

future conditions (with recommended projects)





6.0 Future Conditions (With Recommended Projects)

The recommended projects in this study stem from the need for not only increased roadway capacity but more important, mobility balance. While the previous analyses in this report describe how the congestion for the general motorists along the corridor is expected to increase, improvements to the corridor must not be made that sacrifice the mobility and accessibility of those preferring to take transit, walk, or ride a bicycle. Furthermore, with the growth expected in the region, coupled with the lack of programmed roadway capacity in the area and more dense development trends, it is reasonable to expect that individuals living and working within the corridor will begin using these alternative modes.

In 2005, the Governor's Congestion Mitigation Task Force (CMTF) was created to determine how projects are selected for implementation through the Fast Forward program and through the Regional Traffic Operations Task Force. Eleven criteria were decided upon to help GDOT, ARC, GRTA, and SRTA determine which projects will be given priority over others. The criteria that were developed are as follows:

1. Transportation demand management (TDM) measures
2. Traffic operational improvements
3. Measures to encourage high occupancy vehicle (HOV) use
4. Transit Capital improvements
5. Transit operational improvements
6. Measures to encourage the use of non-motorized modes
7. Congestion pricing
8. Growth management
9. Access management
10. Incident management
11. Intelligent transportation systems (ITS)

Each of the 47 recommended projects presented in this study specifically addresses at least one of the above congestion mitigation criteria. While the recommendations provide relief to all user groups of the corridor, some recommendations more fully support the above categories. For instance, conversion of the existing Piedmont Road laneage (from Pharr Road to Sidney Marcus Boulevard and from Lindbergh Drive to Lambert Drive/I-85) as part of Projects C9 and C11 will decrease congestion, provide much improved access management, and lower crash rates along the corridor. This project, along with all of the others, directly address mitigation criteria as defined by the CMTF.



In August 2006, the ARC Board adopted a framework that included the above criteria to use in prioritizing projects for federal transportation funding and inclusion in Envision6. The framework incorporates the Governor’s CMTF recommendation to implement a project selection process that weights congestion mitigation at 70 percent as well as ARC Board direction to develop a multimodal plan that supports the region’s development policies through improved integration of transportation and land use planning.

A technical analysis process was created to evaluate system expansion projects. The analysis reflects the 70 percent congestion criteria prescribed by the CMTF and the ARC Board guidance through the inclusion of four major components. The below analysis components estimate how well each project meets regional goals and objectives:

1. Recurring delay (50%) which occurs as routine traffic volumes exceed available roadway capacity or transit user benefits
2. Non-recurring delay (20%) which occurs as a result of traffic incidents
3. Environmental impact (15%) which measures a project’s proximity to six environmentally sensitive area types
4. Regional Development Plan policy support (15%) which measures the level a project supports ARC’s RDP policies based on project location and scope.

Since there is no one specific analysis tool that can be used to accurately evaluate the congestion impacts of both highway and transit projects, different analysis components were used to evaluate the congestion relief benefits of highway and transit projects. Only system expansion projects are subject to the above analysis components. Projects identified as system expansion projects are those that meet the following criteria.

1. System expansion projects in current Mobility 2030 RTP
2. Construction planned in long-range (2012 and later)
3. Within the MPO boundary
4. On the Regional Strategic Transportation System
5. Federal funding programmed

The recommended projects in this study are expected to have a major improvement on the Piedmont Road corridor and the region. Overall, the improvements as presented in this study provide enhanced transit service and facilities, provide new pedestrian facilities, designate several areas where right-of-way is to be preserved for future bicycle lanes, balance traffic flows along the length of the corridor by reducing the severity of bottleneck intersections, improve safety by adding left-turn lanes at intersections, and so on. A discussion on projected 2027 conditions both with and without the recommendations for each of the most deficient areas is as follows.

Powers Ferry Road/Tuxedo Festival Shopping Center Driveway

During 2027 conditions, if the Powers Ferry Road intersection is left unsignalized, congestion both along Roswell Road and Powers Ferry Road is expected to increase to intolerable levels, with delay along eastbound Powers Ferry Road calculated just under one hour. The northbound left-turn movement is also expected to continue to lengthen and severely affect the Piedmont/Roswell/Habersham Triangle.

Signalization of the intersection, when coordinated with the three signals of the Piedmont/Roswell/Habersham Triangle will dramatically reduce levels of delay along Powers Ferry Road and the Tuxedo Festival Shopping Center driveway. It will also allow an opportunity for northbound left-turning vehicles to make a protected left-turn maneuver. With the installment of the traffic signal, the intersection is expected to operate at an LOS C, as opposed to LOS F if left untouched.

