.0		84.0	80.8	96.7	94.8	0.0		95.0	91.7	91.6	95.8	0.0		91.8	90.5
Heavy trucks	253	25	9	0		287	0	27	11	0		38	5	17	109	0		131	4	40	1	0		45	501
%Heavy trucks	16.1	18.2	6.9	0.0		15.6	0.0	15.2	28.2	0.0		16.0	19.2	3.3	5.2	0.0		5.0	8.3	8.4	4.2	0.0		8.2	9.5

Project ID: 25-180042-003
Location: N Chase St/Dairy Park Rd & Newton Bridge Rd/Barb
City: Athens

PEAK HOURS

Day: Thursday
Date: 2/27/2025

AM

	N Chase St/Dairy Park Rd Northbound					N Chase St/Dairy Park Rd Southbound					Newton Bridge Rd/Barber St Eastbound					Newton Bridge Rd/Barber St Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM - 09:00 AM																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
7:45 AM	106	19	20	0	145	2	11	0	0	13	3	53	149	0	205	4	22	1	0	27	390
8:00 AM	106	22	12	0	140	0	8	4	0	12	4	39	130	0	173	4	30	3	0	37	362
8:15 AM	92	14	5	0	111	2	11	2	0	15	4	31	110	0	145	8	17	4	0	29	300
8:30 AM	120	15	5	0	140	0	7	7	0	14	2	41	130	0	173	1	24	3	0	28	355
Total Volume	424	70	42	0	536	4	37	13	0	54	13	164	519	0	696	17	93	11	0	121	1407
% App. Total	79.1	13.1	7.8	0.0	100	7.4	68.5	24.1	0.0	100	1.9	23.6	74.6	0.0	100	14.0	76.9	9.1	0.0	100	
PHF					0.924					0.900					0.849					0.818	0.902
Cars, PU, Vans	326	62	40	0	428	4	23	7	0	34	11	157	486	0	654	14	84	11	0	109	1225
% Cars, PU, Vans	76.9	88.6	95.2	0.0	79.9	100.0	62.2	53.8	0.0	63.0	84.6	95.7	93.6	0.0	94.0	82.4	90.3	100.0	0.0	90.1	87.1
Heavy trucks	98	8	2	0	108	0	14	6	0	20	2	7	33	0	42	3	9	0	0	12	182
%Heavy trucks	23.1	11.4	4.8	0.0	20.1	0.0	37.8	46.2	0.0	37.0	15.4	4.3	6.4	0.0	6.0	17.6	9.7	0.0	0.0	9.9	12.9

PM

	N Chase St/Dairy Park Rd Northbound					N Chase St/Dairy Park Rd Southbound					Newton Bridge Rd/Barber St Eastbound					Newton Bridge Rd/Barber St Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 04:00 PM - 06:00 PM																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
4:30 PM	96	5	8	0	109	0	8	2	0	10	2	34	155	0	191	3	38	2	0	43	353
4:45 PM	101	3	2	0	106	2	10	3	0	15	2	35	140	0	177	4	39	0	0	43	341
5:00 PM	128	3	4	0	135	8	30	2	0	40	0	59	143	0	202	1	61	1	0	63	440
5:15 PM	136	0	11	0	147	2	11	2	0	15	1	30	117	0	148	5	61	0	0	66	376
Total Volume	461	11	25	0	497	12	59	9	0	80	5	158	555	0	718	13	199	3	0	215	1510
% App. Total	92.8	2.2	5.0	0.0	100	15.0	73.8	11.3	0.0	100	0.7	22.0	77.3	0.0	100	6.0	92.6	1.4	0.0	100	
PHF					0.845					0.500					0.889					0.814	0.858
Cars, PU, Vans	403	7	22	0	432	12	50	7	0	69	2	151	533	0	686	12	181	2	0	195	1382
% Cars, PU, Vans	87.4	63.6	88.0	0.0	86.9	100.0	84.7	77.8	0.0	86.3	40.0	95.6	96.0	0.0	95.5	92.3	91.0	66.7	0.0	90.7	91.5
Heavy trucks	58	4	3	0	65	0	9	2	0	11	3	7	22	0	32	1	18	1	0	20	128
%Heavy trucks	12.6	36.4	12.0	0.0	13.1	0.0	15.3	22.2	0.0	13.8	60.0	4.4	4.0	0.0	4.5	7.7	9.0	33.3	0.0	9.3	8.5

National Data & Surveying Services

Intersection Turning Movement Count

Location: N Chase St & Athens Perimeter/SR 10/US 129 WB Ramps
City: Athens
Control: Signalized

Project ID: 25-180042-004
Date: 2/27/2025

Data - Total

NS/EW Streets:	N Chase St				N Chase St				Athens Perimeter/SR 10/US 129 WB Ramps				Athens Perimeter/SR 10/US 129 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	0	0	0	2	0	0	0	0	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	23	35	0	0	0	120	52	0	0	0	0	0	84	0	52	0	366
7:15 AM	20	41	0	0	0	110	41	0	0	0	0	0	128	0	58	0	398
7:30 AM	28	45	0	0	0	120	58	0	0	0	0	0	127	0	61	0	439
7:45 AM	29	49	0	0	0	125	33	0	0	0	0	0	150	0	97	0	483
8:00 AM	39	70	0	0	0	115	40	0	0	0	0	0	111	0	77	0	452
8:15 AM	46	60	0	0	0	89	33	0	0	0	0	0	102	0	64	0	394
8:30 AM	35	82	0	0	0	104	37	0	0	0	0	0	87	0	71	0	416
8:45 AM	30	63	0	0	0	111	53	0	0	0	0	0	100	0	69	0	426
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	250	445	0	0	0	894	347	0	0	0	0	0	889	0	549	0	3374
APPROACH %'s :	35.97%	64.03%	0.00%	0.00%	0.00%	72.04%	27.96%	0.00%					61.82%	0.00%	38.18%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	116	205	0	0	0	470	172	0	0	0	0	0	516	0	293	0	1772
PEAK HR FACTOR :	0.744	0.732	0.000	0.000	0.000	0.940	0.741	0.000	0.000	0.000	0.000	0.000	0.860	0.000	0.755	0.000	0.917
	0.736				0.902				0.819								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	0	0	0	2	0	0	0	0	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	53	68	0	0	0	108	47	0	0	0	0	0	66	0	61	0	403
4:15 PM	53	66	0	0	0	102	42	0	0	0	0	0	69	0	62	0	394
4:30 PM	67	53	0	0	0	95	55	0	0	0	0	0	71	0	70	0	411
4:45 PM	55	60	0	0	0	110	60	0	0	0	0	0	61	0	65	0	411
5:00 PM	73	58	0	0	0	124	88	0	0	0	0	0	60	0	76	0	479
5:15 PM	65	78	0	0	0	99	38	0	0	0	0	0	74	2	100	0	456
5:30 PM	61	56	0	0	0	96	52	0	0	0	0	0	53	0	62	0	380
5:45 PM	59	56	0	0	0	70	38	0	0	0	0	0	75	0	42	0	340
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	486	495	0	0	0	804	420	0	0	0	0	0	529	2	538	0	3274
APPROACH %'s :	49.54%	50.46%	0.00%	0.00%	0.00%	65.69%	34.31%	0.00%					49.49%	0.19%	50.33%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	260	249	0	0	0	428	241	0	0	0	0	0	266	2	311	0	1757
PEAK HR FACTOR :	0.890	0.798	0.000	0.000	0.000	0.863	0.685	0.000	0.000	0.000	0.000	0.000	0.899	0.250	0.778	0.000	0.917
	0.890				0.789				0.822								

Prepared by National Data & Surveying Services

N Chase St & Athens Perimeter/SR 10/US 129 WB Ramps

Peak Hour Turning Movement Count

ID: 25-180042-004
City: Athens

Day: Thursday
Date: 2/27/2025

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

N Chase St — SOUTHBOUND

	L	T	R	U	Total	
AM	172	470	0	0	498	AM
NOON	0	0	0	0	0	NOON
PM	241	428	0	0	560	PM

Athens Perimeter/SR 10/US 129 WB Ramps — EASTBOUND

	L	T	R	U	Total	
AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

Athens Perimeter/SR 10/US 129 WB Ramps — WESTBOUND

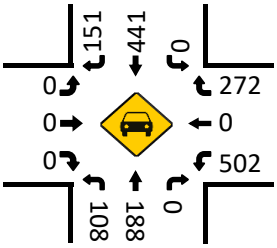
	L	T	R	U	Total	
PM	311	0	293	1	605	PM
NOON	2	0	0	0	2	NOON
AM	266	0	516	1	783	AM

N Chase St — NORTHBOUND

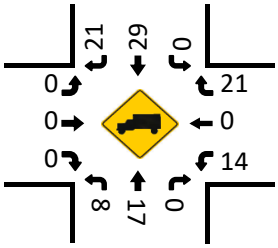
	L	T	R	U	Total	
PM	694	0	260	249	0	PM
NOON	0	0	0	0	0	NOON
AM	986	0	116	205	0	AM

CONTROL			
Signalized			
TEV	1772 AM	0 NOON	1757 PM
PHF	0.92		0.92

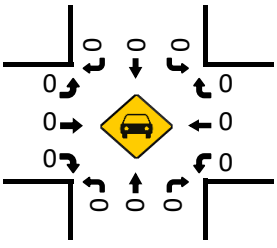
Cars (AM)



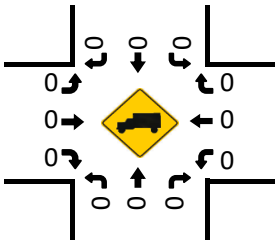
HT (AM)



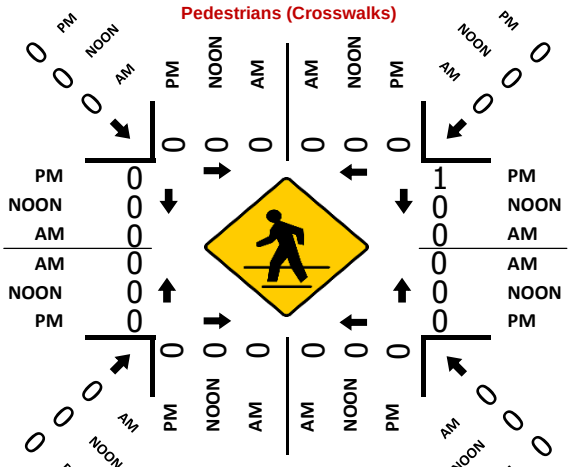
Cars (NOON)



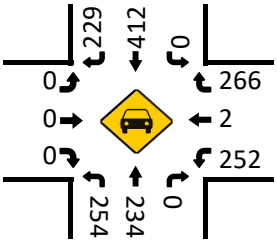
HT (NOON)



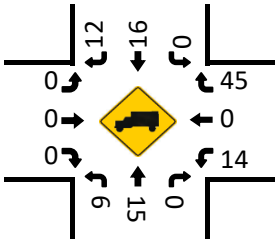
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Project ID: 25-180042-004
Location: N Chase St & Athens Perimeter/SR 10/US 129 WB Ramps
City: Athens

Day: Thursday
Date: 2/27/2025

Groups Printed - Cars, PU, Vans - Heavy Trucks

	N Chase St Northbound						N Chase St Southbound						Athens Perimeter/SR 10/US 129 WB Ramps Eastbound						Athens Perimeter/SR 10/US 129 WB Ramps Westbound						
Start Time	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total
7:00 AM	23	35	0	0	0	58	0	120	52	0	0	172	0	0	0	0	0	0	84	0	52	0	0	136	366
7:15 AM	20	41	0	0	0	61	0	110	41	0	0	151	0	0	0	0	0	0	128	0	58	0	0	186	398
7:30 AM	28	45	0	0	0	73	0	120	58	0	0	178	0	0	0	0	0	0	127	0	61	0	0	188	439
7:45 AM	29	49	0	0	0	78	0	125	33	0	0	158	0	0	0	0	0	0	150	0	97	0	0	247	483
Total	100	170	0	0	0	270	0	475	184	0	0	659	0	0	0	0	0	0	489	0	268	0	0	757	1686
8:00 AM	39	70	0	0	0	109	0	115	40	0	0	155	0	0	0	0	0	0	111	0	77	0	0	188	452
8:15 AM	46	60	0	0	0	106	0	89	33	0	0	122	0	0	0	0	0	0	102	0	64	0	0	166	394
8:30 AM	35	82	0	0	0	117	0	104	37	0	0	141	0	0	0	0	0	0	87	0	71	0	0	158	416
8:45 AM	30	63	0	0	0	93	0	111	53	0	0	164	0	0	0	0	0	0	100	0	69	0	0	169	426
Total	150	275	0	0	0	425	0	419	163	0	0	582	0	0	0	0	0	0	400	0	281	0	0	681	1688
BREAK																									
4:00 PM	53	68	0	0	0	121	0	108	47	0	0	155	0	0	0	0	0	0	66	0	61	0	0	127	403
4:15 PM	53	66	0	0	0	119	0	102	42	0	0	144	0	0	0	0	0	0	69	0	62	0	0	131	394
4:30 PM	67	53	0	0	0	120	0	95	55	0	0	150	0	0	0	0	0	0	71	0	70	0	0	141	411
4:45 PM	55	60	0	0	0	115	0	110	60	0	0	170	0	0	0	0	0	0	61	0	65	0	0	126	411
Total	228	247	0	0	0	475	0	415	204	0	0	619	0	0	0	0	0	0	267	0	258	0	0	525	1619
5:00 PM	73	58	0	0	0	131	0	124	88	0	0	212	0	0	0	0	0	0	60	0	76	0	0	136	479
5:15 PM	65	78	0	0	0	143	0	99	38	0	0	137	0	0	0	0	0	0	74	2	100	0	1	176	456
5:30 PM	61	56	0	0	0	117	0	96	52	0	0	148	0	0	0	0	0	0	53	0	62	0	0	115	380
5:45 PM	59	56	0	0	0	115	0	70	38	0	0	108	0	0	0	0	0	0	75	0	42	0	0	117	340
Total	258	248	0	0	0	506	0	389	216	0	0	605	0	0	0	0	0	0	262	2	280	0	1	544	1655
Grand Total	736	940	0	0	0	1676	0	1698	767	0	0	2465	0	0	0	0	0	0	1418	2	1087	0	1	2507	6648
Apprch %	43.9	56.1	0.0	0.0	0.0		0.0	68.9	31.1	0.0	0.0		0.0	0.0	0.0	0.0	0.0		56.6	0.1	43.4	0.0	0.0		
Total %	11.1	14.1	0.0	0.0	0.0	25.2	0.0	25.5	11.5	0.0	0.0	37.1	0.0	0.0	0.0	0.0	0.0	0.0	21.3	0.0	16.4	0.0	0.0	37.7	
Cars, PU, Vans	706	824	0	0		1530	0	1618	697	0		2315	0	0	0	0		0	1372	2	921	0		2295	6140
% Cars, PU, Vans	95.9	87.7	0.0	0.0		91.3	0.0	95.3	90.9	0.0		93.9	0.0	0.0	0.0	0.0		0.0	96.8	100.0	84.7	0.0		91.5	92.4
Heavy trucks	30	116	0	0		146	0	80	70	0		150	0	0	0	0		0	46	0	166	0		212	508
%Heavy trucks	4.1	12.3	0.0	0.0		8.7	0.0	4.7	9.1	0.0		6.1	0.0	0.0	0.0	0.0		0.0	3.2	0.0	15.3	0.0		8.5	7.6

Project ID: 25-180042-004
Location: N Chase St & Athens Perimeter/SR 10/US 129 WB R
City: Athens

PEAK HOURS

Day: Thursday
Date: 2/27/2025

AM

	N Chase St Northbound					N Chase St Southbound					hens Perimeter/SR 10/US 129 WB Ram Eastbound					hens Perimeter/SR 10/US 129 WB Ram Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM - 09:00 AM																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
7:15 AM	20	41	0	0	61	0	110	41	0	151	0	0	0	0	0	128	0	58	0	186	398
7:30 AM	28	45	0	0	73	0	120	58	0	178	0	0	0	0	0	127	0	61	0	188	439
7:45 AM	29	49	0	0	78	0	125	33	0	158	0	0	0	0	0	150	0	97	0	247	483
8:00 AM	39	70	0	0	109	0	115	40	0	155	0	0	0	0	0	111	0	77	0	188	452
Total Volume	116	205	0	0	321	0	470	172	0	642	0	0	0	0	0	516	0	293	0	809	1772
% App. Total	36.1	63.9	0.0	0.0	100	0.0	73.2	26.8	0.0	100	0.0	0.0	0.0	0.0	0	63.8	0.0	36.2	0.0	100	
PHF					0.736					0.902										0.819	0.917
Cars, PU, Vans	108	188	0	0	296	0	441	151	0	592	0	0	0	0	0	502	0	272	0	774	1662
% Cars, PU, Vans	93.1	91.7	0.0	0.0	92.2	0.0	93.8	87.8	0.0	92.2	0.0	0.0	0.0	0.0	0.0	97.3	0.0	92.8	0.0	95.7	93.8
Heavy trucks	8	17	0	0	25	0	29	21	0	50	0	0	0	0	0	14	0	21	0	35	110
%Heavy trucks	6.9	8.3	0.0	0.0	7.8	0.0	6.2	12.2	0.0	7.8	0.0	0.0	0.0	0.0	0.0	2.7	0.0	7.2	0.0	4.3	6.2

PM

	N Chase St Northbound					N Chase St Southbound					hens Perimeter/SR 10/US 129 WB Ram Eastbound					hens Perimeter/SR 10/US 129 WB Ram Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 04:00 PM - 06:00 PM																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
4:30 PM	67	53	0	0	120	0	95	55	0	150	0	0	0	0	0	71	0	70	0	141	411
4:45 PM	55	60	0	0	115	0	110	60	0	170	0	0	0	0	0	61	0	65	0	126	411
5:00 PM	73	58	0	0	131	0	124	88	0	212	0	0	0	0	0	60	0	76	0	136	479
5:15 PM	65	78	0	0	143	0	99	38	0	137	0	0	0	0	0	74	2	100	0	176	456
Total Volume	260	249	0	0	509	0	428	241	0	669	0	0	0	0	0	266	2	311	0	579	1757
% App. Total	51.1	48.9	0.0	0.0	100	0.0	64.0	36.0	0.0	100	0.0	0.0	0.0	0.0	0	45.9	0.3	53.7	0.0	100	
PHF					0.890					0.789										0.822	0.917
Cars, PU, Vans	254	234	0	0	488	0	412	229	0	641	0	0	0	0	0	252	2	266	0	520	1649
% Cars, PU, Vans	97.7	94.0	0.0	0.0	95.9	0.0	96.3	95.0	0.0	95.8	0.0	0.0	0.0	0.0	0.0	94.7	100.0	85.5	0.0	89.8	93.9
Heavy trucks	6	15	0	0	21	0	16	12	0	28	0	0	0	0	0	14	0	45	0	59	108
%Heavy trucks	2.3	6.0	0.0	0.0	4.1	0.0	3.7	5.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	5.3	0.0	14.5	0.0	10.2	6.1

National Data & Surveying Services

Intersection Turning Movement Count

Location: N Chase St & Athens Perimeter/SR 10/US 129 EB Ramps
City: Athens
Control: 1-Way Stop(EB)

Project ID: 25-180042-005
Date: 2/27/2025

Data - Total

NS/EW Streets:	N Chase St				N Chase St				Athens Perimeter/SR 10/US 129 EB Ramps				Athens Perimeter/SR 10/US 129 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	34	58	0	69	142	0	0	22	0	40	0	0	0	0	0	365
7:15 AM	0	43	50	0	63	169	0	0	22	0	45	0	0	0	0	0	392
7:30 AM	0	51	63	0	49	196	0	0	20	0	72	0	0	0	0	0	451
7:45 AM	0	66	66	0	73	203	0	0	20	0	61	0	0	0	0	0	489
8:00 AM	0	72	86	0	44	184	0	0	34	0	66	0	0	0	0	0	486
8:15 AM	0	87	68	0	46	146	0	0	21	0	56	0	0	0	0	0	424
8:30 AM	0	84	50	0	45	143	0	0	34	0	58	0	0	0	0	0	414
8:45 AM	0	64	68	0	62	148	0	0	24	0	64	0	0	0	0	0	430
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	501	509	0	451	1331	0	0	197	0	462	0	0	0	0	0	3451
APPROACH %'s :	0.00%	49.60%	50.40%	0.00%	25.31%	74.69%	0.00%	0.00%	29.89%	0.00%	70.11%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	276	283	0	212	729	0	0	95	0	255	0	0	0	0	0	1850
PEAK HR FACTOR :	0.000	0.793	0.823	0.000	0.726	0.898	0.000	0.000	0.699	0.000	0.885	0.000	0.000	0.000	0.000	0.000	0.946
		0.884				0.852				0.875							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	1	1	0	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	113	128	0	67	105	0	0	17	0	59	0	0	0	0	0	489
4:15 PM	0	105	126	0	54	115	0	0	14	0	51	0	0	0	0	0	465
4:30 PM	0	115	149	0	52	101	0	0	11	0	47	0	0	0	0	0	475
4:45 PM	0	97	157	0	57	112	0	0	13	0	43	0	0	0	0	0	479
5:00 PM	0	132	195	0	42	110	0	0	3	0	60	0	0	0	0	0	542
5:15 PM	0	135	180	0	42	128	0	1	11	0	73	0	0	0	0	0	570
5:30 PM	0	97	150	0	51	81	0	0	14	0	45	0	0	0	0	0	438
5:45 PM	0	92	123	0	43	100	0	0	21	0	42	0	0	0	0	0	421
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	886	1208	0	408	852	0	1	104	0	420	0	0	0	0	0	3879
APPROACH %'s :	0.00%	42.31%	57.69%	0.00%	32.36%	67.57%	0.00%	0.08%	19.85%	0.00%	80.15%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	479	681	0	193	451	0	1	38	0	223	0	0	0	0	0	2066
PEAK HR FACTOR :	0.000	0.887	0.873	0.000	0.846	0.881	0.000	0.250	0.731	0.000	0.764	0.000	0.000	0.000	0.000	0.000	0.906
		0.887				0.943				0.777							

Prepared by National Data & Surveying Services

N Chase St & Athens Perimeter/SR 10/US 129 EB Ramps

Peak Hour Turning Movement Count

ID: 25-180042-005
City: Athens

Day: Thursday
Date: 2/27/2025

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	7:00 AM - 09:00 AM
NONE	NONE
04:30 PM - 05:30 PM	4:00 PM - 06:00 PM

SOUTHBOUND (N Chase St)

AM	0	729	212	0	371	AM
NOON	0	0	0	0	0	NOON
PM	0	451	193	1	518	PM

EASTBOUND (Athens Perimeter/SR 10/US 129 EB Ramps)

AM	NOON	PM	
0	0	0	
0	0	0	0
95	0	38	1
0	0	0	0
255	0	223	1
AM	NOON	PM	

WESTBOUND (Athens Perimeter/SR 10/US 129 EB Ramps)

PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
874	0	495	
PM	NOON	AM	

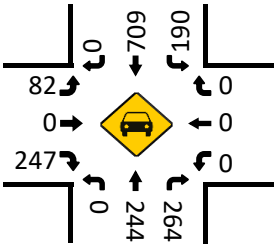
NORTHBOUND (N Chase St)

PM	674	0	0	479	681	PM
NOON	0	0	0	0	0	NOON
AM	984	0	0	276	283	AM

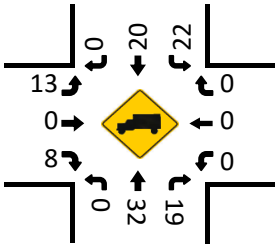
	0	1	1	0
	0	0	2	0

CONTROL			
1-Way Stop(EB)			
TEV	1850 AM	0 NOON	2066 PM
PHF	0.95		0.91

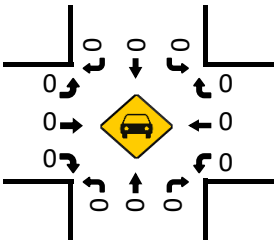
Cars (AM)



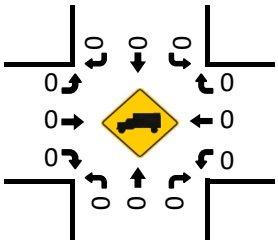
HT (AM)



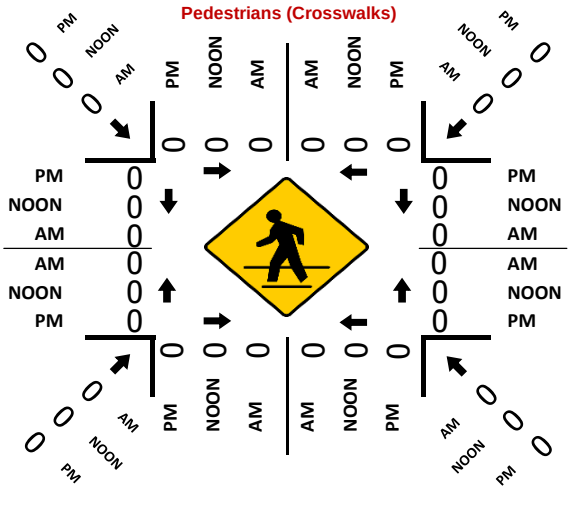
Cars (NOON)



