

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**OFFICE OF DESIGN POLICY & SUPPORT  
INTERDEPARTMENTAL CORRESPONDENCE**

**FILE** P.I. # 0012774  
Cobb County  
GDOT District 7 - Metro Atlanta  
I-75 @ CR 7958/Windy Hill Road  
Diverging Diamond Interchange

**OFFICE** Design Policy & Support

**DATE** August 6, 2014

**FROM**  for Brent Story, State Design Policy Engineer

**TO** SEE DISTRIBUTION

**SUBJECT** APPROVED CONCEPT REPORT

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

Attachment

**DISTRIBUTION:**

Glenn Bowman, Director of Engineering  
Joe Carpenter, Director of P3/Program Delivery  
Genetha Rice-Singleton, Assistant Director of P3/Program Delivery  
Albert Shelby, State Program Delivery Engineer  
Bobby Hilliard, Program Control Administrator  
Cindy VanDyke, State Transportation Planning Administrator  
Hiral Patel, State Environmental Administrator  
Ben Rabun, State Bridge Engineer  
Kathy Zahul, State Traffic Engineer  
Angela Robinson, Financial Management Administrator  
Lisa Myers, State Project Review Engineer  
Charles "Chuck" Hasty, State Materials Engineer  
Mike Bolden, State Utilities Engineer  
Jeff Fletcher, Statewide Location Bureau Chief  
Rachel Brown, District Engineer  
Scott Lee, District Preconstruction Engineer  
Patrick Allen, District Utilities Engineer  
Ryan Fernandez, Project Manager  
BOARD MEMBER - 6th & 11th Congressional Districts

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
PROJECT CONCEPT REPORT**

Project Type: Interchange P.I. Number: 0012774  
Reconstruction  
 GDOT District: 7 County: Cobb  
 Federal Route Number: I-75 State Route Number: N/A  
 Project Number: N/A

**I-75 @ CR 7958/Windy Hill Road – Diverging Diamond Interchange**

**Submitted for approval:**

<u>Brent Hale, P.E.</u> Moreland Altobelli Associates, Inc.	<u>4/14/14</u> DATE
<u>[Signature]</u> Local Government – Cobb County	<u>4/25/14</u> DATE
<u>Albert Shulby</u> State Program Delivery Engineer	<u>5-1-14</u> DATE
<u>Ryan [Signature]</u> GDOT Project Manager	<u>5-29-14</u> DATE

**Recommendation for approval:**

<u>Program Control Administrator</u>	<u>DATE</u>
* <u>Hiral Patel/KLP</u>	<u>5-30-14</u>
<u>State Environmental Administrator</u>	<u>DATE</u>
* <u>Kathy Zahal/KLP</u>	<u>5-20-14</u>
<u>State Traffic Engineer</u>	<u>DATE</u>
* <u>Lisa Myers/KLP</u>	<u>5-19-14</u>
<u>Project Review Engineer</u>	<u>DATE</u>
* <u>Jun Birnkammer/KLP</u>	<u>5-19-14</u>
<u>State Utilities Engineer</u>	<u>DATE</u>
<u>District Engineer</u>	<u>DATE</u>
* <u>Ben Rabun/KLP</u>	<u>5-28-14</u>
<u>State Bridge Design Engineer</u>	<u>DATE</u>
<u>State Transportation Financial Management Administrator</u>	<u>DATE</u>
<u>The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Plan (RTP) and/or the State Transportation Improvement Program (STIP).</u>	
<u>[Signature]</u>	<u>5-19-14</u>
<u>State Transportation Planning Administrator</u>	<u>DATE</u>

\* Recommendation on file



County: Cobb

## **PLANNING & BACKGROUND DATA**

### **Project Justification Statement:**

Windy Hill Road Improvements and Interchange with I-75 have been identified in the Cobb County's 2010 Comprehensive Transportation Plan as critical to achieving countywide transportation goals. The Cumberland Community Improvement District (CCID) has also identified Windy Hill Road Interchange as a top priority in improving transportation in the district. The CCID commissioned a study to determine the most cost effective improvement to the Windy Hill Road Interchange. Several alternatives were studied, two of which included a Diverging Diamond Interchange (DDI) configuration. This project resulted from the Windy Hill Road Interchange Alternatives Analysis. The project is contained in the ARC Transportation Improvement Program (TIP) for 2012-2017 as reference number CO-452.

Windy Hill Road interchange is on the Regional Thoroughfare Network (RTN) identified in the Atlanta Regional Commission's Strategic Regional Thoroughfare Plan and provides direct connectivity to I-75 for major portions of Cobb County and portions of Paulding County. The Cumberland/Galleria area is a major business hub and employment is anticipated to grow more than 26% by the year 2030. Commuters experience traffic congestion on Windy Hill Road and on the existing exit ramps which currently operate near capacity or failing levels of service. Traffic volumes through the I-75/I-285 Interchange are projected to increase substantially and will exacerbate the existing traffic operational problems and increase the frequency and severity of traffic crashes at this location. The existing infrastructure is bottlenecked by the traffic operations of the interchange intersections and the close-proximity of adjacent intersections at office parks on both sides of the interchange. This interchange is a major urban arterial for many of the largest employers in the region, and workers experience traffic congestion in their commute to and from employment centers along Windy Hill Road. Commuters to the employment centers along Windy Hill Road have few travel options to access I-75. The traffic congestion affects many aspects of the surrounding jurisdictions, including commute times, travel route options, land use and employment growth, and air quality.

This project involves an innovative interchange design known as a DDI. The DDI configuration crosses the traffic flow on either side of the interstate eliminating the left-turn phases at the traffic signals. Traffic flow is improved without the addition of extra lanes and without reconstructing the existing bridge over the interstate. The purpose for improvements to the Windy Hill Road interchange is to address the primary needs of improved traffic congestion and better traffic flow management, improve mobility options for the traveling public, and provide safer travel conditions for motorist and pedestrians. Sidewalks would also be constructed on both sides of Windy Hill Road at the approaches to the bridge over I-75 and be provided in the center median area of the DDI.

**Existing Conditions:** Windy Hill Road Interchange with I-75 is located in Cobb County, one mile north of I-285. The existing I-75 interchange at Windy Hill Road is configured as a partial cloverleaf interchange with a loop on-ramp in the northwest quadrant. The existing bridge has two through lanes in each direction with two eastbound left-turn lanes and a westbound right-turn lane that drops into the southbound loop on-ramp. The southbound off-ramp is aligned across from Circle 75 Parkway and has two left-turn lanes, two through lanes and one right-turn lane. The northbound off-ramp has two left-turn lanes and two-right-turn lanes. Windy Hill Road has single right-turn lanes in the eastbound

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and westbound directions at the I-75 northbound and southbound on-ramps. There are sidewalks along both sides of the Windy Hill Road and bridge.

Major intersections of the interchange area include Windy Hill Road at Circle 75 Parkway/I-75 southbound off-ramp, Windy Hill Road at I-75 northbound on- and off-ramps and Windy Hill Road at Leland Drive/Interstate North Parkway (located only 300 feet from the I-75 northbound ramps).

Major utilities through the project area include Georgia Power Company Distribution, MEAG Power Transmission, Atlanta Gas Light Company, Cobb County Water System, AT&T Southeast Network, MCI-Verizon Business Network, Zayo Group, Cobb County DOT Traffic Fiber and Comcast Cable TV

**Other projects in the area:**

1. CSNHS-0008-00 (256), P.I. No. 0008256 - Northwest Corridor (I-75 and I-575) Managed Lanes. This project will construct managed lanes between I-285 and I-575. Engineering was authorized in fiscal year 2012. Right-of-way acquisition was authorized in 2013 and construction was authorized in 2014. The ARC TIP reference number is AR-ML-930.
2. Cobb County SPLOST E4030 and E4020 - Windy Hill Road West & East– Windy Hill Road would be widened from 4 to 6 lanes from US 41 (Cobb Parkway) to Corporate Plaza and from Rottenwood Creek Bridge to Interstate North Parkway. This project is locally funded.
3. P.I. No. 0010510 - The proposed project would widen US 41 (Cobb Parkway) from Windy Ridge Parkway to SR 120 Loop (North Marietta Parkway) from 4 to 6 lanes. The total project length is approximately 5.9 miles. The ARC TIP reference number is CO-041.
4. P.I. No. 0010006 – Leland Drive Extension from Windy Hill Road to Terrell Mill Road. This project is approximately 0.8 mile in length. Engineering was authorized in fiscal year 2011. Right-of-way acquisition is programmed for 2014 and construction is programmed for fiscal year 2015. The ARC TIP reference number is CO-380.
5. Cobb County CID 1021 - Powers Ferry Road from Wildwood Parkway to Terrell Mill Road – A northbound lane would be added. This project is approximately 0.3 mile in length. Engineering was authorized in fiscal year 2007. Right-of-way acquisition was authorized in 2008 and construction is programmed for fiscal year 2014. The ARC TIP reference number is CO-381.
6. Cobb County SPLOST E4010- Windy Hill Road from East of Powers Ferry Road to Spectrum Circle – A westbound lane would be added. This project is approximately 0.2 mile in length. Engineering was authorized in fiscal year 2007. Right-of-way acquisition was authorized in 2008 and construction is programmed for fiscal year 2014. The ARC TIP reference number is CO-382.
7. P.I. No. 0011738 – SR 3 at CS 1720 Windy Hill Road intersection. This project involves the construction of intersection improvements at the SR 3/US 41/Cobb Parkway at Windy Hill Road. Dual left-turn lanes would be constructed on the north and south legs of the intersection. Also the addition of a third northbound lane and a southbound right-turn lane. The project length is approximately 0.42 miles along SR 3/US 41/Cobb Parkway and 0.30 miles along Windy Hill Road/CR 1720. Engineering was authorized in fiscal year 2013. Right-of-way acquisition and utility relocation is funded locally. Construction is through operational improvement lump sum funding.
8. NHS00-001-00 (758), P.I. No. 0001758 (Cobb, DeKalb and Fulton counties) – Revive 285. This project involves the construction of HOV lanes on I-285 from I-75/Cobb County through Fulton

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to I-85/DeKalb County. Revive 285 will include a number of isolated near-term improvements in the project corridor including the improvement of the Windy Hill Road Interchange at I-75. The project length is approximately 13.15 miles. Engineering was authorized in fiscal year 2007. Right-of-way acquisition and construction is programmed for long range. The ARC RTP reference number is AR-ML-200.

**MPO:** Atlanta Regional Commission (ARC)

MPO Project ID CO-452

**Regional Commission:** Atlanta Regional Commission

RC Project ID

**Congressional District(s):** 6, 11

**Federal Oversight:**  Full Oversight  Exempt  State Funded  Other

**Projected Traffic:** ADT

	Current Year (2011)	Open Year (2017)	Design Year (2037)
Windy Hill Road	43,600 vpd	45,380 vpd	51,310 vpd
Interstate 75	285,900 vpd	318,820 vpd	342,020 vpd

Traffic Projections Performed by: Moreland Altobelli Associates, Inc.

**Functional Classification (Mainline):** Urban Minor Arterial Street

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

Warrants met:  None  Bicycle  Pedestrian  Transit

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

**Pavement Evaluation and Recommendations**

Preliminary Pavement Evaluation Summary Report Required?  No  Yes

Preliminary Pavement Type Selection Report Required?  No  Yes

Feasible Pavement Alternatives:  HMA  PCC  HMA & PCC

**DESIGN AND STRUCTURAL DATA**

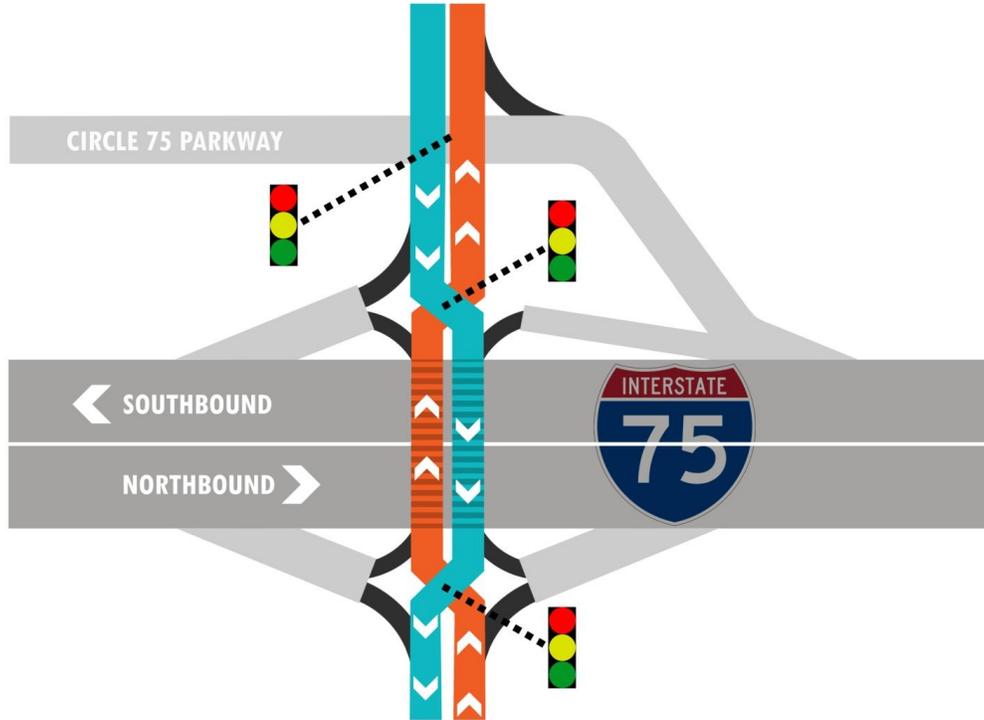
**Description of the proposed project:**

The proposed project would construct a diverging diamond interchange (also known as a double crossover diamond) at the existing overpass of Windy Hill Road at I-75 located in Cobb County, Georgia. Associated with the construction of the interchange, improvements would also be made to Windy Hill Road to accommodate the design elements that would be required for the interchange. The existing bridge across I-75 would be maintained in place.

The proposed project would convert the existing interchange configuration from a partial cloverleaf to a diverging diamond interchange. The traffic on Windy Hill Road is crossed from the right side of the roadway to the left side at a signalized ramp intersection, which allows left-turning vehicles to flow

freely onto the interstate at the on-ramp. Windy Hill Road through traffic is then crossed back to the right side of the road at the second signalized ramp intersection. See Figure 1.

**Figure 1: Diverging Diamond Interchange Layout**



The Windy Hill Road Bridge over I-75 would not be widened but reconfigured to have six lanes (three in each direction) and a median fourteen feet wide. Pedestrian traffic would be facilitated along the center median of the bridge. Sidewalks are provided on both sides of Windy Hill Road outside the DDI intersections.

The project would also include the relocation of the intersection of Windy Hill Road at Circle 75 Parkway, approximately 100 feet west of its existing location and Windy Hill Road at Leland Drive, approximately 220 feet east of its existing location. The southbound off- and on-ramps from I-75 would be reconstructed from their existing condition to a standard diamond configuration to accommodate the diverging diamond design. However, the southbound off-ramp will be split to allow traffic to travel across Windy Hill Road onto Circle 75 Parkway or turn right onto Windy Hill Road west (see Figure 1). All work on the ramps would be tied in to the existing roadway before the merge/diverge points with I-75. No work would take place on the interstate.

The relocated Leland Drive would be aligned across from a commercial driveway leading to two restaurants. The existing northbound approach of Interstate North Parkway (West) would be closed at Windy Hill Road. Interstate North Parkway traffic heading northward to Windy Hill Road would be diverted to Interstate North Parkway (East). The intersection of Interstate North Parkway (West) and Interstate North Parkway (East) would be modified to accommodate the change in traffic flow. The traffic signals at the intersections of Circle 75 Parkway, the DDI crossovers and Leland Drive would be strategically designed and coordinated to optimize traffic flow through the system.

The proposed project limits would be from approximately 200' west of the relocated Circle 75 Parkway to the end of the bridge over Rottenwood Creek. The Rottenwood Creek bridge would be re-stripped

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but remain in place. The project would be constructed on variable width right-of-way, from 120 to 165 feet wide. The project length is 1.2 miles.

**Major Structures:**

Structure	Existing	Proposed
ID: 067-0143-0	Windy Hill Road over I-75 – 3.5 miles NE of Smyrna. Sufficiency Rating: 73.24, Bridge length = 343’, Bridge width = 90.40’ (one westbound right-turn lane, two westbound thru lanes, two eastbound left-turn lanes, two eastbound thru lanes and sidewalks on each side of the bridge). See attached inventory.	Windy Hill Road over I-75 – 3.5 miles NE of Smyrna. Sufficiency Rating: 73.24, Bridge length = 343’, Bridge width = 90.40’. Bridge will be reconfigured to have one westbound left-turn lane, one shared left/thru westbound lane, one thru westbound lane, one eastbound left-turn lane, two eastbound thru lanes and a central sidewalk in the median of the bridge.
ID: 067-0144-0	Windy Hill Road over Rottenwood Creek – 3.7 miles NE of Smyrna. Sufficiency Rating: 82.98, Bridge length = 138’, Bridge width = 101.40’ (four westbound lanes and two eastbound lanes and sidewalks on each side of the bridge). See attached inventory.	Windy Hill Road over Rottenwood Creek- 3.7 miles NE of Smyrna. Sufficiency Rating: 82.98, Bridge length = 138’, Bridge width = 101.40’. Bridge will be reconfigured to have three westbound and three eastbound lanes with one median lane and sidewalks on each side of the bridge.

**Mainline Design Features: Windy Hill Road**

Feature	Existing	Standard*	Proposed
<b>Typical Section</b>			
- Number of Lanes	4		4
- Lane Width(s)	11’	12’	11’
- Median Width & Type	14’ flush	20’ raised	14’ raised
- Outside Shoulder or Border Area Width	10’-16’ with curb & gutter	10’-16’ with curb & gutter	12’ with curb & gutter
- Outside Shoulder Slope	4:1	4:1	4:1
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	Yes	Yes	Yes
- Auxiliary Lanes	Yes	No	Yes
- Bike Lanes	No	No	No
Posted Speed	35 mph		35 mph
Design Speed	35 mph	35 mph	35 mph
Min Horizontal Curve Radius	629’	371’	629’
Maximum Superelevation Rate	4%	4%	4%
Maximum Grade	8.7%	8%	8.7%
Access Control	Limited	Limited	Limited
Design Vehicle	WB-40 or BUS-40	WB-40 or WB-62	WB-67
Pavement Type	Asphalt	Asphalt	Asphalt

\*According to current GDOT design policy if applicable

**Major Interchanges/Intersections:**

- Interchanges: I-75 at Windy Hill Road
  
- Intersections with proposed traffic signals:
  1. Windy Hill Road at Relocated Leland Drive/Commercial Driveway
  2. Windy Hill Road at I-75 Southbound (left-turn) off-ramp of DDI
  3. Windy Hill Road at I-75 Northbound off-ramp of DDI
  4. Windy Hill Road at Relocated Circle 75 Parkway/I-75 Southbound (right & thru) off-ramp.
  5. Interstate North Parkway (West) at Interstate North Parkway(East)
  
- Intersection with existing traffic signal:
  1. Windy Hill Road at Leland Drive/Interstate North Parkway (West)
  2. Windy Hill Road at I-75 Northbound off-ramp
  3. Windy Hill Road at Circle 75 Parkway/I-75 Southbound off-ramp
  4. Interstate North Parkway (East) at Interstate North Parkway (West)

A traffic signal warrant study was conducted at the intersection of Windy Hill Road at the Southbound DDI Crossover based on the traffic signal warrants, published in the *Manual On Uniform Traffic Control Devices, 2009* using the projected year 2017 traffic volumes. A summary of the traffic signal warrant study is contained in the attachments.

**Lighting required:**             No             Yes

There is existing roadway lighting on Windy Hill Road that will be replaced as necessary. Pedestrian/streetscape lighting will also be included as a context-sensitive design feature.

