



Interoffice Memo  
Office of Design Policy & Support

DATE: 10/22/2021

FILE: P.I.# 0002525  
Cherokee County / GDOT District 6 - Cartersville  
Ball Ground Truck Bypass FM SR 5 BU @ Howell Bridge Rd TO SR 372  
SO/Ball Ground

FROM: *Dave Peters*  
*for* R. Christopher Rudd, PE, 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  
Joe Carpenter, Director of P3  
Albert Shelby, Director of Program Delivery  
Carol Comer, Director, Division of Intermodal  
Darryl VanMeter, Assistant Director of P3/State Innovative Delivery Administrator  
Matthew Markham, Deputy Director of Planning  
Kim Nesbitt, Program Delivery Administrator  
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Donn Digamon, State Bridge Engineer  
Andrew Heath, State Traffic Engineer  
Angela Robinson, Financial Management Administrator  
Erik Rohde, State Project Review Engineer  
Patrick Allen, State Materials Engineer  
Nick Fields, State Utilities Administrator  
Eric Conklin, State Transportation Data Administrator  
Attn: Systems & Classification Branch  
Benny Walden, Statewide Location Bureau Chief  
Ed David Adams, State Safety Program Manager  
Grant Waldrop, District Engineer  
David Acree, District Preconstruction Engineer  
Jun Birnkammer, District Utilities Manager  
John Hightower, Project Manager  
BOARD MEMBER - 11th Congressional District



# Project Concept Report

Project Type: New Location Roadway P.I. Number: 0002525  
 GDOT District: 6 County: Cherokee  
 Federal Route Number: N/A State Route Number: N/A  
 Project Number: N/A

This project proposes a Truck Bypass around the South side of the City of Ball Ground in Cherokee County. The Bypass is proposed from Howell Bridge Road/SR 5 to SR 372 in an easterly direction. ~OB

**Submitted for approval:** *Thomas M. Crochet* \* *Concept Report update received 9/13/21*

|   |                   |
|---|-------------------|
| <i>Thomas M. Crochet</i><br>Thomas M. Crochet PE, PTOE VHB    | 3/1/2021<br>Date  |
| <i>Cherokee County</i><br>Cherokee County                     | 3/1/2021<br>Date  |
| <i>John Hightower</i><br>State Program Delivery Administrator | 4/21/2012<br>Date |
| <i>John Hightower</i><br>GDOT Project Manager                 | 4/16/2021<br>Date |

**Recommendation for approval:** \* *Recommendations are on file ~ DRP*

|   |                   |
|---|-------------------|
| * <i>Eric Duff</i><br>State Environmental Administrator | 6/25/2021<br>Date |
| * <i>Chris Raymond</i><br>State Traffic Engineer        | 5/7/2021<br>Date  |
| * <i>Joshua Taylor</i><br>Project Review Engineer       | 6/25/2021<br>Date |
| * <i>Marcela Coll</i><br>State Utilities Engineer       | 6/28/2021<br>Date |
| * <i>Grant Waldrop</i><br>District Engineer             | 5/7/2021<br>Date  |
| * <i>Donn Digamon</i><br>State Bridge Engineer          | 5/12/2021<br>Date |

- MPO Area: This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).
- Rural Area: This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

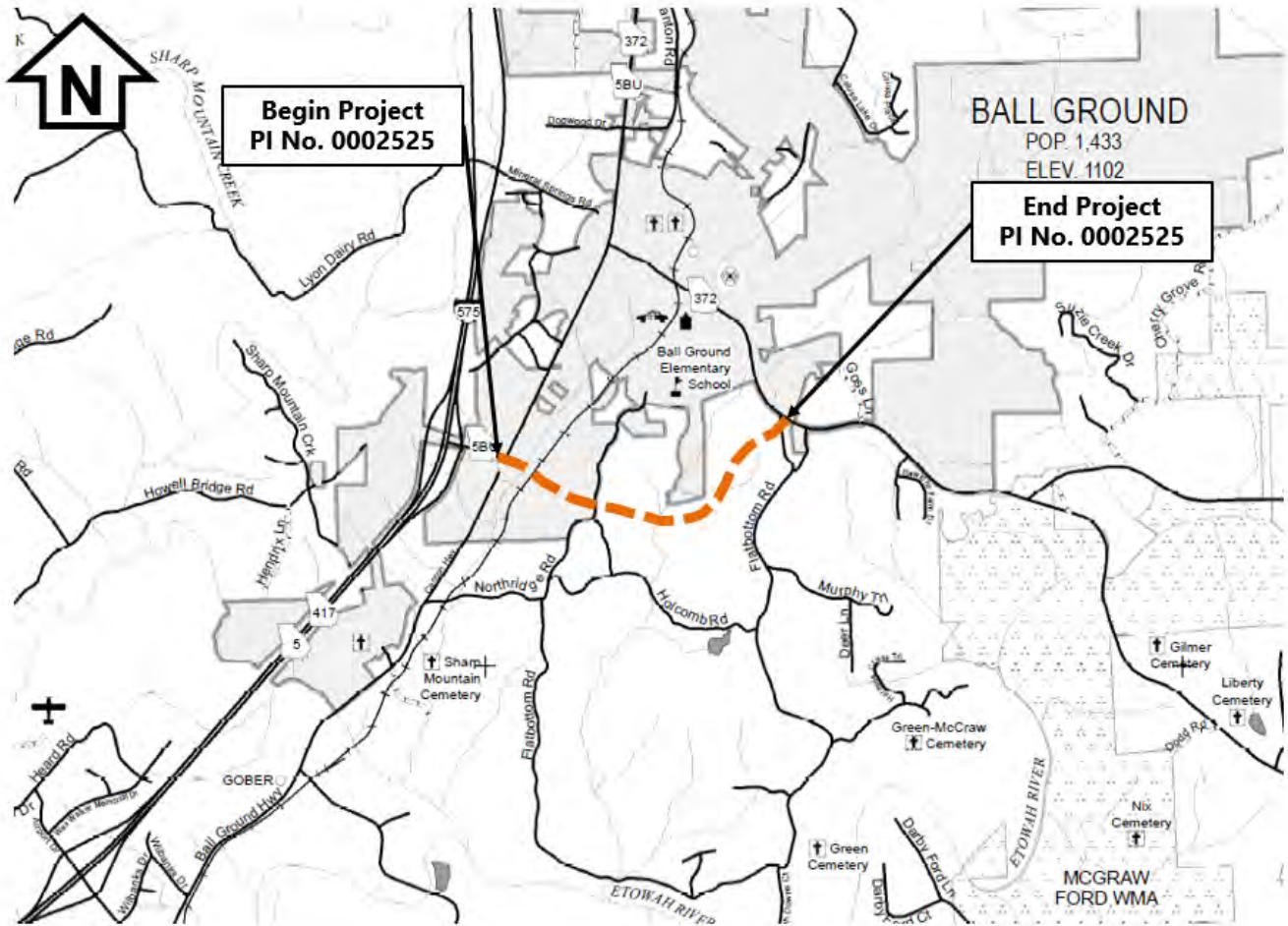
\* *Matt Markham* 9/20/2021  
 State Transportation Planning Administrator Date

\* *Recommendations were also received from the following: ~ DRP*  
 \* *Office of Intermodal: Alan C. Hood (5/6/21)*

## PROJECT LOCATION MAP

**PI No. 0002525**

**Ball Ground Truck Bypass FM SR 5 BU @ Howell Bridge Rd TO SR 372  
SO/Ball Ground**



## PLANNING AND BACKGROUND

**Prepared By:** VHB **Date:** 1/29/2021

**Project Justification Statement:** This Project Justification Statement was prepared by VHB and Cherokee County. The project was originated by Cherokee County due to increased truck traffic in the City of Ball Ground and was included in the 2016 Cherokee County Comprehensive Transportation Plan as Project ID CTP-016 SR-372 Spur (Ball Ground Bypass) - New Alignment from Canton Hwy/Howell Bridge Rd to SR-372. This project is also identified in the Atlanta Regional Commission TIP as Project ID CH-180. Major issues to be addressed by the project include reduction in crashes, correcting improper geometry, improving level of service, improving pedestrian safety, and reducing traffic on a corridor with pavement in poor condition. There were 17 total crashes in 2015, 15 total crashes in 2016, 21 total crashes in 2017, 18 total crashes in 2018, and 22 total crashes in 2019 for SR 372 in Ball Ground. The total crash rate per 100 MVM in Ball Ground from 2015 to 2019 is higher than statewide average for rural minor arterial facilities in those same years.

| Rate Description         |                   | Year |      |      |      |      |
|--------------------------|-------------------|------|------|------|------|------|
|                          |                   | 2015 | 2016 | 2017 | 2018 | 2019 |
| Fatal Crashes            | Segment           | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|                          | Statewide Average | 2.13 | 2.42 | 2.13 | 2.00 | 1.91 |
| Fatalities               | Segment           | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|                          | Statewide Average | 2.42 | 2.74 | 2.37 | 2.18 | 2.27 |
| Non-Fatal Injury Crashes | Segment           | 71   | 46   | 22   | 21   | 19   |
|                          | Statewide Average | 48   | 49   | 42   | 46   | 46   |
| Non-Fatal Injuries       | Segment           | 71   | 46   | 22   | 21   | 38   |
|                          | Statewide Average | 74   | 74   | 82   | 69   | 69   |
| All Crashes              | Segment           | 237  | 183  | 243  | 249  | 211  |
|                          | Statewide Average | 152  | 145  | 160  | 162  | 160  |

There are less than desirable geometrics on SR 372 through downtown Ball Ground including 9% to 10% grades and narrow lane widths. The level of service (LOS) would be F on SR 372 through downtown in the design year 2050 when analyzed with Synchro. Due to the urban and historic nature of downtown Ball Ground, a Truck Bypass would be desirable to improve pedestrian safety. In addition, the existing pavement in downtown Ball Ground is in poor condition and was not designed to handle the amount of trucks currently using the corridor.

The proposed project limits are Howell Bridge Road to SR 372 East of downtown Ball Ground. The functional classification for SR 372 is rural minor arterial and the functional classification for SR 5 BU/Howell Bridge Road is major collector. The intersection of Howell Bridge Road at SR 5 BU/Canton Highway/Ball Ground Highway currently operates as an all-way stop. The existing LOS is C/D (AM/PM). There is no existing intersection on the Eastern connection with SR 372. The project also has the potential to be included as a truck route on the state route system. Performance goals include a reduction in crashes in Ball Ground, improvement in LOS through downtown Ball Ground and reduced truck traffic in downtown area where pedestrians are present.

**Issues potentially affecting Project Justification:** Project sponsor(s) need to complete procedures in GDOT Policy No. 3625-1 Directive Setting Procedures for Revising State Highway System through GDOT Office of Transportation Data before Right of Way Authorization in order to satisfy the project justification. In summary, the policy provides guidance for removal of the existing SR 372 designation and adding the bypass roadway to the state route system in order to restrict truck movement thorough downtown City of Ball Ground as described in the project justification statement. The project sponsor(s) must commit to maintain the old state route system once the transfer has been completed.

**Existing conditions:** SR 372/Gilmer Ferry Road is a two-lane minor arterial roadway in Cherokee County, Georgia. The roadway is urban (10' lanes) with curb and gutter, sidewalk and roadside parking through the City of Ball Ground. The remainder of the corridor is rural (12' lanes) with grassed shoulders. Existing major intersections include Howell Bridge Road at SR5 BU/Canton Highway/ Ball Ground Highway. There is an overhead electrical transmission line and underground water and sewer in the project area.

**Other projects in the area:**

P.I. No. 0010649, CS 791/Valley Street from Depot Street to Howell Bridge Road (streetscape enhancement project for the City of Ball Ground; Completed December 2019)

P.I. No. 0005970, SR 372/Ball Ground Rd from Canton Highway to Cumming Highway (reconstruction/rehabilitation project; Long Range Program PE, ROW, CST in 2051)

P.I. No. 0009903, I-575 @ SR 5BU – SB & NB Ramps (roundabout at ramp intersections with Howell Bridge Road; PE in 2018) – Project Cancelled, No Build Concept Report Submitted 11/9/2020

**MPO:** Atlanta TMA      **TIP #:** N/A  
**Congressional District(s):** 11

**Federal Oversight:**    PoDI    Exempt    State Funded    Other - TBD

**Projected Traffic: SR 372**

24 HR T: 13%      Current Year (2018): 8,600  
Open Year (2030): 11,250      Design Year (2050): 16,700

Traffic Projections Performed by: VHB

Date approved by the GDOT Office of Planning: 8/15/2019

**Projected Traffic: Ball Ground Truck Bypass**

24 HR T: 31.5%      Current Year (2018): N/A  
Open Year (2030): 3,750      Design Year (2050): 5,450

Traffic Projections Performed by: VHB

Date approved by the GDOT Office of Planning: 8/15/2019

**Projected Traffic: SR 5BU**

24 HR T: 19.5%      Current Year (2018): 9,050  
Open Year (2030): 9,650      Design Year (2050): 14,400

Traffic Projections Performed by: VHB

Date approved by the GDOT Office of Planning: 8/15/2019

**Projected Traffic: Howell Bridge Road**

24 HR T: 15%      Current Year (2018): 9,050  
Open Year (2030): 11,500      Design Year (2050): 17,050

Traffic Projections Performed by: VHB

Date approved by the GDOT Office of Planning: 8/15/2019

**AASHTO Functional Classification (Mainline):** Minor Arterial (Ball Ground Truck Bypass & SR 372)  
Major Collector (SR 5BU/Howell Bridge Road)

**AASHTO Context Classification (Mainline):** Rural

**AASHTO Project Type (Mainline):** New Construction

**Is the project located on a NHS roadway?**       No       Yes

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

Warrants met:    None    Bicycle    Pedestrian    Transit

Pedestrian Warrants:

- Standard Pedestrian Warrants #1 is met for a portion of the project between Ball Ground Highway and the Northeastern Railroad (Patriot Rail & Ports).
- Pedestrian accommodations are necessary on a portion of the project due to the presence of existing sidewalks and commercial business in the area.

Note: Shared use paths shall be included for a portion between Ball Ground Highway and Northeastern Railroad (Patriot Rail & Ports) of the project.

Bicycle Warrants:

- Standard Bicycle Warrant #3 is met.
- There are bicycle travel generators along the project alignment including neighborhoods and there is potential for commercial development.

Note: Bikeable shoulders are provided along the new location roadway. Shared use paths will be included West of Northeastern Railroad (Patriot Rail & Ports) to accommodate pedestrians and bicycles.

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

**Pavement Evaluation and Recommendations**

Initial Pavement Evaluation Summary Report Required?  No  Yes  
 Feasible Pavement Alternatives:  HMA  PCC  HMA & PCC

Is the project located on a Special Roadway or Network?  No  Yes *Network*

Note: The proposed project is described as a Truck ByPass so has potential to be added to network. ~OB

Do the limits of the project include one or more signalized intersections?  No  Yes

Is Federal Aviation Administration coordination anticipated?  No  Yes

Note: The project is located approximately 1.5 miles from Cherokee County Airport (CNI), it only requires FAA coordination if onstruction equipment exceeds 200' above the ground level. It is outside approach and departure surfaces, and construction itself or the added lighting will not impact the airport ~OB

**DESIGN AND STRUCTURAL**

**Description of the proposed project:** The proposed project would construct a truck bypass south of downtown Ball Ground from the intersection SR 5 BU/Canton Highway and Howell Bridge Road to SR 372 near its intersection with Flatbottom Road. The project would construct a partial multilane roundabout at the existing all-way stop controlled intersection of SR 5 BU/Canton Highway and Howell Bridge Road as well as a single lane roundabout at the existing intersection of Howell Bridge Road and Valley Street. The project would construct a new minor leg stop controlled intersection where the proposed truck bypass intersects existing SR 372 at the eastern terminus of the project. The proposed typical section would consist of two 12-foot travel lanes. An 8-foot rural shoulder with a 6.5-foot paved bike shoulder will be constructed. A 21-foot urban shoulder consisting of 2.5-foot curb & gutter, 6-foot grass strip, and a 10-foot shared use path will be constructed within the vicinity of the proposed roundabouts. The project is located within the City of Ball Ground and Cherokee County. The project length is approximately 1.5 miles.

**Major Structures:**

| Structure  | Existing   | Proposed  |
|--|--|---|
| Bridge Northridge Road over Ball Ground Truck Bypass | There is no existing structure or roadway crossing here. | The proposed bridge will be approximately 80 feet above the Truck Bypass, 350 ft long and 29 ft wide with 11 ft lanes and 2 ft shoulders. |

Accelerated Bridge Construction (ABC) techniques anticipated:  No  Yes

Since this is a new location roadway accelerated bridge construction techniques are not anticipated.

**Mainline Design Features:**

| Ball Ground Truck Bypass & SR 372     |                   | Functional Classification: Minor Arterial |   |  |
|---------------------------------------|-------------------|---|---|--|
| Feature                               | Existing (SR 372) | *Policy                                   | Proposed (Bypass)   |  |
| <b>Typical Section:</b>               |                   |   |   |  |
| - Number of Lanes                     | 2                 |   | 2   |  |
| - Lane Width(s) (-ft)                 | 10 ft – 12 ft     | 12 ft                                     | 12 ft;<br>16 ft - 20 ft within roundabouts  |  |
| - Median Width (-ft) & Type           | N/A               | N/A                                       | 0 ft – 56 ft splitter island/median   |  |
| - Shoulder Width (-ft) (Outside)      | 0 ft – 12 ft      | 8 ft graded<br>6.5 ft paved               | 8 ft graded<br>6.5 ft paved   |  |
| - Border Area Width (-ft)             | N/A               | 10 ft – 16 ft                             | 21 ft   |  |
| - Cross Slope (%)                     | 2%                | 2%  | 2%  |  |
| - Outside Shoulder Slope (%)          | 0% - 50%          | Urban: 2%<br>Rural: 6%                    | Urban: 2%<br>Rural: 6%  |  |
| - Sidewalks (-ft) urban<br>rural      | 5'<br>N/A         | N/A<br>N/A                                | 10 ft path<br>N/A   |  |
| - Auxiliary Lanes (#lanes/-ft width)  | N/A               |   | (1) 12 ft lane approaching intersection   |  |
| - Bike Accommodations urban<br>rural  | N/A<br>N/A        | N/A<br>6.5 ft paved shoulder              | 10 ft path<br>6.5 ft paved shoulder   |  |
| Posted Speed (mph)                    | 45 mph            |   | 45 mph  |  |
| Design Speed (mph)                    | 45 mph            | 45 mph                                    | 45 mph outside of splitter islands; 25 mph inside splitter islands and roundabout |  |
| Minimum Horizontal Curve Radius (-ft) | 200 ft            | 643 ft                                    | 800 ft  |  |
| Maximum Superelevation Rate (%)       | 8%                | 6%  | 6%  |  |
| Maximum Grade (%)                     | 8%                | 7%  | 7%  |  |
| Access Control                        | none              | none                                      | partial   |  |
| Design Vehicle                        | WB-67             |   | WB-67   |  |
| Check Vehicle                         | N/A               |   | N/A   |  |
| Pavement Type                         | Asphalt           |   | Asphalt   |  |

\*According to current GDOT Design Policy if applicable

| SR 5 BU/Howell Bridge Road                   | <b>Functional Classification:</b> Major Collector |   |  |
|--|---|---|--|
| <b>Feature</b>                               | <b>Existing</b>                                   | <b>*Policy</b>                            | <b>Proposed</b>  |
| <b>Typical Section:</b>                      |   |   |  |
| - Number of Lanes                            | 2   |   | 2  |
| - Lane Width(s) (-ft)                        | 11 ft – 12 ft                                     | 11 ft – 12 ft                             | 12 ft;<br>16 ft – 20 ft within roundabouts   |
| - Median Width (-ft) & Type                  | N/A   | N/A                                       | 0 ft – 32 ft splitter island/median  |
| - Shoulder Width (-ft) (Outside)             | 0 ft – 8 ft graded<br>0 ft – 12 ft paved          | 6 ft – 8 ft graded<br>4 ft – 6.5 ft paved | 8 ft graded<br>6.5 ft paved  |
| - Border Area Width (-ft)                    | 10 ft – 30 ft                                     | 10 ft – 16 ft                             | 21 ft  |
| - Cross Slope (%)                            | 2%  | 2%  | 2%   |
| - Outside Shoulder Slope (%)                 | 0% - 10%  | Urban: 2%<br>Rural: 6%                    | Urban: 2%<br>Rural: 6%   |
| - Sidewalks (-ft)                            | 5 ft  | N/A                                       | 10 ft path   |
| Posted Speed (mph)                           | 45 mph  |   | 45 mph   |
| <b>Design Speed (mph)</b>                    | <b>45 mph</b>                                     | <b>45 mph</b>                             | <b>45 mph outside of splitter islands; 25 mph inside splitter islands and roundabout</b> |
| <b>Minimum Horizontal Curve Radius (-ft)</b> | <b>2000 ft</b>                                    | <b>643 ft</b>                             | None   |
| <b>Maximum Superelevation Rate (%)</b>       | <b>8%</b>   | <b>6%</b>                                 | None   |
| <b>Maximum Grade (%)</b>                     | <b>7%</b>   | <b>10%</b>                                | 7%   |
| <b>Access Control</b>                        | <b>Partial/permit</b>                             | <b>none</b>                               | <b>Partial/permit</b>  |
| Design Vehicle                               | WB-67   |   | WB-67  |
| Check Vehicle                                | N/A   |   | N/A  |
| Pavement Type                                | Asphalt   |   | Asphalt  |

\*According to current GDOT Design Policy if applicable



| Northridge Road                       | Functional Classification: Local Road and Street |                           |                           |
|---------------------------------------|--|---------------------------|---------------------------|
| Feature                               | Existing   | *Policy                   | Proposed                  |
| <b>Typical Section:</b>               |  |                           |                           |
| - Number of Lanes                     | 2  |                           | 2                         |
| - Lane Width(s) (-ft)                 | 10 ft  | 11 ft – 12 ft             | 11 ft                     |
| - Median Width (-ft) & Type           | N/A  | N/A                       | N/A                       |
| - Shoulder Width (-ft) (Outside)      | 0 ft – 4 ft                                      | 4 ft graded<br>2 ft paved | 4 ft graded<br>2 ft paved |
| - Border Area Width (-ft)             | N/A  | N/A                       | N/A                       |
| - Cross Slope (%)                     | 2%   | 2%                        | 2%                        |
| - Outside Shoulder Slope (%)          | 0% - 50%   | 6%                        | 6%                        |
| - Auxiliary Lanes (#lanes/-ft width)  | N/A  |                           | N/A                       |
| Posted Speed (mph)                    | 25 mph   |                           | 25 mph                    |
| Design Speed (mph)                    | 25 mph   | 25 mph                    | 25 mph                    |
| Minimum Horizontal Curve Radius (-ft) | 115 ft   | 144 ft                    | 200 ft                    |
| Maximum Superelevation Rate (%)       | 6%   | 6%                        | 5.8%                      |
| Maximum Grade (%)                     | 11%  | 15%                       | 11%                       |
| Access Control                        | none   | none                      | none                      |
| Design Vehicle                        | WB-67  |                           | WB-67                     |
| Check Vehicle                         | N/A  |                           | N/A                       |
| Pavement Type                         | Asphalt  |                           | Asphalt                   |

\*According to current GDOT Design Policy if applicable

**Design Exceptions/Design Variances to FHWA or GDOT Controlling Criteria anticipated:**

| FHWA or GDOT Controlling Criteria     | No                                  | Undetermined                        | Yes                      | DE or DV | Approval Date (if applicable) |
|---------------------------------------|-------------------------------------|-------------------------------------|--------------------------|----------|-------------------------------|
| 1. Design Speed                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |          |                               |
| 2. Design Loading Structural Capacity | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |          |                               |
| 3. Stopping Sight Distance            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |          |                               |
| 4. Horizontal Curve Radius            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |          |                               |
| 5. Maximum Grade                      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | DV       |                               |
| 6. Vertical Clearance                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |          |                               |
| 7. Superelevation Rate                | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |          |                               |
| 8. Lane Width                         | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |          |                               |
| 9. Cross Slope                        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |          |                               |
| 10. Shoulder Width                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |          |                               |

A design variance may be required for the grades approaching Northridge Road and the crossing with Northeastern Railroad (Patriot Rail & Ports).

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

| GDOT Standard Criteria               | No                                  | Undetermined                        | Yes                      | Approval Date (if applicable) |
|--------------------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------|
| 1. Access Control                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                               |
| 2. Shoulder Width                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                               |
| 3. Intersection Sight Distance       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                               |
| 4. Intersection Skew Angle           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                               |
| 5. Tangent Lengths on Reverse Curves | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                               |
| 6. Lateral Offset to Obstruction     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                               |
| 7. Rumble Strips                     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                               |

|                                    |                                     |                          |                          |  |
|------------------------------------|-------------------------------------|--------------------------|--------------------------|--|
| 8. Safety Edge                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| 9. Median Usage                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| 10. Roundabout Illumination Levels | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| 11. Complete Streets Warrants      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| 12. ADA Requirements in PROWAG     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| 13. GDOT Construction Standards    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |
| 14. GDOT Drainage Manual           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |  |

The vertical curvature approaching Northridge Road may not be suitable for intersection sight distance. Access control is proposed in the area and should eliminate the potential of any intersections within this area.

**VE Study anticipated:**  No  Yes  Completed: *Date*

**Lighting Required:**  No  Yes

Lighting is required at all proposed roundabouts.

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

A detour will likely be required for Northridge Road to build grade separated section of Truck Bypass.

If yes: Roadway type to be closed:  Local Road  State Route

Detour Route selected:  Local Road  State Route

District Concurrence w/Detour Route:  No/Pending  Received *Date*

**Transportation Management Plan [TMP] Required:**  No  Yes

If Yes: Project classified as:  Non-Significant  Significant

TMP Components Anticipated:  TTC  TO  PI

## INTERCHANGES AND INTERSECTIONS

### Interchanges/Major Intersections:

- Howell Bridge Road/Truck Bypass at Ball Ground Highway
  - Existing All-Way Stop
  - Proposed Partial Multilane Roundabout
- Howell Bridge Road/Truck Bypass at Valley Street
  - Existing Two-Way Stop
  - Proposed Single Lane Roundabout
- SR 372/Gilmer Ferry Road at Truck Bypass
  - Proposed Minor Stop Control

**Intersection Control Evaluation (ICE) Required:**  No  Yes

**Roundabout Concept Validation Required:**  No  Yes  Completed *Date*

Once funding is established, roundabout concept validation will be completed.

## UTILITY AND PROPERTY

**Railroad Involvement:** The Ball Ground Truck Bypass will have an at grade crossing of Georgia Northeastern Railroad (Patriot Rail & Ports). Railroad coordination will be required, and the following information was provided by the GDOT Office of Utilities Railroad Liaison:

- Operating Railroad: Georgia Northeastern Railroad Company (GNRR)
- Inv.# 340872C, Railroad Milepost OKX-0443.5

- Approximately 2 trains per day at this location, broken down into 2 trains from 6 am to 6 pm, no trains from 6 pm to 6 am and no switching trains.
- The maximum train speed is 10 mph.
- GNRR Railroad Contact is Michael J. Keleher, 904-646-8276, Michael.keleher@patriotrail.com

**Utility Involvements:**

- Cherokee County Water and Sewer Authority
- City of Ball Ground Water
- City of Ball Ground Sewer
- Georgia Power
- Amicalola Electrical Membership Corporation
- TDS Telecom
- AGL
- Elijah Telephone Company
- Windstream

**SUE Required:**       No       Yes       Undetermined

**Public Interest Determination Policy and Procedure recommended:**     No       Yes

**Right-of-Way (ROW):**      Existing width: 70 – 100 ft.      Proposed width: 100 – 220 ft.

Required Right-of-Way anticipated:     None       Yes       Undetermined

Easements anticipated:                     None       Temporary       Permanent \*       Utility       Other

\* Permanent easements include the right to place utilities.

|   |             |   |
|---|-------------|---|
| Anticipated total number of impacted parcels: | 32          |   |
| Displacements anticipated:                    | Businesses: | 0 |
|   | Residences: | 0 |
|   | Other:      | 0 |
| Total Displacements:                          | 0           |   |

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

**Impacts to USACE property anticipated:**     No       Yes       Undetermined

**ENVIRONMENTAL & PERMITS**

**Anticipated Environmental Document:** NEPA ~ EA-FONSI

**Level of Environmental Analysis:**

- The environmental considerations noted below are based on preliminary desktop or screening level environmental analysis and are subject to revision after the completion of resource identification, delineation, and agency concurrence.
- The environmental considerations noted below are based on the completion of resource identification, delineation, and agency concurrence.

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

**If yes, is the GDOT MS4 Permit anticipated to apply to all or part of this project?**       No       Yes

**Is Non-MS4 water quality mitigation anticipated?**     No                     Yes

Since outfalls along the project area are within the Etowah Basin Non-MS4 water quality measures would likely be required.

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

| Permit/Variance/Commitment/<br>Coordination Anticipated | No                                  | Yes                                 | Remarks                              |
|---|-------------------------------------|-------------------------------------|--------------------------------------|
| 1. U.S. Coast Guard Permit                              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                      |
| 2. Forest Service/NPS                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                      |
| 3. CWA Section 404 Permit                               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Regional Permit 34 anticipated       |
| 4. Tennessee Valley Authority Permit                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                      |
| 5. USACE Real Estate Outgrant                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                      |
| 6. Buffer Variance                                      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                                      |
| 7. Coastal Zone Management Coordination                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                      |
| 8. NPDES  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | GAR100002                            |
| 9. FEMA   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                      |
| 10. Cemetery Permit                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                      |
| 11. Other Permits                                       | <input type="checkbox"/>            | <input type="checkbox"/>            |                                      |
| 12. Other Commitments                                   | <input type="checkbox"/>            | <input type="checkbox"/>            |                                      |
| 13. Other Coordination                                  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Section 106 Under USACE, if required |

**Is a PAR required?**     No                     Yes                     Completed    *Date*

**Environmental Comments and Information:**

**NEPA/GEPA:** NEPA – EA FONSI

**Ecology:** The project area includes wetlands, streams, Water of the US and buffered state waters. A 404 permit and stream buffer variances are anticipated. The project may impact protected species. Suitable habit and potentially suitable habit were identified in the environmental scoping phase for several species. Aquatic Surveys are likely to be required.

**History:** The project corridor includes many potentially eligible historic properties. Many of the properties are large, agricultural properties, and several are located on opposite sites of the proposed roadway, making avoidance difficult. The project is anticipated to have an Adverse Effect on historic resources, and an Individual Section 4(f) analysis is anticipated to be required.

**Archeology:** There are no previously recorded sites in the study area. Due to the new location character of the project and undeveloped nature of the project area, the potential for archaeological resources is high.

**Air Quality:**

Is the project located in an Ozone Non-attainment area?     No                     Yes

Is a Carbon Monoxide hotspot analysis required?             No                     Yes

**Noise Effects:** A Type I Noise Assessment would be required due to the new location nature of the project. The project has potential for noise impacts to receivers.

**Public Involvement:** An online stakeholder meeting presenting several alternatives was held on 06/05/2020 with the comment period running through 07/3/2020. Additional public involvement will be needed to present the preferred alternative as well as any off-site detours.

**Major stakeholders:** GDOT, Cherokee County, City of Ball Ground, Cherokee Village Neighborhood, Hawkins Farm Neighborhood, Georgia Northeastern Railroad (Patriot Rail & Ports), Amicalola Electric Membership Corporation, Georgia Power, Ball Ground Historical Society, and the traveling public.

## CONSTRUCTION

**Issues potentially affecting constructability/construction schedule:** A detour will likely be required for Northridge Road to build grade separated section over the Truck Bypass. Rock blasting will likely be required for the construction near Northridge Road.

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

## COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

**Initial Concept Team Meeting:** June 26, 2019

**Concept Team Meeting:** February 5, 2021

**Other coordination to date:** A Scoping Study Closeout Meeting was held on July 13, 2020.

| Project Activity                            | Party Responsible for Performing Task(s) |
|---|--|
| Concept Development                         | Cherokee County/VHB                      |
| Design                                      | Cherokee County/Consultant (TBD)         |
| Right-of-Way Acquisition                    | Cherokee County/Consultant (TBD)         |
| Utility Coordination (Preconstruction)      | Cherokee County                          |
| Utility Relocation (Construction)           | Utility Owner                            |
| Letting to Contract                         | Cherokee County                          |
| Construction Supervision                    | Cherokee County                          |
| Providing Material Pits                     | Contractor                               |
| Providing Detours                           | Contractor                               |
| Environmental Studies, Documents, & Permits | Cherokee County/Consultant (TBD)         |
| Environmental Mitigation                    | Cherokee County                          |
| Construction Inspection & Materials Testing | Cherokee County                          |

| Project Cost Estimate Summary and Funding Responsibilities: |                     |                        |                     |                        |                     |              |
|---|---------------------|------------------------|---------------------|------------------------|---------------------|--------------|
|   | PE Activities       |                        | ROW                 | Reimbursable Utilities | CST*                | Total Cost   |
|   | PE Funding          | Section 404 Mitigation |                     |                        |                     |              |
| Date of Estimate:   | 1/7/2020            | 1/7/2020               | 6/24/2021           | 12/8/2020              | 5/24/2021           |              |
| Funded By:  | Local / Federal TBD | Local / Federal TBD    | Local / Federal TBD | Local / Federal TBD    | Local / Federal TBD |              |
| Programmed Cost:  | \$681,000           |                        | \$2,200,000         | N/A                    | \$8,000,000         | \$10,881,000 |
| Estimated Cost:   | \$2,454,500         | \$1,388,672            | \$4,339,000         | \$2,269,080            | \$18,105,592        | \$28,556,844 |
| Total Cost Difference:                                      |                     |                        |                     |                        |                     | \$17,675,844 |

\*CST Cost includes: Construction, Engineering and Inspection, Contingencies and Liquid AC Cost Adjustment. Railroad reimbursable costs are included in the estimated costs for PE and Reimbursable Utilities. There are currently no programmed cost for Right of Way, Utilities, or Construction.

Local Government is seeking state or federal funds. Should federal funds be programmed for the project, the Preferred Alternative (Alternative B) may result in Section 4(f) impacts and would either need to be refined or another alternative would need to be selected.

## ALTERNATIVES DISCUSSION

### Alternative selection:

|  |                     |                              |                     |
|--|---------------------|------------------------------|---------------------|
| <b>Preferred Alternative (Alternative B):</b> The preferred alternative would construct a 2-lane bypass south of downtown ball ground that passes the southern cul-de-sac of Cherokee Village Ct. The alignment would have a western terminus west of the intersection of Howell Bridge Rd and Ball Ground Highway/SR 5 and an eastern terminus at the existing intersection of SR 372 and Flatbottom Rd.  |                     |                              |                     |
| <b>Estimated Property Impacts:</b>   | <b>32</b>           | <b>Estimated Total Cost:</b> | <b>\$28,556,844</b> |
| <b>Estimated ROW Cost:</b>   | <b>\$4,339,000*</b> | <b>Estimated CST Time:</b>   | <b>24 Months</b>    |
| <b>Rationale:</b> The preferred alternative will reduce truck traffic in downtown Ball Ground and improve level of service. By providing an alternative route around the downtown area of Ball Ground, the proposed bypass is anticipated to reduce crash frequency and/or severity while improving pedestrian mobility in downtown Ball Ground. The preferred alternative accomplishes the goals of the project with the lowest total cost, minimal impacts to historic properties, and zero displacements. |                     |                              |                     |

\*Estimated ROW cost by design team.

|  |          |                              |          |
|--|----------|------------------------------|----------|
| <b>No-Build Alternative:</b> A truck bypass is not constructed.  |          |                              |          |
| <b>Estimated Property Impacts:</b>   | <b>0</b> | <b>Estimated Total Cost:</b> | <b>0</b> |
| <b>Estimated ROW Cost:</b>   | <b>0</b> | <b>Estimated CST Time:</b>   | <b>0</b> |
| <b>Rationale:</b> This alternative does not remove truck traffic from downtown Ball Ground, reduce traffic congestion, improve pedestrian facilities, or improve substandard existing geometry through downtown Ball Ground. This alternative was not selected as it does not accomplish the goals of the project. |          |                              |          |

|   |                     |                              |                     |
|---|---------------------|------------------------------|---------------------|
| <b>Alternative A:</b> A truck bypass would be constructed north of the preferred alternative. The proposed bypass would include an at grade intersection with Cherokee Village Ct. The alignment would have a western terminus west of the intersection of Howell Bridge Rd and Ball Ground Highway/SR 5 and an eastern terminus at the intersection of the proposed Ball Ground Bypass and SR 372 west of the existing intersection of SR 372 and Flatbottom Rd.   |                     |                              |                     |
| <b>Estimated Property Impacts:</b>  | <b>30</b>           | <b>Estimated Total Cost:</b> | <b>\$30,332,351</b> |
| <b>Estimated ROW Cost:</b>  | <b>\$4,941,000*</b> | <b>Estimated CST Time:</b>   | <b>24 Months</b>    |
| <b>Rationale:</b> This alternative would also reduce truck traffic in downtown Ball Ground and improve level of service. By providing a route around the downtown area of Ball Ground, this alternative is also anticipated to reduce crash frequency and/or severity while improving pedestrian mobility in downtown Ball Ground. However, this alternative would create 4 residential displacements and would have significant impacts to an existing residential neighborhood. This alternative would also impact historic properties at the intersection of the proposed Ball Ground Bypass and SR 372 and therefore was not selected as the preferred alternative. |                     |                              |                     |

\*Estimated ROW cost by design team.

|  |                     |                              |                     |
|--|---------------------|------------------------------|---------------------|
| <b>Alternative C:</b> A truck bypass would be constructed south of the preferred alternative. The proposed bypass would include an at grade intersection with Flatbottom Rd. The alignment would have a western terminus west of the intersection of Howell Bridge Rd and Ball Ground Highway/SR 5 and an eastern terminus at the intersection of the proposed Ball Ground Bypass and SR 372 east of the existing intersection of SR 372 and Flatbottom Trail.   |                     |                              |                     |
| <b>Estimated Property Impacts:</b>   | <b>31</b>           | <b>Estimated Total Cost:</b> | <b>\$34,011,713</b> |
| <b>Estimated ROW Cost:</b>   | <b>\$4,500,000*</b> | <b>Estimated CST Time:</b>   | <b>24 Months</b>    |
| <b>Rationale:</b> This alternative would also reduce truck traffic in downtown Ball Ground and improve level of service. By providing a route around the downtown area of Ball Ground, this alternative is also anticipated to reduce crash frequency and/or severity while improving pedestrian mobility in downtown Ball Ground. However, this alternative would have significant impacts to historic properties including splitting a historic farm east of Flatbottom Trail. This alternative would also create 1 residential displacement and due to the increased length of this bypass the total cost would be higher than the preferred alternative and therefore this alternative was not selected. |                     |                              |                     |

\*Estimated ROW cost by design team.

|  |                     |                              |                     |
|--|---------------------|------------------------------|---------------------|
| <b>Alternative D:</b> A truck bypass would be constructed south of the preferred alternative as well as south of an existing transmission line. The proposed bypass would include an at grade intersection with Flatbottom Rd but would avoid impacts to any historic properties. The alignment would have a western terminus west of the intersection of Howell Bridge Rd and Ball Ground Highway/SR 5 and an eastern terminus at the intersection of the proposed Ball Ground Bypass and SR 372 east of the existing intersection of SR 372 and Goss Ln. |                     |                              |                     |
| <b>Estimated Property Impacts:</b>   | <b>39</b>           | <b>Estimated Total Cost:</b> | <b>\$41,669,932</b> |
| <b>Estimated ROW Cost:</b>   | <b>\$5,575,000*</b> | <b>Estimated CST Time:</b>   | <b>24 Months</b>    |
| <b>Rationale:</b> This alternative would also reduce truck traffic in downtown Ball Ground and improve level of service. By providing a route around the downtown area of Ball Ground, this alternative is also anticipated to reduce crash frequency and/or severity while improving pedestrian mobility in downtown Ball Ground. However, the increased length of the bypass would result in a significant increase in overall project cost therefore this alternative was not selected.   |                     |                              |                     |

\*Estimated ROW cost by design team.


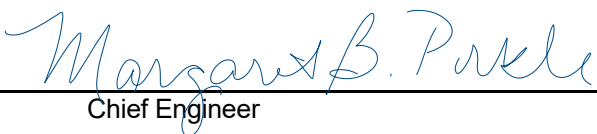
**Comments:** Variations of the above alternatives were evaluated and presented to the public as part of the stakeholder meeting. Additional alternatives are shown on the Alternatives Concept Layout. These alternatives were eliminated for similar reasons to those above including total cost, displacements, environmental impacts, and neighborhood impacts.

## LIST OF ATTACHMENTS/SUPPORTING DATA

1. Alternatives Layout and Matrix
2. Concept Layout
3. Typical sections
4. Detailed Cost Estimates:
  - a. Construction Estimate including Engineering and Inspection and Contingencies
  - b. Revisions to Programmed Costs forms, & Liquid AC Cost Adjustment forms
  - c. Right-of-Way (ROW Cost Estimate submitted to ROW Office on 1/20/21, approval pending)
  - d. Environmental Mitigation
  - e. Utilities & Railroad
5. Concept Utility Report
6. Crash summaries
7. Design Traffic diagrams
8. ICE Report(s) or Approved ICE Waiver
  - a. Stage 1 Screening Decision Record
  - b. Concurrence Memo
  - c. Stage 2 Alternative Selection Decision Record
9. Initial Concept Team Meeting Minutes

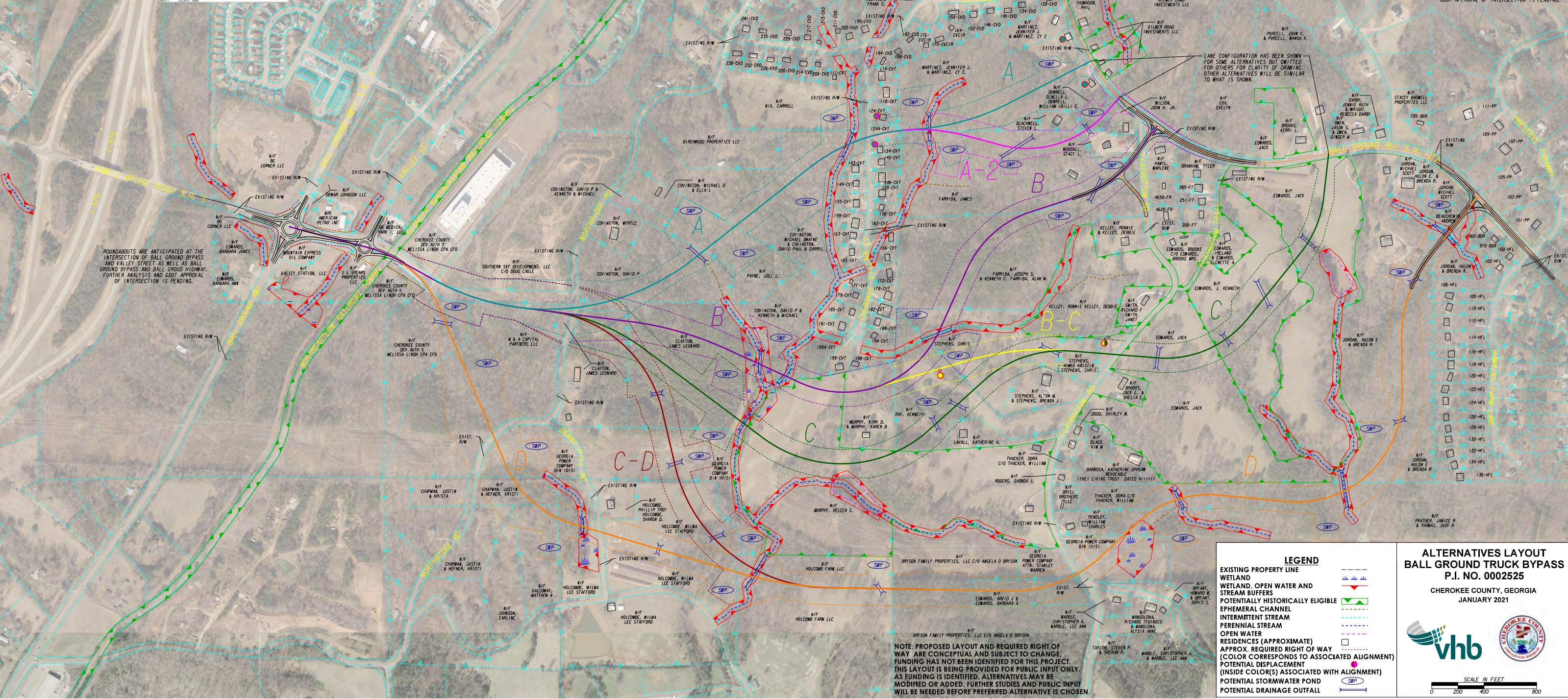
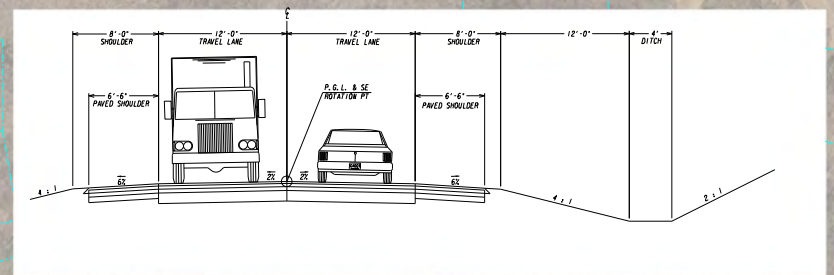
- 10. Scoping Study Closeout Meeting Minutes
- 11. Response Letter to Stakeholder Meeting Comments
- 12. Concept Team Meeting Minutes
- 13. Lighting Commitment Letter

## APPROVALS

|                 |   |                                    |
|-----------------|---|------------------------------------|
| <b>Concur:</b>  | <br>_____<br>Director of Engineering | <b>10/22/2021</b><br>_____<br>Date |
| <b>Approve:</b> | <br>_____<br>Chief Engineer         | <b>10/22/2021</b><br>_____<br>Date |



| NO. | OWNER NAME                      | NO. | OWNER NAME                      |
|-----|---------------------------------|-----|---------------------------------|
| 101 | DAVID P. & KENNETH M. COVINGTON | 101 | DAVID P. & KENNETH M. COVINGTON |
| 102 | DAVID P. & KENNETH M. COVINGTON | 102 | DAVID P. & KENNETH M. COVINGTON |
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| 119 | DAVID P. & KENNETH M. COVINGTON | 119 | DAVID P. & KENNETH M. COVINGTON |
| 120 | DAVID P. & KENNETH M. COVINGTON | 120 | DAVID P. & KENNETH M. COVINGTON |



STOP CONTROLLED INTERSECTION ANTICIPATED AT BALL GROUND BYPASS AND SR 372 WITH STOP CONTROL ON BYPASS AND FREE FLOWING ACCESS ON SR 372. FURTHER ANALYSIS AND GOVT APPROVAL OF INTERSECTION IS PENDING.

ROUNDABOUTS ARE ANTICIPATED AT THE INTERSECTION OF BALL GROUND BYPASS AND VALLEY STREET AS WELL AS BALL GROUND BYPASS AND BALL GROUND HIGHWAY. FURTHER ANALYSIS AND GOVT APPROVAL OF INTERSECTION IS PENDING.

LANE CONFIGURATION HAS BEEN SHOWN FOR SOME ALTERNATIVES BUT OMITTED FOR OTHERS FOR CLARITY OF DRAWING. OTHER ALTERNATIVES WILL BE SIMILAR TO WHAT IS SHOWN.

NOTE: PROPOSED LAYOUT AND REQUIRED RIGHT OF WAY ARE CONCEPTUAL AND SUBJECT TO CHANGE. FUNDING HAS NOT BEEN IDENTIFIED FOR THIS PROJECT. THIS LAYOUT IS BEING PROVIDED FOR PUBLIC INPUT ONLY. AS FUNDING IS IDENTIFIED, ALTERNATIVES MAY BE MODIFIED OR ADDED. FURTHER STUDIES AND PUBLIC INPUT WILL BE NEEDED BEFORE PREFERRED ALTERNATIVE IS CHOSEN.

**LEGEND**

- EXISTING PROPERTY LINE
- WETLAND
- WETLAND, OPEN WATER AND STREAM BUFFERS
- POTENTIALLY HISTORICALLY ELIGIBLE EPHEMERAL CHANNEL
- INTERMITTENT STREAM
- PERENNIAL STREAM
- OPEN WATER RESIDENCES (APPROXIMATE)
- APPROX. REQUIRED RIGHT OF WAY (COLOR CORRESPONDS TO ASSOCIATED ALIGNMENT)
- POTENTIAL DISPLACEMENT (INTERNAL COLOR(S) ASSOCIATED WITH ALIGNMENT)
- POTENTIAL STORMWATER POND
- POTENTIAL DRAINAGE OUTFALL

**ALTERNATIVES LAYOUT**  
**BALL GROUND TRUCK BYPASS**  
**P.I. NO. 0002525**  
 CHEROKEE COUNTY, GEORGIA  
 JANUARY 2021

**BALL GROUND TRUCK BYPASS ALTERNATIVES ANALYSIS MATRIX (Estimated Impacts & Costs)**

RFQ 2018-048, Cherokee County P.I. No. 0002525

December 2020

| Alternative No.   | A                   | A-2                 | B                   | B-C                 | C                   | C-D                 | D                   |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Displacements</b>  |                     |                     |                     |                     |                     |                     |                     |
| Residential   | 4                   | 2                   | 0                   | 2                   | 1                   | 0                   | 0                   |
| Commercial  | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| Church  | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| Other   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| <b>Proximity of proposed roadway to residences</b>  |                     |                     |                     |                     |                     |                     |                     |
| less than 25'   | 3                   | 1                   | 0                   | 1                   | 0                   | 0                   | 0                   |
| less than 50'   | 6                   | 3                   | 0                   | 2                   | 1                   | 0                   | 0                   |
| less than 100'  | 10                  | 7                   | 3                   | 5                   | 4                   | 3                   | 3                   |
| less than 200'  | 12                  | 11                  | 9                   | 11                  | 10                  | 5                   | 6                   |
| less than 300'  | 17                  | 16                  | 11                  | 13                  | 13                  | 13                  | 14                  |
| less than 400'  | 20                  | 20                  | 19                  | 17                  | 15                  | 29                  | 29                  |
| less than 500'  | 22                  | 24                  | 22                  | 23                  | 17                  | 33                  | 34                  |
| <b>Neighborhood Impacts</b>   |                     |                     |                     |                     |                     |                     |                     |
| Neighborhoods impacted  | 1                   | 1                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| <b>Required Right of Way</b>  |                     |                     |                     |                     |                     |                     |                     |
| Required R/W Area (acres)   | 40                  | 40                  | 43                  | 44                  | 47                  | 72                  | 76                  |
| <b>Wetlands and Waters Impacts</b>  |                     |                     |                     |                     |                     |                     |                     |
| Wetland Impact Area (acres)   | 0.00                | 0.00                | 1.36                | 1.36                | 0.08                | 0.82                | 0.96                |
| Open Water (Pond) Impact Area (acres)   | 0.00                | 0.00                | 0.00                | 0.00                | 0.14                | 0.00                | 0.00                |
| Stream Impact Length (feet)   | 632                 | 650                 | 1026                | 704                 | 413                 | 1874                | 2067                |
| Stream buffers (acres)  | 0.77                | 0.80                | 1.41                | 0.71                | 0.31                | 2.13                | 2.40                |
| <b>Historical properties impacts</b>  |                     |                     |                     |                     |                     |                     |                     |
| Historical properties impacted (each)   | 4                   | 2                   | 2                   | 6                   | 6                   | 3                   | 3                   |
| Severity of impacts   | Adverse/Moderate    | Not Adverse         | Adverse/Low         | Adverse/Severe      | Adverse/Severe      | Adverse/Low         | Not Adverse         |
| Section 4f  | Yes                 | No                  | Yes                 | Yes                 | Yes                 | No                  | No                  |
| <b>Roadway Lengths (miles)</b>  |                     |                     |                     |                     |                     |                     |                     |
| Bypass Length (SR 5 BU to SR 372)   | 1.28                | 1.32                | 1.47                | 1.73                | 1.81                | 2.30                | 2.30                |
| Comparative Travel Length Along Bypass and SR 372 (SR 5 BU to SR 372 at Hawkins Farm Lane/Preserve Parkway) | 2.02                | 2.00                | 2.08                | 2.08                | 2.16                | 2.41                | 2.41                |
| <b>Cost</b>   |                     |                     |                     |                     |                     |                     |                     |
| Construction  | \$18,690,000        | \$17,720,000        | \$16,980,000        | \$21,930,000        | \$22,040,000        | \$21,950,000        | \$26,120,000        |
| Right of Way  | \$4,941,000         | \$4,610,000         | \$4,235,000         | \$4,655,000         | \$4,500,000         | \$5,122,000         | \$5,575,000         |
| Utilities   | \$2,300,000         | \$2,300,000         | \$2,000,000         | \$2,600,000         | \$2,600,000         | \$2,500,000         | \$2,500,000         |
| Mitigation  | \$561,000           | \$578,000           | \$1,389,000         | \$1,178,000         | \$377,000           | \$1,910,000         | \$2,153,000         |
| <b>TOTAL COST</b>   | <b>\$26,492,000</b> | <b>\$25,208,000</b> | <b>\$24,604,000</b> | <b>\$30,363,000</b> | <b>\$29,517,000</b> | <b>\$31,482,000</b> | <b>\$36,348,000</b> |

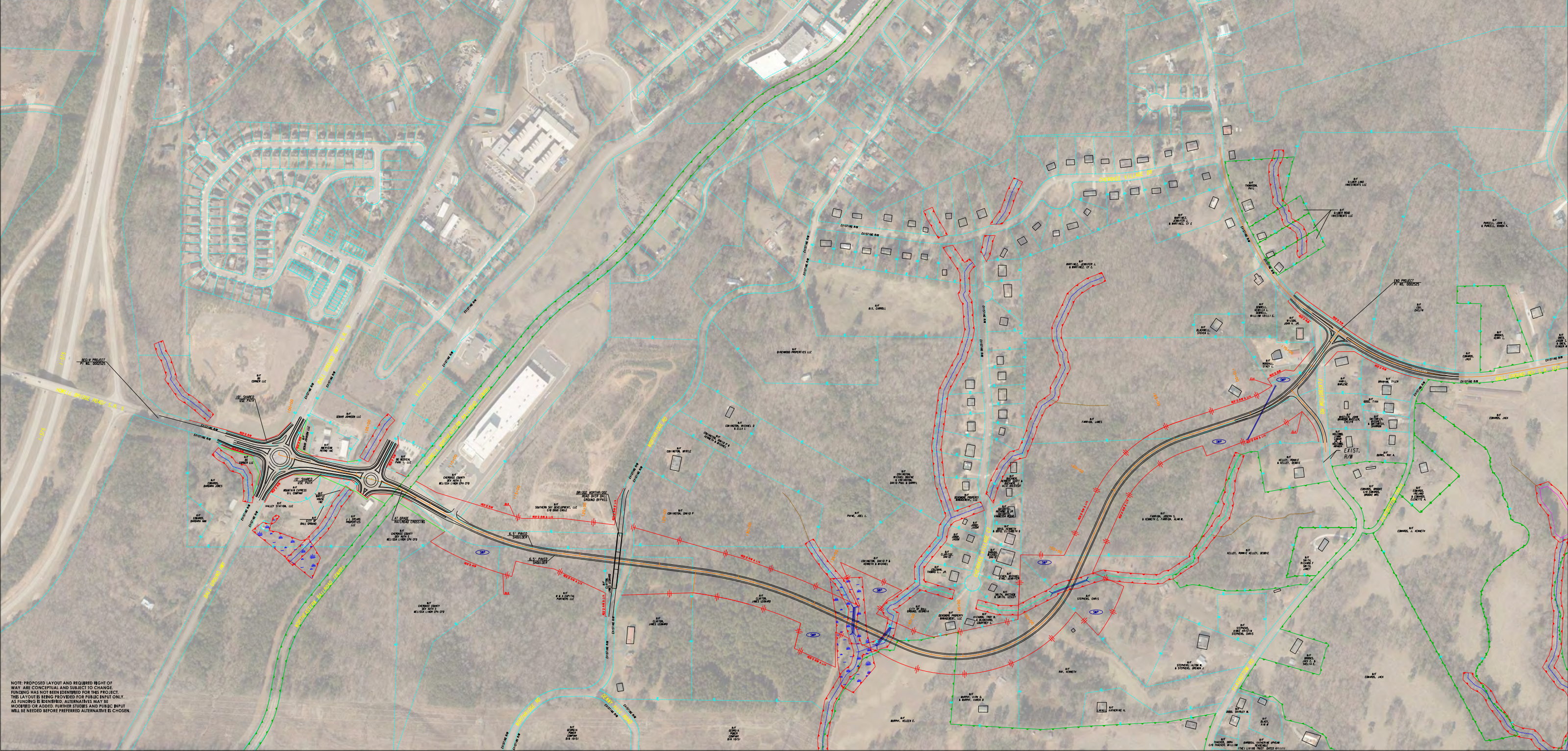
**LEGEND**

- EXISTING PROPERTY LINE
- WETLAND
- WETLAND, OPEN WATER AND STREAM BUFFERS
- POTENTIALLY HISTORICALLY ELIGIBLE
- EPHEMERAL CHANNEL
- PERENNIAL CHANNEL
- PERENNIAL STREAM
- OPEN WATER
- RESIDENCES (APPROXIMATE)
- APPROX. REQUIRED RIGHT OF WAY
- APPROX. REQUIRED RIGHT OF WAY & LIMIT OF ACCESS
- APPROX. PERMANENT EASEMENT
- POTENTIAL STORMWATER POND
- POTENTIAL DRAINAGE OUTFALL

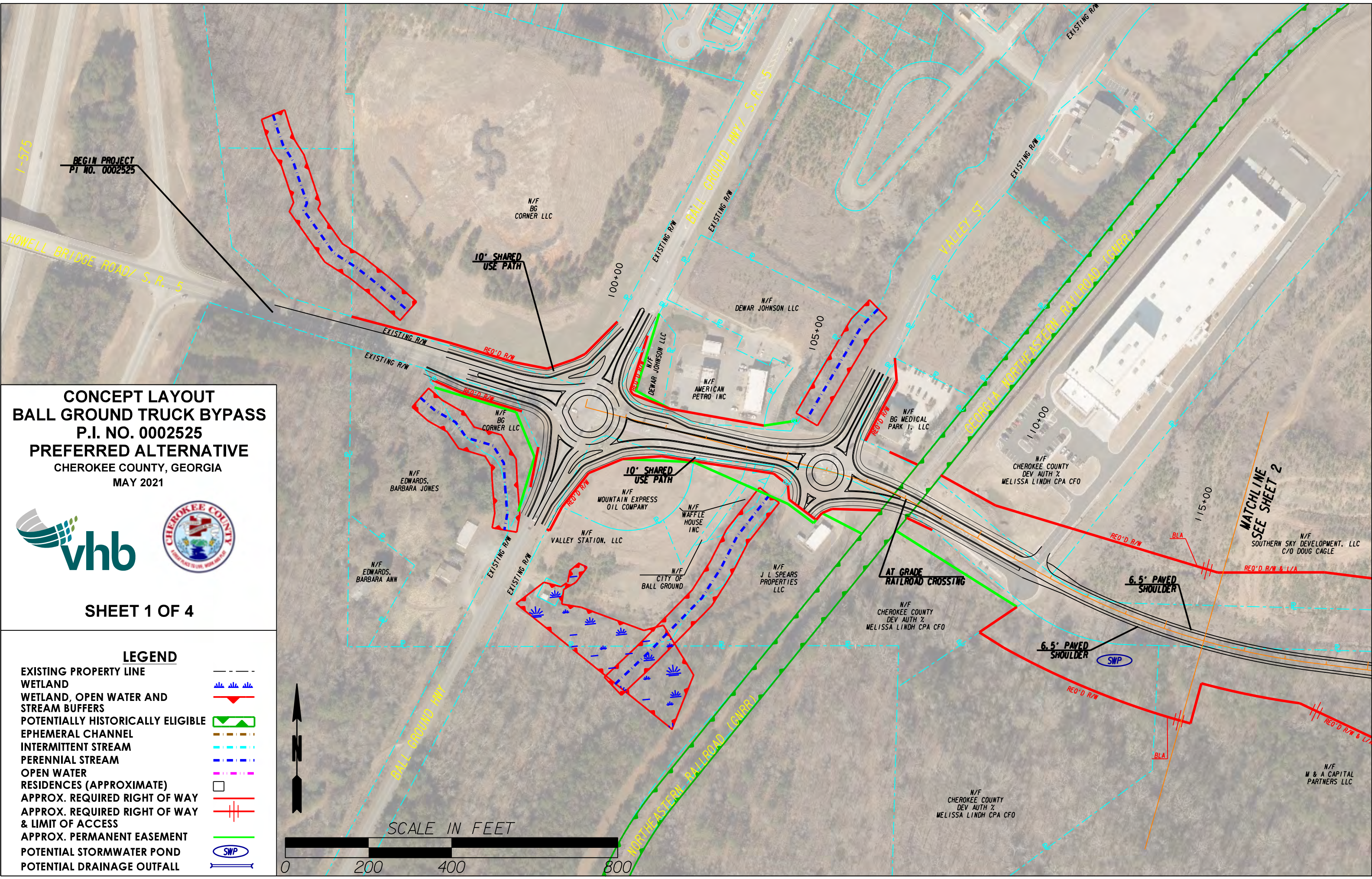
**CONCEPT LAYOUT  
BALL GROUND TRUCK BYPASS  
P.I. NO. 0002525  
PREFERRED ALTERNATIVE  
CHEROKEE COUNTY, GEORGIA  
MAY 2021**

**vhb**

SCALE: 1" = 100'



NOTE: PROPOSED LAYOUT AND REQUIRED RIGHT OF WAY ARE CONCEPTUAL AND SUBJECT TO CHANGE. FUNDING HAS NOT BEEN IDENTIFIED FOR THIS PROJECT. THIS LAYOUT IS BEING PROVIDED FOR PUBLIC INPUT ONLY. AS FUNDING IS IDENTIFIED, ALTERNATIVES MAY BE MODIFIED OR ADDED. FURTHER STUDIES AND PUBLIC INPUT WILL BE NEEDED BEFORE PREFERRED ALTERNATIVE IS CHOSEN.



BEGIN PROJECT  
PI NO. 0002525

HOWELL BRIDGE ROAD/ S.R. 5

BALL GROUND HWY/ S.R. 5

VALLEY ST

GEORGIA NORTHEASTERN RAILROAD CORP

**CONCEPT LAYOUT  
BALL GROUND TRUCK BYPASS  
P.I. NO. 0002525  
PREFERRED ALTERNATIVE  
CHEROKEE COUNTY, GEORGIA  
MAY 2021**



SHEET 1 OF 4

**LEGEND**

|   |  |
|---|--|
| EXISTING PROPERTY LINE                              |  |
| WETLAND   |  |
| WETLAND, OPEN WATER AND STREAM BUFFERS              |  |
| POTENTIALLY HISTORICALLY ELIGIBLE EPHEMERAL CHANNEL |  |
| INTERMITTENT STREAM                                 |  |
| PERENNIAL STREAM                                    |  |
| OPEN WATER  |  |
| RESIDENCES (APPROXIMATE)                            |  |
| APPROX. REQUIRED RIGHT OF WAY                       |  |
| APPROX. REQUIRED RIGHT OF WAY & LIMIT OF ACCESS     |  |
| APPROX. PERMANENT EASEMENT                          |  |
| POTENTIAL STORMWATER POND                           |  |
| POTENTIAL DRAINAGE OUTFALL                          |  |



MATCHLINE  
SEE SHEET 2

6.5' PAVED SHOULDER

6.5' PAVED SHOULDER

AT GRADE RAILROAD CROSSING

10' SHARED USE PATH

10' SHARED USE PATH

1-575

N/F BG CORNER LLC

N/F DEWAR JOHNSON LLC

N/F DEWAR JOHNSON LLC

N/F AMERICAN PETRO INC

N/F BG MEDICAL PARK I, LLC

N/F CHEROKEE COUNTY DEV AUTH Z MELISSA LINDH CPA CFO

N/F EDWARDS, BARBARA JONES

N/F MOUNTAIN EXPRESS OIL COMPANY

N/F WAFFLE HOUSE INC

N/F VALLEY STATION, LLC

N/F J L SPEARS PROPERTIES LLC

N/F EDWARDS, BARBARA ANN

N/F CITY OF BALL GROUND

N/F CHEROKEE COUNTY DEV AUTH Z MELISSA LINDH CPA CFO

N/F SOUTHERN SKY DEVELOPMENT, LLC C/O DOUG CAGLE

N/F CHEROKEE COUNTY DEV AUTH Z MELISSA LINDH CPA CFO

N/F M & A CAPITAL PARTNERS LLC

EXISTING R/W

100+00

105+00

110+00

115+00

BALL GROUND HWY

NORTHEASTERN RAILROAD CORP

SWP

SWP

BLA

BLA

REQ'D R/W

BLA

REQ'D R/W & L/A

REQ'D R/W

BLA

REQ'D R/W & L/A

REQ'D R/W

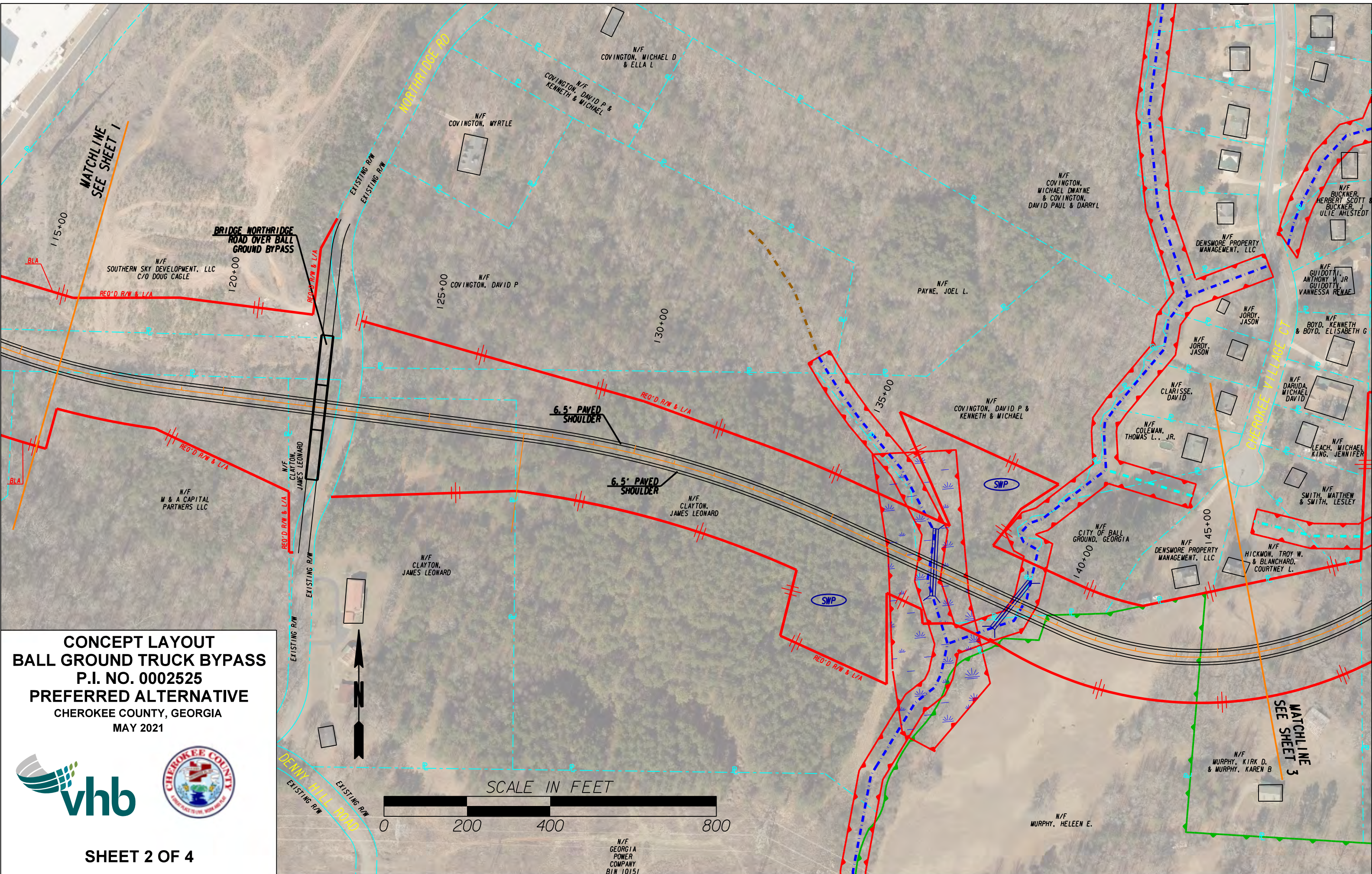
BLA

REQ'D R/W & L/A

REQ'D R/W & L/A

BLA

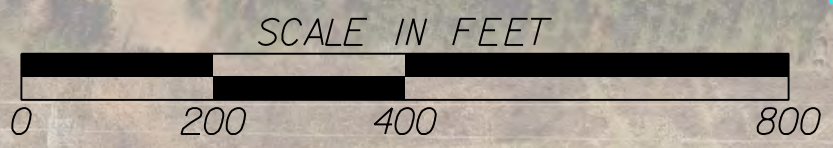
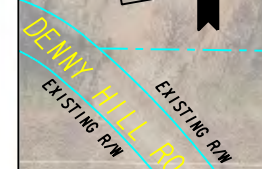
REQ'D R/W & L/A



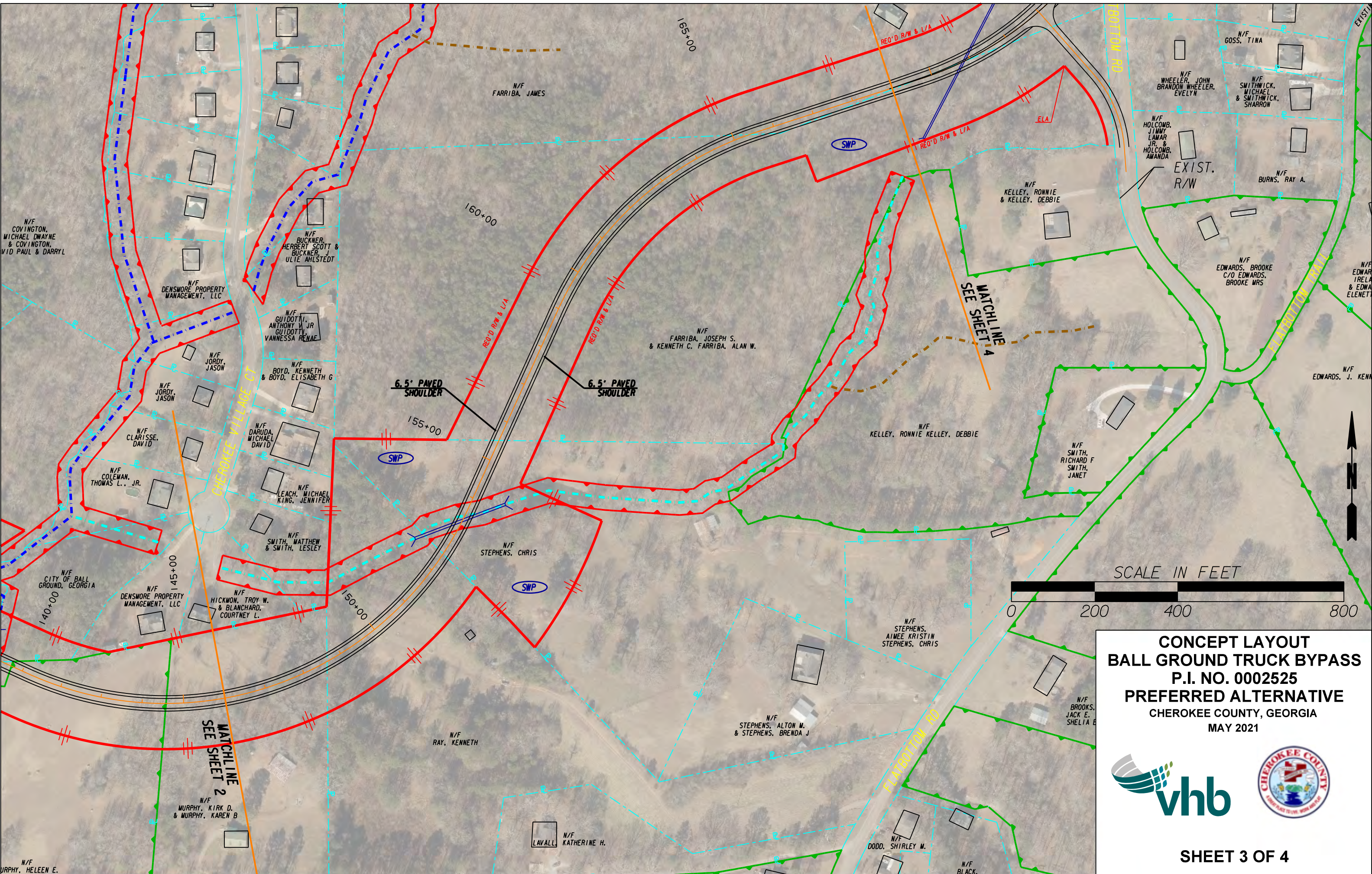
**CONCEPT LAYOUT**  
**BALL GROUND TRUCK BYPASS**  
 P.I. NO. 0002525  
**PREFERRED ALTERNATIVE**  
 CHEROKEE COUNTY, GEORGIA  
 MAY 2021



**SHEET 2 OF 4**



N/F  
 GEORGIA  
 POWER  
 COMPANY  
 BIN 10151



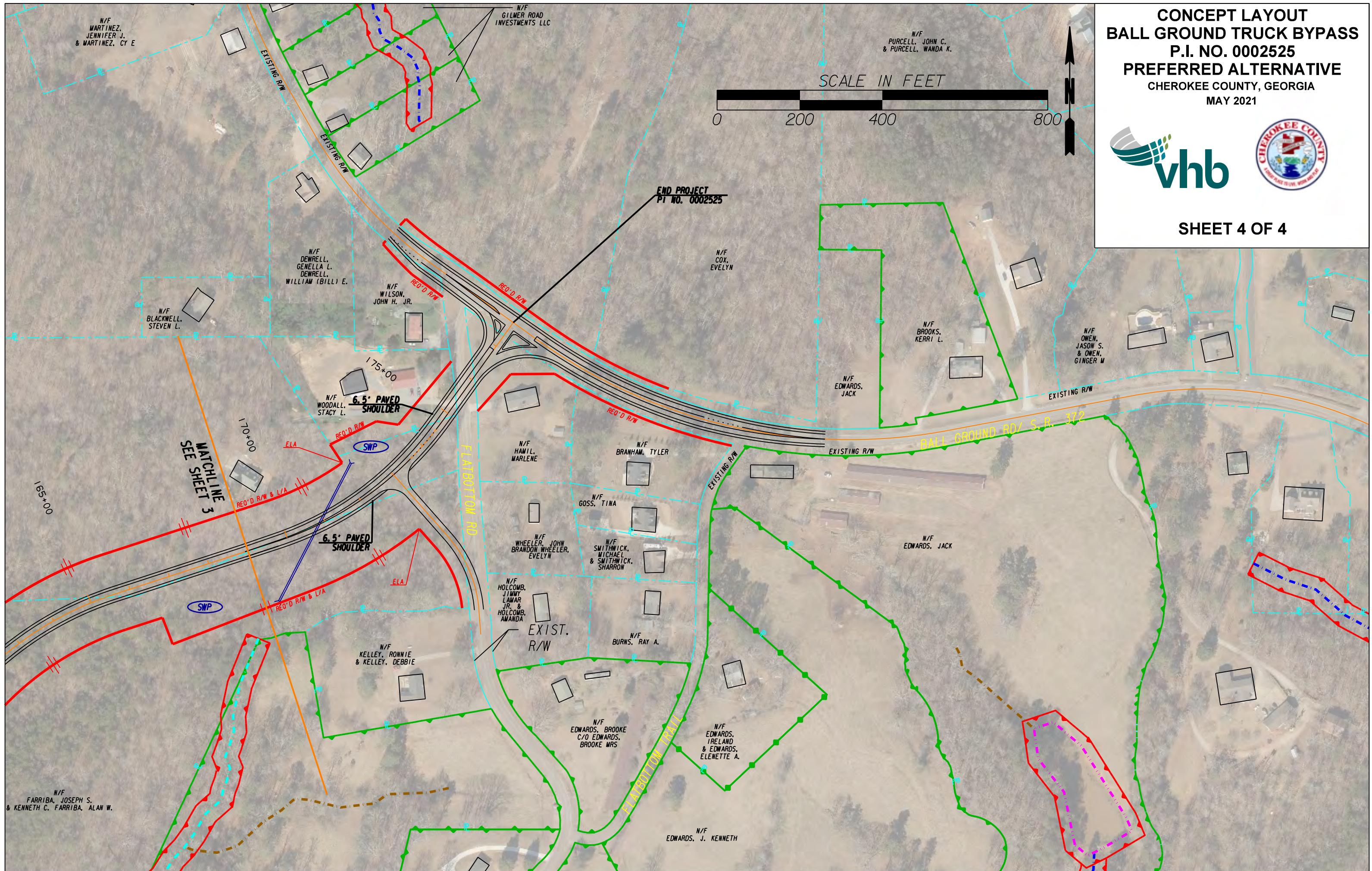
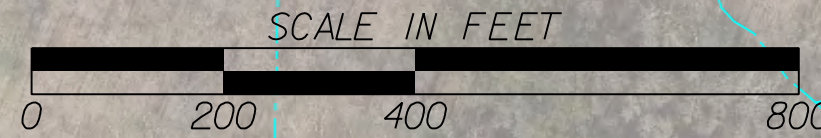
**CONCEPT LAYOUT  
 BALL GROUND TRUCK BYPASS  
 P.I. NO. 0002525  
 PREFERRED ALTERNATIVE  
 CHEROKEE COUNTY, GEORGIA  
 MAY 2021**



**CONCEPT LAYOUT  
BALL GROUND TRUCK BYPASS  
P.I. NO. 0002525  
PREFERRED ALTERNATIVE  
CHEROKEE COUNTY, GEORGIA  
MAY 2021**



**SHEET 4 OF 4**



END PROJECT  
P.I. NO. 0002525

MATCHLINE 3  
SEE SHEET

6.5' PAVED SHOULDER

N/F WOODALL, STACY L.

N/F WILSON, JOHN H. JR.

N/F DEWRELL, GENELLA L. DEWRELL, WILLIAM (BILL) E.

N/F BLACKWELL, STEVEN L.

