

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA



INTERDEPARTMENT CORRESPONDENCE

FILE NH000-0056-01(061), Fulton County
SR 400 at CR 145/Northridge Road
P.I. # 751580-

OFFICE Innovative Program Delivery

DATE September 7, 2012

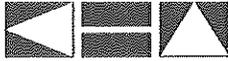
FROM *Darryl D. Van Meter*^{me}
Darryl D. VanMeter, P.E., State Innovative Program Delivery Engineer

TO Brent Story, P.E., State Design Policy Engineer

SUBJECT **Request for Design Exception – Intersection Skew Less Than 60°**

The Office of Innovative Program Delivery recommends approval of the attached Request for Design Exception on the above listed project. The scope of this project is to replace the existing bridge and to make minor operational improvement to the existing ramps. It is likely that future expansion projects on SR 400 will convert this interchange into a split diamond and permanently correct the skew. If you have any questions or require additional information, please contact Marlo Clowers at (404) 631-1713 or email.

DVM:MLC



Kimley-Horn
and Associates, Inc.

■
Suite 220
2 Sun Court
Peachtree Corners, Georgia
30092

September 5, 2012

Brent Story, P.E.
Design Policy and Support Administrator
Georgia Department of Transportation
One Georgia Center
600 West Peachtree Street, NW
Atlanta, Georgia 30308

Subject: **Request for Design Exception**
P.I. No.: 751580-; Fulton County
SR 400/US19 @ CR145/Northridge Road

Approval of Design Exception is requested for the above project. *Intersection Skew Angles*

This project consists of approximately 0.4 miles of widening along Northridge Road at SR 400 in the City of Sandy Springs. The total length of the project is 0.41 miles. The project will provide capacity and operational improvements to the GA 400 ramps at Northridge Road as well as the intersections of Northridge Road at Dunwoody Place and Roberts Drive. Operational improvements will include additional signage for the northbound exit ramp from GA 400 and additional through lane on Northridge Road to accommodate improved traffic flow. The project also includes replacing the existing bridge over SR 400 to include provisions for future manage lanes on SR 400 and treatments to address wrong way movements at the intersection of Northridge Road and Somerset Court.

A design exception is requested for intersection skew angles less than 60 degrees. Currently, Dunwoody Place intersects Northridge Road with a skew angle of $48^{\circ}38'51.6''$; SR400 southbound exit ramp intersects Northridge Road with a skew angle of $48^{\circ}27'47.9''$; and SR400 southbound entrance ramp intersects Northridge Road with a skew angle of $49^{\circ}06'00.1''$. The three alignments operate with one traffic signal located on Northridge Road. This proposed project will not change any of the existing skews.

According to AASHTO (2011) an intersection should be as close to 90 degrees as practical and an angle of at least 60 degrees provides most of the benefits of a 90-degree intersection angle.

AADT: Base Year (2014): 31,025

Design Year (2034): 34,250

Crash data within proximity of the Northridge Road intersections with the SR 400 on- and off- ramps were obtained from the Georgia Department of Transportation for the years 2007, 2008, and 2009. The crash data were obtained for the Northridge corridor between the residential neighborhood driveway directly west of the SR 400 southbound ramps and Somerset Court directly east of the SR 400 northbound ramps as well as for the tops of the ramps themselves, a segment length of approximately 0.5 miles. The statewide average crash rates for 2009, 2008, and 2007 for an Urban Minor Arterial were 463, 469, and 513 crashes per 100 million vehicle miles traveled and the corridor crash rates were 1687, 1188 and 1033 crashes per 100 million vehicle miles traveled. This shows that the accident rates for this section of Northridge Road, has been consistently higher than the statewide average.

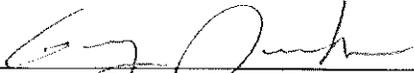
Table 5 Urban Minor Arterial Street Crash Rate Summary			
Total Accidents	2007	2008	2009
Accidents per 100 MVMT	1687	1188	1033
Statewide Accidents per 100 MVMT	513	469	463
Injury Accidents			
Injury Accidents per 100 MVMT	517	275	155
Statewide Injury Accidents per 100 MVMT	126	117	115
Fatalities			
Fatalities per 100 MVMT	17.22	0.00	17.22
Statewide Fatalities per 100 MVMT	1.48	1.47	1.10

Realignment of Dunwoody Place, the SR400 southbound exit ramp and the SR400 southbound entrance ramp where they intersect Northridge Road cannot be accomplished due to the heavily developed right of way adjacent to the existing roadway. An office complex is located in the northwest quadrant and an apartment complex is in the southwest quadrant.

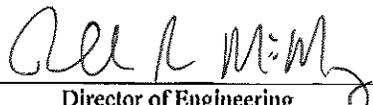
The estimate right of way cost to realign Dunwoody Place is \$1,500,000 (3 acres at \$500,000 per acre). The estimated construction cost to realign approximately 900 LF of Dunwoody Place is \$750,000. The estimated right of way cost to realign the SR400 ramps is \$75,000 (0.25 acres at \$300,000 per acre). The estimated construction cost for the SR400 ramps is \$150,000.