**Off-site Detours Anticipated:**             No             Undetermined             Yes

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

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**Design Exceptions to FHWA/AASHTO controlling criteria anticipated:**

<b>FHWA/AASHTO Controlling Criteria</b>	<b>No</b>	<b>Undeter- mined</b>	<b>Yes</b>	<b>Appvl Date (if applicable)</b>
1. Design Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Lane Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Shoulder Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Bridge Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Horizontal Alignment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Superelevation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Vertical Alignment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Grade	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Stopping Sight Distance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Cross Slope	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Vertical Clearance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Lateral Offset to Obstruction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Bridge Structural Capacity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Design Variances to GDOT Standard Criteria anticipated:**

<b>GDOT Standard Criteria</b>	<b>Reviewing Office</b>	<b>No</b>	<b>Undeter-- mined</b>	<b>Yes</b>	<b>Appvl Date (if applicable)</b>
1. Access Control - <i>Median Opening Spacing</i>	DP&S	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Median Usage & Width	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Intersection Skew Angle	DP&S	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Lateral Offset to Obstruction	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Intersection Sight Distance	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Bike, Pedestrian & Transit Accommodations	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. GDOT Drainage Manual	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Georgia Standard Drawings	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. GDOT Bridge & Structural Manual	Bridge Design	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Roundabout Illumination	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Rumble Strips	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Safety Edge	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Design Variances – Median Opening Spacing

- The minimum requirement for median opening spacing in urban areas is 660 feet or 1,000 feet when at least one of the intersections is an interstate ramp. The median spacing along Windy Hill Road between Corporate Plaza and Interstate North Parkway do not meet the minimum requirements.
- The DDI crossover intersections have intersection skew angles that are less than the minimum 70 degree angle required.

VE Study anticipated:  No  Yes  Completed – Date:

**UTILITY AND PROPERTY**

Temporary State Route needed:  No  Yes  Undetermined

Railroad Involvement: None

**Utility Involvements:**

Electric	Georgia Power Company Distribution MEAG Power Transmission
Gas	Atlanta Gas Light Company
Sewer	Cobb County Water System
Water	Cobb County Water System
Telephone	AT&T Southeast Network MCI- Verizon Business Network
Fiber	Zayo Group Cobb County DOT Traffic Fiber
Cable TV	Comcast

SUE Required:  No  Yes

Public Interest Determination Policy and Procedure recommended (Utilities)?  No  Yes

Right-of-Way: Existing width: 115-130 ft. Proposed width: 120-165 ft.

Required Right-of-Way anticipated:  No  Yes  Undetermined

Easements anticipated:  None  Temporary  Permanent  Utility  Other

Anticipated number of impacted parcels:	8
Displacements anticipated:	Total: 1
	Businesses: 1
	Residences: 0
	Other: 0

**Location and Design approval:**  Not Required  Required

**CONTEXT SENSITIVE SOLUTIONS**

**Issues of Concern:** After decades of study of the Windy Hill Road interchange, the CCID was seeking a cost-effective attractive interchange design that could be constructed within a few years. The project will not have any impacts on historical or environmental resources. There are no context sensitive issues or concerns identified within the corridor.

**Context Sensitive Solutions:**

The DDI design is an innovative design that meets traditional transportation goals for increased traffic flow and reduced crash frequency and severity while providing a cost-effective solution. This project is a collaborative effort between business and community leaders. The Cumberland CID has sponsored this project with close coordination from Cobb County. Although there are not any specific context sensitive issues identified, the design will provide sidewalks, landscaping, lighting and decorative fencing on the bridge to complement the cost-effective design. These features will preserve aesthetics and will be context sensitive to the environment.

**ENVIRONMENTAL & PERMITS**

**Anticipated Environmental Document:**

GEPA:  NEPA:  CE  EA/FONSI  EIS

**MS4 Compliance – Is the project located in an MS4 area?**  No  Yes

See attached report on MS4 Compliance

**Environmental Permits/Variations/Commitments/Coordination anticipated:**

Permit/ Variance/ Commitment/ Coordination Anticipated	No	Yes	Remarks
1. U.S. Coast Guard Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Forest Service/Corps Land	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. CWA Section 404 Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Tennessee Valley Authority Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. Buffer Variance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6. Coastal Zone Management Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. NPDES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8. FEMA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Cemetery Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. Other Permits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11. Other Commitments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12. Other Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

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Is a PAR required?  No  Yes  Completed – Date:

**Environmental Comments and Information:**

**NEPA/GEPA:** A Categorical Exclusion (CE) will be prepared to reflect the current economic, environmental, cultural and social affects. All special studies will be conducted and completed in accordance with current GDOT standards.

**Ecology:** The proposed project corridor has been surveyed for Waters of the U.S. and State Waters under the Clean Water Act, Executive Order 11990, Georgia Erosion and Sedimentation Act, and other federal and state regulations. A field survey was conducted on November 9, 2010, February 4, 2013 and October 30, 2013 to identify jurisdictional waters of the U.S. and protected species. A wetland and two streams were identified within the project survey area. A Georgia Environmental Protection Division (EPD) stream buffer variance would not be required for the proposed project. A United States Army Corps of Engineers (USACE) permit would not be required for the proposed project. No Fish and Wildlife Coordination Act (FWCA) coordination would be required for the proposed project.

The project would have no impact on migratory birds, and no effect on essential fish habitat or bats. No invasive species were identified in the project corridor. There is no critical habitat located in the project corridor. No bald eagles or their nests were identified during the field survey. This project falls under Appendix A of the Joint Coordination Procedures and would have no effect on all current listed species.

**History:** As a result of the previously surveys of the study areas, no historic properties sites considered eligible NRHP resources were identified within the proposed project’s area of potential effect (APE).

**Archeology:** A review of literature was done and no archeological sites considered eligible NRHP resources were identified within the proposed project’s area of potential effect (APE).

**Air Quality:**

Is the project located in a PM 2.5 Non-attainment area?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
Is the project located in an Ozone Non-attainment area?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes
Is a Carbon Monoxide hotspot analysis required?	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes

The FY 2012-2017 Transportation Improvement Program (TIP) under the PLAN 2040 Regional Transportation Plan (RTP) is the current adopted plan for the Atlanta area showing the region's highest transportation priorities. It was adopted by the Atlanta TMA Board on August 18, 2011 and was approved by US DOT on September 6, 2011. This project is identified in the PLAN 2040 RTP and FY 2012-2017 TIP by reference number CO-452. The conforming plan model describes the proposed project as a reconstruction of an interchange at I-75. The TIP shows that

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engineering was authorized in FY 2014 with local funds. The construction is shown to be funded in FY 2016 with CMAQ funds.

**Noise Effects:** Noise Impact Assessment will be conducted using TNM. The assessment will be conducted in compliance with *23 USC Section 109(h) and (i)* and according to the new GDOT Noise Abatement policy, effective July 13, 2011.

**Public Involvement:** The project will have local coordination with the major stakeholders listed below. In addition, a Public Information Meeting will be held. Other public involvement will also occur throughout the process which may include: neighborhood meetings, meetings with businesses, and other local interest groups as deemed necessary by GDOT/FHWA. The public involvement plan prepared for this project will identify all the potential avenues for public outreach efforts.

**Major stakeholders:** traveling public, cities of Marietta and Smyrna, Cobb County, Cobb CID, Cobb County Chamber of Commerce, and other stakeholders as deemed appropriate.

## CONSTRUCTION

**Issues potentially affecting constructability/construction schedule:** Utilities will require coordination and the reconstruction of the I-75 Loop Ramp as part as the Northwest Corridor project (CSNHS-0008-00 (256), P.I. No. 0008256) will require coordination.

**Early Completion Incentives recommended for consideration:**  No  Yes

## COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

**Initial Concept Meeting:** Initial Concept Meeting was held on February 14, 2014, see attached minutes.

**Concept Meeting:** Concept Team Meeting was held on March 25, 2014, see attached minutes.

**Other coordination to date:** [Eight Policy Requirements for an Interchange Modification Report \(IMR\)](#)

The FHWA Guidance on Interstate Access Requests document provides the requirements for the justification and documentation necessary to substantiate any proposed changes in access to the Interstate System. This policy also facilitates decision making regarding proposed changes in access to the Interstate System in a manner that considers and is consistent with the vision, goals and long-range transportation plans of a metropolitan area, region and State.

The FHWA's decision to approve a request is dependent on the proposal satisfying and documenting the following eight requirements.

County: Cobb

- 1) The need being addressed by the request cannot be adequately satisfied by existing interchanges to the Interstate, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands.

The initial VISSIM model analysis of the DDI at the proposed interchange has indicated that the average delay at the interchange is reduced both in the AM and PM. Through modifications to the surface street, the DDI enhances the efficiency of the traffic operations on Windy Hill Road, which satisfies this requirement.

- 2) The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management (such as ramp metering, mass transit, and HOV facilities), geometric design, and alternative improvements to the Interstate without the proposed change(s) in access.

The DDI is an alternative improvement on the Windy Hill Road interchange that will have minimal (if any) impacts to I-75. The DDI can be constructed requiring only minor modifications to the existing bridge without the need to replace or widen (i.e. sidewalk and barrier reconstruction). With the reduction in delays achieved with the proposed project, the traffic flow rate to the interstate entrance ramps can be expected to increase. If the rate of flow increases on the I-75 Southbound on-ramp, but the rate of flow through the meter and onto I-75 doesn't change, then vehicles will tend to overfill the existing storage lane. To avoid this obstruction, the ramp meter will be moved further south to provide more storage capacity. The additional storage should be adequate to allow the ramp meter cycle to remain near its current rate (2011) in the design year (2037) without impacting the operations at the top of the ramp.

No change in access to the interstate facility is proposed.

- 3) An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access. The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the crash data and operational impacts that the proposed change in access and other transportation improvements may have on the local street network.

Requests for a proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and

County: Cobb

local street network. Each request must also include a conceptual plan of the type and location of the signs proposed to support each design.

The DDI would not change the operations of the existing ramps. The initial VISSIM model has indicated that the DDI would also have no impacts to the operations of the I-75 corridor. The minor impact to the I-75 southbound on-ramp will be offset by moving the ramp meter further south to provide more storage as outlined in the response to requirement 2 above.

The VISSIM model analysis of the DDI for the design year (2037) at the proposed interchange has indicated that the efficiency of the traffic operations on Windy Hill Road will improve. Reductions in delay are observed at the ramp terminal intersection locations. LOS is improved from D levels in the 2037 No-Build scenario to B and C levels in the 2037 Build scenario during the AM peak and LOS is improved from D and E levels in the 2037 No-Build scenario to B and D levels in the 2037 Build scenario during the PM peak.

- 4) The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards.

The DDI does not change the access to the I-75 interchange. The DDI will be constructed to be as unobtrusive as possible to the existing infrastructure. The proposed access will be designed to meet exceed current standards.

- 5) The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within transportation management areas, as appropriate, the applicable provisions of 23 CFR part 450 and the transportation conformity requirements of 40 CFR parts 51 and 93.

The existing interchange is planned for reconstruction as part of the Revive I-285 project. The GDOT project identification number is 0001758 and the RTP number is AR-ML-200. The DDI, however, will provide operational improvements and efficiency improvements to the interchange without the costly reconstruction of the bridge over I-75. The Windy Hill Road DDI has been recently placed in the ARC TIP for 2012-2017 as reference number CO-452. This project is scheduled to be included in the State Transportation Improvement Program (STIP).

- 6) In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all of the proposed and desired access changes within the context of a longer-range system or network plan.

County: Cobb

The TIP does not indicate any new or planned interchanges on I-75 adjacent to Windy Hill Road in the future. Also, the I-75 corridor in this area already has interchanges spaced approximately 1-3 miles apart, future new interchanges would be unlikely, especially full access interchanges.

- 7) When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements. The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and Interstate access point.

This is not a new access point, but a modification to an existing access point. There is a proposed mixed-use development and baseball stadium planned on Circle 75 Parkway adjacent to the interstate. This project will be coordinated with this development when more information is known.

- 8) The proposal can be expected to be included as an alternative in the required environmental evaluation, review and processing. The proposal should include supporting information and current status of the environmental processing.

The proposed DDI project will follow GDOT's Plan Development Process (PDP), including NEPA documentation taking place during the preliminary plans phase. For this type of project (i.e. bridge replacement/modification), the anticipated class of action is a categorical exclusion (CE). However, FHWA will make the final decision as to what class of action is appropriate after their review of the concept. Typical requirements for a CE include early coordination and notification for local, state, and federally interested agencies; survey, reporting, and agency review in accordance with Section 106 of the National Historic Preservation Act, the Clean Water Act, the Endangered Species Act, the Migratory Bird Treaty Act, the Farmland Protection Policy Act, and others; and the preparation of the appropriate NEPA document, which must be approved by GDOT and FHWA.

County: Cobb

**Project Activities:**

Project Activity	Party Responsible for Performing Task(s)
Concept Development	Cobb County
Design	Cobb County
Right-of-Way Acquisition	Cobb County
Utility Relocation	Cobb County/Utility Owners
Letting to Contract	Cobb County
Construction Supervision	Cobb County
Providing Material Pits	Contractor (if required)
Providing Detours	Contractor (if required)
Environmental Studies, Documents, and Permits	Cobb County
Environmental Mitigation	Cobb County
Construction Inspection & Materials Testing	Cobb County

**Project Cost Estimate and Funding Responsibilities:**

	Breakdown of PE	ROW	Utilities (REIM)	CST*	Environmental Mitigation	Total Cost
By Whom	CCID	Cobb DOT	Cobb DOT	Cobb DOT	n/a	
\$ Amount	\$700,000	\$5,061,000	\$375,000	\$11,817,053.26	n/a	\$17,953,053.26
Date of Estimate	6/14/2013	6/14/2014	6/16/2014	11/13/2013	n/a	

\*CST Cost includes: Construction, Engineering and Inspection, Contingencies and Liquid AC Adjustment.

**ALTERNATIVES DISCUSSION**

**Alternative selection:** Five alternatives, including the no-build alternative were considered. All of these alternatives were studied in the traffic report for this project. Below is a brief rationale for the elimination of the No-Build Alternative and Alternatives 1, 2 and 3.

<b>Preferred Alternative:</b> DDI and Relocation of At-Grade Intersections – The preferred alternative, a modified version of Alternative 4 includes the reconstruction of the Windy Hill Road at I-75 interchange into a diverging diamond configuration; the intersections of Windy Hill Road at Circle 75 and Leland Drive would be relocated and moved away from the DDI crossover intersections and the signals at these intersections will be strategically designed and coordinated to optimize traffic flow through the system.			
<b>Estimated Property Impacts:</b>	<b>8 parcels</b>	<b>Estimated Total Cost:</b>	<b>\$17,953,053.26</b>
<b>Estimated ROW Cost:</b>	<b>\$5.0 million</b>	<b>Estimated CST Time:</b>	<b>1.5 yrs</b>
<b>Rationale:</b> Traffic delay is reduced through the interchange area without widening of the bridge. All traffic movements through the interchange area have levels of service D or better. The right-of-way costs and construction costs would be considerably lower than the other alternatives because there are no grade-separations or additional bridges to be constructed. The DDI interchange configuration would be able to handle additional future traffic through the interchange.			

County: Cobb

<b>No-Build Alternative:</b> The no-build alternative is an alternative in which Cobb County would take no action to construct the project.			
<b>Estimated Property Impacts:</b>	<b>N/A</b>	<b>Estimated Total Cost:</b>	<b>\$0</b>
<b>Estimated ROW Cost:</b>	<b>\$0</b>	<b>Estimated CST Time:</b>	<b>N/A</b>
<b>Rationale:</b> Traffic congestion and operational problems would worsen at the Windy Hill Road interchange. The existing interchange would be inadequate to handle the future (year 2037) traffic volumes.			
<b>Alternative 1:</b> Traditional Interchange Improvements – Alternative 1 includes the widening and improvement of the Windy Hill Road at I-75 interchange that is currently configured as a partial cloverleaf interchange; and, the grade separation of Leland Drive/Interstate North Parkway at Windy Hill Road with a proposed roadway connection between Leland Drive and Spectrum Circle.			
<b>Estimated Property Impacts:</b>	<b>24 parcels</b>	<b>Estimated Total Cost:</b>	<b>\$34.5 million</b>
<b>Estimated ROW Cost:</b>	<b>\$21.8 million</b>	<b>Estimated CST Time:</b>	<b>2.0 years</b>
<b>Rationale:</b> This alternative would require construction of three additional bridges to accommodate the grade-separations and new capacity of the Windy Hill Road bridge. The construction of this project would require a longer construction period; greater disruption of commercial properties and higher construction costs. The level of service of some traffic movements at the intersection of Circle 75 Parkway/I-75 Southbound Off-Ramp would be LOS E during the peak hours.			
<b>Alternative 2:</b> DDI and Intersection Grade Separations – Alternative 2 includes the reconstruction of the Windy Hill Road at I-75 interchange into a diverging diamond configuration; the grade separation of Leland Drive/Interstate North Parkway at Windy Hill Road with a proposed roadway connection between Leland Drive and Spectrum Circle; and the grade separation of the I-75 Southbound through traffic movement into Circle 75 Parkway. Circle 75 Parkway traffic would be redirected to Corporate Plaza.			
<b>Rationale:</b> The DDI lane configuration would reduce traffic delay and congestion but the grade separations would increase costs, disrupt commercial properties and increase the costs of right-of-way and construction.			
<b>Estimated Property Impacts:</b>	<b>14 parcels</b>	<b>Estimated Total Cost:</b>	<b>\$32 million</b>
<b>Estimated ROW Cost:</b>	<b>\$20 million</b>	<b>Estimated CST Time:</b>	<b>2.0 years</b>
<b>Alternative 3:</b> Rotary and Intersection Grade Separations – Alternative 3 includes the reconstruction of the Windy Hill Road at I-75 interchange into a rotary configuration; the grade separation of Leland Drive/Interstate North Parkway at Windy Hill Road with a proposed roadway connection between Leland Drive and Spectrum Circle and the grade separation of the I-75 Southbound through traffic movement into Circle 75 Parkway. Circle 75 Parkway traffic would be redirected to Corporate Plaza.			
<b>Estimated Property Impacts:</b>	<b>14 parcels</b>	<b>Estimated Total Cost:</b>	<b>\$34 million</b>
<b>Estimated ROW Cost:</b>	<b>\$20 million</b>	<b>Estimated CST Time:</b>	<b>2.5 years</b>
<b>Rationale:</b> The Rotary configuration with grade separations would be very expensive, difficult to construct under traffic, disrupt commercial properties and there would still be failing levels of service within the conflict points of the rotary.			