Piedmont/Roswell/Habersham Triangle

The primary problem with this set of intersections occurs during the afternoon peak hour with northbound left-turning vehicles traveling from Piedmont Road to Habersham Road (accessing points north and west of the city). This study recommends that the City investigate the negative impacts its two-lane “arterials” have on local traffic by creating congestion within the Buckhead community. The affect of the two lane West Paces Ferry and Habersham Roads in particular have is much like that of a water hose. The vehicles that cannot “fit” through the roads during the afternoon peak hour back onto northbound Piedmont Road, prohibiting other traffic from moving smoothly through the corridor.

One of the most high-value projects this study recommends is the extension of the northbound left-turn lane from Piedmont Road onto Habersham Road. This lane is currently approximately 75 feet long and can only accommodate approximately four tightly spaced vehicles. Extending the lane farther to the south, just north of the adjacent Piedmont Center driveway, will allow a storage length of 650 feet, long enough to store over 30 vehicles. The widening of Habersham Road between Roswell Road and Piedmont Road to four lanes (as part of the Tremont development) will also allow vehicles to navigate the area more efficiently. While this study recognizes that something more must be done in the future to address the deficiencies in transporting people to and from the northwest portions of the region, this improvement will reduce the friction between northbound traveling vehicles and allow individuals traveling to northbound Roswell Road and Powers Ferry Road the ability to do so more efficiently.

This study also recommends a connection between Piedmont Road and Roswell Road just south of the Manor at Buckhead Apartments driveway. This connection will relieve the intersections of Habersham Road with both Roswell Road and Piedmont Road of over 200 vehicles.



Buckhead Loop/Carson Drive

The recommended changes to this intersection include conversion of the westbound approach along Buckhead Loop from two left-turn and three right-turn lanes to three left-turn and two right-turn lanes. Additionally, the eastbound egress movements will be limited to a right-turn out only. Individuals wishing to travel east and north will have the opportunity to exit parcels in this area via a proposed shared driveway with the existing Hampton Inn Hotel to the south.

During 2027 conditions, without the recommended project, during the afternoon peak hour this intersection is projected to operate at an LOS F, with an average of 475.5 seconds (8 minutes) of delay. This delay creates average queues stretching over 300 feet to the north, 1,400 feet to the east (nearly to GA 400), and 600 feet (half way to Tower Place Drive) to the south. With the recommended changes to the intersection, the intersection’s operation is expected to increase substantially and will operate with an average of 242.1 seconds (4 minutes) of delay. This decrease in average delay will produce balancing of and substantial reductions in queues at the intersection. The queues are expected to stretch to 600 feet to the north, less than 700 feet to the east, and 450 feet to the south. The anticipated queue lengths before and after the recommended project are provided below in Table 19.

Table 19 Future 2027 PM Peak Hour Without and With Recommended Project Queue Lengths Piedmont Road at Buckhead Loop			
	Northbound	Southbound	Westbound
Without Recommendation	609'	364'	1,416'
With Recommendation	447'	617'	693'

As the table above describes, queues in all directions are much more balanced between each direction. The changes to this intersection will impact over 7,000 people during the afternoon peak hour, thus affecting many individuals. It is estimated that the intersection will see a reduction of over 480 person hours during the afternoon peak hour at this one intersection on the typical weekday.

Tower Place Drive

With the expected additional development in the northern activity center, such as Terminus, Tower Place Drive is expected to experience a substantial increase in volume in future years, increasing from approximately 400 vehicles to over 1,000 vehicles during the afternoon peak hour from 2007 to 2027. Future 2027 afternoon peak hour conditions anticipate that with no improvements, the intersection

will operate at LOS F, with an average of 352.6 seconds (6 minutes) of delay. By modifying the westbound approach with the construction of an additional left-turn lane, the intersection is expected to operate with an average of 213.0 seconds (4 minutes) of delay.

Peachtree Road

The Piedmont Road/Peachtree Road intersection is one of the busiest intersections along the corridor. With a cross-section consisting of eight lanes and a raised median, further widening may do more harm than good for pedestrians and bicyclists. Options of grade separation (creation of free-flow conditions) were investigated, but it was determined that the negative effects this would have on the pedestrian and streetscape environments made it undesirable to pursue.