N/F GILMER ROAD INVESTMENTS LLC

N/F PURCELL, JOHN C. & PURCELL, WANDA K.

N/F COX, EVELYN

N/F BROOKS, KERRI L.

N/F OWEN, JASON S. & OWEN, GINGER M

N/F EDWARDS, JACK

N/F HAMIL, MARLENE

N/F BRANHAM, TYLER

N/F GOSS, TINA

N/F WHEELER, JOHN BRANSON WHEELER, EVELYN

N/F SMITHWICK, MICHAEL & SMITHWICK, SHARON

N/F HOLCOMB, JIMMY LAMAR JR. & HOLCOMB, AMANDA

EXIST. R/W

N/F BURNS, RAY A.

N/F EDWARDS, JACK

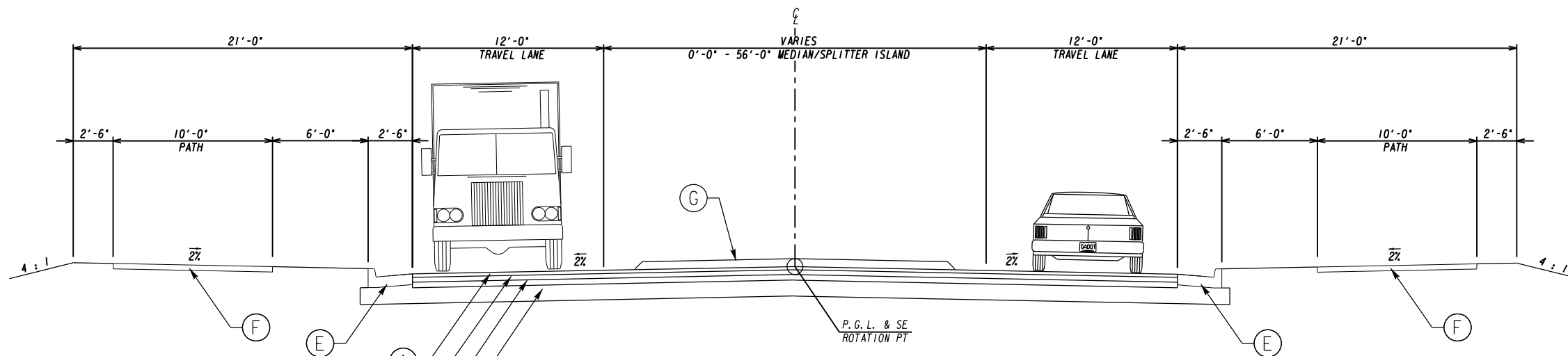
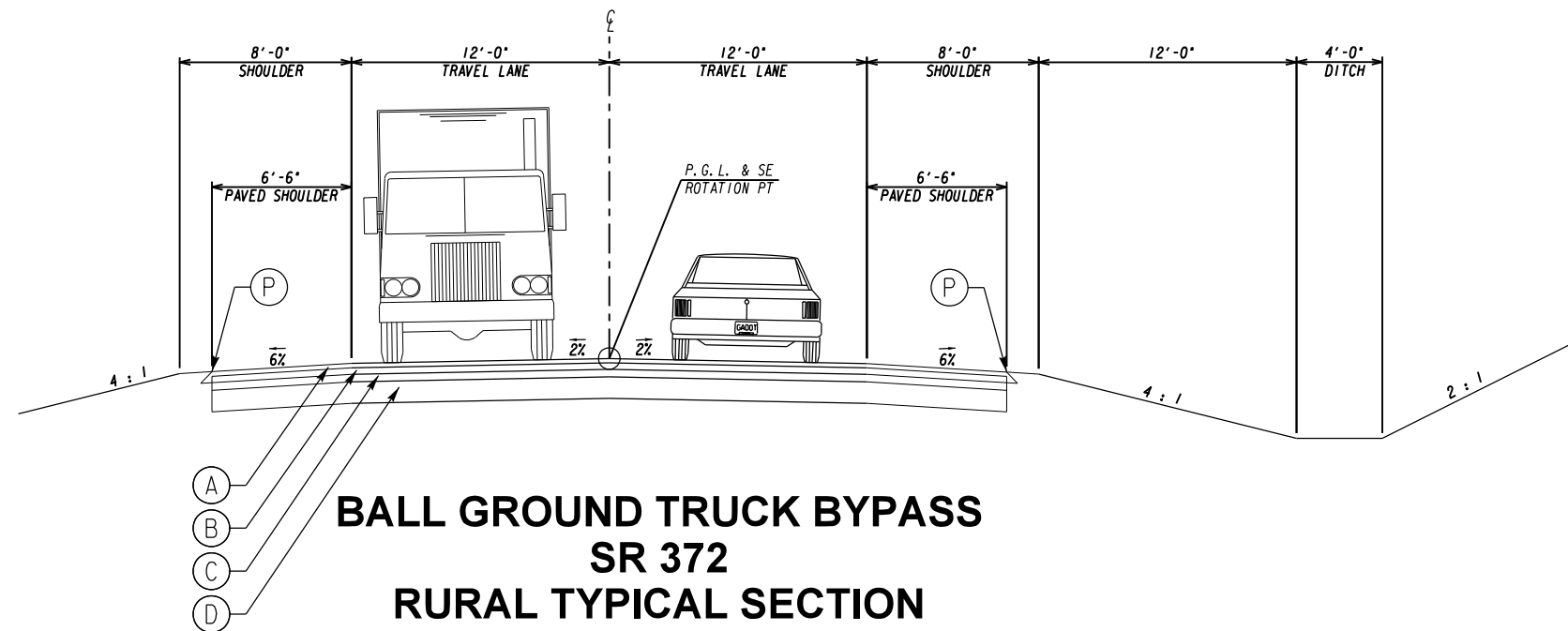
N/F KELLEY, RONNIE & KELLEY, DEBBIE

N/F EDWARDS, BROOKE C/O EDWARDS, BROOKE MRS

N/F EDWARDS, IRELAND & EDWARDS, ELENETTE A.

N/F FARRIBA, JOSEPH S. & KENNETH C. FARRIBA, ALAN W.

N/F EDWARDS, J. KENNETH



PAVEMENT DESIGN

- (A) 165 LB/SY RECYCLED ASPHALTIC CONCRETE  
12.5 MM SUPERPAVE, GP 2 ONLY, INCL  
BITUM MATL & H LIME
- (B) 220 LB/SY RECYCLED ASPHALTIC CONCRETE  
19 MM SUPERPAVE, GP 1 OR 2  
INCL BITUM MATL & H LIME
- (C) 770 LB/SY RECYCLED ASPHALTIC CONCRETE  
25 MM SUPERPAVE, GP 1 OR 2,  
INCL BITUM MATL & H LIME
- (D) 12" GRADED AGGREGATE BASE
- (E) GA DOT STD 9032B, TYPE 2  
CONCRETE CURB & GUTTER, 8" X 30"
- (F) CONCRETE SIDEWALK, 6 IN
- (G) RAISED CONC MEDIAN W/ TP 7 FACE
- (P) PAVEMENT EDGE TREATMENT GDOT DET P-7

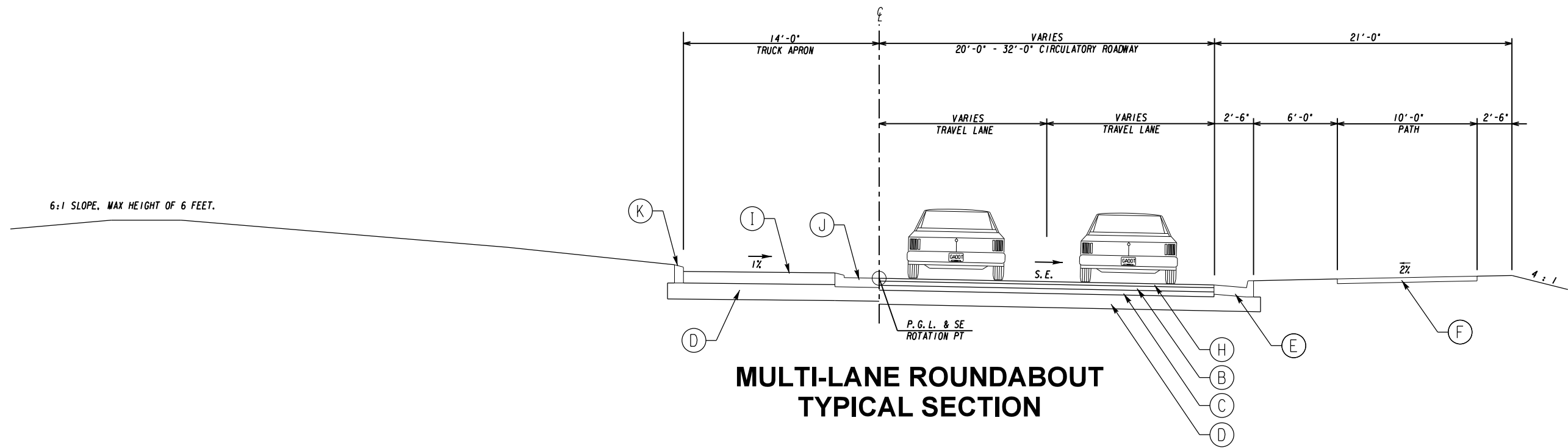
**CONCEPTUAL TYPICAL SECTION  
BALL GROUND BYPASS  
P.I. NO. 0002525**

CHEROKEE COUNTY, GEORGIA  
MAY 2021

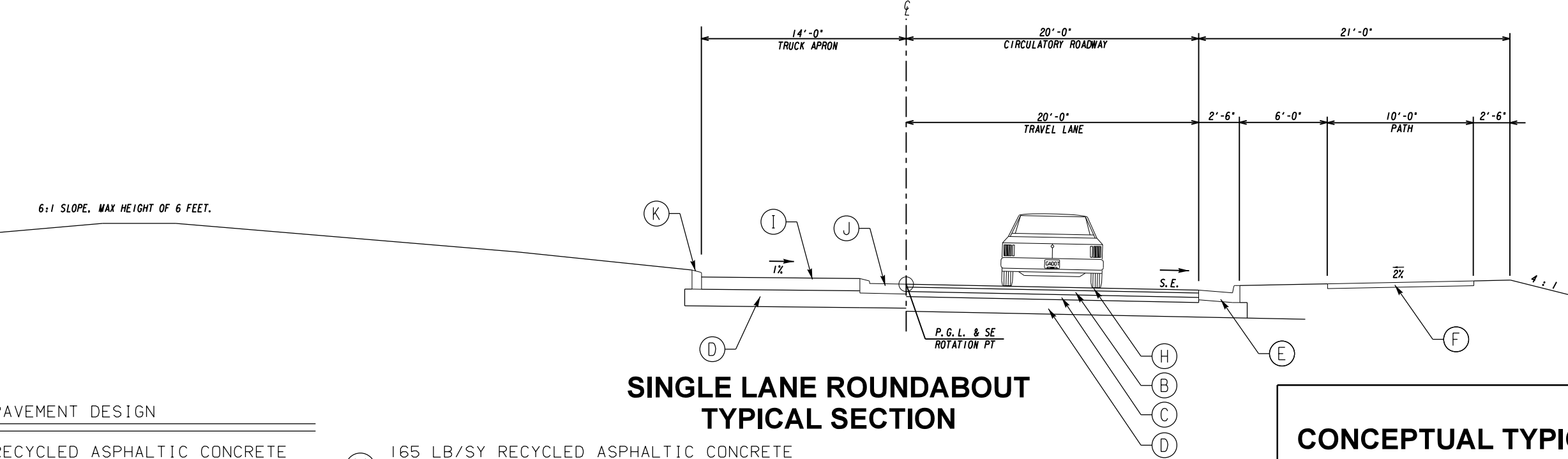


NTS  
SHEET  
1 OF 3





**MULTI-LANE ROUNDABOUT  
TYPICAL SECTION**



**SINGLE LANE ROUNDABOUT  
TYPICAL SECTION**

PAVEMENT DESIGN

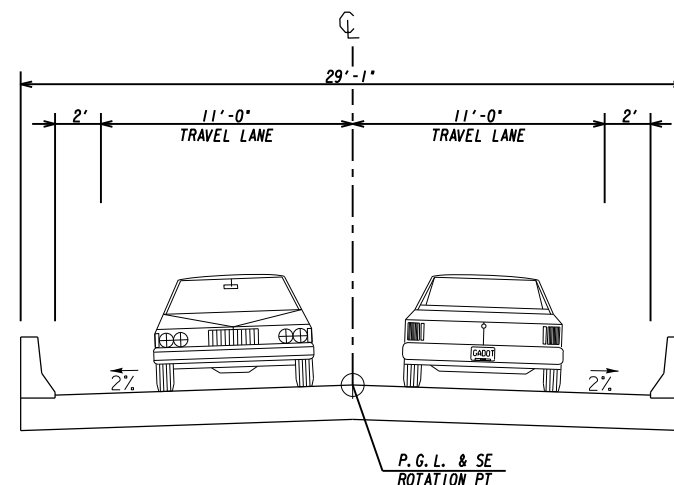
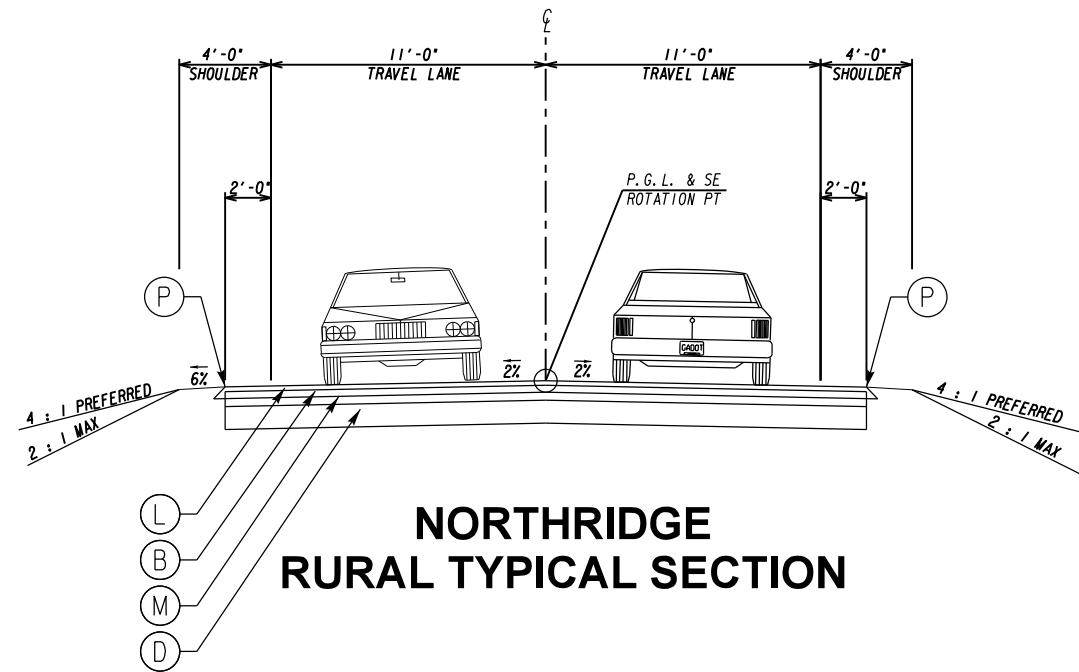
- (A) 165 LB/SY RECYCLED ASPHALTIC CONCRETE  
12.5 MM SUPERPAVE, GP 2 ONLY, INCL  
BITUM MATL & H LIME
- (B) 220 LB/SY RECYCLED ASPHALTIC CONCRETE  
19 MM SUPERPAVE, GP 1 OR 2  
INCL BITUM MATL & H LIME
- (C) 770 LB/SY RECYCLED ASPHALTIC CONCRETE  
25 MM SUPERPAVE, GP 1 OR 2,  
INCL BITUM MATL & H LIME
- (D) 12" GRADED AGGREGATE BASE
- (E) GA DOT STD 9032B, TYPE 2  
CONCRETE CURB & GUTTER, 8" X 30"
- (F) CONCRETE SIDEWALK, 6 IN
- (G) RAISED CONC MEDIAN W/ TP 7 FACE

- (H) 165 LB/SY RECYCLED ASPHALTIC CONCRETE  
12.5 MM SUPERPAVE, GP 2 ONLY, INCL  
POLYMER-MODIFIED BITUM MATL & H LIME
- (I) 10" THICK PLAIN PC CONCRETE PAVEMENT, STAMPED,  
COLORED & SEALED FEDERAL COLOR CODE 31136  
INSIGNIA RED
- (J) GA DOT STD 9032B, TYPE 9  
CONCRETE CURB & GUTTER
- (K) GA DOT STD 9032B, 4 INCH CONCRETE HEADER  
CURB, TYPE 9
- (P) PAVEMENT EDGE TREATMENT GDOT DET P-7

**CONCEPTUAL TYPICAL SECTION  
BALL GROUND BYPASS  
P.I. NO. 0002525**

CHEROKEE COUNTY, GEORGIA  
MAY 2021





PAVEMENT DESIGN

- (L) 135 LB/SY RECYCLED ASPHALTIC CONCRETE  
9.5 MM SUPERPAVE, TP 2, BLEND 1, INCL  
BITUM MATL & H LIME
- (B) 220 LB/SY RECYCLED ASPHALTIC CONCRETE  
19 MM SUPERPAVE, GP 1 OR 2  
INCL BITUM MATL & H LIME
- (M) 330 LB/SY RECYCLED ASPHALTIC CONCRETE  
25 MM SUPERPAVE, GP 1 OR 2,  
INCL BITUM MATL & H LIME
- (D) 12" GRADED AGGREGATE BASE
- (E) GA DOT STD 9032B, TYPE 2  
CONCRETE CURB & GUTTER, 8" X 30"
- (F) CONCRETE SIDEWALK, 6 IN
- (G) RAISED CONC MEDIAN W/ TP 7 FACE
- (P) PAVEMENT EDGE TREATMENT GDOT DET P-7

**CONCEPTUAL TYPICAL SECTION  
BALL GROUND BYPASS  
P.I. NO. 0002525**

CHEROKEE COUNTY, GEORGIA  
MAY 2021



NTS  
SHEET  
3 OF 3

AASHTOWare Cost Estimate Alternative B

DATE: 5/26/2021  
CONCEPT: 0002525

| LINE | ITEM     | UNITS   | DESCRIPTION | QUANTITY | PRICE          | AMOUNT         |
|------|----------|---|-------------|----------|----------------|----------------|
| 0005 | 150-1000 | TRAFFIC CONTROL -   | LS          | 1        | \$600,000.00   | \$600,000.00   |
| 0010 | 153-1300 | FIELD ENGINEERS OFFICE TP 3   | EA          | 1        | \$88,902.38    | \$88,902.38    |
| 0015 | 201-1500 | CLEARING & GRUBBING -   | LS          | 1        | \$1,300,000.00 | \$1,300,000.00 |
| 0020 | 205-0001 | UNCLASS EXCAV   | CY          | 410000   | \$7.00         | \$2,870,000.00 |
| 0025 | 205-0210 | EXCAVATION - ROCK   | CY          | 30000    | \$27.00        | \$810,000.00   |
| 0030 | 206-0002 | BORROW EXCAV, INCL MATL   | CY          | 40000    | \$10.00        | \$400,000.00   |
| 0035 | 207-0203 | FOUND BK FILL MATL, TP II   | CY          | 170      | \$81.41        | \$13,839.24    |
| 0040 | 310-1101 | GR AGGR BASE CRS, INCL MATL   | TN          | 29847    | \$33.91        | \$1,012,246.98 |
| 0045 | 318-3000 | AGGR SURF CRS   | TN          | 220      | \$37.53        | \$8,256.89     |
| 0050 | 402-1812 | RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME                             | TN          | 900      | \$108.00       | \$97,198.89    |
| 0055 | 402-3102 | RECYCLED ASPH CONC 9.5 MM SUPERPAVE, TYPE II, BLEND 1, INCL BITUM MATL & H LIME   | TN          | 19       | \$125.41       | \$2,382.82     |
| 0060 | 402-3121 | RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME           | TN          | 16479    | \$81.87        | \$1,349,100.30 |
| 0065 | 402-3130 | RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME         | TN          | 3294     | \$95.91        | \$315,912.82   |
| 0070 | 402-3190 | RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME           | TN          | 4739     | \$94.52        | \$447,948.67   |
| 0075 | 402-4510 | RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL POLYMER-MODIFIED BITUM MATL | TN          | 285      | \$110.58       | \$31,515.49    |
| 0080 | 413-0750 | TACK COAT   | GL          | 4323     | \$0.25         | \$1,091.38     |
| 0085 | 432-5010 | MILL ASPH CONC PVMT, VARIABLE DEPTH   | SY          | 560      | \$14.79        | \$8,280.62     |
| 0090 | 433-1000 | REINF CONC APPROACH SLAB  | SY          | 187      | \$239.49       | \$44,784.76    |
| 0095 | 439-0022 | PLAIN PC CONC PVMT, CL 3 CONC, 10 INCH THK  | SY          | 880      | \$135.00       | \$118,800.00   |
| 0100 | 441-0016 | DRIVEWAY CONCRETE, 6 IN TK  | SY          | 100      | \$69.93        | \$6,993.47     |
| 0105 | 441-0018 | DRIVEWAY CONCRETE, 8 IN TK  | SY          | 80       | \$62.23        | \$4,978.27     |
| 0110 | 441-0106 | CONC SIDEWALK, 6 IN   | SY          | 3979     | \$45.00        | \$179,055.00   |
| 0115 | 441-0108 | CONC SIDEWALK, 8 IN   | SY          | 352      | \$79.92        | \$28,130.36    |
| 0120 | 441-0754 | CONCRETE MEDIAN, 7 1/2 IN   | SY          | 2404     | \$76.00        | \$182,704.00   |
| 0125 | 441-4030 | CONC VALLEY GUTTER, 8 IN  | SY          | 88       | \$67.00        | \$5,896.00     |
| 0130 | 441-5025 | CONCRETE HEADER CURB, 4 IN, TP 9  | LF          | 528      | \$16.00        | \$8,448.00     |
| 0135 | 441-6222 | CONC CURB & GUTTER, 8 IN X 30 IN, TP 2  | LF          | 4148     | \$20.71        | \$85,916.53    |
| 0140 | 441-6745 | CONC CURB & GUTTER, 8 IN X 32 IN, TP 9  | LF          | 654      | \$27.00        | \$17,658.00    |
| 0145 | 446-1100 | PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH                                     | LF          | 1609     | \$9.41         | \$15,139.34    |
| 0150 | 456-2015 | INDENTATION RUMBLE STRIPS - GROUND-IN-PLACE (SKIP)                                | GLM         | 2        | \$1,355.01     | \$2,710.02     |
| 0155 | 500-3002 | CLASS AA CONCRETE   | CY          | 73       | \$1,500.00     | \$109,500.00   |
| 0160 | 500-3800 | CLASS A CONCRETE, INCL REINF STEEL  | CY          | 9        | \$1,579.09     | \$14,211.83    |
| 0165 | 511-1000 | BAR REINF STEEL   | LB          | 5064     | \$1.43         | \$7,241.22     |
| 0170 | 550-1180 | STORM DRAIN PIPE, 18 IN, H 1-10   | LF          | 2000     | \$46.10        | \$92,196.72    |
| 0175 | 550-1240 | STORM DRAIN PIPE, 24 IN, H 1-10   | LF          | 400      | \$58.65        | \$23,460.95    |
| 0180 | 550-1480 | STORM DRAIN PIPE, 48 IN, H 1-10   | LF          | 180      | \$142.00       | \$25,560.00    |
| 0185 | 550-2180 | SIDE DRAIN PIPE, 18 IN, H 1-10  | LF          | 258      | \$48.81        | \$12,593.54    |
| 0190 | 550-4118 | FLARED END SECTION 18 IN, SIDE DRAIN  | EA          | 10       | \$660.33       | \$6,603.35     |
| 0195 | 550-4218 | FLARED END SECTION 18 IN, STORM DRAIN   | EA          | 2        | \$969.14       | \$1,938.29     |
| 0200 | 550-4224 | FLARED END SECTION 24 IN, STORM DRAIN   | EA          | 1        | \$1,092.64     | \$1,092.64     |
| 0205 | 634-1200 | RIGHT OF WAY MARKERS  | EA          | 120      | \$138.78       | \$16,653.27    |
| 0210 | 641-1100 | GUARDRAIL, TP T   | LF          | 84       | \$100.71       | \$8,459.92     |
| 0215 | 641-1200 | GUARDRAIL, TP W   | LF          | 3097     | \$22.48        | \$69,620.28    |
| 0220 | 641-5001 | GUARDRAIL ANCHORAGE, TP 1   | EA          | 10       | \$1,397.67     | \$13,976.70    |
| 0225 | 641-5015 | GUARDRAIL TERMINAL, TP 12A, 31 IN, TANGENT, ENERGY-ABSORBINC                      | EA          | 10       | \$3,209.11     | \$32,091.09    |
| 0230 | 643-1152 | CH LK FENCE, ZC COAT, 6 FT, 9 GA  | LF          | 4500     | \$37.00        | \$166,500.00   |
| 0235 | 643-8200 | BARRIER FENCE (ORANGE), 4 FT  | LF          | 1600     | \$2.53         | \$4,048.75     |
| 0240 | 668-1100 | CATCH BASIN, GP 1   | EA          | 20       | \$3,735.75     | \$74,715.08    |
| 0245 | 668-2100 | DROP INLET, GP 1  | EA          | 15       | \$2,798.36     | \$41,975.40    |
| 0250 | 668-4300 | STORM SEWER MANHOLE, TP 1   | EA          | 4        | \$3,021.54     | \$12,086.16    |
| 0255 | 163-0232 | TEMPORARY GRASSING  | AC          | 71       | \$540.43       | \$38,370.85    |
| 0260 | 163-0240 | MULCH   | TN          | 1211     | \$46.53        | \$56,349.61    |
| 0265 | 163-0301 | CONSTRUCT AND REMOVE CONSTRUCTION EXITS   | EA          | 8        | \$2,181.17     | \$17,449.33    |
| 0270 | 163-0503 | CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 3                                      | EA          | 8        | \$650.78       | \$5,206.28     |
| 0275 | 163-0520 | CONSTRUCT AND REMOVE TEMPORARY PIPE SLOPE DRAIN                                   | LF          | 1950     | \$17.92        | \$34,934.41    |
| 0280 | 163-0527 | CONSTRUCT AND REMOVE RIP RAP CHECK DAMS, STONE PLAIN RIP RAP/SAND BAGS            | EA          | 95       | \$456.02       | \$43,321.99    |

|      |          |  |    |       |             |             |
|------|----------|--|----|-------|-------------|-------------|
| 0285 | 163-0531 | CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO -        | EA | 1     | \$26,342.32 | \$26,342.32 |
| 0290 | 163-0531 | CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO -        | EA | 1     | \$26,342.32 | \$26,342.32 |
| 0295 | 163-0531 | CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO -        | EA | 1     | \$26,342.32 | \$26,342.32 |
| 0300 | 163-0531 | CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO -        | EA | 1     | \$26,342.32 | \$26,342.32 |
| 0305 | 163-0531 | CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO -        | EA | 1     | \$26,342.32 | \$26,342.32 |
| 0310 | 163-0531 | CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO -        | EA | 1     | \$26,342.32 | \$26,342.32 |
| 0315 | 163-0531 | CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO -        | EA | 1     | \$26,342.32 | \$26,342.32 |
| 0320 | 163-0540 | CONSTRUCT AND REMOVE RETROFIT, STA NO -                    | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0325 | 163-0540 | CONSTRUCT AND REMOVE RETROFIT, STA NO -                    | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0330 | 163-0540 | CONSTRUCT AND REMOVE RETROFIT, STA NO -                    | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0335 | 163-0540 | CONSTRUCT AND REMOVE RETROFIT, STA NO -                    | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0340 | 163-0540 | CONSTRUCT AND REMOVE RETROFIT, STA NO -                    | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0345 | 163-0540 | CONSTRUCT AND REMOVE RETROFIT, STA NO -                    | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0350 | 163-0540 | CONSTRUCT AND REMOVE RETROFIT, STA NO -                    | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0355 | 163-0541 | CONSTRUCT AND REMOVE ROCK FILTER DAMS                      | EA | 6     | \$1,290.38  | \$7,742.31  |
| 0360 | 163-0550 | CONSTRUCT AND REMOVE INLET SEDIMENT TRAP                   | EA | 35    | \$232.91    | \$8,151.80  |
| 0365 | 165-0010 | MAINTENANCE OF TEMPORARY SILT FENCE, TP A                  | LF | 4055  | \$0.55      | \$2,211.96  |
| 0370 | 165-0030 | MAINTENANCE OF TEMPORARY SILT FENCE, TP C                  | LF | 8110  | \$0.78      | \$6,333.91  |
| 0375 | 165-0041 | MAINTENANCE OF CHECK DAMS - ALL TYPES                      | LF | 1425  | \$2.60      | \$3,698.15  |
| 0380 | 165-0060 | MAINTENANCE OF TEMPORARY SEDIMENT BASIN, STA NO -          | EA | 1     | \$2,978.33  | \$2,978.33  |
| 0385 | 165-0060 | MAINTENANCE OF TEMPORARY SEDIMENT BASIN, STA NO -          | EA | 1     | \$2,978.33  | \$2,978.33  |
| 0390 | 165-0060 | MAINTENANCE OF TEMPORARY SEDIMENT BASIN, STA NO -          | EA | 1     | \$2,978.33  | \$2,978.33  |
| 0395 | 165-0060 | MAINTENANCE OF TEMPORARY SEDIMENT BASIN, STA NO -          | EA | 1     | \$2,978.33  | \$2,978.33  |
| 0400 | 165-0060 | MAINTENANCE OF TEMPORARY SEDIMENT BASIN, STA NO -          | EA | 1     | \$2,978.33  | \$2,978.33  |
| 0405 | 165-0060 | MAINTENANCE OF TEMPORARY SEDIMENT BASIN, STA NO -          | EA | 1     | \$2,978.33  | \$2,978.33  |
| 0410 | 165-0060 | MAINTENANCE OF TEMPORARY SEDIMENT BASIN, STA NO -          | EA | 1     | \$2,978.33  | \$2,978.33  |
| 0415 | 165-0087 | MAINTENANCE OF SILT CONTROL GATE, TP 3                     | EA | 8     | \$197.44    | \$1,579.55  |
| 0420 | 165-0095 | MAINTENANCE OF RETROFIT, STA NO -                          | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0425 | 165-0095 | MAINTENANCE OF RETROFIT, STA NO -                          | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0430 | 165-0095 | MAINTENANCE OF RETROFIT, STA NO -                          | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0435 | 165-0095 | MAINTENANCE OF RETROFIT, STA NO -                          | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0440 | 165-0095 | MAINTENANCE OF RETROFIT, STA NO -                          | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0445 | 165-0095 | MAINTENANCE OF RETROFIT, STA NO -                          | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0450 | 165-0095 | MAINTENANCE OF RETROFIT, STA NO -                          | EA | 1     | \$2,000.00  | \$2,000.00  |
| 0455 | 165-0101 | MAINTENANCE OF CONSTRUCTION EXIT                           | EA | 8     | \$933.01    | \$7,464.10  |
| 0460 | 165-0105 | MAINTENANCE OF INLET SEDIMENT TRAP                         | EA | 35    | \$132.88    | \$4,650.72  |
| 0465 | 165-0110 | MAINTENANCE OF ROCK FILTER DAM                             | EA | 6     | \$465.83    | \$2,794.95  |
| 0470 | 165-0310 | MAINTENANCE OF CONSTRUCTION EXIT TIRE WASH AREA (PER EACH) | EA | 4     | \$802.63    | \$3,210.53  |
| 0475 | 167-1000 | WATER QUALITY MONITORING AND SAMPLING                      | EA | 6     | \$275.48    | \$1,652.86  |
| 0480 | 167-1500 | WATER QUALITY INSPECTIONS                                  | MO | 24    | \$1,602.25  | \$38,454.07 |
| 0485 | 171-0010 | TEMPORARY SILT FENCE, TYPE A                               | LF | 4055  | \$2.85      | \$11,570.82 |
| 0490 | 171-0030 | TEMPORARY SILT FENCE, TYPE C                               | LF | 8110  | \$4.75      | \$38,532.23 |
| 0495 | 441-0204 | PLAIN CONC DITCH PAVING, 4 IN                              | SY | 1350  | \$50.04     | \$67,553.84 |
| 0500 | 603-2181 | STN DUMPED RIP RAP, TP 3, 18 IN                            | SY | 800   | \$60.34     | \$48,274.36 |
| 0505 | 603-2182 | STN DUMPED RIP RAP, TP 3, 24 IN                            | SY | 300   | \$61.00     | \$18,300.00 |
| 0510 | 603-7000 | PLASTIC FILTER FABRIC                                      | SY | 1100  | \$4.91      | \$5,395.62  |
| 0515 | 700-6910 | PERMANENT GRASSING   | AC | 36    | \$995.15    | \$35,825.36 |
| 0520 | 700-7000 | AGRICULTURAL LIME  | TN | 72    | \$100.02    | \$7,201.44  |
| 0525 | 700-8000 | FERTILIZER MIXED GRADE                                     | TN | 25    | \$720.04    | \$18,000.92 |
| 0530 | 700-8100 | FERTILIZER NITROGEN CONTENT                                | LB | 1800  | \$2.55      | \$4,589.86  |
| 0535 | 716-2000 | EROSION CONTROL MATS, SLOPES                               | SY | 15800 | \$1.64      | \$25,875.34 |
| 0540 | 169-0015 | DRY DETENTION BASIN, NO. -                                 | EA | 1     | \$60,000.00 | \$60,000.00 |
| 0545 | 169-0015 | DRY DETENTION BASIN, NO. -                                 | EA | 1     | \$60,000.00 | \$60,000.00 |
| 0550 | 169-0015 | DRY DETENTION BASIN, NO. -                                 | EA | 1     | \$60,000.00 | \$60,000.00 |
| 0555 | 169-0015 | DRY DETENTION BASIN, NO. -                                 | EA | 1     | \$60,000.00 | \$60,000.00 |
| 0560 | 169-0015 | DRY DETENTION BASIN, NO. -                                 | EA | 1     | \$60,000.00 | \$60,000.00 |
| 0565 | 169-0015 | DRY DETENTION BASIN, NO. -                                 | EA | 1     | \$60,000.00 | \$60,000.00 |
| 0570 | 169-0015 | DRY DETENTION BASIN, NO. -                                 | EA | 1     | \$60,000.00 | \$60,000.00 |
| 0575 | 169-0016 | DRY DETENTION BASIN MAINTENANCE                            | EA | 1     | \$10,000.00 | \$10,000.00 |
| 0580 | 169-0016 | DRY DETENTION BASIN MAINTENANCE                            | EA | 1     | \$10,000.00 | \$10,000.00 |
| 0585 | 169-0016 | DRY DETENTION BASIN MAINTENANCE                            | EA | 1     | \$10,000.00 | \$10,000.00 |

|              |          |  |     |       |                |                        |
|--------------|----------|--|-----|-------|----------------|------------------------|
| 0590         | 169-0016 | DRY DETENTION BASIN MAINTENANCE  | EA  | 1     | \$10,000.00    | \$10,000.00            |
| 0595         | 169-0016 | DRY DETENTION BASIN MAINTENANCE  | EA  | 1     | \$10,000.00    | \$10,000.00            |
| 0600         | 169-0016 | DRY DETENTION BASIN MAINTENANCE  | EA  | 1     | \$10,000.00    | \$10,000.00            |
| 0605         | 169-0016 | DRY DETENTION BASIN MAINTENANCE  | EA  | 1     | \$10,000.00    | \$10,000.00            |
| 0610         | 429-1000 | RUMBLE STRIPS  | EA  | 12    | \$812.00       | \$9,744.00             |
| 0615         | 500-3104 | CLASS A CONCRETE, SIGNS  | CY  | 28    | \$691.00       | \$19,348.00            |
| 0620         | 632-0003 | CHANGEABLE MESSAGE SIGN, PORTABLE, TYPE 3                              | EA  | 6     | \$5,940.93     | \$35,645.57            |
| 0625         | 636-1033 | HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 9                          | SF  | 375   | \$19.50        | \$7,312.66             |
| 0630         | 636-1036 | HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 11                         | SF  | 490   | \$21.29        | \$10,432.84            |
| 0635         | 636-1041 | HIGHWAY SIGNS, TP 2 MATL, REFL SHEETING, TP 9                          | SF  | 360   | \$21.66        | \$7,796.02             |
| 0640         | 636-1077 | HIGHWAY SIGNS, ALUM EXTRUDED PANELS, REFL SHEETING, TP 9               | SF  | 372   | \$28.00        | \$10,416.00            |
| 0645         | 636-2070 | GALV STEEL POSTS, TP 7   | LF  | 1203  | \$8.76         | \$10,535.91            |
| 0650         | 636-3000 | GALV STEEL STR SHAPE POST  | LB  | 11870 | \$6.00         | \$71,220.00            |
| 0655         | 636-9094 | PILING IN PLACE, SIGNS, STEEL H, HP 12 X 53                            | LF  | 70    | \$150.00       | \$10,500.00            |
| 0660         | 653-0110 | THERMOPLASTIC PVMT MARKING, ARROW, TP 1                                | EA  | 3     | \$81.94        | \$245.82               |
| 0665         | 653-0120 | THERMOPLASTIC PVMT MARKING, ARROW, TP 2                                | EA  | 14    | \$87.48        | \$1,224.73             |
| 0670         | 653-0210 | THERMOPLASTIC PVMT MARKING, WORD, TP 1                                 | EA  | 2     | \$142.16       | \$284.33               |
| 0675         | 653-0296 | THERMOPLASTIC PVMT MARKING, WORD, TP 15                                | EA  | 8     | \$207.00       | \$1,656.00             |
| 0680         | 653-1704 | THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE                          | LF  | 200   | \$7.71         | \$1,541.77             |
| 0685         | 653-1804 | THERMOPLASTIC SOLID TRAF STRIPE, 8 IN, WHITE                           | LF  | 4800  | \$1.93         | \$9,260.98             |
| 0690         | 653-1810 | THERMOPLASTIC SOLID TRAF STRIPE, 10 IN, WHITE                          | LF  | 200   | \$3.30         | \$660.00               |
| 0695         | 653-2501 | THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE                           | LM  | 5     | \$776.00       | \$3,880.00             |
| 0700         | 653-2502 | THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW                          | LM  | 3     | \$783.00       | \$2,349.00             |
| 0705         | 653-3501 | THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE                            | GLF | 1300  | \$0.50         | \$650.00               |
| 0710         | 653-4830 | THERMOPLASTIC SKIP TRAF STRIPE, 18 IN, WHITE                           | GLF | 170   | \$2.30         | \$391.00               |
| 0715         | 653-6004 | THERMOPLASTIC TRAF STRIPING, WHITE                                     | SY  | 600   | \$4.85         | \$2,911.89             |
| 0720         | 653-6006 | THERMOPLASTIC TRAF STRIPING, YELLOW                                    | SY  | 100   | \$4.51         | \$451.25               |
| 0725         | 654-1001 | RAISED PVMT MARKERS TP 1   | EA  | 485   | \$4.31         | \$2,090.12             |
| 0730         | 654-1002 | RAISED PVMT MARKERS TP 2   | EA  | 256   | \$4.35         | \$1,114.18             |
| 0735         | 654-1003 | RAISED PVMT MARKERS TP 3   | EA  | 150   | \$3.88         | \$581.57               |
| 0740         | 657-1085 | PREFORMED PLASTIC SOLID PVMT MKG, 8 IN, CONTRAST (BLACK-WHITE), TP PE  | LF  | 700   | \$7.60         | \$5,318.47             |
| 0745         | 657-6085 | PREFORMED PLASTIC SOLID PVMT MKG, 8 IN, CONTRAST (BLACK-YELLOW), TP PE | LF  | 700   | \$7.39         | \$5,175.74             |
| 0750         | 543-9000 | CONSTRUCTION OF BRIDGE COMPLETE -                                      | LS  | 1     | \$1,600,000.00 | \$1,600,000.00         |
| 0755         | 607-1000 | MORTAR RUBBLE MASONRY  | CY  | 132   | \$750.00       | \$99,000.00            |
| 0760         | 515-2020 | GALV STEEL PIPE HANDRAIL, 2 IN, ROUND                                  | LF  | 400   | \$45.00        | \$18,000.00            |
| 0765         | 005-0002 | INSTALLATION OF LIGHTING FACILITIES                                    | LS  | 1     | \$150,000.00   | \$150,000.00           |
| 0770         | 005-0002 | INSTALLATION OF LIGHTING FACILITIES                                    | LS  | 1     | \$100,000.00   | \$100,000.00           |
| 0775         | 009-2000 | LANDSCAPING WITH IRRIGATION  | LS  | 1     | \$30,000.00    | \$30,000.00            |
| <b>TOTAL</b> |          |  |     |       |                | <b>\$14,310,094.99</b> |

## Interoffice Memo

**FILE**

|           |                      |                     |  |
|-----------|----------------------|---------------------|--|
| PI NUMBER | 0002525              | PROJECT DESCRIPTION | Ball Ground Truck Bypass FM SR 5 BU @ Howell Bridge Rd To TO SR 327 SO/Ball Ground |
| OFFICE    | Program Delivery     |                     |  |
| DATE      | Monday, May 24, 2021 |                     |  |

**From:** Kimberly Nesbitt, State Program Delivery Administrator

**To:** Erik Rohde, P.E., State Project Review Engineer  
via email Mailbox: [CostEstimatesandUpdates@dot.ga.gov](mailto:CostEstimatesandUpdates@dot.ga.gov)

**Subject:** REVISIONS TO PROGRAMMED COSTS

|                                      |                |
|--------------------------------------|----------------|
| <b>Project Manager:</b>              | John Hightower |
| <b>Management Let Date:</b>          | Long Range     |
| <b>Management Right of Way Date:</b> | Long Range     |

**Cost Estimate Review Iteration**

|                      |  |
|----------------------|--|
| Date of Submittal #1 |  |
| Date of Submittal #2 |  |
| Date of Submittal #3 |  |

**Summary of Programmed Costs and Proposed Revised Costs:**

| Estimate Type | Cost Estimate Amounts (T-Pro Without Inflation) | Last Estimate Date | Revised Cost Estimate |
|---------------|---|--------------------|-----------------------|
| CONSTRUCTION  |   |                    | \$18,105,592.00       |
| RIGHT OF WAY  |   |                    | \$4,339,000.00        |
| UTILITIES     |   |                    | \$2,269,080.00        |


**Explanation for Cost Change and Contingency Justification:**


Contingency of 18% used for concept design phase with project type new construction.

**Attachments:**

- Detailed Cost Estimate Printout from GDOT 411.

**Design Phase Leader Validation of Final QC/QA for Construction Cost Estimate Used In This Revision to Programmed Costs:**

|   |   |
|---|---|
| Consultant Company or GDOT Design Office: | VHB   |
| Printed Name:                             | Matthew Thompson, PE  |
| Title:                                    | Project Engineer  |
| Signature:                                |  |
| Date:                                     | 4/8/21  |

| FOR PROJECTS WITH A LOCAL SPONSOR  |   |
|--|---|
| If the project has a local sponsor, the project manager should ensure that the local authority completes the following validation indicating that it has reviewed the construction cost estimate and whether it is in concurrence with the construction costs presented. |   |
| Please select the appropriate validation below upon review of the cost estimate:   |   |
| <input checked="" type="checkbox"/> I acknowledge that I have reviewed the project construction cost estimate and <u>concur</u> with the costs presented.  |   |
| <input type="checkbox"/> I acknowledge that I have reviewed the project construction cost estimate but <u>do not concur</u> with the costs presented.  |   |
| Please provide an explanation for non-concurrence.   |   |
| Local Authority Name and Title:  | JAMES WILGUS<br>SPLOST ROADWAY PROJECT MANAGER                                      |
| Local Authority Signature:   |  |

|       |           |
|-------|-----------|
| Date: | 1/13/2021 |
|-------|-----------|



**Cost Estimate Worksheet:**

|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|---|--------------------------|-------------------|----------------------------------|--|--|---|------------------------|--|---|--------------------------------------|------------------|
| <b>CONSTRUCTION COST ESTIMATE</b> (Required base estimate entered from CES and should not include E&I). →             |                          |                   |                                  |  |  |   |                        |  |   | <b>A</b>                             | \$ 14,310,094.99 |
| <b>ENGINEERING AND INSPECTION</b> (The default E&I percentage is 5.0%, but may be adjusted per project scope.) →      |                          |                   |                                  |  |  |   |                        |  |   | <b>D</b>                             | \$ 715,504.75    |
| Construction Cost   |                          | E&I Percentage    |                                  | E&I Cost   |  |   |                        |  |   |                                      |                  |
| B   |                          | C                 |                                  | D = B x C  |  |   |                        |  |   |                                      |                  |
| \$ 14,310,094.99  |                          | 5%                |                                  | \$ 715,504.75  |  |   |                        |  |   |                                      |                  |
| <b>CONTINGENCY</b> (Refer to the Risk and Contingencies Table included in GDOT Policy 3A-9 Cost Estimating Purpose) → |                          |                   |                                  |  |  |   |                        |  |   | <b>I</b>                             | \$ 2,704,607.95  |
| Construction Cost   |                          | E&I Cost          |                                  | Construction + E&I   |  |   | Contingency Percentage |  | Contingency Cost  |                                      |                  |
| E   |                          | F                 |                                  | G = E + F  |  |   | H                      |  | I = G x H   |                                      |                  |
| \$ 14,310,094.99  |                          | \$ 715,504.75     |                                  | \$ 15,025,599.74   |  |   | 18%                    |  | \$ 2,704,607.95   |                                      |                  |
| <b>ASPHALT FUEL PRICE ADJUSTMENT</b> (Leave blank if not applicable) →  |                          |                   |                                  |  |  |   |                        |  |   | <b>Q</b>                             | \$ 375,384.30    |
| Date  |                          | May 2021          |                                  | Current Asphalt Fuel Index Prices can be found at the link below:<br><a href="http://www.dot.ga.gov/PS/Materials/AsphaltFuelIndex">http://www.dot.ga.gov/PS/Materials/AsphaltFuelIndex</a> |  |   |                        |  |   |                                      |                  |
| Regular Unleaded  |                          | \$2.699/ GAL      |                                  |  |  |   |                        |  |   |                                      |                  |
| Diesel  |                          | \$2.947/ GAL      |                                  |  |  |   |                        |  |   |                                      |                  |
| Liquid AC   |                          | \$480.00/ TON     |                                  |  |  |   |                        |  |   |                                      |                  |
| Liquid AC   | Description              | Tons              | Percentage of Asphaltic Concrete | Tons of Asphaltic Concrete   | Total Monthly Tonnage of Asphalt Cement (TMT)<br>M = Sum of Columns L, T & W | Monthly Asphalt Cement Price month project let (APL)<br>N | Max. Cap               | Monthly Asphalt Cement Price month placed (APM)<br>O | Price Adjustment (PA)<br>P = ((N x O) + N) x M x N<br>Q = [((P - N) / N)] x M x N |                                      |                  |
|   | Leveling                 | 900.00 TN         | 5.00%                            | 45.00 TN   | 1303.42 TN   | \$480.00/ TON   | 60%                    | \$ 768.00  | \$ 375,384.30   |                                      |                  |
|   | Patching                 |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   | 9.5 mm SP                |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   | 12.5 OGFC                |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   | 12.5 PEM                 |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   | 12.5 mm SP               | 3579.00 TN        | 5.00%                            | 178.95 TN  |  |   |                        |  |   |                                      |                  |
|   | 19 mm SP                 | 4739.00 TN        | 5.00%                            | 236.95 TN  |  |   |                        |  |   |                                      |                  |
|   | 25 mm SP                 | 16479.00 TN       | 5.00%                            | 823.95 TN  |  |   |                        |  |   |                                      |                  |
| Bituminous Tack Coat  | Description              | Tack Coat         | GL/TN                            | Tons   |  |   |                        |  |   |                                      |                  |
|   | Tack Coat                | R                 | S                                | T = R/S  |  |   |                        |  |   |                                      |                  |
|   | Tack Coat                | 4323.00 GL        | 232.8234 GL/TN                   | 18.57 TN   |  |   |                        |  |   |                                      |                  |
| Bituminous Tack Coat (Surface Treatment)  | Description              | SY                | GL/SY                            | TN   |  |   |                        |  |   |                                      |                  |
|   | Single Surface Treatment | U                 | V                                | W = (U x V) / (232.8234 GL/TN)   |  |   |                        |  |   |                                      |                  |
|   | Double Surface Treatment |                   | 0.20 Gl/SY                       |  |  |   |                        |  |   |                                      |                  |
|   | Triple Surface Treatment |                   | 0.44 Gl/SY                       |  |  |   |                        |  |   |                                      |                  |
|   | Triple Surface Treatment |                   | 0.71 Gl/SY                       |  |  |   |                        |  |   |                                      |                  |
| <b>CONSTRUCTION TOTAL COST</b> →  |                          |                   |                                  |  |  |   |                        |  |   | <b>X = A+D+I+Q</b>                   | \$ 18,105,592.00 |
| <b>RIGHT OF WAY COST</b> →  |                          |                   |                                  |  |  |   |                        |  |   | <b>Y</b>                             | \$ 4,339,000.00  |
| <b>UTILITIES COST</b> (Provided by Utility Office) →  |                          |                   |                                  |  |  |   |                        |  |   | <b>Z = Sum of Reimbursable Costs</b> | \$ 2,269,080.00  |
| Utility Owner   |                          | Reimbursable Cost |                                  |  | Utility Owner  |   |                        | Reimbursable Cost                                    |   |                                      |                  |
| GA Power  |                          | \$ 721,000.00     |                                  |  |  |   |                        |  |   |                                      |                  |
| Cherokee County Water & Sewer Authority   |                          | \$ 143,280.00     |                                  |  |  |   |                        |  |   |                                      |                  |
| City of Ball Ground Water   |                          | \$ 162,800.00     |                                  |  |  |   |                        |  |   |                                      |                  |
| City of Ball Ground Sewer   |                          | \$ 60,000.00      |                                  |  |  |   |                        |  |   |                                      |                  |
| AGL   |                          | \$ 280,000.00     |                                  |  |  |   |                        |  |   |                                      |                  |
| Georgia Northeastern Railroad Company   |                          | \$ 902,000.00     |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |
|   |                          |                   |                                  |  |  |   |                        |  |   |                                      |                  |

GEORGIA DEPARTMENT OF TRANSPORTATION  
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 1/12/2021 Project: Ball Ground Bypass  
 Revised: County: Cherokee  
 PI: 0002525

Description: Ball Ground Bypass - Preferred Alternate "B"  
 Project Termini: Ball Ground Highway to Flatbottom Road

Existing ROW: None  
 Required ROW: Varies  
 Parcels: 32

Land and Improvements \_\_\_\_\_ \$3,545,625.00

|                      |              |
|----------------------|--------------|
| Proximity Damage     | \$80,000.00  |
| Consequential Damage | \$200,000.00 |
| Cost to Cures        | \$40,000.00  |
| Trade Fixtures       | \$25,000.00  |
| Improvements         | \$50,000.00  |

Valuation Services \_\_\_\_\_ \$186,875.00

Legal Services \_\_\_\_\_ \$209,100.00



Relocation \_\_\_\_\_ \$96,000.00

Demolition \_\_\_\_\_ \$31,500.00

Administrative \_\_\_\_\_ \$269,000.00

TOTAL ESTIMATED COSTS \_\_\_\_\_ \$4,338,100.00

**TOTAL ESTIMATED COSTS (ROUNDED) \_\_\_\_\_ \$4,339,000.00**

|                              |                         |  |           |
|------------------------------|-------------------------|--|-----------|
| Prepared By:                 | Benjamin M. Garland Jr. |  | 1/12/2021 |
|                              | Print Name              | Signature  | Date      |
| Cost Estimation Supervisor : | Valencia Carter         |  | 6/24/2021 |
|                              | Print Name              | Signature  | Date      |

**NOTE: Supervisor is only attesting that the estimate was completed using the correct information provided for the the project. The Supervisor is not attesting to property values or the accuracy of the market value estimations provided in this report. No Market Appreciation is included in this Preliminary Cost Estimate.**

**Comments: Comparable Sales and Parcel Breakdown in the Appraiser Workfile and can be provided upon request. Damages and site improvement impacts were estimated with the best available information from conceptual plans and inspection.**

The appraiser has supported the valuations and current market value ranges. However, due to current market trends and values, the estimate might slightly increase to depict values towards the higher end of the range.

***PI 0002525, Ball Ground Bypass - Environmental Mitigation Cost Estimate Summary***

| <u>Total Stream Mitigation Credits</u>  | <u>Cost/Stream Credit (Etowah River Watershed)</u>  | <u>Total Stream Mitigation Costs</u> |
|---|---|--------------------------------------|
| 11289.60                                | \$70.00   | \$790,272.00                         |
|   |   |                                      |
| <u>Total Wetland Mitigation Credits</u> | <u>Cost/Wetland Credit (Etowah River Watershed)</u> | <u>Total Stream Mitigation Costs</u> |
| 10.88                                   | \$55,000.00   | \$598,400.00                         |
|   |   |                                      |
|   | <b>Total Environmental Mitigation Cost:</b>         | <b>\$1,388,672.00</b>                |

**Qualitative Worksheet Summary For Wetland Adverse Impacts**

| Worksheet Number | Name of Wetland | Wetland Type                        | Acres of Impact (ac.) | Impact Duration       | 2018 Credits | Grandfathered Credits      |
|------------------|-----------------|-------------------------------------|-----------------------|-----------------------|--------------|----------------------------|
| 1                | Alternative     | Riverine/Lacustrine Fringe Wetlands | 1.36                  | Permanent/Reoccurring | 1.36         | 10.88                      |
| 2                |                 |                                     | 0.00                  | Choose Duration       | Credits Owed | Grandfathered Credits Owed |
| 3                |                 |                                     | 0.00                  | Choose Duration       | Credits Owed | Grandfathered Credits Owed |
| 4                |                 |                                     | 0.00                  | Choose Duration       | Credits Owed | Grandfathered Credits Owed |
| 5                |                 |                                     | 0.00                  | Choose Duration       | Credits Owed | Grandfathered Credits Owed |
| 6                |                 |                                     | 0.00                  | Choose Duration       | Credits Owed | Grandfathered Credits Owed |
| 7                |                 |                                     | 0.00                  | Choose Duration       | Credits Owed | Grandfathered Credits Owed |
| 8                |                 |                                     | 0.00                  | Choose Duration       | Credits Owed | Grandfathered Credits Owed |
| 9                |                 |                                     | 0.00                  | Choose Duration       | Credits Owed | Grandfathered Credits Owed |
| 10               |                 |                                     | 0.00                  | Choose Duration       | Credits Owed | Grandfathered Credits Owed |

**Summary of Credits Owed**

| Wetland Type                        | Acres of Impact (ac.) | 2018 Credits | Grandfathered Credits |
|-------------------------------------|-----------------------|--------------|-----------------------|
| Freshwater Tidal Wetlands           | 0.00                  | 0.00         | 0.00                  |
| Saltwater Tidal Wetlands            | 0.00                  | 0.00         | 0.00                  |
| Riverine/Lacustrine Fringe Wetlands | 1.36                  | 1.36         | 10.88                 |
| Slope Wetlands                      | 0.00                  | 0.00         | 0.00                  |
| Depressional/Flat Wetlands          | 0.00                  | 0.00         | 0.00                  |
| Open Water/Ditch/Canal              | 0.00                  | 0.00         | 0.00                  |

Worksheet 1: Qualitative Worksheet for Wetland Adverse Impacts

|                          |  |
|--------------------------|--|
| Project Name:            | Ball Ground Alternatives Analysis Mitigation |
| Impact Wetland Name:     | Alternative                                  |
| Acres of Impact (Acres): | 1.36   |
| Wetland Type:            | Riverine/Lacustrine Fringe Wetlands          |
| Date:                    | February 11, 2020                            |

**Impact Factors**

|  | <b><u>Index Description</u></b> | <b><u>Index Value</u></b> |
|--|---------------------------------|---------------------------|
| 1. Wetland Qualitative Functional Capacity Score ( <u>WQFC</u> )   | High                            | 1.00                      |
| 2. Impact Category Description ( <u>Impact Category</u> )  | Discharge of Fill               | 1.00                      |
| 3. Product of WQFC and Impact ( <u>WQFC Impact</u> ) =   |                                 | 1.00                      |
| 4. Duration of Impact ( <u>Duration</u> )  | Permanent/Reoccurring           | 1.00                      |
| 5. Product of WQFC Impact and Duration ( <u>Total WQFC Impact</u> ) =  |                                 | 1.00                      |
| 6. Product of Total WQFC Impact and Acres ( <b><u>Total 2018 Wetland Credits Owed</u></b> ) =                                    |                                 | <b>1.36</b>               |
| 7. Conversion of Total 2018 Wetland Compensation to Grandfathered Credits ( <b><u>Grandfathered Wetland Credits Owed</u></b> ) = |                                 | <b>10.88</b>              |

**Legend**

|   |
|---|
| Green Cells = User must manually input information.                       |
| Orange Cells = User must select the index choice from the drop-down list. |
| Grey Cells = The calculation of these cells is automated.                 |

| <b>Qualitative Worksheet Summary For Stream Adverse Impacts</b> |                           |   |                                |                        |                     |                              |
|---|---------------------------|---|--------------------------------|------------------------|---------------------|------------------------------|
| <b>Worksheet Number</b>   | <b>Name of Stream</b>     | <b>Stream Type</b>                              | <b>Length of Impact (L.F.)</b> | <b>Impact Duration</b> | <b>2018 Credits</b> | <b>Grandfathered Credits</b> |
| 1   | Alternative B - IS/EC     | Intermittent/Ephemeral Streams                  | 508                            | Permanent/Reoccurring  | 305                 | 3658                         |
| 2   | Alternative B - Perennial | Perennial Streams (greater than 3 square miles) | 518                            | Permanent/Reoccurring  | 518                 | 6216                         |
| 3   |                           |   |                                | Choose Duration        | Credits Owed        | Grandfathered Credits Owed   |
| 4   |                           |   |                                | Choose Duration        | Credits Owed        | Grandfathered Credits Owed   |
| 5   |                           |   |                                | Choose Duration        | Credits Owed        | Grandfathered Credits Owed   |
| 6   |                           |   |                                | Choose Duration        | Credits Owed        | Grandfathered Credits Owed   |
| 7   |                           |   |                                | Choose Duration        | Credits Owed        | Grandfathered Credits Owed   |
| 8   |                           |   |                                | Choose Duration        | Credits Owed        | Grandfathered Credits Owed   |
| 9   |                           |   |                                | Choose Duration        | Credits Owed        | Grandfathered Credits Owed   |
| 10  |                           |   |                                | Choose Duration        | Credits Owed        | Grandfathered Credits Owed   |

| <b>Summary of Credits Owed</b>                  |                                |                     |                              |
|---|--------------------------------|---------------------|------------------------------|
| <b>Stream Type</b>                              | <b>Length of Impact (L.F.)</b> | <b>2018 Credits</b> | <b>Grandfathered Credits</b> |
| Intermittent/Ephemeral Streams                  | 508                            | 305                 | 3658                         |
| Perennial Streams (less than 3 square miles)    |                                |                     |                              |
| Perennial Streams (greater than 3 square miles) | 518                            | 518                 | 6216                         |
| Open Water/Ditch/Canal                          |                                |                     |                              |

Worksheet 1: Qualitative Worksheet for Stream Adverse Impacts

|  |   |
|--|---|
| Project Name:                          | Ball Ground Alternatives Analysis Mitigation Estimate |
| Impact Reach Name:                     | Alternative B - IS/EC                                 |
| Linear Feet of Impact ( <u>Feet</u> ): | 508   |
| Stream Type:                           | Intermittent/Ephemeral Streams                        |
| Date:                                  | February 22, 2020                                     |

**Impact Factors**

|  | <b><u>Index Description</u></b>        | <b><u>Index Value</u></b> |
|--|--|---------------------------|
| 1. Stream Qualitative Functional Capacity Score ( <u>SQFC</u> )  | High                                   | 1.00                      |
| 2. Type of Impact ( <u>Impact</u> )  | Discharge of Fill (Including Culverts) | 1.00                      |
| 3. Product of SQFC and Impact ( <u>SQFC Impact</u> ) =   |  | 1.00                      |
| 4. Duration of Impact ( <u>Duration</u> )  | Permanent/Reoccurring                  | 1.00                      |
| 5. Product of SQFC Impact and Duration ( <u>Total SQFC Impact</u> ) =  |  | 1.00                      |
| 6. Product of Total SQFC Impact and Linear Feet ( <b><u>Total 2018 Stream Credits Owed</u></b> ) =                             |  | <b>304.80</b>             |
| 7. Conversion of Total 2018 Stream Compensation to Grandfathered Credits ( <b><u>Grandfathered Stream Credits Owed</u></b> ) = |  | <b>3,657.60</b>           |

**Legend**

|   |
|---|
| Green Cells = User must manually input information.                       |
| Orange Cells = User must select the index choice from the drop-down list. |
| Grey Cells = The calculation of these cells is automated.                 |

Worksheet 2: Qualitative Worksheet for Stream Adverse Impacts

|  |   |
|--|---|
| Project Name:                          | Ball Ground Alternatives Analysis Mitigation Estimate |
| Impact Reach Name:                     | Alternative B - Perennial                             |
| Linear Feet of Impact ( <i>Feet</i> ): | 518   |
| Stream Type:                           | Perennial Streams (greater than 3 square miles)       |
| Date:                                  | February 11, 2020                                     |

**Impact Factors**

|  | <u>Index Description</u>               | <u>Index Value</u> |
|--|--|--------------------|
| 1. Stream Qualitative Functional Capacity Score ( <i>SQFC</i> )  | High                                   | 1.00               |
| 2. Type of Impact ( <i>Impact</i> )  | Discharge of Fill (Including Culverts) | 1.00               |
| 3. Product of SQFC and Impact ( <i>SQFC Impact</i> ) =   |  | 1.00               |
| 4. Duration of Impact ( <i>Duration</i> )  | Permanent/Reoccurring                  | 1.00               |
| 5. Product of SQFC Impact and Duration ( <i>Total SQFC Impact</i> ) =  |  | 1.00               |
| 6. Product of Total SQFC Impact and Linear Feet ( <b><i>Total 2018 Stream Credits Owed</i></b> ) =                             |  | <b>518.00</b>      |
| 7. Conversion of Total 2018 Stream Compensation to Grandfathered Credits ( <b><i>Grandfathered Stream Credits Owed</i></b> ) = |  | <b>6,216.00</b>    |

**Legend**

|   |
|---|
| Green Cells = User must manually input information.                       |
| Orange Cells = User must select the index choice from the drop-down list. |
| Grey Cells = The calculation of these cells is automated.                 |



**Ball Ground Alternatives Analysis**

**Stream Mitigation Worksheet:** When applying under criterion 2(h), a multiplier of 1.1 or 1.2 will be placed on the number of stream credits needed to serve as mitigation for not addressing the post-development total suspended solids and stormwater runoff reduction and/or water quality protection components. These stream credits are calculated by first determining the number of stream credits required according to the State's Standard Operating Procedure, Calculation of Stream Buffer Credits. The applicant then calculates the number of stream credits with the multiplier of 1.1 or 1.2 for not addressing post-development total suspended solids and stormwater runoff reduction and/or water quality protection components. Lastly, the applicant calculates the difference between the two stream credit calculations. This difference is the amount of stream credits that must be purchased to offset not addressing post-development total suspended solids and stormwater runoff reduction and/or water quality protection components

**ALTERNATIVE B**

|   |                |                |
|---|----------------|----------------|
| <b>61524.14</b> ft <sup>2</sup> of impact X 0.046 credits per ft <sup>2</sup> X 2.5 factor for off-site = | <b>7075.28</b> |                |
| <b>7075.28</b> stream credits X 1.0 (in-basin multiplier) =   | <b>7075.28</b> |                |
| <b>7075.28</b> stream credits X 1.2 (multiplier for hydrologic and water quality protection) =            |                | <b>8490.33</b> |
| <b>8490.33</b> stream credits – <b>7075.28</b> stream credits =   | <b>1415.06</b> |                |

---

Stream Credits = **1416** Required Stream Credits

## Utility Conceptual Cost Estimate:

|              |                                 |         |                         |
|--------------|---------------------------------|---------|-------------------------|
| Project No:  |                                 | Office: | <b>Duluth</b>           |
| County:      | <b>Cherokee</b>                 | Date:   | <b>December 7, 2020</b> |
| P.I.#:       | <b>0002525</b>                  |         |                         |
| Description: | <b>Ball Ground Truck Bypass</b> |         |                         |

**FROM** Jason Walton, Utility Coordinator

**TO** GDOT

**SUBJECT** CONCEPT UTILITY COST ESTIMATE

A review of utilities located on the above referenced project has been conducted with 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>               |
|--|---------------------|-------------------------|--|
| <b>Ga Power</b>                            | <b>\$721,000.00</b> | <b>\$42,000.00</b>      | <b>Site Visit / Available Drawings</b> |
| <b>Amicalola EMC</b>                       | <b>\$0.00</b>       | <b>\$40,000.00</b>      | <b>Site Visit / Available Drawings</b> |
| <b>Ga Power Transmission</b> <b>NC</b>     | <b>\$0.00</b>       | <b>\$0.00</b>           | <b>Site Visit / Available Drawings</b> |
| <b>TDS Telecom</b>                         | <b>\$0.00</b>       | <b>\$27,000.00</b>      | <b>Site Visit / Available Drawings</b> |
| <b>CCWSA</b> <b>**</b>                     | <b>\$143,280.00</b> | <b>\$0.00</b>           | <b>Site Visit / Available Drawings</b> |
| <b>City of Ball Ground Water</b> <b>**</b> | <b>\$162,800.00</b> | <b>\$0.00</b>           | <b>Site Visit / Available Drawings</b> |
| <b>City of Ball Ground Sewer</b> <b>**</b> | <b>\$60,000.00</b>  | <b>\$0.00</b>           | <b>Site Visit / Available Drawings</b> |
| <b>AGL</b>                                 | <b>\$280,000.00</b> | <b>\$369,080.00</b>     | <b>Site Visit / Available Drawings</b> |
| <b>Ellijay Telephone Company</b>           | <b>\$0.00</b>       | <b>\$50,400.00</b>      | <b>Site Visit / Available Drawings</b> |
| <b>Windstream</b>                          | <b>\$0.00</b>       | <b>\$42,720.00</b>      | <b>Site Visit / Available Drawings</b> |
|  |                     |                         |  |
| <b>Total</b>                               | <b>100.00%</b>      | <b>\$1,367,080.00</b>   | <b>\$571,200.00</b>                    |
| <b>Department Responsibility</b>           | <b>100.00%</b>      | <b>\$1,367,080.00</b>   |  |
| <b>Local Sponsor Responsibility</b>        | <b>0.00%</b>        | <b>\$0.00</b>           | <b>PFA Dated N/A with N/A</b>          |

\*\* 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.

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE:** PI #0002525, Cherokee County

**OFFICE:** State Utilities Office

**FROM:** *Jill Franks for:*  
Patrick Allen, State Utilities Administrator

**DATE:** February 08, 2020

**TO:** Kimberly Nesbitt, State Program Delivery Administrator  
Attn: John Hightower, Project Manager

**SUBJECT: PRELIMINARY RAILROAD COST (CONCEPT ESTIMATE)**

A review of railroads located within the project limits on the above referenced project has been conducted based on the proposed concept layout plans. Listed below is a breakdown of the estimated railroad costs:

| FACILITY OWNER   | NON-REIMBURSABLE | REIMBURSABLE         |
|--|------------------|----------------------|
| Georgia Northeastern Railroad Company (GNRR)                       |                  |                      |
| - P.E. review cost for at-grade railroad crossing                  | \$0.00           | \$ 45,000.00- LOCAL  |
| - Const. cost for at-grade railroad crossing                       | \$0.00           | \$ 377,000.00- LOCAL |
|  |                  |                      |
| - P.E. review cost for warning devices                             | \$0.00           | \$ 9,500.00- LOCAL   |
| - Const. cost for warning devices<br>including two temporary gates | \$0.00           | \$ 525,000.00- LOCAL |
|  |                  |                      |
| Subtotal Reimbursable Railroad PE cost:                            |                  | <b>\$ 54,500.00</b>  |
| Subtotal Reimbursable Railroad UTIL/CONSTR cost:                   |                  | <b>\$ 902,000.00</b> |
| Total Reimbursement Cost:  |                  | <b>\$ 956,500.00</b> |

Please note that this amount does not include other reimbursable utility costs that may be associated with this project. This project is funding by the LOCAL for PE and Utilities.

If you have any questions, please contact Jill Franks, (404) 631-1370, [jfranks@dot.ga.gov](mailto:jfranks@dot.ga.gov) or Teshome Yitateku, (404) 631-1072, [tyitateku@dot.ga.gov](mailto:tyitateku@dot.ga.gov).

PA:tty

cc: Marcela Coll, Utilities Preconstruction Manager  
Angela Robinson, State Financial Management Administrator  
Jun Birnkammer, District 6 Utilities Manager  
Kevin Cowan, Utilities Railroad Crossing Manager

# Concept Utility Report

**Project Number:** NA

**District:** 6

**County:** Cherokee

**Prepared By:** Jason Walton

**P.I. #:** 0002525

**Date:** December 7, 2020

**Project Description:** This project will provide a truck bypass between SR 5 and SR 372

*The information provided Herein has been gathered from Georgia811 and/or field visits and serves as an estimate. Nothing contained in this report is to be used as a substitute for 1<sup>st</sup> submission or SUE.*

**Are SUE services recommended?** Yes

**Level:** A and B

**Public Interest Determination (PID):** No Use

**Is a separate utility funding phase recommended?** No

**Potential Project (Schedule/Budget) Impacts:** Schedule impacts are possible due to poor cooperation of certain utilities. There could also be a large relocation cost if some of the Georgia Power and AGL facilities are not avoided. This could result in an impact to the budget.

**Capital Improvement Projects (Utilities) Anticipated in the Area:** Most likely there will be some to water and power.

**Project Specific Recommendations for Avoidance/Mitigation:** Avoid Ga Power MCM 1000 and switch cabinets if possible as well as 8" steel gas main.

**Right of Way Coordination:** Mandatory to minimize delays to the project.

**Environmental Coordination:** N/A

**Additional Remarks:** None

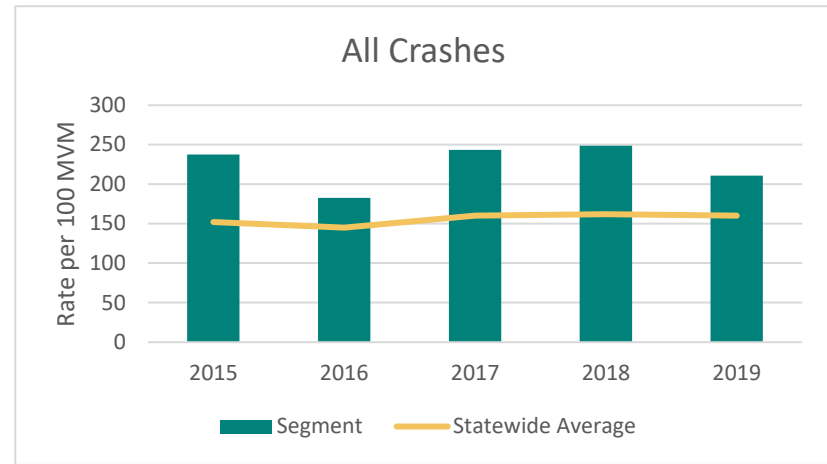
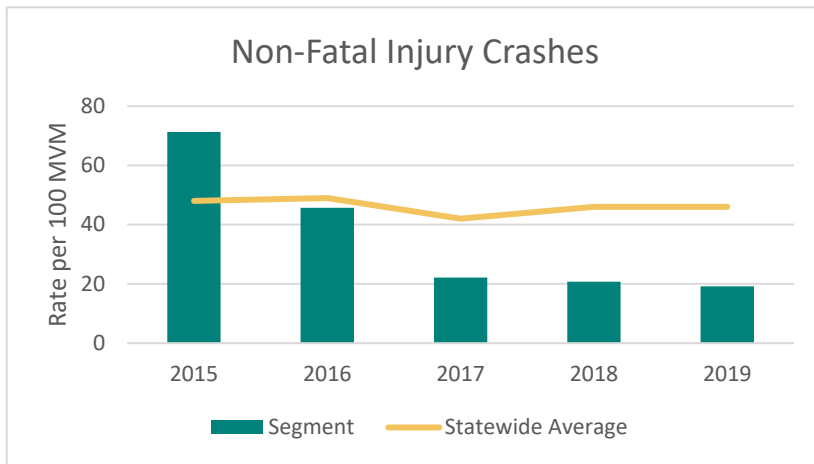
**Utilities have facilities within the project limits.**

**Utilities have been identified using Georgia811 and/or Filed visits.**

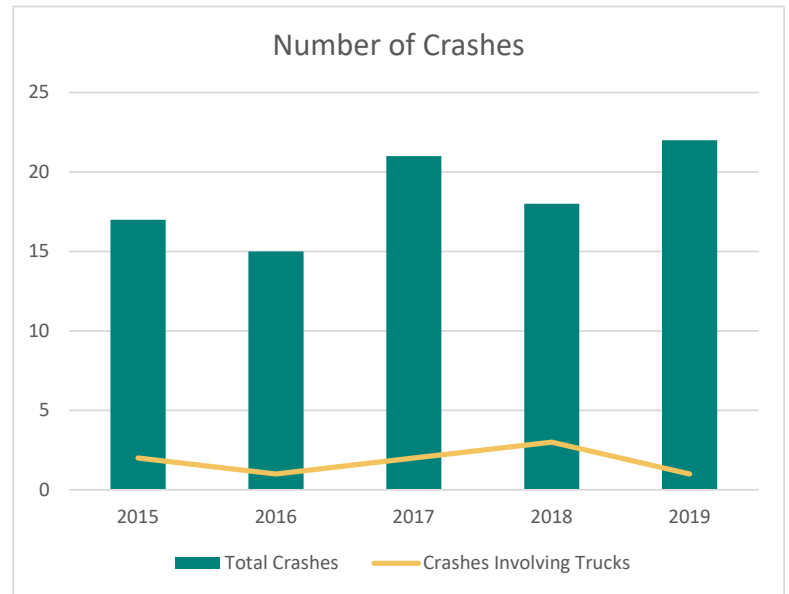
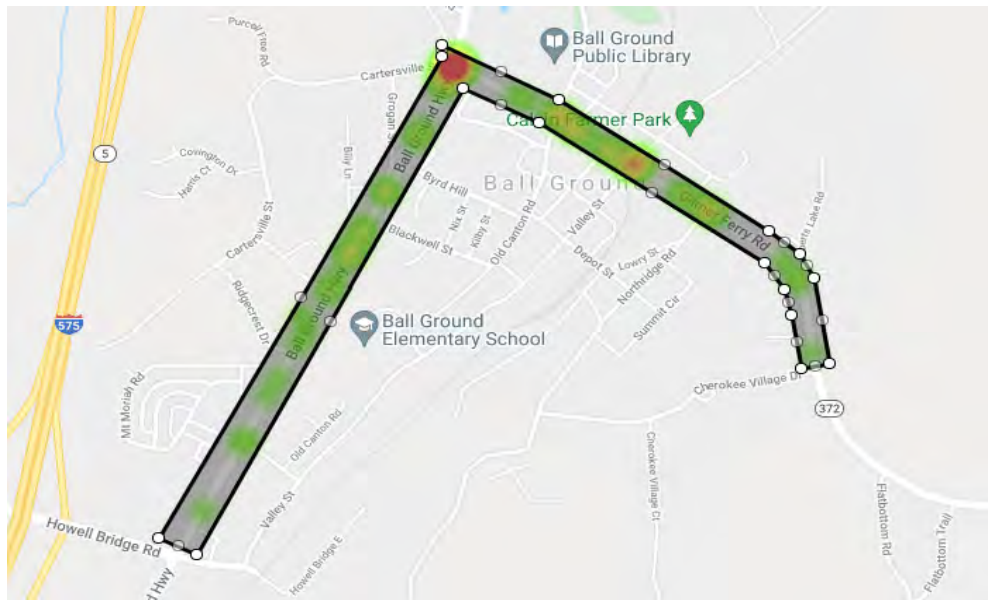
| Facility Owner            | Facility Owner contact email address   | Existing Facilities  | General description of location  | Facilities to avoid   | Facilities retention recommended |
|---------------------------|--|--|--|---|----------------------------------|
| Atlanta Gas Light         | Chesleigh J. Charles,<br><a href="mailto:ccharles@southernco.com">ccharles@southernco.com</a> .        | 8" steel, 4" steel, 4" plastic, 2" plastic   | Running along every road within project  | 8" steel main and 4" steel main   |                                  |
| Amicalola EMC             |  | Overhead 3 phase primary   | Ball Ground Rd and Flat Bottom Rd  | None  |                                  |
| City of Ball Ground Water | Eric Wilmarth,<br><a href="mailto:EWilmarth@cityofballground.com">EWilmarth@cityofballground.com</a> . | Water and Sewer mains  | Ball Ground Rd, Flat Bottom Rd, Ball Ground Hwy, Howell Bridge Rd.   | none  |                                  |
| Cherokee County Water     | Rusty Moss,<br><a href="mailto:rusty.moss@ccwsa.com">rusty.moss@ccwsa.com</a> .                        | 8" DIP, 8" PVC   | 8" PVC on S side of SR 372, 8" DIP on E side of Flat Bottom Rd   | none  |                                  |
| Ellijay telephone company | Danny Marshall,<br><a href="mailto:dannym@ellijay.com">dannym@ellijay.com</a> .                        | Buried and aerial fiber/copper   | Buried and aerial fiber/copper along Ball Ground Rd HWY 5 and Howell Bridge Rd/Wilhunt Rd                              | None  |                                  |
| Georgia Power             | John Gay,<br><a href="mailto:JCGAY@southernco.com">JCGAY@southernco.com</a> .                          | Overhead 3 phase primaries, buried 1000 MCM cable and buried street light cables. Multiple transformers and switch cabinets. | Aerial and buried primaries along Howell Bridge Rd/Wilhunt Rd, aerial primary along HWY 5, aerial primary along SR 372 | Switch cabinets and the underground 1000MCM cable, 3 power poles on corner of Howell Bridge Rd/Wilhunt Rd at SR 5 |                                  |
| TDS Telecom               |  | Buried fiber   | Buried fiber along Howell Bridge Rd/Wilhunt Rd   | None  |                                  |
| Windstream                | Lisa Zingula,<br><a href="mailto:Lisa.Zingula@windstream.com">Lisa.Zingula@windstream.com</a> .        | Buried Fiber   | Buried along HWY 5, the CSX railroad ROW and Howell Bridge Rd/Wilhunt Rd.  | None  |                                  |

SR 372 Comparison to Statewide Averages

| Rate Description   |                   | Year |      |      |      |      |
|--------------------|-------------------|------|------|------|------|------|
|                    |                   | 2015 | 2016 | 2017 | 2018 | 2019 |
| Fatal Crashes      | Segment           | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|                    | Statewide Average | 2.13 | 2.42 | 2.13 | 2.00 | 1.91 |
| Fatalities         | Segment           | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|                    | Statewide Average | 2.42 | 2.74 | 2.37 | 2.18 | 2.27 |
| Non-Fatal Injury   | Segment           | 71   | 46   | 22   | 21   | 19   |
|                    | Statewide Average | 48   | 49   | 42   | 46   | 46   |
| Non-Fatal Injuries | Segment           | 71   | 46   | 22   | 21   | 38   |
|                    | Statewide Average | 74   | 74   | 82   | 69   | 69   |
| All Crashes        | Segment           | 237  | 183  | 243  | 249  | 211  |
|                    | Statewide Average | 152  | 145  | 160  | 162  | 160  |



| Crash Type                         | 2015      |             | 2016      |             | 2017      |             | 2018      |             | 2019      |             | 2015-2019 Crashes |             |
|------------------------------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-------------------|-------------|
| Angle                              | 4         | 24%         | 3         | 20%         | 4         | 19%         | 4         | 22%         | 2         | 9%          | 17                | 18%         |
| Head On                            | 1         | 6%          | 1         | 7%          | 1         | 5%          | 2         | 11%         | 2         | 9%          | 7                 | 8%          |
| Not A Collision with Motor Vehicle | 3         | 18%         | 1         | 7%          | 4         | 19%         | 1         | 6%          | 5         | 23%         | 14                | 15%         |
| Rear End                           | 3         | 18%         | 7         | 47%         | 8         | 38%         | 5         | 28%         | 8         | 36%         | 31                | 33%         |
| Sideswipe-Opposite Direction       | 1         | 6%          | 1         | 7%          | 0         | 0%          | 0         | 0%          | 2         | 9%          | 4                 | 4%          |
| Sideswipe-Same Direction           | 1         | 6%          | 2         | 13%         | 3         | 14%         | 2         | 11%         | 0         | 0%          | 8                 | 9%          |
| Other/Unknown                      | 4         | 24%         | 0         | 0%          | 1         | 5%          | 4         | 22%         | 3         | 14%         | 12                | 13%         |
| <b>Total Crashes</b>               | <b>17</b> | <b>100%</b> | <b>15</b> | <b>100%</b> | <b>21</b> | <b>100%</b> | <b>18</b> | <b>100%</b> | <b>22</b> | <b>100%</b> | <b>93</b>         | <b>100%</b> |
| Injury Crashes                     | 5         |             | 2         |             | 2         |             | 1         |             | 1         |             | 11                |             |
| Injuries                           | 6         |             | 2         |             | 2         |             | 1         |             | 2         |             | 13                |             |
| Fatal Crashes                      | 0         |             | 0         |             | 0         |             | 0         |             | 0         |             | 0                 |             |
| Fatalities                         | 0         |             | 0         |             | 0         |             | 0         |             | 0         |             | 0                 |             |





## Interoffice Memo

**FILE:** Cherokee County  
P.I. # 0002525

**DATE:** August 15, 2019

**FROM:** Paul Tanner, State Transportation Planning Administrator

**TO:** Kimberly Nesbitt, State Program Delivery Administrator  
**Attention: Gretel Sims**

**SUBJECT: Design Traffic Forecasts** for SR 372 SPUR FM SR 5BU@ HOWELL  
BR RD TO SR 372 SO/BALL GROUND

Per request, we have reviewed the consultant's design traffic forecasts for the above scoping project. Based on the information furnished, we find the design traffic forecasts to be satisfactory and are furnishing a **conditional approval**, as this project is currently in a scoping phase with multiple build alternatives. As the project progresses into the concept phase, and a preferred build alternative is identified, the design traffic forecasts should be revised with the preferred build alternative and resubmitted to the Office of Planning to seek a final approval to be included with the concept report.