**Comments:** None

**Attachments:**

1. Concept Layout
2. Typical Section
3. Detailed Cost Estimates
4. Crash Summaries
5. Traffic Diagrams
6. Capacity Analysis Summary
7. Signal Warrant Analysis
8. Bridge Inventory
9. Hydrology Study for MS4 Permit
10. Pavement Studies
11. Conforming plan's network schematics showing thru lanes.
12. Meeting Summaries

**APPROVALS**

Concur:   
Director of Engineering

Approve:   
Chief Engineer

8-4-14  
Date

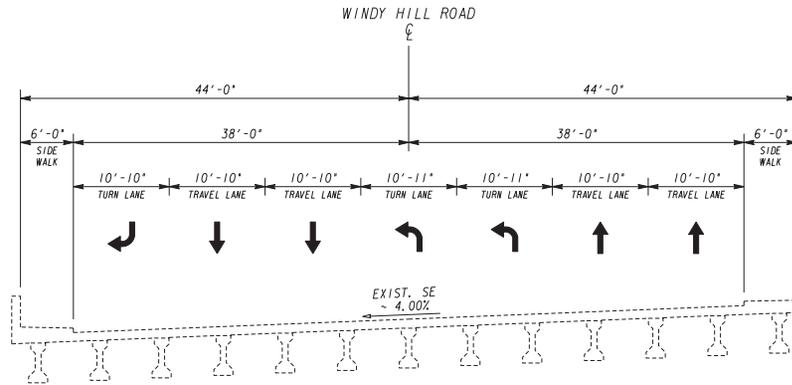
# Attachment 1

## Concept Layout



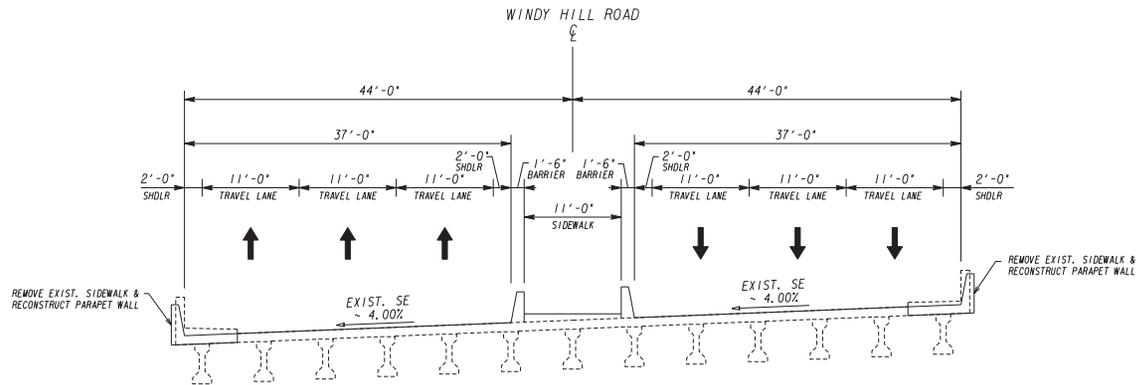
# Attachment 2

## Typical Section



**EXISTING TYPICAL SECTION**

WINDY HILL ROAD  
BRIDGE OVER I-75  
N. T. S.



**PROPOSED TYPICAL SECTION**

WINDY HILL ROAD  
BRIDGE OVER I-75  
N. T. S.



**MA** Moreland Altabelli Associates, Inc.  
(770) 263-5945

DESIGNED BY:  
DRAWN BY:  
CHECKED BY:  
SUPERVISED BY:

REVISION DATES

COBB COUNTY DEPARTMENT OF TRANSPORTATION

OFFICE: TYPICAL SECTION WINDY HILL ROAD DDI

DRAWING No. 5-01

# Attachment 3

## Detailed Cost Estimates

DATE : 11/06/2013

JOB ESTIMATE REPORT

JOB NUMBER : CCID2012 SPEC YEAR: 01  
DESCRIPTION: WINDY HILL DDI

ITEMS FOR JOB CCID2012

ROADWAY ITEMS LINE ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005 009-2000		LS	LANDSCAPING WITH IRRIGATION	1.000	248998.34	248998.34
0010 009-3000		LS	MISCELLANEOUS CONSTRUCTION ALL WALLS	1.000	1449410.37	1449410.37
0015 009-3000		LS	MISCELLANEOUS CONSTRUCTION EARTHWORK	1.000	22242.78	22242.78
0020 150-1000		LS	TRAFFIC CONTROL - WINDY HILL DDI	1.000	440000.00	440000.00
0025 153-1300		EA	FIELD ENGINEERS OFFICE TP 3	1.000	84487.78	84487.78
0030 210-0100		LS	GRADING COMPLETE - WINDY HILL DDI	1.000	470414.69	470414.69
0035 310-1101		TN	GR AGGR BASE CRS, INCL MATL	38810.000	24.16	937649.60
0040 318-3000		TN	AGGR SURF CRS	785.000	15.52	12183.20
0045 402-3121		TN	RECYL AC 25MM SP,GP1/2,BM&HL	18975.000	58.01	1100739.75
0050 402-3130		TN	RECYL AC 12.5MM SP,GP2,BM&HL	3881.000	65.15	252847.15
0055 402-3190		TN	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	6326.000	59.02	373360.52
0060 413-1000		GL	BITUM TACK COAT	3450.000	2.20	7590.00
0065 441-0104		SY	CONC SIDEWALK, 4 IN	5000.000	24.05	120250.00
0070 441-0748		SY	CONC MEDIAN, 6 IN	36491.000	29.37	1071740.67
0075 441-5002		LF	CONC HEADER CURB, 6", TP 2	541.000	14.06	7606.46
0080 441-6222		LF	CONC CURB & GUTTER/ 8"x30"TP2	4873.000	10.46	50971.58
0085 441-6740		LF	CONC CURB & GUTTER/ 8"x30" TP7	4055.000	11.01	44645.55
0090 627-1120		LF	COPING B, WALL NO - ALL WALLS	377.000	209.18	78860.86
0095 641-1100		LF	GUARDRAIL, TP T	67.000	73.14	4900.38
0100 641-1200		LF	GUARDRAIL, TP W	1200.000	18.84	22608.00
0105 641-5001		EA	GUARDRAIL ANCHORAGE, TP 1	3.000	599.37	1798.11
0110 641-5012		EA	GUARDRAIL ANCHORAGE, TP 12	3.000	1850.09	5550.27
0113 681-3600		LP	LIGHTING STD, SPCL DESIGN	1.000	500000.00	500000.00

DRAINAGE ITEMS LINE ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0115 550-1150		LF	STM DR PIPE 15",H 1-10	51.000	35.00	1785.00
0120 550-1180		LF	STM DR PIPE 18",H 1-10	6004.000	27.33	164089.32
0125 550-1181		LF	STM DR PIPE 18",H 10-15	206.000	31.08	6402.48
0130 550-1240		LF	STM DR PIPE 24",H 1-10	3163.000	32.61	103145.43
0135 550-1360		LF	STM DR PIPE 36",H 1-10	130.000	66.63	8661.90
0140 550-4218		EA	FLARED END SECT 18 IN, ST DR	3.000	506.94	1520.82
0145 603-2181		SY	STN DUMPED RIP RAP, TP 3, 18"	28.000	37.61	1053.08
0150 668-1100		EA	CATCH BASIN, GP 1	78.000	1915.74	149427.72
0155 668-1110		LF	CATCH BASIN, GP 1, ADDL DEPTH	32.000	160.93	5149.76
0160 668-2100		EA	DROP INLET, GP 1	25.000	1559.85	38996.25
0165 668-2110		LF	DROP INLET, GP 1, ADDL DEPTH	32.000	170.63	5460.16
0170 668-3300		EA	SAN SEW MANHOLE, TP 1	29.000	2577.78	74755.62
0175 668-3311		LF	SS MANHOLE,TP 1,A DEPTH,CL 1	25.000	369.20	9230.00

EROSION CONTROL ITEMS LINE ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0180 163-0232		AC	TEMPORARY GRASSING	4.000	466.75	1867.00
0185 163-0240		TN	MULCH	95.000	203.71	19352.45
0190 163-0300		EA	CONSTRUCTION EXIT	4.000	1029.94	4119.76
0195 163-0501		EA	CONSTR AND REMOVE SILT CONTROL GATE,TP 1	3.000	561.88	1685.64
0200 163-0529		LF	CNST/REM TEMP SED BAR OR BLD STRW CK DM	302.000	3.70	1117.40
0205 163-0550		EA	CONS & REM INLET SEDIMENT TRAP	118.000	100.73	11886.14
0210 165-0010		LF	MAINT OF TEMP SILT FENCE, TP A	17324.000	0.44	7622.56
0215 165-0030		LF	MAINT OF TEMP SILT FENCE, TP C	601.000	0.79	474.79
0220 165-0085		EA	MAINT OF SILT CONTROL GATE, TP 1	3.000	160.32	480.96
0225 165-0101		EA	MAINT OF CONST EXIT	15.000	577.61	8664.15
0230 165-0105		EA	MAINT OF INLET SEDIMENT TRAP	118.000	51.43	6068.74
0235 171-0010		LF	TEMPORARY SILT FENCE, TYPE A	8662.000	1.37	11866.94
0240 171-0030		LF	TEMPORARY SILT FENCE, TYPE C	302.000	2.74	827.48
0245 455-1000		SY	FILTER FAB/EMBANKMENT STAB	28.000	6.19	173.32
0250 700-6910		AC	PERMANENT GRASSING	9.000	607.66	5468.94
0255 700-7000		TN	AGRICULTURAL LIME	22.000	89.61	1971.42
0260 700-8000		TN	FERTILIZER MIXED GRADE	6.000	401.93	2411.58
0265 700-8100		LB	FERTILIZER NITROGEN CONTENT	294.000	1.85	543.90

TRAFFIC ITEMS LINE ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0270 610-6515		EA	REM HIGHWAY SIGN, STD	6.000	83.43	500.58
0275 611-5360		EA	RESET HIGHWAY SIGN	3.000	142.71	428.13
0280 636-1020		SF	HWY SGN,TP1MAT,REFL SH TP3	386.000	13.05	5037.30
0285 636-1033		SF	HWY SIGNS, TP1MAT,REFL SH TP 9	581.000	17.63	10243.03
0290 636-1070		SF	HWY SIGNS, ALUM E PLNS RS TP 2	660.000	34.10	22506.00
0295 636-2070		LF	GALV STEEL POSTS, TP 7	166.000	8.20	1361.20
0300 636-2080		LF	GALV STEEL POSTS, TP 8	1757.000	8.30	14583.10
0305 636-5010		EA	DELINEATOR, TP 1	25.000	32.40	810.00
0310 636-5020		EA	DELINEATOR, TP 2	9.000	47.02	423.18
0315 638-1005		LS	STR SUP OVHD SIGN, TP V STA - WINDY HILL DDI	1.000	136812.28	136812.28
0320 639-2002		LF	STEEL WIRE STRAND CABLE, 3/8"	315.000	3.31	1042.65
0325 639-4002		EA	STRAIN POLE, TP II	5.000	5571.97	27859.85
0330 639-4003		EA	STRAIN POLE, TP III	5.000	5703.11	28515.55
0335 653-0110		EA	THERM PVMT MARK, ARROW, TP 1	11.000	68.97	758.67
0340 653-0120		EA	THERM PVMT MARK, ARROW, TP 2	114.000	68.27	7782.78
0345 653-0130		EA	THERM PVMT MARK, ARROW, TP 3	11.000	79.52	874.72
0350 653-0210		EA	THERM PVMT MARK, WORD, TP 1	25.000	101.04	2526.00
0355 653-1501		LF	THERMO SOLID TRAF ST 5 IN, WHI	32930.000	0.37	12184.10
0360 653-1502		LF	THERMO SOLID TRAF ST, 5 IN YEL	21954.000	0.38	8342.52
0365 653-1704		LF	THERM SOLID TRAF STRIPE,24",WH	1319.000	4.01	5289.19
0370 653-1804		LF	THERM SOLID TRAF STRIPE, 8",WH	12075.000	1.81	21855.75
0375 653-1810		LF	THER SLD TRAF STRIPE, 10 IN, W	57.000	2.13	121.41
0380 653-3501		GLF	THERMO SKIP TRAF ST, 5 IN, WHI	25247.000	0.25	6311.75
0385 653-6004		SY	THERM TRAF STRIPING, WHITE	550.000	3.06	1683.00
0390 653-6006		SY	THERM TRAF STRIPING, YELLOW	220.000	3.23	710.60

CES Report-added lighting.txt						
0395	654-1001	EA	RAISED PVMT MARKERS TP 1	166.000	3.68	610.88
0400	654-1003	EA	RAISED PVMT MARKERS TP 3	770.000	3.26	2510.20
0405	655-5000	EA	PVMT ARROW THERM W/R REFLECTOR	5.000	348.13	1740.65
0410	657-1085	LF	PRF PL SD PVT MKG, 8", B/W, TP PB	1569.000	5.82	9131.58
0415	657-3085	GLF	PRF PL SK PVMT MKG, 8", B/W,TPPB	1099.000	2.99	3286.01
0420	657-5003	EA	PRF PLASTIC PVMT MKG, WORD TP 1, TP PB	6.000	514.58	3087.48
0425	657-5017	EA	PRF PL PVT MKG,ARW TP2,WH,TPPB	9.000	495.85	4462.65
0430	657-7085	LM	PRF PL SD PVMT MKG, 8", B/Y,TPPB	0.120	25876.69	3105.20
0435	615-1100	LF	DIRECTIONAL BORE PIPE - WINDY HILL DDI	1789.000	9.90	17711.10
0440	639-4004	EA	STRAIN POLE, TP IV	24.000	5498.80	131971.20
0445	647-1000	LS	TRAF SIGNAL INSTALLATION NO - WINDY HILL DDI	1.000	600000.00	600000.00
0450	647-2160	EA	PULL BOX, PB-6	15.000	1023.70	15355.50
0455	647-2170	EA	PULL BOX, PB-7	8.000	1246.44	9971.52
0460	682-6140	LF	CONDUIT, RIGID, 4 IN	550.000	15.91	8750.50
0465	682-6233	LF	CONDUIT, NONMETL, TP 3, 2 IN	7058.000	3.39	23926.62
0470	687-1000	LS	TRAFFIC SIGNAL TIMING - WINDY HILL DDI	1.000	25779.15	25779.15
0475	935-1113	LF	OUT PLNT FBR OPT CBL, LOOSE TB, SM, 24 FBR	7842.000	1.68	13174.56
0476	935-3103	EA	FIBER OPTIC CLOSURE, UNDRGRD, 24 FBR	8.000	648.24	5185.92
0480	935-4010	EA	FIBER OPTIC SPLICE, FUSION	26.000	50.26	1306.76
0485	935-8000	LS	TESTING	1.000	4389.75	4389.75
0490	937-6050	EA	INT VIDEO DET SYS ASMBLY, TP A	24.000	4597.75	110346.00
0495	937-8010	LS	TESTING - VIDEO DETECTION SYSTEM	1.000	1800.00	1800.00
0500	939-2305	EA	FIELD SWITCH, TYPE C	8.000	2148.72	17189.76

BRIDGE ITEMS							
LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0505	540-1202		LS	REM OF PARTS OF EX BR, BR NO - (REM S/W-RECONSTR BARRIER)	1.000	400000.00	400000.00
0510	543-1500		LS	REPAIR OF BRIDGE - COMPLETE (SIDEWALK, DRAINAGE, BARRIERS)	1.000	100000.00	100000.00

ITEM TOTAL 9798493.10  
 INFLATED ITEM TOTAL 9798493.10

TOTALS FOR JOB CCID2012

ESTIMATED COST: 9798493.10  
 CONTINGENCY PERCENT ( 0.0 ): 0.00  
 ESTIMATED TOTAL: 9798493.10

*E&I 5%*      489,924.65  
 Total      1,072,887,417.75      *27X*

# CONTINGENCY SUMMARY

<b>A. CONSTRUCTION COST ESTIMATE:</b>	\$	9,798,493.00	Base Estimate From CES	
<b>B. ENGINEERING AND INSPECTION (E &amp; I):</b>	\$	489,924.65	Base Estimate (A) x	5 %
<b>C. CONTINGENCY:</b>	\$	1,028,841.77	Base Estimate (A) + E & I (B) x	10 %
			<a href="#">See % Table in "Risk Based Cost Estimation" Memo</a>	
<b>D. TOTAL LIQUID AC ADJUSTMENT:</b>	\$	499,793.84	Total From Liquid AC Spreadsheet	
<b>E. CONSTRUCTION TOTAL:</b>	\$	11,817,053.26	(A + B + C + D = E) PUVÒ	


" *****	
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PROJ. NO.

Windy Hill Road DDI

CALL NO.

P.I. NO.

0012774

DATE

11/12/2013

INDEX (TYPE)

DATE INDEX

REG. UNLEADED

Nov-13 \$ 3.221

DIESEL

\$ 3.823

LIQUID AC

\$ 565.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

Asphalt

Price Adjustment (PA)				<b>494770.5</b>	\$	<b>494,770.50</b>
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	904.00		
Monthly Asphalt Cement Price month project let (APL)			\$	565.00		
Total Monthly Tonnage of asphalt cement (TMT)				1459.5		

ASPHALT	Tons	%AC	AC ton
Leveling	0	5.0%	0
12.5 OGFC		5.0%	0
12.5 mm	3880	5.0%	194
9.5 mm SP		5.0%	0
25 mm SP	18980	5.0%	949
19 mm SP	6330	5.0%	316.5
	<b>29190</b>		<b>1459.5</b>

BITUMINOUS TACK COAT

Price Adjustment (PA)				\$	<b>5,023.34</b>	\$	<b>5,023.34</b>
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	904.00			
Monthly Asphalt Cement Price month project let (APL)			\$	565.00			
Total Monthly Tonnage of asphalt cement (TMT)							14.81809818

Bitum Tack

Gals	gals/ton	tons
3450	232.8234	14.8180982

PROJ. NO.

Windy Hill Road DDI

CALL NO.

P.I. NO.

0012774

DATE

11/12/2013

**BITUMINOUS TACK COAT (surface treatment)**

Price Adjustment (PA)						<b>0</b>	\$	-
Monthly Asphalt Cement Price month placed (APM)		Max. Cap	60%	\$	904.00			
Monthly Asphalt Cement Price month project let (APL)				\$	565.00			
Total Monthly Tonnage of asphalt cement (TMT)						0		

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.	0.00	0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

<b>TOTAL LIQUID AC ADJUSTMENT</b>							\$	<b>499,793.84</b>
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GEORGIA DEPARTMENT OF TRANSPORTATION  
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 6/13/2014 Project: Windy Hill Rd DDI  
 Revised: County: Cobb  
 PI: 0012774

Description: Windy Hil Road DDI Reconstruction  
 Project Termini: Windy Hil Road @ Interstate 75 Interchange

Existing ROW: Varies  
 Required ROW: Varies  
 Parcels: 8

Land and Improvements \$4,830,930.00

Proximity Damage	\$0.00
Consequential Damage	\$600,000.00
Cost to Cures	\$0.00
Trade Fixtures	\$100,000.00
Improvements	\$800,000.00

Valuation Services \$20,000.00

Legal Services \$80,400.00

Relocation \$31,000.00

Demolition \$25,000.00

Administrative \$73,500.00

TOTAL ESTIMATED COSTS \$5,060,830.00

**TOTAL ESTIMATED COSTS (ROUNDED) \$5,061,000.00**

Preparation Credits	Hours	Signature
Benjamin M. Garland Jr.	8	
Michael H. Yee	8	

Prepared By: CG#: 02 270320 6/13/14  
 Approved By: CG#: 286999 07/01/2014 (E)

NOTE: No Market Appreciation is included in this Preliminary Cost Estimate

**Utility Cost Estimate - P.I. No. 0012774 (Cobb), I-75/Windy Hill Road Diverging Diamond Interchange**

**Windy Hill Road Cost Estimate - Corporate Plaza to Rottenwood Creek Bridge**

Utility	Quantity	Unit	Cost per unit	Non-Reimbursable Cost	Reimbursable Cost
<b>MEAG</b>	3	Mono pole Struct	\$75,000.00		\$225,000.00
<b>Georgia Power Distribution</b>	5	Pole	\$30,000.00		\$150,000.00
<b>CATV (Aerial)</b>	2485	Feet	\$8.00	\$19,880.00	
1 Coax & 1 Fiber					
<b>AT&amp;T Distribution</b>					
Underground Duct	750	Feet	\$235.00	\$176,250.00	
Underground Cable	1150	Feet	\$55.00	\$63,250.00	
Overhead 3 wires	1565	Feet	\$65.00	<u>\$101,725.00</u>	
2 Attachments				\$341,225.00	
<b>Verizon/MCI</b>					
Aerial/Underground	1565	Feet	\$15.00	\$23,475.00	
<b>Atlanta Gas Light</b>					
6 in HP STL	220	Feet	\$60.00	\$13,200.00	
4 in MP HDPE	50	Feet	\$24.00	\$1,200.00	
Stoppie valves	8	Ea	\$7,500.00	\$60,000.00	
Gas Service conn	18	Ea	\$2,000.00	<u>\$36,000.00</u>	
				\$110,400.00	
<b>Water</b>					
All other size DIP	490	Feet	\$68.00	\$33,320.00	
Long side feeds	3	Ea	\$1,500.00	\$4,500.00	
Short side feeds	2	Ea	\$750.00	\$1,500.00	
vaults relo or new	1	Ea	\$6,500.00	\$6,500.00	
wet cut ins	3	Ea	\$4,000.00	\$12,000.00	
fire hydrants	4	Ea	\$5,600.00	\$22,400.00	
Relo Fire Hyd	5	Ea	\$2,100.00	\$10,500.00	
adjust valve boxes	15	Ea	\$600.00	\$9,000.00	
Class "B" Concrete	10	Cyd	\$275.00	<u>\$2,750.00</u>	
				\$102,470.00	
<b>Sanitary Sewer</b>					
Sanitary Sewer MH	3	Ea	\$10,300.00	\$30,900.00	
Adjust SS MH	22	Ea	\$650.00	<u>\$14,300.00</u>	
				\$45,200.00	
<b>Subtotals</b>				<b>\$642,650.00</b>	<b>\$375,000.00</b>
<b>Total Utility Costs</b>				<b>\$1,017,650.00</b>	

# Attachment 4

## Crash Summaries

## Crash Summaries

Traffic crash data was also obtained from the Georgia Department of Transportation for the years 2006-2008. Historical crash and injury rates were calculated based on 2006, 2007, and 2008 data, as shown in the Table 1 for the Windy Hill Road Interchange. The table also shows statewide average crash and injury rates corresponding to an urban minor arterial, the functional classification of Windy Hill Road.

