

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

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

FILE P.I. # 0010571 **OFFICE** Design Policy & Support
Dougherty County
GDOT District 4 - Tifton **DATE** 12/28/2015
Westover Blvd from Albany Mall to Ledo Road

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:

Hiral Patel, Director of Engineering/State Environmental Administrator
Joe Carpenter, Director of P3/Program Delivery
Genetha Rice-Singleton, Assistant Director of P3/Program Delivery
Albert Shelby, State Program Delivery Engineer
Darryl VanMeter, State Innovative Delivery Engineer
Bobby Hilliard, Program Control Administrator
Cindy VanDyke, State Transportation Planning Administrator
Bill DuVall, State Bridge Engineer
Andrew Heath, State Traffic Engineer
Angela Robinson, Financial Management Administrator
Lisa Myers, State Project Review Engineer
Charles "Chuck" Hasty, State Materials Engineer
Lee Upkins, State Utilities Engineer
Paul Tanner, State Transportation Data Administrator
Attn: Systems & Classification Branch
Richard Cobb, Statewide Location Bureau Chief
Chad Hartley, District Engineer
Brent Thomas, District Preconstruction Engineer
Tim Warren, District Utilities Engineer
Cleopatra James, Project Manager
BOARD MEMBER - 2nd Congressional District

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

Project Type: New Construction P.I. Number: 0010571
 GDOT District: 4 County: Lee/Dougherty
 Federal Route Number: N/A State Route Number: TBD

** UPDATES Completed 12-2-15*

The project serves to connect Ledo Rd located north of Liberty Expressway to N Westover Blvd located to the south of Liberty Expressway. Bridges will be required on Liberty Expressway.

Submitted for approval:

** Chris Rideout - CROY ENGINEERING/KLP* 2-26-15
 Consultant Designer & Firm or GDOT Concept/Design Phase Office Head & Office Date
** Albert Shelby/KLP* 3-18-15
 State Program Delivery Engineer Date
~~Cleopatra James~~ *(assigned project from Justin Banks on 06/15/15)* 06/24/15
 GDOT Project Manager Date

Recommendation for approval:

Program Control Administrator Date
** Hiral Patel/KLP* 7-13-15
 State Environmental Administrator Date
** Andrew Heath/KLP* 3-26-15
 State Traffic Engineer Date
** Lisa Myers/KLP* 3-26-15
 Project Review Engineer Date
** Nicholas Fields/KLP* 4-1-15
 State Utilities Engineer Date
** Chad Hartley/KLP* 3-31-15
 District Engineer Date
** Ben Rabun/KLP* 6-23-15
 State Bridge Engineer Date

State Transportation Financial Management Administrator Date

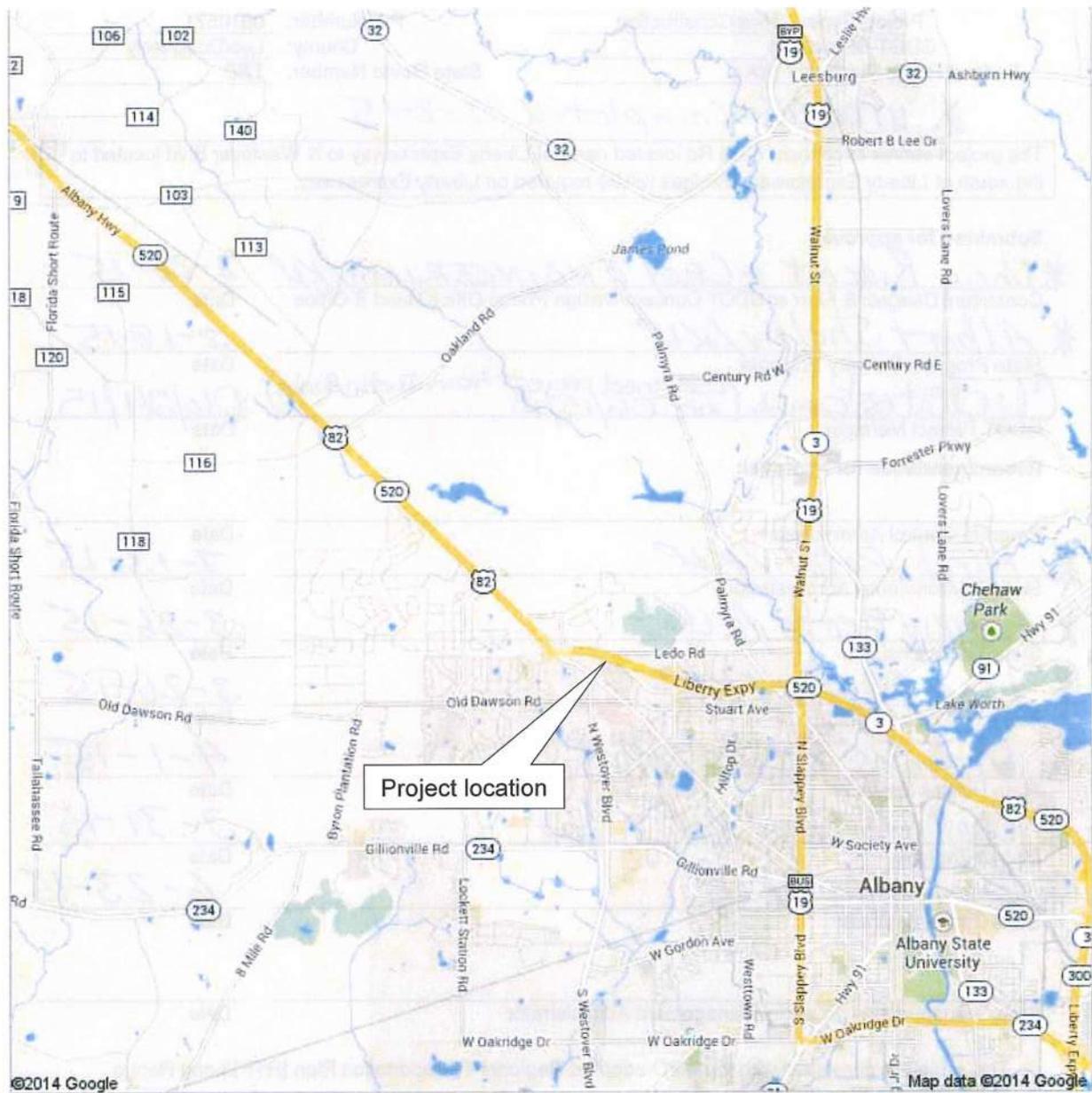
This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).

** Cindy VanDyke/KLP* 3-26-15
 State Transportation Planning Administrator Date

** Signatures or recommendations on file*

County: Lee/Dougherty

PROJECT LOCATION MAP



PLANNING AND BACKGROUND

Project Justification Statement:

The proposed Westover Boulevard Extension will provide a new north/south roadway between the existing sections of Westover Boulevard and Ledo Road in the commercialized area of Northwestern Albany. Currently, the only other existing North/South Corridor crossing the Liberty Expressway in this commercial area is the existing 4-lane section of Nottingham Way. In 2007, the Albany MPO completed a corridor study for the Nottingham Way Corridor that recommended that an alternate route across the Liberty Expressway to Ledo Road within the vicinity of Nottingham Way. The MPO's study also noted that widening Nottingham Way to the maximum extent possible with minimal additional right-of-way will not provide for sufficient congestion relief through 2035. As a result, the Westover Boulevard Extension project was recommended as an additional corridor to provide access across the Liberty Expressway to Ledo Road and was added to the Albany MPO's Long Range Transportation Plan (LRTP). In April 2011, at the request of the MPO, the project was added to the Department's Construction Work Program and was also included on the Southwest Georgia Regional Commission's TIA list of projects (Transportation Referendum) in the fall of 2011. However, the Southwest Georgia region did not pass the TIA so the project is not in a TIA district.

Typically, the Office of Planning uses the Department's approved Design traffic to articulate the project's need in the Project Justification Statement. However, design traffic is not currently available. As such based on the Georgia's State Traffic and Report Statistics (STARS), the 2010 Average Annual Daily Traffic (AADT) along Nottingham Way just north of Westover Boulevard is 16,160. Assuming a 2% yearly growth rate, the 2035 no-build traffic is projected to be 26,512 AADT with a level of service (LOS) C, for the 4-lane facility.

The available latest crash data was gathered for the Nottingham Way Corridor for 2007, 2008 and 2009. The statewide average crash rates for an Urban Collector were 475, 443 and 431 crashes per 100 million vehicle miles respectively and the crash rates along the Nottingham Way corridor between Westover Boulevard and Ledo Road within the project limits were 2,139, 2,199 and 1,149 crashes per 100 million vehicle miles respectively. The crash rates along the corridor were significantly higher than the statewide average for all three years. Nearly 70% of the crash incidents that occurred along Nottingham Way were rear end collisions.

The Westover Blvd. Extension will provide additional access across the Liberty Expressway and has the potential to reduce traffic volumes and crash incidents along the existing Nottingham Way Corridor,

County: Lee/Dougherty

thus increasing the mobility and accessibility of people in the area. This project will be most beneficial to the region by providing a direct connection between growing Southeast Lee County and commercial center surrounding the Albany Mall.

The northern limit is currently at Ledo Rd. and the southern limit is at N. Westover Boulevard, both 4-lane roadways. Final determination of logical termini is dependent on the Office of Environmental Services Coordination with FHWA during the development of the environmental document.

Existing conditions: N Westover Blvd consists of (4) 12-foot lanes with a 14-foot flush turn lane. It is an urban section without sidewalk. Liberty Expressway is a limited access divided highway with two 12-foot lanes in each direction and a 64-foot depressed median. The outside paved shoulders are 10 feet wide and the inside paved shoulders are 4 feet wide.

Other projects in the area: Westover Road Extension is a local project which was recently completed by Lee County. It is a new alignment connecting Fussell Road with Ledo Road. The project will terminate just north of Ledo Road.

MPO: Albany

TIP #: RC10-0000382

TIA Regional Commission: Not a TIA Project

Congressional District(s): 2

Federal Oversight: PoDI Exempt State Funded Other

Projected Traffic: ADT

Current Year (2015): N/A Open Year (2020): 15650 Design Year (2040): 19100

Traffic Projections Performed by: Croy Engineering

Functional Classification (Mainline): Urban Collector Street

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

Warrants met: None Bicycle Pedestrian Transit

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

County: Lee/Dougherty

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

Description of the proposed project: The proposed project begins within the city limits of Albany in Dougherty County and terminates just north of Ledo Road in Lee County. This project consists of a new alignment connecting N Westover Blvd and Ledo Road. As Ledo Road being free flow, a controlled stop condition on N Westover Blvd will be provided. A roundabout is proposed at the intersection with N Westover Blvd. The southern portion of the newly completed Westover Extension in Lee County will require some reconstruction to better align with the proposed roadway. The mainline measures approximately 1200 ft from the roundabout to the tie in with the Westover Extension. To accommodate future projects, the new roadway will contain pedestrian and bicycle accommodations. The west side of the N Westover Extension will feature a 5 ft wide sidewalk, while the east side will showcase a 10 ft wide multi-use trail. A grade separation over Westover Blvd Ext will require 2500 ft of reconstruction along Liberty Expressway as well as two new bridges.

The two new concrete bridges will each consist of 2-12’ lanes with 10’ shoulders and crash barriers. Both bridges will be approximately 170’ long.

Major Structures:

| Structure | Existing | Proposed |
|---|----------|--|
| Bridge 1 – Liberty Exp. West Bound, ~4700’ West of the Nottingham Way Interchange | N/A | 170’ long. 2 – 12’ lanes with 10’ shoulders. |
| Bridge 2 – Liberty Exp. East Bound, ~4700’ West of the Nottingham Way Interchange | N/A | 170’ long. 2 – 12’ lanes with 10’ shoulders. |
| Retaining walls – MSE Fill walls along Liberty Expressway | N/A | ~25,000 SF 0-10’ ~11,000 SF 10’ – 20’ |

Mainline Design Features:

Westover Blvd Extension (Urban Collector)

| Feature | Existing | Standard* | Proposed |
|------------------------|----------|-------------|----------|
| Typical Section | | | |
| - Number of Lanes | N/A | 2-4 | 4 |
| - Lane Width(s) | N/A | 11-12 | 12 ft |
| - Median Width & Type | N/A | Flush 14 ft | none |

County: Lee/Dougherty

| | | | |
|---|-----|------------------|------------|
| - Outside Shoulder or Border Area Width | N/A | 10'-0" to 16'-0" | 12'-0" |
| - Outside Shoulder Slope | N/A | 2% | 2% |
| - Inside Shoulder Width | N/A | N/A | N/A |
| - Sidewalks | N/A | 5 ft | 5 ft/10 ft |
| - Auxiliary Lanes | N/A | 12 ft | 12 ft |
| - Bike Lanes | N/A | 4 ft | N/A |
| Posted Speed | N/A | | 35 mph |
| Design Speed | N/A | 35 mph | 35 mph |
| Min Horizontal Curve Radius | N/A | 371 | 1000 |
| Maximum Superelevation Rate | N/A | 4% | 4% |
| Maximum Grade | N/A | 9% | 1.5% |
| Access Control | N/A | Permit | LIMITED |
| Design Vehicle | N/A | BUS-40 or SU | WB-67 |
| Pavement Type | N/A | Asphalt | Asphalt |

*According to current GDOT design policy if applicable

Liberty Expressway (Arterial)

| Feature | Existing | Standard* | Proposed |
|---|-----------------|-----------------|-----------------|
| Typical Section | | | |
| - Number of Lanes | 4 | 4 | 4 |
| - Lane Width(s) | 12 ft | 11-12 ft | 12 ft |
| - Median Width & Type | Depressed 64 ft | Depressed 44 ft | Depressed 64 ft |
| - Outside Shoulder or Border Area Width | 14 ft | 10 ft | 14 ft |
| - Outside Shoulder Slope | 4% | 6% | 4% |
| - Inside Shoulder Width | 4 ft | 6 ft | 6 ft |
| - Sidewalks | None | N/A | None |
| - Auxiliary Lanes | None | 12 ft | None |
| - Bike Lanes | None | 4 ft | None |
| Posted Speed | 65 mph | | 65 mph |
| Design Speed | 65 mph | 65mph | 65 mph |
| Min Horizontal Curve Radius | 5778 | 1660 (6%) | 5778 |
| Maximum Superelevation Rate | 3.9% | 6% or 8% | 3.9% |
| Maximum Grade | .44% | 9% → 3% | 4.7% |
| Access Control | Limited | Limited | Limited |
| Design Vehicle | unknown | BUS-40 or SU | WB-67 |
| Pavement Type | Asphalt | Asphalt | Asphalt |

SEE GREEN BOOK TABLE 8-1

*According to current GDOT design policy if applicable

Major Interchanges/Intersections: None

Lighting required: No Yes

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

County: Lee/Dougherty

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

| FHWA/AASHTO Controlling Criteria | No | Undetermined | Yes | Appvl Date (if applicable) |
|-----------------------------------|-------------------------------------|--------------------------|--------------------------|----------------------------|
| 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:

| GDOT Standard Criteria | Reviewing Office | No | Undetermined | Yes | Appvl Date (if applicable) |
|-------------------------------------|------------------|-------------------------------------|--------------------------|--------------------------|----------------------------|
| 1. Access Control/Median Openings | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. Intersection Sight Distance | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. Intersection Skew Angle | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. Lateral Offset to Obstruction | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5. Rumble Strips | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6. Safety Edge | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7. Median Usage | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8. Roundabout Illumination Levels | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9. Complete Streets | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10. ADA & PROWAG | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 11. GDOT Construction Standards | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 12. GDOT Drainage Manual | DP&S | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 13. GDOT Bridge & Structural Manual | Bridges | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

VE Study anticipated: No Yes Completed – Date:

UTILITY AND PROPERTY

Temporary State Route needed: No Yes Undetermined

Railroad Involvement: N/A

Utility Involvements: Albany Water Gas and Light, Bellsouth, Georgia Power Company (Distribution), Lee County Utilities Authority, Mediacom, City of Albany, Colonial Pipeline, Sumter EMC

SUE Required: No Yes Undetermined

Public Interest Determination Policy and Procedure recommended? No Yes

County: Lee/Dougherty

Right-of-Way (ROW): Existing width: N/Aft Proposed width: 89ft

Required Right-of-Way anticipated: None Yes Undetermined

Easements anticipated: None Temporary Permanent Utility Other

Anticipated total number of impacted parcels: 3

Displacements anticipated: Businesses: 0

Residences: 0

Other: 0

Total Displacements: 0

Location and Design approval: Not Required Required

ROUNDBABOUTS

Roundabout Lighting Agreement/Commitment Letter received: No Yes

Roundabout Planning Level Assessment: *GDOT Roundabout Design Checklist attached*

Roundabout Feasibility Study: *Attached*

Roundabout Peer Review Required: No Yes Completed – Date: 08-28-2015

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: The Dougherty Area Regional Transportation Study (DARTS) commissioned a regional bicycle and pedestrian plan using input from citizens. The plan highlighted concerns that the public had with regard to bicycle and pedestrian wellbeing and lack of adequate facilities throughout the region.

Context Sensitive Solutions Proposed: The new roadway will contain pedestrian and bicycle accommodations. The west side of the N Westover Extension will feature a 5 ft wide sidewalk, while the east side will showcase a 10 ft wide multi-use trail. This is consistent with the recommendations put forth in the DARTS regional bicycle and pedestrian plan.

ENVIRONMENTAL & PERMITS

Anticipated Environmental Document:

GEPA: NEPA: CE EA/FONSI EIS

MS4 Permit Compliance – Is the project located in a MS4 area? No Yes

Environmental Permits/Variances/Commitments/Coordination anticipated:

County: Lee/Dougherty

| 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. 33 USC 408 Decision | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5. Tennessee Valley Authority Permit | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6. Buffer Variance | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7. Coastal Zone Management Coordination | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 8. NPDES | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 9. FEMA | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 10. Cemetery Permit | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 11. Other Permits | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 12. Other Commitments | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 13. Other Coordination | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Is a PAR required? No Yes Completed – Date:

Environmental Comments and Information:

NEPA/GEPA: Other than Ecology, special studies have been completed. No issues or risks to resources [including Section 4(f)] have been identified or are anticipated. Draft A is under review by OES.

Ecology: Background Research and Field survey completed May 2015. No ecological resources (including Waters of the US or State, protected species or potential habitats) have been identified in project area. The Ecology Report is in progress and has been reviewed by GDOT/OES. Final approval to occur once preliminary plans are available. There are no additional seasonal survey requirements or any other significant issues that should be considered throughout project development. Because there are no ecological resources in the project area, advancement of the concept without an approved survey is considered low risk.

History: Background Research and Field survey completed May 2015. No historic resources were identified in the project area. A “No Historic Properties Affected” document is complete and has been submitted to the State Historic Preservation Officer (SHPO). There are no additional surveys required or any other significant issues that should be considered throughout project development. Because there are no historic resources in the project area, advancement of the concept without an approved document is considered low risk.

County: Lee/Dougherty

Archaeology: The background research, field work and documentation is complete. No cemeteries, other publicly documented archaeological resources, or archaeology sites are present in the project area. No additional surveys will not be required and no significant issues have been identified that should be considered throughout project development. Short Form for Negative Findings has been submitted to the SHPO. Because there are no archaeological resources in the project area, advancement of the concept without an approved document is considered low risk.

Air Quality: Air Quality Assessment has been completed and downloaded to GDOT FTP site for review. No issues anticipated.

Is the project located in a PM 2.5 Non-attainment area? No Yes
Is the project located in an Ozone Non-attainment area? No Yes
Carbon Monoxide hotspot analysis: Required Not Required TBD

Noise Effects: Noise analysis complete and no issues or concerns identified.

Public Involvement: PIOH conducted on May 28, 2015. All property owners that would be directly affected by project implementation were represented at the open house. PIOH attendees indicated overall support for the project. Comment period ended June 7, 2015 with no significant comments received.

Major stakeholders: traveling public, Albany Mall.

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: The preferred alternative will require temporary paving along Liberty Expressway to construct the proposed bridges. The project is located within close proximity to Albany Mall, so construction during the holiday season should be limited.

Early Completion Incentives recommended for consideration: No Yes

COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

Initial Concept Meeting: On July 29, 2014, an Initial Concept Meeting was held at the district 4 office in Tifton. The project schedule was discussed as well as possible alternatives. It was

County: Lee/Dougherty

determined that option 1 (Westover Extension passing underneath Liberty Expressway) was the most sensible option. The minutes have been added as an attachment to this document.

Concept Meeting: On December 4, 2014, a Concept Meeting was held at the district 4 office in Tifton. The design team presented options for the intersection with N Westover Blvd. There was strong support by the district for a roundabout at this location, but it was determined that the final decision was to be made by the city of Albany. Other traffic concerns were discussed and are provided in the attached minutes.

Other coordination to date: On January 20, 2015, the Board of Commissioners of the City of Albany met to discuss design alternatives for the intersection of N Westover Blvd and the Westover Extension. The commissioners voted for the alternate containing a roundabout. Attached is a resolution expressing their support for the roundabout.

| Project Activity | Party Responsible for Performing Task(s) |
|---|--|
| Concept Development | Croy Engineering |
| Design | Croy Engineering |
| Right-of-Way Acquisition | GDOT |
| Utility Relocation | Utility Owner |
| Letting to Contract | GDOT |
| Construction Supervision | GDOT |
| Providing Material Pits | TBD |
| Providing Detours | None anticipated |
| Environmental Studies, Documents, & Permits | Croy Engineering/GDOT OES |
| Environmental Mitigation | N/A |
| Construction Inspection & Materials Testing | GDOT |
| Utility Coordination | GDOT |

Project Cost Estimate Summary and Funding Responsibilities:

| | Breakdown of PE | ROW | Utility* | CST** | Mitigation | Total Cost |
|---------------------|--------------------|-------------|-----------|--------------|------------|--------------|
| Funded By | GDOT | GDOT | GDOT | GDOT | | |
| \$ Amount | \$750,000 | \$1,106,000 | \$0.00 | \$12,047,521 | TBD | \$13,903,521 |
| Date of Estimate | | 9/26/2014 | 9/11/2014 | 9/30/2015 | | |

*Reimbursable Utility Costs only

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

County: Lee/Dougherty

ALTERNATIVES DISCUSSION

Alternative selection: The preferred alternative was to raise Liberty Expressway over the proposed Westover Extension due to the flat grades and short distance between Ledo Road and existing North Westover Blvd. In order to construct an overpass over Liberty Expressway, a second bridge would be required over Ledo. The increase in required bridge square footage coupled with the increase of required right-of-way (4 additional parcels) made Alternate 1 too costly. A no-build option simply was not viable due to the existing congestion along Nottingham Way.

| | | | |
|---|--------------------|------------------------------|---------------------|
| Preferred Alternative: <u>N Westover Extension underpass.</u> This option features a new alignment passing underneath Liberty Expressway, requiring new bridges to be constructed along Liberty Expressway to achieve the necessary grade separation. A roundabout is proposed at the intersection with N Westover Blvd. | | | |
| Estimated Property Impacts: | 3 | Estimated Total Cost: | \$13,903,521 |
| Estimated ROW Cost: | \$1,106,000 | Estimated CST Time: | 24 months |
| Rationale: This alternative adequately achieves the goal of increasing the mobility and accessibility of people in the area, while limiting ROW and construction costs. | | | |

| | | | |
|--|----------|------------------------------|----------|
| No-Build Alternative: <i>description</i> | | | |
| Estimated Property Impacts: | 0 | Estimated Total Cost: | 0 |
| Estimated ROW Cost: | 0 | Estimated CST Time: | 0 |
| Rationale: Due to the congestion along Nottingham Way, no-build was not a viable option | | | |

| | | | |
|---|------------|------------------------------|-------------------|
| Alternative 1: <u>N Westover Extension overpass.</u> This option features a new alignment passing above Liberty Expressway. Bridges are required to span Liberty Expressway and Ledo Road. | | | |
| Estimated Property Impacts: | 7 | Estimated Total Cost: | 18,450,000 |
| Estimated ROW Cost: | TBD | Estimated CST Time: | 24 months |
| Rationale: Although this alternative accomplishes the goals set forth in the project justification, the increased construction cost and increase in the number of property impacts make this option prohibitive. | | | |

Comments: *Add further comments as appropriate.*

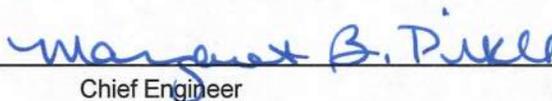
County: Lee/Dougherty

LIST OF ATTACHMENTS/SUPPORTING DATA

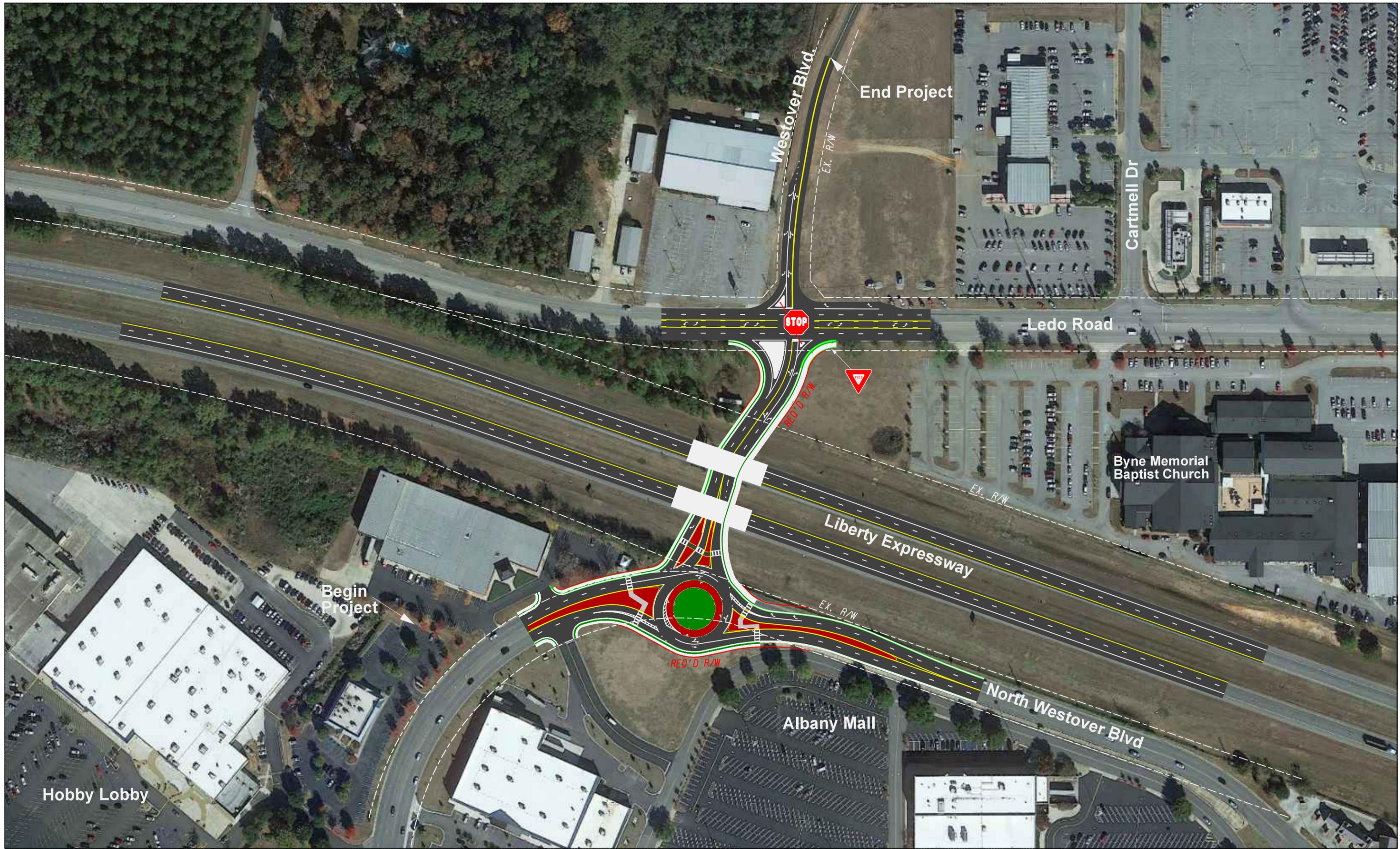
1. Concept Layout
2. Typical sections
3. Detailed Cost Estimates:
 - a. Construction including Engineering and Inspection
 - b. Completed Liquid AC Cost Adjustment forms
 - c. Right-of-Way (Completed by GDOT)
 - d. Utilities
4. Crash summaries
5. Traffic diagrams
6. Capacity analysis summary (*tabular format*)
7. Summary of TE Study and/or Signal Warrant Analysis
8. Roundabout Data
 - a. Planning level assessment
 - i. Fastest Path Analysis
 - ii. Truck Turning Study
 - iii. Sight Distance Evaluation
 - b. Lighting agreement or commitment letter
 - c. Feasibility Study
 - d. Peer Review and responses
9. Pavement studies (*e.g. Preliminary Pavement Type Selection Report, etc.*)
10. Minutes of Concept meetings
11. Minutes of any meetings that shows support or objection to the concept
 - a. City of Albany dBOC Resolution

APPROVALS

Concur: 
Director of Engineering

Approve: 
Chief Engineer

12.18.15
Date



Westover Blvd

End Project

Cartmell Dr

Ledo Road

Byne Memorial Baptist Church

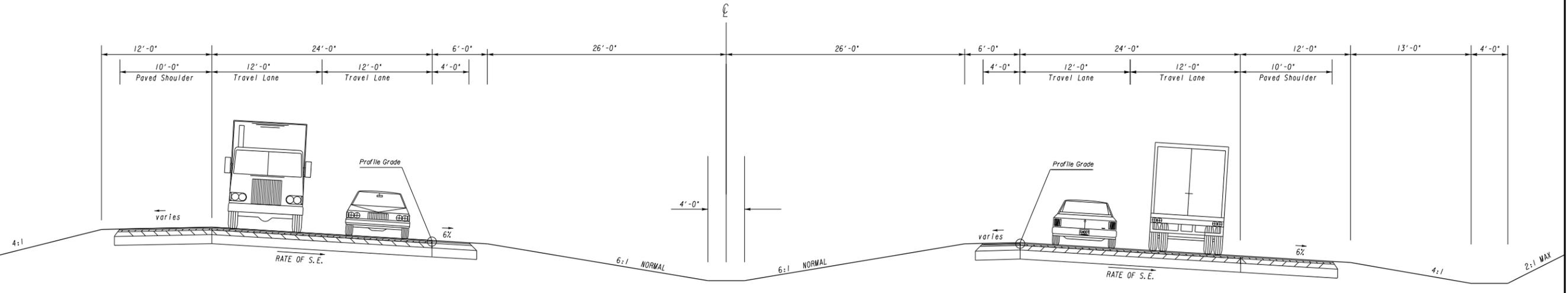
Liberty Expressway

Begin Project

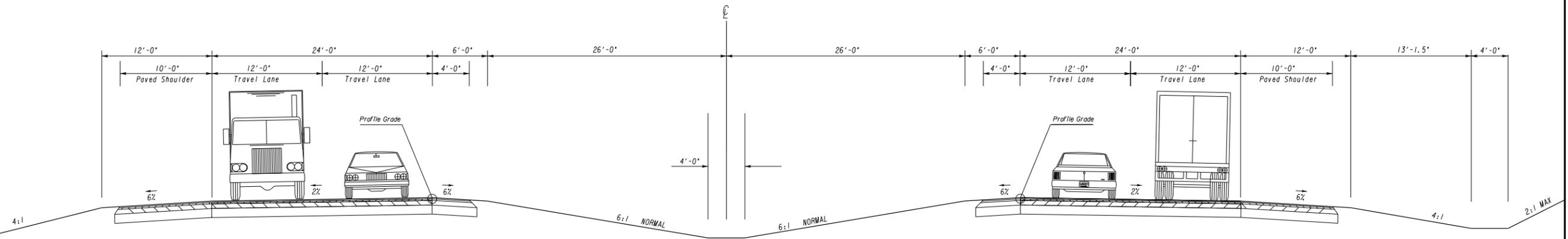
Hobby Lobby

Albany Mall

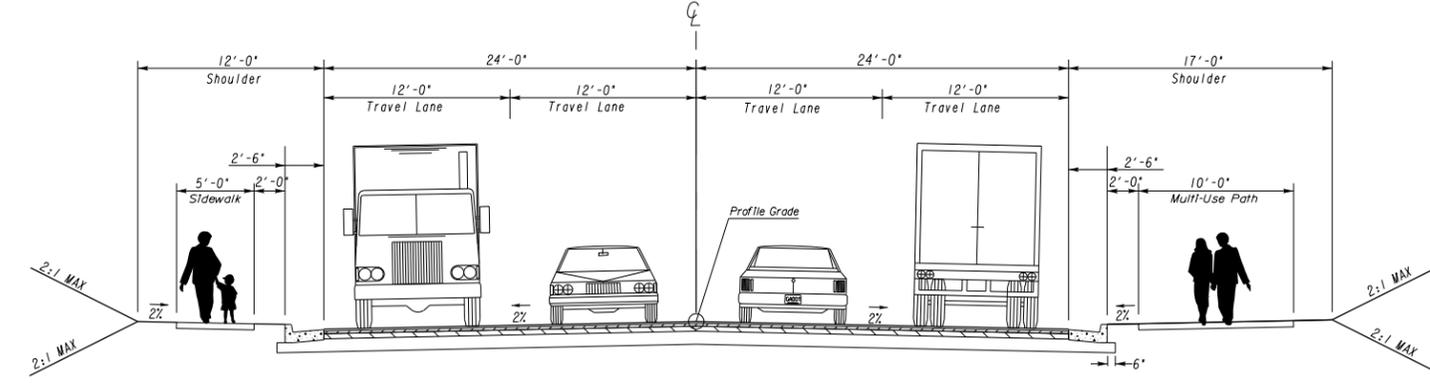
North Westover Blvd



LIBERTY EXPRESSWAY
SUPER ELEVATED



LIBERTY EXPRESSWAY
TANGENT SECTION



N WESTOVER BLVD EXTENSION

REVISION DATES

| | | |
|--|--|--|
| | | |
| | | |
| | | |
| | | |
| | | |

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE:
TYPICAL SECTIONS
LIBERTY EXPY/N WESTOVER BLVD

| | |
|-------------|-----|
| DRAWING No. | 05- |
|-------------|-----|

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. 10571

OFFICE Program Delivery

PROJECT DESCRIPTION

Westover Blvd., from the Albany Mall to Ledo Rd., Dougherty and Lee County - New Construction

DATE October 30, 2015

From: Albert Shelby III, State Program Delivery Engineer

To: Lisa L. Myers, State Project Review Engineer

Subject: REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER Cleopatra James

MGMT LET DATE 7/15/2018

MGMT ROW DATE 1/15/2017

PROGRAMMED COSTS (TPro W/OUT INFLATION)

LAST ESTIMATE UPDATE

CONSTRUCTION \$ 17,231,830.00

DATE 8/1/2011

RIGHT OF WAY \$ 1, 176, 040.00

DATE 8/1/2011

UTILITIES \$ N/A

DATE N/A

REVISED COST ESTIMATES

CONSTRUCTION* \$ 14,413,201.25

RIGHT OF WAY \$ 1,106,000.00

UTILITIES \$ N/A

*Cost Contains 20 % Contingency

REASONS FOR COST INCREASE AND CONTINGENCY JUSTIFICATION:

Annual updated CE (cost estimate). Be advised that the CST total cost decreased because of selection of Option 1 (preferred alternative). The contingency percentage is based upon "New Construction" in the Concept Phase. Also be advised that the right-of-way cost estimate is based upon Option 1, the preferred alternate.

CONTINGENCY SUMMARY

| | | | | |
|---|----|---------------|--|------|
| A. CONSTRUCTION COST ESTIMATE: | \$ | 11,265,143.01 | Base Estimate From CES | |
| B. ENGINEERING AND INSPECTION (E & I): | \$ | 563,257.15 | Base Estimate (A) x | 5 % |
| C. CONTINGENCY: | \$ | 2,365,680.03 | Base Estimate (A) + E & I (B) x | 20 % |
| | | | See % Table in "Risk Based Cost Estimation" Memo | |
| D. TOTAL LIQUID AC ADJUSTMENT: | \$ | 219,121.06 | Total From Liquid AC Spreadsheet | |
| E. CONSTRUCTION TOTAL: | \$ | 14,413,201.25 | (A + B + C + D = E) | |

REIMBURSABLE UTILITY COSTS

| UTILITY OWNER | REIMBURSABLE COST |
|---------------|-------------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| TOTAL | \$ - |

ATTACHMENTS:

Detailed cost estimate (based upon concept) from the consultant
Liquid AC Adjustment Spreadsheet

DETAILED COST ESTIMATE



Job: 0010571

JOB NUMBER 0010571_

FED/STATE PROJECT NUMBER

SPEC YEAR: 01

DESCRIPTION: N. WESTOVER BLVD., FROM ALBANY MALL TO LEDO RD.

ITEMS FOR JOB 0010571

0010 - ROADWAY

| Line Number | ITEM | QUANTITY | UNITS | PRICE | DESCRIPTION | AMOUNT |
|------------------------------|----------|-----------|-------|-------------------|--|-----------------------|
| 0005 | 150-1000 | 1.000 | LS | \$1,500,000.00000 | TRAFFIC CONTROL - P.I. 0010571 | \$1,500,000.00 |
| 0010 | 210-0100 | 1.000 | LS | \$2,000,000.00000 | GRADING COMPLETE - P.I. 0010571 | \$2,000,000.00 |
| 0014 | 310-1101 | 19850.000 | TN | \$29.26108 | GR AGGR BASE CRS, INCL MATL | \$580,832.44 |
| 0034 | 400-3206 | 900.000 | TN | \$81.67456 | ASPH CONC 12.5 MM OGFC,GP 2,INCL PMBM&HL | \$73,507.10 |
| 0035 | 402-3121 | 6400.000 | TN | \$72.33000 | RECYL AC 25MM SP,GP1/2,BM&HL | \$462,912.00 |
| 0040 | 402-3130 | 2800.000 | TN | \$86.14000 | RECYL AC 12.5MM SP,GP2,BM&HL | \$241,192.00 |
| 0045 | 402-3190 | 3200.000 | TN | \$76.97000 | RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL | \$246,304.00 |
| 0050 | 413-1000 | 4400.000 | GL | \$3.28000 | BITUM TACK COAT | \$14,432.00 |
| 0055 | 441-0104 | 700.000 | SY | \$77.40593 | CONC SIDEWALK, 4 IN | \$54,184.15 |
| 0059 | 441-0106 | 700.000 | SY | \$58.05919 | CONC SIDEWALK, 6 IN | \$40,641.43 |
| 0061 | 441-0754 | 800.000 | SY | \$72.12620 | CONC MEDIAN, 7 1/2 IN | \$57,700.96 |
| 0062 | 441-0764 | 400.000 | SY | \$75.00000 | CONC MEDIAN, 10 IN | \$30,000.00 |
| 0067 | 441-5008 | 1830.000 | LF | \$12.47086 | CONC HEADER CURB, 6 IN, TP 7 | \$22,821.67 |
| 0071 | 441-5025 | 290.000 | LF | \$12.33000 | CONC HEADER CURB, 4", TP 9 | \$3,575.70 |
| 0072 | 441-6222 | 1960.000 | LF | \$19.27909 | CONC CURB & GUTTER/ 8"X30"TP2 | \$37,787.02 |
| 0077 | 626-0501 | 270.000 | LF | \$85.00000 | CAST-IN-PLACE COPING, A | \$22,950.00 |
| 0082 | 626-0502 | 2000.000 | LF | \$233.00000 | CAST-IN-PLACE COPING, B | \$466,000.00 |
| 0087 | 627-1000 | 25000.000 | SF | \$41.50000 | MSE WALL FACE, 0 - 10 FT HT, WALL NO - P.I. 0010571 | \$1,037,500.00 |
| 0092 | 627-1010 | 11000.000 | SF | \$51.50000 | MSE WALL FACE, 10 - 20 FT HT, WALL NO - P.I. 0010571 | \$566,500.00 |
| SUBTOTAL FOR ROADWAY: | | | | | | \$7,458,840.47 |

0040 - BRIDGE

| Line Number | ITEM | QUANTITY | UNITS | PRICE | DESCRIPTION | AMOUNT |
|-----------------------------|----------|----------|-------|-------------------|---|-----------------------|
| 0126 | 543-9000 | 1.000 | LS | \$1,250,000.00000 | CONSTR OF BRIDGE COMPLETE - 7500 SQ FT, \$150 PER SQ FT | \$1,250,000.00 |
| 0130 | 543-9000 | 1.000 | LS | \$1,250,000.00000 | CONSTR OF BRIDGE COMPLETE - 7500 SQ FT, \$150 PER SQ FT | \$1,250,000.00 |
| 0100 | 641-1100 | 120.000 | LF | \$69.99885 | GUARDRAIL, TP T | \$8,399.86 |
| 0101 | 641-1200 | 3600.000 | LF | \$11.12244 | GUARDRAIL, TP W | \$40,040.78 |
| 0106 | 641-5001 | 4.000 | EA | \$699.89664 | GUARDRAIL ANCHORAGE, TP 1 | \$2,799.59 |
| 0111 | 641-5012 | 4.000 | EA | \$1,942.84614 | GUARDRAIL ANCHORAGE, TP 12 | \$7,771.38 |
| SUBTOTAL FOR BRIDGE: | | | | | | \$2,559,011.61 |

| Line Number | ITEM | QUANTITY | UNITS | PRICE | DESCRIPTION | AMOUNT |
|-----------------------|----------|----------|-------|------------|-------------------------------|--------------------|
| 0141 | 430-0200 | 500.000 | SY | \$85.00000 | PLN PC CONC PVMT/CL1C/ 10" TK | \$42,500.00 |
| 0136 | 643-0010 | 500.000 | LF | \$8.99956 | FIELD FENCE WOVEN WIRE | \$4,499.78 |
| SUBTOTAL FOR : | | | | | | \$46,999.78 |

COST GROUP FOR JOB 0010571

| LINE NUMBER | UNIT | CALCULATION RULE | QUANTITY | PRICE | COST GROUP ID | DESCRIPTION | AMOUNT |
|-------------|------|------------------|-----------|--------------|---------------|------------------------|--------------|
| 00000002 | SY | NORM | 1.000 | \$100,000.00 | EROC | EROSION CONTROL (SY) | \$100,000.00 |
| 00000003 | EA | PCTO | 12587.413 | \$3.00 | SIGNPCTO | SIGNS (PERCENT OF JOB) | \$37,762.24 |

DETAILED COST ESTIMATE



Job: 0010571_

| LINE NUMBER | UNIT | CALCULATION RULE | QUANTITY | PRICE | COST GROUP ID | DESCRIPTION | AMOUNT |
|-------------------------|------|------------------|-----------|--------------|---------------|-----------------------------------|-----------------------|
| 00000004 | EA | NORM | 1.000 | \$800,000.00 | DRNGEA | DRAINAGE (EA) | \$800,000.00 |
| 00000009 | LM | PCTO | 12587.413 | \$3.00 | PVMKPCTO | PAVEMENT MARKING (PERCENT OF JOB) | \$37,762.24 |
| 00000010 | EA | PCTO | 12587.413 | \$12.50 | LTNGPCTO | LIGHTING (PERCENT OF JOB) | \$157,342.66 |
| 00000011 | AC | PCTO | 12587.413 | \$10.00 | LSCPPCTO | LANDSCAPING (PERCENT OF JOB) | \$125,874.13 |
| <i>SUBTOTAL:</i> | | | | | | | \$1,258,741.27 |

TOTALS FOR JOB 0010571_

| | |
|---|------------------------|
| ITEMS COST: | \$10,064,851.86 |
| COST GROUP COST: | \$1,258,741.27 |
| ESTIMATED COST: | \$11,265,143.01 |
| CONTINGENCY PERCENT: | 0.20 |
| ENGINEERING AND INSPECTION: | 0.05 |
| ESTIMATED COST WITH CONTINGENCY AND E&I: | \$14,081,428.76 |

PROJ. NO. [REDACTED]
P.I. NO. 0010571
DATE 2/25/2015

CALL NO.

| INDEX (TYPE) | DATE | INDEX |
|---------------|--------|-----------|
| REG. UNLEADED | Feb-15 | \$ 1.998 |
| DIESEL | | \$ 2.777 |
| LIQUID AC | | \$ 534.00 |

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) | | | | | 213066 | | \$ 213,066.00 |
| Monthly Asphalt Cement Price month placed (APM) | Max. Cap | 60% | \$ | 854.40 | | | |
| Monthly Asphalt Cement Price month project let (APL) | | | \$ | 534.00 | | | |
| Total Monthly Tonnage of asphalt cement (TMT) | | | | 665 | | | |

| ASPHALT | Tons | %AC | AC ton |
|-----------|--------------|------|------------|
| Leveling | 0 | 5.0% | 0 |
| 12.5 OGFC | 900 | 5.0% | 45 |
| 12.5 mm | 2800 | 5.0% | 140 |
| 9.5 mm SP | 0 | 5.0% | 0 |
| 25 mm SP | 6400 | 5.0% | 320 |
| 19 mm SP | 3200 | 5.0% | 160 |
| | 13300 | | 665 |

BITUMINOUS TACK COAT

| | | | | | | | |
|--|----------|-----|----|--------------------|--------------------|--|--------------------|
| Price Adjustment (PA) | | | | | \$ 6,055.06 | | \$ 6,055.06 |
| Monthly Asphalt Cement Price month placed (APM) | Max. Cap | 60% | \$ | 854.40 | | | |
| Monthly Asphalt Cement Price month project let (APL) | | | \$ | 534.00 | | | |
| Total Monthly Tonnage of asphalt cement (TMT) | | | | 18.89844406 | | | |

| Bitum Tack | Gals | gals/ton | tons |
|------------|------|----------|------------|
| | 4400 | 232.8234 | 18.8984441 |

BITUMINOUS TACK COAT (surface treatment)

| | | | | | | | |
|--|----------|-----|----|----------|----------|--|-------------|
| Price Adjustment (PA) | | | | | 0 | | \$ - |
| Monthly Asphalt Cement Price month placed (APM) | Max. Cap | 60% | \$ | 854.40 | | | |
| Monthly Asphalt Cement Price month project let (APL) | | | \$ | 534.00 | | | |
| Total Monthly Tonnage of asphalt cement (TMT) | | | | 0 | | | |

| Bitum Tack | SY | Gals/SY | Gals | gals/ton | tons |
|--------------------|----|---------|------|----------|------|
| Single Surf. Trmt. | | 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 |

TOTAL LIQUID AC ADJUSTMENT **\$ 219,121.06**

Department of Transportation State of Georgia

Interdepartmental Correspondence

FILE R/W Cost Estimate **OFFICE** Atlanta
DATE October 14, 2015
LaShone Alexander, Right of Way Cost Estimator

TO Cleopatra James, Project Manger

SUBJECT **Preliminary Right of Way Cost Estimate**
Project: 0010571 Option 1 Dougherty County
P.I. No.: 0010571 Option 1
Description: Westover Blvd from the Albany Mall to Ledo Road

As per your request, attached is a copy of the approved Preliminary Right of Way Cost Estimates on the above referenced projects.

If you have any questions, please contact LaShone Alexander at One Georgia Center 600 West Parkway Street, NW Atlanta, GA 30308, Right of Way Office at (478) 553-1569 or (478) 232-4045.

PC:LA
Attachments
c: file

**GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY**

Date: 10/13/2015 Project: 0010571
 Revised: County: Dougherty
 PI: 0010571 Option 1

Description: WESTOVER BLVD FROM ALBANY MALL TO LEDO ROAD
 Project Termini: WESTOVER BLVD FROM ALBANY MALL TO LEDO ROAD

Existing ROW: Varies
 Required ROW: Varies
 Parcels: 3

Land and Improvements _____ \$1,012,500.00

| | |
|----------------------|-------------|
| Proximity Damage | \$0.00 |
| Consequential Damage | \$0.00 |
| Cost to Cures | \$0.00 |
| Trade Fixtures | \$0.00 |
| Improvements | \$50,000.00 |

Valuation Services _____ \$18,750.00

Legal Services _____ \$39,525.00

Relocation _____ \$6,000.00

Demolition _____ \$0.00

Administrative _____ \$28,500.00

TOTAL ESTIMATED COSTS _____ \$1,105,275.00

TOTAL ESTIMATED COSTS (ROUNDED) _____ \$1,106,000.00

| Preparation Credits | Hours | Signature |
|---------------------|-------|-----------|
| | | |
| | | |
| | | |

Prepared By: Dashone Alexander CG#: 286999 10/13/2015 (DATE)
 Approved By: Dashone Alexander CG#: 286999 10/13/2015 (DATE)

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

Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI 0010571 Dougherty 0010571 Option 1

| | A | B | C | D |
|------------------------------|---|--------------------|-------------------|-----------------------|
| Land and Improvements | Agriculture | Residential | Commercial | Industrial |
| 1 Estimate Low (ac) | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 2 Estimate High (ac) | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 3 Estimate Used (ac) | \$0.00 | \$0.00 | \$125,000.00 | \$0.00 |
| 4 Fee Simple Area (ac) | 0.00 | 0.00 | 5.00 | 0.00 |
| 5 Fee Simple Estimate | \$0.00 | \$0.00 | \$625,000.00 | \$0.00 |
| 6 Perm Esmt Area (ac) | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 Perm Esmt Factor | 0% | 0% | 0% | 0% |
| 8 Perm Esmt Estimate | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 9 Temp Esmt Area (ac) | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 Temp East Factor | 0% | 0% | 0% | 0% |
| 11 Temp Esmt Estimate | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 12 Proximity Damages | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 13 Consequential Damages | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 14 Cost to Cures | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 15 Improvements | \$0.00 | \$0.00 | \$50,000.00 | \$0.00 |
| 16 Trade Fixtures | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 17 | | | | |
| 18 PROPERTY TYPE TOTALS | \$0.00 | \$0.00 | \$675,000.00 | \$0.00 |
| 19 | SUB TOTAL PROPERTY TYPES | | | \$675,000.00 |
| 20 | Counter Offers and Condemnation Increases | | | \$337,500.00 |
| 21 | | | | |
| 22 | GRAND TOTAL LANDS AND IMPROVEMENTS | | | \$1,012,500.00 |

Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI 0010571 Dougherty 0010571 Option 1

| | A | B | C | D |
|------------------------------------|--|-------------|-------------|--------------------|
| Valuation Services | Agriculture | Residential | Commercial | Industrial |
| 1 Appraisals (# of Parcels) | 0 | 0 | 3 | 0 |
| 2 Estimated Fees (per Parcel) | \$0.00 | \$0.00 | \$5,000.00 | \$0.00 |
| 3 TOTAL APPRAISALS | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 |
| 4 Sign Estimates | 0 | 0 | 0 | 0 |
| 5 Estimated Fees | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 6 TOTAL SIGN ESTIMATES | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 7 Specialty Reports | 0 | 0 | 0 | 0 |
| 8 Estimated Fees | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 9 TOTAL SPECIALTY REPORTS | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 10 Septic/Well Reports | 0 | 0 | 0 | 0 |
| 11 Estimated Fees | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 12 TOTAL SEPTIC/WELL REPORTS | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 TOTAL VALUATION FEES | \$0.00 | \$0.00 | \$15,000.00 | \$0.00 |
| 17 | SUB TOTAL VALUATION SERVICES | | | \$15,000.00 |
| 18 | Updates and Incidentals (Min \$2,500 or 25%) | | | \$3,750.00 |
| 19 | GRAND TOTAL VALUATION SERVICES | | | \$18,750.00 |

Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI 0010571 Dougherty 0010571 Option 1

| | A | B | C | D |
|----|-----------------------------------|----------------|-------------|--------------------|
| | Parcels | Estimated Fees | | TOTALS |
| 1 | Meeting with Attorney | 3 | \$125.00 | \$375.00 |
| 2 | Preliminary Titles | 3 | \$200.00 | \$600.00 |
| 3 | Closing and Final Title | 3 | \$300.00 | \$900.00 |
| 4 | Recording Fees | 3 | \$50.00 | \$150.00 |
| 5 | Condemnation Filing | 1 | \$5,000.00 | \$5,000.00 |
| 6 | Litigation Costs | 1 | \$25,000.00 | \$25,000.00 |
| 7 | Updates and Incidentals | 1 | \$7,500.00 | \$7,500.00 |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | GRAND TOTAL LEGAL SERVICES | | | \$39,525.00 |

Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI 0010571 Dougherty 0010571 Option 1

| | A | B | C | D |
|---------------------------------|---------------|-------------------------------|---|-------------------|
| Relocation | Displacements | Estimated Costs | | TOTALS |
| 1 Business Displacement | | \$15,000.00 | | \$0.00 |
| 2 Residential Tenant | | \$20,000.00 | | \$0.00 |
| 3 Residential Owner | 0 | \$40,000.00 | | \$0.00 |
| 4 Pro-Rata Taxes | 3 | \$1,000.00 | | \$3,000.00 |
| 5 Property Pin Replacement | 3 | \$1,000.00 | | \$3,000.00 |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | GRAND TOTAL RELOCATION | | \$6,000.00 |

Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI 0010571 Dougherty 0010571 Option 1

| | A | B | C | D |
|----|-------------------------------|--------------------|-----------------|---------------|
| | Demolition | Items/Improvements | Estimated Costs | TOTALS |
| 1 | Residential Structures | | \$15,000.00 | \$0.00 |
| 2 | Commercial Structures | | \$25,000.00 | \$0.00 |
| 3 | Hotels/Apartments | | \$60,000.00 | \$0.00 |
| 4 | UST's - Dispensers | | \$50,000.00 | \$0.00 |
| 5 | Billboards | | \$8,000.00 | \$0.00 |
| 6 | Signs - Light Standards | | \$1,500.00 | \$0.00 |
| 7 | Water Vaults | | \$15,000.00 | \$0.00 |
| 8 | Gas/Water Service Separation | | \$2,500.00 | \$0.00 |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | GRAND TOTAL DEMOLITION | | | \$0.00 |

Georgia Department of Transportation
Preliminary ROW Cost Estimate Worksheet

Project/County/PI 0010571 Dougherty 0010571 Option 1

| | A | B | C | D |
|----|----------------------------|----------------------|-----|--------------------|
| | Parcels | Man hours per Parcel | | TOTALS |
| 1 | Pre-Acquisition | 3 | 40 | \$6,000.00 |
| 2 | Acquisition | 3 | 100 | \$15,000.00 |
| 3 | Relocation | 0 | 50 | \$0.00 |
| 4 | Administrative Appeals | 1 | 50 | \$2,500.00 |
| 5 | Post-Acquisition | 1 | 100 | \$5,000.00 |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | GRAND TOTAL INHOUSE | | | \$28,500.00 |

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE

Project No: N/A
County DOUGHERTY

OFFICE: Tifton
DATE: September 11, 2014

P.I. # 0010571

Description: **WESTOVER BLVD FROM ALBANY MALL TO LEDO ROAD**

rw
FROM Tim Warren, P.E., District Utilities Engineer

TO Gerald McDaniel, Project Manager (VIA EMAIL)

SUBJECT UTILITY COST ESTIMATE

A review of utilities located on the above referenced project has been conducted without a design concept.. Listed below is a breakdown of the anticipated reimbursable and non-reimbursable cost.

| <u>Utility Owner</u> | <u>Reimbursable</u> | <u>Non-Reimbursable</u> | <u>Estimate Based on</u> |
|--------------------------------------|---------------------|-------------------------|---------------------------------|
| Albany WG&L ** | \$0.00 | \$310,000.00 | Site Visit / Available Drawings |
| Bellsouth | \$0.00 | \$0.00 | Site Visit / Available Drawings |
| Georgia Power Company (Distribution) | \$0.00 | \$35,000.00 | Site Visit / Available Drawings |
| Lee County Utilities Authority ** | \$0.00 | \$60,000.00 | Site Visit / Available Drawings |
| Mediacom | \$0.00 | \$8,000.00 | Site Visit / Available Drawings |
| City of Albany | \$0.00 | \$0.00 | West of Alternate # 1 |
| Colonial Pipeline Company | \$0.00 | \$0.00 | West of Alternate # 1 |
| Sumter EMC | \$0.00 | \$0.00 | NE of Alternate # 1 |
| Total | \$ 0.00 | \$413,000.00 | |

**** Indicates Potential Utility Aid Request from Local Gov't**

Estimate is based on the best available information at the current stage, unforeseen prior rights information may be provided by the Utility Company at a later date that could cause some non-reimbursable costs to shift to the reimbursable cost column.

