TRAFFIC IMPACT STUDY

FOR

DRI 2519
ANVIL BLOCK ROAD DEVELOPMENT
CLAYTON COUNTY, GA

Prepared For:

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EXECUTIVE SUMMARY

This traffic impact study has been conducted to determine the traffic impacts expected from the proposed Anvil Block development in the city of Ellenwood, GA. The development is planned to be completed in 2017. The development is located on Lunsford Drive, west of Bouldercrest Road and east of Interstate 675 (I-675). The development will be accessed via Lunsford Drive.

Capacity analyses and level of service evaluations of the intersections in the vicinity of the development were conducted for the existing condition; future condition without the development; and future condition with the proposed development. Analyses of the new driveways were conducted for the future condition with the proposed development. The evaluations were used to determine any potential mitigation that might be recommended to resolve any traffic issues resulting from the proposed development.

A widening and reconstruction project of Anvil Block Road by GDOT is currently underway. This work is being done under PI#0004638 and PI#771210, which was let for construction in early 2015. Construction is programmed for completion in late 2016. The project includes a typical section of four 12-foot travel lanes with a 20-foot raised median from Lunsford Drive to Bouldercrest Road.

All studied intersections are expected to continue to operate at an acceptable level of service with the full build out of the development as proposed. The proposed development does not significantly impact the operations or capacity of the intersections. The development will construct a right-turn deceleration lane on Lunsford Drive at the intersection of the second driveway. The study concluded that with the proposed development there is no need for any additional lanes at any other intersections, and that the intersections operate at an acceptable level of service.

This development is under consideration as DRI 2519. The majority of the property was previously considered by GRTA in 2003 as part of DRI 390, Ellenwood Township. The Notice of Decision (NOD) for DRI 390 was issued in 2003 and revised on August 3, 2006. This document identifies the intent and objectives of the prior DRI conditions that impact the subject property, and what is being done to consider and incorporate into the site plan.

This project exceeds 500,000 SF of industrial use, so it qualifies to be analyzed as a Development of Regional Impact (DRI). The proposed DRI meets the Expedited Criteria requirement listed in Section 3-102, B-2, “More than one thousand (1,000) but not more than three thousand (3,000) gross daily trips will be generated by the DRI, based on a trip generation memorandum and requires the submittal of an Access Analysis…”

Based on data obtained from Trip Generation calculations the number of average daily trips for the Warehouse Land Use is 1,415 entering and 1,414 exiting (2,829 total). This meets the criteria listed above. This study shall serve as the required access analysis.

PROJECT DESCRIPTION

A traffic impact study has been conducted for the proposed Anvil Block development that is planned on the east side of Lunsford Drive backing up to Bouldercrest Road near the City of Ellenwood in Clayton County, Georgia. The proposed development will have approximately 794,600 SF of general warehouse space and is planned to be completed in 2017. The development will create three new driveways on Lunsford Drive. The conceptual site plan of the development is included in the appendix. Figure 1 is a map of the vicinity of the proposed development.

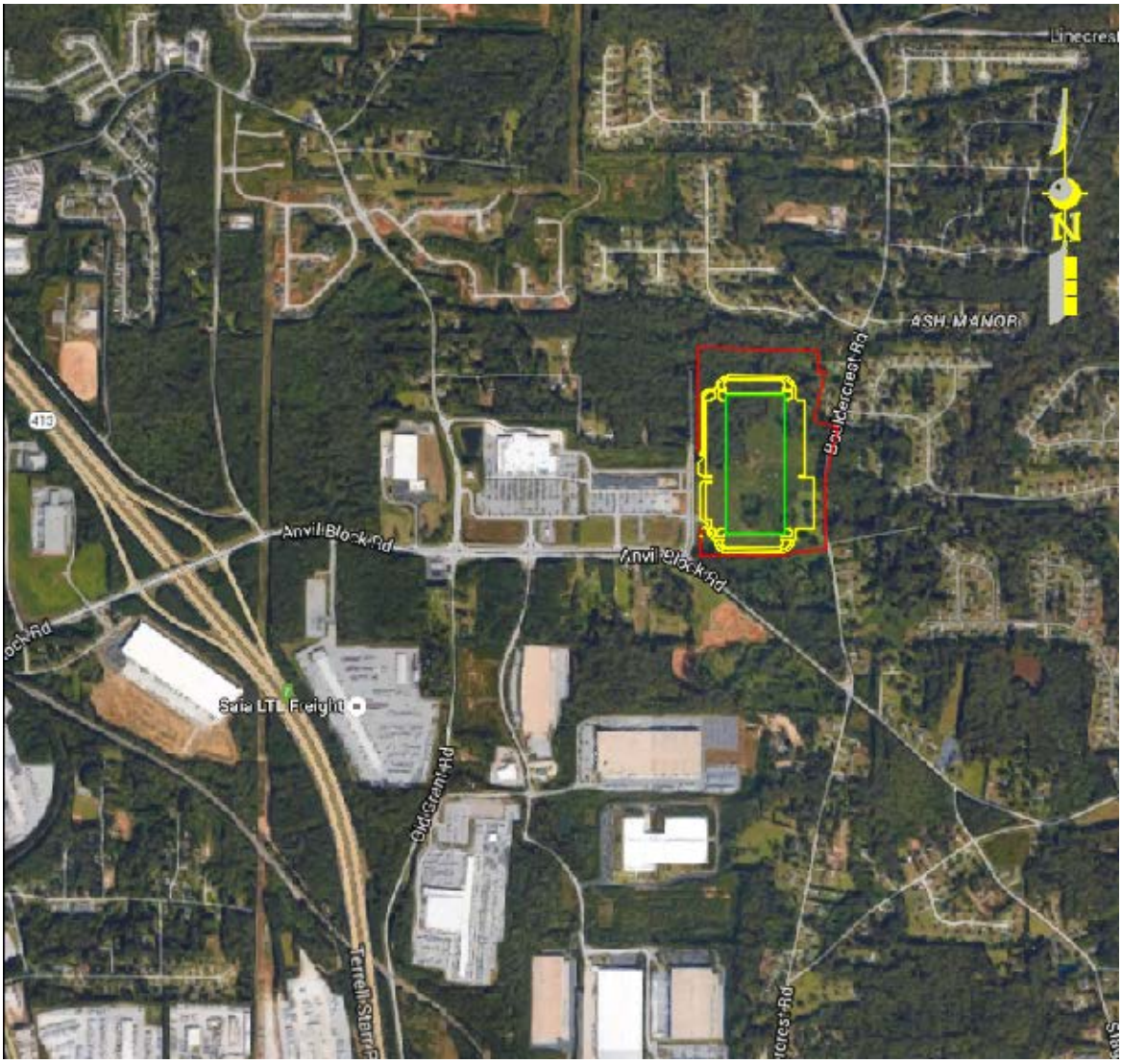


Figure 1: Location Map

The traffic impacts with the development as proposed will be compared to the traffic impacts on the surrounding roadway network in the future without the development. The development is in an urban area.

A widening and reconstruction project of Anvil Block Road by GDOT is currently underway. This work is being done under PI#0004638 and PI#771210, which was let for construction in early 2015. Construction is programmed for completion in late 2016, so

the roadway project will be finished before the development is complete. The project includes a typical section of four 12-foot travel lanes with a 20-foot raised median from Lunsford Drive to Bouldercrest Road. The project continues along Anvil Block Road to the Henry County line with a two-lane section and a two-way left turn lane.

The study intersections for the development are:

- Anvil Block Road at Grant Road
- Anvil Block Road at Lunsford Drive
- Anvil Block Road at Bouldercrest Road
- Lunsford Drive at Development Driveway 1
- Lunsford Drive at Development Driveway 2
- Lunsford Drive at Development Driveway 3

The primary study intersections were analyzed for the existing condition, future background condition without the development, and future condition with the proposed development. All analyses conducted as part of this study have been based on the data collected for the existing condition and an assumed growth rate for this area estimated based on historical traffic counts and future growth potential of the area. Any variations to the existing database and the assumptions made may affect the results of the study.

EXISTING CONDITIONS-2015

The study area consists of the intersection of Anvil Block Road at Lunsford Drive, Anvil Block Road at Old Grant Road, and Anvil Block Road at Bouldercrest Road. Anvil Block Road connects to I-675 east of the proposed development site and the main intersection of study. Directly adjacent to the site are commercial and residential land uses, with industrial land uses just across Anvil Block Road.

Pedestrian facilities are currently present at the study intersection of Anvil Block Road at Lunsford Drive. There is sidewalk located along both sides of Anvil Block Road west of Lunsford Drive, and sidewalk is proposed on both sides of Anvil Block Road east of Lunsford Drive as part of PI#0004638 and PI#771210. Pedestrian facilities, including crosswalks, a raised island, ramps, and pedestrian signals are present at the intersection. The sidewalk continues on both sides of Lunsford Drive.

The intersection of Anvil Block Road at Old Grant Road currently includes pedestrian facilities. The sidewalk along Anvil Block Road begins at this intersection and continues eastward. The pedestrian facilities present include crosswalks, ramps, and pedestrian signals. The intersection of Anvil Block Road and Bouldercrest Road will be fully upgraded with pedestrian facilities as part of PI#0004638 and PI#771210.

As of August 2015 MARTA Transit began operating bus route 195 that runs from College Park Station along Anvil Block Road. A bus stop is located at the intersection Anvil Block Road and Lunsford Drive.

Intersection Geometry

Anvil Block Road at Lunsford Drive

This is a signalized three-legged intersection with Anvil Block Road being the main street. This intersection has been constructed to accept the widening project. To the west, it has the road width and pavement to provide four lanes and a raised median, but it is marked to transition the road to single lane approaches on the main street. Lunsford Drive is the southbound approach and has exclusive lanes for the left and right turn movements, with the right turn being channelized with a raised island. The intersection is signal-controlled with a protected-permissive left-turn operation for the eastbound traffic.

After the construction of the roadway project under PI#0004638 and PI#771210, there will be two lanes approaching the intersection in each direction on the main street with an exclusive eastbound left turn lane and an exclusive westbound u-turn lane. A westbound right turn lane is proposed at Lunsford Drive as part of the project.

Anvil Block Road at Old Grant Road

This is a signalized four-legged intersection with Anvil Block Road being the main street. The eastbound and westbound approaches both have two through lanes. Both approaches have exclusive left-turn lanes, and the westbound approach has an exclusive right-turn lane. The northbound approach has an exclusive left-turn lane and a shared thru-right lane. The southbound approach has an exclusive through lane, an exclusive right-turn lane, and an exclusive left-turn lane.

Anvil Block Road at Bouldercrest Road

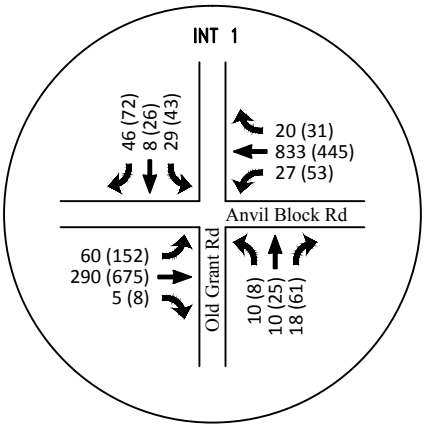
This is a signalized four-legged intersection with Anvil Block Road being the main street. All inbound approaches are currently single-lane approaches with only the southbound direction on Bouldercrest Road having a channelized right-turn with a raised island. After the construction of the roadway project under PI#0004638 and PI#771210, each approach will have an exclusive through lane, an exclusive right-turn lane, and an exclusive left-turn lane.

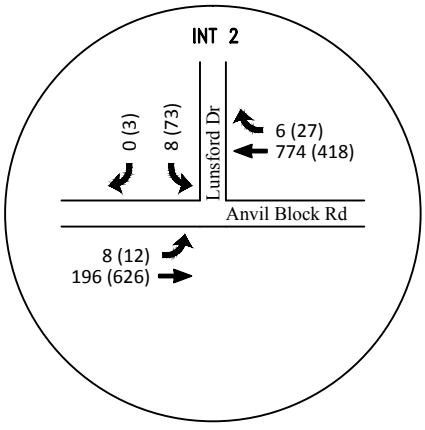
Traffic Volumes

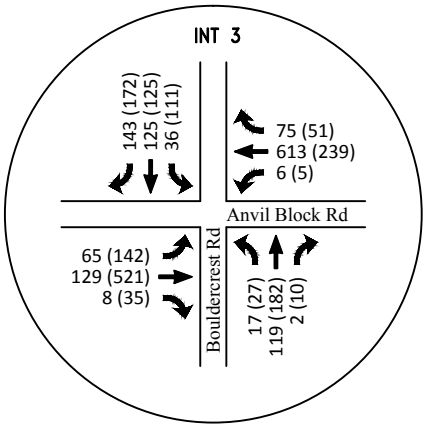
Turning Movement Counts (TMC) were collected at all three intersections of study. The counts were collected on Tuesday May 5, 2015 during the AM & PM peak hour periods of 7:00 AM – 9:00 AM and 4:00 PM - 6:00 PM.

The morning peak hour at the intersection of Anvil Block Road and Lunsford Drive occurred from 7:00 AM to 8:00 AM. The afternoon peak hour occurred from 5:00 PM to 6:00 PM. The morning peak hour at the intersection of Anvil Block Road and Old Grant Road occurred from 7:15 AM to 8:15 AM and the afternoon peak hour from 5:00 PM to 6:00 PM. The morning peak hour at the intersection of Anvil Block Road and Bouldercrest Road occurred from 7:00 AM to 8:00 AM and the afternoon peak hour from 4:45 PM to 5:45 PM.

Figure 2 shows the existing peak hour traffic volumes.







Legend: AM (PM)

EXISTING YEAR 2015
PEAK HOUR VOLUME
SKYLINE II DEVELOPMENT

FIGURE 2

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Roadway Conditions

24-hour bi-directional volume counts were collected on Anvil Block Road between I-675 and Lunsford Drive and on Bouldercrest Road north of Anvil Block Road. GDOT daily, monthly, and axle traffic factors were used to adjust the short-term traffic counts into average annual daily traffic (AADT) volumes.

Anvil Block Road

According to GDOT, Anvil Block Road is functionally classified as an urban minor arterial. Anvil Block Road travels generally in the east-west direction with a posted speed limit of 45 mph. The AADT was 11,990 vehicles per day (vpd) on Anvil Block Road west of Lunsford Drive. The truck percentage on the road was 7%.

A widening and reconstruction project of Anvil Block Road by GDOT is currently underway. This work is being done under PI#0004638 and PI#771210, which was let for construction in early 2015. Construction is programmed for completion in late 2016, so the roadway project will be finished before the development is complete. The project includes a typical section of four 12-foot travel lanes with a 20-foot raised median from Lunsford Drive to Bouldercrest Road.

Old Grant Road

According to GDOT, Old Grant Road is functionally classified as an urban local road. Old Grant Road travels generally north-south with a posted speed limit of 35 mph.

Bouldercrest Road

According to GDOT, Bouldercrest Road is functionally classified as an urban collector. Bouldercrest Road travels generally in the north-south direction with a posted speed limit of 45 mph. The AADT was 7,430 vpd on Bouldercrest Road north of Anvil Block Road. The truck percentage on the road was 8%.

Level of Service

Intersection capacity analyses were performed to determine the existing traffic conditions within the study area. Intersection capacity analyses were performed using the methodology outlined in the 2010 Highway Capacity Manual (HCM). This methodology is the industry standard for the evaluation of intersection capacity and delay. In order to facilitate the analysis, computer software Synchro and HCS 2010 were used. This software conforms to the methodology of the HCM. The vehicular delay value that results from the Synchro analysis is used to determine the level of service of an intersection. Level of service (LOS) is a letter designation used to describe traffic operating conditions, on a declining scale from A to F. LOS “A” represents free-flow traffic conditions and LOS “F” represents extreme delays with stopped traffic conditions. Tables 1 & 2 below indicate the relationship between delay and level of service for un-signalized & signalized intersections.

Table 1 : Level of Service for Un-Signalized Intersections	
Level of Service	**Control Delay Per Vehicle (sec)**
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Table 2 : Level of Service for Signalized Intersections	
Level of Service	**Control Delay Per Vehicle (sec)**
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

The results of the existing intersection capacity analyses are summarized in Table 3 below. For Side Street Stop Control intersections, delay and LOS are given for the minor street only. The intersection capacity analyses worksheets are included in the appendix.

Table 3: Existing Year-2015 Level of Service			
		Existing-2015	
Intersection	**Type of Control***	**AM-Peak Delay (LOS)**	**PM-Peak Delay (LOS)**
Anvil Block Road at Old Grant Road	Signalized	12.0 (B)	9.6 (A)
Anvil Block Road at Lunsford Drive	Signalized	14.5 (B)	10.7 (B)
Anvil Block Road at Bouldercrest Road	Signalized	26.8 (C)	38.7 (D)

*For side street stop control intersections, delay and LOS are given for minor street only

Under existing conditions, all system intersections are operating at an acceptable level of service during AM and PM peak hours, at or above the minimum LOS D.

FUTURE BACKGROUND CONDITIONS-(2017) Without Development

Future Traffic Volumes

To estimate the volumes that will exist in the vicinity of the proposed development during the anticipated full build out year of 2017, current traffic trends were evaluated. Based on GDOT's STARS information the surrounding area has shown some negative growth. For the purpose of this study and to provide the most conservative analysis an assumed growth rate of 1% is used to estimate future traffic volumes in the project area. The future background traffic volumes are shown in Figure 3.

Future Intersection Geometry

The geometry at Anvil Block Road and Old Grant Road will remain unchanged in the future condition. However, both the intersection with Lunsford Drive and with Bouldercrest Road will be modified by the roadway project under PI#0004638 and PI#771210.

At Anvil Block Road and Lunsford Drive, there will be two lanes approaching the intersection in each direction on the main street with an exclusive eastbound left turn lane and an exclusive westbound u-turn lane. A westbound right turn lane is proposed at Lunsford Drive as part of the project. At Anvil Block Road and Bouldercrest Road, each approach will have an exclusive through lane, an exclusive right-turn lane, and an exclusive left-turn lane.

Future Background Level of Service

The level of service for the future background condition was determined using the same method as discussed previously in the Existing Conditions – Level of Service section. Intersection capacity analyses were performed on the future background traffic volumes. The LOS for the intersection was similar to the existing conditions.

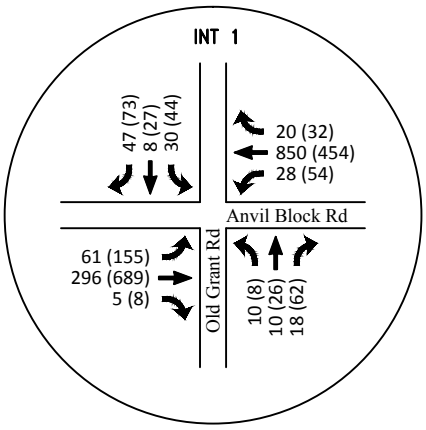
The results of the intersection capacity analysis for the 2017 future background year are summarized in Table 4. The study worksheets are included in the appendix.

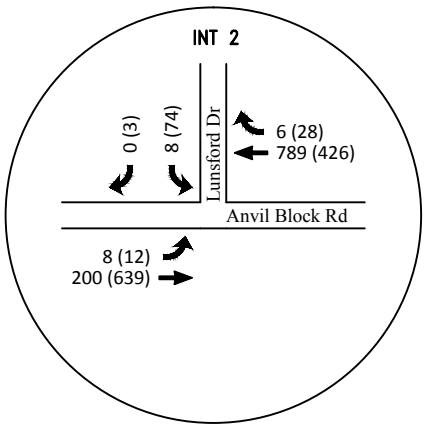
Table 4: Future Background Level of Service w/o Proposed Development

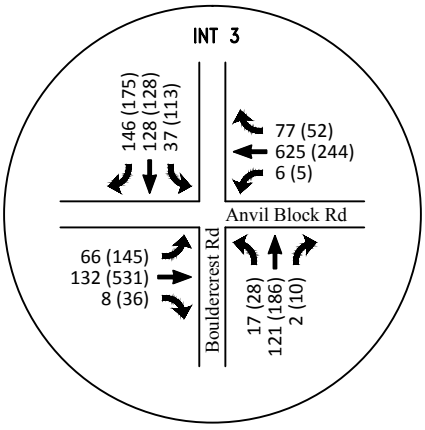
		Future Year-2017 Without Development	
Intersection	Type of Control*	AM-Peak Delay (LOS)	PM-Peak Delay (LOS)
Anvil Block Road at Old Grant Road	Signalized	8.0 (A)	9.7 (A)
Anvil Block Road at Lunsford Drive	Signalized	5.1 (A)	12.7 (B)
Anvil Block Road at Bouldercrest Road	Signalized	18.6 (B)	27.5 (C)

*For side street stop control intersections, delay and LOS are given for minor street only

Under future background conditions, all system intersections are operating at an acceptable level of service during AM and PM peak hours, above the minimum LOS D.







Legend: AM (PM)

YEAR 2017 BACKGROUND PEAK HOUR VOLUME

SKYLINE II DEVELOPMENT

FIGURE 3

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PROPOSED DEVELOPMENT

The proposed Anvil Block Road development will have approximately 794,600 SF of General Warehouse Space. The development is planned to be completed in 2017. Three full-access driveways will be built on Lunsford Drive for the Distribution Center. While the development backs up to Bouldercrest Road, no access is proposed along that frontage. The existing site is currently zoned for Planned Unit Development (PUD).

The area under consideration as DRI 2519 for warehouse space was previously reviewed as part of DRI 390 Villages at Ellenwood. Most of the property currently under consideration was planned for development of 189 single family residential homes. There are approximately three additional acres under consideration under DRI 2519 that were not part of the prior residential plan.

The proposed development was analyzed with the intersections of Anvil Block Road and Lunsford Drive, Anvil Block Road and Old Grant Road, Anvil Block Road and Bouldercrest Road, and three new development driveways on Lunsford Drive as the development's access points. The site development plan is attached in the appendix.

Trip Generation

It is anticipated that the proposed development will reach full build-out by 2017. The expected number of gross trips for these land uses was determined using Trafficware's Trip Generation software. This software estimates trips generated by the proposed land use in accordance with the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition, 2012. Full build-out and occupancy of the development was assumed when applying the trip generation rates and equations. The net new trips for the proposed mixed use development are provided in Table 5. The trip generation worksheet and future volume data worksheet are attached in the appendix.

For informational purposes, the anticipated trip generation of the prior land use has been included in Table 5. However, in order to provide the most conservative analysis, the trips for the residential community were not subtracted from the warehouse development. All of the anticipated warehouse trips will be added to the future network.

Table 5: Trip Generation

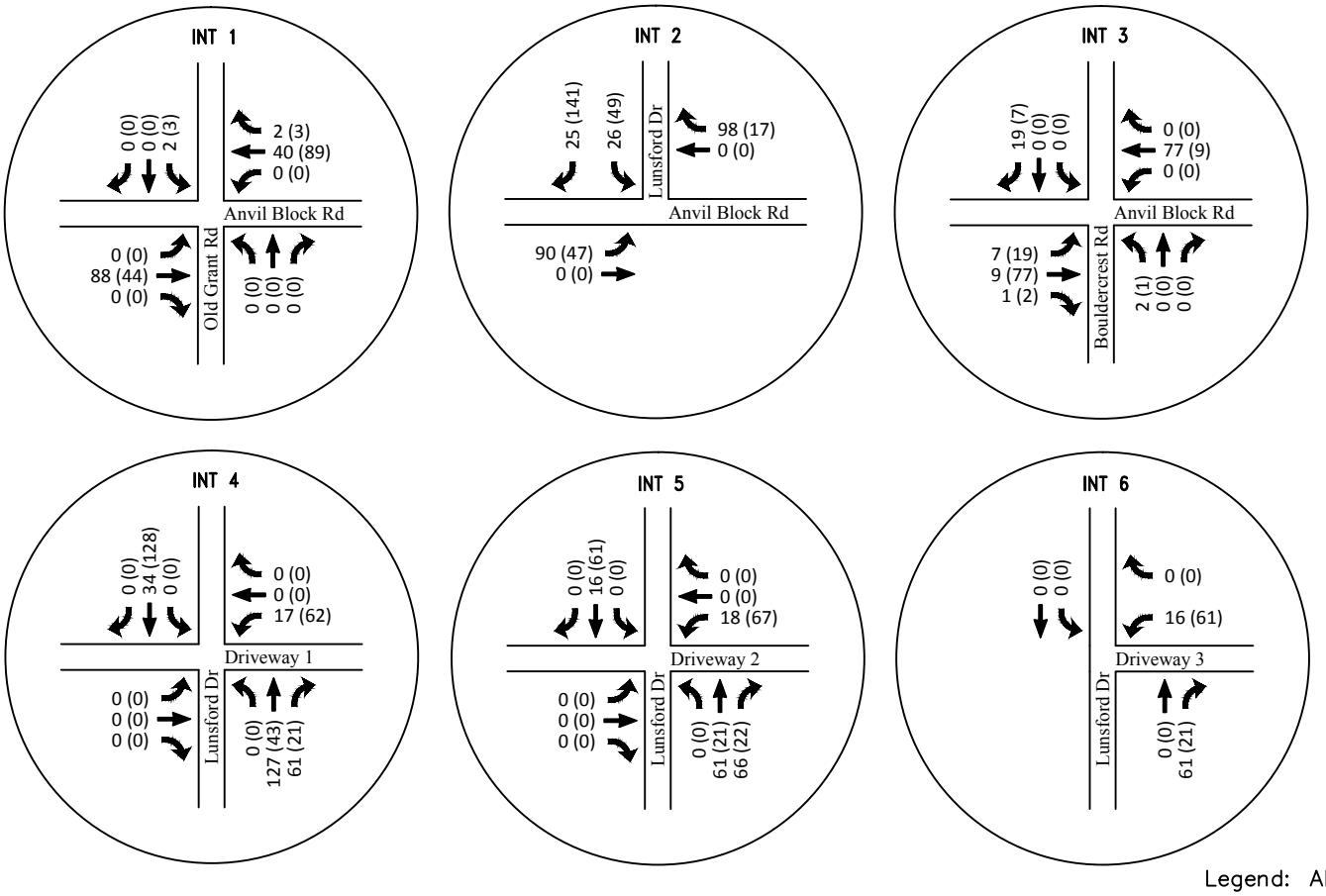
Residential Development (Part of DRI 390)						
Land Use	ITE Code	Average Daily Trips	AM-Peak (7-9)		PM-Peak (4-6)	
			Enter	Exit	Enter	Exit
Single Family Residential Homes 189 units	210	1799	36	106	119	70
Proposed Development (DRI 2519)						
Land Use	ITE Code	Average Daily Trips	AM-Peak (7-9)		PM-Peak (4-6)	
			Enter	Exit	Enter	Exit
General Warehouse 794,600 SF	150	2829	188	50	64	190

Source: ITE Trip Generation, 9th Edition, 2012

Trip Distribution and Assignment

The trip distribution for the proposed development has been determined based on the existing traffic flow patterns experienced in the area and the type of adjacent development. The site-generated traffic was assigned to the study intersections according to the expected trip distributions. The site generated traffic for the proposed development at the study intersections are shown in Figure 4. The lane geometry of the study intersections and the proposed site access are shown in Figure 5. The trip distribution percentages are attached in the appendix.