The installation of added overhead signs, roadside signs, pavement marking (especially chicken tracks) and additional pavement will provide mitigation necessary to lessen the impact of not realigning the SR400 ramps and Dunwoody Place as they intersect Northridge Road.

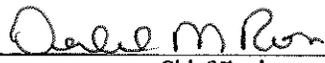
Based on the warranting conditions presented (the existing and proposed geometry, roadway conditions, and accident analysis), I, Gary Newton, P.E. of Kimley-Horn and Associates, Inc., (770) 825-0744, recommended that a Design Exception be approved for the controlling substandard design element.

Submitted By: 
Engineer of Record

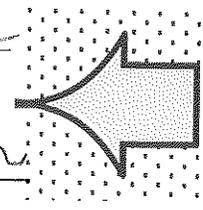
9-5-12
Date

Recommended: 
Director of Engineering

9/12/12
Date

Approved: 
Chief Engineer

9/24/12
Date



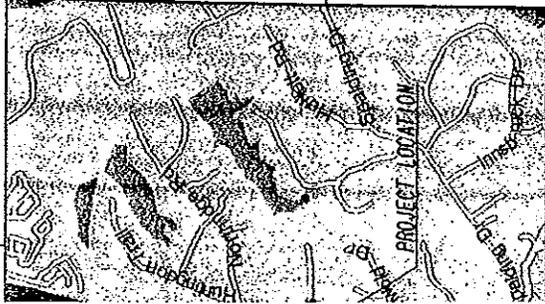
**SIGN
HERE**

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

PLAN AND PROFILE OF PROPOSED INTERCHANGE IMPROVEMENTS SR 400 / US 19 @ CR 145 / NORTHRIDGE ROAD

FEDERAL AID PROJECT
NH000-0056-01(061)
FULTON COUNTY

FEDERAL ROUTE • US 19
STATE ROUTE • SR 400
P.I.NO. 751580-

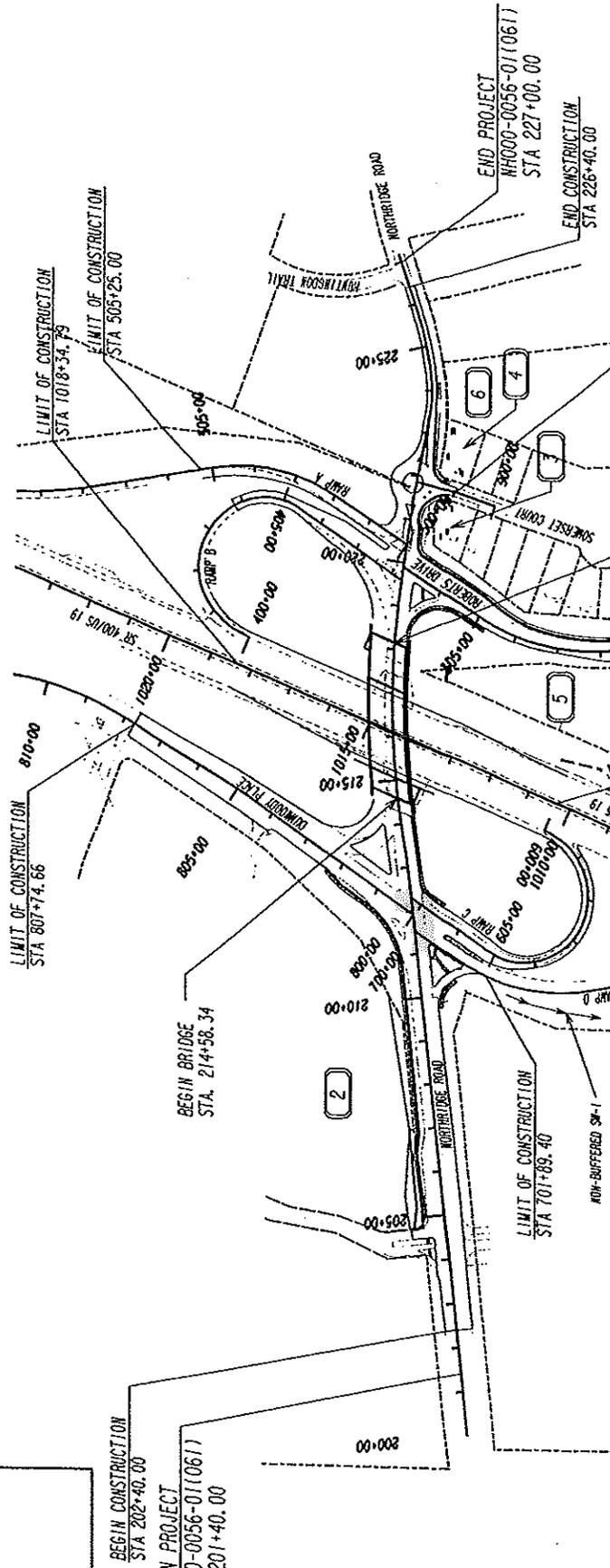


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