If additional information is needed, please contact me or Bill Cooper, Assistant District Utilities Engineer at (229) 386-3288. *BC*

c: Nick Fields, State Utilities Office
Lee Upkins, State Utilities Office
Jun Birnkammer, State Utilities Office
Brent Thomas, District Preconstruction Engineer

N. WESTOVER BLVD

| 2011 (As of 6/28/11) | | | | | | | | |
|----------------------|--------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Westover Blvd | Nottingham Way | 14 | 3 | | | | 2 | |
| Westover Blvd | Dawson Rd | 5 | 9 | | 2 | 1 | 2 | 1 |
| Westover Blvd | Archwood Dr | 2 | 4 | | 1 | | | |
| Westover Blvd | Old Dawson Rd | 1 | 1 | | | | | |
| Totals | | 22 | 17 | 0 | 3 | 1 | 4 | 1 |

| |
|--------|
| Totals |
| 19 |
| 20 |
| 7 |
| 2 |
| 48 |

| 2012 | | | | | | | | |
|---------------------|--------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Westover Blvd | Dawson Rd | 6 | 11 | | 1 | 1 | 2 | 17 |
| Westover Blvd | Old Dawson Rd | 3 | | | 1 | | | 6 |
| Westover Blvd | Nottingham Way | 15 | 4 | 2 | 1 | | | 11 |
| Westover Blvd | Archwood Dr | 2 | 2 | | | 1 | | 2 |
| North Westover Blvd | | 4 | 1 | | | | | 4 |
| Totals | | 30 | 18 | 2 | 3 | 2 | 2 | 40 |

| |
|--------|
| Totals |
| 38 |
| 10 |
| 33 |
| 7 |
| 9 |
| 97 |

| 2013 | | | | | | | | |
|---------------------|--------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Westover Blvd | Dawson Rd | 12 | 20 | | 6 | 1 | 1 | 10 |
| Westover Blvd | Old Dawson Rd | 8 | 4 | | 1 | | 1 | 1 |
| Westover Blvd | Nottingham Way | 20 | 5 | | 4 | | 1 | 8 |
| Westover Blvd | Archwood Dr | 4 | 4 | 1 | 1 | | 1 | 5 |
| Westover Blvd | Partridge Dr | | 1 | | | | | |
| Westover Blvd | Liberty Expressway | | 1 | | | | | |
| North Westover Blvd | | 5 | 2 | 1 | 3 | | | 3 |
| Totals | | 49 | 37 | 2 | 15 | 1 | 4 | 27 |

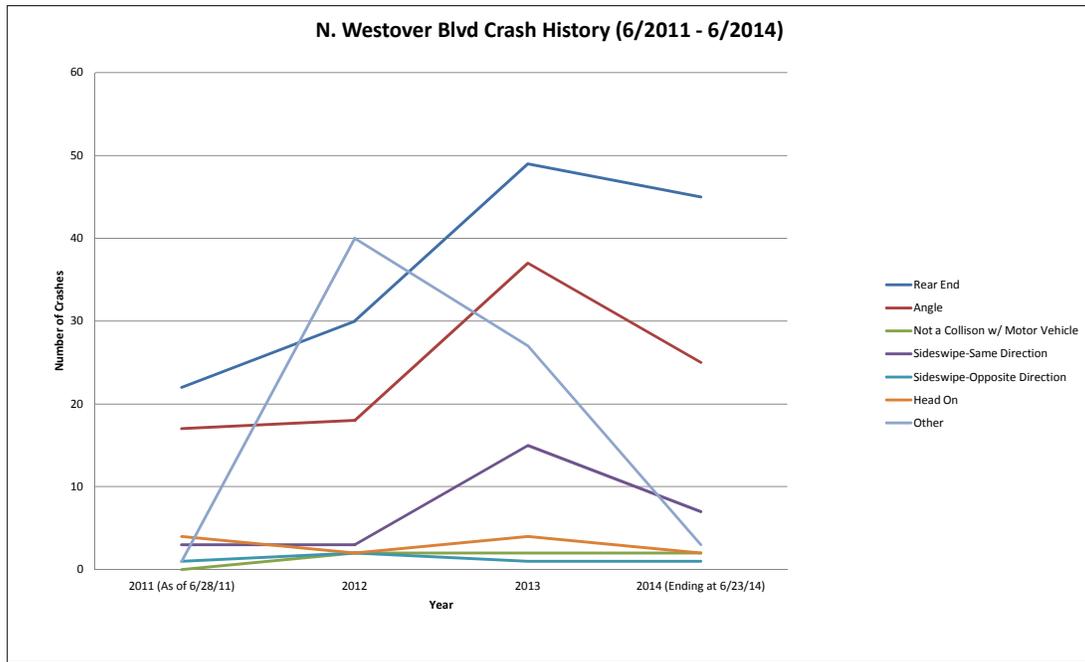
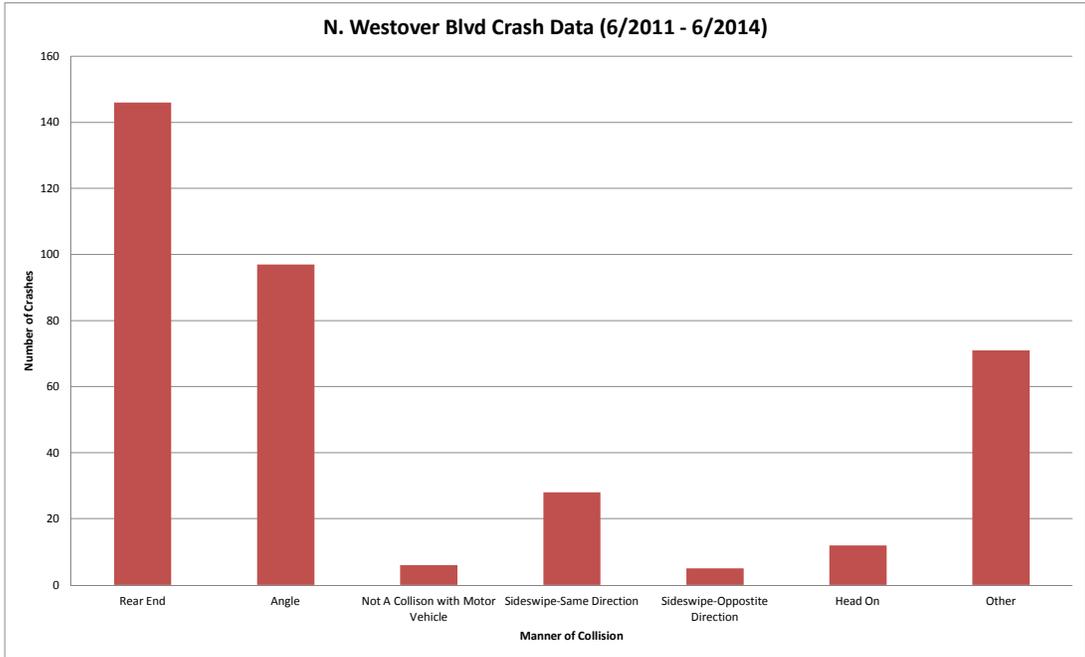
| |
|--------|
| Totals |
| 50 |
| 15 |
| 38 |
| 16 |
| 1 |
| 1 |
| 14 |
| 135 |

| 2014 (Ending at 6/23/14) | | | | | | | | |
|--------------------------|--------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Westover Blvd | Dawson Rd | 11 | 13 | | 2 | 1 | | |
| Westover Blvd | Old Dawson Rd | 6 | | | 1 | | 1 | |
| Westover Blvd | Nottingham Way | 24 | 5 | 1 | 2 | | | |
| Westover Blvd | Archwood Dr | 2 | 2 | 1 | | | | |
| North Westover Blvd | | 2 | 5 | | 2 | | 1 | 3 |
| Totals | | 45 | 25 | 2 | 7 | 1 | 2 | 3 |

| |
|--------|
| Totals |
| 27 |
| 8 |
| 32 |
| 5 |
| 13 |
| 85 |

| | | | | | | | |
|------------------------|-----|----|---|----|---|----|----|
| TOTAL (OVERALL) | 146 | 97 | 6 | 28 | 5 | 12 | 71 |
|------------------------|-----|----|---|----|---|----|----|

| |
|-----|
| 365 |
|-----|



LEDO ROAD

| 2011 (As of 7/3/2011) | | | | | | | |
|----------------------------------|--------------------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On |
| Ledo Rd | Grand Island Dr | 3 | 5 | | 1 | | |
| Ledo Rd | Private Driveway At Murphy Oil | | 1 | | | | |
| Ledo Rd | Nottingham Way | 2 | | | | | |
| Ledo Road | Cartmell Dr | 2 | 2 | | | | |
| Ledo Road | Archie Drive | | | 1 | | | |
| Ledo Rd | Walmart Entrance Exit Rd | | 1 | | | | |
| Ledo Road West of Nottingham Way | | | 1 | | | | |
| Totals | | 7 | 10 | 1 | 1 | 0 | 0 |

| |
|---------------|
| Totals |
| 9 |
| 1 |
| 2 |
| 4 |
| 1 |
| 1 |
| 1 |

| |
|----|
| 19 |
|----|

| 2012 | | | | | | | |
|-------------------------------|------------------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On |
| Ledo Rd | Walmart Entrance Exit Rd | | 2 | | | | |
| Ledo Rd | Nottingham Way | 8 | 3 | | 2 | | 1 |
| Ledo Rd | Schley Ave | | 1 | | | | |
| Ledo Rd | Cartmell Dr | | 5 | | 1 | 1 | 1 |
| Ledo Rd | Grand Island Dr | 4 | 1 | 1 | 1 | | |
| Ledo Road | Archie Drive | | | 1 | | | |
| Ledo Rd | Private Drive (2825 Ledo Rd) | | 1 | | | | |
| Ledo Rd | Walmart Entrance | | 1 | | | | |
| 2700 Ledo Rd | Private Drive | | 1 | | | | |
| 2825 Ledo Rd | | 1 | 2 | 2 | | | |
| Ledo Rd 1 Mile West of Nottin | | | 1 | | | | |
| 2821 Ledo Rd | | | 1 | | | | |
| Totals | | 13 | 19 | 4 | 4 | 1 | 2 |

| |
|---------------|
| Totals |
| 2 |
| 14 |
| 1 |
| 8 |
| 7 |
| 1 |
| 1 |
| 1 |
| 1 |
| 5 |
| 1 |
| 1 |

| |
|----|
| 43 |
|----|

| 2013 | | | | | | | |
|---------------|-----------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On |
| Ledo Rd | Walmart Private Dr | | 3 | | | | |
| Ledo Rd | Grand Island Dr | 1 | 1 | | 2 | | |
| Ledo Rd | Cartmell Dr | | 5 | | 1 | | 1 |
| Ledo Rd | Nottingham Way | 6 | 3 | | 1 | | 1 |
| Ledo Rd | Spanish Ct | 1 | | | | | |
| Ledo Rd | 1 W of Nottingham Way | | 1 | | | | |
| 2825 Ledo Rd | | 1 | 3 | 4 | | 1 | 2 |
| 2835 Ledo Rd | | | 1 | | | | |
| Ledo Rd | | | | | 1 | | |
| 2847 Ledo Rd | | | | | 1 | | |
| Totals | | 9 | 17 | 4 | 6 | 1 | 4 |

| |
|---------------|
| Totals |
| 3 |
| 4 |
| 7 |
| 11 |
| 1 |
| 1 |
| 11 |
| 1 |
| 1 |
| 1 |

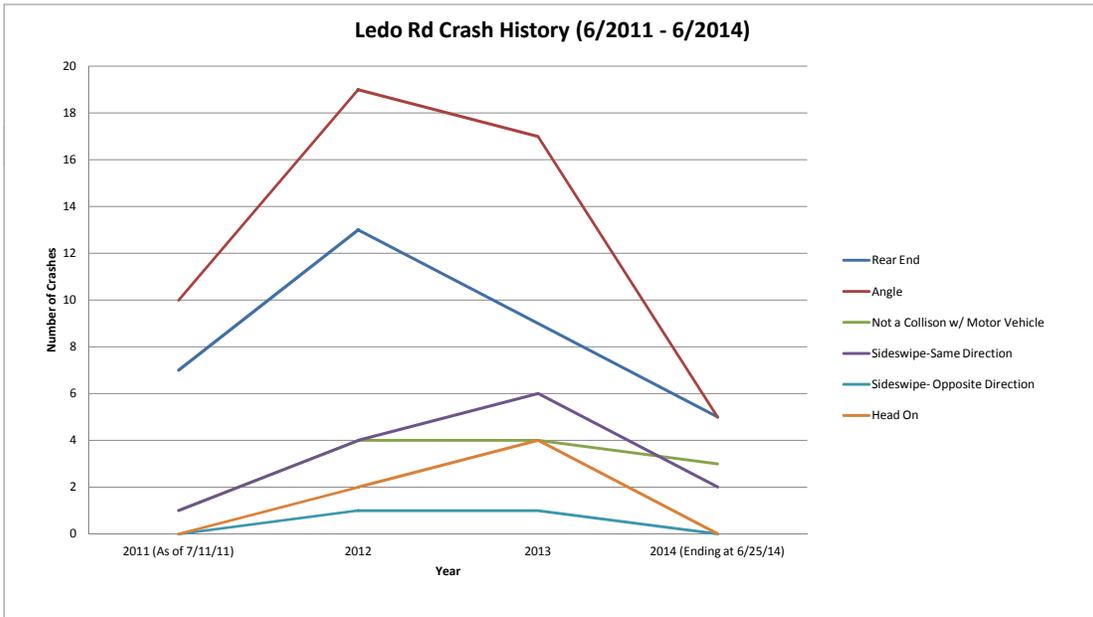
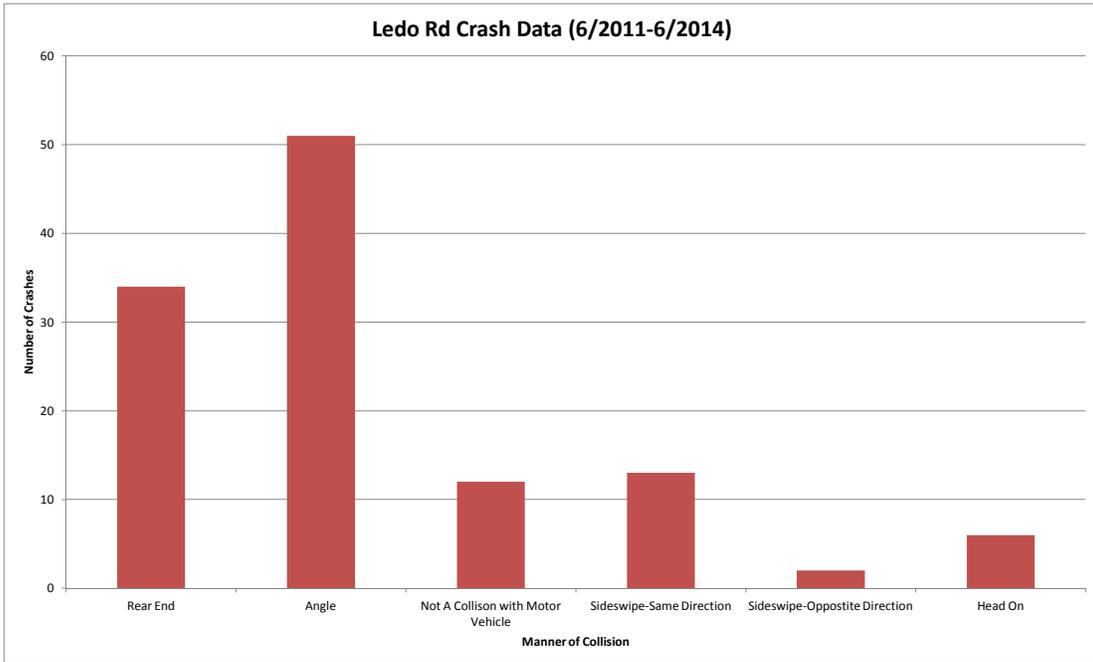
| |
|----|
| 41 |
|----|

| 2014 (Ending at 6/6/14) | | | | | | | |
|-------------------------|-----------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On |
| Ledo Rd | Cartmell Dr | | 2 | | | | |
| Ledo Rd | Nottingham Way | 3 | 1 | | 2 | | |
| Ledo Rd | Archie Dr | | | 1 | | | |
| Ledo Rd | E Entrance to Walmart | | 1 | | | | |
| Ledo Rd | Grand Island Dr | | | 1 | | | |
| 2825 Ledo Rd | | 1 | 1 | 1 | | | |
| Ledo Near Nottingham | | 1 | | | | | |
| Totals | | 5 | 5 | 3 | 2 | 0 | 0 |
| TOTAL (OVERALL) | | 34 | 51 | 12 | 13 | 2 | 6 |

| |
|---------------|
| Totals |
| 2 |
| 6 |
| 1 |
| 1 |
| 1 |
| 3 |
| 1 |

| |
|----|
| 15 |
|----|

| |
|-----|
| 118 |
|-----|



NOTTINGHAM ROAD

| 2011 (As of 7/11/11) | | | | | | | | |
|----------------------|------------------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Nottingham Way | Friar Tuck Ln | | | | 1 | | | |
| Nottingham Way | Liberty Expressway Off RP | 2 | 2 | | | | | |
| Nottingham Way | Five Tael Ln | 1 | | | | | | |
| Nottingham Way | 120 Liberty Expressway On RP | 5 | | | | | | |
| Nottingham Way | Ledo Rd | 1 | | | | | | |
| Nottingham Way | Westover Blvd | 5 | 3 | | | | | |
| Nottingham Way | Liberty Expressway | 1 | | | | | | |
| Nottingham Way | Stuart Ave | 1 | 1 | | | | | |
| Nottingham Way | Stuart Ave | | 1 | 1 | | | | |
| Nottingham Way | Liberty Expressway RP | 1 | 1 | | | | | |
| Nottingham Way | SR 120 | 1 | | | | | | |
| Totals | | 18 | 8 | 1 | 1 | 0 | 0 | 0 |

| Totals |
|--------|
| 1 |
| 4 |
| 1 |
| 5 |
| 1 |
| 8 |
| 1 |
| 2 |
| 2 |
| 2 |
| 1 |
| 28 |

| 2012 | | | | | | | | |
|----------------|---------------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Nottingham Way | North Westover Blvd | 10 | 3 | 1 | 1 | | | 7 |
| Nottingham Way | Ledo Rd | 8 | 3 | | 2 | | 1 | 2 |
| Nottingham Way | Liberty Expressway On RP | 5 | | | | | | 4 |
| Nottingham Way | Liberty Expressway RP | | | | | | | 1 |
| Nottingham Way | Stuart Ave | 3 | 1 | | | | 1 | 2 |
| Nottingham Way | Liberty Expressway Off RP | 2 | | | | | | 2 |
| Nottingham Way | Liberty Expressway | 2 | | | | | | 3 |
| Nottingham Way | Friar Tuck Ln | 1 | 1 | | | | | 1 |
| Nottingham Way | | 1 | | | | | | 1 |
| Totals | | 32 | 8 | 1 | 3 | 0 | 2 | 20 |

| Totals |
|--------|
| 22 |
| 16 |
| 9 |
| 1 |
| 7 |
| 2 |
| 5 |
| 3 |
| 1 |
| 66 |

| 2013 | | | | | | | | |
|-------------------------------|-----------------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Nottingham Way | Westover Blvd | 13 | 4 | | 5 | | 1 | 3 |
| Nottingham Way | Liberty On RP | 5 | | | | | | 1 |
| Nottingham Way | Friar Tuck Ln | 1 | | | | | | 1 |
| Nottingham Way | Ledo Rd | 9 | 5 | | 1 | | 1 | 16 |
| Nottingham Way | Stuart Ave | 10 | 3 | 1 | 2 | | | 1 |
| Nottingham Way | Liberty Express Way | 6 | 2 | 1 | 1 | | | 1 |
| Nottingham Way | Liberty Expressway RP | 9 | | | 1 | | | 1 |
| 30 Ft West of Nottingham Way | Stuart Ave | | 1 | | | | | 1 |
| Nottingham Way | 40 Ft East of Westover Blvd | 2 | | | | | | 2 |
| 1 W of Nottingham Way | Ledo Rd | | 1 | | | | | 1 |
| Nottingham Way at Wynsong Ent | | | | | 1 | | | 1 |
| Nottingham Way | | 1 | | | 1 | | | 2 |
| Totals | | 56 | 16 | 2 | 12 | 0 | 2 | 7 |

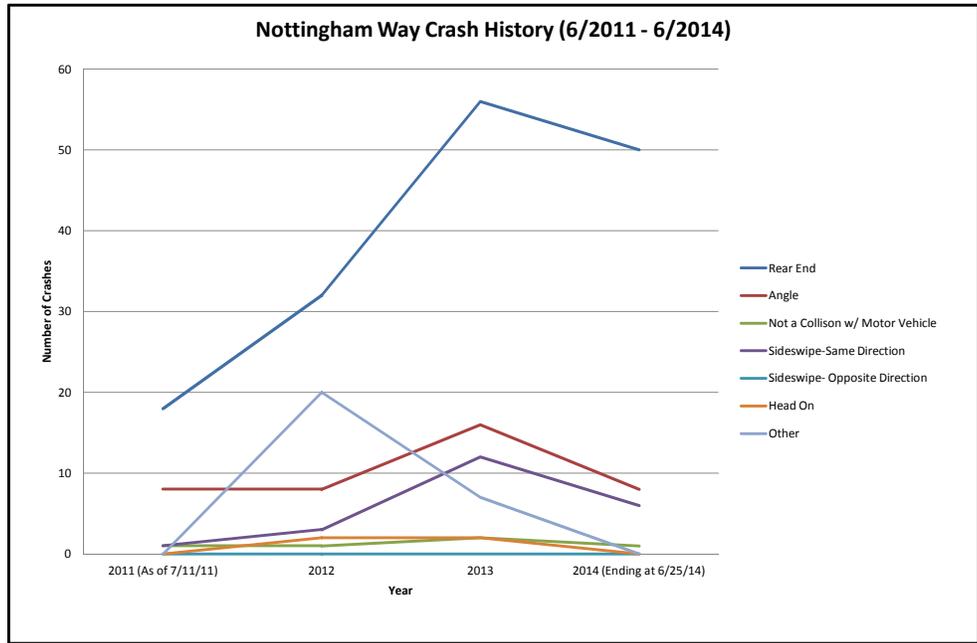
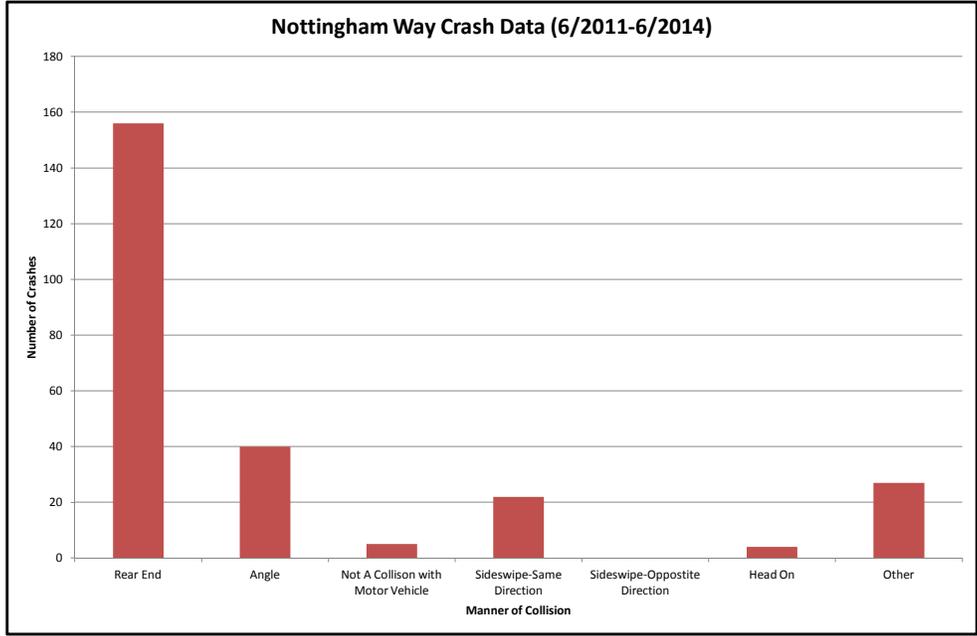
| Totals |
|--------|
| 26 |
| 6 |
| 1 |
| 16 |
| 17 |
| 11 |
| 11 |
| 1 |
| 2 |
| 1 |
| 1 |
| 2 |
| 95 |

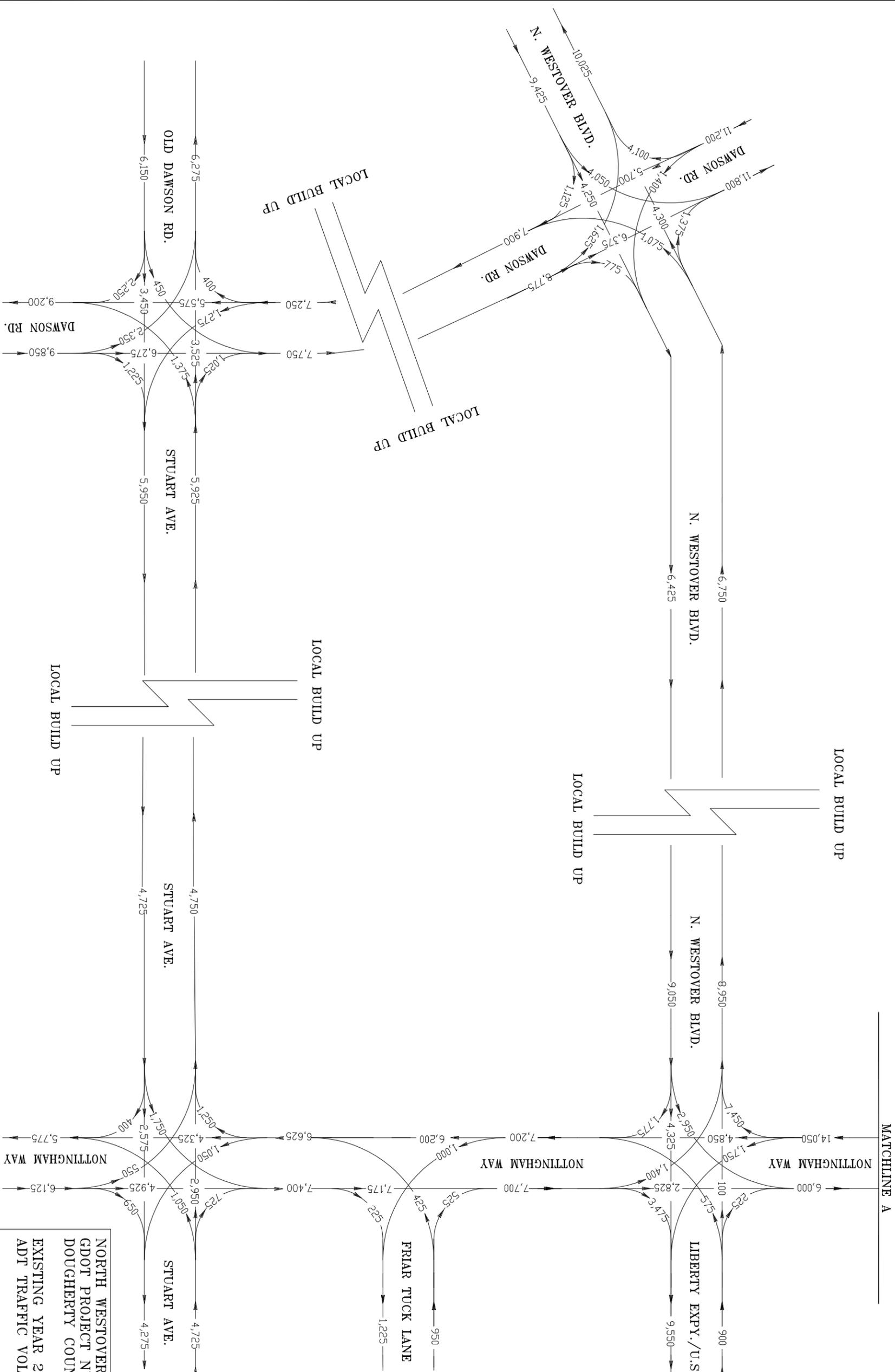
| 2014 (Ending at 6/25/14) | | | | | | | | |
|--------------------------|-----------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| Route | Intersecting Route | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Nottingham Way | Stuart Ave | 4 | 1 | | 1 | | | 6 |
| Nottingham Way | Liberty Express Way | 12 | | | | | | 12 |
| Nottingham Way | Liberty Expressway RP | 9 | | | | | | 9 |
| Nottingham Way | Westover Blvd | 19 | 5 | 1 | 2 | | | 27 |
| Nottingham Way | Friar Tuck Ln | 3 | | | 1 | | | 4 |
| Nottingham Way | Ledo Rd | 3 | 1 | | 2 | | | 6 |
| Totals | | 50 | 8 | 1 | 6 | 0 | 0 | 65 |

| Totals |
|--------|
| 6 |
| 12 |
| 9 |
| 27 |
| 4 |
| 6 |
| 65 |

| | | | | | | | |
|------------------------|-----|----|---|----|---|---|----|
| TOTAL (OVERALL) | 156 | 40 | 5 | 22 | 0 | 4 | 27 |
|------------------------|-----|----|---|----|---|---|----|

| | |
|---------------|-----|
| Totals | 254 |
|---------------|-----|





| K FACTORS | | |
|----------------------------|------|------|
| ROAD | AM | PM |
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

| DAILY TRUCK PERCENTAGES | | |
|-------------------------|------|-------------|
| ROAD | S.U. | COMB. TOTAL |
| N. WESTOVER BLVD | 9.2% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 14.5% |
| LEDO RD. | 7.8% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U. | COMB. TOTAL |
| N. WESTOVER BLVD | 10.5% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 13.6% |
| LEDO RD. | 4.9% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U. | COMB. TOTAL |
| N. WESTOVER BLVD | 8.1% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 12.1% |
| LEDO RD. | 13.9% | 15.8% |

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 EXISTING YEAR 2014
 ADT TRAFFIC VOLUMES

CROY ENGINEERING
 Engineers Planners Surveyors

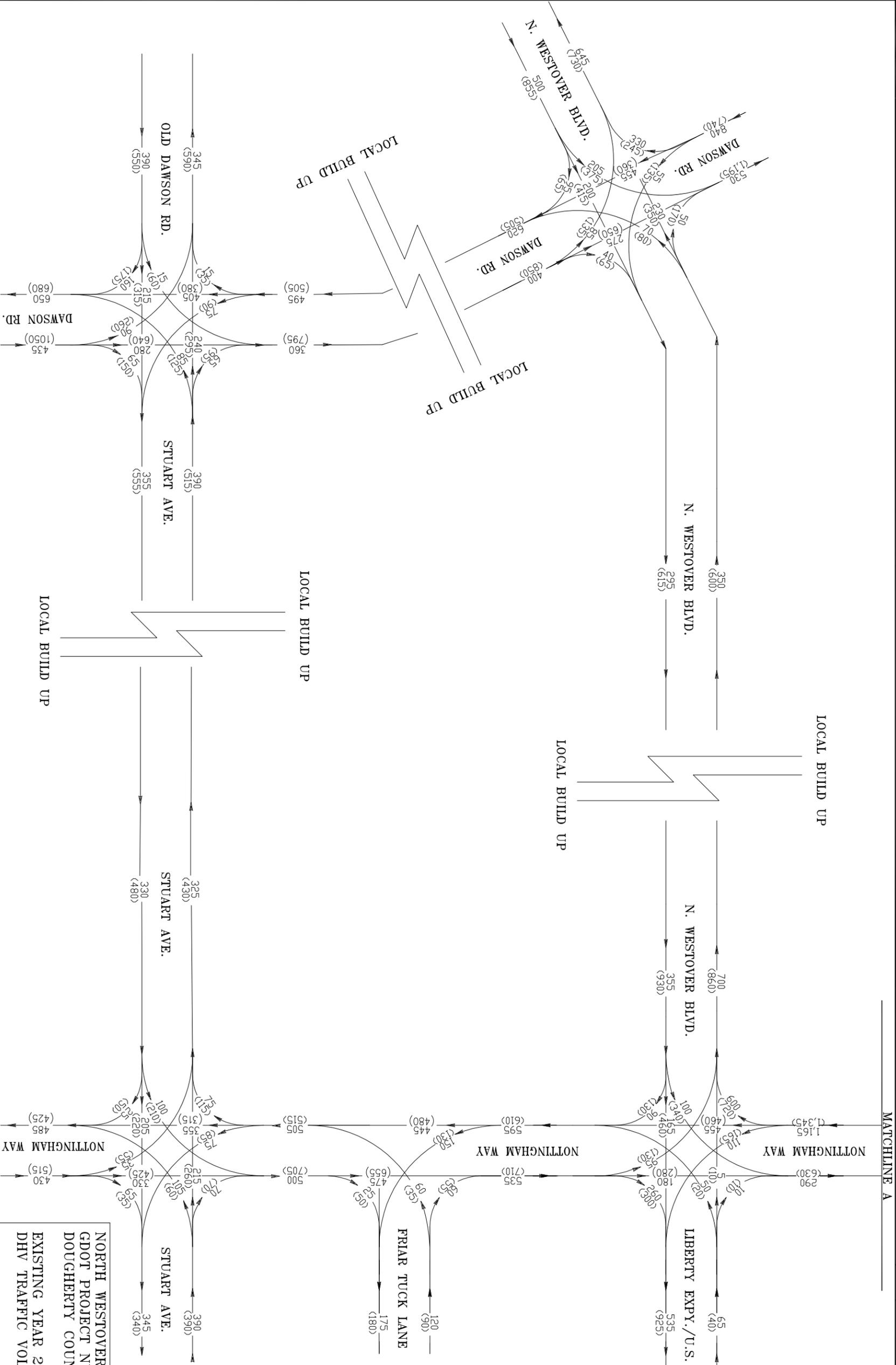
200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS |
|------|-----------|------|-----------|
| | | | |
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| | | | |
| | | | |

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014



| K FACTORS | | |
|----------------------------|------|------|
| ROAD | AM | PM |
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

| DAILY TRUCK PERCENTAGES | | | |
|-------------------------|------|-------|-------|
| ROAD | S.U. | COMB. | TOTAL |
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LEDO RD. | 7.8% | 1.5% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U. | COMB. | TOTAL |
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LEDO RD. | 4.9% | 1.5% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U. | COMB. | TOTAL |
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LEDO RD. | 13.9% | 1.9% | 15.8% |

AM VOLUMES
(PM VOLUMES)

NORTH WESTOVER BOULEVARD EXTENSION
GDOT PROJECT NUMBER 0010571
DOUGHERTY COUNTY
EXISTING YEAR 2014
DHV TRAFFIC VOLUMES

CROY ENGINEERING
Engineers
Planners
Surveyors

200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
MARIETTA, GA 30062
PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

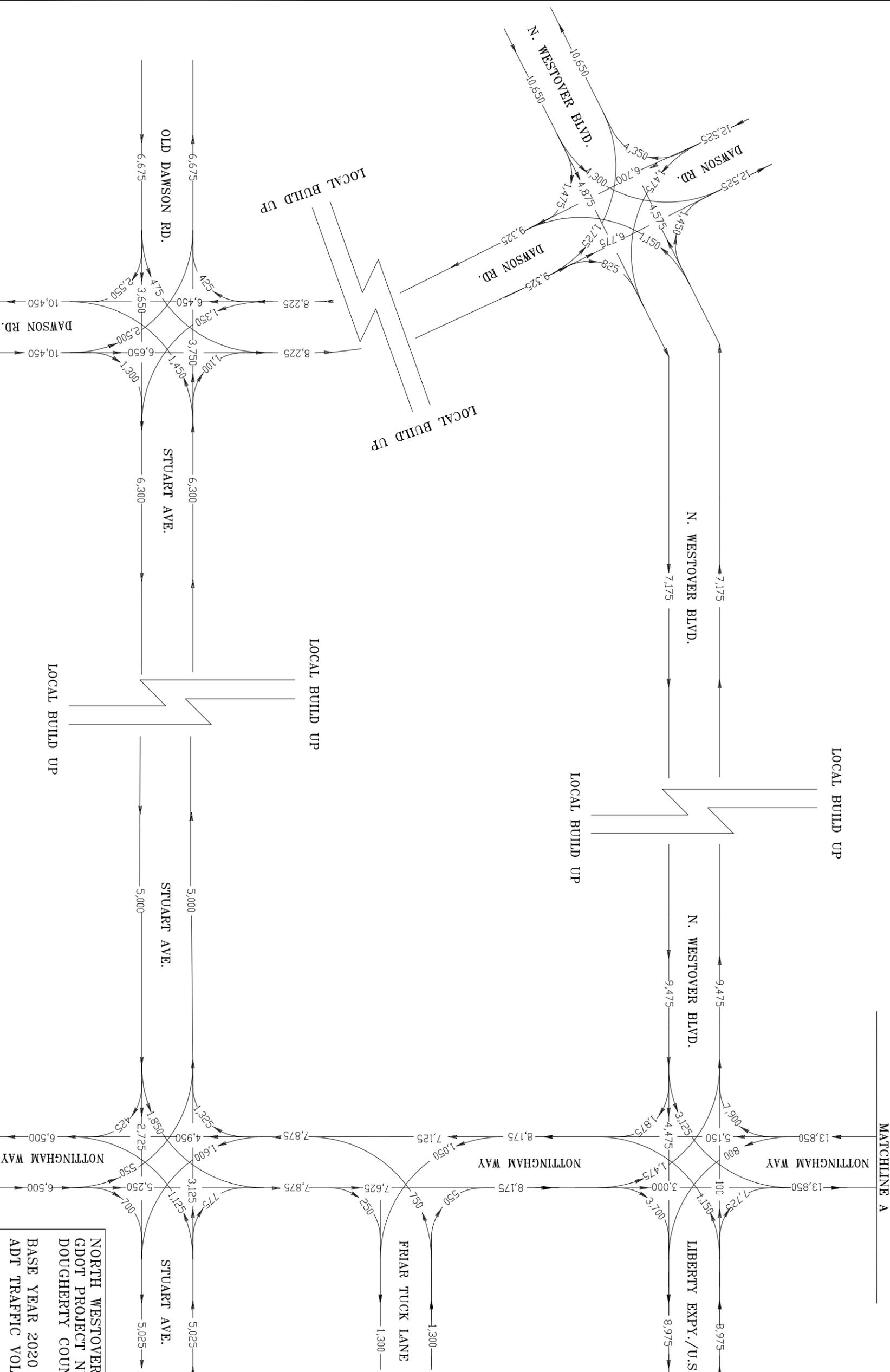
LOCAL BUILD UP

| DATE | REVISIONS | DATE | REVISIONS |
|------|-----------|------|-----------|
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| | | | |

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
TRAFFIC DIAGRAM

PROJECT NO.: 0010571
DATE: 10/28/2014

3 of 28



| K FACTORS | | |
|----------------------------|------|------|
| ROAD | AM | PM |
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

| DAILY TRUCK PERCENTAGES | | |
|-------------------------|------|-------------|
| ROAD | S.U. | COMB. TOTAL |
| N. WESTOVER BLVD | 9.2% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 14.5% |
| LEDO RD. | 7.8% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U. | COMB. TOTAL |
| N. WESTOVER BLVD | 10.5% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 13.6% |
| LEDO RD. | 4.9% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U. | COMB. TOTAL |
| N. WESTOVER BLVD | 8.1% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 12.1% |
| LEDO RD. | 13.9% | 15.8% |

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 ADT TRAFFIC VOLUMES (NO BUILD)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

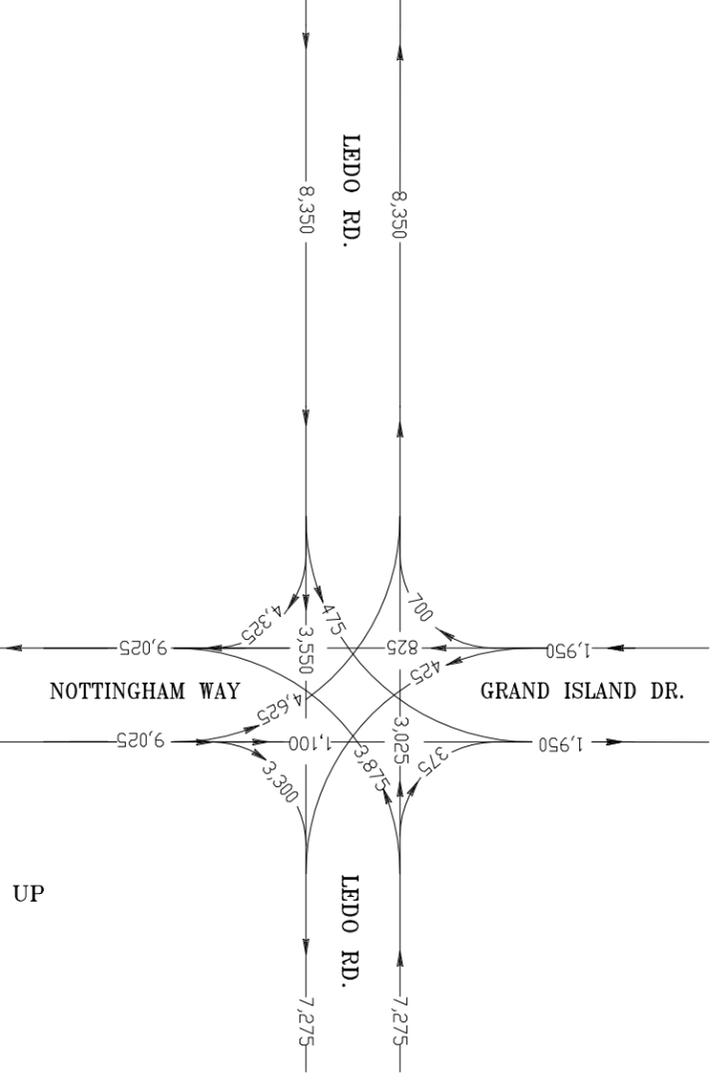
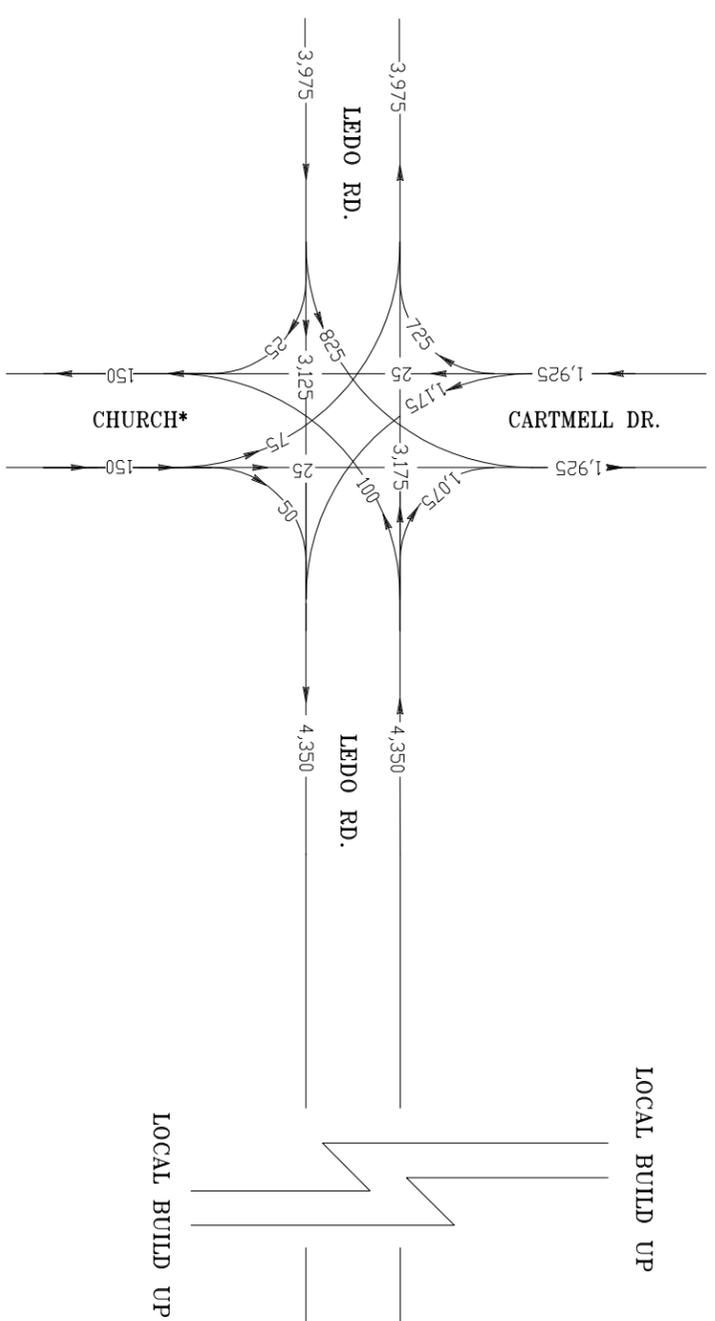
SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS |
|------|-----------|------|-----------|
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| | | | |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014

PH 5 OF 20

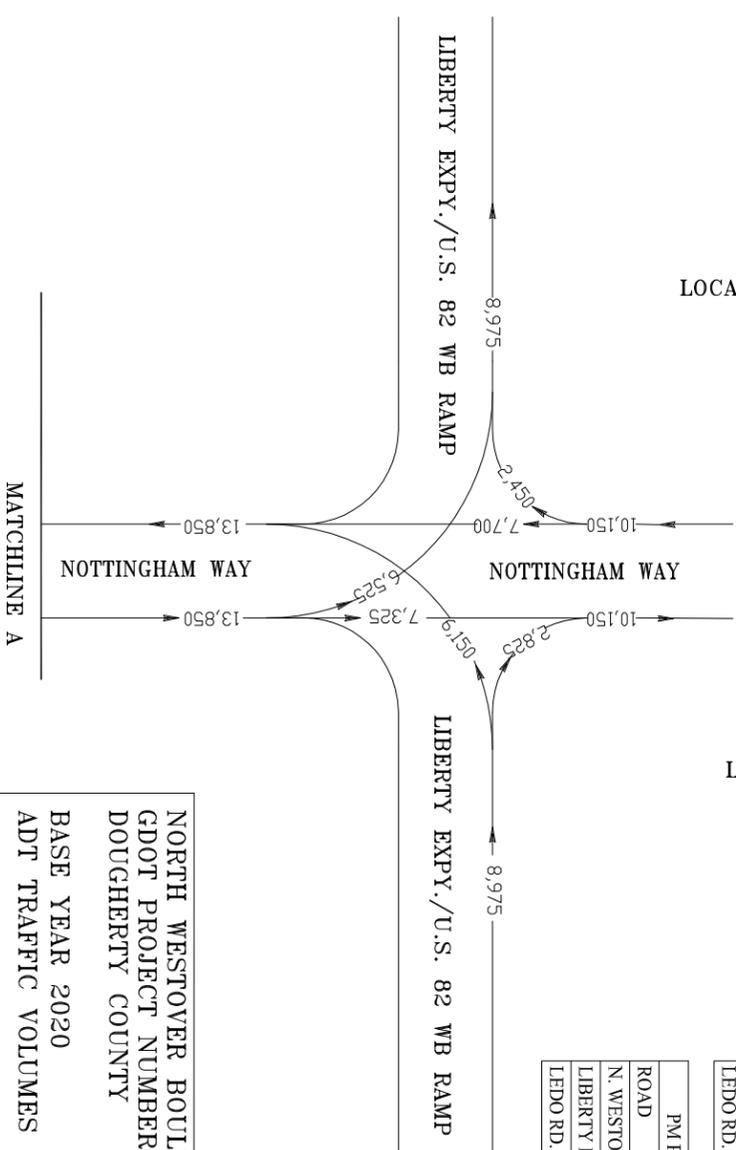


| K FACTORS | | | |
|----------------------------|------|-------|-------|
| ROAD | SU | COMB. | TOTAL |
| N. WESTOVER BLVD | 4.1% | 1.6% | 8.2% |
| DAWSON RD. | 3.7% | 1.6% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 1.9% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 1.6% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 1.5% | 8.4% |
| LED0 RD. | 4.9% | 1.5% | 8.2% |

| DAILY TRUCK PERCENTAGES | | | |
|-------------------------|------|-------|-------|
| ROAD | SU | COMB. | TOTAL |
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LED0 RD. | 7.8% | 1.5% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | SU | COMB. | TOTAL |
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LED0 RD. | 4.9% | 1.5% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | SU | COMB. | TOTAL |
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LED0 RD. | 13.9% | 1.9% | 15.8% |



NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 ADT TRAFFIC VOLUMES (NO BUILD)

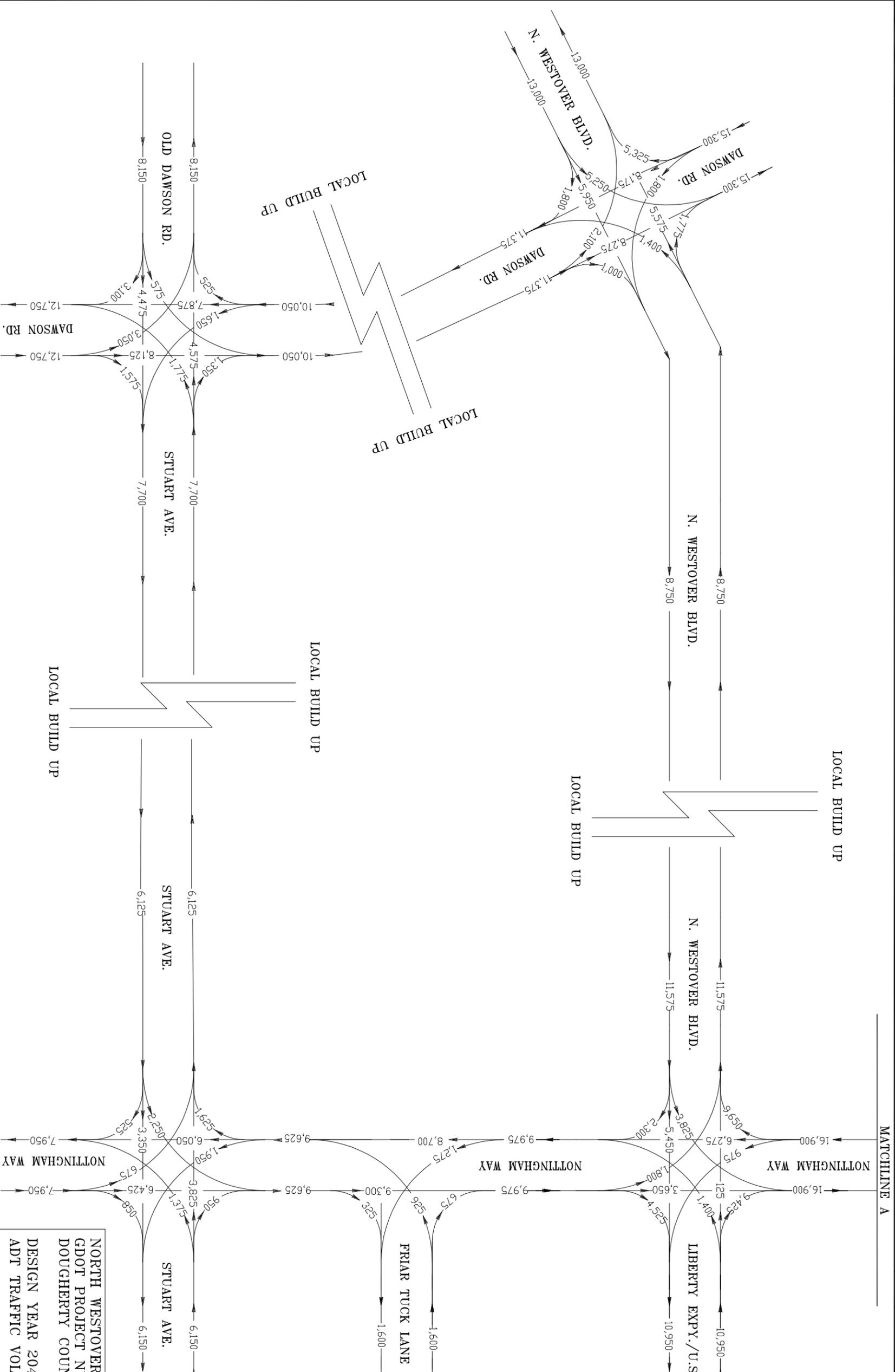
| DATE | REVISIONS | DATE | REVISIONS |
|------|-----------|------|-----------|
| | | | |
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| | | | |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
TRAFFIC DIAGRAM

200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

SCALE: NOT TO SCALE



| K FACTORS | | |
|----------------------------|------|------|
| ROAD | AM | PM |
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

| DAILY TRUCK PERCENTAGES | | | |
|-------------------------|------|-------|-------|
| ROAD | S.U. | COMB. | TOTAL |
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LEDO RD. | 7.8% | 1.5% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U. | COMB. | TOTAL |
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LEDO RD. | 4.9% | 1.5% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U. | COMB. | TOTAL |
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LEDO RD. | 13.9% | 1.9% | 15.8% |

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 DESIGN YEAR 2040
 ADT TRAFFIC VOLUMES (NO BUILD)

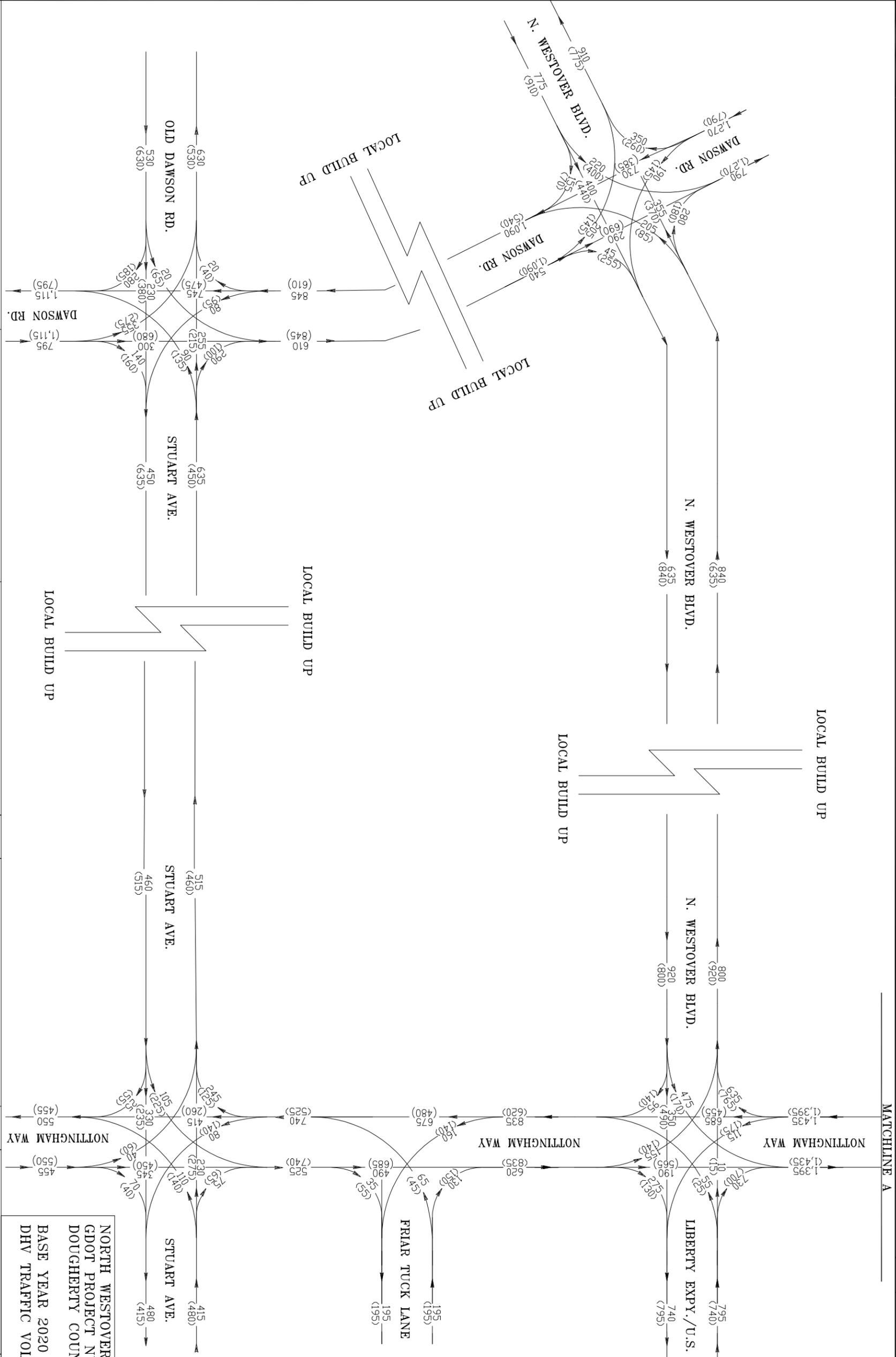
CROY ENGINEERING
 Engineers Planners Surveyors
 200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

LOCAL BUILD UP

| DATE | REVISIONS | DATE | REVISIONS |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM
 PROJECT NO.: 0010571
 DATE: 10/22/2014



| K FACTORS | | |
|----------------------------|------|------|
| ROAD | AM | PM |
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

| DAILY TRUCK PERCENTAGES | | |
|-------------------------|------|-------------|
| ROAD | S.U | COMB. TOTAL |
| N. WESTOVER BLVD | 9.2% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 14.5% |
| LEDO RD. | 7.8% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U | COMB. TOTAL |
| N. WESTOVER BLVD | 10.5% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 13.6% |
| LEDO RD. | 4.9% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U | COMB. TOTAL |
| N. WESTOVER BLVD | 8.1% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 12.1% |
| LEDO RD. | 13.9% | 15.8% |

AM VOLUMES
 (PM VOLUMES)

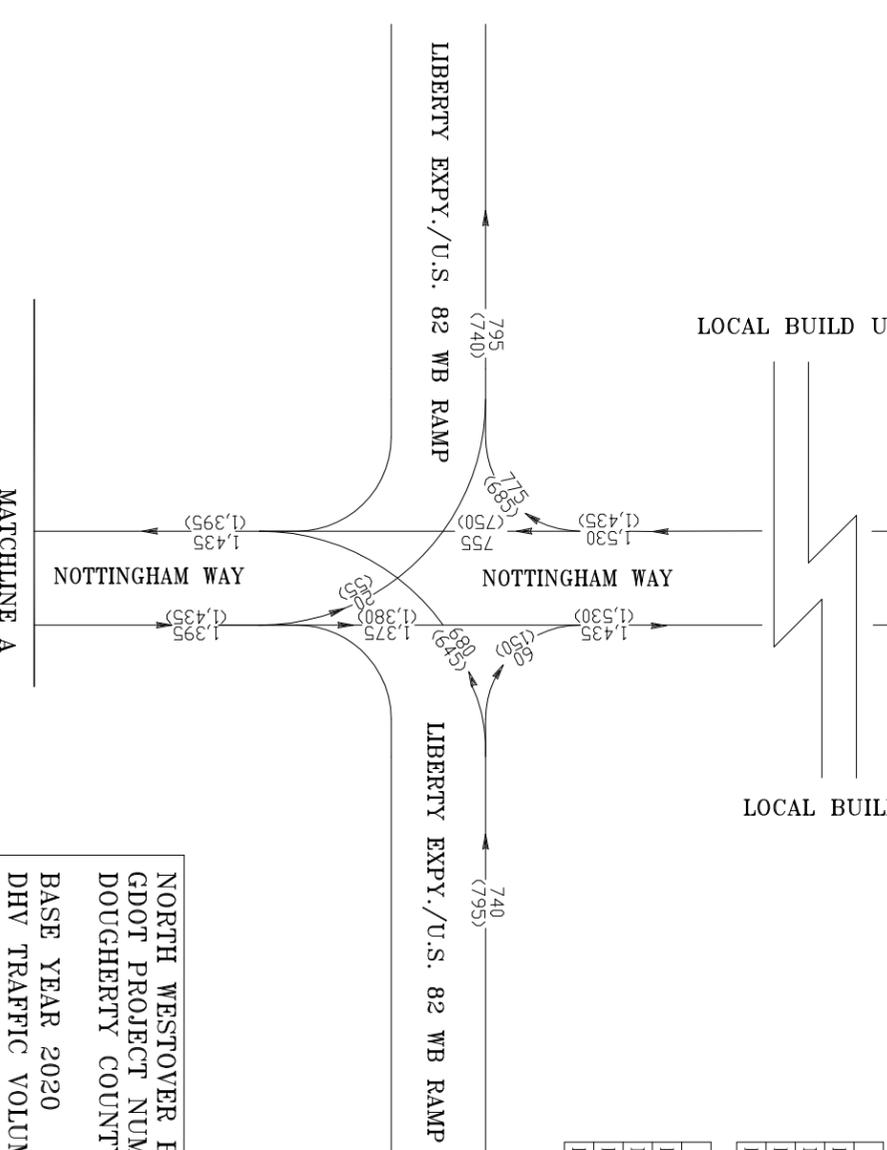
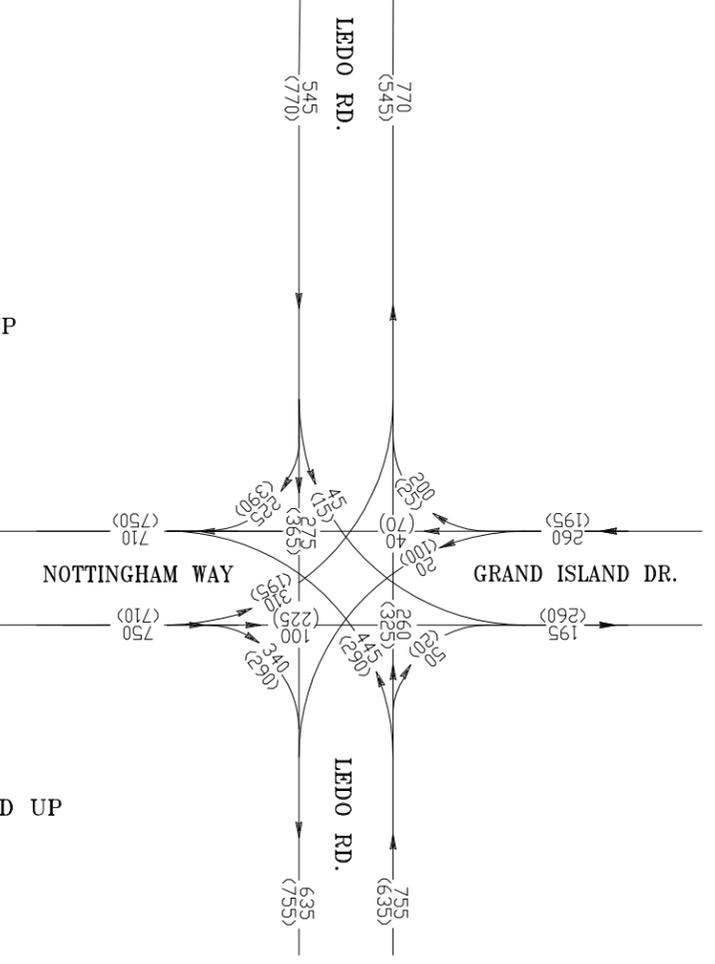
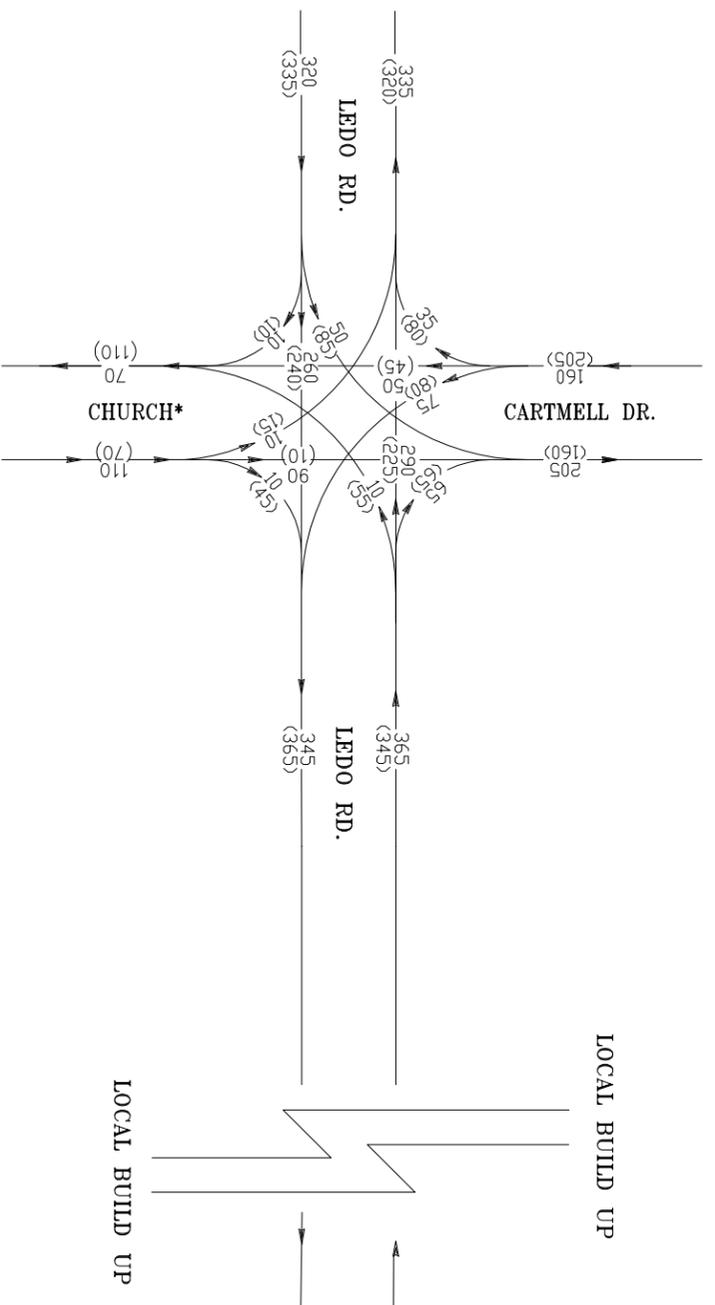
NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 DHV TRAFFIC VOLUMES (NO BUILD)

CROY ENGINEERING
 Engineers Planners Surveyors
 200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM
 PROJECT NO.: 0010571
 DATE: 10/28/2014



K FACTORS

| ROAD | AM | PM |
|----------------------------|------|------|
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LED0 RD. | 4.9% | 8.2% |

DAILY TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|------|-------|-------|
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LED0 RD. | 7.8% | 1.5% | 9.3% |

AM PEAK HR. TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|-------|-------|-------|
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LED0 RD. | 4.9% | 1.5% | 6.4% |

PM PEAK HR. TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|-------|-------|-------|
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LED0 RD. | 13.9% | 1.9% | 15.8% |

AM VOLUMES
 (PM VOLUMES)

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 DHV TRAFFIC VOLUMES (NO BUILD)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

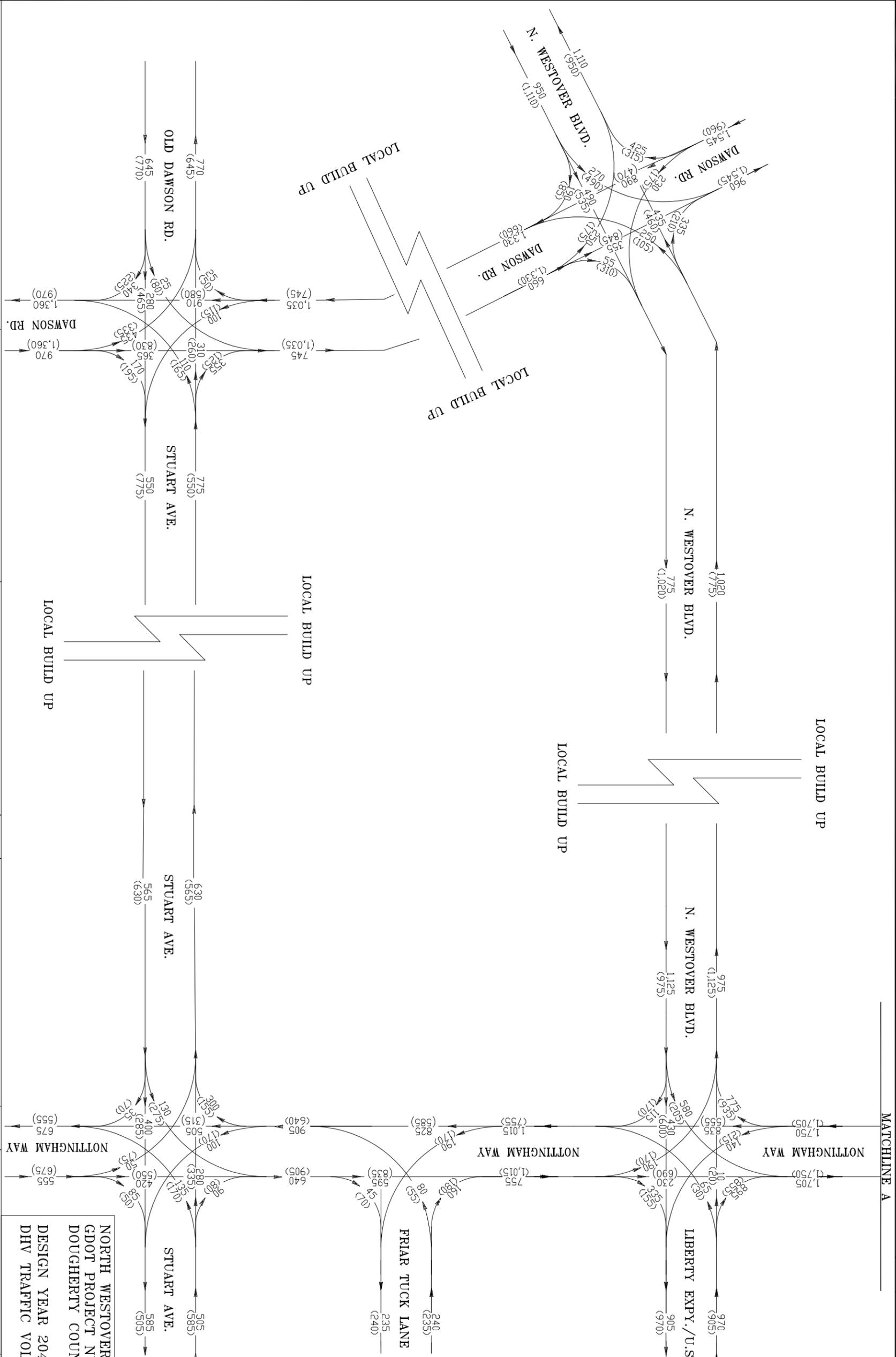
200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

PROJECT NO: 0010571
 DATE: 10/28/2014



| K FACTORS | | |
|----------------------------|------|------|
| ROAD | AM | PM |
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

| DAILY TRUCK PERCENTAGES | | |
|-------------------------|------|-------------|
| ROAD | S.U | COMB. TOTAL |
| N. WESTOVER BLVD | 9.2% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 14.5% |
| LEDO RD. | 7.8% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U | COMB. TOTAL |
| N. WESTOVER BLVD | 10.5% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 13.6% |
| LEDO RD. | 4.9% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U | COMB. TOTAL |
| N. WESTOVER BLVD | 8.1% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 12.1% |
| LEDO RD. | 13.9% | 15.8% |

AM VOLUMES
(PM VOLUMES)

NORTH WESTOVER BOULEVARD EXTENSION
GDOT PROJECT NUMBER 0010571
DOUGHERTY COUNTY
DESIGN YEAR 2040
DHV TRAFFIC VOLUMES (NO BUILD)

CROY ENGINEERING
Engineers
Planners
Surveyors

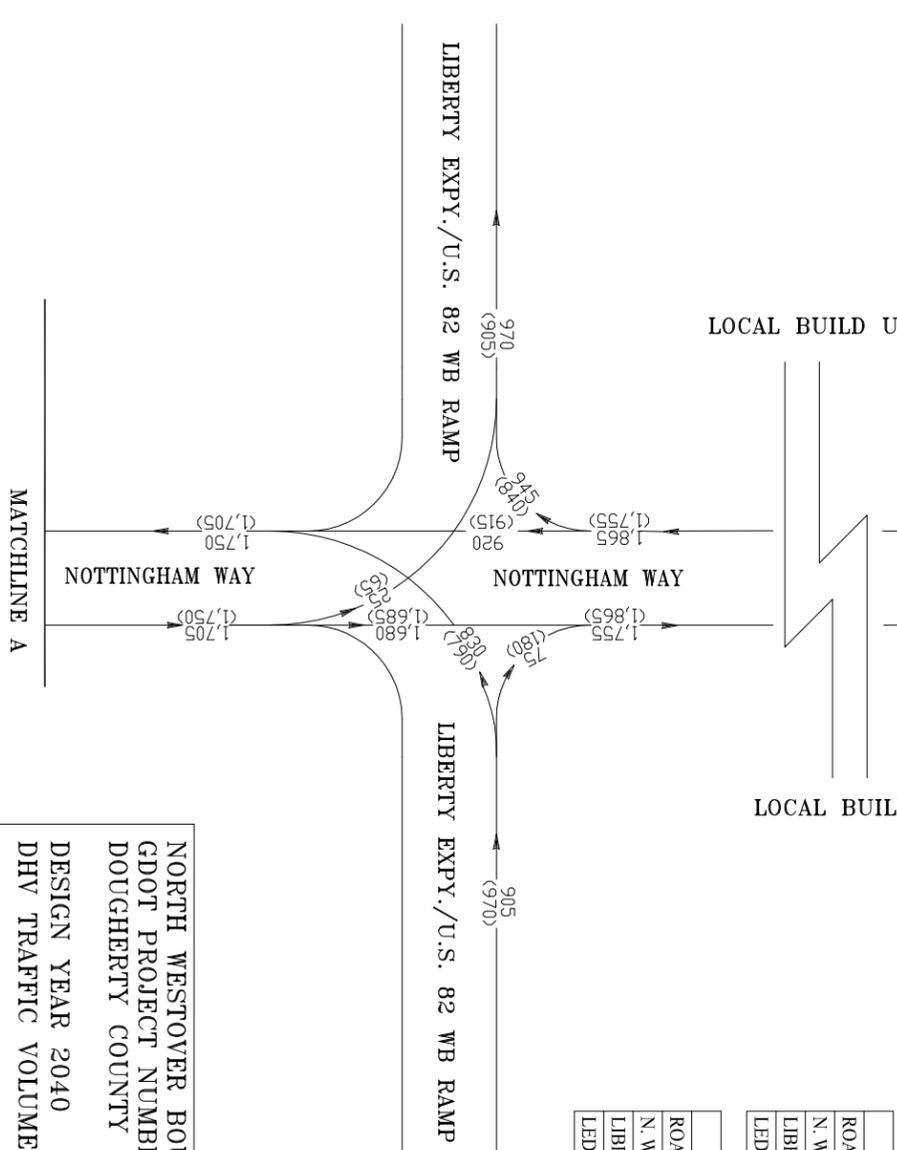
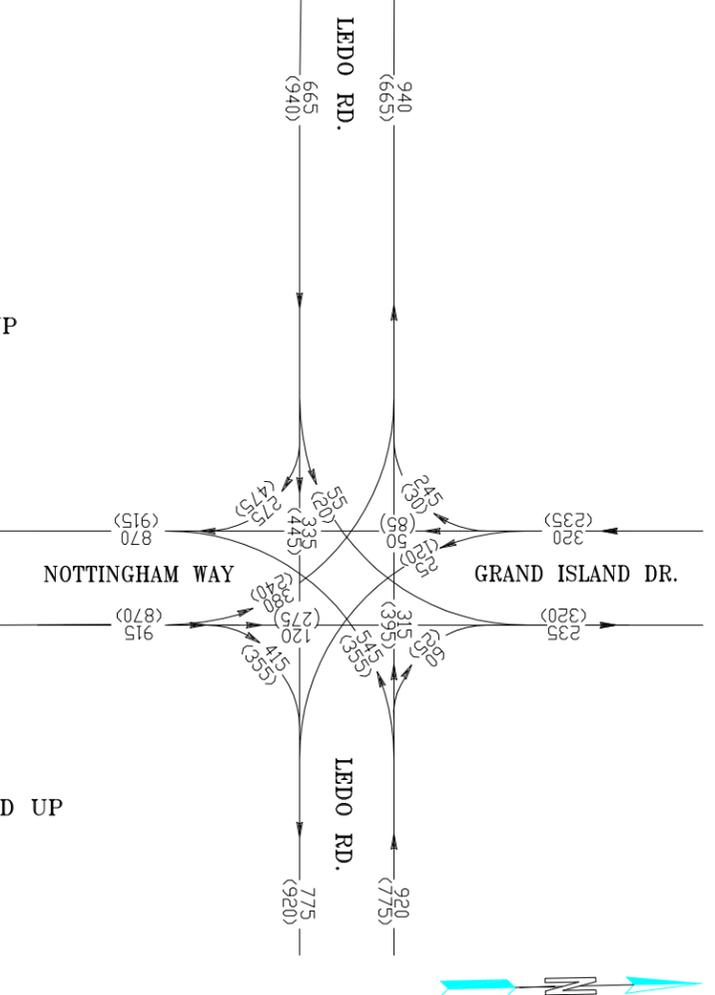
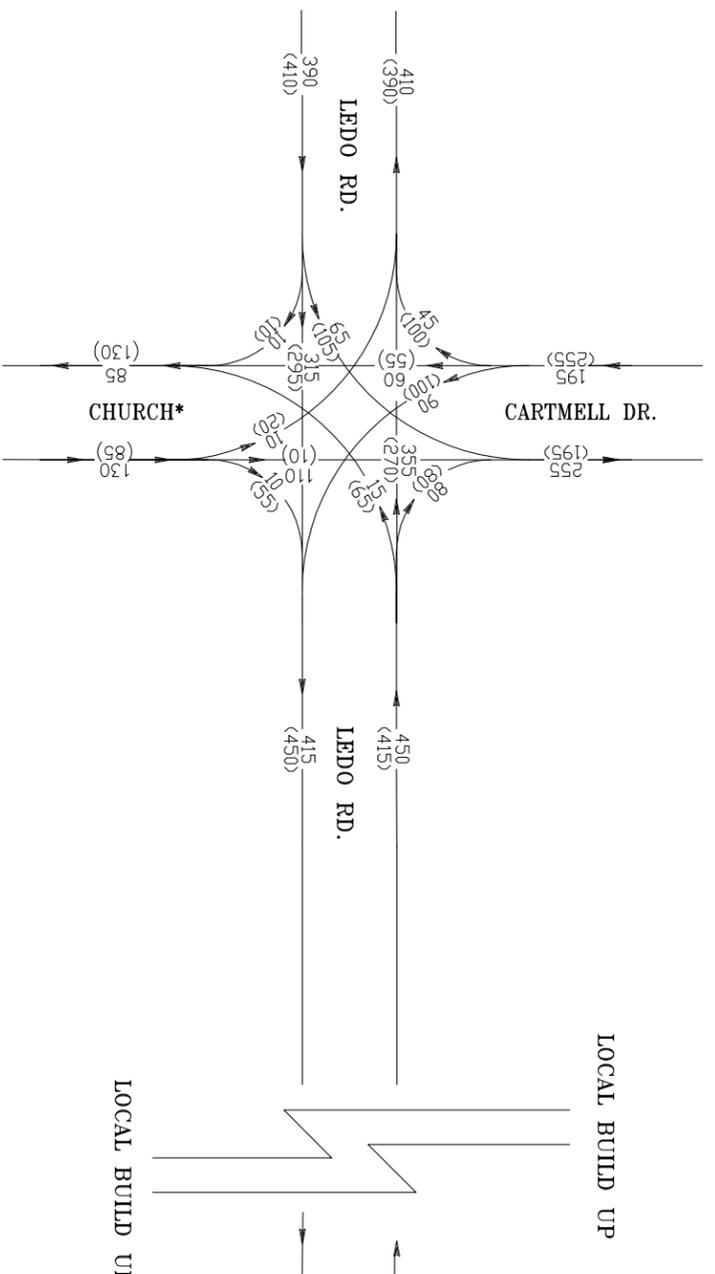
200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
MARIETTA, GA 30062
PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS |
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STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
TRAFFIC DIAGRAM

PROJECT NO.: 0010571
DATE: 10/28/2014



K FACTORS

| ROAD | AM | PM |
|----------------------------|------|------|
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

DAILY TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|------|-------|-------|
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LEDO RD. | 7.8% | 1.5% | 9.3% |

AM PEAK HR. TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|-------|-------|-------|
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LEDO RD. | 4.9% | 1.5% | 6.4% |

PM PEAK HR. TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|-------|-------|-------|
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LEDO RD. | 13.9% | 1.9% | 15.8% |

AM VOLUMES
 (PM VOLUMES)

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 DESIGN YEAR 2040
 DHV TRAFFIC VOLUMES (NO BUILD)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

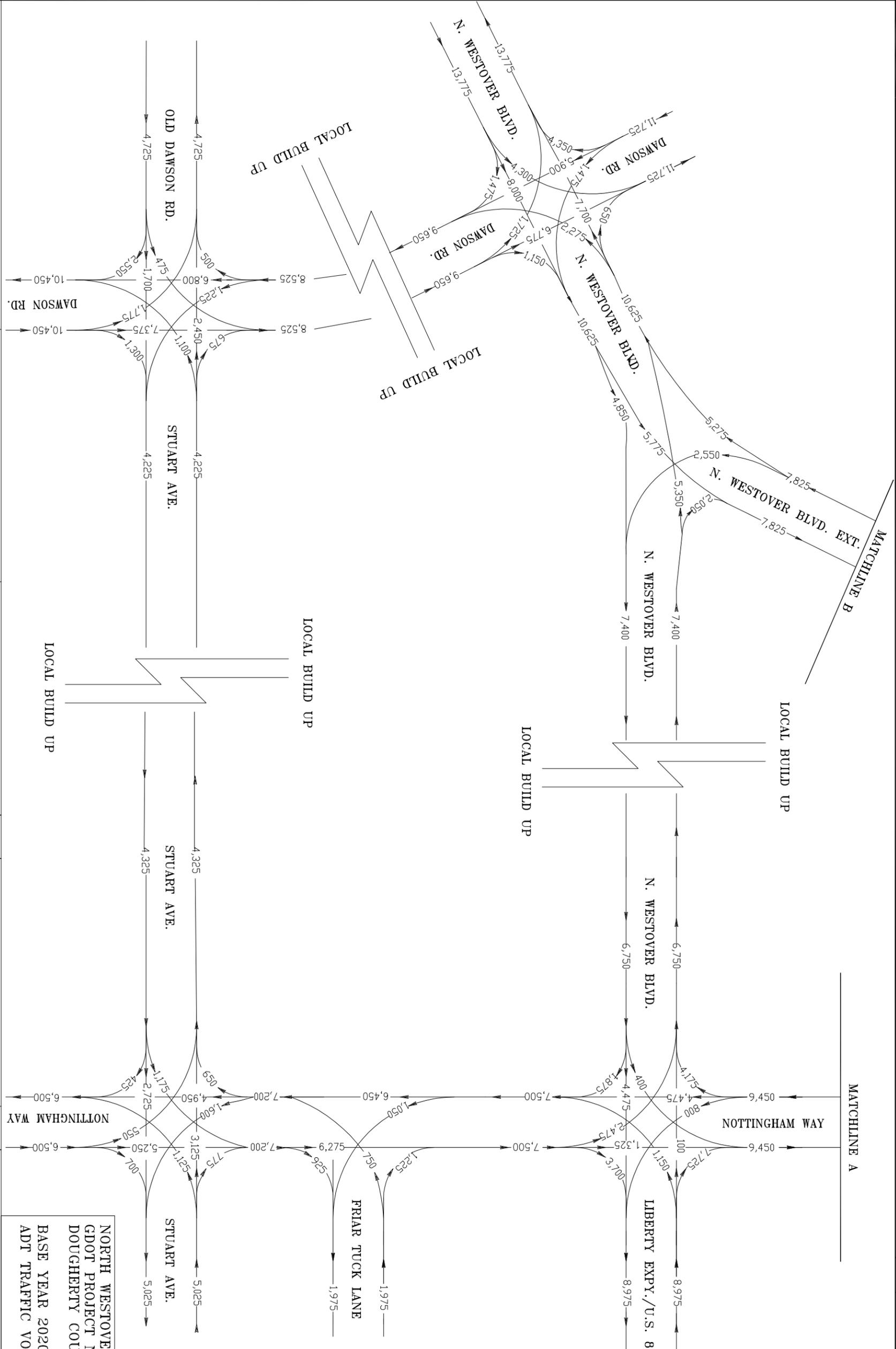
200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014



K FACTORS

| ROAD | AM | PM |
|----------------------------|------|------|
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

DAILY TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|------|-------|-------|
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LEDO RD. | 7.8% | 1.5% | 9.3% |

AM PEAK HR. TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|-------|-------|-------|
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LEDO RD. | 4.9% | 1.5% | 6.4% |

PM PEAK HR. TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|-------|-------|-------|
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LEDO RD. | 13.9% | 1.9% | 15.8% |

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 ADT TRAFFIC VOLUMES (BUILD)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

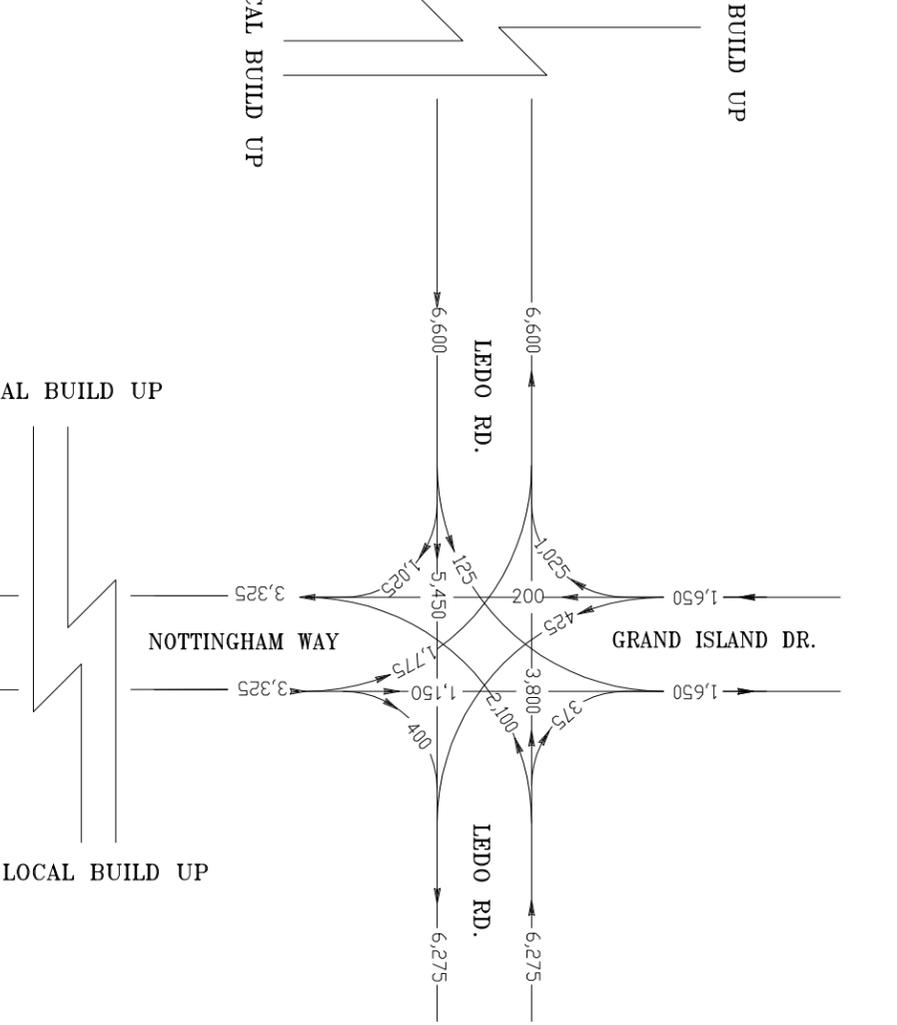
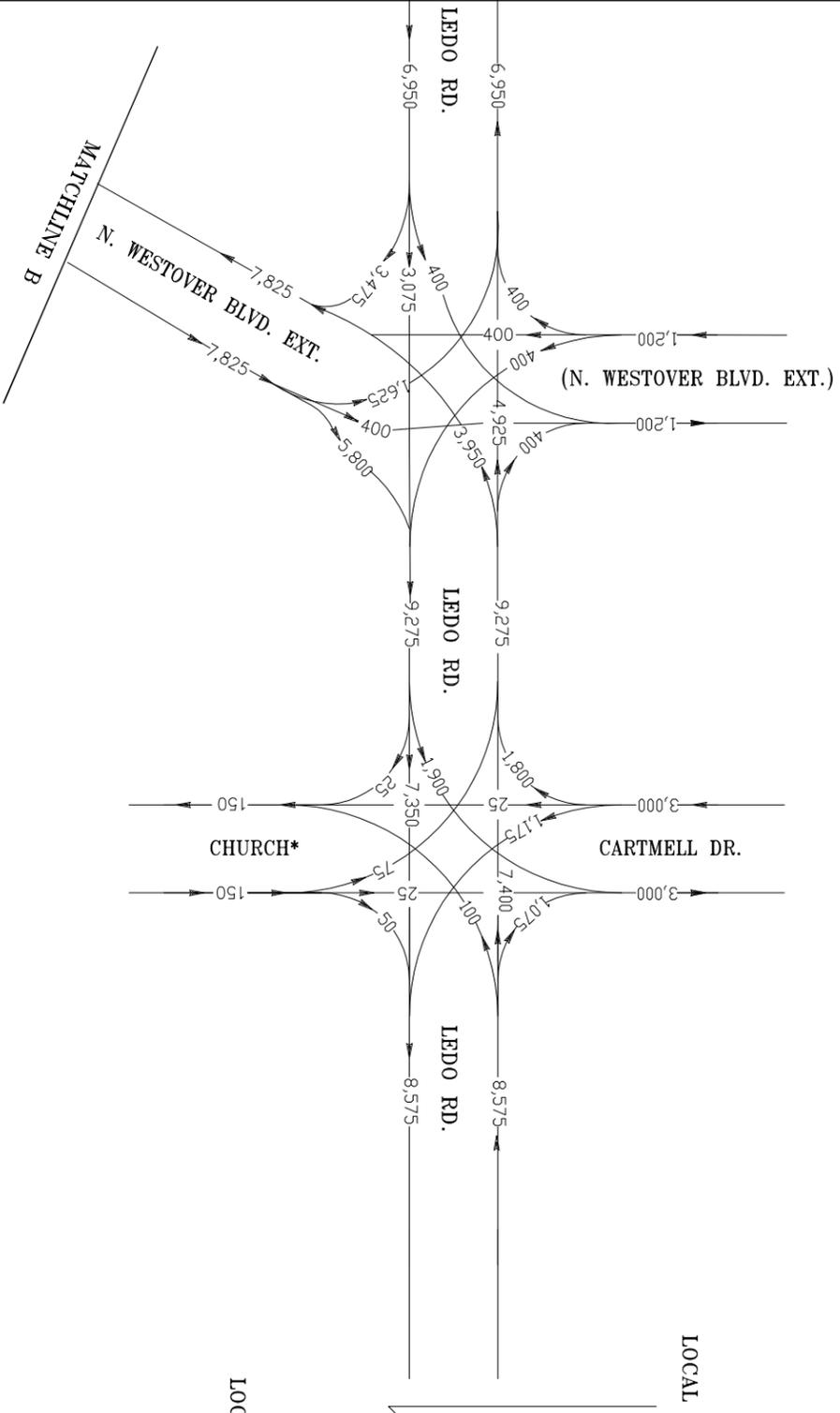
200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014

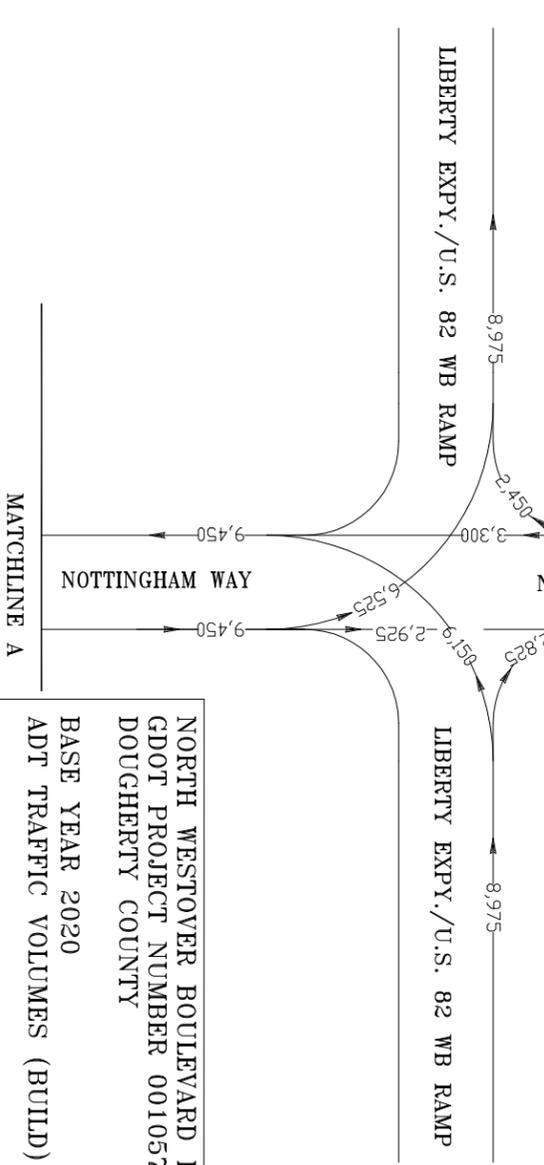


| K FACTORS | | |
|----------------------------|------|------|
| ROAD | AM | PM |
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

| DAILY TRUCK PERCENTAGES | | |
|-------------------------|------|-------------|
| ROAD | S.U | COMB. TOTAL |
| N. WESTOVER BLVD | 9.2% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% |
| LEDO RD. | 7.8% | 1.5% |

| AM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U | COMB. TOTAL |
| N. WESTOVER BLVD | 10.5% | 2.8% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% |
| LEDO RD. | 4.9% | 1.5% |

| PM PEAK HR. TRUCK PERCENTAGES | | |
|-------------------------------|-------|-------------|
| ROAD | S.U | COMB. TOTAL |
| N. WESTOVER BLVD | 8.1% | 1.4% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% |
| LEDO RD. | 13.9% | 1.9% |



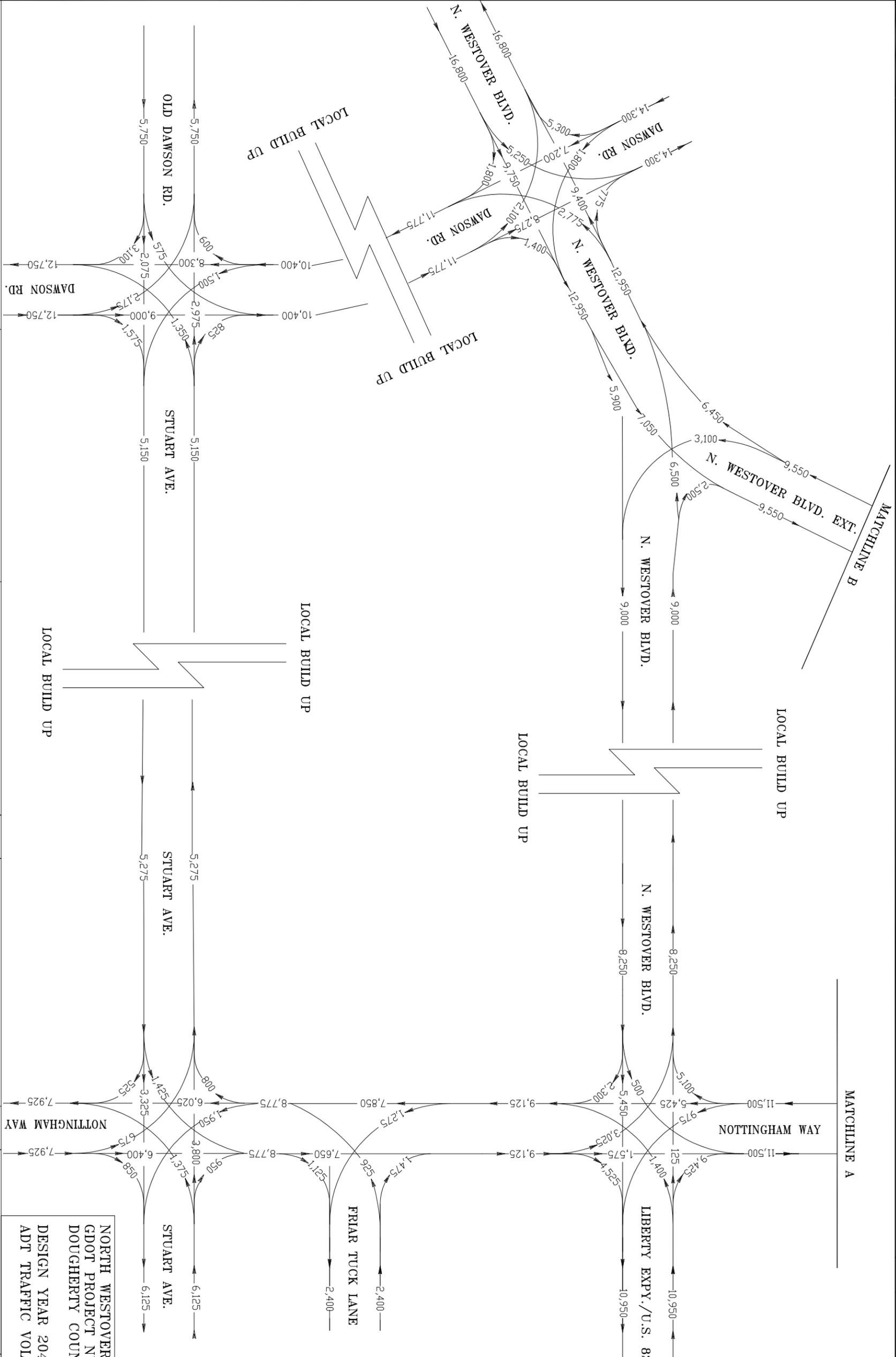
NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 ADT TRAFFIC VOLUMES (BUILD)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS | STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION TRAFFIC DIAGRAM |
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| | | | | PROJECT NO.: 0010571 DATE: 10/28/2014 |
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| K FACTORS | | | |
|----------------------------|------|------|-------|
| ROAD | AM | PM | TOTAL |
| N. WESTOVER BLVD | 4.1% | 8.2% | |
| DAWSON RD. | 3.7% | 6.6% | |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% | |
| NOTTINGHAM WAY | 5.4% | 8.1% | |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% | |
| LEDO RD. | 4.9% | 8.2% | |

| DAILY TRUCK PERCENTAGES | | | |
|-------------------------|------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LEDO RD. | 7.8% | 1.5% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LEDO RD. | 4.9% | 1.5% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LEDO RD. | 13.9% | 1.9% | 15.8% |

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 DESIGN YEAR 2040
 ADT TRAFFIC VOLUMES (BUILD)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