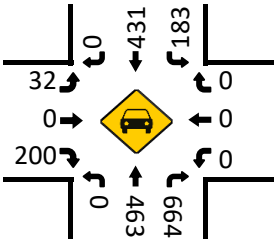
HT (NOON)



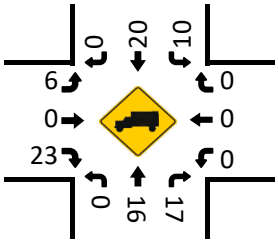
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Project ID: 25-180042-005
Location: N Chase St & Athens Perimeter/SR 10/US 129 EB Ramps
City: Athens

Day: Thursday
Date: 2/27/2025

Groups Printed - Cars, PU, Vans - Heavy Trucks

	N Chase St Northbound						N Chase St Southbound						Athens Perimeter/SR 10/US 129 EB Ramps Eastbound						Athens Perimeter/SR 10/US 129 EB Ramps Westbound						
Start Time	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Left	Thru	Rgt	Uturn	Peds	App. Total	Int. Total
7:00 AM	0	34	58	0	0	92	69	142	0	0	0	211	22	0	40	0	0	62	0	0	0	0	0	0	365
7:15 AM	0	43	50	0	0	93	63	169	0	0	0	232	22	0	45	0	0	67	0	0	0	0	0	0	392
7:30 AM	0	51	63	0	0	114	49	196	0	0	0	245	20	0	72	0	0	92	0	0	0	0	0	0	451
7:45 AM	0	66	66	0	0	132	73	203	0	0	0	276	20	0	61	0	0	81	0	0	0	0	0	0	489
Total	0	194	237	0	0	431	254	710	0	0	0	964	84	0	218	0	0	302	0	0	0	0	0	0	1697
8:00 AM	0	72	86	0	0	158	44	184	0	0	0	228	34	0	66	0	0	100	0	0	0	0	0	0	486
8:15 AM	0	87	68	0	0	155	46	146	0	0	0	192	21	0	56	0	0	77	0	0	0	0	0	0	424
8:30 AM	0	84	50	0	0	134	45	143	0	0	0	188	34	0	58	0	0	92	0	0	0	0	0	0	414
8:45 AM	0	64	68	0	0	132	62	148	0	0	0	210	24	0	64	0	0	88	0	0	0	0	0	0	430
Total	0	307	272	0	0	579	197	621	0	0	0	818	113	0	244	0	0	357	0	0	0	0	0	0	1754
BREAK																									
4:00 PM	0	113	128	0	0	241	67	105	0	0	0	172	17	0	59	0	0	76	0	0	0	0	0	0	489
4:15 PM	0	105	126	0	0	231	54	115	0	0	0	169	14	0	51	0	0	65	0	0	0	0	0	0	465
4:30 PM	0	115	149	0	0	264	52	101	0	0	0	153	11	0	47	0	0	58	0	0	0	0	0	0	475
4:45 PM	0	97	157	0	0	254	57	112	0	0	0	169	13	0	43	0	0	56	0	0	0	0	0	0	479
Total	0	430	560	0	0	990	230	433	0	0	0	663	55	0	200	0	0	255	0	0	0	0	0	0	1908
5:00 PM	0	132	195	0	0	327	42	110	0	0	0	152	3	0	60	0	0	63	0	0	0	0	0	0	542
5:15 PM	0	135	180	0	0	315	42	128	0	1	0	171	11	0	73	0	0	84	0	0	0	0	0	0	570
5:30 PM	0	97	150	0	0	247	51	81	0	0	0	132	14	0	45	0	0	59	0	0	0	0	0	0	438
5:45 PM	0	92	123	0	0	215	43	100	0	0	0	143	21	0	42	0	0	63	0	0	0	0	0	0	421
Total	0	456	648	0	0	1104	178	419	0	1	0	598	49	0	220	0	0	269	0	0	0	0	0	0	1971
Grand Total	0	1387	1717	0	0	3104	859	2183	0	1	0	3043	301	0	882	0	0	1183	0	0	0	0	0	0	7330
Apprch %	0.0	44.7	55.3	0.0	0.0		28.2	71.7	0.0	0.0	0.0		25.4	0.0	74.6	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	18.9	23.4	0.0	0.0	42.3	11.7	29.8	0.0	0.0	0.0	41.5	4.1	0.0	12.0	0.0	0.0	16.1	0.0	0.0	0.0	0.0	0.0	0.0	
Cars, PU, Vans	0	1293	1650	0		2943	805	2111	0	1		2917	249	0	816	0		1065	0	0	0	0		0	6925
% Cars, PU, Vans	0.0	93.2	96.1	0.0		94.8	93.7	96.7	0.0	100.0		95.9	82.7	0.0	92.5	0.0		90.0	0.0	0.0	0.0	0.0		0.0	94.5
Heavy trucks	0	94	67	0		161	54	72	0	0		126	52	0	66	0		118	0	0	0	0		0	405
%Heavy trucks	0.0	6.8	3.9	0.0		5.2	6.3	3.3	0.0	0.0		4.1	17.3	0.0	7.5	0.0		10.0	0.0	0.0	0.0	0.0		0.0	5.5

Project ID: 25-180042-005
Location: N Chase St & Athens Perimeter/SR 10/US 129 EB Ra
City: Athens

PEAK HOURS

Day: Thursday
Date: 2/27/2025

AM

	N Chase St Northbound					N Chase St Southbound					hens Perimeter/SR 10/US 129 EB Ram Eastbound					hens Perimeter/SR 10/US 129 EB Ram Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM - 09:00 AM																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
7:30 AM	0	51	63	0	114	49	196	0	0	245	20	0	72	0	92	0	0	0	0	0	451
7:45 AM	0	66	66	0	132	73	203	0	0	276	20	0	61	0	81	0	0	0	0	0	489
8:00 AM	0	72	86	0	158	44	184	0	0	228	34	0	66	0	100	0	0	0	0	0	486
8:15 AM	0	87	68	0	155	46	146	0	0	192	21	0	56	0	77	0	0	0	0	0	424
Total Volume	0	276	283	0	559	212	729	0	0	941	95	0	255	0	350	0	0	0	0	0	1850
% App. Total	0.0	49.4	50.6	0.0	100	22.5	77.5	0.0	0.0	100	27.1	0.0	72.9	0.0	100	0.0	0.0	0.0	0.0	0	
PHF					0.884					0.852					0.875						0.946
Cars, PU, Vans	0	244	264	0	508	190	709	0	0	899	82	0	247	0	329	0	0	0	0	0	1736
% Cars, PU, Vans	0.0	88.4	93.3	0.0	90.9	89.6	97.3	0.0	0.0	95.5	86.3	0.0	96.9	0.0	94.0	0.0	0.0	0.0	0.0	0.0	93.8
Heavy trucks	0	32	19	0	51	22	20	0	0	42	13	0	8	0	21	0	0	0	0	0	114
%Heavy trucks	0.0	11.6	6.7	0.0	9.1	10.4	2.7	0.0	0.0	4.5	13.7	0.0	3.1	0.0	6.0	0.0	0.0	0.0	0.0	0.0	6.2

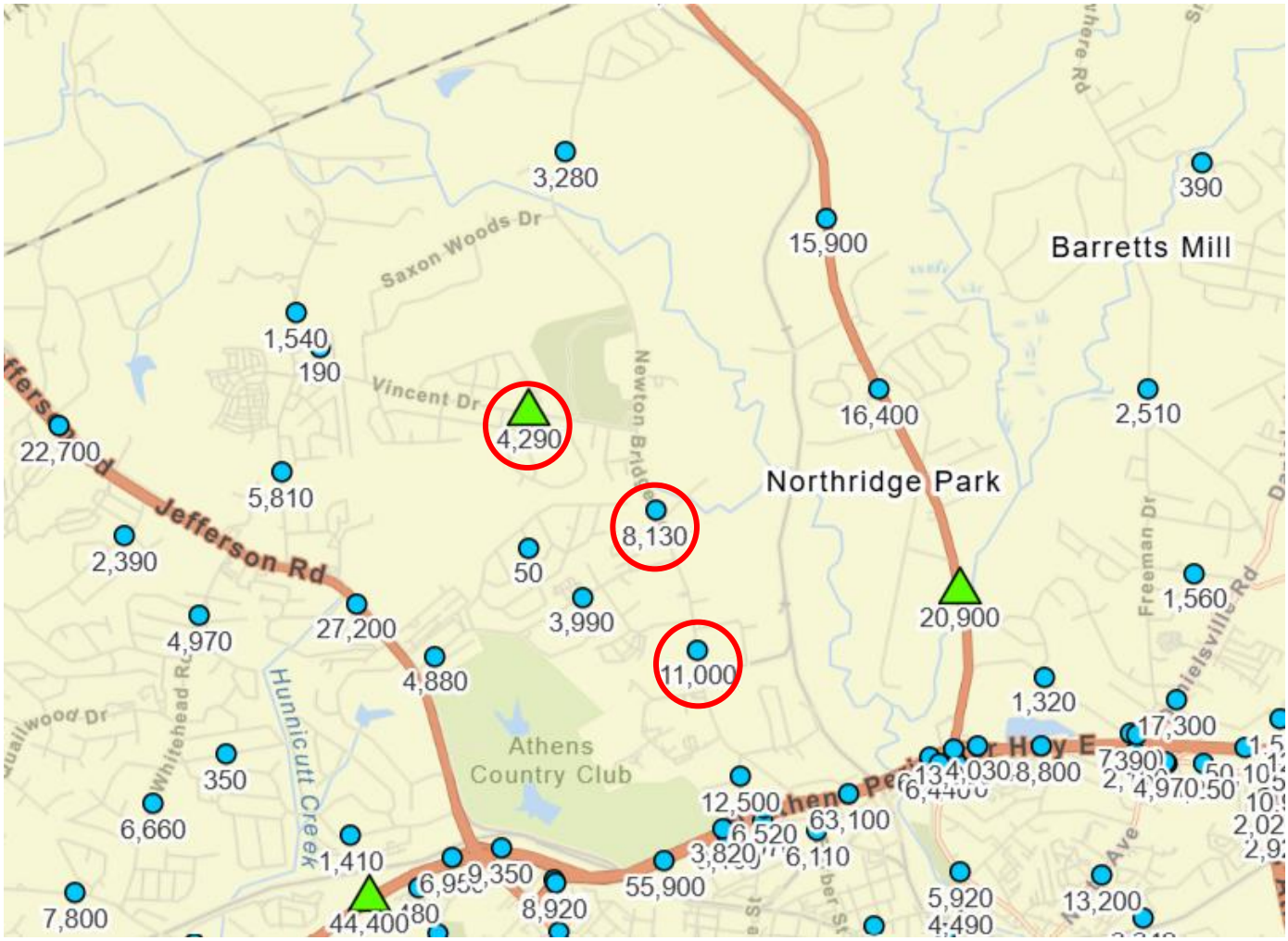
PM

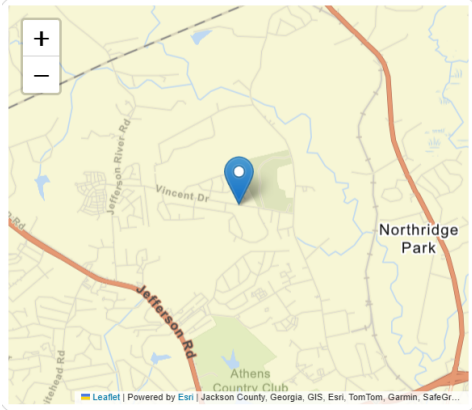
	N Chase St Northbound					N Chase St Southbound					hens Perimeter/SR 10/US 129 EB Ram Eastbound					hens Perimeter/SR 10/US 129 EB Ram Westbound					
Start Time	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Left	Thru	Rgt	Uturn	App. Total	Int. Total
Peak Hour Analysis from 04:00 PM - 06:00 PM																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
4:30 PM	0	115	149	0	264	52	101	0	0	153	11	0	47	0	58	0	0	0	0	0	475
4:45 PM	0	97	157	0	254	57	112	0	0	169	13	0	43	0	56	0	0	0	0	0	479
5:00 PM	0	132	195	0	327	42	110	0	0	152	3	0	60	0	63	0	0	0	0	0	542
5:15 PM	0	135	180	0	315	42	128	0	1	171	11	0	73	0	84	0	0	0	0	0	570
Total Volume	0	479	681	0	1160	193	451	0	1	645	38	0	223	0	261	0	0	0	0	0	2066
% App. Total	0.0	41.3	58.7	0.0	100	29.9	69.9	0.0	0.2	100	14.6	0.0	85.4	0.0	100	0.0	0.0	0.0	0.0	0	
PHF					0.887					0.943					0.777						0.906
Cars, PU, Vans	0	463	664	0	1127	183	431	0	1	615	32	0	200	0	232	0	0	0	0	0	1974
% Cars, PU, Vans	0.0	96.7	97.5	0.0	97.2	94.8	95.6	0.0	100.0	95.3	84.2	0.0	89.7	0.0	88.9	0.0	0.0	0.0	0.0	0.0	95.5
Heavy trucks	0	16	17	0	33	10	20	0	0	30	6	0	23	0	29	0	0	0	0	0	92
%Heavy trucks	0.0	3.3	2.5	0.0	2.8	5.2	4.4	0.0	0.0	4.7	15.8	0.0	10.3	0.0	11.1	0.0	0.0	0.0	0.0	0.0	4.5

Appendix D

GDOT Traffic Data

Location Map of GDOT Count Stations





000000590613 - 059-0613

- Vincent Dr btwn Jefferson River Rd & Newton Br Rd
City: Athens **County:** Clarke
Route number: 00008300
LRS section: 0592008300
Functional class: 5U - Major Collector (Urban)
Coordinates: 33.998209, -83.40873

85th %le Speed 2025
51.8
mph

Average Speed 2025
45.5
mph

Site Data

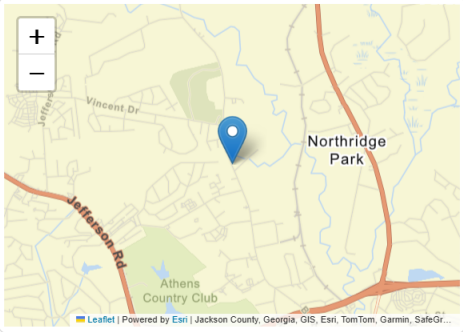
Traffic Statistics by Direction

Direction	Weekday average total traffic	7-day average traffic	Weekly traffic total
East	2,437	2,405	16,833
West	2,183	2,170	15,189

0000059_0183 - 059-0183

County: Clarke
Route number: 00047800
LRS section: 0592047800
Functional class: 4U - Minor Arterial (Urban)
Coordinates: 33.9924316235527, -83.399613121356

Site Data



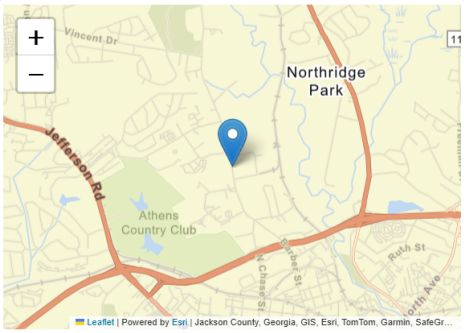
Count History

Year	Month	Count type	Duration	Count	ADT
2024	December	Class	48 hours	17,095	8,548
2022	December	Class	48 hours	16,298	8,149
2021	May	Class	48 hours	17,531	8,766
2018	November	Class	48 hours	16,682	8,341
2017	March	Class	48 hours	17,627	8,814
2014	February	Volume	48 hours	16,426	8,213
2010	January	Volume	48 hours	15,566	7,783

0000059_0185 - 059-0185

- 059-0185
County: Clarke
Route number: 00047800
LRS section: 0592047800
Functional class: 4U - Minor Arterial (Urban)
Coordinates: 33.98411560058594, -83.3965835571289

Site Data



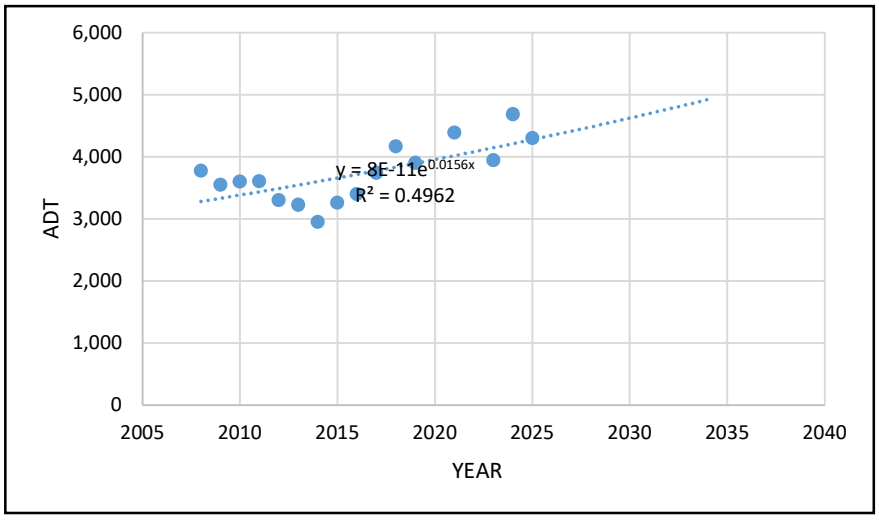
Count History

Year	Month	Count type	Duration	Count	ADT
2024	August	Class	48 hours	25,661	12,830
2021	September	Class	48 hours	23,601	11,800
2017	February	Class	48 hours	21,775	10,888
2012	January	Volume	48 hours	19,048	9,524

Count Station: GDOT #059-0613
Street: Vincent Dr
Location: west of Newton Bridge Rd
Source: GDOT

YEAR	ADT	TREND
2008	3,781	3300
2009	3,554	3300
2010	3,606	3400
2011	3,608	3400
2012	3,303	3500
2013	3,231	3500
2014	2,951	3600
2015	3,262	3700
2016	3,406	3700
2017	3,746	3800
2018	4,174	3800
2019	3,908	3900
2020		4000
2021	4,394	4000
2022		4100
2023	3,948	4100
2024	4,691	4200
2025	4,304	4300
2026		4300
2027		4400
2028		4500
2029		4600
2030		4600
2031		4700
2032		4800
2033		4800
2034		4900

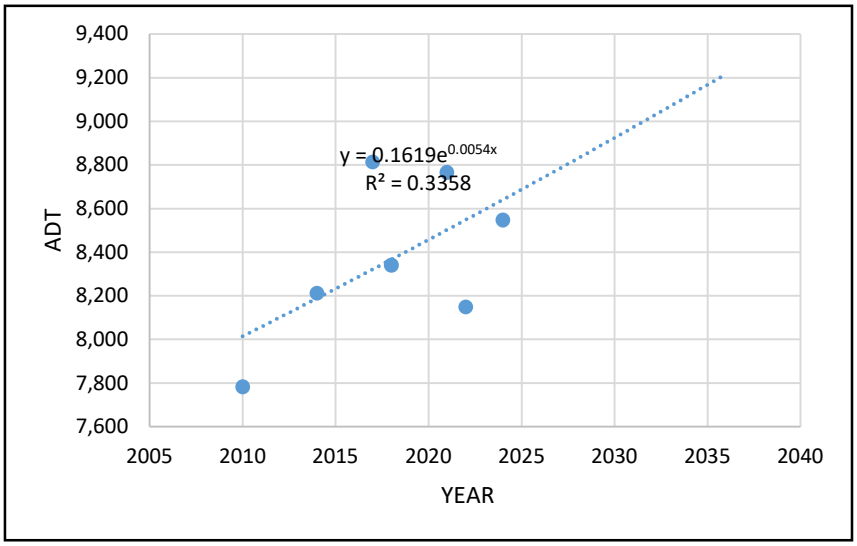
17-Years of Count Data
Trend Annual Historic Compound Growth Rate
1.57%



Count Station: GDOT #059-0183
Street: Newton Bridge Rd
Location: south of Vincent Dr
Source: GDOT

YEAR	ADT	TREND
2010	7,783	8000
2011		8100
2012		8100
2013		8100
2014	8,213	8200
2015		8200
2016		8300
2017	8,814	8300
2018	8,341	8400
2019		8400
2020		8500
2021	8,766	8500
2022	8,149	8500
2023		8600
2024	8,548	8600
2025		8700
2026		8700
2027		8800
2028		8800
2029		8900
2030		8900
2031		9000
2032		9000
2033		9100
2034		9100
2035		9200
2036		9200

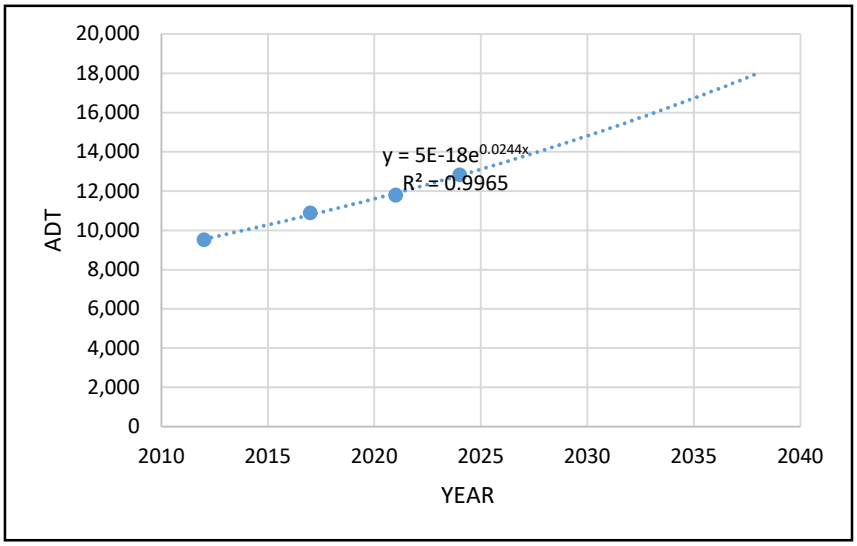
14-Years of Count Data
Trend Annual Historic Compound Growth Rate
0.52%



Count Station: GDOT #059-0185
Street: Newton Bridge Rd
Location: south of Fritz Mar Ln
Source: GDOT

YEAR	ADT	TREND
2012	9,524	9600
2013		9800
2014		10000
2015		10300
2016		10500
2017	10,888	10800
2018		11100
2019		11300
2020		11600
2021	11,800	11900
2022		12200
2023		12500
2024	12,830	12800
2025		13100
2026		13400
2027		13800
2028		14100
2029		14500
2030		14800
2031		15200
2032		15600
2033		15900
2034		16300
2035		16700
2036		17100
2037		17600
2038		18000

12-Years of Count Data
Trend Annual Historic Compound Growth Rate
2.45%



Appendix E

Intersection Volume Development

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #1 - Newton Bridge Road at Vincent Drive/Proposed Driveway #1

A.M. PEAK HOUR

Condition	Newton Bridge Rd Northbound			Newton Bridge Rd Southbound			Vincent Dr Eastbound			Prop Drwy #1 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	65	107	0	0	323	26	33	0	249			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	69	114	0	0	343	28	35	0	264	0	0	0
Project Trips:												
Trip Distribution IN			15%	2%	3%			5%	5%			
Trip Distribution OUT	5%	3%								52%	5%	2%
Residential Trips	8	5	9	1	2	0	0	3	3	80	8	3
Total Project Trips	8	5	9	1	2	0	0	3	3	80	8	3
Buildout Total (2029)	77	119	9	1	345	28	35	3	267	80	8	3

P.M. PEAK HOUR

Condition	Newton Bridge Rd Northbound			Newton Bridge Rd Southbound			Vincent Dr Eastbound			Prop Drwy #1 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	382	210	0	0	170	61	32	0	181			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	405	223	0	0	180	65	34	0	192	0	0	0
Project Trips:												
Trip Distribution IN			15%	2%	3%			5%	5%			
Trip Distribution OUT	5%	3%								52%	5%	2%
Residential Trips	5	3	25	3	5	0	0	8	8	56	5	2
Total Project Trips	5	3	25	3	5	0	0	8	8	56	5	2
Buildout Total (2029)	410	226	25	3	185	65	34	8	200	56	5	2

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #2 - Newton Bridge Road at Deer Trail/Proposed Driveway #2

A.M. PEAK HOUR

Condition	Newton Bridge Rd Northbound			Newton Bridge Rd Southbound			Deer Trail Eastbound			Prop Drwy #2 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	17	180	0	0	570	2	1	0	25			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	18	191	0	0	605	2	1	0	27	0	0	0
Project Trips:												
Trip Distribution IN		15%	70%	8%								
Trip Distribution OUT					52%					33%		8%
Residential Trips	0	9	41	5	80	0	0	0	0	51	0	12
Total Project Trips	0	9	41	5	80	0	0	0	0	51	0	12
Buildout Total (2029)	18	200	41	5	685	2	1	0	27	51	0	12

P.M. PEAK HOUR

Condition	Newton Bridge Rd Northbound			Newton Bridge Rd Southbound			Deer Trail Eastbound			Prop Drwy #2 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	29	590	0	0	348	0	2	0	17			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	31	626	0	0	369	0	2	0	18	0	0	0
Project Trips:												
Trip Distribution IN		15%	70%	8%								
Trip Distribution OUT					52%					33%		8%
Residential Trips	0	25	115	13	56	0	0	0	0	35	0	9
Total Project Trips	0	25	115	13	56	0	0	0	0	35	0	9
Buildout Total (2029)	31	651	115	13	425	0	2	0	18	35	0	9