The assumption was made that all truck traffic flows to and from I-675 while the remainder was proportionally distributed to the existing traffic on Anvil Block Road from the intersections of Old Grant Road and Bouldercrest Road.



Legend: AM (PM)

SITE GENERATED
PEAK HOUR VOLUME

SKYLINE II DEVELOPMENT

FIGURE 4

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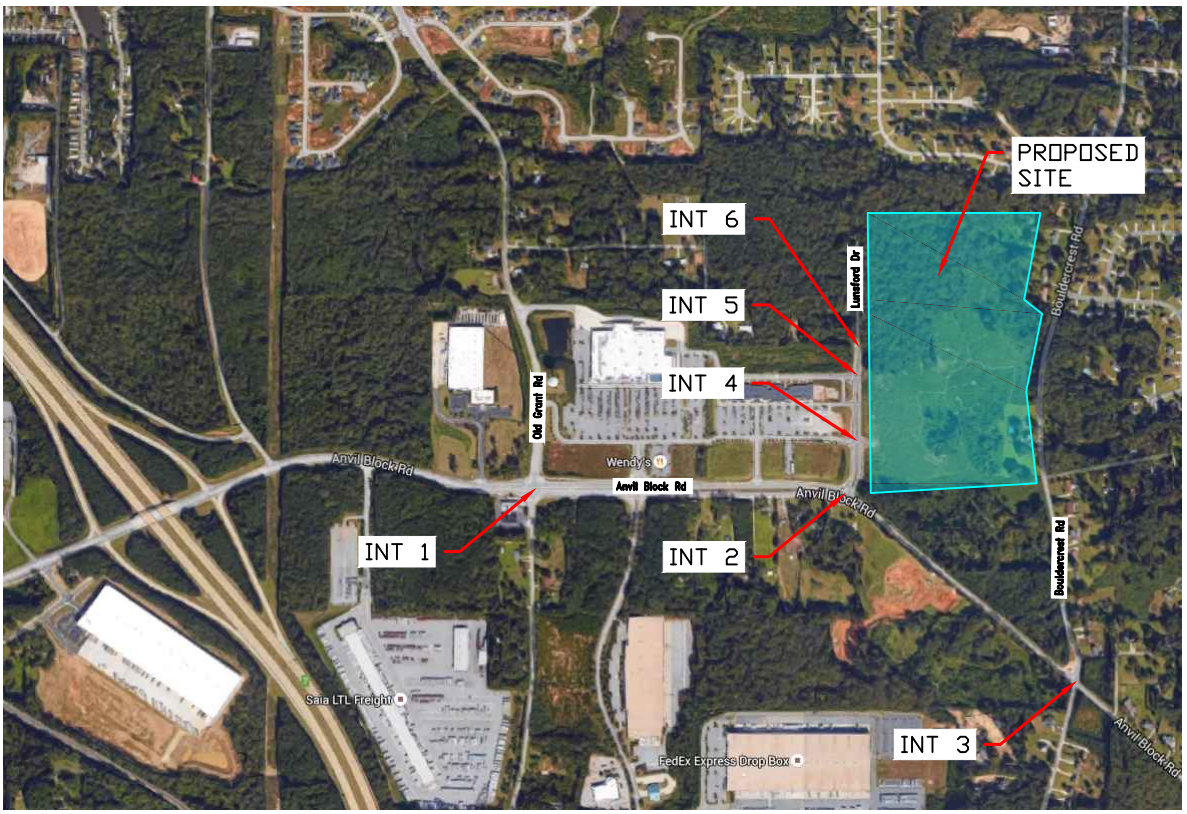

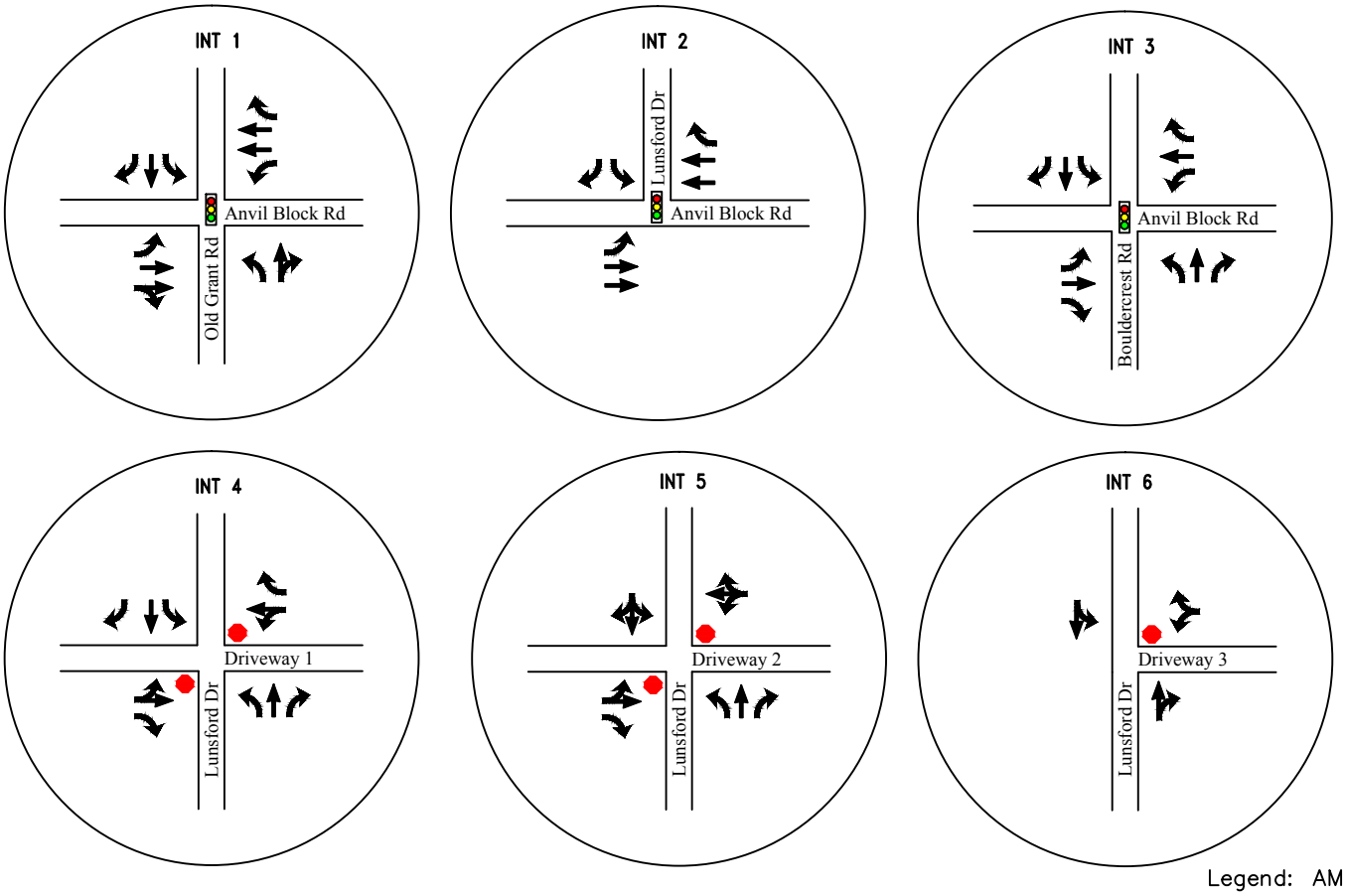

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FUTURE YEAR 2017 DEVELOPED LANE CONFIGURATION

SKYLINE II DEVELOPMENT

FIGURE 5

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FUTURE CONDITONS-(2017) WITH PROPOSED DEVELOPMENT

Future Traffic Volumes

The future traffic volumes were determined by adding the site generated traffic estimated for the Anvil Block development to the future background traffic volumes. To provide a conservative analysis no transit reductions, pass-by reductions, or internal trip captures were used in determining the future volume assignments. The future traffic volumes for the proposed development are shown in Figure 6.

Future Level of Service

The level of service for the future condition with the proposed development was determined using the same methods as discussed previously in the Existing Condition-Level of Service section. Intersection capacity analyses were performed on calculated future traffic volumes with the proposed development.

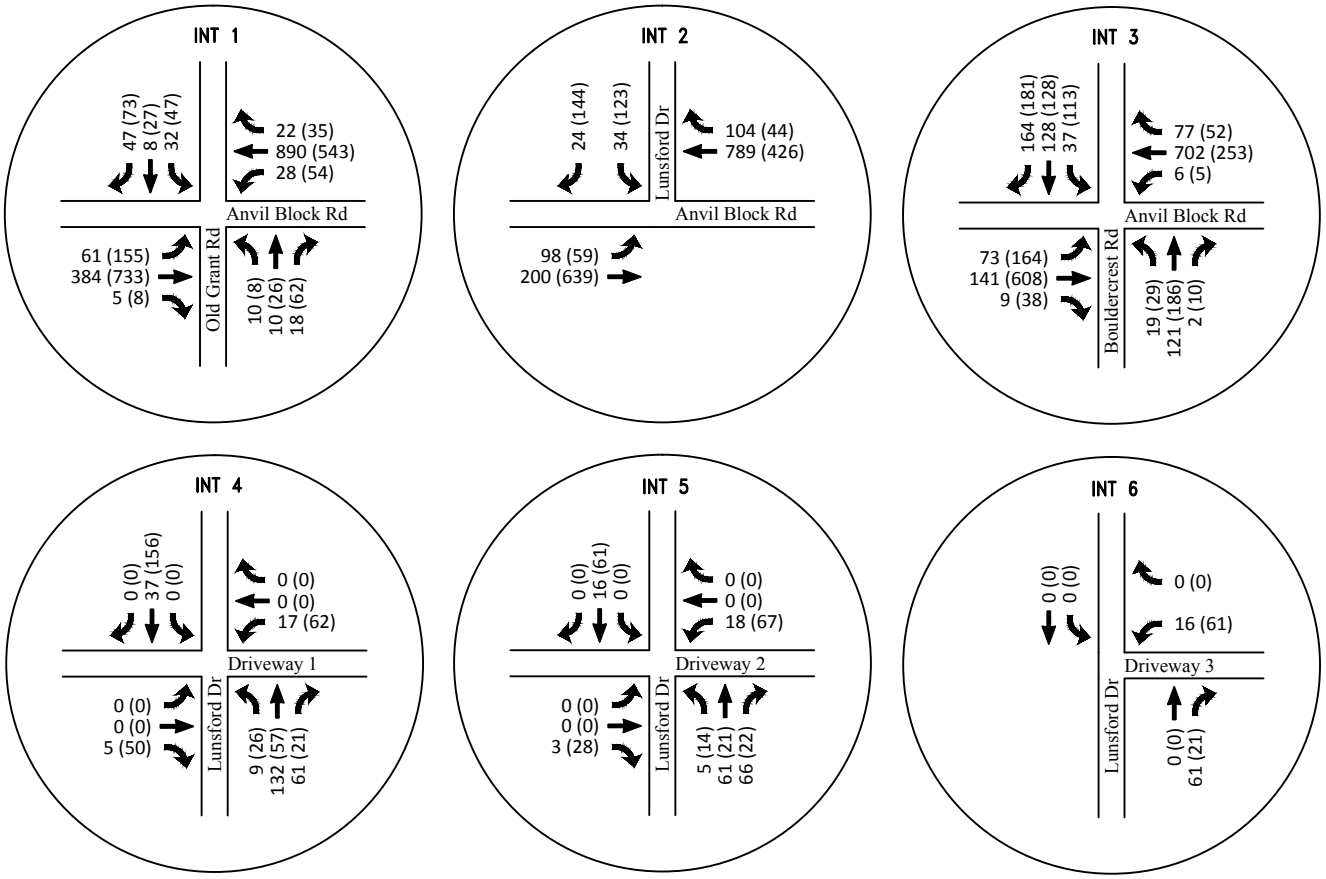
The intersections were first analyzed using their existing geometry. All intersections will continue to operate at acceptable levels of service, above the minimum LOS D, in the future with the development as proposed. The intersections at the new development driveways were analyzed as the driveways having shared left-thru-right lane, and single lane approaches. Additionally, a right-turn deceleration lane will be constructed for the northbound approach on Lunsford Drive at the first and second driveways.

All the intersections operate at an acceptable level of service in the future with the development as proposed. The results of the intersection capacity analysis for the 2017 future year with the development are summarized in the Table 6. The intersection capacity analyses worksheets are included in the appendix.

Table 6: Future Background Level of Service with Proposed Development

Intersection	Type of Control*	Future Year-2017 With Development	
		AM-Peak Delay (LOS)	PM-Peak Delay (LOS)
Anvil Block Road at Old Grant Road	Signalized	7.4 (A)	8.8 (A)
Anvil Block Road at Lunsford Drive	Signalized	14.8 (B)	11.9 (B)
Anvil Block Road at Bouldercrest Road	Signalized	20.6 (C)	25.9 (C)
Lunsford Drive at Driveway 1	Side Street Stop	10.6 (B)	12.0 (B)
Lunsford Drive at Driveway 2	Side Street Stop	10.9 (B)	12.1 (B)
Lunsford Drive at Driveway 3	Side Street Stop	7.2 (A)	9.3 (A)

*For side street stop control intersections, delay and LOS are given for minor street only



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FUTURE YEAR 2017 DEVELOPED PEAK HOUR VOLUME

SKYLINE II DEVELOPMENT

FIGURE 6

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TRAFFIC ANALYSIS CONCLUSIONS

The study intersections currently operate at acceptable levels of service. When the intersections were analyzed for the future year 2017 background peak hour volumes without the proposed development they continue to operate at an acceptable level of service well above the minimum LOS D.

With the proposed development the study intersections are expected to continue to operate at acceptable levels of service with the site generated traffic. Based on the analyses conducted in the study, the traffic impacts of the proposed development on the surrounding roadway network were determined to be negligible. The level of service for the study intersections are expected to remain at acceptable levels in the future with the development as proposed, above the minimum LOS D.

The Anvil Block Road and Lunsford Drive intersection is expected to operate at an acceptable level of service, LOS B, in the future with the development as proposed. The adjacent intersections at Old Grant Road and Bouldercrest Road are expected to operate at acceptable levels of service, B and C, respectively, in the future with the development as proposed. This future condition includes the road improvements that will be made on Anvil Block Road under PI#0004638 and PI#771210. Both of these intersections will continue to operate as Signal Controlled.

All driveway intersections at Lunsford Drive are expected to operate at acceptable levels of service in the future with the development as proposed, with Driveway 1 at LOS B, Driveway 2 at LOS B, and Driveway 3 at LOS A. The existing roadway geometry of Lunsford Drive is adequate for the future conditions with the development; however a right-turn deceleration lane will be constructed for the first and second driveways on Lunsford Drive. The driveways should operate as Side Street Stop Controlled.

DRI ANALYSIS

This development is under consideration as DRI 2519. The majority of the property was previously considered by GRTA in 2003 as part of DRI 390, Ellenwood Township. The NOD for DRI 390 was issued in 2003 and revised on August 3, 2006. While DRI 2519 is being considered a separate DRI for review, this document identifies the intent and objectives of the prior DRI conditions that impact the subject property and what is being done to consider and incorporate into the site plan.

ATTACHMENT A CONDITIONS FROM DRI 390

The 2006 revision to the NOD for DRI 390 has been included in the Appendix. Only a portion of the conditions in that DRI are relevant to the DRI 2519. The study property for DRI 2519 was considered Parcel 10 in DRI 390.

Table 7 provides the status of each of the relevant items in Appendix A. Any of the items in Appendix A that are requested for clarification or modification as part of DRI 2519 are noted in Table 7 and explored in greater detail in Table 8.

Table 7: Status of DRI 390 NOD Appendix A Requirements		
No.	Requirement	Status and Notes
Proposed Conditions to GRTA Notice of Decision:		
2	Road Connectivity	
2E	Provide a drive parallel to Anvil Block Road that connects Drive 25 and Drive 36.	This is a road proposed along the southern end of Parcel 10 (the study property) and connects the first driveway on Lunsford Drive to Bouldercrest Road. This drive is not currently contemplated for construction as part of DRI 2519.
2F	Provide a direct vehicular connection between Parcel 9 and Parcel 10.	Parcel 9 is currently undeveloped and has access to the west via Villagewood Lane. This drive is not currently contemplated for construction as part of DRI 2519.
2H	Provide a direct vehicular connection between Parcel 10 and Parcel 11.	Parcel 11 is currently undeveloped and has access to the south at a median break to Anvil Block Road and to the east to Bouldercrest Road. This drive is not currently contemplated for construction as part of DRI 2519.
5	Pedestrian and Transit Facilities	
5A	Provide sidewalks along both sides along all internal roads and drives in Parcels 1, 10, 11, 12 and 13.	Pedestrian access between Lunsford Drive and the main entrance will be provided as part of DRI 2519.
5C	Provide a minimum 5 foot wide sidewalk along the entire site frontage of Anvil Block Road, Bouldercrest Road, Williamson Road, East Tanners Church Road, Dunn Road and Grant Road.	Sidewalks will be constructed along the frontages of Bouldercrest Road and Lunsford Drive as part of DRI 2519.
Proposed Roadway Improvements as Conditions to GRTA Notice of Decision:		
7	Anvil Block Road: Provide a minimum of two eastbound and two westbound through lanes between Grant Road and Bouldercrest Road.	This work is being constructed as part of PI#0004638 and PI#771210.
10	Anvil Block Road at Bouldercrest Road	
10A	Signalize the intersection.	Completed.
10B	Provide two westbound though lanes.	This work is being constructed as part of PI#0004638 and PI#771210.
10C	Provide two eastbound through lanes.	This work is not contemplated as part of PI#0004638 and PI#771210. The second eastbound through lane will become the exclusive right turn lane at Bouldercrest Road.

Table 7 (cont'd): Status of Appendix A Requirements		
10D	Provide an exclusive eastbound left-turn lane on Anvil Block Road.	This work is being constructed as part of PI#0004638 and PI#771210.
10E	Provide an exclusive westbound left-turn lane on Anvil Block Road.	This work is being constructed as part of PI#0004638 and PI#771210.
10F	Provide an exclusive southbound left-turn lane on Bouldercrest Road.	This work is being constructed as part of PI#0004638 and PI#771210.
10G	Provide an exclusive southbound right-turn lane along Bouldercrest Road.	This work is being constructed as part of PI#0004638 and PI#771210.
14	Drive 24 at Anvil Block Road (located approximately 2,100' east of Grant Road)	Lunsford Drive at Anvil Block Road
14A	Signalize the intersection.	Completed.
14B	Provide two eastbound exclusive left-turn lanes.	This work is not contemplated as part of PI#0004638 and PI#771210. The intersection operates at an acceptable level of service without the second left turn lane, and the existing road width allows for this expansion in the future without moving the outside curblines.
14C	Provide a westbound exclusive right turn lane.	This work is being constructed as part of PI#0004638 and PI#771210.
15	Anvil Block Road and Grant Road	
15A	Signalize the intersection.	Completed.
15B	Provide a northbound exclusive left-turn lane.	Completed.
15C	Provide a southbound exclusive left-turn lane.	Completed.
15D	Provide two eastbound exclusive left-turn lanes.	This work has not been completed. The intersection operates at an acceptable level of service without the second left turn lane
15E	Provide a westbound exclusive right-turn lane.	Completed.

Requested Clarifications and/or Modifications to Attachment A of DRI 390

Several items included in Attachment A of the NOD for DRI 390 are being requested for clarification and/or modification. These are due primarily to changes in the plan from 198 single family residential units to industrial warehousing. Each of the items requested for

clarification and/or modification are explained in detail in Table 8. This includes a restatement of the requirement, the requested action, the rationale for the clarification and/or modification, and the suggested wording. The reference number for the condition as outlined in Table 7 is repeated in Table 8 for clarity. Additionally, discussion of each subsection has been kept on the same page for easy reference.

Table 8: Requested Modifications and Supporting Rationale		
No.	Action	Requirement and Requested Modification
2	DRI 390 Condition	Road Connectivity
2E	DRI 390 Condition	Provide a drive parallel to Anvil Block Road that connects Drive 25 and Drive 36.
2E	DRI 390 Condition Clarification	This is a road proposed along the southern end of Parcel 10 (the study property) and connects the first driveway on Lunsford Drive to Bouldercrest Road.
2E	Requested Action	Request deletion of this requirement for DRI 2519.
2E	Rationale for DRI 2519	The intersections along Anvil Block Road will operate at an acceptable level of service with the current development plus that contemplated in DRI 2519.
2E	Rationale for DRI 2519	The proposed development for Parcel 10 no longer has mixed uses or multiple properties. The final result will include one user on one property.
2E	Rationale for DRI 2519	No access is recommended to Bouldercrest Road in order to better segregate residential traffic from industrial traffic.
2E	Suggested Wording	~~Provide a drive parallel to Anvil Block Road that connects Drive 25 and Drive 36.~~

Table 8 (cont'd): Requested Modifications and Supporting Rationale		
2F	DRI 390 Condition	Provide a direct vehicular connection between Parcel 9 and Parcel 10.
2F	DRI 390 Condition Clarification	This is a connection across the creek to the northwest from the study site.
2F	Requested Action	Request deletion of this requirement for DRI 2519.
2F	Rationale for DRI 2519	Parcel 9 is currently undeveloped and has access to the west via Villagewood Lane and to the south via Lunsford Drive.
2F	Rationale for DRI 2519	The intersections along Anvil Block Road will operate at an acceptable level of service with the current development plus that contemplated in DRI 2519.
2F	Rationale for DRI 2519	The proposed development for Parcel 10 is no longer an extension of the adjacent residential proposal.
2F	Rationale for DRI 2519	No access is recommended to Parcel 9 Road in order to better segregate residential traffic from industrial traffic.
2F	Rationale for DRI 2519	Access between Parcels 9 and 10 would likely include multiple creek crossings. This is not very economically feasible for such a small lot yield.
2F	Suggested Wording	~~Provide a direct vehicular connection between Parcel 9 and Parcel 10.~~
2H	DRI 390 Condition	Provide a direct vehicular connection between Parcel 10 and Parcel 11.
2H	DRI 390 Condition Clarification	This is a connection to the south from the study site.
2H	Requested Action	Request deletion of this requirement for DRI 2519.
2H	Rationale for DRI 2519	Parcel 11 is currently undeveloped and has access to the south at a median break to Anvil Block Road and to the east to Bouldercrest Road.
2H	Rationale for DRI 2519	The proposed development for Parcel 10 no longer has mixed uses or multiple properties. The final result will include one user on one property.
2H	Rationale for DRI 2519	The intersections along Anvil Block Road will operate at an acceptable level of service with the current development plus that contemplated in DRI 2519.
2H	Suggested Wording	~~Provide a direct vehicular connection between Parcel 9 and Parcel 10.~~

Table 8 (cont'd): Requested Modifications and Supporting Rationale		
5	DRI 390 Condition	Pedestrian and Transit Facilities
5A	DRI 390 Condition	Provide sidewalks along both sides along all internal roads and drives in Parcels 1, 10, 11, 12 and 13.
5A	Requested Action	Request modification of this requirement for DRI 2519.
5A	Rationale for DRI 2519	Pedestrian access between Lunsford Drive and the main entrance will be provided as part of DRI 2519.
5A	Rationale for DRI 2519	Due to the change in land use, no public roads are considered through the site. This site will likely be fenced and secured without public pedestrian access through the site.
5A	Suggested Wording	Provide sidewalks along both sides along all internal roads and drives in Parcels 1, 11, 12 and 13.
10	DRI 390 Condition	Anvil Block Road at Bouldercrest Road
10C	DRI 390 Condition	Provide two eastbound through lanes.
10C	Requested Action	Request clarification to consider this requirement satisfied for DRI 2519.
10C	Rationale for DRI 2519	This work is not contemplated as part of PI#0004638 and PI#771210. The second eastbound through lane will become the exclusive right turn lane at Bouldercrest Road.
10C	Rationale for DRI 2519	The eastbound right turn lane could be restriped and converted to a second through lane once a second receiving lane is constructed east of Bouldercrest Road.
10C	Suggested Wording	Provide two eastbound lanes that can serve as through lanes. These shall be constructed such that a smooth transition is provided, such as marking the curbside eastbound through lane as an exclusive right turn lane for the 500 feet approaching the intersection of Bouldercrest Road.
14	DRI 390 Condition	Drive 24 at Anvil Block Road (located approximately 2,100' east of Grant Road) aka Anvil Block Road at Lunsford Drive
14B	DRI 390 Condition	Provide two eastbound exclusive left-turn lanes.
14B	Requested Action	Request clarification to consider this requirement satisfied for DRI 2519.
14B	Rationale for DRI 2519	This work is not contemplated as part of PI#0004638 and PI#771210. The intersection is being constructed so as to allow a second receiving lane on Lunsford Drive.
14B	Rationale for DRI 2519	There is a hatched gore between the left turn lane and the through lane which could be restriped and converted to a second left turn lane.
14B	Suggested Wording	Provide two eastbound lanes that can serve as left-turn lanes. The second left turn lane may be hatched out until such time as it is needed for capacity reasons.