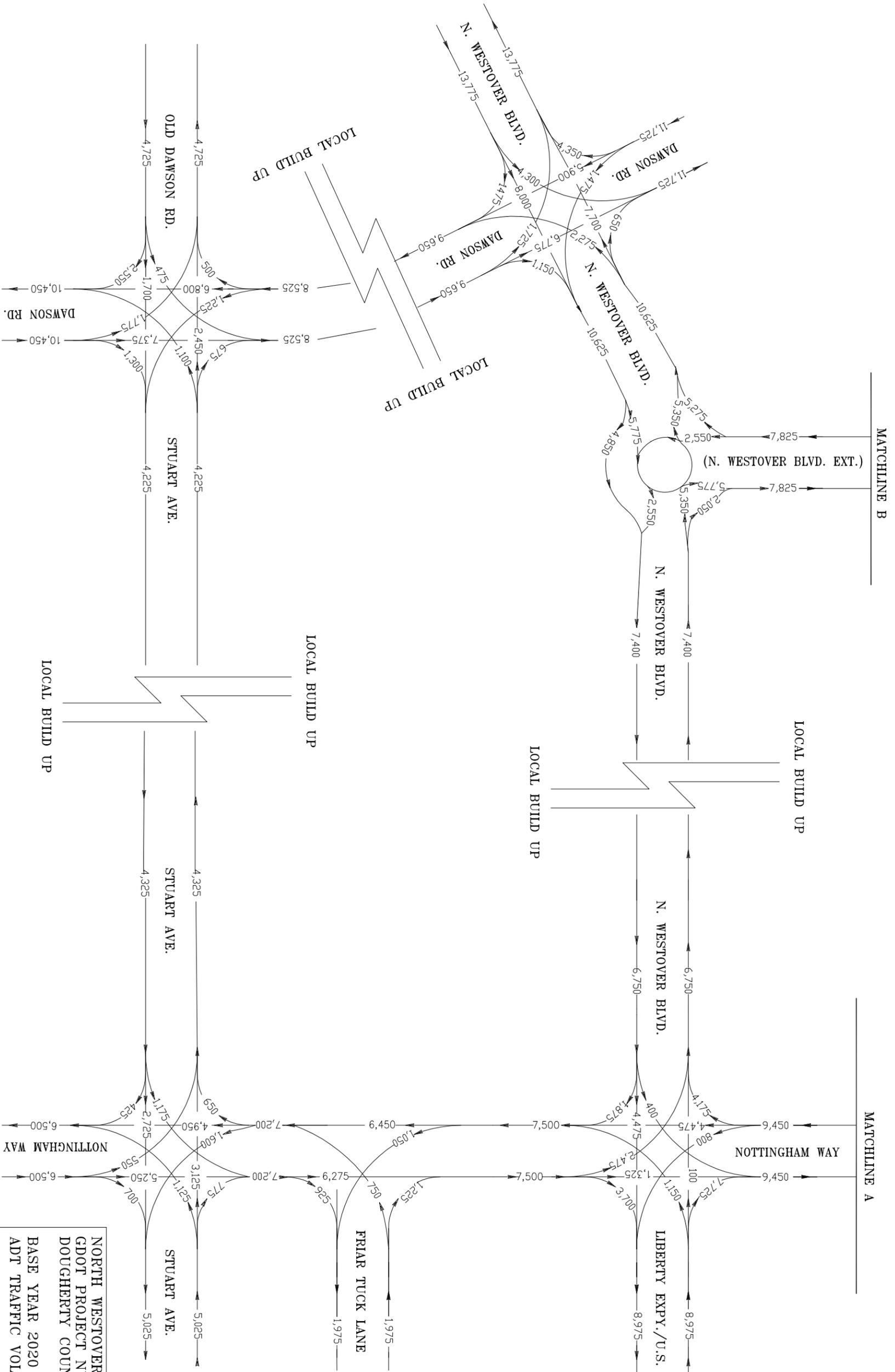
200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014



| K FACTORS | | | |
|----------------------------|------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 4.1% | 8.2% | |
| DAWSON RD. | 3.7% | 6.6% | |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% | |
| NOTTINGHAM WAY | 5.4% | 8.1% | |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% | |
| LEDO RD. | 4.9% | 8.2% | |

| DAILY TRUCK PERCENTAGES | | | |
|-------------------------|------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LEDO RD. | 7.8% | 1.5% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LEDO RD. | 4.9% | 1.5% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LEDO RD. | 13.9% | 1.9% | 15.8% |

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 ADT TRAFFIC VOLUMES (BUILD - ROUNDABOUT)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

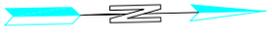
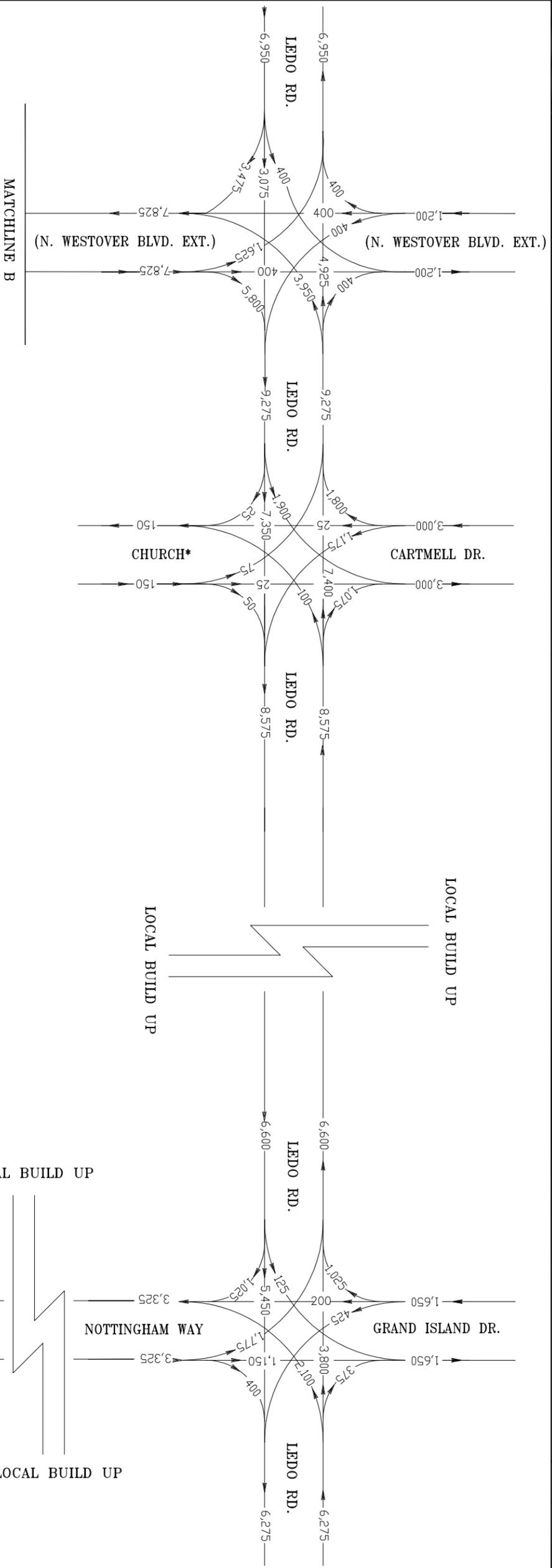
200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

PROJECT NO: 0010571
 DATE: 10/28/2014

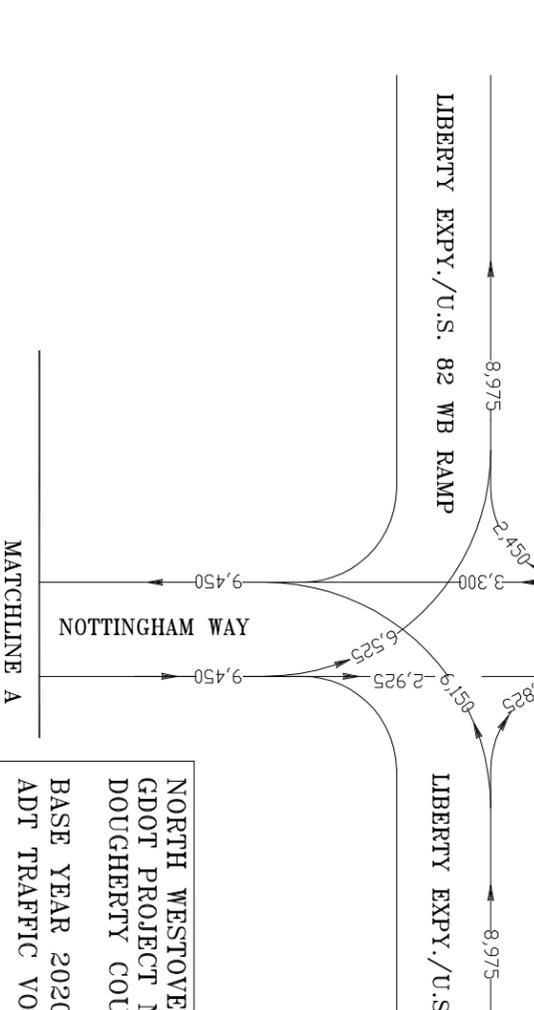


| K FACTORS | | | |
|----------------------------|------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 4.1% | 1.4% | 9.5% |
| DAWSON RD. | 3.7% | 6.6% | 8.2% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% | 8.4% |
| LEDO RD. | 4.9% | 8.2% | 8.2% |

| DAILY TRUCK PERCENTAGES | | | |
|-------------------------|------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LEDO RD. | 7.8% | 1.5% | 9.3% |

| AM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LEDO RD. | 4.9% | 1.5% | 6.4% |

| PM PEAK HR. TRUCK PERCENTAGES | | | |
|-------------------------------|-------|-------|-------|
| ROAD | S.U | COMB. | TOTAL |
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LEDO RD. | 13.9% | 1.9% | 15.8% |



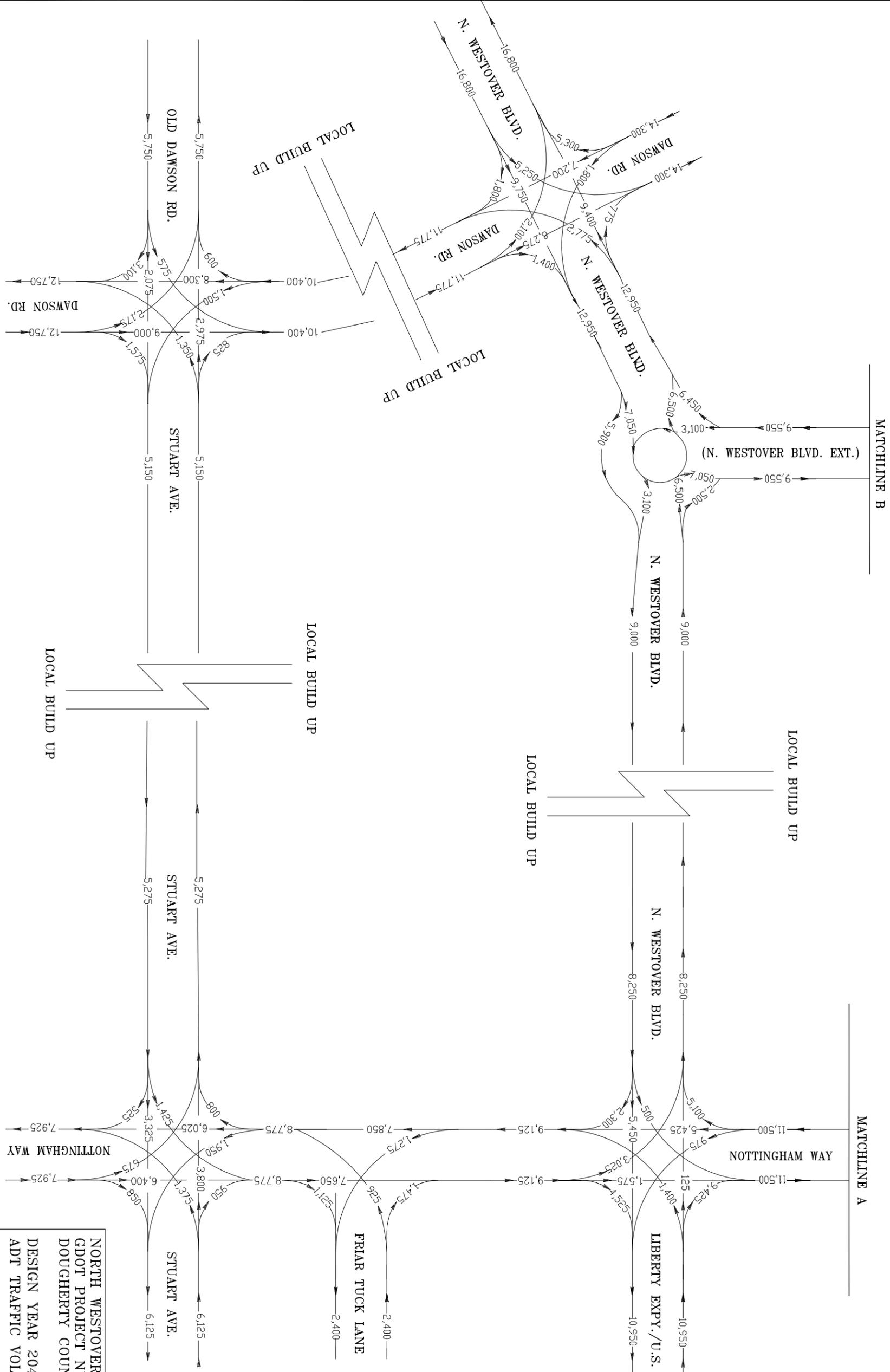
NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 ADT TRAFFIC VOLUMES (BUILD - ROUNDABOUT)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS | STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION TRAFFIC DIAGRAM |
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| | | | | PROJECT NO.: 0010571 DATE: 10/28/2014 |
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K FACTORS

| ROAD | AM | PM |
|----------------------------|------|------|
| N. WESTOVER BLVD | 4.1% | 8.2% |
| DAWSON RD. | 3.7% | 6.6% |
| STUART AVE./OLD DAWSON RD. | 5.3% | 8.2% |
| NOTTINGHAM WAY | 5.4% | 8.1% |
| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
| LEDO RD. | 4.9% | 8.2% |

DAILY TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|------|-------|-------|
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LEDO RD. | 7.8% | 1.5% | 9.3% |

AM PEAK HR. TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|-------|-------|-------|
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
| LIBERTY EXPY./U.S. 82 | 7.9% | 5.7% | 13.6% |
| LEDO RD. | 4.9% | 1.5% | 6.4% |

PM PEAK HR. TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
|-----------------------|-------|-------|-------|
| N. WESTOVER BLVD | 8.1% | 1.4% | 9.5% |
| LIBERTY EXPY./U.S. 82 | 6.7% | 5.4% | 12.1% |
| LEDO RD. | 13.9% | 1.9% | 15.8% |

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 DESIGN YEAR 2040
 ADT TRAFFIC VOLUMES (BUILD - ROUNDABOUT)

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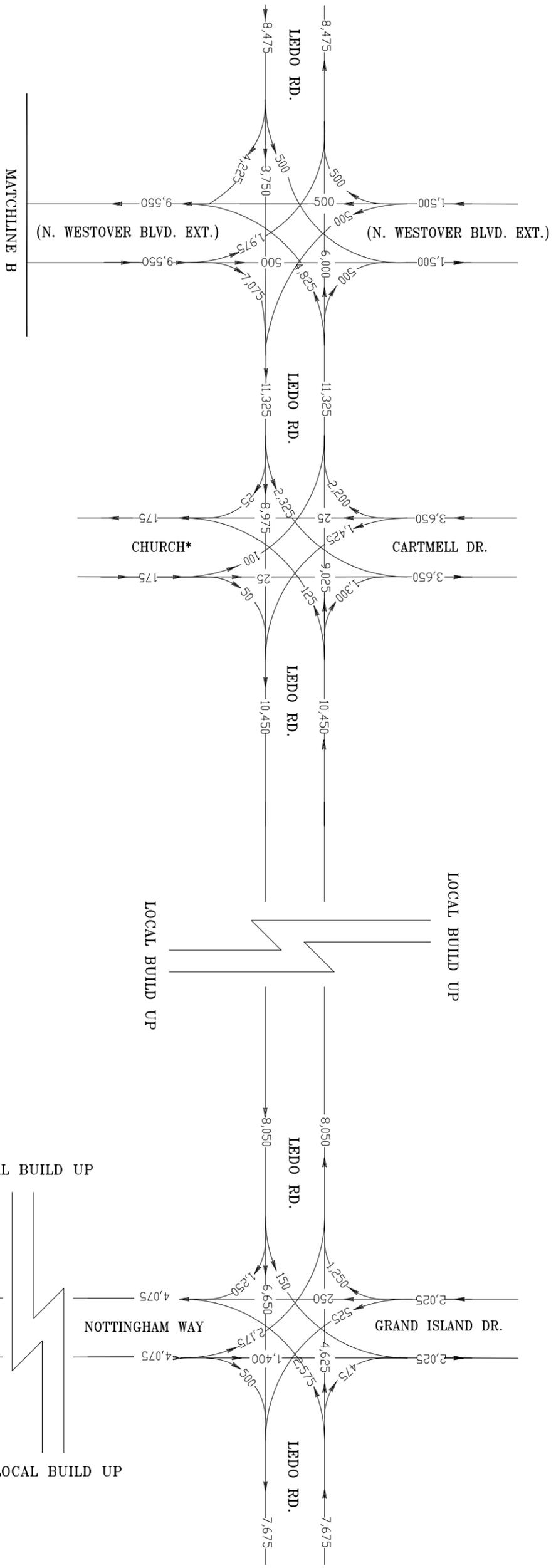
SCALE: NOT TO SCALE

LOCAL BUILD UP

| DATE | REVISIONS | DATE | REVISIONS |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014



K FACTORS

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DAILY TRUCK PERCENTAGES

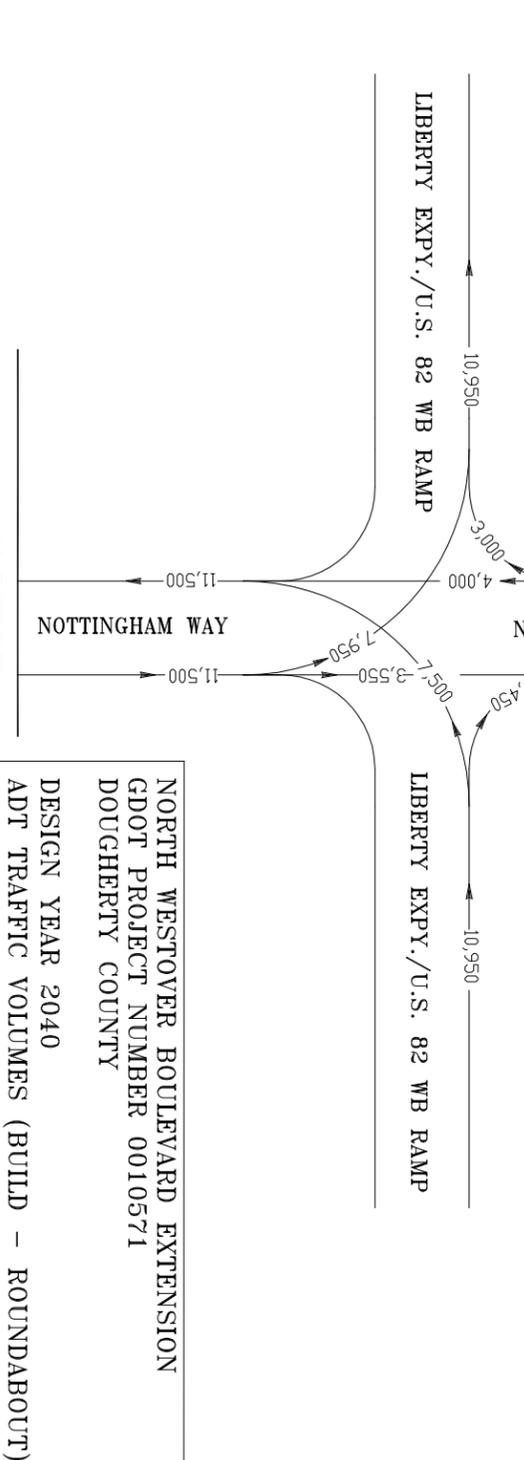
| ROAD | SU | COMB. | TOTAL |
|-----------------------|------|-------|-------|
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
| LIBERTY EXPY./U.S. 82 | 7.0% | 7.5% | 14.5% |
| LEDO RD. | 7.8% | 1.5% | 9.3% |

AM PEAK HR. TRUCK PERCENTAGES

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NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 DESIGN YEAR 2040
 ADT TRAFFIC VOLUMES (BUILD - ROUNDABOUT)

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

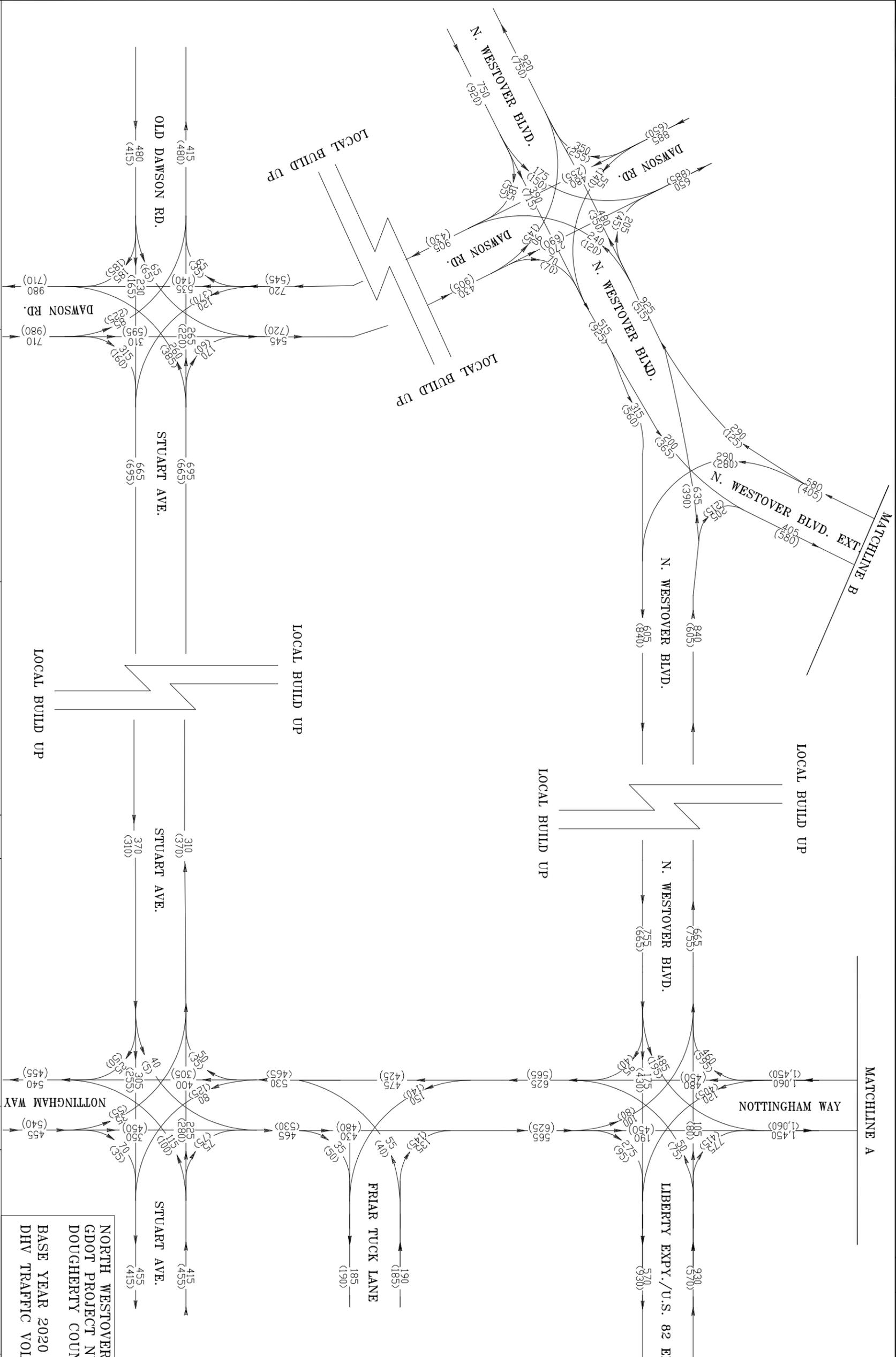
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SCALE: NOT TO SCALE

PROJECT NO.: 0010571
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DAILY TRUCK PERCENTAGES

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PM PEAK HR. TRUCK PERCENTAGES

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**AM VOLUMES
(PM VOLUMES)**

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 DHV TRAFFIC VOLUMES (BUILD)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

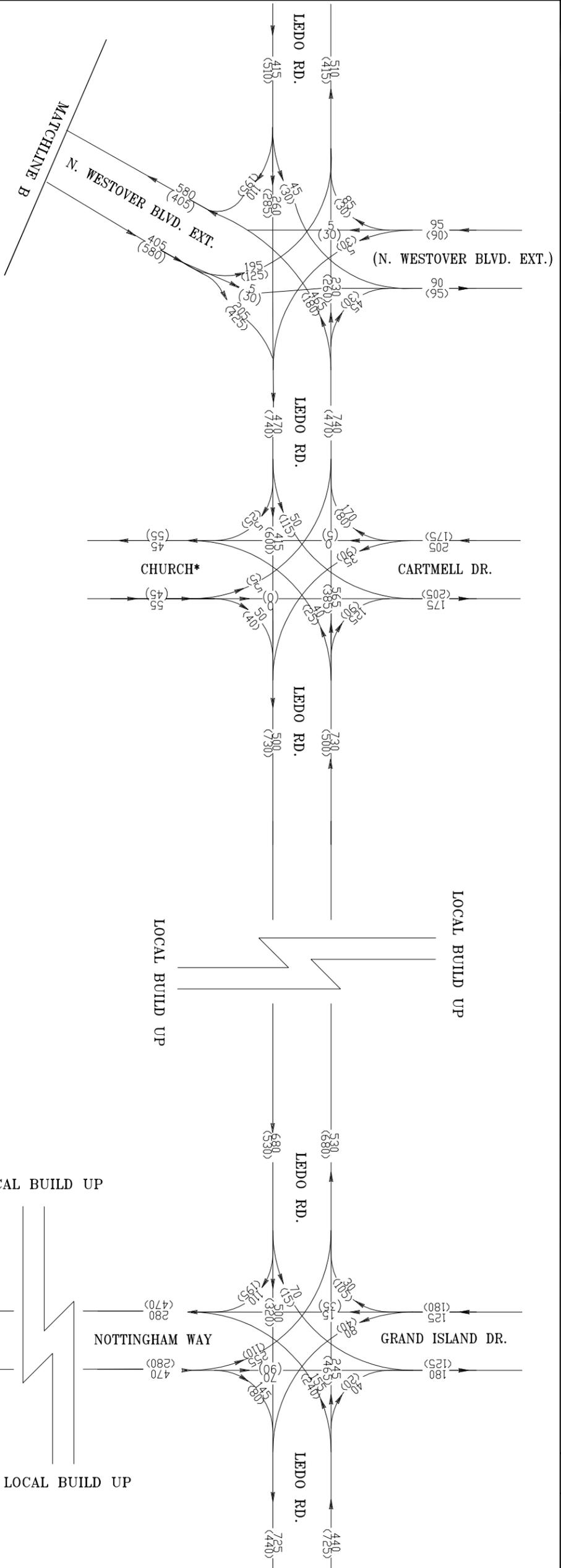
200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

SCALE: NOT TO SCALE

| DATE | REVISIONS | DATE | REVISIONS |
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014



K FACTORS

| ROAD | AM | PM |
|----------------------------|------|------|
| N. WESTOVER BLVD | 4.1% | 8.2% |
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| LIBERTY EXPY./U.S. 82 | 7.3% | 8.4% |
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DAILY TRUCK PERCENTAGES

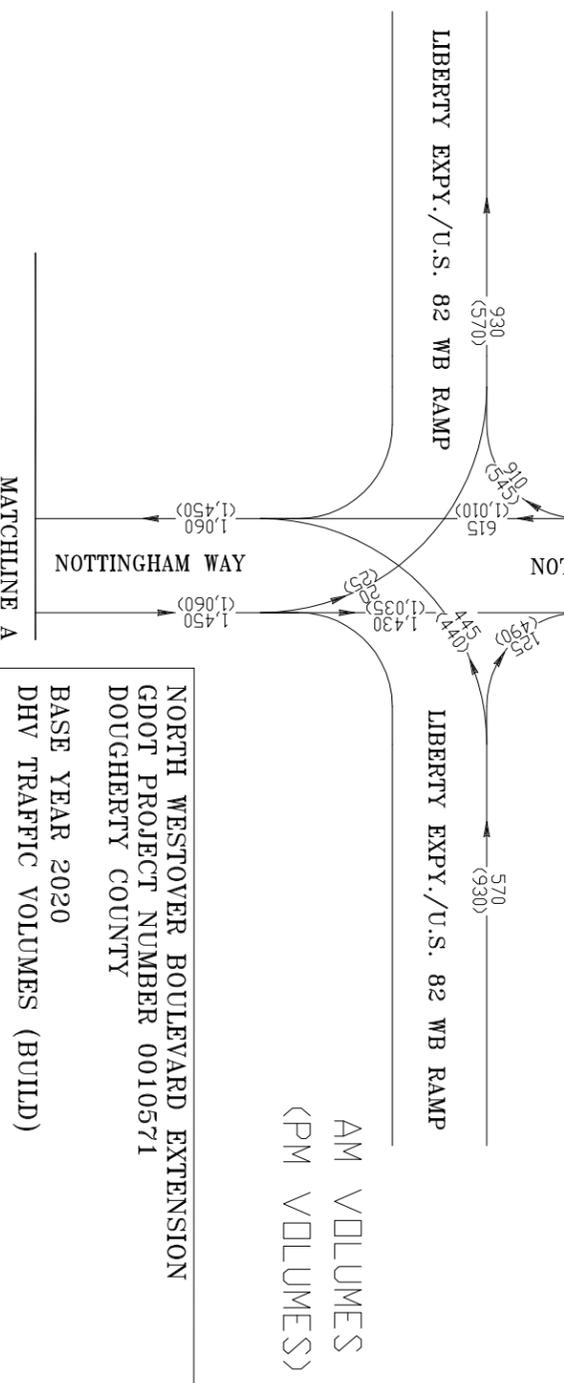
| ROAD | S.U | COMB. | TOTAL |
|-----------------------|------|-------|-------|
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PM PEAK HR. TRUCK PERCENTAGES

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AM VOLUMES
(PM VOLUMES)

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 DHV TRAFFIC VOLUMES (BUILD)

CROY ENGINEERING
Engineers
Planners
Surveyors

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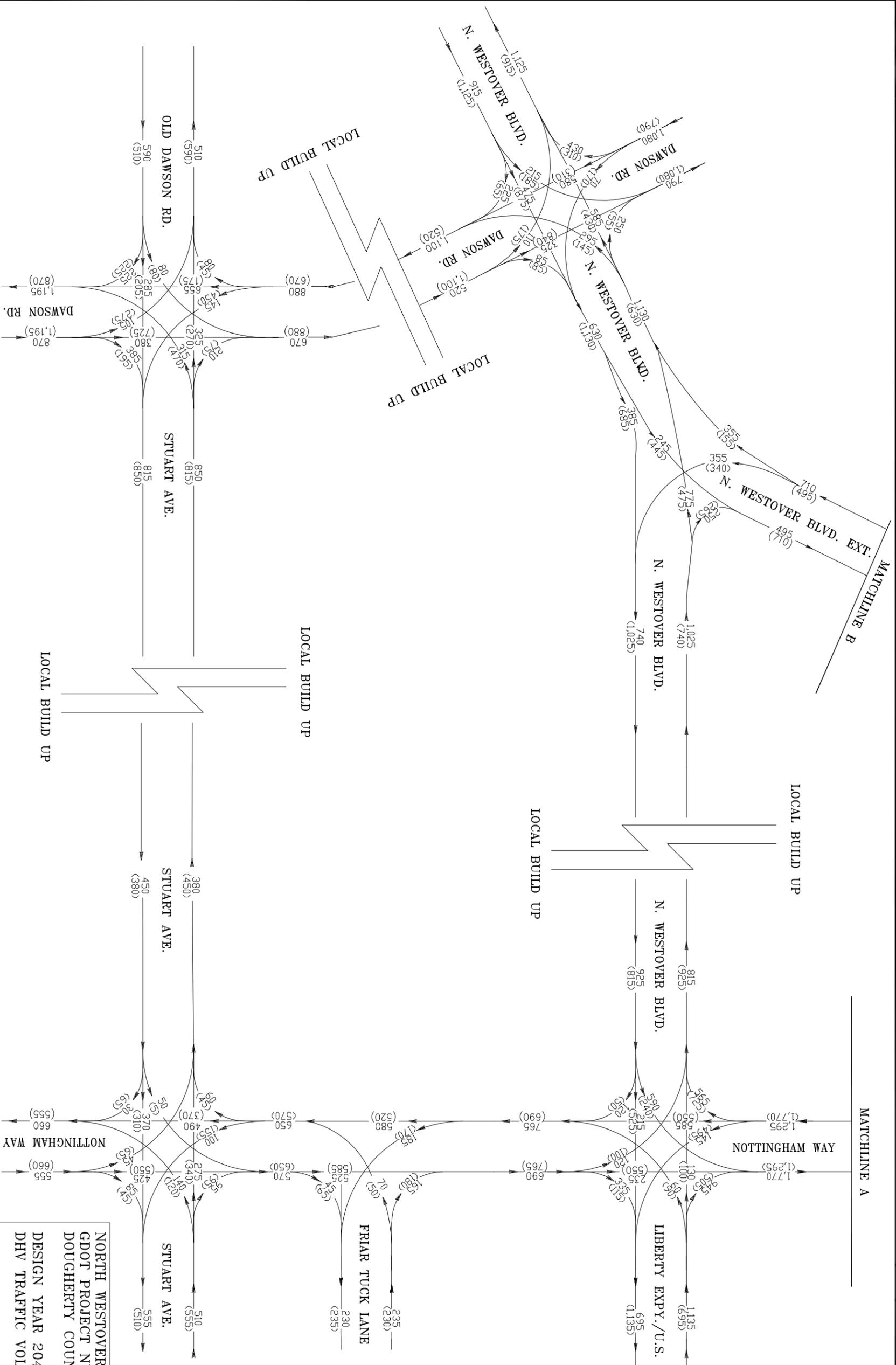
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014



K FACTORS

| ROAD | AM | PM |
|----------------------------|------|------|
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DAILY TRUCK PERCENTAGES

| ROAD | S.U | COMB. | TOTAL |
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AM PEAK HR. TRUCK PERCENTAGES

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AM VOLUMES
(PM VOLUMES)

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 DESIGN YEAR 2040
 DHV TRAFFIC VOLUMES (BUILD)

CROY ENGINEERING
 Engineers Planners Surveyors

200 NORTH COBB PARKWAY, BLDG. 400, SUITE 413
 MARIETTA, GA 30062
 PHONE: (770) 971-5407 FAX: (770) 971-0620

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014

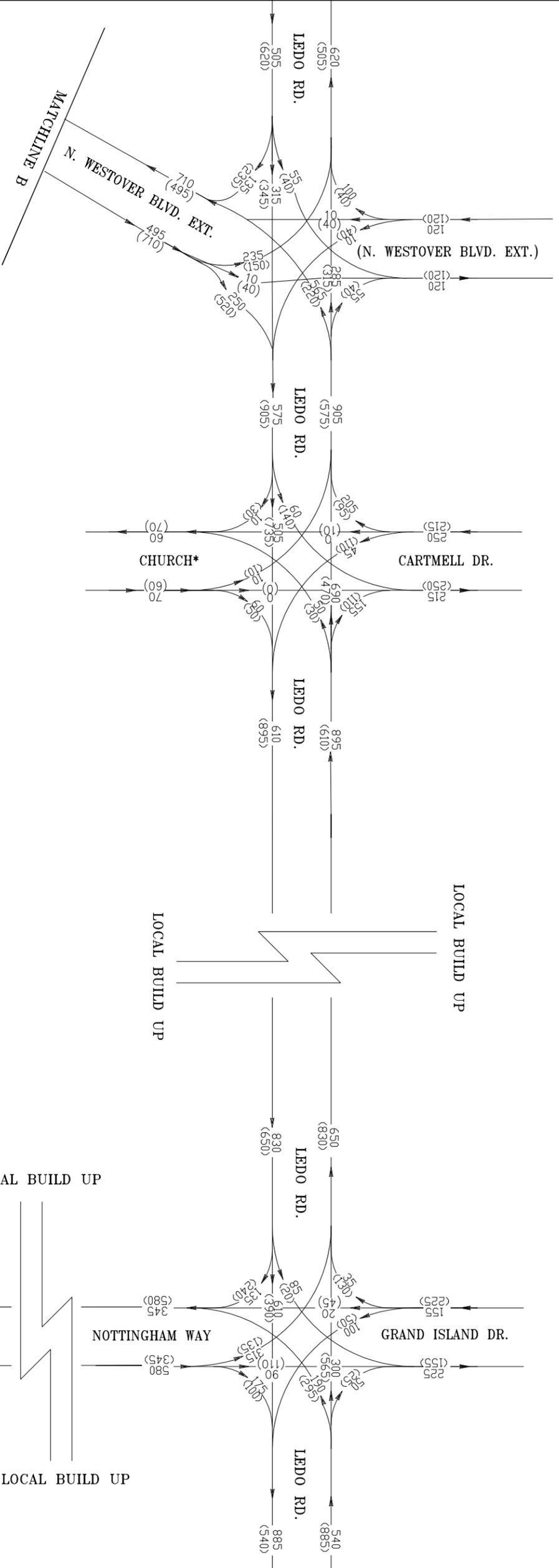
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SCALE: NOT TO SCALE



K FACTORS

| ROAD | AM | PM |
|----------------------------|------|------|
| N. WESTOVER BLVD | 4.1% | 8.2% |
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DAILY TRUCK PERCENTAGES

| ROAD | S.U. | COMB. | TOTAL |
|-----------------------|------|-------|-------|
| N. WESTOVER BLVD | 9.2% | 1.6% | 10.8% |
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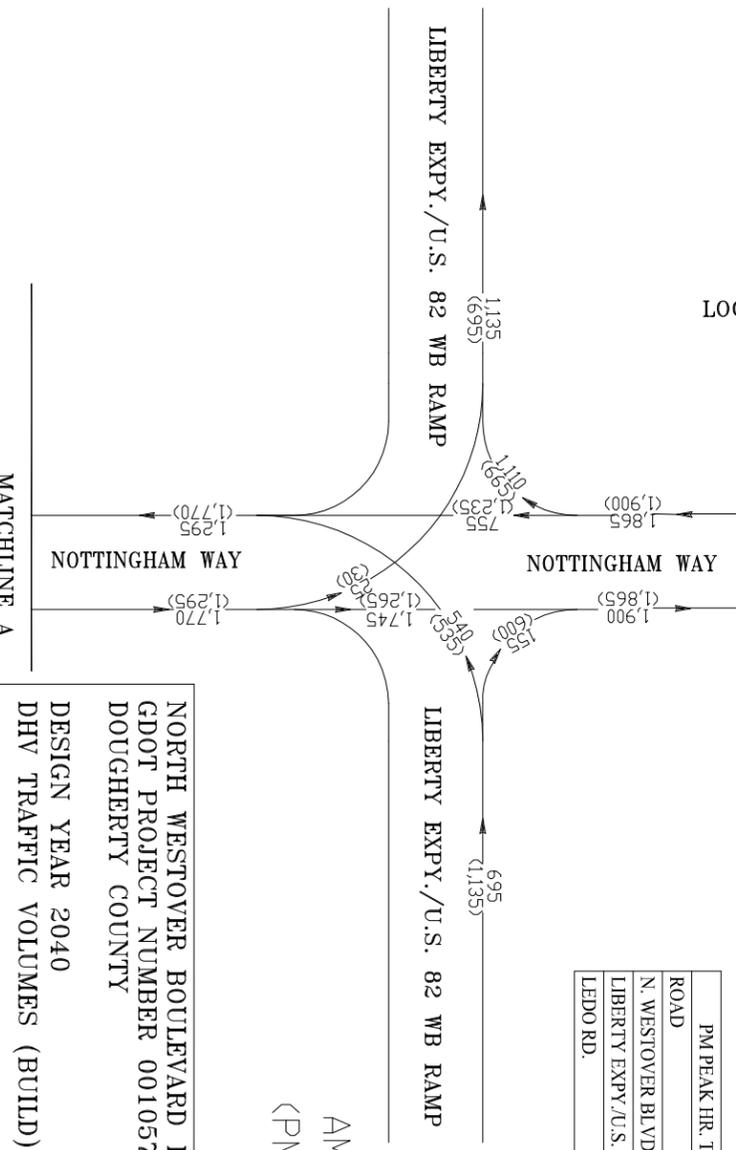
AM PEAK HR. TRUCK PERCENTAGES

| ROAD | S.U. | COMB. | TOTAL |
|-----------------------|-------|-------|-------|
| N. WESTOVER BLVD | 10.5% | 2.8% | 13.3% |
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PM PEAK HR. TRUCK PERCENTAGES

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AM VOLUMES
(PM VOLUMES)



NORTH WESTOVER BOULEVARD EXTENSION
GDOT PROJECT NUMBER 0010571
DOUGHERTY COUNTY
DESIGN YEAR 2040
DHV TRAFFIC VOLUMES (BUILD)

STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION OFFICE: PLANNING

| DATE | REVISIONS | DATE | REVISIONS |
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TRAFFIC DIAGRAM

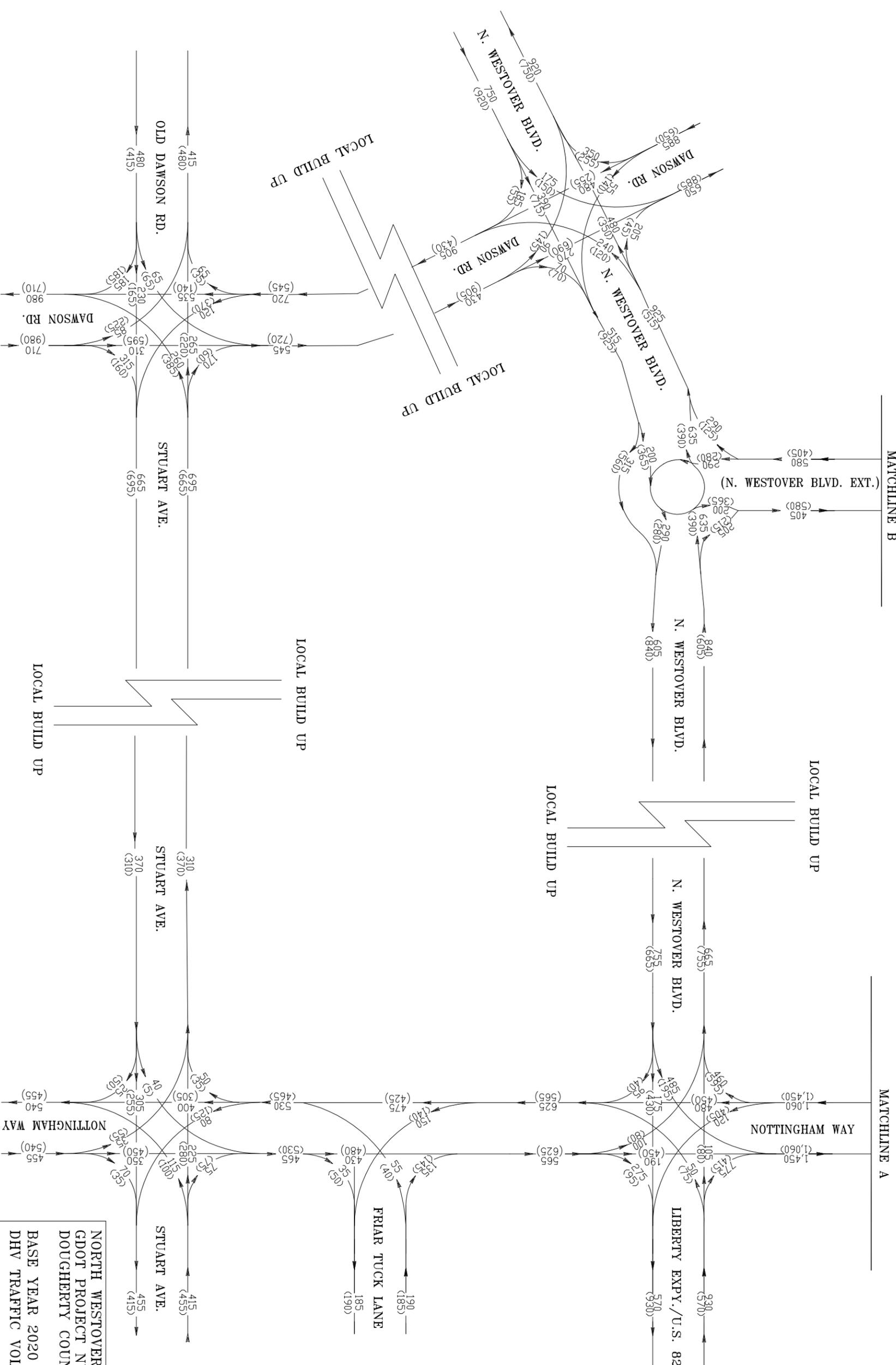
CROY ENGINEERING
Engineers
Planners
Surveyors

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SCALE: NOT TO SCALE

PROJECT NO.: 0010571
DATE: 10/28/2014

24 of 28



K FACTORS

| ROAD | AM | PM |
|----------------------------|------|------|
| N. WESTOVER BLVD | 4.1% | 8.2% |
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DAILY TRUCK PERCENTAGES

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**AM VOLUMES
(PM VOLUMES)**

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 BASE YEAR 2020
 DHV TRAFFIC VOLUMES (BUILD - ROUNDABOUT)

CROY ENGINEERING
 Engineers
 Planners
 Surveyors

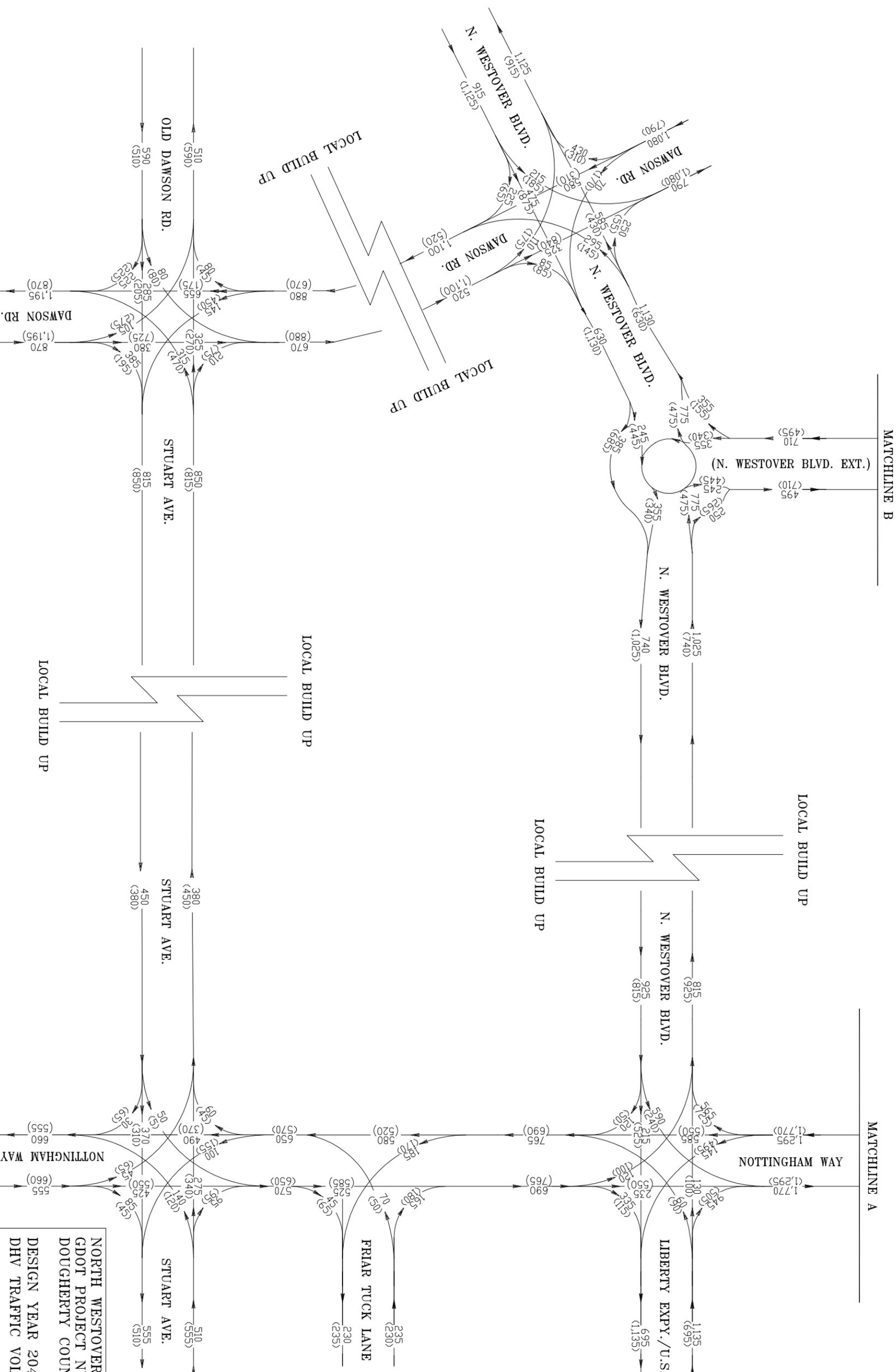
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SCALE: NOT TO SCALE

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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014



K FACTORS

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(PM VOLUMES)

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 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 DESIGN YEAR 2040
 DHV TRAFFIC VOLUMES (BUILD - ROUNDABOUT)

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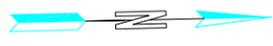
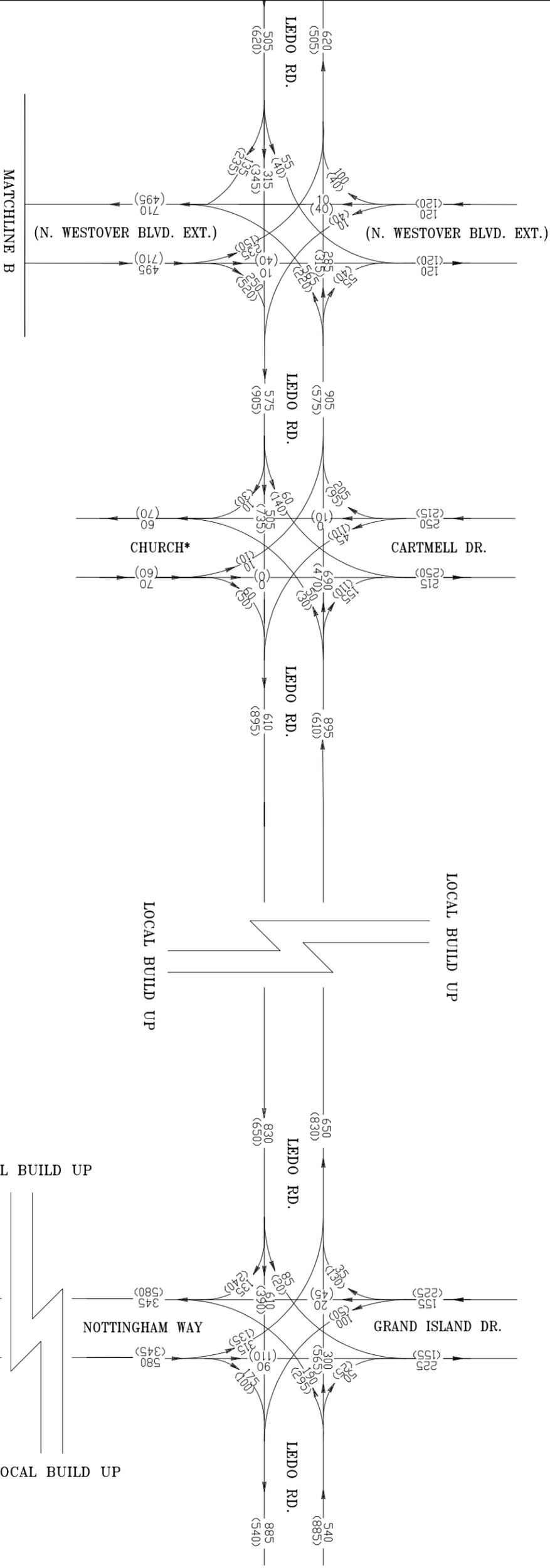
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STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 TRAFFIC DIAGRAM

PROJECT NO.: 0010571
 DATE: 10/28/2014

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K FACTORS

| ROAD | AM | PM |
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AM PEAK HR. TRUCK PERCENTAGES

