

Transportation Analysis

**Grey Mixed Use
DRI# 2089
Fulton County, Georgia**

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EXECUTIVE SUMMARY

This report presents the analysis of the anticipated traffic impacts associated with the proposed Grey Mixed Use development, a proposed approximate 60-acre mixed-use development. Because the project is a mixed-use development exceeding 400,000 gross square feet (SF), the proposed development is considered a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review. This document is being submitted under non-expedited review.

The development is scheduled to be completed by 2012, and this analysis will consider the full build-out of the proposed site in 2012. The current zoning is R-3 (Single Family Dwelling) and C-1 (Community Business), and the local jurisdiction action is a requested re-zoning to MIX (Mixed Use).

The proposed development is located south of Cascade Road, west of I-285, and east of Utoy Springs Road/Fairburn Road.

The proposed site consists of the following land uses and densities:

<u>TOTAL SITE</u>
384 units – Apartments
31,333 SF – Office
11,166 SF – Retail
6,000 SF – Automobile Parts Sales
11,500 SF – High-Turnover (Sit-Down) Restaurant
3,000 SF – Fast Food Restaurant with Drive Through Window

Capacity analyses were performed for the Existing 2010 Conditions, Projected 2012 No-Build Conditions, and Projected 2012 Build Conditions at eight (8) intersections.

- Existing 2010 Conditions represent traffic volumes that were collected on April 13-14, 2010 by performing AM and PM peak hour turning movement counts. It should be noted that Fulton County School System held Spring Break on April 5-9, 2010.
- Projected 2012 No-Build Conditions represent the existing traffic volumes grown for two (2) years at 2% per year throughout the study network, plus project traffic associated with the proposed Wal-Mart development (along Research Center Drive).
- Projected 2012 Build Conditions represent the 2012 No-Build Conditions with the addition of project trips that are anticipated to be generated by the Grey Mixed Use development.
- The Grey Mixed Use development is projected to generate 7,922 gross daily trips / 3,899 net daily trips (after mixed-use, alternative mode, and pass-by reductions).

2010 Existing recommended improvements (present conditions; i.e. excludes background traffic growth, the proposed Wal-Mart traffic, and the Grey Mixed Use DRI project traffic):

- No improvements are needed to achieve LOS D or better for the 2010 Existing conditions.
- Fairburn Road at Utoy Springs Road (Int. #8)
 - Modify the traffic signal heads such that the Fairburn Road southbound approach signal heads are not visible from the Utoy Springs Road westbound approach.

2012 No-Build recommended improvements (includes background traffic growth and the proposed Wal-Mart traffic, but excludes the Grey Mixed Use DRI project traffic):

- No improvements are needed to achieve LOS D or better for the 2012 No-Build conditions.

2012 Build recommended improvements (includes background traffic growth, the proposed Wal-Mart traffic, and the Grey Mixed Use DRI project traffic):

- Cascade Road at Utoy Springs Road/Research Center Drive (Int. #3)
 - Construct one (1) northbound left-turn lane along Utoy Springs Road.
 - Construct one (1) additional eastbound through lane along Cascade Road.

The following improvements are the recommended driveway configurations:

- Cascade Road at Driveway A (Int. #9)
 - Maintain the existing right-in/right-out access.
 - Maintain the existing intersection geometry at Driveway A.
 - Construct one (1) additional eastbound through lane along Cascade Road (as part of the Build improvement at Intersection #3).
- Cascade Road at Driveway B (Int. #10)
 - Provide right-in/right-out access.
 - Construct one (1) additional eastbound through lane along Cascade Road (as part of the Build improvement at Intersection #3).
 - Construct one (1) eastbound right-turn lane along Cascade Road.
 - Construct one (1) northbound right-turn lane along Driveway B.
- Utoy Springs Road at Private Driveway/Driveway C (Int. #11)
 - Provide full access.
 - Construct one (1) southbound left-turn lane along Utoy Springs Road.
 - Construct one (1) westbound shared left-turn/through lane and one (1) right-turn lane along Driveway C.
- Fairburn Road at Driveway D (Int. #12)
 - Provide full access.
 - Construct one (1) southbound left-turn lane along Fairburn Road.
 - Construct one (1) westbound shared left-turn/right-turn lane along Driveway D.
- Fairburn Road at Driveway E (Int. #13)
 - Provide full access.
 - Construct one (1) westbound shared left-turn/right-turn lane along Driveway E.