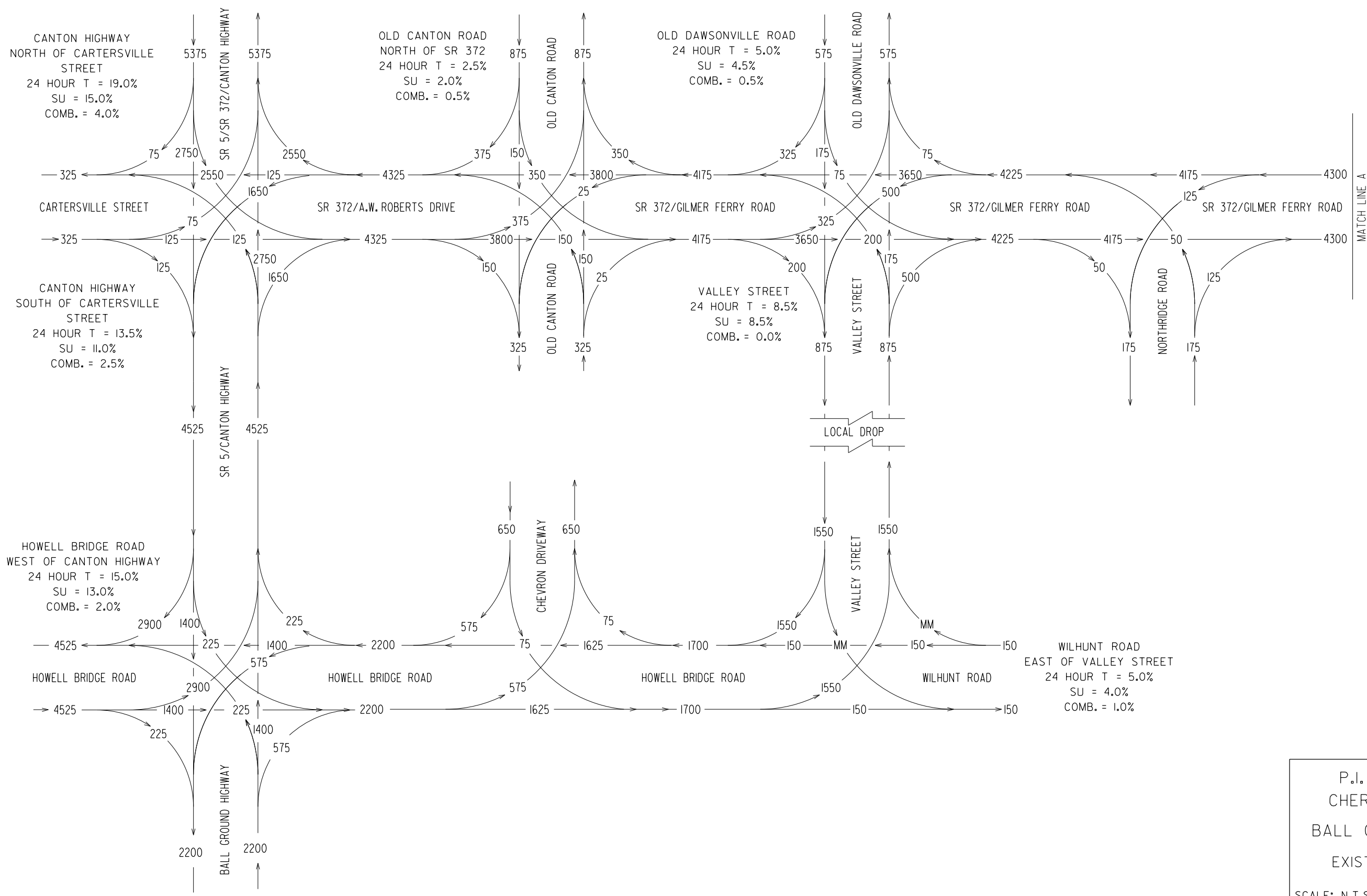
The reviewed and approved design traffic forecasts for the above scoping project is attached in 0002525\_10.pdf and 0002525\_10.dgn.

If you have any questions concerning this information please contact Andre Washington at 404-631-1925.

Nithin Gomez  
Gresham Smith  
Design Traffic Review Consultant to GDOT  
678-478-3350

RPT/NMG

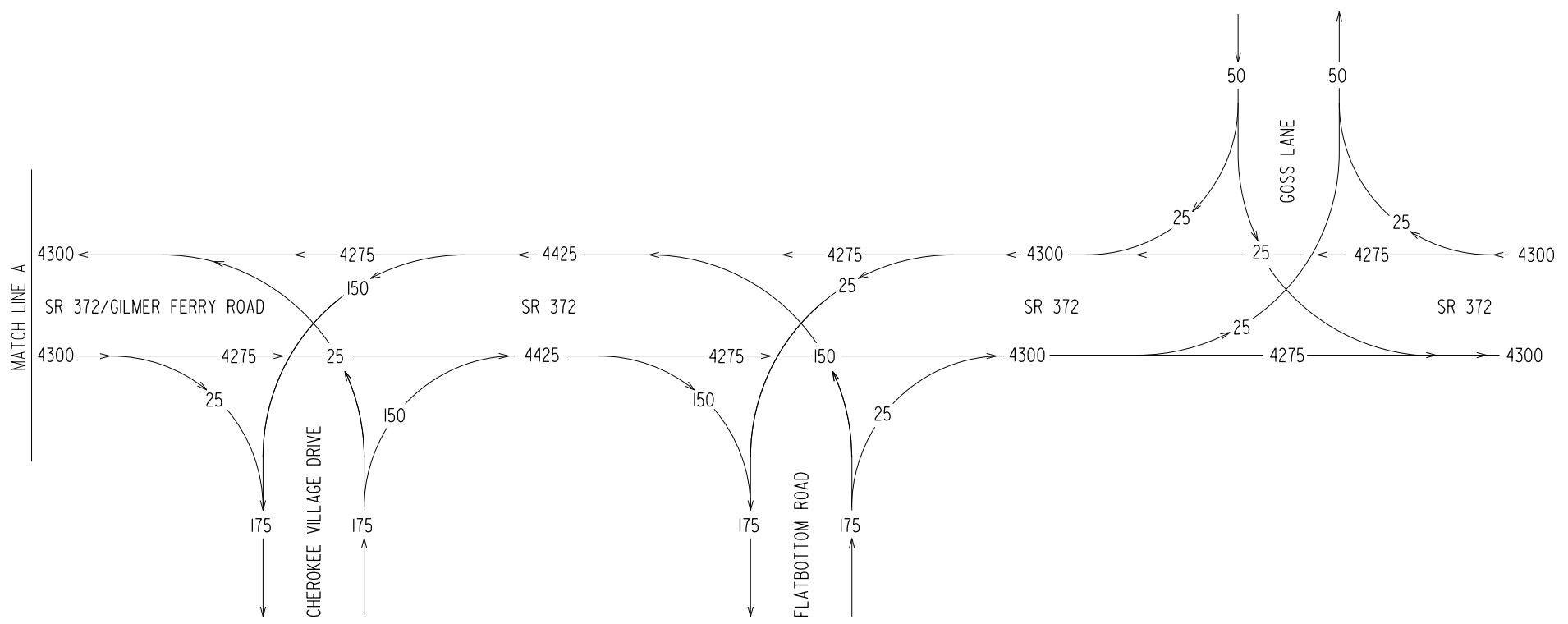




P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 EXISTING 2018 AADT  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     |     | DATE:                              |          |
| VERIFIED:      |     | DATE:                              |          |
| DRAWING No.    |     | 10-0001                            |          |

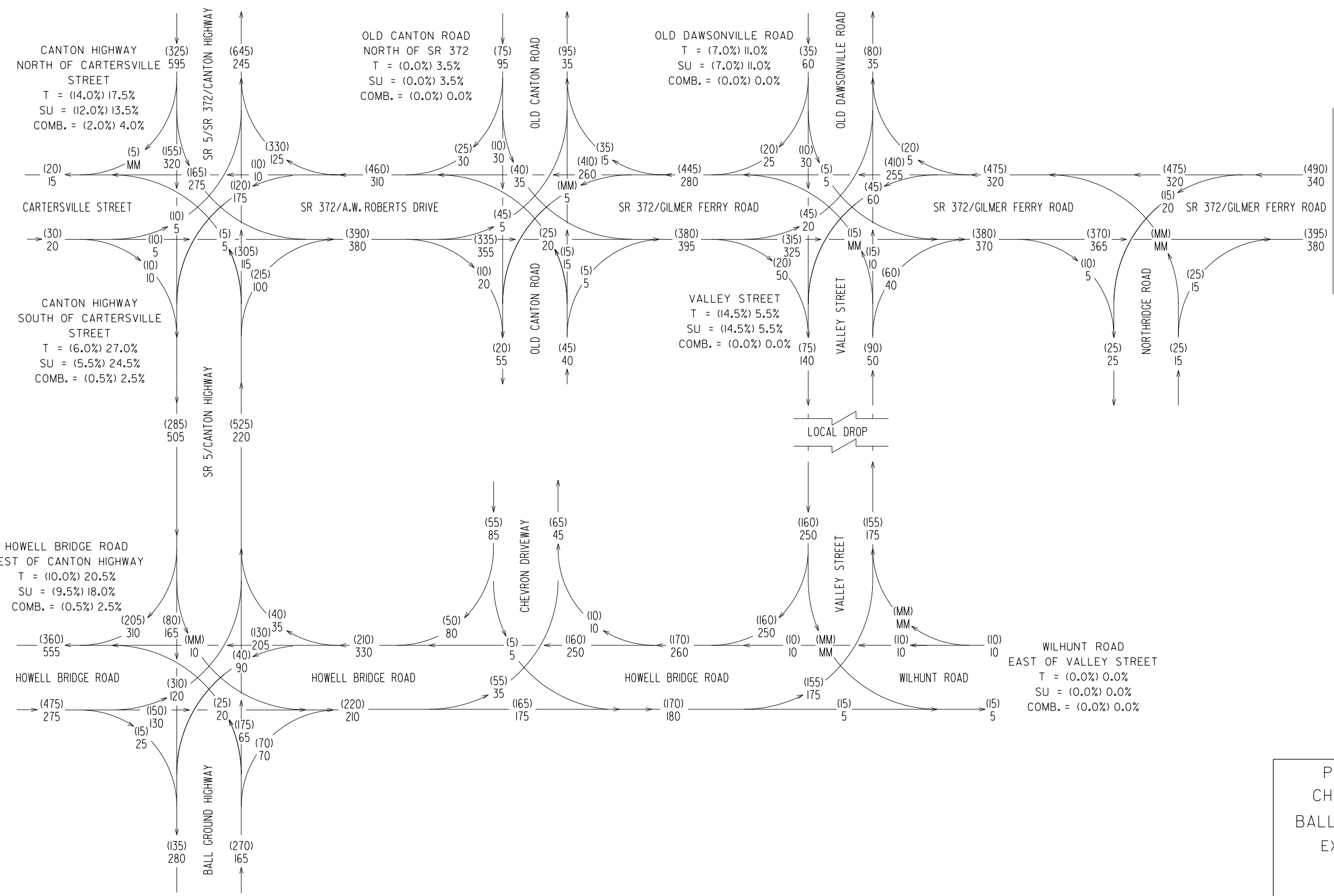


SR 372  
EAST OF GOSS LANE  
24 HOUR T = 13.0%  
SU = 8.5%  
COMB. = 4.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
EXISTING 2018 AADT  
SCALE: N.T.S.



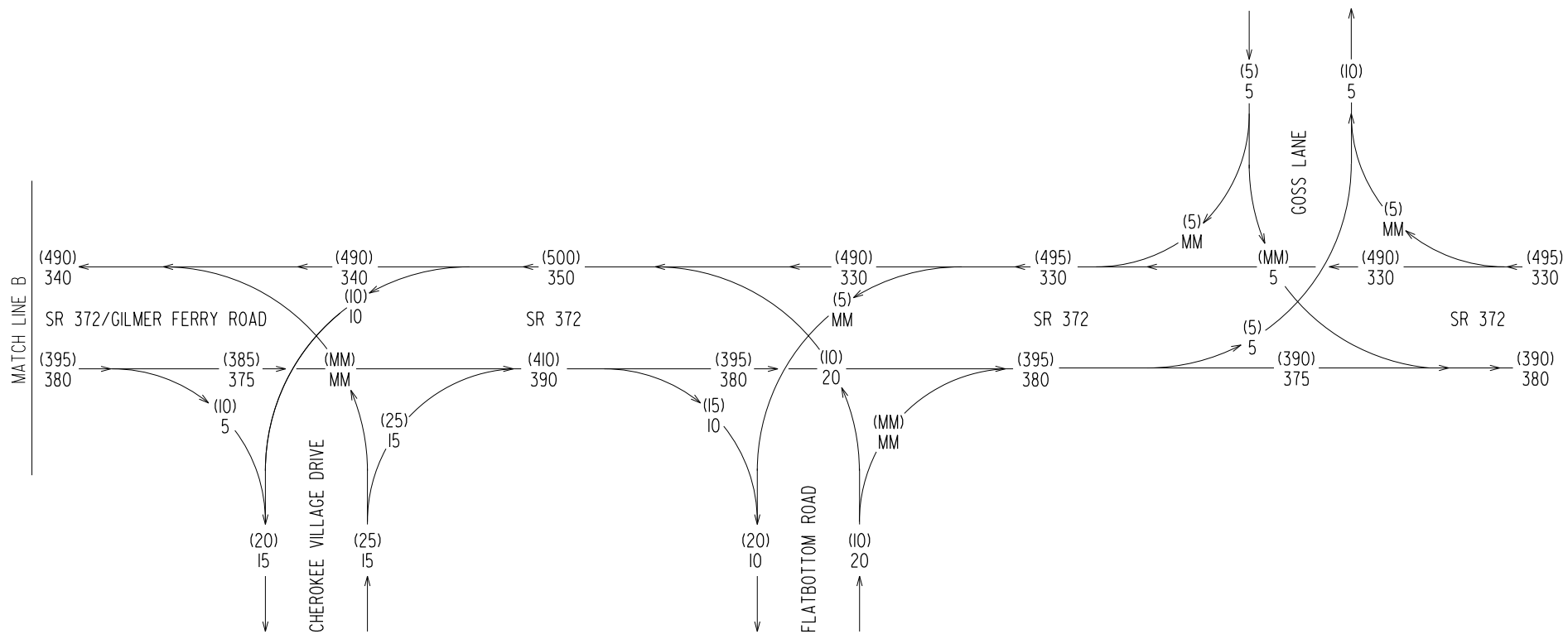
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MMG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MMG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0002  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 EXISTING 2018 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0003  |

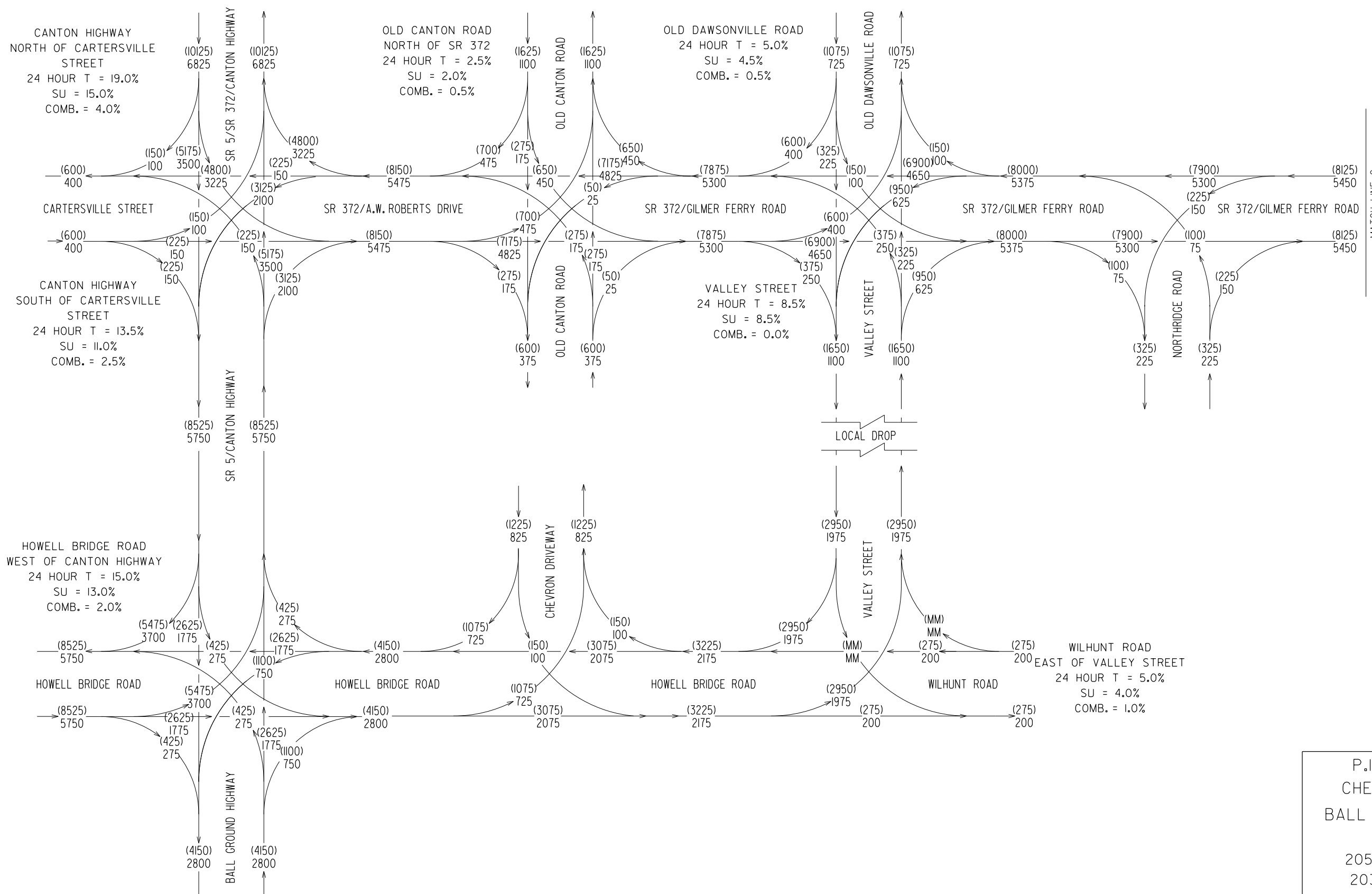


SR 372  
EAST OF GOSS LANE  
T = (7.0%) 10.0%  
SU = (5.0%) 7.5%  
COMB. = (2.0%) 2.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
EXISTING 2018 DHV  
PM = (000)  
AM = 000  
SCALE: N.T.S.



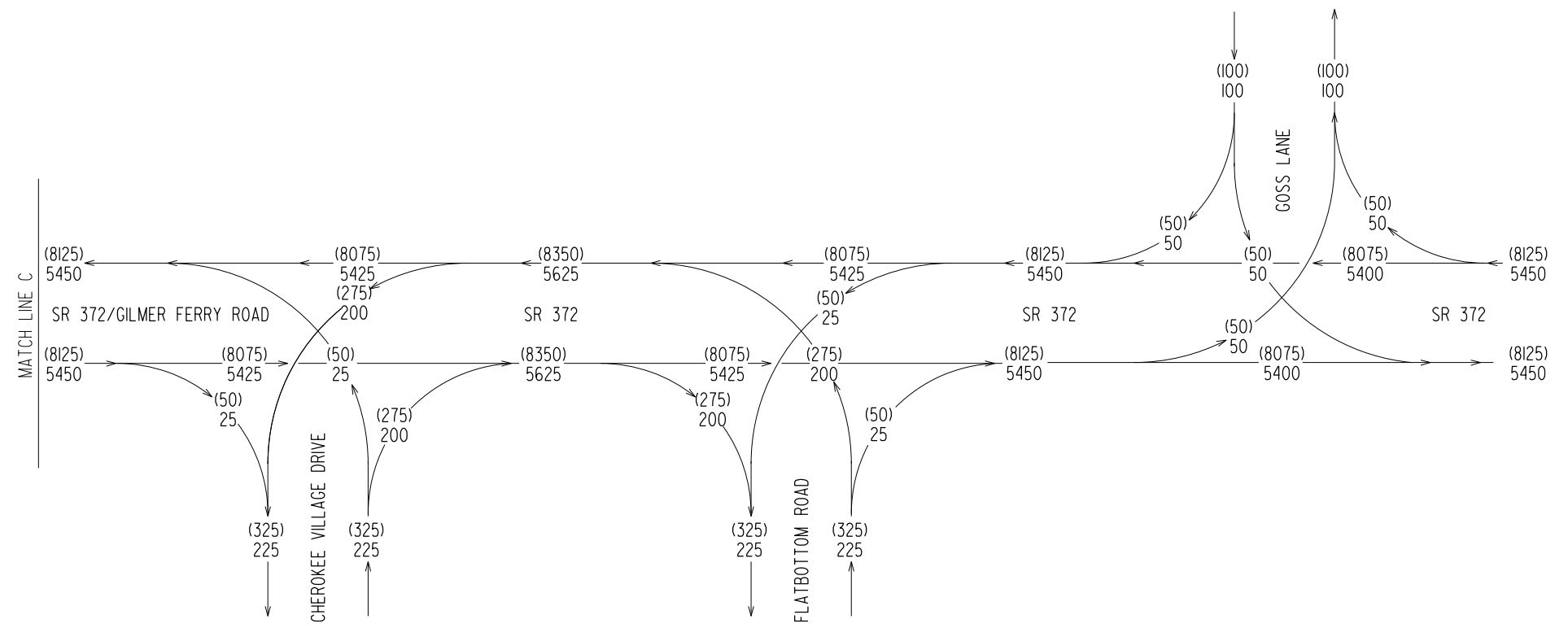
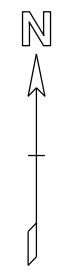
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0004  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 NO BUILD  
 2050 AADT = (000)  
 2030 AADT = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |         |
|----------------|-----|------------------------------------|---------|
|                |     | BALL GROUND BYPASS                 |         |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |         |
| CHECKED:       | RLR | DATE:                              | 6/11/19 |
| BACKCHECKED:   | BMT | DATE:                              | 6/11/19 |
| CORRECTED:     |     | DATE:                              |         |
| VERIFIED:      |     | DATE:                              |         |
|                |     | DRAWING No.                        |         |
|                |     | 10-0005                            |         |

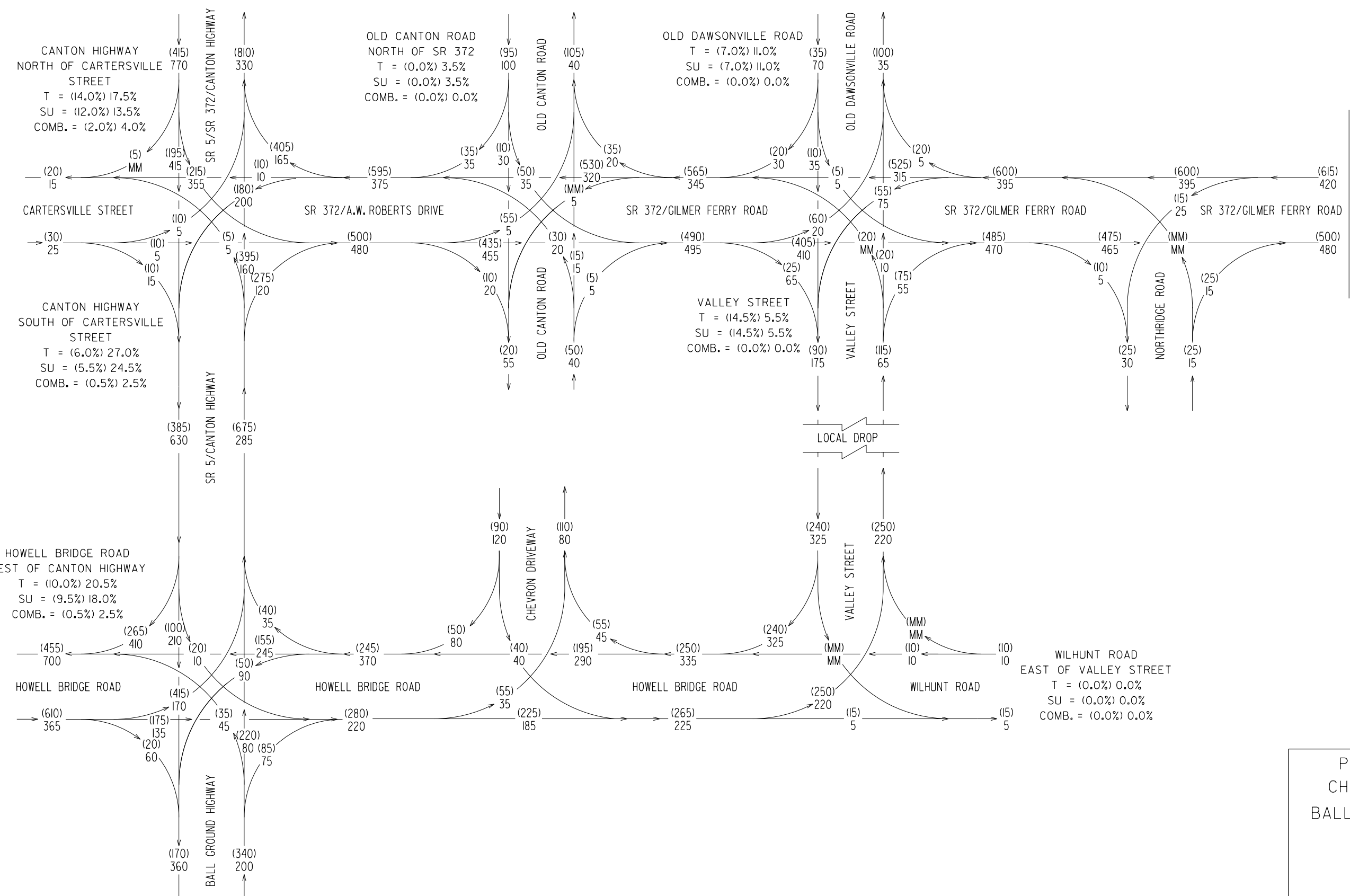


SR 372  
EAST OF GOSS LANE  
24 HOUR T = 13.0%  
SU = 8.5%  
COMB. = 4.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
NO BUILD  
2050 AADT = (000)  
2030 AADT = (000)  
SCALE: N.T.S.



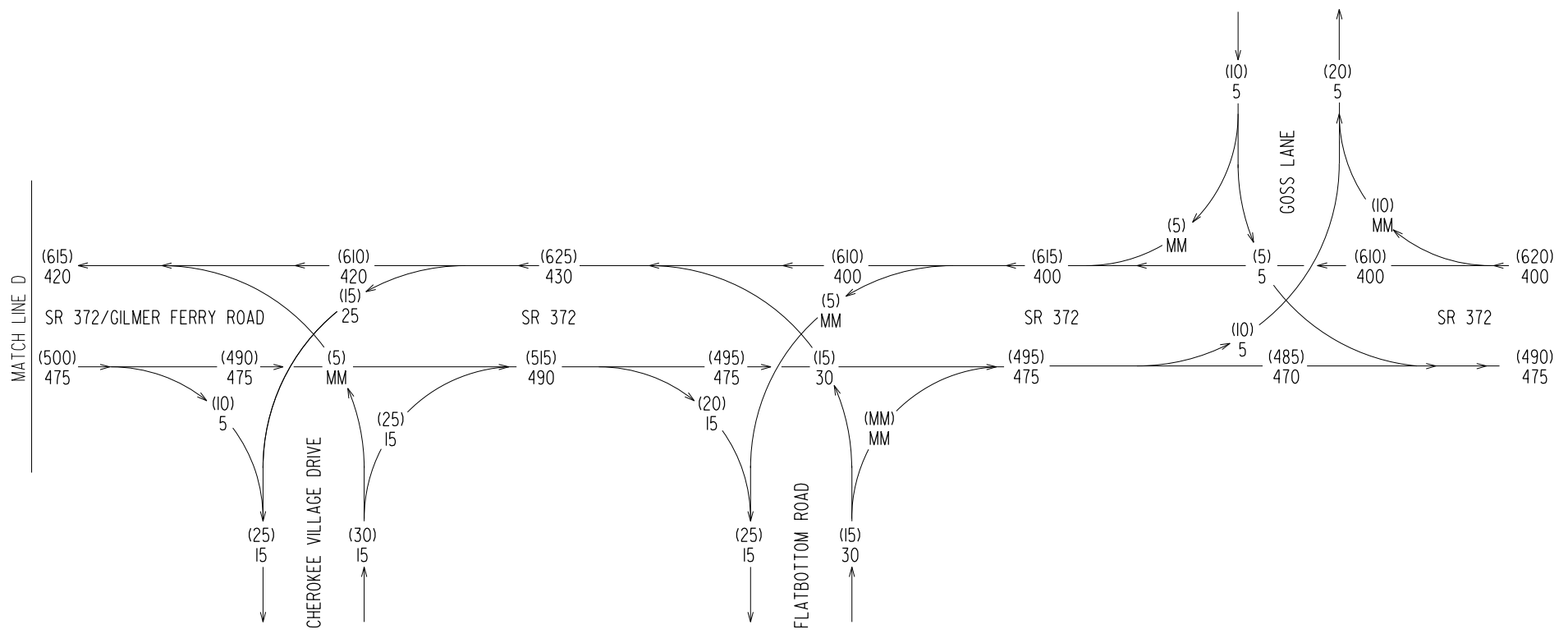
| REVISION DATES |     | TRAFFIC DIAGRAM                    |         |
|----------------|-----|------------------------------------|---------|
|                |     | BALL GROUND BYPASS                 |         |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |         |
| CHECKED:       | RLR | DATE:                              | 6/11/19 |
| BACKCHECKED:   | MWG | DATE:                              | 6/11/19 |
| CORRECTED:     |     | DATE:                              |         |
| VERIFIED:      |     | DATE:                              |         |
| DRAWING No.    |     |                                    | 10-0006 |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 NO BUILD  
 2030 DHV  
 PM = (000)  
 AM = (000)  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | BMT | DATE:                              | 06/11/19 |
| BACKCHECKED:   | MWG | DATE:                              | 06/11/19 |
| CORRECTED:     |     | DATE:                              |          |
| VERIFIED:      |     | DATE:                              |          |
|                |     | DRAWING No.                        | 10-0007  |



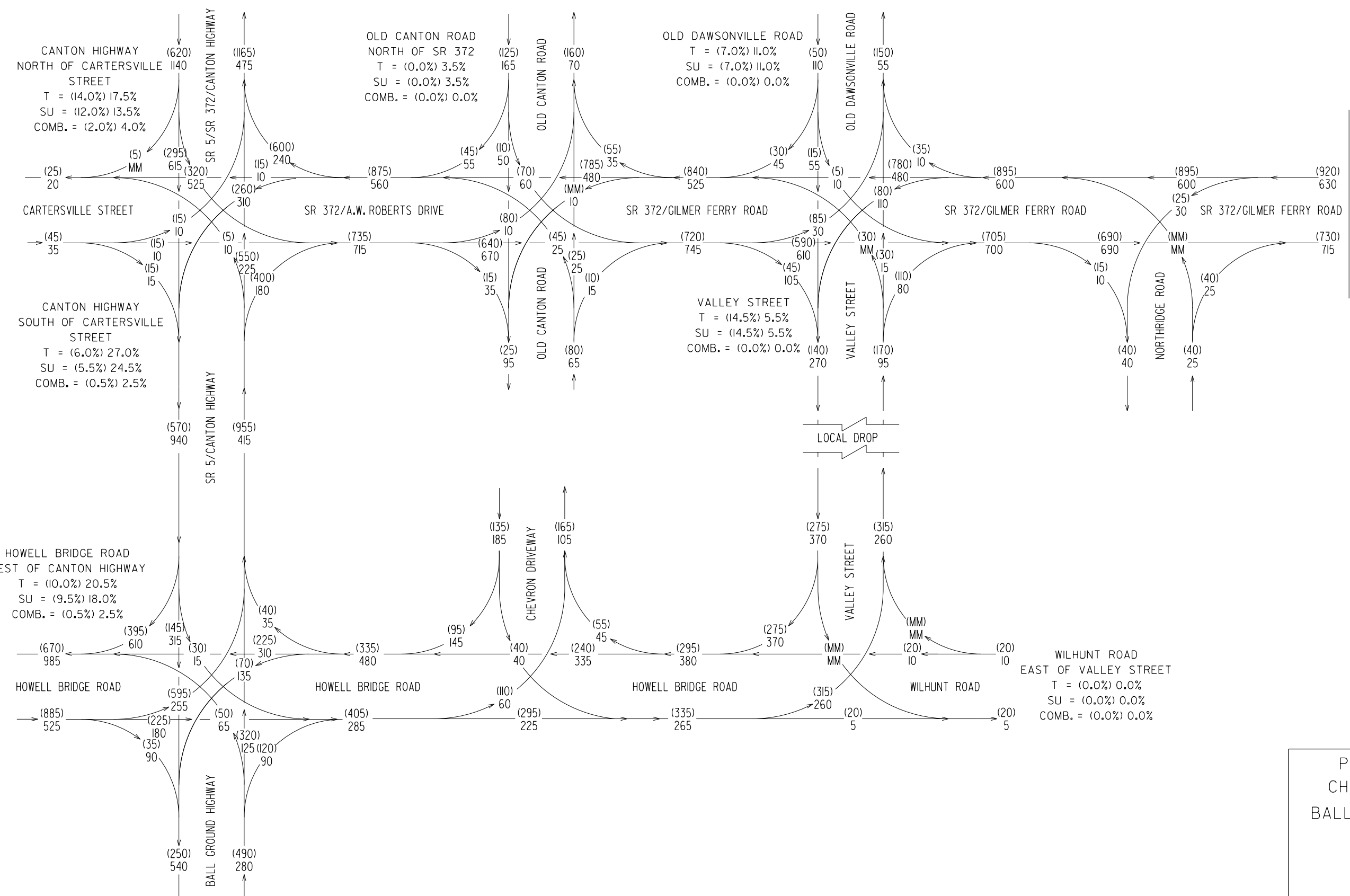
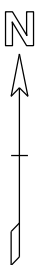
SR 372  
EAST OF GOSS LANE  
T = (7.0%) 10.0%  
SU = (5.0%) 7.5%  
COMB. = (2.0%) 2.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
NO BUILD  
2030 DHV  
PM = (000)  
AM = (000)  
SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0008  |

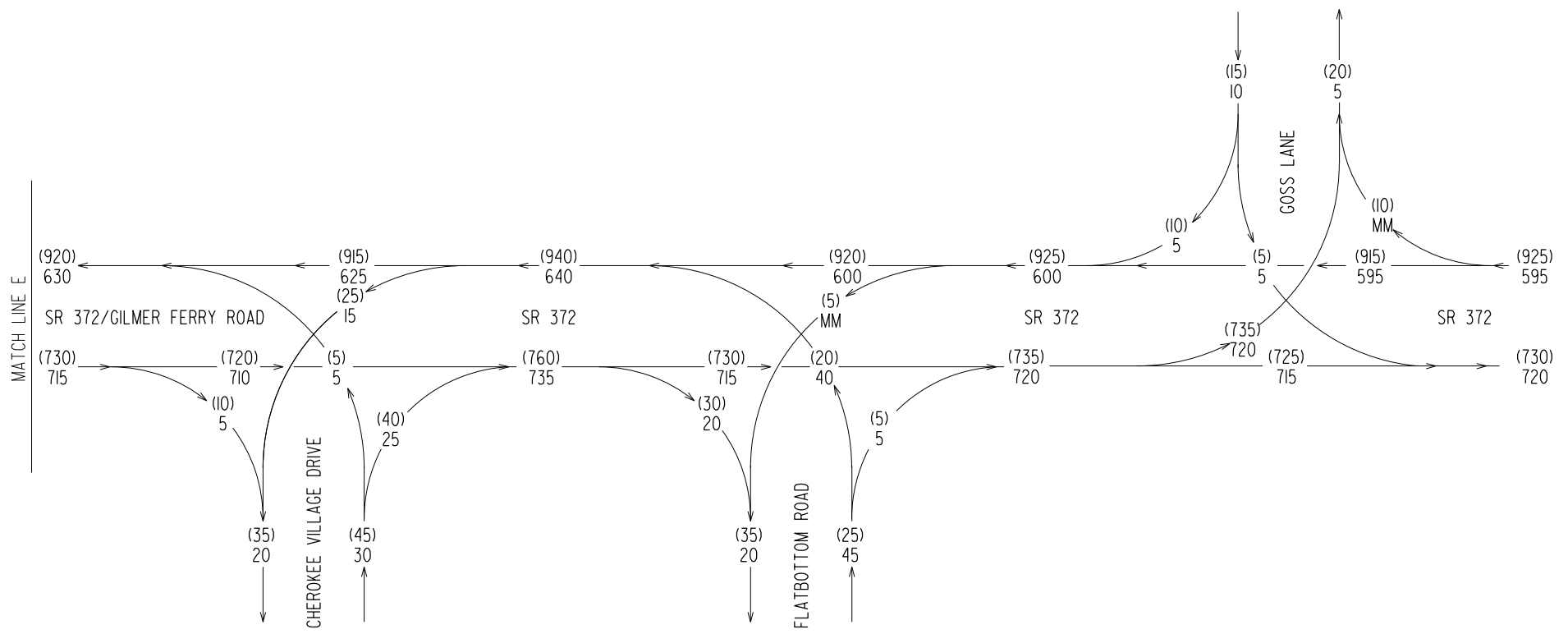




P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 NO BUILD  
 2050 DHV  
 PM = (000)  
 AM = (000)  
 SCALE: N.T.S.

| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0009  |



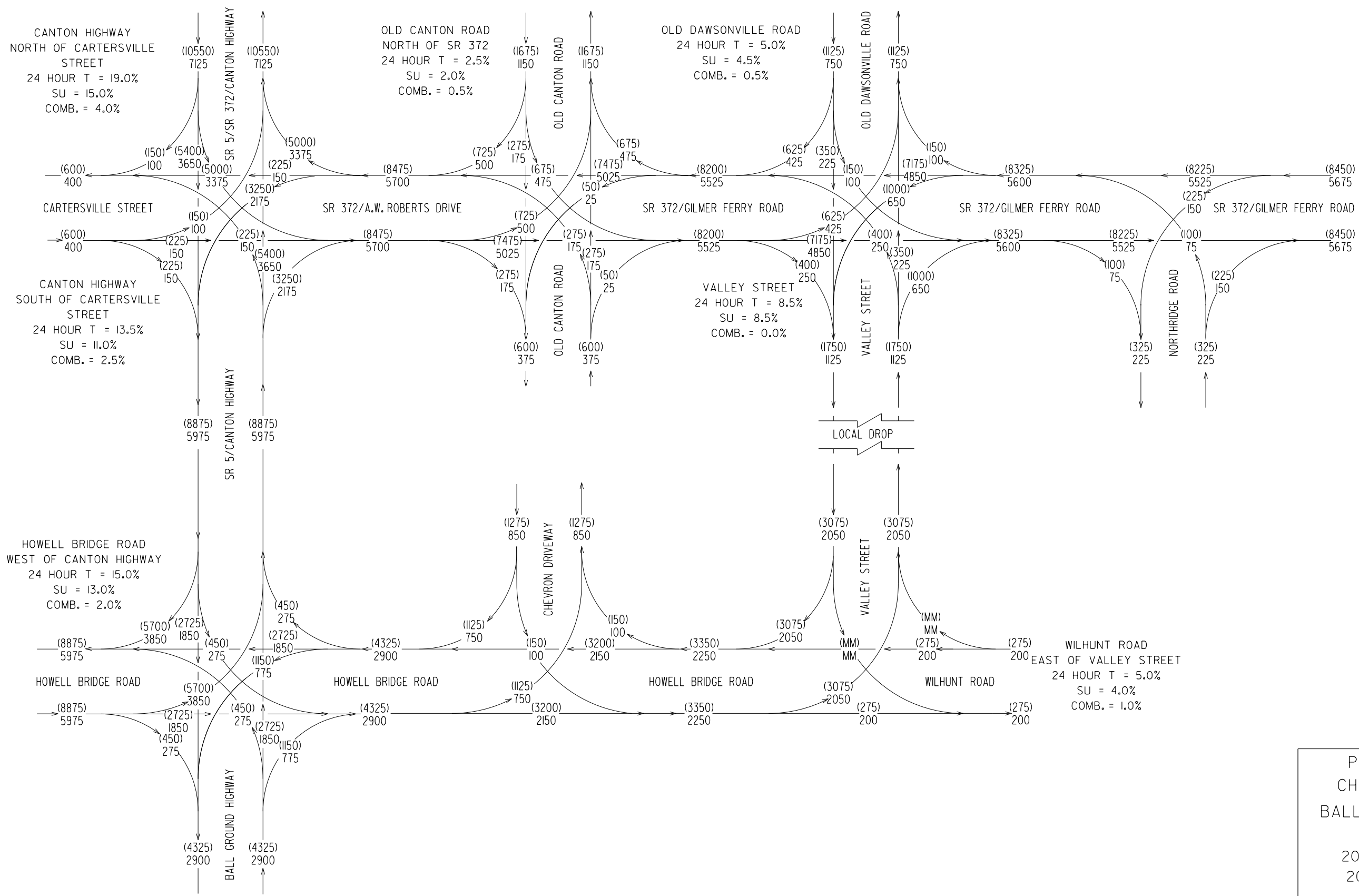


SR 372  
EAST OF GOSS LANE  
T = (7.0%) 10.0%  
SU = (5.0%) 7.5%  
COMB. = (2.0%) 2.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
NO BUILD  
2050 DHV  
PM = (000)  
AM = (000)  
SCALE: N.T.S.



| REVISION DATES   |                | TRAFFIC DIAGRAM                    |  |
|------------------|----------------|------------------------------------|--|
|                  |                | BALL GROUND BYPASS                 |  |
|                  |                | HOWELL BRIDGE RD TO BALL GROUND RD |  |
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No.                        |  |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0010                            |  |
| CORRECTED: RLR   | DATE: 04/08/19 |                                    |  |
| VERIFIED: MMG    | DATE: 04/08/19 |                                    |  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 NO BUILD  
 2052 AADT = (000)  
 2032 AADT = 000  
 SCALE: N.T.S.

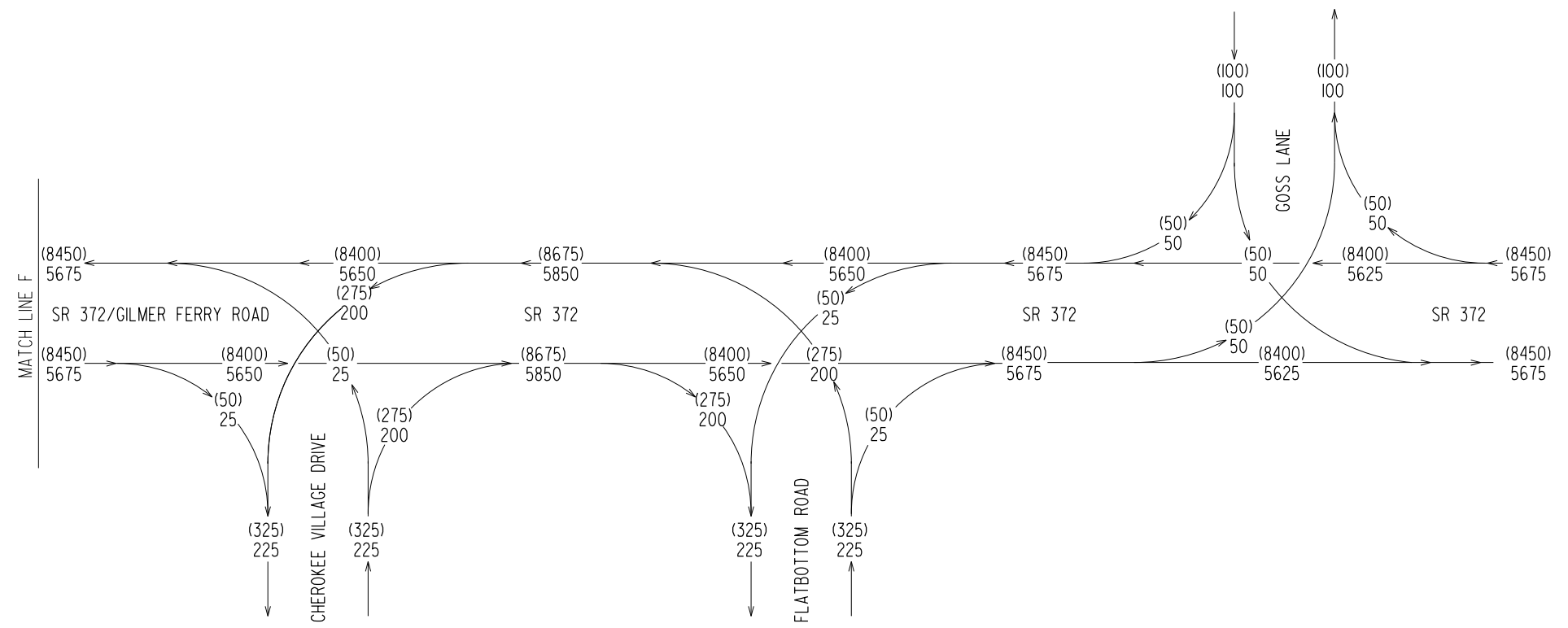
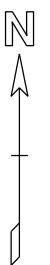
REVISION DATES

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**TRAFFIC DIAGRAM**  
 BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0011     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |



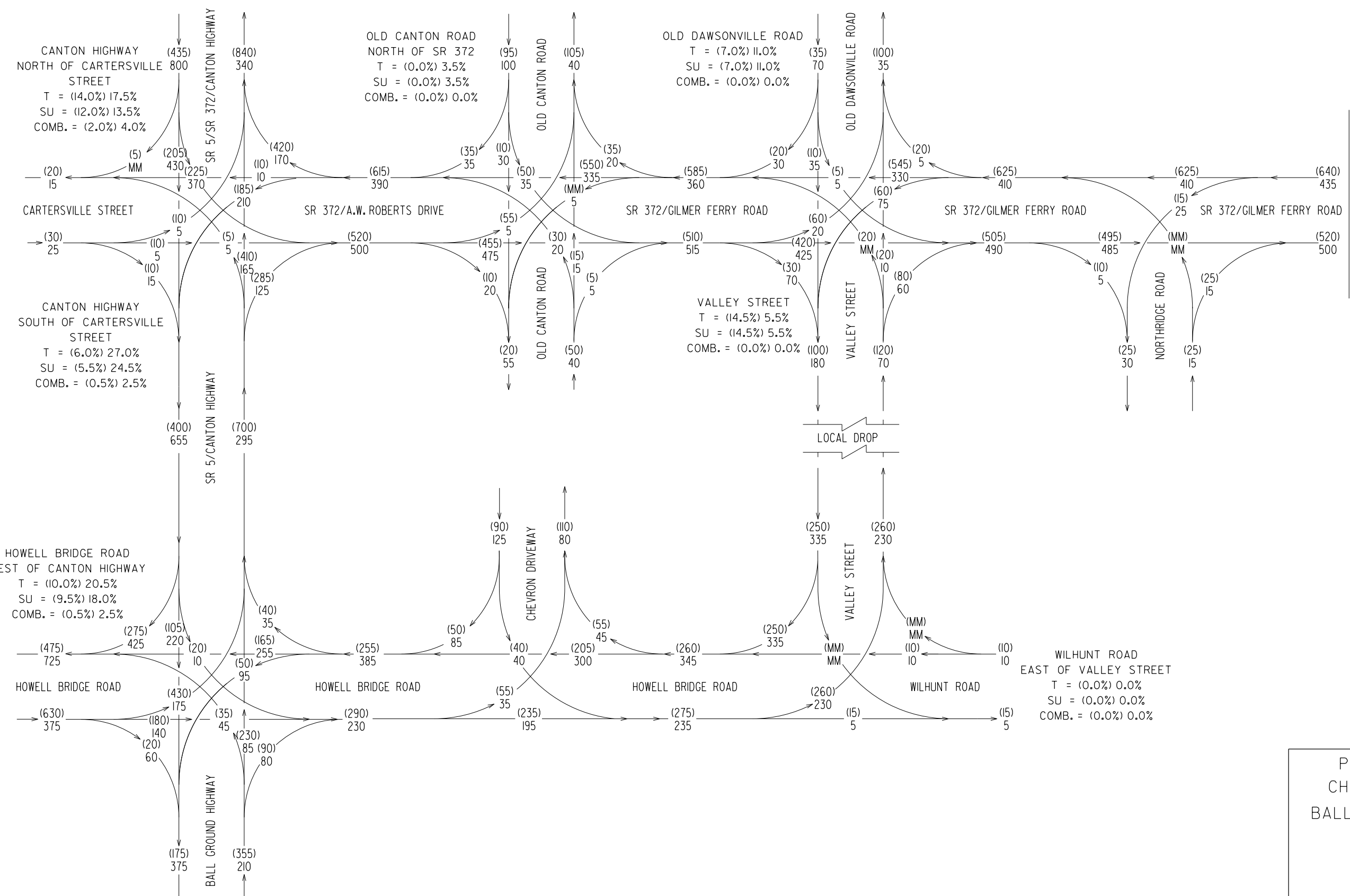
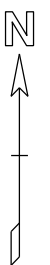


SR 372  
EAST OF GOSS LANE  
24 HOUR T = 13.0%  
SU = 8.5%  
COMB. = 4.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
NO BUILD  
2052 AADT = (000)  
2032 AADT = (000)  
SCALE: N.T.S.



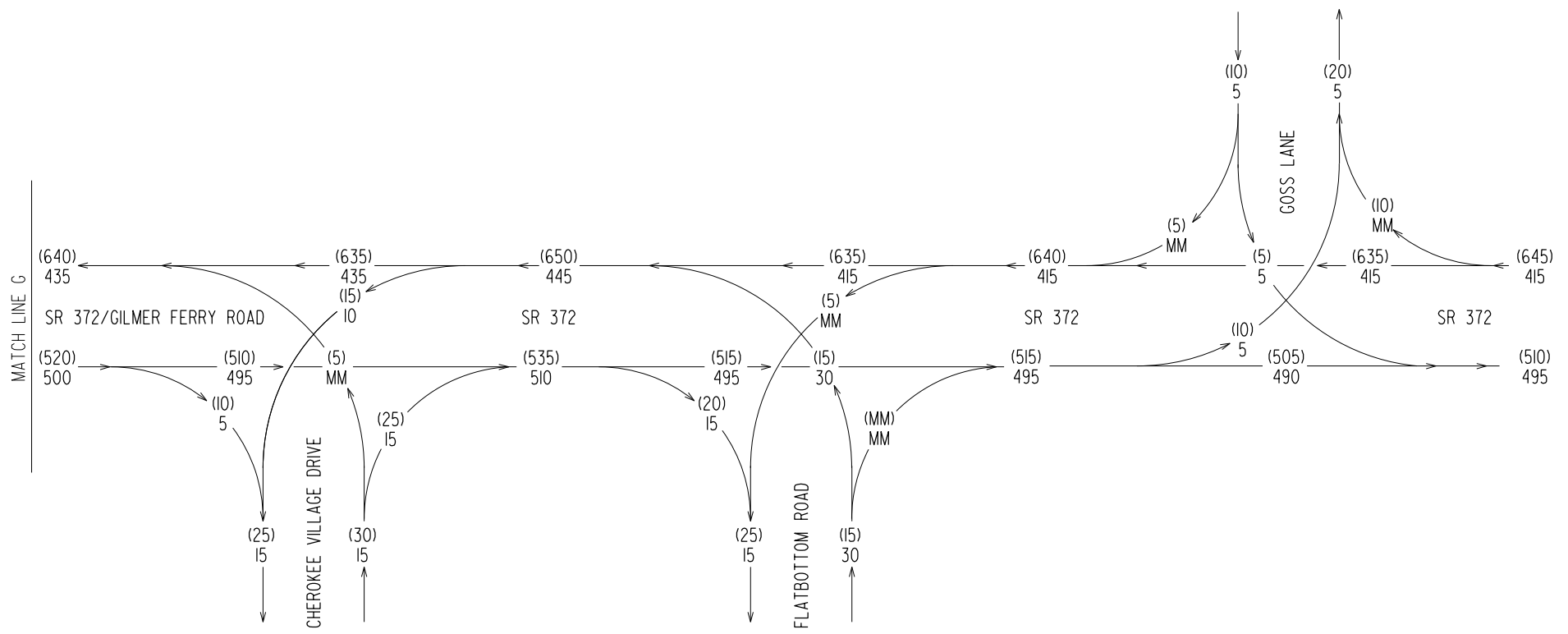
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MMG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0012  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 NO BUILD  
 2032 DHV  
 PM = (000)  
 AM = (000)  
 SCALE: N.T.S.

| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0013  |



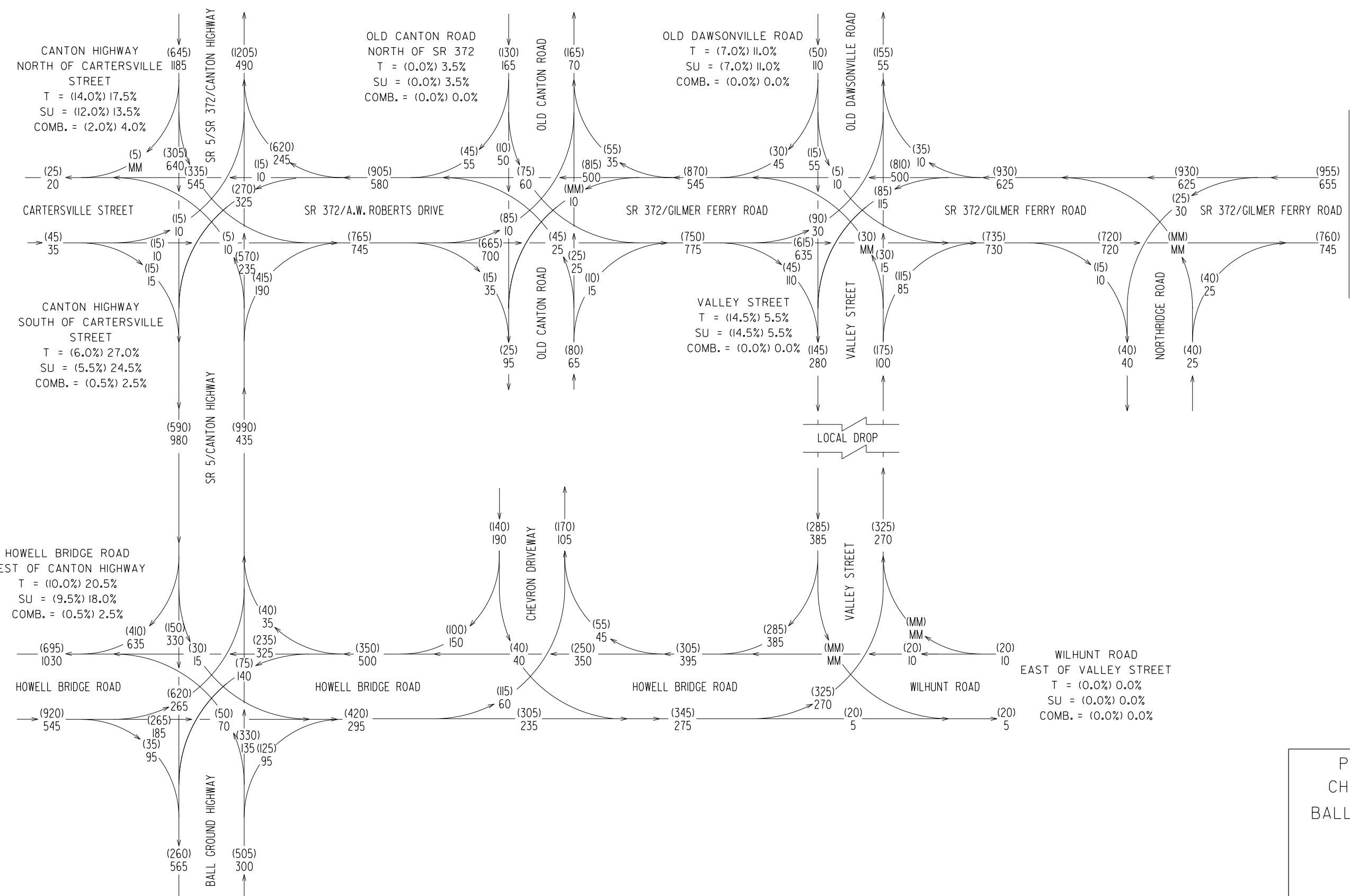
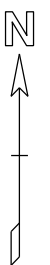


SR 372  
EAST OF GOSS LANE  
T = (7.0%) 10.0%  
SU = (5.0%) 7.5%  
COMB. = (2.0%) 2.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
NO BUILD  
2032 DHV  
PM = (000)  
AM = (000)  
SCALE: N.T.S.



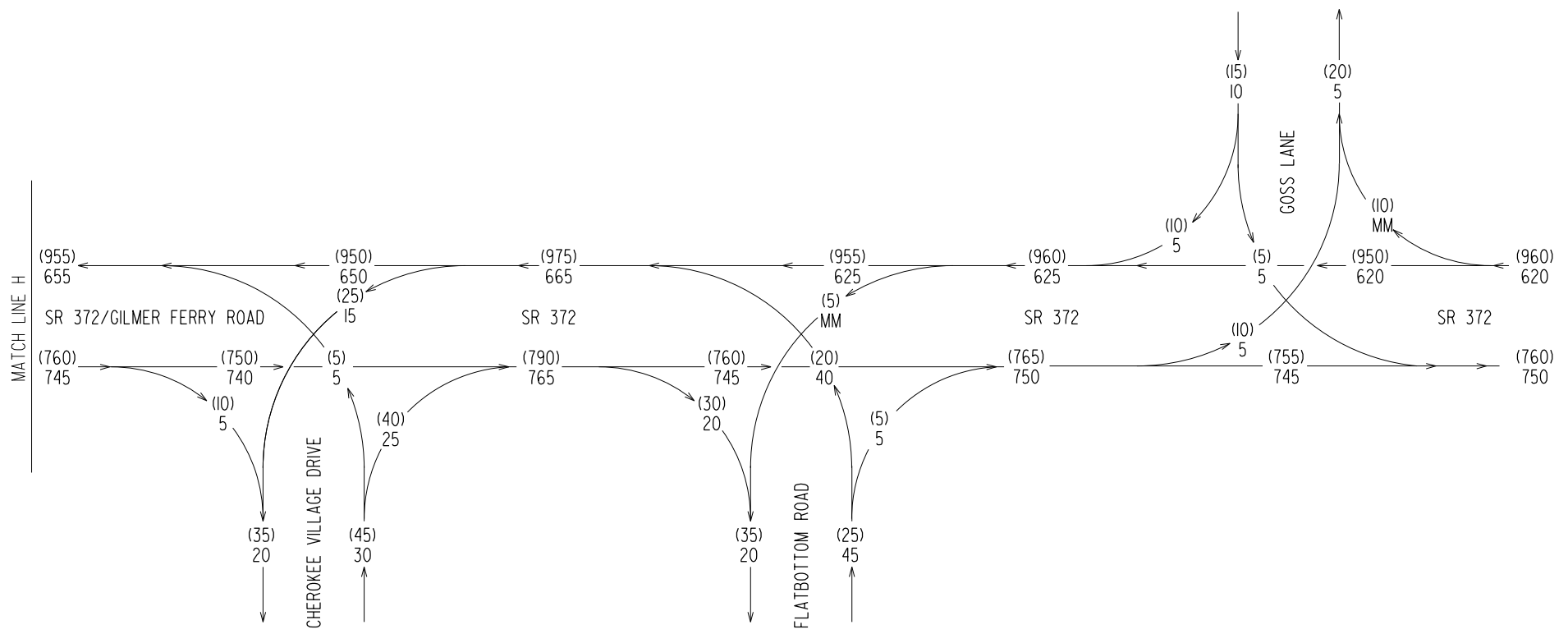
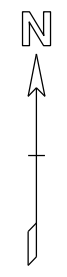
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0014  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 NO BUILD  
 2052 DHV  
 PM = (000)  
 AM = (000)  
 SCALE: N.T.S.

| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0015  |





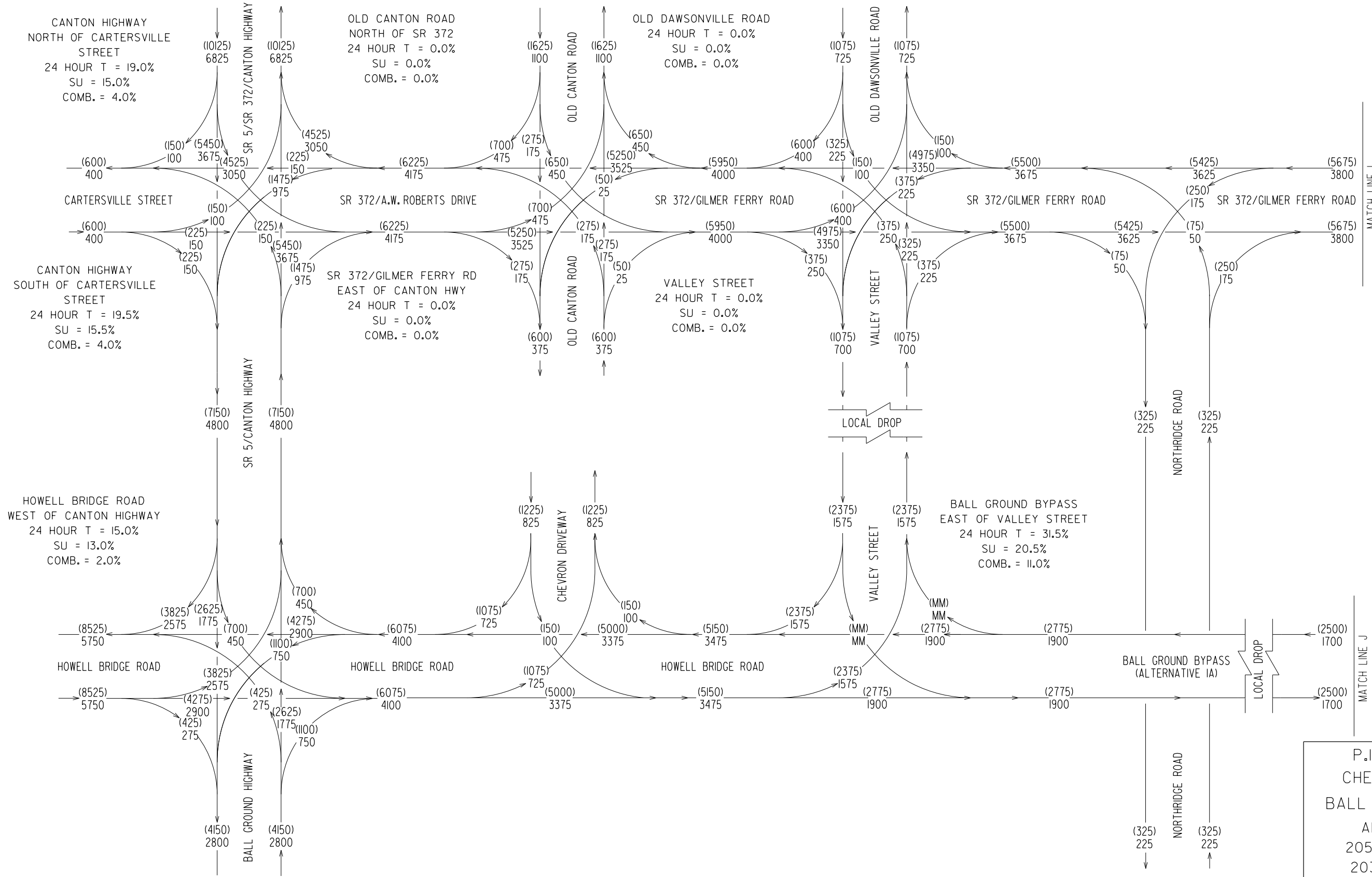
SR 372  
EAST OF GOSS LANE  
T = (7.0%) 10.0%  
SU = (5.0%) 7.5%  
COMB. = (2.0%) 2.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
NO BUILD  
2052 DHV  
PM = (000)  
AM = (000)  
SCALE: N.T.S.



| REVISION DATES   |                | TRAFFIC DIAGRAM                    |  |
|------------------|----------------|------------------------------------|--|
|                  |                | BALL GROUND BYPASS                 |  |
|                  |                | HOWELL BRIDGE RD TO BALL GROUND RD |  |
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No.                        |  |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0016                            |  |
| CORRECTED: RLR   | DATE: 04/08/19 |                                    |  |
| VERIFIED: MMG    | DATE: 04/08/19 |                                    |  |





MATCH LINE I

MATCH LINE J

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IA  
 2050 AADT = (000)  
 2030 AADT = 000  
 SCALE: N.T.S.

REVISION DATES

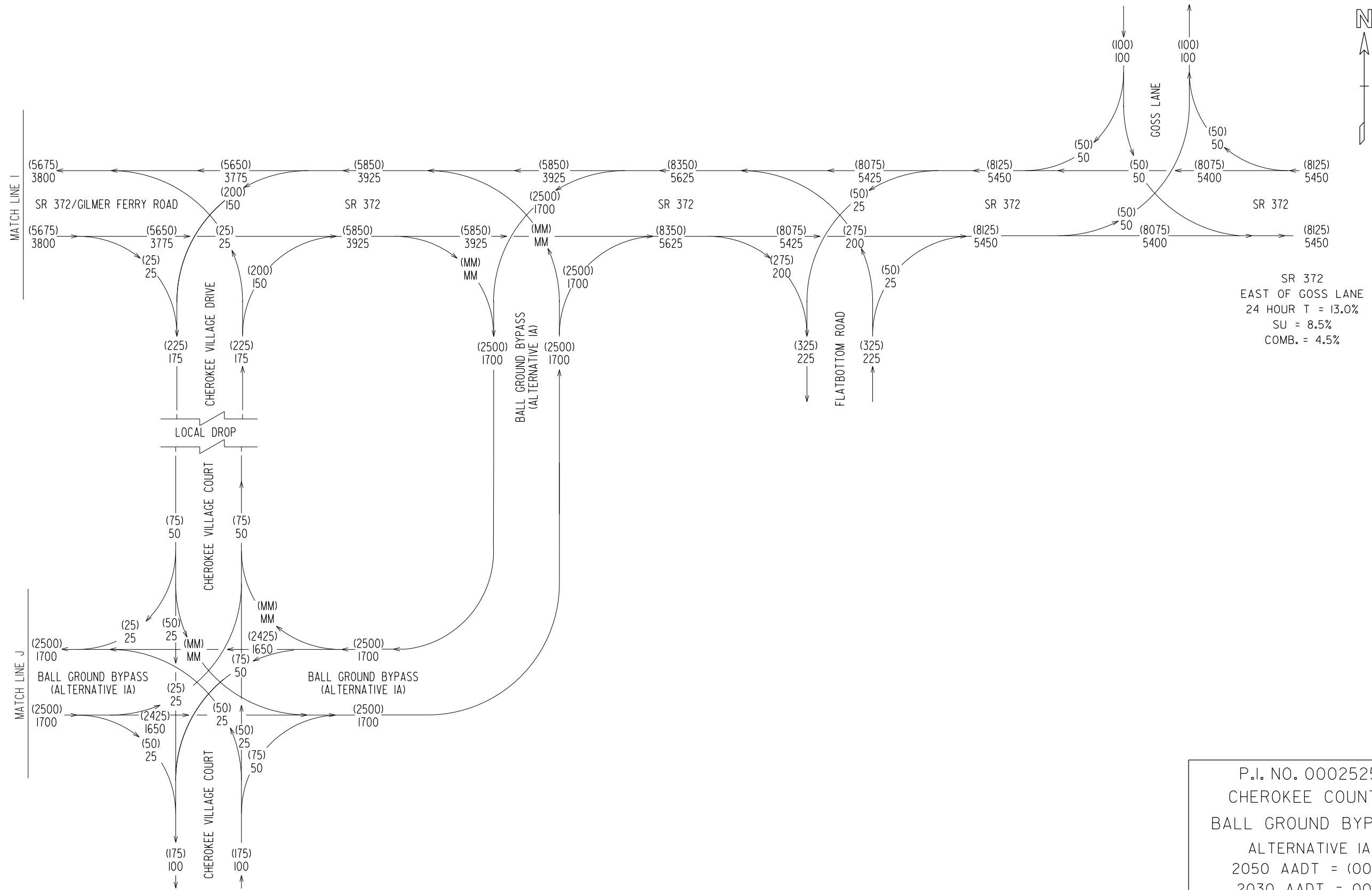
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TRAFFIC DIAGRAM

BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0017     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |





P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IA  
 2050 AADT = (000)  
 2030 AADT = 000  
 SCALE: N.T.S.