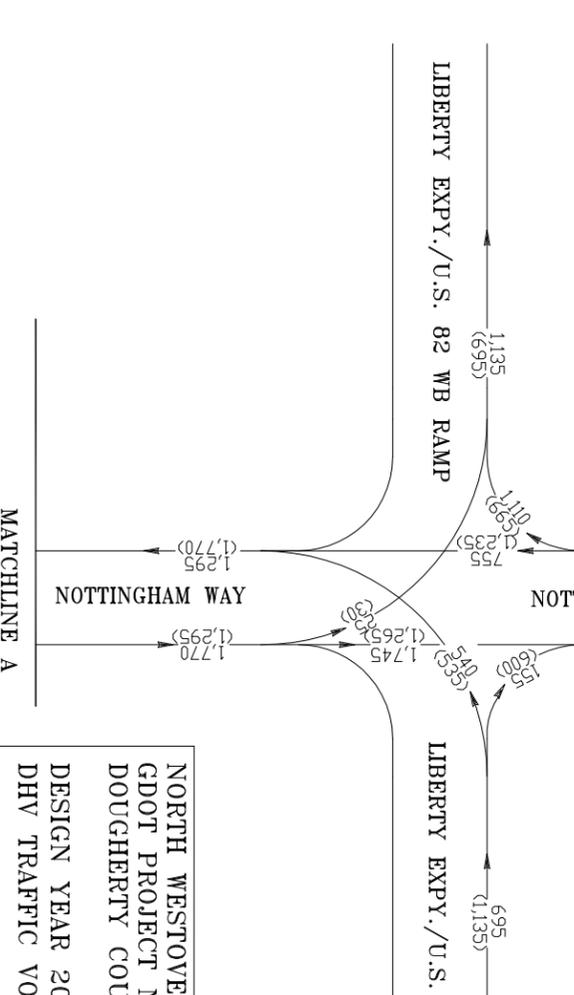
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AM VOLUMES
(PM VOLUMES)

NORTH WESTOVER BOULEVARD EXTENSION
 GDOT PROJECT NUMBER 0010571
 DOUGHERTY COUNTY
 DESIGN YEAR 2040
 DHV TRAFFIC VOLUMES (BUILD - ROUNDABOUT)



MATCHLINE A

| DATE | REVISIONS | DATE | REVISIONS |
|------|-----------|------|-----------|
| | | | |
| | | | |
| | | | |

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PLANNING
 TRAFFIC DIAGRAM



SCALE: NOT TO SCALE

PROJECT NO.: 0010571
 DATE: 10/28/2014

| INTERSECTIONS | 2014 EXISTING | | 2020 NO BUILD | | 2020 BUILD (Signal) with Stop at Ledo & Westover | | 2020 BUILD (Signal) with Signal at Ledo & Westover | | 2020 BUILD (Roundabout) with Stop at Ledo & Westover | | 2020 BUILD (Roundabout) with Signal at Ledo & Westover | | 2040 NO BUILD | | 2040 BUILD (Signal) with Stop at Ledo & Westover | | 2040 BUILD (Signal) with Signal at Ledo & Westover | | 2040 BUILD (Roundabout) with Stop at Ledo & Westover | | 2040 BUILD (Roundabout) with Signal at Ledo & Westover | |
|---|----------------|-------------|----------------|-------------|--|-------------|--|-------------|--|-------------|--|-------------|----------------|-------------|--|-------------|--|-------------|--|-------------|--|-------------|
| | A.M. PEAK HOUR | | A.M. PEAK HOUR | | A.M. PEAK HOUR | | A.M. PEAK HOUR | | A.M. PEAK HOUR | | A.M. PEAK HOUR | | A.M. PEAK HOUR | | A.M. PEAK HOUR | | A.M. PEAK HOUR | | A.M. PEAK HOUR | | A.M. PEAK HOUR | |
| | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) |
| LEDO ROAD AND CARTMELL DR | B | 14.4 | D | 43.3 | A | 7 | A | 7 | A | 7 | A | 7 | D | 45.2 | A | 8.6 | A | 8.6 | A | 8.6 | A | 8.6 |
| NOTTINGHAM WAY AND LEDO ROAD | C | 22 | E | 64.5 | D | 47.1 | D | 47.1 | D | 47.1 | D | 47.1 | F | 127.7 | F | 86.1 | F | 86.1 | F | 86.1 | F | 86.1 |
| NOTTINGHAM WAY AND US 82 WB RAMP | C | 25.6 | F | 92.3 | E | 66 | E | 66 | E | 66 | E | 66 | F | 187.7 | F | 149.3 | F | 149.3 | F | 149.3 | F | 149.3 |
| NOTTINGHAM WAY AND N. WESTOVER BOULEVARD/US 82 EB RAMP | B | 15.1 | F | 150.1 | F | 309.8 | F | 309.8 | F | 309.8 | F | 309.8 | F | 235.6 | F | 446.6 | F | 446.6 | F | 446.6 | F | 446.6 |
| NOTTINGHAM WAY AND STUART AVENUE | C | 33 | E | 62.6 | D | 40.4 | D | 40.4 | D | 40.4 | D | 40.4 | F | 150.6 | F | 91.1 | F | 91.1 | F | 91.1 | F | 91.1 |
| DAWSON ROAD AND OLD DAWSON ROAD/STUART AVENUE | C | 26.6 | D | 45.4 | D | 36.2 | D | 36.2 | D | 36.2 | D | 36.2 | F | 94.5 | E | 64.7 | E | 64.7 | E | 64.7 | E | 64.7 |
| DAWSON ROAD AND N. WESTOVER BOULEVARD | C | 27.1 | E | 74.8 | E | 61.9 | E | 61.9 | E | 61.9 | E | 61.9 | F | 145.3 | F | 141 | F | 141 | F | 141 | F | 141 |
| WESTOVER BOULEVARD /N. WESTOVER BOULEVARD AND N. WESTOVER BOULEVARD | N/A | N/A | N/A | N/A | B | 18.3 | C | 22.6 | C | | C | | N/A | N/A | C | 25 | C | 28.1 | E | | E | |
| LEDO ROAD AND WESTOVER BOULEVARD | N/A | N/A | N/A | N/A | C | 1213.8 | B | 17.1 | C | 1213.8 | B | 18.3 | N/A | N/A | D | 1234.8 | C | 25.3 | D | 1234.8 | C | 24.3 |

| INTERSECTIONS | 2014 EXISTING | | 2020 NO BUILD | | 2020 BUILD (Signal) with Stop at Ledo & Westover | | 2020 BUILD (Signal) with Signal at Ledo & Westover | | 2020 BUILD (Roundabout) with Stop at Ledo & Westover | | 2020 BUILD (Roundabout) with Signal at Ledo & Westover | | 2040 NO BUILD | | 2040 BUILD (Signal) with Stop at Ledo & Westover | | 2040 BUILD (Signal) with Signal at Ledo & Westover | | 2040 BUILD (Roundabout) with Stop at Ledo & Westover | | 2040 BUILD (Roundabout) with Signal at Ledo & Westover | |
|---|----------------|-------------|----------------|-------------|--|-------------|--|-------------|--|-------------|--|-------------|----------------|-------------|--|-------------|--|-------------|--|-------------|--|-------------|
| | P.M. PEAK HOUR | | P.M. PEAK HOUR | | P.M. PEAK HOUR | | P.M. PEAK HOUR | | P.M. PEAK HOUR | | P.M. PEAK HOUR | | P.M. PEAK HOUR | | P.M. PEAK HOUR | | P.M. PEAK HOUR | | P.M. PEAK HOUR | | P.M. PEAK HOUR | |
| | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) | LOS | DELAY (sec) |
| LEDO ROAD AND CARTMELL DR | B | 18.2 | C | 34.1 | B | 12.8 | B | 13.1 | B | 12.8 | B | 13.1 | D | 35.5 | B | 16.1 | B | 16.6 | B | 16.1 | B | 16.6 |
| NOTTINGHAM WAY AND LEDO ROAD | C | 30.9 | D | 47.7 | C | 29.7 | C | 29.7 | C | 29.7 | C | 29.7 | F | 82.1 | D | 37.7 | D | 37.7 | D | 37.7 | D | 37.7 |
| NOTTINGHAM WAY AND US 82 WB RAMP | C | 24.6 | D | 53.1 | F | 82.5 | F | 82.5 | F | 82.5 | F | 82.5 | F | 114.4 | F | 154 | F | 154 | F | 154 | F | 154 |
| NOTTINGHAM WAY AND N. WESTOVER BOULEVARD/US 82 EB RAMP | C | 30.2 | F | 122.2 | F | 114.2 | F | 114.2 | F | 114.2 | F | 114.2 | F | 201.5 | F | 203.1 | F | 203.1 | F | 203.1 | F | 203.1 |
| NOTTINGHAM WAY AND STUART AVENUE | D | 39.3 | D | 43 | D | 36.1 | D | 36.1 | D | 36.1 | D | 36.1 | E | 75.6 | D | 48.8 | D | 48.8 | D | 48.8 | D | 48.8 |
| DAWSON ROAD AND OLD DAWSON ROAD/STUART AVENUE | C | 31.5 | C | 31.9 | D | 50.9 | D | 50.9 | D | 50.9 | D | 50.9 | D | 38.7 | F | 89.5 | F | 89.5 | F | 89.5 | F | 89.5 |
| DAWSON ROAD AND N. WESTOVER BOULEVARD | D | 49.3 | D | 51.4 | D | 40.3 | D | 40.3 | D | 40.3 | D | 40.3 | F | 81.4 | D | 53 | D | 53 | D | 53 | D | 53 |
| WESTOVER BOULEVARD /N. WESTOVER BOULEVARD AND N. WESTOVER BOULEVARD | N/A | N/A | N/A | N/A | C | 20.2 | C | 22.5 | C | | C | | N/A | N/A | C | 29 | C | 30.8 | D | | D | |
| LEDO ROAD AND WESTOVER BOULEVARD | N/A | N/A | N/A | N/A | B | 12 | B | 19.3 | B | 12 | B | 15.5 | N/A | N/A | D | 2768.9 | D | 52.5 | D | 2768.9 | D | 43.5 |

MEMORANDUM TO FILE

Subject: North Westover Boulevard Extension
Signal Warrant Analysis for North Westover Boulevard Extension
at Ledo Road

From: Daniel B. Dobry, Jr., P.E., PTOE, AICP 

Date: November 30, 2015

The North Westover Boulevard Extension project (GDOT P.I. No. 0010571) will construct a new north-south roadway west of Nottingham Way in the northwest area of Albany, Georgia. This alternate route will allow motorists to avoid the interchange of US 82 (Liberty Expressway) and Nottingham Way realizing operational improvements at the two signalized intersections at this interchange.

As North Westover Boulevard Extension is a new route, two new intersections will be constructed: one at North Westover Boulevard and one at Ledo Road. To evaluate operations at the new intersections and to perform signal warrant analyses, a task was performed to reassign traffic through these new intersections. Current volumes were forecasted to the year 2020 and reassigned as individual maneuvers through the new intersections. The results of this effort are shown on Attachment 1.

The signal warrant analysis that was included with the Concept Report is included as Attachment 2. With this analysis, the northbound (minor street) right turns were not reduced due to this maneuver for this approach having the largest volumes. In addition, reductions in the threshold volumes were applied because Ledo Road (major street) has a posted speed limit of 45 mph. Under these conditions, erecting a stop and go traffic signal would be warranted.

An additional signal warrant analysis was performed but under different conditions. The differences were the northbound right turns were reduced by 100% and no reduction was applied to the threshold volumes. This analysis is included as Attachment 3. The results of this analysis indicate that signal warrants are not met.

For the signal warrant analysis conditions where there is no reduction in threshold volumes and minor street right turns are reduced by 100%, a stop and go traffic signal is not warranted at North Westover Boulevard Extension and Ledo Road.

This area of northwest Albany and southern Lee County has been experiencing growth in both residential as well as commercial/retail and office development. It is probable in the future that as volumes continue to grow a traffic signal at the intersection of the North Westover Boulevard Extension and Ledo Road will meet warrants. Consequently, the geometric design of this intersection is such that it will accommodate erecting the equipment for a stop and go traffic signal without having to do any roadway infrastructure reconstruction. It is expected that a re-evaluation of signal warrants will be performed during final engineering using more current traffic volumes that reflect the continued growth and development in this area.

Attachments

Cc: Chris Rideout, P.E., Croy Engineering
David Webb, P.E., Croy Engineering
File: Croy Project No. 1266.00

ATTACHMENT 1

2020 12-Hour Counts

Ledo Road @ N Westover Blvd Ext.

| | Ledo Rd - Eastbound | | | Ledo Rd - Westbound | | | N. Westover Blvd Ext - NB | | | N. Westover Blvd Ext - SB | | |
|---------------------|---------------------|------|-------|---------------------|------|-------|---------------------------|------|-------|---------------------------|------|-------|
| | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| 6:00 AM - 7:00 AM | 1 | 39 | 21 | 33 | 26 | 1 | 5 | 1 | 20 | 1 | 1 | 1 |
| 7:00 AM - 8:00 AM | 2 | 152 | 55 | 86 | 69 | 2 | 14 | 2 | 53 | 2 | 2 | 2 |
| 8:00 AM - 9:00 AM | 5 | 313 | 111 | 173 | 139 | 5 | 28 | 5 | 107 | 5 | 5 | 5 |
| 9:00 AM - 10:00 AM | 18 | 251 | 116 | 181 | 146 | 18 | 23 | 18 | 83 | 18 | 18 | 18 |
| 10:00 AM - 11:00 AM | 15 | 220 | 54 | 87 | 152 | 15 | 27 | 15 | 71 | 15 | 15 | 15 |
| 11:00 AM - 12:00 PM | 20 | 248 | 123 | 114 | 198 | 20 | 82 | 20 | 134 | 20 | 20 | 20 |
| 12:00 PM - 1:00 PM | 21 | 254 | 132 | 122 | 213 | 21 | 88 | 21 | 218 | 21 | 21 | 21 |
| 1:00 PM - 2:00 PM | 24 | 293 | 153 | 142 | 247 | 24 | 102 | 24 | 366 | 24 | 24 | 24 |
| 2:00 PM - 3:00 PM | 25 | 287 | 155 | 144 | 250 | 25 | 103 | 25 | 370 | 25 | 25 | 25 |
| 3:00 PM - 4:00 PM | 23 | 254 | 146 | 136 | 236 | 23 | 97 | 23 | 350 | 23 | 23 | 23 |
| 4:00 PM - 5:00 PM | 30 | 312 | 185 | 172 | 298 | 30 | 123 | 30 | 442 | 30 | 30 | 30 |
| 5:00 PM - 6:00 PM | 31 | 329 | 194 | 180 | 313 | 31 | 129 | 31 | 464 | 31 | 31 | 31 |

N Westover Blvd @ N Westover Blvd Ext.

| | N. Westover Blvd - EB | | | N. Westover Blvd - WB | | | N. Westover Blvd Ext - NB | | | N. Westover Blvd Ext - SB | | |
|---------------------|-----------------------|------|-------|-----------------------|------|-------|---------------------------|------|-------|---------------------------|------|-------|
| | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| 6:00 AM - 7:00 AM | 21 | 99 | n/a | n/a | 89 | 17 | n/a | n/a | n/a | 46 | n/a | 45 |
| 7:00 AM - 8:00 AM | 44 | 205 | n/a | n/a | 247 | 48 | n/a | n/a | n/a | 95 | n/a | 94 |
| 8:00 AM - 9:00 AM | 67 | 314 | n/a | n/a | 374 | 73 | n/a | n/a | n/a | 145 | n/a | 144 |
| 9:00 AM - 10:00 AM | 102 | 361 | n/a | n/a | 348 | 68 | n/a | n/a | n/a | 167 | n/a | 166 |
| 10:00 AM - 11:00 AM | 185 | 359 | n/a | n/a | 290 | 57 | n/a | n/a | n/a | 166 | n/a | 165 |
| 11:00 AM - 12:00 PM | 276 | 425 | n/a | n/a | 364 | 134 | n/a | n/a | n/a | 179 | n/a | 178 |
| 12:00 PM - 1:00 PM | 381 | 510 | n/a | n/a | 457 | 169 | n/a | n/a | n/a | 213 | n/a | 213 |
| 1:00 PM - 2:00 PM | 441 | 493 | n/a | n/a | 367 | 135 | n/a | n/a | n/a | 206 | n/a | 206 |
| 2:00 PM - 3:00 PM | 418 | 430 | n/a | n/a | 408 | 151 | n/a | n/a | n/a | 180 | n/a | 180 |
| 3:00 PM - 4:00 PM | 426 | 448 | n/a | n/a | 448 | 165 | n/a | n/a | n/a | 188 | n/a | 188 |
| 4:00 PM - 5:00 PM | 430 | 452 | n/a | n/a | 410 | 151 | n/a | n/a | n/a | 189 | n/a | 189 |
| 5:00 PM - 6:00 PM | 461 | 485 | n/a | n/a | 428 | 158 | n/a | n/a | n/a | 203 | n/a | 203 |

ATTACHMENT 2

| Warrants Summary | | | | | | | | | | | | |
|--|--|--------------------------|---------------------------------|-----|-----|------------------------|----------------------|--------------------------------|-----|--------------------------|-----|-------------------------------------|
| Information | | | | | | | | | | | | |
| Analyst | TLH | | | | | | Intersection | Ledo Rd at N. Westover Blvd Ex | | | | |
| Agency/Co | Croy Engineering, LLC | | | | | | Jurisdiction | Lee County | | | | |
| Date Performed | 11/13/2014 | | | | | | Units | U.S. Customary | | | | |
| Project ID | Westover Blvd Extension | | | | | | Time Period Analyzed | 6:00 AM - 6:00 PM | | | | |
| East/West Street | Ledo Road | | | | | | North/South Street | N. Westover Blvd Ext. | | | | |
| File Name | Westover Blvd Ext 2020 Signal Warrant Analysis.xhy | | | | | | Major Street | East-West | | | | |
| Project Description <i>Westover Blvd Extension</i> | | | | | | | | | | | | |
| General | | | | | | Roadway Network | | | | | | |
| Major Street Speed (mph) | 45 | <input type="checkbox"/> | Population < 10,000 | | | | Two Major Routes | | | <input type="checkbox"/> | | |
| Nearest Signal (ft) | 680 | <input type="checkbox"/> | Coordinated Signal System | | | | Weekend Count | | | <input type="checkbox"/> | | |
| Crashes (per year) | 0 | <input type="checkbox"/> | Adequate Trials of Alternatives | | | | 5-yr Growth Factor | | | 0 | | |
| Geometry and Traffic | EB | | | WB | | | NB | | | SB | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Number of lanes, N | 1 | 2 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| Lane usage | L | TR | | L | T | R | L | T | R | | LTR | |
| Vehicle Volume Averages (vph) | 17 | 246 | 120 | 130 | 190 | 17 | 68 | 17 | 223 | 17 | 17 | 17 |
| Peds (ped/h) / Gaps (gaps/h) | -- | / | -- | -- | / | -- | -- | / | -- | -- | / | -- |
| Delay (s/veh) / (veh-hr) | -- | / | -- | -- | / | -- | -- | / | -- | -- | / | -- |
| Warrant 1: Eight-Hour Vehicular Volume | | | | | | | | | | | | <input checked="" type="checkbox"/> |
| 1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | | | | | | | | | | | | <input checked="" type="checkbox"/> |
| 1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | | | | | | | | | | | | <input checked="" type="checkbox"/> |
| 1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | | | | | | | | | | | | <input checked="" type="checkbox"/> |
| Warrant 2: Four-Hour Vehicular Volume | | | | | | | | | | | | <input checked="" type="checkbox"/> |
| 2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | | | | | | | | | | | | <input checked="" type="checkbox"/> |
| Warrant 3: Peak Hour | | | | | | | | | | | | <input checked="" type="checkbox"/> |
| 3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or-- | | | | | | | | | | | | <input type="checkbox"/> |
| 3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | | | | | | | | | | | | <input checked="" type="checkbox"/> |
| Warrant 4: Pedestrian Volume | | | | | | | | | | | | <input type="checkbox"/> |
| 4 A. Pedestrian Volumes (Four hours --or-- one hour) --and-- | | | | | | | | | | | | <input type="checkbox"/> |
| 4 B. Gaps Same Period (Four hours --or-- one hour) | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 5: School Crossing | | | | | | | | | | | | <input type="checkbox"/> |
| 5. Student Volumes --and-- | | | | | | | | | | | | <input type="checkbox"/> |
| 5. Gaps Same Period | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 6: Coordinated Signal System | | | | | | | | | | | | <input type="checkbox"/> |
| 6. Degree of Platooning (Predominant direction or both directions) | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 7: Crash Experience | | | | | | | | | | | | <input type="checkbox"/> |
| 7 A. Adequate trials of alternatives, observance and enforcement failed --and-- | | | | | | | | | | | | <input type="checkbox"/> |
| 7 B. Reported crashes susceptible to correction by signal (12-month period) --and-- | | | | | | | | | | | | <input type="checkbox"/> |
| 7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied | | | | | | | | | | | | <input checked="" type="checkbox"/> |
| Warrant 8: Roadway Network | | | | | | | | | | | | <input type="checkbox"/> |
| 8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or-- | | | | | | | | | | | | <input type="checkbox"/> |
| 8 B. Weekend Volume (Five hours total) | | | | | | | | | | | | <input type="checkbox"/> |

ATTACHMENT 2

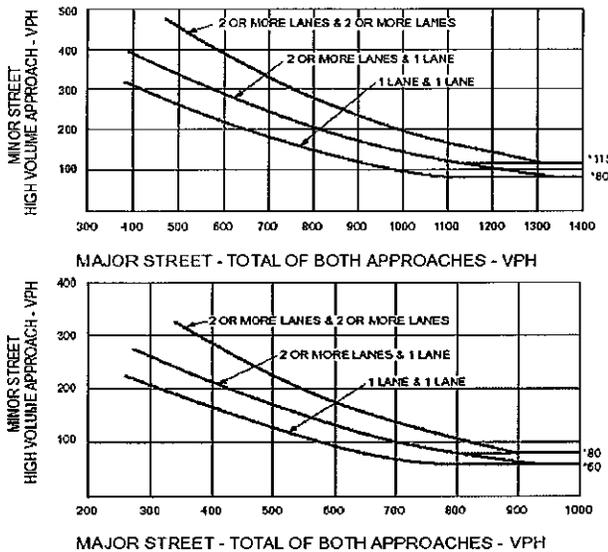
| Warrants Volume | | | |
|--|---|----------------------|--------------------------------|
| Information | | | |
| Analyst | TLH | Intersection | Ledo Rd at N. Westover Blvd Ex |
| Agency/Co | Croy Engineering, LLC | Jurisdiction | Lee County |
| Date Performed | 11/13/2014 | Units | U.S. Customary |
| Project ID | Westover Blvd Extension | Time Period Analyzed | 6:00 AM - 6:00 PM |
| East/West Street | Ledo Road | North/South Street | N. Westover Blvd Ext. |
| File Name | Lee County - Ledo Rd at N. Westover Blvd Ext 2020 Signal Warrant Analysis.xhy | Major Street | East-West |
| Project Description <i>Westover Blvd Extension</i> | | | |

Warrant 1

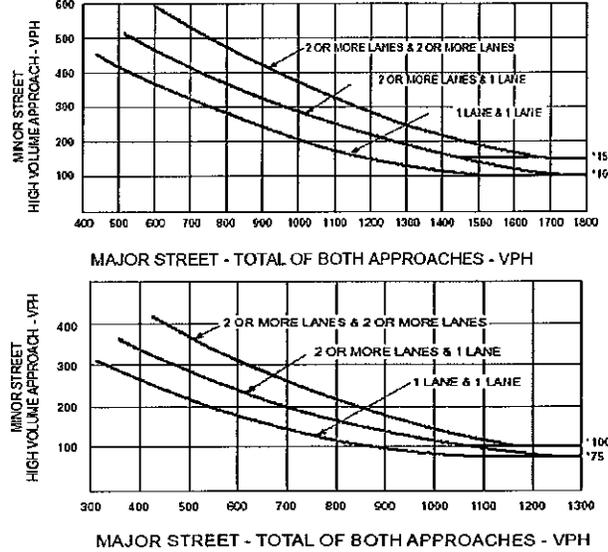
| Condition A - Minimum Vehicular Volume | | | | | | |
|---|---------------|--|------|------|---|-----------|
| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | Vehicles per hour on higher-volume minor-street approach (one direction only) | |
| Major Street | Minor Street | 100%* | 80%* | 70%* | 100%* | 80%* 70%* |
| 1..... | 1..... | 500 | 400 | 350 | 150 | 120 105 |
| 2 or more... | 1..... | 600 | 480 | 420 | 150 | 120 105 |
| 2 or more... | 2 or more... | 600 | 480 | 420 | 200 | 160 140 |
| 1..... | 2 or more.... | 500 | 400 | 350 | 200 | 160 140 |

| Condition B - Interruption of Continuous Traffic | | | | | | |
|---|---------------|--|------|------|---|-----------|
| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | Vehicles per hour on higher-volume minor-street approach (one direction only) | |
| Major Street | Minor Street | 100%* | 80%* | 70%* | 100%* | 80%* 70%* |
| 1..... | 1..... | 750 | 600 | 525 | 75 | 60 53 |
| 2 or more... | 1..... | 900 | 720 | 630 | 75 | 60 53 |
| 2 or more... | 2 or more... | 900 | 720 | 630 | 100 | 80 70 |
| 1..... | 2 or more.... | 750 | 600 | 525 | 100 | 80 70 |

Warrant 2



Warrant 3



Volume Summary

| Hours | Major Street Lanes 2+ | | | Minor Street Lanes 2+ | | Speed | | Population | | |
|---------------|-----------------------|--------------|--------------|-----------------------|-----------|----------|-----------|------------|----------|----------|
| | Major Volume | Minor Volume | Total Volume | 1A (70%) | 1A (56%) | 1B (70%) | 1B (56%) | 2 (70%) | 3A (70%) | 3B (70%) |
| 06-07 | 121 | 26 | 150 | No | No | No | No | No | No | No |
| 07-08 | 366 | 69 | 441 | No | No | No | No | No | No | No |
| 08-09 | 746 | 140 | 901 | Yes | Yes | Yes | Yes | Yes | No | No |
| 09-10 | 730 | 124 | 908 | No | Yes | Yes | Yes | Yes | No | No |
| 10-11 | 543 | 113 | 701 | No | Yes | No | Yes | No | No | No |
| 11-12 | 723 | 236 | 1019 | Yes | Yes | Yes | Yes | Yes | No | No |
| 12-13 | 763 | 327 | 1153 | Yes | Yes | Yes | Yes | Yes | No | Yes |
| 13-14 | 883 | 492 | 1447 | Yes | Yes | Yes | Yes | Yes | No | Yes |
| 14-15 | 886 | 498 | 1459 | Yes | Yes | Yes | Yes | Yes | No | Yes |
| 15-16 | 818 | 470 | 1357 | Yes | Yes | Yes | Yes | Yes | No | Yes |
| 16-17 | 1027 | 595 | 1712 | Yes | Yes | Yes | Yes | Yes | No | Yes |
| 17-18 | 1078 | 624 | 1795 | Yes | Yes | Yes | Yes | Yes | No | Yes |
| Totals | 8684 | 3714 | 13043 | 8 | 10 | 9 | 10 | 9 | 0 | 6 |

ATTACHMENT 3

| Warrants Summary | | | | | | | | | | | | |
|--|--------------------------------------|--------------------------|---------------------------------|-----|-----|------------------------|----------------------|--------------------------------|----|--------------------------|-----|--------------------------|
| Information | | | | | | | | | | | | |
| Analyst | TLH | | | | | | Intersection | Ledo Rd at N. Westover Blvd Ex | | | | |
| Agency/Co | Croy Engineering, LLC | | | | | | Jurisdiction | Dougherty / District 4 | | | | |
| Date Performed | 10/21/2014 | | | | | | Units | U.S. Customary | | | | |
| Project ID | Westover Blvd Extension | | | | | | Time Period Analyzed | 6:00 AM - 6:00 PM | | | | |
| East/West Street | Ledo Road | | | | | | North/South Street | N. Westover Blvd Ext. | | | | |
| File Name | Ext 2020 Signal Warrant Analysis.xhy | | | | | | Major Street | East-West | | | | |
| Project Description <i>Westover Blvd Extension</i> | | | | | | | | | | | | |
| General | | | | | | Roadway Network | | | | | | |
| Major Street Speed (mph) | 40 | <input type="checkbox"/> | Population < 10,000 | | | | Two Major Routes | | | <input type="checkbox"/> | | |
| Nearest Signal (ft) | 680 | <input type="checkbox"/> | Coordinated Signal System | | | | Weekend Count | | | <input type="checkbox"/> | | |
| Crashes (per year) | 0 | <input type="checkbox"/> | Adequate Trials of Alternatives | | | | 5-yr Growth Factor | | | 0 | | |
| Geometry and Traffic | EB | | | WB | | | NB | | | SB | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Number of lanes, N | 1 | 2 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| Lane usage | L | TR | | L | T | R | L | T | R | | LTR | |
| Vehicle Volume Averages (vph) | 17 | 246 | 120 | 130 | 190 | 0 | 68 | 17 | 0 | 17 | 17 | 17 |
| Peds (ped/h) / Gaps (gaps/h) | -- | / | -- | -- | / | -- | -- | / | -- | -- | / | -- |
| Delay (s/veh) / (veh-hr) | -- | / | -- | -- | / | -- | -- | / | -- | -- | / | -- |
| Warrant 1: Eight-Hour Vehicular Volume | | | | | | | | | | | | <input type="checkbox"/> |
| 1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | | | | | | | | | | | | <input type="checkbox"/> |
| 1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | | | | | | | | | | | | <input type="checkbox"/> |
| 1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 2: Four-Hour Vehicular Volume | | | | | | | | | | | | <input type="checkbox"/> |
| 2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 3: Peak Hour | | | | | | | | | | | | <input type="checkbox"/> |
| 3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or-- | | | | | | | | | | | | <input type="checkbox"/> |
| 3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 4: Pedestrian Volume | | | | | | | | | | | | <input type="checkbox"/> |
| 4 A. Pedestrian Volumes (Four hours --or-- one hour) --and-- | | | | | | | | | | | | <input type="checkbox"/> |
| 4 B. Gaps Same Period (Four hours --or-- one hour) | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 5: School Crossing | | | | | | | | | | | | <input type="checkbox"/> |
| 5. Student Volumes --and-- | | | | | | | | | | | | <input type="checkbox"/> |
| 5. Gaps Same Period | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 6: Coordinated Signal System | | | | | | | | | | | | <input type="checkbox"/> |
| 6. Degree of Platooning (Predominant direction or both directions) | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 7: Crash Experience | | | | | | | | | | | | <input type="checkbox"/> |
| 7 A. Adequate trials of alternatives, observance and enforcement failed --and-- | | | | | | | | | | | | <input type="checkbox"/> |
| 7 B. Reported crashes susceptible to correction by signal (12-month period) --and-- | | | | | | | | | | | | <input type="checkbox"/> |
| 7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied | | | | | | | | | | | | <input type="checkbox"/> |
| Warrant 8: Roadway Network | | | | | | | | | | | | <input type="checkbox"/> |
| 8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or-- | | | | | | | | | | | | <input type="checkbox"/> |
| 8 B. Weekend Volume (Five hours total) | | | | | | | | | | | | <input type="checkbox"/> |

ATTACHMENT 3

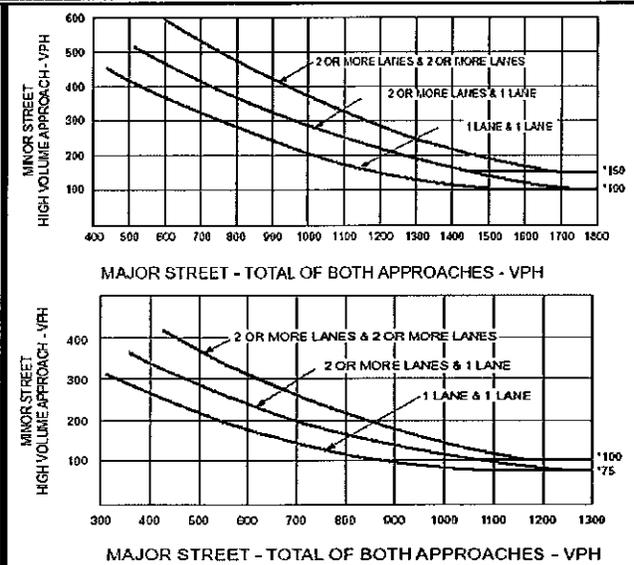
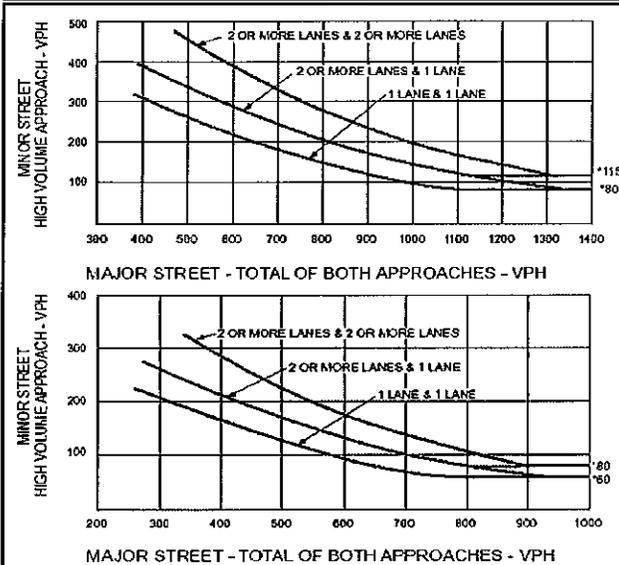
| Warrants Volume | | | |
|--|---|----------------------|--------------------------------|
| Information | | | |
| Analyst | TLH | Intersection | Ledo Rd at N. Westover Blvd Ex |
| Agency/Co | Croy Engineering, LLC | Jurisdiction | Dougherty / District 4 |
| Date Performed | 10/21/2014 | Units | U.S. Customary |
| Project ID | Westover Blvd Extension | Time Period Analyzed | 6:00 AM - 6:00 PM |
| East/West Street | Ledo Road | North/South Street | N. Westover Blvd Ext. |
| File Name | Ledo Rd at N. Westover Blvd Ext 2020 Signal Warrant Analysis.xhy | Major Street | East-West |
| Project Description <i>Westover Blvd Extension</i> | | | |

Warrant 1

| Condition A - Minimum Vehicular Volume | | | | Condition B - Interruption of Continuous Traffic | | | |
|---|--------------|--|------|---|-------|---|------|
| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | Vehicles per hour on higher-volume minor-street approach (one direction only) | | Vehicles per hour on higher-volume minor-street approach (one direction only) | |
| Major Street | Minor Street | 100%* | 80%* | 70%* | 100%* | 80%* | 70%* |
| 1..... | 1..... | 500 | 400 | 350 | 150 | 120 | 106 |
| 2 or more... | 1..... | 600 | 480 | 420 | 150 | 120 | 106 |
| 2 or more... | 2 or more... | 600 | 480 | 420 | 200 | 160 | 140 |
| 1..... | 2 or more... | 500 | 400 | 350 | 200 | 160 | 140 |

Warrant 2

Warrant 3



Volume Summary

| Hours | Major Street Lanes 2+ | | | Minor Street Lanes 2+ | | Speed | | Population | | |
|---------------|-----------------------|--------------|--------------|-----------------------|----------|-----------|----------|------------|-----------|-----------|
| | Major Volume | Minor Volume | Total Volume | 1A (100%) | 1A (80%) | 1B (100%) | 1B (80%) | 2 (100%) | 3A (100%) | 3B (100%) |
| 06-07 | 120 | 6 | 129 | No | No | No | No | No | No | No |
| 07-08 | 364 | 16 | 386 | No | No | No | No | No | No | No |
| 08-09 | 741 | 33 | 789 | No | No | No | No | No | No | No |
| 09-10 | 712 | 54 | 807 | No | No | No | No | No | No | No |
| 10-11 | 528 | 45 | 615 | No | No | No | No | No | No | No |
| 11-12 | 703 | 102 | 865 | No | No | No | No | No | No | No |
| 12-13 | 742 | 109 | 914 | No | No | No | Yes | No | No | No |
| 13-14 | 859 | 126 | 1057 | No | No | No | Yes | No | No | No |
| 14-15 | 861 | 128 | 1064 | No | No | No | Yes | No | No | No |
| 15-16 | 795 | 120 | 984 | No | No | No | Yes | No | No | No |
| 16-17 | 997 | 153 | 1240 | No | No | Yes | Yes | No | No | No |
| 17-18 | 1047 | 160 | 1300 | No | Yes | Yes | Yes | No | No | No |
| Totals | 8469 | 1052 | 10150 | 0 | 1 | 2 | 6 | 0 | 0 | 0 |

Warrants Summary

| | | | |
|--------------------|--|----------------------|-----------------------|
| Information | | | |
| Analyst | TLH | Intersection | Westover/Westover Ext |
| Agency/Co | Croy Engineering, LLC | Jurisdiction | Lee County |
| Date Performed | 11/13/2014 | Units | U.S. Customary |
| Project ID | Westover Blvd Extension | Time Period Analyzed | 6:00 AM - 6:00 PM |
| East/West Street | N. Westover Blvd | North/South Street | N. Westover Blvd Ext. |
| File Name | Lee County - N. Westover Blvd at N. Westover Blvd Ext 2020 Signal Warrant Analysis.xhy | Major Street | East-West |

Project Description *Westover Blvd Extension*

| | | | |
|--------------------------|------|--|---|
| General | | Roadway Network | |
| Major Street Speed (mph) | 35 | <input type="checkbox"/> Population < 10,000 | <input type="checkbox"/> Two Major Routes |
| Nearest Signal (ft) | 1715 | <input type="checkbox"/> Coordinated Signal System | <input type="checkbox"/> Weekend Count |
| Crashes (per year) | 0 | <input type="checkbox"/> Adequate Trials of Alternatives | 5-yr Growth Factor |
| | | 0 | |

| | | | | | | | | | | | | |
|-------------------------------|-----|-----|----|----|-----|-----|----|----|----|-----|----|-----|
| Geometry and Traffic | EB | | | WB | | | NB | | | SB | | |
| | LT | TH | RT | LT | TH | RT | LT | TH | RT | LT | TH | RT |
| Number of lanes, N | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Lane usage | L | TR | | | TR | | | | | L | | R |
| Vehicle Volume Averages (vph) | 271 | 381 | 0 | 0 | 352 | 110 | 0 | 0 | 0 | 164 | 0 | 164 |
| Peds (ped/h) / Gaps (gaps/h) | -- | / | -- | -- | / | -- | -- | / | -- | -- | / | -- |
| Delay (s/veh) / (veh-hr) | -- | / | -- | -- | / | -- | -- | / | -- | -- | / | -- |

| | |
|--|-------------------------------------|
| Warrant 1: Eight-Hour Vehicular Volume | <input checked="" type="checkbox"/> |
| 1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or-- | <input checked="" type="checkbox"/> |
| 1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or-- | <input type="checkbox"/> |
| 1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach) | <input checked="" type="checkbox"/> |
| Warrant 2: Four-Hour Vehicular Volume | <input checked="" type="checkbox"/> |
| 2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | <input checked="" type="checkbox"/> |
| Warrant 3: Peak Hour | <input checked="" type="checkbox"/> |
| 3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or-- | <input type="checkbox"/> |
| 3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach) | <input checked="" type="checkbox"/> |
| Warrant 4: Pedestrian Volume | <input type="checkbox"/> |
| 4 A. Pedestrian Volumes (Four hours --or-- one hour) --and-- | <input type="checkbox"/> |
| 4 B. Gaps Same Period (Four hours --or-- one hour) | <input type="checkbox"/> |
| Warrant 5: School Crossing | <input type="checkbox"/> |
| 5. Student Volumes --and-- | <input type="checkbox"/> |
| 5. Gaps Same Period | <input type="checkbox"/> |
| Warrant 6: Coordinated Signal System | <input type="checkbox"/> |
| 6. Degree of Platooning (Predominant direction or both directions) | <input type="checkbox"/> |
| Warrant 7: Crash Experience | <input type="checkbox"/> |
| 7 A. Adequate trials of alternatives, observance and enforcement failed --and-- | <input type="checkbox"/> |
| 7 B. Reported crashes susceptible to correction by signal (12-month period) --and-- | <input type="checkbox"/> |
| 7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied | <input checked="" type="checkbox"/> |

| | |
|---|--------------------------|
| Warrant 8: Roadway Network | <input type="checkbox"/> |
| 8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or-- | <input type="checkbox"/> |
| 8 B. Weekend Volume (Five hours total) | <input type="checkbox"/> |

Warrants Volume

Information

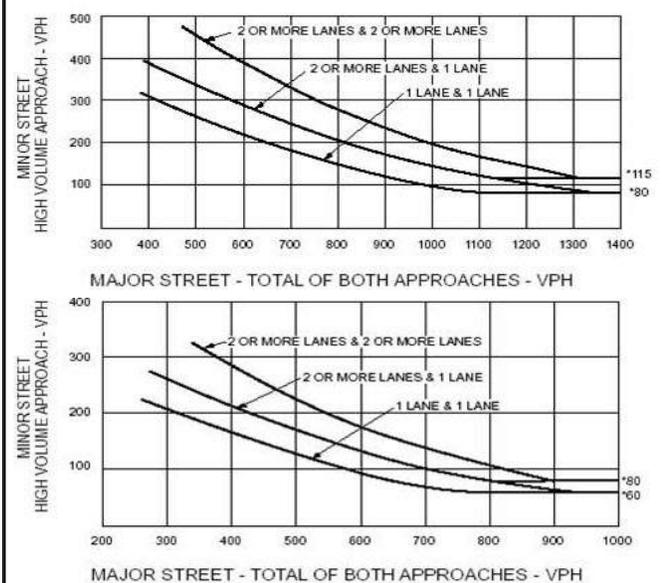
| | |
|--|---|
| Analyst: TLH Agency/Co: Croy Engineering, LLC Date Performed: 11/13/2014 Project ID: Westover Blvd Extension East/West Street: N. Westover Blvd File Name: Lee County - N. Westover Blvd at N. Westover Blvd Ext 2020 Signal Warrant Analysis.xhy | Intersection: Westover/Westover Ext Jurisdiction: Lee County Units: U.S. Customary Time Period Analyzed: 6:00 AM - 6:00 PM North/South Street: N. Westover Blvd Ext. Major Street: East-West |
|--|---|

Project Description *Westover Blvd Extension*

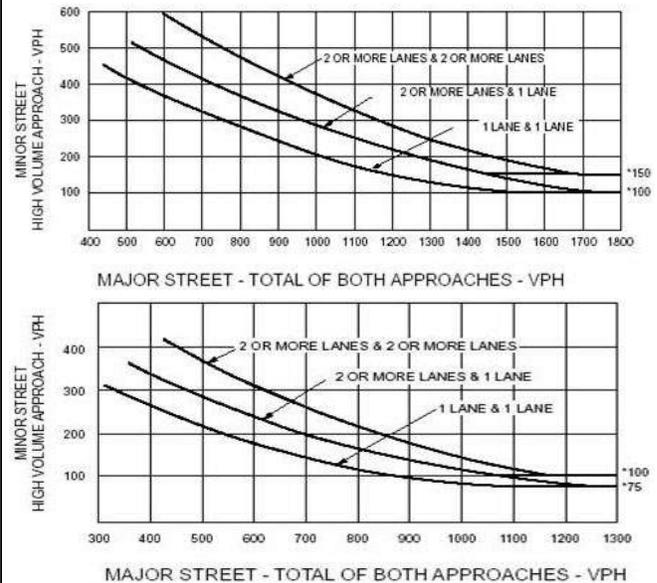
Warrant 1

| Condition A - Minimum Vehicular Volume | | | | | | | Condition B - Interruption of Continuous Traffic | | | | | | | | |
|---|--------------|--|------|------|---|------|--|---|--------------|--|------|------|---|------|------|
| Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | Vehicles per hour on higher-volume minor-street approach (one direction only) | | | Number of lanes for moving traffic on each approach | | Vehicles per hour on major street (total of both approaches) | | | Vehicles per hour on higher-volume minor-street approach (one direction only) | | |
| Major Street | Minor Street | 100%* | 80%* | 70%* | 100%* | 80%* | 70%* | Major Street | Minor Street | 100%* | 80%* | 70%* | 100%* | 80%* | 70%* |
| 1..... | 1..... | 500 | 400 | 350 | 150 | 120 | 105 | 1..... | 1..... | 750 | 600 | 525 | 75 | 60 | 53 |
| 2 or more... | 1..... | 600 | 480 | 420 | 150 | 120 | 105 | 2 or more... | 1..... | 900 | 720 | 630 | 75 | 60 | 53 |
| 2 or more... | 2 or more... | 600 | 480 | 420 | 200 | 160 | 140 | 2 or more... | 2 or more... | 900 | 720 | 630 | 100 | 80 | 70 |
| 1..... | 2 or more... | 500 | 400 | 350 | 200 | 160 | 140 | 1..... | 2 or more... | 750 | 600 | 525 | 100 | 80 | 70 |

Warrant 2



Warrant 3



Volume Summary

| Hours | Major Street Lanes 2+ | | | Minor Street Lanes 2+ | | | Speed | | Population | | |
|---------------|-----------------------|--------------|--------------|-----------------------|-----------|-----------|-----------|-----------|------------|-----------|--|
| | Major Volume | Minor Volume | Total Volume | 1A (100%) | 1A (80%) | 1B (100%) | 1B (80%) | 2 (100%) | 3A (100%) | 3B (100%) | |
| 06-07 | 226 | 91 | 317 | No | No | No | No | No | No | No | |
| 07-08 | 544 | 189 | 733 | No | Yes | No | No | No | No | No | |
| 08-09 | 828 | 289 | 1117 | Yes | Yes | No | Yes | Yes | No | No | |
| 09-10 | 879 | 333 | 1212 | Yes | Yes | No | Yes | Yes | No | No | |
| 10-11 | 891 | 331 | 1222 | Yes | Yes | No | Yes | Yes | No | No | |
| 11-12 | 1199 | 357 | 1556 | Yes | Yes | Yes | Yes | Yes | No | Yes | |
| 12-13 | 1517 | 426 | 1943 | Yes | Yes | Yes | Yes | Yes | No | Yes | |
| 13-14 | 1436 | 412 | 1848 | Yes | Yes | Yes | Yes | Yes | No | Yes | |
| 14-15 | 1407 | 360 | 1767 | Yes | Yes | Yes | Yes | Yes | No | Yes | |
| 15-16 | 1487 | 376 | 1863 | Yes | Yes | Yes | Yes | Yes | No | Yes | |
| 16-17 | 1443 | 378 | 1821 | Yes | Yes | Yes | Yes | Yes | No | Yes | |
| 17-18 | 1532 | 406 | 1938 | Yes | Yes | Yes | Yes | Yes | No | Yes | |
| Totals | 13389 | 3948 | 17337 | 10 | 11 | 7 | 10 | 10 | 0 | 7 | |

GDOT ROUNDABOUT DESIGN CHECKLIST - CONCEPT DEVELOPMENT

Notes:

- 1) This checklist is specifically written for a standalone intersection project. Some minor adjustments may be needed for a consultant designed roundabout with respect to roles. For linear or interchange reconstruction projects much of the concept development effort can be accomplished during the preliminary design. Additional items should be added as necessary to define/document the design. The preparation of a roundabout design may be terminated at any time during the process, if a decision is made to eliminate a roundabout from further consideration. In this case, documentation should be organized and retained to support this decision.
- 2) This checklist includes work items which are specific to the roundabout project and does not include many items which would be common to all conventional intersection projects. The level of detail and timing of some tasks will vary with the complexities of the roundabout and site constraints.
- 3) The checklist is meant to combine certain categories of information and is not meant to reflect a precise sequence of performance. Any items which do not apply to a specific project can be marked as "N/A" (i.e. not applicable).

| | |
|---|----------------------|
| PI Number: 0010571 | County: Dougherty |
| Design Phase Leader: _____ | Design Office: _____ |
| Description: N. Westover Boulevard Extension at N. Westover Boulevard | |

| No. | Completed | Action By | Item | Commentary <small>(Can modify text to replace with project specific info, will show in bold letters)</small> |
|--|----------------|-----------|---|--|
| 1. Operations - Planning Level Assessment - See DPM section 8.2.1 | | | | |
| 1 | Yes | | Vicinity Map | Map showing roadways within approximately 1 mile +/- of each direction from the roundabout. |
| 2 | Yes | | Intersection Layout | Show layout of existing intersection including site constraints such as property, access buildings. A recent aerial photo from any source is sufficient. |
| 3 | Yes | | Letter of support from local government | Letter of support is required from local government for project to proceed as a roundabout - See DPM figure 8.1. |
| 4 | New; No His | | Crash history | Send request to Norm Cressman of GDOT Crash Reporting Unit. |
| 5 | Very minimal | | Pedestrian and bike activity | Estimate level of activity. Sources may include site inspection, local GDOT and government offices. |
| 6 | Performed tr | | Estimate current traffic volumes | May obtain from GDOT transportation Data Viewer or TPAS. |
| 7 | Projections | | Estimate design year traffic volumes | Important if significant growth is anticipated. |
| 8 | Can calculate | | Percent traffic on major roads | Traffic volume entering roundabout from the major road should be no more than 90% of total volume entering the roundabout. |
| 9 | One | | Number of circulatory lanes | Single lane - ADT < 25,000, Two-lane - ADT < 45,000. See exhibit 3-12 of NCHRP. |
| 10 | In lieu of tra | | Favorable conditions | See section 8.2.1 Planning Level Assessments for list of conditions where roundabouts tend to be advantageous. |
| 11 | Local Unacce | | Unfavorable conditions | See section 8.2.1 Planning Level Assessments for list of conditions which may be unfavorable for roundabouts. |
| 12 | In lieu of tra | | Purpose of roundabout | Clearly define what "need" the roundabout addresses. |
| 13 | Performed | | Roundabout sketch | Hand drawn sketch showing location and configuration envisioned. |

| | |
|---|----------------------|
| PI Number: 0010571 | County: Dougherty |
| Design Phase Leader: _____ | Design Office: _____ |
| Description: N. Westover Boulevard Extension at N. Westover Boulevard | |

| No. | Completed | Action By | Item | Commentary <small>(Can modify text to replace with project specific info, will show in bold letters)</small> |
|-----|-----------|-----------|------|---|
|-----|-----------|-----------|------|---|

| | | | | |
|---|--|--|--|--|
| 2. Design - Gather information for Concept - for existing intersection and for base & design years | | | | |
|---|--|--|--|--|

| | | | | |
|---|-----------------|--|---------------------------------|--|
| 1 | Yes | | Vicinity Map | Map showing roadways within approximately 1 mile +/- of each direction from the roundabout. |
| 2 | 35 mph | | Approach Speeds | Identify posted speeds for approach roadways - Obtain from existing speed limit signs or GDOT Transportation Data Viewer. For county and local roads it is recommended to contact the local district traffic operations office to request from local enforcement agency. |
| 3 | 1% to 2 % | | Grades | Generally not desirable to locate roundabouts with grades through the roundabout greater than 4%. Can continue with a roundabout but should consider truck volumes and potential for truck overturning. |
| 4 | Major Collector | | Functional Classification | Identify for each approach roadway using GDOT Transportation Data Viewer. As a secondary source may use Office of Transportation Data functional classification maps. |
| 5 | 13,175 ADT | | Current year traffic volumes | Send email request to Office of Planning (ADT and am/pm DHV), attn Abby Ebodaghe. |
| 6 | 14,700 ADT | | Base year traffic projections | Be sure to obtain growth rates for traffic projections where evaluating capacity during interim years may be required. |
| 7 | 18,000 ADT | | Design year traffic projections | Be sure to obtain growth rates for traffic projections where evaluating capacity during interim years may be required. |
| 8 | None | | Future projects | Identify any planned roadway project in vicinity. |
| 9 | C | | Desirable LOS | Refer to DPM Section 6.14, Summary of Design Criteria for Cross Section Elements. |

| | | | | |
|--|--|--|--|--|
| 3. Design - Roundabout Feasibility Study, Part 1 - Alternate comparison and selection | | | | |
|--|--|--|--|--|

| | | | | |
|---|-----------------|--|--|--|
| 1 | Yes | | Intersection base map | Show layout of existing intersection including site constraints such as right-of-way, access, buildings, and environmental resources. A recent aerial photo from any source is sufficient. |
| 2 | Completed | | Signal Warrant Study | This will define whether or not a signal is a possible alternate and will be prepared by the local District Traffic Operations Office. |
| 3 | Completed | | Identify/sketch alternative intersection forms | See DPM Section 8.2.2 - bullet for Section 3. Sketch to the level at which alternates can be adequately compared. May include single and multilane roundabout layouts. |
| 4 | Completed | | Safety assessment | See DPM Section 8.2.2 - bullet for Section 2. |
| 5 | 1 with 1 bypass | | Number of entry lanes for each approach leg | May use turning movements to estimate of lane requirements at each entry. See exhibits 3-14 and 4-3 of NCHRP 672. |
| 6 | Completed | | Operational analyses | See DPM Section 8.2.2 - bullet for Section 4. |
| 7 | Completed | | Cost comparison | See DPM Section 8.2.2 - bullet for Section 5. Not required if roundabout is to address severe crash history. |
| 8 | Completed | | Select most favorable alternative | See DPM Section 8.2.2 - bullet for Section 6. A tabulated comparison of alternates recommended. |

| | |
|---|----------------------|
| PI Number: 0010571 | County: Dougherty |
| Design Phase Leader: _____ | Design Office: _____ |
| Description: N. Westover Boulevard Extension at N. Westover Boulevard | |

| No. | Completed | Action By | Item | Commentary <small>(Can modify text to replace with project specific info, will show in bold letters)</small> |
|-----|-----------|-----------|------|---|
|-----|-----------|-----------|------|---|