The analysis shows that the crash rates on the Windy Hill Road Interchange are above the statewide average rates for the most recent three years available. Also, the injury rates exceed the statewide average rates for all three years. The crash rate and injury rates are very high because the crashes are occurring at a concentrated area. Usually the crash and injury rates are calculated for roadway segments of 1 mile or greater.

**Table 1: Crash and Injury Rates for 2006-2008**  
Windy Hill Road from Corporate Plaza to Interstate North Parkway (Urban Minor Arterial 0.33 miles)

Year	No. of Crashes	Crash Rate	Statewide Crash Rate	No. of Injuries	Injury Rate	Statewide Injury Rate
2006	158	4116	531	12	313	132
2007	171	4662	413	8	218	106
2008	182	5272	383	29	840	99

The types of crashes that are occurring at the Windy Hill Road Interchange area are summarized in Table 2. The type of crashes occurring generally has a direct correlation to the level of traffic congestion on the roadway facility. Rear-end collisions are indicative of traffic congestion. Improvement in traffic delays could reduce the number of crashes at the interchange area. The two intersections of the Windy Hill Road Interchange are among the top ten intersections in Cobb County with the highest number of crashes.

**Table 2: Summary of Type of Crashes for Windy Hill Road Interchange Area**

Windy Hill Road at Circle 75 Pkwy/I-75 SB Ramps					
Year	Totals	Angle	Rear-end	Sideswipe	Other Collision
2006	80	23	41	14	2
2007	99	20	64	9	6
2008	89	19	54	12	4
Totals	268	62	159	35	12
%	100%	23%	59%	13%	5%
Windy Hill Road at I-75 NB Ramps					
Year	Totals	Angle	Rear-end	Sideswipe	Other Collision
2006	78	9	52	13	4
2007	72	7	49	11	5
2008	93	9	56	18	10
Totals	243	25	157	42	19
%	100%	10%	65%	17%	8%

# Attachment 5

## Traffic Diagrams

# Department of Transportation State of Georgia

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## INTERDEPARTMENT CORRESPONDENCE

**FILE** Cobb County  
P.I. # 0010005

**OFFICE** Planning

**DATE** March 22, 2013

**FROM** Cynthia L. VanDyke, State Transportation Planning Administrator

**TO** Genetha Rice-Singleton, State Program Delivery Engineer  
**Attention:** Ryan Fernandez

**SUBJECT** Design Traffic Review for WINDY HILL – EAST & WEST SIDE IMPROVEMENTS.

We have reviewed the consultant's traffic data for the above project. The Design Traffic is approved.

If you have any questions concerning this information, please contact Rhonda Niles at (404) 631-1924.

CLV/RFN

# Department of Transportation State of Georgia

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## INTERDEPARTMENT CORRESPONDENCE

**FILE** Cobb County  
P.I. # 0012774

**OFFICE** Planning

**DATE** June 13, 2014

**FROM** Cynthia L. VanDyke, State Transportation Planning Administrator

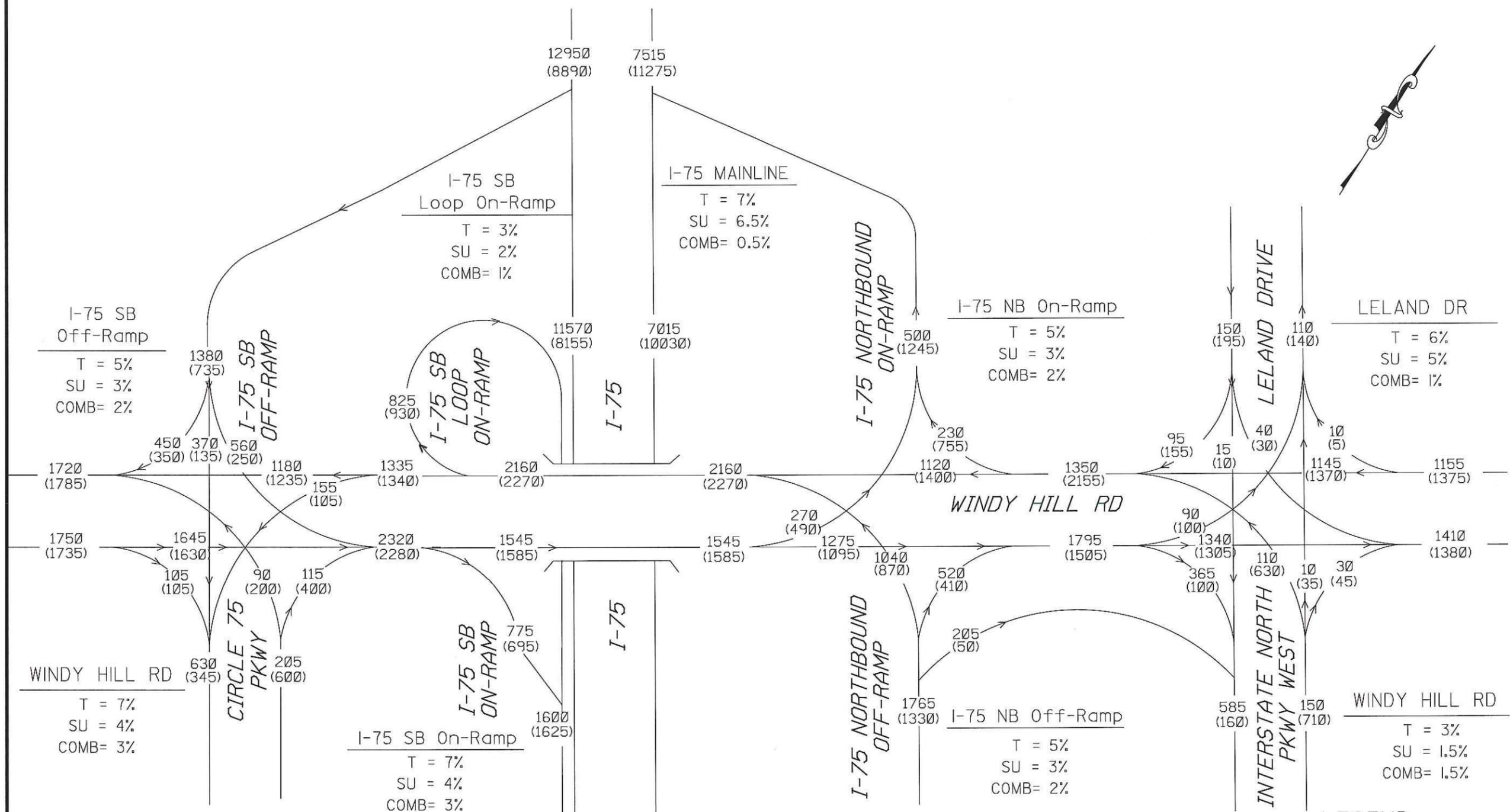
**TO** Albert Shelby, Program Delivery Engineer  
**Attention:** Ryan Fernandez

**SUBJECT** **Reviewed Design Traffic Methodology** for I-75 @ CR 7958/WINDY HILL  
RD - DIVERGING DIAMOND INTERCHANGE

As per your request, we reviewed the consultant's **Design Traffic Methodology** for the above project.

The **Design Traffic Methodology** is approved based on the information furnished. Any questions concerning this review should be addressed to Abby Ebodaghe (404) 631-1923.

CLV/afe



**LEGEND**  
00 AM PEAK HOUR  
(00) PM PEAK HOUR

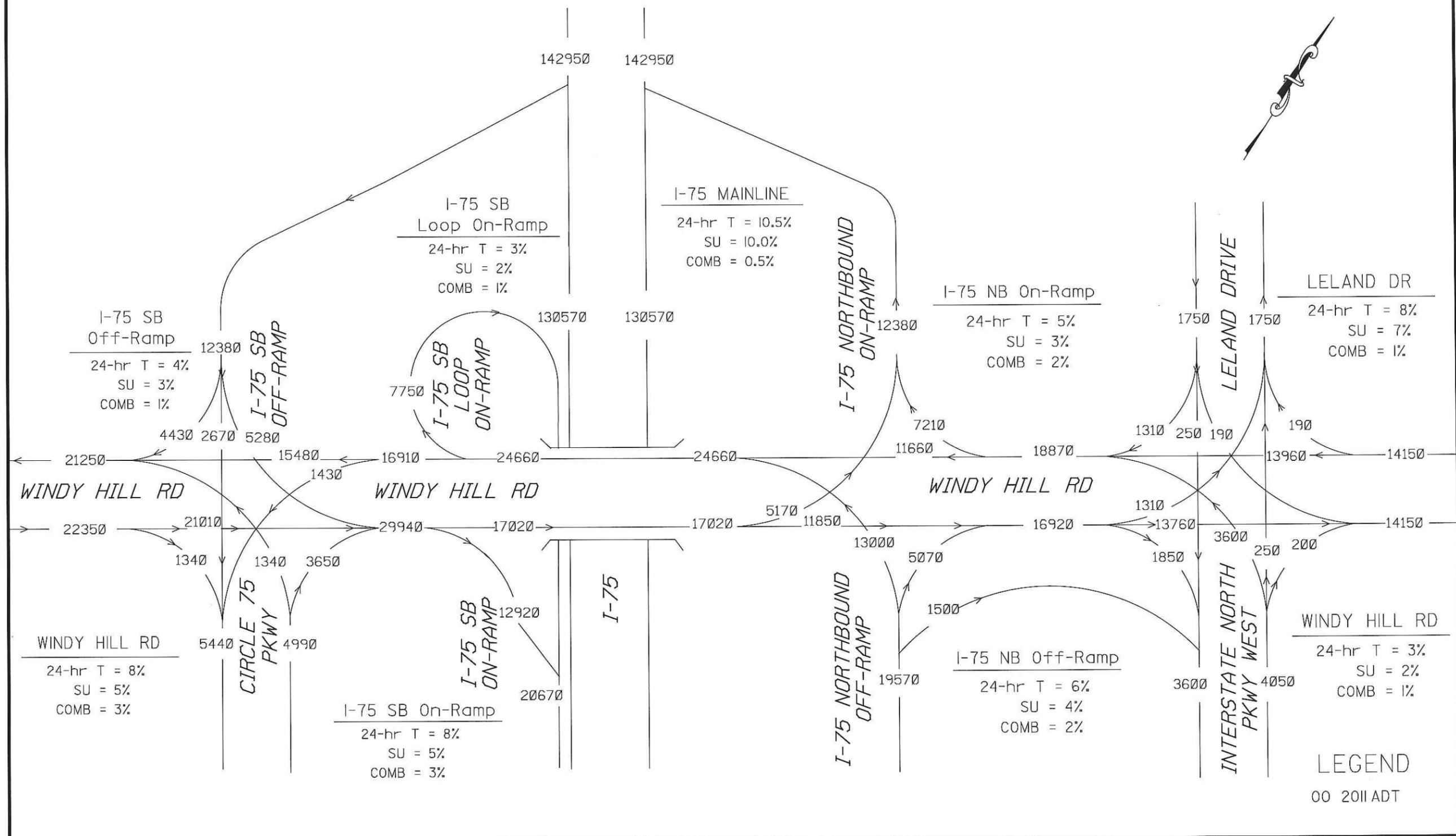
**MA**  
Moreland Altobelli  
Associates, Inc.  
2211 Beaver Run Road  
Suite 190  
Narcross, Georgia 30071  
Telephone (770) 263-5945

P. I. No. 0012774  
Cobb County, Georgia

REVISION DATES	

**TRAFFIC DIAGRAM**  
I-75 AT CR 7958/WINDY HILL ROAD  
DIVERGING DIAMOND INTERCHANGE  
EXISTING YEAR 2011  
PEAK HOUR TRAFFIC

DRAWING No.  
**10-001**



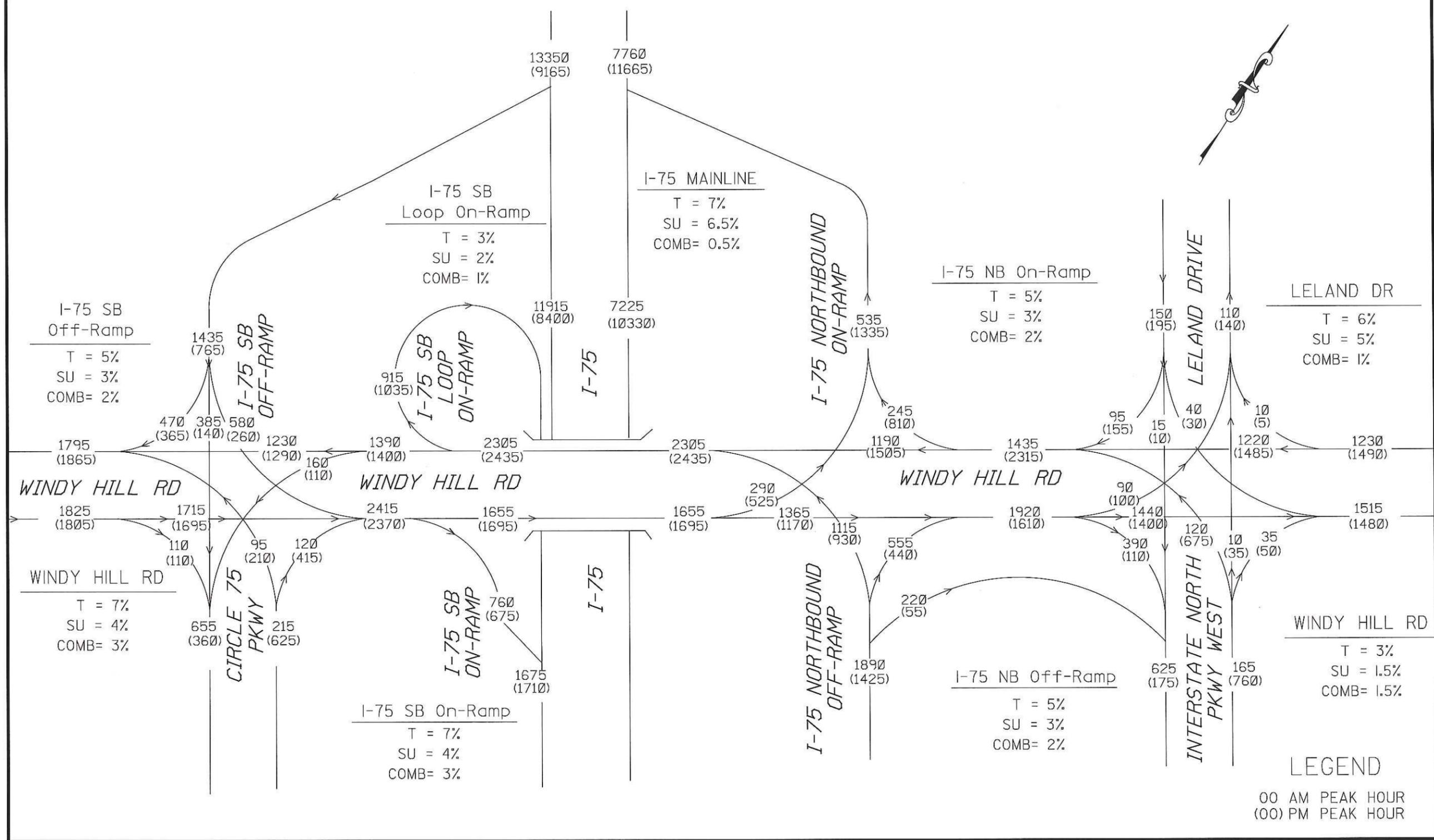
**MA** Moreland Altobelli Associates, Inc.  
2211 Beaver Run Road  
Suite 190  
Norcross, Georgia 30071  
Telephone (770) 263-5945

P. I. No. 0012774  
Cobb County, Georgia

REVISION DATES	

**TRAFFIC DIAGRAM**  
I-75 AT CR 7958/WINDY HILL ROAD  
DIVERGING DIAMOND INTERCHANGE  
EXISTING YEAR 2011  
AVERAGE DAILY TRAFFIC

DRAWING No.  
**10-002**



**LEGEND**

00 AM PEAK HOUR  
00 PM PEAK HOUR

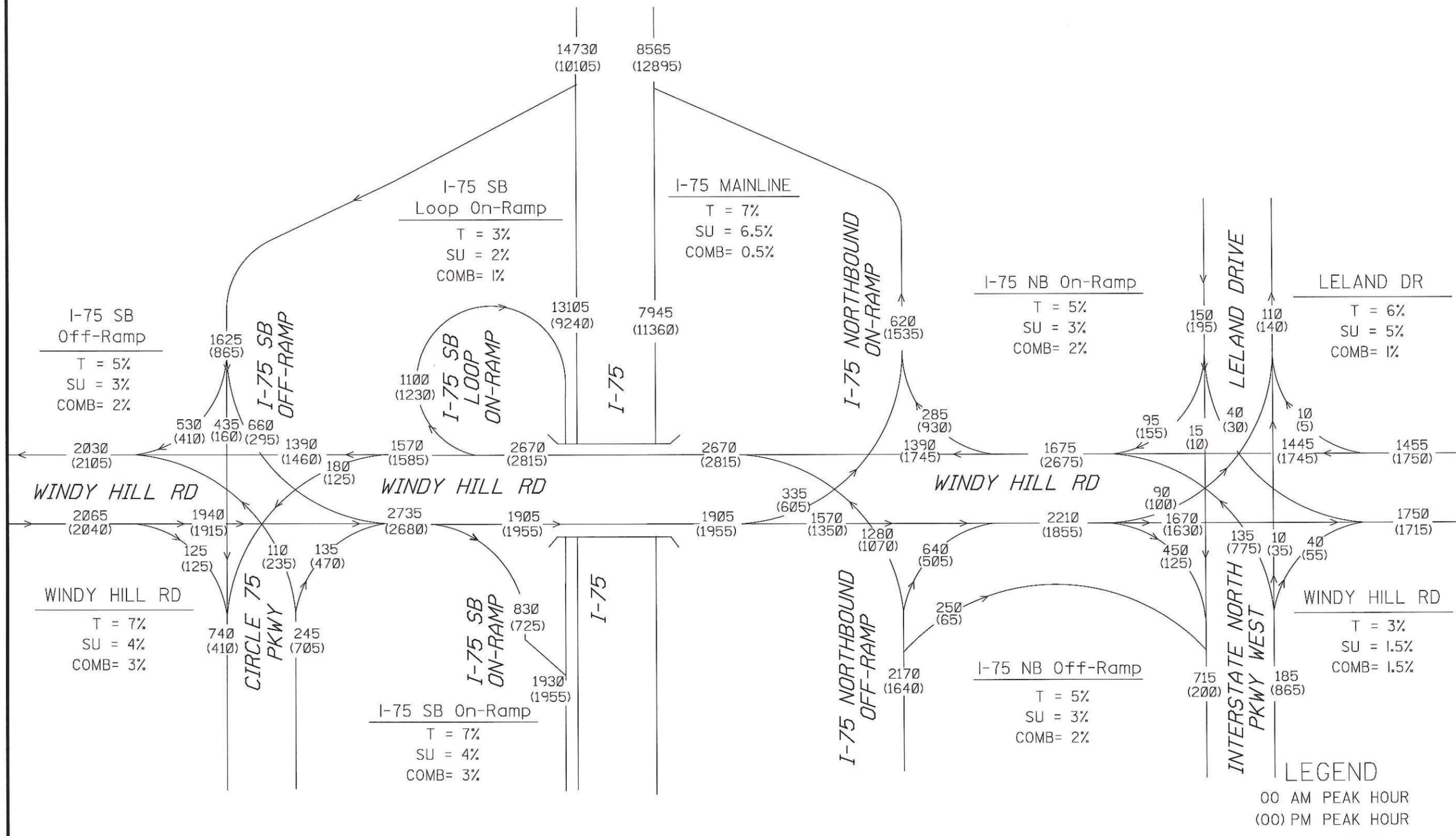


P. I. No. 0012774  
Cobb County, Georgia

REVISION DATES	

**TRAFFIC DIAGRAM**  
I-75 AT CR 7958/WINDY HILL ROAD  
DIVERGING DIAMOND INTERCHANGE  
YEAR 2017 NO-BUILD  
DESIGN HOUR TRAFFIC