1.0 PROJECT DESCRIPTION

1.1 Introduction

This report presents the analysis of the anticipated traffic impacts associated with the proposed Grey Mixed Use site on approximately 60 acres. A request for re-zoning from R-3 (Single Family Dwelling) and C-1 (Community Business) to MIX (Mixed Use) was filed in Fulton County, Georgia. Because the project is a mixed-use development exceeding 400,000 gross square feet (SF), the proposed development is considered a Development of Regional Impact (DRI) and is subject to Georgia Regional Transportation Authority (GRTA) and Atlanta Regional Commission (ARC) review. This document is being submitted under non-expedited review.

The development is scheduled to be completed by 2012, and this analysis will consider the full build-out of the proposed site in 2012. The proposed development is located south of Cascade Road, west of I-285, and east of Utoy Springs Road/Fairburn Road. A summary of the proposed land uses and densities is provided below in **Table 1**.

Table 1 Grey Mixed Use DRI Proposed Land Uses	
Apartments	384 units
Office	31,333 SF
Retail	11,166 SF
Automobile Parts Sales	6,000 SF
High-Turnover (Sit-Down) Restaurant	11,500 SF
Fast-Food Restaurant with Drive Through Window	3,000 SF

Figure 1 and **Figure 2** provide a location map and an aerial photograph of the site.

1.2 Site Plan Review

The development plan is proposed on approximately 60 acres in Fulton County. The current zoning is R-3 (Single Family Dwelling) and C-1 (Community Business), and the proposed zoning is MIX (Mixed Use). The Future Land Use Plan for Fulton County designates the area as a combination of Community Living-Working, Residential (3 to 5 Units/Acre), and 100 Year Floodplain. The property currently consists of a golf driving range and two (2) commercial structures. The golf driving range will remain, but the two (2) commercial structures will be removed.

The office, retail, and restaurant land uses are proposed on the northern portion of the site; the multi-family residential land use is proposed on the southern portion of the site. The northern and southern sections are separated by a future Georgia Power substation that is approximately 4.78 acres. A north-south 24' private road is proposed that will provide a vehicular connection between the northern and southern sections. The multi-family residential "pod" will have gates that control access, while the non-residential uses will not have any gate access.

The proposed site is located within the Cascade Corridor Overlay District. Also, inter-parcel access is proposed with the gas station that is located on southeast quadrant of the Cascade Road at Utoy Springs Road/Research Center Drive intersection.

Figure 3 is a small-scale copy of the site plan. A full-size site plan consistent with the GRTA Site Plan Guidelines is also being submitted as part of the DRI Review Package.

1.3 Site Access

Vehicular access to the Grey Mixed Use site is proposed at two (2) locations along Cascade Road, one (1) location along Utoy Springs Road, and two (2) locations along Fairburn Road. The approximate amount of site frontage along these roadways is as follows:

- Cascade Road – Approximately 550' of frontage
- Utoy Springs Road – Approximately 250' of frontage
- Fairburn Road – Approximately 500' of frontage

Driveway A is an existing right-in/right-out driveway along Cascade Road that currently provides access to the golf driving range. With build-out of the proposed site, it is anticipated that the primary purpose of Driveway A will continue to be for access to the golf driving range.

Driveway B is a proposed right-in/right-out driveway along Cascade Road that will provide access to the residential, office, retail, and restaurant uses.

Driveway C is a proposed full-movement driveway along Utoy Springs Road that will align directly across from a private driveway that provides access to retail uses (south of Cascade Road and west of Utoy Springs Road). It is anticipated that the primary purpose of Driveway C will be for access to the office, retail, and restaurant uses.

Driveway D is a proposed full-movement driveway along Fairburn Road that will provide primary access to the multi-family residential units.

Driveway E is a proposed full-movement driveway along Fairburn Road that will provide emergency vehicle access to the multi-family residential units.

It should also be noted that inter-parcel access is proposed with the gas station that is located on southeast quadrant of the Cascade Road at Utoy Springs Road/Research Center Drive intersection. It is possible that some traffic generated by the gas station may use the Grey Mixed Use driveways; it is also possible that some traffic generated by the Grey Mixed Use site may use the gas station driveways. Traffic associated with this gas station was not assigned to Driveways A-E, and 100% of the Grey Mixed Use traffic was assigned to Driveways A-E.