4. Design - Roundabout Feasibility Study, Part 2 - Roundabout layout (as required to define footprint)

| | | | | |
|---|----------------|----------------------|-------------------------------------|--|
| 1 | Completed | <input type="text"/> | Design alternate roundabout layouts | <i>The identification of the most favorable layout may require the development and consideration of multiple roundabout layouts/locations.</i> |
| 2 | Completed | <input type="text"/> | Identify likely impacts | <i>Identify potential conflicts with underground utilities and likely property and environmental resource impacts, etc.</i> |
| 3 | Completed | <input type="text"/> | Fastest paths | <i>Document fastest paths on concept layouts, indicate speeds and speed differentials. (May require update during preliminary design for requirements to layout.)</i> |
| 4 | WB 67 | <input type="text"/> | Design vehicle | <i>See DPM Section 8.3.2, Design Vehicle and Section 3.2. Greater consideration should be given to selecting a larger design vehicle - even if roundabout may be infrequently used by that size vehicle.</i> |
| 5 | Completed | <input type="text"/> | Design vehicle swept path | <i>Document all movements. (May require update during preliminary design for requirements to layout.)</i> |
| 6 | Completed | <input type="text"/> | Stopping sight distance | <i>Evaluate stopping sight distance to roundabout yield line, for each approach.</i> |
| 7 | Not Applicable | <input type="text"/> | Staging improvements | <i>If multilane is required in the design year evaluate whether or not a single-lane will be adequate through the base plan 10 years. If so, construct as a single lane which allows for future expansion to a multilane footprint without reconstruction.</i> |
| 8 | Completed | <input type="text"/> | Finalize concept layout | <i>Prepare a concept layout of the proposed roundabout. May be CAD or hand drawn, but should be to scale. Should show central island, splitter islands, sidewalks, crosswalks and truck apron. Note or list dimensions for ICD, circulatory roadway width, truck apron widths, angles between approach centerlines. Will be helpful to include preliminary striping for multilane roundabouts. Show scale and North arrow.</i> |

5. Design - Other information - required for Concept Report

| | | | | |
|---|-----------|----------------------|--------------------------|--|
| 1 | Completed | <input type="text"/> | Typical section | <i>Required for concept reports.</i> |
| 2 | Completed | <input type="text"/> | Construction sequencing | <i>Briefly describe expected staging for construction, e.g. built under traffic, off-site detour, new location...</i> |
| 3 | Completed | <input type="text"/> | Lighting | <i>Include in cost estimate. Define if need is to address high speeds on approaches, pedestrian activity and if approaches are lighted.</i> |
| 4 | Completed | <input type="text"/> | Landscaping requirements | <i>Include in cost estimate. Will normally be required. This is particularly the case for high speed approaches to enhance visibility of the roundabout from a distance.</i> |
| 5 | Asphalt | <input type="text"/> | Pavement Type | <i>Will normally match major road pavement. Asphalt commonly provides for easier staging for construction at existing intersections.</i> |

6. Design - Implement program of local government coordination and public involvement

| | | | | |
|---|-----------|----------------------|------------------------------|---|
| 1 | Completed | <input type="text"/> | Presentation layouts | <i>Prepare exhibits for meetings.</i> |
| 2 | Completed | <input type="text"/> | Meeting with local officials | <i>An initial meeting with local government officials (and their support of the roundabout) will be helpful in gaining support at a PIOH.</i> |
| 3 | Completed | <input type="text"/> | Public outreach | <i>Required in most cases, often in the form of a PIOH. See DPM Section 8.2.5 Public Involvement for helpful advice regarding visual aids. This should occur after the feasibility study is complete.</i> |

| | |
|---|----------------------|
| PI Number: 0010571 | County: Dougherty |
| Design Phase Leader: _____ | Design Office: _____ |
| Description: N. Westover Boulevard Extension at N. Westover Boulevard | |

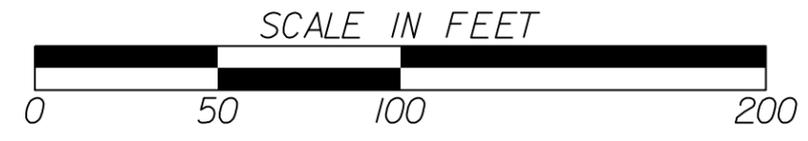
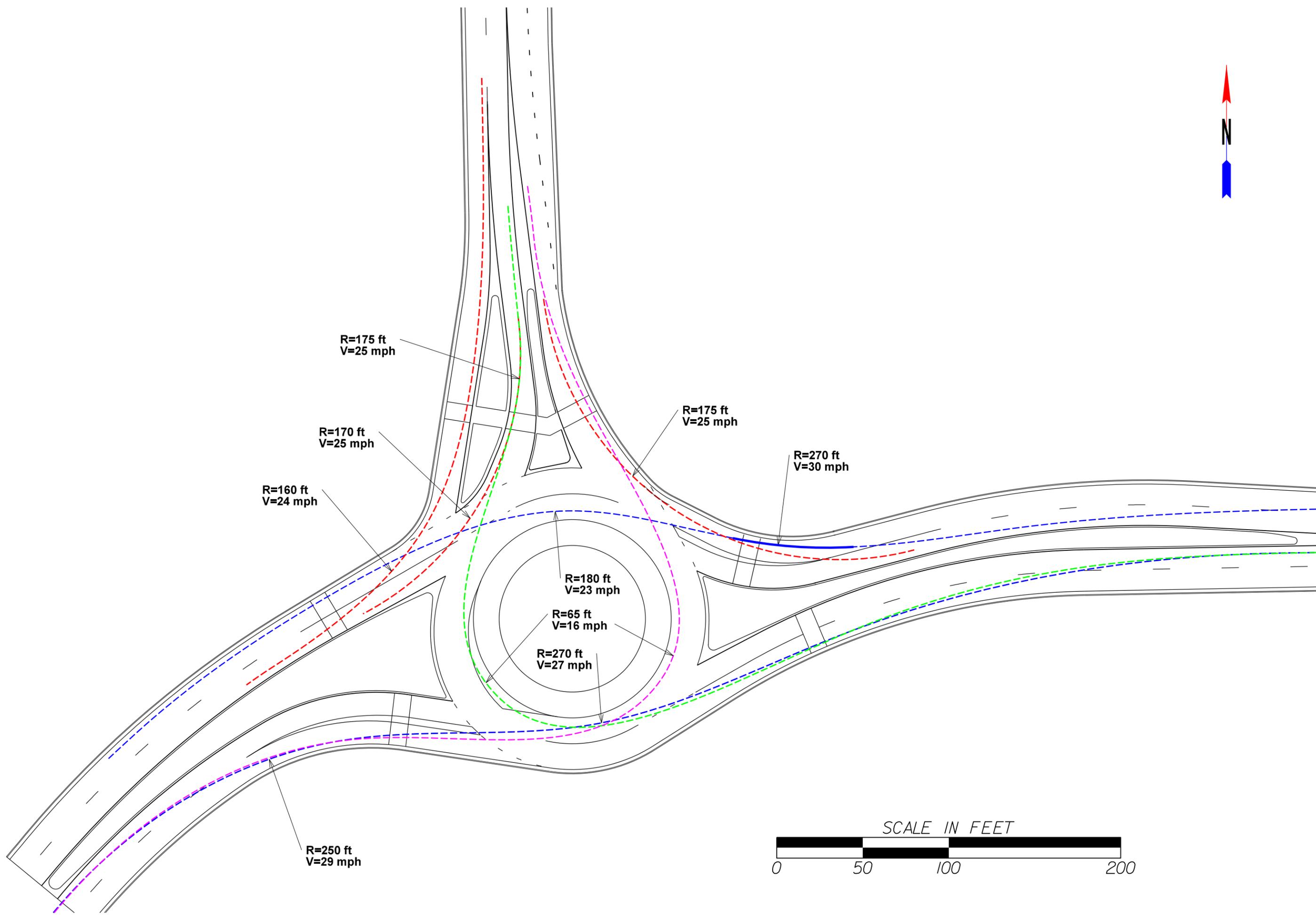
| No. | Completed | Action By | Item | Commentary <small>(Can modify text to replace with project specific info, will show in bold letters)</small> |
|---|-----------|-----------|---|--|
| 7. Complete quality assurance reviews - occurs at previous points in the process | | | | |
| 1 | Completed | | QA review by design process | <i>Feasibility studies should be reviewed within the originating design office, in accordance with the Department's QC/QA manual (located on ROADS).</i> |
| 2 | Completed | | Informal review by GDOT roundabout SME | <i>Upon request, a GDOT SME will, (prior to peer review), perform an informal review of a feasibility study or any in-progress work products. Contact either Scott Zehngraff (szehngraff@dot.ga.gov) of the Office of Traffic Operations or Daniel Pass (dpass@dot.ga.gov) of the Office of Design Policy and Support.</i> |
| 3 | Completed | | Peer review by Consultant peer reviewer | <i>See Daniel Pass for a list of approved roundabout peer reviewers and a scope of work for a peer review task order. Peer review can be accomplished either in discrete events or incrementally from start of concept to letting. Should be completed prior to the concept team meeting where a complex roundabout is proposed. See DPM Section 8.2.3. Review of Feasibility Studies.</i> |

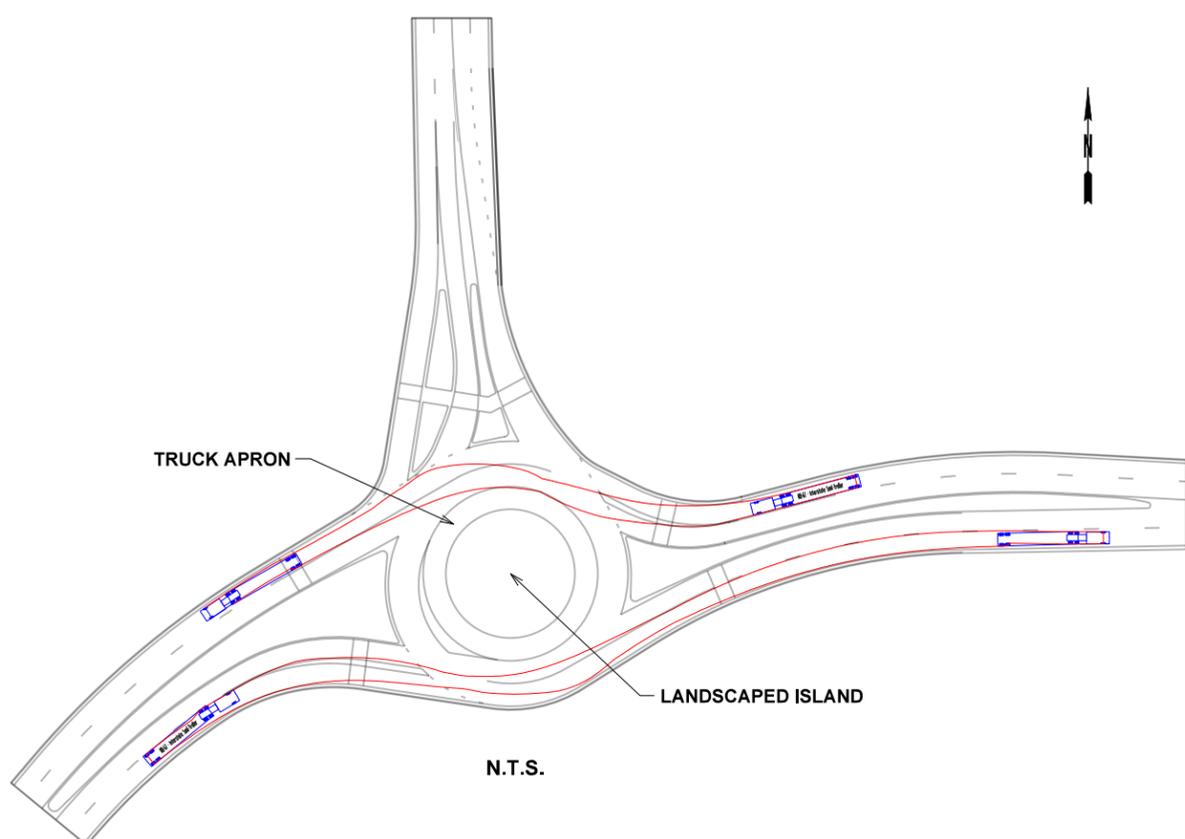
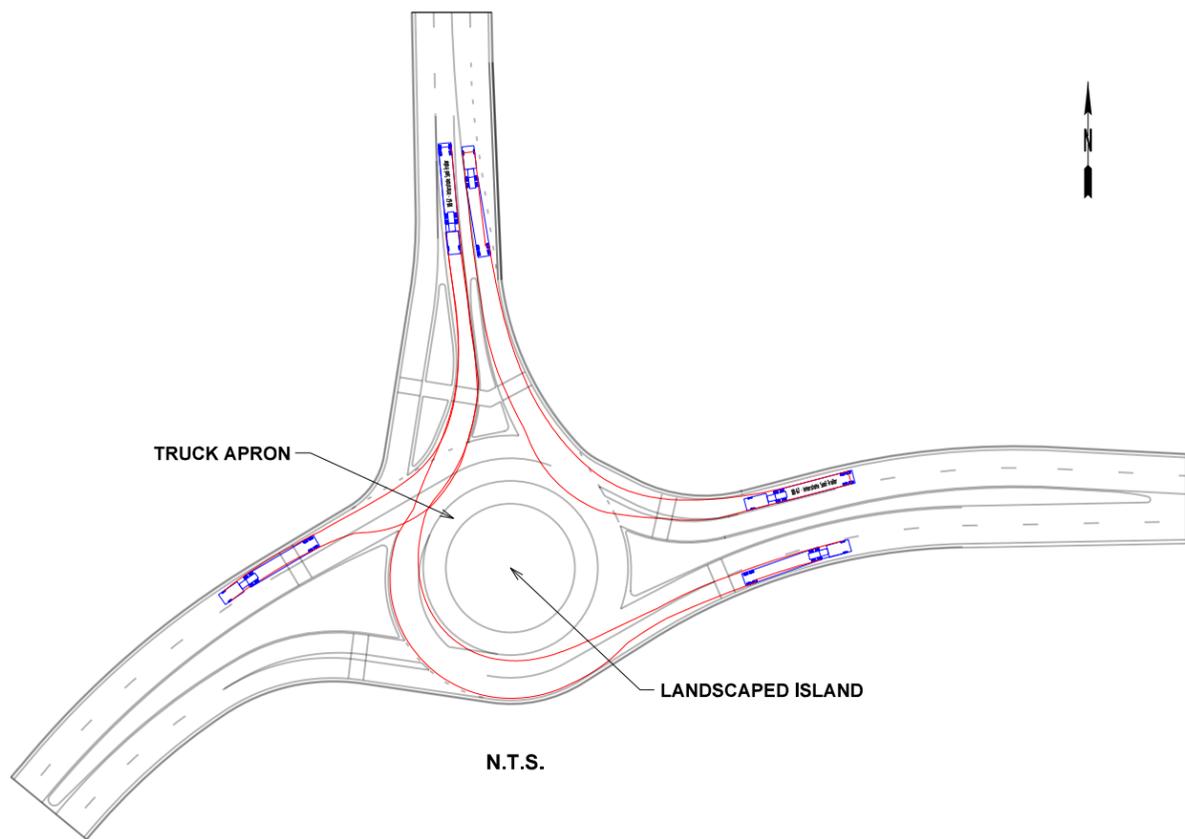
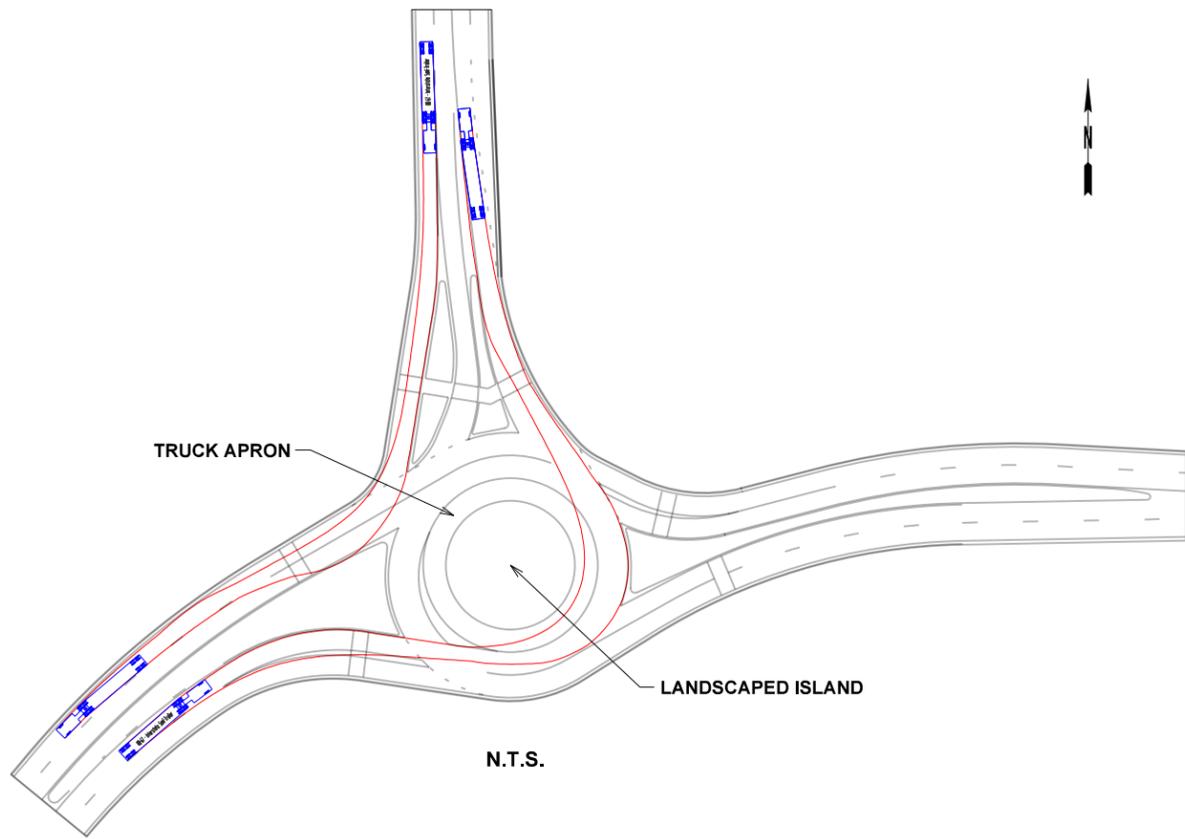
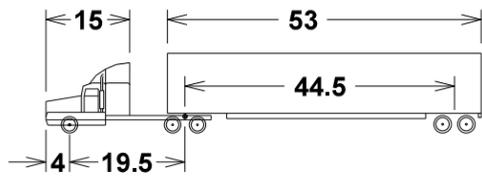
Notes:

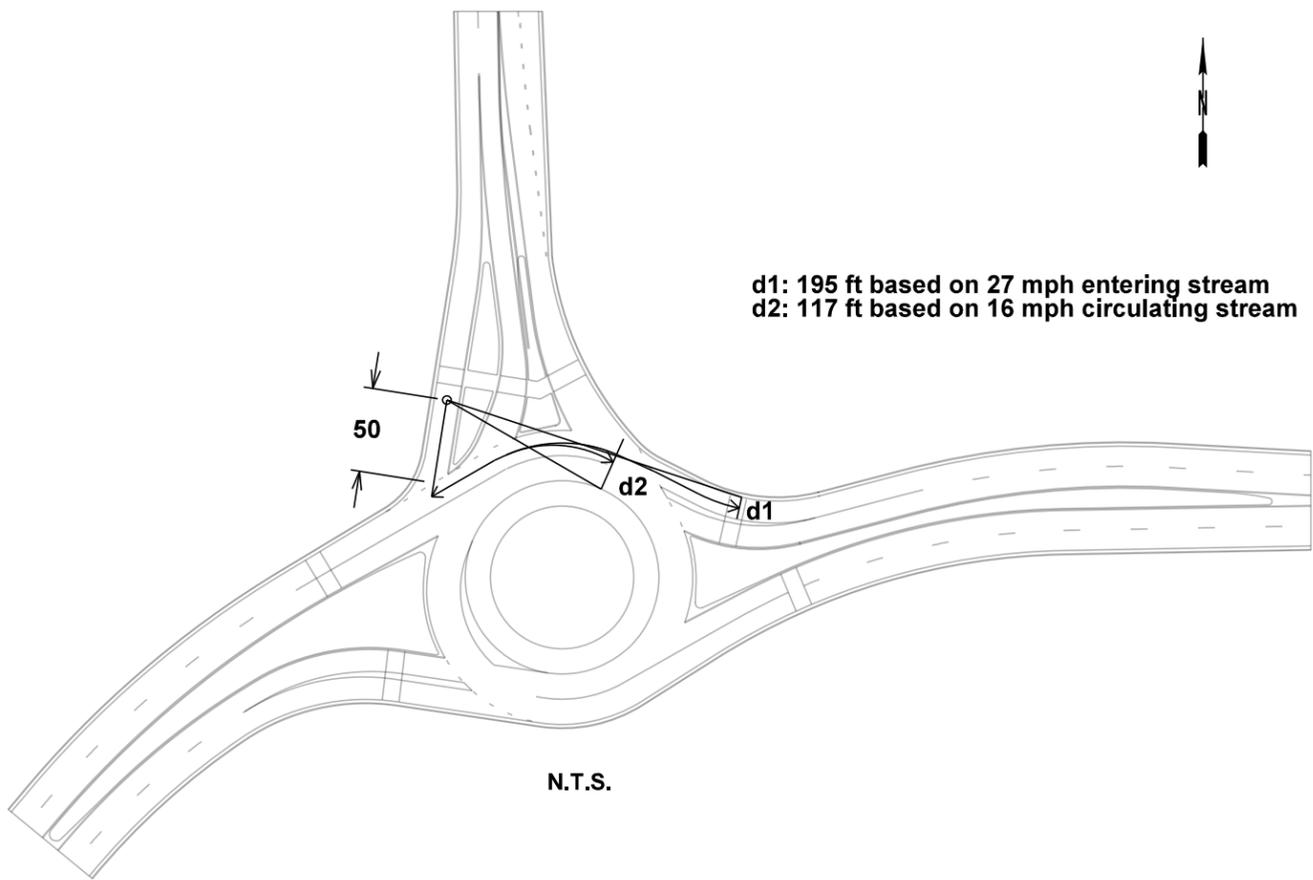
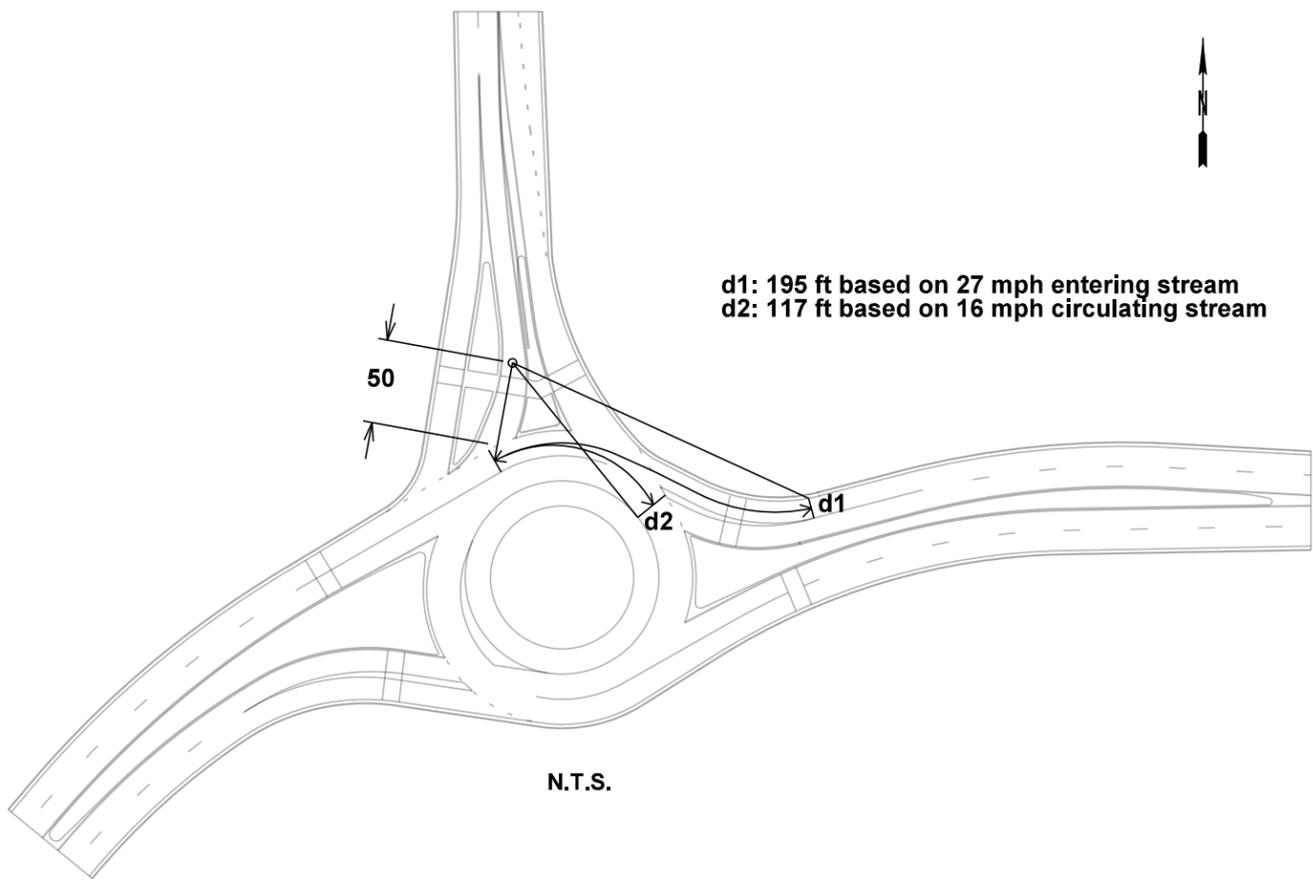
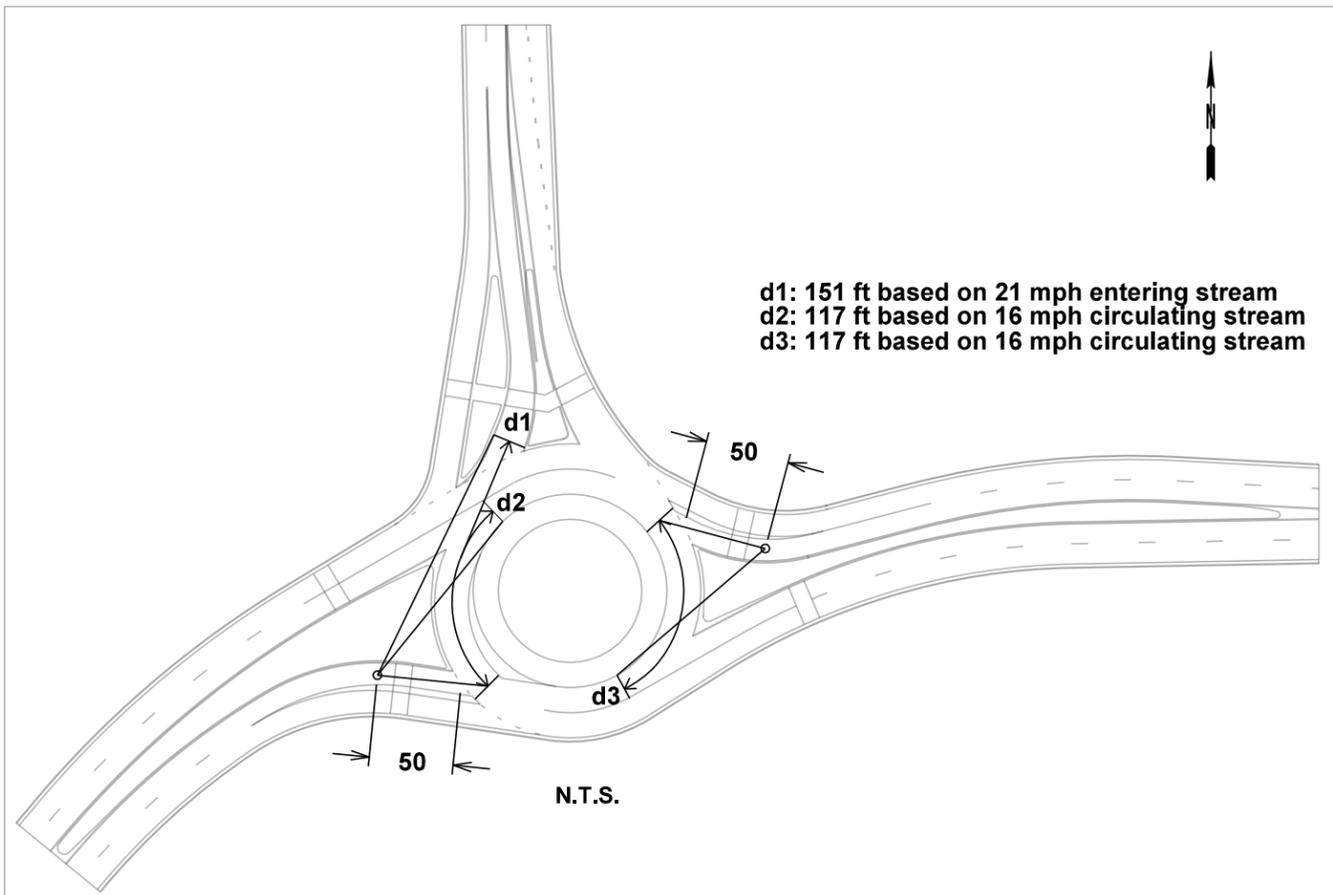
- 1)** Key objectives during concept development includes identifying the best solution that addresses the project need and defining a layout which best considers geometric, operational and other project-specific constraints. Defining an "accurate" footprint is particularly important for projects with significant site constraints and for roundabouts of greater complexity (complex roundabouts). Complex roundabouts include multilane roundabouts and single land roundabouts which addresses difficult conditions such as bad skews or significant geometric or operational constraints.
- 2)** It should be recognized that unlike conventional intersection forms (e.g., signalization, stop control, etc.) the configuration and layout of a roundabout can be dramatically affected by the results of capacity, fastest path, and truck turning template studies and thus often requires higher level of engineering during the concept phase.
- 3)** Include a completed checklist with the submittal package to the peer reviewer and with submission of the concept report for review and approval. Any peer review recommended changes not implemented must be coordinated with the peer reviewer and/or the Office of Design Policy and Support. The peer review report should also be included in the concept report if any recommended changes are to be made after concept development. At minimum, make all changes which affect impacts, cost, required R/W, basic operation of the roundabout leg, elimination of a bypass lane, etc. prior to submitting the concept report for review and approval.

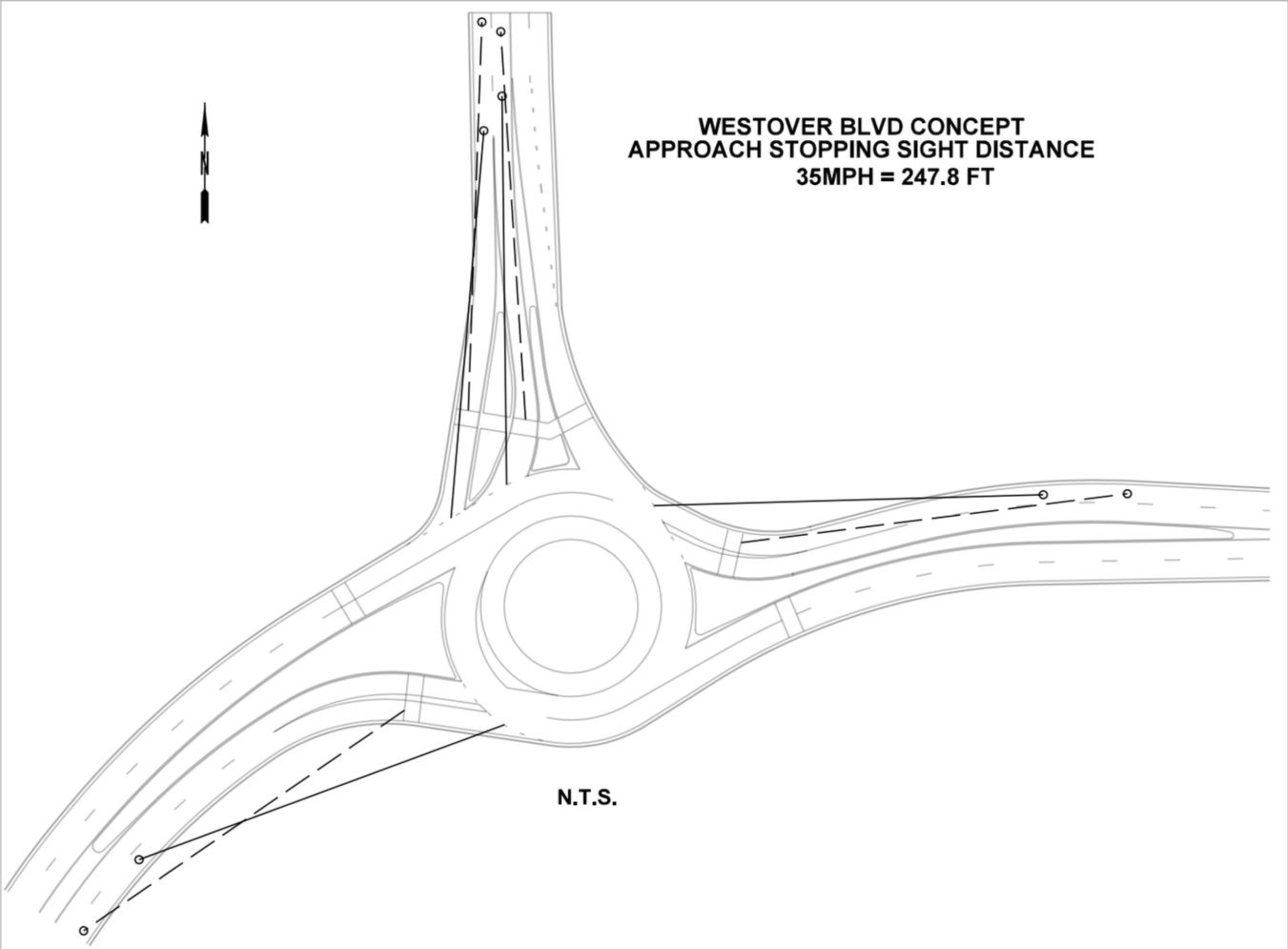
List of Acronyms

- SME - Subject Matter Expert
- DPM - Design Policy Manual
- ICD - Inscribed Diameter
- TPAS - Traffic polling and Analysis System



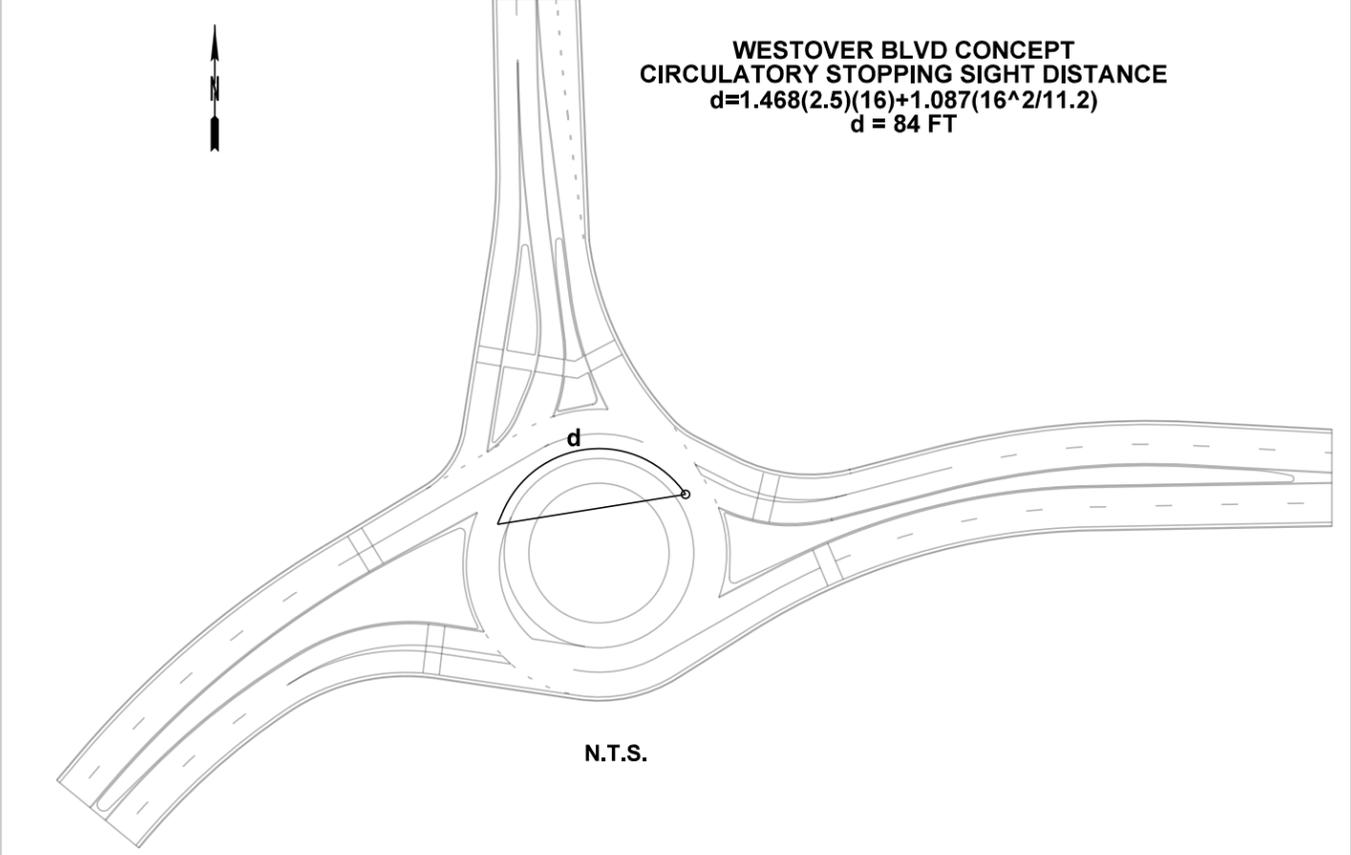






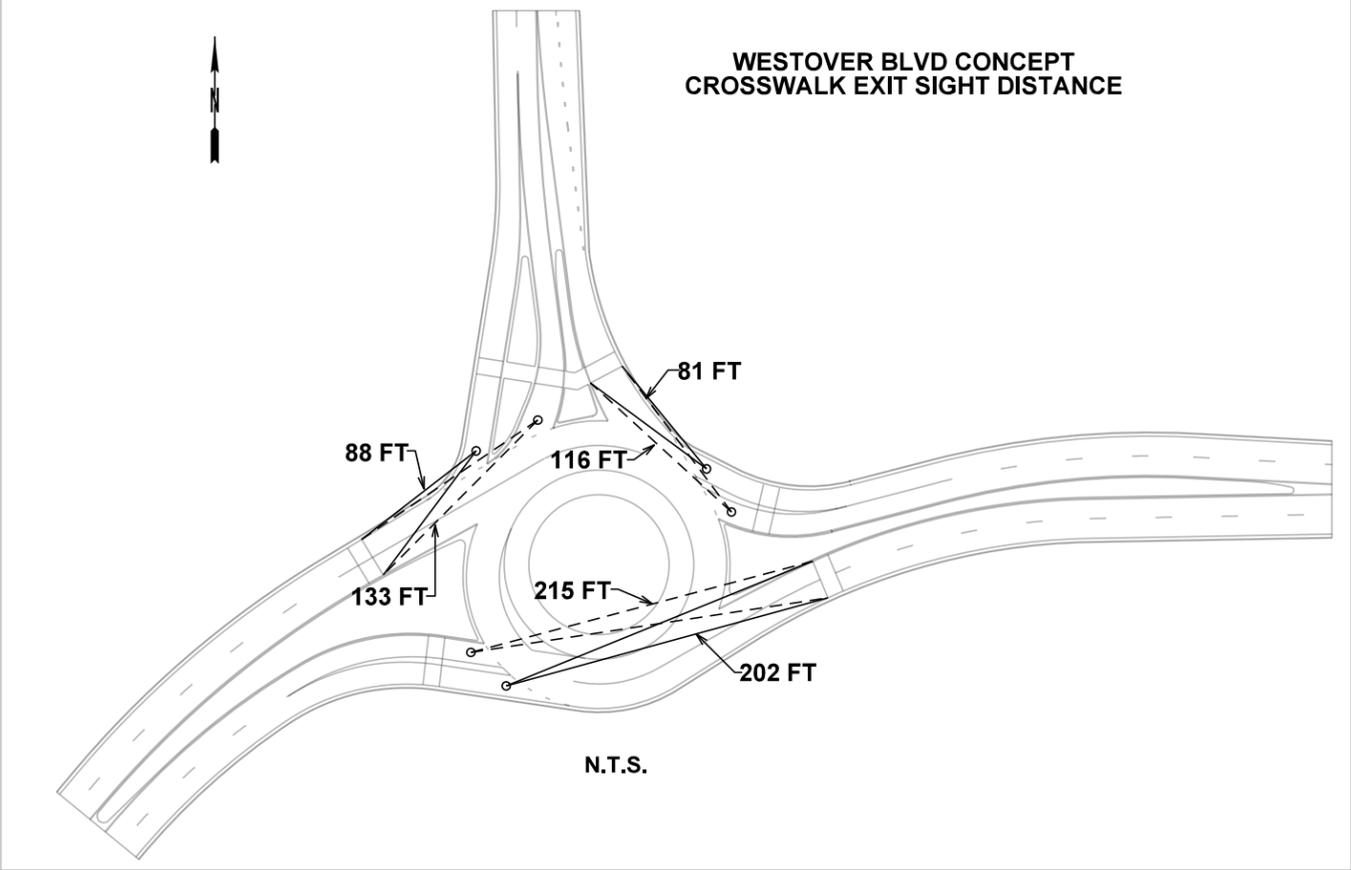
WESTOVER BLVD CONCEPT
 APPROACH STOPPING SIGHT DISTANCE
 35MPH = 247.8 FT

N.T.S.



WESTOVER BLVD CONCEPT
 CIRCULATORY STOPPING SIGHT DISTANCE
 $d = 1.468(2.5)(16) + 1.087(16^2/11.2)$
 $d = 84 \text{ FT}$

N.T.S.



WESTOVER BLVD CONCEPT
 CROSSWALK EXIT SIGHT DISTANCE

N.T.S.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INDICATION OF ROUNDABOUT SUPPORT

Georgia Department of Transportation
Office of Design Policy & Support
One Georgia Center ~ 26th Floor
600 West Peachtree Street, NW
Atlanta, Georgia 30308
ATTN: Scott MacLean, Lead Design Engineer

Location

The City of Albany supports the consideration of a roundabout within the project location specified below.

Description: Westover Blvd from Albany Mall to Ledo Rd

State/County Route Numbers: (see above)

Project: Dougherty County P.I. No. 0010571

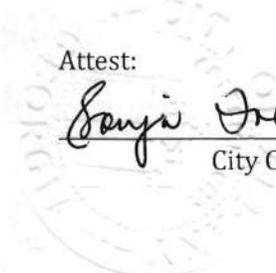
Associated Conditions

The undersigned agrees to participate in the following maintenance of the intersection in the event that the roundabout is selected as the preferred concept alternative:

- *The full and entire cost to energize the lighting system installed and to provide for the operation/maintenance thereof.*

We agree to participate in a formal *Local Government Lighting Project Agreement* during the preliminary design phase. This indication of support is submitted and all the conditions are hereby agreed to. The undersigned are duly authorized to execute this agreement.

Attest:


Sanja Orber
City Clerk

This 26th day of May, 2015

By:

Dorothy Hubbard

Title:

Mayor

**North Westover Boulevard Extension
PI No. 0010157**

Roundabout Feasibility Study

Prepared For:

**Georgia Department of Transportation
One Georgia Center
Atlanta, Georgia**

September 30, 2015

Prepared By:



200 Cobb Pkwy North
Suite 413
Marietta, GA 30062
Croy Project No.: 1266.00

Table of Contents

| | |
|---|----|
| Section 1, Project Background and Site Conditions | 1 |
| Section 2, Safety Assessment | 1 |
| Section 3, Alternate Sketches | 5 |
| Section 4, Operational Analysis..... | 5 |
| Section 5, Cost Comparison..... | 7 |
| Section 6, Alternate Selection..... | 7 |
| Section 7, Conceptual Roundabout Design | 8 |
| Section 8, Recommendations..... | 13 |

List of Figures

| | |
|--|-------------------------------------|
| Figure 1 Area Surrounding North Westover Boulevard | 2 |
| Figure 2 North Westover Boulevard Concept Design | 3 |
| Figure 3 Signalized Intersection Concept | 6 |
| Figure 4 Roundabout Intersection Concept | 6 |
| Figure 5 Fastest Path Analysis..... | 9 |
| Figure 6 Stopping Sight Distance Analysis | 10 |
| Figure 7 Truck Turning Analysis..... | Error! Bookmark not defined. |
| Figure 8 Project Concept | 13 |

List of Tables

| | |
|--|---|
| Table 1 North Westover Boulevard Crash History..... | 4 |
| Table 2 Roundabout Analysis Results | 7 |
| Table 3 Signalized Intersection Analysis Results | 7 |
| Table 4 Conceptual Roundabout Dimensions..... | 8 |

Attachment

Croy Responses to Peer Review

SECTION 1, PROJECT BACKGROUND AND SITE CONDITIONS

The Liberty Expressway (US 82) transitions from a limited access facility to a multilane surface street in northwest Albany at the boundary between Dougherty and Lee Counties. The westernmost interchange is with Nottingham Way whose northern terminus is Ledo Road in Lee County. This southern portion of Lee County is their fast growing area experiencing an increase in residential and other developments. This area of Albany has significant commercial and retail development with the Albany Mall abutting the Liberty Expressway. This area is depicted on Figure 1.

Previous analyses showed that the Nottingham Way interchange was projected to experience significant congestion and delay. The analyses also determined that reconstructing the interchange would exceed budgetary allotments. Consequently, to facilitate traffic flow from north of the Liberty Expressway (Lee County) to south of (Albany) and to relieve the congestion through the interchange, a more cost effective recommendation, which was to construct a parallel roadway to Nottingham Way between North Westover Boulevard and Ledo Road, was made and adopted.

The current project under concept development, the North Westover Boulevard Extension Georgia Department of Transportation (GDOT) PI # 0010157, is for a new roadway approximately 4,600' west of Nottingham Way that will travel under the Liberty Expressway. The northern terminus of this new four-lane roadway approximately 550' in length will intersect Ledo Road at Westover Road creating a four-leg intersection. The southern termini will intersect the existing North Westover Boulevard at a recommended roundabout. The concept plan is shown on Figure 2.

SECTION 2, SAFETY ASSESSMENT

The intersection of the existing North Westover Boulevard and the proposed North Westover Boulevard Extension does not exist. For informational purposes, Table 1 shows the crash history for North Westover Boulevard for the years 2011 to 2014 from Old Dawson Road to Nottingham Way, both those at the intersections and along the roadway.

Because the North Westover Boulevard and North Westover Boulevard Extension intersection is to be constructed, there is no intersection crash history to analyze or to use in a comparison for forecasting the reduction in the number of crashes for the two proposed alternatives. The alternative to the roundabout included in this feasibility study is a 3-leg signalized intersection. Therefore, the alternative analysis comparison was between a signalized intersection and a roundabout. The reported Crash Modification Factor (CMF) for reconstruction of a signalized intersection to a roundabout is 0.4 while the Crash Reduction Factor (CRF) is 60%. Consequently, it would be expected after completion of the project that the intersection would experience 60% less crashes as a roundabout in comparison to a traffic signal controlled intersection.