The recent addition of the eastbound left-turn lane from Peachtree Road to Piedmont Road and the additional southbound right-turn lane from Piedmont Road to Peachtree Road (as part of the Peachtree Boulevard project) have made substantial improvements to the operation of the intersection. It should also be noted that this intersection plays an important part in balancing congestion through the corridor. This intersection serves as a metering mechanism that regulates the flow of vehicles to other areas along the corridor.

Sidney Marcus Boulevard

As discussed earlier, this intersection suffers from the effects of congestion along GA 400 during the afternoon rush hour. Through the restriping of I-85 and GA 400 and widening of Piedmont Road from Sidney Marcus Boulevard to Lindbergh Drive, traffic volumes will be managed more efficiently and queuing issues not as prevalent.

Morosgo Drive

Morosgo Drive lies within an area of Piedmont Road that is recommended to be widened to a seven lane section. During projected 2027 afternoon rush hour conditions, it is anticipated that this widening will allow the intersection to operate at an LOS C, with an average delay of 28.2 seconds, versus LOS F, with an average delay of 87.6 if no action is taken. This intersection is projected to serve over 3,500 vehicles during the Future 2027 afternoon rush hour conditions. This means that the recommendation saves a net of one person hour each weekday PM peak hour.



6.1 Future Conditions (With Recommended Projects) Operational Analysis

Many of the recommended projects in this study will have effects on the corridor that are difficult to measure. For this reason, of the 47 recommended projects, 16 were included in Future conditions models. The projects included in these models are as follows:

Corridor

- C1 – Signal Timing Plan (Included In All Models)
- C2 – Signal Equipment Upgrades
- C7 – Buckhead Loop to Peachtree Road (Capacity Improvement)
- C8 – Peachtree Road to Pharr Road (Capacity Improvement)
- C9 – Pharr Road to Sidney Marcus Boulevard (Capacity Improvement)
- C10 – Sidney Marcus Boulevard to Lindbergh Drive (Capacity Improvement)
- C11 – Lindbergh Drive to Lambert Drive (Capacity Improvement)

Intersection

- I1 – Piedmont Road/Roswell Road/Habersham Road Triangle
- I2 – Piedmont Road at Buckhead Loop
- I3 – Piedmont Road at Tower Place Drive
- I4B – Piedmont Road at East Wesley Road – Long Term
- I5 – Miami Circle Relocation
- I6 – Lindbergh Drive Consolidation/Main Street Signal

New Connections

- NC1 – Buckhead Loop to Piedmont Center (Shuttle/Express Bus Only)
- NC2 – Piedmont Road to Roswell Road
- NC3 – Piedmont Road to Maple Drive (Two Connections)

The above recommended projects were included in the Future 2012 and Future 2027 conditions traffic models and an operational analysis was performed. A comparison of the projected Future levels-of-service with those during the same time periods without improvements is provided in Table 20. Highlighted boxes indicate that the intersection operates at a poor level-of-service during a particular peak hour.

**Table 20
Future 2012 and Future 2027 Intersection Levels-of-Service
Without and With Recommended Projects
(delay in seconds)**