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #3 - Newton Bridge Road/Barber Street at N Chase Street/Dairy Park Road

A.M. PEAK HOUR

Condition	N Chase St Northbound			Dairy Rd Southbound			Newton Bridge Rd Eastbound			Barber St Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	424	70	42	4	37	13	13	164	519	17	93	11
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	450	74	45	4	39	14	14	174	551	18	99	12
Project Trips:												
Trip Distribution IN	55%										25%	
Trip Distribution OUT								25%	55%			
Residential Trips	32	0	0	0	0	0	0	39	85	0	15	0
Total Project Trips	32	0	0	0	0	0	0	39	85	0	15	0
Buildout Total (2029)	482	74	45	4	39	14	14	213	636	18	114	12

P.M. PEAK HOUR

Condition	N Chase St Northbound			Dairy Rd Southbound			Newton Bridge Rd Eastbound			Barber St Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	461	11	25	12	59	9	5	158	555	13	199	3
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	489	12	27	13	63	10	5	168	589	14	211	3
Project Trips:												
Trip Distribution IN	55%										25%	
Trip Distribution OUT								25%	55%			
Residential Trips	90	0	0	0	0	0	0	27	59	0	41	0
Total Project Trips	90	0	0	0	0	0	0	27	59	0	41	0
Buildout Total (2029)	579	12	27	13	63	10	5	195	648	14	252	3

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #4 - N Chase Street at SR 10/US 129 WB Ramps

A.M. PEAK HOUR

Condition	N Chase St Northbound			N Chase St Southbound			US 129 WB On Ramp Eastbound			US 129 WB Off Ramp Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	116	205	0	0	470	172				516	0	293
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	123	218	0	0	499	183	0	0	0	548	0	311
Project Trips:												
Trip Distribution IN		40%										15%
Trip Distribution OUT					40%	15%						
Residential Trips	0	24	0	0	62	23	0	0	0	0	0	9
Total Project Trips	0	24	0	0	62	23	0	0	0	0	0	9
Buildout Total (2029)	123	242	0	0	561	206	0	0	0	548	0	320

P.M. PEAK HOUR

Condition	N Chase St Northbound			N Chase St Southbound			US 129 WB On Ramp Eastbound			US 129 WB Off Ramp Westbound		
Existing Volumes (2025)	260	249	0	0	428	241				266	0	311
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	276	264	0	0	454	256	0	0	0	282	0	330
Project Trips:												
Trip Distribution IN		40%										15%
Trip Distribution OUT					40%	15%						
Residential Trips	0	66	0	0	43	16	0	0	0	0	0	25
Total Project Trips	0	66	0	0	43	16	0	0	0	0	0	25
Buildout Total (2029)	276	330	0	0	497	272	0	0	0	282	0	355

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #5 - N Chase Street at SR 10/US 129 EB Ramps

A.M. PEAK HOUR

Condition	N Chase St Northbound			N Chase St Southbound			US 129 EB Off Ramp Eastbound			US 129 EB On Ramp Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	0	276	283	212	729	0	95	0	255			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	0	293	300	225	774	0	101	0	271	0	0	0
Project Trips:												
Trip Distribution IN		25%					15%					
Trip Distribution OUT				15%	25%							
Residential Trips	0	15	0	23	39	0	9	0	0	0	0	0
Total Project Trips	0	15	0	23	39	0	9	0	0	0	0	0
Buildout Total (2029)	0	308	300	248	813	0	110	0	271	0	0	0

P.M. PEAK HOUR

Condition	N Chase St Northbound			N Chase St Southbound			US 129 EB Off Ramp Eastbound			US 129 EB On Ramp Westbound		
Existing Volumes (2025)	0	479	681	194	451	0	38	0	223			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
No-Build Condition (2029)	0	508	723	206	479	0	40	0	237	0	0	0
Project Trips:												
Trip Distribution IN		25%					15%					
Trip Distribution OUT				15%	25%							
Residential Trips	0	41	0	16	27	0	25	0	0	0	0	0
Total Project Trips	0	41	0	16	27	0	25	0	0	0	0	0
Buildout Total (2029)	0	549	723	222	506	0	65	0	237	0	0	0

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #1 - Newton Bridge Road at Vincent Drive/Proposed Driveway #1 (Future 5 Years)

A.M. PEAK HOUR

Condition	Newton Bridge Rd Northbound			Newton Bridge Rd Southbound			Vincent Dr Eastbound			Prop Drwy #1 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	65	107	0	0	323	26	33	0	249			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	74	122	0	0	369	30	38	0	285	0	0	0
Project Trips:												
Trip Distribution IN			15%	2%	3%			5%	5%			
Trip Distribution OUT	5%	3%								52%	5%	2%
Residential Trips	8	5	9	1	2	0	0	3	3	80	8	3
Total Project Trips	8	5	9	1	2	0	0	3	3	80	8	3
Buildout Total (2034)	82	127	9	1	371	30	38	3	288	80	8	3

P.M. PEAK HOUR

Condition	Newton Bridge Rd Northbound			Newton Bridge Rd Southbound			Vincent Dr Eastbound			Prop Drwy #1 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	382	210	0	0	170	61	32	0	181			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	437	240	0	0	194	70	37	0	207	0	0	0
Project Trips:												
Trip Distribution IN			15%	2%	3%			5%	5%			
Trip Distribution OUT	5%	3%								52%	5%	2%
Residential Trips	5	3	25	3	5	0	0	8	8	56	5	2
Total Project Trips	5	3	25	3	5	0	0	8	8	56	5	2
Buildout Total (2034)	442	243	25	3	199	70	37	8	215	56	5	2

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #2 - Newton Bridge Road at Deer Trail/Proposed Driveway #2 (Future 5 Years)

A.M. PEAK HOUR

Condition	Newton Bridge Rd Northbound			Newton Bridge Rd Southbound			Deer Trail Eastbound			Prop Drwy #2 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	17	180	0	0	570	2	1	0	25			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	19	206	0	0	652	2	1	0	29	0	0	0
Project Trips:												
Trip Distribution IN		15%	70%	8%								
Trip Distribution OUT					52%					33%		8%
Residential Trips	0	9	41	5	80	0	0	0	0	51	0	12
Total Project Trips	0	9	41	5	80	0	0	0	0	51	0	12
Buildout Total (2034)	19	215	41	5	732	2	1	0	29	51	0	12

P.M. PEAK HOUR

Condition	Newton Bridge Rd Northbound			Newton Bridge Rd Southbound			Deer Trail Eastbound			Prop Drwy #2 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	29	590	0	0	348	0	2	0	17			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	33	675	0	0	398	0	2	0	19	0	0	0
Project Trips:												
Trip Distribution IN		15%	70%	8%								
Trip Distribution OUT					52%					33%		8%
Residential Trips	0	25	115	13	56	0	0	0	0	35	0	9
Total Project Trips	0	25	115	13	56	0	0	0	0	35	0	9
Buildout Total (2034)	33	700	115	13	454	0	2	0	19	35	0	9

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #3 - Newton Bridge Road/Barber Street at N Chase Street/Dairy Park Road (Future 5 Years)

A.M. PEAK HOUR

Condition	N Chase St Northbound			Dairy Rd Southbound			Newton Bridge Rd Eastbound			Barber St Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	424	70	42	4	37	13	13	164	519	17	93	11
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	485	80	48	5	42	15	15	188	593	19	106	13
Project Trips:												
Trip Distribution IN	55%										30%	
Trip Distribution OUT								30%	55%			
Residential Trips	32	0	0	0	0	0	0	46	85	0	18	0
Total Project Trips	32	0	0	0	0	0	0	46	85	0	18	0
Buildout Total (2034)	517	80	48	5	42	15	15	234	678	19	124	13

P.M. PEAK HOUR

Condition	N Chase St Northbound			Dairy Rd Southbound			Newton Bridge Rd Eastbound			Barber St Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	461	11	25	12	59	9	5	158	555	13	199	3
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	527	13	29	14	67	10	6	181	635	15	228	3
Project Trips:												
Trip Distribution IN	55%										30%	
Trip Distribution OUT								30%	55%			
Residential Trips	90	0	0	0	0	0	0	32	59	0	49	0
Total Project Trips	90	0	0	0	0	0	0	32	59	0	49	0
Buildout Total (2034)	617	13	29	14	67	10	6	213	694	15	277	3

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #4 - N Chase Street at SR 10/US 129 WB Ramps (Future 5 Years)

A.M. PEAK HOUR

Condition	N Chase St Northbound			N Chase St Southbound			US 129 WB On Ramp Eastbound			US 129 WB Off Ramp Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	116	205	0	0	470	172				516	0	293
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	133	234	0	0	537	197	0	0	0	590	0	335
Project Trips:												
Trip Distribution IN		40%										15%
Trip Distribution OUT					40%	15%						
Residential Trips	0	24	0	0	62	23	0	0	0	0	0	9
Total Project Trips	0	24	0	0	62	23	0	0	0	0	0	9
Buildout Total (2034)	133	258	0	0	599	220	0	0	0	590	0	344

P.M. PEAK HOUR

Condition	N Chase St Northbound			N Chase St Southbound			US 129 WB On Ramp Eastbound			US 129 WB Off Ramp Westbound		
Existing Volumes (2025)	260	249	0	0	428	241				266	0	311
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	297	285	0	0	489	276	0	0	0	304	0	356
Project Trips:												
Trip Distribution IN		40%										15%
Trip Distribution OUT					40%	15%						
Residential Trips	0	66	0	0	43	16	0	0	0	0	0	25
Total Project Trips	0	66	0	0	43	16	0	0	0	0	0	25
Buildout Total (2034)	297	351	0	0	532	292	0	0	0	304	0	381

Traffic Impact Study
Newton Bridge Road Traffic Impact Study
Intersection Traffic Volumes

Intersection: #5 - N Chase Street at SR 10/US 129 EB Ramps (Future 5 Years)

A.M. PEAK HOUR

Condition	N Chase St Northbound			N Chase St Southbound			US 129 EB Off Ramp Eastbound			US 129 EB On Ramp Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2025)	0	276	283	212	729	0	95	0	255			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	0	316	324	242	834	0	109	0	292	0	0	0
Project Trips:												
Trip Distribution IN		25%					15%					
Trip Distribution OUT				15%	25%							
Residential Trips	0	15	0	23	39	0	9	0	0	0	0	0
Total Project Trips	0	15	0	23	39	0	9	0	0	0	0	0
Buildout Total (2034)	0	331	324	265	873	0	118	0	292	0	0	0

P.M. PEAK HOUR

Condition	N Chase St Northbound			N Chase St Southbound			US 129 EB Off Ramp Eastbound			US 129 EB On Ramp Westbound		
Existing Volumes (2025)	0	479	681	194	451	0	38	0	223			
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Growth Factor	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143	1.143
No-Build Condition (2034)	0	548	779	222	516	0	43	0	255	0	0	0
Project Trips:												
Trip Distribution IN		25%					15%					
Trip Distribution OUT				15%	25%							
Residential Trips	0	41	0	16	27	0	25	0	0	0	0	0
Total Project Trips	0	41	0	16	27	0	25	0	0	0	0	0
Buildout Total (2034)	0	589	779	238	543	0	68	0	255	0	0	0

Appendix F

Capacity Analysis Reports

Existing Year 2025

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	33	249	65	107	323	26
Future Vol, veh/h	33	249	65	107	323	26
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	91	91	91	91	91	91
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	36	274	71	118	355	29

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	630	370	384	0	-	0
Stage 1	370	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.18	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.272	-	-	-
Pot Cap-1 Maneuver	436	663	1142	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	407	663	1142	-	-	-
Mov Cap-2 Maneuver	407	-	-	-	-	-
Stage 1	640	-	-	-	-	-
Stage 2	770	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.5	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1142	-	618	-	-
HCM Lane V/C Ratio	0.063	-	0.501	-	-
HCM Control Delay (s)	8.4	0	16.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	2.8	-	-

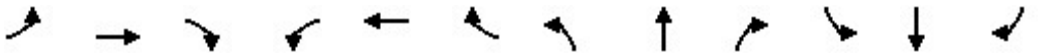
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	25	17	180	570	2
Future Vol, veh/h	1	25	17	180	570	2
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	91	91	91	91	91	91
Heavy Vehicles, %	2	2	7	7	7	7
Mvmt Flow	1	27	19	198	626	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	863	627	628	0	-	0
Stage 1	627	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.17	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.263	-	-	-
Pot Cap-1 Maneuver	325	484	930	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	803	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	318	484	930	-	-	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	520	-	-	-	-	-
Stage 2	803	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	930	-	474	-	-
HCM Lane V/C Ratio	0.02	-	0.06	-	-
HCM Control Delay (s)	8.9	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	164	519	17	93	11	424	70	42	4	37	13
Future Volume (veh/h)	13	164	519	17	93	11	424	70	42	4	37	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707
Adj Flow Rate, veh/h	14	182	0	19	103	12	298	320	47	4	41	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	13	13	13	13	13	13	13	13	13	13	13	13
Cap, veh/h	104	294		148	473	53	524	469	69	9	92	86
Arrive On Green	0.18	0.18	0.00	0.18	0.18	0.18	0.32	0.32	0.32	0.06	0.06	0.06
Sat Flow, veh/h	57	1624	1447	209	2612	295	1626	1455	214	151	1549	1447
Grp Volume(v), veh/h	196	0	0	73	0	61	298	0	367	45	0	14
Grp Sat Flow(s),veh/h/ln	1681	0	1447	1616	0	1501	1626	0	1669	1700	0	1447
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	1.4	6.3	0.0	7.9	1.1	0.0	0.4
Cycle Q Clear(g_c), s	4.4	0.0	0.0	1.5	0.0	1.4	6.3	0.0	7.9	1.1	0.0	0.4
Prop In Lane	0.07		1.00	0.26		0.20	1.00		0.13	0.09		1.00
Lane Grp Cap(c), veh/h	398	0		403	0	272	524	0	538	101	0	86
V/C Ratio(X)	0.49	0.00		0.18	0.00	0.22	0.57	0.00	0.68	0.44	0.00	0.16
Avail Cap(c_a), veh/h	1985	0		1835	0	1713	1461	0	1500	743	0	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	0.0	14.4	0.0	14.4	11.6	0.0	12.1	18.7	0.0	18.4
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.2	0.0	0.4	1.0	0.0	1.5	3.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	0.5	0.0	0.4	1.9	0.0	2.5	0.4	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	0.0	0.0	14.6	0.0	14.8	12.6	0.0	13.7	21.7	0.0	19.3
LnGrp LOS	B	A		B	A	B	B	A	B	C	A	B
Approach Vol, veh/h		196			134			665			59	
Approach Delay, s/veh		16.5			14.7			13.2			21.1	
Approach LOS		B			B			B			C	

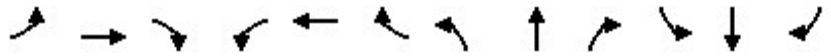
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.4		19.3		13.4		8.5				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		47.0		37.0		47.0		18.0				
Max Q Clear Time (g_c+I1), s		3.5		9.9		6.4		3.1				
Green Ext Time (p_c), s		0.8		3.4		1.2		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		14.4
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	516	0	293	116	205	0	0	470	172
Future Volume (veh/h)	0	0	0	516	0	293	116	205	0	0	470	172
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1811	0	1811	1811	1811	0	0	1811	1811
Adj Flow Rate, veh/h				561	0	0	126	223	0	0	511	187
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				6	0	6	6	6	0	0	6	6
Cap, veh/h				648	0		289	667	0	0	989	360
Arrive On Green				0.38	0.00	0.00	0.40	0.40	0.00	0.00	0.40	0.40
Sat Flow, veh/h				1725	0	1535	411	1748	0	0	2561	899
Grp Volume(v), veh/h				561	0	0	148	201	0	0	355	343
Grp Sat Flow(s),veh/h/ln				1725	0	1535	511	1566	0	0	1721	1649
Q Serve(g_s), s				16.1	0.0	0.0	8.3	4.7	0.0	0.0	8.4	8.4
Cycle Q Clear(g_c), s				16.1	0.0	0.0	16.7	4.7	0.0	0.0	8.4	8.4
Prop In Lane				1.00		1.00	0.85		0.00	0.00		0.55
Lane Grp Cap(c), veh/h				648	0		329	627	0	0	689	660
V/C Ratio(X)				0.87	0.00		0.45	0.32	0.00	0.00	0.52	0.52
Avail Cap(c_a), veh/h				2093	0		649	1257	0	0	1381	1324
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				15.5	0.0	0.0	17.5	11.0	0.0	0.0	12.1	12.2
Incr Delay (d2), s/veh				3.7	0.0	0.0	1.0	0.3	0.0	0.0	0.6	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.0	0.0	0.0	1.6	1.4	0.0	0.0	2.8	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				19.1	0.0	0.0	18.5	11.3	0.0	0.0	12.7	12.8
LnGrp LOS				B	A		B	B	A	A	B	B
Approach Vol, veh/h					561			349			698	
Approach Delay, s/veh					19.1			14.4			12.8	
Approach LOS					B			B			B	

Timer - Assigned Phs	2		6		8			
Phs Duration (G+Y+Rc), s	27.5		27.5		26.1			
Change Period (Y+Rc), s	6.0		6.0		6.0			
Max Green Setting (Gmax), s	43.0		43.0		65.0			
Max Q Clear Time (g_c+I1), s	18.7		10.4		18.1			
Green Ext Time (p_c), s	2.7		5.0		2.0			

Intersection Summary								
HCM 6th Ctrl Delay	15.3							
HCM 6th LOS	B							

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	12.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	95	0	255	0	0	0	0	276	283	212	729	0
Future Vol, veh/h	95	0	255	0	0	0	0	276	283	212	729	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	2	2	2	7	7	7	7	7	7
Mvmt Flow	100	0	268	0	0	0	0	291	298	223	767	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1359	-	767	-	0	0	589	0	0
Stage 1	1213	-	-	-	-	-	-	-	-
Stage 2	146	-	-	-	-	-	-	-	-
Critical Hdwy	6.705	-	6.305	-	-	-	4.205	-	-
Critical Hdwy Stg 1	5.505	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.905	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5665	-	3.3665	-	-	-	2.2665	-	-
Pot Cap-1 Maneuver	146	0	391	0	-	-	955	-	0
Stage 1	271	0	-	0	-	-	-	-	0
Stage 2	853	0	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	112	0	391	-	-	-	955	-	-
Mov Cap-2 Maneuver	112	0	-	-	-	-	-	-	-
Stage 1	271	0	-	-	-	-	-	-	-
Stage 2	653	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	58.5	0	2.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	112	391	955	-
HCM Lane V/C Ratio	-	-	0.893	0.686	0.234	-
HCM Control Delay (s)	-	-	129.2	32.1	9.9	-
HCM Lane LOS	-	-	F	D	A	-
HCM 95th %tile Q(veh)	-	-	5.4	5	0.9	-

Intersection	
Int Delay, s/veh	12.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	181	382	210	170	61
Future Vol, veh/h	32	181	382	210	170	61
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	81	81	81	81	81	81
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	40	223	472	259	210	75

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1451	248	285	0	-	0
Stage 1	248	-	-	-	-	-
Stage 2	1203	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.15	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.245	-	-	-
Pot Cap-1 Maneuver	142	783	1260	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	80	783	1260	-	-	-
Mov Cap-2 Maneuver	80	-	-	-	-	-
Stage 1	442	-	-	-	-	-
Stage 2	280	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	45	6.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1260	-	337	-	-
HCM Lane V/C Ratio	0.374	-	0.78	-	-
HCM Control Delay (s)	9.6	0	45	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	1.8	-	6.3	-	-

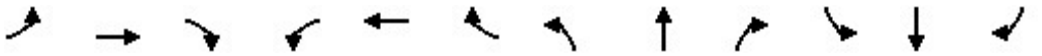
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	17	29	590	348	0
Future Vol, veh/h	2	17	29	590	348	0
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	77	77	77	77	77	77
Heavy Vehicles, %	2	2	5	5	5	5
Mvmt Flow	3	22	38	766	452	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1294	452	452	0	-	0
Stage 1	452	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.15	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.245	-	-	-
Pot Cap-1 Maneuver	179	608	1093	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	168	608	1093	-	-	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	423	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1093	-	477	-	-
HCM Lane V/C Ratio	0.034	-	0.052	-	-
HCM Control Delay (s)	8.4	0	13	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	158	555	13	199	3	461	11	25	12	59	9
Future Volume (veh/h)	5	158	555	13	199	3	461	11	25	12	59	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767
Adj Flow Rate, veh/h	6	184	0	15	231	3	572	0	0	14	69	10
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	102	313		123	576	7	881	463	0	24	120	123
Arrive On Green	0.18	0.18	0.00	0.18	0.18	0.18	0.26	0.00	0.00	0.08	0.08	0.08
Sat Flow, veh/h	22	1730	1497	95	3182	41	3365	1767	0	295	1456	1497
Grp Volume(v), veh/h	190	0	0	132	0	117	572	0	0	83	0	10
Grp Sat Flow(s),veh/h/ln	1753	0	1497	1718	0	1600	1682	1767	0	1752	0	1497
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	2.4	5.7	0.0	0.0	1.7	0.0	0.2
Cycle Q Clear(g_c), s	3.7	0.0	0.0	2.5	0.0	2.4	5.7	0.0	0.0	1.7	0.0	0.2
Prop In Lane	0.03		1.00	0.11		0.03	1.00		0.00	0.17		1.00
Lane Grp Cap(c), veh/h	415	0		417	0	290	881	463	0	144	0	123
V/C Ratio(X)	0.46	0.00		0.32	0.00	0.40	0.65	0.00	0.00	0.58	0.00	0.08
Avail Cap(c_a), veh/h	2249	0		2175	0	1984	3284	1724	0	832	0	711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	0.0	13.7	0.0	13.7	12.4	0.0	0.0	16.8	0.0	16.1
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.4	0.0	0.9	0.8	0.0	0.0	3.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.9	0.0	0.8	1.8	0.0	0.0	0.7	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	0.0	0.0	14.2	0.0	14.6	13.3	0.0	0.0	20.3	0.0	16.3
LnGrp LOS	B	A		B	A	B	B	A	A	C	A	B
Approach Vol, veh/h		190			249			572			93	
Approach Delay, s/veh		15.0			14.4			13.3			19.9	
Approach LOS		B			B			B			B	

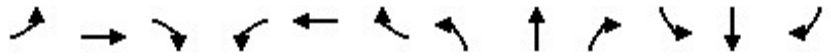
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.9		15.9		12.9		9.1				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		47.0		37.0		47.0		18.0				
Max Q Clear Time (g_c+I1), s		4.5		7.7		5.7		3.7				
Green Ext Time (p_c), s		1.6		2.2		1.2		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		14.4
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	266	0	311	260	249	0	0	428	241
Future Volume (veh/h)	0	0	0	266	0	311	260	249	0	0	428	241
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1811	0	1811	1811	1811	0	0	1811	1811
Adj Flow Rate, veh/h				289	0	0	283	271	0	0	465	262
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				6	0	6	6	6	0	0	6	6
Cap, veh/h				359	0		453	912	0	0	1239	694
Arrive On Green				0.21	0.00	0.00	0.58	0.58	0.00	0.00	0.58	0.58
Sat Flow, veh/h				1725	0	1535	562	1648	0	0	2217	1191
Grp Volume(v), veh/h				289	0	0	283	271	0	0	376	351
Grp Sat Flow(s),veh/h/ln				1725	0	1535	562	1566	0	0	1721	1597
Q Serve(g_s), s				9.1	0.0	0.0	20.6	5.0	0.0	0.0	6.7	6.7
Cycle Q Clear(g_c), s				9.1	0.0	0.0	27.3	5.0	0.0	0.0	6.7	6.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.75
Lane Grp Cap(c), veh/h				359	0		453	912	0	0	1002	930
V/C Ratio(X)				0.81	0.00		0.62	0.30	0.00	0.00	0.37	0.38
Avail Cap(c_a), veh/h				1957	0		572	1175	0	0	1292	1199
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.6	0.0	0.0	13.7	6.0	0.0	0.0	6.4	6.4
Incr Delay (d2), s/veh				4.3	0.0	0.0	1.4	0.2	0.0	0.0	0.2	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.8	0.0	0.0	2.8	1.3	0.0	0.0	1.9	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.9	0.0	0.0	15.1	6.2	0.0	0.0	6.6	6.7
LnGrp LOS				C	A		B	A	A	A	A	A
Approach Vol, veh/h					289			554			727	
Approach Delay, s/veh					25.9			10.8			6.6	
Approach LOS					C			B			A	

Timer - Assigned Phs	2		6		8			
Phs Duration (G+Y+Rc), s	39.4		39.4		17.9			
Change Period (Y+Rc), s	6.0		6.0		6.0			
Max Green Setting (Gmax), s	43.0		43.0		65.0			
Max Q Clear Time (g_c+I1), s	29.3		8.7		11.1			
Green Ext Time (p_c), s	4.0		5.4		0.9			