DRAWING No. 10-003



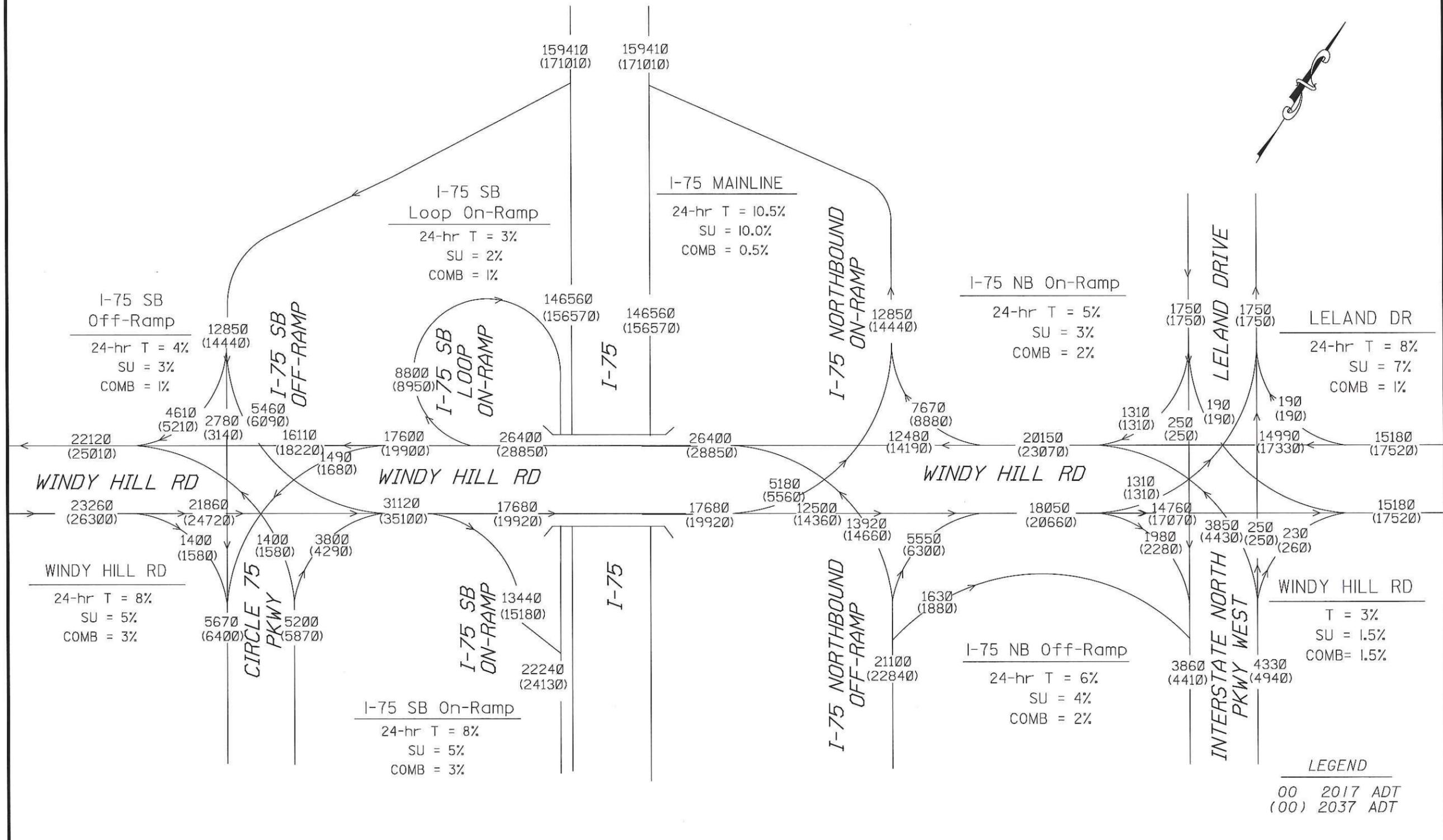
**MA** Moreland Altobelli Associates, Inc.  
2211 Beaver Run Road  
Suite 190  
Norcross, Georgia 30071  
Telephone (770) 263-5945

P. I. No. 0012774  
Cobb County, Georgia

REVISION DATES		

**TRAFFIC DIAGRAM**  
I-75 AT CR 7958/WINDY HILL ROAD  
DIVERGING DIAMOND INTERCHANGE  
YEAR 2037 NO-BUILD  
DESIGN HOUR TRAFFIC

DRAWING No. 10-004



LEGEND  
00 2017 ADT  
(00) 2037 ADT

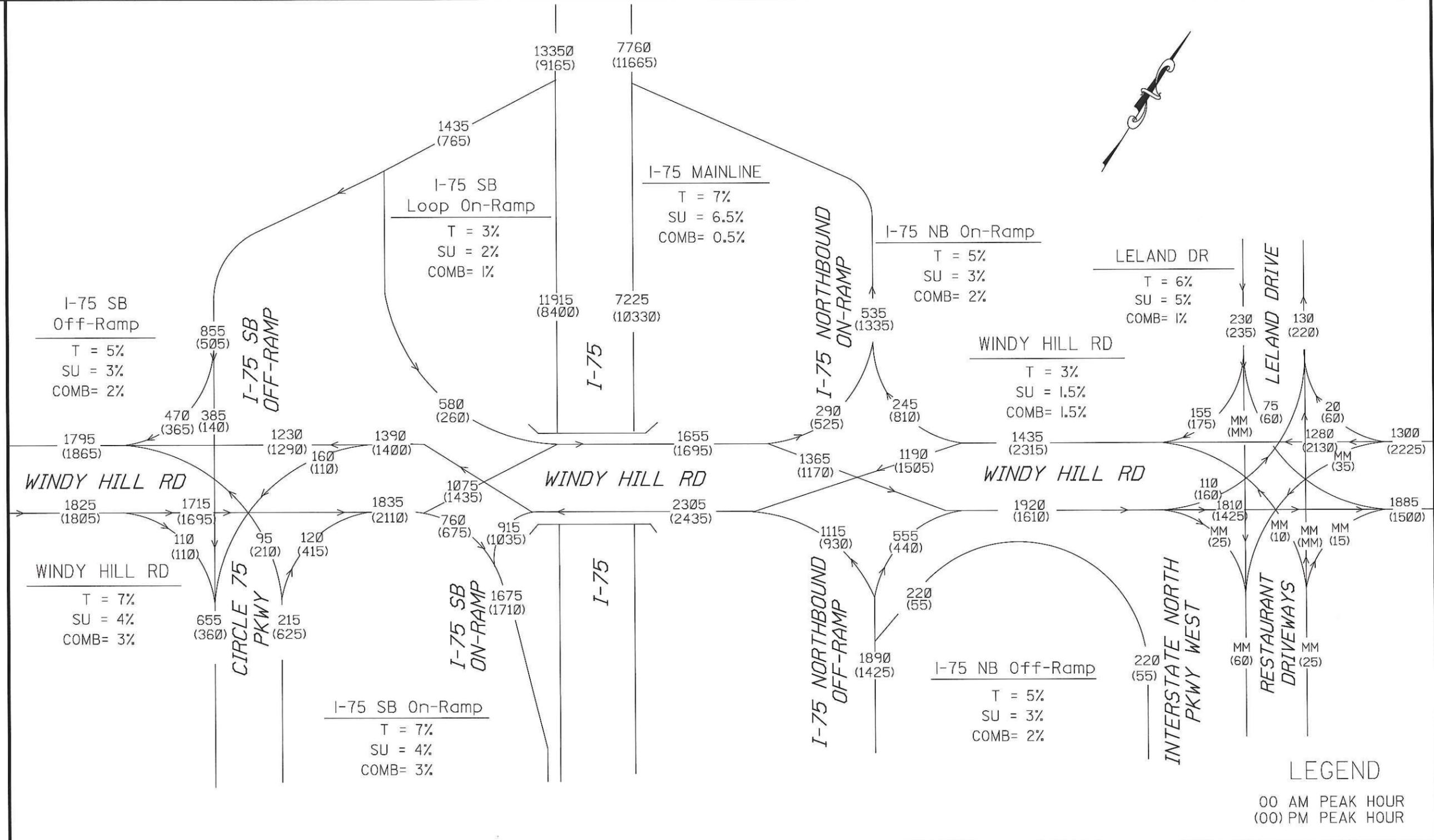
**MA** Moreland Altobelli Associates, Inc.  
2211 Beaver Run Road  
Suite 190  
Norcross, Georgia 30071  
Telephone (770) 263-5945

P. I. No. 0012774  
Cobb County, Georgia

REVISION DATES	

**TRAFFIC DIAGRAM**  
I-75 AT CR 7958/WINDY HILL ROAD  
DIVERGING DIAMOND INTERCHANGE  
YEAR 2017/2037 NO-BUILD  
AVERAGE DAILY TRAFFIC

DRAWING No.  
**10-005**



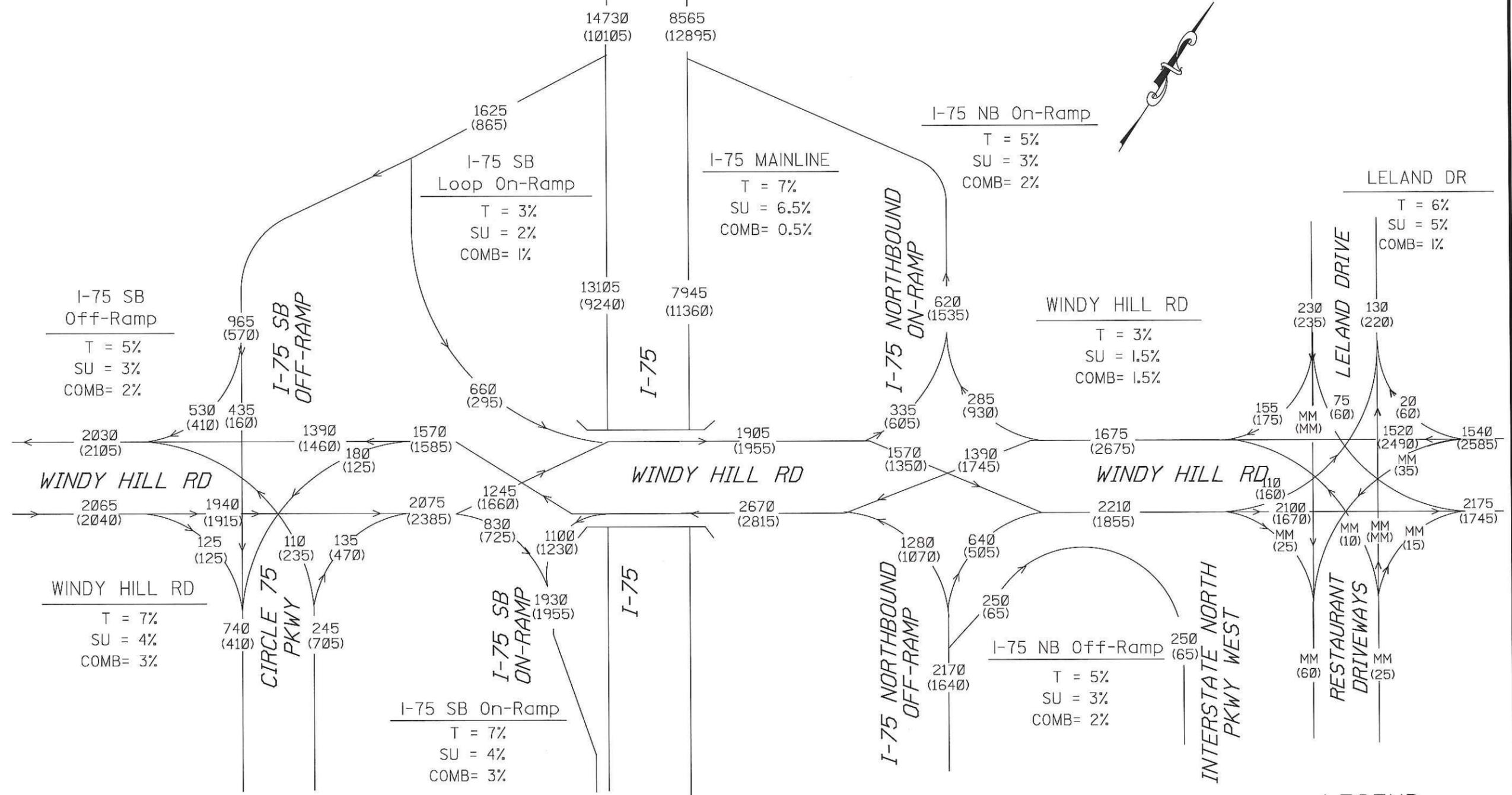
**MA** Moreland Altobelli Associates, Inc.  
 2211 Beaver Run Road  
 Suite 190  
 Norcross, Georgia 30071  
 Telephone (770) 263-5945

P. I. No. 0012774  
 Cobb County, Georgia

REVISION DATES	

**TRAFFIC DIAGRAM**  
 I-75 AT CR 7958/WINDY HILL ROAD  
 DIVERGING DIAMOND INTERCHANGE  
 YEAR 2017 BUILD  
 DESIGN HOUR TRAFFIC

DRAWING No. 10-006



**LEGEND**  
 OO AM PEAK HOUR  
 (OO) PM PEAK HOUR

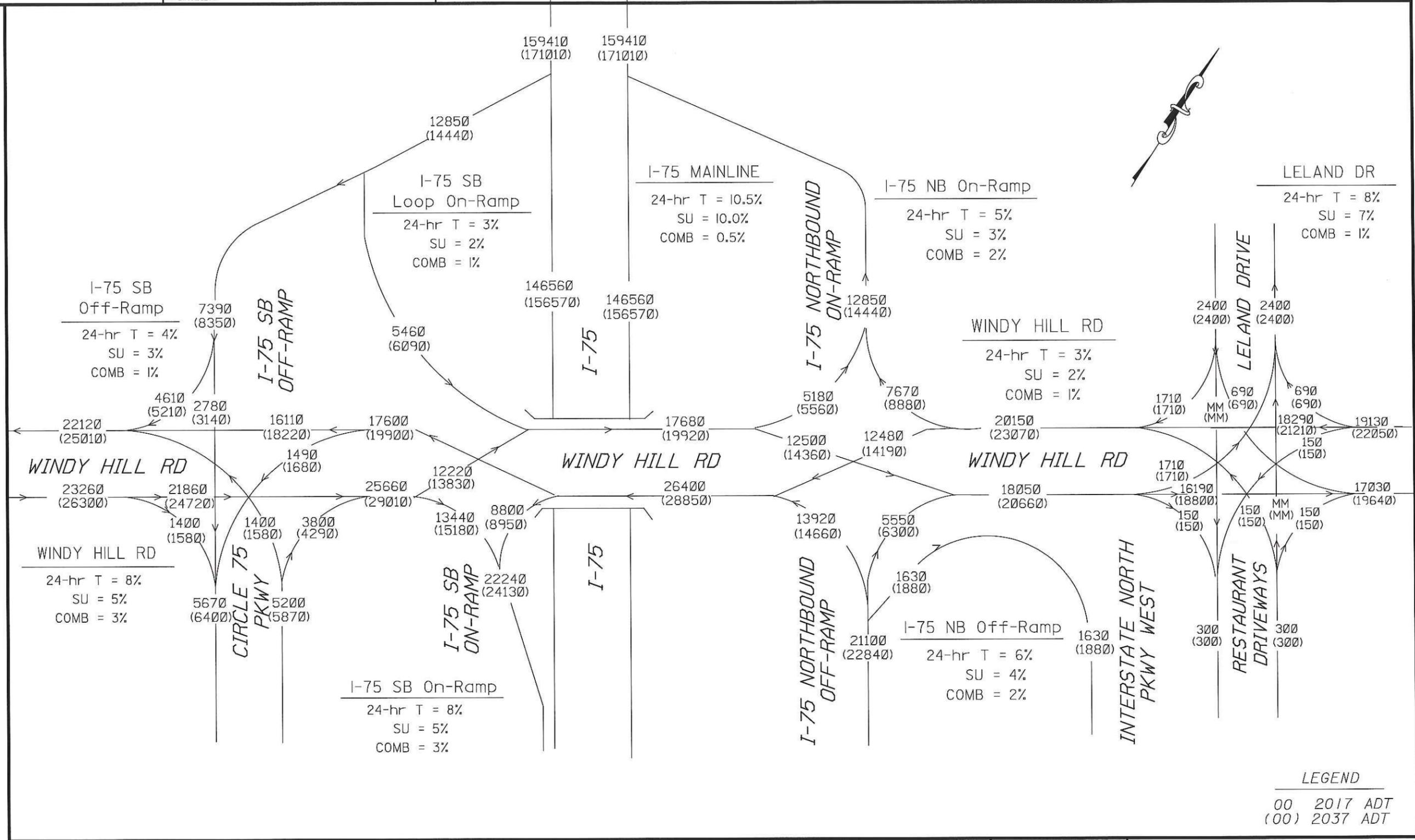
**MA** Moreland Altobelli Associates, Inc.  
 2211 Beaver Run Road  
 Suite 190  
 Norcross, Georgia 30071  
 Telephone (770) 263-5945

P. I. No. 0012774  
 Cobb County, Georgia

REVISION DATES	

**TRAFFIC DIAGRAM**  
 I-75 AT CR 7958/WINDY HILL ROAD  
 DIVERGING DIAMOND INTERCHANGE  
 YEAR 2037 BUILD  
 DESIGN HOUR TRAFFIC

DRAWING No. 10-007



LEGEND  
 00 2017 ADT  
 (00) 2037 ADT

**MA** Moreland Altobelli Associates, Inc.  
 2211 Beaver Run Road  
 Suite 190  
 Norcross, Georgia 30071  
 Telephone (770) 263-5945

P. I. No. 0012774  
 Cobb County, Georgia

REVISION DATES	

**TRAFFIC DIAGRAM**  
 I-75 AT CR 7958/WINDY HILL ROAD  
 DIVERGING DIAMOND INTERCHANGE  
 YEAR 2017/2037 BUILD  
 AVERAGE DAILY TRAFFIC