	Future 2012 Level-of-Service Without Improvements			Future 2012 Level-of-Service With Improvements			Future 2027 LOS Without Improvements	Future 2027 LOS With Improvements
	AM Peak Hour	MD Peak Hour	PM Peak Hour	AM Peak Hour	MD Peak Hour	PM Peak Hour	PM Peak Hour	PM Peak Hour
Roswell Road at Powers Ferry Road/Driveway (Unsignalized)								
F (102.0) ¹	F (N/A) ²	F (N/A) ²	C (25.3)	B (13.9)	C (21.4)	F (N/A) ²	C (24.6)	
Roswell Road at Piedmont Road/Blackland Road								
C (34.3)	C (31.1)	D (47.9)	C (28.5)	C (26.6)	D (45.1)	E (63.7)	D (47.2)	
Roswell Road at Habersham Road								
D (54.6)	D (41.9)	D (37.0)	D (48.0)	C (34.1)	D (36.2)	D (51.4)	D (48.5)	
Piedmont Road at Habersham Road								
D (43.6)	C (26.5)	C (33.1)	C (34.2)	B (17.7)	B (18.2)	D (36.5)	C (30.5)	
Piedmont Road at Piedmont Center/Driveway								
B (10.6)	B (14.3)	C (21.3)	A (6.2)	B (11.1)	C (21.1)	D (43.8)	D (42.8)	
Proposed Connection								
N/A	N/A	N/A	A (4.4)	A (3.0)	A (6.0)	N/A	A (6.1)	
Piedmont Road at Piedmont Center/Securities Centre								
B (13.5)	C (29.2)	F (83.9)	B (12.4)	C (27.9)	E (77.0)	F (101.9)	F (90.6)	
Piedmont Road at Buckhead Loop/Carson Drive								
F (200.7)	F (364.7)	F (391.1)	F (147.4)	F (141.8)	F (207.0)	F (475.5)	F (242.1)	
Proposed Intersection								
N/A	N/A	N/A	B (14.2)	B (15.5)	B (14.6)	N/A	B (17.4)	
Piedmont Road at Tower Place/Driveway								
F (365.5)	F (256.8)	F (300.4)	F (143.2)	F (116.2)	F (140.6)	F (352.6)	F (213.0)	
Piedmont Road at Peachtree Road								
F (124.9)	F (163.1)	F (218.3)	D (51.3)	F (116.4)	F (115.1)	F (263.0)	F (167.0)	
Proposed Connection								
N/A	N/A	N/A	A (8.0)	B (10.8)	B (10.6)	N/A	B (12.7)	
Proposed Connection								
N/A	N/A	N/A	A (9.4)	B (11.2)	A (9.8)	N/A	B (12.8)	
Piedmont Road at East Paces Ferry Road/Driveway								
A (5.5)	B (14.2)	B (14.8)	A (2.5)	A (4.2)	A (2.5)	C (23.2)	A (4.6)	
Piedmont Road at East Paces Ferry Road								
B (11.6)	A (8.6)	B (12.9)	A (9.1)	B (11.9)	B (12.8)	B (14.8)	B (14.9)	
Piedmont Road at Peachtree Drive								
A (2.0)	A (3.2)	A (3.3)	A (2.4)	A (2.3)	A (2.2)	B (13.4)	A (5.7)	
Piedmont Road at Pharr Road/Driveway								
D (38.8)	D (46.7)	D (35.3)	C (23.8)	C (28.5)	C (28.5)	D (48.8)	C (30.5)	
Piedmont Road at East Wesley Road/Darlington Road/Driveway								
D (47.6)	B (18.9)	C (20.8)	B (12.7)	A (7.9)	B (12.1)	C (24.2)	C (20.0)	
Piedmont Road at Miami Circle								
A (3.8)	A (9.5)	B (12.8)	A (4.8)	A (9.1)	A (6.6)	B (13.2)	A (9.3)	
Piedmont Road at Sidney Marcus Boulevard								
H (73.1)	D (46.0)	F (81.5)	E (56.6)	C (34.5)	E (59.6)	F (105.4)	E (67.6)	
Piedmont Road at Morosgo Drive								
D (34.7)	D (36.3)	E (63.0)	B (14.4)	B (13.7)	B (19.0)	F (87.6)	C (28.2)	
Proposed Intersection								
N/A	N/A	N/A	C (21.0)	C (23.5)	C (20.7)	N/A	C (22.2)	
Piedmont Road at Lindbergh Drive								
C (32.3)	C (25.1)	C (27.6)	N/A	N/A	N/A	C (28.9)	N/A	
Piedmont Road at Lindbergh Way								
B (14.9)	B (17.4)	C (22.3)	D (40.5)	C (23.4)	D (43.0)	C (32.5)	D (47.2)	
Piedmont Road at Garson Drive								
C (33.6)	B (10.1)	C (30.7)	B (19.3)	B (11.9)	C (23.2)	D (38.4)	D (35.1)	
Piedmont Road at Lakeshore Drive/Driveway								
D (39.0)	B (17.6)	C (25.7)	B (11.3)	B (11.1)	B (12.2)	D (40.4)	B (17.2)	
Piedmont Road at Piedmont Circle/Lambert Drive/Buford Highway Off-Ramp								
C (20.3)	B (15.9)	B (19.3)	B (19.3)	B (15.4)	B (15.9)	C (25.9)	C (25.8)	