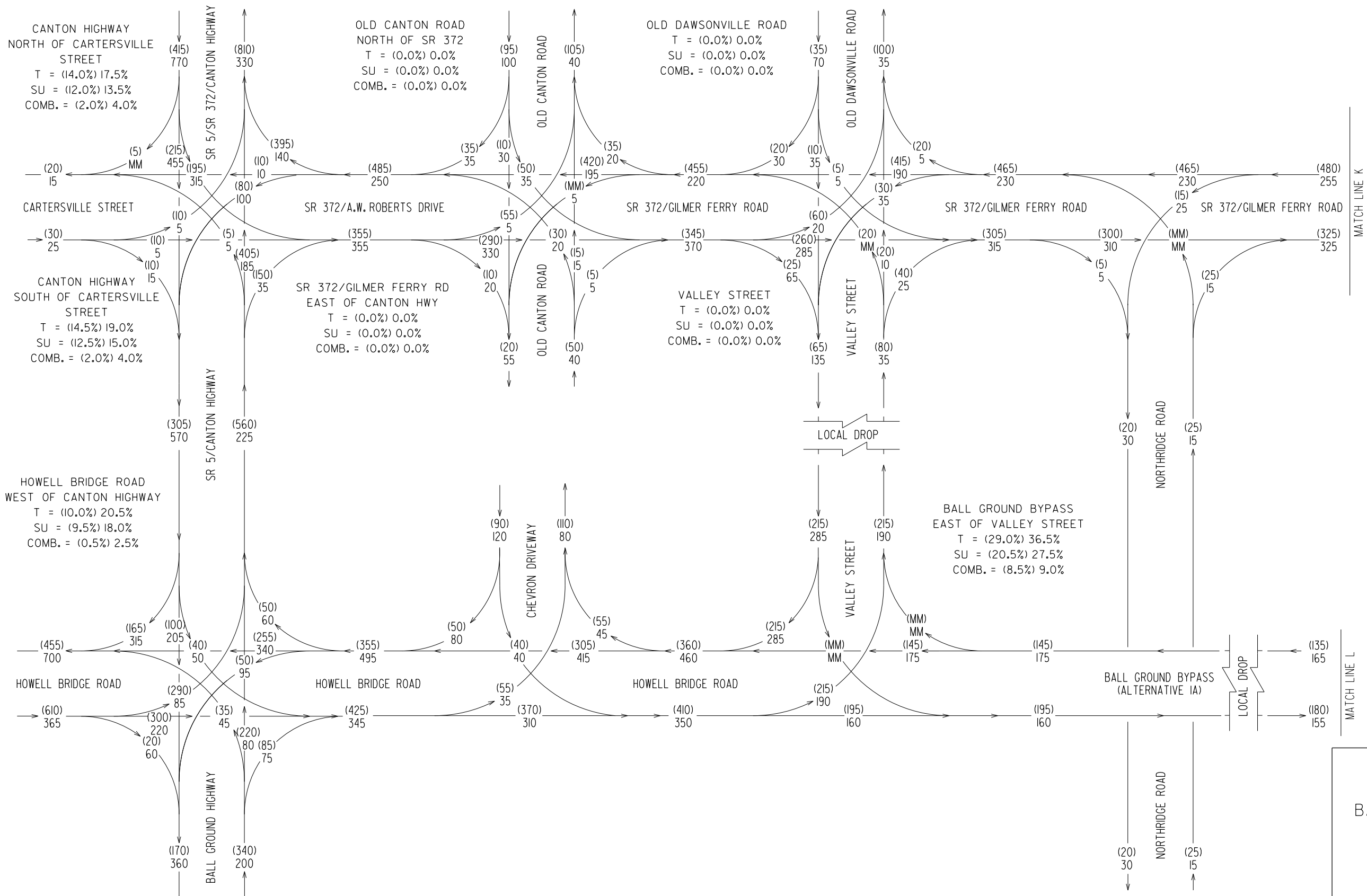
REVISION DATES

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**TRAFFIC DIAGRAM**  
 BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0018     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |





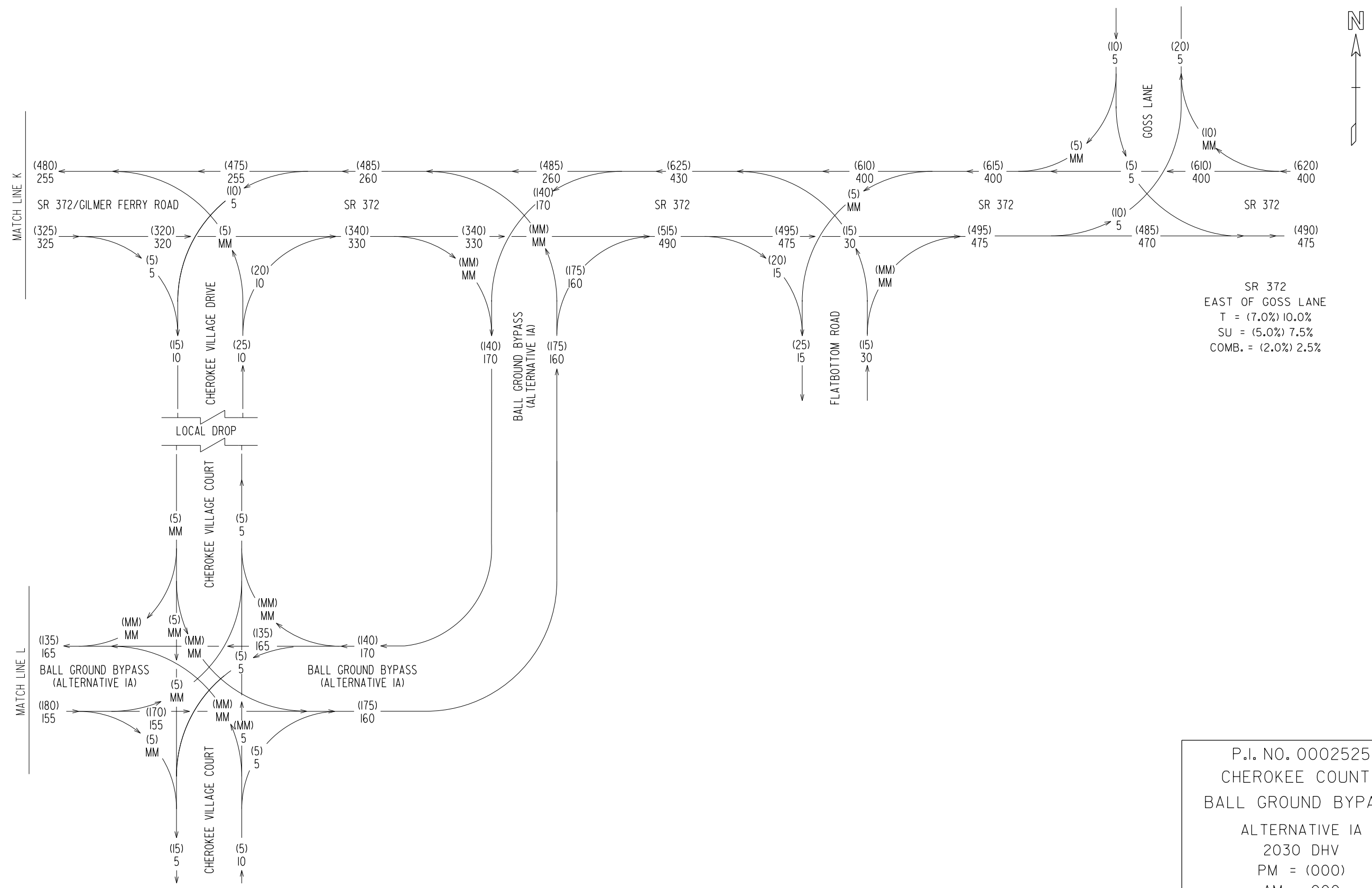
MATCH LINE K

MATCH LINE L

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IA  
 2030 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0019  |

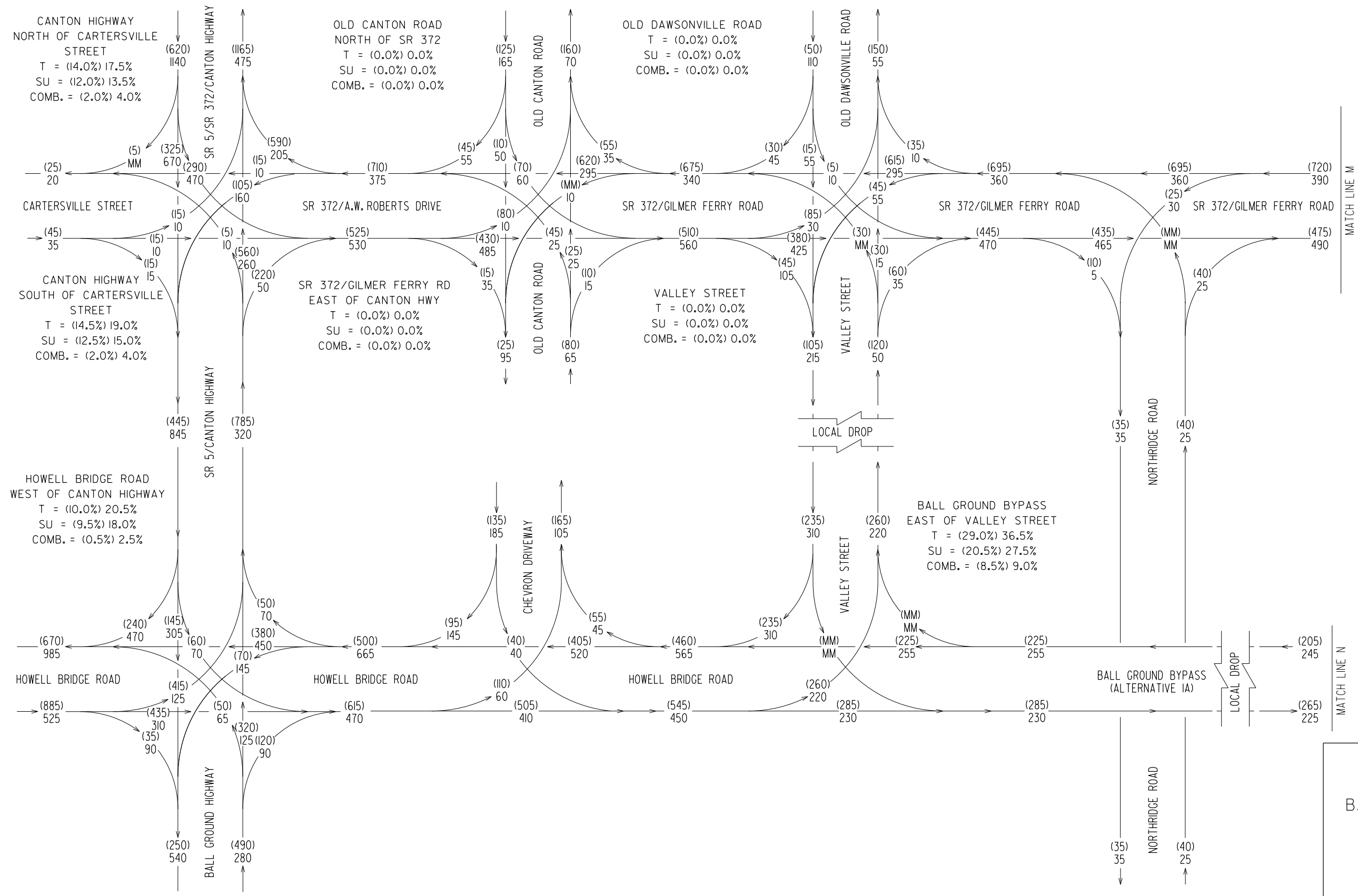


SR 372  
EAST OF GOSS LANE  
T = (7.0%) 10.0%  
SU = (5.0%) 7.5%  
COMB. = (2.0%) 2.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
ALTERNATIVE IA  
2030 DHV  
PM = (000)  
AM = 000  
SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MMG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MMG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0020  |



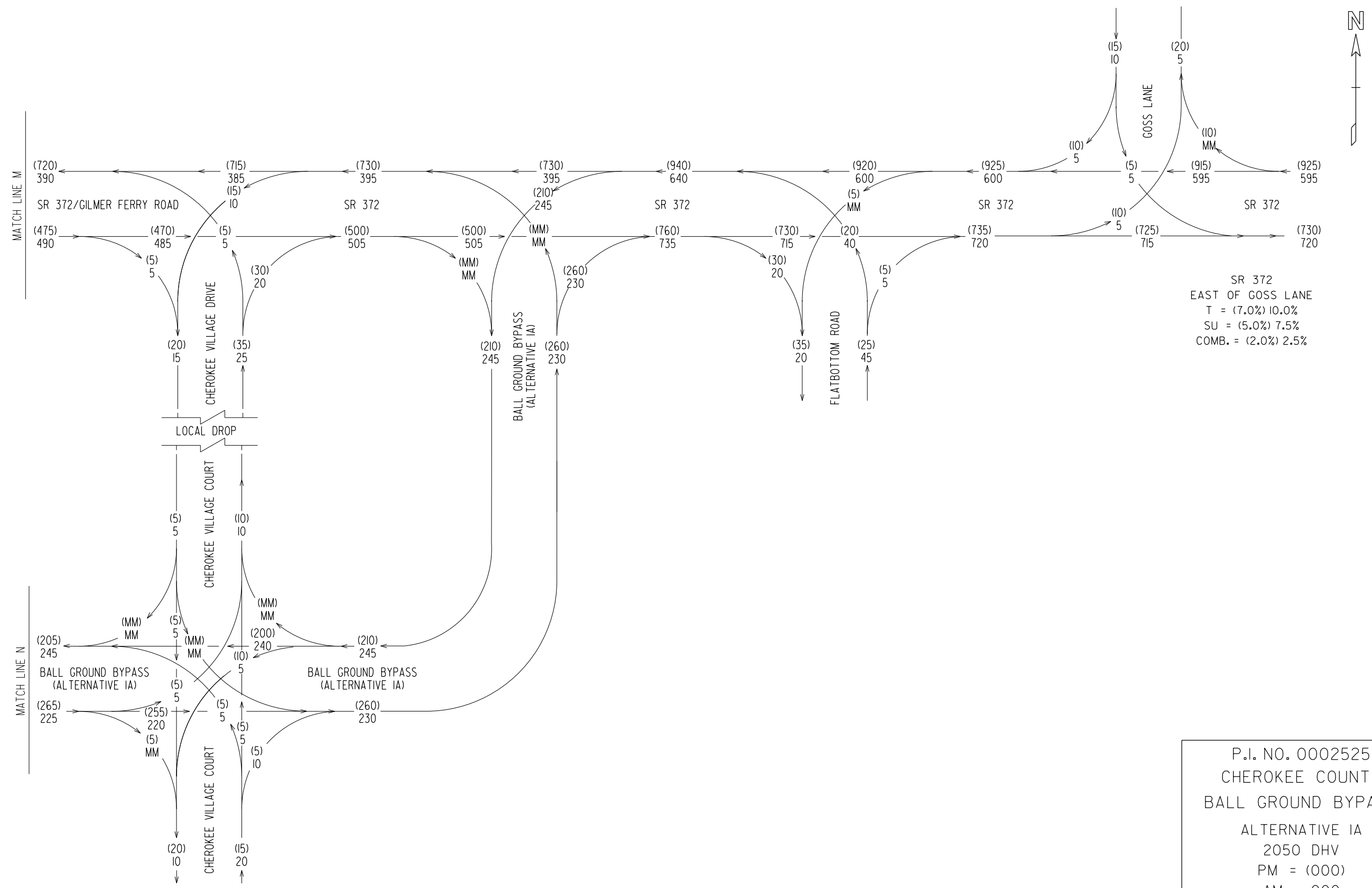
MATCH LINE W

MATCH LINE N

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IA  
 2050 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



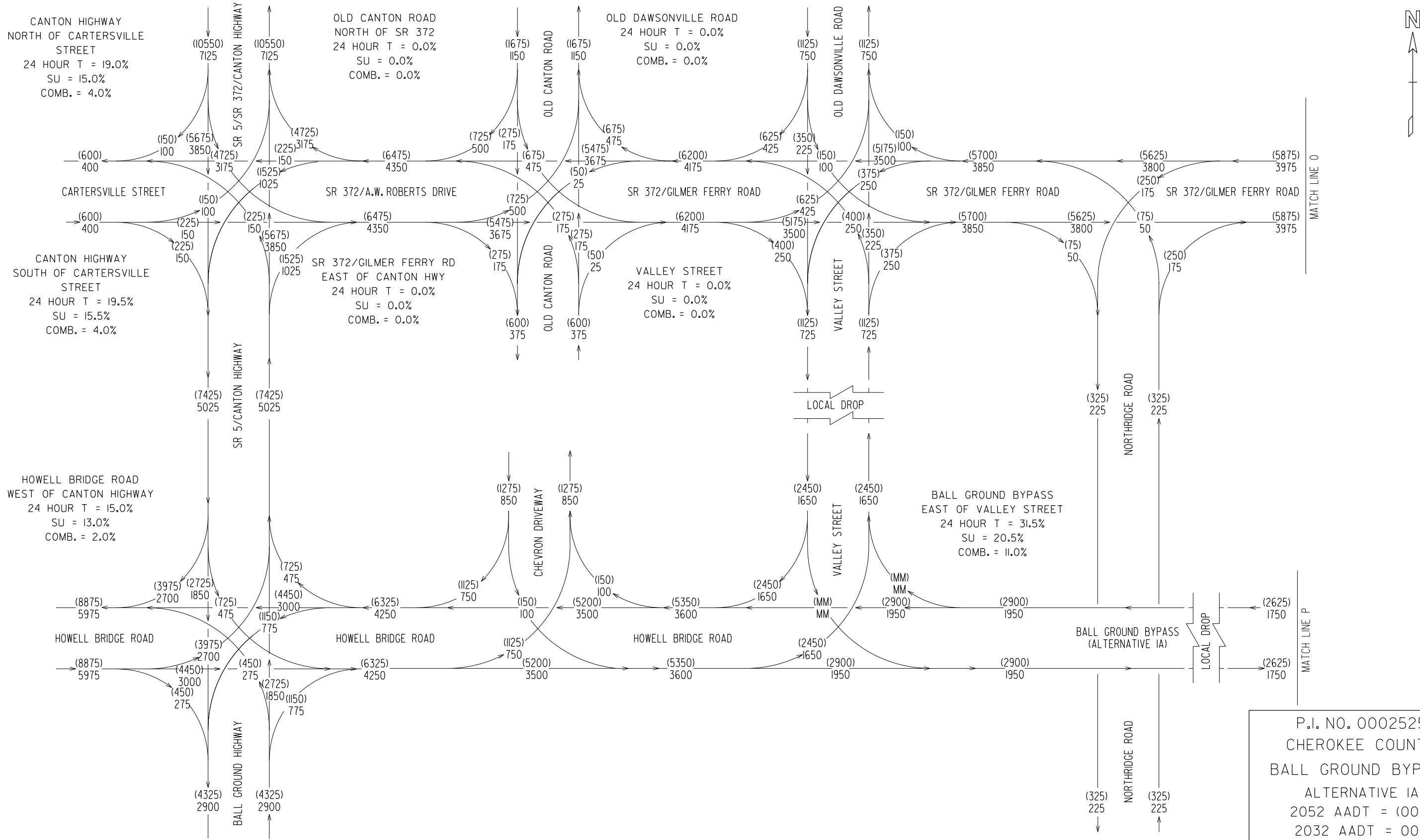
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0021  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IA  
 2050 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.

| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0022  |





MATCH LINE O

MATCH LINE P

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IA  
 2052 AADT = (000)  
 2032 AADT = 000  
 SCALE: N.T.S.

REVISION DATES

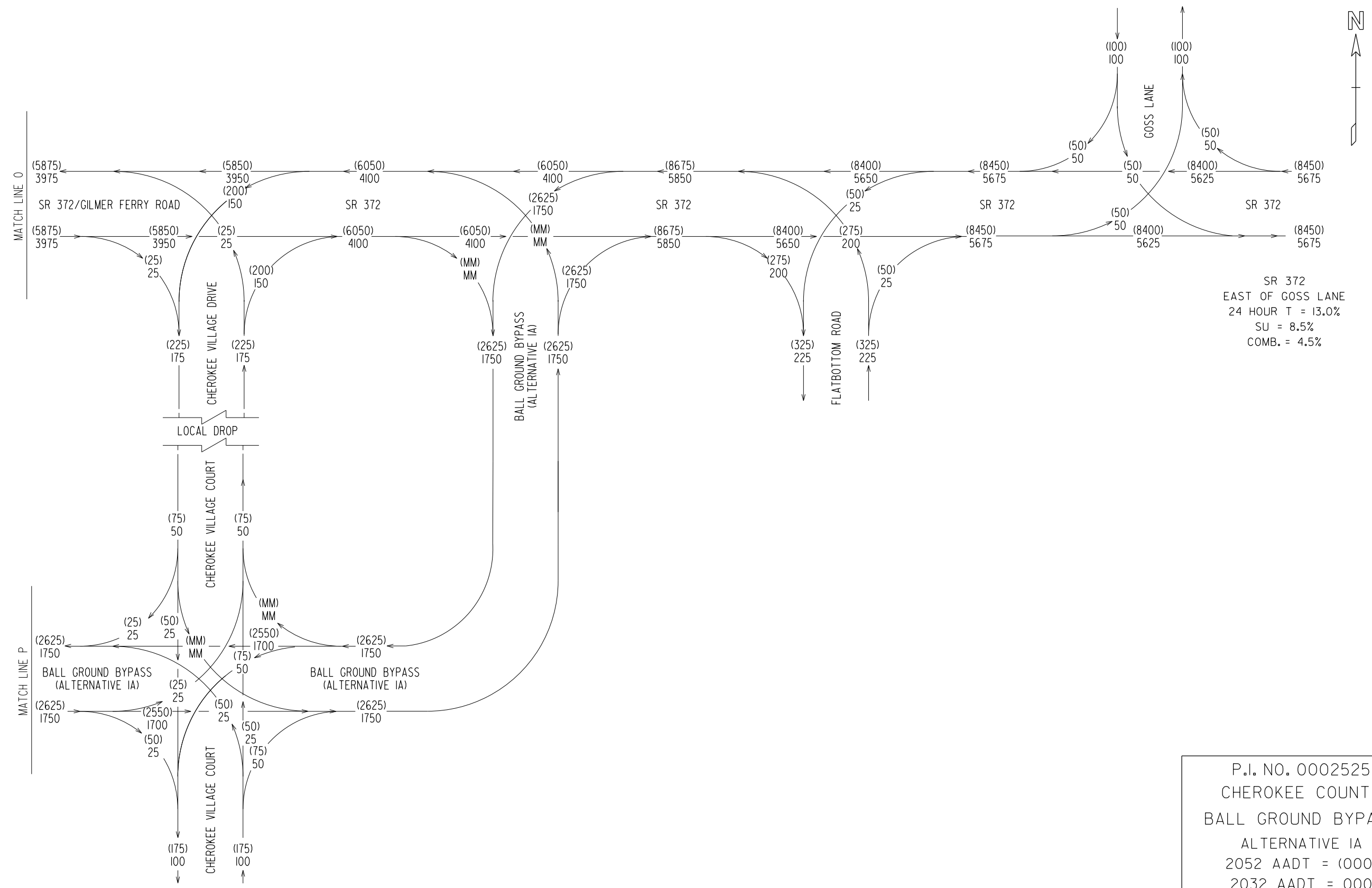
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TRAFFIC DIAGRAM

BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0023     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |





SR 372  
EAST OF GOSS LANE  
24 HOUR T = 13.0%  
SU = 8.5%  
COMB. = 4.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
ALTERNATIVE IA  
2052 AADT = (000)  
2032 AADT = 000  
SCALE: N.T.S.

REVISION DATES

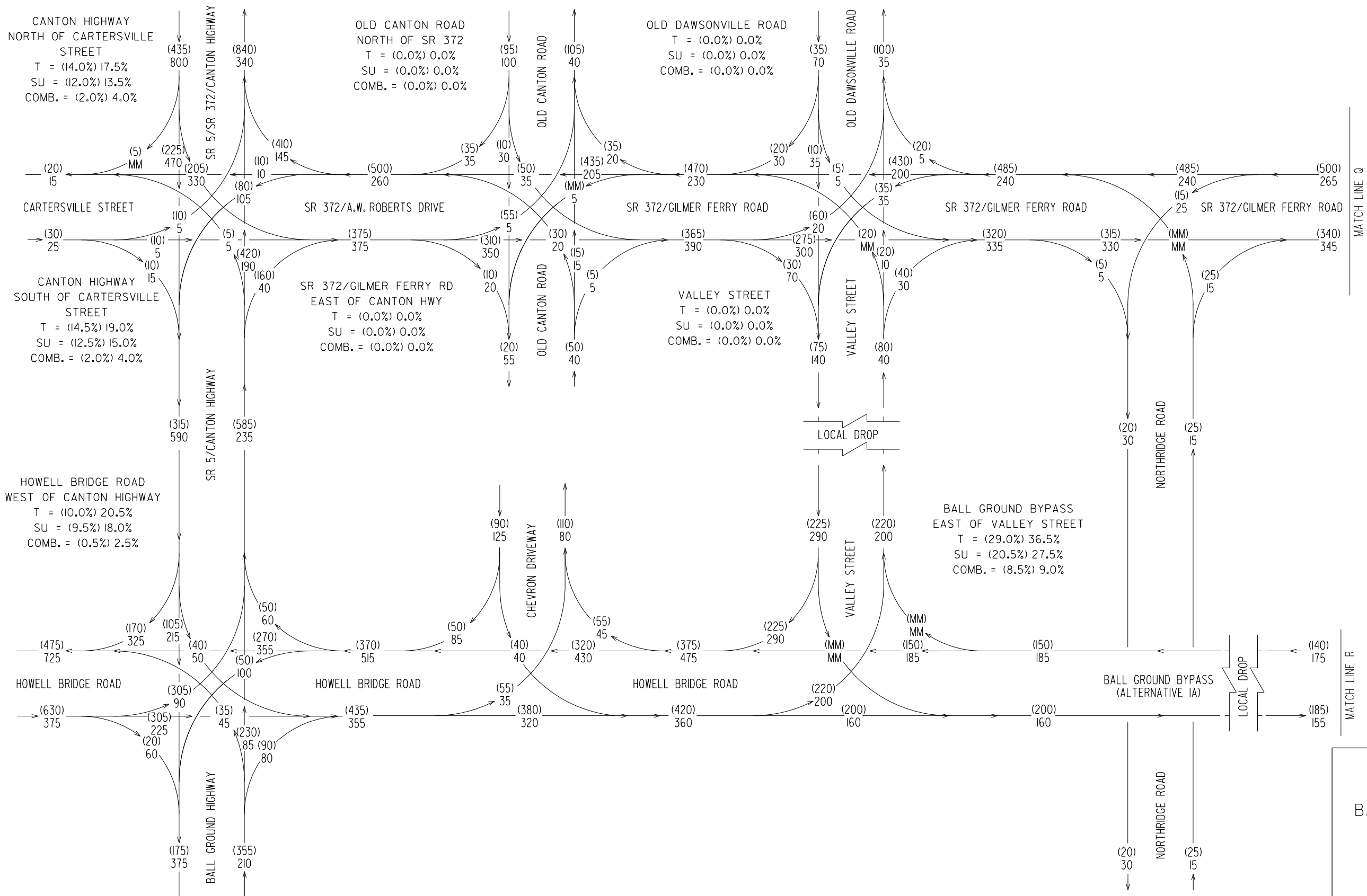
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**TRAFFIC DIAGRAM**  
BALL GROUND BYPASS  
HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0024     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |







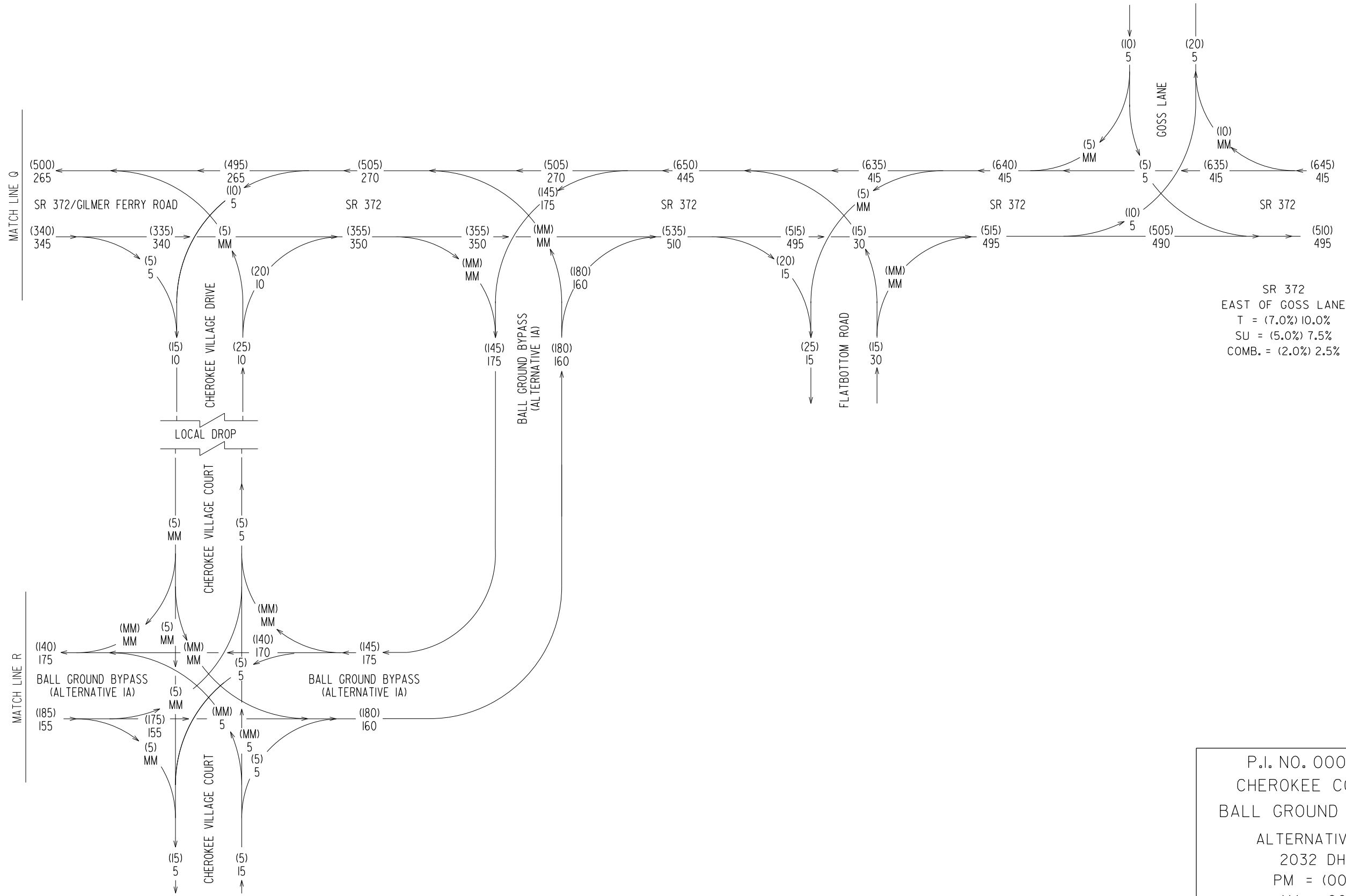
MATCH LINE 0

MATCH LINE R

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IA  
 2032 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0025  |



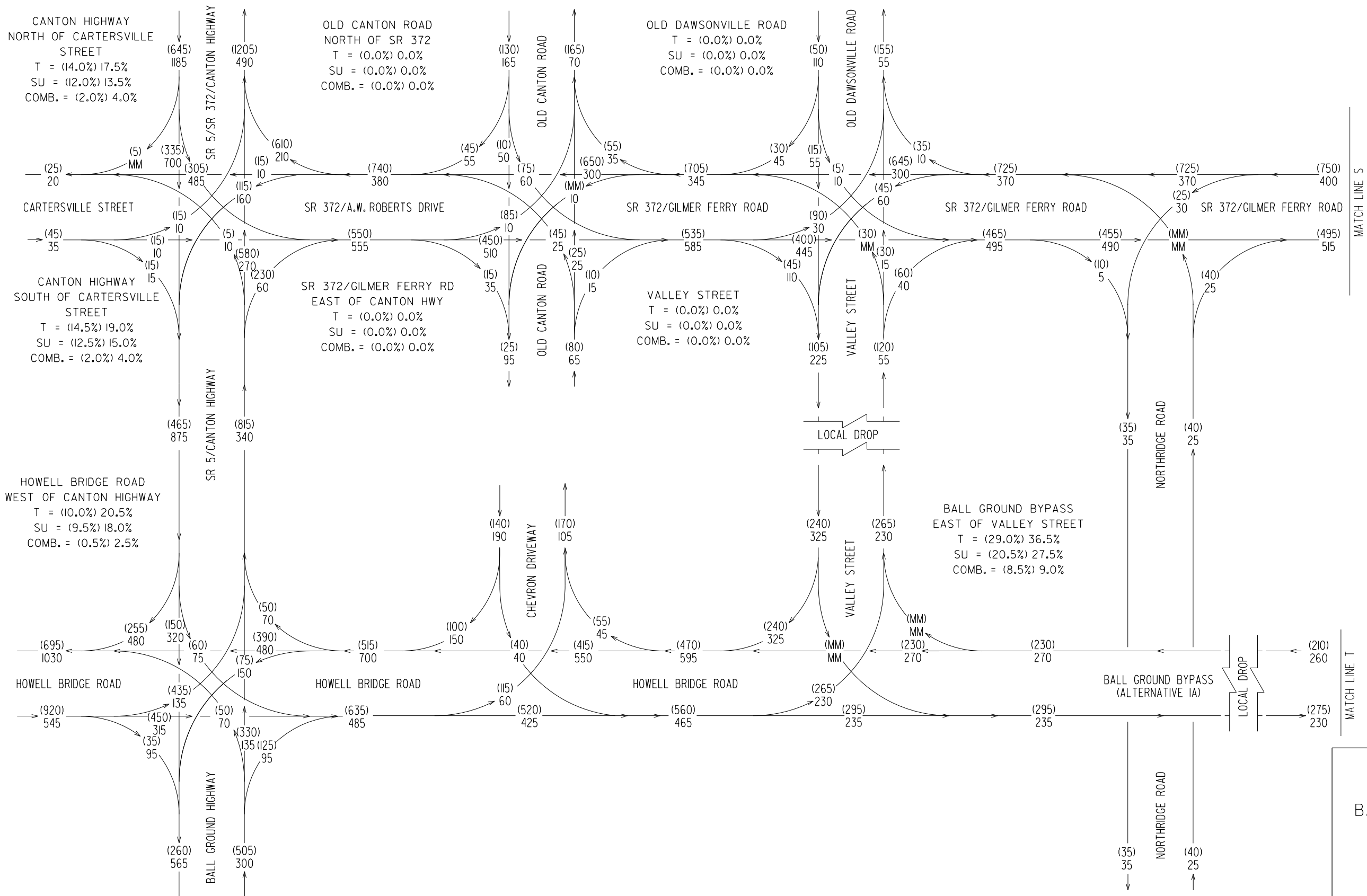
SR 372  
EAST OF GOSS LANE  
T = (7.0%) 10.0%  
SU = (5.0%) 7.5%  
COMB. = (2.0%) 2.5%



P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
ALTERNATIVE IA  
2032 DHV  
PM = (000)  
AM = 000  
SCALE: N.T.S.

| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0026  |





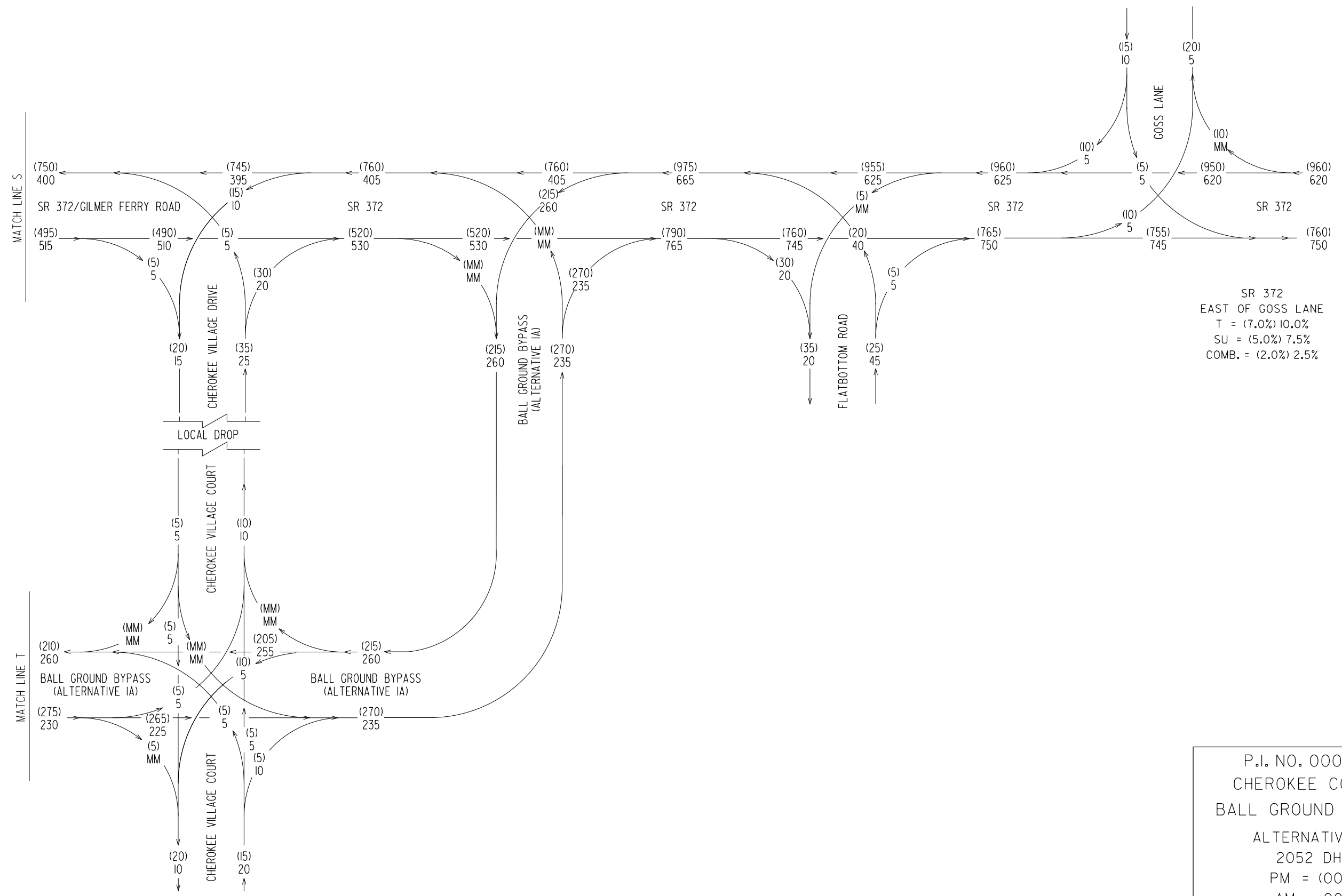
MATCH LINE S

MATCH LINE T

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IA  
 2052 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        |          |
|                |     | 10-0027                            |          |

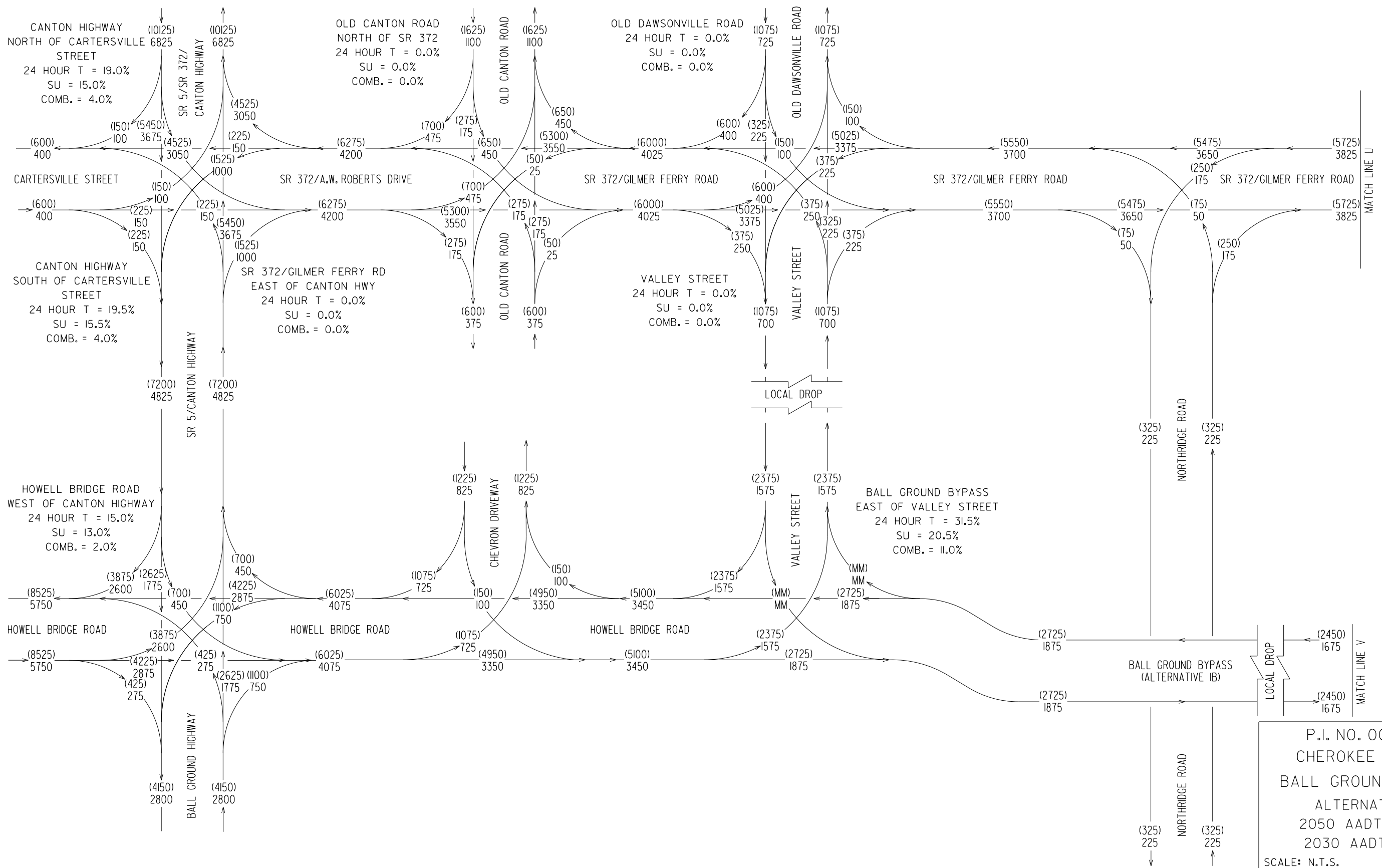


SR 372  
EAST OF GOSS LANE  
T = (7.0%) 10.0%  
SU = (5.0%) 7.5%  
COMB. = (2.0%) 2.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
ALTERNATIVE IA  
2052 DHV  
PM = (000)  
AM = 000  
SCALE: N.T.S.

| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0028  |





MATCH LINE U

MATCH LINE V

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2050 AADT = (000)  
 2030 AADT = 000  
 SCALE: N.T.S.

REVISION DATES

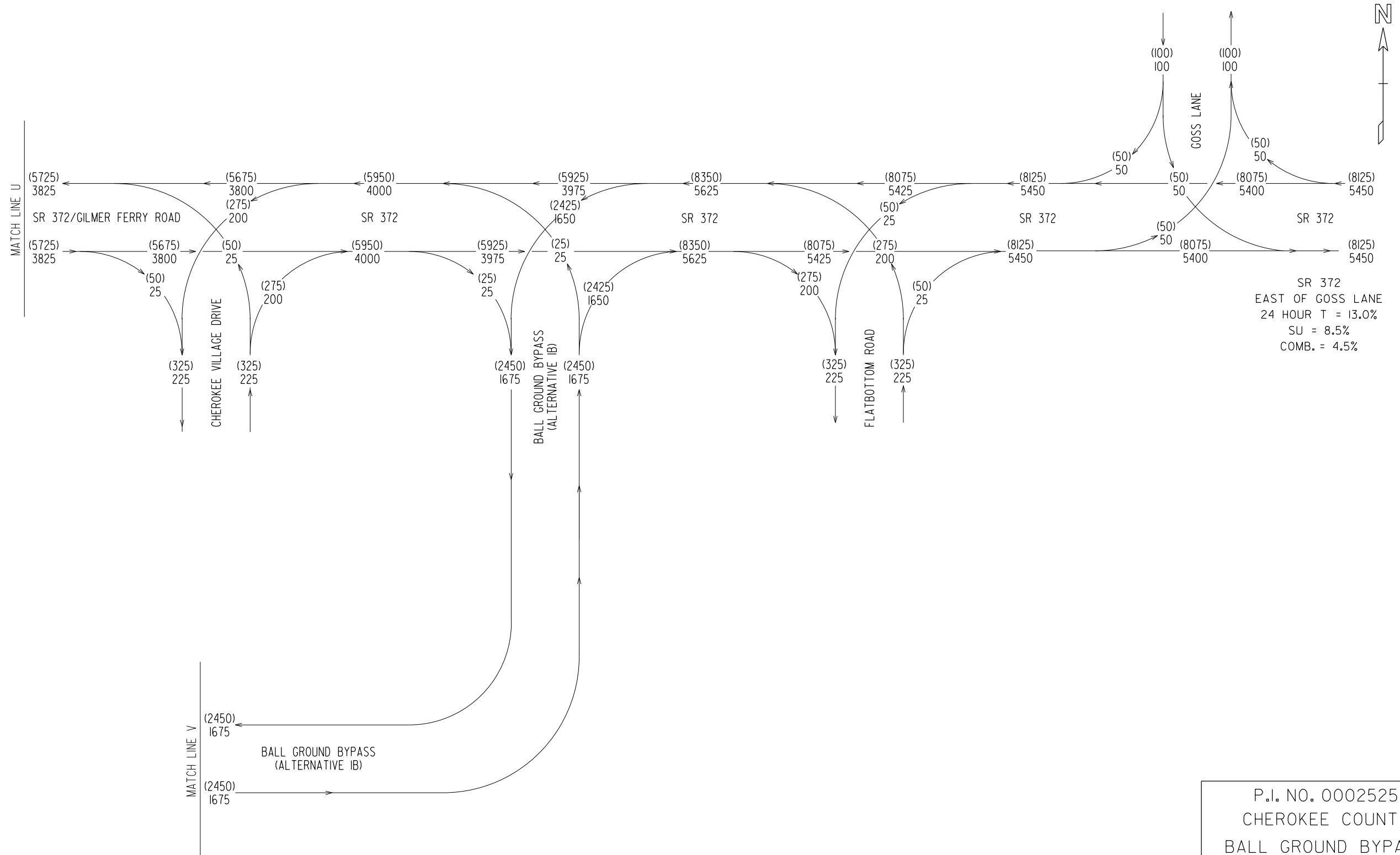
| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
|     |      |             |
|     |      |             |
|     |      |             |
|     |      |             |

TRAFFIC DIAGRAM

BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0029     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |



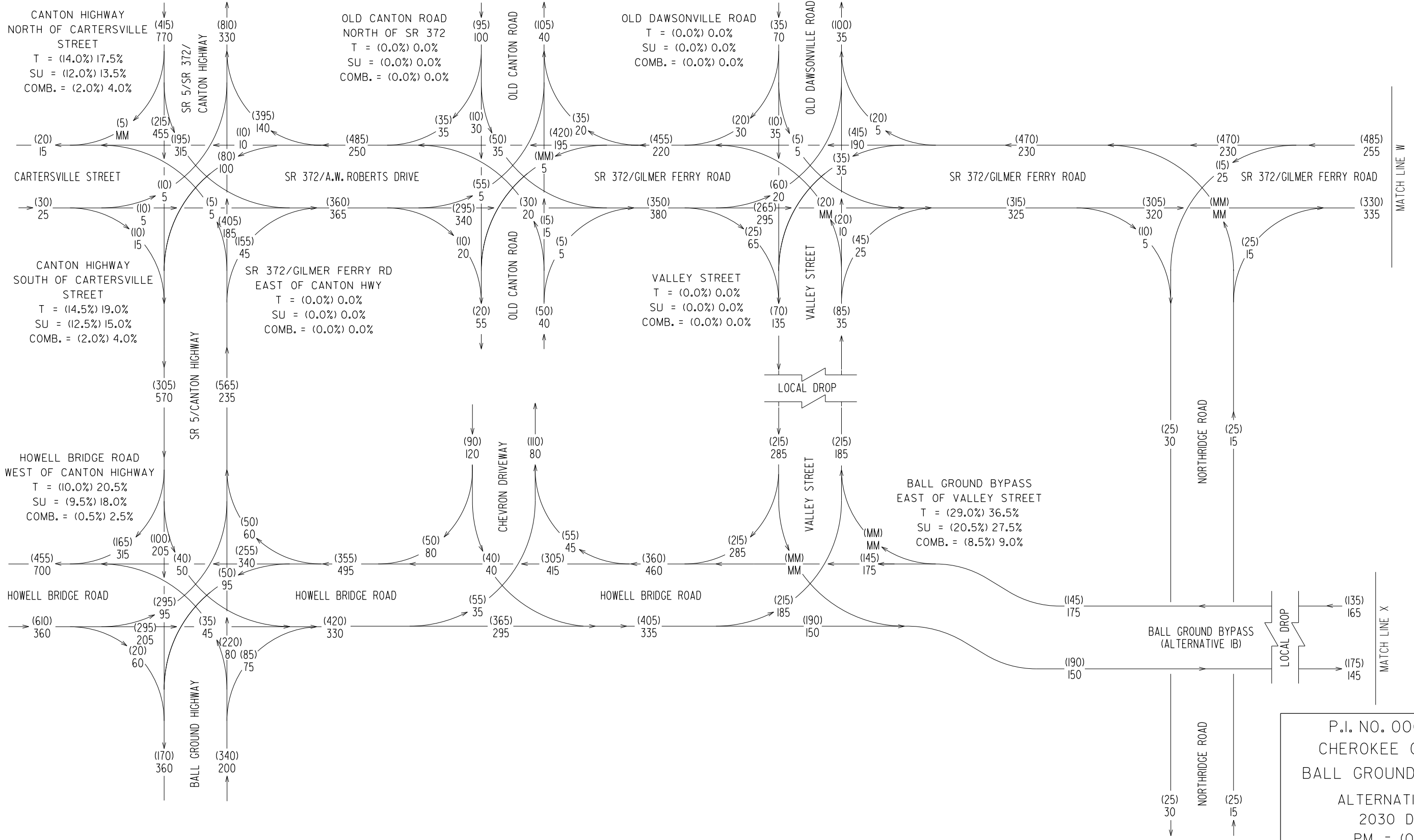


SR 372  
EAST OF GOSS LANE  
24 HOUR T = 13.0%  
SU = 8.5%  
COMB. = 4.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
ALTERNATIVE IB  
2050 AADT = (000)  
2030 AADT = 000  
SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0030  |



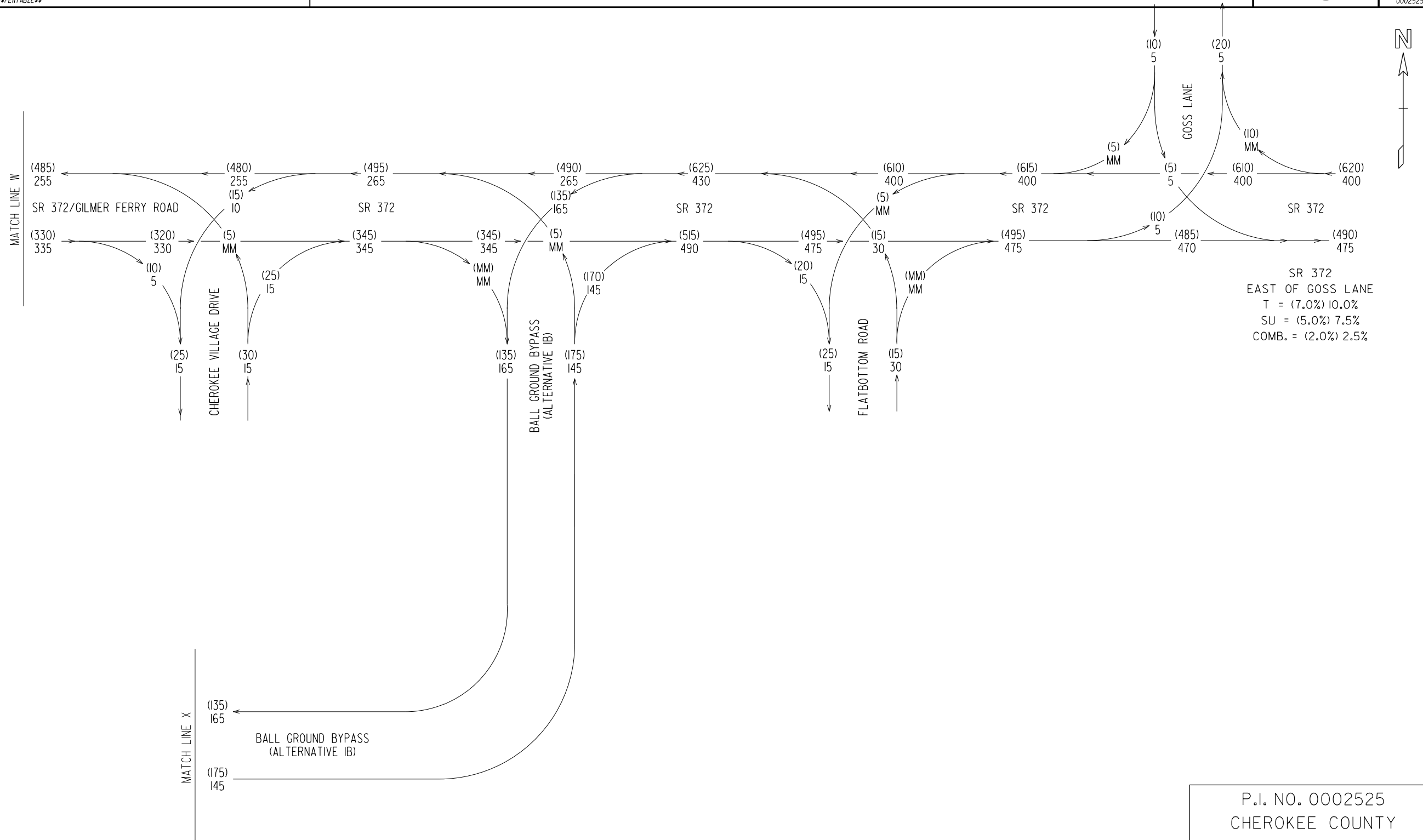
MATCH LINE W

MATCH LINE X

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2030 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0031  |

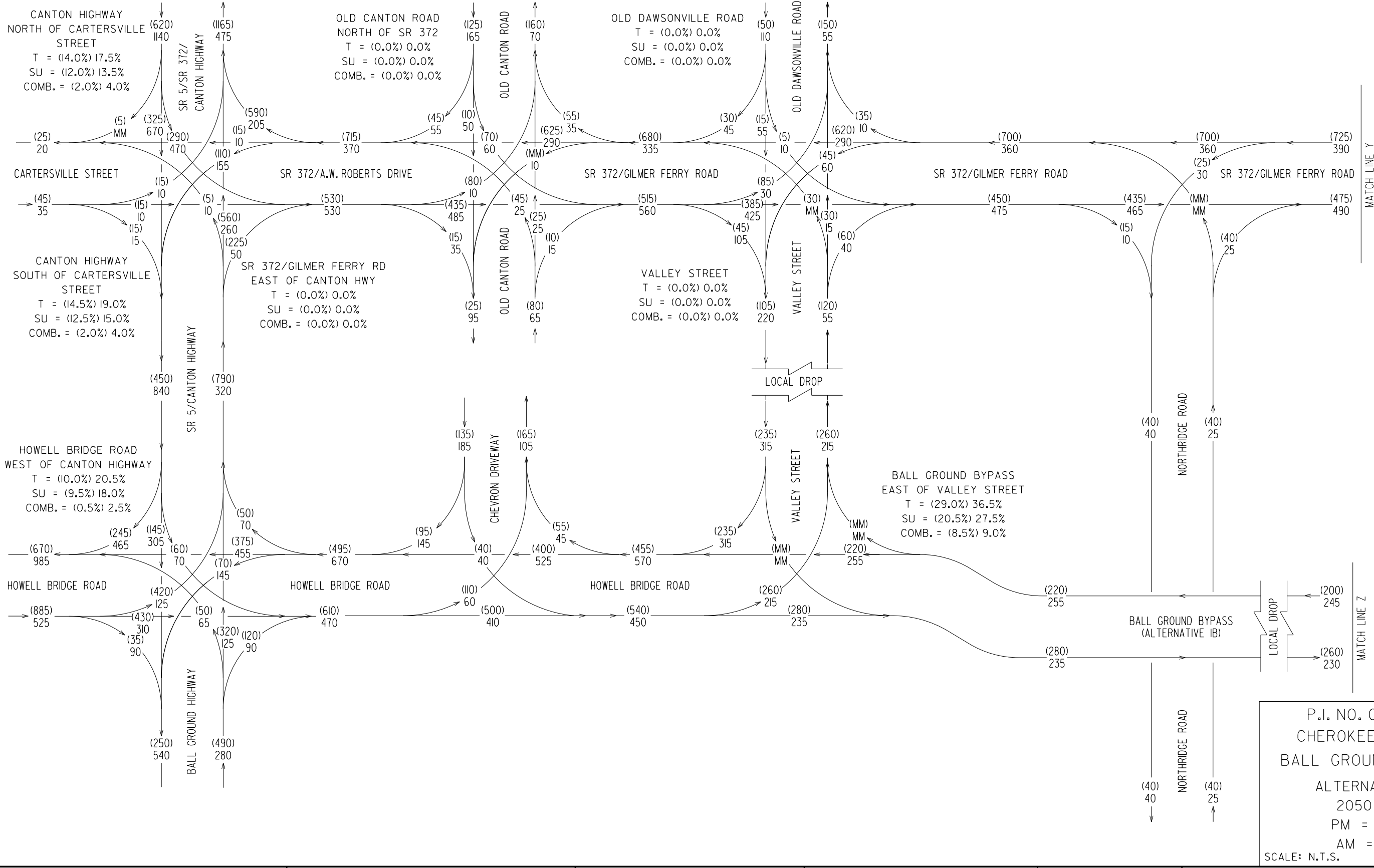


P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2030 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0032  |





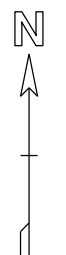
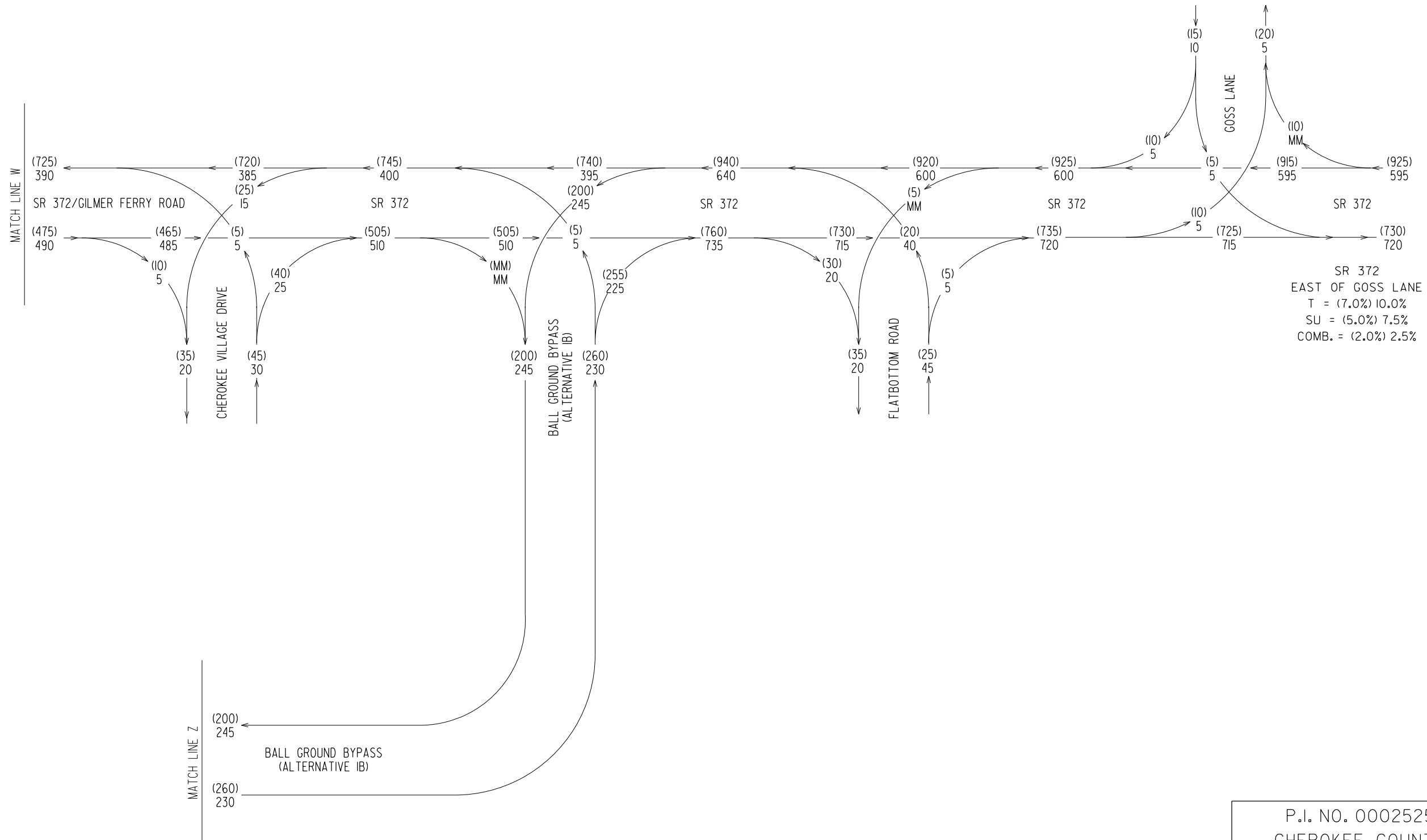
MATCH LINE Y

MATCH LINE Z

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2050 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0033  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2050 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.

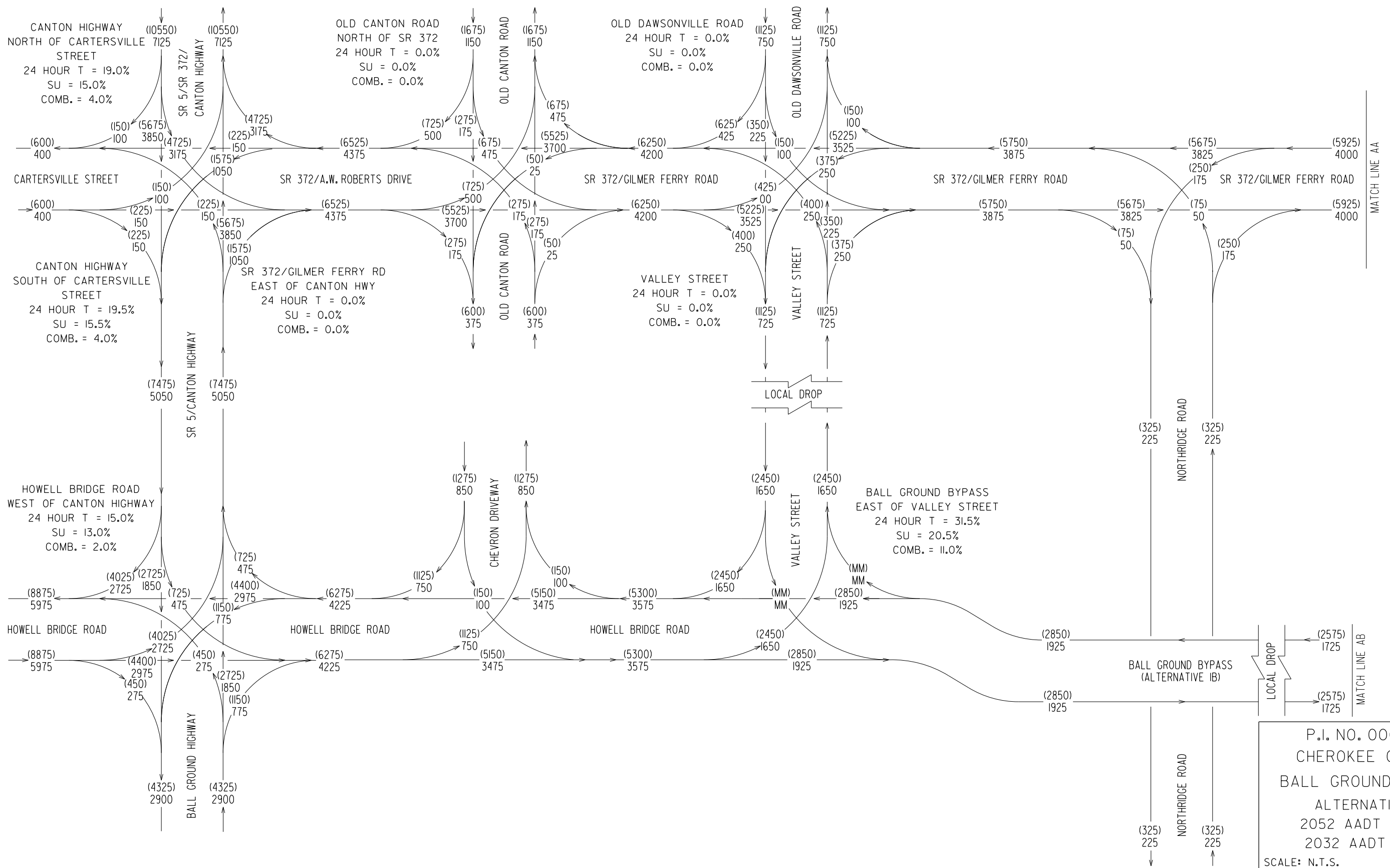
REVISION DATES

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
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**TRAFFIC DIAGRAM**  
 BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0034     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |





MATCH LINE AA

MATCH LINE AB

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2052 AADT = (000)  
 2032 AADT = 000  
 SCALE: N.T.S.

REVISION DATES

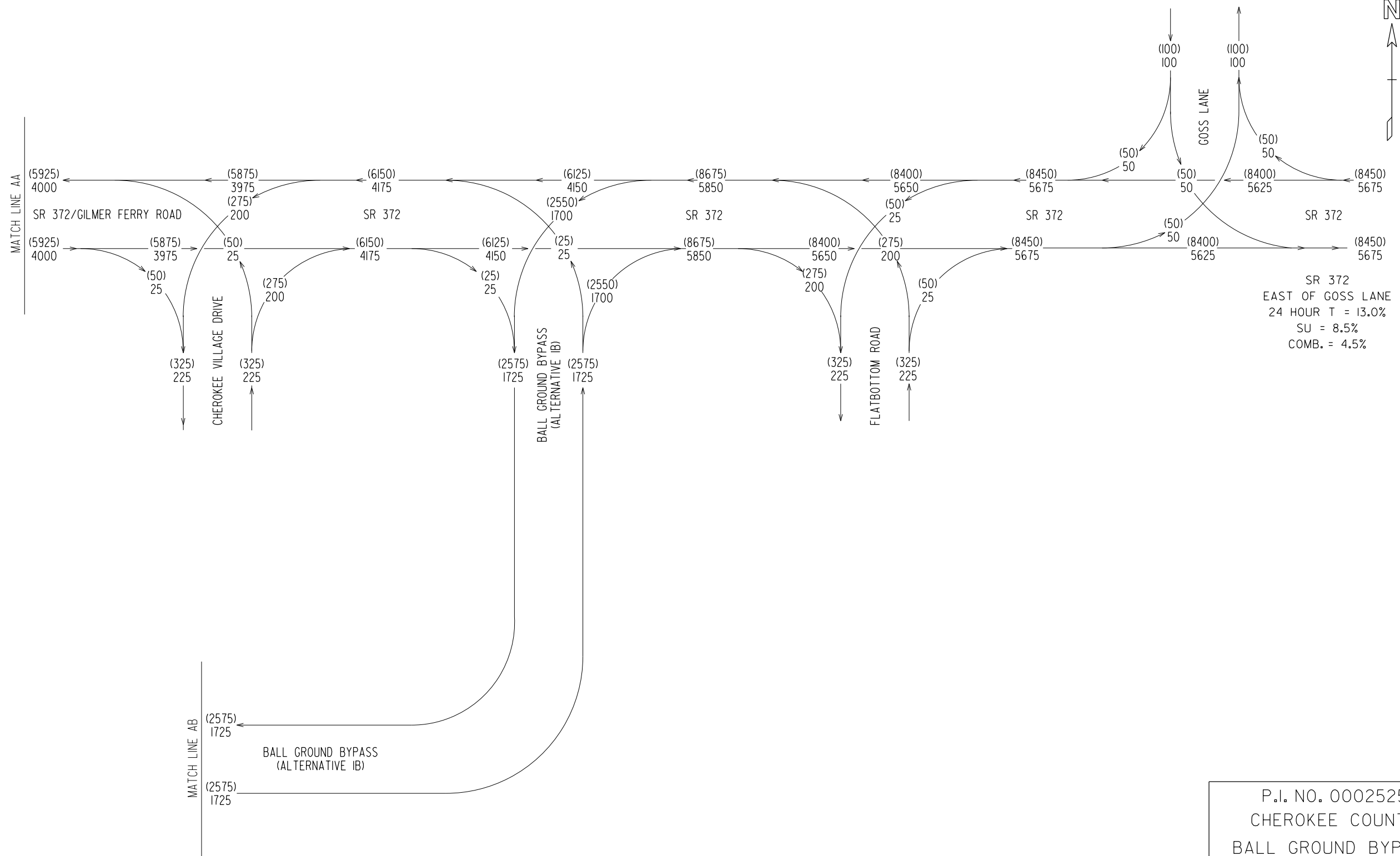
| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
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TRAFFIC DIAGRAM

BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0035     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |





SR 372  
EAST OF GOSS LANE  
24 HOUR T = 13.0%  
SU = 8.5%  
COMB. = 4.5%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
ALTERNATIVE IB  
2052 AADT = (000)  
2032 AADT = 000  
SCALE: N.T.S.

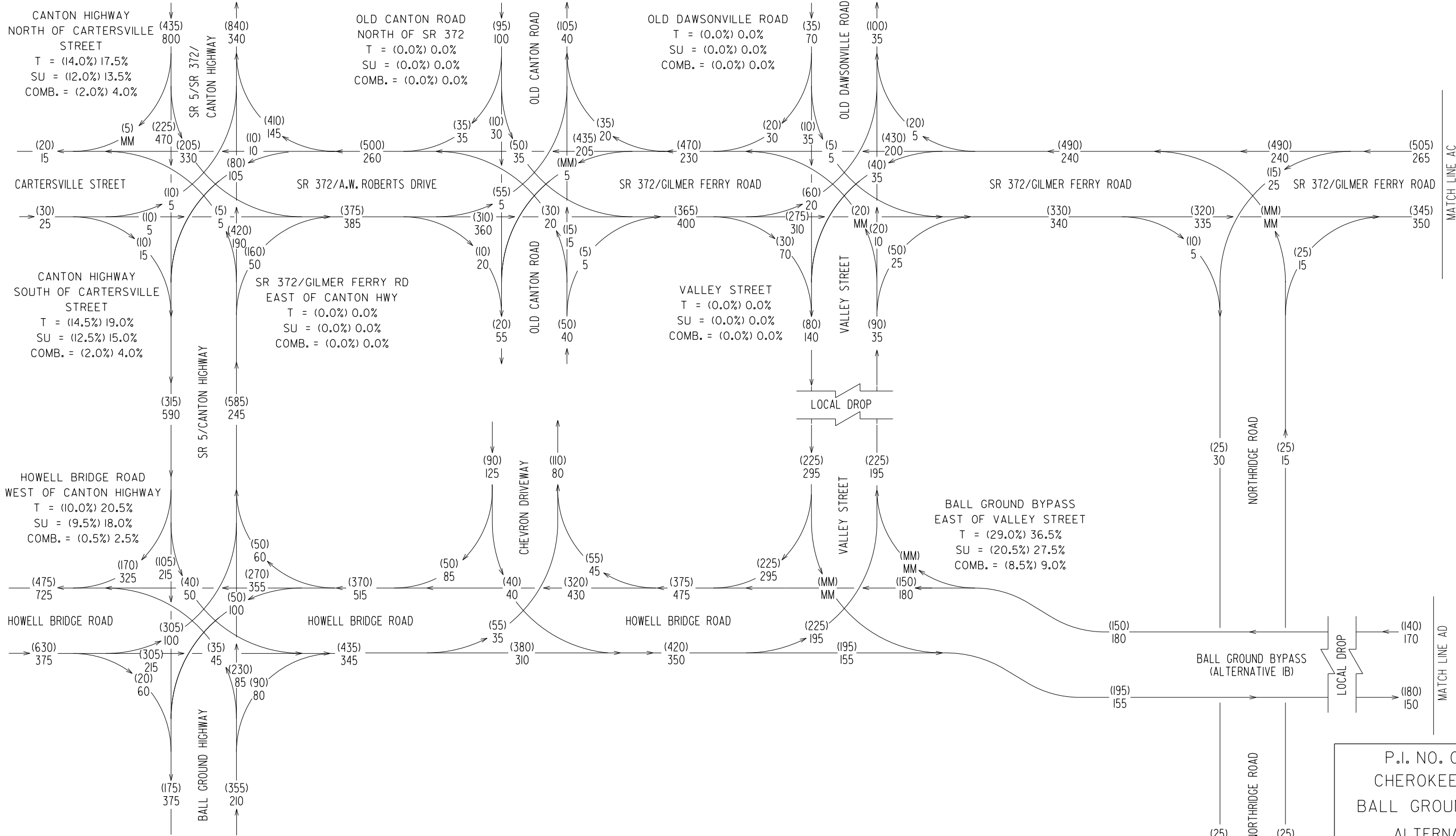
REVISION DATES

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**TRAFFIC DIAGRAM**  
BALL GROUND BYPASS  
HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0036     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |

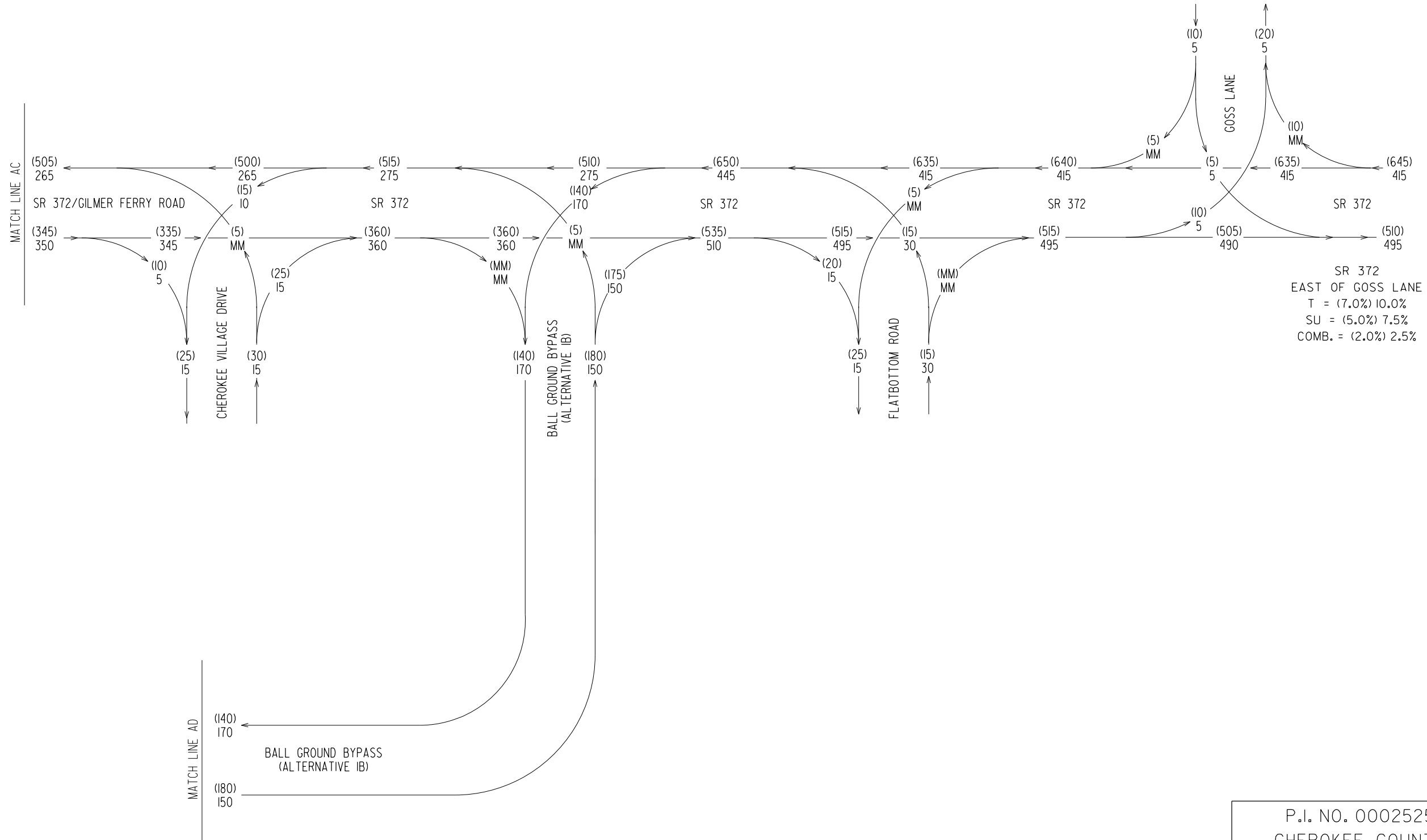
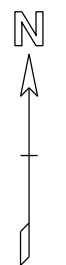




P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2032 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



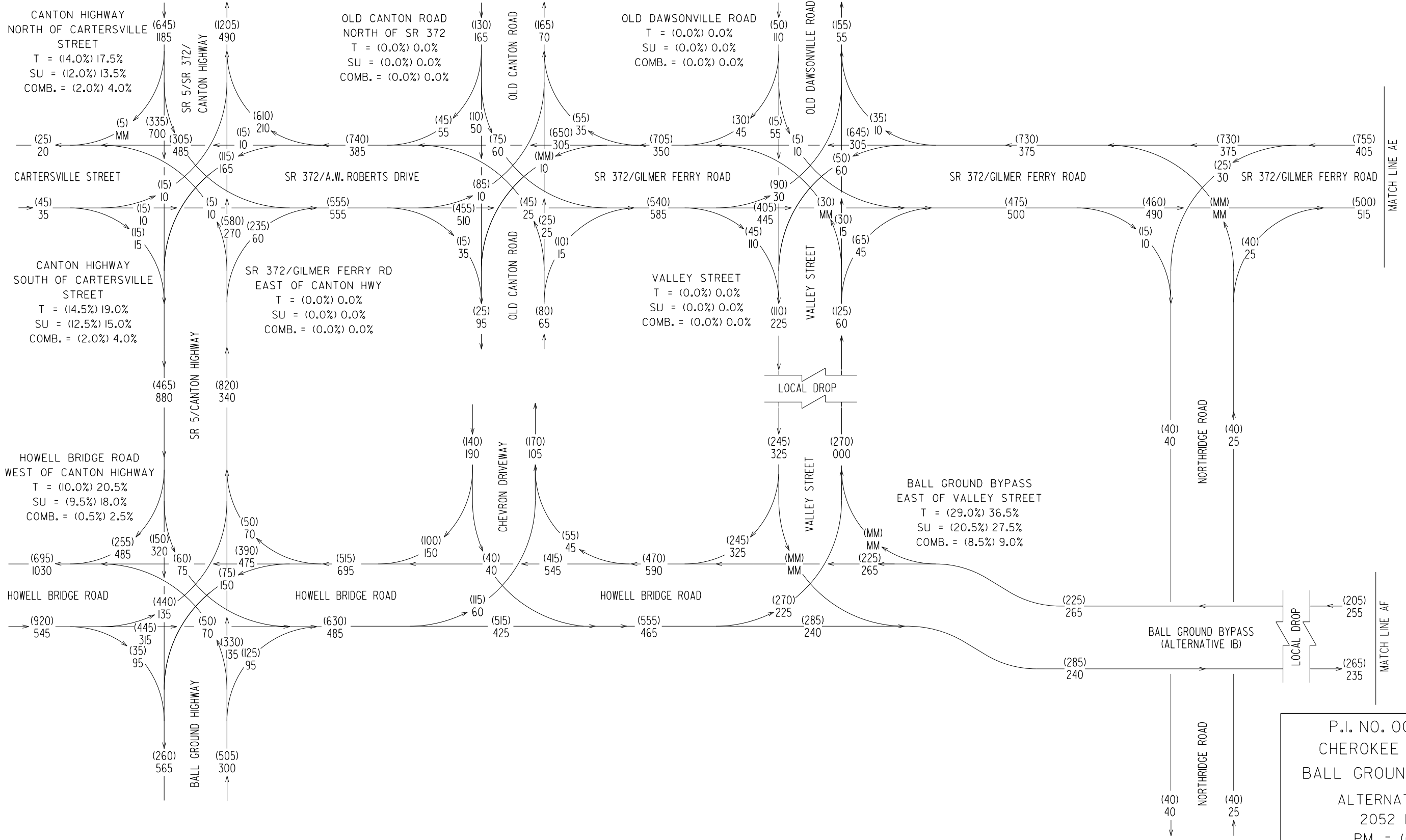
| REVISION DATES |     | TRAFFIC DIAGRAM                    |             |
|----------------|-----|------------------------------------|-------------|
|                |     | BALL GROUND BYPASS                 |             |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |             |
| CHECKED:       | RLR | DATE:                              | 02/26/19    |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19    |
| CORRECTED:     | RLR | DATE:                              | 04/08/19    |
| VERIFIED:      | MWG | DATE:                              | 04/08/19    |
|                |     |                                    | DRAWING No. |
|                |     |                                    | 10-0037     |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2032 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



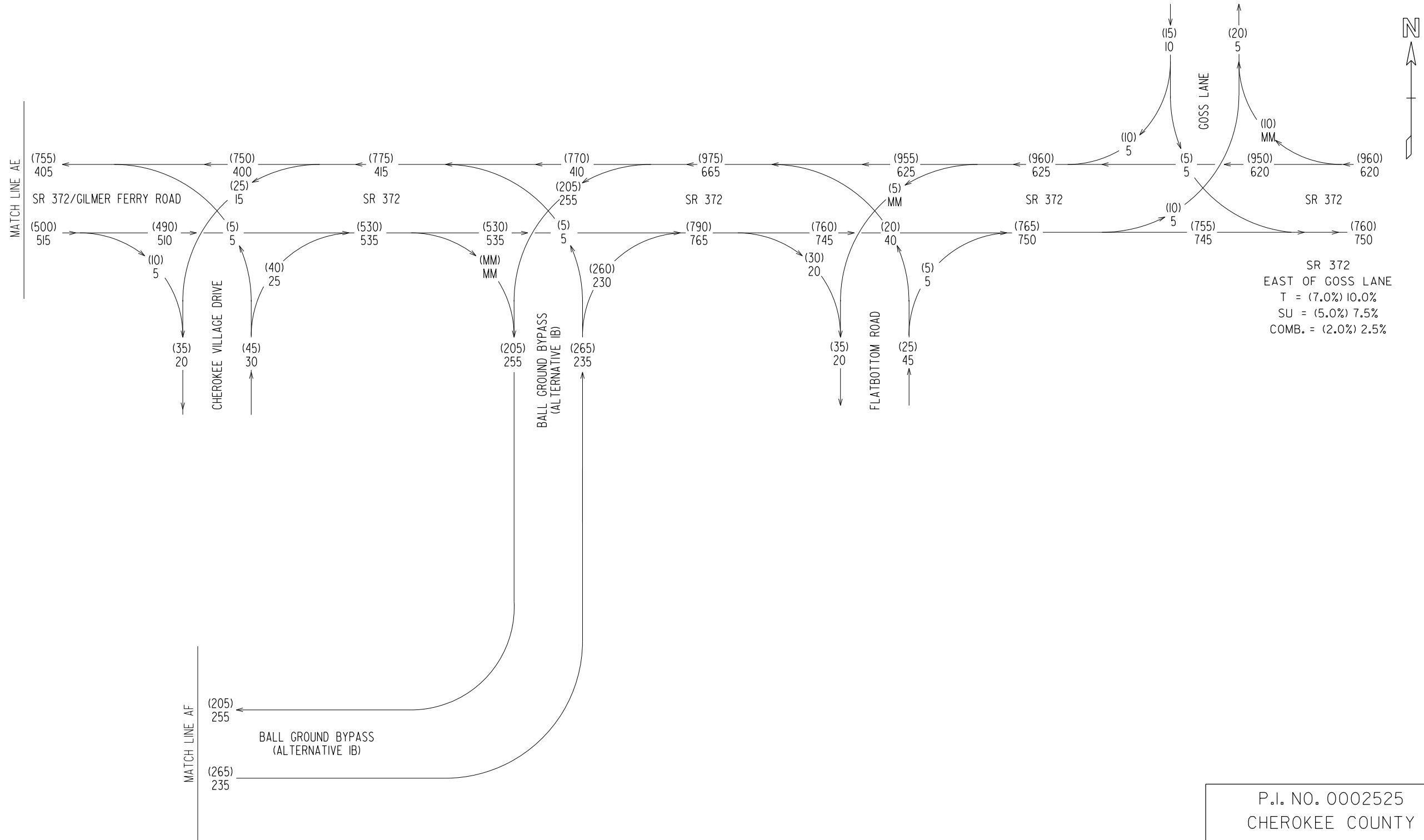
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0038  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2052 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0039  |

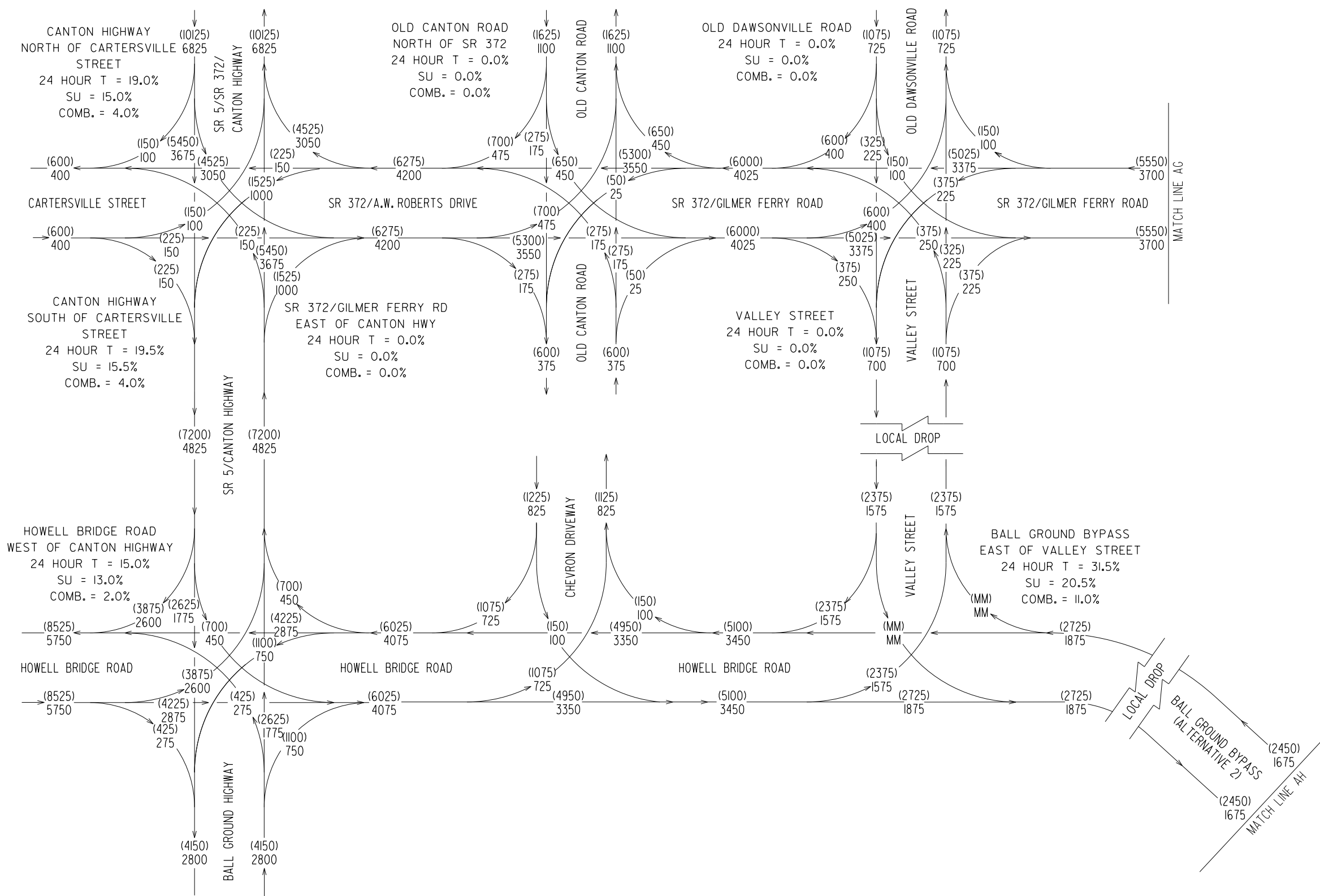
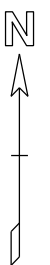


P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE IB  
 2052 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |             |
|----------------|-----|------------------------------------|-------------|
|                |     | BALL GROUND BYPASS                 |             |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |             |
| CHECKED:       | RLR | DATE:                              | 02/26/19    |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19    |
| CORRECTED:     | RLR | DATE:                              | 04/08/19    |
| VERIFIED:      | MWG | DATE:                              | 04/08/19    |
|                |     |                                    | DRAWING No. |
|                |     |                                    | 10-0040     |

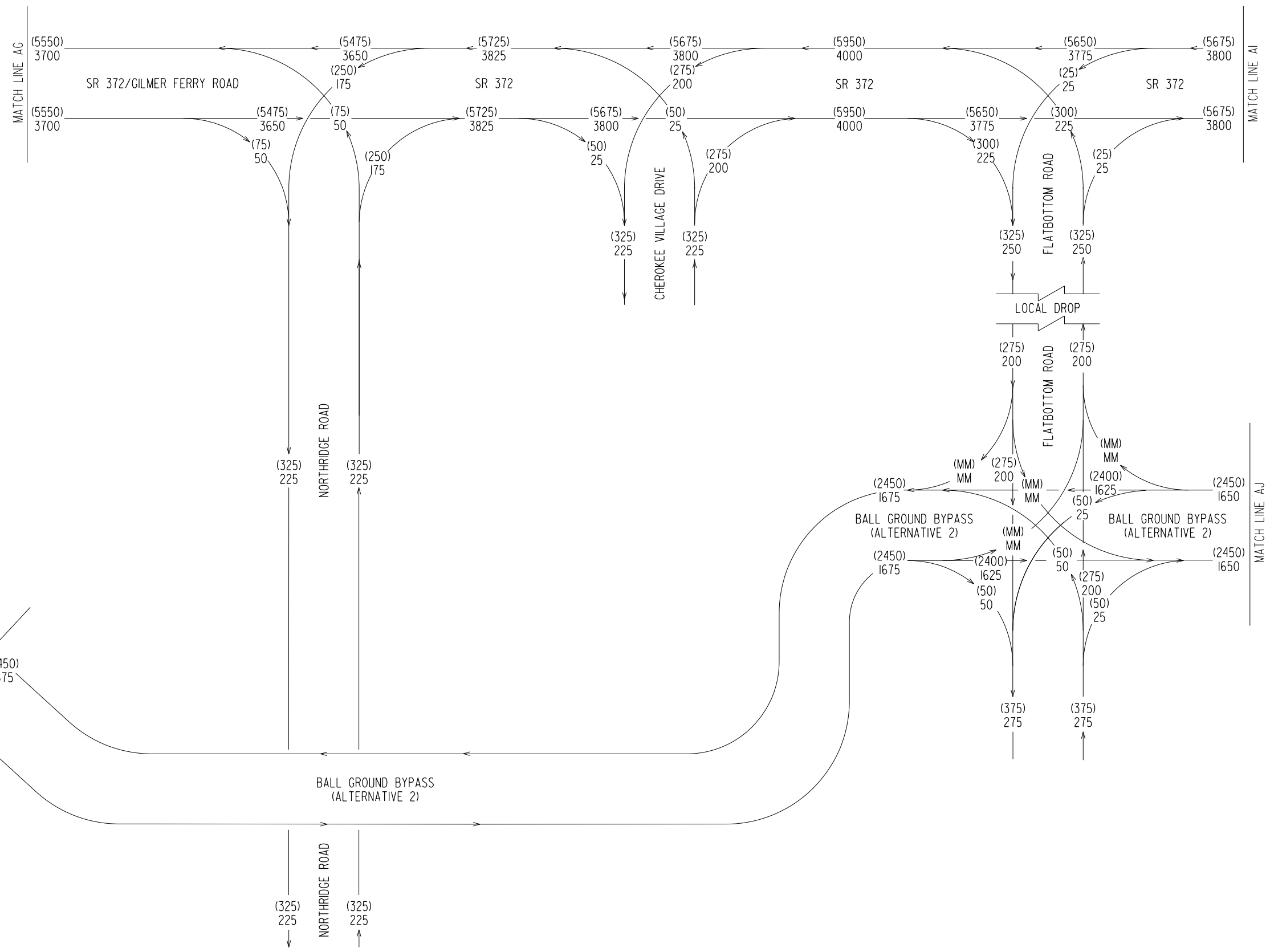




P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2050 AADT = (000)  
 2030 AADT = 000  
 SCALE: N.T.S.