<u>Driveway #</u>	<u>Access</u>	<u>Road</u>	<u>Location</u>
Driveway A	Limited	Cascade Road	Approximately 650' east of Utoy Springs Road; existing access serving golf driving range
Driveway B	Limited	Cascade Road	Approximately 425' east of Utoy Springs Road
Driveway C	Full	Utoy Springs Road	Approximately 325' south of Cascade Road; directly across from Private Driveway
Driveway D	Full	Fairburn Road	Approximately 950' south of Utoy Springs Road
Driveway E	Full	Fairburn Road	Approximately 1,300' south of Utoy Springs Road

1.4 Bicycle and Pedestrian Facilities

Pedestrian facilities (sidewalks) exist along both sides of Cascade Road and Utoy Springs Road, in the vicinity of the proposed site. However, sidewalks do not exist along Fairburn Road in the vicinity of the proposed site. Additionally, bicycle lanes do not exist on Cascade Road, Utoy Springs Road, or Fairburn Road.

1.5 Transit Facilities

There are three (3) MARTA bus routes within 1/4 mile of the proposed site.

- Route 71 travels between west of Kimberly Road and the West End MARTA station. This route travels along Cascade Road adjacent to the proposed site.
- Route 165 travels between the Cascade Road/Fairburn Road intersection and the Hamilton E. Holmes MARTA station. The closest intersection to the proposed site is Cascade Road/Fairburn Road.
- Route 170 travels between the Barge Road Park/Ride Lot (Campbellton Road/Barge Road intersection) and the Hamilton E. Holmes MARTA station. This route travels along Fairburn Road and Cascade Road adjacent to the proposed site.

2.0 TRAFFIC ANALYSES METHODOLOGY AND ASSUMPTIONS

2.1 Growth Rate

Background traffic is defined as expected traffic on the roadway network in future year(s) absent the construction and opening of the proposed project. Historical traffic count data from GDOT was reviewed for the area surrounding the proposed development, growth rates were discussed during the Pre-Application meeting with GRTA, ARC, GDOT, and Fulton County staff.

The background growth rate used for this analysis was 2% per year along all adjacent roadways. Additionally, project traffic associated with the proposed Wal-Mart development (along Research Center Drive) was included as background traffic.

2.2 Traffic Data Collection

Weekday peak hour turning movement counts were collected on April 13-14, 2010; AM and PM peak hour turning movement counts were performed at eight (8) intersections. It should be noted that Fulton County School System held Spring Break on April 5-9, 2010. The morning and afternoon peak hours varied between the intersections and are shown in **Table 2**.

Table 2 Grey Mixed Use DRI Peak Hour Summary		
<u>Intersection</u>	<u>AM Peak Hour</u>	<u>PM Peak Hour</u>
1. Cascade Road at Fairburn Road	7:15 – 8:15	5:00 – 6:00
2. Cascade Road at Cascade Crossing	7:30 – 8:30	5:00 – 6:00
3. Cascade Road at Utoy Springs Road/Research Center Drive	7:30 – 8:30	4:45 – 5:45
4. Cascade Road at I-285 Southbound Ramp	7:30 – 8:30	5:00 – 6:00
5. Cascade Road at I-285 Northbound Ramp	7:45 – 8:45	5:00 – 6:00
6. Fairburn Road at Benjamin E Mays Drive	7:45 – 8:45	5:00 – 6:00
7. Fairburn Road at Mays Crossing	7:45 – 8:45	5:00 – 6:00
8. Fairburn Road at Utoy Springs Road	7:15 – 8:15	5:00 – 6:00

AADT information is provided by the Georgia Department of Transportation (GDOT) at the following locations:

<u>Roadway</u>	<u>2008 AADT</u>
Cascade Road, east of I-285 (TC 5380)	11,640
Cascade Road, west of I-285 (TC 5378)	27,940
Cascade Road, west of Fairburn Road (TC 5376)	19,210
Fairburn Road, north of Cascade Road (TC 5726)	10,600
Fairburn Road, south of Utoy Springs Road (TC 5725)	8,390

2.3 Detailed Intersection Analysis

Level of Service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. Level of service analyses were conducted at all intersections within the study network using *Synchro Professional, Version 7.0*.

Levels of service for signalized intersections are reported for the intersection as a whole. One or more movements at an intersection may experience a low level of service, while the intersection as a whole may operate acceptably.

Levels of service for unsignalized intersections, with all way stop control, are reported for the intersection as a whole. One or more movements at an intersection may experience a low level of service, while the intersection as a whole may operate acceptably.

Levels of service for unsignalized intersections, with stop control on the minor street only, are reported for the side street approaches. Low levels of service for side street approaches are not uncommon, as vehicles may experience delay in turning onto a major roadway.