Intersection Summary		
HCM 6th Ctrl Delay	11.6	
HCM 6th LOS	B	

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	0	223	0	0	0	0	479	681	194	451	0
Future Vol, veh/h	38	0	223	0	0	0	0	479	681	194	451	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	0	-	0	-	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	5	5	2	2	2	5	5	5	5	5	5
Mvmt Flow	42	0	245	0	0	0	0	526	748	213	496	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1185	-	496	-	0	0	1274	0	0
Stage 1	922	-	-	-	-	-	-	-	-
Stage 2	263	-	-	-	-	-	-	-	-
Critical Hdwy	6.675	-	6.275	-	-	-	4.175	-	-
Critical Hdwy Stg 1	5.475	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.875	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5475	-	3.3475	-	-	-	2.2475	-	-
Pot Cap-1 Maneuver	191	0	565	0	-	-	530	-	0
Stage 1	380	0	-	0	-	-	-	-	0
Stage 2	750	0	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	114	0	565	-	-	-	530	-	-
Mov Cap-2 Maneuver	114	0	-	-	-	-	-	-	-
Stage 1	380	0	-	-	-	-	-	-	-
Stage 2	449	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.7	0	4.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	114	565	530	-
HCM Lane V/C Ratio	-	-	0.366	0.434	0.402	-
HCM Control Delay (s)	-	-	53.8	16.2	16.3	-
HCM Lane LOS	-	-	F	C	C	-
HCM 95th %tile Q(veh)	-	-	1.5	2.2	1.9	-

No Build Year 2029

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	264	69	114	343	28
Future Vol, veh/h	35	264	69	114	343	28
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	91	91	91	91	91	91
Heavy Vehicles, %	8	8	8	8	8	8
Mvmt Flow	38	290	76	125	377	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	670	393	408	0	-	0
Stage 1	393	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	6.48	6.28	4.18	-	-	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	2.272	-	-	-
Pot Cap-1 Maneuver	413	643	1119	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	383	643	1119	-	-	-
Mov Cap-2 Maneuver	383	-	-	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	756	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.2	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1119	-	596	-	-
HCM Lane V/C Ratio	0.068	-	0.551	-	-
HCM Control Delay (s)	8.5	0	18.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	3.4	-	-

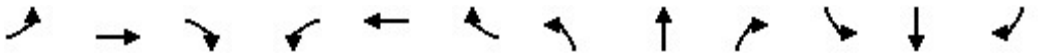
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	27	18	191	605	2
Future Vol, veh/h	1	27	18	191	605	2
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	91	91	91	91	91	91
Heavy Vehicles, %	2	2	7	7	7	7
Mvmt Flow	1	30	20	210	665	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	916	666	667	0	-	0
Stage 1	666	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.17	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.263	-	-	-
Pot Cap-1 Maneuver	302	459	899	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	294	459	899	-	-	-
Mov Cap-2 Maneuver	294	-	-	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	792	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	899	-	450	-	-
HCM Lane V/C Ratio	0.022	-	0.068	-	-
HCM Control Delay (s)	9.1	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	174	551	18	99	12	450	74	45	4	39	14
Future Volume (veh/h)	14	174	551	18	99	12	450	74	45	4	39	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707
Adj Flow Rate, veh/h	16	193	0	20	110	13	316	340	50	4	43	16
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	13	13	13	13	13	13	13	13	13	13	13	13
Cap, veh/h	101	304		143	492	56	543	486	71	9	95	89
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.19	0.33	0.33	0.33	0.06	0.06	0.06
Sat Flow, veh/h	61	1618	1447	205	2615	298	1626	1455	214	145	1555	1447
Grp Volume(v), veh/h	209	0	0	78	0	65	316	0	390	47	0	16
Grp Sat Flow(s),veh/h/ln	1678	0	1447	1618	0	1500	1626	0	1669	1700	0	1447
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	1.6	6.9	0.0	8.8	1.2	0.0	0.5
Cycle Q Clear(g_c), s	4.9	0.0	0.0	1.7	0.0	1.6	6.9	0.0	8.8	1.2	0.0	0.5
Prop In Lane	0.08		1.00	0.26		0.20	1.00		0.13	0.09		1.00
Lane Grp Cap(c), veh/h	405	0		409	0	282	543	0	557	104	0	89
V/C Ratio(X)	0.52	0.00		0.19	0.00	0.23	0.58	0.00	0.70	0.45	0.00	0.18
Avail Cap(c_a), veh/h	1888	0		1748	0	1632	1393	0	1429	708	0	603
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	14.9	0.0	14.9	11.9	0.0	12.5	19.6	0.0	19.2
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.2	0.0	0.4	1.0	0.0	1.6	3.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	0.6	0.0	0.5	2.2	0.0	2.8	0.5	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.2	0.0	0.0	15.1	0.0	15.3	12.9	0.0	14.1	22.6	0.0	20.2
LnGrp LOS	B	A		B	A	B	B	A	B	C	A	C
Approach Vol, veh/h		209			143			706			63	
Approach Delay, s/veh		17.2			15.2			13.6			22.0	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.1		20.4		14.1		8.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		47.0		37.0		47.0		18.0				
Max Q Clear Time (g_c+I1), s		3.7		10.8		6.9		3.2				
Green Ext Time (p_c), s		0.9		3.6		1.3		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	14.9	
HCM 6th LOS	B	

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	19.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	192	405	223	180	65
Future Vol, veh/h	34	192	405	223	180	65
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	81	81	81	81	81	81
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	42	237	500	275	222	80

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1537	262	302	0	-	0
Stage 1	262	-	-	-	-	-
Stage 2	1275	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.15	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.245	-	-	-
Pot Cap-1 Maneuver	126	769	1242	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	259	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	66	769	1242	-	-	-
Mov Cap-2 Maneuver	66	-	-	-	-	-
Stage 1	407	-	-	-	-	-
Stage 2	259	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	78.1	6.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1242	-	295	-	-
HCM Lane V/C Ratio	0.403	-	0.946	-	-
HCM Control Delay (s)	9.8	0	78.1	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	2	-	9.3	-	-

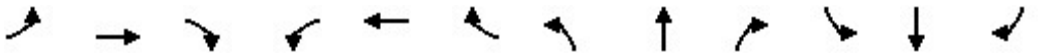
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	18	31	626	369	0
Future Vol, veh/h	2	18	31	626	369	0
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	77	77	77	77	77	77
Heavy Vehicles, %	2	2	5	5	5	5
Mvmt Flow	3	23	40	813	479	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1372	479	479	0	-	0
Stage 1	479	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.15	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.245	-	-	-
Pot Cap-1 Maneuver	161	587	1068	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	150	587	1068	-	-	-
Mov Cap-2 Maneuver	150	-	-	-	-	-
Stage 1	581	-	-	-	-	-
Stage 2	400	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1068	-	455	-	-
HCM Lane V/C Ratio	0.038	-	0.057	-	-
HCM Control Delay (s)	8.5	0	13.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	168	589	14	211	3	489	12	27	13	63	10
Future Volume (veh/h)	5	168	589	14	211	3	489	12	27	13	63	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767
Adj Flow Rate, veh/h	6	195	0	16	245	3	608	0	0	15	73	12
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	98	323		120	593	7	914	480	0	25	123	126
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.19	0.27	0.00	0.00	0.08	0.08	0.08
Sat Flow, veh/h	20	1733	1497	95	3185	39	3365	1767	0	299	1453	1497
Grp Volume(v), veh/h	201	0	0	140	0	124	608	0	0	88	0	12
Grp Sat Flow(s),veh/h/ln	1753	0	1497	1718	0	1601	1682	1767	0	1752	0	1497
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	2.7	6.3	0.0	0.0	1.9	0.0	0.3
Cycle Q Clear(g_c), s	4.1	0.0	0.0	2.8	0.0	2.7	6.3	0.0	0.0	1.9	0.0	0.3
Prop In Lane	0.03		1.00	0.11		0.02	1.00		0.00	0.17		1.00
Lane Grp Cap(c), veh/h	421	0		422	0	298	914	480	0	148	0	126
V/C Ratio(X)	0.48	0.00		0.33	0.00	0.42	0.67	0.00	0.00	0.59	0.00	0.09
Avail Cap(c_a), veh/h	2169	0		2094	0	1913	3165	1662	0	802	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	0.0	14.1	0.0	14.1	12.7	0.0	0.0	17.4	0.0	16.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.5	0.0	0.9	0.8	0.0	0.0	3.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.0	0.0	0.9	2.0	0.0	0.0	0.8	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	0.0	0.0	14.6	0.0	15.0	13.6	0.0	0.0	21.1	0.0	16.9
LnGrp LOS	B	A		B	A	B	B	A	A	C	A	B
Approach Vol, veh/h		201			264			608			100	
Approach Delay, s/veh		15.5			14.8			13.6			20.6	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		13.3		16.7		13.3		9.3				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		47.0		37.0		47.0		18.0				
Max Q Clear Time (g_c+I1), s		4.8		8.3		6.1		3.9				
Green Ext Time (p_c), s		1.7		2.4		1.3		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		14.8
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

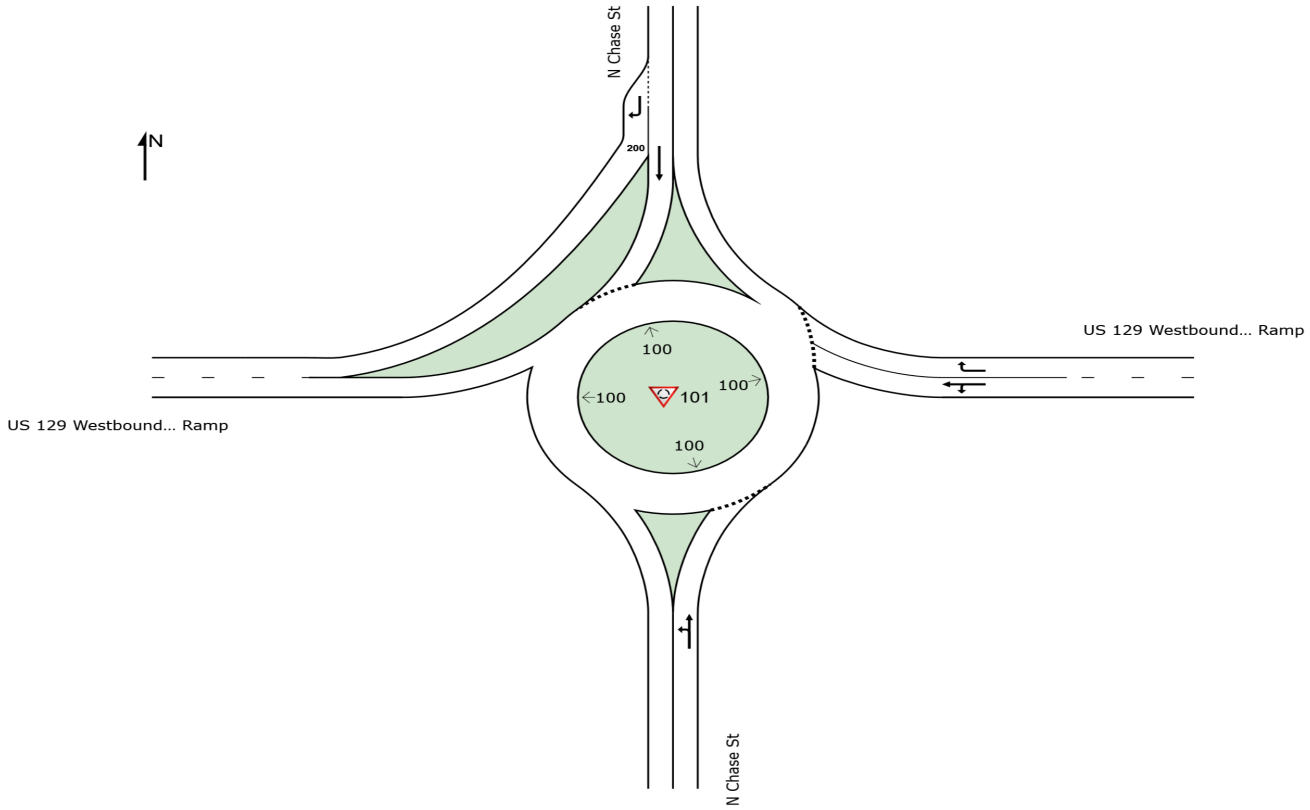
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

SITE LAYOUT

Site: 101 [Chase Street at US 129 Westbound Ramps No Build 2029 AM (Site Folder: General)]

No Build 2029 AM
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Westbound Ramps No Build 2029 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

No Build 2029 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: N Chase St															
3	L2	All MCs	134	6.0	134	6.0	0.283	4.2	LOS A	0.0	0.0	0.00	0.00	0.00	34.7
8	T1	All MCs	237	6.0	237	6.0	0.283	4.2	LOS A	0.0	0.0	0.00	0.00	0.00	35.5
Approach			371	6.0	371	6.0	0.283	4.2	LOS A	0.0	0.0	0.00	0.00	0.00	35.2
East: US 129 Westbound Off Ramp															
1	L2	All MCs	596	6.0	596	6.0	0.655	14.2	LOS B	7.3	191.4	0.76	0.77	1.28	27.5
6	T1	All MCs	1	6.0	1	6.0	0.655	14.2	LOS B	7.3	191.4	0.76	0.77	1.28	28.0
16	R2	All MCs	338	6.0	338	6.0	0.371	8.1	LOS A	1.7	44.4	0.56	0.41	0.56	31.9
Approach			935	6.0	935	6.0	0.655	12.0	LOS B	7.3	191.4	0.69	0.64	1.02	28.9
North: N Chase St															
4	T1	All MCs	542	6.0	542	6.0	0.874	36.5	LOS E	10.7	280.1	0.97	1.38	2.46	23.1
14	R2	All MCs	199	6.0	199	6.0	0.126	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	36.5
Approach			741	6.0	741	6.0	0.874	26.7	LOS D	10.7	280.1	0.71	1.01	1.80	25.6
All Vehicles			2047	6.0	2047	6.0	0.874	15.9	LOS C	10.7	280.1	0.57	0.66	1.12	28.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Westbound Ramps No Build 2029 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

No Build 2029 PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: N Chase St															
3	L2	All MCs	300	6.0	300	6.0	0.449	5.0	LOS A	0.0	0.0	0.00	0.00	0.00	34.2
8	T1	All MCs	287	6.0	287	6.0	0.449	5.0	LOS A	0.0	0.0	0.00	0.00	0.00	35.0
Approach			587	6.0	587	6.0	0.449	5.0	LOS A	0.0	0.0	0.00	0.00	0.00	34.6
East: US 129 Westbound Off Ramp															
1	L2	All MCs	307	6.0	307	6.0	0.425	10.6	LOS B	2.2	57.5	0.67	0.64	0.88	28.7
6	T1	All MCs	1	6.0	1	6.0	0.425	10.6	LOS B	2.2	57.5	0.67	0.64	0.88	29.2
16	R2	All MCs	359	6.0	359	6.0	0.496	12.1	LOS B	3.0	78.3	0.71	0.72	1.03	30.1
Approach			666	6.0	666	6.0	0.496	11.4	LOS B	3.0	78.3	0.69	0.68	0.96	29.4
North: N Chase St															
4	T1	All MCs	493	6.0	493	6.0	0.697	19.1	LOS C	6.3	164.7	0.84	0.98	1.57	28.0
14	R2	All MCs	278	6.0	278	6.0	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	36.5
Approach			772	6.0	772	6.0	0.697	12.2	LOS B	6.3	164.7	0.54	0.63	1.00	30.6
All Vehicles			2025	6.0	2025	6.0	0.697	9.9	LOS A	6.3	164.7	0.43	0.46	0.70	31.2

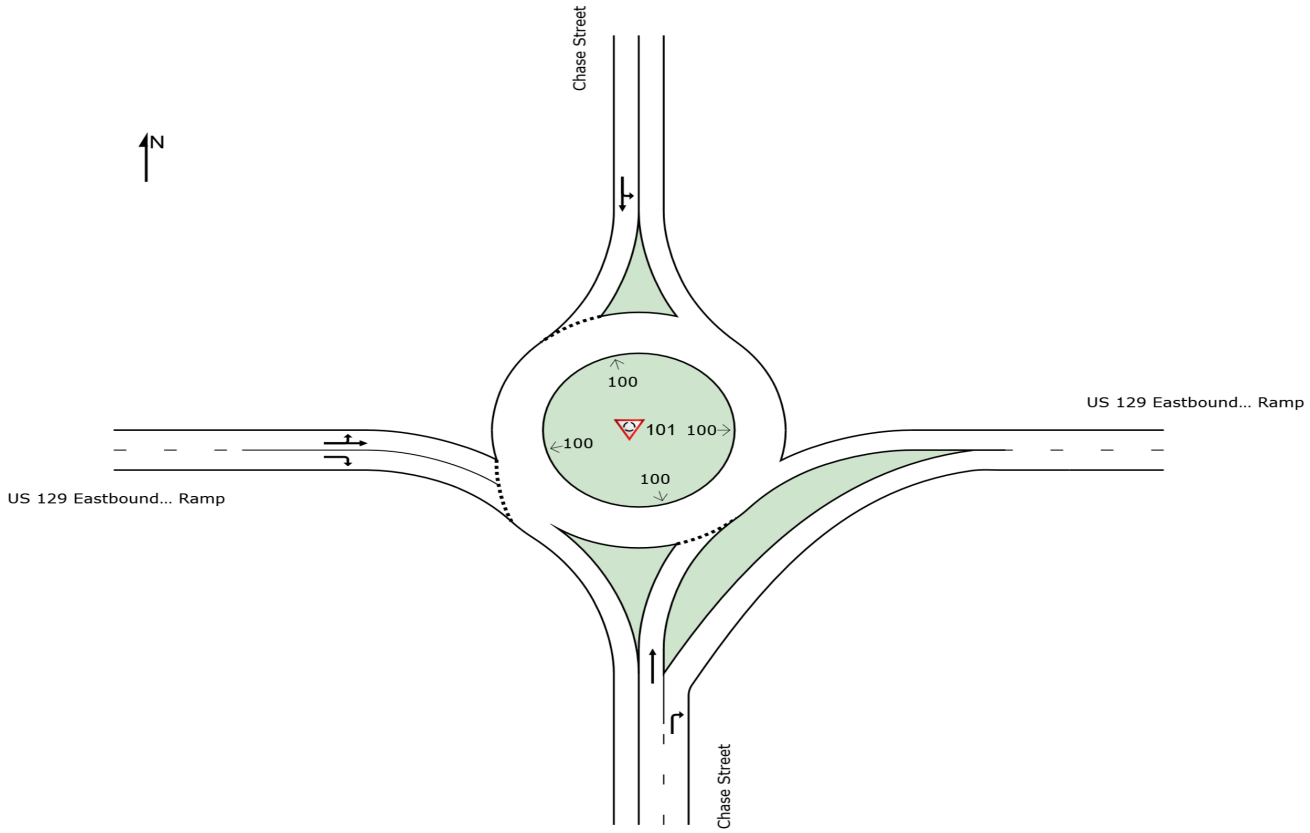
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [Chase Street at US 129 Eastbound Ramps No Build 2029 AM (Site Folder: General)]

No Build 2029 AM
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Eastbound Ramps No Build 2029 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

No Build 2029 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Chase Street															
8	T1	All MCs	308	7.0	308	7.0	0.335	7.5	LOS A	1.5	39.0	0.53	0.37	0.53	32.7
18	R2	All MCs	316	7.0	316	7.0	0.202	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	36.5
Approach			624	7.0	624	7.0	0.335	3.7	LOS A	1.5	39.0	0.26	0.19	0.26	34.5
North: Chase Street															
7	L2	All MCs	237	7.0	237	7.0	0.811	6.8	LOS A	0.0	0.0	0.00	0.00	0.00	35.0
4	T1	All MCs	815	7.0	815	7.0	0.811	6.8	LOS A	0.0	0.0	0.00	0.00	0.00	35.9
Approach			1052	7.0	1052	7.0	0.811	6.8	LOS A	0.0	0.0	0.00	0.00	0.00	35.7
West: US 129 Eastbound Off Ramp															
5	L2	All MCs	106	7.0	106	7.0	0.254	12.6	LOS B	0.8	21.2	0.71	0.72	0.77	28.0
2	T1	All MCs	1	7.0	1	7.0	0.254	12.6	LOS B	0.8	21.2	0.71	0.72	0.77	28.5
12	R2	All MCs	285	7.0	285	7.0	0.675	27.4	LOS D	3.7	98.8	0.85	1.08	1.65	25.0
Approach			393	7.0	393	7.0	0.675	23.4	LOS C	3.7	98.8	0.81	0.98	1.41	25.7
All Vehicles			2068	7.0	2068	7.0	0.811	9.0	LOS A	3.7	98.8	0.23	0.24	0.35	33.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Eastbound Ramps No Build 2029 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

No Build 2029 PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Chase Street															
8	T1	All MCs	559	5.0	559	5.0	0.545	10.2	LOS B	4.2	109.7	0.61	0.45	0.73	31.5
18	R2	All MCs	795	5.0	795	5.0	0.498	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	36.4
Approach			1354	5.0	1354	5.0	0.545	4.3	LOS A	4.2	109.7	0.25	0.19	0.30	34.2
North: Chase Street															
7	L2	All MCs	226	5.0	226	5.0	0.570	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	34.9
4	T1	All MCs	526	5.0	526	5.0	0.570	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	35.7
Approach			753	5.0	753	5.0	0.570	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	35.4
West: US 129 Eastbound Off Ramp															
5	L2	All MCs	44	5.0	44	5.0	0.072	6.6	LOS A	0.2	6.2	0.58	0.53	0.58	30.2
2	T1	All MCs	1	5.0	1	5.0	0.072	6.6	LOS A	0.2	6.2	0.58	0.53	0.58	30.8
12	R2	All MCs	260	5.0	260	5.0	0.418	11.9	LOS B	2.0	52.1	0.70	0.73	0.95	30.3
Approach			305	5.0	305	5.0	0.418	11.1	LOS B	2.0	52.1	0.68	0.70	0.90	30.3
All Vehicles			2412	5.0	2412	5.0	0.570	5.6	LOS A	4.2	109.7	0.23	0.19	0.28	34.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Build Year 2029

Intersection	
Int Delay, s/veh	13

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	35	3	267	80	8	3	77	119	9	1	345	28
Future Vol, veh/h	35	3	267	80	8	3	77	119	9	1	345	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	8	2	8	2	2	2	8	8	2	2	8	8
Mvmt Flow	38	3	293	88	9	3	85	131	10	1	379	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	709	708	395	851	718	136	410	0	0	141	0	0
Stage 1	397	397	-	306	306	-	-	-	-	-	-	-
Stage 2	312	311	-	545	412	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.52	6.28	7.12	6.52	6.22	4.18	-	-	4.12	-	-
Critical Hdwy Stg 1	6.18	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.018	3.372	3.518	4.018	3.318	2.272	-	-	2.218	-	-
Pot Cap-1 Maneuver	341	360	641	280	355	913	1117	-	-	1442	-	-
Stage 1	617	603	-	704	662	-	-	-	-	-	-	-
Stage 2	686	658	-	523	594	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	311	330	641	141	325	913	1117	-	-	1442	-	-
Mov Cap-2 Maneuver	311	330	-	141	325	-	-	-	-	-	-	-
Stage 1	566	602	-	646	607	-	-	-	-	-	-	-
Stage 2	618	603	-	282	593	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.1	64.6	3.2	0
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1117	-	-	567	153	1442	-	-
HCM Lane V/C Ratio	0.076	-	-	0.591	0.654	0.001	-	-
HCM Control Delay (s)	8.5	0	-	20.1	64.6	7.5	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	3.8	3.6	0	-	-