DRAWING No.  
**10-008**

**Attachment 6**  
**Capacity Analysis Summary**

## Capacity Analysis Summary Windy Hill Road DDI

Intersections	Peak	Approach	Existing Condition		Future Condition (No-Build Windy Hill Road)		Future Condition (DDI + Intersection Relocation of Leland and Circle 75)	
			2011		2037		2037	
			per approach	overall	per approach	overall	per approach	overall
Windy Hill Road at I-75 SB Off Ramp /(Circ. 75)	AM	WB	B (15)	E (75.9)	B (14.1)	D (46.2)	C (21.9)	B (19.8)
		EB	C (27.3)		E (64.7)		C (23.5)	
		SB	F (173.4)		F (112.8)		B (15.2)	
		NB	E (62.2)		E (60.4)		B (19.4)	
	PM	WB	B (13.7)	D (39.6)	B (17.9)	E (56.3)	C (26.6)	C (26.0)
		EB	C (34.8)		F (94.1)		D (35.8)	
		SB	E (55.9)		C (33.6)		B (18.1)	
		NB	E (71.9)		E (61.1)		B (12.2)	
Windy Hill Road at DDI (west side)	AM	WB	n/a	n/a	n/a	n/a	B (17.9)	B (16.3)
		EB	n/a		n/a		B (16.3)	
		SB	n/a		n/a		B (11.4)	
	PM	WB	n/a	n/a	n/a	n/a	C (28.3)	C (20.3)
		EB	n/a		n/a		B (14.7)	
		SB	n/a		n/a		A (9.7)	
Windy Hill Road at I-75 NB Ramps (or DDI east side)	AM	WB	E (74)	E (75.0)	C (22.4)	D (37.4)	B (15.7)	B (17.7)
		EB	A (8.4)		B (16.2)		B (11.9)	
		NB	F (127.6)		E (71.8)		C (26.7)	
	PM	WB	E (60.7)	F (100.2)	B (18.3)	D (50.0)	B (12.3)	B (17.6)
		EB	C (20.2)		C (30.1)		A (7.8)	
		NB	F (271.4)		F (150.9)		C (28.0)	
Windy Hill Road at Leland Dr. Interstate North Parkway W. (or Restaurants Driveways with DDI)	AM	WB	E (63.7)	C (31.2)	B (16.7)	B (11.9)	A (0.0)	A (6.5)
		EB	A (8.4)		A (4.2)		A (4.4)	
		SB	D (53)		D (36.9)		A (7.4)	
		NB	E (76.5)		D (52.1)		C (20.4)	
	PM	WB	F (85.1)	F (89.7)	C (27.6)	E (55.1)	C (29.0)	B (12.3)
		EB	C (20.2)		A (11.2)		A (7.4)	
		SB	F (132.3)		C (31.0)		B (15.0)	
		NB	F (230.1)		F (288.2)		B (18.3)	

# Attachment 7

## Signal Warrant Analysis

# TRAFFIC SIGNAL WARRANT STUDY

## Windy Hill Road at DDI SB Crossover

2017 Traffic Volumes - no right-turns

### Signal Warrants - Summary

---

#### Major Street Approaches

**Eastbound: Windy Hill Road EB**

Number of Lanes: 2  
85% Speed < 40 MPH.  
Total Approach Volume: 12,221

**Westbound: Windy Hill Road**

Number of Lanes: 2  
85% Speed < 40 MPH.  
Total Approach Volume: 24

#### Minor Street Approaches

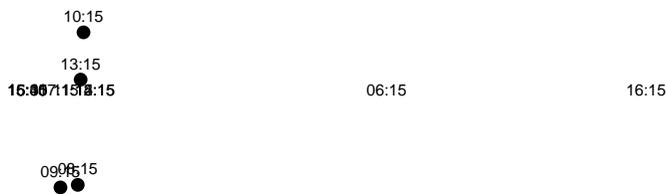
**Southbound: Windy Hill Rd WB**

Number of Lanes: 2  
Total Approach Volume: 17,599

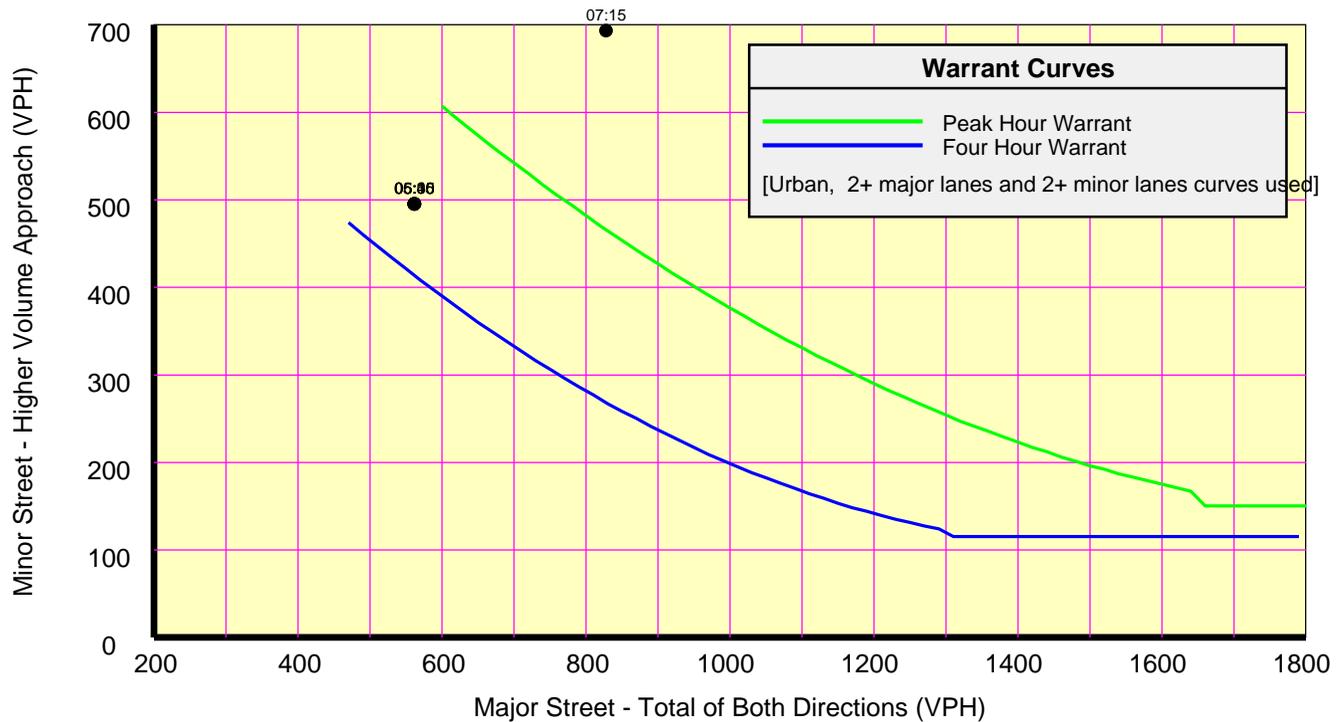
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### Warrant Summary (Urban values apply.)

<b>Warrant 1 - Eight Hour Vehicular Volumes</b> .....	<b>Satisfied</b>
<b>Warrant 1A - Minimum Vehicular Volume</b> .....Satisfied	
Required volumes reached for 11 hours, 8 are needed	
<b>Warrant 1B - Interruption of Continuous Traffic</b> .....Not Satisfied	
Required volumes reached for 2 hours, 8 are needed	
<b>Warrant 1 A&amp;B - Combination of Warrants</b> .....Not Satisfied	
Required volumes reached for 3 hours, 8 are needed	
<b>Warrant 2 - Four Hour Volumes</b> .....	<b>Satisfied</b>
Number of hours (14) volumes exceed minimum >= minimum required (4).	
<b>Warrant 3 - Peak Hour</b> .....	<b>Not Evaluated</b>
<b>Warrant 3A - Peak Hour Delay</b> .....Not Evaluated	
<b>Warrant 3B - Peak Hour Volumes</b> .....Not Evaluated	
<b>Warrant 4 - Pedestrian Volumes</b> .....	<b>Not Evaluated</b>
<b>Warrant 5 - School Crossing</b> .....	<b>Not Evaluated</b>
<b>Warrant 6 - Coordinated Signal System</b> .....	<b>Not Evaluated</b>
<b>Warrant 7 - Crash Experience</b> .....	<b>Not Evaluated</b>
<b>Warrant 8 - Roadway Network</b> .....	<b>Not Evaluated</b>
<b>Warrant 9 - Intersection Near a Grade Crossing</b> .....	<b>Not Evaluated</b>



## Signal Warrants - Summary



### Analysis of 8-Hour Volume Warrants:

#### War 1A-Minimum Volume

#### War 1B-Interruption of Traffic

#### War 1C-Combination of Warrants

Hour Begin	Major Total	Minor Vol Dir	Maj 600	Min 200	Hour Begin	Major Total	Minor Vol Dir	Maj 900	Min 100	Hour Begin	Major Total	Minor Vol Dir	Maj 720	Min 160
16:15	1,436	1,40 SB	Yes	Yes	16:15	1,436	1,40 SB	Yes	Yes	16:15	1,436	1,40 SB	Yes	Yes
06:15	1,076	1,39 SB	Yes	Yes	06:15	1,076	1,39 SB	Yes	Yes	06:15	1,076	1,39 SB	Yes	Yes
07:15	828	693 SB	Yes	Yes	08:00	828	693 SB	No	Yes	07:15	828	693 SB	Yes	Yes
14:15	671	1,09 SB	Yes	Yes	07:45	828	693 SB	No	Yes	15:00	671	1,09 SB	No	Yes
12:15	671	1,11 SB	Yes	Yes	07:30	828	693 SB	No	Yes	14:45	671	1,09 SB	No	Yes
10:15	655	1,02 SB	Yes	Yes	07:15	828	693 SB	No	Yes	14:30	671	1,09 SB	No	Yes
13:15	651	966 SB	Yes	Yes	15:00	671	1,09 SB	No	Yes	14:15	671	1,09 SB	No	Yes
08:15	647	846 SB	Yes	Yes	14:45	671	1,09 SB	No	Yes	13:00	671	1,11 SB	No	Yes
11:15	640	1,14 SB	Yes	Yes	14:30	671	1,09 SB	No	Yes	12:45	671	1,11 SB	No	Yes
09:15	623	843 SB	Yes	Yes	14:15	671	1,09 SB	No	Yes	12:30	671	1,11 SB	No	Yes
17:15	620	1,19 SB	Yes	Yes	13:00	671	1,11 SB	No	Yes	12:15	671	1,11 SB	No	Yes
16:00	577	1,21 SB	No	Yes	12:45	671	1,11 SB	No	Yes	11:00	655	1,02 SB	No	Yes
15:45	577	1,21 SB	No	Yes	12:30	671	1,11 SB	No	Yes	10:45	655	1,02 SB	No	Yes
15:30	577	1,21 SB	No	Yes	12:15	671	1,11 SB	No	Yes	10:30	655	1,02 SB	No	Yes
15:15	577	1,21 SB	No	Yes	11:00	655	1,02 SB	No	Yes	10:15	655	1,02 SB	No	Yes
06:00	562	495 SB	No	Yes	10:45	655	1,02 SB	No	Yes	14:00	651	966 SB	No	Yes
05:45	562	495 SB	No	Yes	10:30	655	1,02 SB	No	Yes	13:45	651	966 SB	No	Yes
05:30	562	495 SB	No	Yes	10:15	655	1,02 SB	No	Yes	13:30	651	966 SB	No	Yes
05:15	562	495 SB	No	Yes	14:00	651	966 SB	No	Yes	13:15	651	966 SB	No	Yes
19:00	506	962 SB	No	Yes	13:45	651	966 SB	No	Yes	09:00	647	846 SB	No	Yes
18:45	506	962 SB	No	Yes	13:30	651	966 SB	No	Yes	08:45	647	846 SB	No	Yes
18:30	506	962 SB	No	Yes	13:15	651	966 SB	No	Yes	08:30	647	846 SB	No	Yes
18:15	506	962 SB	No	Yes	09:00	647	846 SB	No	Yes	08:15	647	846 SB	No	Yes
20:00	441	722 SB	No	Yes	08:45	647	846 SB	No	Yes	12:00	640	1,14 SB	No	Yes

# Attachment 8

## Bridge Inventory

# Bridge Inventory Data Listing



Parameters: Bridge Serial Num

Structure ID:067-0143-0

Cobb

SUFF. RATING: 73.24

**Location & Geography**

**Structure ID:** 067-0143-0  
 200 Bridge Information: 07  
 \*6A Feature Int: I-75 - I-75 RAMP  
 \*6B Critical Bridge: 0  
 \*7A Route No Carried: CR01720  
 \*7B Facility Carried: WINDY HILL ROAD  
 9 Location: 3.5 MI NE OF SMYRNA  
 2 Dot District: 7  
 207 Year Photo: 2011  
 \*91 Inspection Frequency: 24 Date: 09/08/2011  
 92A Fract Crit Insp Freq: 0 Date: 02/01/1901  
 92B Underwater Insp Freq: 0 Date: 02/01/1901  
 92C Other Spc. Insp Freq: 0 Date: 02/01/1901  
 \* 4 Place Code: 00000  
 \*5 Inventory Route(O/U): 1  
 Type: 4  
 Designation: 1  
 Number: 09001  
 Direction: 0  
 \*16 Latitude: 33 - 54.1097 HMMS Prefix:  
 \*17 Longitude: 84 - 28.4090 HMMS Suffix:  
 MP: 0.00  
 98 Border Bridge: 000 % Shared:00  
 99 ID Number: 0000000000000000  
 \*100 STRAHNET: 0  
 12 Base Highway Network: 1  
 13A LRS Inventory Route: 672172000  
 13B Sub Inventory Route: 0  
 \*101 Parallel Structure: N  
 \*102 Direction of Traffic: 2  
 \*264 Road Inventory Mile Post: 006.15  
 \*208 Inspection Area: 09 Initials: WBR  
 Engineer's Initials: JTB  
 \* Location ID No: 067-09001M-008.03E

\*104 Highway System: 0  
 \*26 Functional Classification: 17  
 \*204 Federal Route Type: M No: 09001  
 105 Federal Lands Highway: 0  
 \*110 Truck Route: 0  
 206 School Bus Route: 1  
 217 Benchmark Elevation: 0000.00  
 218 Datum: 0  
 \*19 Bypass Length: 02  
 \*20 Toll: 3  
 \*21 Maintenance: 01  
 \*22 Owner: 01  
 \*31 Design Load: 6  
 37 Historical Significance: 5  
 205 Congressional District: 13  
 27 Year Constructed: 1980  
 106 Year Reconstructed: 0000  
 33 Bridge Median: 0  
 34 Skew: 04  
 35 Structure Flared: 0  
 38 Navigation Control: N  
 213 Special Steel Design: 1  
 267 Type of Paint: 0  
 \*42 Type of Service On: 5  
 Type of Service Under: 1  
 214 Movable Bridge: 0  
 203 Type Bridge: O - O - M - O  
 259 Pile Encasement: 3  
 \*43 Structure Type Main: 3 02  
 45 No.Spans Main: 003  
 44 Structure Type Appr: 0 00  
 46 No Spans Appr: 0000  
 226 Bridge Curve Horz: 1 Vert: 1.00  
 111 Pier Protection: 0  
 107 Deck Structure Type: 1  
 108 Wearing Structure Type: 1  
 Membrane Type: 0  
 Deck Protection: 0

**Signs & Attachments**

225 Expansion Joint Type: 15  
 242 Deck Drains: 0  
 243 Parapet Location: 3  
 Height: 2.30  
 Width: 1.10  
 238 Curb Height: 1  
 Curb Material: 1  
 239 Handrail: 7 7  
 \*240 Median Barrier Rail: 0  
 241 Bridge Median Height: 0  
 \* Bridge Median Width: 0  
 230 Guardrail Loc. Dir. Rear: 3  
 Fwd: 3  
 Oppo. Dir. Rear: 0  
 Oppo. Fwd: 0  
 244 Approach Slab: 3  
 224 Retaining Wall: 0  
 233 Posted Speed Limit: 35  
 236 Warning Sign: 0.00  
 234 Delineator: 0.00  
 235 Hazard Boards: 0  
 237 Utilities Gas: 21  
 Water: 21  
 Electric: 00  
 Telephone: 22  
 Sewer: 00  
 247 Lighting Street: 0  
 Navigation: 0  
 Aerial: 0  
 \*248 County Continuity No.: 00

# Bridge Inventory Data Listing



Parameters: Bridge Serial Num

**Structure ID:067-0143-0**

Programming Data		Measurements:				
201 Project No:	I-ID-75-3 (84) CT.1	*29 ADT	028920	Year:2011	65 Inventory Rating Method:	2
202 Plans Available:	4	109 %Trucks:	0		63 Operating Rating Method:	2
249 Prop Proj No:	CSNHS-0008-00(256)	* 28 Lanes On:	07	Under:14	66 Inventory Type:	2 Rating: 36
250 Approval Status:	0000	210 No. Tracks On:	00	Under:00	64 Operating Type:	2 Rating: 51
251 PI Number:	0008256	* 48 Max. Span Length	0160		231 Calculated Loads:	
252 Contract Date:	02/01/1901	* 49 Structure Length:	343		H-Modified:	20 0
260 Seismic No:	00000	51 Br. Rwdy. Width	76.00		HS-Modified:	25 0
75 Type Work:	00 0	52 Deck Width:	90.40		Type 3:	28 0
94 Bridge Imp. Cost:	\$3,168	* 47 Tot. Horiz. Cl:	76		Type 3s2:	40 0
95 Roadway Imp. Cost:	\$317	50 Curb / Sidewalk Width	6.00 / 6.00		Timber:	36 0
96 Total Imp Cost:	\$4752	32 Approach Rdwy. Width	076		Piggyback:	00 0
76 Imp Length:	000000	*229 Shoulder Width:			261 H Inventory Rating:	20
97 Imp Year:	2013	Rear Lt:	2.00	Type:1 Rt:2.00	262 H Operating Rating	28
114 Fureur ADT:	043380	Fwd. Lt:	2.00	Type:1 Rt:2.00	67 Structural Evaluation:	7
		Pavement Width:			58 Deck Condition:	7
		Rear:	72.00	Type: 2	59 Superstructure Condition:	7
			72.00	Type: 2	* 227 Collision Damage:	0
		Intersaction Rear:	1	Fwd: 1	60A Substructure Condition:	7
		36Safety Features Br. Rail:	1		60B Scour Condition:	N
		Transition:	2		60C Underwater Condition	N
		App. G. Rail:	1		71 Waterway Adequacy:	N
		App. Rail End:	1		61 Channel Protection Cond.:	N
		53 Minimum Cl. Over:	99' 99 "		68 Deck Geometry:	2
		Under: H	16' 09"		69 UnderClr. Horz/Vert:	4
		*228 Minimum Vertical Cl			72 Appr. Alignment:	8
		Act. Odm Dir.:	99' 99"		62 Culvert:	N
		Oppo. Dir:	99' 99"		<b>Posting Data</b>	
		Posted Odm. Dir:	00' 00"		70 Bridge Posting Required	5
		Oppo. Dir:	00' 00"		41 Struct Open, Posted, CL:	A
		55 Lateral Undercl. Rt:	H 6.80		* 103 Temporary Structure:	0
		56 Lateral Undercl. Lt:	3.00		232 Posted Loads	
		*10 Max Min Vert Cl:	99' 99" Dir:0		H-Modified:	00
		39 Nav Vert Cl:	000 Horiz:0000		HS-Modified:	00
		116 Nav Vert Cl Closed:	000		Type 3:	00
		245 Deck Thickness Main	8.40		Type 3s2:	00
		Deck Thick Approach:	0.00		Timber:	00
		246 Overlay Thickness:	0.00		Piggyback	00
		212 Year Last Painted:	Sup:1980 Sub:0000		253 Notification Date:	02/01/1901
					258 Fed Notify Date:	02/01/1901