Volume to capacity (v/c) ratio is reported in similar fashion as LOS for each intersection type. The v/c ratio measures the level of congestion at an intersection or a side street approach.

3.0 STUDY NETWORK

3.1 Gross Trip Generation

Traffic for these proposed land uses and densities were calculated using equations contained in the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Seventh Edition, 2003*. Average rates were used only when equations were not provided. Gross trips generated are displayed in **Table 3**.

Table 3 Grey Mixed Use DRI Gross Trip Generation							
Land Use	ITE Code	Daily Traffic		AM Peak Hour		PM Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
384 Apartment Units	220	1,229	1,229	38	154	149	80
31,333 SF Office	710	273	273	65	9	19	95
11,166 SF Retail	820	816	816	26	16	71	76
6,000 SF Automobile Parts Sales	843	168	168	6	6	16	16
11,500 SF High-Turnover (Sit-Down) Restaurant	932	731	731	69	63	77	49
3,000 SF Fast-Food Restaurant with Drive-Through Window	934	744	744	81	78	54	50
Total		3,961	3,961	285	326	386	366

3.2 Trip Distribution

The directional distribution and assignment of new project trips was based on a review of the land uses in the area, driving the study network and study intersections, engineering judgment, and methodology discussions with GRTA, ARC, GDOT, and Fulton County staff.

3.3 Level of Service Standards

For the purposes of this traffic analysis, a level of service standard of D was assumed for all intersections and segments within the study network. If, however, an intersection or segment currently operates at LOS E or LOS F during an existing peak period, the LOS standard for that peak period becomes LOS E, consistent with the GRTA Letter of Understanding. Additionally, all LOS standards shall be constrained by a maximum volume-to-capacity (v/c) ratio of 1.2.

3.4 Study Network Determination

A general study area was determined using the GRTA 7% rule. This rule recommends that all intersections and segments be analyzed which are impacted to the extent that the traffic from the proposed site is 7% or more of the service volume of the facility (at a previously established LOS standard, typically LOS D) be considered for analysis. The study area was agreed upon during methodology discussions with GRTA, ARC, GDOT, and Fulton County staff, and includes the following intersections in **Table 4**.

Table 4 Grey Mixed Use DRI Intersection Control Summary	
<u>Intersection</u>	<u>Existing Control</u>
1. Cascade Road at Fairburn Road	Signalized
2. Cascade Road at Cascade Crossing	Signalized
3. Cascade Road at Utoy Springs Road/Research Center Drive	Signalized
4. Cascade Road at I-285 Southbound Ramp	Signalized
5. Cascade Road at I-285 Northbound Ramp	Signalized
6. Fairburn Road at Benjamin E Mays Drive	Signalized
7. Fairburn Road at Mays Crossing	All Way Stop
8. Fairburn Road at Utoy Springs Road	Signalized

Each of the above listed intersections was analyzed for the Existing 2010 Conditions, the 2012 No-Build Conditions, and the 2012 Build Conditions. The 2012 No-Build Conditions represent the existing traffic volumes grown for two (2) years at 2% per year throughout the study network, plus project traffic associated with the proposed Wal-Mart development (along Research Center Drive). The 2012 Build Conditions adds the project trips associated with the Grey Mixed Use development to the 2012 No-Build Conditions.

3.5 Existing Facilities

Roadway classification descriptions for the entire study area are provided in **Table 5**.

Table 5 Grey Mixed Use DRI Roadway Classification			
Roadway	Number of Lanes	Posted Speed Limit (MPH)	GDOT Functional Classification
I – 285	8	55	Interstate Principal Arterial
Cascade Road	4	45	Minor Arterial
Fairburn Road	2	35	Minor Arterial
Benjamin E Mays Drive	2	35	Collector
Utoy Springs Road	2	35	Local
Research Center Drive	2	N.P.	Local
Mays Crossing	2	25	Local

4.0 TRIP GENERATION

As stated earlier, trips associated with the proposed development were estimated using the *Institute of Transportation Engineers' (ITE) Trip Generation Manual, Seventh Edition, 2003*, using equations where available.

Mixed-use vehicle trip reductions were taken according to the *ITE Trip Generation Handbook, Second Edition, 2004*. Total internal capture and vehicle trip reduction between the proposed land uses is expected to be 15.07% for the weekday and 14.63% for the PM peak hour.