Figure 1 Area Surrounding North Westover Boulevard

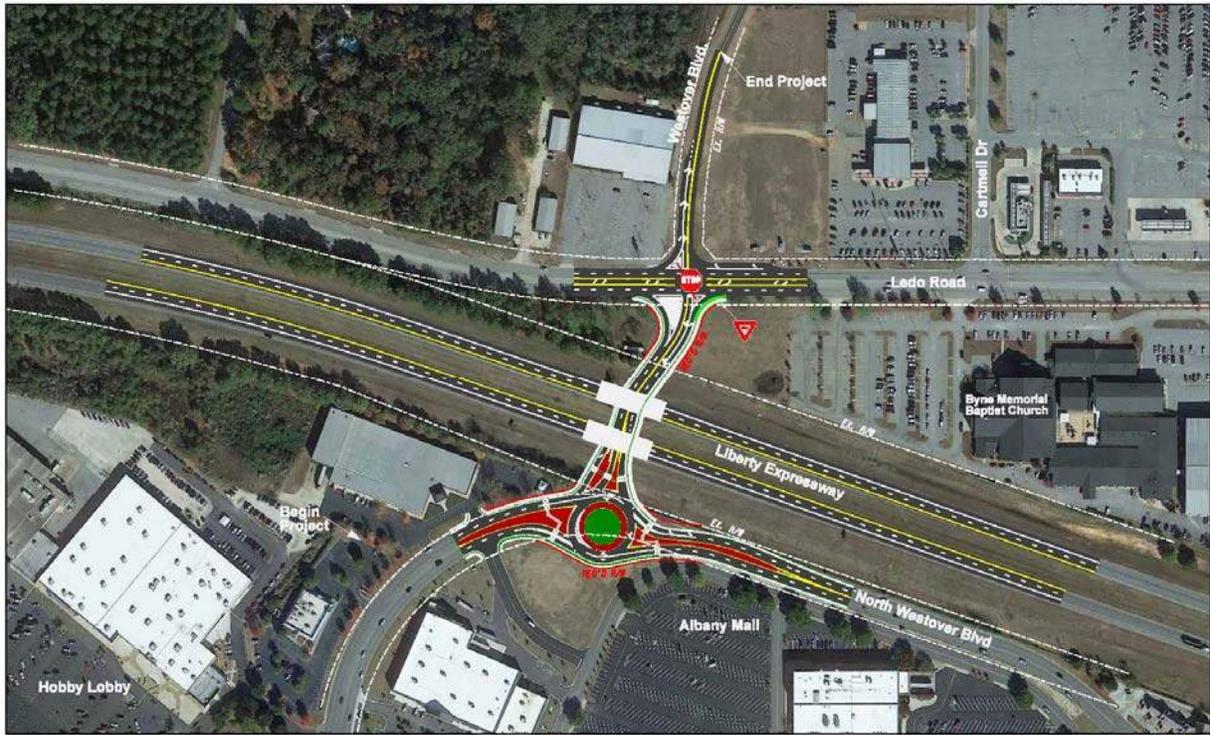


Figure 2 North Westover Boulevard Concept Design

N. WESTOVER BLVD

| 2011 (As of 6/28/11) | | | | | | | | |
|----------------------|--------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| | | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Route | Intersecting Route | | | | | | | |
| Westover Blvd | Nottingham Way | 14 | 3 | | | | 2 | |
| Westover Blvd | Dawson Rd | 5 | 9 | | 2 | 1 | 2 | 1 |
| Westover Blvd | Archwood Dr | 2 | 4 | | 1 | | | |
| Westover Blvd | Old Dawson Rd | 1 | 1 | | | | | |
| Totals | | 22 | 17 | 0 | 3 | 1 | 4 | 1 |

| |
|---------------|
| Totals |
| 19 |
| 20 |
| 7 |
| 2 |
| 48 |

| 2012 | | | | | | | | |
|---------------------|--------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| | | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Route | Intersecting Route | | | | | | | |
| Westover Blvd | Dawson Rd | 6 | 11 | | 1 | 1 | 2 | 17 |
| Westover Blvd | Old Dawson Rd | 3 | | | 1 | | | 6 |
| Westover Blvd | Nottingham Way | 15 | 4 | 2 | 1 | | | 11 |
| Westover Blvd | Archwood Dr | 2 | 2 | | | 1 | | 2 |
| North Westover Blvd | | 4 | 1 | | | | | 4 |
| Totals | | 30 | 18 | 2 | 3 | 2 | 2 | 40 |

| |
|---------------|
| Totals |
| 38 |
| 10 |
| 33 |
| 7 |
| 9 |
| 97 |

| 2013 | | | | | | | | |
|---------------------|--------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| | | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Route | Intersecting Route | | | | | | | |
| Westover Blvd | Dawson Rd | 12 | 20 | | 6 | 1 | 1 | 10 |
| Westover Blvd | Old Dawson Rd | 8 | 4 | | 1 | | 1 | 1 |
| Westover Blvd | Nottingham Way | 20 | 5 | | 4 | | 1 | 8 |
| Westover Blvd | Archwood Dr | 4 | 4 | 1 | 1 | | 1 | 5 |
| Westover Blvd | Partridge Dr | | 1 | | | | | |
| Westover Blvd | Liberty Expressway | | 1 | | | | | |
| North Westover Blvd | | 5 | 2 | 1 | 3 | | | 3 |
| Totals | | 49 | 37 | 2 | 15 | 1 | 4 | 27 |

| |
|---------------|
| Totals |
| 50 |
| 15 |
| 38 |
| 16 |
| 1 |
| 1 |
| 14 |
| 135 |

| 2014 (Ending at 6/23/14) | | | | | | | | |
|--------------------------|--------------------|----------|-------|------------------------------------|--------------------------|------------------------------|---------|-------|
| | | Rear End | Angle | Not A Collision with Motor Vehicle | Sideswipe-Same Direction | Sideswipe-Opposite Direction | Head On | Other |
| Route | Intersecting Route | | | | | | | |
| Westover Blvd | Dawson Rd | 11 | 13 | | 2 | 1 | | |
| Westover Blvd | Old Dawson Rd | 6 | | | 1 | | 1 | |
| Westover Blvd | Nottingham Way | 24 | 5 | 1 | 2 | | | |
| Westover Blvd | Archwood Dr | 2 | 2 | 1 | | | | |
| North Westover Blvd | | 2 | 5 | | 2 | | 1 | 3 |
| Totals | | 45 | 25 | 2 | 7 | 1 | 2 | 3 |

| |
|---------------|
| Totals |
| 27 |
| 8 |
| 32 |
| 5 |
| 13 |
| 85 |

| | | | | | | | |
|------------------------|-----|----|---|----|---|----|----|
| TOTAL (OVERALL) | 146 | 97 | 6 | 28 | 5 | 12 | 71 |
|------------------------|-----|----|---|----|---|----|----|

| |
|---------------|
| Totals |
| 365 |

Table 1 North Westover Boulevard Crash History

A recognized benefit of a roundabout is a reduction in severity of crashes. If vehicles collide within the roundabout, there is no guarantee that bodily injury will not be incurred. However, the likelihood is that there will be property damage only (PDO) because of the low speed of operations through the roundabout and that the vehicles are traveling in the same direction.

According to information previously reported to GDOT, injury crashes have an average cost value of \$955,500 and PDO crashes have an average cost value of \$27,300. Consequently, there is a potential average cost savings of \$928, 200 per crash.

SECTION 3, ALTERNATE SKETCHES

As previously stated, the construction of the North Westover Boulevard Extension will create a new intersection with the existing North Westover Boulevard. One alternate considered was a 3-leg intersection controlled by a traffic signal. This alternate is shown on Figure 3. The other alternate intersection was a roundabout which is shown on Figure 4.

Per Kittelson & Associates, Inc.'s roundabout peer review report date August 28, 2015, a partial two-lane roundabout is recommended over a single lane roundabout. The partial two-lane roundabout provides lane continuity along N Westover Blvd and is expected to decrease vehicle lane changes and increase the distance for lane change movements to occur.

SECTION 4, OPERATIONAL ANALYSIS

The new intersection to be built with the existing North Westover Boulevard is part of the North Westover Boulevard Extension project. The only adjacent volumes that exist today are the through volumes on North Westover Boulevard. An analysis was performed using current travel patterns with origins and destination north of Liberty Expressway in comparison with origins and destinations south of Liberty Expressway. From this analysis traffic volumes were diverted from the intersections along Nottingham Way and other nearby arterials and collectors and assigned through the proposed North Westover Boulevard Extension intersections.

The intersection operations were analyzed using the GDOT Roundabout Analysis Tool. An additional operational analysis was performed using Synchro which also follows the methodology in the Highway Capacity Manual. Also for the peer review of the roundabout, TOPR 34 was applied. A Synchro network was built to include the nearby intersections impacted by diverted trips given the North Westover Boulevard Extension Build condition. Two scenarios were developed for the Build condition: one was the new intersection as a roundabout with bypass lanes and the other scenario modeled operations with a stop and go signal.

The results from the GDOT Roundabout Analysis Tool are shown in Table 1. In the year 2020, all approaches during both peak hours operate at Level of Service (LOS) C or better. In the year 2040 the results of the analysis are similar except for the morning peak hour where it is LOS E for the eastern leg and LOS D for the northern leg.



Figure 3 Signalized Intersection Concept



Figure 4 Roundabout Intersection Concept

| SINGLE LANE ROUNDABOUT W/BYPASS LANE ON ALL LEGS | | | | | | | | | | | | |
|--|-------------------|------|------|-------------------|------|------|-------------------|------|------|-------------------|------|------|
| HCM 2010 MODEL (build yr) | 2020 AM Peak Hour | | | 2020 PM Peak Hour | | | 2040 AM Peak Hour | | | 2040 PM Peak Hour | | |
| | N | E | W | N | E | W | N | E | W | N | E | W |
| Entry Capacity, vph | 567 | 909 | 824 | 740 | 760 | 833 | 487 | 866 | 768 | 674 | 697 | 781 |
| Entry Flow Rates, vph | 315 | 690 | 217 | 304 | 424 | 397 | 386 | 842 | 266 | 370 | 516 | 484 |
| V/C ratio | 0.56 | 0.76 | 0.26 | 0.41 | 0.56 | 0.48 | 0.79 | 0.97 | 0.35 | 0.55 | 0.74 | 0.62 |
| Control Delay, s/veh | 17.0 | 19.0 | 7.0 | 10.0 | 13.0 | 11.0 | 34.0 | 46.0 | 9.0 | 14.0 | 22.0 | 15.0 |
| LOS | C | C | A | B | B | B | D | E | A | B | C | B |
| 95th % Queue (ft) | 85 | 186 | 26 | 51 | 87 | 65 | 182 | 409 | 39 | 84 | 166 | 109 |

| Entry Leg from Bypass (FROM) | N | E | W | N | E | W | N | E | W | N | E | W |
|------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Exit Leg for Bypass (TO) | W | N | E | W | N | E | W | N | E | W | N | E |
| Entry Capacity of Bypass, vph | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 |
| Flow Rates of Exiting Traffic, vph | 315 | 223 | 342 | 136 | 234 | 609 | 386 | 272 | 418 | 168 | 288 | 745 |
| V/C ratio | 0.28 | 0.20 | 0.30 | 0.12 | 0.21 | 0.54 | 0.34 | 0.24 | 0.37 | 0.15 | 0.25 | 0.66 |
| Control Delay, s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| LOS | A | A | A | A | A | A | A | A | A | A | A | A |
| 95th % Queue (ft) | 29 | 18 | 32 | 10 | 19 | 83 | 38 | 24 | 43 | 13 | 25 | 131 |
| Approach w/Bypass Delay, s/veh | 8.4 | 14.4 | 3.0 | 7.1 | 8.6 | 4.0 | 17.1 | 34.8 | 3.0 | 9.9 | 14.2 | 6.0 |
| Approach w/Bypass LOS | A | B | A | A | A | A | C | D | A | A | B | A |

Table 2 Roundabout Analysis Results

For the scenario with a signalized intersection, the Synchro results are shown in Table 2. The results indicate that the signalized intersection will operate at Level of Service C or better.

| | A.M. Peak Hour | | P.M. Peak Hour | |
|------|------------------|-------------|------------------|-------------|
| | Level of Service | Delay (sec) | Level of Service | Delay (sec) |
| 2020 | B | 18.3 | C | 20.2 |
| 2040 | C | 25.0 | C | 29 |

Table 3 Signalized Intersection Analysis Results

SECTION 5, COST COMPARISON

The construction of the new intersection of the North Westover Boulevard Extension project with existing North Westover Boulevard is only one component of a much larger construction activity. Concept sketches were developed for both the roundabout and signalized intersection for operational analysis purposes. Detailed cost estimates of the different intersection scenarios were not developed. Consequently, a cost comparison was not performed.

The intersection controlled by the roundabout was included in the overall construction cost of the project which is \$12,450,848.00.

SECTION 6, ALTERNATE SELECTION

The alternates evaluated for the construction of a new intersection as part of the programmed North Westover Boulevard Extension project with the existing North Westover Boulevard were a roundabout and a signalized intersection. Because the intersection does not currently exist a comparison between these alternates and existing operations was not possible. Consequently, the

alternate selection took the approach of the comparison between a proposed roundabout and a proposed signalized intersection.

SECTION 7, CONCEPTUAL ROUNDABOUT DESIGN

The proposed roundabout is a single lane, three-legged roundabout with bypass lanes on all legs. The geometry of the roundabout shown in the following table has been checked using fastest path analysis and designed to accommodate turning movements of a WB-67 standard tractor trailer truck. The results of the fastest path analysis are shown on Figure 5.

| Conceptual Roundabout Dimensions | |
|---|----------|
| Inscribed Diameter | 175' |
| Entry Radii | |
| EB | 130' |
| WB | 100' |
| SB | 50'/100' |
| Exit Radii | |
| EB | 400' |
| WB | N/A |
| NB | 200' |
| Entry Widths | |
| EB | 30' |
| WB | 30' |
| SB | 16'/20' |
| Exit Widths | |
| EB | 26' |
| WB | 28' |
| NB | 24' |
| Circulatory Roadway Width | 20'-30' |
| Truck Apron Width | 15' |

Table 4 Conceptual Roundabout Dimensions

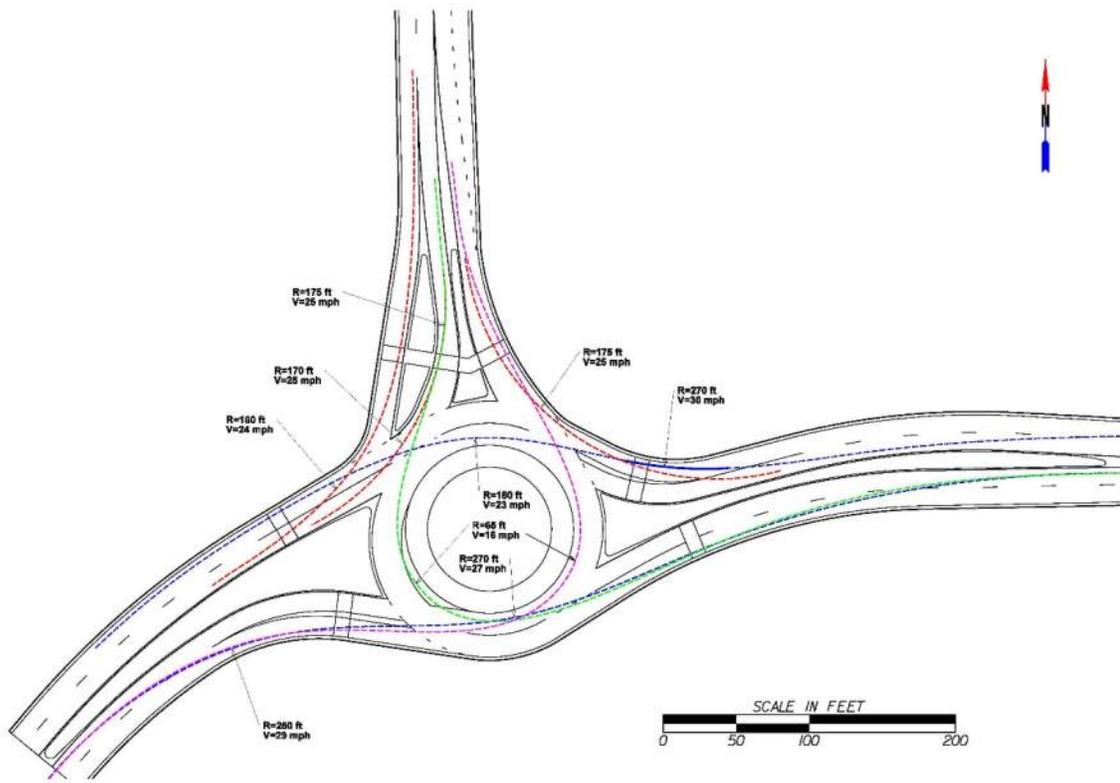


Figure 5 Fastest Path Analysis

Stopping sight distance at all approaches has been evaluated, and no existing or proposed topographic features will encroach on the sight distance line of the driver. The results of the stopping sight distance analysis are shown on Figure 6.

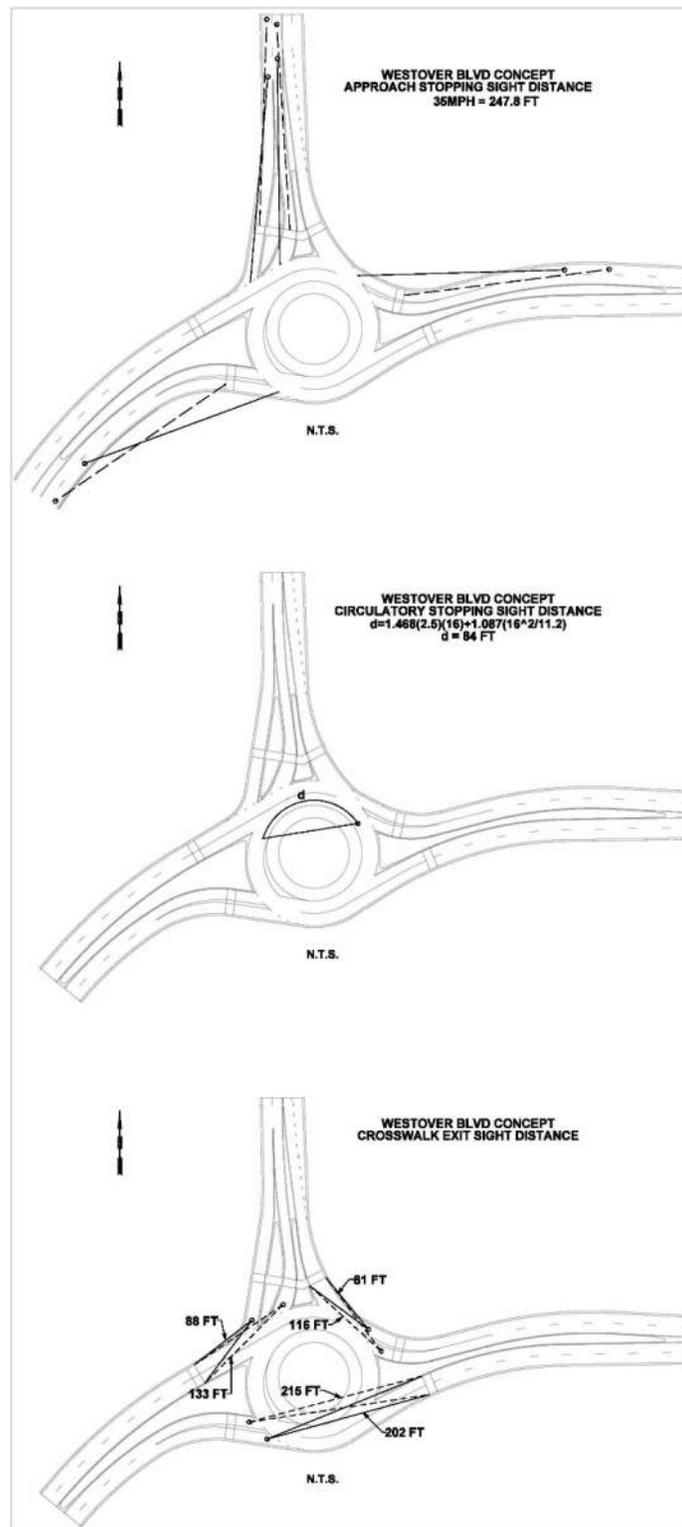


Figure 6 Stopping Sight Distance Analysis

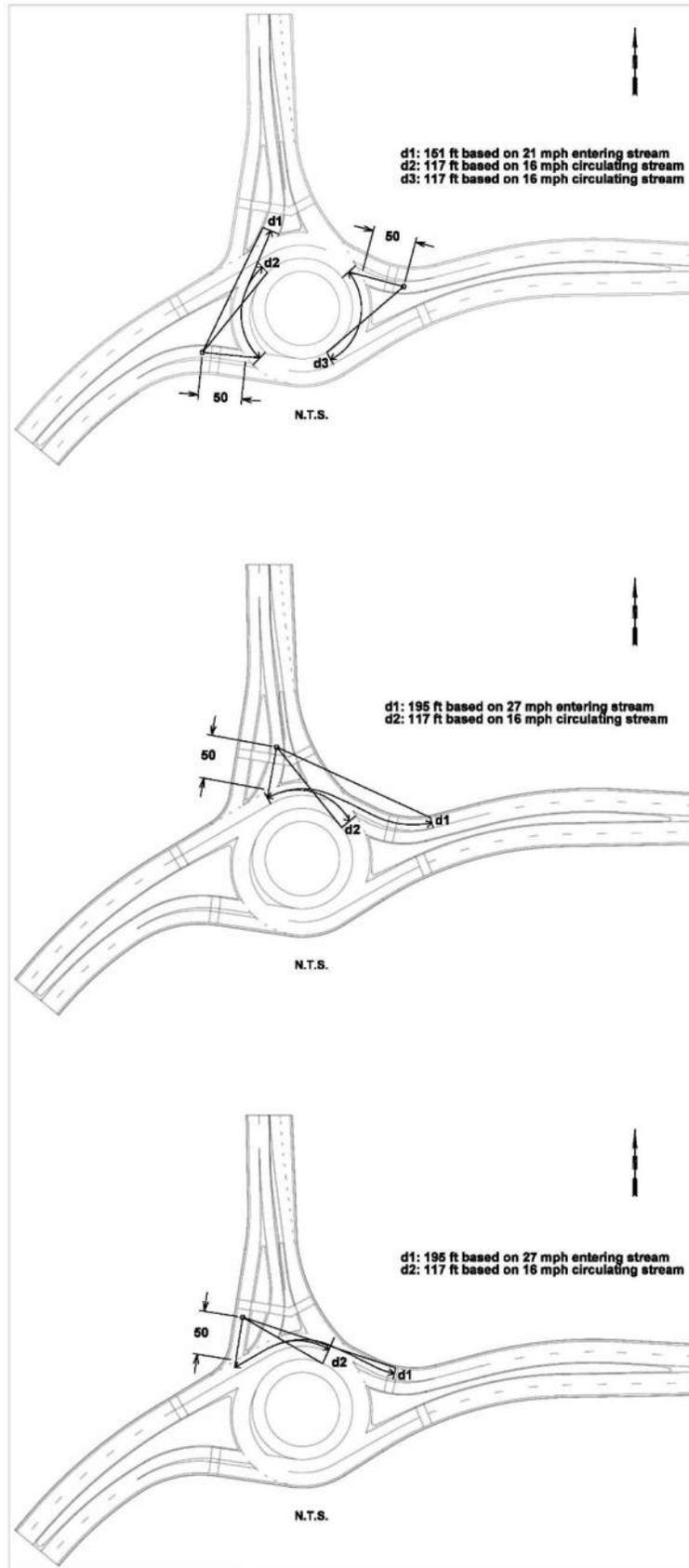
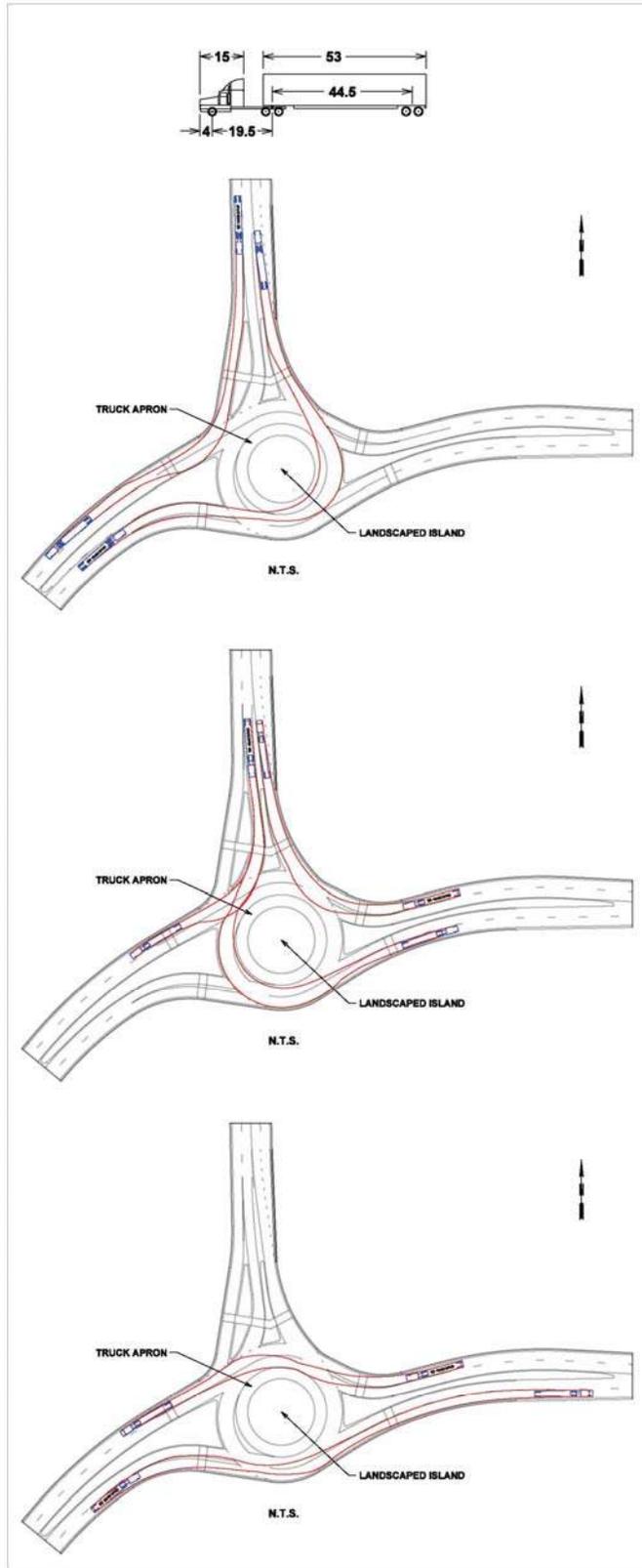


Figure 7 Intersection Sight Distance Analysis

The results of the truck turn analysis for a WB-67 are shown on Figure 7.



SECTION 8, RECOMMENDATIONS

The construction of the North Westover Boulevard Extension project will create two new intersections with existing roads, North Westover Boulevard and Ledo Road; see Figure 8. For the intersection with North Westover Boulevard, two alternates were analyzed for operational control: a roundabout and deploying a stop and go signal.

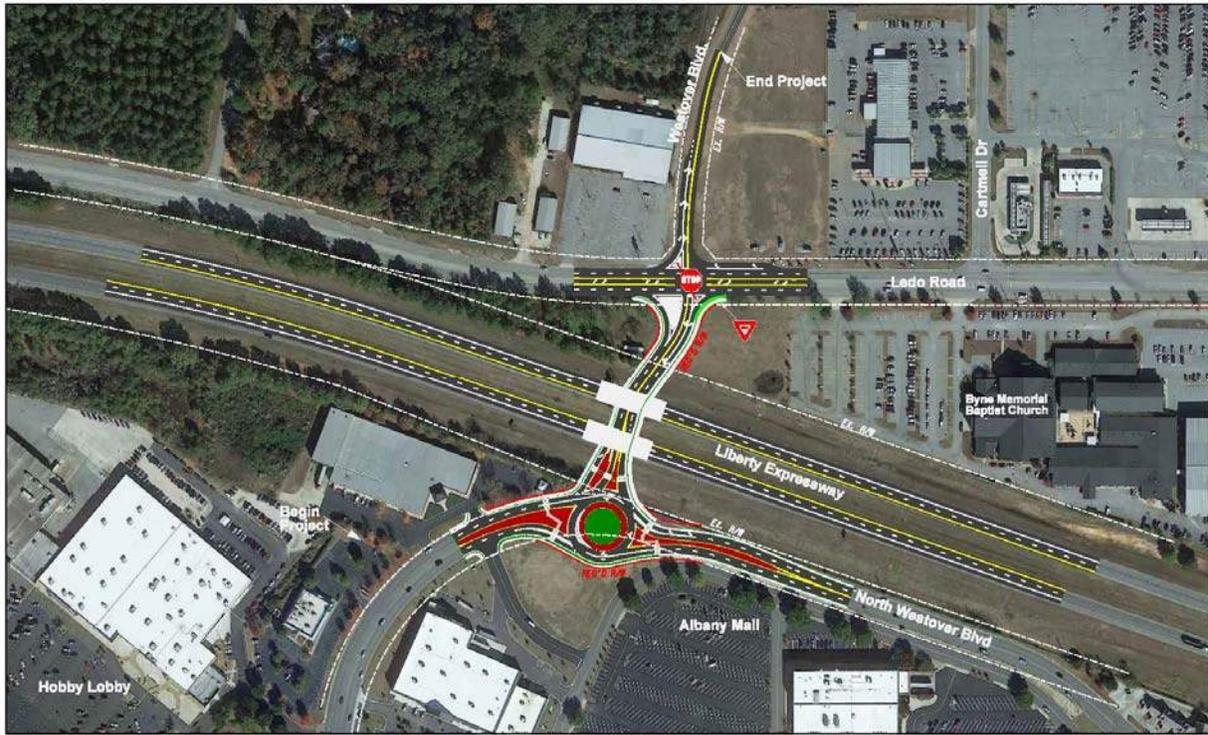


Figure 7 Project Concept

Constructing the intersection with a roundabout is recommended for the following:

- ✓ Realize a reduction in the number of crashes at the new intersection by constructing it as a roundabout as opposed to erecting a traffic signal
- ✓ Realize significant reduction in anticipated cost per crash with intersection control using a roundabout as opposed to traffic signal
- ✓ Achieve acceptable Levels of Service without long term expenditures for signal power and maintenance
- ✓ Insignificant cost differential to construct
- ✓ Minimal difference in right-of-way required for construction
- ✓ Demonstrated public support: City Council passed resolution in support of roundabout

A potential construction phasing has been developed for building the roundabout. Prior to construction, signage would be installed to “encourage” traffic to use alternate routes. The eastbound lanes, which would be on the property acquired from the Albany Mall, would be constructed first. Then N. Westover Boulevard two-way traffic would be reduced to one lane in each direction and maintained on the roundabout’s eastbound lanes allowing for the construction of the remaining portion of the roundabout. Then when the roadway that will connect N. Westover Boulevard to Ledo Road is completed (this construction includes the bridges for US 82) then the entire roundabout would be opened to traffic.

Included with this feasibility study are the Croy responses to the peer review. The peer review document and responses follow as an Attachment.

Attachment



KITTELSON & ASSOCIATES, INC.

TRANSPORTATION ENGINEERING / PLANNING

225 E Robinson Street, Suite 450, Orlando, FL 32801 P 407.540.0555 F 407.540.0550

TECHNICAL MEMORANDUM

North Westover Blvd Extension Roundabouts

Operational Analysis Peer Review

Date: August 28, 2015 Project #: 18385
To: Dan Dobry, PE, PTOE, AICP
Croy Engineering
From: Justin Bansen, PE and Michael Eagle

INTRODUCTION

Kittelison & Associates, Inc. (KAI) reviewed the operational analyses and conceptual designs that have been completed by Croy Engineering, LLC staff. This memorandum summarizes KAI findings related to the operations analysis and overall roundabout lane configurations for the intersection of North Westover Blvd with the Westover Blvd Extension. Geometric review comments will be provided as part of a separate memorandum after further coordination with Croy Engineering regarding the intersection lane configurations.

In October 2014, KAI had reviewed an initial set of operational analyses completed by Croy Engineering. The volume projections associated with the operational analyses were changed based upon comments from GDOT received on October 27, 2014. Therefore, KAI has re-reviewed the analysis and resulting lane configuration needs.

OPERATIONAL ANALYSES AND LANE CONFIGURATIONS

Croy Engineering evaluated a single-lane roundabout with bypass lanes on all three legs. Analysis was conducted using the GDOT Roundabout Analysis Tool that implements the Highway Capacity Manual 2010 (HCM 2010) model and a “calibrated” model. Analyses of the proposed roundabout were performed using 2020 and 2040 AM and PM peak hour traffic volumes.

As part of the review, KAI supplemented the Croy Engineering analysis using the capacity models derived from the latest field data collected as part of the Federal Highway Administration’s (FHWA) TOPR 34 study. The draft TOPR 34 model will serve as the roundabout capacity model implemented in the next version of the HCM. KAI completed an operational analysis using the TOPR 34 capacity model for lane configurations identified by Croy Engineering and also for an alternative roundabout lane configuration to consider. Figure 1, below, illustrates the lane configurations proposed by Croy Engineering.

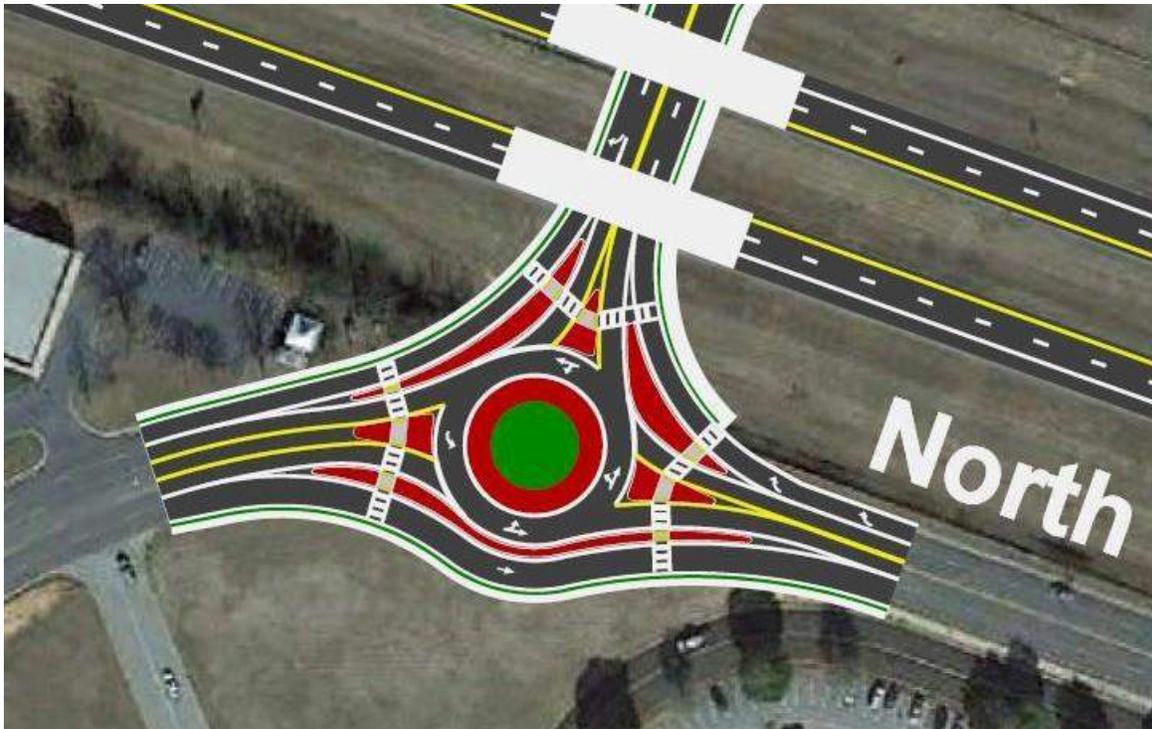


Figure 1: Roundabout Lane Configurations proposed by Croy Engineering

The following are observations made by KAI in the review of the operational analyses completed by Croy Engineering using the GDOT Roundabout Analysis Tool:

1. Both the original and revised operational analyses prepared by Croy Engineering do not include truck percentages at either roundabout. Truck percentages range from 6.4% to 15.8% along Ledo Road and 9.5% to 13.3% along North Westover Boulevard in the AM and PM peak hours. These have a significant impact on the operations.
2. KAI updated the operational analysis in the GDOT Roundabout Analysis Tool as well as using the TOPR 34 capacity model to incorporate the truck percentages into the analysis. The results of the updated analysis are reflected in Tables 1 and 2, below. Based upon the provided turning movement counts and truck percentages, the following tables summarize the operational analyses for the lane configurations illustrated in Figure 1.

Table 1: N. Westover Blvd. at N. Westover Blvd. Extension – 2040 AM

| Methodology | Approach | | | | | |
|--------------------|------------|-----------|-----------|-----------|-----------|-----------|
| | North (SB) | | East (WB) | | West (EB) | |
| | V/C ratio | Delay (s) | V/C ratio | Delay (s) | V/C ratio | Delay (s) |
| HCM 2010 | 1.00 | 80.6 | 1.14 | 101.3 | 0.41 | 11.5 |
| Calibrated Model* | 0.80 | 31.6 | 1.03 | 59.4 | 0.36 | 8.6 |
| DRAFT FHWA TOPR 34 | 0.84 | 20.4 | 0.94 | 29.2 | 0.34 | 3.4 |

*Note: Based upon the GDOT Roundabout Analysis Tool's Calibrated Model

Table 2: N. Westover Blvd. at N. Westover Blvd. Extension – 2040 PM

| Methodology | Approach | | | | | |
|--------------------|------------|-----------|-----------|-----------|-----------|-----------|
| | North (SB) | | East (WB) | | West (EB) | |
| | V/C ratio | Delay (s) | V/C ratio | Delay (s) | V/C ratio | Delay (s) |
| HCM 2010 | 0.63 | 19.2 | 0.85 | 34.7 | 0.70 | 20.1 |
| Calibrated Model* | 0.52 | 12.2 | 0.71 | 18.3 | 0.60 | 13.1 |
| DRAFT FHWA TOPR 34 | 0.51 | 8.7 | 0.69 | 11.7 | 0.57 | 4.9 |

*Note: Based upon the GDOT Roundabout Analysis Tool's Calibrated Model

The HCM 2010 and Calibrated Model results for the 2040 AM show that a single lane roundabout with a free-flow right-turn bypass on each leg will not provide adequate capacity based on the capacity models in the GDOT Roundabout Analysis Tool. This is inconsistent with the operational results included in the provided Project Concept report. However, the results from the draft TOPR 34 capacity model indicate that a maximum v/c ratio of 0.94 could be expected in the design year, which supports the original Croy Engineering lane configurations.

3. The proposed single-lane roundabout (with bypass lanes on all approaches) is anticipated to provide sufficient capacity through the design year. However, when viewed from a network perspective, KAI had the following observations:
 - The existing typical section along N Westover Blvd is 5 lanes (two lanes in each direction with a center two-way left-turn lane), the proposed single-lane roundabout does not provide lane continuity. This may result in additional weaving conflicts, particularly in the WB direction. Consideration could be given to a partial two-lane roundabout in order to provide lane continuity along N Westover Blvd and avoid “lane traps”. **Croy response:** The existing lane configurations differ on the east and west approaches. The proposed concept has been designed to tie-in accordingly and provides lane continuity.
 - The design results in a very short weave distance (less than 200 feet) for vehicles making a SB right-turn at the roundabout to then turn into the Albany Mall driveway to the west of the proposed roundabout. Conversion to a yield controlled SB right-turn bypass lane would improve the distance available for lane changes. **Croy response:** The addition of a yield controlled right turn by-pass lane will be evaluated. It is anticipated that those traveling to the mall will use the inside lane and travel through the roundabout. Appropriate signing & marking will be included on all legs to guide vehicles through the roundabout.
 - The roundabout lane configurations will result in a short weave area on the bridge approaching the intersection of Ledo Road. Eastbound left-turning vehicles exiting the roundabout and westbound right-turning vehicles using the right-turn bypass lane will have approximately 200 feet to change lanes in order to get into the left- or right-turn lane at the Ledo Road signal. Removing the WB right-turn bypass or converting to a

Yield controlled bypass would reduce the number of lane changes/weaving. **Croy response:** The addition of a yield controlled right turn by-pass lane will be evaluated. Appropriate signing & marking will be included on all legs to guide vehicles through the roundabout.

- Free-flow right-turn bypass lanes are less desirable from a pedestrian standpoint than yield controlled right-turn bypass lanes. **Croy response:** The addition of a yield controlled right turn by-pass lane will be evaluated, however the by-pass splitter island does provide pedestrian refuge.

4. KAI evaluated another lane configuration alternative for consideration as shown in Figure 2, below. The partial two-lane roundabout includes two entry and exit lanes along the eastbound and westbound approaches of N. Westover Blvd. A southbound Yield Controlled right-turn bypass lane is also included along the southbound approach. With this configuration, only one exit lane on the north leg is required.

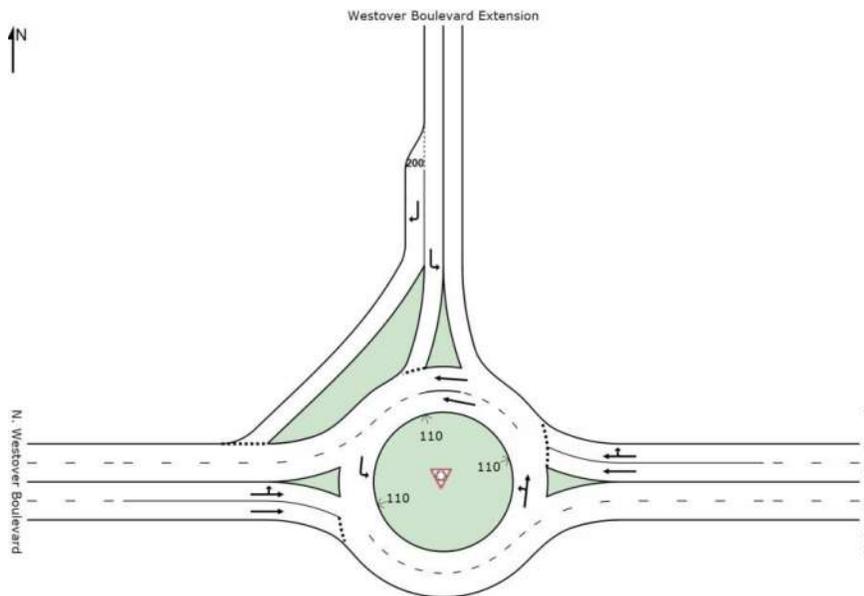


Figure 2 – Alternative Lane Configuration

Tables 3 and 4 summarize the operations of a partial two-lane roundabout for the 2040 AM and PM peak hours:

Table 3: N. Westover Blvd. at N. Westover Blvd. Extension – 2040 AM

| Methodology | Approach | | | | | |
|-------------------|------------|-----------|-----------|-----------|-----------|-----------|
| | North (SB) | | East (WB) | | West (EB) | |
| | V/C ratio | Delay (s) | V/C ratio | Delay (s) | V/C ratio | Delay (s) |
| HCM 2010 | 0.75 | 29.4 | 0.76 | 22.6 | 0.53 | 14.5 |
| Calibrated Model* | 0.63 | 18.5 | 0.60 | 12.3 | 0.42 | 9.6 |
| TOPR 34 | 0.69 | 23.2 | 0.59 | 12.0 | 0.43 | 9.7 |

*Note: Based upon the GDOT Roundabout Analysis Tool's Calibrated Model

Table 4: N. Westover Blvd. at N. Westover Blvd. Extension – 2040 PM

| Methodology | Approach | | | | | |
|-------------------|------------|-----------|-----------|-----------|-----------|-----------|
| | North (SB) | | East (WB) | | West (EB) | |
| | V/C ratio | Delay (s) | V/C ratio | Delay (s) | V/C ratio | Delay (s) |
| HCM 2010 | 0.53 | 13.6 | 0.66 | 20.3 | 0.90 | 38.9 |
| Calibrated Model* | 0.41 | 8.8 | 0.52 | 12.2 | 0.70 | 16.9 |
| TOPR 34 | 0.45 | 10.3 | 0.49 | 11.1 | 0.71 | 18.1 |

*Note: Based upon the GDOT Roundabout Analysis Tool's Calibrated Model

Based upon the operational analysis results, the alternative lane configuration illustrated in Figure 2 is expected to provide acceptable operations through the design year. The partial two-lane roundabout provides lane continuity along N Westover Blvd and is expected to decrease vehicle lane changes and increase the distance for lane change movements to occur. However, the partial two-lane configuration may require additional pedestrian treatments for the multilane crossings compared to the single-lane concept prepared by Croy Engineering.

KAI recommends that the alternative lane configurations be further investigated from a concept layout perspective to be able to review geometric feasibility and compare impacts against the footprint from the Croy Engineering concept.

Croy response: The alternate configuration will be evaluated and appropriate aspects included in the design. Please note that FHWA has determined that, unless traffic volumes are significant, 2-lane roundabouts should be avoided due to driver confusion.

Thao Nguyen

To: David Webb
Subject: RE: Westover Blvd RAB package Design Checks

From: David Webb
Sent: Friday, November 06, 2015 4:22 PM
To: 'James, Cleopatra C' <CJames@dot.ga.gov>
Subject: FW: Westover Blvd RAB package Design Checks

From: David Webb
Sent: Friday, November 06, 2015 4:16 PM
To: 'James, Cleopatra C' <CJames@dot.ga.gov>; Thao Nguyen <tnguyen@croengineering.com>; Chris Rideout <crideout@croengineering.com>
Subject: RE: Westover Blvd RAB package Design Checks

Cleo-

Please find the attached stopping sight distance calculations revised per Christina's comments. I've also attached the design checks and revised concept report. The concept report includes changes to the concept display and feasibility study with the new roundabout configuration. You can find my responses to Justin's comments in [purple below](#). Have a great weekend!

David Webb, PE | Senior Project Manager
CROY ENGINEERING | 200 North Cobb Parkway | Building 400, Suite 413 | Marietta, Georgia 30062
p: [770.971.5407](tel:770.971.5407) | e: dwebb@croengineering.com | w: www.croengineering.com



 Please consider the environment before printing.

From: James, Cleopatra C [<mailto:CJames@dot.ga.gov>]
Sent: Friday, November 06, 2015 2:47 PM
To: David Webb <dwebb@croengineering.com>; Thao Nguyen <tnguyen@croengineering.com>; Chris Rideout <crideout@croengineering.com>
Subject: RE: Westover Blvd RAB package Design Checks

Hi Dave,

Please make the necessary changes and respond to Justin's comments (indicating the changes have been made or will be addressed in Preliminary Engineering). Thanks!

Cleopatra James
Project Manager
Office of Program Delivery
Georgia Department of Transportation
600 West Peachtree Street, 25th floor
Atlanta, GA 30308
Phone (404) 631-1546

Mobile (478) 957-3014
Fax (404) 631-1588
E-mail cjames@dot.ga.gov

From: Justin Bansen [<mailto:jbansen@kittelton.com>]
Sent: Friday, November 06, 2015 11:47 AM
To: David Webb; James, Cleopatra C; Thao Nguyen; Chris Rideout
Cc: Stovall-Dixon, Krystal E.; Barry, Christina
Subject: RE: Westover Blvd RAB package Design Checks

Attached are a couple of final mark-ups and notes:

- Fastest Paths – I re-measured the WB R1 that is referenced in Christina’s comments. The radius is actually closer to 270 feet, which is just under 30 mph. The fastest path methodology has a number of assumptions built into it, so I would suggest rounding to the nearest whole MPH. Christina’s conclusion is correct that in the design phase, care should be taken to not make modifications that would result in increases in fastest path speeds on the WB entry. However, as currently designed, the roundabout would meet the guidelines outlined in NCHRP Report 672 for the WB entry. Updated independent fastest path speed checks are provided in the attached PDF. Care will be taken in the preliminary design phase not to make modifications that would result in increases in fastest path speeds on the WB entry. We are in the process of negotiating with GDOT for TO 5 which will allow KAI to peer review the roundabout design for PFPR.
- Truck Paths – The Croy truck paths demonstrate that a WB-67 can be accommodated for all movements through the intersection. However, they show the WB-67 claiming both lanes for some movements. In the attached PDF, I created a couple of figures for independent checks of selected paths. For the EB and WB through movements, the truck would be able to travel through the roundabout while generally staying in their lane. There would be encroachment into the adjacent lane within the circulatory roadway, but there would be enough space in the adjacent lane to accommodate side-by-side travel with a passenger car. WB-67 trucks will be accommodated by the proposed roundabout. The design vehicle will be maintained through preliminary design.
- Sight Triangles – As discussed in Christina’s comments, the speeds used in the sight triangle calculations should be updated. The attached mark-ups contain notes regarding the revised speeds. Sight triangles have been revised per Christina’s comments. Please see attached pdf.
- Markings
 - In the southeast corner of the circulatory roadway, the dotted lane line should be solid. All vehicles in the outside lane must exit.
 - I suggest adding lane arrows to the concept figure so that other stakeholders understand the intended lane assignments.The dotted lane has been corrected in the concept display to a solid line. Lane arrows have been added to the concept display.
- Ped Crossings – For the multilane exits, additional consideration should be given to treatments used for the multilane pedestrian crossings to support accommodation for visually impaired pedestrians. This could include raised crossings, RRFBs, Pedestrian Hybrid Beacons, etc. The placement of the pedestrian crossings in the concept will accommodate consideration of any of these treatments without changes to the overall intersection footprint. Therefore, further decisions on this topic can be deferred to the design phase. Additional treatment will be given to the pedestrian crossings. Alternatives will be evaluated and selected in preliminary design as indicated by KAI.

With regard to the two different designs for the north leg – the one with the longer splitter island reflects suggested edits that I had made last week. Assuming that the version with the longer splitter island on the north leg is the one that is being carried forward by Croy, then I have no additional comment on the roundabout concept aside from the minor notes above. Any additional refinement could be accomplished as part of the PFPR plans preparation.

The concept showing the longer splitter island is correct. The design check pdf attached has been updated.

Please let me know if you have any questions.

Justin Bansen, PE
Associate Engineer

[Kittelson & Associates, Inc.](#)
Transportation Engineering / Planning
407.373.1104 (direct)

From: David Webb [<mailto:dwebb@croengineering.com>]
Sent: Friday, November 06, 2015 9:59 AM
To: James, Cleopatra C; Thao Nguyen; Chris Rideout
Cc: Justin Bansen; Stovall-Dixon, Krystal E.
Subject: RE: Westover Blvd RAB package Design Checks

Cleo-

We took a look at Christina's comments and should be able to knock this out today. One of the truck turning displays referenced an old iteration of the roundabout so we will update the pdf with current configuration. The sight distance calculations will be updated as well.

Thanks-

David Webb, PE | Senior Project Manager
CROY ENGINEERING | 200 North Cobb Parkway | Building 400, Suite 413 | Marietta, Georgia 30062
p: [770.971.5407](tel:770.971.5407) | e: dwebb@croengineering.com | w: www.croyengineering.com



 Please consider the environment before printing.

From: James, Cleopatra C [<mailto:CJames@dot.ga.gov>]
Sent: Friday, November 06, 2015 9:30 AM
To: David Webb <dwebb@croengineering.com>; Thao Nguyen <tnguyen@croengineering.com>; Chris Rideout <crideout@croengineering.com>
Cc: 'Justin Bansen' <jbansen@kittelson.com>; Stovall-Dixon, Krystal E. <kstovall-dixon@dot.ga.gov>
Subject: RE: Westover Blvd RAB package Design Checks

Dave,

See the comments from the TMC. I highlighted in yellow the key points. Please verify with Justin on the fastest path & sight distance checks. Also, reply when you anticipate to have this completed. Thanks!

Cleopatra James
Project Manager
Office of Program Delivery
Georgia Department of Transportation
600 West Peachtree Street, 25th floor
Atlanta, GA 30308

Phone (404) 631-1546
Mobile (478) 957-3014
Fax (404) 631-1588
E-mail cjames@dot.ga.gov

From: Barry, Christina
Sent: Friday, November 06, 2015 9:23 AM
To: James, Cleopatra C
Cc: Zehngraff, Scott E.; Onabanjo, Oladimeji; Werho, Ken
Subject: Westover Blvd RAB package Design Checks

Cleopatra,

We have reviewed the design checks. The first truck turning paths that we were sent were run on the roundabout with a slightly different north leg design than the second roundabout. The separation island is wider in the first one and the splitter island is longer. **Please verify which design will be used.** It looks like the trucks will work on either, but the fastest path would be slightly modified if the one with the narrower separation island is used. For the fastest paths, the entry speed for the **WB movement is calculating to 30.3 mph, which is just slightly over the maximum of 30 mph.** This doesn't need to be corrected prior to us approving the concept, but I wanted to note it in our comments so that **Croy is aware of it in the design phase** and so that modifications to this area make this path slower rather than faster.

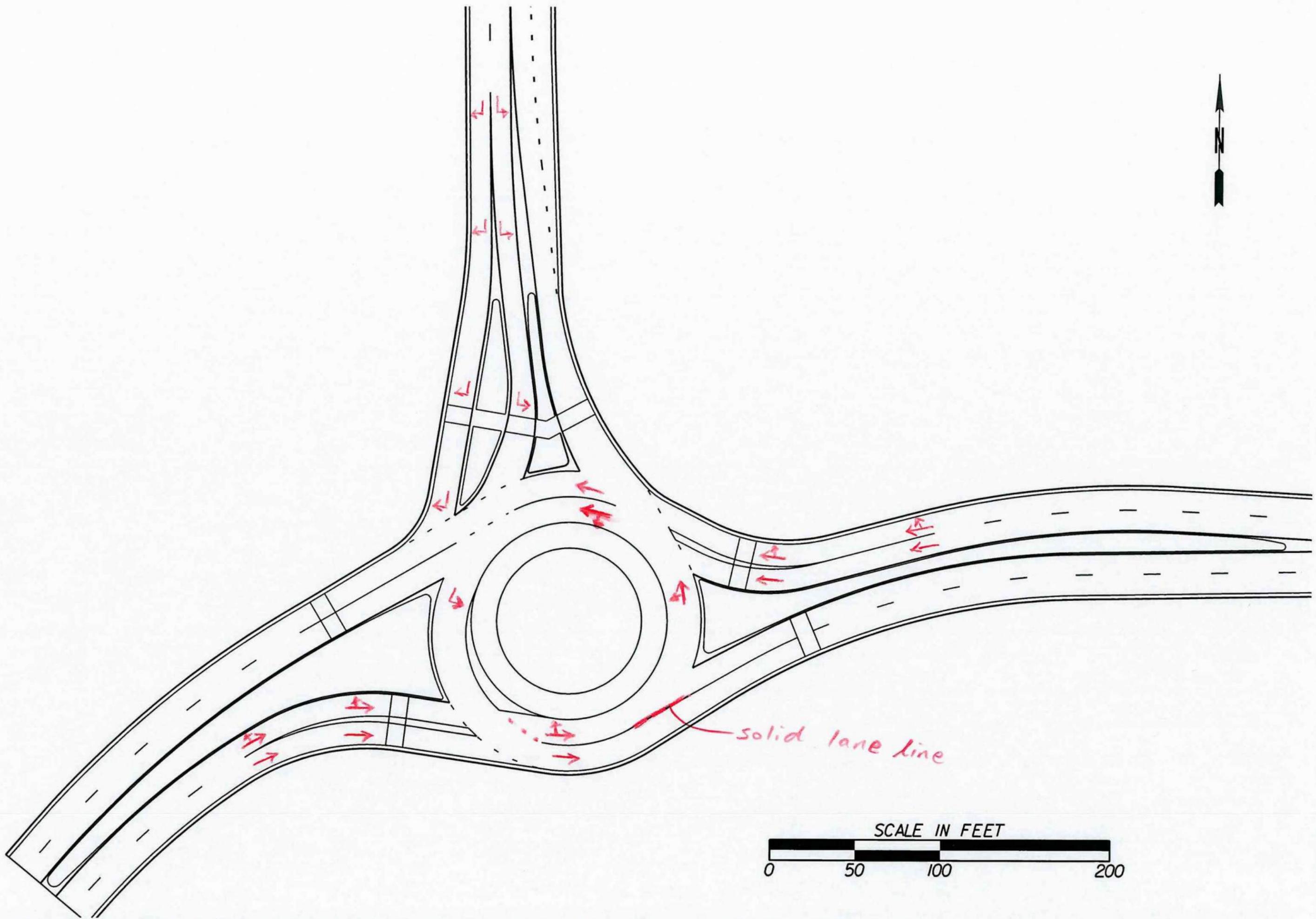
For the **sight distance checks**, please have them **verify with the peer reviewer** that the speeds used to calculate the circulatory stopping sight distance and the intersection sight distance **are correct.** According to NCHRP 672 "it is advantageous to provide no more than the minimum required intersection sight distance on each approach. Excessive intersection sight distance can lead to higher vehicle speeds that reduce the safety of the intersection for all road users." 27 mph seemed like it might be a little high for the circulatory stopping sight distance since the circulating speeds from the fastest paths were well below that. Also, **the speed used for d1 on the intersection sight distance check for the SB leg seemed as though it might be a little too low,** since this speed is supposed to be the average of the R1 speed and the R2 speed. So, please just have them **verify with the peer reviewer that what they have for their sight distance checks are correct.**

Otherwise the design checks look good. Let me know if you have any questions.