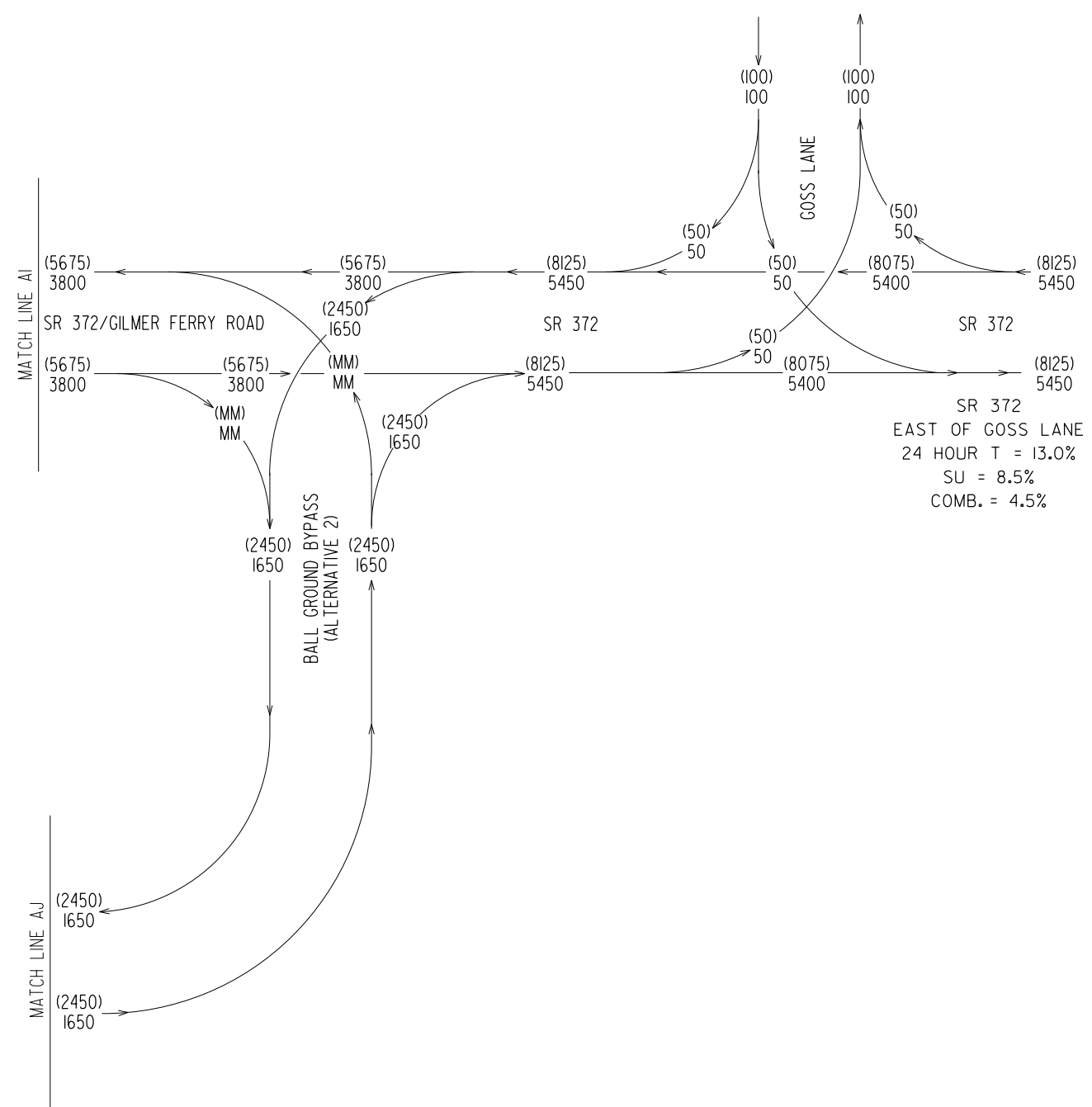
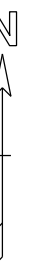
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0041  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2050 AADT = (000)  
 2030 AADT = 000  
 SCALE: N.T.S.

| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0042  |

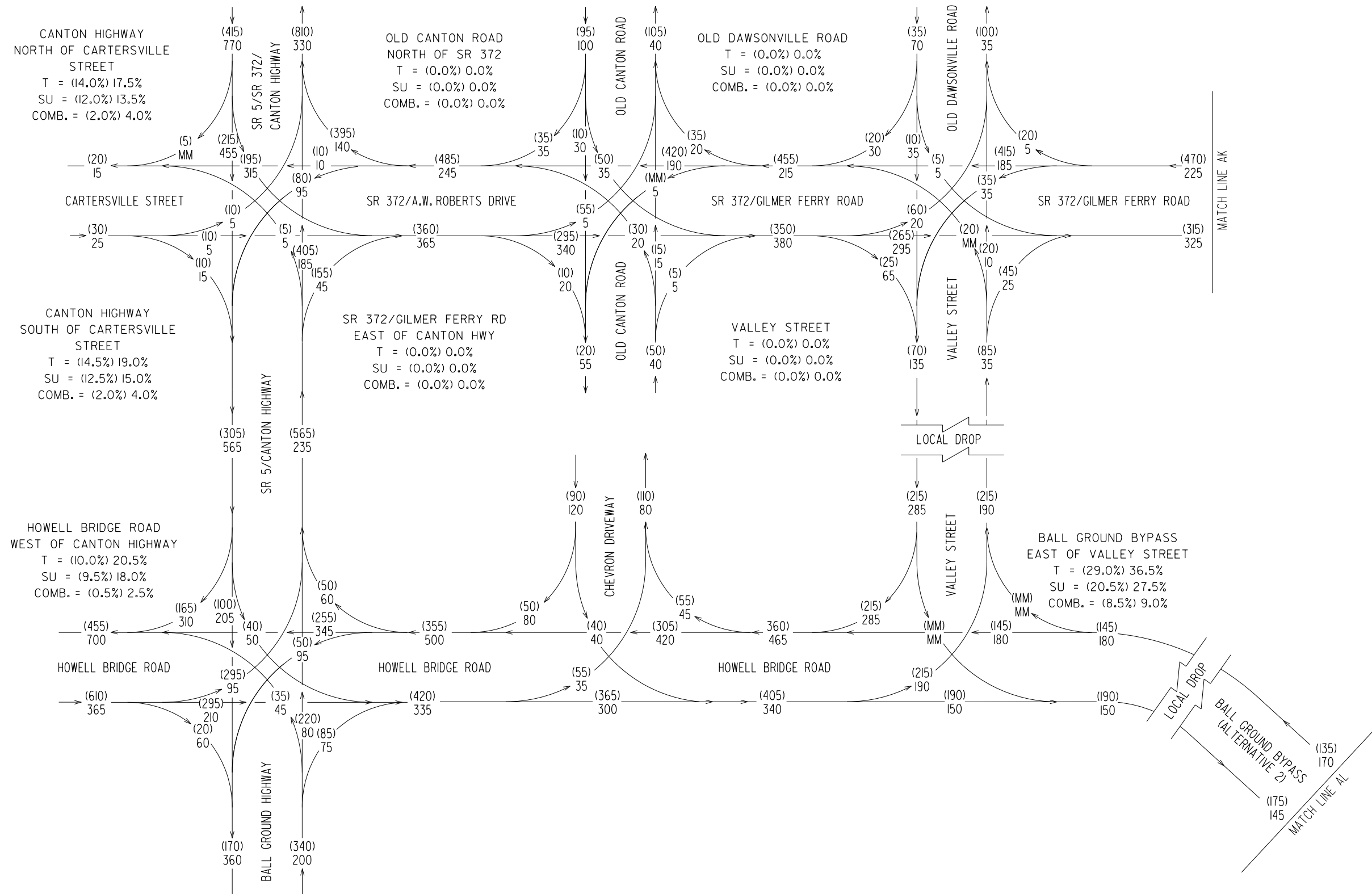
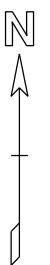




P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2050 AADT = (000)  
 2030 AADT = 000  
 SCALE: N.T.S.



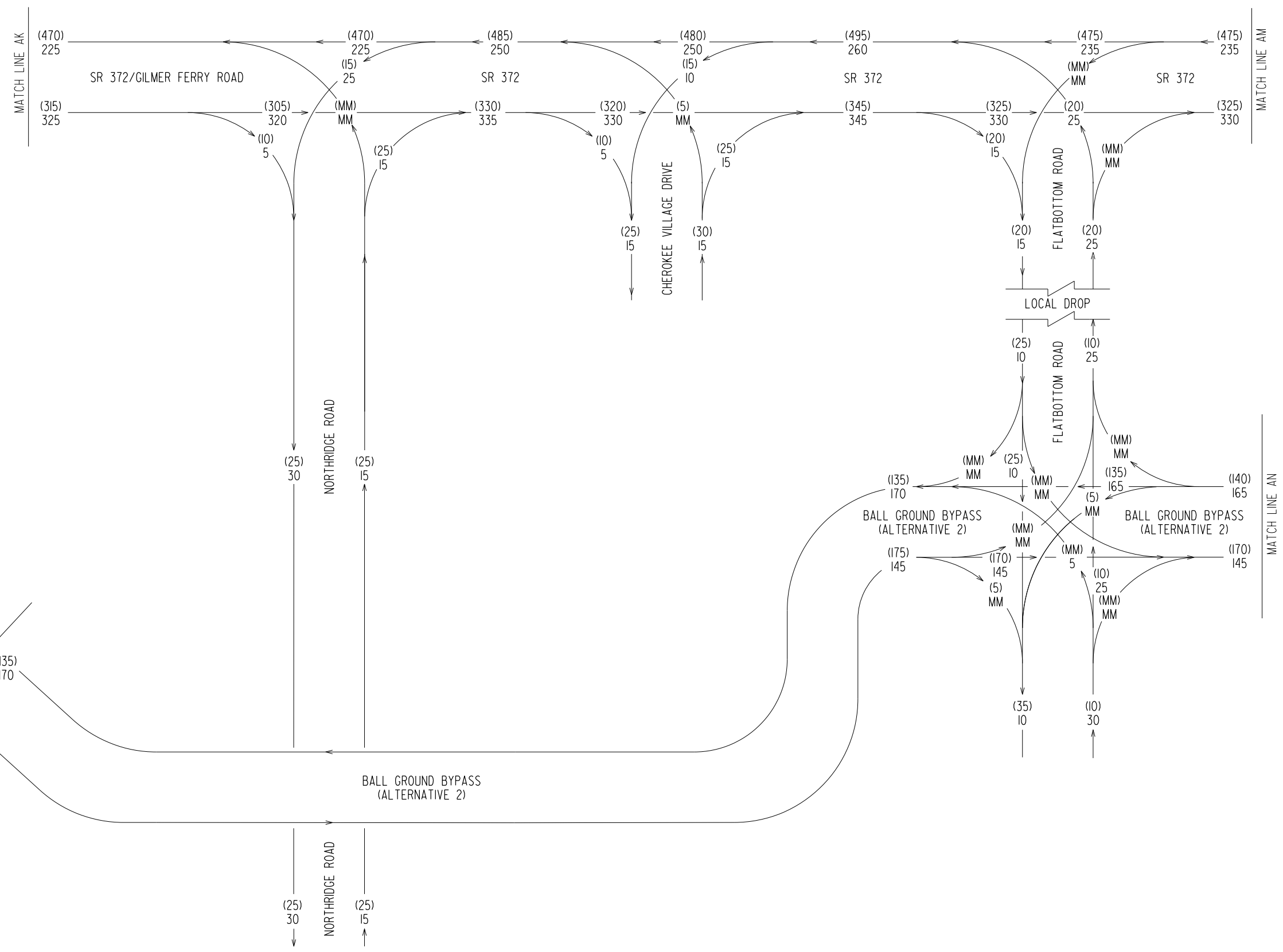
| REVISION DATES |     | TRAFFIC DIAGRAM                    |             |
|----------------|-----|------------------------------------|-------------|
|                |     | BALL GROUND BYPASS                 |             |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |             |
| CHECKED:       | RLR | DATE:                              | 02/26/19    |
| BACKCHECKED:   | MMG | DATE:                              | 02/28/19    |
| CORRECTED:     | RLR | DATE:                              | 04/08/19    |
| VERIFIED:      | MMG | DATE:                              | 04/08/19    |
|                |     |                                    | DRAWING No. |
|                |     |                                    | 10-0043     |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2030 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



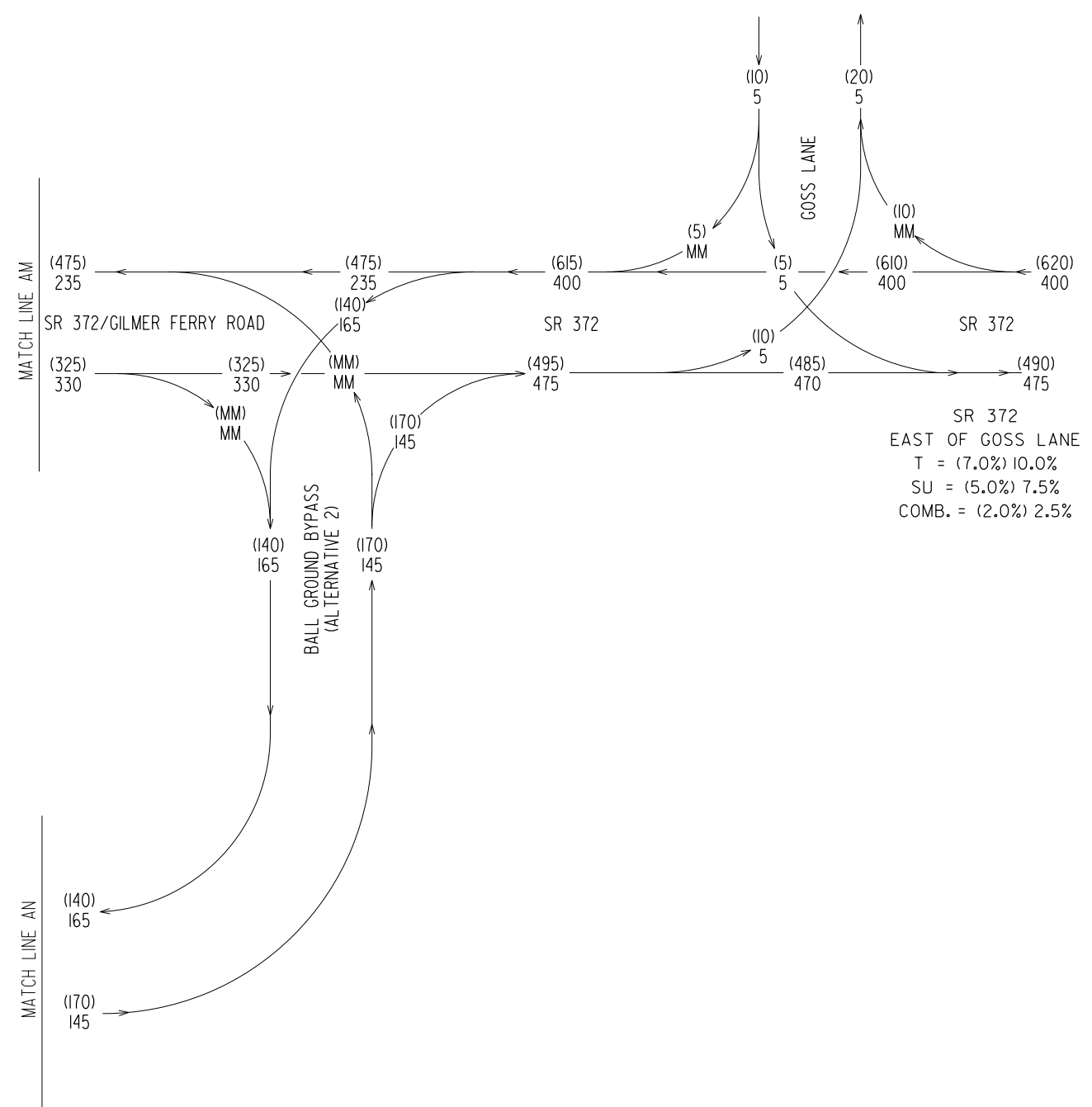
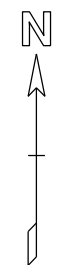
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0044  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2030 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



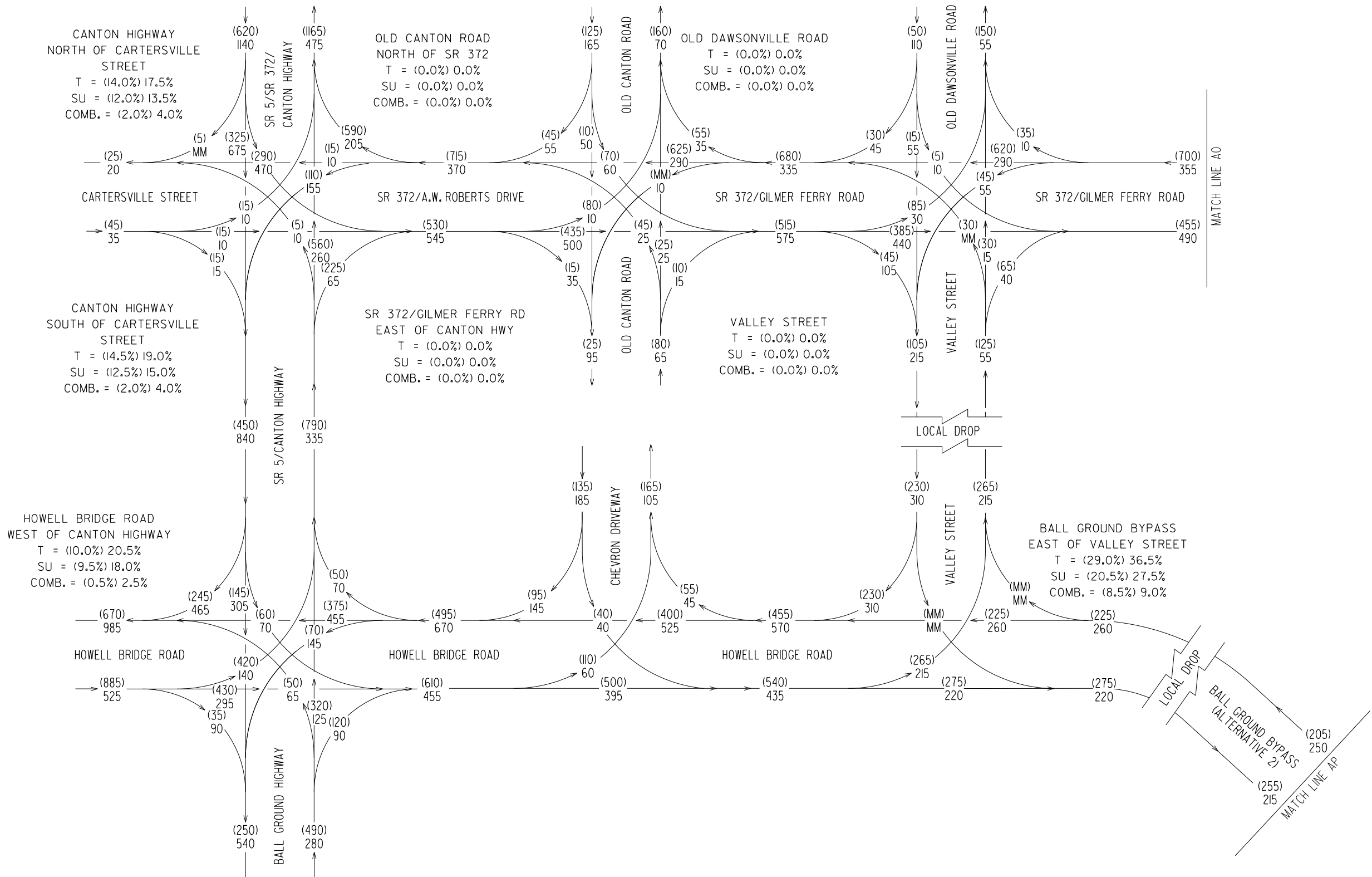
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0045  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2030 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |             |
|----------------|-----|------------------------------------|-------------|
|                |     | BALL GROUND BYPASS                 |             |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |             |
| CHECKED:       | RLR | DATE:                              | 02/26/19    |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19    |
| CORRECTED:     | RLR | DATE:                              | 04/08/19    |
| VERIFIED:      | MWG | DATE:                              | 04/08/19    |
|                |     |                                    | DRAWING No. |
|                |     |                                    | 10-0046     |



CANTON HIGHWAY  
NORTH OF CARTERSVILLE  
STREET  
T = (14.0%) 17.5%  
SU = (12.0%) 13.5%  
COMB. = (2.0%) 4.0%

OLD CANTON ROAD  
NORTH OF SR 372  
T = (0.0%) 0.0%  
SU = (0.0%) 0.0%  
COMB. = (0.0%) 0.0%

OLD DAWSONVILLE ROAD  
T = (0.0%) 0.0%  
SU = (0.0%) 0.0%  
COMB. = (0.0%) 0.0%

CANTON HIGHWAY  
SOUTH OF CARTERSVILLE  
STREET  
T = (14.5%) 19.0%  
SU = (12.5%) 15.0%  
COMB. = (2.0%) 4.0%

SR 372/GILMER FERRY RD  
EAST OF CANTON HWY  
T = (0.0%) 0.0%  
SU = (0.0%) 0.0%  
COMB. = (0.0%) 0.0%

VALLEY STREET  
T = (0.0%) 0.0%  
SU = (0.0%) 0.0%  
COMB. = (0.0%) 0.0%

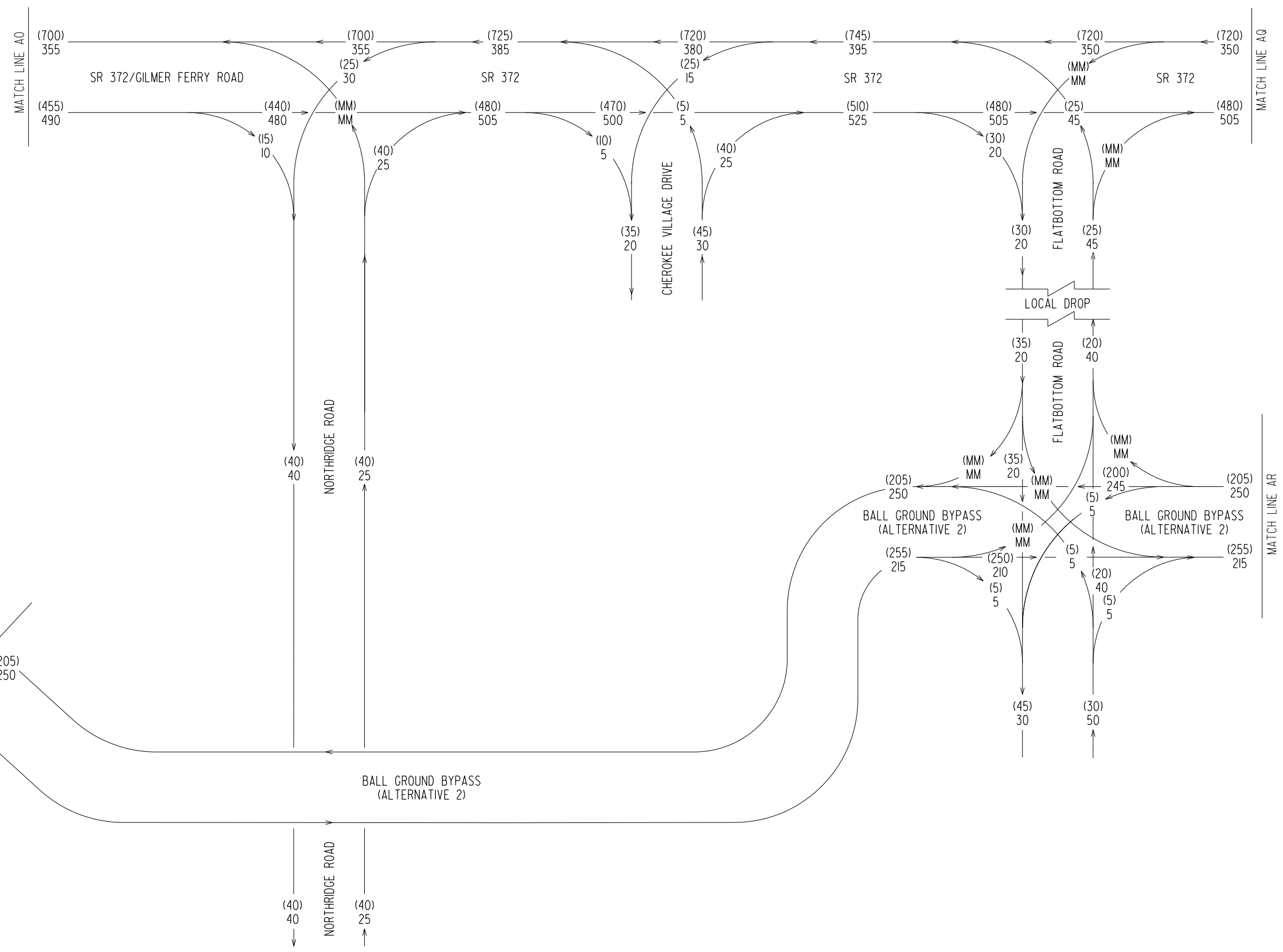
HOWELL BRIDGE ROAD  
WEST OF CANTON HIGHWAY  
T = (10.0%) 20.5%  
SU = (9.5%) 18.0%  
COMB. = (0.5%) 2.5%

BALL GROUND BYPASS  
EAST OF VALLEY STREET  
T = (29.0%) 36.5%  
SU = (20.5%) 27.5%  
COMB. = (8.5%) 9.0%

P.I. NO. 0002525  
CHEROKEE COUNTY  
BALL GROUND BYPASS  
ALTERNATIVE 2  
2050 DHV  
PM = (000)  
AM = 000  
SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0047  |



MATCH LINE AP

(205)  
250

(255)  
215

BALL GROUND BYPASS  
(ALTERNATIVE 2)

(40)  
40

NORTH RIDGE ROAD

(40)  
25

BALL GROUND BYPASS  
(ALTERNATIVE 2)

(205)  
250

(255)  
215

(45)  
30

FLATBOTTOM ROAD

(30)  
50

BALL GROUND BYPASS  
(ALTERNATIVE 2)

(205)  
250

(255)  
215

(20)  
40

FLATBOTTOM ROAD

(5)  
5

(200)  
245

MATCH LINE AR

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2050 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



REVISION DATES

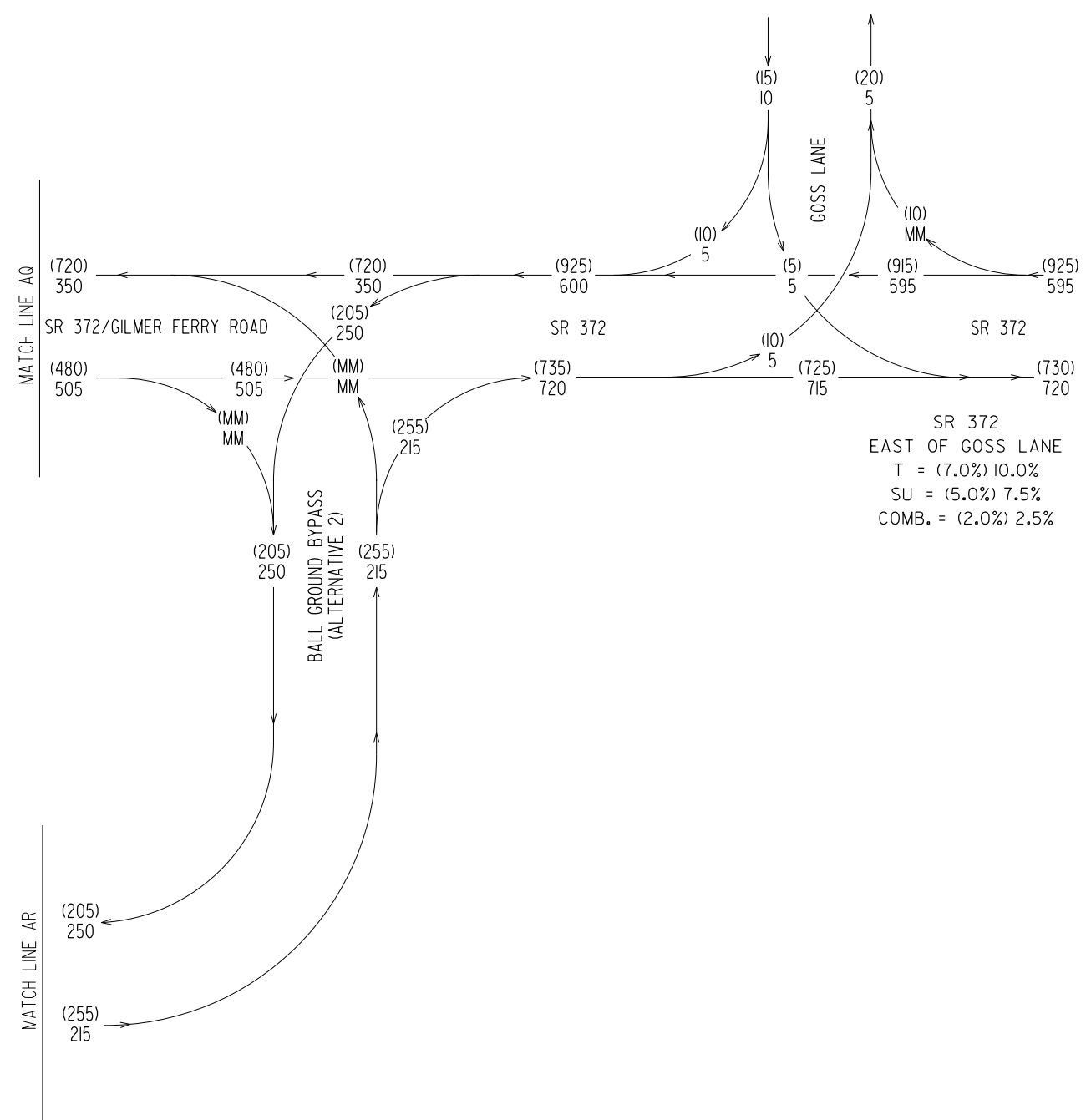
| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
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TRAFFIC DIAGRAM

BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MWG | DATE: 02/28/19 | 10-0048     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MWG    | DATE: 04/08/19 |             |

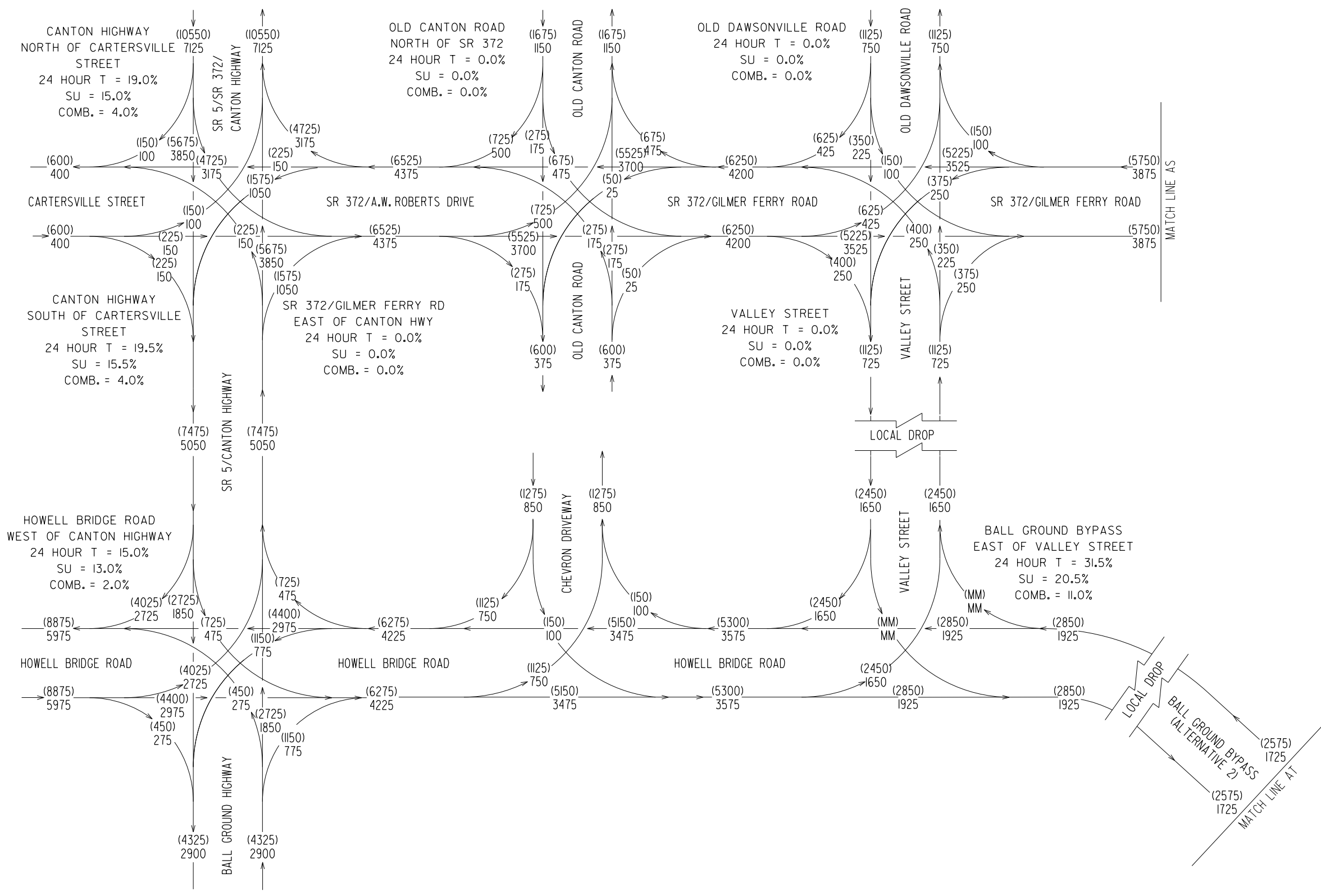
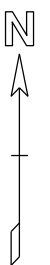




P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2050 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0049  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2052 AADT = (000)  
 2032 AADT = 000  
 SCALE: N.T.S.

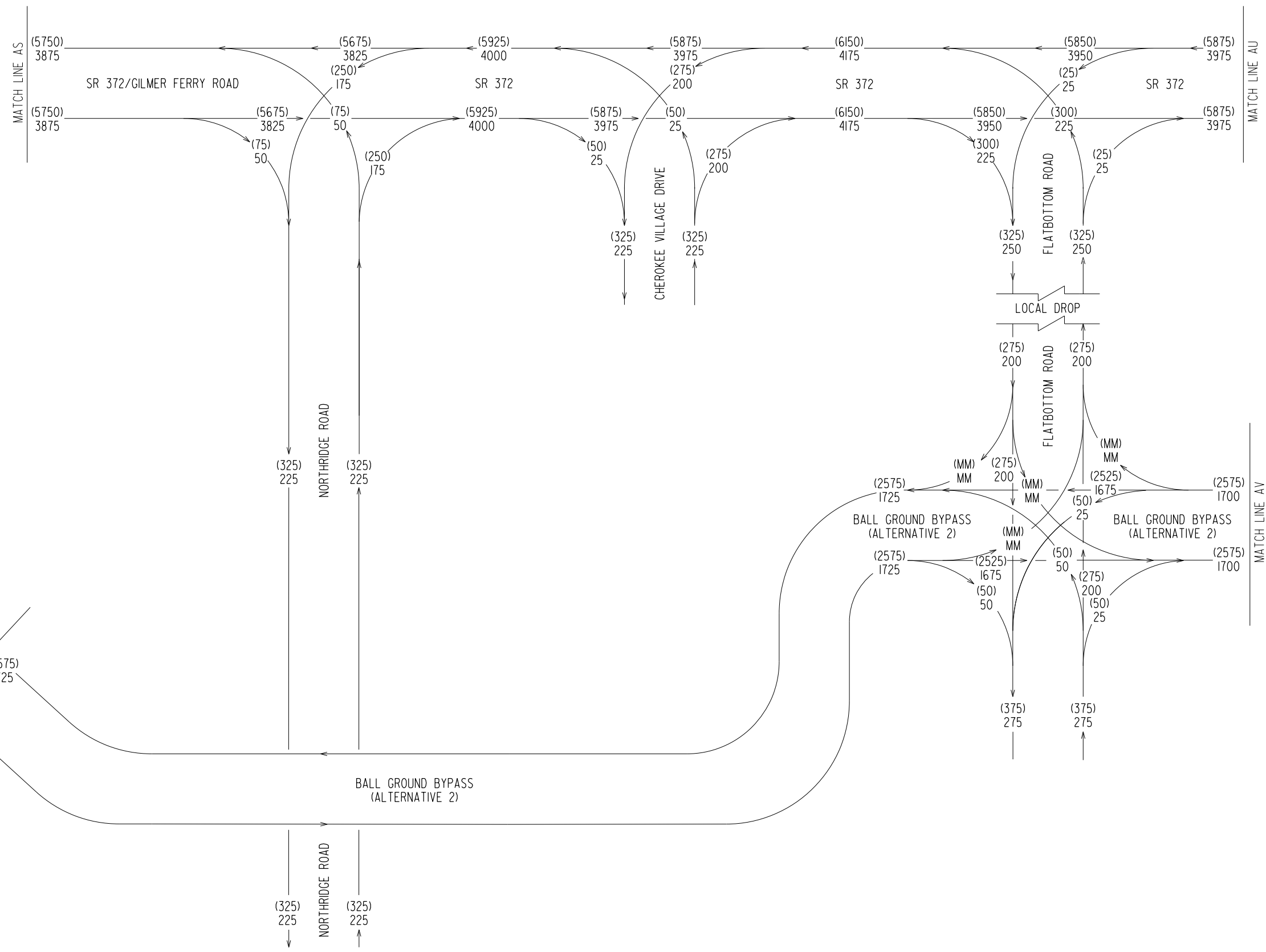
REVISION DATES

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
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**TRAFFIC DIAGRAM**  
 BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0050     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |

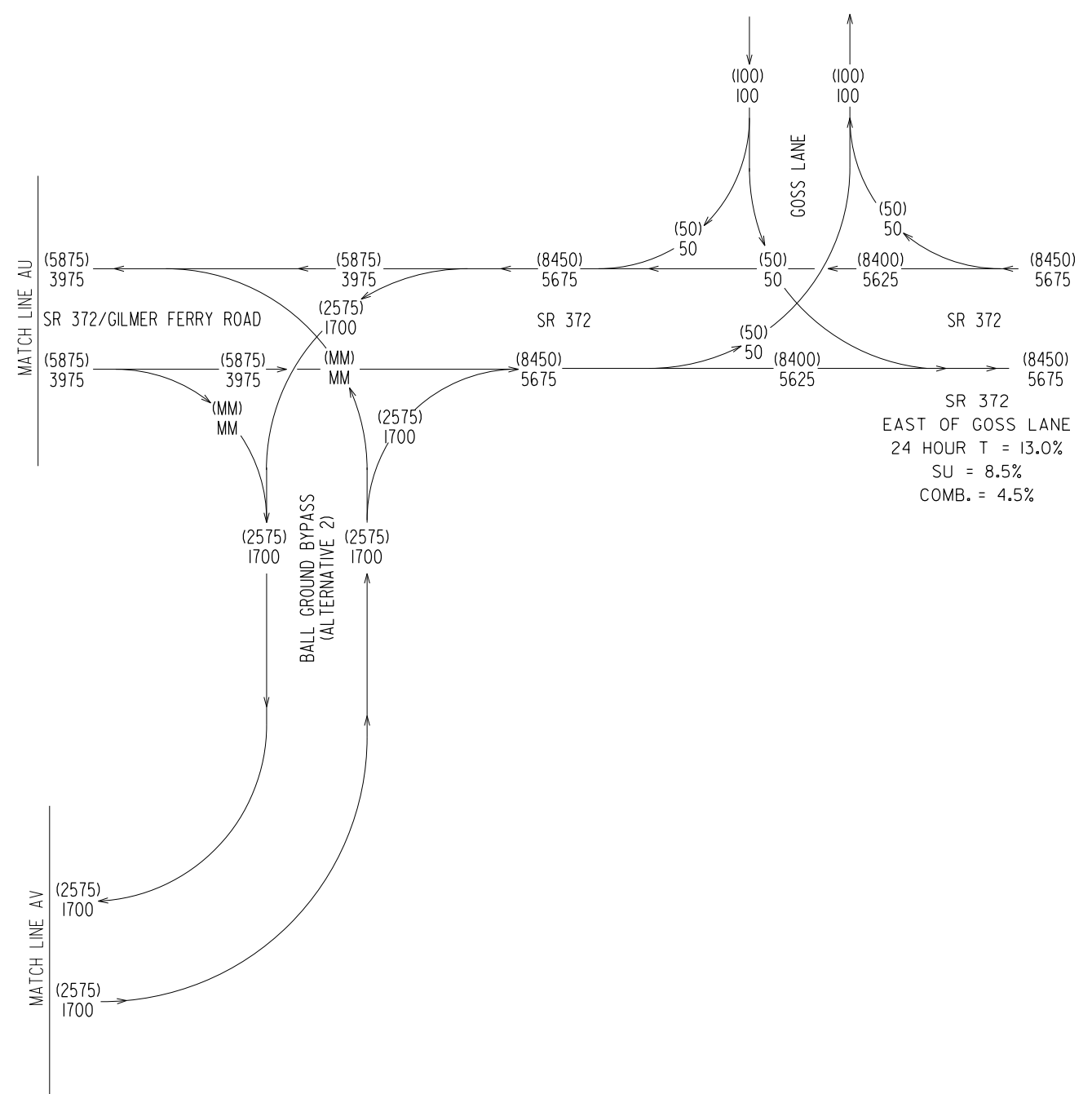




P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2052 AADT = (000)  
 2032 AADT = 000  
 SCALE: N.T.S.



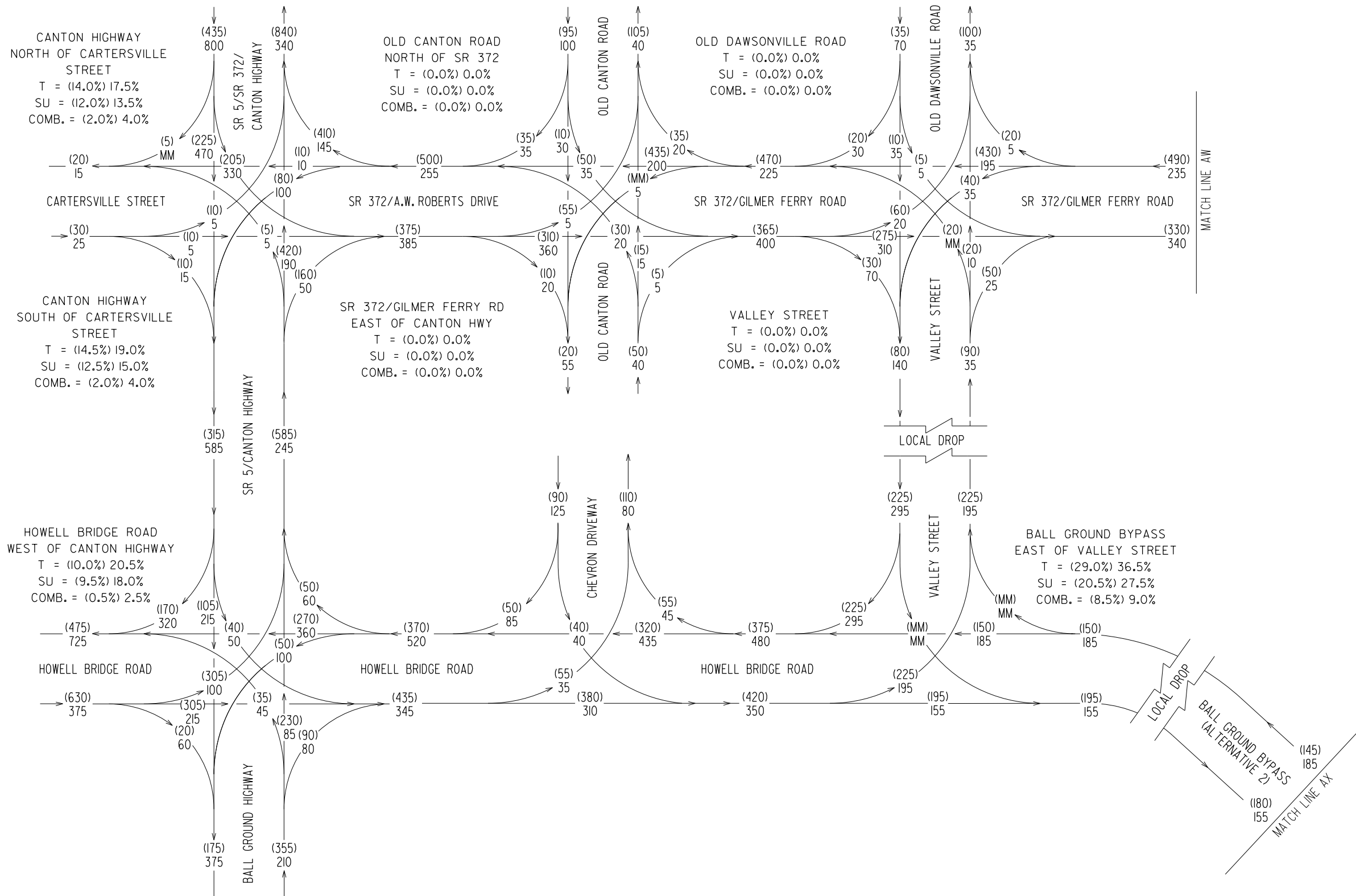
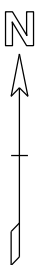
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0051  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2052 AADT = (000)  
 2032 AADT = 000  
 SCALE: N.T.S.



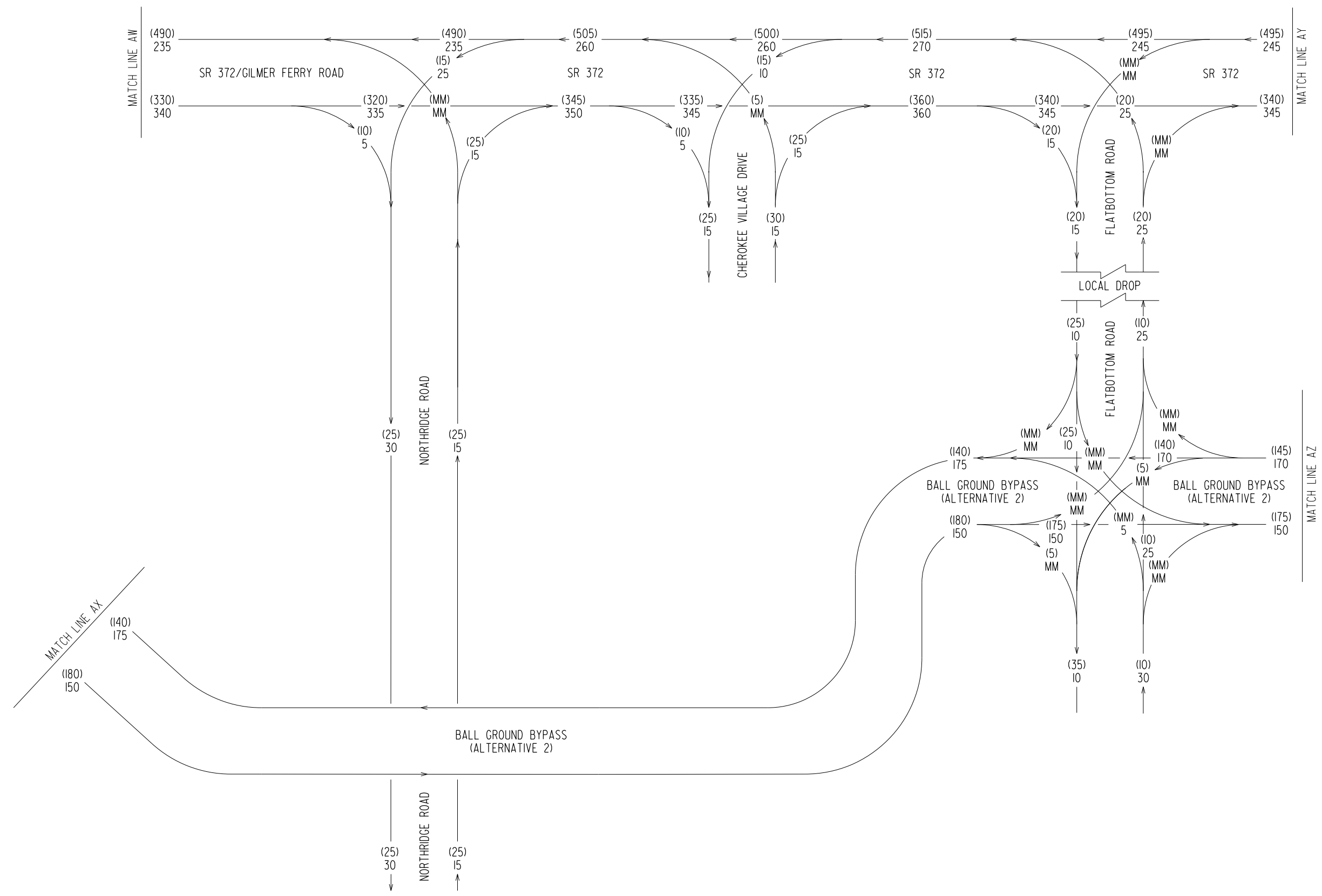
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MMG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MMG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0052  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2032 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



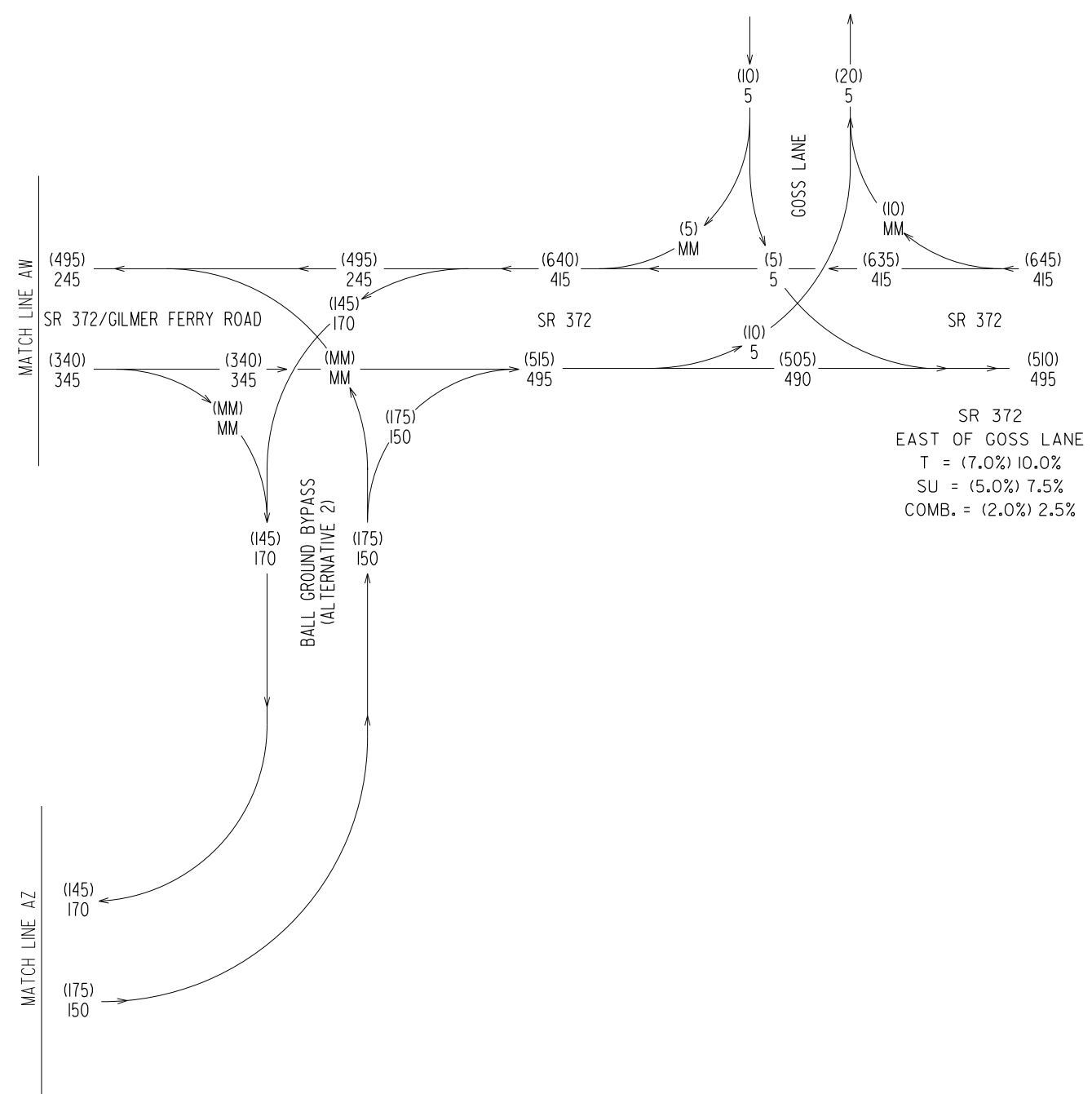
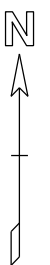
| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0053  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2032 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0054  |



AREA FOR  
REVISIONS  
DATE: 02/26/19  
BY: RLR

AREA FOR  
REVISIONS  
DATE: 02/28/19  
BY: MMG

P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2032 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.

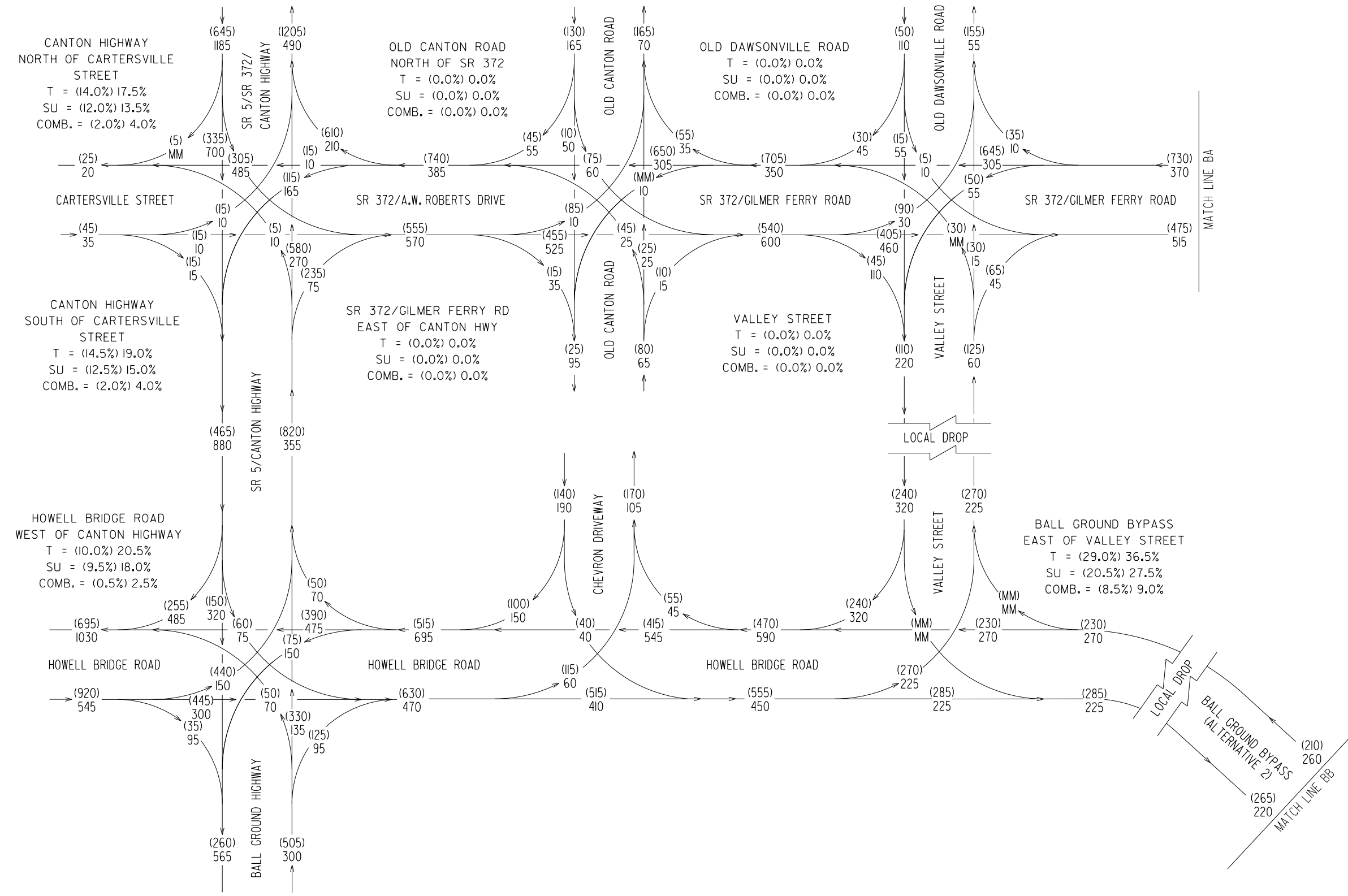
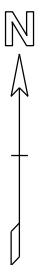
REVISION DATES

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**TRAFFIC DIAGRAM**  
 BALL GROUND BYPASS  
 HOWELL BRIDGE RD TO BALL GROUND RD

|                  |                |             |
|------------------|----------------|-------------|
| CHECKED: RLR     | DATE: 02/26/19 | DRAWING No. |
| BACKCHECKED: MMG | DATE: 02/28/19 | 10-0055     |
| CORRECTED: RLR   | DATE: 04/08/19 |             |
| VERIFIED: MMG    | DATE: 04/08/19 |             |



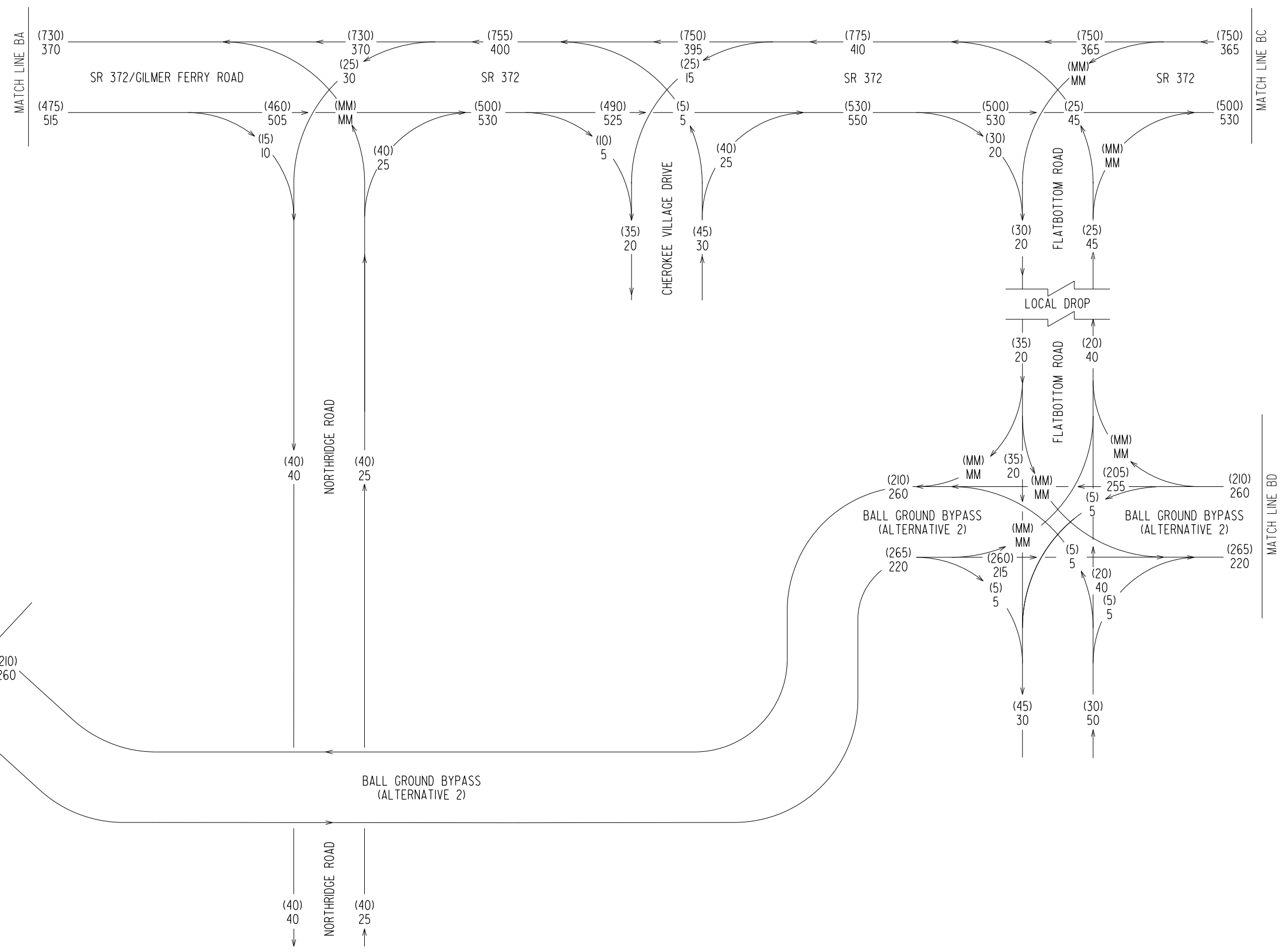


P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2052 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.

| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
|                |     | DRAWING No.                        | 10-0056  |



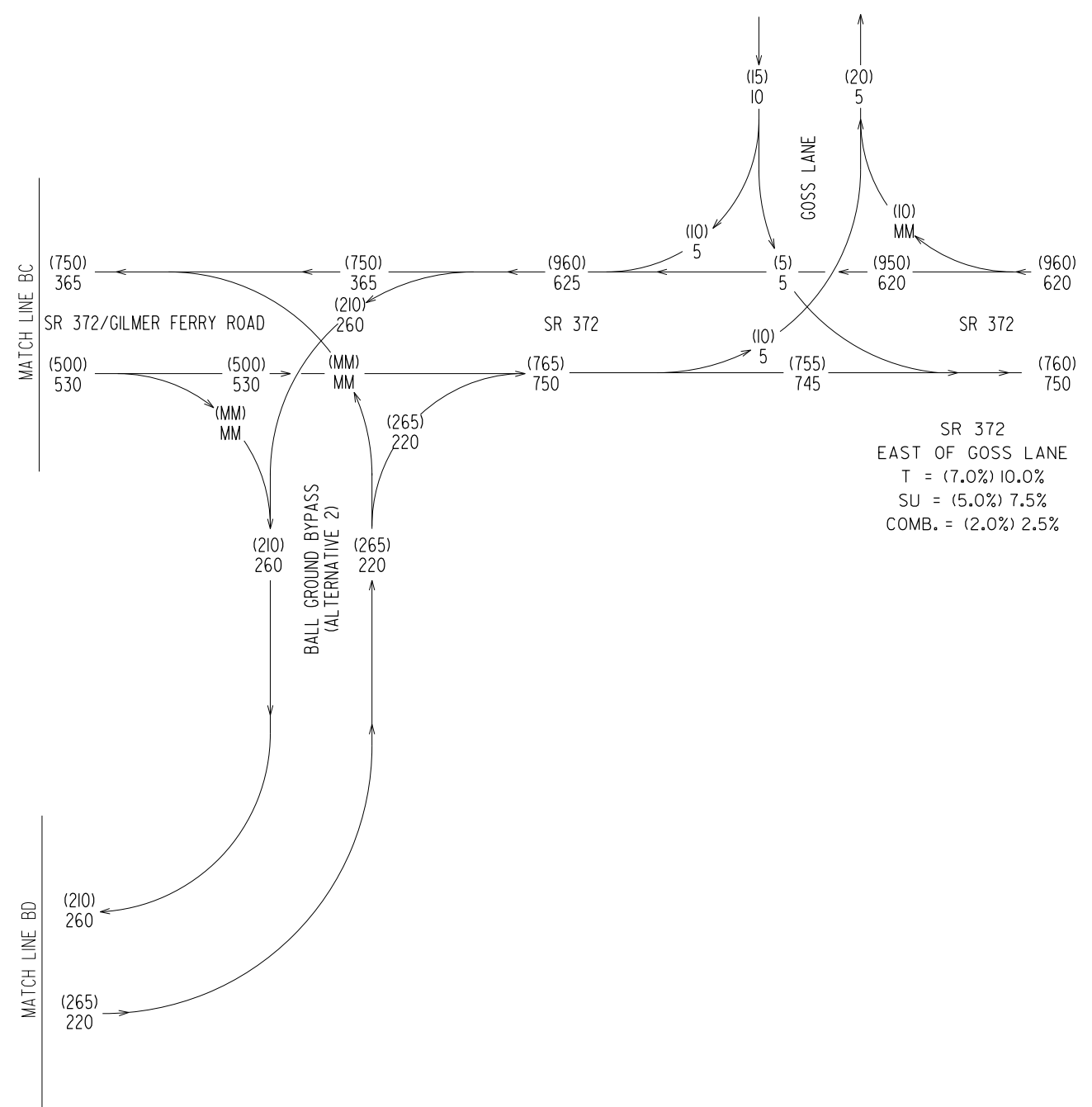




P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2052 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0057  |



P.I. NO. 0002525  
 CHEROKEE COUNTY  
 BALL GROUND BYPASS  
 ALTERNATIVE 2  
 2052 DHV  
 PM = (000)  
 AM = 000  
 SCALE: N.T.S.



| REVISION DATES |     | TRAFFIC DIAGRAM                    |          |
|----------------|-----|------------------------------------|----------|
|                |     | BALL GROUND BYPASS                 |          |
|                |     | HOWELL BRIDGE RD TO BALL GROUND RD |          |
| CHECKED:       | RLR | DATE:                              | 02/26/19 |
| BACKCHECKED:   | MWG | DATE:                              | 02/28/19 |
| CORRECTED:     | RLR | DATE:                              | 04/08/19 |
| VERIFIED:      | MWG | DATE:                              | 04/08/19 |
| DRAWING No.    |     |                                    | 10-0058  |

| Stage 1 Decision Document     |                             |                           | UNSIGNALIZED              |                             |                 |                        |                      |                     |                           |                       |                        |                                | SIGNALIZED                    |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|-------------------------------|-----------------------------|---------------------------|---------------------------|-----------------------------|-----------------|------------------------|----------------------|---------------------|---------------------------|-----------------------|------------------------|--------------------------------|-------------------------------|----------------------------|--------------------|----------------|-------------------------------|-------------------|---------------------------|--------------------|-----------|------------------|----------------------------------|-------------------|--------------------------|-----------------------------|------------------|
|                               |                             | PI# 0002525               | Conventional (Minor Stop) | Conventional (All-Way Stop) | Mini Roundabout | Single Lane Roundabout | Multilane Roundabout | RCUT (stop control) | RIRO w/down stream U-Turn | High-T (unsignalized) | Offset-T Intersections | Diamond Interch (Stop Control) | Diamond Interch (RAB Control) | Add Turn Ln/Median (Unsig) | Other Unsignalized | Traffic Signal | Median U-Turn (Indirect Left) | RCUT (signalized) | Displaced Left Turn (CFI) | Continuous Green-T | Jughandle | Quadrant Roadway | Diamond Interch (Signal Control) | Diverging Diamond | Single Point Interchange | Add Turn Ln/Median (Signal) | Other Signalized |
| Study Intersection            | Existing Intersection Type  | Waiver Request Type       |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
| SR 5 @ Bll Grnd Bypass        | Conventional (All-Way Stop) | N/A                       |                           | x                           |                 |                        | x                    |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
| Bll Grnd Bypass @ Valley St   | Conventional (Minor Stop)   | N/A                       | x                         | x                           |                 | x                      |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
| Bll Grnd Bypass @ Cherokee    | New Intersection or Other   | Conventional (Minor Stop) | x                         |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
| SR 372 @ Bll Grnd Bypass      | Conventional (Minor Stop)   | N/A                       | x                         | x                           |                 | x                      |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
| Bll Grnd Bypass @ Flat Bottom | New Intersection or Other   | Conventional (Minor Stop) | x                         |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
| SR 372 @ Bll Grnd Bypass      | Conventional (Minor Stop)   | Conventional (Minor Stop) | x                         | x                           |                 | x                      |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
| Bll Grnd Bypass @ Chevron D   | New Intersection or Other   | RIRO w/down stream U-Turn |                           |                             |                 |                        |                      |                     | x                         |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |
|                               |                             |                           |                           |                             |                 |                        |                      |                     |                           |                       |                        |                                |                               |                            |                    |                |                               |                   |                           |                    |           |                  |                                  |                   |                          |                             |                  |

Concur with: Christopher Raymond Date: 2020.07.15 07:28:27-04'00'

Date: \_\_\_\_\_ Name: \_\_\_\_\_

Chief Engineer (or Approved Delegate)

GDOT PI # (or N/A):  Request By:

County:  GDOT District: 6 - Cartersville

Major (State) Road:  Speed Limit:

Minor (Crossing) ST:  Speed Limit:

Major ST Direction:  Area Type:

Intersection Control:

Prepared By:  Analyst:

Date:  Project ID:

Project Purpose:

|                     |                      |   |       |      |      |  |       |
|---------------------|----------------------|---|-------|------|------|--|-------|
| 2018                | Existing Data Year   | <b>2018 Existing Year Volumes</b>                     |       |      |      | Annual Growth Rate: <input type="text"/>             |       |
| 2030                | Project Opening Year | 485 (285) [9050]                                      |       |      |      | K Factor*: <input type="text"/>                      |       |
| 2050                | Project Design Year  | (0)   | (205) | (80) | (0)  |  |       |
|                     |                      | 0   | 310   | 165  | 10   |  |       |
|                     |                      | 2018 Intersection Daily Entering Volume (est): 13,450 |       |      |      |  |       |
| EB Bill Grnd Bypass | Peds                 | (310)   | 120   | 15   | (0)  | 0  | (0)   |
| (275) (475) [9050]  | WB Bill Grnd Bypass  | (150)   | 130   | 25   | (0)  | 35   | (40)  |
|                     |                      | (15)  | 25    | 20   | 65   | 205  | (130) |
|                     |                      | (0)   | 0     | (15) | (70) | 90   | (40)  |
|                     |                      | 2018 Peak Hour % Trucks                               |       |      |      |  |       |
|                     |                      | 20  | 65    | 70   | 0    | Legend:  |       |
|                     |                      | (25)  | (175) | (70) | (0)  | 000 = AM Peak Approach Vol                           |       |
|                     |                      | 155 (270) [4400]                                      |       |      |      | (000) = PM Peak Approach Vol                         |       |
|                     |                      |   |       |      |      | [000] = ADT Volume (Estimate)                        |       |
|                     |                      |   |       |      |      | Approach Splits: SR 5 - 0.5 / Bill Grnd Bypass - 0.5 |       |

|                                  |                     |   |       |       |       |      |       |
|----------------------------------|---------------------|---|-------|-------|-------|------|-------|
| <b>2030 Opening Year Volumes</b> |                     |   |       |       |       |      |       |
| 570 (305) [9600]                 |                     |   |       |       |       |      |       |
|                                  |                     | (0)   | (165) | (100) | (40)  |      |       |
|                                  |                     | 0   | 315   | 205   | 50    |      |       |
|                                  |                     | 2030 Intersection Daily Entering Volume (est): 16,225 |       |       |       |      |       |
| EB Bill Grnd Bypass              | Peds                | (290)   | 85    | (300) | 220   | 60   | (50)  |
| (365) (610) [9050]               | WB Bill Grnd Bypass | (20)  | 60    | (0)   | 0     | 340  | (255) |
|                                  |                     | (20)  | 60    | 45    | 80    | 95   | (50)  |
|                                  |                     | (0)   | 0     | (35)  | (220) | (85) | (0)   |
|                                  |                     | 2030 Peak Hour % Trucks                               |       |       |       |      |       |
|                                  |                     | 45  | 80    | 75    | 0     |      |       |
|                                  |                     | (35)  | (220) | (85)  | (0)   |      |       |
|                                  |                     | 200 (340) [5600]                                      |       |       |       |      |       |

|                                 |                     |   |       |       |       |       |       |
|---------------------------------|---------------------|---|-------|-------|-------|-------|-------|
| <b>2050 Design Year Volumes</b> |                     |   |       |       |       |       |       |
| 845 (445) [14300]               |                     |   |       |       |       |       |       |
|                                 |                     | (0)   | (240) | (145) | (60)  |       |       |
|                                 |                     | 0   | 470   | 305   | 70    |       |       |
|                                 |                     | 2050 Intersection Daily Entering Volume (est): 25,900 |       |       |       |       |       |
| EB Bill Grnd Bypass             | Peds                | (415)   | 125   | (435) | 310   | 70    | (50)  |
| (525) (885) [17050]             | WB Bill Grnd Bypass | (35)  | 90    | (0)   | 0     | 450   | (380) |
|                                 |                     | (35)  | 90    | 65    | 125   | 145   | (70)  |
|                                 |                     | (0)   | 0     | (50)  | (320) | (120) | (0)   |
|                                 |                     | 280 (490) [8300]                                      |       |       |       |       |       |

**Introduction:** In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

**Tool Goal:** The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

**Requirements:** An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the "Waiver" tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

**Two-Stage Process:** A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

**Stage 1: Screening Decision Record** Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

**Stage 2: Alternative Selection Decision Record** Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

**Documentation:** A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

|   |   |  |     |    |     |     |     |     |  |
|---|---|--|-----|----|-----|-----|-----|-----|--|
| GDOT PI #                               | 0002525                                   | <p><b>Note:</b> Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2</p> <p style="font-size: small; text-align: center;">                     1. Does alternative address the project need in a balanced manner and in scale with the project?<br/>                     2. Does alternative improve safety performance in terms of reducing severe crashes?<br/>                     3. Does alternative incorporate safety performance in operations for pedestrians and/or bicyclists?<br/>                     4. Does alternative improve (or preserve) convenience characteristics, delay, reliability, etc.?<br/>                     5. Does alternative appear feasible given the site respect to other project factors?<br/>                     6. Does alternative appear feasible with respect to other project factors?<br/>                     7. Overall feasible alternative (select alternative for further evaluation in Stage 2)?                 </p> |     |    |     |     |     |     |  |
| Project Location:                       | SR 5 @ Bll Grnd Bypass                    |  |     |    |     |     |     |     |  |
| Existing Control:                       | Conventional (All-Way Stop)               |  |     |    |     |     |     |     |  |
| Prepared by:                            | VHB                                       |  |     |    |     |     |     |     |  |
| Date:                                   | 4/28/2020                                 | <p>Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column</p> <p><b>Intersection Alternative</b> (see "Intersections" tab for detailed description of intersection/interchange type)</p>  |     |    |     |     |     |     |  |
|   |   |  |     |    |     |     |     |     |  |
| Unsignalized Intersections              | Conventional (Minor Stop)                 | No   | No  | No | No  | No  | No  | No  | Intersecting roadways have similar volumes |
|   | Conventional (All-Way Stop)               | No   | Yes | No | Yes | Yes | Yes | Yes | Move forward to Stage 2                    |
|   | Mini Roundabout                           | No   | No  | No | No  | No  | No  | No  | Context not to scale                       |
|   | Single Lane Roundabout                    | No   | Yes | No | Yes | No  | No  | No  | Approach LOS F                             |
|   | Multilane Roundabout                      | No   | Yes | No | Yes | No  | No  | Yes | Move forward to Stage 2                    |
|   | RCUT (stop control)                       | No   | No  | No | No  | No  | No  | No  | Context not to scale                       |
|   | RIRO w/down stream U-Turn                 | No   | No  | No | No  | No  | No  | No  | Context not to scale                       |
|   | High-T (unsignalized)                     | No   | No  | No | No  | No  | No  | No  | Minimal left turn movement                 |
|   | Offset-T Intersections                    | No   | No  | No | No  | No  | No  | No  | Context not to scale                       |
|   | Diamond Interch (Stop Control)            | No   | No  | No | No  | No  | No  | No  | Volume and context not to scale            |
|   | Diamond Interch (RAB Control)             | No   | No  | No | No  | No  | No  | No  | Volume and context not to scale            |
|   | No LT Lane Improvements                   | No   | No  | No | No  | No  | No  | No  | N/A  |
|   | No RT Lane Improvements                   | No   | No  | No | No  | No  | No  | No  | N/A  |
|   | Other unsignalized (provide description): | No   | No  | No | No  | No  | No  | No  | N/A  |
| Signalized Intersections                | Traffic Signal                            | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | Median U-Turn (Indirect Left)             | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | RCUT (signalized)                         | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | Displaced Left Turn (CFI)                 | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | Continuous Green-T                        | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | Jughandle                                 | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | Quadrant Roadway                          | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | Diamond Interch (Signal Control)          | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | Diverging Diamond                         | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | Single Point Interchange                  | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met                     |
|   | No LT Lane Improvements                   | No   | No  | No | No  | No  | No  | No  | N/A  |
|   | No RT Lane Improvements                   | No   | No  | No | No  | No  | No  | No  | N/A  |
| Other Signalized (provide description): | No  | No   | No  | No | No  | No  | No  | N/A |  |

☐ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record



## GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.15 | Revised 07/01/2019

GDOT PI # (or N/A) 0002525  
 County: Cherokee  
 Project Location: SR 5 @ BII Grnd Bypass  
 Existing Intersection Control: Conventional (All-Way Stop)

GDOT District: 6 - Cartersville  
 Area Type: Urban

Date: 4/28/2020  
 Agency/Firm: VHB  
 Analyst: Brittany Tyson

Type of Analysis: **Conventional Non-Safety Funded Project**

### Opening / Design Year Traffic Operations

|   |                    |            |
|---|--------------------|------------|
| Intersection meets signal/AWS warrants?                 | Meets AWS only     |            |
| Traffic Analysis Measure of Effectiveness               | Intersection Delay |            |
| Traffic Analysis Software Used                          | HCS 2010           |            |
| Analysis Time Period                                    | AM Peak Hr         | PM Peak Hr |
| 2030 Opening Yr No-Build Peak Hr Intersection Delay     | 156.7 sec          | 149.8 sec  |
| 2030 Opening Yr No-Build Peak Hr Intersection V/C ratio | 1.70               | 1.15       |
| 2050 Design Yr No-Build Peak Hr Intersection Delay      | 427.4 sec          | 403.8 sec  |
| 2050 Design Yr No-Build Peak Hr Intersection V/C ratio  | 1.85               | 1.81       |

Complete Streets Warrants Met?  
 PEDESTRIANS  
 BICYCLES  
 TRANSIT

| Crash Type                | Crash Severity                                      |          |               |           |
|---------------------------|---|----------|---------------|-----------|
|                           | Crash Data: Enter most recent 5 years of crash data | PDO      | Injury Crash* |           |
| Angle                     | 10  | 1        | 0             | 41%       |
| Head-On                   | 0   | 0        | 0             | 0%        |
| Rear End                  | 8   | 2        | 0             | 37%       |
| Sideswipe - same          | 1   | 0        | 0             | 4%        |
| Sideswipe - opposite      | 1   | 0        | 0             | 4%        |
| Not Collision w/Motor Veh | 4   | 0        | 0             | 15%       |
| <b>TOTALS:</b>            | <b>24</b>   | <b>3</b> | <b>0</b>      | <b>27</b> |

\* Number of crashes resulting in injuries / fatalities, not number of persons

### Alternatives Analysis:

|                                    | Alternative 1               | Alternative 2        | Alternative 3 | Alternative 4 | Alternative 5 |
|------------------------------------|-----------------------------|----------------------|---------------|---------------|---------------|
| Proposed Control Type/Improvement: | Conventional (All-Way Stop) | Multilane Roundabout | N/A           | N/A           | N/A           |

### Project Cost: (From CostEst Worksheet)

|                                       | Additional description here | Additional description here |  |  |  |
|---------------------------------------|-----------------------------|-----------------------------|--|--|--|
| Construction Cost                     | \$60,000                    | \$1,234,000                 |  |  |  |
| ROW Cost                              | \$0                         | \$105,000                   |  |  |  |
| Environmental Cost                    | \$0                         | \$81,000                    |  |  |  |
| Reimbursable Utility Cost             | \$3,000                     | \$37,000                    |  |  |  |
| Design & Contingency Cost             | \$9,000                     | \$389,000                   |  |  |  |
| Cost Adjustment (justification req'd) | 0%                          | 0%                          |  |  |  |
| <b>Total Cost</b>                     | <b>\$72,000</b>             | <b>\$1,846,000</b>          |  |  |  |

### Traffic Operations:

|   | HCS 2010   |            | HCS 2010   |            |  |  |
|---|------------|------------|------------|------------|--|--|
| Traffic Analysis Software Used          | HCS 2010   |            | HCS 2010   |            |  |  |
| Analysis Period                         | AM Peak Hr | PM Peak Hr | AM Peak Hr | PM Peak Hr |  |  |
| 2050 Design Yr Build Intersection Delay | 424.3 sec  | 430.1 sec  | 16.7 sec   | 16.0 sec   |  |  |
| 2050 Design Yr Build Intersection V/C   | 1.85       | 1.87       | 0.55       | 0.51       |  |  |

### Safety Analysis:

|  |     |                                      |  |  |  |
|--|-----|--------------------------------------|--|--|--|
| Predefined CRF: PDO                                  | 0%  | -107%                                |  |  |  |
| Predefined CRF: Fatal/Inj                            | 0%  | 100%                                 |  |  |  |
| Predefined CRF Source:                               | N/A | FHWA Clearinghouse #s<br>6158 / 6159 |  |  |  |
| User Defined CRF: PDO                                |     | -6%                                  |  |  |  |
| User Defined CRF: Fatal/Inj                          |     | 63%                                  |  |  |  |
| User Defined CRF Source<br>(write in if applicable): |     | FHWA Clearinghouse #<br>4927         |  |  |  |

### Environmental Impacts:<sup>1</sup>

|                            |      |         |  |  |  |
|----------------------------|------|---------|--|--|--|
| Historic District/Property | None | None    |  |  |  |
| Archaeology Resources      | None | None    |  |  |  |
| Graveyard                  | None | None    |  |  |  |
| Stream                     | None | Minimal |  |  |  |
| Underground Tank/Hazmat    | None | None    |  |  |  |
| Park Land                  | None | None    |  |  |  |
| EJ Community               | None | None    |  |  |  |
| Wooded Area                | None | Minimal |  |  |  |
| Wetland                    | None | None    |  |  |  |

Note: If environmental impact is significant (**RED**), provide justification impact won't jeopardize project delivery using "Env" worksheet

<sup>1</sup> Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept report

### Stakeholder Posture:

|                         |         |         |  |  |  |
|-------------------------|---------|---------|--|--|--|
| Local Community Support | Unknown | Unknown |  |  |  |
| GDOT Support            | Unknown | Unknown |  |  |  |

|                                    |            |            |  |  |  |
|------------------------------------|------------|------------|--|--|--|
| <b>Final ICE Stage 2 Score:</b>    | <b>1.9</b> | <b>2.8</b> |  |  |  |
| Rank of Control Type Alternatives: | 2          | 1          |  |  |  |

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):

GDOT PI # (or N/A):  Request By:

County:  GDOT District: 6 - Cartersville

Major (State) Road:  Speed Limit:

Minor (Crossing) ST:  Speed Limit:

Major ST Direction:  Area Type:

Intersection Control:

Prepared By:  Analyst:

Date:  Project ID:

Project Purpose:

| Year | Description          | 2018 Existing Year Volumes |       |     |     |              |   |
|------|----------------------|----------------------------|-------|-----|-----|--------------|---|
| 2018 | Existing Data Year   | 250 (160) [3100]           |       |     |     | SB Valley St | Annual Growth Rate: <input type="text" value="0.0%"/><br>K Factor*: <input type="text" value="0%"/> |
| 2030 | Project Opening Year | (0)                        | (160) | (0) | (0) |              |   |
| 2050 | Project Design Year  | 0                          | 250   | 0   | 0   |              |   |

| Peak Hour % Trucks |    |    |     |  |  |
|--------------------|----|----|-----|--|--|
| EB                 | WB | NB | SB  |  |  |
| 0%                 | 0% | 0% | 15% |  |  |

| 2018 Existing Year Volumes |      |     |   |     |     |
|----------------------------|------|-----|---|-----|-----|
|                            | Peds |     |   |     |     |
| 180 (170) [3400]           | (0)  | 175 | 5 | (0) | (0) |
| 180 (170) [3400]           | (0)  | 0   | 0 | 0   | (0) |

| 2018 Existing Year Volumes |      |    |      |     |     |
|----------------------------|------|----|------|-----|-----|
|                            | Peds |    |      |     |     |
| 10 (10) [300]              | (0)  | 10 | (10) | (0) | (0) |
| 10 (10) [300]              | (0)  | 0  | (0)  | (0) | (0) |

| 2030 Opening Year Volumes |      |     |     |     |     |
|---------------------------|------|-----|-----|-----|-----|
|                           | Peds |     |     |     |     |
| 350 (410) [6950]          | (0)  | 215 | 190 | (0) | (0) |
| 350 (410) [6950]          | (0)  | 195 | 160 | (0) | (0) |

| 2050 Design Year Volumes |      |     |     |     |     |
|--------------------------|------|-----|-----|-----|-----|
|                          | Peds |     |     |     |     |
| 450 (545) [10300]        | (0)  | 260 | 220 | (0) | (0) |
| 450 (545) [10300]        | (0)  | 285 | 230 | (0) | (0) |

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|   |   |  |     |    |     |     |     |     |                                 |
|---|---|--|-----|----|-----|-----|-----|-----|---------------------------------|
| GDOT PI #   | 0002525                                 | <p><b>Note:</b> Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2</p> <p style="font-size: small; text-align: center;">                     1. Does alternative address the project need in a balanced manner and in scale with the project?<br/>                     2. Does alternative improve safety performance in terms of reducing severe crashes?<br/>                     3. Does alternative incorporate safety performance in operations for pedestrians and/or bicyclists?<br/>                     4. Does alternative improve (or preserve) traffic characteristics, delay, reliability, etc.?<br/>                     5. Does alternative appear feasible given the site respect to other project factors?<br/>                     6. Does alternative appear feasible with respect to other project factors?<br/>                     7. Overall feasible alternative (select alternative for further evaluation in Stage 2)?                 </p> |     |    |     |     |     |     |                                 |
| Project Location:   | Bill Grnd Bypass @ Valley St            |  |     |    |     |     |     |     |                                 |
| Existing Control:   | Conventional (Minor Stop)               |  |     |    |     |     |     |     |                                 |
| Prepared by:  | VHB                                     |  |     |    |     |     |     |     |                                 |
| Date:   | 4/28/2020                               | <p>Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column</p> <p><b>Intersection Alternative</b> (see "Intersections" tab for detailed description of intersection/interchange type)</p>  |     |    |     |     |     |     |                                 |
| Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column |   |  |     |    |     |     |     |     |                                 |
| Intersection Alternative (see "Intersections" tab for detailed description of intersection/interchange type)  |   | Screening Decision Justification:  |     |    |     |     |     |     |                                 |
| Unsignalized Intersections  | Conventional (Minor Stop)               | Yes  | No  | No | Yes | Yes | Yes | Yes | Move forward to Stage 2         |
|   | Conventional (All-Way Stop)             | Yes  | Yes | No | No  | Yes | Yes | Yes | Move forward to Stage 2         |
|   | Mini Roundabout                         | No   | No  | No | No  | No  | No  | No  | Context not to scale            |
|   | Single Lane Roundabout                  | Yes  | Yes | No | Yes | Yes | Yes | Yes | Move forward to Stage 2         |
|   | Multilane Roundabout                    | No   | No  | No | No  | No  | No  | No  | Volume and context not to scale |
|   | RCUT (stop control)                     | No   | No  | No | No  | No  | No  | No  | Context not to scale            |
|   | RIRO w/down stream U-Turn               | No   | No  | No | No  | No  | No  | No  | Context not to scale            |
|   | High-T (unsignalized)                   | No   | No  | No | No  | No  | No  | No  | Minimal left turn movement      |
|   | Offset-T Intersections                  | No   | No  | No | No  | No  | No  | No  | Context not to scale            |
|   | Diamond Interch (Stop Control)          | No   | No  | No | No  | No  | No  | No  | Volume and context not to scale |
|   | Diamond Interch (RAB Control)           | No   | No  | No | No  | No  | No  | No  | Volume and context not to scale |
|   | No LT Lane Improvements                 | No   | No  | No | No  | No  | No  | No  | N/A                             |
|   | No RT Lane Improvements                 | No   | No  | No | No  | No  | No  | No  | N/A                             |
| Other unsignalized (provide description):   | No                                      | No   | No  | No | No  | No  | No  | N/A |                                 |
| Signalized Intersections  | Traffic Signal                          | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Median U-Turn (Indirect Left)           | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | RCUT (signalized)                       | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Displaced Left Turn (CFI)               | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Continuous Green-T                      | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Jughandle                               | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Quadrant Roadway                        | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Diamond Interch (Signal Control)        | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Diverging Diamond                       | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Single Point Interchange                | No   | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | No LT Lane Improvements                 | No   | No  | No | No  | No  | No  | No  | N/A                             |
|   | No RT Lane Improvements                 | No   | No  | No | No  | No  | No  | No  | N/A                             |
|   | Other Signalized (provide description): | No   | No  | No | No  | No  | No  | No  | N/A                             |

☐ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record





## GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.15 | Revised 07/01/2019

GDOT PI # (or N/A) 0002525

GDOT District: 6 - Cartersville

Date: 4/28/2020

County: Cherokee

Area Type: Urban

Agency/Firm: VHB

Project Location: Bll Grnd Bypass @ Valley St

Analyst: Brittany Tyson

Existing Intersection Control: Conventional (Minor Stop)

Type of Analysis: Conventional Non-Safety Funded Project

### Opening / Design Year Traffic Operations

|   |                    |            |
|---|--------------------|------------|
| Intersection meets signal/AWS warrants?                 | Meets AWS only     |            |
| Traffic Analysis Measure of Effectiveness               | Intersection Delay |            |
| Traffic Analysis Software Used                          | HCS 2010           |            |
| Analysis Time Period                                    | AM Peak Hr         | PM Peak Hr |
| 2030 Opening Yr No-Build Peak Hr Intersection Delay     | 10.1 sec           | 9.6 sec    |
| 2030 Opening Yr No-Build Peak Hr Intersection V/C ratio | 0.33               | 0.25       |
| 2050 Design Yr No-Build Peak Hr Intersection Delay      | 10.5 sec           | 10.0 sec   |
| 2050 Design Yr No-Build Peak Hr Intersection V/C ratio  | 0.38               | 0.29       |

Complete Streets Warrants Met?

- PEDESTRIANS
- BICYCLES
- TRANSIT

| Crash Type                | Crash Data: Enter most recent 5 years of crash data | Crash Severity |               |              |  |
|---------------------------|---|----------------|---------------|--------------|--|
|                           |   | PDO            | Injury Crash* | Fatal Crash* |  |
| Angle                     | 2   | 2              | 0             | 67%          |  |
| Head-On                   | 0   | 0              | 0             | 0%           |  |
| Rear End                  | 2   | 0              | 0             | 33%          |  |
| Sideswipe - same          | 0   | 0              | 0             | 0%           |  |
| Sideswipe - opposite      | 0   | 0              | 0             | 0%           |  |
| Not Collision w/Motor Veh | 0   | 0              | 0             | 0%           |  |
| <b>TOTALS:</b>            | <b>4</b>  | <b>2</b>       | <b>0</b>      | <b>6</b>     |  |

\* Number of crashes resulting in injuries / fatalities, not number of persons

### Alternatives Analysis:

Proposed Control Type/Improvement:

|                                       | Alternative 1             | Alternative 2               | Alternative 3          | Alternative 4               | Alternative 5 |
|---------------------------------------|---------------------------|-----------------------------|------------------------|-----------------------------|---------------|
| Conventional (Minor Stop)             | Conventional (Minor Stop) | Conventional (All-Way Stop) | Single Lane Roundabout | N/A                         | N/A           |
| Additional description here           |                           | Additional description here |                        | Additional description here |               |
| Construction Cost                     | \$500,000                 | \$500,000                   | \$691,000              |                             |               |
| ROW Cost                              | \$100,000                 | \$100,000                   | \$3,000                |                             |               |
| Environmental Cost                    | \$0                       | \$0                         | \$0                    |                             |               |
| Reimbursable Utility Cost             | \$21,000                  | \$21,000                    | \$21,000               |                             |               |
| Design & Contingency Cost             | \$100,000                 | \$100,000                   | \$205,000              |                             |               |
| Cost Adjustment (justification req'd) | 0%                        | 0%                          | 0%                     |                             |               |
| Total Cost                            | \$721,000                 | \$721,000                   | \$920,000              |                             |               |
| User Cost Override                    | User Cost Override        | User Cost Override          |                        |                             |               |

### Traffic Operations:

|   | HCS 2010   |            | HCS 2010   |            | HCS 2010   |            |
|---|------------|------------|------------|------------|------------|------------|
|   | AM Peak Hr | PM Peak Hr | AM Peak Hr | PM Peak Hr | AM Peak Hr | PM Peak Hr |
| Traffic Analysis Software Used          | HCS 2010   |            | HCS 2010   |            | HCS 2010   |            |
| Analysis Period                         |            |            |            |            |            |            |
| 2050 Design Yr Build Intersection Delay | 13.3 sec   | 11.6 sec   | 33.2 sec   | 45.2 sec   | 11.0 sec   | 13.0 sec   |
| 2050 Design Yr Build Intersection V/C   | 0.44       | 0.32       | 0.83       | 0.94       | 0.55       | 0.67       |

### Safety Analysis:

|  |     |                                    |                                    |  |  |
|--|-----|------------------------------------|------------------------------------|--|--|
| Predefined CRF: PDO                                  | 0%  | 75%                                | 39%                                |  |  |
| Predefined CRF: Fatal/Inj                            | 0%  | 70%                                | 78%                                |  |  |
| Predefined CRF Source:                               | N/A | FHWA Clearinghouse #s<br>315 / 314 | FHWA Clearinghouse #s<br>233 / 234 |  |  |
| User Defined CRF: PDO                                |     |                                    |                                    |  |  |
| User Defined CRF: Fatal/Inj                          |     |                                    |                                    |  |  |
| User Defined CRF Source<br>(write in if applicable): |     |                                    |                                    |  |  |

### Environmental Impacts:<sup>1</sup>

|                            |      |      |      |  |  |
|----------------------------|------|------|------|--|--|
| Historic District/Property | None | None | None |  |  |
| Archaeology Resources      | None | None | None |  |  |
| Graveyard                  | None | None | None |  |  |
| Stream                     | None | None | None |  |  |
| Underground Tank/Hazmat    | None | None | None |  |  |
| Park Land                  | None | None | None |  |  |
| EJ Community               | None | None | None |  |  |
| Wooded Area                | None | None | None |  |  |
| Wetland                    | None | None | None |  |  |

Note: If environmental impact is significant (**RED**), provide justification impact won't jeopardize project delivery using "Env" worksheet

<sup>1</sup> Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept report

### Stakeholder Posture:

|                         |         |         |         |  |  |
|-------------------------|---------|---------|---------|--|--|
| Local Community Support | Unknown | Unknown | Unknown |  |  |
| GDOT Support            | Unknown | Unknown | Unknown |  |  |

|                                    |            |            |            |  |  |
|------------------------------------|------------|------------|------------|--|--|
| <b>Final ICE Stage 2 Score:</b>    | <b>4.0</b> | <b>5.7</b> | <b>5.8</b> |  |  |
| Rank of Control Type Alternatives: | 3          | 2          | 1          |  |  |

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary):



# GDOT INTERSECTION CONTROL EVALUATION (ICE) WAIVER FORM

ICE Version 2.15 | Revised 07/01/2019

## Waiver Request - Level 1

In certain circumstances where an ICE would otherwise be required, an ICE may be waived based on appropriate evidence presented with a written request. Scenarios in which an ICE waiver request may be considered include:

- Proposed improvements do not substantially alter the character of the intersection, and are considered minor in nature, such as extending existing turn lane(s) or modifying signal phasing at an existing traffic signal
- The intersection consists of a public roadway intersecting a divided, multilane roadway where the access will be limited to a closed median with only right-in/right-out access that will operate acceptably; or
- The intersection is along an undivided, two-lane roadway that will not be widened and meets the following criteria:
  - Low risk in terms of exposure (total intersection entering volume less than 1,000 vehicles /day)
  - Latest 5 years of crash history is not indicative of a crash problem (no discernible crash patterns coupled with low crash frequency and severity)
  - Layout has no unusual or undesirable geometric features (such as restricted sight distance)
  - The proposed changes are not expected to adversely affect safety

If only one alternative is determined to be feasible from the ICE Stage 1, then a waiver may be submitted in lieu of completing ICE Stage 2. The waiver must clearly explain why there is no other feasible alternative. A Waiver Form should also be submitted to document an agreed upon decision to select a preferred alternative other than the highest scoring alternative in Stage 2.

ICE waiver forms with supporting documentation should be submitted for approval to the Office of Traffic Operations or District Engineer (depending on Waiver level). Questions regarding the waiver process should be routed to the State Traffic Engineer.

### Project Information:

Location: Bll Grnd Bypass @ Chevron Drwy    GDOT PI # (or N/A): 0002525  
 County: Cherokee    Requested By: GDOT  
 GDOT District: 6 - Cartersville    Prepared By: VHB  
 Area Type: Urban    Analyst: Brittany Tyson  
 Existing Intersection Control: Conventional (Minor Stop)    Date: 4/28/2020

Waiver Request Type: GDOT PDP Project

### Traffic and Operations Data:<sup>1</sup>

|   |                    |          |
|---|--------------------|----------|
| Intersection meets signal/AWS warrants?       | None               |          |
| Traffic Analysis Type:                        | Intersection Delay |          |
| Existing Avg Daily Traffic (Major Street):    | 4,400              |          |
| Existing Avg Daily Traffic (Minor Street):    | 1,300              |          |
| Analysis Period:                              | AM Peak            | PM Peak  |
| 2030 Opening Yr Peak Hour Intersection Delay: | 12.5 sec           | 10.8 sec |
| 2030 Opening Yr Peak Hour Intersection V/C:   | 0.21               | 0.14     |
| 2050 Design Yr Peak Hour Intersection Delay:  | 15.9 sec           | 12.6 sec |
| 2050 Design Yr Peak Hour Intersection V/C:    | 0.38               | 0.24     |

| Crash Data (Required): <sup>1</sup>                 |                |               |              |
|---|----------------|---------------|--------------|
| Crash Data: Enter most recent 5 years of crash data | Crash Severity |               |              |
|   | PDO            | Injury Crash* | Fatal Crash* |
| Angle   | 0              | 0             | 0            |
| Head-On   | 0              | 0             | 0            |
| Rear End  | 0              | 0             | 0            |
| Sideswipe - same                                    | 0              | 0             | 0            |
| Sideswipe - opposite                                | 0              | 0             | 0            |
| Not Collision w/Motor Veh                           | 0              | 0             | 0            |
| <b>TOTALS:</b>                                      | <b>0</b>       | <b>0</b>      | <b>0</b>     |

Crash Type



<sup>1</sup>Crash data required for all existing intersections. ADT's required if available (from data collected or nearest GDOT count station site). Capacity data is optional unless needed to justify basis of the waiver request.

\* Number of crashes resulting in injuries / fatalities, not number of persons

### Description of Work / Justification for Waiver (Required):

The RIRO w/down stream U-turn was the only feasible alternative from Stage 1.

Proposed Intersection Control:

RIRO w/down stream U-Turn

REQUESTED BY: Matthew Thompson Date: 5/13/2020

Title: Project Engineer

APPROVED BY: Christopher Raymond Date: 2020.07.15 07:25:35-04'00'

Name: \_\_\_\_\_

Chief Engineer or (Approved Delegate)

GDOT PI # (or N/A):  Request By:   
 County:  GDOT District: 6 - Cartersville  
 Major (State) Road:  Speed Limit:   
 Minor (Crossing) ST:  Speed Limit:   
 Major ST Direction:  Area Type:   
 Intersection Control:   
 Prepared By:  Analyst:   
 Date:  Project ID:   
 Project Purpose:

| Year | Existing Data Year | 2018 Existing Year Volumes | Project Opening Year | 2030 Project Opening Year | Project Design Year | 2050 Project Design Year | Annual Growth Rate |
|------|--------------------|----------------------------|----------------------|---------------------------|---------------------|--------------------------|--------------------|
| 2018 | Existing Data Year | 85 (55) [1300]             | 2030                 | Project Opening Year      | 2050                | Project Design Year      | 0.0%               |

K Factor\*:

| Peak Hour % Trucks |    |    |    |    |    |    |    |
|--------------------|----|----|----|----|----|----|----|
| EB                 | WB | NB | SB | EB | WB | NB | SB |
| 0%                 | 0% | 0% | 0% |    |    |    |    |

### 2030 Opening Year Volumes

|                     |      |  |      |                     |       |       |        |
|---------------------|------|--|------|---------------------|-------|-------|--------|
| 120 (90) [1650]     |      |  |      |                     |       |       |        |
| (0)                 | (50) | (0)  | (40) |                     |       |       |        |
| 0                   | 80   | 0  | 40   | SB Chevron Drwy     |       |       |        |
| EB Bill Grnd Bypass |      |  |      | WB Bill Grnd Bypass |       |       |        |
| Peds ↓              | ↘    | ↓  | ↗    | Peds ↗              | ↑     | ↘     | Peds ↓ |
| (55)                | 35   | 2030 Intersection Daily Entering Volume (est): #DIV/0! |      | 45                  | (55)  | [505] |        |
| (370)               | 310  |  |      | 415                 | (305) | [690] |        |
| (0)                 | 0    |  |      | 0                   | (0)   | [460] |        |
| (0)                 | 0    |  |      | 0                   | (0)   | [200] |        |
| NB Chevron Drwy     |      |  |      | SB Chevron Drwy     |       |       |        |
| Peds ↑              | ↙    | ↑  | ↖    | Peds ↖              | ↓     | ↙     | Peds ↑ |
| 0                   | 0    |  |      | 0                   | 0     | [0]   |        |
| (0)                 | (0)  |  |      | (0)                 | (0)   | [0]   |        |
| #DIV/0!             |      |  |      | #DIV/0!             |       |       |        |

### 2050 Design Year Volumes

|                     |      |  |      |                     |       |        |        |
|---------------------|------|--|------|---------------------|-------|--------|--------|
| 185 (135) [2450]    |      |  |      |                     |       |        |        |
| (0)                 | (95) | (0)  | (40) |                     |       |        |        |
| 0                   | 145  | 0  | 40   | SB Chevron Drwy     |       |        |        |
| EB Bill Grnd Bypass |      |  |      | WB Bill Grnd Bypass |       |        |        |
| Peds ↓              | ↘    | ↓  | ↗    | Peds ↗              | ↑     | ↘      | Peds ↓ |
| (110)               | 60   | 2050 Intersection Daily Entering Volume (est): #DIV/0! |      | 45                  | (55)  | [1000] |        |
| (505)               | 410  |  |      | 520                 | (405) | [2450] |        |
| (0)                 | 0    |  |      | 0                   | (0)   | [565]  |        |
| (0)                 | 0    |  |      | 0                   | (0)   | [300]  |        |
| NB Chevron Drwy     |      |  |      | SB Chevron Drwy     |       |        |        |
| Peds ↑              | ↙    | ↑  | ↖    | Peds ↖              | ↓     | ↙      | Peds ↑ |
| 0                   | 0    |  |      | 0                   | 0     | [0]    |        |
| (0)                 | (0)  |  |      | (0)                 | (0)   | [0]    |        |
| #DIV/0!             |      |  |      | #DIV/0!             |       |        |        |

**Introduction:** In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

**Tool Goal:** The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

**Requirements:** An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; **or 2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the "Waiver" tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

**Two-Stage Process:** A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

**Stage 1: Screening Decision Record** Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

**Stage 2: Alternative Selection Decision Record** Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

**Documentation:** A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

|  |   |   |     |    |     |     |     |     |  |
|--|---|---|-----|----|-----|-----|-----|-----|--|
| GDOT PI #  | 0002525                                 | <p><b>Note:</b> Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2</p> <p style="font-size: small; text-align: center;"> <i>1. Does alternative address the project need in a balanced manner and in scale with the project?</i><br/> <i>2. Does alternative improve safety performance in terms of reducing severe crashes?</i><br/> <i>3. Does alternative incorporate safety performance in operations for pedestrians and/or bicyclists?</i><br/> <i>4. Does alternative improve (or preserve) convenience characteristics, delay, reliability, etc.?</i><br/> <i>5. Does alternative appear feasible given the site respect to other project factors?</i><br/> <i>6. Does alternative appear feasible with respect to other project factors?</i><br/> <i>7. Overall feasible alternative (select alternative for further evaluation in Stage 2)?</i> </p> |     |    |     |     |     |     |  |
| Project Location:  | Blk Grnd Bypass @ Chevron Drwy          |   |     |    |     |     |     |     |  |
| Existing Control:  | Conventional (Minor Stop)               |   |     |    |     |     |     |     |  |
| Prepared by:   | VHB                                     |   |     |    |     |     |     |     |  |
| Date:  | 4/28/2020                               | <p style="font-size: small;">Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column</p> <p style="text-align: right;"><b>Screening Decision Justification:</b></p>   |     |    |     |     |     |     |  |
| <p><b>Intersection Alternative</b> (see "Intersections" tab for detailed description of intersection/interchange type)</p> |   |   |     |    |     |     |     |     |  |
| Unsignalized Intersections   | Conventional (Minor Stop)               | No  | No  | No | Yes | Yes | Yes | No  | Minimal left turn movement, close to neighboring intersections |
|  | Conventional (All-Way Stop)             | No  | Yes | No | No  | No  | No  | No  | Context not to scale   |
|  | Mini Roundabout                         | No  | No  | No | No  | No  | No  | No  | Context not to scale   |
|  | Single Lane Roundabout                  | No  | No  | No | No  | No  | No  | No  | Context not to scale   |
|  | Multilane Roundabout                    | No  | No  | No | No  | No  | No  | No  | Context not to scale   |
|  | RCUT (stop control)                     | No  | No  | No | No  | No  | No  | No  | Minimal left turn movement, context not to scale               |
|  | RIRO w/down stream U-Turn               | No  | No  | No | Yes | Yes | Yes | Yes | Move forward to Stage 2  |
|  | High-T (unsignalized)                   | No  | No  | No | No  | No  | No  | No  | Minimal left turn movement                                     |
|  | Offset-T Intersections                  | No  | No  | No | No  | No  | No  | No  | Context not to scale   |
|  | Diamond Interch (Stop Control)          | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale                                |
|  | Diamond Interch (RAB Control)           | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale                                |
|  | No LT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A  |
|  | No RT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A  |
| Other unsignalized (provide description):  | No                                      | No  | No  | No | No  | No  | No  | N/A |  |
| Signalized Intersections   | Traffic Signal                          | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | Median U-Turn (Indirect Left)           | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | RCUT (signalized)                       | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | Displaced Left Turn (CFI)               | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | Continuous Green-T                      | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | Jughandle                               | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | Quadrant Roadway                        | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | Diamond Interch (Signal Control)        | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | Diverging Diamond                       | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | Single Point Interchange                | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|  | No LT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A  |
|  | No RT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A  |
|  | Other Signalized (provide description): | No  | No  | No | No  | No  | No  | No  | N/A  |

☐ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record



# GDOT INTERSECTION CONTROL EVALUATION (ICE) WAIVER FORM

ICE Version 2.15 | Revised 07/01/2019

## Waiver Request - Level 1

In certain circumstances where an ICE would otherwise be required, an ICE may be waived based on appropriate evidence presented with a written request. Scenarios in which an ICE waiver request may be considered include:

- Proposed improvements do not substantially alter the character of the intersection, and are considered minor in nature, such as extending existing turn lane(s) or modifying signal phasing at an existing traffic signal
- The intersection consists of a public roadway intersecting a divided, multilane roadway where the access will be limited to a closed median with only right-in/right-out access that will operate acceptably; or
- The intersection is along an undivided, two-lane roadway that will not be widened and meets the following criteria:
  - Low risk in terms of exposure (total intersection entering volume less than 1,000 vehicles /day)
  - Latest 5 years of crash history is not indicative of a crash problem (no discernible crash patterns coupled with low crash frequency and severity)
  - Layout has no unusual or undesirable geometric features (such as restricted sight distance)
  - The proposed changes are not expected to adversely affect safety

If only one alternative is determined to be feasible from the ICE Stage 1, then a waiver may be submitted in lieu of completing ICE Stage 2. The waiver must clearly explain why there is no other feasible alternative. A Waiver Form should also be submitted to document an agreed upon decision to select a preferred alternative other than the highest scoring alternative in Stage 2.

ICE waiver forms with supporting documentation should be submitted for approval to the Office of Traffic Operations or District Engineer (depending on Waiver level). Questions regarding the waiver process should be routed to the State Traffic Engineer.

### Project Information:

Location: **Bill Clinton Bypass @ Fiat Boulevard PA**  
 County: Cherokee  
 GDOT District: 6 - Cartersville  
 Area Type: Urban  
 Existing Intersection Control: New Intersection or Other

GDOT PI # (or N/A): 0002525  
 Requested By: GDOT  
 Prepared By: VHB  
 Analyst: Brittany Tyson  
 Date: 4/28/2020

Waiver Request Type: **GDOT PDP Project**

### Traffic and Operations Data:<sup>1</sup>

|   |                    |          |
|---|--------------------|----------|
| Intersection meets signal/AWS warrants?       | None               |          |
| Traffic Analysis Type:                        | Intersection Delay |          |
| Existing Avg Daily Traffic (Major Street):    | 0                  |          |
| Existing Avg Daily Traffic (Minor Street):    | 0                  |          |
| Analysis Period:                              | AM Peak            | PM Peak  |
| 2030 Opening Yr Peak Hour Intersection Delay: | 11.4 sec           | 11.4 sec |
| 2030 Opening Yr Peak Hour Intersection V/C:   | 0.05               | 0.05     |
| 2050 Design Yr Peak Hour Intersection Delay:  | 13.4 sec           | 13.3 sec |
| 2050 Design Yr Peak Hour Intersection V/C:    | 0.10               | 0.08     |

| Crash Data (Required): <sup>1</sup>                 |                |               |              |
|---|----------------|---------------|--------------|
| Crash Data: Enter most recent 5 years of crash data | Crash Severity |               |              |
|   | PDO            | Injury Crash* | Fatal Crash* |
| Angle   | 0              | 0             | 0            |
| Head-On   | 0              | 0             | 0            |
| Rear End  | 0              | 0             | 0            |
| Sideswipe - same                                    | 0              | 0             | 0            |
| Sideswipe - opposite                                | 0              | 0             | 0            |
| Not Collision w/Motor Veh                           | 0              | 0             | 0            |
| <b>TOTALS:</b>                                      | <b>0</b>       | <b>0</b>      | <b>0</b>     |

<sup>1</sup>Crash data required for all existing intersections. ADT's required if available (from data collected or nearest GDOT count station site). Capacity data is optional unless needed to justify basis of the waiver request.

\* Number of crashes resulting in injuries / fatalities, not number of persons

### Description of Work / Justification for Waiver (Required):

The conventional minor stop was the only feasible alternative from Stage 1.

Proposed Intersection Control: **Conventional (Minor Stop)**

REQUESTED BY: Matthew Thompson Date: 5/13/2020

Title: Project Engineer

APPROVED BY: Christopher Raymond Date: 2020.07.15 07:24:43-04'00'

Name: \_\_\_\_\_

Chief Engineer or (Approved Delegate)

GDOT PI # (or N/A):  Request By:   
 County:  GDOT District: 6 - Cartersville  
 Major (State) Road:  Speed Limit:   
 Minor (Crossing) ST:  Speed Limit:   
 Major ST Direction:  Area Type:   
 Intersection Control:   
 Prepared By:  Analyst:   
 Date:  Project ID:   
 Project Purpose:

Annual Growth Rate:   
 K Factor\*:

|      |                      |         |     |     |     |                   |  |  |  |  |
|------|----------------------|---------|-----|-----|-----|-------------------|--|--|--|--|
| 2018 | Existing Data Year   | #DIV/0! |     |     |     |                   |  |  |  |  |
| 2030 | Project Opening Year | (0)     | (0) | (0) | (0) | SB Flat Bottom Rd |  |  |  |  |
| 2050 | Project Design Year  | 0       | 0   | 0   | 0   | SB Flat Bottom Rd |  |  |  |  |

| Peak Hour % Trucks |    |    |    |
|--------------------|----|----|----|
| EB                 | WB | NB | SB |
| 0%                 | 0% | 0% | 0% |

**Legend:**  
 000 = AM Peak Approach Vol  
 (000) = PM Peak Approach Vol  
 [000] = ADT Volume (Estimate)  
 #DIV/0!

**2030 Opening Year Volumes**

|                     |         |               |      |      |     |                     |           |
|---------------------|---------|---------------|------|------|-----|---------------------|-----------|
|                     |         | 10 (25) [400] |      |      |     |                     |           |
|                     |         | (0)           | (0)  | (25) | (0) | SB Flat Bottom Rd   |           |
|                     |         | 0             | 0    | 10   | 0   | SB Flat Bottom Rd   |           |
| EB Bill Grnd Bypass | #DIV/0! | Peds ↓        | ↘    | ↓    | ↙   | Peds ↑              | 0 (0)     |
|                     |         | (0)           | 0    | ↘    | ↓   | ↙                   | 0 (0)     |
|                     |         | (170)         | 145  | ↘    | ↓   | ↙                   | 165 (135) |
|                     |         | (5)           | 0    | ↘    | ↓   | ↙                   | 0 (5)     |
|                     |         | (0)           | 0    | ↘    | ↓   | ↙                   | 0 (0)     |
| NB Flat Bottom Rd   | #DIV/0! | Peds ↓        | ↘    | ↓    | ↙   | Peds ↑              | 5 (0)     |
|                     |         | (0)           | (10) | (0)  | (0) | WB Bill Grnd Bypass |           |
|                     |         | 30 (10) [550] |      |      |     |                     |           |

2030 Intersection Daily Entering Volume (est): 3,825

**2050 Design Year Volumes**

|                     |         |               |      |      |     |                     |           |
|---------------------|---------|---------------|------|------|-----|---------------------|-----------|
|                     |         | 20 (35) [550] |      |      |     |                     |           |
|                     |         | (0)           | (0)  | (35) | (0) | SB Flat Bottom Rd   |           |
|                     |         | 0             | 0    | 20   | 0   | SB Flat Bottom Rd   |           |
| EB Bill Grnd Bypass | #DIV/0! | Peds ↓        | ↘    | ↓    | ↙   | Peds ↑              | 0 (0)     |
|                     |         | (0)           | 0    | ↘    | ↓   | ↙                   | 0 (0)     |
|                     |         | (250)         | 210  | ↘    | ↓   | ↙                   | 245 (200) |
|                     |         | (5)           | 5    | ↘    | ↓   | ↙                   | 5 (5)     |
|                     |         | (0)           | 0    | ↘    | ↓   | ↙                   | 0 (0)     |
| NB Flat Bottom Rd   | #DIV/0! | Peds ↓        | ↘    | ↓    | ↙   | Peds ↑              | 5 (0)     |
|                     |         | (5)           | (20) | (5)  | (0) | WB Bill Grnd Bypass |           |
|                     |         | 50 (30) [750] |      |      |     |                     |           |

2050 Intersection Daily Entering Volume (est): 5,550

**Introduction:** In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

**Tool Goal:** The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

**Requirements:** An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: **1)** the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System; or **2)** the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the "Waiver" tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

**Two-Stage Process:** A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

**Stage 1: Screening Decision Record** Stage 1 should be conducted early in the project development process and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to *eliminate* non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

**Stage 2: Alternative Selection Decision Record** Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

**Documentation:** A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

|   |   |   |     |    |     |     |     |     |  |
|---|---|---|-----|----|-----|-----|-----|-----|--|
| GDOT PI #   | 0002525                                 | <p><b>Note:</b> Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2</p> <p style="font-size: small; text-align: center;"> <i>1. Does alternative address the project need in a balanced manner and in scale with the project?</i><br/> <i>2. Does alternative improve safety performance in terms of reducing severe crashes?</i><br/> <i>3. Does alternative incorporate safety performance in operations for pedestrians and/or bicyclists?</i><br/> <i>4. Does alternative improve (or preserve) convenience characteristics, delay, reliability, etc.?</i><br/> <i>5. Does alternative appear feasible given the site respect to other project factors?</i><br/> <i>6. Does alternative appear feasible with respect to other project factors?</i><br/> <i>7. Overall feasible alternative (select alternative for further evaluation in Stage 2)?</i> </p> |     |    |     |     |     |     |  |
| Project Location:   | Blk Grnd Bypass @ Flat Bottom Rd        |   |     |    |     |     |     |     |  |
| Existing Control:   | New Intersection or Other               |   |     |    |     |     |     |     |  |
| Prepared by:  | VHB                                     |   |     |    |     |     |     |     |  |
| Date:   | 4/28/2020                               |   |     |    |     |     |     |     |  |
| <p>Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column</p> <p><b>Intersection Alternative</b> (see "Intersections" tab for detailed description of intersection/interchange type)</p> |   | <b>Screening Decision Justification:</b>  |     |    |     |     |     |     |  |
| Unsignalized Intersections  | Conventional (Minor Stop)               | No  | No  | No | Yes | Yes | Yes | Yes | Move forward to Stage 2  |
|   | Conventional (All-Way Stop)             | Yes   | Yes | No | Yes | Yes | Yes | No  | AWS warrant not met  |
|   | Mini Roundabout                         | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale                                |
|   | Single Lane Roundabout                  | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale                                |
|   | Multilane Roundabout                    | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale                                |
|   | RCUT (stop control)                     | No  | No  | No | No  | No  | No  | No  | Minimal left turn movement, high truck %, context not to scale |
|   | RIRO w/down stream U-Turn               | No  | No  | No | No  | No  | No  | No  | Context not to scale   |
|   | High-T (unsignalized)                   | No  | No  | No | No  | No  | No  | No  | N/A for four-way approach                                      |
|   | Offset-T Intersections                  | No  | No  | No | No  | No  | No  | No  | Context not to scale   |
|   | Diamond Interch (Stop Control)          | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale                                |
|   | Diamond Interch (RAB Control)           | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale                                |
|   | No LT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A  |
|   | No RT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A  |
| Other unsignalized (provide description):   | No                                      | No  | No  | No | No  | No  | No  | N/A |  |
| Signalized Intersections  | Traffic Signal                          | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | Median U-Turn (Indirect Left)           | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | RCUT (signalized)                       | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | Displaced Left Turn (CFI)               | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | Continuous Green-T                      | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | Jughandle                               | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | Quadrant Roadway                        | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | Diamond Interch (Signal Control)        | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | Diverging Diamond                       | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | Single Point Interchange                | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met   |
|   | No LT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A  |
|   | No RT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A  |
|   | Other Signalized (provide description): | No  | No  | No | No  | No  | No  | No  | N/A  |

☐ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record



# GDOT INTERSECTION CONTROL EVALUATION (ICE) WAIVER FORM

ICE Version 2.15 | Revised 07/01/2019

## Waiver Request - Level 1

In certain circumstances where an ICE would otherwise be required, an ICE may be waived based on appropriate evidence presented with a written request. Scenarios in which an ICE waiver request may be considered include:

- Proposed improvements do not substantially alter the character of the intersection, and are considered minor in nature, such as extending existing turn lane(s) or modifying signal phasing at an existing traffic signal
- The intersection consists of a public roadway intersecting a divided, multilane roadway where the access will be limited to a closed median with only right-in/right-out access that will operate acceptably; or
- The intersection is along an undivided, two-lane roadway that will not be widened and meets the following criteria:
  - Low risk in terms of exposure (total intersection entering volume less than 1,000 vehicles /day)
  - Latest 5 years of crash history is not indicative of a crash problem (no discernible crash patterns coupled with low crash frequency and severity)
  - Layout has no unusual or undesirable geometric features (such as restricted sight distance)
  - The proposed changes are not expected to adversely affect safety

If only one alternative is determined to be feasible from the ICE Stage 1, then a waiver may be submitted in lieu of completing ICE Stage 2. The waiver must clearly explain why there is no other feasible alternative. A Waiver Form should also be submitted to document an agreed upon decision to select a preferred alternative other than the highest scoring alternative in Stage 2.

ICE waiver forms with supporting documentation should be submitted for approval to the Office of Traffic Operations or District Engineer (depending on Waiver level). Questions regarding the waiver process should be routed to the State Traffic Engineer.

**Project Information:** Location: SR 372 @ Bil Grnd Bypass  
 County: Cherokee  
 GDOT District: 6 - Cartersville  
 Area Type: Urban  
 Existing Intersection Control: Conventional (Minor Stop)

GDOT PI # (or N/A): 0002525  
 Requested By: GDOT  
 Prepared By: VHB  
 Analyst: Brittany Tyson  
 Date: 4/28/2020

Waiver Request Type: GDOT PDP Project

### Traffic and Operations Data:<sup>1</sup>

|   |                    |          |
|---|--------------------|----------|
| Intersection meets signal/AWS warrants?       | None               |          |
| Traffic Analysis Type:                        | Intersection Delay |          |
| Existing Avg Daily Traffic (Major Street):    | 8,600              |          |
| Existing Avg Daily Traffic (Minor Street):    | 0                  |          |
| Analysis Period:                              | AM Peak            | PM Peak  |
| 2030 Opening Yr Peak Hour Intersection Delay: | 12.9 sec           | 13.0 sec |
| 2030 Opening Yr Peak Hour Intersection V/C:   | 0.26               | 0.29     |
| 2050 Design Yr Peak Hour Intersection Delay:  | 19.8 sec           | 20.4 sec |
| 2050 Design Yr Peak Hour Intersection V/C:    | 0.49               | 0.55     |

| Crash Data (Required): <sup>1</sup>                 |                |               |              |
|---|----------------|---------------|--------------|
| Crash Data: Enter most recent 5 years of crash data | Crash Severity |               |              |
|   | PDO            | Injury Crash* | Fatal Crash* |
| Angle   | 0              | 0             | 0            |
| Head-On   | 0              | 1             | 0            |
| Rear End  | 0              | 0             | 0            |
| Sideswipe - same                                    | 0              | 0             | 0            |
| Sideswipe - opposite                                | 0              | 0             | 0            |
| Not Collision w/Motor Veh                           | 0              | 0             | 0            |
| <b>TOTALS:</b>                                      | <b>0</b>       | <b>1</b>      | <b>0</b>     |

Crash Type



<sup>1</sup>Crash data required for all existing intersections. ADT's required if available (from data collected or nearest GDOT count station site). Capacity data is optional unless needed to justify basis of the waiver request.

\* Number of crashes resulting in injuries / fatalities, not number of persons

**Description of Work / Justification for Waiver (Required):** Because of the significant environmental impacts of the roundabout alternative, the minor stop alternative is the preferred alternative.

**Proposed Intersection Control:** Conventional (Minor Stop)

**REQUESTED BY:** Matthew Thompson Date: 5/13/2020

Title: Project Engineer

**APPROVED BY:** Christopher Raymond Date: 2020.07.15 07:25:03-04'00' Date: \_\_\_\_\_

Name: \_\_\_\_\_  
 Chief Engineer or (Approved Delegate)



GDOT PI # (or N/A): 0002525 Request By: GDOT

County: Cherokee GDOT District: 6 - Cartersville

Major (State) Road: SR 372 Speed Limit: 45 mph

Minor (Crossing) ST: Bil Grnd Bypass Speed Limit: 45 mph

Major ST Direction: East/West Area Type: Urban

Intersection Control: Conventional (Minor Stop)

Prepared By: VHB Analyst: Brittany Tyson

Date: 4/28/2020 Project ID: Ball Ground Bypass

Project Purpose: Reduce crashes, improve LOS, and reduce trucks through downtown Ball Ground

**2018 Existing Year Volumes**

|                           |         |     |     |     |  |  |
|---------------------------|---------|-----|-----|-----|--|--|
| 2018 Existing Data Year   | #DIV/0! |     |     |     |  |  |
| 2030 Project Opening Year | (0)     | (0) | (0) | (0) |  |  |
| 2050 Project Design Year  | 0       | 0   | 0   | 0   |  |  |

Annual Growth Rate: 0.0%  
K Factor\*: 0%

|         |           |         |  |   |   |   |     |       |
|---------|-----------|---------|--|---|---|---|-----|-------|
|         |           | #DIV/0! |  |   |   |   |     |       |
| #DIV/0! | EB SR 372 |         | 2018 Intersection Daily Entering Volume (est): #DIV/0! |   |   |   |     |       |
|         | (0)       | 0       | ↘  | ↘ | ↘ | ↘ | 0   | (0)   |
|         | (395)     | 380     | ↔  | ↔ | ↔ | ↔ | 330 | (495) |
|         | (0)       | 0       | ↗  | ↗ | ↗ | ↗ | 0   | (0)   |
|         | (0)       | 0       | ↖  | ↖ | ↖ | ↖ | 0   | (0)   |
|         |           | #DIV/0! |  |   |   |   |     |       |
|         |           | #DIV/0! |  |   |   |   |     |       |

Legend:  
000 = AM Peak Approach Vol  
(000) = PM Peak Approach Vol  
[000] = ADT Volume (Estimate)  
#DIV/0!

**2030 Opening Year Volumes**

|         |           |                  |  |   |   |   |     |       |
|---------|-----------|------------------|--|---|---|---|-----|-------|
|         |           | #DIV/0!          |  |   |   |   |     |       |
| #DIV/0! | EB SR 372 |                  | 2030 Intersection Daily Entering Volume (est): #DIV/0! |   |   |   |     |       |
|         | (0)       | 0                | ↘  | ↘ | ↘ | ↘ | 0   | (0)   |
|         | (325)     | 330              | ↔  | ↔ | ↔ | ↔ | 235 | (475) |
|         | (0)       | 0                | ↗  | ↗ | ↗ | ↗ | 165 | (140) |
|         | (0)       | 0                | ↖  | ↖ | ↖ | ↖ | 145 | (0)   |
|         |           | #DIV/0!          |  |   |   |   |     |       |
|         |           | 145 (170) [3300] |  |   |   |   |     |       |

**2050 Design Year Volumes**

|         |           |                  |  |   |   |   |     |       |
|---------|-----------|------------------|--|---|---|---|-----|-------|
|         |           | #DIV/0!          |  |   |   |   |     |       |
| #DIV/0! | EB SR 372 |                  | 2050 Intersection Daily Entering Volume (est): #DIV/0! |   |   |   |     |       |
|         | (480)     | 505              | ↘  | ↘ | ↘ | ↘ | 0   | (0)   |
|         | (395)     | 380              | ↔  | ↔ | ↔ | ↔ | 350 | (720) |
|         | (0)       | 0                | ↗  | ↗ | ↗ | ↗ | 250 | (205) |
|         | (0)       | 0                | ↖  | ↖ | ↖ | ↖ | 215 | (0)   |
|         |           | #DIV/0!          |  |   |   |   |     |       |
|         |           | 215 (255) [4900] |  |   |   |   |     |       |

**Introduction:** In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

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|   |   |   |     |    |     |     |     |     |                                 |
|---|---|---|-----|----|-----|-----|-----|-----|---------------------------------|
| GDOT PI #   | 0002525                                 | <b>Note:</b> Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2  |     |    |     |     |     |     |                                 |
| Project Location:   | SR 372 @ BII Grnd Bypass                |   |     |    |     |     |     |     |                                 |
| Existing Control:   | Conventional (Minor Stop)               |   |     |    |     |     |     |     |                                 |
| Prepared by:  | VHB                                     |   |     |    |     |     |     |     |                                 |
| Date:   | 4/28/2020                               | 1. Does alternative address the project need in a balanced manner and in scale with the project?<br>2. Does alternative improve safety performance in terms of reducing severe crashes?<br>3. Does alternative incorporate safety performance in operations for pedestrians and/or bicyclists?<br>4. Does alternative improve (or preserve) traffic characteristics, delay, reliability, etc.?<br>5. Does alternative appear feasible given the site respect to other project factors?<br>6. Does alternative appear feasible with respect to other project factors?<br>7. Overall feasible alternative (select alternative for further evaluation in Stage 2)? |     |    |     |     |     |     |                                 |
| Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column |   |   |     |    |     |     |     |     |                                 |
| <b>Intersection Alternative</b> (see "Intersections" tab for detailed description of intersection/interchange type)   |   | <b>Screening Decision Justification:</b>  |     |    |     |     |     |     |                                 |
| Unsignalized Intersections  | Conventional (Minor Stop)               | Yes   | No  | No | Yes | Yes | Yes | Yes | Move forward to Stage 2         |
|   | Conventional (All-Way Stop)             | No  | Yes | No | Yes | Yes | Yes | Yes | Move forward to Stage 2         |
|   | Mini Roundabout                         | No  | No  | No | No  | No  | No  | No  | Context not to scale            |
|   | Single Lane Roundabout                  | Yes   | Yes | No | Yes | No  | No  | Yes | Move forward to Stage 2         |
|   | Multilane Roundabout                    | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale |
|   | RCUT (stop control)                     | No  | No  | No | No  | No  | No  | No  | Context not to scale            |
|   | RIRO w/down stream U-Turn               | No  | No  | No | No  | No  | No  | No  | Context not to scale            |
|   | High-T (unsignalized)                   | No  | No  | No | No  | No  | No  | No  | Minimal left turn movement      |
|   | Offset-T Intersections                  | No  | No  | No | No  | No  | No  | No  | Context not to scale            |
|   | Diamond Interch (Stop Control)          | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale |
|   | Diamond Interch (RAB Control)           | No  | No  | No | No  | No  | No  | No  | Volume and context not to scale |
|   | No LT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A                             |
|   | No RT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A                             |
| Other unsignalized (provide description):   | No                                      | No  | No  | No | No  | No  | No  | N/A |                                 |
| Signalized Intersections  | Traffic Signal                          | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Median U-Turn (Indirect Left)           | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | RCUT (signalized)                       | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Displaced Left Turn (CFI)               | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Continuous Green-T                      | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Jughandle                               | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Quadrant Roadway                        | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Diamond Interch (Signal Control)        | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Diverging Diamond                       | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | Single Point Interchange                | No  | No  | No | No  | No  | No  | No  | Signal Warrant not met          |
|   | No LT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A                             |
|   | No RT Lane Improvements                 | No  | No  | No | No  | No  | No  | No  | N/A                             |
|   | Other Signalized (provide description): | No  | No  | No | No  | No  | No  | No  | N/A                             |

☐ = Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record



## GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD

ICE Version 2.15 | Revised 07/01/2019

GDOT PI # (or N/A) 0002525  
 County: Cherokee  
 Project Location: SR 372 @ Bll Grnd Bypass  
 Existing Intersection Control: Conventional (Minor Stop)

GDOT District: 6 - Cartersville  
 Area Type: Urban

Date: 4/28/2020  
 Agency/Firm: VHB  
 Analyst: Brittany Tyson

Type of Analysis: **Conventional Non-Safety Funded Project**

### Opening / Design Year Traffic Operations

|   |                    |            |
|---|--------------------|------------|
| Intersection meets signal/AWS warrants?                 | Meets AWS only     |            |
| Traffic Analysis Measure of Effectiveness               | Intersection Delay |            |
| Traffic Analysis Software Used                          | HCS 2010           |            |
| Analysis Time Period                                    | AM Peak Hr         | PM Peak Hr |
| 2030 Opening Yr No-Build Peak Hr Intersection Delay     | 0.0 sec            | 0.0 sec    |
| 2030 Opening Yr No-Build Peak Hr Intersection V/C ratio | 0.00               | 0.00       |
| 2050 Design Yr No-Build Peak Hr Intersection Delay      | 0.0 sec            | 0.0 sec    |
| 2050 Design Yr No-Build Peak Hr Intersection V/C ratio  | 0.00               | 0.00       |

Complete Streets Warrants Met?

PEDESTRIANS

BICYCLES

TRANSIT

| Crash Type                | Crash Data: Enter most recent 5 years of crash data | Crash Severity |               |              |  |
|---------------------------|---|----------------|---------------|--------------|--|
|                           |   | PDO            | Injury Crash* | Fatal Crash* |  |
| Angle                     | 0   | 0              | 0             | 0%           |  |
| Head-On                   | 0   | 1              | 0             | 100%         |  |
| Rear End                  | 0   | 0              | 0             | 0%           |  |
| Sideswipe - same          | 0   | 0              | 0             | 0%           |  |
| Sideswipe - opposite      | 0   | 0              | 0             | 0%           |  |
| Not Collision w/Motor Veh | 0   | 0              | 0             | 0%           |  |
| <b>TOTALS:</b>            | <b>0</b>  | <b>1</b>       | <b>0</b>      | <b>1</b>     |  |

\* Number of crashes resulting in injuries / fatalities, not number of persons

### Alternatives Analysis:

|   | Alternative 1                      | Alternative 2                      | Alternative 3                      | Alternative 4 | Alternative 5 |
|---|------------------------------------|------------------------------------|------------------------------------|---------------|---------------|
| Proposed Control Type/Improvement:            | Conventional (Minor Stop)          | Conventional (All-Way Stop)        | Single Lane Roundabout             | N/A           | N/A           |
| <b>Project Cost: (From CostEst Worksheet)</b> | <i>Additional description here</i> | <i>Additional description here</i> | <i>Additional description here</i> |               |               |
| Construction Cost                             | \$500,000                          | \$500,000                          | \$1,200,000                        |               |               |
| ROW Cost                                      | \$65,000                           | \$65,000                           | \$77,000                           |               |               |
| Environmental Cost                            | \$20,000                           | \$20,000                           | \$351,000                          |               |               |
| Reimbursable Utility Cost                     | \$13,000                           | \$13,000                           | \$21,000                           |               |               |
| Design & Contingency Cost                     | \$209,300                          | \$209,300                          | \$389,000                          |               |               |
| Cost Adjustment (justification req'd)         | 0%                                 | 0%                                 | 0%                                 |               |               |
| <b>Total Cost</b>                             | <b>\$807,300</b>                   | <b>\$807,300</b>                   | <b>\$2,038,000</b>                 |               |               |

### Traffic Operations:

|   | Alternative 1 |            | Alternative 2     |            | Alternative 3     |            |  |  |
|---|---------------|------------|-------------------|------------|-------------------|------------|--|--|
| Traffic Analysis Software Used          | HCS 2010      |            | GDOT RND Tool 4.1 |            | GDOT RND Tool 4.1 |            |  |  |
| Analysis Period                         | AM Peak Hr    | PM Peak Hr | AM Peak Hr        | PM Peak Hr | AM Peak Hr        | PM Peak Hr |  |  |
| 2050 Design Yr Build Intersection Delay | 19.8 sec      | 20.4 sec   | 83.1 sec          | 327.7 sec  | 14.0 sec          | 16.0 sec   |  |  |
| 2050 Design Yr Build Intersection V/C   | 0.49          | 0.55       | 1.08              | 1.68       | 0.59              | 0.78       |  |  |

### Safety Analysis:

|  |     |                                    |                                    |  |  |
|--|-----|------------------------------------|------------------------------------|--|--|
| Predefined CRF: PDO                                  | 0%  | 75%                                | 39%                                |  |  |
| Predefined CRF: Fatal/Inj                            | 0%  | 70%                                | 78%                                |  |  |
| Predefined CRF Source:                               | N/A | FHWA Clearinghouse #s<br>315 / 314 | FHWA Clearinghouse #s<br>233 / 234 |  |  |
| User Defined CRF: PDO                                |     |                                    |                                    |  |  |
| User Defined CRF: Fatal/Inj                          |     |                                    |                                    |  |  |
| User Defined CRF Source<br>(write in if applicable): |     |                                    |                                    |  |  |

### Environmental Impacts:<sup>1</sup>

|                            |         |         |                    |  |  |
|----------------------------|---------|---------|--------------------|--|--|
| Historic District/Property | Minimal | Minimal | <b>Significant</b> |  |  |
| Archaeology Resources      | None    | None    | None               |  |  |
| Graveyard                  | None    | None    | None               |  |  |
| Stream                     | Minimal | Minimal | <b>Significant</b> |  |  |
| Underground Tank/Hazmat    | None    | None    | None               |  |  |
| Park Land                  | None    | None    | None               |  |  |
| EJ Community               | None    | None    | None               |  |  |
| Wooded Area                | Minimal | Minimal | Minimal            |  |  |
| Wetland                    | None    | None    | None               |  |  |

Note: If environmental impact is significant (**RED**), provide justification impact won't jeopardize project delivery using "Env" worksheet  
<sup>1</sup> Environmental impacts are only preliminary estimates; detailed environmental impact documentation will be included with project concept report

### Stakeholder Posture:

|                         |         |         |         |  |  |
|-------------------------|---------|---------|---------|--|--|
| Local Community Support | Unknown | Unknown | Unknown |  |  |
| GDOT Support            | Unknown | Unknown | Unknown |  |  |

|                                    |            |            |            |  |  |
|------------------------------------|------------|------------|------------|--|--|
| <b>Final ICE Stage 2 Score:</b>    | <b>4.7</b> | <b>3.3</b> | <b>5.7</b> |  |  |
| Rank of Control Type Alternatives: | 2          | 3          | 1          |  |  |

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or explain any unique analysis inputs, or results (as necessary): Because of the significant environmental impacts of the roundabout alternative, the minor stop alternative is the preferred alternative. Waiver provided.



1355 Peachtree Street NE  
 Suite 100  
 Atlanta, Georgia 30309  
 T 404.214.6745

## Meeting Minutes

Date: June 26, 2019 Time: 10:30 am

Location: Cherokee County Administrative Offices

Subject: Ball Ground Bypass Initial Concept Team Meeting

Project No: PI No. 0002525, Cherokee County VHB: 63312.00

Recorded By: Matthew Thompson

|            |                        |                     |                                |
|------------|------------------------|---------------------|--------------------------------|
| Attendees: | Geoff Morton           | Cherokee County     | gmorton@cherokeega.com         |
|            | Jim Wilgus             | Cherokee County     | jawilgus@cherokeega.com        |
|            | Tommy Crochet          | VHB                 | tcrochet@vhb.com               |
|            | Matthew Thompson       | VHB                 | mthompson@vhb.com              |
|            | Erin Murphy            | VHB                 | emurphy@vhb.com                |
|            | Melissa Gende          | VHB                 | mgende@vhb.com                 |
|            | Gretel Sims            | GDOT OPD            | gsims@dot.ga.gov               |
|            | Yasmeen Qadimasil      | GDOT OES NEPA       | yqadimasil@dot.ga.gov          |
|            | Carla Benton-Hooks     | GDOT OES NEPA       | cbenton-hooks@dot.ga.gov       |
|            | Marcela Coll           | GDOT Utilities-RR   | mcoll@dot.ga.gov               |
|            | Megan Weiss            | GDOT Planning       | mweiss@dot.ga.gov              |
|            | Donovan Tucker         | GDOT Traffic Ops    | dtucker@dot.ga.gov             |
|            | Jeff Waderich          | CC School Depart.   | jeff.waderich@cherokeek12.net  |
|            | Lavontre Chandler      | GDOT                | lchandler@dot.ga.gov           |
|            | Larry Young            | Amicalola EMC       | larryy@amicalolaemc.com        |
|            | Eric Wilmarth          | City of Ball Ground | ewilmarth@cityofballground.com |
|            | Theo Igbalajobi        | GDOT OPD            | tigbalajobi@dot.ga.gov         |
|            | Mike Gows              | GDOT District 6     | mgows@dot.ga.gov               |
|            | Harry Johnston         | Cherokee County     | hjohnston@cherokeega.com       |
|            | Daniel Monteith        | GDOT District 6     | dmontieth@dot.ga.gov           |
|            | Benny Crawford         | TDS Telecom         | benny.crawford@tdstelecom.com  |
|            | David Acree            | GDOT District 6     | dacree@dot.ga.gov              |
|            | John Gay               | GA Power            | jcgay@southernco.com           |
|            | Andrew Pearson (phone) | GDOT                | apearson@dot.ga.gov            |
|            | Ralph Turner           | Windstream          |                                |

# Meeting Minutes

June 26, 2019  
PI No. 0002525

Geoff Morton opened the meeting with introductions and Tommy Crochet gave an overview of the project and scoping study. The meeting followed the agenda outline per the attached presentation.

- Tommy Crochet discussed the project history including the conversion of Gilmer Ferry Road thru downtown Ball Ground to SR 372, and the increased use of SR 372 as a truck route with a high number of agriculture trucks.
- Tommy discussed the existing conditions within the study area and downtown Ball Ground including existing speed limits, geometry, and traffic.
- Geoff noted that he had met with Russell McMurry at GDOT in 2018 to discuss potential Bypass/SR 372 Spur and the county was trying to obtain a better project budget thru the scoping study.
- Eric Wilmarth noted that the existing pavement thru downtown Ball Ground was in poor condition and was not designed to handle the amount of trucks that currently use the corridor. Eric noted that based on recent storm drain construction in Ball Ground the pavement was likely 4 inches of asphalt with no base.
- Tommy discussed the existing and projected traffic volumes reviewing No Build and Build conditions.
- Eric stated that most of the heavy truck traffic diverted onto the potential Ball Ground Bypass would likely use SR 5 heading north to avoid I-575 weight restrictions.
- Geoff and Eric noted that existing pavement conditions should be added to the project justification.
- Tommy discussed current project budget identified in the preconstruction status report and noted that funding source was not currently in place.
- Tommy reviewed the current schedule of the scoping study and noted that at this time only an environmental screening document would be completed. No resource reports, or special studies are currently scoped.
- Tommy stated that it would be prudent to submit a draft concept report for review, but the County may want to wait to finalize the concept report for approval until a funding source had been identified as this could dictate the preferred alternative.
- Tommy discussed the geometric challenges of the potential proposed alignments specifically noting the large vertical difference between Northridge Road and the potential Bypass, which would require either a bridge along Northridge over the Bypass or a Bypass Tunnel under Northridge.
- Tommy noted that the Office of Design Policy advised that a design speed of 45 mph should be used for Bypass design. Design Policy did state that a good argument could possibly be made for a sight distance design variance at the crossing of Northridge Road allowing 35mph vertical grades and k-values to reduce the large cut.
- Tommy noted that limited access on the Bypass at the crossing of Northridge would also be beneficial due to the insufficient sight design on either side of the potential crest curve.

June 26, 2019  
PI No. 0002525

- Tommy noted the environmental concerns within the study area including the high number of historic properties.
- Tommy noted that the Corps and U.S. Fish and Wildlife Service would likely push for water quality treatment since outfalls along this project would be within the Etowah Basin and the design team would consider this in cost estimates.
- Tommy reviewed the current alignments under consideration.
- Geoff noted that Cherokee County School Board owned a couple of properties potentially near the southern alignment that ran parallel to existing transmission line easement.
- Jeff Waderich stated that a high school and a middle school were planned for construction on the noted properties, but construction wasn't expected within the next 5 years. Jeff noted that the properties were south of the study area.
- David Acree asked about the potential to make the Bypass as the thru movement onto SR 372 at the east end of the project.
- Tommy noted that using the Bypass as the thru movement from the east end of the project was a potential option. However, based on traffic projections a roundabout should adequately facilitate traffic flow at this intersection in the design year.
- Andrew Pearson requested that the design team follow up with Traffic Ops once they were further along in the ICE process. Andrew noted that it would be best to avoid multiple intersection alternatives at the PIOH.
- Marcell Coll asked if Ball Ground Bypass would be designated as SR 372.
- Geoff stated that State Route designation would be proposed for the Bypass, but it would potentially be SR 372 Spur.
- Tommy briefly reviewed projects near the study area.
- Eric noted that PI 0010649 was near completion and only landscaping work remained.
- Mike Dows stated that PI 0009903, Ramp Roundabouts project, was currently on hold.
- Eric stated that the safety issues at the I-575 interchange start with the all-way stop at Howell Bridge Rd and SR 5 as queues back up to the interchange.
- Eric noted that the existing structure just east of the Georgia Northeastern Railroad was potentially being restored.
- Donovan Tucker asked about the potential to make the Bypass a limited access facility.
- Geoff noted that the County and the City would consider limited access for the Bypass corridor, but it would most likely be partial limited access as certain areas of the Bypass would still need to have access options.

## **Action Items**

- VHB will provide ICTM meeting minutes.

# Meeting Minutes

June 26, 2019  
PI No. 0002525

PI 0002525  
Ball Ground Bypass Scoping  
Initial Concept Meeting  
6/26/19 - 10:30

| <u>Name</u>        | <u>Org</u>      | <u>Email</u>                  |
|--------------------|-----------------|-------------------------------|
| Tommy Crochet      | VHB             | tcrochet@vhb.com              |
| MARCELA COLL       | GDOT-UTIL-RR    | mcoll@dot.ga.gov              |
| Ginette SIMS       | GDOT OPP        | gsims@dot.ga.gov              |
| Megan Weiss        | GDOT Planng     | mweiss@dot.ga.gov             |
| Donovan Tucker     | GDOT TrafficOps | dtucker@dot.ga.gov            |
| Jim Wilgus         | CHEROKEE COUNTY | jawilgus@cherokee.org         |
| Carla Benton-Hodes | GDOT O&E        | cbenton-hodes@dot.ga.gov      |
| Yasmeeen Qadimasil | GDOT-NEPA       | YQadimasil@dot.ga.gov         |
| Lavontre Chandler  | GDOT Intern     | LChandler@dot.ga.gov          |
| Jeff Waderich      | CCSD            | jeff.waderich@cherokee.k12.ga |
| LARRY YOUNG        | AMICALOLA EMC   | LARRY@AMICALOLAEMC.COM        |
| Geoff MORTON       | CHEROKEE County | gmortone@cherokee.ga.gov      |

# Meeting Minutes

June 26, 2019  
PI No. 0002525

| <u>Name</u>     | <u>Org</u>   | <u>Email</u>                   |
|-----------------|--------------|--------------------------------|
| Eric Wilmarth   | Ball Ground  | ewilmarth@cityofballground.com |
| Theo Igbalajobi | GDOT-ORS     | tigbalajobi@dot.ga.gov         |
| Mike Gows       | GDOT DB      | mgows@dot.ga.gov               |
| Melissa Gende   | VHB          | mgende@vhb.com                 |
| Erin Murphy     | VHB          | emurphy@vhb.com                |
| Harry Johnston  | Cherokee Co. | hjohnston@cherokeega.com       |
| DANIEL MONTEITH | GDOT-DB      | DMONTEITH@DOT.GA.GOV           |
| Benny Crawford  | TDS          | benny.crawford@tdstelecom.com  |
| David Acree     | GDOT DB      | dacree@dot.ga.gov              |
| Gretel Sims     | GDOT OPD     | gsims@dot.ga.gov               |
| John GAY        | GA POWER     | JCGAY@SOUTHERNCO.COM           |





# PI No. 0002525 Ball Ground Bypass Cherokee County

## Initial Concept Meeting

Presented by



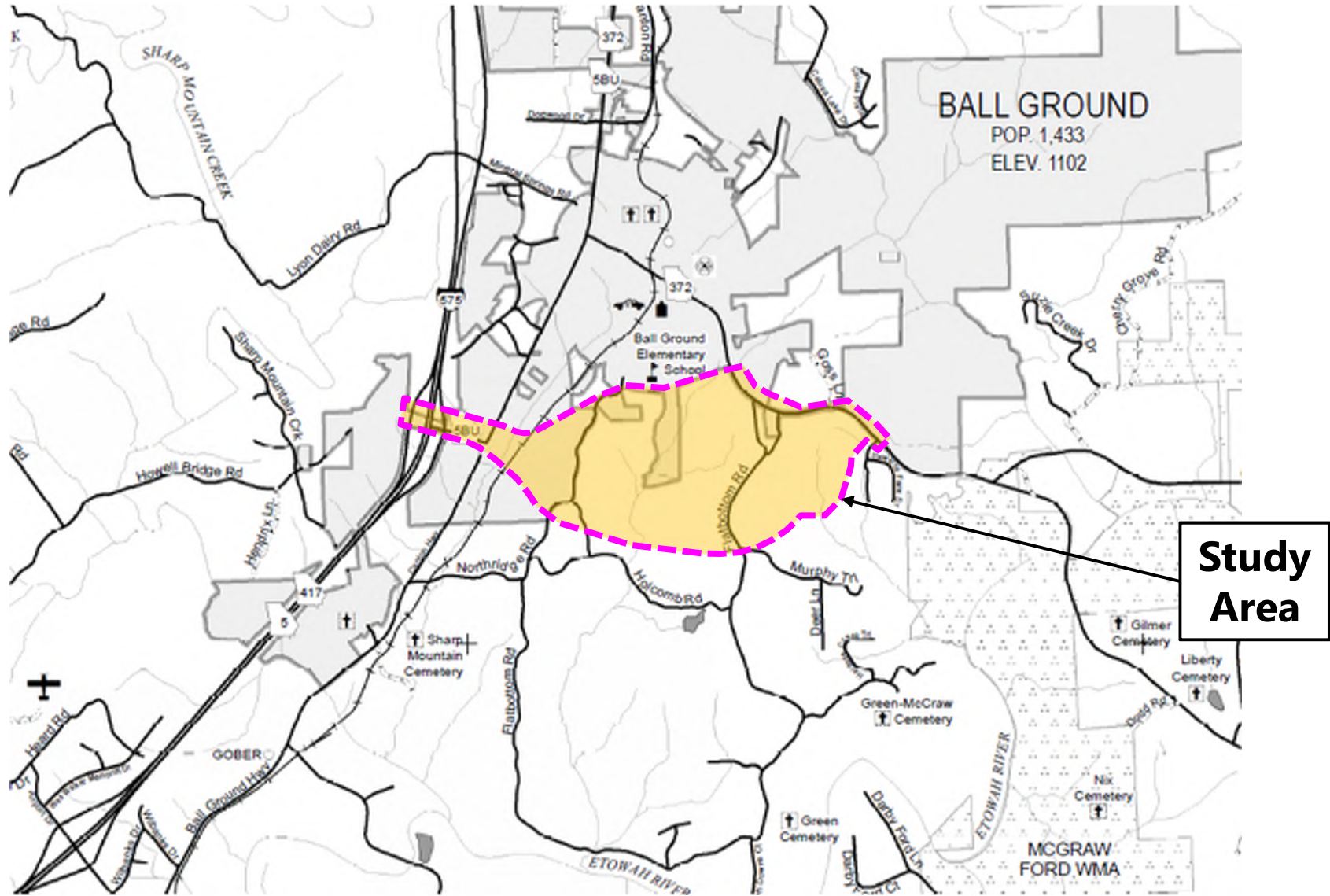
June 26, 2019



# Project Description & Background

- Project Description
  - This project proposes a Bypass around the south side of the City of Ball Ground in Cherokee County. The Bypass is proposed from Howell Bridge road towards SR 372 in an easterly direction.
- Project Background
  - Gilmer Ferry Road, the main street through downtown Ball Ground, was converted to SR 372 in the 1970's.
  - Ball Ground has become both a destination for local tourists and home to several restaurants and shops over the past several years.
  - SR 372 through Ball Ground has become a regular route for many trucks including agriculture trucks, poultry processing trucks, gravel trucks, and trash trucks.
  - As traffic volumes, particularly truck traffic, have increased over the years, the City of Ball Ground has continued to push for a truck bypass that would route trucks around the downtown area.