Alternative transportation mode (walking, bicycle, and transit) reductions were applied for this project. Per the GRTA Letter of Understanding, an 18% reduction was applied to the multi-family residential and office trips. This 18% reduction was developed by examining the Cascade Road Corridor Study developed in August 2007 by the Fulton County Department of Public Works. For the census tract that the proposed site is located within, 16% of the population use transit and 2% of the population walks to work.

Pass-by reductions were calculated according to the equation for Land Use 820 in the *ITE Trip Generation Handbook, Second Edition, 2004*. For the retail and automobile parts sales uses, a 74% pass-by reduction was applied for the weekday and for the PM peak hour.

Pass-by reductions were also calculated according to the rate for Land Use 932 in the *ITE Trip Generation Handbook, Second Edition, 2004*. High-turnover (sit-down) restaurants have a pass-by reduction of 43%, while fast-food restaurants with a drive-through window have a pass-by reduction of 50%. To generate a conservative pass-by reduction for both types of restaurants, a 43% pass-by reduction was applied for the weekday and for the PM peak hour.

The total (net) trips generated and analyzed in this report are listed in **Table 6**.

Table 6 Grey Mixed Use DRI Net Trip Generation						
	Daily Traffic		AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Gross Project Trips	3,961	3,961	285	326	386	366
<i>Mixed-Use Reduction</i>	- 597	- 597	- 0	- 0	- 55	- 55
<i>Alternative More Reduction</i>	- 216	- 216	- 19	- 30	- 24	- 27
<i>Pass-By Reduction (74% and 43% used)</i>	- 1,198	- 1,198	- 0	- 0	- 101	- 101
Net New Trips	1,950	1,950	266	296	206	183

5.0 TRIP DISTRIBUTION AND ASSIGNMENT

New trips were distributed onto the roadway network using the percentages agreed to during methodology discussions with GRTA, ARC, GDOT, and Fulton County staff. **Figure 4** (residential) and **Figure 5** (non-residential) display the expected trip percentages for the development throughout the roadway network. These percentages were applied to the new trips generated by the development, and the volumes were assigned to the roadway network.

The expected peak hour turning movements generated by the proposed development are shown in **Figure 6A** and **6B**.

6.0 TRAFFIC ANALYSIS

6.1 Existing 2010 Conditions

The observed existing peak hour traffic volumes were input in *Synchro 7.0*, and capacity analyses were performed for the AM and PM peak hours. The existing peak hour traffic volumes are shown in **Figure 7**.

None of the eight (8) study intersections currently operate below the acceptable Level of Service standard (LOS D) during the AM Peak Hour and/or the PM Peak Hour. These intersections' No-Build and Build Peak Hour LOS standard, therefore, is LOS D per GRTA guidelines.

Based on the Existing 2010 Conditions, the following improvements result in the following intersections operating at LOS D or better:

- No improvements are needed to achieve LOS D or better for the 2010 Existing conditions.
- Fairburn Road at Utoy Springs Road (Int. #8)
 - Modify the traffic signal heads such that the Fairburn Road southbound approach signal heads are not visible from the Utoy Springs Road westbound approach.

The Existing 2010 levels of service with existing geometry are displayed in **Table 7**.

Table 7 Grey Mixed Use DRI Existing 2010 Intersection Levels of Service							
Intersection		Control	LOS Std.	AM Peak Hour		PM Peak Hour	
				LOS	v/c	LOS	v/c
1	Cascade Road at Fairburn Road	Signal	D	C (27.8)	0.68	C (25.1)	0.67
2	Cascade Road at Cascade Crossing	Signal	D	A (7.3)	0.53	B (12.9)	0.56
3	Cascade Road at Utoy Springs Road / Research Center Drive	Signal	D	C (25.3)	0.78	C (25.0)	0.72
4	Cascade Road at I-285 Southbound Ramp	Signal	D	B (15.4)	0.56	C (30.9)	0.81
5	Cascade Road at I-285 Northbound Ramp	Signal	D	C (26.6)	0.67	C (28.2)	0.74
6	Fairburn Road at Benjamin E Mays Drive	Signal	D	C (30.3)	0.68	C (24.4)	0.56
7	Fairburn Road at Mays Crossing	All Way Stop	D	B (13.5)	0.63	C (15.4)	0.69
8	Fairburn Road at Utoy Springs Road	Signal	D	C (25.5)	0.33	C (30.8)	0.49

6.2 Projected 2012 No-Build Conditions

To account for growth in the vicinity of the proposed development, the existing traffic volumes were increased for two (2) years at 2% per year throughout the study network. Additionally, project traffic associated with the proposed Wal-Mart development (along Research Center Drive) was also added to the study network. These volumes were input into *Synchro 7.0* with existing roadway geometry, and capacity analyses were performed. The intersection laneage and traffic volumes for the year 2012 No-Build Conditions are shown in **Figure 8**.