# Bridge Inventory Data Listing



Parameters: Bridge Serial Num

Structure ID:067-0144-0

Cobb

SUFF. RATING: 82.98

**Location & Geography**

**Structure ID:** 067-0144-0  
 200 Bridge Information: 04  
 \*6A Feature Int: ROTTENWOOD CREEK  
 \*6B Critical Bridge: 0  
 \*7A Route No Carried: CR01720  
 \*7B Facility Carried: WINDY HILL ROAD  
 9 Location: 3.7 MI NE OF SMYRNA  
 2 Dot District: 7  
 207 Year Photo: 2013  
 \*91 Inspection Frequency: 24 Date: 08/20/2013  
 92A Fract Crit Insp Freq: 0 Date: 02/01/1901  
 92B Underwater Insp Freq: 0 Date: 02/01/1901  
 92C Other Spc. Insp Freq: 0 Date: 02/01/1901  
 \* 4 Place Code: 00000  
 \*5 Inventory Route(O/U): 1  
 Type: 5  
 Designation: 1  
 Number: 09001  
 Direction: 0  
 \*16 Latitude: 33 - 54.2373 HMMS Prefix:00  
 \*17 Longitude: 84 - 28.2348 HMMS Suffix:000  
 MP: 0.00  
 98 Border Bridge: 000 % Shared:00  
 99 ID Number: 00000000000000  
 \*100 STRAHNET: 0  
 12 Base Highway Network: 1  
 13A LRS Inventory Route: 672172000  
 13B Sub Inventory Route: 0  
 \*101 Parallel Structure: N  
 \*102 Direction of Traffic: 2  
 \*264 Road Inventory Mile Post: 006.38  
 \*208 Inspection Area: 09 Initials: JPD  
 Engineer's Initials: ben  
 \* Location ID No: 067-09001M-008.26E

\*104 Highway System: 0  
 \*26 Functional Classification: 17  
 \*204 Federal Route Type: M No: 09001  
 105 Federal Lands Highway: 0  
 \*110 Truck Route: 0  
 206 School Bus Route: 1  
 217 Benchmark Elevation: 0000.00  
 218 Datum: 0  
 \*19 Bypass Length: 02  
 \*20 Toll: 3  
 \*21 Maintenance: 02  
 \*22 Owner: 02  
 \*31 Design Load: 6  
 37 Historical Significance: 5  
 205 Congressional District: 13  
 27 Year Constructed: 1980  
 106 Year Reconstructed: 1995  
 33 Bridge Median: 0  
 34 Skew: 99  
 35 Structure Flared: 0  
 38 Navigation Control: 0  
 213 Special Steel Design: 0  
 267 Type of Paint: 3  
 \*42 Type of Service On: 5  
 Type of Service Under: 5  
 214 Movable Bridge: 0  
 203 Type Bridge: O - N - O - O  
 259 Pile Encasement: 0  
 \*43 Structure Type Main: 1 04  
 45 No. Spans Main: 005  
 44 Structure Type Appr: 0 00  
 46 No Spans Appr: 0000  
 226 Bridge Curve Horz: 1 Vert: 1.00  
 111 Pier Protection: 0  
 107 Deck Structure Type: 1  
 108 Wearing Structure Type: 1  
 Membrane Type: 0  
 Deck Protection: 0

**Signs & Attachments**

225 Expansion Joint Type: 02  
 242 Deck Drains: 1  
 243 Parapet Location: 3  
 Height: 2.00  
 Width: 1.10  
 238 Curb Height: 1  
 Curb Material: 1  
 239 Handrail: 7 7  
 \*240 Median Barrier Rail: 0  
 241 Bridge Median Height: 0  
 \* Bridge Median Width: 0  
 230 Guardrail Loc. Dir. Rear: 4  
 Fwd: 4  
 Oppo. Dir. Rear: 0  
 Oppo. Fwd: 0  
 244 Approach Slab: 3  
 224 Retaining Wall: 1  
 233 Posted Speed Limit: 35  
 236 Warning Sign: 0.00  
 234 Delineator: 0.00  
 235 Hazard Boards: 0  
 237 Utilities Gas: 21  
 Water: 21  
 Electric: 21  
 Telephone: 21  
 Sewer: 00  
 247 Lighting Street: 0  
 Navigation: 0  
 Aerial: 0  
 \*248 County Continuity No.: 00

# Bridge Inventory Data Listing



Parameters: Bridge Serial Num

Structure ID:067-0144-0

<b>Programming Data</b>		<b>Measurements:</b>		<b>65 Inventory Rating Method:</b> 2	
201 Project No:	GOU 4-700 (3)/ COBB 7306	*29 ADT	028760 Year:2012	63 Operating Rating Method:	2
202 Plans Available:	4	109 %Trucks:	1	66 Inventory Type:	2 Rating: 36
249 Prop Proj No:	00000000000000000000000000000000	* 28 Lanes On:	07 Under:00	64 Operating Type:	2 Rating: 51
250 Approval Status:	0000	210 No. Tracks On:	00 Under:00	231 Calculated Loads:	
251 PI Number:	0000000	* 48 Max. Span Length	0029	H-Modified:	20 0
252 Contract Date:	02/01/1901	* 49 Structure Length:	138	HS-Modified:	25 0
260 Seismic No:	00000	51 Br. Rwdy. Width	88.00	Type 3:	28 0
75 Type Work:	00 0	52 Deck Width:	101.40	Type 3s2:	40 0
94 Bridge Imp. Cost:	\$1,274	* 47 Tot. Horiz. Cl:	88	Timber:	36 0
95 Roadway Imp. Cost:	\$127	50 Curb / Sidewalk Width	5.00 / 5.00	Piggyback:	00 0
96 Total Imp Cost:	\$1912	32 Approach Rdwy. Width	088	261 H Inventory Rating:	20
76 Imp Length:	000000	*229 Shoulder Width:		262 H Operating Rating	28
97 Imp Year:	2013	Rear Lt:	2.00 Type:1 Rt:2.00	67 Structural Evaluation:	5
114 Furure ADT:	043140 Year:2032	Fwd. Lt:	2.00 Type:1 Rt:2.00	58 Deck Condition:	7
<b>Hydraulic Data</b>		Pavement Width:		59 Superstructure Condition:	7
215 Waterway Data:		Rear:	84.00 Type: 2	* 227 Collision Damage:	0
High Water Elev:	0000.0 Year:1900		84.00 Type: 2	60A Substructure Condition:	5
Flood Elev:	0000.0 Freq:00	Intersaction Rear:	1 Fwd: 1	60B Scour Condition:	6
Avg Streambed Elev:	0000.0	36Safety Features Br. Rail:	1	60C Underwater Condition	N
Drainage Area:	00000	Transition:	1	71 Waterway Adequacy:	9
Area of Opening:	000000	App. G. Rail:	1	61 Channel Protection Cond.:	7
113 Scour Critical	U	App. Rail End:	1	68 Deck Geometry:	5
216 Water Depth:	02.4 Br.Height:33.5	53 Minimum Cl. Over:	99' 99"	69 UnderClr. Horz/Vert:	N
222 Slope Protection:	1	Under: N	00' 00"	72 Appr. Alignment:	8
221 Spur Dikes Rear	0 Fwd:0	*228 Minimum Vertical Cl		62 Culvert:	N
219 Fender System	0	Act. Odm Dir:	99' 99"	<b>Posting Data</b>	
220 Dolphin:	0	Oppo. Dir:	99' 99"	70 Bridge Posting Required	5
223 Culvert Cover:	000	Posted Odm. Dir:	00' 00"	41 Struct Open, Posted, CL:	A
Type:	0	Oppo. Dir:	00' 00"	* 103 Temporary Structure:	0
No. Barrels:	0	55 Lateral Undercl. Rt:	N 0.00	232 Posted Loads	
Width:	0.00 Height:0.00	56 Lateral Undercl. Lt:	0.00	H-Modified:	00
Length:	0 Apron:0	*10 Max Min Vert Cl:	99' 99" Dir:0	HS-Modified:	00
*265 U/W Insp. Area	0 Diver:ZZZ	39 Nav Vert Cl:	000 Horiz:0000	Type 3:	00
*Location ID No:	067-09001M-008.26E	116 Nav Vert Cl Closed:	000	Type 3s2:	00
		245 Deck Thickness Main	8.00	Timber:	00
		Deck Thick Approach:	0.00	Piggyback	00
		246 Overlay Thickness:	0.00	263 Notification Date:	02/01/1901
		212 Year Last Painted:	Sup:0000 Sub:1980	258 Fed Notify Date:	02/01/1901

Attachment 9  
Hydrology Study for  
MS4 Permit

**MS4 Requirements – Concept Level**  
**Windy Hill Diverging Diamond Interchange (DDI)**  
**Cobb County**

Blue line streams from USGS topographic maps and county GIS and minor streams located by the Moreland Ecology Department are shown on the concept plan.

Wetland areas are shown on the concept plan. NWI locations are shown and have been field verified by the Moreland Ecology Department.

**Area 1 NW Quadrant**

The southern portion of the existing roadway is superelevated towards the NW quadrant of the project. The proposed project does not change the cross slope of the mainline.

This area will be treated with a wet detention pond.

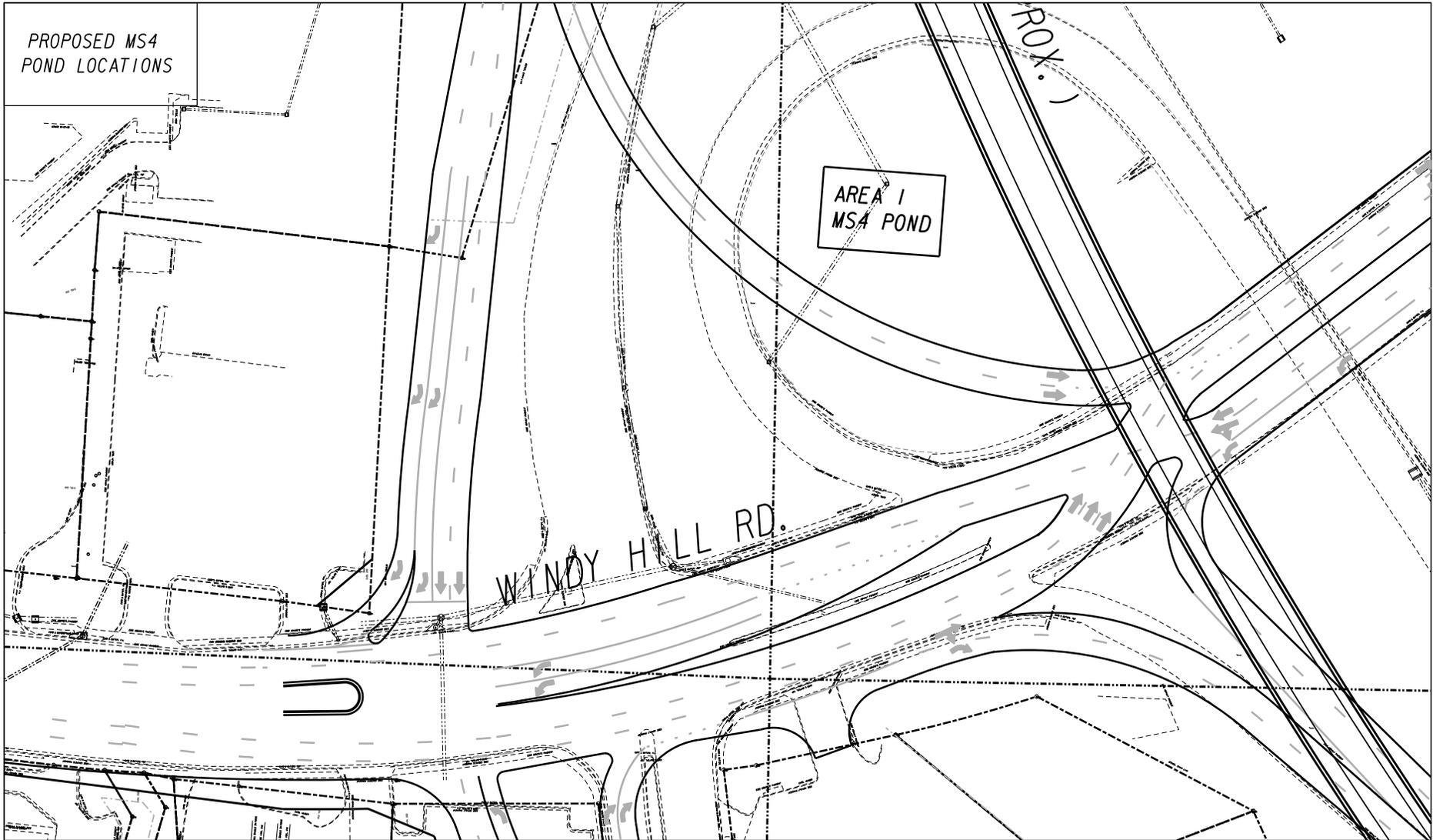
New Impervious Area	1.34	Acres
WQv=	0.134	acre-ft
WQv=	5837	Cubic Ft
Permanent Poolv=	2919	Cubic Ft
CPv=	17511	Cubic Ft
25-year detention	8755.5	Cubic Ft
Total Volume	26266.5	Cubic Ft
Length	83	Ft
Width	55	Ft
Depth	6	Ft

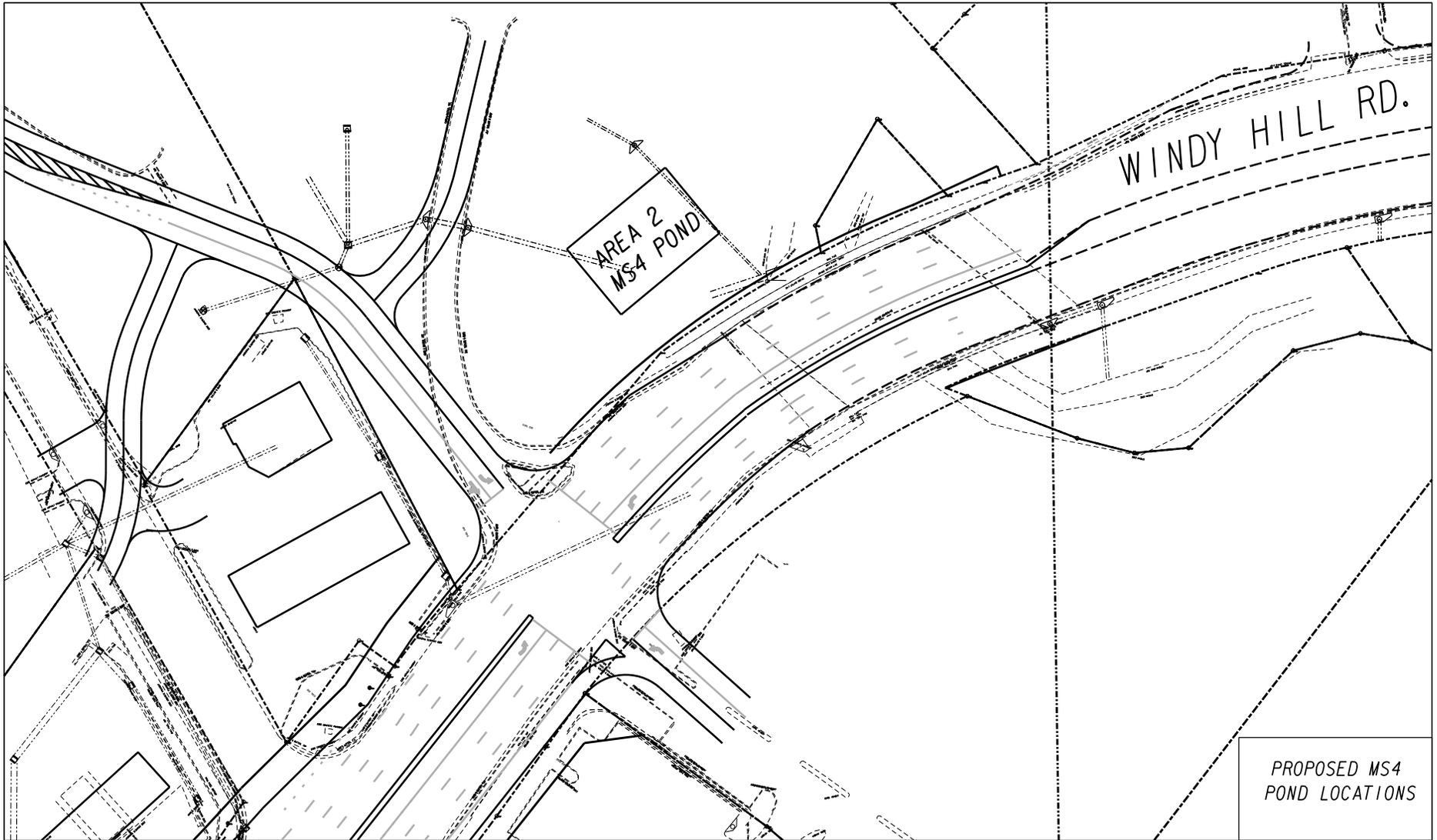
## Area 2 NE Quadrant

The northern portion of the existing roadway is superelevated towards the NE quadrant of the project. The proposed project does not change the cross slope of the mainline.

This area will be treated with a wet detention pond.

New Impervious Area	1.51	Acres
WQv=	0.151	acre-ft
WQv=	6578	Cubic Ft
Permanent Poolv=	3289	Cubic Ft
CPv=	19734	Cubic Ft
25-year detention	9867	Cubic Ft
Total Volume	29601	Cubic Ft
Length	87	ft
Width	58	ft
Depth	6	ft





# Attachment 10

## Pavement Studies

## Flexible Pavement Design Analysis

PI Number	CID1025	County(s)	Cobb
Project Number	CCI1025	Design Name	Windy Hill Rd. Full Depth
Project Description	Windy Hill Road Diverging Diamond Interchange(DDI)		

Traffic Data (AADTs are one-way)					Miscellaneous Data		
Initial Design Year	2017	Initial AADT, VPD	26,400	24 Hour Truck %	3.00	Lanes in one direction	3
Final Design Year	2037	Final AADT, VPD	28,850	SU Truck %	2.00	Curb & Gutter/Barrier	Yes
		Mean AADT, VPD	27,625	MU Truck %	1.00		

Design Data					
Lane Distribution Factor (%)	80.00	Soil Support Value	2.00	Single Unit ESAL	0.40
Terminal Serviceability Index	2.50	Regional Factor	1.80	Multiple Unit ESAL	1.50
		User Defined 18-KIP ESAL	0.00	Calculated 18-KIP ESAL	0.77
Non-Standard Value Comment					

Design Loading (Calculated 18-KIP ESAL)					
Mean AADT, VPD	LDF (%)	Vehicle Type	Volume (%)	ESAL Factor	Daily ESAL
27,625	80.00	Single Unit Truck	2.00	0.40	177
		Multi Unit Truck	1.00	1.50	332
<b>Total Daily ESALs</b>					509
<b>Total Design Period ESALs</b>					3,715,700

Proposed Flexible Full Depth Pavement Structure				
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value
Course 1	12.5 mm Superpave	1.50	0.4400	0.66
Course 2	19 mm Superpave	2.00	0.4400	0.88
Course 3	25 mm Superpave	1.00	0.4400	0.44
		6.00	0.3000	1.80
Course 4	Graded Aggregate Base	12.00	0.1600	1.92
Required SN	5.89	Proposed pavement is 3.23% Underdesigned		Proposed SN
				5.70

Design Remarks	Windy Hill Road Full Depth
----------------	----------------------------

Prepared By \_\_\_\_\_ Date 12/19/2013 3:29 PM  
 MAAI

Recommended By \_\_\_\_\_ Date  
 Consultant Design Phase Leader

Approved By \_\_\_\_\_ Date  
 State Pavement Engineer

## Flexible Pavement Design Analysis

PI Number	CID1025	County(s)	Cobb
Project Number	CCI1025	Design Name	Windy Hill Rd. Overlay
Project Description	Windy Hill Road Diverging Diamond Interchange(DDI)		

Traffic Data (AADTs are one-way)					Miscellaneous Data		
Initial Design Year	2017	Initial AADT, VPD	26,400	24 Hour Truck %	3.00	Lanes in one direction	3
Final Design Year	2037	Final AADT, VPD	28,850	SU Truck %	2.00	Curb & Gutter/Barrier	Yes
		Mean AADT, VPD	27,625	MU Truck %	1.00	Milling Depth (inches)	