Thanks!

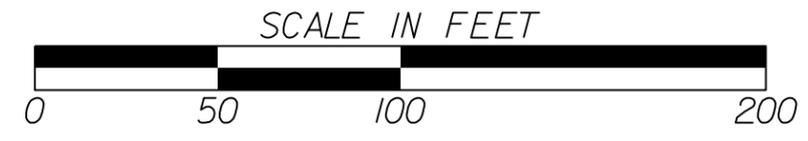
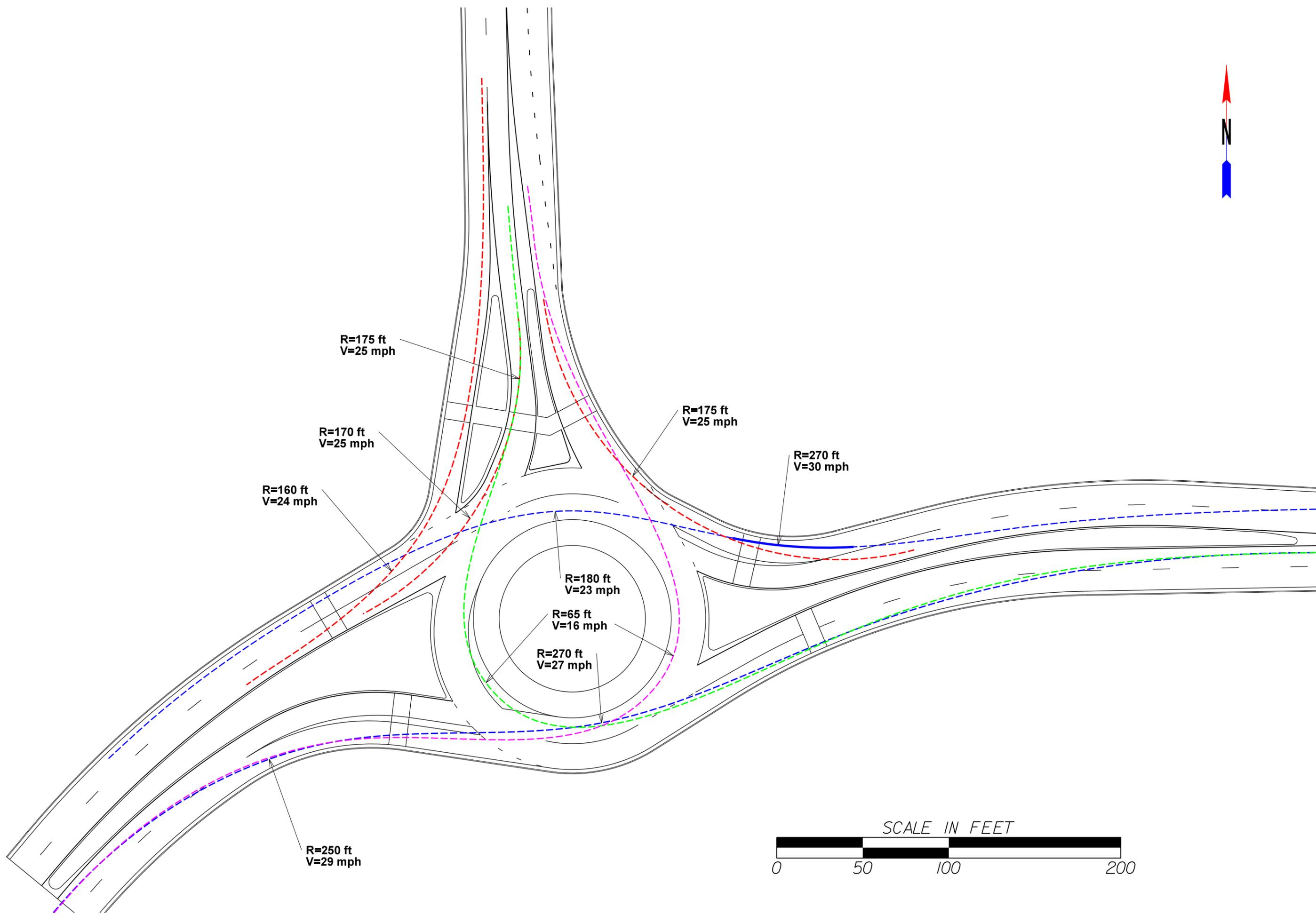
Christina D. Barry, EIT
Traffic Operations Supervisor
Office of Traffic Operations
Georgia Department of Transportation
935 E. Confederate Avenue
Atlanta, GA 30316
cbarry@dot.ga.gov
Phone: (404) 635-2922

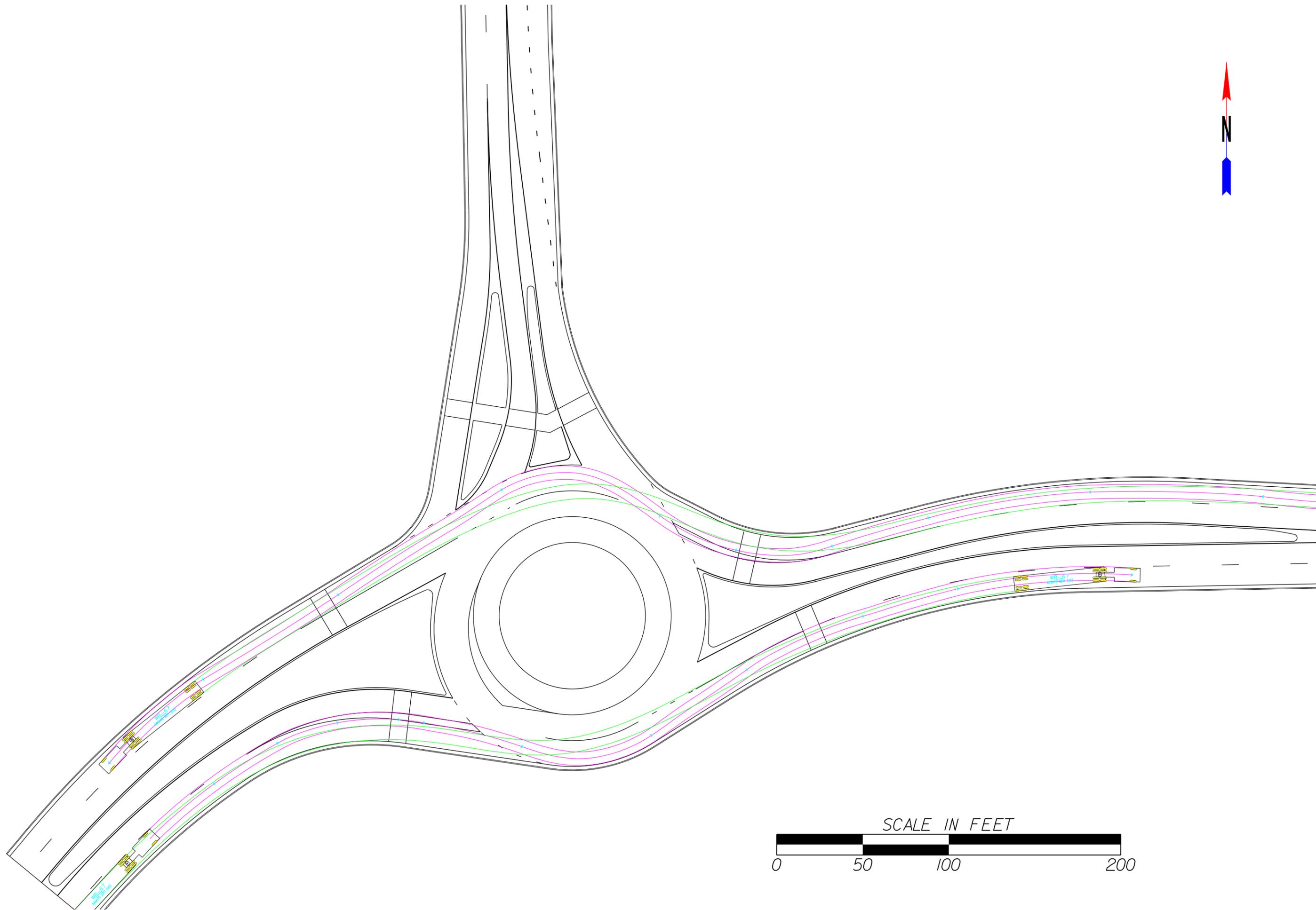
Traffic fatalities are on the rise since the beginning of 2015 and Georgia could see the first increase in nine years! Many of these fatalities are the result of distracted driving. DriveAlert ArriveAlive implores motorists to drive responsibly. 1—buckle up; 2—stay off the phone/no texting; and 3—drive alert. Visit www.dot.ga.gov/DS/SafetyOperation/DAAA. #ArriveAliveGA



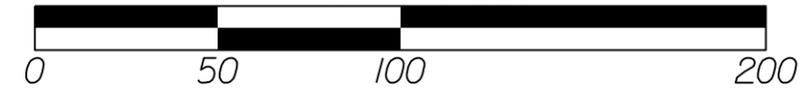
solid lane line

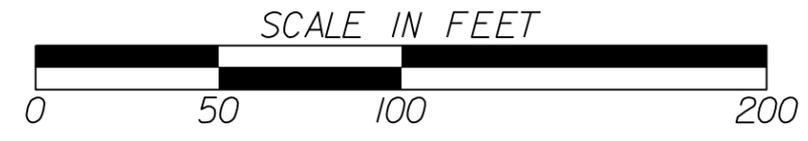
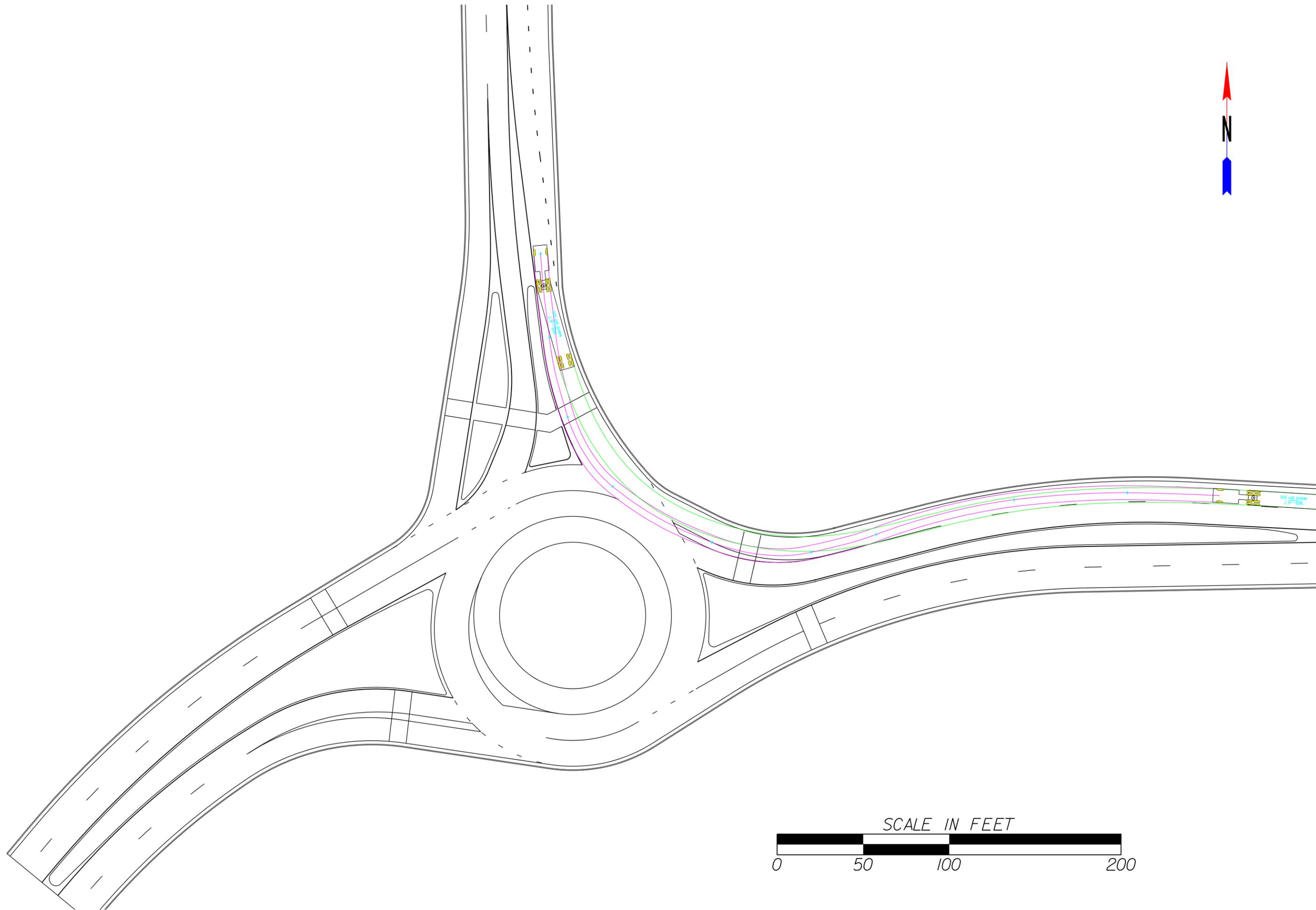






SCALE IN FEET



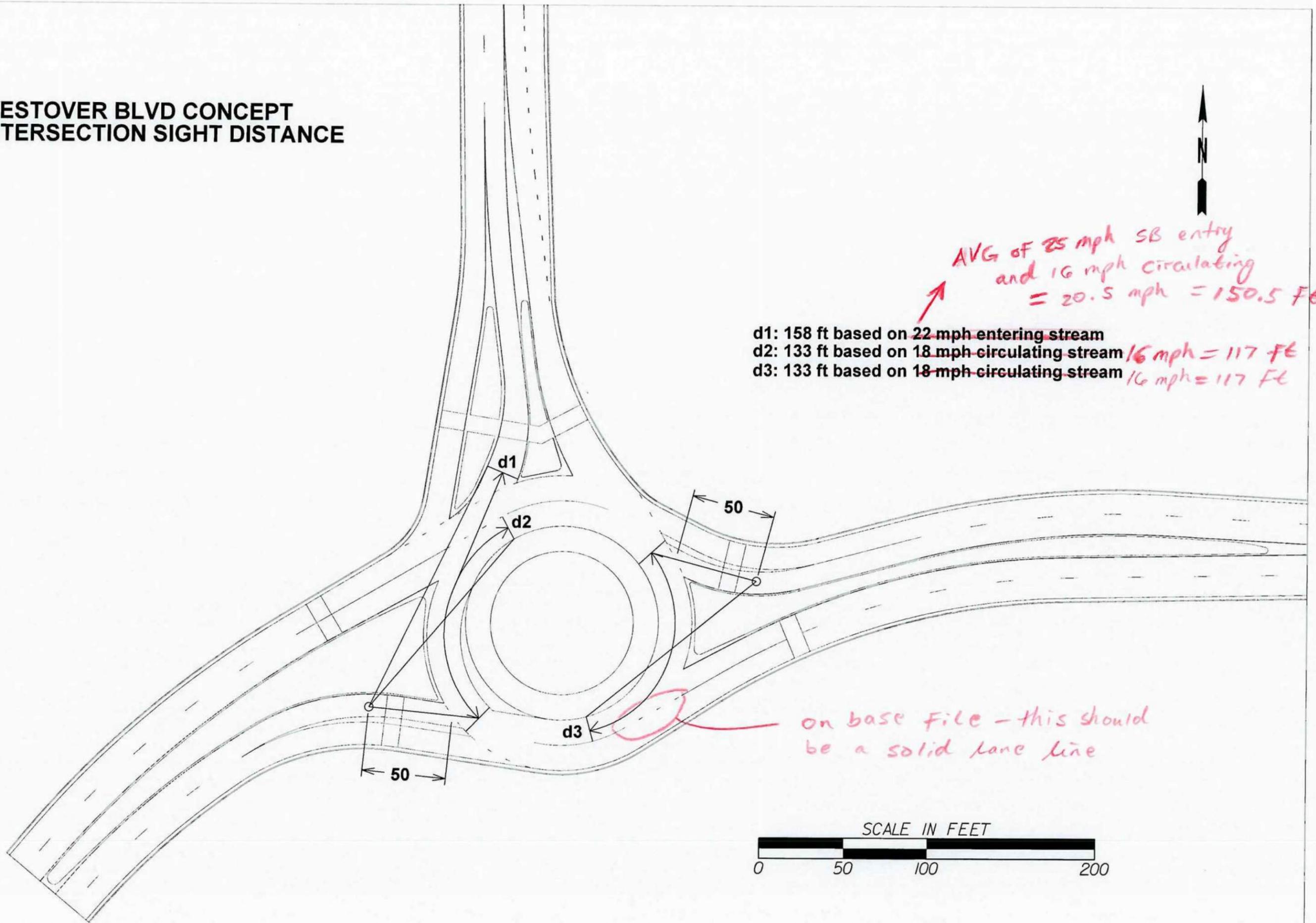


WESTOVER BLVD CONCEPT INTERSECTION SIGHT DISTANCE

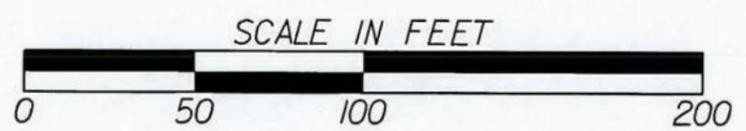


AVG of 25 mph SB entry
and 16 mph circulating
= 20.5 mph = 150.5 FE

- d1: 158 ft based on ~~22 mph entering stream~~
- d2: 133 ft based on ~~18 mph circulating stream~~ 16 mph = 117 FE
- d3: 133 ft based on ~~18 mph circulating stream~~ 16 mph = 117 FE



on base file - this should
be a solid lane line



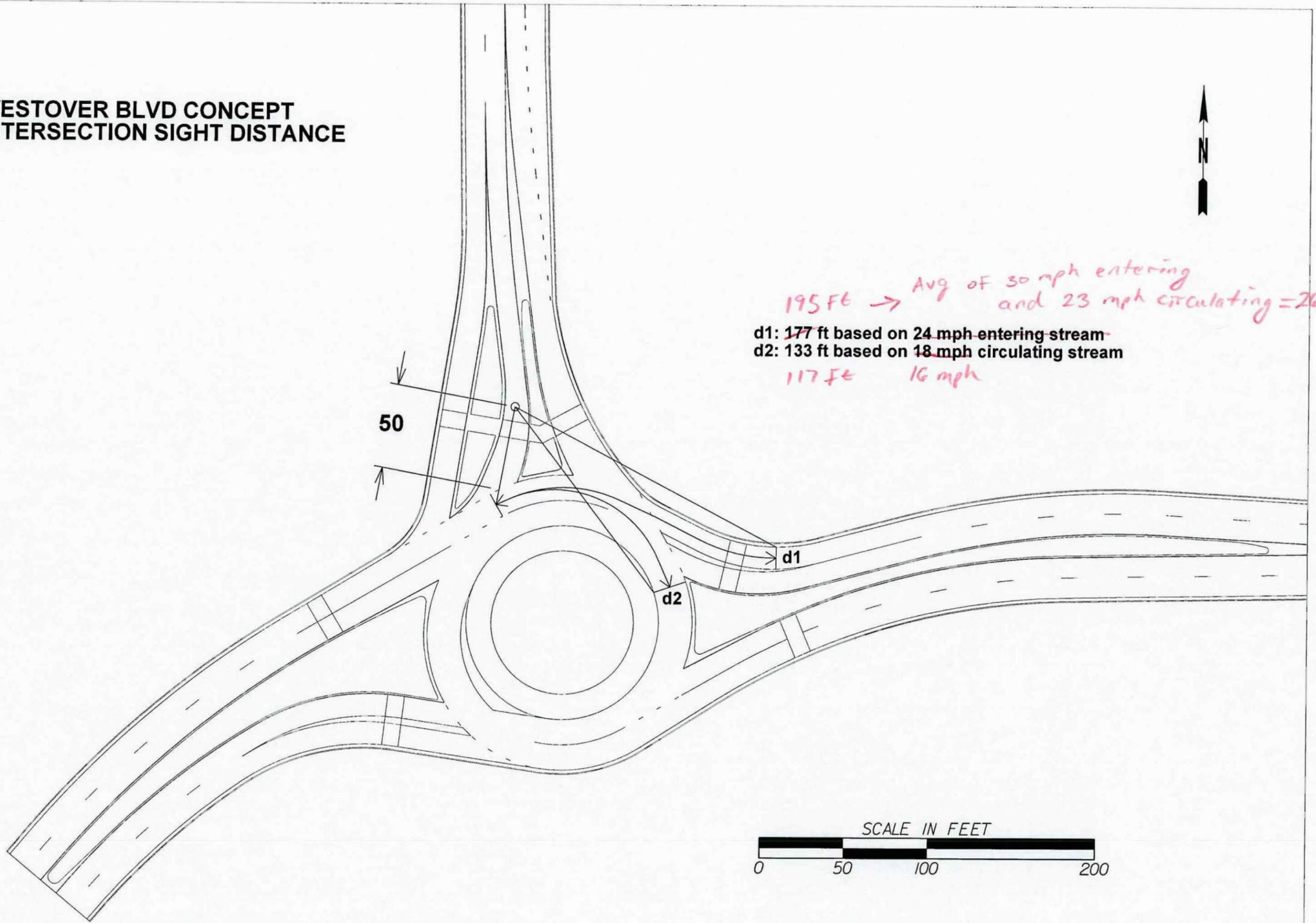
**WESTOVER BLVD CONCEPT
INTERSECTION SIGHT DISTANCE**



*195 FE → Avg of 30 mph entering
and 23 mph circulating = 26.5*

**d1: ~~177~~ ft based on 24 mph entering stream
d2: 133 ft based on ~~18~~ mph circulating stream**

117 FE 16 mph

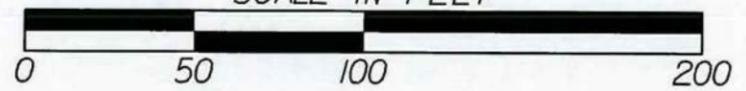


50

d1

d2

SCALE IN FEET

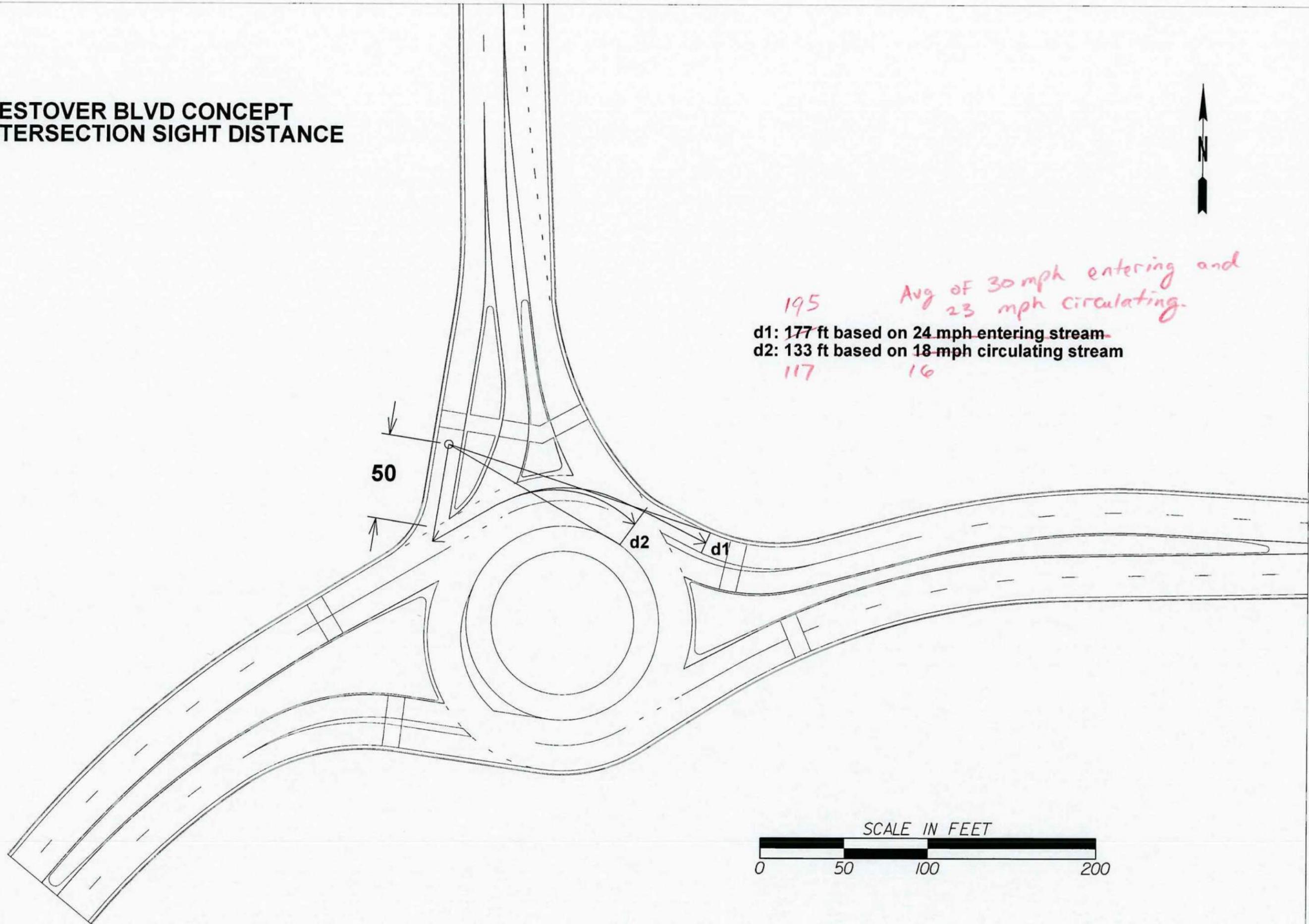


WESTOVER BLVD CONCEPT INTERSECTION SIGHT DISTANCE

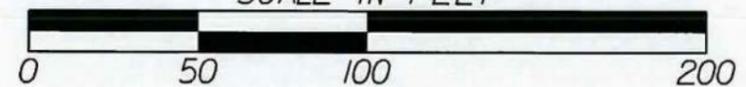


195 Avg of 30 mph entering and
23 mph circulating.

d1: 177 ft based on 24 mph entering stream
d2: 133 ft based on 18 mph circulating stream
117 *16*

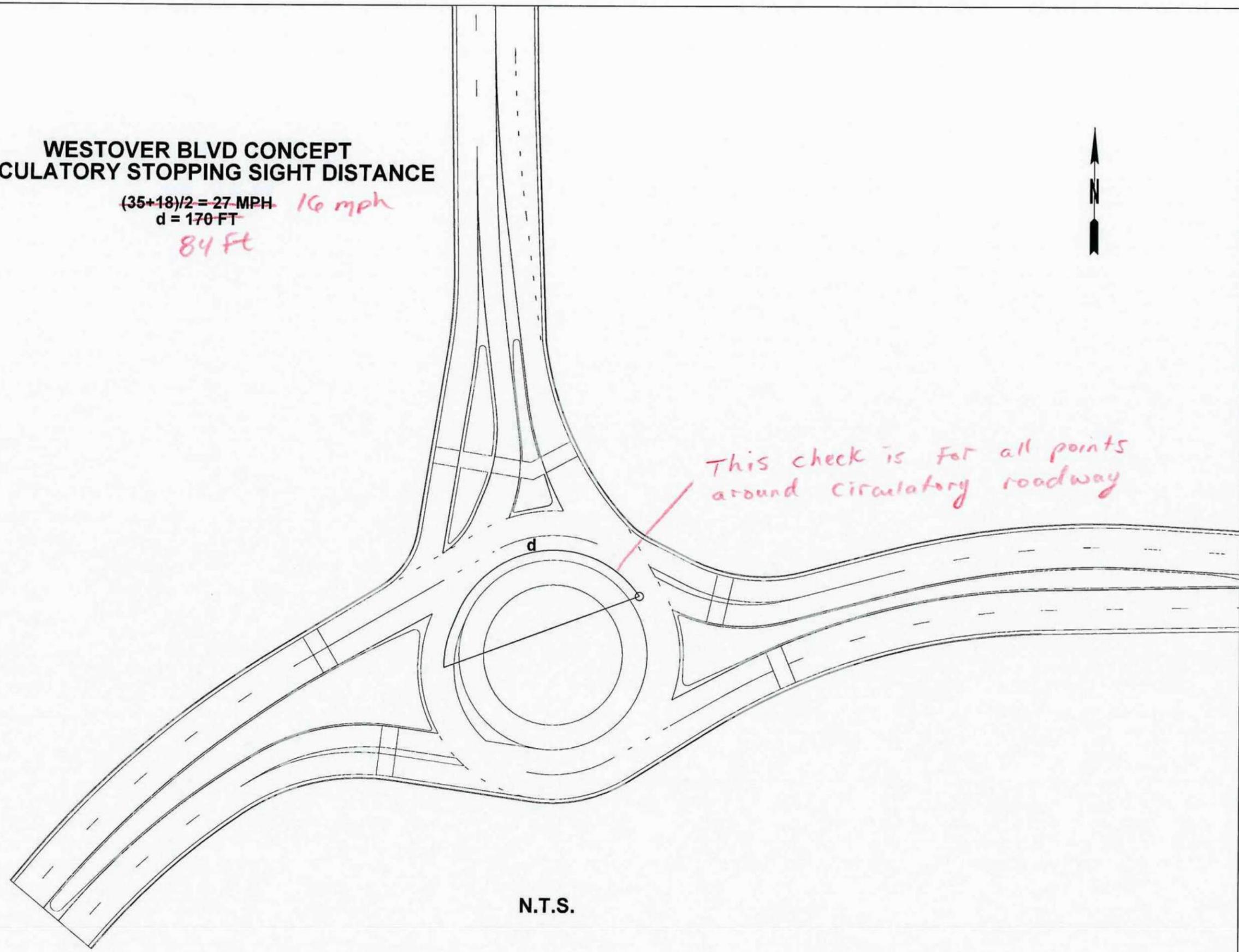


SCALE IN FEET



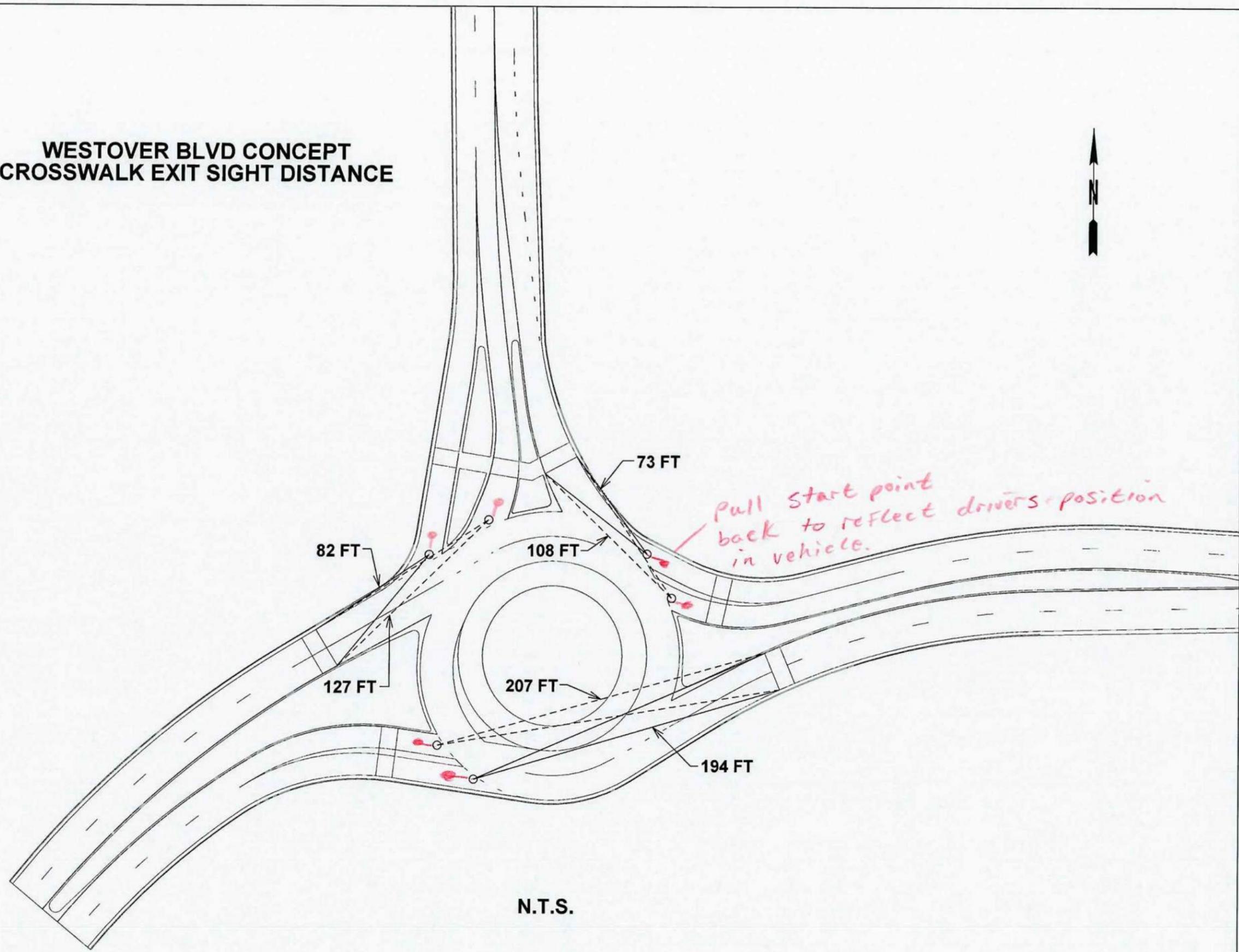
**WESTOVER BLVD CONCEPT
CIRCULATORY STOPPING SIGHT DISTANCE**

~~(35+18)/2 = 27 MPH~~ *16 mph*
~~d = 170 FT~~
84 ft



N.T.S.

**WESTOVER BLVD CONCEPT
CROSSWALK EXIT SIGHT DISTANCE**



N.T.S.

Flexible Pavement Design Analysis

| | | | |
|----------------------------|-------------------------|--------------------|-------------------------|
| PI Number | 0010571 | County(s) | Dougherty |
| Project Number | | Design Name | Westover Blvd Extension |
| Project Description | Westover Blvd Extension | | |

| Traffic Data (AADTs are one-way) | | | | | Miscellaneous Data | | |
|----------------------------------|------|--------------------------|-------|------------------------|--------------------|----------------------------------|-----|
| Initial Design Year | 2020 | Initial AADT, VPD | 7,825 | 24 Hour Truck % | 10.80 | Lanes in one direction | 2 |
| Final Design Year | 2040 | Final AADT, VPD | 9,550 | SU Truck % | 9.20 | Curb & Gutter/Barrier | Yes |
| | | Mean AADT, VPD | 8,688 | MU Truck % | 1.60 | | |

| Design Data | | | | | |
|--------------------------------------|-------|---------------------------------|------|-------------------------------|------|
| Lane Distribution Factor (%) | 70.00 | Soil Support Value | 3.50 | Single Unit ESAL | 0.40 |
| Terminal Serviceability Index | 2.50 | Regional Factor | 1.50 | Multiple Unit ESAL | 1.50 |
| | | User Defined 18-KIP ESAL | 0.56 | Calculated 18-KIP ESAL | 0.56 |
| Non-Standard Value Comment | | | | | |

| Design Loading (Calculated 18-KIP ESAL) | | | | | |
|---|---------|-------------------|------------|-------------|------------|
| Mean AADT, VPD | LDF (%) | Vehicle Type | Volume (%) | ESAL Factor | Daily ESAL |
| 8,688 | 70.00 | Single Unit Truck | 9.20 | 0.40 | 224 |
| | | Multi Unit Truck | 1.60 | 1.50 | 146 |
| Total Daily ESALs | | | | | 370 |
| Total Design Period ESALs | | | | | 2,701,000 |

| 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 |
| | | 3.00 | 0.3000 | 0.90 |
| Course 4 | Graded Aggregate Base | 10.00 | 0.1600 | 1.60 |
| Required SN | 4.58 | Proposed pavement is 2.22% Underdesigned | | Proposed SN |
| | | | | 4.48 |

| | |
|-----------------------|--|
| Design Remarks | |
|-----------------------|--|

| | | |
|-----------------------|--------------------------------|---------------------------|
| Prepared By | David Fox Project Engineer | 11/5/2014 2:41 PM Date |
| Recommended By | Consultant Design Phase Leader | Date |
| Approved By | State Pavement Engineer | Date |

Flexible Pavement Design Analysis

| | | | |
|----------------------------|--|--------------------|--------------------|
| PI Number | 0010571 | County(s) | Dougherty |
| Project Number | | Design Name | Liberty Expressway |
| Project Description | Westover Blvd Extension (Liberty Expressway) | | |

| Traffic Data (AADTs are one-way) | | | | | Miscellaneous Data | | |
|----------------------------------|------|--------------------------|--------|------------------------|--------------------|----------------------------------|-----|
| Initial Design Year | 2020 | Initial AADT, VPD | 9,048 | 24 Hour Truck % | 14.50 | Lanes in one direction | 2 |
| Final Design Year | 2040 | Final AADT, VPD | 11,041 | SU Truck % | 7.00 | Curb & Gutter/Barrier | Yes |
| | | Mean AADT, VPD | 10,045 | MU Truck % | 7.50 | | |

| Design Data | | | | | |
|--------------------------------------|-------|---------------------------------|------|-------------------------------|------|
| Lane Distribution Factor (%) | 85.00 | Soil Support Value | 3.50 | Single Unit ESAL | 0.40 |
| Terminal Serviceability Index | 2.50 | Regional Factor | 1.50 | Multiple Unit ESAL | 1.50 |
| | | User Defined 18-KIP ESAL | 0.97 | Calculated 18-KIP ESAL | 0.97 |
| Non-Standard Value Comment | | | | | |

| Design Loading (Calculated 18-KIP ESAL) | | | | | |
|---|----------------|---------------------|-------------------|--------------------|-------------------|
| Mean AADT, VPD | LDF (%) | Vehicle Type | Volume (%) | ESAL Factor | Daily ESAL |
| 10,045 | 85.00 | Single Unit Truck | 7.00 | 0.40 | 240 |
| | | Multi Unit Truck | 7.50 | 1.50 | 961 |
| Total Daily ESALs | | | | | 1,201 |
| Total Design Period ESALs | | | | | 8,767,300 |

| Proposed Flexible Full Depth Pavement Structure | | | | |
|---|-----------------------|---|-------------------------------|-------------------------|
| Course | Material | Thickness (inches) | Structural Coefficient | Structural Value |
| Course 1 | 12.5 mm Superpave | 1.75 | 0.4400 | 0.77 |
| Course 2 | 19 mm Superpave | 2.75 | 0.4400 | 1.21 |
| | | 0.25 | 0.3000 | 0.08 |
| Course 3 | 25 mm Superpave | 4.00 | 0.3000 | 1.20 |
| Course 4 | Graded Aggregate Base | 12.00 | 0.1600 | 1.92 |
| Required SN | 5.42 | Proposed pavement is 4.57% Underdesigned | | Proposed SN |
| | | | | 5.18 |

| | |
|-----------------------|--|
| Design Remarks | |
|-----------------------|--|

| | | |
|-----------------------|---------------------------------------|-------------------|
| Prepared By | _____ | 11/5/2014 2:19 PM |
| | David Fox Project Engineer | Date |
| Recommended By | _____ | |
| | Consultant Design Phase Leader | Date |
| Approved By | _____ | |
| | State Pavement Engineer | Date |

Initial Concept Team Meeting (ICTM) on P.I. 0010571

Project & PI: N. Westover Blvd., from Albany Mall to Ledo Rd., P.I. 0010571
Location: GDOT District 4 (Tifton) Office Assembly Room, 710 W. 2nd St., Tifton, GA 31794
Moderator: Gerald E. McDaniel, Project Manager
Design Firm: Croy Engineering, LLC
Date: 29 July 2014
Time: 10:00 AM
Attendees: TBD

- Introductions
- Project Description/Background: 0.19 Miles of New Construction of N. Westover Blvd., from the Albany Mall to Ledo Rd., Dougherty and Lee County
- Overview of Project
 - Project Limits
 - This project begins approximately 0.25 miles north of the intersection of N Westover Blvd and Dawson Road and ends at Ledo Rd.
 - Two layouts given in the handout and displayed were developed during the concept phase. Project termini, construction limits and ROW/easement are subject to change during the conceptual/design development.
 - N. Westover Blvd. is posted at 35 mph.
 - Project Baseline Schedule/Timeline
 - Project is already behind baseline schedule, but is recoverable
 - Proposed ROW Authorization: 11/30/2016 (FY 17), MGMT ROW Date: 1/15/2017
 - Management LET Date: 7/15/2018
 - Management ROW Date: 1/15/2017
 - Public Hearing Open House (PHOH) should be scheduled for December 2014
 - Concept Report Approval: 12/23/2014
 - Public Information Open House (PIOH): 2/9/2015
 - Environmental Document Approval: 11/9/2016
 - Preliminary Plans Submission and Review (PFPR): 9/26/2016
 - Right of Way (ROW) Plans Final Submission, Review and Approval: 11/30/2016
 - Right of Way Authorization: 12/30/2016
 - ROW Acquisition:
 - Final Plans Submission, Review and Approval (FFPR): 7/12/2017
 - Construction (CST) Funds Authorization: 5/31/2018
 - Bridge
 - Bridge required (both of the concepts) and to be designed in accordance with LFRD
 - Bridge shall be designed utilizing in-house personnel.
 - Final Bridge Plans should start one day after the BFI report is completed, and can begin one month prior to report completion.

- Design/Proposed Concept/Typical Section
 - Design shall be performed by Croy Engineering, LLC
 - The proposed typical section for the realigned N Westover Blvd consists of 2 lanes in each direction with a flush median.
 - Staging/traffic control
 - Drainage
 - Lighting

- Engineering Services
 - Value Engineering (VE) Study – N/A
 - Engineering Services Concerns

- Environmental (Croy Engineering, LLC)
 - NEPA specialist
 - Environmental work will be included in the design contract (Croy Engineering, LLC)
 - Type of Environmental Document: EA/FONSI; Anticipate an EA/FONSI (recommend 29 months for completion of the EA/FONSI) since this is a new overpass/roadway extension
 - History, Ecology, Other, etc.
 - Full Air & Noise assessments will be needed
 - No Section 4(f) anticipated
 - No Section 404 permit is needed
 - No Section 7 concerns
 - Environmental concerns/comments

- Geotechnical
 - ?? will complete geotechnical investigations
 - Pavement Evaluation will not be necessary due to lack of retained pavement.
 - Soil Survey

- Lighting

- Planning

- Right-of-Way
 - Approximately 7 parcels will be potentially affected for the N Westover Blvd overpass.
 - Approximately 3 parcels will be potentially affected for the N Westover Blvd underpass.
 - Based on discussions in the PTIP meeting, an 18 month schedule is recommended between ROW authorization and Letting due to type of project.
 - ROW concerns

- Survey Database
 - Full field survey will be completed by District 4 (Tifton) Location Office.
- Traffic
 - Base/Open Year and Design Year for traffic
 - The project team anticipates 2 new signalized intersection.
 - Traffic counts to be obtained by Croy Engineering, LLC.
 - Accident data for the Statewide Average should be coordinated with District 4 Office of Traffic Operations (OTO).
 - OTO concerns
- Utilities
 - Utility relocations are anticipated and should be, if all possible, constructed within DOT ROW and permanent easements, which should be acquired with the right to place utilities.
 - Known utility owners/facilities within the project limits
 - PID process
 - SUE
 - Utility concerns
- Critical Areas/Impacts
 - Minimal
- Project Coordination
 - Croy Engineering to provide monthly project status updates to the PM
 - Coordination w/GDOT and etc., please copy Gerald McDaniel on all project correspondence
- Floor open to further discussions/additional comments
- Adjourn

Concept Team Meeting Minutes-P.I. 0010571

Project & PI: N. Westover Blvd., from Albany Mall to Ledo Rd., P.I. 0010571
Location: GDOT District 4 (Tifton) 710 W. 2nd St., Tifton, GA 31794
Moderator: Justin Banks, Project Manager
Design Firm: Croy Engineering, LLC, Chris Rideout, Project Manager
Date: December 04, 2014
Time: 10:00 AM – 11:00 AM
Attendees:

- Introductions
- Project Description: Chris Rideout from Croy Engineering gave an overview of the project discussing the proposed layout and a roundabout alternative. He then proceeded to go over the draft of the concept report.
- The city of Albany will make a decision as to whether a roundabout would be acceptable for the intersection at N Westover Blvd after consulting with the city council.
- The city of Albany expressed their preference for lighting along the corridor especially under the bridge.
- Discussions of the proposed signal at Ledo Road resulted in the possibility that GDOT would not allow a signal that did not meet warrants.
- The signal warrants analysis for North Westover Boulevard Extension at Ledo Road requires further analysis. The planned Forrester Parkway project future traffic estimates may be helpful in the analysis. Croy to get project report and traffic volume data from Matt Inman of Lee County.
- Lane configuration at North Westover Boulevard and Ledo Road to evaluate if signalized:
 - Northbound: left, through, and right
 - Southbound: left, shared through and right
- Concern about left turns in and out from North Westover Boulevard to the Babcock's furniture store. It was suggested to install a small concrete median to preclude left turning movements.
- Consider dual left turns for WB Westover Blvd traffic at the proposed signalized intersection with Westover Boulevard Extension.
- Concern about traffic volumes and impact to operations of 2 northbound North Westover Boulevard lanes into one lane to turn right. For signalized T-intersection evaluate separate right turn lane. For roundabout, have bypass lane and lane through the roundabout that could be used.
- If North Westover Boulevard Extension at Ledo Road is stop controlled, consider dual rights and a shared left and through.

- Evaluate tying in Mall's perimeter road into roundabout. Initial feeling was that this would negatively impact roundabout operations.
- City of Albany discussed the possibility to relocate the existing above ground utilities along N Westover Blvd underground along the GDOT R/W along the Liberty Expressway. It was determined that approval from GDOT would be difficult due to the limited access.
- The District suggested that the future bridges be designed to accommodate future widening of Liberty Expressway.
- Justin Banks will provide the consultant with R/W estimates, updated cost estimates and utility owners.
- It is anticipated that the Liberty Pkwy bridges will be constructed in stages. The existing depressed median will be utilized to shift existing traffic accordingly.
- MS4 requirements were discussed. The District requested a low-cost maintenance solution.

A RESOLUTION
ENTITLED *15-R106*

A RESOLUTION SUPPORTING A ROUNDABOUT AT THE
INTERSECTION OF N. WESTOVER BLVD. AND THE
WESTOVER EXTENSION; REPEALING PRIOR RESOLUTIONS
IN CONFLICT AND FOR OTHER PURPOSES.

WHEREAS, the Georgia Department of Transportation (GDOT) is in the design phase of the Westover Extension Project connecting N. Westover Blvd. to Ledo Road; and

WHEREAS, the Nottingham Way Alternative Corridor Study showed that the Westover Extension scenario provided the most significant decreases in traffic along Nottingham Way generated between the Westover Blvd./Liberty Expressway Eastbound on-ramp and Ledo Road; and

WHEREAS, GDOT has requested input from the City as to whether the City will support a roundabout at the intersection of N. Westover Blvd. and the Westover extension; and

WHEREAS, the City's Engineering Department recommends proceeding with the roundabout design,

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of the City of Albany, Georgia, and it is hereby resolved by authority of same as follows:

SECTION 1. This Commission does hereby support a roundabout at the intersection of N. Westover Blvd. and the Westover Extension.

SECTION 2. The Engineering Director is authorized and requested to furnish a copy of this Resolution to GDOT.

SECTION 3. All resolutions, or parts of resolutions, in conflict herewith are repealed.

Dorothy Hubbard
MAYOR

ATTEST:

Sanja Orbert
CITY CLERK

Adopted: *January 27, 2015*

Introduced By Commissioner:

Jimmie Postell

Date(s) read:

Jan 27, 2015

MEETING SIGN-IN SHEET

Project: 0610571 UDNLGPT MEETING

Meeting Date: 12/4/14

Facilitator: Justin Banks

Place/Room: 2P2W

| Name | Company | Phone | E-Mail |
|----------------|-----------------|--------------|----------------------|
| Justin Banks | GDOT/OPD | 404-631-1153 | jubanks@dot.ga.gov |
| SCOTT PURVIS | GDOT - Tools | 229-386-3435 | spurvis@dot.ga.gov |
| GENO HASTY | GDOT - Tools | 229-386-3435 | ghasty@dot.ga.gov |
| Cliff Webb | GDOT - Area 5 | 229-430-4198 | cwebb@dot.ga.gov |
| Bill Cooper | KCT-/GDOT | 229-391-5522 | BiCooper@dot.ga.gov |
| Van Mason | GDOT - Traffic | 229-386-3435 | VMason@dot.ga.gov |
| Matthew Inman | Lee County | 229-439-2249 | Matt.inman@lee.ga.us |
| Brent Thomas | GDOT - Project | 229-386-3300 | bthomas@dot.ga.gov |
| Tim Warren | GDOT UTILITIES | 229-386-3288 | twarren@dot.ga.gov |
| Shane Pridgen | GDOT UTILITIES | 229-391-2511 | spridgen@dot.ga.gov |
| William Eastin | GDOT - Planning | 404-631-1810 | weastin@dot.ga.gov |
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MEETING SIGN-IN SHEET

Project: 0010571 CONCEPT MEETING

Meeting Date: 12/4/14

Facilitator: Justin Banks

Place/Room: TIFON

| Name | Company | Phone | E-Mail |
|---|------------------|--------------|------------------------------|
| Justin Banks | GDOT/OPD | 404-631-1153 | jubanks@dot.ga.gov |
| David Fox | CROY Engineering | 770-971-5407 | dfox@croyengineering.com |
| Dan Dobry | Croy Engineering | 770/971-5407 | ddobry@croyengineering.com |
| CHRIS RIDEOUT | CROY ENGINEERING | 770-570-8901 | CRIDEOUT@CROYENGINEERING.COM |
| Ken Breedlove | City of Albany | 229-886-6955 | KBreedlove@dougherty.ga.us |
| John Shepherd | " | " | jshepherd@dougherty.ga.us |
| BRUCE MARLES DIRECTOR OF ENGINEERING | CITY OF ALBANY | 229-883-6965 | kmarples@albany.ga.us |
| LEE DANIEL | CITY OF ALBANY | 229-883-8330 | ledaniel@albany.ga.us |
| JOE W. SNYFFIELD | GDOT - TIFTON | 229-386-3200 | josnyffield@dot.ga.gov |
| Jennifer Newton | DARTSM PD | 229-446-2730 | jnewton@albany.ga.us |
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