None of the eight (8) study intersections are projected to operate below the acceptable Level of Service standard during the AM Peak Hour and/or PM peak hour. Based on the No-Build 2012 Conditions, the following improvements result in the following intersections operating above their LOS standard:

- No improvements are needed to achieve LOS D or better for the 2012 No-Build conditions.

The Projected 2012 No-Build levels of service with existing geometry are displayed in **Table 8**.

Table 8 Grey Mixed Use DRI No-Build 2012 Intersection Levels of Service							
Intersection		Control	LOS Std.	AM Peak Hour		PM Peak Hour	
				LOS	v/c	LOS	v/c
1	Cascade Road at Fairburn Road	Signal	D	C (29.8)	0.72	C (26.9)	0.71
2	Cascade Road at Cascade Crossing	Signal	D	A (6.6)	0.59	B (12.9)	0.60
3	Cascade Road at Utoy Springs Road / Research Center Drive	Signal	D	C (32.6)	0.94	D (36.3)	0.86
4	Cascade Road at I-285 Southbound Ramp	Signal	D	B (16.6)	0.61	C (34.6)	0.92
5	Cascade Road at I-285 Northbound Ramp	Signal	D	C (28.8)	0.75	D (40.8)	0.83
6	Fairburn Road at Benjamin E Mays Drive	Signal	D	C (31.0)	0.72	C (24.5)	0.61
7	Fairburn Road at Mays Crossing	All Way Stop	D	C (15.2)	0.69	C (19.4)	0.78
8	Fairburn Road at Utoy Springs Road	Signal	D	C (28.7)	0.35	C (34.0)	0.54

6.3 Projected 2012 Build Conditions

The traffic associated with the proposed development was added to the 2012 No-Build volumes. These volumes were then input into *Synchro 7.0* with existing roadway geometry. The intersection laneage and traffic volumes for the year 2012 Build Conditions are shown in **Figure 9A and 9B**.

One (1) intersection is projected to operate below the acceptable Level of Service standard during the AM Peak Hour and/or PM Peak Hour. Based on the Build 2012 Conditions, the following improvements result in the following one (1) intersection operating above their LOS standard:

- Cascade Road at Utoy Springs Road/Research Center Drive (Int. #3)
 - Construct one (1) northbound left-turn lane along Utoy Springs Road.
 - Construct one (1) additional eastbound through lane along Cascade Road.

The Projected 2012 Build levels of service with existing geometry are displayed in **Table 9**; the levels of service with the improvements stated above are shown in **Table 10**.

Table 9 Grey Mixed Use DRI Build 2012 Intersection Levels of Service							
Intersection		Control	LOS Std.	AM Peak Hour		PM Peak Hour	
				LOS	v/c	LOS	v/c
1	Cascade Road at Fairburn Road	Signal	D	C (32.5)	0.78	C (24.8)	0.69
2	Cascade Road at Cascade Crossing	Signal	D	A (7.1)	0.62	B (14.3)	0.61
3	Cascade Road at Utoy Springs Road / Research Center Drive	Signal	D	E (56.8)	1.09	E (63.6)	1.09
4	Cascade Road at I-285 Southbound Ramp	Signal	D	B (16.7)	0.64	D (37.7)	0.94
5	Cascade Road at I-285 Northbound Ramp	Signal	D	C (31.5)	0.81	D (43.8)	0.87
6	Fairburn Road at Benjamin E Mays Drive	Signal	D	C (31.8)	0.75	C (24.5)	0.63
7	Fairburn Road at Mays Crossing	All Way Stop	D	C (17.7)	0.76	C (22.0)	0.82
8	Fairburn Road at Utoy Springs Road	Signal	D	C (29.8)	0.41	C (34.8)	0.62

Table 10 Grey Mixed Use DRI Build 2012 Intersection Levels of Service IMPROVED							
Intersection		Control	LOS Std.	AM Peak Hour		PM Peak Hour	
				LOS	v/c	LOS	v/c
3	Cascade Road at Utoy Springs Road / Research Center Drive	Signal	D	C (34.4)	0.94	D (41.7)	0.91

7.0 INGRESS/EGRESS ANALYSIS

Vehicular access to the Grey Mixed Use site is proposed at two (2) locations along Cascade Road, one (1) location along Utoy Springs Road, and two (2) locations along Fairburn Road. The approximate amount of site frontage along these roadways is as follows:

- Cascade Road – Approximately 550' of frontage
- Utoy Springs Road – Approximately 250' of frontage
- Fairburn Road – Approximately 500' of frontage

Driveway A is an existing right-in/right-out driveway along Cascade Road that currently provides access to the golf driving range. With build-out of the proposed site, it is anticipated that the primary purpose of Driveway A will continue to be for access to the golf driving range.