# Study Area



# Existing Conditions



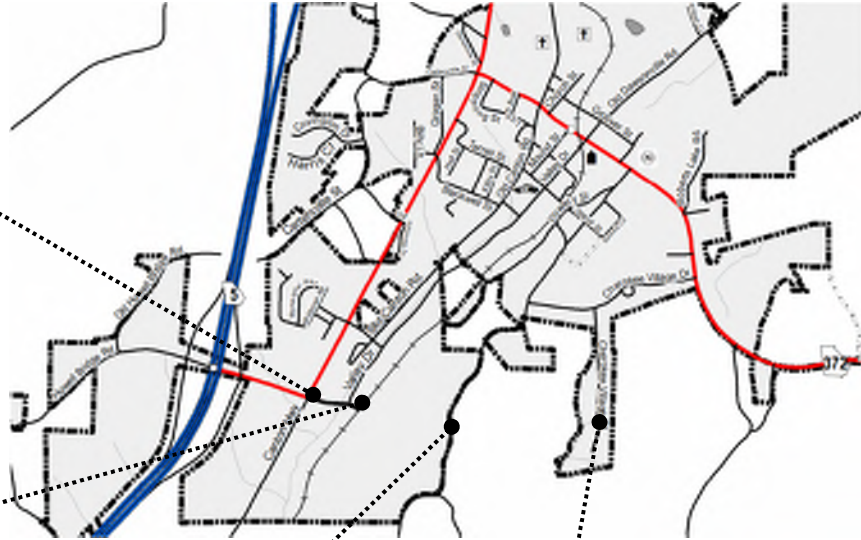
**Howell Bridge Road at Ball Ground Highway**



**Howell Bridge Road Looking West Towards I-575  
Across Georgia Northeast Railroad**



**Northridge Road**



**Cherokee Village Court**

# Existing Conditions



**SR 372 West of Flatbottom Road**



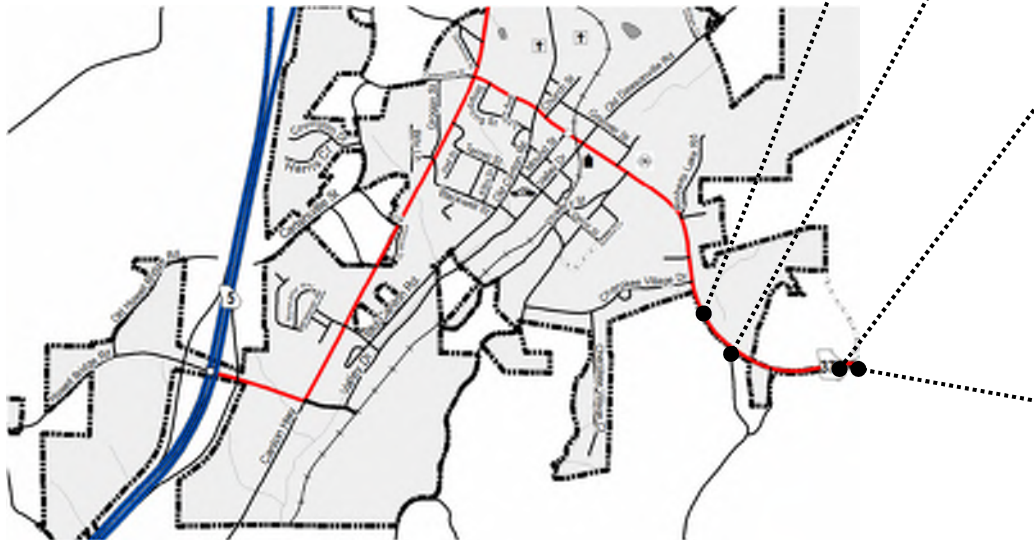
**Flatbottom Road at SR 372**



**SR 372 Near Goss Lane**



**SR 372 Near Goss Lane**



# Existing Conditions

SR 372 at Old Canton Road



SR 372 West of Mound Street



SR 372 East of Mound Street



SR 372 at Valley Drive

# Existing Conditions

SR 372 at Ball Ground Highway



SR 372 East of Ball Ground Highway



SR 372 at Lyons Avenue

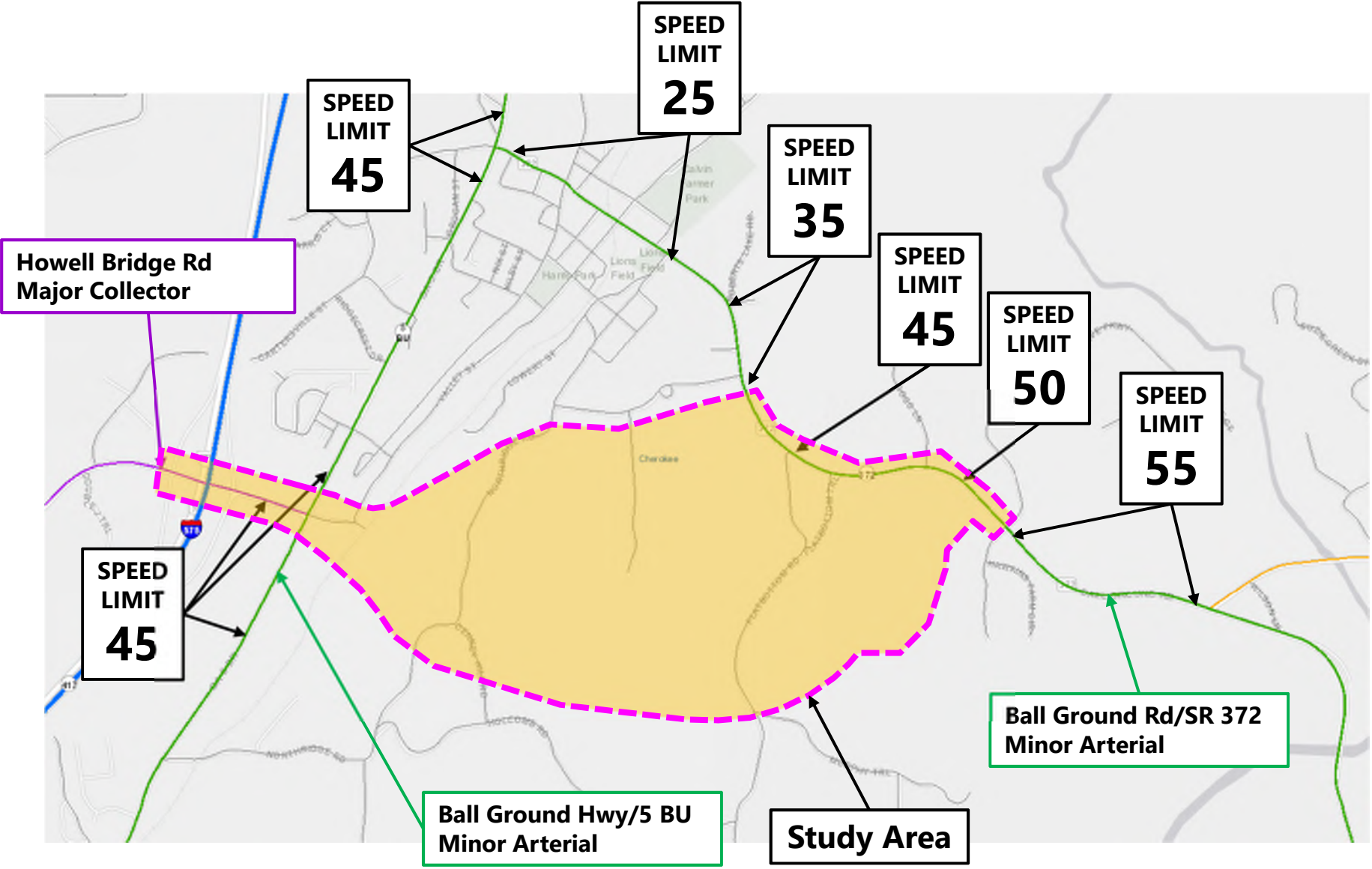


SR 372 West of Old Canton Road



SR 372 at Old Canton Road

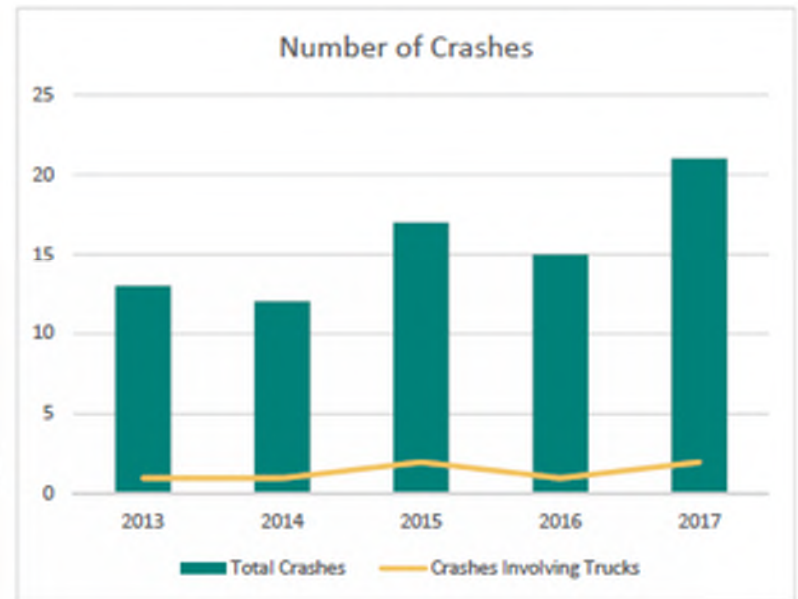
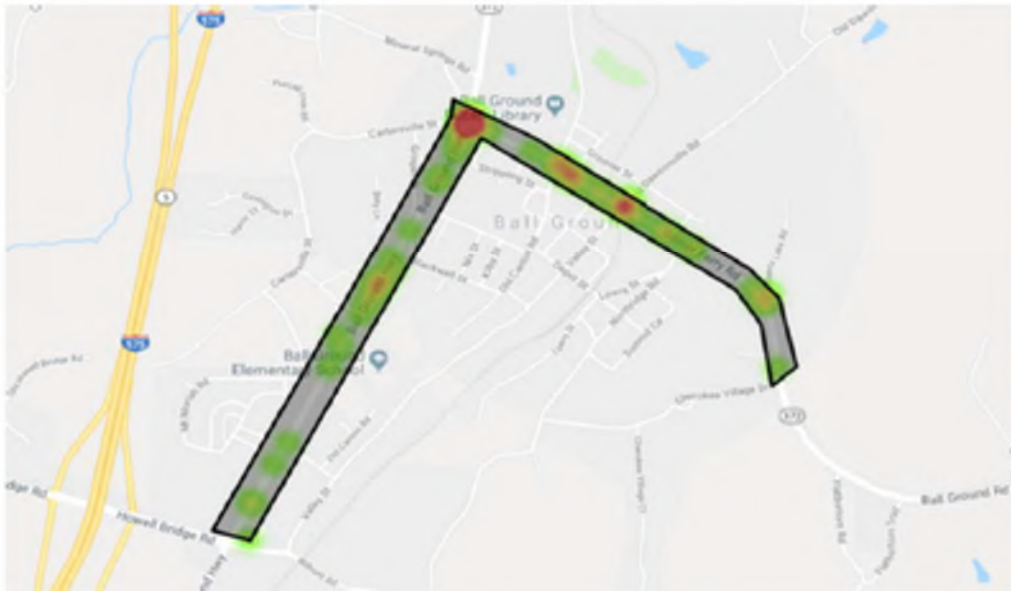
# Existing Functional Class/Speed Limits





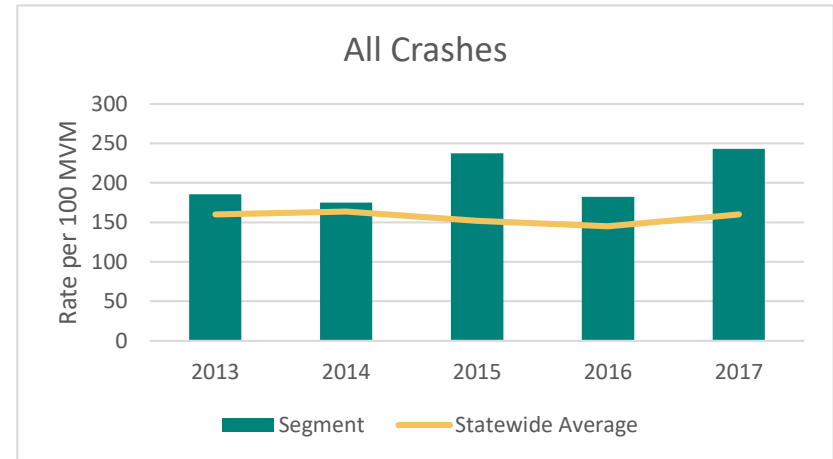
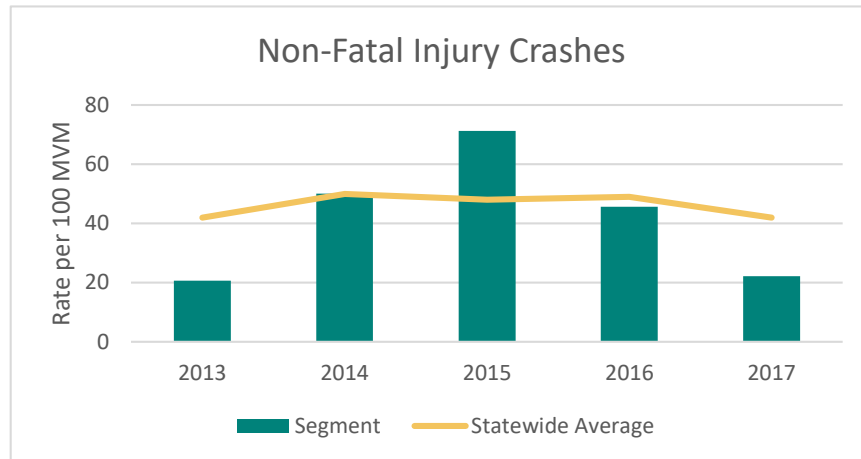
# Existing Conditions – Crash Analysis

| Crash Type                         | 2013      |             | 2014      |             | 2015      |             | 2016      |             | 2017      |             | 2013-2017 Crashes |             |
|------------------------------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-------------------|-------------|
| Angle                              | 2         | 15%         | 2         | 17%         | 4         | 24%         | 3         | 20%         | 4         | 19%         | 15                | 19%         |
| Head On                            | 0         | 0%          | 1         | 8%          | 1         | 6%          | 1         | 7%          | 1         | 5%          | 4                 | 5%          |
| Not A Collision with Motor Vehicle | 3         | 23%         | 2         | 17%         | 3         | 18%         | 1         | 7%          | 4         | 19%         | 13                | 17%         |
| Rear End                           | 5         | 38%         | 5         | 42%         | 3         | 18%         | 7         | 47%         | 8         | 38%         | 28                | 36%         |
| Sideswipe-Opposite Direction       | 2         | 15%         | 0         | 0%          | 1         | 6%          | 1         | 7%          | 0         | 0%          | 4                 | 5%          |
| Sideswipe-Same Direction           | 1         | 8%          | 2         | 17%         | 1         | 6%          | 2         | 13%         | 3         | 14%         | 9                 | 12%         |
| Other/Unknown                      | 0         | 0%          | 0         | 0%          | 4         | 24%         | 0         | 0%          | 1         | 5%          | 5                 | 6%          |
| <b>Total Crashes</b>               | <b>13</b> | <b>100%</b> | <b>12</b> | <b>100%</b> | <b>17</b> | <b>100%</b> | <b>15</b> | <b>100%</b> | <b>21</b> | <b>100%</b> | <b>78</b>         | <b>100%</b> |
| Injury Crashes                     | 2         |             | 4         |             | 5         |             | 2         |             | 2         |             | 15                |             |
| Injuries                           | 2         |             | 5         |             | 6         |             | 2         |             | 2         |             | 17                |             |
| Fatal Crashes                      | 0         |             | 0         |             | 0         |             | 0         |             | 0         |             | 0                 |             |
| Fatalities                         | 0         |             | 0         |             | 0         |             | 0         |             | 0         |             | 0                 |             |



# Existing Conditions – SR 372 Crash Rates

| Rate Description         |                   | Year |      |      |      |      |
|--------------------------|-------------------|------|------|------|------|------|
|                          |                   | 2013 | 2014 | 2015 | 2016 | 2017 |
| Fatal Crashes            | Segment           | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|                          | Statewide Average | 2.13 | 1.96 | 2.13 | 2.42 | 2.13 |
| Fatalities               | Segment           | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
|                          | Statewide Average | 2.37 | 2.23 | 2.42 | 2.74 | 2.37 |
| Non-Fatal Injury Crashes | Segment           | 21   | 50   | 71   | 46   | 22   |
|                          | Statewide Average | 42   | 50   | 48   | 49   | 42   |
| Non-Fatal Injuries       | Segment           | 21   | 75   | 71   | 46   | 22   |
|                          | Statewide Average | 82   | 74   | 74   | 74   | 82   |
| All Crashes              | Segment           | 185  | 175  | 237  | 183  | 243  |
|                          | Statewide Average | 160  | 164  | 152  | 145  | 160  |

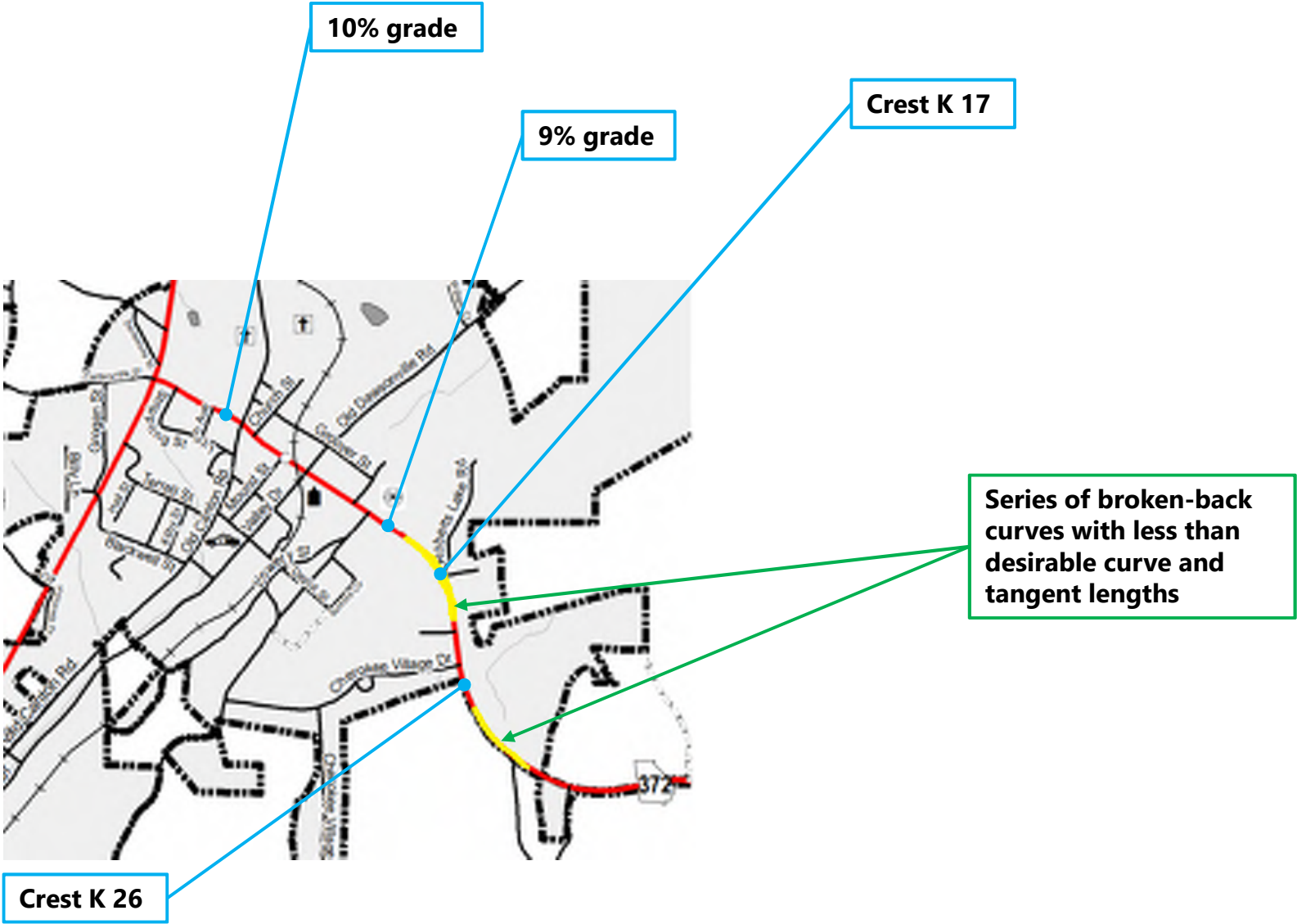


**Crash rates per 100 MVM**

# Existing Conditions – Roadway Geometrics

- Geometric Conditions
  - Series of broken-back curves with less than desirable tangents between 35 mph and 45 mph areas
  - Curves with less than desirable lengths in 35 mph and 45 mph areas
  - Vertical grades over maximum allowed
    - 25 mph maximum 9%; existing 10%
    - 35 mph maximum 8%, existing 9%
  - K values below minimum for vertical curves
    - 35 mph minimum 29, existing 17
    - 45 mph minimum 61, existing 26
    - 55 mph minimum 114, existing 88
  - Existing shoulders/clear zone
    - Appears to be no shoulder and steep slopes intermittently
    - Utility poles possibly inside clear zone
    - Trees possibly inside clear zone and closer than GDOT desirable

# Existing Conditions – Roadway Geometrics



# Existing and Projected Traffic Volumes

- Average Daily Traffic (ADT)

| SR 372        |        |
|---------------|--------|
| 2018 Existing | 8,650  |
| 2030 No Build | 10,950 |
| 2030 Build    | 8,350  |
| 2050 No Build | 16,300 |
| 2050 Build    | 12,450 |

| SR 372        |        |
|---------------|--------|
| 2018 Existing | 8.600  |
| 2030 No Build | 10.900 |
| 2030 Build    | 7,600  |
| 2050 No Build | 16.250 |
| 2050 Build    | 11.350 |

| SR 372 Trucks |       |
|---------------|-------|
| 24 Hr Trucks  | 13.0% |
| 24 Hr SU      | 8.5%  |
| 24 Hr COMB    | 4.5%  |

| SR 5BU        |        |
|---------------|--------|
| 2018 Existing | 9,050  |
| 2030 No Build | 11,500 |
| 2030 Build    | 9,600  |
| 2050 No Build | 17,050 |
| 2050 Build    | 14,300 |



| SR 372        |        |
|---------------|--------|
| 2018 Existing | 8.850  |
| 2030 No Build | 11.250 |
| 2030 Build    | 7,850  |
| 2050 No Build | 16.700 |
| 2050 Build    | 11,700 |

| Howell Bridge Road |        |
|--------------------|--------|
| 2018 Existing      | 9,050  |
| 2030 No Build      | 11,500 |
| 2030 Build         | 11,500 |
| 2050 No Build      | 17,050 |
| 2050 Build         | 17,050 |

| Ball Ground Bypass |       |
|--------------------|-------|
| 2018 Existing      | -     |
| 2030 No Build      | -     |
| 2030 Build         | 3,800 |
| 2050 No Build      | -     |
| 2050 Build         | 5,550 |

| SR 372        |        |
|---------------|--------|
| 2018 Existing | 8.600  |
| 2030 No Build | 10.900 |
| 2030 Build    | 10.900 |
| 2050 No Build | 16.250 |
| 2050 Build    | 16.250 |

# Preliminary Traffic Operational Analysis

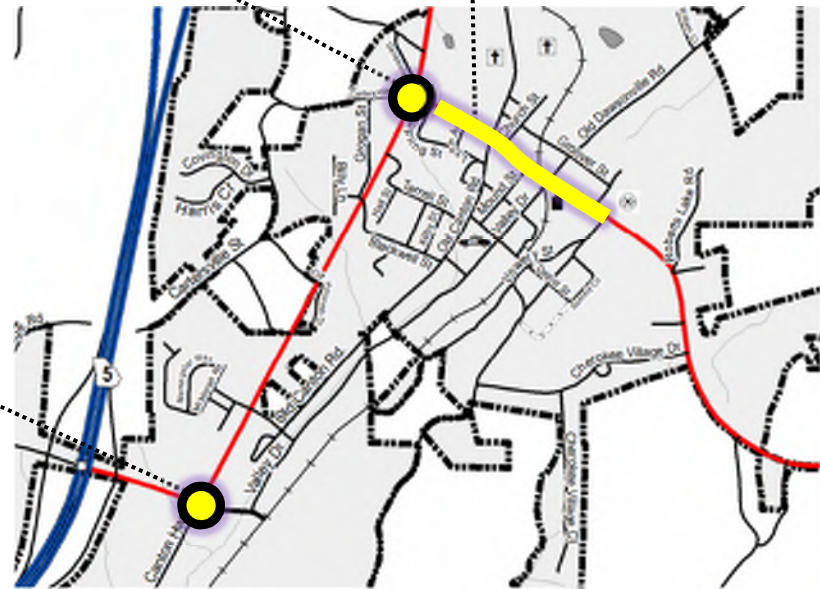
- SR 372 at SR 5BU Signalized Intersection:

- Existing Conditions: **LOS B/B** (AM/PM)
- Future No Build Conditions (2050 Design Year): **LOS D/E** (AM/PM)

- Howell Bridge Rd at Ball Ground Hwy All-Way Stop Intersection:

- Existing Conditions: **LOS C/D** (AM/PM)
- Future No Build Conditions (2050 Design Year): **LOS F/F** (AM/PM)

- SR 372 Corridor Through Downtown Ball Ground:
  - Existing Conditions: **LOS C**
  - Future No Build Conditions (2050 Design Year): **LOS F**



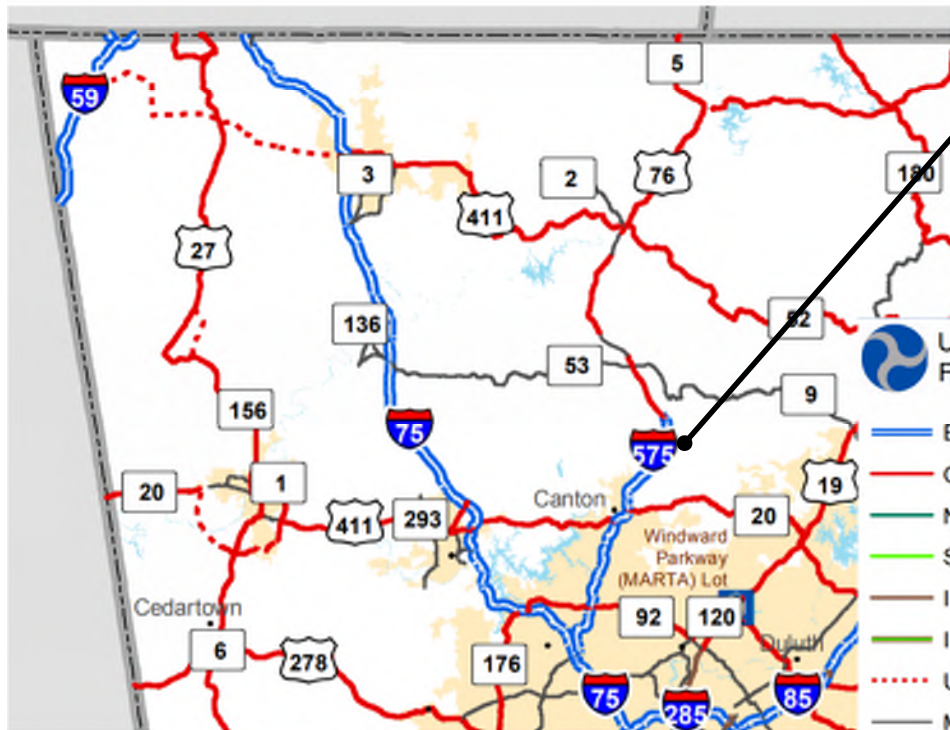
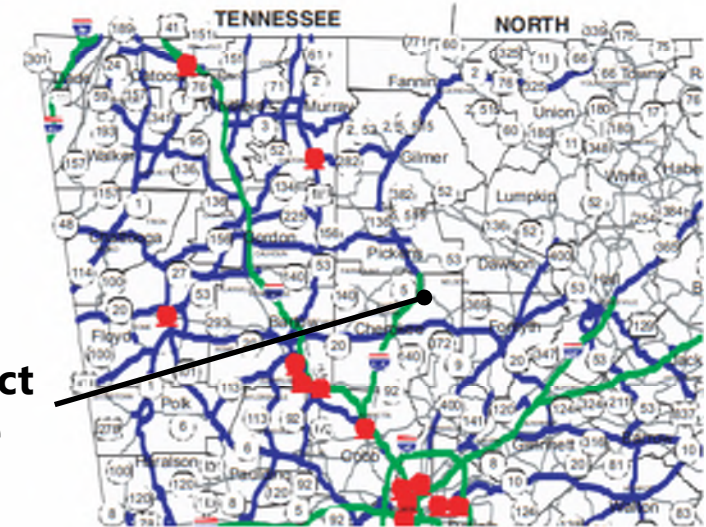
# Designated Networks

- Not NHS, STRAHNET, Intermodal Connector
- Not an Approved Oversize Route


— APPROVED OVERSIZE ROUTES  
— INTERSTATES

Color coded routes approved up to:

14'0" wide x 14'6" high x 100'0" long  
 Gross Weight of 100,000 lbs  
 (Unless otherwise posted or indicated below.)



**Project Site**


 U.S. Department of Transportation  
 Federal Highway Administration

- Eisenhower Interstate System
- Other NHS Routes
- Non-Interstate STRAHNET Route
- STRAHNET Connector
- Intermodal Connector
- Intermodal/STRAHNET Connector
- ... Unbuilt NHS Routes
- MAP-21 NHS Principal Arterials
- Census Urbanized Areas
- Department of Defense
- Water

# Project Justification

- Project proposed by the City of Ball Ground to remove through trucks from downtown Ball Ground (currently 450 COMB, 800 SU)
- Total crashes for SR 372 in Ball Ground are 30% higher than statewide average
- Less than desirable geometrics on SR 372 through downtown Ball Ground - 9% to 10% grades, narrow lane widths
- LOS F on SR 372 through downtown in design year
- Urban nature of downtown historic Ball Ground (pedestrian safety, crossings conflicting with state route truck traffic)
- Logical project limits: Howell Bridge Road to SR 372 east of downtown Ball Ground – avoids speed limit of less than 45 mph; direct connection to I-575 at Howell Bridge Road Interchange
- Performance goals: Reduce crashes, improve LOS through downtown Ball Ground



# Project Budget

| <u>Phase</u> | <u>FY</u><br><u>Approved</u> | <u>Approved FY</u><br><u>Estimate*</u> | <u>Fund</u> | <u>Phase Status</u> |
|--------------|------------------------------|--|-------------|---------------------|
| Construction | 2040                         | \$8,000,000.00                         | LOC         | PRECST              |
| SCP          | 2018                         | \$150,000.00                           | LOC         | AUTHORIZED          |
| Engineering  | 2030                         | \$650,000.00                           | LOC         | PRECST              |
| Right of Way | 2035                         | \$2,200,000.00                         | LOC         | PRECST              |

- Only Scoping Phase is funded at this time
- City/County will likely seek state and/or federal funding for Right of Way and Construction Phases
- **Unknown funding source may preclude the selection of a preferred alternative!**

# Planning Issues

- Planning concept/modeling data
  - Project is not included in ARC's travel-demand model
- STIP project definition
  - Project is not in the STIP
- Need for an Interchange Justification Report (IJR) or Interchange Modification Report (IMR)
  - Project is not expected to effect the I-575 Interchange at Howell Bridge Road
  - IMR should not be required

# Safety Concerns

- Volume of heavy trucks in downtown area, conflicts with vehicles and pedestrians
- Providing adequate sight distance in rolling/mountainous terrain

# Intersection Control Evaluation (ICE)

## Potential Stage 2 Evaluations

- Howell Bridge Road/Bypass at Ball Ground Highway
  - All-Way Stop (Existing)
  - Roundabout
  - Signal
- Howell Bridge Road/Bypass at Valley Street
  - Two-Way Stop (Existing)
  - All-Way Stop
  - Roundabout
- SR 372/Gilmer Ferry Road at Bypass
  - Two-Way Stop
  - All-Way Stop
  - Roundabout
  - Signal
  - High-Tee

# Miscellaneous Traffic

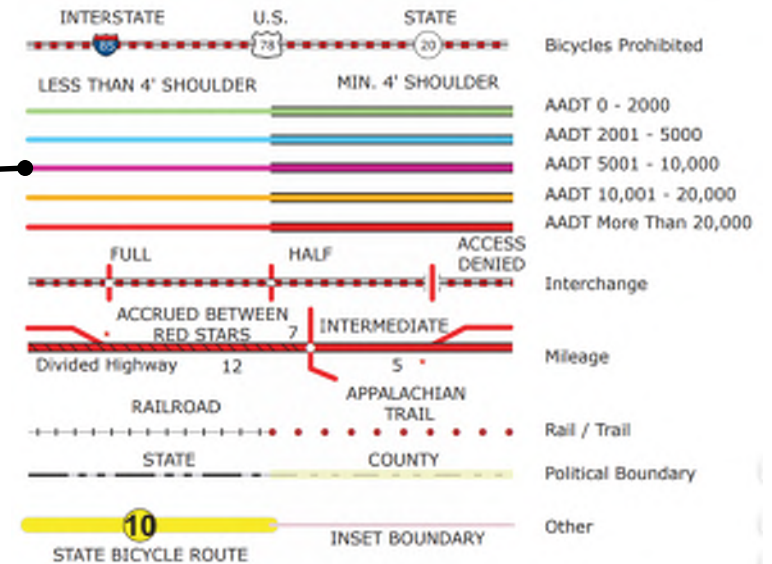
- Traffic Engineering Study (including warrant analysis, if applicable): Need for Study to be Determined
- ITS: Not Applicable
- Traffic Calming Techniques: ??

# Staging and Traffic Control

- Traffic Management Plan
  - Northridge detour to build grade separation
  - Staging plans for bypass tie-ins
- Work Zone Safety and Mobility Requirements: ??

# Complete Streets

- Pedestrian: Sidewalks Between Ball Ground Highway and Railroad
- Transit: Not Applicable
- Bicycles: Bikeable Shoulders



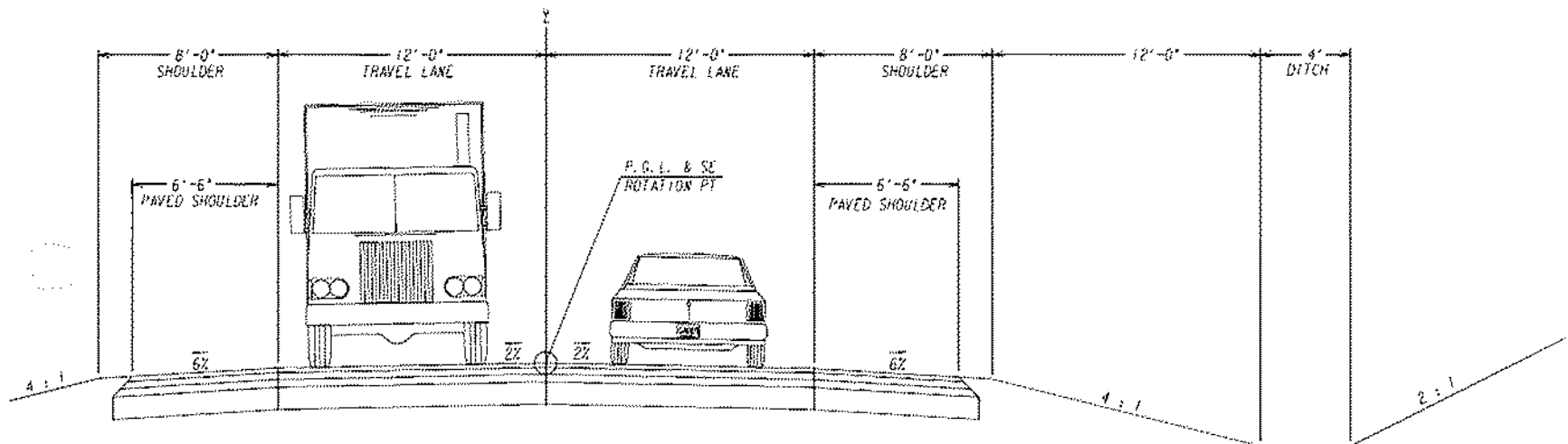
# Design Criteria – Ball Ground Bypass

- Functional Class: Minor Arterial, Rural
- Type of Terrain: Mountainous
- Design Vehicle: WB-67
- Design Speed: 45 mph
- Minimum radius: 643'
- Maximum grade: 7%
- Access Control: By Permit



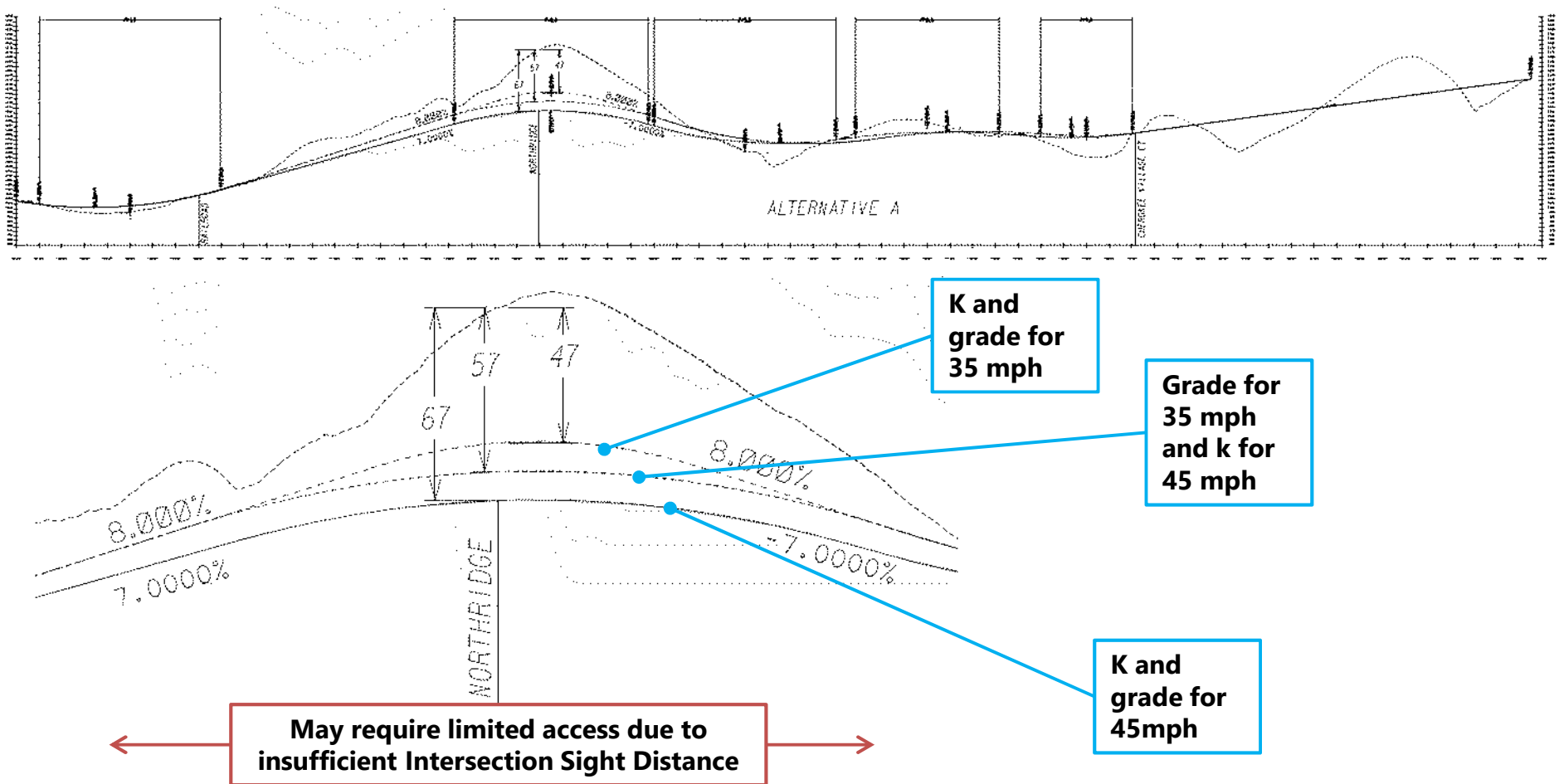
# Ball Ground Bypass Typical Section

- Two-Lane Roadway, 12' Lanes
- Overall Shoulder Width: 8'
- Bikeable Shoulders, 6.5' Paved
- Clear Zone: 24'



# Potential Design Exceptions or Variances

- Profile Issues at Railroad Crossing
- Consider 35 mph Crest Vertical Under Northridge Road

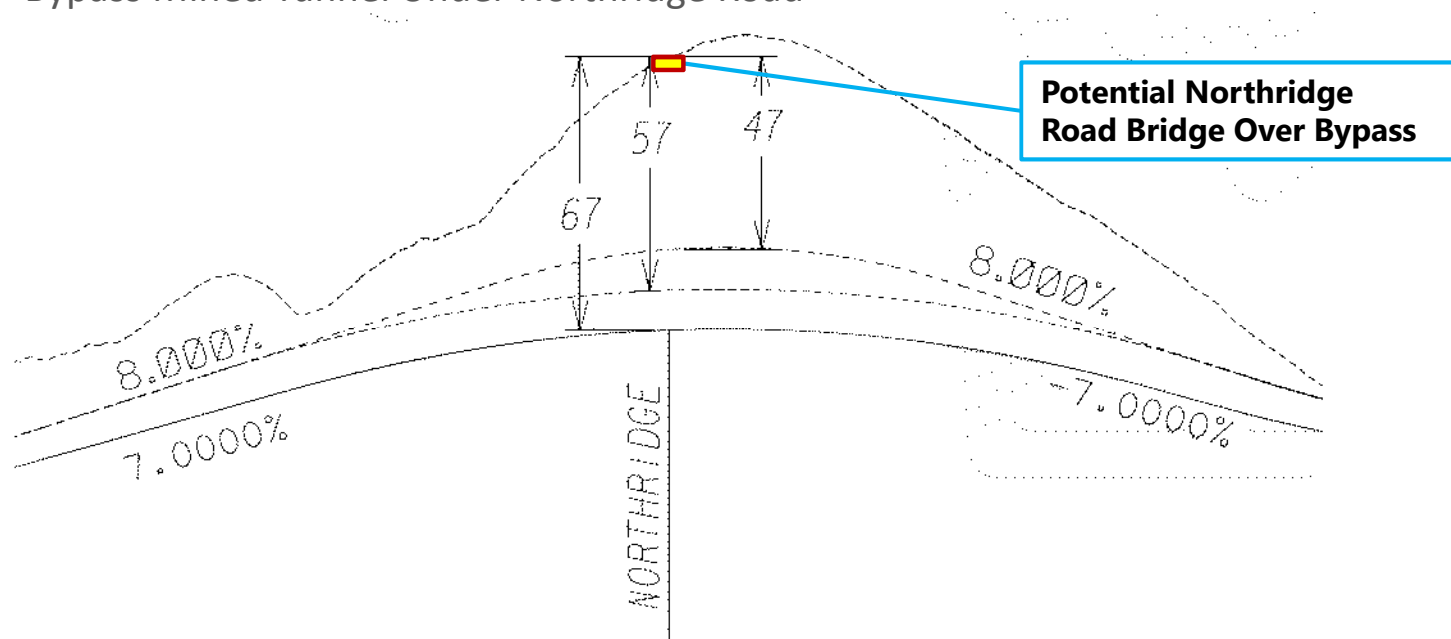


# Public Outreach

- Property Owner Conversations
- Public Information Open House

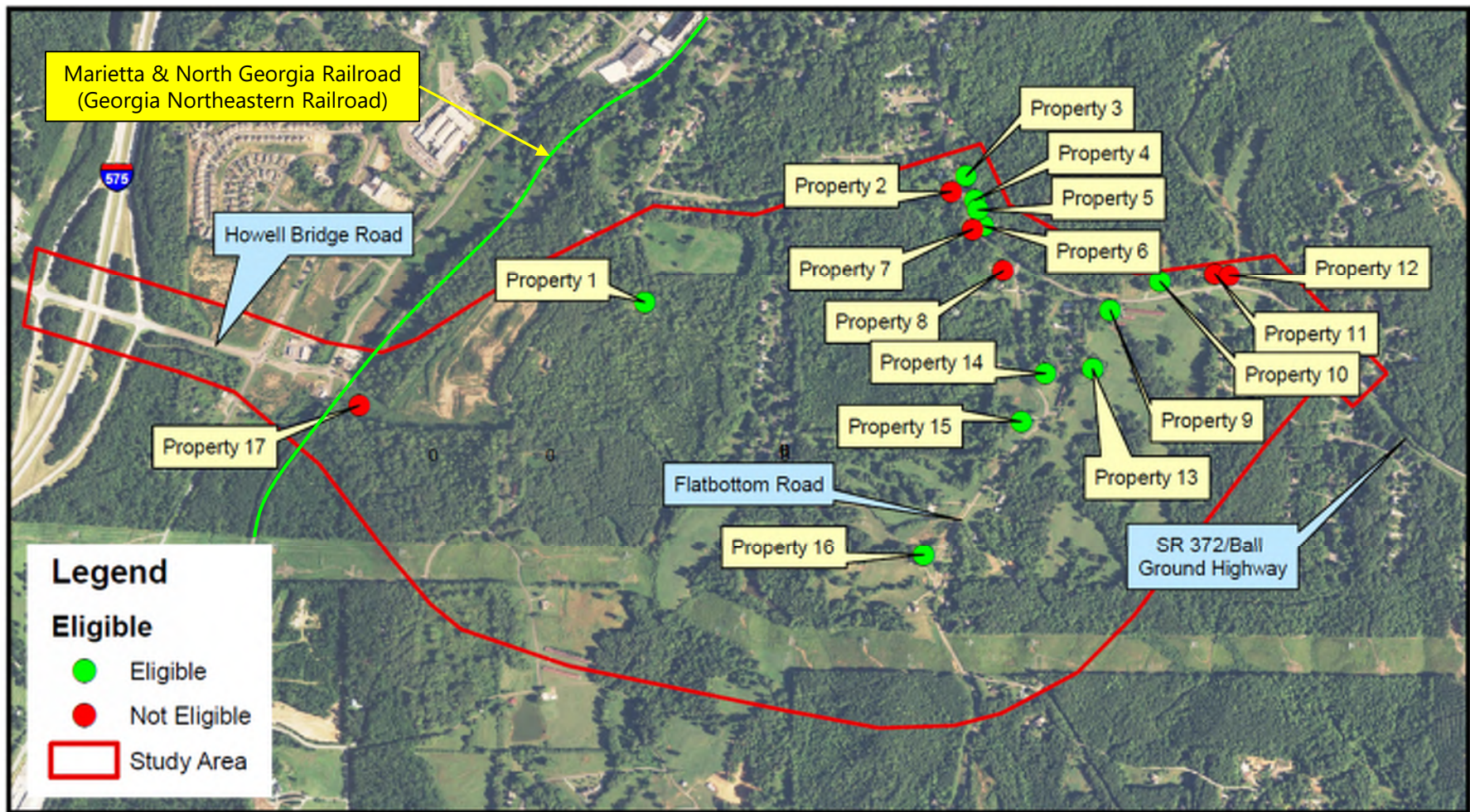
# Structures

- Existing Structures: None
- Proposed Structures:
  - Grade Separation of Bypass Under Northridge Road Alternatives
    - Northridge Road Bridge Over Bypass
    - Bypass Cut-and-Cover Tunnel Under Northridge Road
    - Bypass Mined Tunnel Under Northridge Road



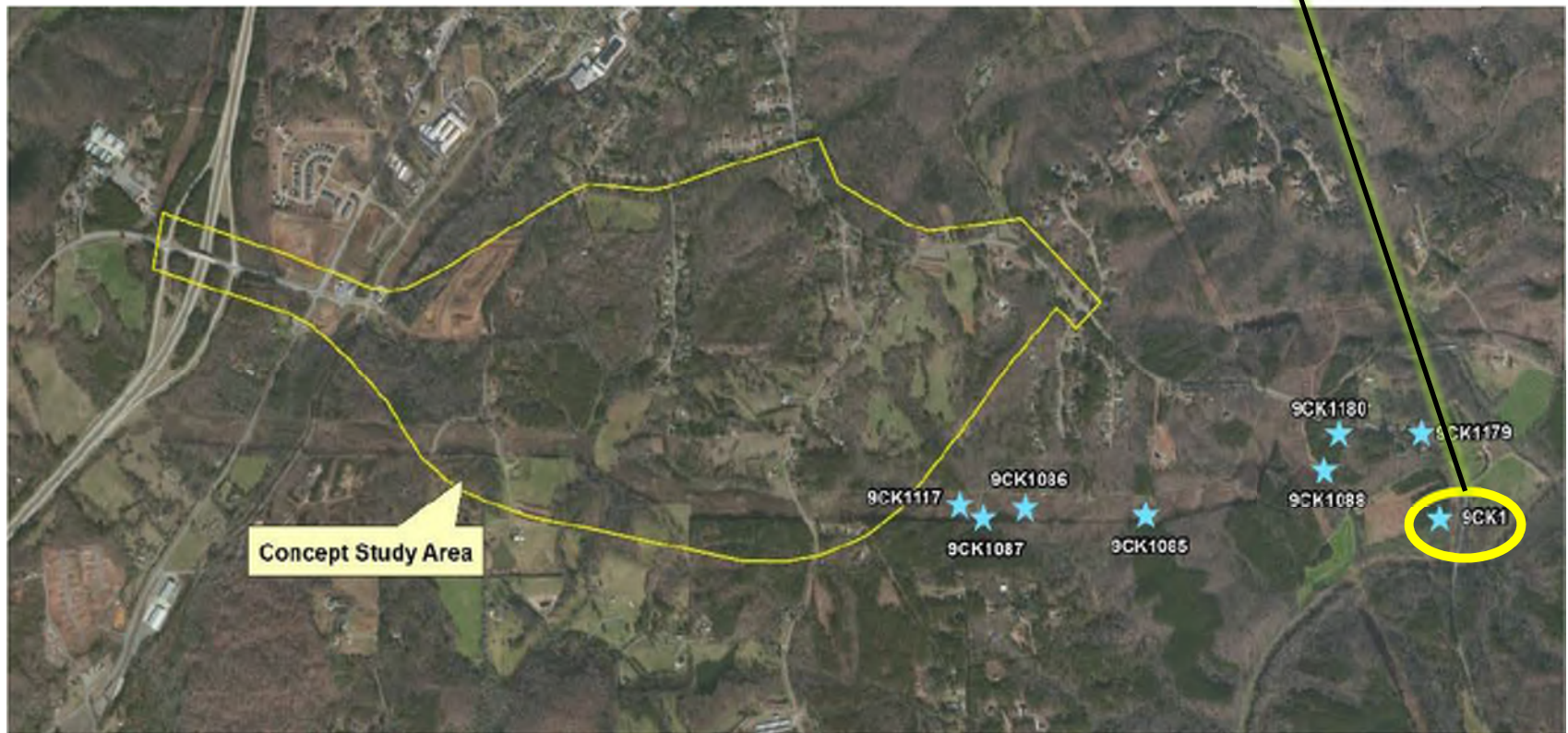
# Environmental Concerns - History

- Several Residential, Farm Properties, Georgia NE Railroad



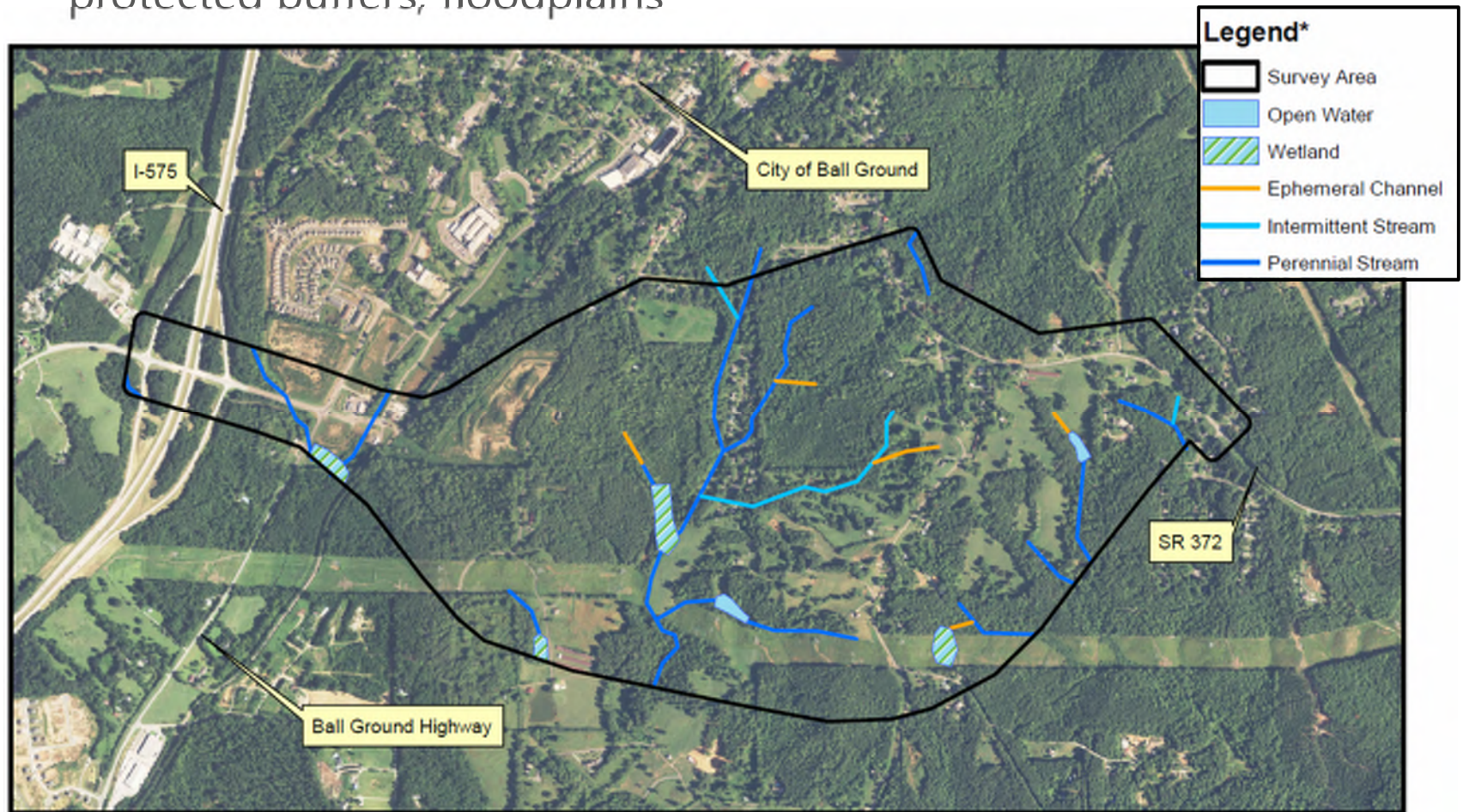
# Environmental Concerns - Archaeology

- No Previously Recorded Sites in Study Area
- Of The Previously Recorded Sites, Only One is Eligible



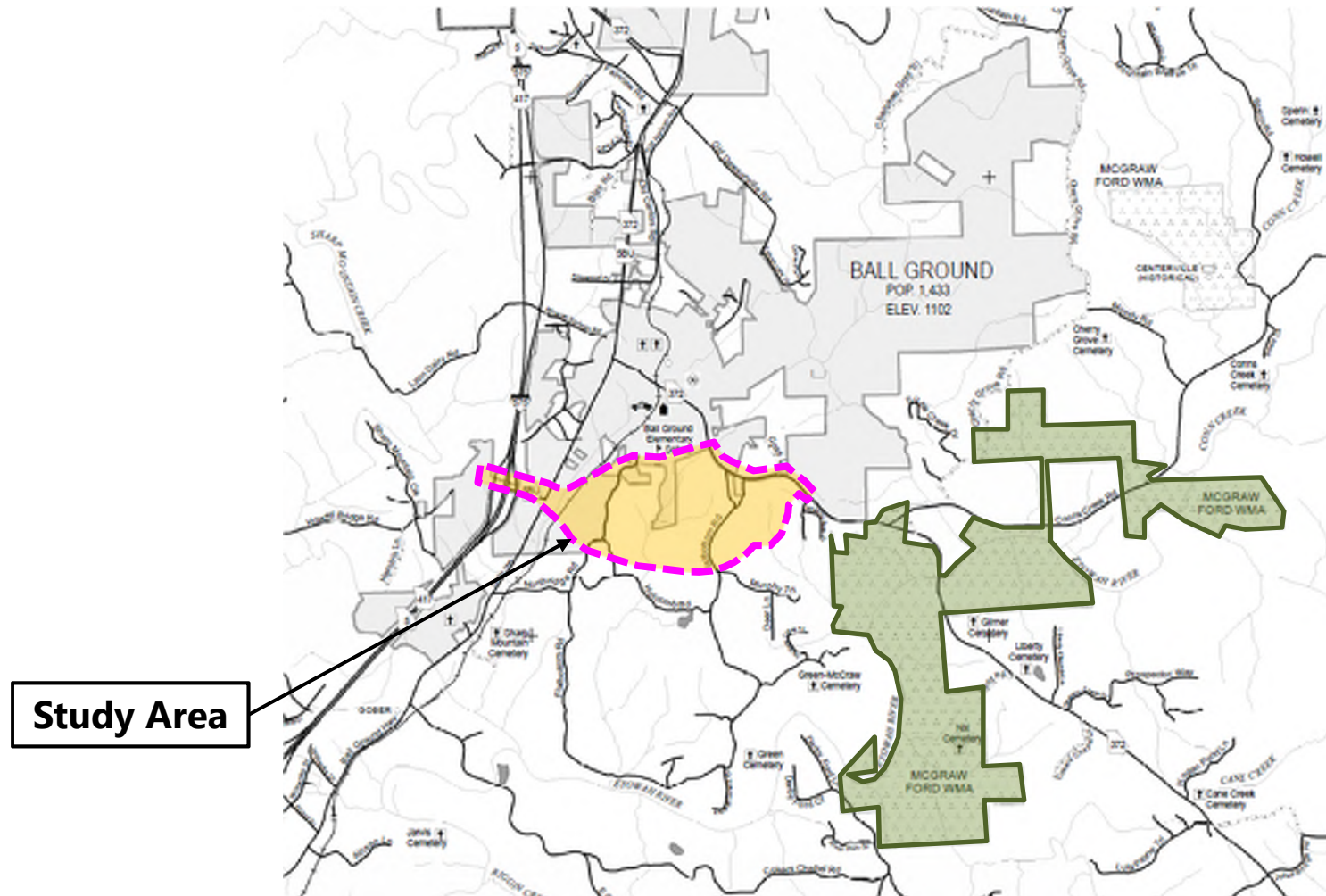
# Environmental Concerns - Ecology

- Several Crossings of Wetlands and streams, open waters, state protected buffers, floodplains



# Environmental Concerns

- Parks and recreation: McGraw Ford WMA



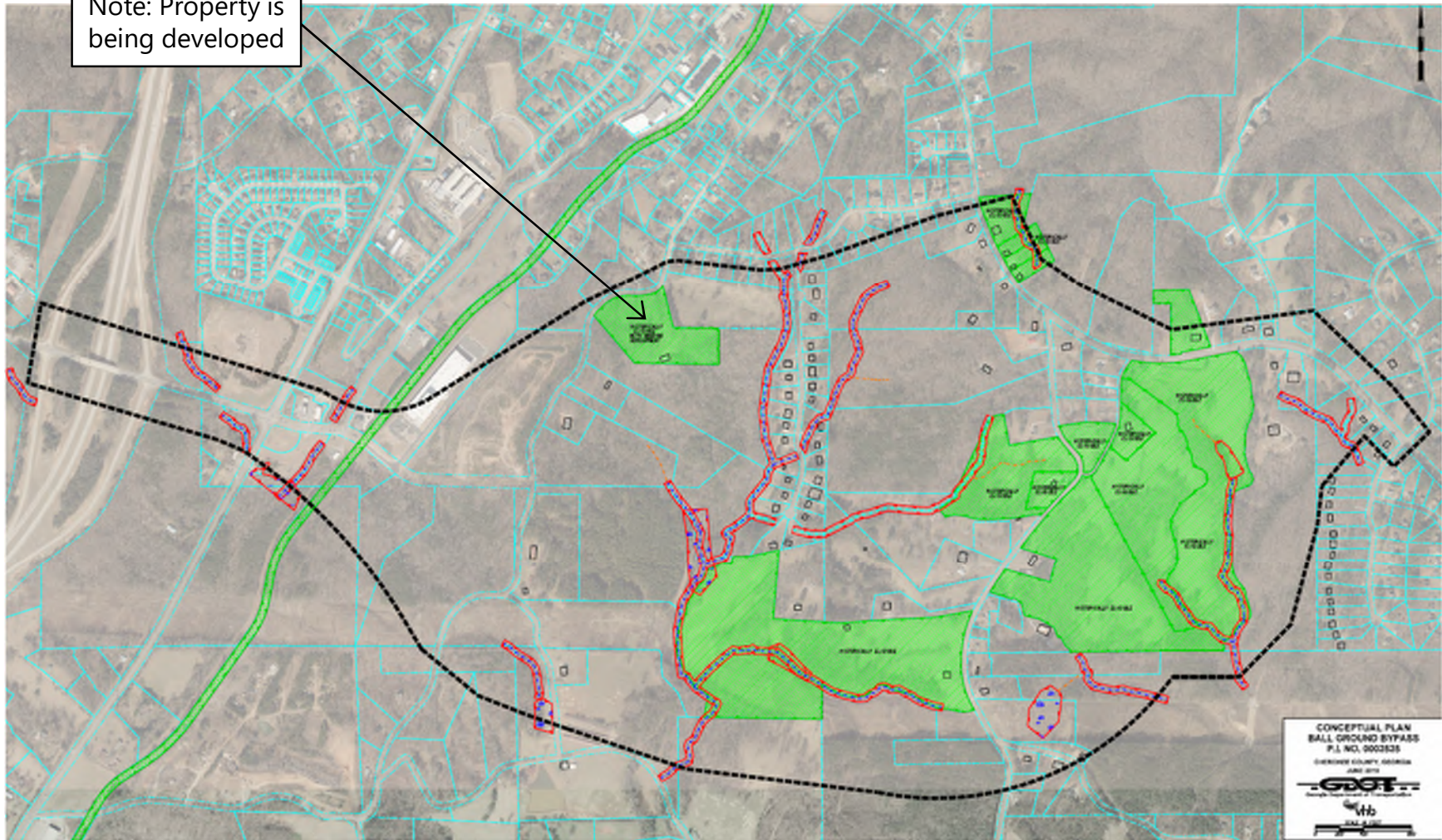


# Environmental Concerns

- Cemeteries: None Identified
- Endangered species: TBD
- Air Quality: TBD, No Effect on Decision
- Potential for noise impacts: Potential Residential Impacts Adjacent to New Location Bypass

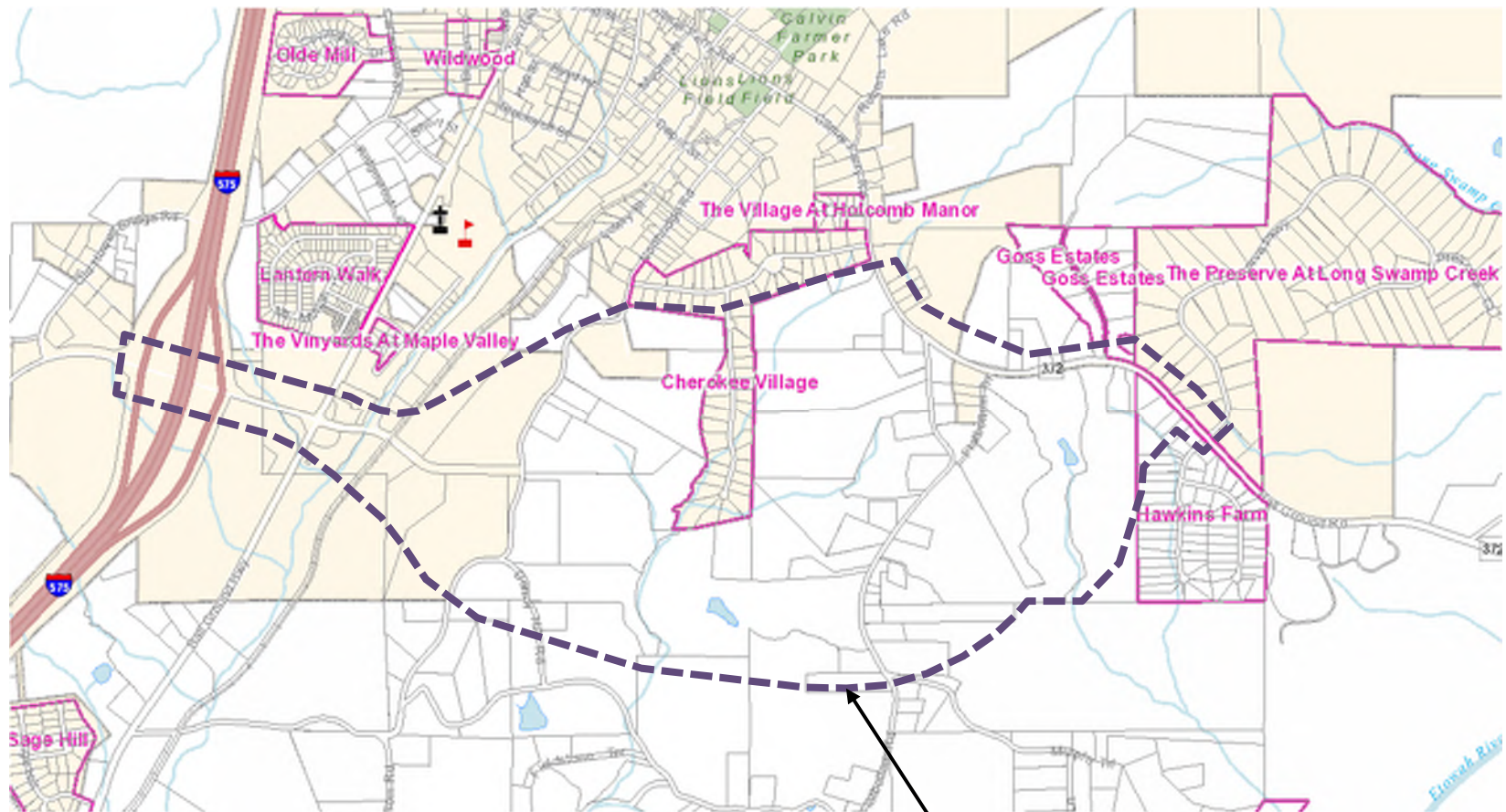
# Environmental Concerns – ENVE Plot

Note: Property is being developed



# Environmental Concerns

- Neighborhoods



**Study Area**

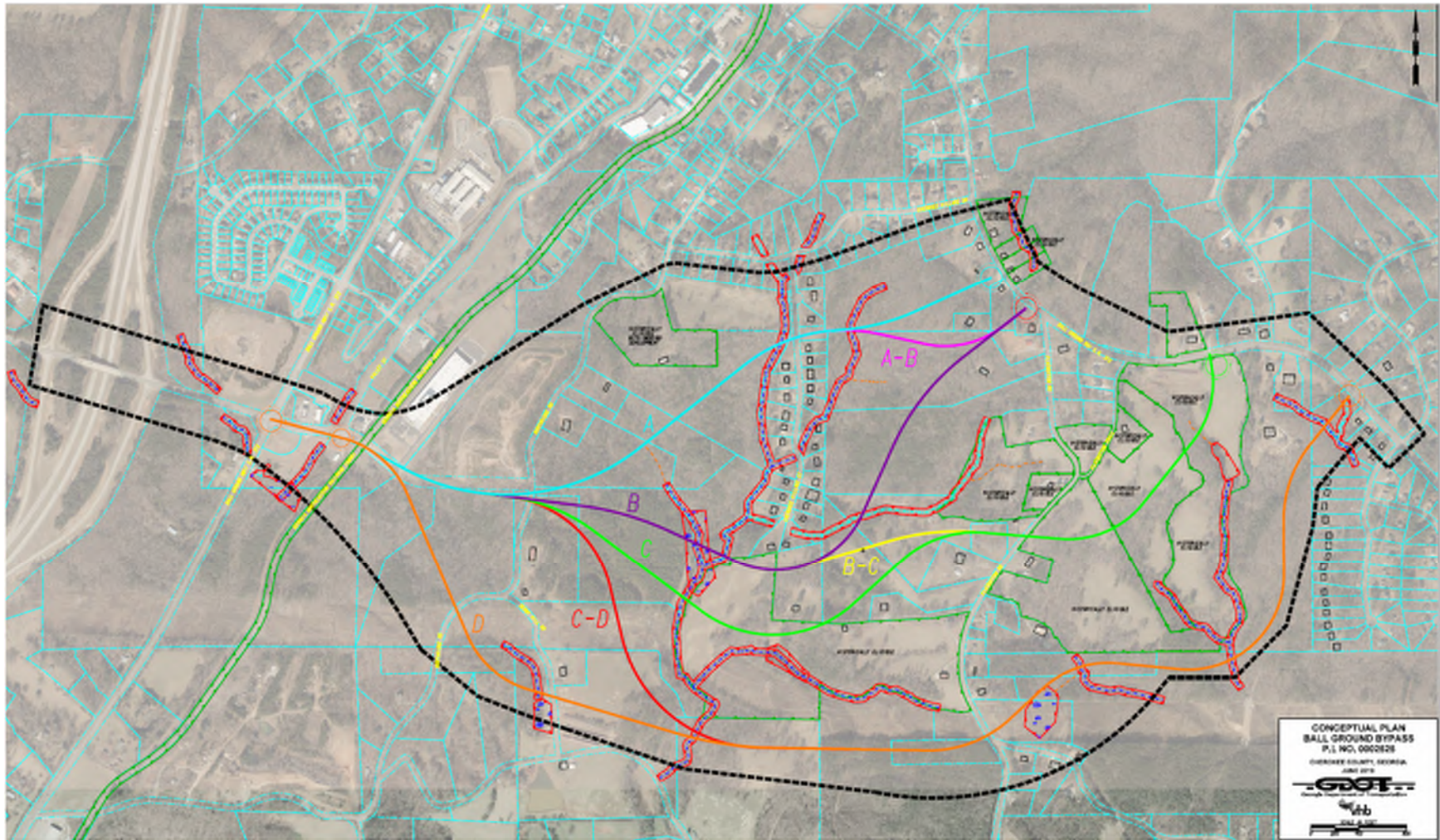
# Environmental Concerns – Discussion Topics

- Special interest groups
- Context Sensitive Design
- Need for a Practical Alternatives Report (PAR)
- Erosion and Sedimentation Control
- Designated MS4 Area(s) – Not Currently in MS4 Area

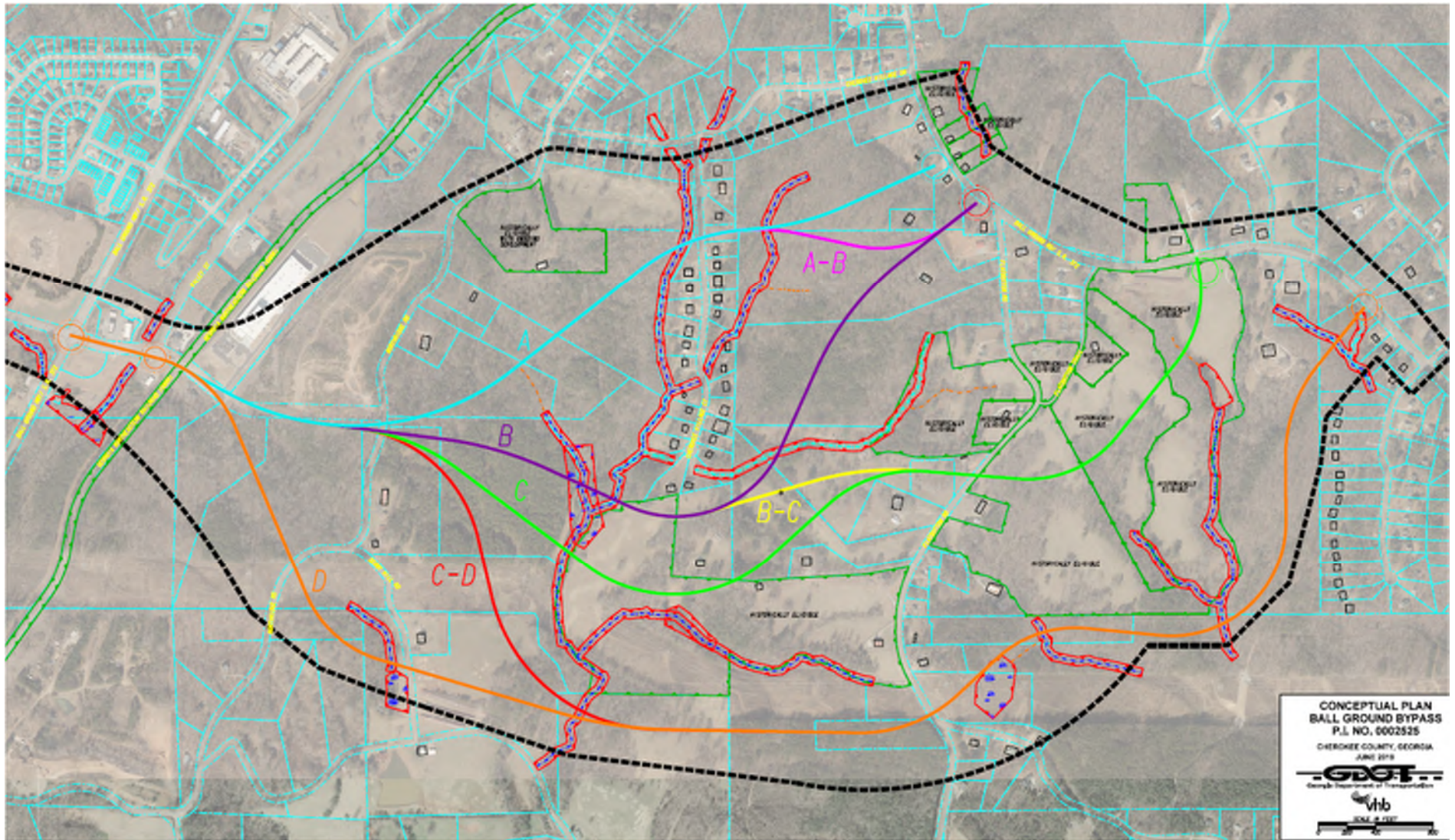
# Alternatives Under Consideration

- No Build
- Build Alternative Alignments

# Alternatives Under Consideration



# Alternatives Under Consideration



# Alternatives Analysis Matrix

## ALTERNATIVES ANALYSIS MATRIX (Estimated Impacts & Costs)

RFQ 2018-048, Cherokee County

P.I. No. 0002525

Ball Ground Bypass

June 12, 2019

**DRAFT**

| Alternative No.->>                                 | A  | A-B | B  | B-C | C  | C-D | D  |
|--|----|-----|----|-----|----|-----|----|
| <b>Displacements</b>                               |    |     |    |     |    |     |    |
| Residential  | 1  | 0   | 0  | 1   | 1  | 0   | 0  |
| Commercial   | 0  | 0   | 0  | 0   | 0  | 0   | 0  |
| Church   | 0  | 0   | 0  | 0   | 0  | 0   | 0  |
| Other  | 0  | 0   | 0  | 0   | 0  | 0   | 0  |
| <b>Proximity of proposed roadway to residences</b> |    |     |    |     |    |     |    |
| less than 25'                                      | 0  | 0   | 0  | 1   | 0  | 0   | 0  |
| less than 50'                                      | 2  | 0   | 0  | 1   | 0  | 0   | 0  |
| less than 100'                                     | 4  | 2   | 1  | 2   | 0  | 0   | 0  |
| less than 200'                                     | 12 | 8   | 8  | 7   | 7  | 1   | 3  |
| less than 300'                                     | 15 | 9   | 9  | 7   | 9  | 4   | 6  |
| less than 400'                                     | 16 | 15  | 13 | 11  | 11 | 20  | 23 |
| less than 500'                                     | 23 | 22  | 18 | 20  | 15 | 27  | 27 |
| <b>Neighborhood Impacts</b>                        |    |     |    |     |    |     |    |
| Neighborhoods impacted                             | 1  | 1   | 0  | 0   | 0  | 0   | 0  |
| <b>Family Impacts</b>                              |    |     |    |     |    |     |    |
| Family plots impacted                              |    |     |    |     |    |     |    |
| <b>Required Right of Way</b>                       |    |     |    |     |    |     |    |
| Required R/W Area (acres)                          | 24 | 19  | 28 | 24  | 35 | 37  | 53 |



# Alternatives Analysis Matrix

| ALTERNATIVES ANALYSIS MATRIX  |                  | (Estimated Impacts & Costs) |                  |                |                |             |             |  |
|---|------------------|-----------------------------|------------------|----------------|----------------|-------------|-------------|--|
| RFQ 2018-048, Cherokee County   |                  |                             |                  |                |                |             |             |  |
| P.I. No. 0002525  |                  |                             |                  |                |                |             |             |  |
| Ball Ground Bypass  |                  |                             |                  |                |                |             |             |  |
| June 12, 2019   |                  |                             |                  |                |                |             |             |  |
|   |                  | DRAFT                       |                  |                |                |             |             |  |
| Alternative No.->>  | A                | A-B                         | B                | B-C            | C              | C-D         | D           |  |
| <b>Wetlands and Waters Impacts</b>  |                  |                             |                  |                |                |             |             |  |
| Wetland Impact Area (acres)   | 0.00             | 0.00                        | 0.80             | 0.75           | 0.01           | 0.58        | 0.77        |  |
| Open Water (Pond) Impact Area (acres)   | 0.00             | 0.00                        | 0.00             | 0.00           | 0.00           | 0.00        | 0.00        |  |
| Stream Impact Length (feet)   | 534              | 377                         | 729              | 340            | 173            | 726         | 1622        |  |
| <b>Mitigation Credits (Approximate)</b>   |                  |                             |                  |                |                |             |             |  |
| Stream buffers (acres)  | 0.73             | 0.52                        | 1.00             | 0.47           | 0.24           | 1.03        | 2.10        |  |
| <b>Historical properties impacts</b>  |                  |                             |                  |                |                |             |             |  |
| Historical properties impacted (each)   | 4                | 1                           | 2                | 5              | 5              | 2           | 2           |  |
| Severity of impacts   | Adverse/Moderate | Adverse/Low                 | Adverse/Moderate | Adverse/Severe | Adverse/Severe | Adverse/Low | Adverse/Low |  |
| Section 4f  | Yes              | No                          | Yes              | Yes            | Yes            | No          | No          |  |
| <b>Roadway Lengths (miles)</b>  |                  |                             |                  |                |                |             |             |  |
| Bypass Length (SR 5 BU to SR 372)   | 1.03             | 1.21                        | 1.09             | 1.82           | 1.41           | 2.35        | 2.30        |  |
| Comparative Travel Length Along Bypass and SR 372 (SR 5 BU to SR 372 at Hawkins Farm Lane/Preserve Parkway) | 1.81             | 1.89                        | 1.77             | 2.20           | 1.79           | 2.46        | 2.42        |  |
| <b>Cost</b>   |                  |                             |                  |                |                |             |             |  |
| Construction  |                  |                             |                  |                |                |             |             |  |
| Right of Way  |                  |                             |                  |                |                |             |             |  |
| Utilities   |                  |                             |                  |                |                |             |             |  |
| Mitigation  |                  |                             |                  |                |                |             |             |  |
| TOTAL COST  |                  |                             |                  |                |                |             |             |  |

# Environmental Coordination

- Coordination Expected:
  - U. S. Army Corps of Engineers Section 404 Permit
    - Anticipate Regional Permit 35
      - Single Crossing Limits – 2,000' Stream, 4 acres Wetlands
      - Total Linear Project Limits – 5,000' Stream, 12 acres Wetlands
  - State Stream Buffer Variance
- Coordination Likely Not Required:
  - U. S. Army Corps of Engineers Real Estate Outgrant
  - Tennessee Valley Authority (TVA)
  - U. S. Coast Guard (USCG)

# Project Coordination

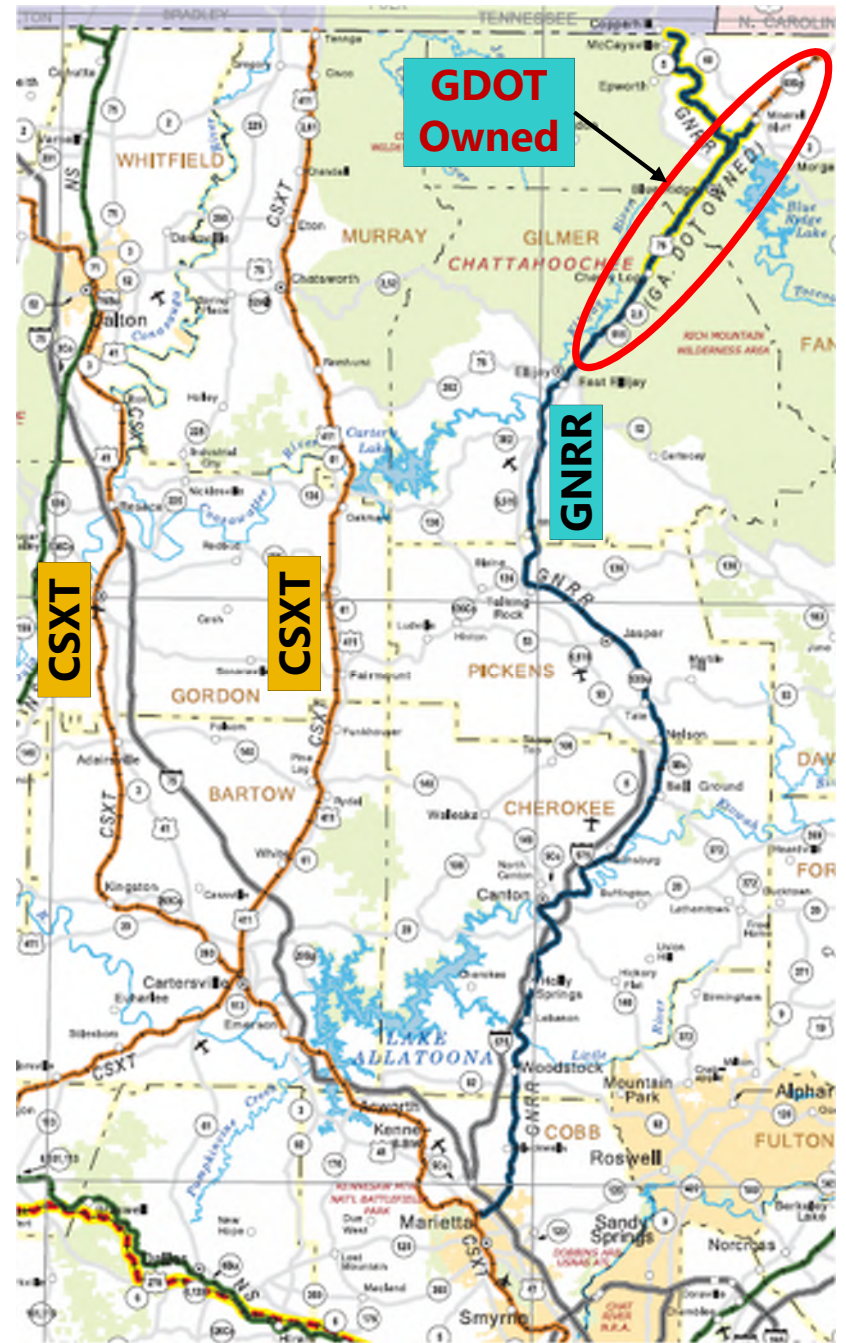
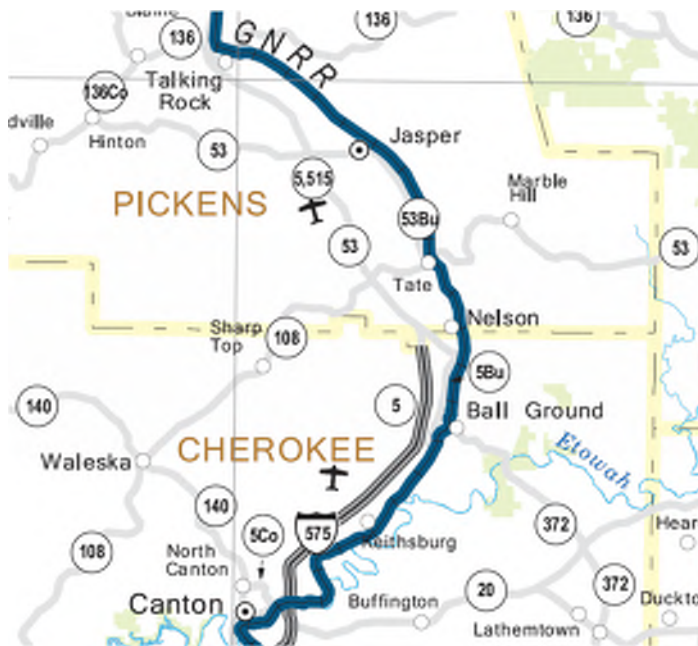
- PI 0010649
  - CS 791/VALLEY STREET FROM DEPOT STREET TO HOWELL BRIDGE ROAD
  - Streetscape Enhancement Project for the City of Ball Ground
  - Under Construction, Completion December 2019
- PI 0005970
  - SR 372/BALLGROUND RD FM CANTON HWY TO CUMMING HWY
  - Reconstruction/Rehabilitation
  - PE, ROW, CST in 2051
- PI 0009903
  - I-575 @ SR 5BU - SB & NB RAMPS
  - Roundabouts at ramp intersections with Howell Bridge Road
  - PE in 2018, CST ???