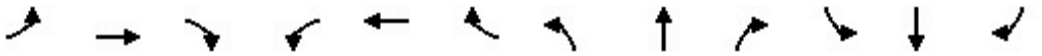
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↗		↕	
Traffic Vol, veh/h	1	0	27	51	0	12	18	200	41	5	685	2
Future Vol, veh/h	1	0	27	51	0	12	18	200	41	5	685	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	150	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	7	7	2	2	7	7
Mvmt Flow	1	0	30	56	0	13	20	220	45	5	753	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1053	1069	754	1039	1025	220	755	0	0	265	0	0
Stage 1	764	764	-	260	260	-	-	-	-	-	-	-
Stage 2	289	305	-	779	765	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	204	221	409	209	235	820	833	-	-	1299	-	-
Stage 1	396	413	-	745	693	-	-	-	-	-	-	-
Stage 2	719	662	-	389	412	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	195	213	409	189	227	820	833	-	-	1299	-	-
Mov Cap-2 Maneuver	195	213	-	189	227	-	-	-	-	-	-	-
Stage 1	385	410	-	724	674	-	-	-	-	-	-	-
Stage 2	688	643	-	358	409	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.9	28.6	0.7	0.1
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	833	-	-	394	221	1299	-	-
HCM Lane V/C Ratio	0.024	-	-	0.078	0.313	0.004	-	-
HCM Control Delay (s)	9.4	0	-	14.9	28.6	7.8	0	-
HCM Lane LOS	A	A	-	B	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.3	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	213	636	18	114	12	482	74	45	4	39	14
Future Volume (veh/h)	14	213	636	18	114	12	482	74	45	4	39	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707
Adj Flow Rate, veh/h	16	237	0	20	127	13	334	365	50	4	43	16
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	13	13	13	13	13	13	13	13	13	13	13	13
Cap, veh/h	92	350		135	574	57	557	504	69	9	93	86
Arrive On Green	0.21	0.21	0.00	0.21	0.21	0.21	0.34	0.34	0.34	0.06	0.06	0.06
Sat Flow, veh/h	47	1637	1447	187	2681	264	1626	1470	201	145	1555	1447
Grp Volume(v), veh/h	253	0	0	86	0	74	334	0	415	47	0	16
Grp Sat Flow(s),veh/h/ln	1684	0	1447	1625	0	1506	1626	0	1671	1700	0	1447
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	1.9	8.0	0.0	10.2	1.3	0.0	0.5
Cycle Q Clear(g_c), s	6.4	0.0	0.0	2.0	0.0	1.9	8.0	0.0	10.2	1.3	0.0	0.5
Prop In Lane	0.06		1.00	0.23		0.18	1.00		0.12	0.09		1.00
Lane Grp Cap(c), veh/h	442	0		442	0	322	557	0	573	101	0	86
V/C Ratio(X)	0.57	0.00		0.19	0.00	0.23	0.60	0.00	0.72	0.46	0.00	0.19
Avail Cap(c_a), veh/h	1746	0		1614	0	1509	1282	0	1318	652	0	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	0.0	15.3	0.0	15.2	12.8	0.0	13.5	21.3	0.0	21.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.2	0.0	0.4	1.0	0.0	1.8	3.3	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	0.7	0.0	0.6	2.5	0.0	3.4	0.5	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	0.0	0.0	15.5	0.0	15.6	13.8	0.0	15.2	24.6	0.0	22.0
LnGrp LOS	B	A		B	A	B	B	A	B	C	A	C
Approach Vol, veh/h		253			160			749			63	
Approach Delay, s/veh		18.2			15.5			14.6			23.9	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.0		22.1		16.0		8.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		47.0		37.0		47.0		18.0				
Max Q Clear Time (g_c+I1), s		4.0		12.2		8.4		3.3				
Green Ext Time (p_c), s		1.0		3.9		1.6		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			15.9									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	111

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	8	200	56	5	2	410	226	25	3	185	65
Future Vol, veh/h	34	8	200	56	5	2	410	226	25	3	185	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	5	2	5	2	2	2	5	5	2	2	5	5
Mvmt Flow	42	10	247	69	6	2	506	279	31	4	228	80

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1587	1598	268	1712	1623	295	308	0	0	310	0	0
Stage 1	276	276	-	1307	1307	-	-	-	-	-	-	-
Stage 2	1311	1322	-	405	316	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.52	6.25	7.12	6.52	6.22	4.15	-	-	4.12	-	-
Critical Hdwy Stg 1	6.15	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.018	3.345	3.518	4.018	3.318	2.245	-	-	2.218	-	-
Pot Cap-1 Maneuver	86	106	763	71	103	744	1236	-	-	1250	-	-
Stage 1	724	682	-	196	230	-	-	-	-	-	-	-
Stage 2	193	226	-	622	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	48	53	763	~ 25	52	744	1236	-	-	1250	-	-
Mov Cap-2 Maneuver	48	53	-	~ 25	52	-	-	-	-	-	-	-
Stage 1	364	679	-	99	116	-	-	-	-	-	-	-
Stage 2	92	114	-	413	652	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	241.3	$ 1154.7	6.2	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1236	-	-	216	27	1250	-	-
HCM Lane V/C Ratio	0.41	-	-	1.383	2.881	0.003	-	-
HCM Control Delay (s)	9.9	0	-	241.3	$ 1154.7	7.9	0	-
HCM Lane LOS	A	A	-	F	F	A	A	-
HCM 95th %tile Q(veh)	2	-	-	17	9.4	0	-	-

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

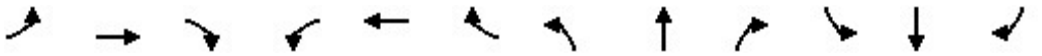
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↗		↕	
Traffic Vol, veh/h	2	0	18	35	0	9	31	651	115	13	425	0
Future Vol, veh/h	2	0	18	35	0	9	31	651	115	13	425	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	150	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	5	5	2	2	5	5
Mvmt Flow	3	0	23	45	0	12	40	845	149	17	552	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1592	1660	552	1523	1511	845	552	0	0	994	0	0
Stage 1	586	586	-	925	925	-	-	-	-	-	-	-
Stage 2	1006	1074	-	598	586	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.15	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.245	-	-	2.218	-	-
Pot Cap-1 Maneuver	87	97	533	97	120	363	1003	-	-	696	-	-
Stage 1	496	497	-	323	348	-	-	-	-	-	-	-
Stage 2	291	296	-	489	497	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	76	85	533	84	105	363	1003	-	-	696	-	-
Mov Cap-2 Maneuver	76	85	-	84	105	-	-	-	-	-	-	-
Stage 1	450	480	-	293	316	-	-	-	-	-	-	-
Stage 2	255	268	-	451	480	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.7	80.8	0.3	0.3
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1003	-	-	333	100	696	-	-
HCM Lane V/C Ratio	0.04	-	-	0.078	0.571	0.024	-	-
HCM Control Delay (s)	8.7	0	-	16.7	80.8	10.3	0	-
HCM Lane LOS	A	A	-	C	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	2.7	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	195	648	14	252	3	579	12	27	13	63	10
Future Volume (veh/h)	5	195	648	14	252	3	579	12	27	13	63	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767
Adj Flow Rate, veh/h	6	227	0	16	293	3	712	0	0	15	73	12
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	89	351		107	649	7	1010	530	0	24	118	121
Arrive On Green	0.20	0.20	0.00	0.20	0.20	0.20	0.30	0.00	0.00	0.08	0.08	0.08
Sat Flow, veh/h	16	1739	1497	76	3219	33	3365	1767	0	299	1453	1497
Grp Volume(v), veh/h	233	0	0	164	0	148	712	0	0	88	0	12
Grp Sat Flow(s),veh/h/ln	1755	0	1497	1726	0	1602	1682	1767	0	1752	0	1497
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.5	8.1	0.0	0.0	2.1	0.0	0.3
Cycle Q Clear(g_c), s	5.2	0.0	0.0	3.5	0.0	3.5	8.1	0.0	0.0	2.1	0.0	0.3
Prop In Lane	0.03		1.00	0.10		0.02	1.00		0.00	0.17		1.00
Lane Grp Cap(c), veh/h	440	0		440	0	323	1010	530	0	142	0	121
V/C Ratio(X)	0.53	0.00		0.37	0.00	0.46	0.70	0.00	0.00	0.62	0.00	0.10
Avail Cap(c_a), veh/h	1979	0		1918	0	1745	2885	1515	0	731	0	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.8	0.0	0.0	15.2	0.0	15.1	13.4	0.0	0.0	19.2	0.0	18.4
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.5	0.0	1.0	0.9	0.0	0.0	4.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	1.3	0.0	1.2	2.6	0.0	0.0	0.9	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.8	0.0	0.0	15.7	0.0	16.1	14.3	0.0	0.0	23.6	0.0	18.7
LnGrp LOS	B	A		B	A	B	B	A	A	C	A	B
Approach Vol, veh/h		233			312			712			100	
Approach Delay, s/veh		16.8			15.9			14.3			23.0	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.7		19.0		14.7		9.5				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		47.0		37.0		47.0		18.0				
Max Q Clear Time (g_c+I1), s		5.5		10.1		7.2		4.1				
Green Ext Time (p_c), s		2.0		2.9		1.5		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	15.8	
HCM 6th LOS	B	

Notes

User approved volume balancing among the lanes for turning movement.

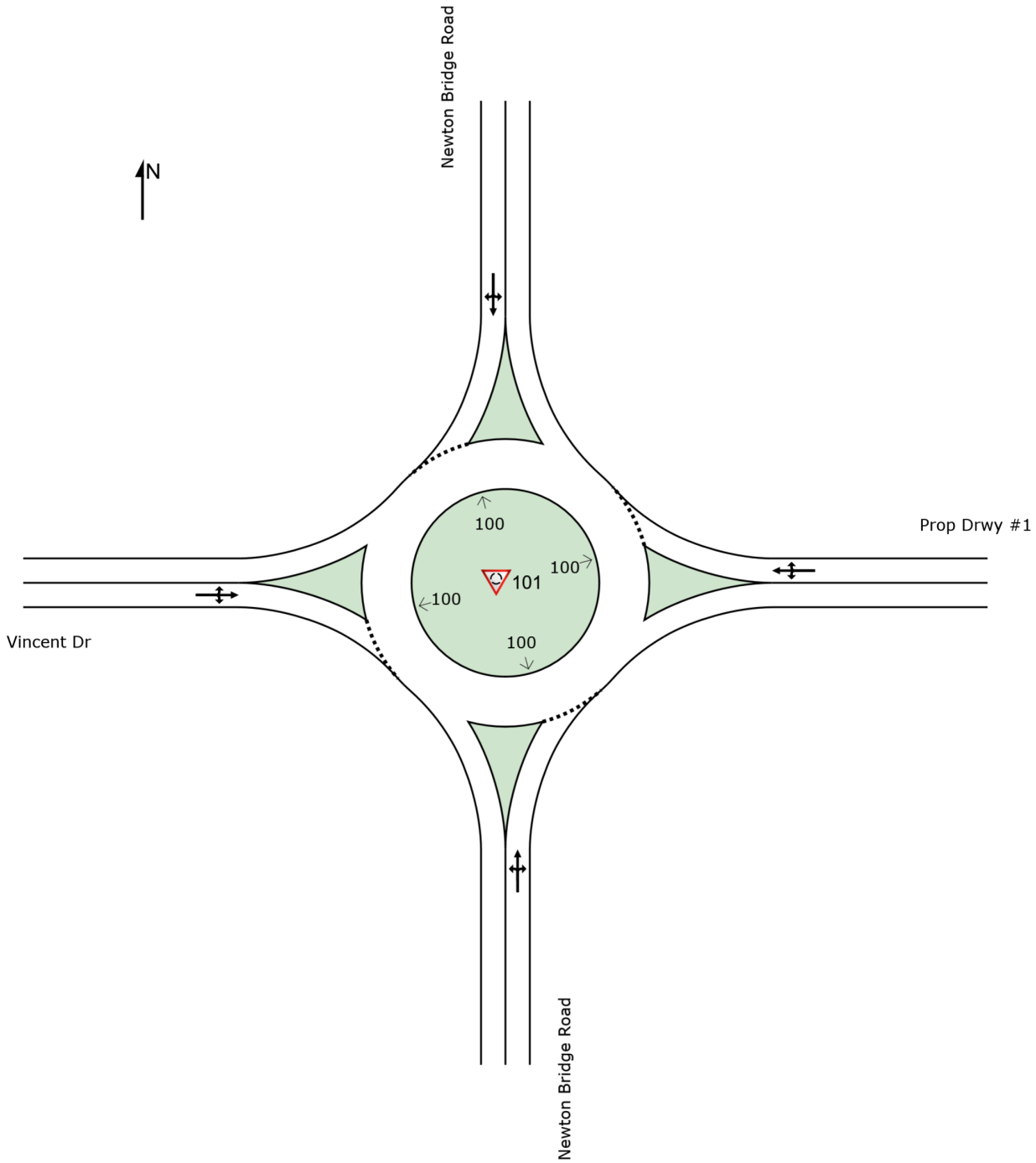
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

SITE LAYOUT

Site: 101 [Newton Bridge Road at Vincent Drive/Prop Drwy #1 Build 2029 AM (Site Folder: General)]

Build 2029 AM
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Newton Bridge Road at Vincent Drive/Prop Drwy #1 Build 2029 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2029 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Newton Bridge Road															
3	L2	All MCs	85	8.0	85	8.0	0.184	4.4	LOS A	0.9	23.0	0.17	0.06	0.17	32.4
8	T1	All MCs	131	8.0	131	8.0	0.184	4.4	LOS A	0.9	23.0	0.17	0.06	0.17	33.2
18	R2	All MCs	10	3.0	10	3.0	0.184	4.1	LOS A	0.9	23.0	0.17	0.06	0.17	33.0
Approach			225	7.8	225	7.8	0.184	4.4	LOS A	0.9	23.0	0.17	0.06	0.17	32.9
East: Prop Drwy #1															
1	L2	All MCs	88	3.0	88	3.0	0.099	4.4	LOS A	0.4	10.7	0.41	0.26	0.41	31.3
6	T1	All MCs	9	3.0	9	3.0	0.099	4.4	LOS A	0.4	10.7	0.41	0.26	0.41	32.0
16	R2	All MCs	3	3.0	3	3.0	0.099	4.4	LOS A	0.4	10.7	0.41	0.26	0.41	31.7
Approach			100	3.0	100	3.0	0.099	4.4	LOS A	0.4	10.7	0.41	0.26	0.41	31.4
North: Newton Bridge Road															
7	L2	All MCs	1	3.0	1	3.0	0.394	7.1	LOS A	2.2	58.1	0.46	0.26	0.46	32.1
4	T1	All MCs	379	8.0	379	8.0	0.394	7.5	LOS A	2.2	58.1	0.46	0.26	0.46	32.6
14	R2	All MCs	31	8.0	31	8.0	0.394	7.5	LOS A	2.2	58.1	0.46	0.26	0.46	32.4
Approach			411	8.0	411	8.0	0.394	7.5	LOS A	2.2	58.1	0.46	0.26	0.46	32.6
West: Vincent Dr															
5	L2	All MCs	38	8.0	38	8.0	0.452	11.0	LOS B	2.7	70.5	0.69	0.62	0.88	30.1
2	T1	All MCs	3	3.0	3	3.0	0.452	10.2	LOS B	2.7	70.5	0.69	0.62	0.88	30.8
12	R2	All MCs	293	8.0	293	8.0	0.452	11.0	LOS B	2.7	70.5	0.69	0.62	0.88	30.5
Approach			335	8.0	335	8.0	0.452	11.0	LOS B	2.7	70.5	0.69	0.62	0.88	30.4
All Vehicles			1071	7.5	1071	7.5	0.452	7.7	LOS A	2.7	70.5	0.47	0.33	0.53	31.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Newton Bridge Road at Vincent Drive/Prop Drwy #1 Build 2029 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2029 PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Newton Bridge Road															
3	L2	All MCs	506	5.0	506	5.0	0.658	10.5	LOS B	6.9	178.4	0.42	0.15	0.42	29.4
8	T1	All MCs	279	5.0	279	5.0	0.658	10.5	LOS B	6.9	178.4	0.42	0.15	0.42	30.0
18	R2	All MCs	31	3.0	31	3.0	0.658	10.3	LOS B	6.9	178.4	0.42	0.15	0.42	29.8
Approach			816	4.9	816	4.9	0.658	10.5	LOS B	6.9	178.4	0.42	0.15	0.42	29.7
East: Prop Drwy #1															
1	L2	All MCs	69	3.0	69	3.0	0.145	8.5	LOS A	0.5	13.6	0.65	0.62	0.65	29.7
6	T1	All MCs	6	3.0	6	3.0	0.145	8.5	LOS A	0.5	13.6	0.65	0.62	0.65	30.2
16	R2	All MCs	2	3.0	2	3.0	0.145	8.5	LOS A	0.5	13.6	0.65	0.62	0.65	30.0
Approach			78	3.0	78	3.0	0.145	8.5	LOS A	0.5	13.6	0.65	0.62	0.65	29.7
North: Newton Bridge Road															
7	L2	All MCs	4	3.0	4	3.0	0.455	11.4	LOS B	2.6	68.1	0.72	0.69	0.95	30.2
4	T1	All MCs	228	5.0	228	5.0	0.455	11.7	LOS B	2.6	68.1	0.72	0.69	0.95	30.8
14	R2	All MCs	80	5.0	80	5.0	0.455	11.7	LOS B	2.6	68.1	0.72	0.69	0.95	30.6
Approach			312	5.0	312	5.0	0.455	11.7	LOS B	2.6	68.1	0.72	0.69	0.95	30.7
West: Vincent Dr															
5	L2	All MCs	42	5.0	42	5.0	0.317	7.1	LOS A	1.6	40.3	0.52	0.36	0.52	31.8
2	T1	All MCs	10	3.0	10	3.0	0.317	6.9	LOS A	1.6	40.3	0.52	0.36	0.52	32.5
12	R2	All MCs	247	5.0	247	5.0	0.317	7.1	LOS A	1.6	40.3	0.52	0.36	0.52	32.2
Approach			299	4.9	299	4.9	0.317	7.1	LOS A	1.6	40.3	0.52	0.36	0.52	32.1
All Vehicles			1505	4.8	1505	4.8	0.658	10.0	LOS A	6.9	178.4	0.52	0.33	0.56	30.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Westbound Ramps Build 2029 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2029 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: N Chase St															
3	L2	All MCs	134	6.0	134	6.0	0.303	4.3	LOS A	0.0	0.0	0.00	0.00	0.00	34.8
8	T1	All MCs	263	6.0	263	6.0	0.303	4.3	LOS A	0.0	0.0	0.00	0.00	0.00	35.6
Approach			397	6.0	397	6.0	0.303	4.3	LOS A	0.0	0.0	0.00	0.00	0.00	35.3
East: US 129 Westbound Off Ramp															
1	L2	All MCs	596	6.0	596	6.0	0.674	15.1	LOS C	7.7	201.3	0.79	0.83	1.37	27.2
6	T1	All MCs	1	6.0	1	6.0	0.674	15.1	LOS C	7.7	201.3	0.79	0.83	1.37	27.6
16	R2	All MCs	348	6.0	348	6.0	0.393	8.6	LOS A	1.8	48.4	0.58	0.44	0.60	31.7
Approach			945	6.0	945	6.0	0.674	12.7	LOS B	7.7	201.3	0.71	0.69	1.09	28.6
North: N Chase St															
4	T1	All MCs	610	6.0	610	6.0	0.982	56.1	LOS F	18.8	493.2	1.00	1.87	3.70	19.3
14	R2	All MCs	224	6.0	224	6.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	36.5
Approach			834	6.0	834	6.0	0.982	41.0	LOS E	18.8	493.2	0.73	1.37	2.71	22.0
All Vehicles			2175	6.0	2175	6.0	0.982	22.0	LOS C	18.8	493.2	0.59	0.82	1.51	26.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Westbound Ramps Build 2029 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2029 PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: N Chase St															
3	L2	All MCs	300	6.0	300	6.0	0.504	5.3	LOS A	0.0	0.0	0.00	0.00	0.00	34.4
8	T1	All MCs	359	6.0	359	6.0	0.504	5.3	LOS A	0.0	0.0	0.00	0.00	0.00	35.2
Approach			659	6.0	659	6.0	0.504	5.3	LOS A	0.0	0.0	0.00	0.00	0.00	34.8
East: US 129 Westbound Off Ramp															
1	L2	All MCs	307	6.0	307	6.0	0.459	12.0	LOS B	2.4	64.2	0.70	0.72	1.00	28.2
6	T1	All MCs	1	6.0	1	6.0	0.459	12.0	LOS B	2.4	64.2	0.70	0.72	1.00	28.7
16	R2	All MCs	386	6.0	386	6.0	0.576	15.1	LOS C	3.9	101.2	0.77	0.85	1.26	29.0
Approach			693	6.0	693	6.0	0.576	13.7	LOS B	3.9	101.2	0.74	0.79	1.15	28.6
North: N Chase St															
4	T1	All MCs	540	6.0	540	6.0	0.763	22.9	LOS C	8.2	213.7	0.90	1.10	1.84	26.8
14	R2	All MCs	296	6.0	296	6.0	0.187	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	36.5
Approach			836	6.0	836	6.0	0.763	14.8	LOS B	8.2	213.7	0.58	0.71	1.19	29.5
All Vehicles			2188	6.0	2188	6.0	0.763	11.6	LOS B	8.2	213.7	0.45	0.52	0.82	30.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Eastbound Ramps Build 2029 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2029 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Chase Street															
8	T1	All MCs	324	7.0	324	7.0	0.365	8.1	LOS A	1.6	42.9	0.56	0.41	0.56	32.4
18	R2	All MCs	316	7.0	316	7.0	0.202	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	36.5
Approach			640	7.0	640	7.0	0.365	4.2	LOS A	1.6	42.9	0.28	0.21	0.28	34.3
North: Chase Street															
7	L2	All MCs	261	7.0	261	7.0	0.861	7.1	LOS A	0.0	0.0	0.00	0.00	0.00	35.0
4	T1	All MCs	856	7.0	856	7.0	0.861	7.1	LOS A	0.0	0.0	0.00	0.00	0.00	35.9
Approach			1117	7.0	1117	7.0	0.861	7.1	LOS A	0.0	0.0	0.00	0.00	0.00	35.7
West: US 129 Eastbound Off Ramp															
5	L2	All MCs	116	7.0	116	7.0	0.298	14.4	LOS B	1.0	25.7	0.74	0.78	0.89	27.4
2	T1	All MCs	1	7.0	1	7.0	0.298	14.4	LOS B	1.0	25.7	0.74	0.78	0.89	27.9
12	R2	All MCs	285	7.0	285	7.0	0.726	33.0	LOS D	4.2	110.3	0.88	1.15	1.84	23.5
Approach			402	7.0	402	7.0	0.726	27.6	LOS D	4.2	110.3	0.84	1.05	1.56	24.5
All Vehicles			2159	7.0	2159	7.0	0.861	10.0	LOS B	4.2	110.3	0.24	0.26	0.38	32.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Eastbound Ramps Build 2029 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2029 PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Chase Street															
8	T1	All MCs	603	5.0	603	5.0	0.616	12.2	LOS B	6.4	166.0	0.70	0.63	1.04	30.6
18	R2	All MCs	795	5.0	795	5.0	0.498	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	36.4
Approach			1398	5.0	1398	5.0	0.616	5.4	LOS A	6.4	166.0	0.30	0.27	0.45	33.6
North: Chase Street															
7	L2	All MCs	244	5.0	244	5.0	0.606	5.8	LOS A	0.0	0.0	0.00	0.00	0.00	34.9
4	T1	All MCs	556	5.0	556	5.0	0.606	5.8	LOS A	0.0	0.0	0.00	0.00	0.00	35.7
Approach			800	5.0	800	5.0	0.606	5.8	LOS A	0.0	0.0	0.00	0.00	0.00	35.4
West: US 129 Eastbound Off Ramp															
5	L2	All MCs	71	5.0	71	5.0	0.122	7.5	LOS A	0.4	10.6	0.60	0.57	0.60	29.8
2	T1	All MCs	1	5.0	1	5.0	0.122	7.5	LOS A	0.4	10.6	0.60	0.57	0.60	30.4
12	R2	All MCs	260	5.0	260	5.0	0.439	12.9	LOS B	2.1	55.4	0.72	0.77	1.01	29.9
Approach			333	5.0	333	5.0	0.439	11.7	LOS B	2.1	55.4	0.69	0.72	0.92	29.9
All Vehicles			2531	5.0	2531	5.0	0.616	6.4	LOS A	6.4	166.0	0.26	0.25	0.37	33.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Future 5-Year 2034

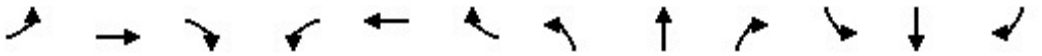
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↗		↕	
Traffic Vol, veh/h	1	0	29	51	0	12	19	215	41	5	732	2
Future Vol, veh/h	1	0	29	51	0	12	19	215	41	5	732	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	150	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	7	7	2	2	7	7
Mvmt Flow	1	0	32	56	0	13	21	236	45	5	804	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1122	1138	805	1109	1094	236	806	0	0	281	0	0
Stage 1	815	815	-	278	278	-	-	-	-	-	-	-
Stage 2	307	323	-	831	816	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	183	201	382	187	214	803	797	-	-	1282	-	-
Stage 1	371	391	-	728	680	-	-	-	-	-	-	-
Stage 2	703	650	-	364	391	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	175	193	382	166	206	803	797	-	-	1282	-	-
Mov Cap-2 Maneuver	175	193	-	166	206	-	-	-	-	-	-	-
Stage 1	359	388	-	705	659	-	-	-	-	-	-	-
Stage 2	670	630	-	331	388	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.7	33.1	0.7	0.1
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	797	-	-	368	196	1282	-	-
HCM Lane V/C Ratio	0.026	-	-	0.09	0.353	0.004	-	-
HCM Control Delay (s)	9.6	0	-	15.7	33.1	7.8	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.5	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	234	678	19	124	13	517	80	48	5	42	15
Future Volume (veh/h)	15	234	678	19	124	13	517	80	48	5	42	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707	1707
Adj Flow Rate, veh/h	17	260	0	21	138	14	358	391	53	6	47	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	13	13	13	13	13	13	13	13	13	13	13	13
Cap, veh/h	86	370		131	606	59	578	523	71	12	93	90
Arrive On Green	0.23	0.23	0.00	0.23	0.23	0.23	0.36	0.36	0.36	0.06	0.06	0.06
Sat Flow, veh/h	45	1639	1447	192	2681	262	1626	1472	200	192	1506	1447
Grp Volume(v), veh/h	277	0	0	92	0	81	358	0	444	53	0	17
Grp Sat Flow(s),veh/h/ln	1684	0	1447	1628	0	1507	1626	0	1671	1698	0	1447
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	2.2	9.2	0.0	11.8	1.5	0.0	0.6
Cycle Q Clear(g_c), s	7.6	0.0	0.0	2.2	0.0	2.2	9.2	0.0	11.8	1.5	0.0	0.6
Prop In Lane	0.06		1.00	0.23		0.17	1.00		0.12	0.11		1.00
Lane Grp Cap(c), veh/h	456	0		455	0	340	578	0	594	105	0	90
V/C Ratio(X)	0.61	0.00		0.20	0.00	0.24	0.62	0.00	0.75	0.50	0.00	0.19
Avail Cap(c_a), veh/h	1624	0		1500	0	1403	1192	0	1225	605	0	516
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	0.0	16.0	0.0	16.0	13.4	0.0	14.3	22.9	0.0	22.5
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.2	0.0	0.4	1.1	0.0	1.9	3.7	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	0.8	0.0	0.7	3.0	0.0	4.0	0.7	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.4	0.0	0.0	16.2	0.0	16.3	14.5	0.0	16.2	26.6	0.0	23.5
LnGrp LOS	B	A		B	A	B	B	A	B	C	A	C
Approach Vol, veh/h		277			173			802			70	
Approach Delay, s/veh		19.4			16.3			15.4			25.9	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.4		23.9		17.4		9.1				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		47.0		37.0		47.0		18.0				
Max Q Clear Time (g_c+I1), s		4.2		13.8		9.6		3.5				
Green Ext Time (p_c), s		1.1		4.2		1.8		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			16.9									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