¹Delay measured for side street
²Side street delay is too lengthy to calculate

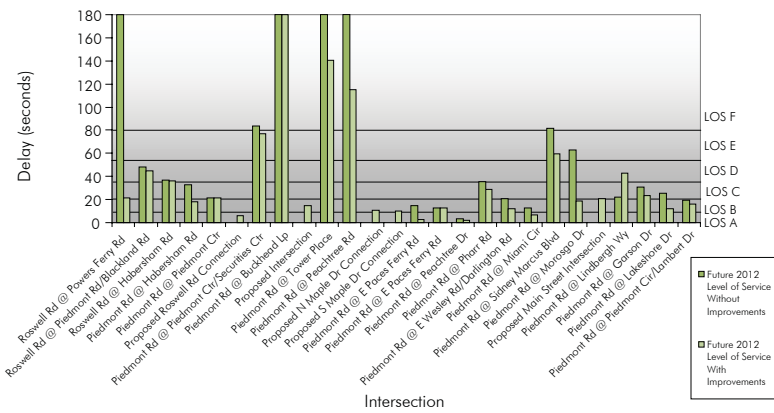


The below graphs provide the PM peak hour levels-of-service from the above table and depict the improvement of operation due to the recommended projects. In order to show the LOS of all the study intersections more clearly, the graphs' maximum values are 180 seconds of delay. The intersections of Roswell Road at Powers Ferry Road, Piedmont Road at the Buckhead Loop, Piedmont Road at Tower Place Drive, and Piedmont Road at Peachtree Road have future levels of delay well over 200 seconds if not improved.

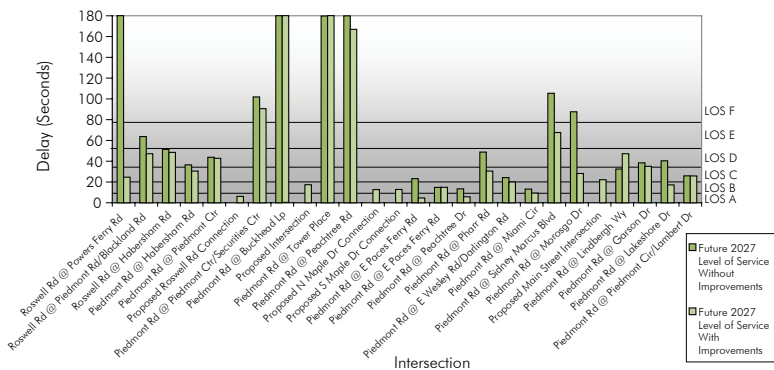
The graphs show that the recommended improvements to the corridor drastically improve most of the study intersections during Future 2012 and 2027 conditions.

A travel time comparison between Future 2012 and Future 2027 conditions without and with the recommended projects is provided in Tables 21 and 22. The shade of the boxes indicates either an increase or decrease in travel time and average speed along the corridor. Darker shaded boxes indicate that conditions deteriorate from the previous modeled year, while lighter shaded boxes indicate that conditions improved from the previous modeled year.

**2012 PM Peak LOS Comparison
(With/Without Improvements)**



**2027 PM Peak LOS Comparison
(With/Without Improvements)**



**Table 21
Corridor Travel Time for 2012
(Between Roswell Road at Powers Ferry Road and Piedmont Road at Piedmont Circle/Lambert Drive)**

	Future 2012 Without Improvements						Future 2012 With Improvements					
	AM Peak Hour		MD Peak Hour		PM Peak Hour		AM Peak Hour		MD Peak Hour		PM Peak Hour	
	NB ¹	SB ²	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
Travel Time (minutes)	19.1	13.0	22.1	20.7	23.0	23.6	14.4	11.4	15.7	11.9	17.6	13.4
Average Speed (mph)	10.7	15.7	9.2	9.9	8.9	8.6	14.2	17.9	13.0	17.1	11.6	15.2

¹ NB - Northbound
² SB - Southbound

**Table 22
Corridor Travel Time for 2027
(Between Roswell Road at Powers Ferry Road and Piedmont Road at Piedmont Circle/Lambert Drive)**

	Future 2027 Without Improvements		Future 2027 With Improvements	
	PM Peak Hour		PM Peak Hour	
	NB ¹	SB ²	NB	SB
Travel Time (minutes)	26.0	28.3	18.7	14.8
Average Speed (mph)	7.8	7.2	10.9	13.8

¹ NB - Northbound
² SB - Southbound

As described, if the recommended projects as described in this report are made to the Piedmont Road corridor, travel times will be dramatically improved for both the Future 2012 and 2027 conditions. Without these recommendations implemented, the 3.4 mile corridor is projected to experience an average travel time during the afternoon rush hour of 27.15 minutes; however, if the recommendations are implemented, this travel time is reduced to 16.75 minutes. This is a profound improvement made possible by the recommended projects that enhance the options for all user groups.

The below graph shows improved average travel times (averaged between the northbound and southbound directions) along the corridor for the PM peak hour condition. As shown, the recommended projects are expected to reduce the average travel time along the corridor during the PM peak hour by more than seven minutes during Future 2012 conditions and more than ten minutes during Future 2027 conditions.