Driveway B is a proposed right-in/right-out driveway along Cascade Road that will provide access to the residential, office, retail, and restaurant uses.

Driveway C is a proposed full-movement driveway along Utoy Springs Road that will align directly across from a private driveway that provides access to retail uses (south of Cascade Road and west of Utoy Springs Road). It is anticipated that the primary purpose of Driveway C will be for access to the office, retail, and restaurant uses.

Driveway D is a proposed full-movement driveway along Fairburn Road that will provide primary access to the multi-family residential units.

Driveway E is a proposed full-movement driveway along Fairburn Road that will provide emergency vehicle access to the multi-family residential units.

It should also be noted that inter-parcel access is proposed with the gas station that is located on southeast quadrant of the Cascade Road at Utoy Springs Road/Research Center Drive intersection. It is possible that some traffic generated by the gas station may use the Grey Mixed Use driveways; it is also possible that some traffic generated by the Grey Mixed Use site may use the gas station driveways. Traffic associated with this gas station was not assigned to Driveways A-E, and 100% of the Grey Mixed Use traffic was assigned to Driveways A-E.

<u>Driveway #</u>	<u>Access</u>	<u>Road</u>	<u>Location</u>
Driveway A	Limited	Cascade Road	Approximately 650' east of Utoy Springs Road; existing access serving golf driving range
Driveway B	Limited	Cascade Road	Approximately 425' east of Utoy Springs Road
Driveway C	Full	Utoy Springs Road	Approximately 325' south of Cascade Road; directly across from Private Driveway
Driveway D	Full	Fairburn Road	Approximately 950' south of Utoy Springs Road
Driveway E	Full	Fairburn Road	Approximately 1,300' south of Utoy Springs Road

Capacity analyses were performed at the site driveways for the year 2012 Build Conditions. The intersection laneage and traffic volumes for the year 2012 Build Conditions are shown in **Figure 9B**.

The following improvements are the recommended driveway configurations:

- Cascade Road at Driveway A (Int. #9)
 - Maintain the existing right-in/right-out access.
 - Maintain the existing intersection geometry at Driveway A.
 - Construct one (1) additional eastbound through lane along Cascade Road (as part of the Build improvement at Intersection #3).
- Cascade Road at Driveway B (Int. #10)
 - Provide right-in/right-out access.
 - Construct one (1) additional eastbound through lane along Cascade Road (as part of the Build improvement at Intersection #3).
 - Construct one (1) eastbound right-turn lane along Cascade Road.
 - Construct one (1) northbound right-turn lane along Driveway B.
- Utoy Springs Road at Private Driveway/Driveway C (Int. #11)
 - Provide full access.
 - Construct one (1) southbound left-turn lane along Utoy Springs Road.
 - Construct one (1) westbound shared left-turn/through lane and one (1) right-turn lane along Driveway C.
- Fairburn Road at Driveway D (Int. #12)
 - Provide full access.
 - Construct one (1) southbound left-turn lane along Fairburn Road.
 - Construct one (1) westbound shared left-turn/right-turn lane along Driveway D.

- Fairburn Road at Driveway E (Int. #13)
 - Provide full access.
 - Construct one (1) westbound shared left-turn/right-turn lane along Driveway E.

The levels of service for the site driveways and the intersection geometry stated above are shown in **Table 11**.

Table 11 Grey Mixed Use DRI Build 2012 Intersection Levels of Service – Driveways							
Intersection		Control	LOS Std.	AM Peak Hour		PM Peak Hour	
				LOS	v/c	LOS	v/c
9	Cascade Road at Driveway A	NB Stop	D	B (11.1)	0.01	A (9.1)	0.02
10	Cascade Road at Driveway B	NB Stop	D	B (10.1)	0.12	A (9.6)	0.12
11	Utoy Springs Road at Driveway C	EB Stop WB Stop	D	C (23.7) C (16.0)	0.22 0.29	D (28.7) B (14.8)	0.21 0.32
12	Fairburn Road at Driveway D	WB Stop	D	C (18.6)	0.24	C (20.4)	0.12
13	Fairburn Road at Driveway E	WB Stop	D	C (19.2)	0.05	C (24.9)	0.02

8.0 IDENTIFICATION OF PROGRAMMED PROJECTS

The *TIP*, *STIP*, *RTP*, and *GDOT's Construction Work Program* were searched for currently programmed transportation projects within the vicinity of the proposed development. The identified projects are listed in **Table 12**. **Figure 10** shows the locations of the programmed transportation projects.