Table 8 (cont'd): Requested Modifications and Supporting Rationale		
15	DRI 390 Condition	Anvil Block Road and Grant Road
15D	DRI 390 Condition	Provide two eastbound exclusive left-turn lanes.
15D	Requested Action	Request clarification to consider this requirement not relevant for DRI 2519.
15D	Rationale for DRI 2519	This work is not contemplated as part of PI#0004638 and PI#771210, nor was it conducted when the other improvements were constructed. The intersection has two receiving lanes on Grant Road.
15D	Rationale for DRI 2519	This second left turn lane may be needed for sections of DRI 390 that serve as destinations for this left turn movement, but is not needed to serve DRI 2519.
15D	Rationale for DRI 2519	Intersection will operate at an acceptable level of service in the future without the second left turn lane.
15D	Suggested Wording	N/A - Leave text as is, but consider the requirement not relevant for DRI 2519.

CONCLUSIONS AND RECOMMENDATIONS

The traffic impact of the Anvil Block Distribution Center (DRI 2519) is anticipated to be absorbed by the existing roadway capacity and the proposed improvements included as part of as part of PI#0004638 and PI#771210. No new traffic improvements beyond those previously required will be needed as part of this development upon build-out (2018).

Some of the requirements in the NOD for Ellenwood Township (DRI 390) are applicable to the Anvil Block Distribution Center (DRI 2519). These will be incorporated into the development plan, with the modifications and clarifications requested in Table 8.

Anvil Block Distribution Center
City of Ellenwood, Clayton County, GA
Traffic Study Appendix

Appendix A: Site Development Plan

Appendix B: Traffic Count Summary Sheets

Appendix C: Trip Generation

Appendix D: Existing Year-2015 Intersection Capacity Analyses Sheets (ICAS)

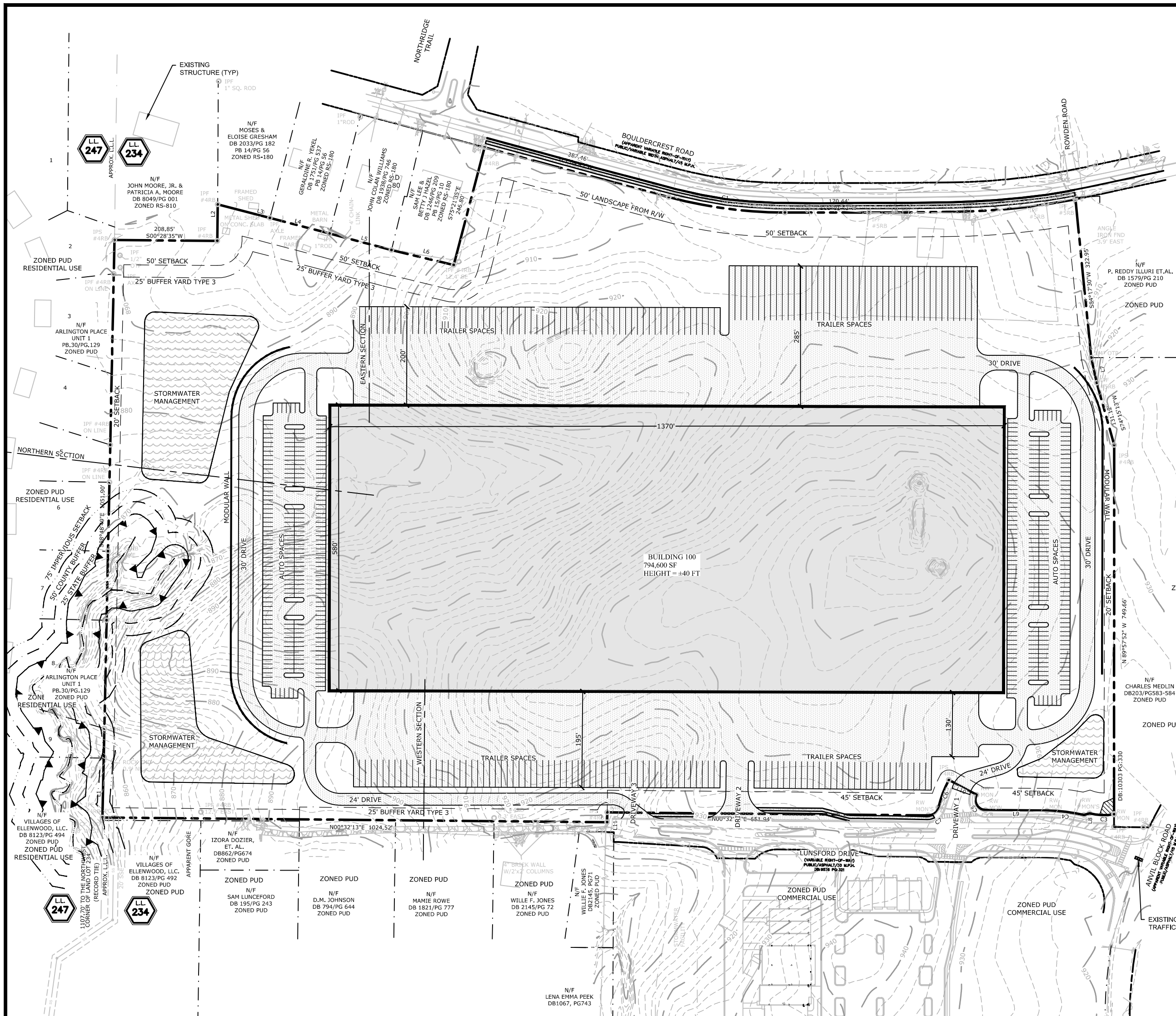
Appendix E: Year-2017 Background ICAS without the Development

Appendix F: Year-2017 ICAS with the Development

Appendix G: DRI 390 Documents

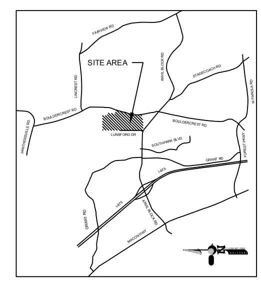
Appendix A: Site Development Plan

FILE NAME: I:\CUSTOMERS_PROJECTS\896 Reliant Real Estate Partners, LLC\896-14-234 Anvil Block Rd tract\Traffic\DWG\896-14-234_siteplan.dwg PLOT DATE:11/16/2015 USER:DAVID TURNER



PUD CONCEPTUAL DEVELOPMENT PLAN

OWNER/DEVELOPER:	ANVIL BLOCK LAND PARTNERS 3565 PIEDMONT ROAD, SUITE 740 ATLANTA, GA. 30305 PHONE: (404) 760-7181
ENGINEER/SURVEYOR:	SOUTHEASTERN ENGINEERING, INC. 2470 SANDY PLAINS ROAD MARIETTA, GA 30066 PHONE: 770.321.3936
PROPERTY ID:	TAX PARCEL #: 12234B-A001 ADDRESS: 4503 BOULDERCREST ROAD
BOUNDARY:	BOUNDARY SURVEY BY SEI, DATED JAN. 27, 2015
TOPOGRAPHY:	FIELD RUN SURVEY BY SEI, DATED 2007
SITE AREA:	56.90 ACRES
IMPERVIOUS SURFACE:	37.85 ACRES
COVERAGE:	37.85 ACRES / 56.90 ACRES ACRES = ±66.5%
FLOOD INFO:	THIS SITE NOT LOCATED WITHIN THE 100 YEAR FLOOD ZONE PER FEMA FLOOD PANELS # 13063C0043E, DATED 09-05-07.
EXISTING ZONING:	PUD
OPEN SPACE:	REQUIRED = 20% OF SITE = 11.38 ACRES PROVIDED = 11.4 ACRES (NOT INCLUDING SETBACKS, BUFFER, AND STORMWATER MANAGEMENT)
PROPOSED USE:	OFFICE/WAREHOUSE - THOSE ALLOWABLE IN LIGHT INDUSTRIAL ZONING, EXCEPT TRUCK TERMINALS 13,965 SF/AC (MAXIMUM)
DEVELOPMENT STANDARDS:	MIN. FRONTAGE: 100 FT MAX. COVERAGE: 70% (ALL IMPERVIOUS) MIN. FRONT SETBACK LINE: 50' (ARTERIAL ROAD) MIN. SIDE SETBACK LINE: 20' MIN. REAR SETBACK: 20' MAX. BUILDING HEIGHT: 75' 25' TYPE 3 BUFFER YARD PROPOSED ALONG SPECIFIC RESIDENTIAL USES REQUIRED - CLASS "A" BUILDING MATERIALS AND APPEARANCE. FIFTY FOOT LANDSCAPE BUFFER ALONG RIGHT-OF-WAY. FINAL LANDSCAPING PLAN TO COMPLY WITH CLAYTON COUNTY TREE PROTECTION ORDINANCE.
PARKING REQUIREMENTS:	REQUIRED : FIVE SPACES REQUIRED PLUS ONE SPACE PER 1,700 SF OF USABLE FLOOR SPACE 5+794,600 SF/1700 SF = 473 SPACES PROVIDED: 450 SPACES (EXPANDABLE TO 475)
LOADING SPACES:	LOADING SPACES REQUIRED = 7 SPACES LOADING SPACES PROVIDED = ±149 SPACES
PUD SITE PLAN - SPECIFIC DEPARTURES	25' BUFFER YARD PROPOSED ALONG RS-180 ZONED PROPERTIES IN NORTHEASTERN CORNER OF SUBJECT PROPERTY - REDUCED FROM 40' STANDARD IN CODE.



THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. IT IS THE OWNER/DEVELOPER'S RESPONSIBILITY TO VERIFY EXISTING UTILITY CAPACITY PRIOR TO INITIATING DESIGN. THE ENGINEER MAKES NO GUARANTEES, NEITHER EXPRESSED OR IMPLIED, REGARDING EXISTING UTILITY LOCATION, CAPACITY OR CONDITION.

SEI
SOUTHEASTERN ENGINEERING, INC.
2470 Sandy Plains Road Marietta, Georgia 30066
tel: 770-321-3936 fax: 770-321-3935
www.seengineering.com

No	ISSUED DESCRIPTION	DATE
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-

PROJECT OWNED/DEVELOPED BY:
ANVIL BLOCK LAND PARTNERS
3565 PIEDMONT ROAD, SUITE 740
ATLANTA, 30305
(404) 760-7181
24 HOUR CONTACT INFORMATION
ADAM RICHARDS (404) 760-7181

DRI #2519 ANVIL BLOCK
(FKA ELLENWOOD TOWNSHIP)
CLAYTON COMMERCE CENTER
PROJECT LOCATED AT:
LL. 234, 12TH DISTRICT
CLAYTON COUNTY, GEORGIA

GEORGIA REGISTERED NO. 31277 PROFESSIONAL ENGINEER E. WAYNE MATTHEWS, JR.

Project No.: 896-14-234
Designed By: EWM
Issue Date: 09-14-15

C1.0.1

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

896-14-234

Appendix B: Traffic Count Summary Sheets

Project ID: 15-9167-006
Location: Old Grant Rd & Anvil Block Rd
City: Ellenwood

Day: Tuesday
Date: 5/5/2015

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:00 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Old Grant Rd Northbound					Old Grant Rd Southbound					Anvil Block Rd Eastbound					Anvil Block Rd Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	1	2	8	0	11	5	1	7	0	13	13	44	0	0	57	4	200	3	0	207	288
7:15 AM	2	1	2	0	5	6	3	11	0	20	13	67	1	0	81	6	211	5	0	222	328
7:30 AM	3	3	5	0	11	15	2	9	0	26	17	78	1	0	96	6	207	5	0	218	351
7:45 AM	3	3	8	0	14	2	1	16	0	19	18	81	0	2	99	7	211	4	0	222	354
Total	9	9	23	0	41	28	7	43	0	78	61	270	2	2	333	23	829	17	0	869	1321
8:00 AM	2	3	3	0	8	6	2	10	0	18	12	64	3	0	79	8	204	6	0	218	323
8:15 AM	0	5	3	1	8	3	0	7	0	10	13	62	1	0	76	13	158	8	0	179	273
8:30 AM	1	1	8	0	10	5	3	12	0	20	16	81	1	0	98	5	118	5	0	128	256
8:45 AM	0	3	7	0	10	1	0	13	0	14	16	57	0	0	73	4	132	2	0	138	235
Total	3	12	21	1	36	15	5	42	0	62	57	264	5	0	326	30	612	21	0	663	1087
BREAK																					
4:00 PM	0	2	4	0	6	8	1	16	0	25	35	120	3	0	158	7	84	2	0	93	282
4:15 PM	2	9	13	0	24	3	4	21	0	28	41	130	2	0	173	13	91	5	0	109	334
4:30 PM	2	4	11	0	17	3	9	13	0	25	22	153	1	0	176	20	114	8	0	142	360
4:45 PM	2	9	16	0	27	7	4	11	0	22	39	153	0	0	192	15	92	4	0	111	352
Total	6	24	44	0	74	21	18	61	0	100	137	556	6	0	699	55	381	19	0	455	1328
5:00 PM	1	6	12	0	19	8	9	12	0	29	37	195	2	0	234	14	123	7	0	144	426
5:15 PM	2	5	15	0	22	8	5	18	0	31	32	157	2	0	191	14	121	9	0	144	388
5:30 PM	2	5	17	0	24	15	7	24	1	46	35	156	1	0	192	12	104	8	1	124	386
5:45 PM	3	9	17	0	29	12	5	18	1	35	48	167	3	1	218	13	97	7	0	117	399
Total	8	25	61	0	94	43	26	72	2	141	152	675	8	1	835	53	445	31	1	529	1599
Grand Total	26	70	149	1	245	107	56	218	2	381	407	1765	21	3	2193	161	2267	88	1	2516	5335
Apprch %	10.6	28.6	60.8	0.4		28.1	14.7	57.2	0.5		18.6	80.5	1.0	0.1		6.4	90.1	3.5	0.0		
Total %	0.5	1.3	2.8	0.0	4.6	2.0	1.0	4.1	0.0	7.1	7.6	33.1	0.4	0.1	41.1	3.0	42.5	1.6	0.0	47.2	
Cars, PU, Vans	25	69	149	1	243	105	55	209	2	369	400	1652	20	3	2072	161	2194	88	1	2443	5127
% Cars, PU, Vans	96.2	98.6	####	100.0	99.2	98.1	98.2	95.9	####	96.9	98.3	93.6	95.2	####	94.5	100.0	96.8	####	####	97.1	96.1
Heavy Trucks	1	1	0		2	2	1	9		12	7	113	1		121	0	73	0		73	208
%Heavy Trucks	3.8	1.4	0.0	0.0	0.8	1.9	1.8	4.1	0.0	3.1	1.7	6.4	4.8	0.0	5.5	0.0	3.2	0.0	0.0	2.9	3.9

Project ID: 15-9167-006
Location: Old Grant Rd & Anvil Bl
City: Ellenwood

PEAK HOURS

Day: Tuesday
Date: 5/5/2015

AM

	Old Grant Rd Northbound				Old Grant Rd Southbound				Anvil Block Rd Eastbound				Anvil Block Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
7:15 AM	2	1	2	5	6	3	11	20	13	67	1	81	6	211	5	222	328
7:30 AM	3	3	5	11	15	2	9	26	17	78	1	96	6	207	5	218	351
7:45 AM	3	3	8	14	2	1	16	19	18	81	0	99	7	211	4	222	354
8:00 AM	2	3	3	8	6	2	10	18	12	64	3	79	8	204	6	218	323
Total Volume	10	10	18	38	29	8	46	83	60	290	5	355	27	833	20	880	1356
% App. Total	26.3	26.3	47.4	100	34.9	9.6	55.4	100	16.9	81.7	1.4	100	3.1	94.7	2.3	100	
PHF				0.679				0.798				0.896				0.991	
Cars, PU, Vans	9	10	18	37	29	8	44	81	60	272	4	336	27	812	20	859	1313
% Cars, PU, Vans	90.0	####	####	97.4	100.0	####	95.7	97.6	####	93.8	80.0	94.6	####	97.5	100.0	97.6	96.8
Heavy Trucks	1	0	0	1	0	0	2	2	0	18	1	19	0	21	0	21	43
%Heavy Trucks	10.0	0.0	0.0	2.6	0.0	0.0	4.3	2.4	0.0	6.2	20.0	5.4	0.0	2.5	0.0	2.4	3.2

PM

	Old Grant Rd Northbound				Old Grant Rd Southbound				Anvil Block Rd Eastbound				Anvil Block Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 04:00 PM to 06:00 PM																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
5:00 PM	1	6	12	19	8	9	12	29	37	195	2	234	14	123	7	144	426
5:15 PM	2	5	15	22	8	5	18	31	32	157	2	191	14	121	9	144	388
5:30 PM	2	5	17	24	15	7	24	46	35	156	1	192	12	104	8	124	386
5:45 PM	3	9	17	29	12	5	18	35	48	167	3	218	13	97	7	117	399
Total Volume	8	25	61	94	43	26	72	141	152	675	8	835	53	445	31	529	1599
% App. Total	8.5	26.6	64.9	100	30.5	18.4	51.1	100	18.2	80.8	1.0	100	10.0	84.1	5.9	100	
PHF				0.810				0.766				0.892				0.918	
Cars, PU, Vans	8	25	61	94	42	26	71	139	150	637	8	795	53	427	31	511	1539
% Cars, PU, Vans	####	####	####	100.0	97.7	####	98.6	98.6	98.7	94.4	####	95.2	####	96.0	100.0	96.6	96.2
Heavy Trucks	0	0	0	0	1	0	1	2	2	38	0	40	0	18	0	18	60
%Heavy Trucks	0.0	0.0	0.0	0.0	2.3	0.0	1.4	1.4	1.3	5.6	0.0	4.8	0.0	4.0	0.0	3.4	3.8

Project ID: 15-9167-008
Location: Lunsford Dr & Anvil Block Rd
City: Ellenwood

Day: Tuesday
Date: 5/5/2015

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:00 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Lunsford Dr Northbound					Lunsford Dr Southbound					Anvil Block Rd Eastbound					Anvil Block Rd Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	1	0	0	0	1	2	38	0	0	40	0	204	1	0	205	246
7:15 AM	0	0	0	0	0	3	0	0	0	3	3	57	0	0	60	0	195	1	0	196	259
7:30 AM	0	0	0	0	0	3	0	0	0	3	0	59	0	0	59	0	189	3	0	192	254
7:45 AM	0	0	0	0	0	1	0	0	0	1	3	42	0	0	45	0	186	1	0	187	233
Total	0	0	0	0	0	8	0	0	0	8	8	196	0	0	204	0	774	6	0	780	992
8:00 AM	0	0	0	0	0	2	0	2	0	4	2	54	0	0	56	0	156	2	0	158	218
8:15 AM	0	0	0	0	0	2	0	0	0	2	1	41	0	1	42	0	153	2	0	155	199
8:30 AM	0	0	0	0	0	4	0	2	0	6	3	53	0	0	56	0	108	2	0	110	172
8:45 AM	0	0	0	0	0	2	0	0	0	2	2	42	0	0	44	0	101	0	0	101	147
Total	0	0	0	0	0	10	0	4	0	14	8	190	0	1	198	0	518	6	0	524	736
BREAK																					
4:00 PM	0	0	0	0	0	14	0	0	0	14	1	136	0	0	137	0	63	4	0	67	218
4:15 PM	0	0	0	0	0	18	0	1	0	19	5	109	0	0	114	0	73	8	0	81	214
4:30 PM	0	0	0	0	0	12	0	1	0	13	3	150	0	0	153	0	89	5	0	94	260
4:45 PM	0	0	0	0	0	16	0	1	0	17	1	159	0	0	160	0	98	3	0	101	278
Total	0	0	0	0	0	60	0	3	0	63	10	554	0	0	564	0	323	20	0	343	970
5:00 PM	0	0	0	0	0	21	0	1	0	22	5	161	0	0	166	0	112	7	0	119	307
5:15 PM	0	0	0	0	0	25	0	0	0	25	0	156	0	0	156	0	101	4	0	105	286
5:30 PM	0	0	0	0	0	11	0	1	0	12	5	143	0	0	148	0	105	7	0	112	272
5:45 PM	0	0	0	0	0	16	0	1	0	17	2	166	0	0	168	0	100	9	0	109	294
Total	0	0	0	0	0	73	0	3	0	76	12	626	0	0	638	0	418	27	0	445	1159
Grand Total	0	0	0	0	0	151	0	10	0	161	38	1566	0	1	1604	0	2033	59	0	2092	3857
Apprch %	0.0	0.0	0.0	0.0		93.8	0.0	6.2	0.0		2.4	97.6	0.0	0.1		0.0	97.2	2.8	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.3	0.0	4.2	1.0	40.6	0.0	0.0	41.6	0.0	52.7	1.5	0.0	54.2	
Cars, PU, Vans	0	0	0	0	0	151	0	9	0	160	36	1549	0	1	1585	0	2019	57	0	2076	3821
% Cars, PU, Vans	0.0	0.0	0.0	0.0	0.0	####	0.0	90.0	0.0	99.4	94.7	98.9	0.0	####	98.8	0.0	99.3	96.6	0.0	99.2	99.1
Heavy Trucks	0	0	0		0	0	0	1		1	2	17	0		19	0	14	2		16	36
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.6	5.3	1.1	0.0	0.0	1.2	0.0	0.7	3.4	0.0	0.8	0.9

Project ID: 15-9167-008
Location: Lunsford Dr & Anvil Bloc
City: Ellenwood

PEAK HOURS

Day: Tuesday
Date: 5/5/2015

AM

	Lunsford Dr Northbound				Lunsford Dr Southbound				Anvil Block Rd Eastbound				Anvil Block Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
7:00 AM	0	0	0	0	1	0	0	1	2	38	0	40	0	204	1	205	246
7:15 AM	0	0	0	0	3	0	0	3	3	57	0	60	0	195	1	196	259
7:30 AM	0	0	0	0	3	0	0	3	0	59	0	59	0	189	3	192	254
7:45 AM	0	0	0	0	1	0	0	1	3	42	0	45	0	186	1	187	233
Total Volume	0	0	0	0	8	0	0	8	8	196	0	204	0	774	6	780	992
% App. Total	0.0	0.0	0.0	0	100.0	0.0	0.0	100	3.9	96.1	0.0	100	0.0	99.2	0.8	100	
PHF				0.000				0.667				0.850				0.951	
Cars, PU, Vans	0	0	0	0	8	0	0	8	7	196	0	203	0	768	6	774	985
% Cars, PU, Vans	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	87.5	100.0	0.0	99.5	0.0	99.2	100.0	99.2	99.3
Heavy Trucks	0	0	0	0	0	0	0	0	1	0	0	1	0	6	0	6	7
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.5	0.0	0.8	0.0	0.8	0.7

PM

	Lunsford Dr Northbound				Lunsford Dr Southbound				Anvil Block Rd Eastbound				Anvil Block Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 04:00 PM to 06:00 PM																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
5:00 PM	0	0	0	0	21	0	1	22	5	161	0	166	0	112	7	119	307
5:15 PM	0	0	0	0	25	0	0	25	0	156	0	156	0	101	4	105	286
5:30 PM	0	0	0	0	11	0	1	12	5	143	0	148	0	105	7	112	272
5:45 PM	0	0	0	0	16	0	1	17	2	166	0	168	0	100	9	109	294
Total Volume	0	0	0	0	73	0	3	76	12	626	0	638	0	418	27	445	1159
% App. Total	0.0	0.0	0.0	0	96.1	0.0	3.9	100	1.9	98.1	0.0	100	0.0	93.9	6.1	100	
PHF				0.000				0.760				0.949				0.935	
Cars, PU, Vans	0	0	0	0	73	0	3	76	11	618	0	629	0	414	25	439	1144
% Cars, PU, Vans	0.0	0.0	0.0	0.0	100.0	0.0	####	100.0	91.7	98.7	0.0	98.6	0.0	99.0	92.6	98.7	98.7
Heavy Trucks	0	0	0	0	0	0	0	0	1	8	0	9	0	4	2	6	15
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	1.3	0.0	1.4	0.0	1.0	7.4	1.3	1.3

Project ID: 15-9167-009
Location: Bouldercrest Rd & Anvil Block Rd
City: Ellenwood