Design Data					
Lane Distribution Factor (%)	80.00	Soil Support Value	2.00	Single Unit ESAL	0.40
Terminal Serviceability Index	2.50	Regional Factor	1.80	Multiple Unit ESAL	1.50
		User Defined 18-KIP ESAL	0.00	Calculated 18-KIP ESAL	0.77
Non-Standard Value Comment					

Design Loading (Calculated 18-KIP ESAL)					
Mean AADT, VPD	LDF (%)	Vehicle Type	Volume (%)	ESAL Factor	Daily ESAL
27,625	80.00	Single Unit Truck	2.00	0.40	177
		Multi Unit Truck	1.00	1.50	332
<b>Total Daily ESALs</b>					509
<b>Total Design Period ESALs</b>					3,715,700

Proposed Flexible Overlay Pavement Structure				
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value
Overlay 1	12.5 mm Superpave	1.50	0.4400	0.66
Overlay 2	19 mm Superpave	2.00	0.4400	0.88
Existing 1	Asphaltic Concrete	8.00	0.3000	2.40
Existing 2	Graded Aggregate Base	12.00	0.1600	1.92
Required SN	5.89	Proposed pavement is 0.51% Underdesigned		Proposed SN
				5.86

Design Remarks	Windy Hill Rd. Overlay- assume 8 in of existing asphalt and 12 in GAB. Update once core is obtained.
----------------	--

Prepared By \_\_\_\_\_ Date 12/19/2013 3:29 PM

MAAI

Recommended By \_\_\_\_\_ Date

Consultant Design Phase Leader

Approved By \_\_\_\_\_ Date

State Pavement Engineer

## Flexible Pavement Design Analysis

PI Number	CID1025	County(s)	Cobb
Project Number	CCH1025	Design Name	Ramps Full Depth
Project Description	Windy Hill Road Diverging Diamond Interchange(DDI)		

Traffic Data (AADTs are one-way)					Miscellaneous Data		
Initial Design Year	2017	Initial AADT, VPD	22,240	24 Hour Truck %	8.00	Lanes in one direction	1
Final Design Year	2037	Final AADT, VPD	24,130	SU Truck %	5.00	Curb & Gutter/Barrier	No
		Mean AADT, VPD	23,185	MU Truck %	3.00		

Design Data					
Lane Distribution Factor (%)	100.00	Soil Support Value	2.00	Single Unit ESAL	0.40
Terminal Serviceability Index	2.50	Regional Factor	1.80	Multiple Unit ESAL	1.50
		User Defined 18-KIP ESAL	0.00	Calculated 18-KIP ESAL	0.81
Non-Standard Value Comment					

Design Loading (Calculated 18-KIP ESAL)					
Mean AADT, VPD	LDF (%)	Vehicle Type	Volume (%)	ESAL Factor	Daily ESAL
23,185	100.00	Single Unit Truck	5.00	0.40	464
		Multi Unit Truck	3.00	1.50	1,044
<b>Total Daily ESALs</b>					<b>1,508</b>
<b>Total Design Period ESALs</b>					<b>11,008,400</b>

Proposed Flexible Full Depth Pavement Structure					
Course	Material	Thickness (inches)	Structural Coefficient	Structural Value	
Course 1	12.5 mm Superpave	1.50	0.4400	0.66	
Course 2	19 mm Superpave	2.00	0.4400	0.88	
Course 3	25 mm Superpave	1.00	0.4400	0.44	
		6.00	0.3000	1.80	
Course 4	Graded Aggregate Base	14.00	0.1600	2.24	
Required SN	6.79	Proposed pavement is 11.36% Underdesigned		Proposed SN	6.02

Design Remarks	Ramps Full Depth
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Prepared By \_\_\_\_\_ Date 12/19/2013 3:29 PM

MAAI

Recommended By \_\_\_\_\_ Date

Consultant Design Phase Leader

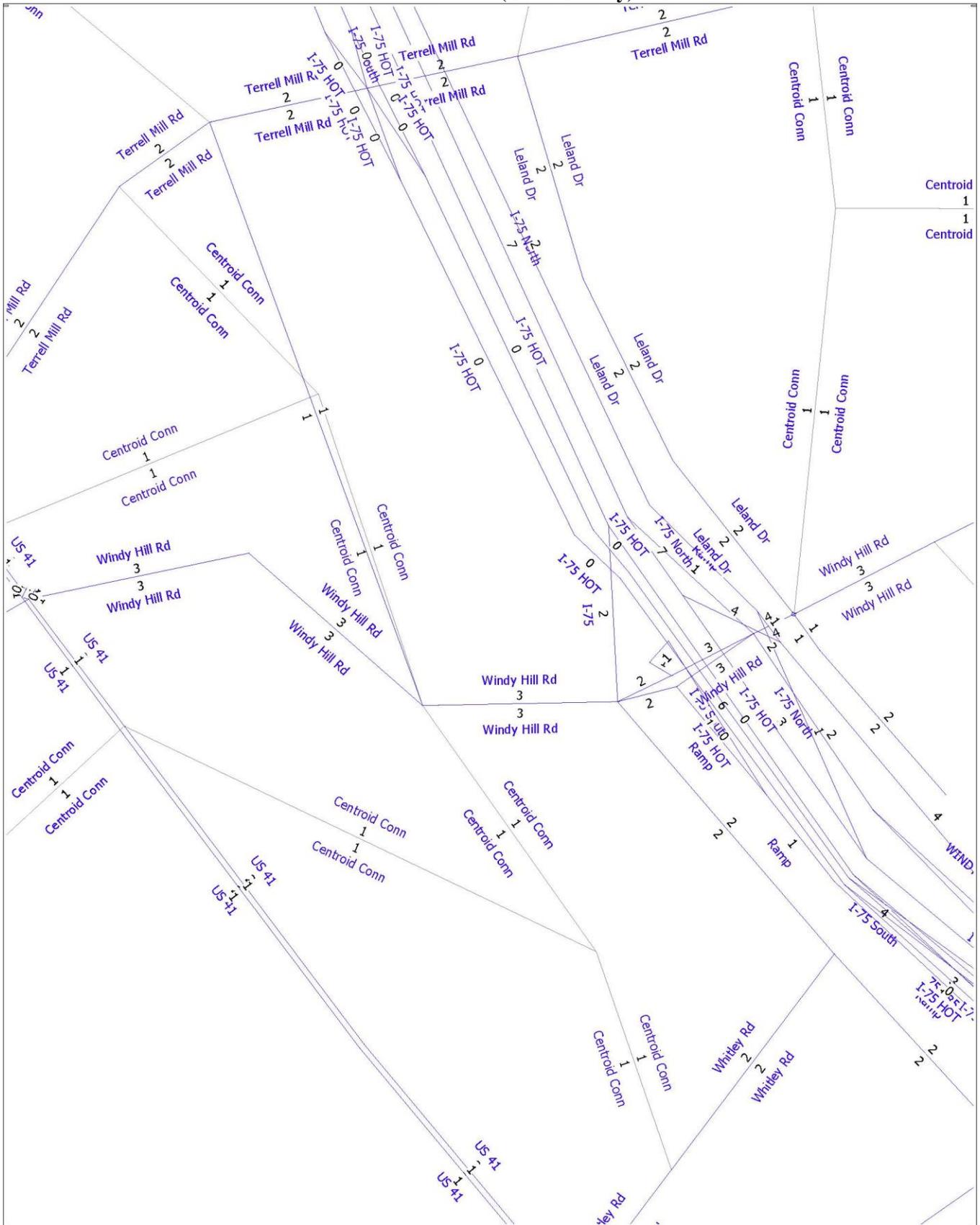
Approved By \_\_\_\_\_ Date

State Pavement Engineer

**Attachment 11**  
**Conforming plan's network  
schematics showing thru lanes**

# Conforming Plan's Network Schematics Number of Lanes

I-75/Windy Hill Road DDI  
P.I. No. 0012774 (Cobb County)



# Attachment 12

## Meeting Summaries



**MEETING MINUTES**

**Project:** I-75/Windy Hill Road DDI Improvements  
Cobb County  
P.I. No. 0012774

**Meeting:** Meeting with Georgia DOT Office of Program Delivery

**Location:** GDOT Conference Room 409

Prepared By: Karla Poshedly

Meeting Date	2/14/14
MA Project No.	CCID-2012
CC:	Meeting Attendees

ATTENDEES	ORGANIZATION	PHONE	EMAIL
Ryan Fernandez	GDOT – PM, OPD	404-631-1162	<a href="mailto:rfernandez@dot.ga.gov">rfernandez@dot.ga.gov</a>
Albert Shelby	GDOT - OPD	404-631-1757	<a href="mailto:ashelby@dot.ga.gov">ashelby@dot.ga.gov</a>
Scott Zehngraff	GDOT – Traffic OPS	404-635-2848	<a href="mailto:szehngraff@dot.ga.gov">szehngraff@dot.ga.gov</a>
Paul Denard	GDOT – Traffic OPS	404-635-2843	<a href="mailto:pdenard@dot.ga.gov">pdenard@dot.ga.gov</a>
Chris Woods	GDOT – District 7 Traffic Ops	770-986-1767	<a href="mailto:cwoods@dot.ga.gov">cwoods@dot.ga.gov</a>
Brad Humphrey	GDOT – District 7 Traffic Ops	770-986-1768	<a href="mailto:jhumphrey@dot.ga.gov">jhumphrey@dot.ga.gov</a>
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The purpose of this meeting was to discuss the concept, traffic study, and schedule of the I-75/Windy Hill Road DDI to the Georgia Department of Transportation.

The meeting began with introductions. Brad Hale explained that the DDI involves the reconfiguration of the interchange of Windy Hill Road, the relocation of Circle 75 Parkway to the west, the relocation of Leland Drive on the east, and closing the northbound approach of Interstate North Parkway at Windy Hill Road.

Cobb County and CCID have been working together to program the project. The project will be programmed for FY 2015. Funding for the project (\$20M total) will come from the following sources:

- Congestion Mitigation and Air Quality (CMAQ) federal aid - \$6M.
- Georgia Transportation Infrastructure Bank (GTIB) - \$1.5M. (Application pending)
- Cobb County - \$7.5M
- Cumberland Community Improvement District (CCID) - \$5M.

Cobb County (with the CCID and MA) has conducted an intensive concept development and review over the past 4 months that has yielded approx. \$4M in savings due to fewer right-of-way displacements, reduced utility impacts, etc. Cost estimates for the project are as follows:

- Construction: \$9.3M
- Right of Way: \$4.3M (10 parcels, 1 displacement –Arby’s)



- Utilities: \$0.5M
- P&E: \$0.7M

A draft schedule was distributed with a goal to open the project to traffic by March 31, 2017. The main milestones on the schedule assume the environmental document (proposed CE) will be approved by June 27, 2014.

Much of the environmental work has already been completed. A CE was completed for the encroachment permit area for the Windy Hill Road East-West project (PI 0010005). This project has been scaled back as a result of the DDI project, and the neither the CE nor the encroachment permit are now needed. The CE for PI 0010005 was therefore retracted; however, much of this work can be used for the new CE for the DDI project.

Requests for the same GDOT specialist to review the special studies would prevent delays in the environmental review process. GDOT agreed that all special studies (once they are updated by MA) should be submitted directly to Ryan Fernandez, GDOT PM with the name of the previous special study reviewer. Mr. Fernandez will send the special study of the DDI directly to the GDOT specialist.

It is assumed that the following tasks will not be required:

- 404 permit
- Stream buffer variance
- IMR - A formal letter explaining why an IMR is not necessary needs to be sent to Albert Shelby and he will pass it on to FHWA for their concurrence. This is also noted in the concept report.
- Value engineering will not be required because the project will cost less than \$50 million.

Milestones on the schedule:

- Environmental document approval in June.
- ROW plans in July – 10 months for acquisition of ROW
- Let to construction July 31, 2015

Pre-acquisition work can start before July.

Schedule Notes:

- The schedule proposes to have only one concept team meeting. MA suggested holding this as soon as possible. GDOT will schedule.
- A PFPR will be conducted after special studies are reviewed and approved, but before approval of the environmental document.
- Project schedule is based on a commitment by Cobb County to have infrastructure in place before the opening of the 1<sup>st</sup> Braves Game (March 2017).
- Public involvement will include a PIOH. The CCID will have information on their website and Cobb County is putting together a package of information on Braves transportation to distribute to the public.
- MA is ready to advertise the PIOH. Once a date is set, MA will provide all PIOH materials.
- MA will send special studies by February 28, 2014.
- GDOT will have approximately 30 days for review of the studies.

Coordination with other projects –

- The DDI will not impact the Northwest Corridor P3 project. Since the DDI will remove the loop ramp in the northwest quadrant, construction cost for the Northwest P3 may be reduced if the DDI construction precedes it.
- The DDI project will not preclude any of the proposed construction with the *Revive I-285* project.

Traffic Study

- Alternatives – Conventional Interchange, DDI and Rotary (Large roundabout)



- DDI alternative considered grade separations at Circle 75 Parkway and at Interstate North Parkway. However, relocations of these intersections were more cost effective.
- The preferred alternative closes northbound Interstate North Parkway and relocates Leland Drive across from a commercial driveway giving access to two restaurants.

The Traffic Study, draft Concept Report, and Database were provided to GDOT at the meeting. Electronic copies of these reports were submitted separately via e-mail. Each of these reports were reviewed by Cobb County prior to submittal to GDOT.

VISSIM files were provided to Scott Zehngraff's office. Paul DeNard said that he will provide comments to MA next week. The Database will be submitted today.

An existing pavement evaluation is in-progress. Since the ramps will not be completely reconstructed (the way to the interstate), we are proposing asphalt for the reconstructed portion of each ramp. This was acceptable for the other DDI's let through GDOT. The pavement design will be submitted to OPD and will ultimately be reviewed by the pavement design committee.

It is proposed that the southbound ramp meter be relocated further downstream from the DDI. GDOT did not see any immediate problem with this. MA will submit a letter to GDOT requesting that the ramp meter be relocated if necessary to prevent queuing into the DDI intersection.

Reconstruction of the side barrier walls on the existing bridge will require reconstruction of a portion of the bridge deck. This will require temporary closure of the westbound auxiliary lane that feeds the existing loop ramp. It is also recommended that the work on the westbound side be done during the summer months in case the existing gas line attached at this location needs to be taken out of service temporarily.

Department staff questioned the intersection angles at the cross-overs. The intersection angles were not noted on the displays provided, but Mr. Hale said he thought they were the same as Ashford Dunwoody, or approx. 45 degrees. ***(This was checked after the meeting. The cross-over intersections are currently designed at 40 degrees, which is the same as Ashford Dunwoody).***

The following design exceptions and variances will be required:

- Mainline profile grade. A design exception will be required for the steep grade (+/- 8%) approaching Rottenwood Creek on the East side of I-75.
- The horizontal alignment of the relocated Leland Drive will also require a design exception.
- Median crossover spacing is less than 660 feet.

GDOT noted that mitigation may be needed to improve sight distance approaching the DDI cross-over from the East due to the steep uphill grade. This might include signs, pavement markings, etc.

The project has Context Sensitive Design Features that include:

- Landscaping
- Decorative fencing on bridge
- Lighting
- Sidewalks

Utilities – Construction of this project will avoid all of the transmission poles currently on Windy Hill Road.

GDOT requested that the decorative fence not be something that is proprietary.



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## MEETING MINUTES

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A meeting with Jennifer Giersch, (possibly including Mindy and Kendra) may be needed to make sure that enough public involvement is being conducted to satisfy FHWA requirements. Public involvement for the DDI of Wade Green Road, also in Cobb County, could be discussed at the same time. Previous DDI's included special outreach to educate people on how a DDI operates (mock drive-throughs with golf carts, etc.). It was agreed that this would not be necessary for Windy Hill. GDOT requested that Cobb send them a public involvement plan.

GDOT will need a new lighting and landscaping maintenance agreement with the CCID or Cobb County. Mr. Brantley Day noted that the CCID already has a lighting agreement for Windy Hill Rd, but will need to check to make sure it covers the project area. There are already agreements for other landscaping areas in Cobb County. GDOT suggested submitting lighting and landscaping early to allow time for reviews prior to PFPR & FFPR.



**MEETING MINUTES**

**Project:** I-75/Windy Hill Road DDI Improvements  
Cobb County  
P.I. No. 0012774

**Meeting:** Concept Team Meeting

**Location:** Cobb DOT Conference Room

**Prepared By:** Karla Poshedly

Meeting Date	3/25/14
MA Project No.	CCID-2012
CC:	Meeting Attendees

ATTENDEES	ORGANIZATION	PHONE	EMAIL
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The concept team meeting began with Ryan Fernandez, GDOT project manager discussing the schedule of the project. The proposed let date for the project is July 2015. He stated that all special studies are completed and under review except Archeology that will require MA to hire a sub consultant to perform.

Mr. Fernandez then had everyone introduce themselves before turning the meeting over to Mr. Brad Hale, MA project manager.



Using the concept layout display, Mr. Hale explained that the DDI involves the reconfiguration of the interchange of Windy Hill Road, the relocation of Circle 75 Parkway to the west, the relocation of Leland Drive on the east, and closing the northbound approach of Interstate North Parkway at Windy Hill Road.

Ms. Karyn Matthews then directed a review of the concept report. The following comments were made:

- Page 4 - The utilities listed should delete Georgia Power Transmission and replace it with MEAG Power transmission, Cobb EMC should be deleted, Cobb County-Marietta Water Authority should be deleted, delete Metromedia Fiber Network and replace American Fiber with Zayo Group.
- Page 4 - Other projects in the area: Designate the Cobb SPLOST numbers for the Windy Hill Road East-West projects and the Powers Ferry Road project from Wildwood Parkway to Terrell Mill Road. Add another "0" to the P.I.No. 0010006 – Leland Drive Extension. Project P.I. No. 0011738 has federal money. Add Revive I-285 to the project listing.
- Page 5 – Check the Transit Warrants
- Page 5 – Check the HMA Feasible Pavement Alternatives
- Page 5 – Revised the project description to remove the “cul-de-saced” reference when describing the future condition at Interstate North Parkway (West) at Windy Hill Road.
- Page 6 – Add Rottenwood Creek bridge to the list of major structures.
- Page 6 – Mainline Design Features: Designate yes for existing sidewalks and auxiliary lanes. Change proposed number of lanes from 6 to 4 and designate yes for auxiliary lanes proposed. Change access control to Limited. Change existing design vehicle to WB-40 or BUS-40, standard design vehicle to WB-40 or WB-62 and proposed design vehicle to WB-67.
- Page 7 – Add to the listing of proposed traffic signals the intersection of Interstate North Parkway (West) at Interstate North Parkway (East). Add to the listing of existing traffic signals the intersection of Interstate North Parkway (West) at Interstate North Parkway (East).
- Page 7 – Check “yes” for Lighting required. Revised the second sentence to say “Also as part of the context-sensitive design lighting along the Windy Hill Road through the DDI will be provided.”
- Page 7 – Check “Significant” for project classified under Transportation Management Plan.
- Page 9 – Revised Utility involvements. Replace Georgia Power Company Transmission with MEAG Power Transmission. Delete Cobb EMC and Atlanta Gas Light Network. Replace Cobb-Marietta Water Authority with Cobb County Water System. Replace MCI Network Services Inc. with MCI-Verizon Business Network. Replace American Fiber System with Zayo Group.
- Page 11 – Type in the ARC reference number in the paragraph below Air Quality.
- Page 12 – Indicate construction schedule coordination will be required for utilities and the Northwest Corridor project with regard to the loop-ramp reconstruction.
- Page 12 – Document the initial concept meeting with GDOT on February 14, 2014. Document the concept team meeting on March 25, 2014.
- Page 14 – Change the first sentence of the second paragraph under FHWA question #4.
- Page 15 – Replace the Party Responsible for Performing Task(s) from Georgia DOT to Cobb County for Utility Relocation, Letting to Contract, Construction Supervision and Construction Inspection & Materials Testing.

Other items to be noted is that lighting needs to be added to the construction cost estimate. MA needs to send the request for FHWA waiver of the IMR requirement to Albert Shelby, who will submit the request to FHWA.