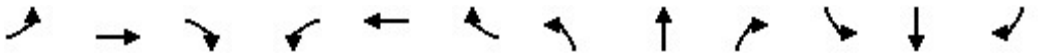
Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↰	↱		↕	
Traffic Vol, veh/h	2	0	19	35	0	9	33	700	115	13	454	0
Future Vol, veh/h	2	0	19	35	0	9	33	700	115	13	454	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	150	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	5	5	2	2	5	5
Mvmt Flow	3	0	25	45	0	12	43	909	149	17	590	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1700	1768	590	1632	1619	909	590	0	0	1058	0	0
Stage 1	624	624	-	995	995	-	-	-	-	-	-	-
Stage 2	1076	1144	-	637	624	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.15	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.245	-	-	2.218	-	-
Pot Cap-1 Maneuver	73	84	508	81	103	333	971	-	-	658	-	-
Stage 1	473	478	-	295	323	-	-	-	-	-	-	-
Stage 2	266	275	-	465	478	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	63	72	508	68	88	333	971	-	-	658	-	-
Mov Cap-2 Maneuver	63	72	-	68	88	-	-	-	-	-	-	-
Stage 1	420	460	-	262	287	-	-	-	-	-	-	-
Stage 2	228	244	-	426	460	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18	119.2	0.3	0.3
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	971	-	-	304	81	658	-	-
HCM Lane V/C Ratio	0.044	-	-	0.09	0.705	0.026	-	-
HCM Control Delay (s)	8.9	0	-	18	119.2	10.6	0	-
HCM Lane LOS	A	A	-	C	F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	3.4	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	213	694	15	277	3	617	13	29	14	67	10
Future Volume (veh/h)	6	213	694	15	277	3	617	13	29	14	67	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767	1767
Adj Flow Rate, veh/h	7	248	0	17	322	3	759	0	0	16	78	12
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	9	9	9	9	9	9	9	9	9	9	9	9
Cap, veh/h	85	369		102	686	6	1048	550	0	24	118	121
Arrive On Green	0.21	0.21	0.00	0.21	0.21	0.21	0.31	0.00	0.00	0.08	0.08	0.08
Sat Flow, veh/h	17	1737	1497	73	3227	30	3365	1767	0	298	1454	1497
Grp Volume(v), veh/h	255	0	0	180	0	162	759	0	0	94	0	12
Grp Sat Flow(s),veh/h/ln	1754	0	1497	1727	0	1602	1682	1767	0	1752	0	1497
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	4.0	9.1	0.0	0.0	2.4	0.0	0.3
Cycle Q Clear(g_c), s	6.1	0.0	0.0	4.1	0.0	4.0	9.1	0.0	0.0	2.4	0.0	0.3
Prop In Lane	0.03		1.00	0.09		0.02	1.00		0.00	0.17		1.00
Lane Grp Cap(c), veh/h	454	0		454	0	341	1048	550	0	142	0	121
V/C Ratio(X)	0.56	0.00		0.40	0.00	0.48	0.72	0.00	0.00	0.66	0.00	0.10
Avail Cap(c_a), veh/h	1869	0		1815	0	1652	2730	1434	0	691	0	591
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.5	0.0	0.0	15.7	0.0	15.7	14.0	0.0	0.0	20.3	0.0	19.4
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.6	0.0	1.0	1.0	0.0	0.0	5.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	1.5	0.0	1.4	3.0	0.0	0.0	1.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	0.0	0.0	16.3	0.0	16.8	14.9	0.0	0.0	25.5	0.0	19.8
LnGrp LOS	B	A		B	A	B	B	A	A	C	A	B
Approach Vol, veh/h		255			342			759			106	
Approach Delay, s/veh		17.6			16.5			14.9			24.9	
Approach LOS		B			B			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.7		20.2		15.7		9.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		47.0		37.0		47.0		18.0				
Max Q Clear Time (g_c+I1), s		6.1		11.1		8.1		4.4				
Green Ext Time (p_c), s		2.2		3.1		1.6		0.4				

Intersection Summary		
HCM 6th Ctrl Delay	16.5	
HCM 6th LOS	B	

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

MOVEMENT SUMMARY

Site: 101 [Newton Bridge Road at Vincent Drive/Prop Drwy #1 Build 2034 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2034 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Newton Bridge Road															
3	L2	All MCs	90	8.0	90	8.0	0.196	4.5	LOS A	0.9	24.8	0.18	0.06	0.18	32.4
8	T1	All MCs	140	8.0	140	8.0	0.196	4.5	LOS A	0.9	24.8	0.18	0.06	0.18	33.1
18	R2	All MCs	10	3.0	10	3.0	0.196	4.2	LOS A	0.9	24.8	0.18	0.06	0.18	32.9
Approach			240	7.8	240	7.8	0.196	4.5	LOS A	0.9	24.8	0.18	0.06	0.18	32.8
East: Prop Drwy #1															
1	L2	All MCs	88	3.0	88	3.0	0.101	4.5	LOS A	0.4	10.9	0.42	0.28	0.42	31.3
6	T1	All MCs	9	3.0	9	3.0	0.101	4.5	LOS A	0.4	10.9	0.42	0.28	0.42	31.9
16	R2	All MCs	3	3.0	3	3.0	0.101	4.5	LOS A	0.4	10.9	0.42	0.28	0.42	31.7
Approach			100	3.0	100	3.0	0.101	4.5	LOS A	0.4	10.9	0.42	0.28	0.42	31.4
North: Newton Bridge Road															
7	L2	All MCs	1	3.0	1	3.0	0.426	7.6	LOS A	2.4	65.1	0.49	0.28	0.49	31.8
4	T1	All MCs	408	8.0	408	8.0	0.426	8.0	LOS A	2.4	65.1	0.49	0.28	0.49	32.4
14	R2	All MCs	33	8.0	33	8.0	0.426	8.0	LOS A	2.4	65.1	0.49	0.28	0.49	32.1
Approach			442	8.0	442	8.0	0.426	8.0	LOS A	2.4	65.1	0.49	0.28	0.49	32.4
West: Vincent Dr															
5	L2	All MCs	42	8.0	42	8.0	0.505	12.5	LOS B	3.3	87.1	0.73	0.70	1.02	29.5
2	T1	All MCs	3	3.0	3	3.0	0.505	11.6	LOS B	3.3	87.1	0.73	0.70	1.02	30.2
12	R2	All MCs	316	8.0	316	8.0	0.505	12.5	LOS B	3.3	87.1	0.73	0.70	1.02	29.9
Approach			362	8.0	362	8.0	0.505	12.4	LOS B	3.3	87.1	0.73	0.70	1.02	29.8
All Vehicles			1143	7.5	1143	7.5	0.505	8.4	LOS A	3.3	87.1	0.49	0.37	0.59	31.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Newton Bridge Road at Vincent Drive/Prop Drwy #1 Build 2034 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2034 PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Newton Bridge Road															
3	L2	All MCs	546	5.0	546	5.0	0.709	11.8	LOS B	8.4	218.8	0.50	0.18	0.50	28.9
8	T1	All MCs	300	5.0	300	5.0	0.709	11.8	LOS B	8.4	218.8	0.50	0.18	0.50	29.5
18	R2	All MCs	31	3.0	31	3.0	0.709	11.7	LOS B	8.4	218.8	0.50	0.18	0.50	29.3
Approach			877	4.9	877	4.9	0.709	11.8	LOS B	8.4	218.8	0.50	0.18	0.50	29.1
East: Prop Drwy #1															
1	L2	All MCs	69	3.0	69	3.0	0.156	9.3	LOS A	0.6	14.4	0.67	0.65	0.67	29.4
6	T1	All MCs	6	3.0	6	3.0	0.156	9.3	LOS A	0.6	14.4	0.67	0.65	0.67	30.0
16	R2	All MCs	2	3.0	2	3.0	0.156	9.3	LOS A	0.6	14.4	0.67	0.65	0.67	29.7
Approach			78	3.0	78	3.0	0.156	9.3	LOS A	0.6	14.4	0.67	0.65	0.67	29.5
North: Newton Bridge Road															
7	L2	All MCs	4	3.0	4	3.0	0.512	13.1	LOS B	3.2	82.8	0.76	0.77	1.09	29.5
4	T1	All MCs	246	5.0	246	5.0	0.512	13.5	LOS B	3.2	82.8	0.76	0.77	1.09	30.1
14	R2	All MCs	86	5.0	86	5.0	0.512	13.5	LOS B	3.2	82.8	0.76	0.77	1.09	29.8
Approach			336	5.0	336	5.0	0.512	13.5	LOS B	3.2	82.8	0.76	0.77	1.09	30.0
West: Vincent Dr															
5	L2	All MCs	46	5.0	46	5.0	0.347	7.6	LOS A	1.7	45.0	0.55	0.38	0.55	31.5
2	T1	All MCs	10	3.0	10	3.0	0.347	7.4	LOS A	1.7	45.0	0.55	0.38	0.55	32.2
12	R2	All MCs	265	5.0	265	5.0	0.347	7.6	LOS A	1.7	45.0	0.55	0.38	0.55	32.0
Approach			321	4.9	321	4.9	0.347	7.6	LOS A	1.7	45.0	0.55	0.38	0.55	31.9
All Vehicles			1611	4.8	1611	4.8	0.709	11.2	LOS B	8.4	218.8	0.57	0.37	0.64	29.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Westbound Ramps Build 2034 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2034 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: N Chase St															
3	L2	All MCs	145	6.0	145	6.0	0.325	4.4	LOS A	0.0	0.0	0.00	0.00	0.00	34.7
8	T1	All MCs	280	6.0	280	6.0	0.325	4.4	LOS A	0.0	0.0	0.00	0.00	0.00	35.6
Approach			425	6.0	425	6.0	0.325	4.4	LOS A	0.0	0.0	0.00	0.00	0.00	35.3
East: US 129 Westbound Off Ramp															
1	L2	All MCs	641	6.0	641	6.0	0.747	18.8	LOS C	10.3	268.7	0.87	1.00	1.72	26.1
6	T1	All MCs	1	6.0	1	6.0	0.747	18.8	LOS C	10.3	268.7	0.87	1.00	1.72	26.5
16	R2	All MCs	374	6.0	374	6.0	0.435	9.5	LOS A	2.4	63.0	0.62	0.52	0.74	31.3
Approach			1016	6.0	1016	6.0	0.747	15.3	LOS C	10.3	268.7	0.78	0.83	1.36	27.7
North: N Chase St															
4	T1	All MCs	651	6.0	651	6.0	1.115	96.2	LOS F	33.5	878.2	1.00	2.69	6.27	14.4
14	R2	All MCs	250	6.0	250	6.0	0.158	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	36.5
Approach			901	6.0	901	6.0	1.115	69.5	LOS F	33.5	878.2	0.72	1.94	4.53	17.2
All Vehicles			2342	6.0	2342	6.0	1.115	34.2	LOS D	33.5	878.2	0.62	1.11	2.33	23.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Westbound Ramps Build 2034 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2034 PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: N Chase St															
3	L2	All MCs	323	6.0	323	6.0	0.538	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	34.4
8	T1	All MCs	382	6.0	382	6.0	0.538	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	35.2
Approach			704	6.0	704	6.0	0.538	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	34.8
East: US 129 Westbound Off Ramp															
1	L2	All MCs	330	6.0	330	6.0	0.519	14.0	LOS B	3.0	78.9	0.74	0.81	1.15	27.5
6	T1	All MCs	1	6.0	1	6.0	0.519	14.0	LOS B	3.0	78.9	0.74	0.81	1.15	28.0
16	R2	All MCs	414	6.0	414	6.0	0.649	18.4	LOS C	4.8	126.9	0.81	0.96	1.49	27.8
Approach			746	6.0	746	6.0	0.649	16.5	LOS C	4.8	126.9	0.78	0.89	1.34	27.6
North: N Chase St															
4	T1	All MCs	578	6.0	578	6.0	0.859	32.5	LOS D	11.5	301.4	0.98	1.36	2.44	24.1
14	R2	All MCs	317	6.0	317	6.0	0.201	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	36.5
Approach			896	6.0	896	6.0	0.859	21.0	LOS C	11.5	301.4	0.63	0.88	1.57	27.3
All Vehicles			2346	6.0	2346	6.0	0.859	14.9	LOS B	11.5	301.4	0.49	0.62	1.03	29.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Eastbound Ramps Build 2034 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2034 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Chase Street															
8	T1	All MCs	348	7.0	348	7.0	0.404	8.9	LOS A	2.0	52.4	0.59	0.47	0.65	32.0
18	R2	All MCs	341	7.0	341	7.0	0.218	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	36.5
Approach			689	7.0	689	7.0	0.404	4.5	LOS A	2.0	52.4	0.30	0.24	0.33	34.1
North: Chase Street															
7	L2	All MCs	279	7.0	279	7.0	0.924	7.4	LOS A	0.0	0.0	0.00	0.00	0.00	35.0
4	T1	All MCs	919	7.0	919	7.0	0.924	7.4	LOS A	0.0	0.0	0.00	0.00	0.00	35.9
Approach			1198	7.0	1198	7.0	0.924	7.4	LOS A	0.0	0.0	0.00	0.00	0.00	35.7
West: US 129 Eastbound Off Ramp															
5	L2	All MCs	124	7.0	124	7.0	0.350	17.0	LOS C	1.2	31.0	0.77	0.84	1.02	26.6
2	T1	All MCs	1	7.0	1	7.0	0.350	17.0	LOS C	1.2	31.0	0.77	0.84	1.02	27.1
12	R2	All MCs	307	7.0	307	7.0	0.858	51.1	LOS F	6.2	164.4	0.94	1.39	2.55	19.7
Approach			433	7.0	433	7.0	0.858	41.2	LOS E	6.2	164.4	0.89	1.23	2.11	21.4
All Vehicles			2320	7.0	2320	7.0	0.924	12.9	LOS B	6.2	164.4	0.26	0.30	0.49	31.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Chase Street at US 129 Eastbound Ramps Build 2034 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Build 2034 PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed mph
South: Chase Street															
8	T1	All MCs	647	5.0	647	5.0	0.675	14.3	LOS B	8.4	218.6	0.77	0.76	1.28	29.8
18	R2	All MCs	856	5.0	856	5.0	0.537	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	36.4
Approach			1503	5.0	1503	5.0	0.675	6.3	LOS A	8.4	218.6	0.33	0.33	0.55	33.2
North: Chase Street															
7	L2	All MCs	262	5.0	262	5.0	0.650	6.0	LOS A	0.0	0.0	0.00	0.00	0.00	34.9
4	T1	All MCs	597	5.0	597	5.0	0.650	6.0	LOS A	0.0	0.0	0.00	0.00	0.00	35.7
Approach			858	5.0	858	5.0	0.650	6.0	LOS A	0.0	0.0	0.00	0.00	0.00	35.4
West: US 129 Eastbound Off Ramp															
5	L2	All MCs	75	5.0	75	5.0	0.136	8.1	LOS A	0.4	11.6	0.62	0.60	0.62	29.6
2	T1	All MCs	1	5.0	1	5.0	0.136	8.1	LOS A	0.4	11.6	0.62	0.60	0.62	30.2
12	R2	All MCs	280	5.0	280	5.0	0.503	15.2	LOS C	2.6	67.8	0.75	0.85	1.16	29.0
Approach			356	5.0	356	5.0	0.503	13.7	LOS B	2.6	67.8	0.72	0.79	1.05	29.1
All Vehicles			2718	5.0	2718	5.0	0.675	7.2	LOS A	8.4	218.6	0.28	0.29	0.44	33.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix G – PI 0015390 Excerpt from Concept Report

Georgia Department of Transportation

Interoffice Memo
Office of Design Policy & Support

DATE: **4/5/2023**

FILE: P.I.# 0015390
Clarke County / GDOT District 1 - Gainesville
CR 1037/CHASE STREET FM CR 478/BARBER STREET TO CSX #639916G - Sidewalk & Improvements; Intersection/Operational Improvements including roundabouts

FROM: Dave Peters for R. Christopher Rudd, PE, State Design Policy Engineer

TO: SEE DISTRIBUTION

SUBJECT: **APPROVED CONCEPT REPORT**

Attached is the approved Concept Report for the above subject project.

Attachment

Distribution:
Hiral Patel, Director of Engineering
Joe Carpenter, Director of P3
Albert Shelby, Director of Program Delivery
Clement Solomon, Director, Division of Intermodal
Darryl VanMeter, Assistant Director of P3/State Innovative Delivery Administrator
Matthew Markham, Deputy Director of Planning
Kim Nesbitt, Program Delivery Administrator
Bobby Hilliard, Program Control Administrator
Eric Duff, State Environmental Administrator
Donn Digamon, State Bridge Engineer
Alan Davis, State Traffic Engineer
Angela Robinson, Financial Management Administrator
Erik Rohde, State Project Review Engineer
Patrick Allen, State Materials Engineer
Nick Fields, State Utilities Administrator
Eric Conklin, State Transportation Data Administrator
Attn: Systems & Classification Branch
Lee Howell, Statewide Location Bureau Chief
Kelvin Mullins, District 1 District Engineer
SueAnne Decker, District 1 Preconstruction Engineer
Yulonda Pride-Foster, District 1 Utilities Manager
Michael Lawing, Project Manager

Project Concept Report

Template version: 2021.12.22

Project Type:	Sidewalks & Intersections	P.I. Number:	0015390
GDOT District:	1	County:	Clarke
Federal Route Number:	N/A	State Route Number:	N/A
Project Number:	N/A		

This project adds sidewalks and a side path along Chase Street in Athens, Clarke County, GA from the CSX Crossing #639916G south of Miles Street to Barber Street/Newton Bridge Road. Intersection and operational improvements (roundabouts) are included at the intersections of Oneta Street and the SR 10 Loop/US 129 Interchange.

Submitted for approval: **Report updated 3-21-2023 to address review comments

Erik Hammarlund, Alfred Benesch & Company	1/12/23 Date
Rani Katreeb, Athens-Clarke County Unified Government	01-18-2023 Date
State Program Delivery Administrator	1/26/2023 Date
GDOT Project Manager	1/19/23 Date

Recommendation for approval: * Recommendations on file - KLP

* Eric Duff State Environmental Administrator	1-27-2023 Date
* Oladimeji Onabanjo For State Traffic Engineer	2-9-2023 Date
* Joshua Taylor For Project Review Engineer	2-13-2023 Date
* Marcela Coll For State Utilities Engineer	2-8-2023 Date
* SueAnne Decker For District Engineer	2-14-2023 Date
* Donn Digamon State Bridge Engineer	2-26-2023 Date

* Albert Shelby, Director of Program Delivery, recommended for approval on 1-27-2023

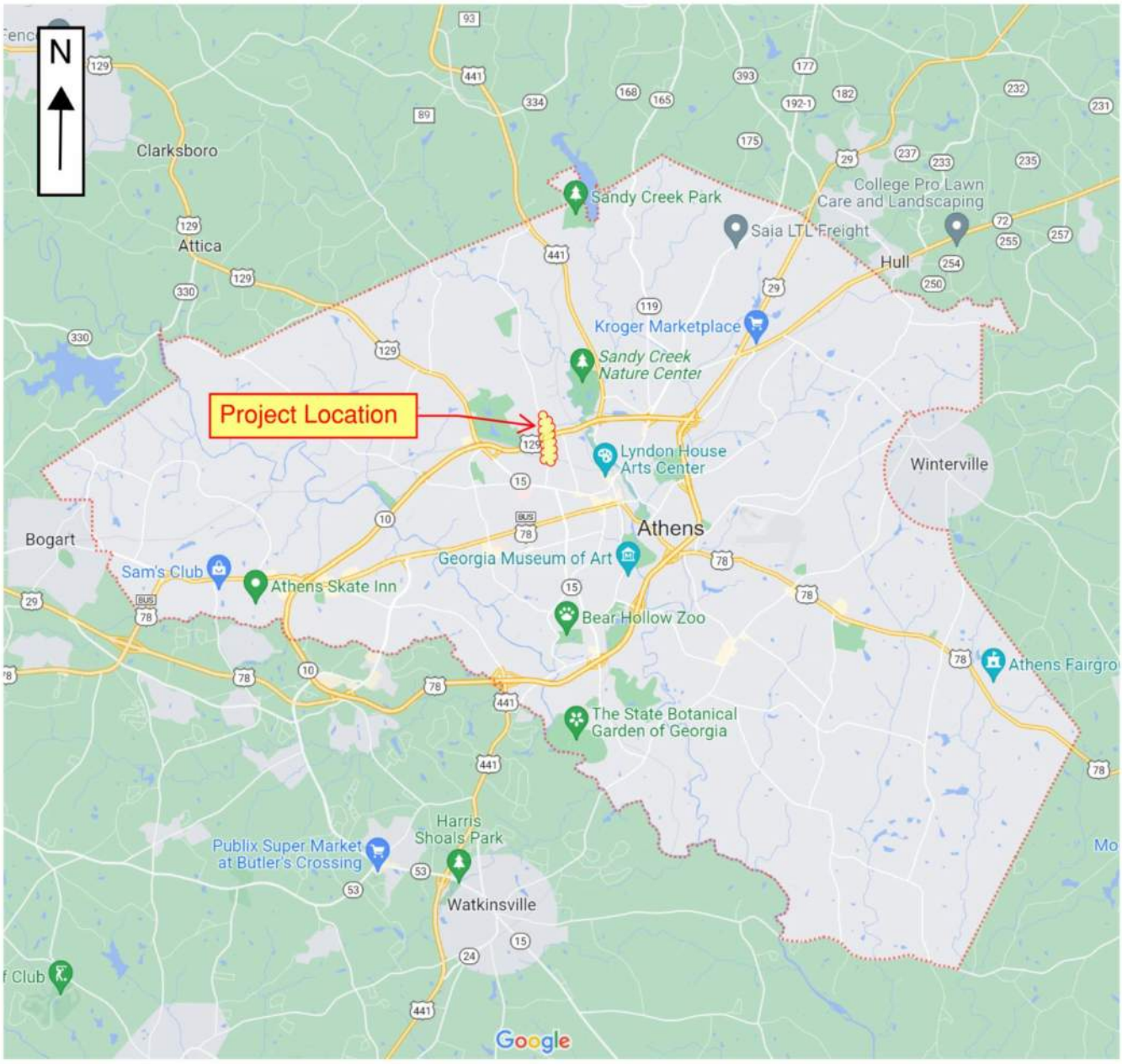
* Alan Hood, Air Safety Data Program Manager, recommended for approval on 2-6-2023

☒ MPO Area: This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).