Day: Tuesday
Date: 5/5/2015

Peak Start Times	
AM	7:00 AM
MD	12:00 AM
PM	4:00 PM

Groups Printed - Cars, PU, Vans - Heavy Trucks

	Bouldercrest Rd Northbound					Bouldercrest Rd Southbound					Anvil Block Rd Eastbound					Anvil Block Rd Westbound					
Start Time	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Left	Thru	Rgt	Peds	App. Total	Int. Total
7:00 AM	6	25	0	0	31	9	21	28	0	58	13	27	1	0	41	0	171	16	0	187	317
7:15 AM	2	29	0	0	31	10	31	35	0	76	15	39	4	0	58	0	153	23	0	176	341
7:30 AM	3	33	2	0	38	9	44	44	0	97	24	35	2	0	61	3	145	21	0	169	365
7:45 AM	6	32	0	0	38	8	29	36	0	73	13	28	1	0	42	3	144	15	0	162	315
Total	17	119	2	0	138	36	125	143	0	304	65	129	8	0	202	6	613	75	0	694	1338
8:00 AM	3	26	1	1	30	12	27	22	0	61	20	34	4	0	58	1	133	10	0	144	293
8:15 AM	4	26	1	0	31	7	26	30	0	63	9	22	9	0	40	3	119	16	0	138	272
8:30 AM	5	29	4	0	38	6	35	27	0	68	12	44	3	0	59	0	79	12	0	91	256
8:45 AM	3	29	0	1	32	12	23	22	0	57	14	27	2	0	43	2	78	12	0	92	224
Total	15	110	6	2	131	37	111	101	0	249	55	127	18	0	200	6	409	50	0	465	1045
BREAK																					
4:00 PM	3	33	0	0	36	18	28	29	0	75	30	116	3	0	149	0	34	7	0	41	301
4:15 PM	7	50	0	0	57	22	31	33	0	86	25	102	10	0	137	2	42	12	0	56	336
4:30 PM	7	45	3	0	55	18	50	45	0	113	39	94	4	0	137	1	42	10	0	53	358
4:45 PM	6	42	3	0	51	22	32	43	0	97	32	138	10	2	180	3	54	7	0	64	392
Total	23	170	6	0	199	80	141	150	0	371	126	450	27	2	603	6	172	36	0	214	1387
5:00 PM	6	36	3	0	45	22	37	50	0	109	32	142	6	0	180	1	62	15	0	78	412
5:15 PM	9	61	2	0	72	28	23	36	0	87	43	119	6	0	168	0	65	11	0	76	403
5:30 PM	6	43	2	0	51	39	33	43	0	115	35	122	13	0	170	1	58	18	0	77	413
5:45 PM	8	37	2	0	47	27	34	41	0	102	38	123	6	1	167	0	60	14	0	74	390
Total	29	177	9	0	215	116	127	170	0	413	148	506	31	1	685	2	245	58	0	305	1618
Grand Total	84	576	23	2	683	269	504	564	0	1337	394	1212	84	3	1690	20	1439	219	0	1678	5388
Apprch %	12.3	84.3	3.4	0.3		20.1	37.7	42.2	0.0		23.3	71.7	5.0	0.2		1.2	85.8	13.1	0.0		
Total %	1.6	10.7	0.4	0.0	12.7	5.0	9.4	10.5	0.0	24.8	7.3	22.5	1.6	0.1	31.4	0.4	26.7	4.1	0.0	31.1	
Cars, PU, Vans	84	576	23	2	683	269	504	563	0	1336	392	1197	84	3	1673	20	1425	218	0	1663	5355
% Cars, PU, Vans	####	####	####	100.0	100.0	####	####	99.8	0.0	99.9	99.5	98.8	####	####	99.0	100.0	99.0	99.5	0.0	99.1	99.4
Heavy Trucks	0	0	0		0	0	0	1		1	2	15	0		17	0	14	1		15	33
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.5	1.2	0.0	0.0	1.0	0.0	1.0	0.5	0.0	0.9	0.6

Project ID: 15-9167-009
Location: Bouldercrest Rd & Anvil
City: Ellenwood

PEAK HOURS

Day: Tuesday
Date: 5/5/2015

AM

	Bouldercrest Rd Northbound				Bouldercrest Rd Southbound				Anvil Block Rd Eastbound				Anvil Block Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 07:00 AM to 09:00 AM																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
7:00 AM	6	25	0	31	9	21	28	58	13	27	1	41	0	171	16	187	317
7:15 AM	2	29	0	31	10	31	35	76	15	39	4	58	0	153	23	176	341
7:30 AM	3	33	2	38	9	44	44	97	24	35	2	61	3	145	21	169	365
7:45 AM	6	32	0	38	8	29	36	73	13	28	1	42	3	144	15	162	315
Total Volume	17	119	2	138	36	125	143	304	65	129	8	202	6	613	75	694	1338
% App. Total	12.3	86.2	1.4	100	11.8	41.1	47.0	100	32.2	63.9	4.0	100	0.9	88.3	10.8	100	
PHF				0.908				0.784				0.828				0.928	
Cars, PU, Vans	17	119	2	138	36	125	142	303	65	129	8	202	6	608	74	688	1331
% Cars, PU, Vans	####	####	####	100.0	100.0	####	99.3	99.7	####	100.0	####	100.0	####	99.2	98.7	99.1	99.5
Heavy Trucks	0	0	0	0	0	0	1	1	0	0	0	0	0	5	1	6	7
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.8	1.3	0.9	0.5

PM

	Bouldercrest Rd Northbound				Bouldercrest Rd Southbound				Anvil Block Rd Eastbound				Anvil Block Rd Westbound				
Start Time	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Left	Thru	Rgt	App. Total	Int. Total
Peak Hour Analysis from 04:00 PM to 06:00 PM																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
4:45 PM	6	42	3	51	22	32	43	97	32	138	10	180	3	54	7	64	392
5:00 PM	6	36	3	45	22	37	50	109	32	142	6	180	1	62	15	78	412
5:15 PM	9	61	2	72	28	23	36	87	43	119	6	168	0	65	11	76	403
5:30 PM	6	43	2	51	39	33	43	115	35	122	13	170	1	58	18	77	413
Total Volume	27	182	10	219	111	125	172	408	142	521	35	698	5	239	51	295	1620
% App. Total	12.3	83.1	4.6	100	27.2	30.6	42.2	100	20.3	74.6	5.0	100	1.7	81.0	17.3	100	
PHF				0.760				0.887				0.969				0.946	
Cars, PU, Vans	27	182	10	219	111	125	172	408	140	514	35	689	5	234	51	290	1606
% Cars, PU, Vans	####	####	####	100.0	100.0	####	####	100.0	98.6	98.7	####	98.7	####	97.9	100.0	98.3	99.1
Heavy Trucks	0	0	0	0	0	0	0	0	2	7	0	9	0	5	0	5	14
%Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.3	0.0	1.3	0.0	2.1	0.0	1.7	0.9

Prepared by National Data & Surveying Services

CLASSIFICATION

Anvil Block Rd w/o Lunsford Dr

Day: Tuesday
Date: 5/5/2015

City: Ellenwood
Project #: GA15_9168_001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	105	9	0	4	1	0	0	1	0	0	0	0	120
01:00	0	55	7	0	2	0	0	1	0	0	0	0	0	65
02:00	1	63	9	1	2	0	0	1	0	0	0	0	0	77
03:00	2	103	14	0	2	2	0	0	3	0	0	0	0	126
04:00	1	90	20	0	7	2	0	1	0	0	0	0	0	121
05:00	1	259	57	3	21	3	0	0	0	0	0	0	0	344
06:00	5	573	96	8	56	3	0	1	2	0	0	0	0	744
07:00	3	785	101	1	71	5	0	2	2	0	0	0	0	970
08:00	4	577	105	3	46	7	0	1	1	0	0	0	0	744
09:00	5	399	67	2	35	4	0	5	4	0	0	0	0	521
10:00	3	371	82	3	39	7	0	3	3	0	0	0	0	511
11:00	3	424	84	4	41	3	0	2	4	0	0	0	0	565
12:00 PM	1	510	85	3	38	3	0	0	2	0	0	0	0	642
13:00	1	505	86	5	47	6	0	3	2	0	0	0	0	655
14:00	1	542	83	6	51	3	0	6	5	0	0	0	0	697
15:00	1	599	86	7	51	5	0	3	4	0	0	0	0	756
16:00	6	716	107	5	54	3	0	5	2	0	0	0	0	898
17:00	5	868	124	4	53	7	0	0	3	0	0	0	0	1064
18:00	5	743	95	2	50	3	1	1	3	0	0	0	0	903
19:00	4	595	82	2	26	4	1	4	1	0	0	0	0	719
20:00	1	570	70	2	27	4	0	1	2	0	0	0	0	677
21:00	1	477	58	0	23	2	0	0	0	0	0	0	0	561
22:00	0	393	45	2	11	1	1	1	0	0	0	0	0	454
23:00	1	314	24	1	16	0	0	0	0	0	0	0	0	356
Totals	55	10636	1596	64	773	78	3	41	44					13290
% of Totals	0%	80%	12%	0%	6%	1%	0%	0%	0%					100%

AM Volumes	28	3804	651	25	326	37	0	17	20	0	0	0	0	4908
% AM	0%	29%	5%	0%	2%	0%		0%	0%					37%
AM Peak Hour	06:00	07:00	08:00	06:00	07:00	08:00		09:00	09:00					07:00
Volume	5	785	105	8	71	7		5	4					970
PM Volumes	27	6832	945	39	447	41	3	24	24	0	0	0	0	8382
% PM	0%	51%	7%	0%	3%	0%	0%	0%	0%					63%
PM Peak Hour	16:00	17:00	17:00	15:00	16:00	17:00	18:00	14:00	14:00					17:00
Volume	6	868	124	7	54	7	1	6	5					1064

Directional Peak Periods All Classes	AM 7-9 Volume		AM 7-9 %	NOON 12-2 Volume		NOON 12-2 %	PM 4-6 Volume		PM 4-6 %	Off Peak Volumes Volume		Off Peak Volumes %
	1714	⟷	13%	1297	⟷	10%	1962	⟷	15%	8317	⟷	63%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Anvil Block Rd w/o Lunsford Dr

Day: Tuesday
Date: 5/5/2015

City: Ellenwood
Project #: GA15_9168_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,245	7,045	13,290

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	22		12		34		12:00	0	0	69		104		173	
00:15	0	0	20		8		28		12:15	0	0	54		82		136	
00:30	0	0	15		12		27		12:30	0	0	82		90		172	
00:45	0	0	20	77	11	43	31	120	12:45	0	0	78	283	83	359	161	642
01:00	0	0	10		7		17		13:00	0	0	73		96		169	
01:15	0	0	13		6		19		13:15	0	0	69		80		149	
01:30	0	0	14		6		20		13:30	0	0	71		93		164	
01:45	0	0	5	42	4	23	9	65	13:45	0	0	65	278	108	377	173	655
02:00	0	0	15		7		22		14:00	0	0	94		121		215	
02:15	0	0	6		11		17		14:15	0	0	78		76		154	
02:30	0	0	4		12		16		14:30	0	0	80		68		148	
02:45	0	0	4	29	18	48	22	77	14:45	0	0	104	356	76	341	180	697
03:00	0	0	8		16		24		15:00	0	0	93		85		178	
03:15	0	0	15		4		19		15:15	0	0	102		92		194	
03:30	0	0	21		16		37		15:30	0	0	122		66		188	
03:45	0	0	15	59	31	67	46	126	15:45	0	0	127	444	69	312	196	756
04:00	0	0	12		11		23		16:00	0	0	133		64		197	
04:15	0	0	2		21		23		16:15	0	0	120		80		200	
04:30	0	0	5		26		31		16:30	0	0	153		87		240	
04:45	0	0	11	30	33	91	44	121	16:45	0	0	159	565	102	333	261	898
05:00	0	0	12		42		54		17:00	0	0	167		112		279	
05:15	0	0	19		51		70		17:15	0	0	156		98		254	
05:30	0	0	15		84		99		17:30	0	0	143		106		249	
05:45	0	0	30	76	91	268	121	344	17:45	0	0	176	642	106	422	282	1064
06:00	0	0	26		106		132		18:00	0	0	159		101		260	
06:15	0	0	26		137		163		18:15	0	0	134		98		232	
06:30	0	0	46		145		191		18:30	0	0	128		85		213	
06:45	0	0	55	153	203	591	258	744	18:45	0	0	114	535	84	368	198	903
07:00	0	0	41		202		243		19:00	0	0	110		85		195	
07:15	0	0	61		195		256		19:15	0	0	115		77		192	
07:30	0	0	61		188		249		19:30	0	0	111		70		181	
07:45	0	0	44	207	178	763	222	970	19:45	0	0	81	417	70	302	151	719
08:00	0	0	58		170		228		20:00	0	0	93		76		169	
08:15	0	0	40		157		197		20:15	0	0	105		73		178	
08:30	0	0	58		110		168		20:30	0	0	101		68		169	
08:45	0	0	44	200	107	544	151	744	20:45	0	0	97	396	64	281	161	677
09:00	0	0	44		92		136		21:00	0	0	86		77		163	
09:15	0	0	51		103		154		21:15	0	0	83		56		139	
09:30	0	0	43		80		123		21:30	0	0	64		69		133	
09:45	0	0	29	167	79	354	108	521	21:45	0	0	72	305	54	256	126	561
10:00	0	0	54		66		120		22:00	0	0	81		41		122	
10:15	0	0	46		88		134		22:15	0	0	77		42		119	
10:30	0	0	46		91		137		22:30	0	0	64		44		108	
10:45	0	0	50	196	70	315	120	511	22:45	0	0	60	282	45	172	105	454
11:00	0	0	62		76		138		23:00	0	0	61		47		108	
11:15	0	0	76		55		131		23:15	0	0	64		45		109	
11:30	0	0	78		80		158		23:30	0	0	53		25		78	
11:45	0	0	66	282	72	283	138	565	23:45	0	0	46	224	15	132	61	356
TOTALS				1518		3390		4908	TOTALS				4727		3655		8382
SPLIT %				30.9%		69.1%		36.9%	SPLIT %				56.4%		43.6%		63.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,245	7,045	13,290

AM Peak Hour				11:15		06:45		06:45	PM Peak Hour				17:30		17:30		17:30
AM Pk Volume				289		788		1006	PM Pk Volume				612		422		1064
Pk Hr Factor				0.926		0.970		0.975	Pk Hr Factor				0.869		0.969		0.907
7 - 9 Volume	0	0		407		1307		1714	4 - 6 Volume	0	0		1207		755		1962
7 - 9 Peak Hour				07:15		07:00		07:00	4 - 6 Peak Hour				17:00		17:00		17:00
7 - 9 Pk Volume	0	0		224		763		970	4 - 6 Pk	0	0		642		422		1064
Pk Hr Factor	0.000	0.000		0.918		0.944		0.947	Pk Hr Factor	0.000	0.000		0.912		0.942		0.943

Prepared by National Data & Surveying Services

CLASSIFICATION

Bouldercrest Rd Bet. Northridge Trail & Rowden Rd

Day: Tuesday
Date: 5/5/2015

City: Ellenwood
Project #: GA15_9168_002

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	80	6	0	2	1	0	0	0	0	0	0	0	89
01:00	0	35	2	0	3	0	0	0	0	0	0	0	0	40
02:00	0	27	6	0	3	0	0	0	0	0	0	0	0	36
03:00	0	50	5	0	1	0	0	0	1	0	0	0	0	57
04:00	0	27	10	0	6	0	0	0	0	0	0	0	0	43
05:00	0	120	21	6	6	0	0	0	0	0	0	0	0	153
06:00	0	246	34	8	26	0	0	0	0	0	0	0	0	314
07:00	0	441	73	9	38	1	0	1	0	0	0	0	0	563
08:00	0	370	48	7	33	3	0	1	0	0	0	0	0	462
09:00	0	266	66	5	21	0	0	2	0	0	0	0	0	360
10:00	1	254	63	4	35	2	0	1	0	0	0	0	0	360
11:00	2	309	59	6	26	0	0	0	2	0	0	0	0	404
12:00 PM	1	338	61	4	37	2	0	0	0	0	0	0	0	443
13:00	3	313	58	3	25	0	0	1	0	0	0	0	0	403
14:00	1	372	67	9	44	2	0	0	0	0	0	0	0	495
15:00	6	350	64	8	41	0	0	0	0	0	0	0	0	469
16:00	2	535	99	10	52	3	0	2	1	0	0	0	0	704
17:00	1	629	94	9	48	1	0	2	0	0	0	0	0	784
18:00	3	530	88	5	43	1	0	1	0	0	0	0	0	671
19:00	1	421	65	6	36	1	0	0	0	0	0	0	0	530
20:00	0	409	67	3	31	1	0	0	0	0	0	0	0	511
21:00	0	335	58	2	13	0	0	0	0	0	0	0	0	408
22:00	1	228	21	2	10	1	0	0	0	0	0	0	0	263
23:00	0	173	17	3	7	0	0	0	1	0	0	0	0	201
Totals	22	6858	1152	109	587	19		11	5					8763
% of Totals	0%	78%	13%	1%	7%	0%		0%	0%					100%

AM Volumes	3	2225	393	45	200	7	0	5	3	0	0	0	0	2881
% AM	0%	25%	4%	1%	2%	0%		0%	0%					33%
AM Peak Hour	11:00	07:00	07:00	07:00	07:00	08:00		09:00	11:00					07:00
Volume	2	441	73	9	38	3		2	2					563
PM Volumes	19	4633	759	64	387	12	0	6	2	0	0	0	0	5882
% PM	0%	53%	9%	1%	4%	0%		0%	0%					67%
PM Peak Hour	15:00	17:00	16:00	16:00	16:00	16:00		16:00	16:00					17:00
Volume	6	629	99	10	52	3		2	1					784

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	1025	12%	846	10%	1488	17%	5404	62%

Classification Definitions

1 Motorcycles
2 Passenger Cars
3 2-Axle, 4-Tire Single Units
4 Buses
5 2-Axle, 6-Tire Single Units
6 3-Axle Single Units
7 > =4-Axle Single Units
8 <=4-Axle Single Trailers
9 5-Axle Single Trailers
10 >=6-Axle Single Trailers
11 <=5-Axle Multi-Trailers
12 6-Axle Multi-Trailers
13 >=7-Axle Multi-Trailers

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Bouldercrest Rd Bet. Northridge Trail & Rowden Rd

Day: Tuesday
Date: 5/5/2015

City: Ellenwood
Project #: GA15_9168_002

DAILY TOTALS	NB	SB	EB	WB	Total
	4,426	4,337	0	0	8,763

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	18		15		0	0	33		12:00	41		68		0	0	109	
00:15	11		5		0	0	16		12:15	51		53		0	0	104	
00:30	12		7		0	0	19		12:30	45		69		0	0	114	
00:45	17	58	4	31	0	0	21	89	12:45	62	199	54	244	0	0	116	443
01:00	9		2		0	0	11		13:00	41		51		0	0	92	
01:15	5		4		0	0	9		13:15	50		45		0	0	95	
01:30	8		2		0	0	10		13:30	66		48		0	0	114	
01:45	7	29	3	11	0	0	10	40	13:45	53	210	49	193	0	0	102	403
02:00	5		3		0	0	8		14:00	51		56		0	0	107	
02:15	7		4		0	0	11		14:15	73		58		0	0	131	
02:30	2		4		0	0	6		14:30	58		72		0	0	130	
02:45	4	18	7	18	0	0	11	36	14:45	63	245	64	250	0	0	127	495
03:00	9		3		0	0	12		15:00	45		50		0	0	95	
03:15	11		6		0	0	17		15:15	65		60		0	0	125	
03:30	8		4		0	0	12		15:30	54		63		0	0	117	
03:45	4	32	12	25	0	0	16	57	15:45	77	241	55	228	0	0	132	469
04:00	1		5		0	0	6		16:00	68		72		0	0	140	
04:15	2		4		0	0	6		16:15	86		85		0	0	171	
04:30	5		5		0	0	10		16:30	95		112		0	0	207	
04:45	8	16	13	27	0	0	21	43	16:45	83	332	103	372	0	0	186	704
05:00	5		15		0	0	20		17:00	85		106		0	0	191	
05:15	14		17		0	0	31		17:15	104		95		0	0	199	
05:30	22		18		0	0	40		17:30	95		110		0	0	205	
05:45	33	74	29	79	0	0	62	153	17:45	89	373	100	411	0	0	189	784
06:00	32		21		0	0	53		18:00	96		81		0	0	177	
06:15	29		46		0	0	75		18:15	91		77		0	0	168	
06:30	41		27		0	0	68		18:30	98		81		0	0	179	
06:45	54	156	64	158	0	0	118	314	18:45	80	365	67	306	0	0	147	671
07:00	64		58		0	0	122		19:00	77		56		0	0	133	
07:15	61		73		0	0	134		19:15	74		66		0	0	140	
07:30	82		93		0	0	175		19:30	78		59		0	0	137	
07:45	62	269	70	294	0	0	132	563	19:45	63	292	57	238	0	0	120	530
08:00	59		62		0	0	121		20:00	67		49		0	0	116	
08:15	50		64		0	0	114		20:15	71		43		0	0	114	
08:30	53		69		0	0	122		20:30	87		55		0	0	142	
08:45	52	214	53	248	0	0	105	462	20:45	81	306	58	205	0	0	139	511
09:00	44		46		0	0	90		21:00	64		57		0	0	121	
09:15	47		43		0	0	90		21:15	60		42		0	0	102	
09:30	42		57		0	0	99		21:30	51		45		0	0	96	
09:45	38	171	43	189	0	0	81	360	21:45	50	225	39	183	0	0	89	408
10:00	35		48		0	0	83		22:00	40		24		0	0	64	
10:15	42		58		0	0	100		22:15	50		31		0	0	81	
10:30	45		57		0	0	102		22:30	33		24		0	0	57	
10:45	41	163	34	197	0	0	75	360	22:45	37	160	24	103	0	0	61	263
11:00	38		45		0	0	83		23:00	28		20		0	0	48	
11:15	43		63		0	0	106		23:15	30		34		0	0	64	
11:30	36		69		0	0	105		23:30	34		21		0	0	55	
11:45	46	163	64	241	0	0	110	404	23:45	23	115	11	86	0	0	34	201
TOTALS		1363		1518				2881	TOTALS		3063		2819				5882
SPLIT %		47.3%		52.7%				32.9%	SPLIT %		52.1%		47.9%				67.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	4,426	4,337	0	0	8,763

AM Peak Hour	07:00	07:15			07:00	PM Peak Hour	17:45	17:00			17:30
AM Pk Volume	269	298			563	PM Pk Volume	384	416			784
Pk Hr Factor	0.820	0.801			0.804	Pk Hr Factor	0.954	0.934			0.901
7 - 9 Volume	483	542	0	0	1025	4 - 6 Volume	705	783	0	0	1488
7 - 9 Peak Hour	07:00	07:15			07:00	4 - 6 Peak Hour	17:00	16:30			17:00
7 - 9 Pk Volume	269	298	0	0	563	4 - 6 Pk	373	416	0	0	784
Pk Hr Factor	0.820	0.801	0.000	0.000	0.804	Pk Hr Factor	0.897	0.929	0.000	0.000	0.956

Appendix C: Trip Generation

Trip Generation Summary - Alternative 1

Project: Anvil Block
Alternative: Alternative 1

Open Date: 11/13/2015
Analysis Date: 11/13/2015

ITE	Land Use	Average Daily Trips			AM Peak Hour of Adjacent Street Traffic			PM Peak Hour of Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
150	WAREHOUSE 1	1415	1414	2829	188	50	238	64	190	254
	794.6 Gross Floor Area 1000 SF									
Unadjusted Volume		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Pass-By Trips		0	0	0	0	0	0	0	0	0
Volume Added to Adjacent Streets		0	0	0	0	0	0	0	0	0

Total AM Peak Hour Internal Capture = 0 Percent

Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

Trip Generation Summary - Alternative 2 - Residential

Project: Anvil Block
Alternative: Alternative 2 - Residential

Open Date: 11/13/2015
Analysis Date: 11/13/2015

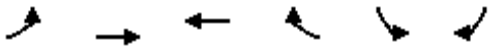
ITE	Land Use	Average Daily Trips			AM Peak Hour of Adjacent Street Traffic			PM Peak Hour of Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
210	SFHOUSE 1	900	899	1799	36	106	142	119	70	189
	189 Dwelling Units									
Unadjusted Volume		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Pass-By Trips		0	0	0	0	0	0	0	0	0
Volume Added to Adjacent Streets		0	0	0	0	0	0	0	0	0

Total AM Peak Hour Internal Capture = 0 Percent

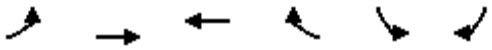
Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

Appendix D: Existing Year-2015 Intersection Capacity Analyses Sheets (ICAS)



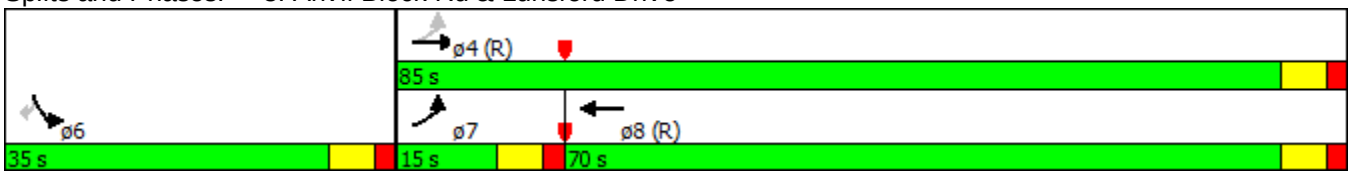
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	8	196	774	6	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325			0	0	300
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1900	1879	0	1805	1900
Flt Permitted	0.171				0.950	
Satd. Flow (perm)	290	1900	1879	0	1805	1900
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		30	
Link Distance (ft)		1025	2021		369	
Travel Time (s)		15.5	30.6		8.4	
Peak Hour Factor	0.85	0.85	0.95	0.95	0.67	0.67
Heavy Vehicles (%)	12%	0%	1%	0%	0%	0%
Adj. Flow (vph)	9	231	815	6	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	231	821	0	12	0
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4					6
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	11.0	22.0	22.0		22.0	22.0
Total Split (s)	15.0	85.0	70.0		35.0	35.0
Total Split (%)	12.5%	70.8%	58.3%		29.2%	29.2%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		Max	Max
Act Effct Green (s)	79.0	79.0	76.6		29.0	
Actuated g/C Ratio	0.66	0.66	0.64		0.24	
v/c Ratio	0.04	0.18	0.68		0.03	
Control Delay	7.4	8.4	16.0		35.1	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	7.4	8.4	16.0		35.1	
LOS	A	A	B		D	
Approach Delay		8.4	16.0		35.1	
Approach LOS		A	B		D	
Queue Length 50th (ft)	2	64	281		7	
Queue Length 95th (ft)	8	91	465		17	