Table 12 Grey Mixed Use DRI Programmed Improvements			
<u>No.</u>	<u>Year</u>	<u>Project Number</u>	<u>Project Description</u>
1	2011	ARC AT-AR-BP-282 GDOT 762563	Bike lanes along Fairburn Road between Martin Luther King Jr Drive and Stone Road. This project is approximately 5.39 miles in length, and has a scheduled let date of 05/23/11.

9.0 INTERNAL CIRCULATION ANALYSIS

The office, retail, and restaurant land uses are proposed on the northern portion of the site; the multi-family residential land use is proposed on the southern portion of the site. A north-south 24' private road is proposed that will provide a vehicular connection between the northern and southern sections. The multi-family residential "pod" will have gates that control access, while the non-residential uses will not have any gate access.

Mixed-use reductions were calculated according to the *ITE Trip Generation Handbook, Second Edition, 2004*. Total internal capture and vehicle trip reduction between the proposed land uses is expected to be 15.07% for the weekday and 14.63% for the PM peak hour. This is the interaction between the residential, office, retail, and restaurant land uses.

10.0 COMPLIANCE WITH COMPREHENSIVE PLAN ANALYSIS

The proposed development is mixed-use with residential, office, retail, and restaurant components. The current zoning is R-3 (Single Family Dwelling) and C-1 (Community Business). The ARC Unified Growth Policy Map identifies the site as Urban Neighborhoods, and the site is located adjacent to an Interchange Node.

11.0 NON-EXPEDITED CRITERIA

11.1 Vehicle Miles of Travel

Table 13 displays the reduction in traffic generation due to internal capture, alternative mode, and pass-by reductions.

Table 13 Vehicle Mile Reductions	
	Weekday
Daily Gross Trip Generation:	7,922
(-)Mixed-use reductions (internal capture)	- 1,194
(-)Alternative modes	- 432
(-)Pass-by trips	- 2,397
Net Trips:	3,899

11.2 Transportation and Traffic Analysis

11.2.1 Planned and Programmed Improvements

The proposed project is not anticipated to preclude any transportation infrastructure improvement projects as identified by Fulton County.

11.2.2 Preserving Regional Mobility

This project is proximate to I-285.

11.2.3 Safe and Efficient Operations

Pedestrians and bicyclists were taken into consideration when formulating and testing recommended improvements as outlined in this report. The results of this traffic study represent a list of recommendations that not only address transportation enhancements for vehicular traffic, but also for pedestrians and bicyclists. The recommendations are intended to provide solutions that are context sensitive and create safe conditions and aim at balancing the mobility needs of all modes.

11.2.4 Minimize Congestion

The recommendations as described in this report are targeted at reducing vehicular congestion to standards as described earlier in this report. Recommendations reflect the goal of vehicular congestion mitigation, particularly the mixed-use nature of this development. The residential, office, retail, and restaurant uses are proposed to accommodate pedestrians and bicyclists along the internal roads.

11.3 Relationship of Existing Development and Infrastructure

The development is located in an area where the existing infrastructure is adequate to serve the needs of the development upon build-out (2012).

12.0 ARC'S AIR QUALITY BENCHMARK

The proposed development is located adjacent to MARTA bus stops for Route 71 and Route 170. Because the project is located within ¼ mile of a bus stop, this meets the ARC criteria for a 4% VMT reduction.

The proposed development will contain a pedestrian network within the site, and connections are proposed to the existing sidewalk network along Cascade Road and Utoy Springs Road. This anticipated pedestrian and bicycle internal network that connects to adjoining uses meets the ARC criteria for a 4% VMT reduction.

The proposed development earns a score of 8% VMT reduction for the ARC criteria. These reductions are displayed in **Table 14**.

Table 14 ARC VMT Reductions	
Projects where residential is the dominant use	
Project is located within ¼ mile of a bus stop	- 4%
Bike/ped networks in development connecting to land uses within/adjoining the site	- 4%
Total Reductions	- 8%