☐ Rural Area: This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

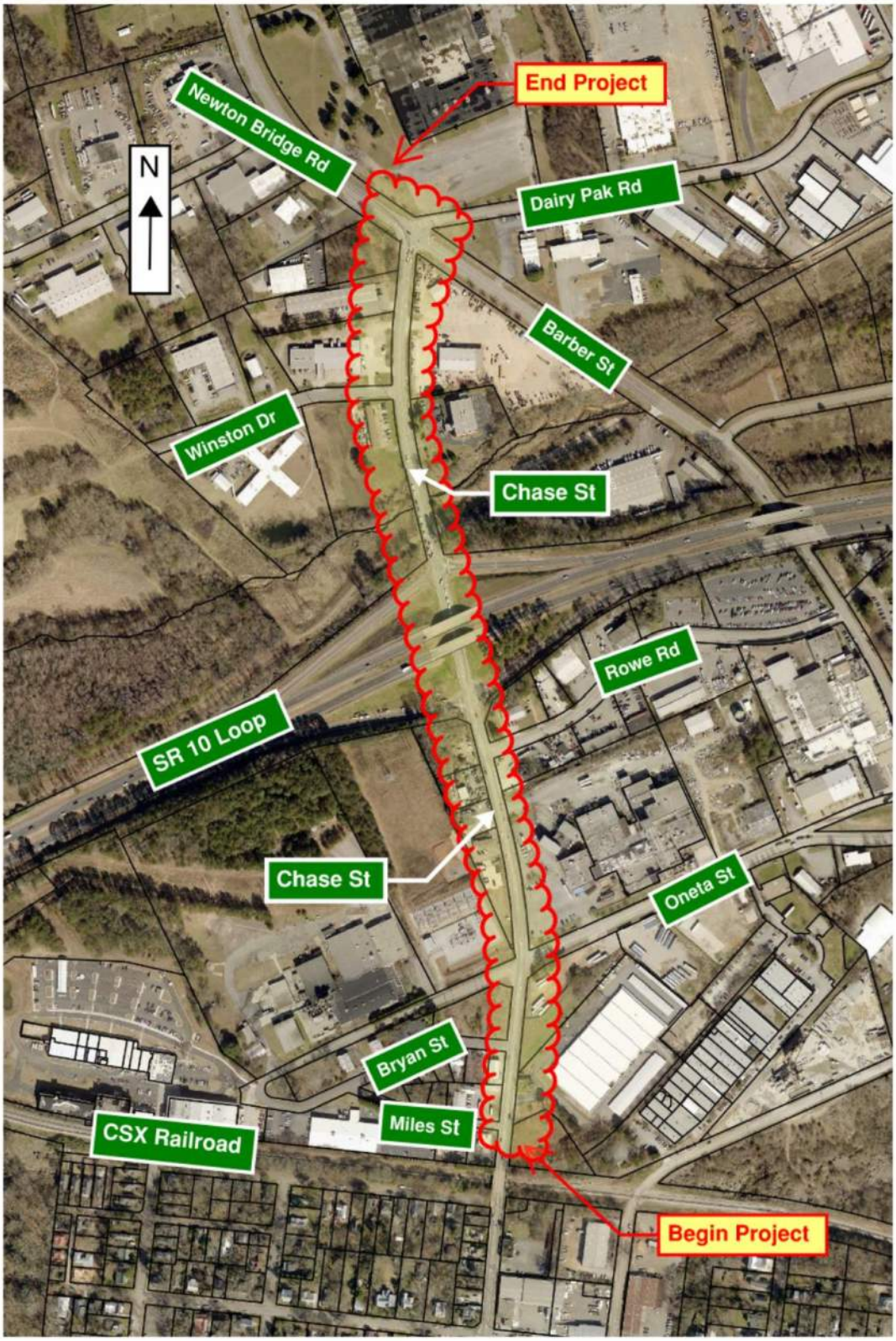
* Matt Markham *for* Division of Planning	2-12-2023 Date

PROJECT LOCATION MAP



PI 0015390 - CR 1037/CHASE STREET FM CR 478/BARBER STREET TO CSX #639916G

(Not to Scale)
Location Map for PI 0015390, CR 1037/Chase Street from North of CSX Crossing #639916G to CR 478/Barber Street



PI 0015390 - CR 1037/CHASE STREET FM CR 478/BARBER STREET TO CSX #639916G

(Not to Scale)

Location Map for PI 0015390, CR 1037/Chase Street from North of CSX Crossing #639916G to CR 478/Barber Street

PLANNING AND BACKGROUND

Prepared By: Athens-Clarke Unified Government **Date Completed:** *9/27/2021*

Project Justification Statement:

The proposed project is intended to provide connected multimodal facilities for enhanced access, mobility, and comfort of all users along Chase Street. The Chase Street corridor is a critical north-south connector in Athens, GA between areas north of the Perimeter (SR 10 Loop) and areas inside the Perimeter (Athens Downtown, University of Georgia, Piedmont Athens Regional Hospital). The corridor does not currently provide infrastructure for pedestrians and bicycles. The existing sidewalk lacks connectivity, ADA infrastructure, and pedestrian crossings at intersections. This project was identified within the Athens Clarke County Unified Government's Bicycle and Pedestrian Master Plan and further detailed in the Chase Street Corridor Study.

The following specific corridor and intersection issues will be addressed by this project:

1) The existing SR 10 Loop Interchange experiences long delays and queues. Specifically, the Inner Loop Intersection operates at a LOS F for both the AM and PM peak hours. Proposed roundabouts for the interchange will improve the level of service and enhance traffic calming.
2) The intersection geometry and operational efficiency of the Interchange Inner Loop Intersection is further complicated by the close proximity of the adjacent intersection of Rowe Road. Rowe Road is located approximately 200 feet south of the Inner Loop and is side-street stop controlled. It allows full movement and has a high truck percentage as it provides direct connectivity to an industry that is one of Athens largest employers. Proposed improvements include Restricting Rowe Road to a RIRO movement to mitigate conflict points.
3) Oneta Street is a side street that provides critical access for industrial, commercial, and residential properties. Vehicular speeds along Chase Street through this intersection are not controlled and frequently exceed the posted speed of 30 mph. The proposed roundabout will improve level of service and enhance traffic calming.
4) The Chase Street corridor lacks multimodal infrastructure. Most of the corridor is not accessible on foot or by bicycle as the corridor lack shoulders, sidewalks, ADA ramps, and crosswalks. The proposed sidewalks and sidepath will provide the infrastructure needed for a multimodal corridor.

This project was reviewed during public outreach events as part of the Bicycle and Pedestrian Master Plan Update. The project is supported by Athens In Motion (AIM) and the Athens Community. The Project was also reviewed with local stakeholders including Pilgrims Pride which is one of the area's largest employers located along Chase Street between Oneta Street and Rowe Road. Not only will this project provide needed bicycle and pedestrian infrastructure, but it will also improve the overall level of service (LOS) for the corridor which currently experiences peak hour congestion at the SR 10 Loop Interchange.

Existing conditions:

The location of this project is along Chase Street in Athens-Clarke County, GA from the CSX Crossing #639916G to CR 478/Newton Bridge Road/Barber Street.

Chase Street is a minor arterial with a posted speed of 30 mph near Oneta Street and a posted speed of 40 mph at the SR 10 Loop Interchange. The roadway is an undivided, four-lane facility from Newton Bridge Road/Barber Street to Rowe Road and a three-lane facility divided by a two-way left-turn lane (TWLTL) south of Rowe Road. Chase Street provides sidewalks (1,200 LF) along the western side of the road south of the SR10 Loop Interchange to Oneta Street.

Newton Bridge Road is a minor arterial with a posted speed limit of 45 MPH. The roadway is an undivided, four-lane facility with minimal turn-lanes present. Newton Bridge Road transitions to Barber Street west of Chase Street.

Barber Street forms a 62-degree skew angle with the intersection of Chase Street. Barber Street is a major collector with a posted speed limit of 45 MPH. The roadway is an undivided, four-lane facility west of SR 10 (Athens Loop) and an undivided, two-lane facility east of SR 10 (Athens Loop).

Dairy Pak Road is a local roadway. The roadway is an undivided, two-lane facility with no posted speed limit. Dairy Pak Road transitions to Chase Street south of Newton Bridge Road/Barber Street.

The intersection of Newton Bridge Road, Barber Street, Chase Street and Dairy Pak Road is traffic signal controlled and does not provide any pedestrian facilities or crossings.

SR 10 (Athens Loop) is a principal arterial. The SR 10 Loop Interchange at Chase Street consists of a conventional diamond interchange geometry with SR 10 crossing over Chase Street with separate bridges (eastbound/westbound). The eastbound and westbound exit ramps are two-lane (one-way) facilities while the entrance ramps are one-lane (one-way) facilities. The eastbound entrance/exit ramps are controlled by a traffic signal and the westbound entrance/exit ramps are stop-controlled.

Oneta Street is local roadway. The roadway is an undivided, two-lane facility with minimal turn-lanes present and a posted speed limit of 25 mph. Oneta Street is side-road stop-controlled and intersects Chase Street at a 65-degree skew angle. Oneta Street is an urban section with curb and gutter and does not have sidewalks.

Winston Drive is a local roadway. The roadway is an undivided, two-lane facility with no posted speed limit. Winston Drive is side-road stop-controlled and intersects Chase Street at 90-degrees. Winston Drive is an urban section with curb and gutter and does not have sidewalks.

Rowe Road is a local roadway. The roadway is an undivided, two-lane facility with minimal turn-lanes present and no posted speed limit. Rowe Road is side-road stop-controlled and intersects Chase Street at 90-degrees. Rowe Road is an urban section with curb and gutter but does not have sidewalks.

Miles Street is a local roadway. The roadway is an undivided, two-lane facility with no posted speed limit. Miles Street is side-road stop-controlled and intersects Chase Street at 90-degrees. Miles Street is an urban section with curb and gutter but does not have sidewalks.

Bryan Street is a local roadway. The roadway is an undivided, two-lane facility with no posted speed limit. Bryan Street is side-road stop-controlled and intersects Chase Street at 90-degrees. Bryan Street is an urban section with curb and gutter but does not have sidewalks.

GA Power has a large substation located in the northwest quadrant of the Oneta Intersection. There is also a power transmission line crossing Chase Street just north of the SR 10 Loop Interchange.

Other projects in the area:

- PI 0013954 – SR 15 ALT/CR 1228 from Sunset Drive to South of Pulaski Street – This project proposes the upgrade of seven signalized intersections and the installation of five midblock crossings. The project corridor is south of PI 0015390 and includes the intersection of Chase Street and SR 15 ALT. This project is in the final design phase. Let date is September 22, 2023. Conflicts with this project are not anticipated.
- Athens-Clarke County – Prince Avenue Bicycle Lane Pilot Project from Milledge Road to Pulaski Street – This first phase of this pilot project has been construction. Further construction and evaluation will occur. Conflicts with this project are not anticipated.
- Athens-Clarke County – Barber Street Separated Bicycle Facility from Newton Bridge Road to Prince – This project is in the preliminary engineering phase. Conflicts with this project are no anticipated.

MPO: *Athens* **TIP #:** N/A
Congressional District(s): *10*

Federal Oversight: ☐ **PoDI** ☒ **Exempt** ☐ **State Funded** ☐ **Other**

Projected Traffic (AADT):

Chase (South of Miles Street)
24 HR T: 5 % Current Year (2021): 13,500 Open Year (2028): 16,825 Design Year (2048): 18,525

Chase (North of Rowe Road)
24 HR T: 6 % Current Year (2021): 15,800 Open Year (2028): 19,675 Design Year (2048): 21,525

Chase (North of Eastbound Entrance/Exit Ramps)
24 HR T: 8 % Current Year (2021): 13,800 Open Year (2028): 18,175 Design Year (2048): 19,775

Chase (South of Oconee Medical)
24 HR T: 7 % Current Year (2021): 13,350 Open Year (2028): 18,450 Design Year (2048): 20,000

Chase (South of Newton Bridge Road/Barber Street)
24 HR T: 11.5 % Current Year (2021): 13,000 Open Year (2028): 18,050 Design Year (2048): 19,600

Oneta (East of Chase)
24 HR T: N/A Current Year (2021): 1,850 Open Year (2028): 2,150 Design Year (2048): 2,350

Oneta (West of Chase)
24 HR T: N/A Current Year (2021): 400 Open Year (2028): 700 Design Year (2048): 750

Newton Bridge Road
24 HR T: 9 % Current Year (2021): 14,750 Open Year (2028): 20,200 Design Year (2048): 22,000

Traffic data source: Field Counts
Traffic Projections Performed by: Kimley-Horn
Date approved by the GDOT Office of Planning: *1/18/2022*

AASHTO Functional Classification (Mainline): Minor Arterial
AASHTO Context Classification (Mainline): Urban
AASHTO Project Type (Mainline): Construction on existing roads
Is the project located on an NHS roadway? ☒ No ☐ Yes

Complete Streets - Bicycle, Pedestrian, and/or Transit Standards Warrants:

Warrants met: ☐ None ☒ Bicycle ☒ Pedestrian ☒ Transit

- Standard Bicycle Warrants 1, 2, and 3 are met. This project corridor was identified in the Athens-In-Motion (AIM) Bicycle and Pedestrian Master Plan as a Tier 2 Priority.
- Standard Pedestrian Warrants 1, 2, and 4 are met. This project is located close to industry, businesses, schools, housing, restaurants, and transit stops.
- Standard Transit Warrants 1 and 2 are met. This project area is serviced by the Athens-Clarke County Transit Department. This corridor is designated as Bus Route 8 and provides for 3 bus stops within the project limits.

Is this a 3R (Resurfacing, Restoration, & Rehabilitation) Project? ☒ No ☐ Yes

Pavement Evaluation and Recommendations

Initial Pavement Evaluation Summary Report Required? ☒ No ☐ Yes

Feasible Pavement Alternatives: ☒ HMA ☐ PCC ☐ HMA & PCC

Chase Street is included in the Athens-Clarke Unified Government Pavement Maintenance Program. The road was resurfaced in 2017 and received a crack sealing application in 2021. ACC inspections dated July 2019 indicated that the road was in very good to good condition. (Attachment 9)

Is the project located on a Special Roadway or Network? ☒ No ☐ Yes

Do the limits of the project include one or more signalized intersections? ☐ No ☒ Yes

There are existing signals at the intersections of Chase Street and Barber Street/Newton Bridge Road and the westbound SR 10 Loop Ramps.

Is Federal Aviation Administration coordination anticipated? ☒ No ☐ Yes

PI 0013590 is located approximately 3.5 miles from the Athens-Ben Epps Airport however no improvements are anticipated that will exceed 200' above roadway.

DESIGN AND STRUCTURAL

Description of the proposed project:

The Chase Street Project is located on the north side of Athens, GA. The project begins just north of the bridge over CSX Railroad and continues north for approximately 3,400 linear feet to the intersection of Newton Bridge Road, Dairy Pak Road, and Barber Street. Major intersections within the project are located at Oneta Street, Rowe Road, and the SR10 Loop interchange. There is one large culvert crossing over a tributary to the North Oconee River. Proposed improvements are intended to fit within the current road and ROW footprint with minimal widening to mitigate property impacts and environmental impacts. Initial concepts and design opportunities have been identified to include sidewalks, sidepaths, roundabouts, lighting, landscaping, signage, and pavement markings to encourage traffic calming and enhance mobility and efficiency for all users.

Major Structures:

Structure	Existing	Proposed
059-0054-0	Chase Street Bridge over CSX Railroad.	No proposed improvements to bridge. Roadway improvements will begin approximately 400' north of the bridge. Existing asphalt pavement overlay will begin approximately 200' north of the bridge.
059-0007-0 059-0008-0	US 129 / SR 10 Loop Bridge Over Chase (Westbound) US 129 / SR 10 Loop Bridge Over Chase (Eastbound)	No proposed improvements to structure. Pavement overlay, striping, curb and gutter, sidewalks and guardrail/barrier are proposed along roadway under bridge.
Double Barrel Culvert	Approximately 90' Length, 84" x 102" Elliptical Double Barrel CMP	Proposed improvements will include extension of the culvert, slope stabilization, inlet and outlet protection, headwall and wingwalls.

Mainline Design Features:

Chase Street	**Functional Classification:** *Minor Arterial*		
Feature	**Existing**	***Policy**	**Proposed**
Typical Section:			
- Number of Through Lanes	2 & 4		2
- **Lane Width(s) (-ft)**	**10-11 ft**	**11-12 ft**	**11' – 19'-6"**
- **Median Width (-ft) & Type**	**N/A**	**N/A**	**3' – 27'-6" Splitter Island**
- **Border Area Width (-ft)**	**Varies**	**10-16 ft**	**7'-6" to 17 ft**
- **Cross Slope (%)**	**Varies**	**2%**	**2%**
- **Outside Shoulder Slope (%)**	**Varies**	**2%**	**2%**
Sidewalks (-ft)	**0 - 7 ft**	**5 ft**	**5 – 10 ft**
- Auxiliary Lanes (# LTL, RTL or TWLTL / -ft width)	TWLTL/10-11 ft		TWLTL/11 -14 ft
- **Bike Accommodations**	**N/A**	**N/A**	10 ft Shared-Use Path
- Posted Speed (mph)	30 to 40 mph		35 mph
Design Speed (mph)	30 to 40 mph	**35 mph**	**35 mph**
Minimum Horizontal Curve Radius (-ft)	**N/A**	**371 ft**	*371 ft*
Maximum Superelevation Rate (%)	**Unknown**	**4%**	*4%*
Maximum Grade (%)	**7.5%**	**8%**	*7.5%*
Access Control	**By Permit**	**By Permit**	**By Permit**
Design Vehicle	Unknown		WB-62
Check Vehicle	Unknown		OSOW (85' Lowboy)
Pavement Type	HMA		HMA

**According to current GDOT Design Policy if applicable*

Oneta Street	**Functional Classification:** *Local Road and Street*		
Feature	**Existing**	***Policy**	**Proposed**
Typical Section:			
- Number of Through Lanes	2		2
- **Lane Width(s) (-ft)**	**11 ft**	**10-12 ft**	**Approaches: 14 - 21 ft (Circulatory Roadway: Varies 18-6 to 20 ft)**
- **Median Width (-ft) & Type**	**N/A**	**N/A**	**0' to 24'-9" Splitter Island**
- **Border Area Width (-ft)**	**Varies**	**10-16 ft**	**10 – 17 ft**
- **Cross Slope (%)**	**Varies**	**2%**	**2%**
- **Outside Shoulder Slope (%)**	**Varies**	**2%**	**2%**
- **Sidewalks (-ft)**	**0**	**10 ft**	**10 ft**
- Auxiliary Lanes (# LTL, RTL or TWLTL / -ft width)	**LTL/ 11-ft**		**N/A**
- **Bike Accommodations**	**N/A**	**N/A**	**N/A**
Posted Speed (mph)	25 mph		25 mph
Design Speed (mph)	25 mph	**25 mph**	**25 mph**
Minimum Horizontal Curve Radius (-ft)	**N/A**	**154 ft**	*154 ft*
Maximum Superelevation Rate (%)	**Unknown**	**4%**	*4%*
Maximum Grade (%)	**4.5%**	**11%**	*4.5%*
Access Control	**By Permit**	**By Permit**	**By Permit**
Design Vehicle	Unknown		WB-62
Check Vehicle	Unknown		OSOW
Pavement Type	HMA		HMA

**According to current GDOT Design Policy if applicable*

US/129 SR 10 Ramps	**Functional Classification:** *Principal Arterial*		
Feature	**Existing**	***Policy**	**Proposed**
Typical Section:			
- Number of Through Lanes	1-2		1-2
- **Lane Width(s) (-ft)**	**10 - 13 ft**	**12 ft**	**Approaches: 15 - 19 ft (Circulatory Roadway: 19 - 20 ft)**
- **Median Width (-ft) & Type**	**N/A**	**N/A**	**0' to 30'-6" Splitter Island**
- **Border Area Width (-ft)**	**Varies**	**10-16 ft**	**10 ft**
- **Cross Slope (%)**	**Varies**	**2%**	**2%**
- **Outside Shoulder Slope (%)**	**Varies**	**2%**	**2%**
- **Sidewalks (-ft)**	**N/A**	**N/A**	**N/A**
- Auxiliary Lanes (# LTL, RTL or TWLTL / -ft width)	LTL/12 ft		N/A
- **Bike Accommodations**	**N/A**	**N/A**	**N/A**
Posted Speed (mph)	N/A		N/A
Design Speed (mph)	45 mph	**45 mph**	**45 mph**
Minimum Horizontal Curve Radius (-ft)	**N/A**	**711 ft**	*711 ft*
Maximum Superelevation Rate (%)	**Unknown**	**4%**	*4%*
Maximum Grade (%)	**8%**	**8%**	*8%*
Access Control	**Full Control of Access**	**Full Contol of Access**	**Full Control of Access**
Design Vehicle	Unknown		WB-62
Check Vehicle	Unknown		OSOW (85' Lowboy)
Pavement Type	HMA		HMA

**According to current GDOT Design Policy if applicable*

Design Exceptions/Design Variances to FHWA or GDOT Controlling Criteria anticipated:

FHWA or GDOT Controlling Criteria	**No**	**Undetermined**	**Yes**	**DE or DV**	**Approval Date (if available)**
1. Design Speed	☒	☐	☐		
2. Design Loading Structural Capacity	☒	☐	☐		
3. Stopping Sight Distance	☒	☐	☐		
4. Horizontal Curve Radius	☒	☐	☐		
5. Maximum Grade	☒	☐	☐		
6. Vertical Clearance	☒	☐	☐		
7. Superelevation Rate	☒	☐	☐		
8. Lane Width	☒	☐	☐		
9. Cross Slope	☒	☐	☐		
10. Shoulder Width	☒	☐	☐		

Design Variances to GDOT Standard Criteria anticipated:

GDOT Standard Criteria	No	Undetermined	Yes	Approval Date (if applicable)
1. Access Control	☒	☐	☐	
2. Shoulder Width*	☐	☒	☐	
3. Intersection Sight Distance	☒	☐	☐	
4. Intersection Skew Angle**	☐	☒	☐	
5. Tangent Lengths on Reverse Curves	☒	☐	☐	
6. Lateral Offset to Obstruction***	☐	☒	☐	
7. Rumble Strips	☒	☐	☐	
8. Safety Edge	☒	☐	☐	
9. Median Usage	☒	☐	☐	
10. Roundabout Illumination Levels	☒	☐	☐	
11. Complete Streets Warrants	☒	☐	☐	
12. ADA Requirements in PROWAG	☒	☐	☐	
13. GDOT Construction Standards	☒	☐	☐	
14. GDOT Drainage Manual	☒	☐	☐	

*Shoulder width on the west side of Chase Street under the bridge is restricted by bridge columns. The existing shoulder width will be maintained to provide for 5' deflection behind guardrail. No sidewalk or sidepath improvements are proposed for the west side of road under bridge.

**Intersection Skew Angle may be needed for the intersection of Chase Street at Barber Street/Newton Bridge Road (61 degrees).

***Lateral Offset to Obstruction may be needed for utility installations that are existing in the clear zone.

All above items are existing conditions.

VE Study anticipated: ☒ No ☐ Yes ☐ Completed: *Date*

Lighting Proposed: ☐ No ☒ Yes Lighting will be required at the proposed roundabout locations.

Off-site Detours Anticipated: ☐ No ☒ Undetermined ☐ Yes

If yes: Roadway type to be closed: ☐ Local Road ☐ State Route
Detour Route selected: ☐ Local Road ☐ State Route
District Concurrence w/Detour Route: ☐ No/Pending ☐ Received
Detour Presented to Public: ☐ No ☐ Yes

Off-site detours may be considered for local side roads.

Transportation Management Plan [TMP] Required: ☐ No ☒ Yes
If Yes: Project classified as: ☒ Non-Significant ☐ Significant
TMP Components Anticipated: ☒ TTC ☐ TO ☐ PI

INTERCHANGES AND INTERSECTIONS

Interchanges/Major Intersections:
Chase Street an SR 10 Loop Eastbound/Westbound Ramps - The SR 10 Loop Interchange at Chase Street consists of a conventional diamond interchange geometry with SR 10 crossing over Chase Street with separate bridges (eastbound/westbound). The eastbound and westbound exit ramps are two-lane (one-way) facilities while the

entrance ramps are one-lane (one-way) facilities. The westbound entrance/exit ramps are controlled by a traffic signal and the eastbound entrance/exit ramps are stop-controlled.

Intersection Control Evaluation (ICE) Required: ☐ No ☒ Yes Approved ~~11/17/23~~ September 2022

Roundabout Concept Validation Required: ☐ No ☒ Yes ☒ Completed *1/5/2023*
Roundabout design checks are included in Appendix – Attachment 10. (Revised Design Checks Submitted to GDOT RAID 1/5/23 to include OSOW - 85' lowboy truck checks and approved via email 1/26/23).

UTILITY AND PROPERTY

Railroad Involvement: No railroad coordination anticipated. The proposed project start is north of CSX Crossing #639916G grade separation and will not impact the bridge structure or CSX right-of-way.

Utility Involvements:

1) Georgia Power - Distribution & Transmission
2) Atlanta Gas Light - Gas
3) AT&T - Telecommunications
4) Charter - Television
5) Comcast - Television
6) Parker FiberNet - Telecommunications
7) Crown Castle Networks – Telecommunications
8) Athens-Clarke County Public Utilities Department – Water & Sewer
9) Municipal Electric Authority of Georgia (MEAG) - Transmission

SUE Required: ☐ No ☒ Yes ☐ Undetermined

Public Interest Determination Policy and Procedure recommended: ☒ No ☐ Yes

Right-of-Way (ROW): Existing width: 50-80 ft. Proposed width: 50-80 ft.
Required Right-of-Way anticipated: ☐ None ☒ Yes ☐ Undetermined
Easements anticipated: ☐ None ☒ Temporary ☒ Permanent * ☐ Utility ☐ Other
* *Permanent easements include the right to place utilities.*

Anticipated total number of impacted parcels:		18
Displacements anticipated:	Businesses:	
	Residences:	
	Other:	
Total Displacements:		0

Location and Design approval: ☐ Not Required ☒ Required

Impacts to federally managed property anticipated: ☒ No ☐ Yes ☐ Undetermined

ENVIRONMENTAL & PERMITS

Anticipated Environmental Document: *NEPA ~ CE*

Level of Environmental Analysis:

☐ The environmental considerations noted below are based on preliminary desktop or screening level environmental analysis and are subject to revision after the completion of resource identification, delineation, and agency concurrence.

☒ The environmental considerations noted below are based on the completion of resource identification, delineation, and agency concurrence.