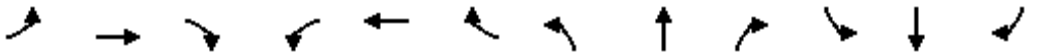


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Internal Link Dist (ft)		945	1941		289	
Turn Bay Length (ft)	325					
Base Capacity (vph)	290	1250	1199		436	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.03	0.18	0.68		0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 14.5		Intersection LOS: B	
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Anvil Block Rd & Lunsford Drive



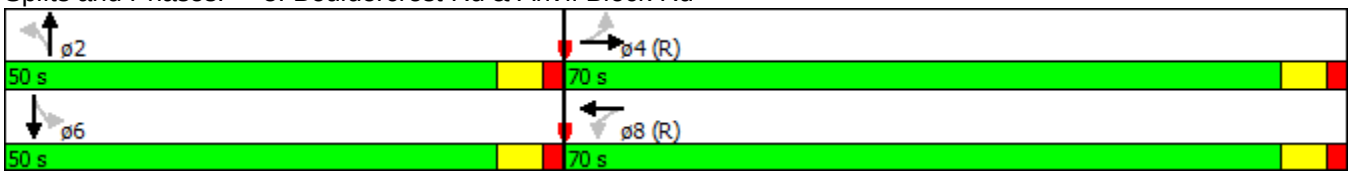


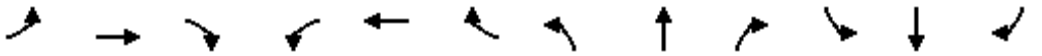
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	129	8	6	613	75	17	119	2	36	125	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00						0.99	
Frt		0.994			0.985			0.998			0.936	
Flt Protected		0.984						0.994			0.994	
Satd. Flow (prot)	0	1857	0	0	1853	0	0	1885	0	0	1740	0
Flt Permitted		0.618			0.998			0.929			0.945	
Satd. Flow (perm)	0	1166	0	0	1849	0	0	1762	0	0	1654	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			8			1			42	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2021			1467			1076			1236	
Travel Time (s)		30.6			22.2			16.3			18.7	
Confl. Peds. (#/hr)			1	1						1		1
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.91	0.91	0.91	0.78	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	78	155	10	6	659	81	19	131	2	46	160	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	243	0	0	746	0	0	152	0	0	389	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	70.0	70.0		70.0	70.0		50.0	50.0		50.0	50.0	
Total Split (%)	58.3%	58.3%		58.3%	58.3%		41.7%	41.7%		41.7%	41.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Act Effct Green (s)		64.0			64.0			44.0			44.0	
Actuated g/C Ratio		0.53			0.53			0.37			0.37	
v/c Ratio		0.39			0.75			0.24			0.61	
Control Delay		14.4			27.7			27.4			32.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.4			27.7			27.4			32.5	
LOS		B			C			C			C	
Approach Delay		14.4			27.7			27.4			32.5	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)		58			429			80			218	
Queue Length 95th (ft)		76			594			133			263	
Internal Link Dist (ft)		1941			1387			996			1156	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		623			989			646			633	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.39			0.75			0.24			0.61	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 26.8		Intersection LOS: C	
Intersection Capacity Utilization 88.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: Bouldercrest Rd & Anvil Block Rd



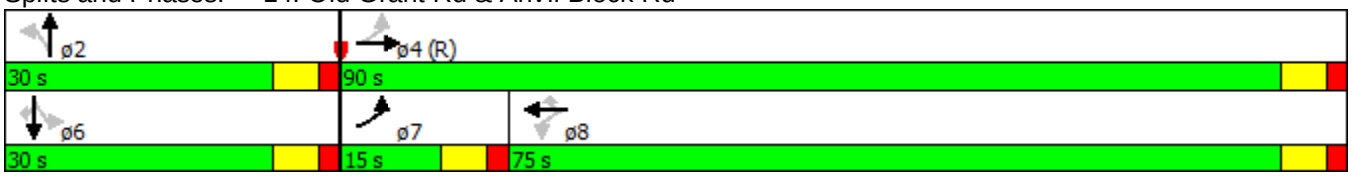


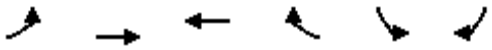
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	290	5	27	833	20	10	10	18	29	8	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	335		0	100		0	415		90
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00					1.00					0.98
Frt		0.997				0.850		0.905				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3386	0	1805	3539	1615	1641	1720	0	1805	1900	1553
Flt Permitted	0.269			0.554			0.751			0.730		
Satd. Flow (perm)	511	3386	0	1053	3539	1615	1291	1720	0	1387	1900	1527
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				82		26				82
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		512			722			506			512	
Travel Time (s)		7.8			10.9			9.9			10.0	
Confl. Peds. (#/hr)	2		2				2					2
Peak Hour Factor	0.90	0.90	0.90	0.99	0.99	0.99	0.68	0.68	0.68	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	20%	0%	2%	0%	10%	0%	0%	0%	0%	4%
Adj. Flow (vph)	67	322	6	27	841	20	15	15	26	36	10	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	328	0	27	841	20	15	41	0	36	10	58
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	22.0		22.0	22.0	22.0	22.0	22.0		22.0	22.0	22.0
Total Split (s)	15.0	90.0		75.0	75.0	75.0	30.0	30.0		30.0	30.0	30.0
Total Split (%)	12.5%	75.0%		62.5%	62.5%	62.5%	25.0%	25.0%		25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		None	None	None	Max	Max		Max	Max	Max
Act Effct Green (s)	84.0	84.0		73.5	73.5	73.5	24.0	24.0		24.0	24.0	24.0
Actuated g/C Ratio	0.70	0.70		0.61	0.61	0.61	0.20	0.20		0.20	0.20	0.20
v/c Ratio	0.16	0.14		0.04	0.39	0.02	0.06	0.11		0.13	0.03	0.16
Control Delay	6.4	6.1		10.8	13.1	0.1	39.8	21.0		41.0	39.0	4.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	6.4	6.1		10.8	13.1	0.1	39.8	21.0		41.0	39.0	4.8
LOS	A	A		B	B	A	D	C		D	D	A
Approach Delay		6.1			12.7			26.0			20.6	
Approach LOS		A			B			C			C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	15	39		8	172	0	9	9		23	6	0
Queue Length 95th (ft)	29	55		22	222	0	22	26		48	19	13
Internal Link Dist (ft)		432			642			426			432	
Turn Bay Length (ft)	275			335			100			415		90
Base Capacity (vph)	454	2371		644	2167	1020	258	364		277	380	371
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.15	0.14		0.04	0.39	0.02	0.06	0.11		0.13	0.03	0.16

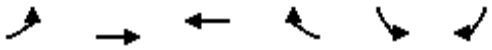
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 30 (25%), Referenced to phase 4:EBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 55.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 14: Old Grant Rd & Anvil Block Rd





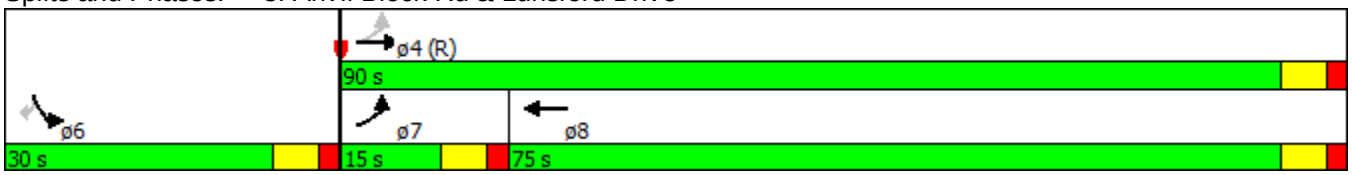
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	12	626	418	27	73	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325			0	0	300
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1671	1881	1859	0	1805	1615
Flt Permitted	0.432				0.950	
Satd. Flow (perm)	760	1881	1859	0	1805	1615
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			4
Link Speed (mph)		45	45		30	
Link Distance (ft)		1025	2021		369	
Travel Time (s)		15.5	30.6		8.4	
Peak Hour Factor	0.95	0.95	0.94	0.94	0.76	0.76
Heavy Vehicles (%)	8%	1%	1%	7%	0%	0%
Adj. Flow (vph)	13	659	445	29	96	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	659	474	0	96	4
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4					6
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	11.0	22.0	22.0		22.0	22.0
Total Split (s)	15.0	90.0	75.0		30.0	30.0
Total Split (%)	12.5%	75.0%	62.5%		25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	Max		None	None
Act Effct Green (s)	96.3	96.3	91.5		11.7	11.7
Actuated g/C Ratio	0.80	0.80	0.76		0.10	0.10
v/c Ratio	0.02	0.44	0.33		0.55	0.02
Control Delay	3.0	5.0	8.2		62.6	29.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	3.0	5.0	8.2		62.6	29.0
LOS	A	A	A		E	C
Approach Delay		4.9	8.2		61.2	
Approach LOS		A	A		E	
Queue Length 50th (ft)	2	125	87		72	0
Queue Length 95th (ft)	7	216	m287		103	9

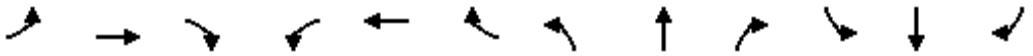


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Internal Link Dist (ft)		945	1941		289	
Turn Bay Length (ft)	325					300
Base Capacity (vph)	678	1509	1418		361	326
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.02	0.44	0.33		0.27	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 35 (29%), Referenced to phase 4:EBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 47.1%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Anvil Block Rd & Lunsford Drive





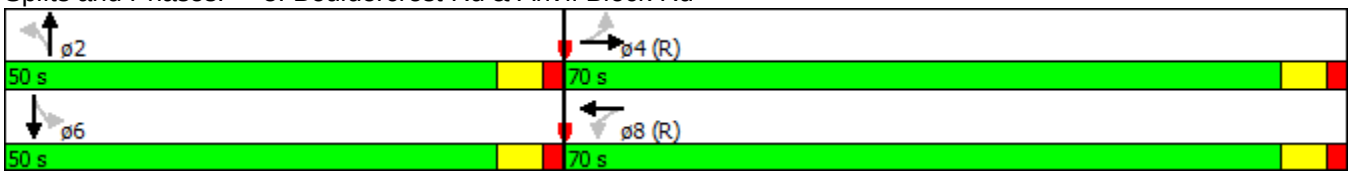
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	521	35	5	239	51	27	182	10	111	125	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99						0.99	
Frt		0.993			0.977			0.994			0.943	
Flt Protected		0.990			0.999			0.994			0.987	
Satd. Flow (prot)	0	1848	0	0	1815	0	0	1877	0	0	1745	0
Flt Permitted		0.828			0.990			0.896			0.741	
Satd. Flow (perm)	0	1546	0	0	1799	0	0	1692	0	0	1310	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			14			2			34	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2021			1467			1076			1236	
Travel Time (s)		30.6			22.2			16.3			18.7	
Confl. Peds. (#/hr)			1	3		3	3					3
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.76	0.76	0.76	0.89	0.89	0.89
Heavy Vehicles (%)	1%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	146	537	36	5	252	54	36	239	13	125	140	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	719	0	0	311	0	0	288	0	0	458	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	70.0	70.0		70.0	70.0		50.0	50.0		50.0	50.0	
Total Split (%)	58.3%	58.3%		58.3%	58.3%		41.7%	41.7%		41.7%	41.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Act Effct Green (s)		64.0			64.0			44.0			44.0	
Actuated g/C Ratio		0.53			0.53			0.37			0.37	
v/c Ratio		0.87			0.32			0.46			0.91	
Control Delay		38.7			16.1			31.8			58.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		38.7			16.1			31.8			58.1	
LOS		D			B			C			E	
Approach Delay		38.7			16.1			31.8			58.1	
Approach LOS		D			B			C			E	
Queue Length 50th (ft)		407			124			168			315	
Queue Length 95th (ft)		#708			185			202			#513	
Internal Link Dist (ft)		1941			1387			996			1156	

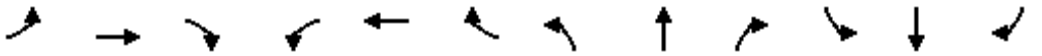
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)		825			966			621			501	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.87			0.32			0.46			0.91	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 38.7 Intersection LOS: D
Intersection Capacity Utilization 108.5% ICU Level of Service G
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Bouldercrest Rd & Anvil Block Rd



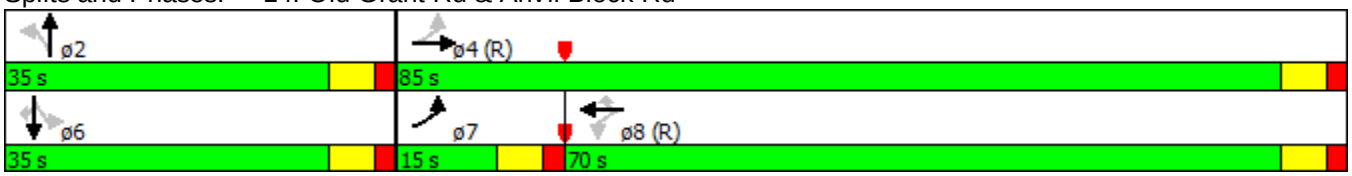


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	152	675	8	53	445	31	8	25	61	43	26	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	335		0	100		0	415		90
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00					1.00					0.98
Frt		0.998				0.850		0.894				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3400	0	1805	3471	1615	1805	1699	0	1770	1900	1599
Flt Permitted	0.444			0.361			0.735			0.634		
Satd. Flow (perm)	833	3400	0	686	3471	1615	1391	1699	0	1181	1900	1573
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				82		75				94
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		512			722			506			512	
Travel Time (s)		7.8			10.9			9.9			10.0	
Confl. Peds. (#/hr)	2		2				2					2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	1%	6%	0%	0%	4%	0%	0%	0%	0%	2%	0%	1%
Adj. Flow (vph)	171	758	9	58	484	34	10	31	75	56	34	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	767	0	58	484	34	10	106	0	56	34	94
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	22.0		22.0	22.0	22.0	22.0	22.0		22.0	22.0	22.0
Total Split (s)	15.0	85.0		70.0	70.0	70.0	35.0	35.0		35.0	35.0	35.0
Total Split (%)	12.5%	70.8%		58.3%	58.3%	58.3%	29.2%	29.2%		29.2%	29.2%	29.2%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	Min	Min		Min	Min	Min
Act Effct Green (s)	97.4	97.4		83.4	83.4	83.4	10.6	10.6		10.6	10.6	10.6
Actuated g/C Ratio	0.81	0.81		0.70	0.70	0.70	0.09	0.09		0.09	0.09	0.09
v/c Ratio	0.23	0.28		0.12	0.20	0.03	0.08	0.49		0.54	0.20	0.42
Control Delay	3.5	3.3		8.1	7.3	0.0	49.1	25.8		69.9	51.8	15.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	3.5	3.3		8.1	7.3	0.0	49.1	25.8		69.9	51.8	15.5
LOS	A	A		A	A	A	D	C		E	D	B
Approach Delay		3.3			6.9			27.8			38.7	
Approach LOS		A			A			C			D	

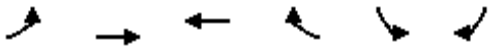
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	22	60		13	62	0	7	23		42	25	0
Queue Length 95th (ft)	45	96		36	102	0	22	62		71	48	32
Internal Link Dist (ft)		432			642			426			432	
Turn Bay Length (ft)	275			335			100			415		90
Base Capacity (vph)	749	2760		476	2411	1146	336	467		285	459	451
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.23	0.28		0.12	0.20	0.03	0.03	0.23		0.20	0.07	0.21

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 67 (56%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 47.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 14: Old Grant Rd & Anvil Block Rd



Appendix E: Year-2017 Background ICAS without the Development

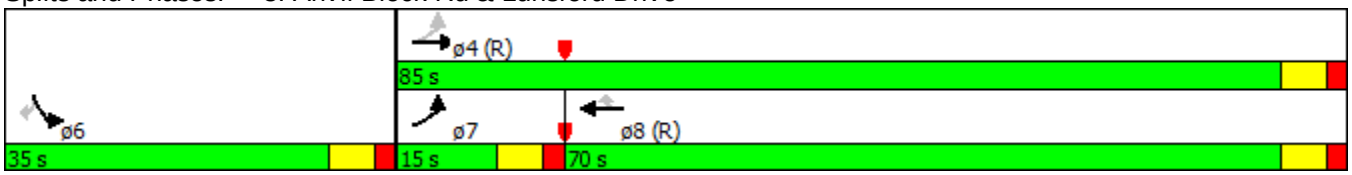


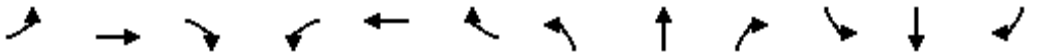
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	8	200	789	6	8	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325			250	0	300
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	3610	3574	1615	1805	1900
Flt Permitted	0.271				0.950	
Satd. Flow (perm)	460	3610	3574	1615	1805	1900
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				6		
Link Speed (mph)		45	45		30	
Link Distance (ft)		1025	2021		369	
Travel Time (s)		15.5	30.6		8.4	
Peak Hour Factor	0.85	0.85	0.95	0.95	0.67	0.67
Heavy Vehicles (%)	12%	0%	1%	0%	0%	0%
Adj. Flow (vph)	9	235	831	6	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	235	831	6	12	0
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	15.0	85.0	70.0	70.0	35.0	35.0
Total Split (%)	12.5%	70.8%	58.3%	58.3%	29.2%	29.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max
Act Effct Green (s)	79.0	79.0	76.6	76.6	29.0	
Actuated g/C Ratio	0.66	0.66	0.64	0.64	0.24	
v/c Ratio	0.03	0.10	0.36	0.01	0.03	
Control Delay	7.2	7.6	4.0	1.7	35.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.2	7.6	4.0	1.7	35.1	
LOS	A	A	A	A	D	
Approach Delay		7.6	4.0		35.1	
Approach LOS		A	A		D	
Queue Length 50th (ft)	2	32	33	0	7	
Queue Length 95th (ft)	8	44	80	m0	17	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Internal Link Dist (ft)		945	1941		289	
Turn Bay Length (ft)	325			250		
Base Capacity (vph)	389	2376	2279	1032	436	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.10	0.36	0.01	0.03	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 35 (29%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 5.1		Intersection LOS: A	
Intersection Capacity Utilization 36.0%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Anvil Block Rd & Lunsford Drive



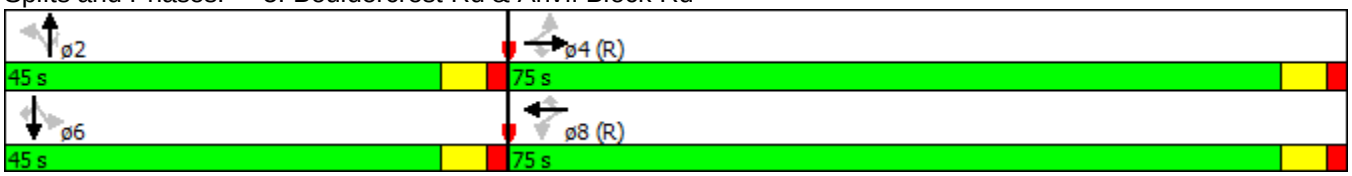


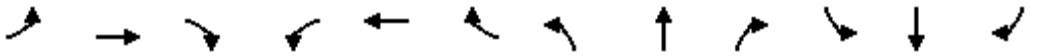
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	132	8	6	625	77	17	121	2	37	128	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		250	250		250	250		250
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98	1.00			1.00		0.98			
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	1805	1881	1599	1805	1900	1615	1805	1900	1599
Flt Permitted	0.265			0.656			0.618			0.664		
Satd. Flow (perm)	504	1900	1577	1243	1881	1599	1172	1900	1577	1262	1900	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			27			83			27			187
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2021			1467			1076			1236	
Travel Time (s)		30.6			22.2			16.3			18.7	
Confl. Peds. (#/hr)			1	1			1		1			
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.91	0.91	0.91	0.78	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	80	159	10	6	672	83	19	133	2	47	164	187
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	159	10	6	672	83	19	133	2	47	164	187
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	75.0	75.0	75.0	75.0	75.0	75.0	45.0	45.0	45.0	45.0	45.0	45.0
Total Split (%)	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	69.0	69.0	69.0	69.0	69.0	69.0	39.0	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.58	0.58	0.58	0.58	0.58	0.58	0.32	0.32	0.32	0.32	0.32	0.32
v/c Ratio	0.28	0.15	0.01	0.01	0.62	0.09	0.05	0.22	0.00	0.11	0.27	0.29
Control Delay	16.3	11.8	0.6	11.0	20.1	2.6	28.5	30.6	0.0	29.5	31.4	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	11.8	0.6	11.0	20.1	2.6	28.5	30.6	0.0	29.5	31.4	5.3
LOS	B	B	A	B	C	A	C	C	A	C	C	A
Approach Delay		12.8			18.1			29.9			18.9	
Approach LOS		B			B			C			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	28	52	0	2	327	0	10	75	0	26	93	0
Queue Length 95th (ft)	53	77	1	8	450	22	28	125	0	48	128	30
Internal Link Dist (ft)		1941			1387			996			1156	
Turn Bay Length (ft)	250			250		250	250		250	250		250
Base Capacity (vph)	289	1092	918	714	1081	954	380	617	530	410	617	645
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.15	0.01	0.01	0.62	0.09	0.05	0.22	0.00	0.11	0.27	0.29

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 18.6		Intersection LOS: B	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Bouldercrest Rd & Anvil Block Rd



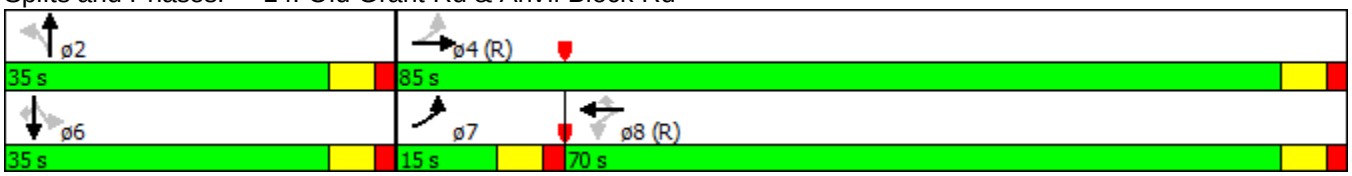


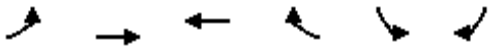
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	296	5	28	850	20	10	10	18	30	8	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	335		0	100		0	415		90
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			0.99	0.99				0.98
Frt		0.997				0.850		0.905				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3386	0	1805	3539	1615	1641	1704	0	1805	1900	1553
Flt Permitted	0.294			0.550			0.751			0.730		
Satd. Flow (perm)	559	3386	0	1043	3539	1615	1289	1704	0	1387	1900	1527
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				82		26				82
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		512			722			506			512	
Travel Time (s)		7.8			10.9			9.9			10.0	
Confl. Peds. (#/hr)	2		3	1			3		1			2
Peak Hour Factor	0.90	0.90	0.90	0.99	0.99	0.99	0.68	0.68	0.68	0.80	0.80	0.80
Heavy Vehicles (%)	0%	6%	20%	0%	2%	0%	10%	0%	0%	0%	0%	4%
Adj. Flow (vph)	68	329	6	28	859	20	15	15	26	38	10	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	335	0	28	859	20	15	41	0	38	10	59
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	22.0		22.0	22.0	22.0	22.0	22.0		22.0	22.0	22.0
Total Split (s)	15.0	85.0		70.0	70.0	70.0	35.0	35.0		35.0	35.0	35.0
Total Split (%)	12.5%	70.8%		58.3%	58.3%	58.3%	29.2%	29.2%		29.2%	29.2%	29.2%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	None		None	None	None
Act Effct Green (s)	101.5	102.7		92.7	92.7	92.7	8.8	8.8		8.8	8.8	8.8
Actuated g/C Ratio	0.85	0.86		0.77	0.77	0.77	0.07	0.07		0.07	0.07	0.07
v/c Ratio	0.13	0.12		0.03	0.31	0.02	0.16	0.28		0.38	0.07	0.32
Control Delay	2.6	2.1		5.6	6.0	0.0	54.4	30.8		62.5	51.1	9.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	2.6	2.1		5.6	6.0	0.0	54.4	30.8		62.5	51.1	9.5
LOS	A	A		A	A	A	D	C		E	D	A
Approach Delay		2.2			5.9			37.1			32.2	
Approach LOS		A			A			D			C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	7	20		5	112	0	11	11		29	7	0
Queue Length 95th (ft)	18	34		16	163	0	25	30		56	22	14
Internal Link Dist (ft)		432			642			426			432	
Turn Bay Length (ft)	275			335			100			415		90
Base Capacity (vph)	566	2899		805	2733	1266	311	431		335	459	431
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.12	0.12		0.03	0.31	0.02	0.05	0.10		0.11	0.02	0.14

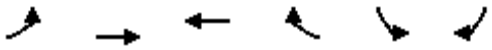
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 51.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 14: Old Grant Rd & Anvil Block Rd





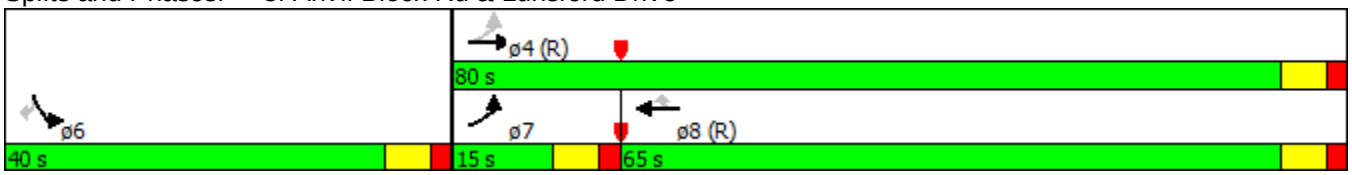
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	12	639	426	28	74	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325			250	0	300
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1671	3574	3574	1509	1805	1615
Flt Permitted	0.420				0.950	
Satd. Flow (perm)	739	3574	3574	1509	1805	1615
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				30		4
Link Speed (mph)		45	45		30	
Link Distance (ft)		1025	2021		369	
Travel Time (s)		15.5	30.6		8.4	
Peak Hour Factor	0.95	0.95	0.94	0.94	0.76	0.76
Heavy Vehicles (%)	8%	1%	1%	7%	0%	0%
Adj. Flow (vph)	13	673	453	30	97	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	673	453	30	97	4
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	15.0	80.0	65.0	65.0	40.0	40.0
Total Split (%)	12.5%	66.7%	54.2%	54.2%	33.3%	33.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	Max	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	96.2	96.2	59.0	59.0	11.8	11.8
Actuated g/C Ratio	0.80	0.80	0.49	0.49	0.10	0.10
v/c Ratio	0.02	0.23	0.26	0.04	0.54	0.02
Control Delay	3.0	3.4	16.7	4.7	62.3	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	3.4	16.7	4.7	62.3	29.0
LOS	A	A	B	A	E	C
Approach Delay		3.4	16.0		61.0	
Approach LOS		A	B		E	
Queue Length 50th (ft)	2	54	106	0	73	0
Queue Length 95th (ft)	7	86	118	14	104	9

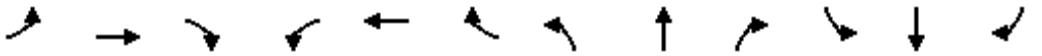


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Internal Link Dist (ft)		945	1941		289	
Turn Bay Length (ft)	325			250		300
Base Capacity (vph)	834	2864	1757	757	511	460
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.23	0.26	0.04	0.19	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 31.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Anvil Block Rd & Lunsford Drive



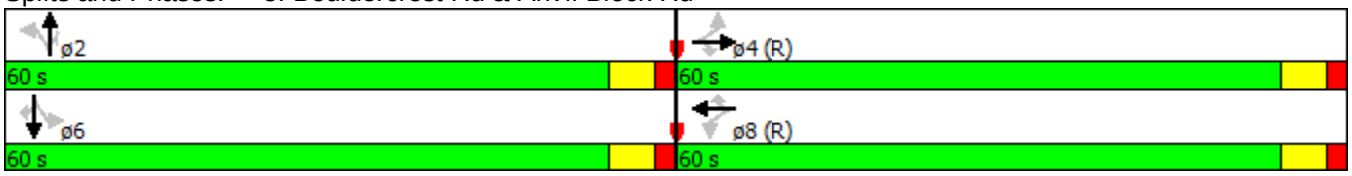


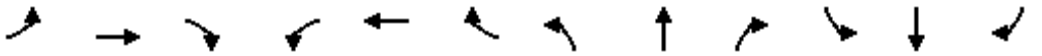
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	145	531	36	5	244	52	28	186	10	113	128	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		250	250		250	250		250
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.97				0.99					0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1881	1615	1805	1863	1615	1805	1900	1615	1805	1900	1615
Flt Permitted	0.600			0.413			0.588			0.343		
Satd. Flow (perm)	1121	1881	1565	785	1863	1615	1111	1900	1615	652	1900	1585
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37			55			27			197
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2021			1467			1076			1236	
Travel Time (s)		30.6			22.2			16.3			18.7	
Confl. Peds. (#/hr)	3		3				3					3
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.76	0.76	0.76	0.89	0.89	0.89
Heavy Vehicles (%)	1%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	149	547	37	5	257	55	37	245	13	127	144	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	547	37	5	257	55	37	245	13	127	144	197
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	86.2	86.2	86.2	86.2	86.2	86.2	21.8	21.8	21.8	21.8	21.8	21.8
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.72	0.18	0.18	0.18	0.18	0.18	0.18
v/c Ratio	0.19	0.40	0.03	0.01	0.19	0.05	0.18	0.71	0.04	1.08	0.42	0.44
Control Delay	6.0	7.3	1.6	6.8	6.7	2.0	41.0	57.0	5.1	151.2	45.8	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	7.3	1.6	6.8	6.7	2.0	41.0	57.0	5.1	151.2	45.8	8.3
LOS	A	A	A	A	A	A	D	E	A	F	D	A
Approach Delay		6.7			5.9			52.7			58.6	
Approach LOS		A			A			D			E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	28	118	0	1	57	0	25	181	0	~111	100	0
Queue Length 95th (ft)	55	217	8	6	114	14	43	201	4	#195	147	55
Internal Link Dist (ft)		1941			1387			996			1156	
Turn Bay Length (ft)	250			250		250	250		250	250		250
Base Capacity (vph)	805	1351	1134	563	1338	1176	499	855	741	293	855	821
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.40	0.03	0.01	0.19	0.05	0.07	0.29	0.02	0.43	0.17	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 27.5		Intersection LOS: C	
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Bouldercrest Rd & Anvil Block Rd



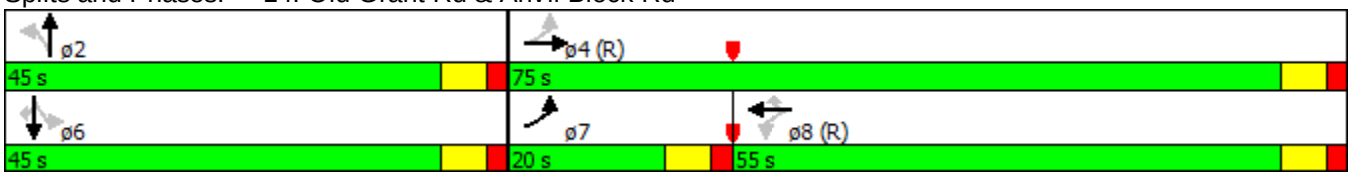


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	689	8	54	454	32	8	26	62	44	27	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	335		0	100		0	415		90
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.97	1.00	0.99		0.99		0.98
Frt		0.998				0.850		0.894				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3400	0	1805	3471	1615	1805	1682	0	1770	1900	1599
Flt Permitted	0.439			0.355			0.734			0.621		
Satd. Flow (perm)	823	3400	0	674	3471	1565	1392	1682	0	1150	1900	1569
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				82		77				95
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		512			722			506			512	
Travel Time (s)		7.8			10.9			9.9			10.0	
Confl. Peds. (#/hr)	3		1	1		3	1		1	3		3
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.81	0.81	0.81	0.77	0.77	0.77
Heavy Vehicles (%)	1%	6%	0%	0%	4%	0%	0%	0%	0%	2%	0%	1%
Adj. Flow (vph)	174	774	9	59	493	35	10	32	77	57	35	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	783	0	59	493	35	10	109	0	57	35	95
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	22.0		22.0	22.0	22.0	22.0	22.0		22.0	22.0	22.0
Total Split (s)	20.0	75.0		55.0	55.0	55.0	45.0	45.0		45.0	45.0	45.0
Total Split (%)	16.7%	62.5%		45.8%	45.8%	45.8%	37.5%	37.5%		37.5%	37.5%	37.5%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	Min	Min		Min	Min	Min
Act Effct Green (s)	97.2	97.2		83.1	83.1	83.1	10.8	10.8		10.8	10.8	10.8
Actuated g/C Ratio	0.81	0.81		0.69	0.69	0.69	0.09	0.09		0.09	0.09	0.09
v/c Ratio	0.24	0.28		0.13	0.21	0.03	0.08	0.49		0.55	0.21	0.42
Control Delay	3.5	3.3		8.2	7.4	0.1	48.9	25.8		71.1	51.6	15.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	3.5	3.3		8.2	7.4	0.1	48.9	25.8		71.1	51.6	15.2
LOS	A	A		A	A	A	D	C		E	D	B
Approach Delay		3.4			7.0			27.8			39.1	
Approach LOS		A			A			C			D	

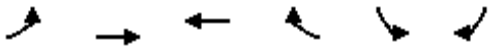
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	23	62		14	64	0	7	23		43	26	0
Queue Length 95th (ft)	46	100		37	105	0	22	63		71	48	32
Internal Link Dist (ft)		432			642			426			432	
Turn Bay Length (ft)	275			335			100			415		90
Base Capacity (vph)	779	2754		466	2404	1109	452	598		373	617	574
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.22	0.28		0.13	0.21	0.03	0.02	0.18		0.15	0.06	0.17

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 66 (55%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 9.7		Intersection LOS: A	
Intersection Capacity Utilization 48.0%		ICU Level of Service A	
Analysis Period (min) 15			

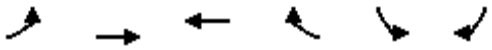
Splits and Phases: 14: Old Grant Rd & Anvil Block Rd



Appendix F: Year-2017 ICAS with the Development



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	98	200	789	104	34	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325			250	0	300
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.226				0.950	
Satd. Flow (perm)	421	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				113		26
Link Speed (mph)		45	45		30	
Link Distance (ft)		1025	2021		369	
Travel Time (s)		15.5	30.6		8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	217	858	113	37	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	217	858	113	37	26
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		1	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	1	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	15.0	80.0	65.0	65.0	40.0	40.0
Total Split (%)	12.5%	66.7%	54.2%	54.2%	33.3%	33.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	Max	C-Max	C-Max	C-Max	Max	Max
Act Effct Green (s)	74.0	74.0	59.0	59.0	34.0	34.0
Actuated g/C Ratio	0.62	0.62	0.49	0.49	0.28	0.28
v/c Ratio	0.30	0.10	0.49	0.14	0.07	0.06
Control Delay	11.6	9.5	17.3	4.3	32.1	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	9.5	17.3	4.3	32.1	11.7
LOS	B	A	B	A	C	B
Approach Delay		10.2	15.8		23.7	
Approach LOS		B	B		C	
Queue Length 50th (ft)	32	33	270	22	21	0
Queue Length 95th (ft)	56	50	317	m32	48	22
Internal Link Dist (ft)		945	1941		289	

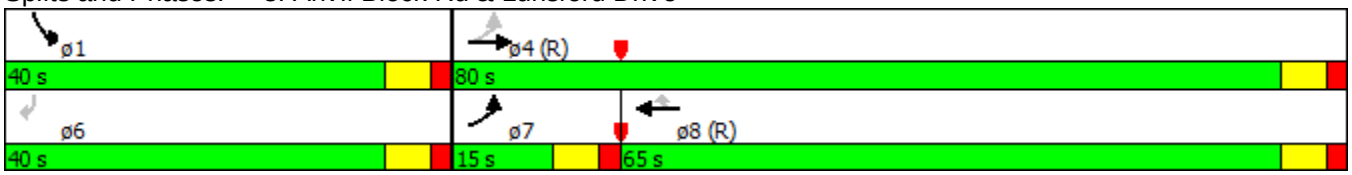


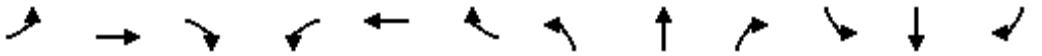
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Bay Length (ft)	325			250		300
Base Capacity (vph)	360	2182	1740	835	501	467
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.10	0.49	0.14	0.07	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 60 (50%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 47.2%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 3: Anvil Block Rd & Lunsford Drive



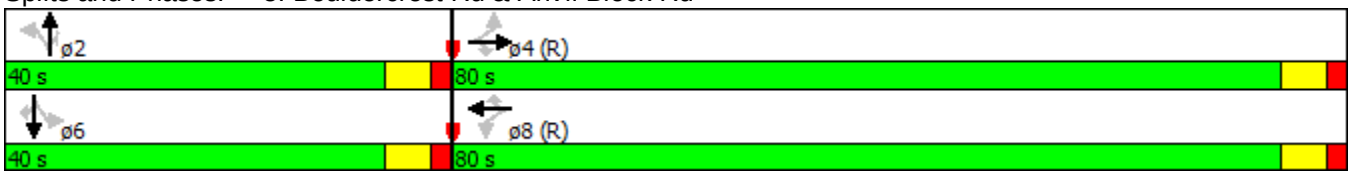


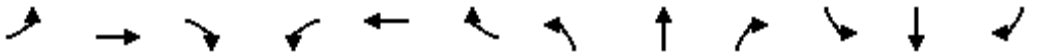
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	141	9	6	702	77	19	121	2	37	128	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		250	250		250	250		250
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.235			0.660			0.645			0.657		
Satd. Flow (perm)	438	1863	1583	1229	1863	1583	1201	1863	1583	1224	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			27			84			27			178
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2021			1467			1076			1236	
Travel Time (s)		30.6			22.2			16.3			18.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	153	10	7	763	84	21	132	2	40	139	178
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	153	10	7	763	84	21	132	2	40	139	178
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	80.0	80.0	80.0	80.0	80.0	80.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	74.0	74.0	74.0	74.0	74.0	74.0	34.0	34.0	34.0	34.0	34.0	34.0
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.62	0.62	0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.29	0.13	0.01	0.01	0.66	0.08	0.06	0.25	0.00	0.12	0.26	0.31
Control Delay	31.3	23.9	10.8	9.0	18.5	2.1	32.2	34.8	0.0	33.1	35.0	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	23.9	10.8	9.0	18.5	2.1	32.2	34.8	0.0	33.1	35.0	6.2
LOS	C	C	B	A	B	A	C	C	A	C	C	A
Approach Delay		25.8			16.8			34.0			20.4	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	47	83	0	2	360	0	12	79	0	23	83	0
Queue Length 95th (ft)	99	134	10	8	496	19	33	133	0	52	139	53
Internal Link Dist (ft)		1941			1387			996			1156	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	250			250		250	250		250	250		250
Base Capacity (vph)	270	1148	986	757	1148	1008	340	527	467	346	527	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.13	0.01	0.01	0.66	0.08	0.06	0.25	0.00	0.12	0.26	0.31

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Bouldercrest Rd & Anvil Block Rd





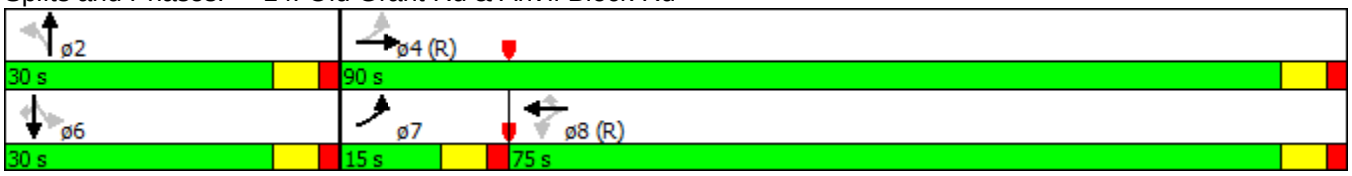
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	384	5	28	890	22	10	10	18	32	8	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	335		0	100		0	415		90
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.903				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3532	0	1770	3539	1583	1770	1682	0	1770	1863	1583
Flt Permitted	0.257			0.506			0.752			0.737		
Satd. Flow (perm)	479	3532	0	943	3539	1583	1401	1682	0	1373	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				82		20				82
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		512			722			506			512	
Travel Time (s)		7.8			10.9			9.9			10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	417	5	30	967	24	11	11	20	35	9	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	422	0	30	967	24	11	31	0	35	9	51
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	12.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	24.0
Total Split (s)	15.0	90.0		75.0	75.0	75.0	30.0	30.0		30.0	30.0	30.0
Total Split (%)	12.5%	75.0%		62.5%	62.5%	62.5%	25.0%	25.0%		25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	Min	Min		Min	Min	Min
Act Effct Green (s)	99.3	99.3		89.3	89.3	89.3	8.7	8.7		8.7	8.7	8.7
Actuated g/C Ratio	0.83	0.83		0.74	0.74	0.74	0.07	0.07		0.07	0.07	0.07
v/c Ratio	0.14	0.14		0.04	0.37	0.02	0.11	0.22		0.35	0.07	0.27
Control Delay	2.8	2.3		5.5	6.5	0.0	52.8	31.0		61.9	51.2	7.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	2.8	2.3		5.5	6.5	0.0	52.8	31.0		61.9	51.2	7.1
LOS	A	A		A	A	A	D	C		E	D	A
Approach Delay		2.3			6.3			36.7			31.5	
Approach LOS		A			A			D			C	
Queue Length 50th (ft)	7	25		6	129	0	8	8		26	7	0
Queue Length 95th (ft)	17	42		17	187	0	27	39		59	23	16
Internal Link Dist (ft)		432			642			426			432	

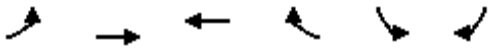
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	275			335			100			415		90
Base Capacity (vph)	493	2923		701	2634	1199	280	352		274	372	382
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.13	0.14		0.04	0.37	0.02	0.04	0.09		0.13	0.02	0.13

Intersection Summary

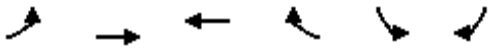
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 7.4 Intersection LOS: A
Intersection Capacity Utilization 53.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: Old Grant Rd & Anvil Block Rd





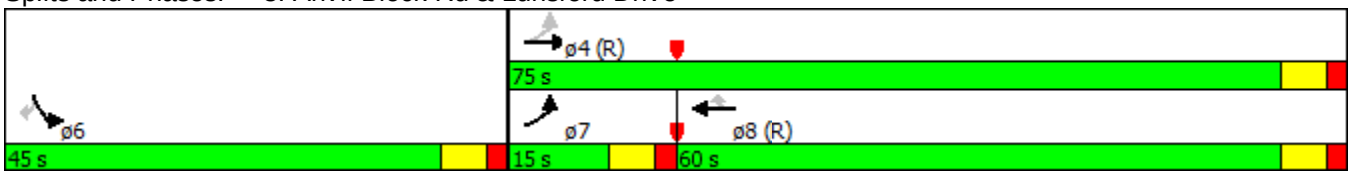
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	59	639	426	44	123	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	325			250	0	300
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.453				0.950	
Satd. Flow (perm)	844	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				48		157
Link Speed (mph)		45	45		30	
Link Distance (ft)		1025	2021		369	
Travel Time (s)		15.5	30.6		8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	695	463	48	134	157
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	695	463	48	134	157
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	12.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	15.0	75.0	60.0	60.0	45.0	45.0
Total Split (%)	12.5%	62.5%	50.0%	50.0%	37.5%	37.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	93.5	93.5	83.3	83.3	14.5	14.5
Actuated g/C Ratio	0.78	0.78	0.69	0.69	0.12	0.12
v/c Ratio	0.09	0.25	0.19	0.04	0.63	0.48
Control Delay	3.9	4.2	10.7	5.7	62.7	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.9	4.2	10.7	5.7	62.7	12.0
LOS	A	A	B	A	E	B
Approach Delay		4.2	10.2		35.3	
Approach LOS		A	B		D	
Queue Length 50th (ft)	9	64	90	0	100	0
Queue Length 95th (ft)	24	104	122	21	159	59
Internal Link Dist (ft)		945	1941		289	

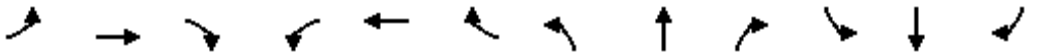


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Bay Length (ft)	325			250		300
Base Capacity (vph)	727	2758	2456	1113	575	620
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.25	0.19	0.04	0.23	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 60 (50%), Referenced to phase 4:EBTL and 8:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 38.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Anvil Block Rd & Lunsford Drive





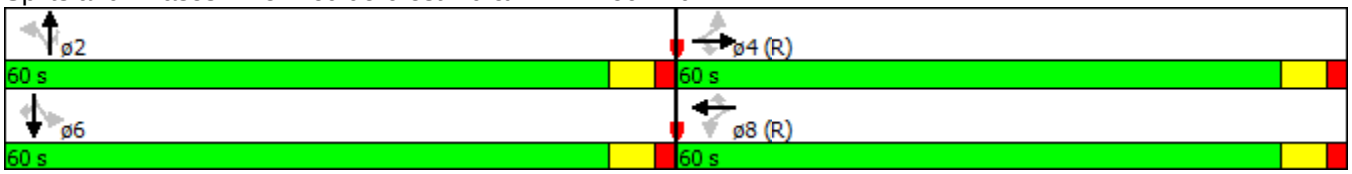
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	608	38	5	253	52	29	186	10	113	128	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		0	250		250	250		250	250		250
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.590			0.356			0.587			0.417		
Satd. Flow (perm)	1099	1863	1583	663	1863	1583	1093	1863	1583	777	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			37			57			27			197
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2021			1467			1076			1236	
Travel Time (s)		30.6			22.2			16.3			18.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	661	41	5	275	57	32	202	11	123	139	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	661	41	5	275	57	32	202	11	123	139	197
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	88.3	88.3	88.3	88.3	88.3	88.3	19.7	19.7	19.7	19.7	19.7	19.7
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.74	0.74	0.16	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.22	0.48	0.03	0.01	0.20	0.05	0.18	0.66	0.04	0.97	0.46	0.46
Control Delay	10.7	14.1	6.5	6.2	6.1	1.8	42.6	56.8	3.9	121.8	48.7	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	14.1	6.5	6.2	6.1	1.8	42.6	56.8	3.9	121.8	48.7	9.1
LOS	B	B	A	A	A	A	D	E	A	F	D	A
Approach Delay		13.1			5.4			52.5			51.3	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	47	238	0	1	56	0	22	150	0	~98	99	0
Queue Length 95th (ft)	124	462	25	6	115	14	48	210	6	#176	149	59
Internal Link Dist (ft)		1941			1387			996			1156	

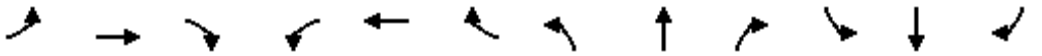
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	250			250		250	250		250	250		250
Base Capacity (vph)	809	1371	1175	487	1371	1180	491	838	727	349	838	820
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.48	0.03	0.01	0.20	0.05	0.07	0.24	0.02	0.35	0.17	0.24

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 25.9 Intersection LOS: C
Intersection Capacity Utilization 73.0% ICU Level of Service D
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Bouldercrest Rd & Anvil Block Rd





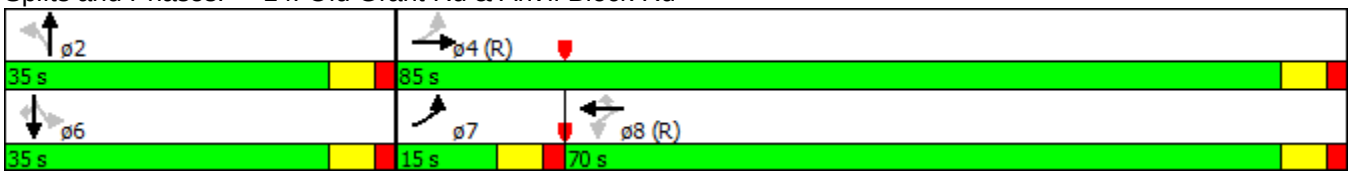
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	733	8	54	543	35	8	26	62	47	27	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	335		0	100		0	415		90
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.894				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3532	0	1770	3539	1583	1770	1665	0	1770	1863	1583
Flt Permitted	0.393			0.347			0.738			0.687		
Satd. Flow (perm)	732	3532	0	646	3539	1583	1375	1665	0	1280	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				82		67				82
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		512			722			506			512	
Travel Time (s)		7.8			10.9			9.9			10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	797	9	59	590	38	9	28	67	51	29	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	806	0	59	590	38	9	95	0	51	29	79
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Minimum Split (s)	12.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	24.0
Total Split (s)	15.0	85.0		70.0	70.0	70.0	35.0	35.0		35.0	35.0	35.0
Total Split (%)	12.5%	70.8%		58.3%	58.3%	58.3%	29.2%	29.2%		29.2%	29.2%	29.2%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	Min	Min		Min	Min	Min
Act Effct Green (s)	97.8	97.8		83.8	83.8	83.8	10.2	10.2		10.2	10.2	10.2
Actuated g/C Ratio	0.82	0.82		0.70	0.70	0.70	0.08	0.08		0.08	0.08	0.08
v/c Ratio	0.25	0.28		0.13	0.24	0.03	0.08	0.47		0.47	0.18	0.38
Control Delay	3.5	3.1		7.9	7.3	0.1	49.6	26.5		65.3	52.0	15.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	3.5	3.1		7.9	7.3	0.1	49.6	26.5		65.3	52.0	15.2
LOS	A	A		A	A	A	D	C		E	D	B
Approach Delay		3.2			6.9			28.5			38.0	
Approach LOS		A			A			C			D	
Queue Length 50th (ft)	21	61		14	77	0	7	21		38	21	0
Queue Length 95th (ft)	43	98		36	123	1	23	72		78	50	44
Internal Link Dist (ft)		432			642			426			432	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	275			335			100			415		90
Base Capacity (vph)	676	2878		451	2472	1130	332	453		309	450	444
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.25	0.28		0.13	0.24	0.03	0.03	0.21		0.17	0.06	0.18

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 8.8 Intersection LOS: A
Intersection Capacity Utilization 49.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: Old Grant Rd & Anvil Block Rd



HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: DWT
Agency/Co.: SEI
Date Performed: 11/11/2015
Analysis Time Period: AM
Intersection: Intersection 4
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2017
Project ID:
East/West Street: Driveway 1
North/South Street: Lunsford Dr
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	9	132	61	0	37	0
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	13	197	91	0	55	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Raised curb / 1					
RT Channelized?		Yes			Yes	
Lanes	1	1	1	1	1	1
Configuration	L	T	R	L	T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	17	0	0	5	0	0
Peak Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	25	0	0	7	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	13	0	25		0	7		0
C(m) (vph)	1563	1388	684		849	648		1018
v/c	0.01	0.00	0.04		0.00	0.01		0.00
95% queue length	0.03	0.00	0.11		0.00	0.03		0.00
Control Delay	7.3	7.6	10.5		9.2	10.6		8.5
LOS	A	A	B		A	B		A
Approach Delay			10.5			10.6		
Approach LOS			B			B		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: DWT
Agency/Co.: SEI
Date Performed: 11/11/2015
Analysis Time Period: PM
Intersection: Intersection 4
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2017
Project ID:
East/West Street: Driveway 1
North/South Street: Lunsford Dr
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	26	57	21	0	156	0
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	38	85	31	0	232	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Raised curb			/ 1		
RT Channelized?			Yes			Yes
Lanes	1	1	1	1	1	1
Configuration	L	T	R	L	T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	62	0	0	50	0	0
Peak Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	92	0	0	74	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	38	0	92		0	74		0
C(m) (vph)	1348	1524	607		980	609		812
v/c	0.03	0.00	0.15		0.00	0.12		0.00
95% queue length	0.09	0.00	0.53		0.00	0.41		0.00
Control Delay	7.7	7.4	12.0		8.7	11.7		9.4
LOS	A	A	B		A	B		A
Approach Delay			12.0			11.7		
Approach LOS			B			B		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: DWT
Agency/Co.: SEI
Date Performed: 11/11/2015
Analysis Time Period: AM
Intersection: Intersection 5
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2017
Project ID:
East/West Street: Driveway 2
North/South Street: Lunsford Dr
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	61	66	0	16	0
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	7	91	98	0	23	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Raised curb / 1					
RT Channelized?			Yes			
Lanes	1	1	1	0	1	0
Configuration	L	T	R	LTR		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	18	0	0	3	0	0
Peak Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	26	0	0	4	0	0
Percent Heavy Vehicles	100	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	LTR		LTR			LTR	
v (vph)	7	0		26			4	
C(m) (vph)	1605	1517		634			762	
v/c	0.00	0.00		0.04			0.01	
95% queue length	0.01	0.00		0.13			0.02	
Control Delay	7.3	7.4		10.9			9.7	
LOS	A	A		B			A	
Approach Delay				10.9			9.7	
Approach LOS				B			A	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: DWT
Agency/Co.: SEI
Date Performed: 11/11/2015
Analysis Time Period: PM
Intersection: Intersection 5
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2017
Project ID:
East/West Street: Driveway 2
North/South Street: Lunsford Dr
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	14	21	22	0	61	0
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	20	31	32	0	91	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type/Storage	Raised curb / 1					
RT Channelized?		Yes				
Lanes	1	1	1	0	1	0
Configuration	L	T	R	LTR		
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	67	0	0	28	0	0
Peak Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Hourly Flow Rate, HFR	99	0	0	41	0	0
Percent Heavy Vehicles	100	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	LTR		LTR			LTR	
v (vph)	20	0		99			41	
C(m) (vph)	1517	1595		609			775	
v/c	0.01	0.00		0.16			0.05	
95% queue length	0.04	0.00		0.58			0.17	
Control Delay	7.4	7.3		12.1			9.9	
LOS	A	A		B			A	
Approach Delay				12.1			9.9	
Approach LOS				B			A	

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: DWT
Agency/Co.: SEI
Date Performed: 11/11/2015
Analysis Time Period: AM
Intersection: Intersection 6
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2017
Project ID:
East/West Street: Driveway 3
North/South Street: Lunsford Dr
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		0	61	0	0	
Peak-Hour Factor, PHF		0.67	0.67	0.67	0.67	
Hourly Flow Rate, HFR		0	91	0	0	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Raised curb			/ 1		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0	0	0			
Peak Hour Factor, PHF	0.67	0.67	0.67			
Hourly Flow Rate, HFR	0	0	0			
Percent Heavy Vehicles	0	0	0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			/
Lanes	0	1	0			
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		0		0				
C(m) (vph)		1636						
v/c		0.00						
95% queue length		0.00						
Control Delay		7.2						
LOS		A						
Approach Delay								
Approach LOS								

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: DWT
Agency/Co.: SEI
Date Performed: 11/11/2015
Analysis Time Period: AM
Intersection: Intersection 6
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2017
Project ID:
East/West Street: Driveway 3
North/South Street: Lunsford Dr
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		0	21	0	0	
Peak-Hour Factor, PHF		0.67	0.67	0.67	0.67	
Hourly Flow Rate, HFR		0	31	0	0	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Raised curb			/ 1		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

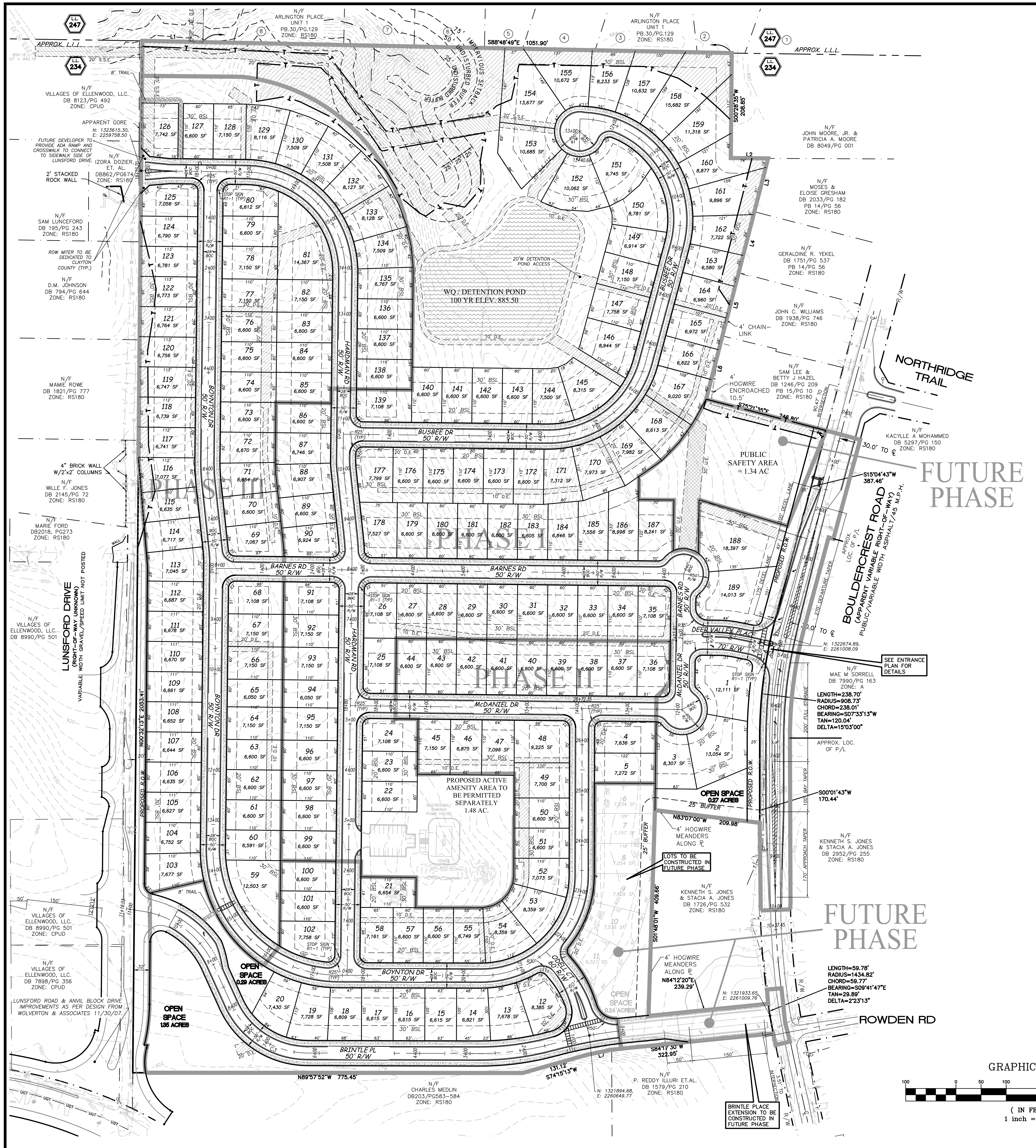
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	61	0	0			
Peak Hour Factor, PHF	0.67	0.67	0.67			
Hourly Flow Rate, HFR	91	0	0			
Percent Heavy Vehicles	0	0	0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			/
Lanes	0	1	0			
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		0		91				
C(m) (vph)		1636		923				
v/c		0.00		0.10				
95% queue length		0.00		0.33				
Control Delay		7.2		9.3				
LOS		A		A				
Approach Delay				9.3				
Approach LOS				A				

Appendix G: DRI 390 Documents

- Site Plan
- Trip Generation Calculations
- NOD DRI 390



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

CURVE TABLE				
CURVE	LENGTH	RADIUS	CHORD	BEARING
C1	132.13	900.00	132.01	S78°58'07"W
C2	147.83	550.00	147.38	N82°27'45"E
C3	190.73	167.00	180.53	S57°07'10"E
C4	183.36	185.00	175.95	N52°47'43"W
C5	86.09	200.00	85.43	N27°56'52"W
C6	264.23	200.00	245.43	N52°49'31"E
C7	361.76	200.00	314.42	N36°50'26"W
C8	55.30	470.00	55.26	S02°41'51"E
C9	23.53	200.00	23.52	N02°41'51"W
C10	394.93	250.00	355.13	S44°34'56"E
C11	314.16	200.00	282.84	N45°09'45"E
C12	55.30	470.00	55.26	N02°41'51"W
C13	23.53	200.00	23.52	S02°41'51"E
C14	314.16	200.00	282.84	N44°19'37"W
C15	38.93	206.50	38.87	N83°55'36"W

LINE TABLE (PL)		
LINE	LENGTH	BEARING
L1	120.58'	S88°45'11"E
L2	74.06'	S89°28'24"E
L3	109.49'	S14°29'52"W
L4	125.15'	S14°38'49"W
L5	130.14'	S14°57'06"W
L6	130.00'	S13°33'59"W
L7	52.27'	S77°47'48"W

ELDRIN BELL
CHAIRMAN
VIRGINIA BURTON GRAY
COMMISSIONER
MICHAEL EDMONDSON
COMMISSIONER
SONNA SINGLETON
COMMISSIONER
WOLE RALPH
COMMISSIONER

Clayton County
Community Development
Planning and Zoning
121 South McDonough Street
Jonesboro, Georgia 30236
Phone: (770) 477-3678
Fax: (770) 603-4039

January 10, 2008

Anvil Block LLC
3137 Chestnut Drive
Atlanta, GA 30342

RE: Variance to reduce the front yard setbacks from 20 feet to 10 feet on Lot's 1, 6, 13, 14, 26, 27, 28, 37, 38, 50, 60, 70, 71, 82, 92, 93, 104, 127, 141, 179 and 180. Subject properties are located in the Deer Valley Subdivision located in Land Lot 234 of the 12th District of Clayton County with road frontage along the western right-of-way of Bouldercrest Road.

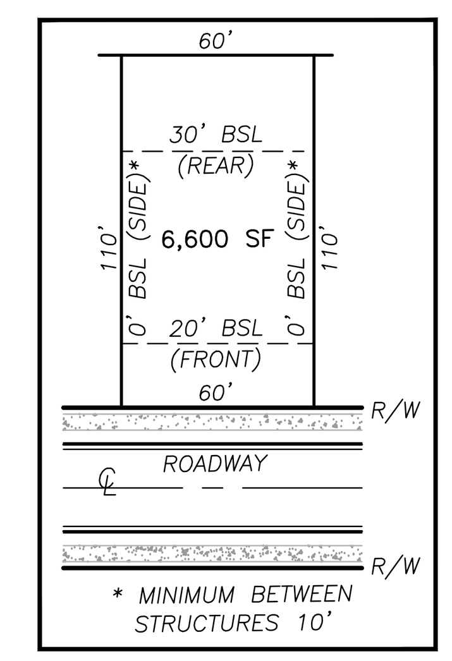
Dear Sir/Madam,

The above referenced variance application has been approved by the Clayton County Board of Appeals. If you have any questions regarding this matter, please feel free to contact me at (770) 473-5476.

Sincerely,

Beverly Ramsey
Beverly Ramsey
Clayton County
Planning and Zoning

BR/mdr
CC: Permits
Inspection



TYPICAL LOT BUILDING SETBACK
SCALE: NONE

SITE DATA

OWNER/DEVELOPER:	ANVIL BLOCK ROAD, LLC PO BOX 422149 ATLANTA, GEORGIA 30342 PHONE: 404-379-5800
ENGINEER/SURVEYOR:	SOUTHEASTERN ENGINEERING, INC. 2470 SANDY PLAINS ROAD MARIETTA, GA 30066 PHONE: (770) 321-3936
BOUNDARY REF.:	SOUTHEASTERN ENGINEERING, INC. DATED: 9.20.2007
TOPOGRAPHIC INFO.:	FIELD RUN, PREPARED BY SEI, DATED SEPT 2007
FLOOD INFO.:	PER FEMA FIRM PANEL 13063C0043E, DATED 9/5/07 THIS SITE IS NOT WITHIN A 100 YEAR FLOOD PLAIN.
TAX ID #:	12 234B-A-001
EXISTING ZONING:	CPUD
SITE AREA:	55.59± ACRES
TOTAL # OF LOTS:	189 (SINGLE FAMILY HOMES) (6 LOTS – FUTURE DEVELOPMENT)
DENSITY:	189 LOTS / 55.59 ACRES = 3.40 UPA
LOT INFO:	MINIMUM LOT SIZE = 6,000 SF MINIMUM LOT WIDTH = 60' FRONT YARD SETBACK = 20' FRONT-SIDE YARD SETBACK = 10' (PER VARIANCE CASE # B200801-01) SIDE YARD SETBACK = 0' REAR YARD SETBACK = 30' MINIMUM BUILDING SEPARATION = 10' MAXIMUM BUILDING HEIGHT = 35'
HOUSE SIZE:	MIN. HEATED FLOOR AREA = 2,000 SF
TOTAL OPEN SPACE:	5.95 ACRES / ±10%

GENERAL NOTES:

1. DEER VALLEY AT ELLENWOOD SUBDIVISION TO BE SERVICED BY PUBLIC GRAVITY SANITARY SEWER.
2. STREET LIGHTS AND UNDERGROUND UTILITIES TO BE PROVIDED AT TIME OF LDP.
3. SUBDIVISION HOMES SHALL HAVE FULL BRICK FRONTS AND HARDI-PLANK SIDES.
4. SUBDIVISION HOMES SHALL HAVE AT MINIMUM A ONE CAR GARAGE.
5. A TREE SAVE AND LANDSCAPE PLAN WILL BE SUBMITTED AT TIME OF LDP.
6. HOMEOWNERS ASSOCIATION WILL BE RESPONSIBLE FOR THE CARE AND UPKEEP OF OPEN SPACE, ACTIVE AMENITY AREAS, DETENTION PONDS AND STREAM BUFFER.
7. ALL PROPOSED ROADS THAT ARE INTERNAL AND PART OF THIS SUBDIVISION HAVE BEEN DESIGNED AND/OR POSTED AT 25 MPH.
8. SITE TO BE DEVELOPED FOR USE AS A SINGLE FAMILY RESIDENTIAL SUBDIVISION.
9. EXISTING BUILDINGS ON-SITE ARE TO BE REMOVED
10. AMENITY AREA SHOWN IS FOR PLANNING PURPOSES ONLY. AMENITY AREA TO BE PERMITTED SEPARATELY FROM OVERALL DEVELOPMENT LDP.
11. ON-SITE WETLAND AREAS AND STATE WATERS HAVE BEEN DELINEATED AND ARE SHOWN ON THIS PRELIMINARY PLAT. ANY PROPOSED IMPACTS TO SAID AREAS WILL BE PERMITTED THROUGH THE ARMY CORP OF ENGINEERS. SAID PERMITTING WILL TAKE PLACE PRIOR TO DISTURBANCE.
12. ALL SUBDIVISION STREETS PROPOSED AT 28' BACK OF CURB TO BACK OF CURB AND 50' RIGHT-OF-WAY.
13. ALL PROPOSED SUBDIVISION STREETS TO BE DEDICATED AS PUBLIC RIGHT OF WAY.
14. NO EXISTING CULTURAL FEATURES EXIST WITHIN AND ADJACENT TO PROPOSED SUBDIVISION.
15. NO BURIAL PITS EXIST ON SITE.
16. DEVELOPMENT IS NOT A CONSERVATION SUBDIVISION.
17. HARDMAN ROAD TO BE STUBBED AT PROPERTY LINE FOR FUTURE EXTENSION OF LUNSFORD DRIVE BY OTHERS.
18. LUNSFORD DRIVE & ANVIL BLOCK ROAD IMPROVEMENTS AS PER DESIGN FROM WOLVERTON & ASSOCIATES 12/04/07.
19. ALL SUBDIVISION STREETS SHALL HAVE 5' SIDEWALKS ON BOTH SIDES OF THE STREET.
20. SIDE SEDBACKS ARE 0' WITH NO LESS THAT 10' BETWEEN DWELLINGS.
21. BLANKET VARIANCE APPROVED ON JANUARY 10, 2008 FOR REDUCTION OF SECONDARY FRONTAGE ON ALL CORNER LOTS FROM 20' TO 10'.

PLANS ARE REVIEWED IN GENERAL. SPECIFIC DETAILS AND CALCULATIONS MAY NOT BE CHECKED. THE ENGINEERS STAMP AND SIGNATURE GUARANTEES THE ACCURACY OF THE CALCULATIONS AND DESIGN. PLAN APPROVAL DOES NOT OBLIGATE THE COUNTY TO ACCEPT THE WORK, NOR DOES IT RELIEVE THE DEVELOPER AND/OR ENGINEER FROM COMPLIANCE WITH ANY OTHER COUNTY, STATE OR FEDERAL ORDINANCES AND LAWS. PLAN APPROVAL DOES NOT RELIEVE THE DEVELOPER FROM THE RESPONSIBILITY FOR DAMAGES TO ADJACENT OR DOWNSTREAM PROPERTY RESULTING FROM THIS DEVELOPMENT.

STREET LIGHTING IS REQUIRED IN ALL NEW RESIDENTIAL/SUBDIVISION DEVELOPMENTS. THE STREET LIGHTING PETITION MUST BE COMPLETE PRIOR TO FINAL PLAT ACCEPTANCE. THE OWNER IS TO COMPLETE THE ATTACHED STREET LIGHTING PETITION AND CONTACT LESSIE WILSON, STREET LIGHT COORDINATOR, AT 770-477-3936 FOR PROCESSING THE PETITION.

REFER TO TREE PRESERVATION PLAN (SHEET 3) FOR TREE SAMPLE AND TREE PRESERVATION AREA CALCULATIONS.

24 HOUR CONTACT
JOHNNY STROTHER
CERTIFICATION # 28060
(404) 379-5800

IF YOU DIG GEORGIA... CALL US FIRST!
1-800-282-7411
770-623-4344
(METRO ATLANTA ONLY)
UTILITIES PROTECTION CENTER
IT'S THE LAW

–UTILITY NOTE–

THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. IT IS THE OWNER/DEVELOPER'S RESPONSIBILITY TO VERIFY EXISTING UTILITY CAPACITY PRIOR TO INITIATING DESIGN. THE ENGINEER MAKES NO GUARANTIES, NEITHER EXPRESSED OR IMPLIED, REGARDING EXISTING UTILITY LOCATION, CAPACITY OR CONDITION.

GEORGIA REGISTERED No. 31277 PROFESSIONAL ENGINEER E. WAYNE MATTHEWS JR.

SOUTHEASTERN ENGINEERING, INC.
Civil & Environmental Engineering, Land Surveying and Planning
2470 Sandy Plains Rd. Suite A
Marietta, Georgia 30066
tel: 770-321-3936 fax: 770-321-3935

ANVIL BLOCK ROAD, LLC
PO BOX 422149
ATLANTA, GEORGIA 30342
24 HOUR CONTACT: JOHNNY STROTHER
(404) 379-5800

No	Revision	Date
1	REV. PER CLAYTON COUNTY COMMENTS	11/15/07
2	REV. PER CLAYTON COUNTY COMMENTS	12/13/07
3	REV. SITE LAYOUT PER CLIENT COMMENTS	04/01/08

NORTH

Project No.	219-07-503
Designed By:	CT
Drawn By:	CT
Checked By:	EWM
Date:	09/20/07
Scale:	1" = 100'

PRELIMINARY PLAT
DEER VALLEY AT ELLENWOOD
LAND LOT 234 OF DISTRICT 12
CLAYTON COUNTY, GEORGIA

1A

Drawing name: I:\CUSTOMERS_PROJECTS\219 AB Land Corp\219-07-503 Anvil Block Road\Eng\Construction\219-07-503-CON 1.dwg

Trip Generation Summary - Alternative 2 - Residential

Project: Anvil Block
Alternative: Alternative 2 - Residential

Open Date: 11/13/2015
Analysis Date: 11/13/2015

ITE	Land Use	Average Daily Trips			AM Peak Hour of Adjacent Street Traffic			PM Peak Hour of Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
210	SFHOUSE 1	900	899	1799	36	106	142	119	70	189
	189 Dwelling Units									
Unadjusted Volume		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Pass-By Trips		0	0	0	0	0	0	0	0	0
Volume Added to Adjacent Streets		0	0	0	0	0	0	0	0	0

Total AM Peak Hour Internal Capture = 0 Percent

Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

REVISED NOTICE OF DECISION

To: Chick Krautler, ARC
(via electronic mail) Sonny Deriso, GRTA
Kessel Stelling, GRTA
Brandon Beach, GRTA
Ken Bernard, GRTA
Jerry Bowman, GRTA
John Sibley, GRTA
Jeanie Thomas, GRTA
Bob Voyles, GRTA

To: Chairman Eldrin Bell, Clayton County Board of Commissioners
(via electronic mail and certified mail) David Price, Liberty Development Corporation

From: Steven L. Stancil, GRTA Executive Director

Copy: Kirk Fjelstul, GRTA
(via electronic mail) Laura Beall, GRTA
Debbie Miness, DCA
Mike Alexander, ARC
Steve Walker, GDOT
Dawn Dickerson, Clayton County
Beverly Ramsey, Clayton County
Steven Fincher, Fincher & Hecht, LLC
Marc Acampora, MRA, LLC
Max Searan, Site Development Consultants
Andy Been, Unified Residential

Date: August 3, 2006

RE: **Revised Notice of Decision Regarding DRI 390 Ellenwood Township**

Summary of Revision: Revised condition for reserving commuter shared parking on a specific parcel. This condition has been changed to providing a bus stop near the commercial uses.

Removed portion of a condition requiring specific scheduling of road construction project and signal installation.

This Revised Notice of Decision replaces the original one dated October 3, 2003.

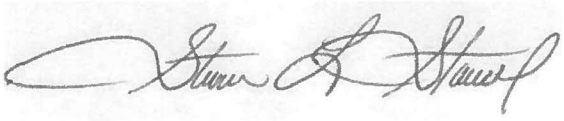
Notice of Decision for
Request for Non Expedited Review of
DRI 390 Ellenwood Township

The purpose of this notice is to inform Liberty Development Corporation (the Applicant), Clayton County (i.e., the local government), the GRTA DRI Committee, the Georgia Department of Community Affairs (DCA), the Georgia Department of Transportation (GDOT), and the Atlanta Regional Commission (ARC) of GRTA's decision regarding DRI 390 Ellenwood Township (the DRI Plan of Development). GRTA has completed a Non-Expedited Review for the DRI Plan of Development pursuant to sections 3-101 and 3-103.A of the *Procedures and Principles for GRTA Development of Regional Impact Review* and has determined that the DRI Plan of Development meets the GRTA review criteria set forth in Sections 3-101 and 3-103.A. The DRI Plan of Development as proposed is **approved subject to conditions**, as provided in Attachment A and subject to the limitations placed on allowable modifications to the DRI Plan of Development, as described in Attachment B.

Subject to the conditions set forth in Attachment A and Attachment B, GRTA will approve the expenditure of state and/or federal funds for providing the Land Transportation Services and Access improvements listed in Section 2 of Attachment C. The need for said approval shall terminate and be of no further force and effect after ten (10) years from the date of this Notice of Decision, unless the local government has issued a permit for the construction of any part of the proposed DRI Plan of Development prior to the end of the ten-year period.

The Notice of Decision is based on the information found in the Technical Analysis Transmittal dated September 2, 2003, and a review of the applicant's DRI Review Package. The Review Package includes the site development plan dated September 24, 2003 and received by GRTA on September 25, 2003, prepared by Site Development Consultants, Inc., titled "Villages of Ellenwood Comprehensive PUD Plan" (Site Plan) and the analyses prepared by Marc R. Acampora, PE, LLC., dated July 2, 2003 and received by GRTA on July 3, 2003.

Pursuant to Section 2-501 of the *Procedures and Principles for GRTA Development of Regional Impact Review*, the Applicant, the GRTA DRI Committee and the local government have a right to appeal this decision within five (5) working days of the date on this letter by filing a Notice of Appeal with the GRTA DRI Committee. A Notice of Appeal must specify the grounds for the appeal and present any argument or analysis in support of the appeal. For further information regarding the right to appeal, consult Part 5 of the Procedures and Principles for GRTA Development of Regional Impact Review, available from GRTA or on the Worldwide Web at <http://www.grta.org/dri/home.htm>. If GRTA staff receives an appeal, you will receive another notice from GRTA and the DRI Committee will hear the appeal at its September 13, 2006 meeting.



Steven L. Stancil
Executive Director
Georgia Regional Transportation Authority

Attachment A – General Conditions

Conditions to GRTA Notice of Decision:

- Development Intensity and use
  - Provide a minimum of 800 residential units.

- Road Connectivity
  - Provide a direct vehicular connection between Parcel 1 and Parcel 6.
  - Provide a direct vehicular connection between Parcel 3 and Parcel 4.
  - Provide a direct vehicular connection between Parcel 5 and Parcel 6.
  - Provide a drive parallel to Anvil Block Road that connects Drive 13 and Drive 25.
  - Provide a drive parallel to Anvil Block Road that connects Drive 25 and Drive 36.
  - Provide a direct vehicular connection between Parcel 9 and Parcel 10.
  - Provide a system of drives that connects Drives 32 and 33 with Drive 34.
  - Provide a direct vehicular connection between Parcel 10 and Parcel 11.
  - Provide a vehicular connection from Parcel 13 to Williamson Road and Grant Road.