GDOT MS4 Permit Compliance – Is the project located in a GDOT MS4 area? ☐ No ☒ Yes
If yes, is the GDOT MS4 Permit anticipated to apply to all or part of this project? ☐ No ☒ Yes

Is ecology water quality mitigation anticipated? ☐ No ☒ Yes
Stream impacts are expected to be approximately 154 linear feet.

Will a Non-MS4 Detention Report be required during preliminary design? ☒ No ☐ Yes

Environmental Permits/Variances/Commitments/Coordination anticipated:

Permit/Variance/Commitment/ Coordination Anticipated	No	Yes	Remarks
1. U.S. Coast Guard Permit	☒	☐	
2. Forest Service/NPS	☒	☐	
3. CWA Section 404 Permit	☐	☒	Impacts to jurisdictional waters anticipated.
4. Tennessee Valley Authority Permit	☒	☐	
5. USACE Real Estate Outgrant	☒	☐	
6. Buffer Variance	☐	☒	Culvert inlet/outlet improvements may extend into buffer.
7. Coastal Zone Management Coordination	☒	☐	
8. NPDES	☐	☒	Land disturbance over 1 acre.
9. FEMA	☒	☐	
10. Cemetery Permit	☒	☐	
11. Other Permits	☒	☐	
12. Other Commitments	☒	☐	
13. Other Coordination	☒	☐	

Is a PAR required? ☒ No ☐ Yes

Environmental Comments and Information:
NEPA/GEPA: Environmental resource ID has been completed with agency concurrence as noted below.

Ecology: A field survey was conducted and identified one (1) jurisdictional water of the US. This perennial stream crosses through the project area via an existing double barrel culvert. Two (2) federally protected species were identified as potentially occurring within the proposed project area; the monarch butterfly, and the gray bat. The tricolored bat has been proposed endangered by the United States Fish and Wildlife Service; this species additionally has suitable habitat in the project area and will be addressed in forthcoming ecology reports. Two (2) state protected species were identified as potentially occurring within the project area; the Altamaha Shiner and the Georgia Aster. Special Provision 107.23 H will be required for impacts to protected species.

History: A review of existing information on previously identified historic properties revealed that one National Register listed property and one previously determined National Register-eligible property were identified within the proposed project's APE. The NRHP-listed property is the Boulevard Historic District, and the NRHP-eligible property

is the Georgia, Carolina & Northern Railway. Both properties are located immediately to the south just outside of the project limits.

A total of eight additional properties 50 years of age or older not identified in the DNR survey were identified within the proposed project's APE during the field survey. Of the eight properties that were surveyed, three (3) have been recommended eligible for inclusion in the National Register of Historic Places; The North Chase Street Industrial District (Resource 3), Athens Animal Hospital (Resource 6) and Better Maid Dairy Products Building (Resource 7.1).

Archeology: A search of Georgia's Natural, Archaeological, and Historic Resources Geographic Information System (GNAHRGIS) and the Georgia Archaeological Site File (GASF) revealed that five sites have been previously recorded within 1 km (0.62 mi) of the survey area. However, none of these identified sites are within the survey area and no additional archaeological resources were located within the project's area of potential effect. No signed concurrence from the State Historic Preservation Office is required.

Air Quality:

Is the project located in an Ozone Non-attainment area?	☒ No	☐ Yes
Is a Carbon Monoxide hotspot analysis required?	☐ No	☒ Yes

Noise Effects: Air and noise assessments will be completed as needed.

Public Involvement: Work completed prior to the Concept Report included the Chase Street Corridor Study which was completed in 2018 and utilized to apply for the TAP Grant. This study included multiple public outreach efforts and was supported by the Athens-In-motion (AIM) Committee and the ACC Mayor and Commission. Public outreach efforts included public meetings, workshops, and stakeholder meetings with businesses such as Pilgrim's Pride. Chase Street is one of several corridors in the immediate area that have been envisioned for improved muti-modal transportation.

Major stakeholders: Athens-Clarke Unified Government, Pilgrims Pride, local businesses, neighborhoods, traveling public.

CONSTRUCTION

Issues potentially affecting constructability/construction schedule:

- Staging of roundabouts under traffic.
- University of Georgia Home Football Schedule.

Early Completion Incentives recommended for consideration: ☒ No ☐ Yes

COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

Initial Concept Team Meeting: N/A

Concept Team Meeting: November 30, 2022. Meeting Minutes included in Appendix – Attachment 14b.

Other coordination to date: Public outreach completed during preparation of the Chase Street Corridor Study dated August 2018. Chase Street Corridor Study included in Appendix – Attachment 15a.

A coordination meeting was facilitated on 6/9/22 by the consultant team with ACC Staff and GDOT to review recent ACC leadership directives, adoption of complete streets policy (April 2022), and on-going adjacent project development. Meeting minutes included in Appendix - Attachment 14a.

Project Activity	Party Responsible for Performing Task(s)
Concept Development	Alfred Benesch & Company
Design	Alfred Benesch & Company
Right-of-Way Acquisition	GDOT/ACCGov
Utility Coordination (Preconstruction)	ACC/Gov
Utility Relocation (Construction)	Utility Owners
Letting to Contract	GDOT
Construction Supervision	GDOT
Providing Material Pits	Contractor
Providing Detours	Contractor
Environmental Studies, Documents, & Permits	Alfred Benesch & Company
Environmental Mitigation	ACCGov
Construction Inspection & Materials Testing	GDOT

Project Cost Estimate Summary and Funding Responsibilities:

	PE Activities		ROW[3]	Reimbursable Utilities[4]	CST[5]	Total Cost[6]
	PE Funding[1]	Section 404 Mitigation[2]				
Date of Estimate:	*10/18/2022*	*10/18/2022*	*9/23/2022*	*10/18/2022*	*3/1/2023*	
Proposed Funding Source(s):	Fed/Local	Fed/Local	TBD	TBD	Fed/Local	
Programmed Cost:	$1,000,000		N/A	N/A	N/A	$1,000,000
Estimated Cost:	$2,000,000	$159,390	$1,856,000	$2,000,000	$9,591,131	$15,606,521
Total Cost Difference:						$14,606,521

Note 1: Total PE estimated by Consultant Team (Benesch).
Note 2: Section 404 Mitigation Estimate prepared by Consultant Team (KHA) and submitted to GDOT on 10/18/22.
Note 3: ROW Estimate prepared by Consultant Team (CHB Acquisition Services) and submitted with Concept Report.
Note 4: Reimbursable Utilities Estimate prepared by Consultant Team (Platinum Geomatics) and submitted with Concept Report.
Note 5: CST Cost includes: Construction, Engineering and Inspection, Contingencies and Asphalt Fuel Price Adjustment.
Note 6: Programmed cost of $1,000,000 includes TAP Funding and 20% Local Match. Additional funding is anticipated through a combination of Local/State/Federal funds.

ALTERNATIVES DISCUSSION

Alternative selection:

Preferred Alternative: Sidewalks along the west side of Chase Street and a sidepath along the east side of Chase Street. Roundabouts at Oneta Street, SR 10 Westbound Entrance/Exit Ramp, SR 10 Eastbound Entrance/Exit Ramp, and RIRO at Rowe Road.

Estimated Property Impacts:	18 Parcels	**Estimated Total Cost:**	$15,606,521
Estimated ROW Cost:	$1,856,000	**Estimated CST Time:**	24-30 Months

Rationale: This alternative provides the best combination and balance of mobility throughout the corridor. It establishes pedestrian and bicycle access while also providing measures for traffic calming. The three (3) roundabouts and RIRO improvement at Rowe Road will provide continuous movement for vehicles to access SR 10 Loop while reducing conflict points and enhancing safety. The addition of RRFB's will enhance pedestrian crossings at the roundabouts.

Operationally, the three (3) roundabouts and RIRO at Rowe Road are designed to work together. Specifically, the restricted RIRO movement at Rowe Road necessitates a U-turn movement at the Oneta Street (roundabout) intersection.

This alternative (roundabouts) provides a higher LOS and ICE Stage 2 score than the other alternative (traffic signals). This alternative was presented to the Athens-Clarke County Community through public outreach as part of the Chase Street Corridor Study in 2018 and has public support as the preferred alternative. This alternative was also used as the supporting documentation to secure the current TAP Grant Funding. The layout is consistent with the recently adopted ACC Complete Streets Policy and provides bicycle and pedestrian facilities consistent with the Athens-In-Motion (AIM) Bicycle and Pedestrian Master Plan. While the B/C ratio is higher for the traffic signal alternative, the traffic signals do not provide the desired traffic calming measures, they do not mitigate conflict points, and they result in an overall lower LOS.

The ICE Stage 2 score for the SR10 WB Ramps is 5.4.
The ICE Stage 2 score for the SR10 EB Ramps is 6.8.
The ICE Stage 2 score for the Oneta Street Intersection is 5.1.

The B/C Ratio is 8.62.

No-Build Alternative: No improvements along Chase Street

Estimated Property Impacts:	None	**Estimated Total Cost:**	$0
Estimated ROW Cost:	$0	**Estimated CST Time:**	None

Rationale: This corridor does not currently provide bicycle and pedestrian facilities. The SR 10 Loop Interchange only provides one traffic signal for the westbound entrance and exit ramps. The eastbound entrance/exit ramp intersection currently operates at a LOS F during both the AM and PM peak. The Oneta Street intersection currently operates at a LOS F during the PM peak. This alternative does not meet the needs of the ACC Community and the strategic initiatives outlined in the AIM Bicycle and Pedestrian Master Plan to enhance bicycle and pedestrian corridors.

Alternative 1: Sidewalks along the west side of Chase Street and a side path along the east side of Chase Street. Install traffic signals at Oneta Street, and SR 10 Eastbound Entrance/Exit Ramp. Update traffic signal at SR 10 Westbound Entrance/Exit Ramp. Install a RIRO or RCUT intersection at Rowe Road.

Estimated Property Impacts:	21 Parcels	**Estimated Total Cost:**	$10,549,258
Estimated ROW Cost:	$1,652,000	**Estimated CST Time:**	24-30 Months

Rationale: This alternative (traffic signals) also provides pedestrian and bicycle access throughout the corridor and traffic signals will provide some benefit for vehicle traffic. However, the roundabout (preferred) alternative provides for better LOS, traffic calming and mitigation of conflict points within the intersections.

The ICE Stage 2 analysis ranked traffic signals lower than roundabouts for the SR10 Loop interchange. And while the ICE Stage 2 score for a traffic signal is higher than a roundabout at the Oneta Street intersection, operationally it will not work with the two (2) roundabouts and RIRO movement at Rowe Road.

The traffic signal alternative does not meet the expectations for traffic calming as expressed by the ACC Community during public outreach for the 2018 Chase Street Study. Traffic signals are also not consistent with the TAP Grant submittal and funding.

The ICE Stage 2 score for the SR10 WB Ramps is 3.6.
The ICE Stage 2 score for the SR10 EB Ramps is 6.0.
The ICE Stage 2 score for the Oneta Street Intersection is 6.7.

The B/C Ratio is 29.05.

Comments:

1) A 5’ sidewalk was considered in place of the 10’ wide side path on the east side of Chase Street but that alternative would force bicyclists to share the road with vehicles. A side path has been identified as more desirable by the Athens Community & the Athens Clarke County Transportation & Public Works Department.

2) Two intersection alternatives were also considered for the Rowe Road intersection. An RCUT and a RIRO were both analyzed utilizing ICE. The RIRO Stage 2 score is 6.2 and the RCUT Stage 2 score is 3.6. The RIRO is preferred in combination with the roundabouts because of the proximity of the Rowe Road intersection to the SR 10 Loop Interchange and the functionality of the Oneta roundabout to allow for U-turn movements.

LIST OF ATTACHMENTS/SUPPORTING DATA

1. Concept Layout – Preferred Alternative (Roundabouts)
2. Typical sections
3. Detailed Cost Estimates:
    a. Construction Cost Estimate
    b. Right-of-Way
    c. Environmental Mitigation
    d. Utilities
4. Concept Utility Report
5. Crash summaries and diagrams
6. Design Traffic diagrams
7. Capacity analysis summary
8. Summary of TE Study Executive Summary
9. ICE Report(s)
    a. Stage 1 and Stage 2 Ice Reports
    b. Approved ICE Waiver – Chase Street & Oneta Street
    c. Approved ICE Waiver – Chase Street & Barber Street
10. Roundabout Data – Design Checks
11. Culvert Inspection – ACC 2022 Culvert Inspection
12. MS4 Concept Report Summary and Drainage Map
13. Pavement Studies – ACC 2019 Pavement Condition Index (PCI)
14. Minutes of Meetings
    a. ACCGov Coordination Meeting – 6/9/22
    b. Concept Team Meeting – 11/30/22
15. Other items:
    a. Chase Street Corridor Study
    b. Concept Layout Alternative - Traffic Signals
    c. Concept Layout Alternative Typical Sections – Traffic Signals
    d. Construction Cost Estimate – Traffic Signal Alternative
    e. ROW Cost Estimate – Traffic Signal Alternative
    f. Local support letter

APPROVALS

Concur: Hiral Patel — Director of Engineering — 4/04/2023 — Date

Approve: Meg Pirkle AJH — Digitally signed by Andrew Heath DN: C=US, E=aheath@dot.ga.gov, O=Georgia DOT, OU=Chief Engineer Office, CN=Andrew Heath Date: 2023.04.05 14:12:55-04'00' — Chief Engineer — 4/5/2023 — Date

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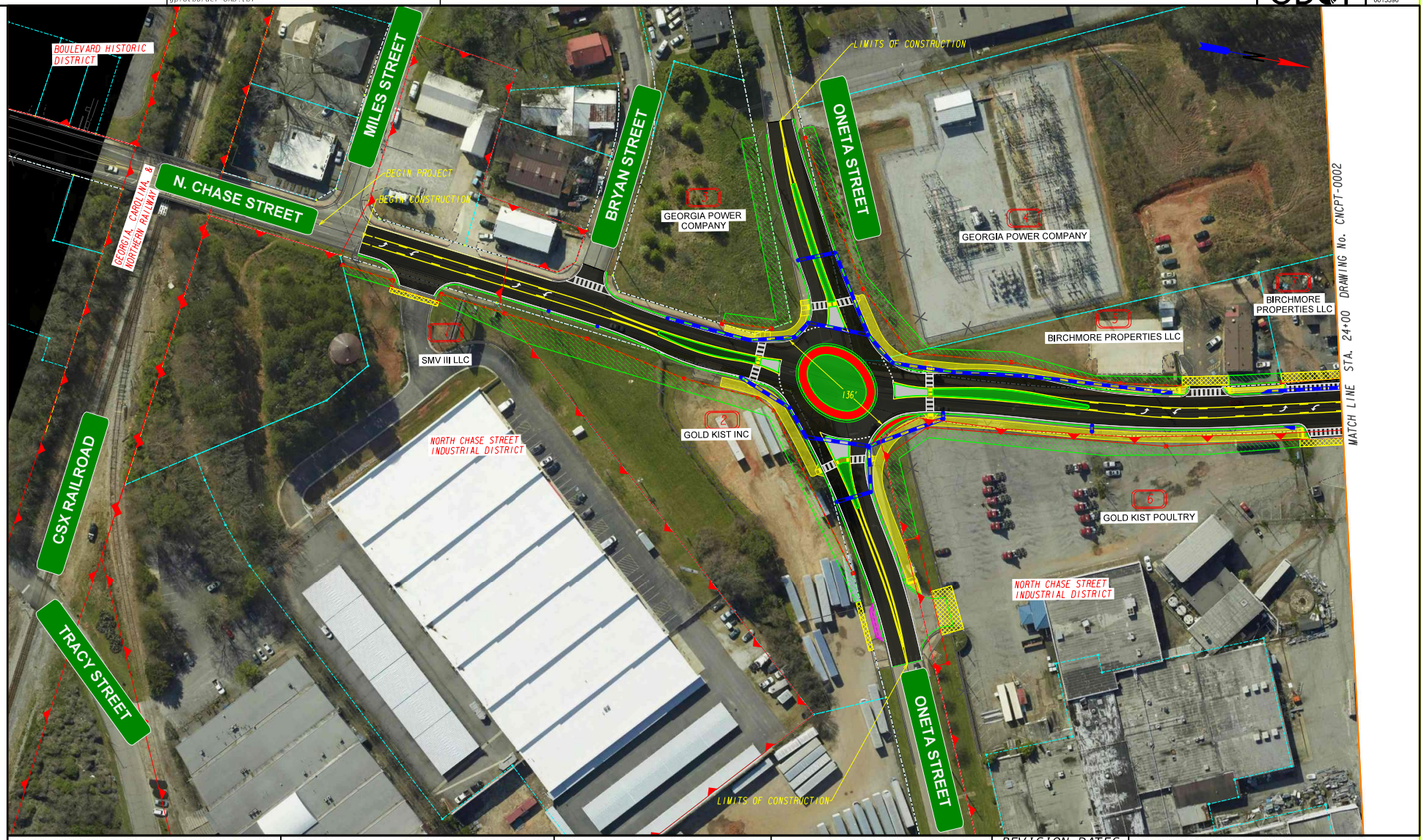

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
EXISTING LIMIT OF ACCESS
REQ'D LIMIT OF ACCESS
EXISTING LIMIT OF ACCESS & R/W
REQ'D LIMIT OF ACCESS & R/W
ORANGE BARRIER FENCE
ESA - ENV. SENSITIVE AREA

GDOT Georgia Department of Transportation

benesch

SCALE IN FEET
0 50 100 200

REVISION DATES

CONSTRUCTION PLAN
CR 1037/CHASE STREET FROM CR 478/BARBER STREET TO CSX #639916G
PREFERRED ALTERNATIVE

CHECKED:		DATE:	DRAWING No.:
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	CNCPT-0001
VERIFIED:		DATE:	

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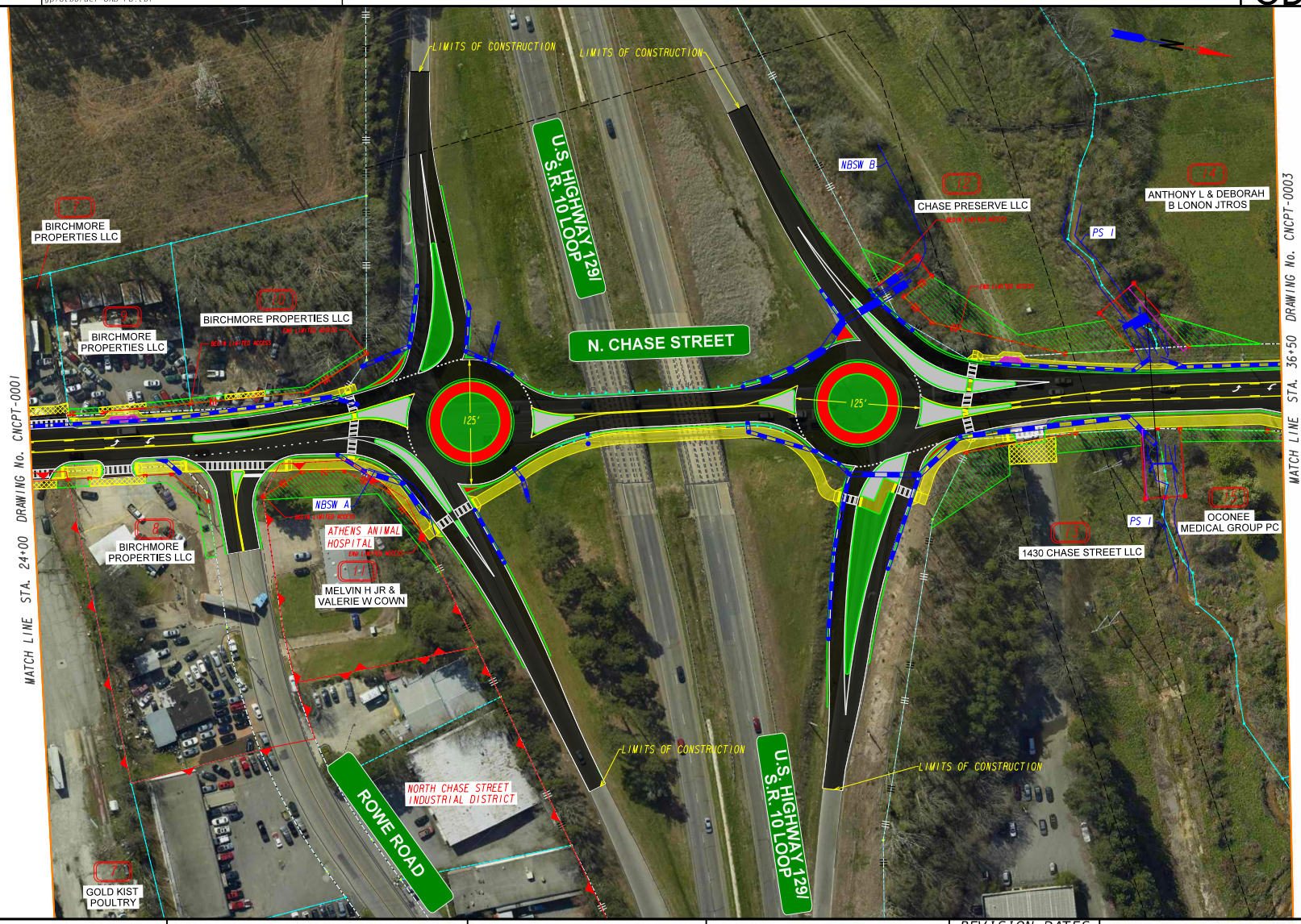

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CORRECTED: DATE:
VERIFIED: DATE:

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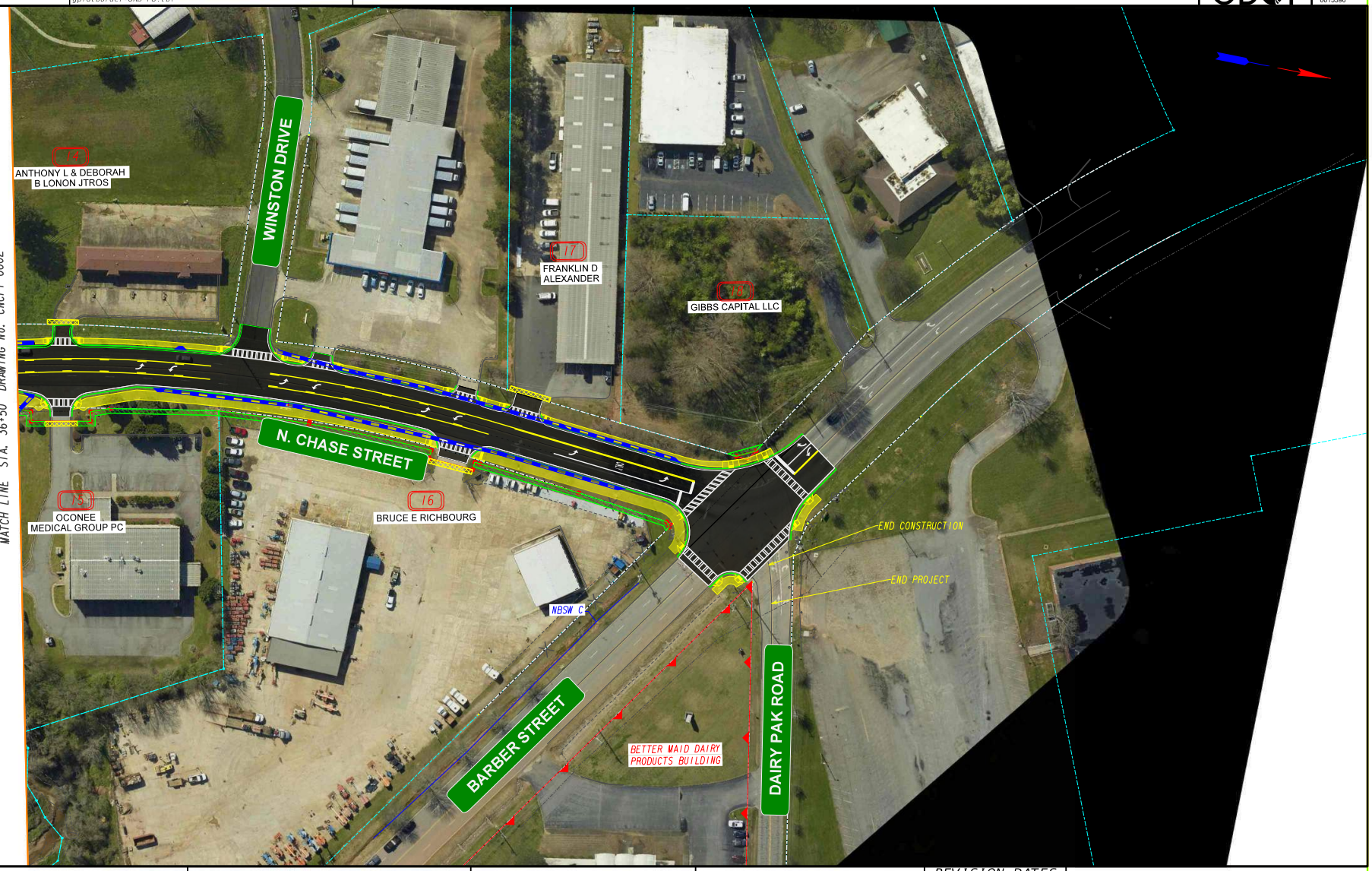

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