- Site Access
  - The Williamson Road access to Anvil Block Road shall be closed prior to the issuance of a building permit on Parcels 4, 5 or 6.
  - The development shall have a maximum of five site access points on the north side of Anvil Block Road.
  - No outparcels on Anvil Block Road shall have direct access to Anvil Block Road.
  - Drives that access Anvil Block Road shall not be accessed by drives or parking areas for a minimum of 200 feet from Anvil Block Road.
  - The north leg of the intersection at Drive 12 shall not be accessed by drives or parking areas for a minimum distance of 450 feet.
  - There shall be no signal on Anvil Block Road between Drive 20 and Drive 24.
  - The development shall have a maximum of three site accesses onto Bouldercrest Road
  - Provide separated ingress and egress movements at all residential access points.
  - Provide separated ingress and egress movements at Drive 20.

- Parking Facilities
  - The minimum required parking spaces by Clayton County shall be the maximum number provided for the storage, hotel, retail, office, and cinema land uses within the development.

- Pedestrian and Transit Facilities
  - Provide sidewalks along both sides along all internal roads and drives in Parcels 1, 10, 11, 12 and 13.
  - Provide sidewalks along the drive aisles within the retail portion of the development that connect the retail buildings to the nearest sidewalk adjacent to a public street.
  - Provide a minimum 5 foot wide sidewalk along the entire site frontage of Anvil Block Road, Bouldercrest Road, Williamson Road, East Tanners Church Road, Dunn Road and Grant Road.

- Provide a minimum 5 foot sidewalk on Williamson Road between Drive 9 and Drive 19.
- Provide a direct pedestrian connection between Parcel 1 and Grant Road Park.
- Provide a direct pedestrian connection between Parcel 6 and Grant Road Park.
- Provide at least one covered bus stop near the commercial uses.

- Bicycle Facilities
  - Provide bicycle racks at the entrances to all retail tenant spaces over 30,000 square feet and at each out parcel in Parcel 7, Parcel 8 and Parcel 9.

Roadway Improvements as Conditions to GRTA Notice of Decision:

- Anvil Block Road
  - Provide a minimum of two eastbound and two westbound through lanes between Grant Road and Bouldercrest Road.

- East Tanners Church Road
  - Relocate to intersect with Williamson Road slightly to the north of their existing intersection with Williamson Road.

- Moreland Avenue at Anvil Block Road
  - Add a second southbound exclusive left-turn lane on Moreland Avenue.

- Anvil Block Road at Bouldercrest Road
  - Signalize the intersection.
  - Provide two westbound though lanes.
  - Provide two eastbound through lanes.
  - Provide an exclusive eastbound left-turn lane on Anvil Block Road.
  - Provide an exclusive westbound left-turn lane on Anvil Block Road.
  - Provide an exclusive southbound left-turn lane on Bouldercrest Road.
  - Provide an exclusive southbound right-turn lane along Bouldercrest Road.

- Anvil Block Road at the I-675 southbound ramps
  - Provide a second southbound left-turn lane on the off-ramp.

- Anvil Block Road at I-675 northbound ramp
  - Provide a second northbound right-turn lane on the off-ramp.

- Drive 12 at Anvil Block Road (Williamson Road extension)
  - Signalize the intersection
  - Provide a westbound exclusive right-turn lane.
  - Provide two eastbound exclusive left-turn lanes.
  - Provide two southbound left-turn lanes.

- Drive 24 at Anvil Block Road (located approximately 2,100' east of Grant Road)
  - Signalize the intersection.
  - Provide two eastbound exclusive left-turn lanes.

- Provide a westbound exclusive right turn lane.

- Anvil Block Road and Grant Road
  - Signalize the intersection.
  - Provide a northbound exclusive left-turn lane.
  - Provide a southbound exclusive left-turn lane.
  - Provide two eastbound exclusive left-turn lanes.
  - Provide a westbound exclusive right-turn lane.

- Drive 36 at Bouldercrest Road
  - Provide an exclusive northbound left-turn lane or a roundabout.

Attachment B – Required Elements of the DRI Plan of Development

Conditions Related to Altering Site Plan after GRTA Notice of Decision:

The on-site development will be constructed materially (substantially) in accordance with the Site Plan. Changes to the Site Plan will not be considered material or substantial so long as the following conditions are included as part of any changes:

- All of the "Conditions to GRTA Notice of Decision" set forth in Attachment A are satisfied.
- All of the "Roadway Improvements as Conditions to GRTA Notice of Decision" set forth in Attachment A are satisfied.

Attachment C – Required Improvements to Serve the DRI

Pursuant to Section 1-201.R. of the *Procedures and Principles for GRTA Development of Regional Impact Review,* a "Required Improvement means a land transportation service [def. in Section 1-201.N] or access [def. in Section 1-201.A.] improvement which is necessary in order to provide a safe and efficient level of service to residents, employees and visitors of a proposed DRI."

The Required Improvements in the study network were identified in the Review Package as necessary to bring the level of service up to an applicable standard at the build-out of the proposed project. These requirements are identified in Sections 1 and 2 of this Attachment. Section 1 contains improvements that do not require GRTA approval at this time because they are to be constructed prior to the completion of the DRI Plan of Development. However, GRTA approval shall be required in the event state and/or federal funds are proposed at a later date to be used for any portion of the improvements described in Section 1. Section 2 contains improvements that require GRTA approval prior to the expenditure of state and/or federal funding. Subject to the conditions set forth in Attachment A and Attachment B, GRTA approves the expenditure of state/and or federal funding for the improvements contained in Section 2.

Section 1.

- Anvil Block Road
  - Provide a minimum of two eastbound and two westbound through lanes between Grant Road and Bouldercrest Road.

- East Tanners Church Road
  - Relocate to intersect with Williamson Road slightly to the north of their existing intersection with Williamson Road.

- Moreland Avenue at Anvil Block Road
  - Add a second southbound exclusive left-turn lane on Moreland Avenue.

- Anvil Block Road at Bouldercrest Road
  - Signalize the intersection.
  - Provide two westbound though lanes.
  - Provide two eastbound through lanes.
  - Provide an exclusive eastbound left-turn lane on Anvil Block Road.
  - Provide an exclusive westbound left-turn lane on Anvil Block Road.
  - Provide an exclusive southbound left-turn lane on Bouldercrest Road.
  - Provide an exclusive southbound right-turn lane along Bouldercrest Road.

- Anvil Block Road at the I-675 southbound ramps
  - Provide a second southbound left-turn lane on the off-ramp.

- Anvil Block Road at I-675 northbound ramp
  - Provide a second northbound right-turn lane on the off-ramp.

- Drive 12 at Anvil Block Road (Williamson Road extension)
  - Signalize the intersection
  - Provide a westbound exclusive right-turn lane.
  - Provide two eastbound exclusive left-turn lanes.
  - Provide two southbound left-turn lanes.

- Drive 24 at Anvil Block Road (located approximately 2,100' east of Grant Road)
  - Signalize the intersection.
  - Provide two eastbound exclusive left-turn lanes.
  - Provide a westbound exclusive right turn lane.

- Anvil Block Road and Grant Road
  - Signalize the intersection.
  - Provide a northbound exclusive left-turn lane.
  - Provide a southbound exclusive left-turn lane.
  - Provide two eastbound exclusive left-turn lanes.
  - Provide a westbound exclusive right-turn lane.

- Drive 36 at Bouldercrest Road
  - Provide an exclusive northbound left-turn lane or a roundabout.

Section 2.

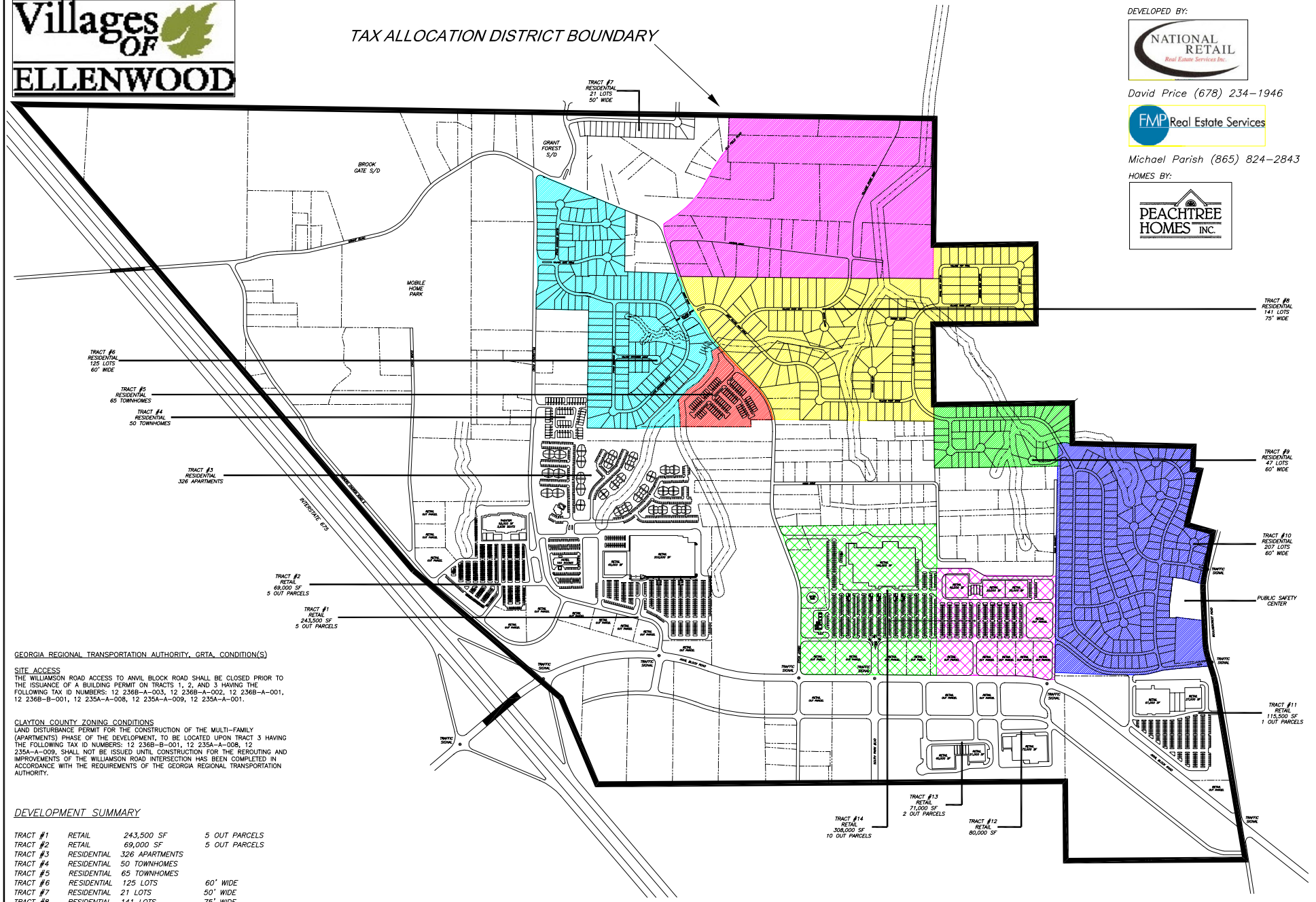
- Moreland Avenue at Anvil Block Road
  - Add an exclusive eastbound left-turn lane exiting Fort Gillem.
  - Add an exclusive westbound right-turn lane on Anvil Block Road
- Anvil Block Road at the I-675 southbound ramps
  - Add dual eastbound exclusive right-turn lanes or a free-flowing right turn lane onto the southbound on-ramp.
- Anvil Block Road at I-675 northbound off ramp
  - Add dual westbound exclusive right-turn lanes.
- Anvil Block Road at Williamson Road
  - Due to its proximity to the I-675 northbound ramps, convert to right-in / right-out operations. Provide a westbound exclusive right-turn lane along Anvil Block Road.
  - Add southbound dual right-turn lanes. In order to receive these lanes, consideration should be given to providing a slip ramp directly from the rightmost lane to the northbound on-ramp of I-675.
- Eastern full-movement site access at Anvil Block Road
  - The northbound approach should be built with separate left and shared through / right-turn lanes.
  - The southbound approach should include a left-turn lane a shared through / right, and an exclusive right-turn lane.
  - Provide a westbound exclusive right-turn lane and an exclusive westbound left-turn lane.
- Anvil Block Road at Stagecoach Road

    - Provide an eastbound exclusive right-turn lane
    - Add an additional eastbound through lane.
- Anvil Block Road at South Park Boulevard
    - Signalize the intersection.
    - Add the southbound approach from the site, with separate left and right-turn lanes.
    - Add a westbound exclusive right turn lane.
    - Use the existing center two-way left turn lane as an eastbound exclusive left-turn lane.
- Anvil Block Road at Fairview Road
    - Signalize the intersection.
    - Provide dual northbound exclusive left-turn lanes along Fairburn Road.
    - Add a second eastbound lane on Anvil Block Road to create separate left and right-turn lanes.
    - Add a southbound exclusive right-turn lane on Fairview Road.
- Anvil Block Road right-in / right-out accesses
    - Provide exclusive westbound right-turn lanes along Anvil Block Road
- Panola Road and Stagecoach Road
    - Signalize the intersection.
    - Provide an eastbound exclusive right-turn lane and a northbound exclusive left-turn lane.
- Villages of Ellenwood retail access at Bouldercrest Road
    - Signalize the intersection and interconnect and coordinate with the signal at Anvil Block Road and Bouldercrest Road.
    - Provide an exclusive left-turn lane along Bouldercrest Road.
    - Provide an exclusive right-turn lane along Bouldercrest Road.
- Villages of Ellenwood residential access at Bouldercrest Road
    - Provide an exclusive northbound left-turn lane along Bouldercrest Road.
    - Provide an exclusive southbound right-turn lane along Bouldercrest Road.
- Panola Road at Bouldercrest Road
    - Add a westbound exclusive left-turn lane on Panola Road.
    - Add a southbound exclusive right-turn lane on Bouldercrest Road.
    - Add a second westbound through lane would be needed on Panola Road. Thorough analysis of the widening needs along the Panola Road / Ellenwood Road corridor were beyond the scope of this study. Therefore, the westbound widening need should be studied further before a decision is made to implement such an improvement
- Bouldercrest Road at Panthersville Road
    - Signalize the intersection.
    - Add an exclusive northbound right-turn lane on Bouldercrest Road.
    - Add an exclusive southbound left-turn lane on Bouldercrest Road.
    - Add a second westbound lane on Panthersville Road to create separate left and right-turn lanes.
- Anvil Block Road
    - Widen the eastbound and westbound directions from one to two through travel lanes from South Park Boulevard to Fairview Road.

- Williamson Road
    - Provide two through lanes of travel in each direction from the service access of the retail northwest of Williamson Road and Dunn Road, to Anvil Block Road.
- Grant Road
    - Provide two through travel lanes in each direction from the main central access to the retail northeast of Grant Road and Anvil Block Road, to Anvil Block Road. From the main central retail access on Grant Road to the service access, only two through lanes total are required. However, the pavement on Grant Road should be designed to accommodate the truck traffic that will travel to the service access.
- Fairview Road.
    - Widen from two to four lanes between Anvil Block Road and East Atlanta Road.

Villages OF ELLENWOOD

TAX ALLOCATION DISTRICT BOUNDARY



GRAPHIC SCALE

(IN FEET)
1 inch = 800 ft.

GEORGIA REGIONAL TRANSPORTATION AUTHORITY, GRTA, CONDITION(S)

SITE ACCESS
THE WILLIAMSON ROAD ACCESS TO ANVIL BLOCK ROAD SHALL BE CLOSED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT ON TRACTS 1, 2, AND 3 HAVING THE FOLLOWING TAX ID NUMBERS: 12 236B-A-003, 12 236B-A-002, 12 236B-A-001, 12 236B-B-001, 12 235A-A-008, 12 235A-A-009, 12 235A-A-001.

CLAYTON COUNTY ZONING CONDITIONS
LAND DISTURBANCE PERMIT FOR THE CONSTRUCTION OF THE MULTI-FAMILY (APARTMENTS) PHASE OF THE DEVELOPMENT, TO BE LOCATED UPON TRACT 3 HAVING THE FOLLOWING TAX ID NUMBERS: 12 236B-B-001, 12 235A-A-008, 12 235A-A-009, SHALL NOT BE ISSUED UNTIL CONSTRUCTION FOR THE REROUTING AND IMPROVEMENTS OF THE WILLIAMSON ROAD INTERSECTION HAS BEEN COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF THE GEORGIA REGIONAL TRANSPORTATION AUTHORITY.

DEVELOPMENT SUMMARY

TRACT #1	RETAIL	243,500 SF	5 OUT PARCELS
TRACT #2	RETAIL	69,000 SF	5 OUT PARCELS
TRACT #3	RESIDENTIAL	326 APARTMENTS	
TRACT #4	RESIDENTIAL	50 TOWNHOMES	
TRACT #5	RESIDENTIAL	65 TOWNHOMES	
TRACT #6	RESIDENTIAL	125 LOTS	60' WIDE
TRACT #7	RESIDENTIAL	21 LOTS	50' WIDE
TRACT #8	RESIDENTIAL	141 LOTS	75' WIDE
TRACT #9	RESIDENTIAL	47 LOTS	60' WIDE
TRACT #10	RESIDENTIAL	207 LOTS	60' WIDE
TRACT #11	RETAIL	115,500 SF	1 OUT PARCELS
TRACT #12	RETAIL	80,000 SF	
TRACT #13	RETAIL	71,000 SF	2 OUT PARCELS
TRACT #14	RETAIL	308,000 SF	10 OUT PARCELS

DEVELOPED BY:

NATIONAL RETAIL
Real Estate Services Inc.

David Price (678) 234-1946

FMP Real Estate Services

Michael Parish (865) 824-2843

HOMES BY:

PEACHTREE HOMES INC.

SEI
SOUTHEASTERN ENGINEERING

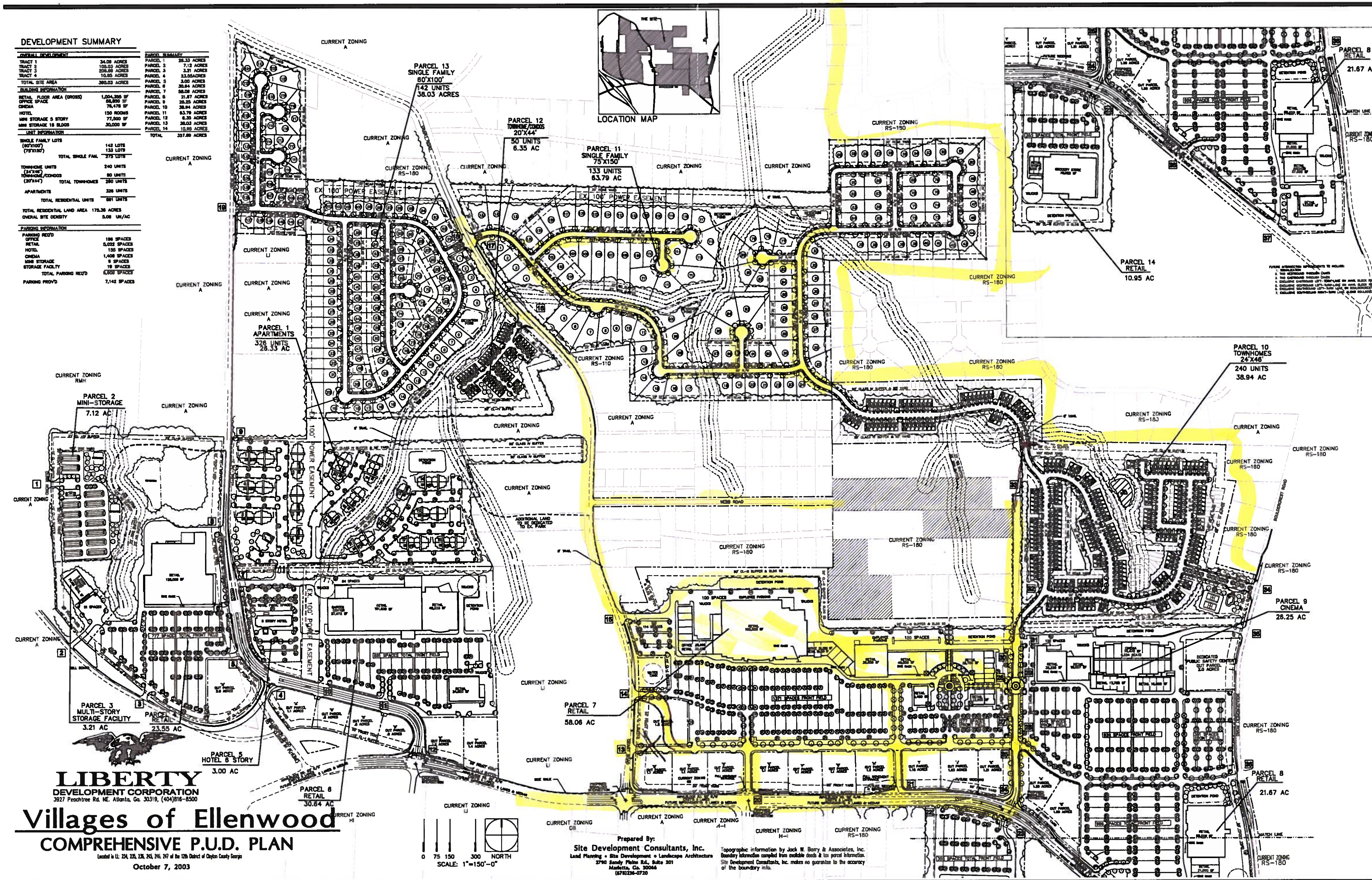
Villages OF ELLENWOOD

Date
Revision
No.

NORTH

Project No.	20406246
Design By:	NRA
Drawn By:	NRA
Checked By:	CAG
Date:	6/22/06
Scale:	1" = 300'

VILLAGES OF ELLENWOOD
MASTER SITE PLAN
CLAYTON COUNTY, GEORGIA


DEVELOPMENT SUMMARY
OVERALL DEVELOPMENT
TRACT 1 34.08 ACRES
TRACT 4 10.85 ACRES
TOTAL SITE AREA 380.03 ACRES
BUILDING INFORMATION
RETAIL FLOOR AREA (GROSS) 1,004,395 SF
CINEMA 78,476 SF
HOTEL 150 ROOMS
MINI STORAGE 5 STORY 77,500 SF
MINI STORAGE 18 BLDGS 30,000 SF
UNIT INFORMATION
SINGLE FAMILY LOTS
(60'X100') 142 LOTS
(75'X150') 133 LOTS
TOTAL SINGLE FAM. 275 LOTS
TOWNHOME UNITS (24'X46') 240 UNITS
TOWNHOME/CONDOS (20'X44') 50 UNITS
APARTMENTS 326 UNITS
TOTAL RESIDENTIAL LAND AREA 175.38 ACRES
OVERAL SITE DENSITY 5.08 UN/AC
PARKING INFORMATION
PARKING REQ'D
OFFICE 186 SPACES
RETAIL 5,022 SPACES
HOTEL 150 SPACES
CINEMA 1,408 SPACES
MINI STORAGE 9 SPACES
STORAGE FACILTY 19 SPACES
PARKING PROV'D 7,142 SPACES
PARCEL SUMMARY
PARCEL 1 28.33 ACRES
PARCEL 2 7.12 ACRES
PARCEL 3 3.21 ACRES
PARCEL 4 23.55ACRES
PARCEL 5 3.00 ACRES
PARCEL 6 30.84 ACRES
PARCEL 7 58.06 ACRES
PARCEL 8 21.67 ACRES
PARCEL 9 28.25 ACRES
PARCEL 10 38.94 ACRES
PARCEL 11 63.79 ACRES
PARCEL 12 6.35 ACRES
PARCEL 13 38.03 ACRES
PARCEL 14 10.95 ACRES
TOTAL 337.89 ACRES
LOCATION MAP
THE SITE
PARCEL 13 SINGLE FAMILY 60'X100' 142 UNITS 38.03 ACRES
PARCEL 12 TOWNHOME/CONDOS 20'X44' 50 UNITS 6.35 AC
PARCEL 11 SINGLE FAMILY 75'X150' 133 UNITS 63.79 AC
PARCEL 1 APARTMENTS 326 UNITS 28.33 AC
PARCEL 2 MINI-STORAGE 7.12 AC
PARCEL 3 MULTI-STORY STORAGE FACILITY 3.21 AC
PARCEL 4 RETAIL 23.55 AC
PARCEL 5 HOTEL 6 STORY 3.00 AC
PARCEL 6 RETAIL 30.84 AC
PARCEL 7 RETAIL 58.06 AC
PARCEL 8 RETAIL 21.67 AC
PARCEL 9 CINEMA 28.25 AC
PARCEL 10 TOWNHOMES 24'X46' 240 UNITS 38.94 AC
PARCEL 14 RETAIL 10.95 AC
EX. 100' POWER EASEMENT
WEBB ROAD
BOULDERCREST ROAD
CURRENT ZONING A
LIBERTY DEVELOPMENT CORPORATION
3927 Peachtree Rd. NE. Atlanta, Ga. 30319, (404)816-8500
Villages of Ellenwood
COMPREHENSIVE P.U.D. PLAN
Located in LL: 234, 235, 236, 245, 246, 247 of the 12th District of Clayton County Georgia
October 7, 2003
0 75 150 300 NORTH
SCALE: 1"=150'-0"
Prepared By:
Site Development Consultants, Inc.
Land Planning • Site Development • Landscape Architecture
2790 Sandy Plains Rd., Suite 301
Marietta, Ga. 30066
(678)236-0720
Topographic information by Jack W. Barry & Associates, Inc.
Boundary information compiled from available deeds & tax parcel information.
Site Development Consultants, Inc. makes no guarantee to the accuracy of the boundary info.