# Utilities

- Electrical Transmission
- Distribution
  - Electrical
  - Water
  - Sewer
  - Gas
  - Communications
- Public Interest Determination

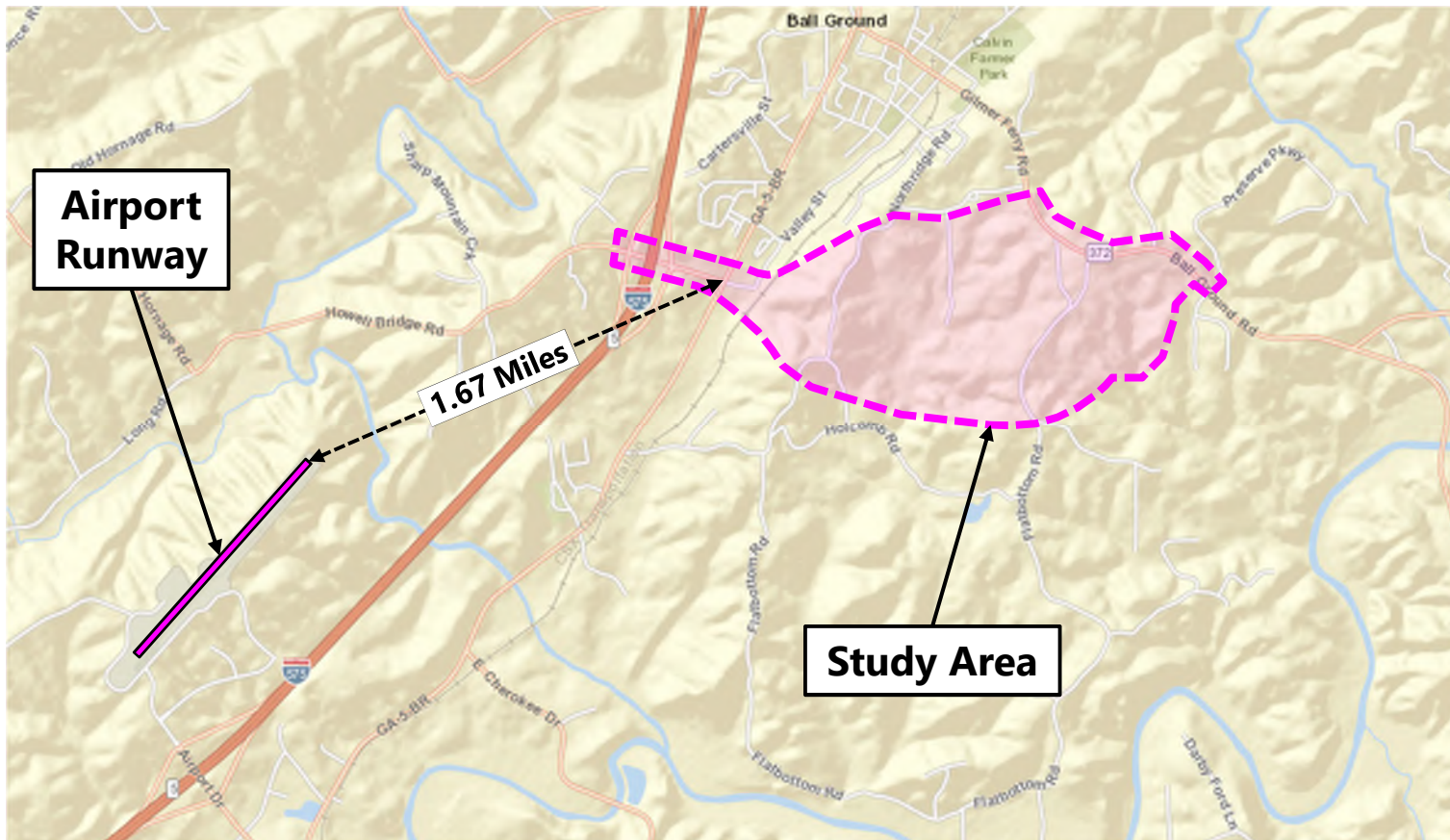
# Railroad

- Georgia Northeastern Railroad (GNRR)
- Managed by Patriot Rail Co.
- Typically Two Trains Daily, 6 AM to 6 PM, 10 MPH



# Airports

- **Cherokee County Airport**
- 1.67 miles to west end of proposed Bypass



# Risk Assessment

- Project Cost – Funding Availability
- Section 4(f) With Federal Funding
- Community/Neighborhood Opposition
- Impacts to Historic Properties
- High Cuts and Fills
- Water Quality Treatment Requirements
- Future Residential/Commercial Development Conflicting With Potential Alternative Alignments
- ??
- ??

# Miscellaneous

- Need for a formal or informal location inspection?
- Maintenance problems, including drainage and pavement problems?
- Coordination with FHWA, FTA, GRTA, State Road and Tollway Authority (SRTA), and other non-environmental Federal, state and local agencies and/or governments?





PI No. 0002525  
 Ball Ground Bypass  
 Cherokee County

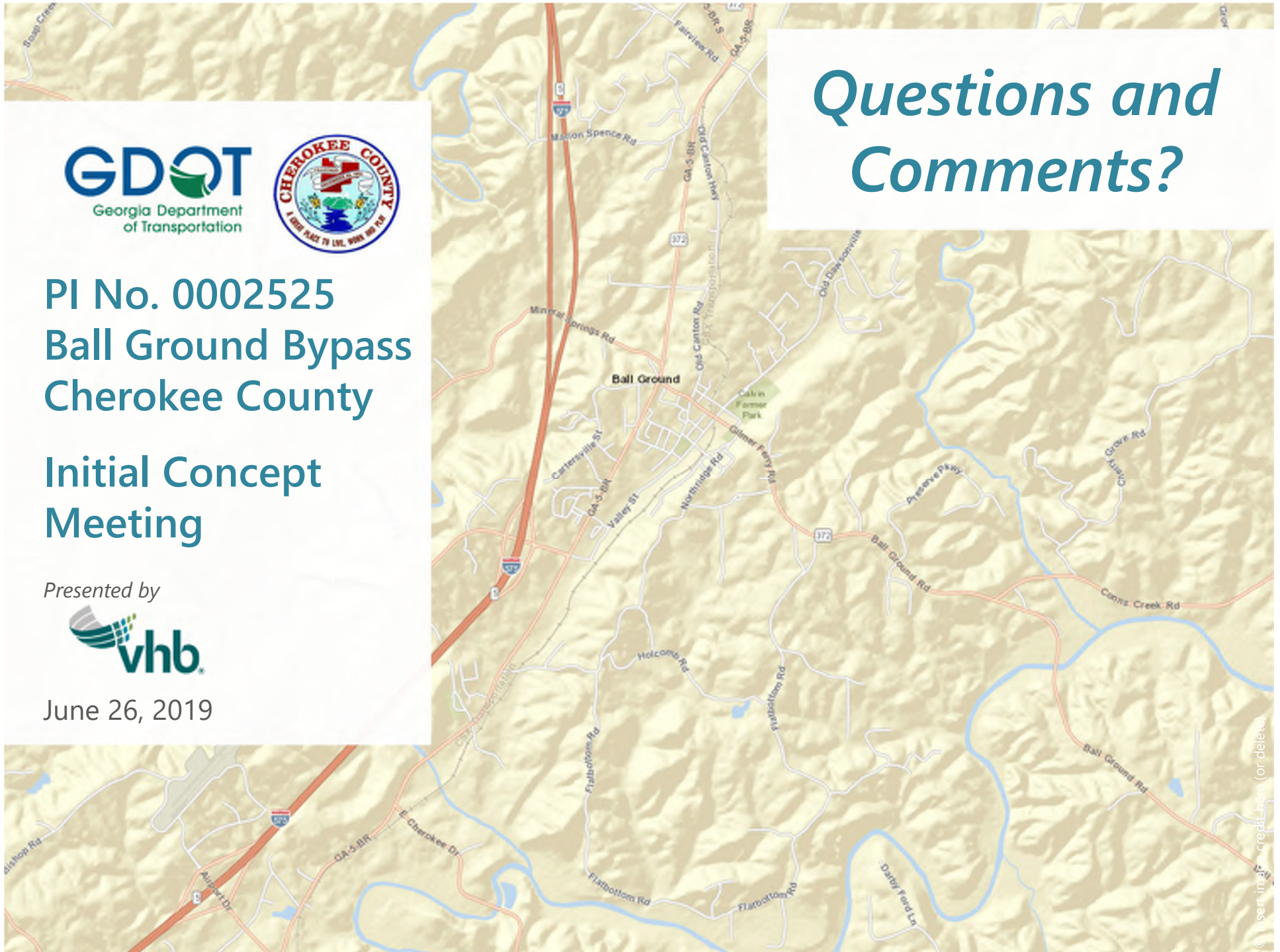
Initial Concept  
 Meeting

Presented by



June 26, 2019

Questions and  
 Comments?





1355 Peachtree Street NE  
 Suite 100  
 Atlanta, Georgia 30309  
 T 404.214.6745

## Meeting Minutes

Date: July 13th, 2020 Time: 2:00 pm

Location: N/A – Conference Call

Subject: Ball Ground Bypass Scoping Study Closeout Meeting

Project No: PI No. 0002525, Cherokee County VHB: 63312.00

Recorded By: Candice Thomas

### Attendees:

|                     |                     |                                |
|---------------------|---------------------|--------------------------------|
| Jim Wilgus          | Cherokee County     | jawilgus@cherokeega.com        |
| Candice Thomas      | VHB                 | cnthomas@vhb.com               |
| Matt Thompson       | VHB                 | mthompson@vhb.com              |
| Tommy Crochet       | VHB                 | tcrochet@vhb.com               |
| Courtney Farge      | VHB                 | cfarge@vhb.com                 |
| Megan Weiss         | GDOT Planning       | mweiss@dot.ga.gov              |
| Brittany Tyson      | VHB                 | btyson@vhb.com                 |
| Christina Barry     | GDOT Dist. 6        | cbarry@dot.ga.gov              |
| John Hightower      | GDOT OPD            | jhightower2@dot.ga.gov         |
| Grant Waldrop       | GDOT Dist. 6        | gwaldrop@dot.ga.gov            |
| Eric Wilmarth       | City of Ball Ground | ewilmarth@cityofballground.com |
| Chris Luly          | Cherokee County     | celuly@cherokeega.com          |
| Joseph Ciavarro     | GDOT Dist. 6        | jciavarro@dot.ga.gov           |
| Christopher Broyles | GDOT Dist. 6        | cbroyles@dot.ga.gov            |

The purpose of the meeting is to discuss the comments from the stakeholder virtual meeting as well as the draft concept report.

- Matt Thompson started the meeting by noting that the formal concept report would not be submitted until funding is identified and the County proceeds with Preliminary Engineering. He went on to give a brief project description. Downtown Ball Ground is a historic area with a several restaurants and local businesses. The City wants to continue to provide a pedestrian friendly and area for the local community as well as tourists. Currently SR 372 runs through the Downtown Ball Ground. There are many agriculture

July 13, 2020  
PI No. 0002525

and trash trucks that run through the City that cause concern due to their impacts to pavement quality and the pungent smell from agriculture trucks.

- Eric Wilmarth noted that the City of Ball Ground had found several locations through downtown where there was no base under the existing pavement.
- Matt went on to note that VHB is currently in a scoping study process. VHB met with the City of Ball Ground, Cherokee County, and the GDOT Project Manager early on to identify a study area. A broad area south of Ball Ground and East of I-575 was identified and then a high-level environment screening was completed within the study area. Wetlands, streams, and potentially historic resources were found in the study area.
- Matt reiterated that a high-level screening only was performed. VHB was not scoped to do resources survey reports. More detailed environmental surveys and documentation would be needed when the County proceeds with Preliminary Engineering.
- VHB also obtained existing traffic counts in the study area and at intersections through downtown Ball Ground. Several conceptual alternatives were created, and traffic projections were submitted for the various alternative and approved by GDOT.
- VHB completed high level evaluations for each alternative construction cost, environmental impacts, right of way cost, and utility cost.
- VHB prepared a layout and alternative matrix for an online stakeholder meeting. The comment period for the online stakeholder meeting was from 6/5/2020 to 7/3/2020. The County hosted the online meeting on their website. Hard copies were available at the County administration building and Ball Ground City Hall for anyone who didn't have online access. The County received emails, calls and hard copy feedback as well. The County's intent with the online stakeholder meeting was to gauge support from the public.
- Courtney Farge reviewed a summary of the comments. She noted that there was a total of 226 comments. There were 25 opposed, 164 in support, 1 uncommitted. 34 conditional and 2 who did not indicate. She noted that there was overwhelming support for the project. Reasons for supporting the project included that it would be good for downtown business, nonspecific support, support from truckers, support for pedestrian safety, removal of chicken trucks, congestion relief and air quality. Some of the concerns noted were the following: neighborhood and community impacts including subdivision family complexes and school property, economic impacts, multigenerational families, farmers and historic properties (specifically Edwards Farm, a 150-year-old family property).
- Jim Wilgus noted that the Edwards family has been in contact with the County to reiterate the historical significance of their farm.
- Courtney went on to say that there were questions about what 4F is and what makes a property historic. She noted that there were also comments about impacts to business downtown.
- Courtney elaborated on specific concerns. There was some concern business would shift with the road and that trucks wouldn't use the road because it was a longer route. There was also concerns that the road wouldn't go near downtown destinations, schools and

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post offices. In addition, there were property concerns due to high cost of housing in area. There were also concerns about noise level change and impacts to waters. A few people suggested roundabouts at termini as preferred design request. Some voiced confusion over the multiple alternatives and not were sure that none had been selected.

- Courtney noted that there was support for and against each alignment. She said there was support and concern regarding impacts to the future school property in Ball Ground (on Flatbottom Road south of the study area) and concern that the Bypass would provide access. She noted that there were request for other improvements nearby, alternatives routes and suggestion that the truck volumes for bypass were incorrect.
- Tommy Crochet noted that those who are supportive did not voice a preferred route. The bulk who are opposed are living in the corridor study area and would be impacted. Most of the conditional responses preferred an alternative further from their home. The people who lived in the Northern study area preferred the more Southern alternatives and those living in the South preferred the Northern alternatives. He noted that there was nothing in the comments that helps point to preferred alternative.
- Matt noted that the bigger driver in alternative selection would be funding due to large number of potential historic properties within the study area, federal funding would likely require a Section 4(f) Evaluation.
- Eric stated that the downtown business community was divided. Businesses are concerned about losing Gibbs Garden traffic. He also noted that the Southern routes want Northern alternatives and the Northern want Southern alternatives. Cherokee Village wants route South of their neighborhood. He noted that the truck traffic concern near the future school is a new comment and that previously people were concerned about needing a new roadway near the school.
- Jim stated that he had discussions with many property owners and the B route seems to be the least offensive. He has seen support to limit impacts to the Edwards Farm from other residents as well. Jim noted that there would be a lot of push back for the C and D alternatives.
- Matt noted that the ICE is in route for approved signatures. He elaborated that a multilane roundabout was proposed at Howell Bridge Rd/Canton Hwy and a single lane roundabout at Howell Bridge/Valley St. The termini would most likely be minor stop control at Eastern end. The ICE should be approved within a week. A full truck study may need to be completed to further analyze the alternatives.
- Matt noted that submittal of concept report for approval won't be completed until a funding source is identified to help select the proposed alternative.
- Jim noted that the next step is to gauge District 6 for support. The County will need help to at least get PE funded. He also asked if all traffic numbers were collected for a full week and noted that the traffic changes drastically on Saturday and Sunday. There are a lot of people parking and walking in downtown on the weekends.
- Matt noted that project justification notes the pavement quality.

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- Jim noted the need to prioritize between the Ball Ground Truck Bypass and other Cherokee County projects, what is the most important for District 6.
- Grant Waldrop responded that GDOT can participate in those conversations.
- Jim said the County will setup a meeting or call with GDOT District 6.
- Matt asked about construction and right of way funding.
- Jim noted that he would prefer doing the project without federal money because it would probably be 3 years out. He also noted that future SPLOST funds could be used for some of the project.
- Matt stated that VHB's next step would be to breakdown the comments into groups and see how County wants to respond. There will need to be a formal PIOH for NEPA purposes in the future, but VHB will work with the County to see what needs to be sent out to public first.
- Matt asked if anyone has comments and requested them emailed.
- Eric asked District 6 to look at the 2 roundabouts that are set to be built at the I-75 interchange ramps and to consider a roundabout at Howell Bridge and Canton Highway. He noted that crashes are happening on the Northbound exit ramp because traffic is backed up from the 4 way stop at Howell Bridge and Canton Highway. The bottle neck is at 4-way stop.
- Grant responded that district office can look further into this.
- Tommy said VHB would refine a summary of the responses and present to the County. He said VHB will draft a letter to send to all who responded and those who were previously sent mailings. He noted that we should probably not be responding to specific comments. He reiterated that we can't decide on preferred alternative until funding is identified and further steps in the environmental process are taken.
- John Hightower asked about the schedule. He noted that currently in P6 the concept team meeting is set for 11/2/2020 and the concept report is scheduled to be submitted on 12/4/2020. He asked if those deadlines could be met.
- Matt responded that meeting those dates would be highly unlikely since funding needs to be identified to select a preferred alternative. He went on to say that VHB was not scoped to do further environmental studies. He noted that the purpose was for County to find support and funding for the project.
- John asked when the deadlines should be pushed to.
- Tommy responded that VHB's scope ends very shortly after giving County information on the public outreach.

## Action Items

- Cherokee County will setup meeting with GDOT District 6 to discuss project prioritization.
- VHB will refine a summary of responses to public comments, discuss with Cherokee County and verify content of the response letters and how they will be provided to stakeholders.



## Cherokee County Government

### Engineering Department

Capital Program Management

1130 Bluffs Parkway

Canton, GA 30114

678-493-6077 FAX 678-493-6088

[www.cherokeega.com](http://www.cherokeega.com)

[Click here to enter a date](#)

«AddressBlock»

Re: Responses to Stakeholder Meeting Comments for PI#(s): 0002525, Cherokee County, Ball Ground Truck Bypass Study

«GreetingLine»

Thank you for your comments concerning the proposed project referenced above. We appreciate your participation and all of the input that was received as a result of the *June 5, 2020 Stakeholder Meeting*. Every comment received will be made part of the project's official record.

Of the **226** people who attended the stakeholder meeting and formally commented, **164** were in **support** of the project, **25** were **opposed**, **1** was **uncommitted**, and **34** expressed **conditional support** (2 commenters did not provide a response to their preference).

The attendees of the stakeholder meeting and those persons sending in comments within the comment period raised the following questions. Cherokee County has prepared this one response letter that addresses all comments received so that everyone can be aware of the questions raised and the responses given. Please find the comments summarized below (in *italics*) followed by our response.

- *Comments voicing support for the bypass.*

Cherokee County appreciates these comments – they have been added to the project record and will be kept on file.

- *Concerns about impacts to communities, multigenerational family properties/family communities, and neighborhoods.*

During the National Environmental Policy Act (NEPA) process, a Community Impact Assessment is conducted that considers the potential impact of a proposed transportation project, with a focus on quality of life in the community. This assessment looks at a number of possible impacts a proposed project may have on the surrounding community. Consideration is given to the local area and characteristics of the individual project and community. In the cases of potential disproportionate or adverse impacts, additional public involvement is required.

- *Concerns about impacts to farms.*

During project development, it is required to identify environmental resources, evaluate potential impacts, and assess opportunities for resource avoidance, minimization, or mitigation. Where farmland will be impacted, the NEPA document will contain a map

showing the location of all farmlands in the project impact area, discuss the impacts of the various alternatives and identify measures to avoid or reduce the impacts.

In the event, that ROW is required, the Georgia DOT makes every attempt to minimize property acquisition and relocations during the project design phase. Unfortunately, property acquisitions and displacements are unavoidable for some projects. As the design progresses, the Department will make every effort to minimize the amount of right-of-way impacts to the greatest extent possible.

The Georgia DOT's Right of Way team will meet individually with each property owner to discuss the project and the impacts to the specific property. At that time, the property owner will be shown detailed design drawings and have the opportunity to discuss their specific property and access needs. More information regarding the acquisition process can be found in the pamphlet titled *What Happens When Your Property is Needed for a Transportation Facility* which can be found on the Georgia DOT website at <http://www.dot.ga.gov/PS/Public/ROW>.

- *Concerns about impacts to historic properties.*

The National Historic Preservation Act (NHPA) of 1966 requires federal agencies to take into account the effects of their undertakings on historic and archaeological properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings. The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation between agency officials and other parties interested in the effects of the undertaking on historic and archaeological properties. The goal of consultation is to identify historic properties that have the potential to be affected by an undertaking, assess the effects of the undertaking on identified historic and archaeological properties and identify ways to avoid, minimize harm or mitigate any adverse effects on historic and archaeological properties. It is important that the agency initiate the Section 106 process early in the planning process in order to ensure that a broad range of alternatives may be considered during the planning process for the undertaking.

In the event that potentially eligible historic properties are discovered or unanticipated effects on historic properties are found after the agency official has completed the Section 106 process, the agency official will make reasonable efforts to *avoid, minimize or mitigate adverse effects* to such properties.

- *Comments expressing the desire for a better understanding what is considered historic and what is not.*

Generally, in order to qualify as a potentially eligible historic, the resource must be a minimum of 50 years of age (though exceptions are made if the resource is of great significance, e.g., associated with the Civil Rights Movement). It must then be evaluated under the four National Register of Historic Places Criteria, A through D, listed below;

A. Association with an event that made a significant contribution to the broad patterns of our history

- B. Association with a person significant in our past
- C. Significant for its design or construction
- D. Significant due to the information it may yield on prehistory or history

A resource may be eligible under one of three levels of significance: national, state, or local recognition of importance.

- *Comments expressing the desire for a better understanding of what Section 4(f) is.*

Section 4(f) is a provision of the United States (US) DOT Act of 1966 which requires that before land from a significant publicly owned park, recreation area, national wildlife refuge or any eligible historic site can be converted to a transportation use it must be demonstrated that there is no feasible and prudent alternative to this use and that the project includes all possible planning to minimize harm.

- *Concerns about economic impacts to businesses in Downtown Ball Ground and if business will shift with the bypass.*

During the NEPA process, an Economic Impact Assessment is conducted that considers the potential impact of a proposed transportation project on businesses within the surrounding community. In general, transportation projects are not anticipated to have an adverse effect on businesses and/or employment centers within a project area. Transportation projects are generally intended to improve access to businesses in these areas and reduce travel times and distances for area citizens. Typical projects generally do not change access to businesses and do not cause significant increases in travel distances to businesses.

In the event, that ROW is required, the Georgia DOT makes every attempt to minimize property acquisition and relocations during the project design phase. Unfortunately, property acquisitions and displacements are unavoidable for some projects. As the design progresses, the Department will make every effort to minimize the amount of right-of-way impacts to the greatest extent possible.

The Georgia DOT's Right of Way team will meet individually with each property owner to discuss the project and the impacts to the specific property. At that time, the property owner will be shown detailed design drawings and have the opportunity to discuss their specific property and access needs. More information regarding the acquisition process can be found in the pamphlet titled What Happens When Your Property is Needed for a Transportation Facility which can be found on the Georgia DOT website at <http://www.dot.ga.gov/PS/Public/ROW>.

- *Concerns that travelers will have a longer route on the bypass.*

Traffic counts are collected to determine the level of traffic congestion and to develop projections of traffic congestion along the project corridor if no improvements are made. This preliminary analysis may determine that travelers will experience increasing levels of high congestion and longer delays if no improvements are made. The design of the project will be developed with the improvement of travel time and level of service, which is a



measure of traffic congestion. While the length of the bypass may be longer than an alternative route, the travel time along the roadway may be shorter due to a decrease in traffic congestion. The utilization of an offsite detour will shorten the construction time and lower overall construction costs as opposed to the use of an on-site detour.

- *Concerns about the financial impacts of relocation due to high current cost of housing.*

In the event, that ROW is required, the Georgia DOT makes every attempt to minimize property acquisition and relocations during the project design phase. Unfortunately, property acquisitions and displacements are unavoidable for some projects. As the design progresses, the Department will make every effort to minimize the amount of right-of-way impacts to the greatest extent possible.

The Georgia DOT's Right of Way team will meet individually with each property owner to discuss the project and the impacts to the specific property. At that time, the property owner will be shown detailed design drawings and have the opportunity to discuss their specific property and access needs. More information regarding the acquisition process can be found in the pamphlet titled What Happens When Your Property is Needed for a Transportation Facility which can be found on the Georgia DOT website at <http://www.dot.ga.gov/PS/Public/ROW>.

- *Concern about noise impacts.*

Projects using federal funds must adhere to the NEPA. Environmental surveys and reports must be completed and summarized in a NEPA document which is subject to approval by the Federal Highway Administration (FHWA). These surveys include 1) Social Environment, 2) Cultural Resources such as historic and archaeological resources, 3) Natural Resources such as waters, invasive species, threatened and endangered species, etc. and 4) Physical Environment, such as air and noise. Upon identifying all environmental resources, GDOT attempts to develop a conceptual plan that satisfies the proposed need and purpose, addresses citizen feedback, and minimizes the impact to the environmentally sensitive resources. When impacts cannot be avoided, we evaluate ways to minimize and/or mitigate those impacts in the most responsible manner possible.

- *Concerns about impacts to waters.*

Section 404 of the Clean Water Act (CWA) established programs to regulate the discharge of dredged and/or fill material into Waters of the US. These waters include, but are not limited to wetlands, streams, rivers, ponds and lakes. The program is regulated by the US Army Corps of Engineers (USACE). Activities in Waters of the US that are regulated under this program include fills for development, water resource projects (such as dams or levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry.

No discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. When applying for a permit, it must be demonstrated that steps have been taken to *avoid and minimize* impacts to jurisdictional Waters of the US and any

remaining, unavoidable impacts will be mitigated through activities to restore, enhance or create Waters of the US.

- *Requests for roundabouts at the project termini.*

As part of the Concept development of this project, roundabouts shall be considered as alternatives for all intersections within the project limits, including those where a traffic signal is being proposed. When considering a roundabout, a variety of factors are considered to determine whether or not a roundabout is the most appropriate alternative.

- *Comments expressing confusion about the multiple alternatives/not understanding that a route has not yet been selected.*

When a project is early in the project development process, no final decisions have been made regarding the design. The purpose of this stakeholder meeting is to provide general project information to residents, to gather input on areas of concern along the corridor, and to gauge community support for the projects. As the project progresses, and a preferred alternative is identified, as part of the NEPA process additional public outreach will be made to inform the public and obtain input.

- *Comments voicing support for/against the various alternatives presented.*

Cherokee County appreciates these comments – they have been added to the project record and will be kept on file. As the project moves further along in the project development process, additional meetings may be held with the public in the future to gain further input on potential alternatives.

- *Concerns about impacts to the current and future school properties, including accessibility and truck traffic.*

Early Coordination is the means by which federal, state, and local agencies, and project stakeholders are informed of a proposed project. The Early Coordination process gives federal, state, local and agencies, and project stakeholders the opportunity to become involved early in the project development phase and share information concerning the proposed project and surrounding area that could be potentially impacted. During the NEPA process, Early Coordination will be conducted with these agencies and stakeholders, including schools within the project area. As part of the concept development and NEPA process impacts to schools and other institutions will be assessed. Traffic studies will be conducted to determine the appropriate design needed to accommodate truck traffic.

- *Requests for additional improvements to Downtown Ball Ground.*

The current scope of this project at this stage is gathering information to determine if this potential project has merit to warrant further solicitation of funding based on construction costs, impacts, and need. Cherokee County will not be able to select a preferred alternative until funding is identified for the project and additional public involvement is completed. For information on other Georgia DOT programmed projects in the area, please refer to the Georgia DOT web site at <http://www.dot.ga.gov/BS>. In reference to the

request for additional improvements beyond the scope of this project, please contact the Georgia DOT district office at (770) 387-3680.

- *Requests for sidewalks and better crossings downtown for pedestrian safety.*

It is the policy of the Georgia DOT to always consider pedestrian concerns as part of the transportation planning process, as a means of improving mobility, access, and safety. The design of transportation projects requires balancing the needs of all users and each mode, in a manner appropriate to the type of roadway and conditions within the project and surrounding area. The part of the concept development, proposed Ball Ground Truck Bypass will be developed while keeping that need for balance in mind.

- *Requests for improvements in other areas outside of the project limits.*

The current scope of this project at this stage is gathering information to determine if this potential project has merit to warrant further solicitation of funding based on construction costs, impacts, and need. Cherokee County will not be able to select a preferred alternative until funding is identified for the project and additional public involvement is completed. For information on other Georgia DOT programmed projects in the area, please refer to the Georgia DOT web site at <http://www.dot.ga.gov/BS>. In reference to the request for additional improvements beyond the scope of this project, please contact the Georgia DOT district office at (770) 387-3680.

- *Concerns that the project's truck volumes for the bypass are incorrect.*

Cherokee County appreciates the comment – it has been added to the project record and will be kept on file. As part of the Concept development, it is typical to conduct a Traffic Analysis study, where traffic counts and projections will be further delineated and assessed.

- *Suggestions for alternative routes or solutions.*

One of the components of the Concept development and NEPA environmental evaluation is the development of a range of alternatives. Each alternative's potential to address the project need and purpose is considered, in addition to a variety of other factors, including cost, environmental concerns (natural, human, cultural, and physical environments), community input, accessibility, and other considerations. Various concept alternatives may be developed and evaluated, and may include the following:

- No Build Alternative — This concept would make no improvements. It is always an option and also provides a comparison for other alternatives considered.
- Transportation System Management Concept — This concept seeks to make operational improvements, relying upon lower cost roadway improvements such as intersection improvements, turn lane additions, traffic signal coordination, and/or shoulder upgrades.
- Build Alternatives — These concepts evaluate build alternatives to meet the need and purpose of the project.

The alternatives analysis process starts with a set of broad-brush concepts that are evaluated from a high-level perspective and are reduced to a more focused detailed set

of alternatives. The most effective alternatives and combinations of alternatives are carried forward for further evaluation. The environmental evaluation assesses how the alternatives avoid, minimize, and mitigate impacts to environmental resources. The alternatives analysis process is coordinated with the local, state, and federal agencies involved in the project and is brought to the public for feedback. The Department clearly describes and documents the decision-making process as the project develops.

Again, thank you for your comments. Should you have further questions, comments or concerns, please call the project manager, Jim Wilgus, at [jawilgus@cherokeega.com](mailto:jawilgus@cherokeega.com) or Geoff Morton at [gmorton@cherokeega.com](mailto:gmorton@cherokeega.com).

Sincerely,

Jim Wilgus  
SPLOST Roadway Project Manager  
Cherokee County, Georgia



1355 Peachtree Street NE  
Suite 100  
Atlanta, Georgia 30309  
T 404.214.6745

## Meeting Minutes

Date: February 5, 2021 Time: 1:00 pm

Location: N/A – Conference Call

Subject: Ball Ground Bypass Concept Team Meeting

Project No. PI No. 0002525, Cherokee County VHB: 63312.00

Recorded By: Candice Thomas

### Attendees:

|                     |                        |                             |
|---------------------|------------------------|-----------------------------|
| Jim Wilgus          | Cherokee County        | jawilgus@cherokeega.com     |
| Candice Thomas      | VHB                    | cnthomas@vhb.com            |
| Matt Thompson       | VHB                    | mthompson@vhb.com           |
| Tommy Crochet       | VHB                    | tcrochet@vhb.com            |
| Christina Barry     | GDOT Dist. 6           | cbarry@dot.ga.gov           |
| John Hightower      | GDOT OPD               | jhightower2@dot.ga.gov      |
| Grant Waldrop       | GDOT Dist. 6           | gwaldrop@dot.ga.gov         |
| Joseph Ciavarro     | GDOT Dist. 6           | jciavarro@dot.ga.gov        |
| Christopher Broyles | GDOT Dist. 6           | cbroyles@dot.ga.gov         |
| David Acree         | GDOT Preconstruction   | dacree@dot.ga.gov           |
| Carla Benton-Hooks  | GDOT OES               | cbenton-hooks@dot.ga.gov    |
| Cynthia Burney      | GDOT Dist. 6           | cburney@dot.ga.gov          |
| Chesleigh Charles   | SCG/AGL                | ccharles@southernco.com     |
| Jennifer Deems      | GDOT Dist. 6 Utilities | jdeems@dot.ga.gov           |
| Dwayne Fowler       | CCWSA                  | dwayne@ccwsa.com            |
| Steve Gaston        | GDOT Bridge Office     | sgaston@dot.ga.gov          |
| John Gay            | Southern Co.           | jcgay@southernco.com        |
| Geoff Morton        | Cherokee County        | gmorton@cherokeega.com      |
| Robert Graham       | GDOT Lighting          | rgraham@dot.ga.gov          |
| Dave Peters         | GDOT Design Policy     | dpeters@dot.ga.gov          |
| James Porter        | TDS TELECOM            | james.porter@tdstelecom.com |
| Yasmeen Qadimasil   | GDOT OES               | yqadimasil@dot.ga.gov       |
| Reginald James      | ARC Planner            | rjames@atlantaregional.org  |
| Robert Turner       | Windstream             | techasst@windstream.net     |

# Meeting Minutes

February 5, 2021

PI No. 0002525

|                   |                       |                                |
|-------------------|-----------------------|--------------------------------|
| Kleigh Strawder   | Windstream            | kleigh.strawder@windstream.net |
| Jim Tolson        | Arcadis/GDOT Railroad | jim.tolson@arcadis.com         |
| Donovan Tucker    | GDOT Dist. 6          | dtucker@dot.ga.gov             |
| Lisa Wesley       | GDOT Dist. 6          | lwesley@dot.ga.gov             |
| Teshhome Yitateku | GDOT Railroad         | tyitateku@dot.ga.gov           |

- John Hightower started the meeting with introductions and an overview of the project schedule.
- VHB went through a power point presentation (attached) and conceptual layouts of the Ball Ground Truck Bypass project in Cherokee County.
- Jim Wilgus noted that he has received hundreds of calls about the project. He also noted active development going on in the area. He pointed out that the D alternative goes through a recently constructed apartment complex not shown in the aerial images.
- Matt Thompson noted the feedback received from the railroad regarding cost. He pointed out that if the temporary gates are needed during construction, the cost would be increased by \$300,000. He asked if VHB should get an updated cost from the railroad or increase amount by \$300,000.
- Jim Tolson confirmed that the \$300,000 is for two temporary gates to be installed. He also noted that the design would need to be considerate to not create a hump crossing.
- Matt noted that the concept profile was flat through the railroad crossing but would need to be reevaluated during further design. He pointed out that concept profile design was completed on GIS data and that profile would need to be reviewed further with surveyed data.
- Yitateku Teshhome noted that closures take 3 to 7 days and that would need to be taken into consideration during staging. He also pointed out that if the road is designed using concrete pavement it would need to be asphalt for at least 15' on either side of the rail crossing. He also noted that the commercial development with a driveway just east of the railroad crossing would need to be considered during staging. Since the development's only access to Howell Bridge is the driveway east of the railroad, any long-term closures of the crossing would landlock the business.
- Matt noted that a pavement design has not yet been submitted or approved but the cost estimate assumes asphalt paving.
- Tommy noted that a temporary pavement section South of the rail crossing with temporary crossings may be desirable since the roadway profile would need to be adjusted to the West to accommodate the proposed roundabouts.
- Steve Gaston asked about the proximity of the roundabouts to the railroad crossing and asked if they would function correctly when train passing by.
- Matt noted that was something that would need to be investigated and coordinated with railroad to ensure we have gates in proper locations in relation to circular traffic.

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- Jim Tolson asked about the potential need for pedestrian gates on this project.
- Matt noted that a pedestrian gate may be needed since paved shoulder on the bypass would accommodate bikes and a shared use path was being provided through the roundabouts up to a location just east of the railroad where the rural shoulder starts.
- Jim Tolson noted that part of road crossing can be used for pedestrian facilities at times but if those facilities are too far away from the roadway then you would need a separate gate. He specified that a gate typically covers 36.'
- Steve Gaston asked why bike facilities are being provisioned on a truck bypass.
- Matt noted that there is access to downtown and residential areas along the bypass.
- Tommy pointed out the popularity of biking in the NE Georgia Mountains. He noted that VHB would take directions from department regarding the inclusion of bikeable shoulders.
- Dave Peters asked if bike warrants are met and what overall shoulder width would be recommended if bikeable lanes were not provided.
- Tommy clarified that the warrants do not address bike traffic through mountains and that the pedestrian warrant would be met near the roundabouts. He also noted that an 8' overall shoulder width with 4' paved would be recommended if bikeable shoulders were not provided.
- Steve Gaston asked if extending the roadway construction on Northridge to reduce bridge height was considered. He also asked if a variance was considered for the grade on Northridge.
- Tommy noted that both issues should be reevaluated during design but may impact properties along Northridge. He also pointed out the need for geotechnical review in the area due to the possibility of rock.
- Matt asked if SR designation for the bypass should be included in the project description.
- Grant Waldrop noted there were discussions regarding removing the state route designation through downtown Ball Ground. He stated that it would be best to call the bypass roadway Ball Ground Truck Bypass until decision on designation is made.
- Dave Peters noted that some of the design requirements maybe different for state route vs local road.
- Cynthia Burney noted that the name change would be updated on Geo PI when concept report is approved.
- Matt clarified that the name in the concept report should be what is desirable not what is in Geo PI.
- Cynthia confirmed and noted that she would coordinate with VHB on appropriate name in concept report.
- Dave noted that it is easier to reduce impacts and design requirements if not a state route than to expand the impacts later. He recommended that proposed design elements in the concept report for the Bypass assume state route designation.

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- Carla Benton Hooks noted that RP35 requires the project to go through the PAR process and asked if there an environmental consultant assigned to the project.
  - VHB reviewed the estimated impacts after the meeting. Impacts were well within the guidelines for Regional Permit 34. Concept report will be revised to clarify RP34 and no PAR necessary.
- Carla asked who was leading environmental.
- Tommy noted that Erin Murphy is the environmental lead for VHB.
- Carla asked if she is scoped to update TPRO.
- Tommy noted that VHB's contract with Cherokee County is ending soon and until funding is programmed there would not be any work done on the project.
- Christina Barry noted that the PI 0009903 1-575 @ SR 5 BU will be cancelled.
- Tommy noted that VHB will either note the cancelation or remove the project from concept report.
- Jim noted that a no build for PI 0009903 was submitted on November 9<sup>th</sup> 2020.
- Robert Turner and Reginald James requested to be copied on minutes when they go out.





**PI 0002525**  
**Concept Team**  
**Meeting**  
**02-05-2021**

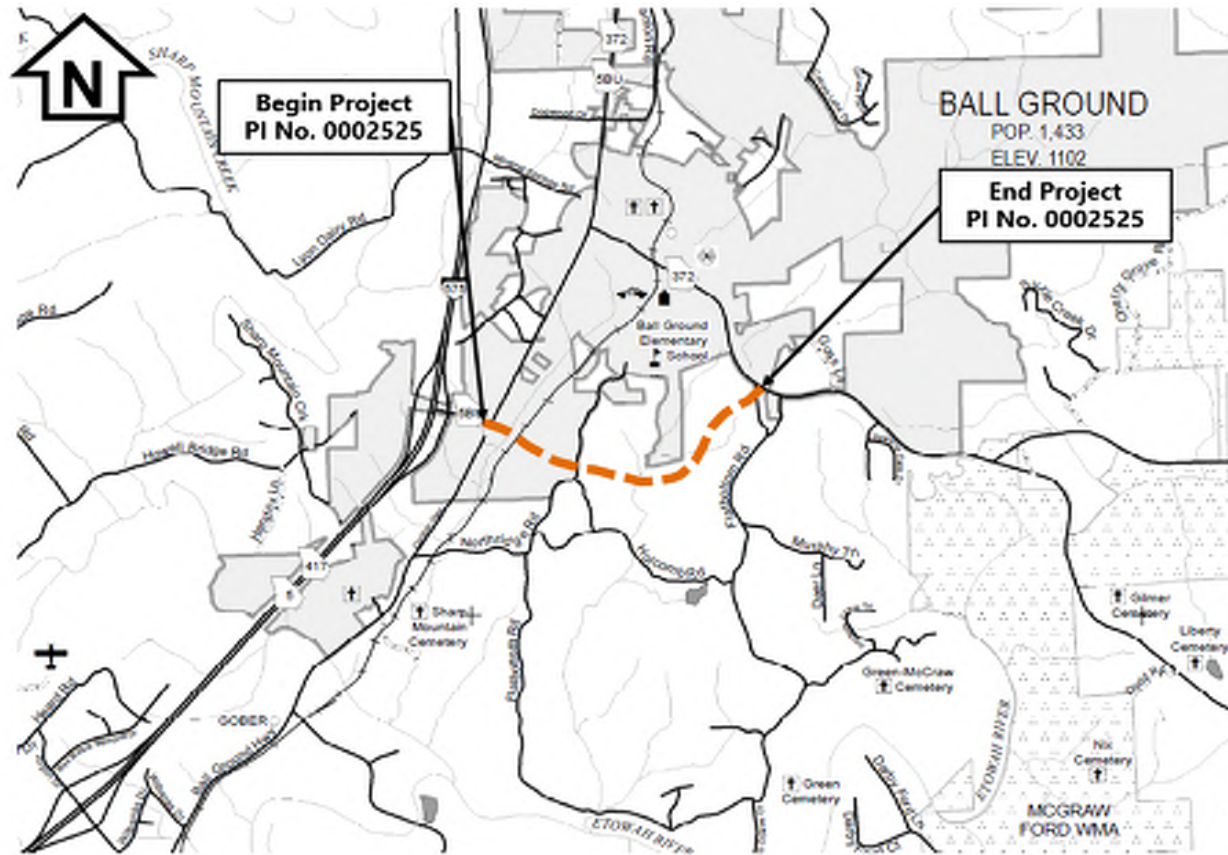
**SR 372 SPUR FM SR 5BU@  
HOWELL BR RD TO SR 372  
SO/BALL GROUND**

**Ball Ground Truck Bypass  
Cherokee County, GA**



## Project Location

This project will begin at the intersection of SR 5 BU at Howell Bridge Road and continue 1.47 miles east to SR 372 near its intersection with Flatbottom Road.



## Project Justification Statement

This Project Justification Statement was prepared by VHB and Cherokee County. The project was originated by Cherokee County due to increased truck traffic in the City of Ball Ground. Major issues to be addressed by the project include reduction in crashes, correcting improper geometry, improving level of service, improving pedestrian safety and reducing traffic on a corridor with pavement in poor condition. The total crashes for SR 372 in Ball Ground are 30% higher than statewide average. There are less than desirable geometrics on SR 372 through downtown Ball Ground including 9% to 10% grades and narrow lane widths. The level of service (LOS) would be F on SR 372 through downtown in the design year 2050. Due to the urban and historic nature of downtown Ball Ground, a Truck Bypass would be desirable to improve pedestrian safety. In addition, the existing pavement in downtown Ball Ground is in poor condition and was not designed to handle the amount of trucks currently using the corridor.

The proposed project limits are Howell Bridge Road to SR 372 East of downtown Ball Ground. The intersection of Howell Bridge Road at SR 5 BU/Canton Highway/Ball Ground Highway currently operates as an all-way stop. The existing LOS is C/D (AM/PM). There is no existing intersection on the Eastern connection with SR 372. The project also has the potential to be the SR 372 Truck Bypass. Performance goals include a reduction in crashes in Ball Ground, improvement in LOS through downtown Ball Ground and reduced truck traffic in downtown area where pedestrians are present.

## Existing Conditions

- SR 372/Gilmer Ferry Road is a two-lane minor arterial roadway in Cherokee County, Georgia. The roadway is urban (10' lanes) with curb and gutter, sidewalk and roadside parking through the City of Ball Ground. The remainder of the corridor is rural (12' lanes) with grassed shoulders.
- Existing major intersections include Howell Bridge Road at SR5 BU/Canton Highway/ Ball Ground Highway.
- Western project terminus is just east of I-575 Interchange at Howell Bridge Road



**SR 372 West of Mound Street**



**SR 372 East of Ball Ground**



**Howell Bridge Road at Ball Ground Highway**

## Existing Conditions (cont.)

- Existing Georgia Northeastern Railroad at-grade crossing of Howell Bridge Road
- Existing electrical distribution, gas distribution, water, sewer, buried and aerial fiber/copper communications
- Existing Northridge Road is about 80 feet above proposed Truck Bypass Alignment Profile
- No existing structures
- Environmental resources include historic properties, wetlands and streams



**Howell Bridge Road Looking West Towards I-575  
Across Georgia Northeastern Railroad**



**Northridge Road**

## Other Projects in the Area

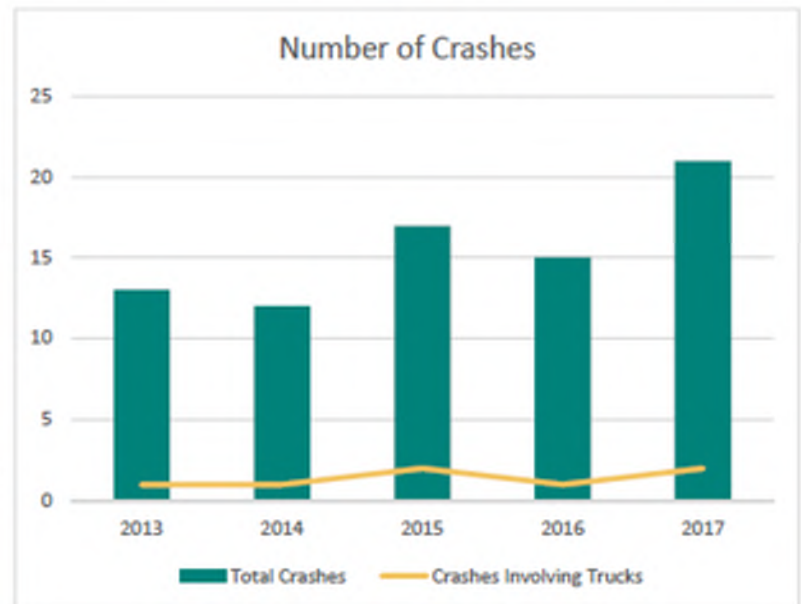
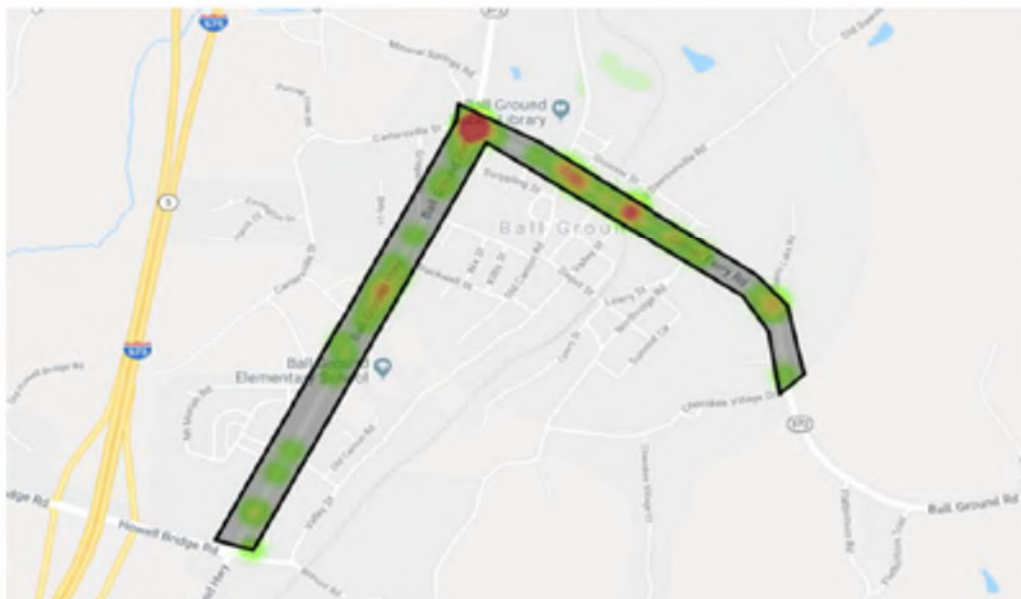
- P.I. No. 0010649, CS 791/Valley Street from Depot Street to Howell Bridge Road (streetscape enhancement project for the City of Ball Ground; Completed December 2019)
- P.I. No. 0005970, SR 372/Ball Ground Rd from Canton Highway to Cumming Highway (reconstruction/rehabilitation project; Long Range Program PE, ROW, CST in 2051)
- P.I. No. 0009903, I-575 @ SR 5BU – SB & NB Ramps (roundabout at ramp intersections with Howell Bridge Road; PE in 2018)

## Major Stakeholders

- Cherokee County
- City of Ball Ground
- Cherokee Village Neighborhood, Hawkins Farm Neighborhood
- Georgia Northeastern Railroad (Patriot Rail & Ports)
- Amicalola Electric Membership Corporation, Georgia Power,
- Ball Ground Historical Society

# Crash Data

| Crash Type                         | 2013      |             | 2014      |             | 2015      |             | 2016      |             | 2017      |             | 2013-2017 Crashes |             |
|------------------------------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-------------------|-------------|
| Angle                              | 2         | 15%         | 2         | 17%         | 4         | 24%         | 3         | 20%         | 4         | 19%         | 15                | 19%         |
| Head On                            | 0         | 0%          | 1         | 8%          | 1         | 6%          | 1         | 7%          | 1         | 5%          | 4                 | 5%          |
| Not A Collision with Motor Vehicle | 3         | 23%         | 2         | 17%         | 3         | 18%         | 1         | 7%          | 4         | 19%         | 13                | 17%         |
| Rear End                           | 5         | 38%         | 5         | 42%         | 3         | 18%         | 7         | 47%         | 8         | 38%         | 28                | 36%         |
| Sideswipe-Opposite Direction       | 2         | 15%         | 0         | 0%          | 1         | 6%          | 1         | 7%          | 0         | 0%          | 4                 | 5%          |
| Sideswipe-Same Direction           | 1         | 8%          | 2         | 17%         | 1         | 6%          | 2         | 13%         | 3         | 14%         | 9                 | 12%         |
| Other/Unknown                      | 0         | 0%          | 0         | 0%          | 4         | 24%         | 0         | 0%          | 1         | 5%          | 5                 | 6%          |
| <b>Total Crashes</b>               | <b>13</b> | <b>100%</b> | <b>12</b> | <b>100%</b> | <b>17</b> | <b>100%</b> | <b>15</b> | <b>100%</b> | <b>21</b> | <b>100%</b> | <b>78</b>         | <b>100%</b> |
| Injury Crashes                     | 2         |             | 4         |             | 5         |             | 2         |             | 2         |             | 15                |             |
| Injuries                           | 2         |             | 5         |             | 6         |             | 2         |             | 2         |             | 17                |             |
| Fatal Crashes                      | 0         |             | 0         |             | 0         |             | 0         |             | 0         |             | 0                 |             |
| Fatalities                         | 0         |             | 0         |             | 0         |             | 0         |             | 0         |             | 0                 |             |





## Crash Data

- SR 372 Comparison to Statewide Averages

| Rate Description   |                   | Year       |            |            |            |            |
|--------------------|-------------------|------------|------------|------------|------------|------------|
|                    |                   | 2013       | 2014       | 2015       | 2016       | 2017       |
| Fatal Crashes      | Segment           | 0.00       | 0.00       | 0.00       | 0.00       | 0.00       |
|                    | Statewide Average | 2.13       | 1.96       | 2.13       | 2.42       | 2.13       |
| Fatalities         | Segment           | 0.00       | 0.00       | 0.00       | 0.00       | 0.00       |
|                    | Statewide Average | 2.37       | 2.23       | 2.42       | 2.74       | 2.37       |
| Non-Fatal Injury   | Segment           | 21         | <b>50</b>  | <b>71</b>  | 46         | 22         |
|                    | Statewide Average | 42         | 50         | 48         | 49         | 42         |
| Non-Fatal Injuries | Segment           | 21         | <b>75</b>  | 71         | 46         | 22         |
|                    | Statewide Average | 82         | 74         | 74         | 74         | 82         |
| All Crashes        | Segment           | <b>185</b> | <b>175</b> | <b>237</b> | <b>183</b> | <b>243</b> |
|                    | Statewide Average | 160        | 164        | 152        | 145        | 160        |

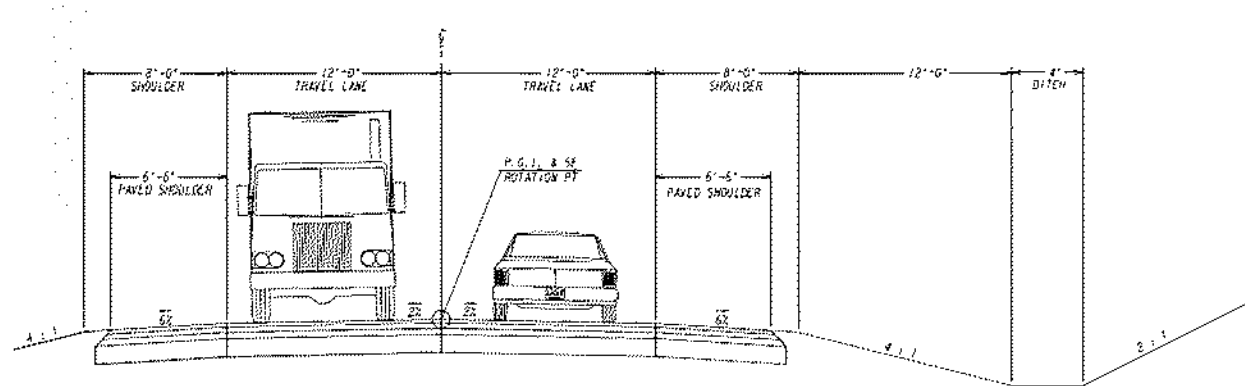
## Traffic Volumes

- Conditionally approved 8/15/2019, will need to be updated once PE proceeds
- SR 372 (East of Ball Ground Bypass)
  - 24 HR T: 13%
  - Current Year (2018): 8,600
  - Open Year (2030): 11,250
  - Design Year (2050): 16,700
- Ball Ground Truck Bypass
  - 24 HR T: 31.5%
  - Current Year (2018): n/a
  - Open Year (2030): 3,750
  - Design Year (2050): 5,450

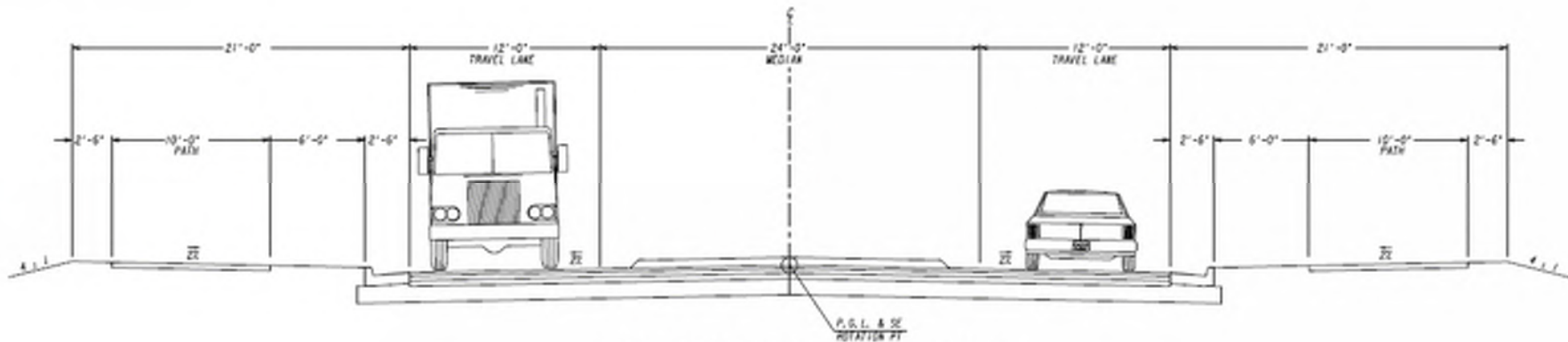
## Intersection Control

- ICE Completed, Approved by Traffic Ops
- SR 5 BU at Ball Ground Truck Bypass
  - Multilane Roundabout Recommended over Existing All-Way Stop
- Ball Ground Truck Bypass at Valley Street
  - Single Lane Roundabout Recommended over Existing Minor Stop and All-Way Stop
- SR 372 at Ball Ground Truck Bypass
  - Minor Stop Recommended over Single Lane Roundabout and All-Way Stop

# Proposed Typical Sections

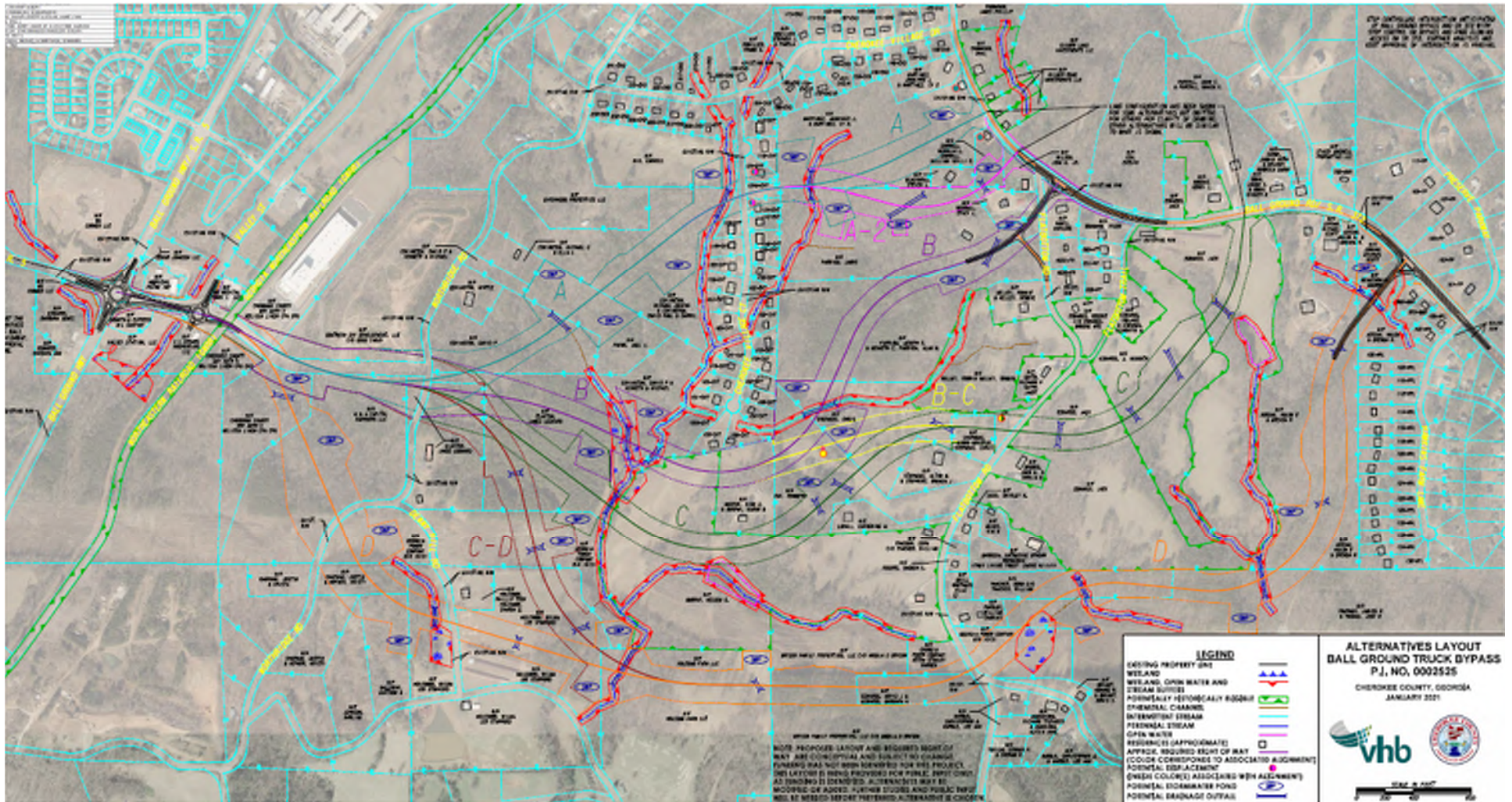


**RURAL TYPICAL SECTION**



**URBAN TYPICAL SECTION**

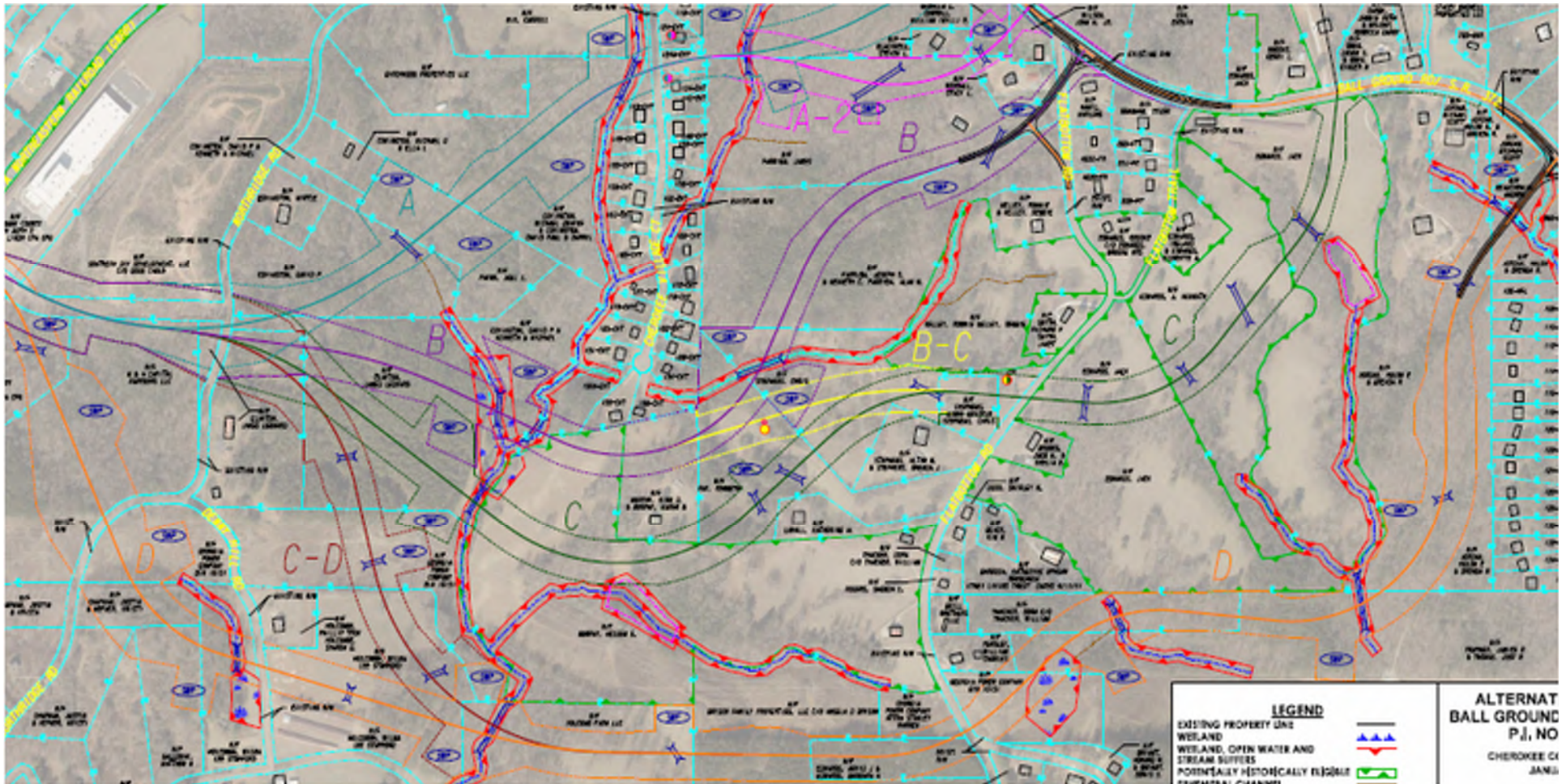
# Alternatives Considered



# Alternatives Considered

| BALL GROUND TRUCK BYPASS ALTERNATIVES ANALYSIS MATRIX (Estimated Impacts & Costs)                           |                     |                     |                     |                     |                     |                     |                     |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| RFQ 2018-048, Cherokee County P.I. No. 0002525  |                     |                     |                     |                     |                     |                     |                     |
| December 2020   |                     |                     |                     |                     |                     |                     |                     |
| Alternative No.   | A                   | A-2                 | B                   | B-C                 | C                   | C-D                 | D                   |
| <b>Displacements</b>  |                     |                     |                     |                     |                     |                     |                     |
| Residential   | 4                   | 2                   | 0                   | 2                   | 1                   | 0                   | 0                   |
| Commercial  | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| Church  | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| Other   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| <b>Proximity of proposed roadway to residences</b>  |                     |                     |                     |                     |                     |                     |                     |
| less than 25'   | 3                   | 1                   | 0                   | 1                   | 0                   | 0                   | 0                   |
| less than 50'   | 6                   | 3                   | 0                   | 2                   | 1                   | 0                   | 0                   |
| less than 100'  | 10                  | 7                   | 3                   | 5                   | 4                   | 3                   | 3                   |
| less than 200'  | 12                  | 11                  | 9                   | 11                  | 10                  | 5                   | 6                   |
| less than 300'  | 17                  | 16                  | 11                  | 13                  | 13                  | 13                  | 14                  |
| less than 400'  | 20                  | 20                  | 19                  | 17                  | 15                  | 29                  | 29                  |
| less than 500'  | 22                  | 24                  | 22                  | 23                  | 17                  | 33                  | 34                  |
| <b>Neighborhood Impacts</b>   |                     |                     |                     |                     |                     |                     |                     |
| Neighborhoods impacted  | 1                   | 1                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| <b>Required Right of Way</b>  |                     |                     |                     |                     |                     |                     |                     |
| Required ROW Area (acres)   | 40                  | 40                  | 43                  | 44                  | 47                  | 72                  | 76                  |
| <b>Wetlands and Waters Impacts</b>  |                     |                     |                     |                     |                     |                     |                     |
| Wetland Impact Area (acres)   | 0.00                | 0.00                | 1.36                | 1.36                | 0.08                | 0.82                | 0.96                |
| Open Water (Pond) Impact Area (acres)   | 0.00                | 0.00                | 0.00                | 0.00                | 0.14                | 0.00                | 0.00                |
| Stream Impact Length (feet)   | 632                 | 650                 | 1026                | 704                 | 413                 | 1874                | 2057                |
| Stream buffers (acres)  | 0.77                | 0.80                | 1.41                | 0.71                | 0.31                | 2.13                | 2.40                |
| <b>Historical properties impacts</b>  |                     |                     |                     |                     |                     |                     |                     |
| Historical properties impacted (each)   | 4                   | 2                   | 2                   | 6                   | 6                   | 3                   | 3                   |
| Severity of impacts   | Adverse/Moderate    | Not Adverse         | Adverse/Low         | Adverse/Severe      | Adverse/Severe      | Adverse/Low         | Not Adverse         |
| Section 4f  | Yes                 | No                  | Yes                 | Yes                 | Yes                 | No                  | No                  |
| <b>Roadway Lengths (miles)</b>  |                     |                     |                     |                     |                     |                     |                     |
| Bypass Length (SR 5 BU to SR 372)   | 1.28                | 1.32                | 1.47                | 1.73                | 1.81                | 2.30                | 2.30                |
| Comparative Travel Length Along Bypass and SR 372 (SR 5 BU to SR 372 at Hawkins Farm Lane/Preserve Parkway) | 2.02                | 2.00                | 2.08                | 2.08                | 2.16                | 2.41                | 2.41                |
| <b>Cost</b>   |                     |                     |                     |                     |                     |                     |                     |
| Construction  | \$18,690,000        | \$17,720,000        | \$16,980,000        | \$21,930,000        | \$22,040,000        | \$21,950,000        | \$26,120,000        |
| Right of Way  | \$4,941,000         | \$4,610,000         | \$4,235,000         | \$4,655,000         | \$4,500,000         | \$5,122,000         | \$5,575,000         |
| Utilities   | \$2,300,000         | \$2,300,000         | \$2,000,000         | \$2,600,000         | \$2,600,000         | \$2,500,000         | \$2,500,000         |
| Mitigation  | \$561,000           | \$578,000           | \$1,369,000         | \$1,178,000         | \$377,000           | \$1,910,000         | \$2,153,000         |
| <b>TOTAL COST</b>   | <b>\$26,492,000</b> | <b>\$25,208,000</b> | <b>\$24,684,000</b> | <b>\$30,363,000</b> | <b>\$29,517,000</b> | <b>\$31,482,000</b> | <b>\$36,348,000</b> |

# Alternatives Considered



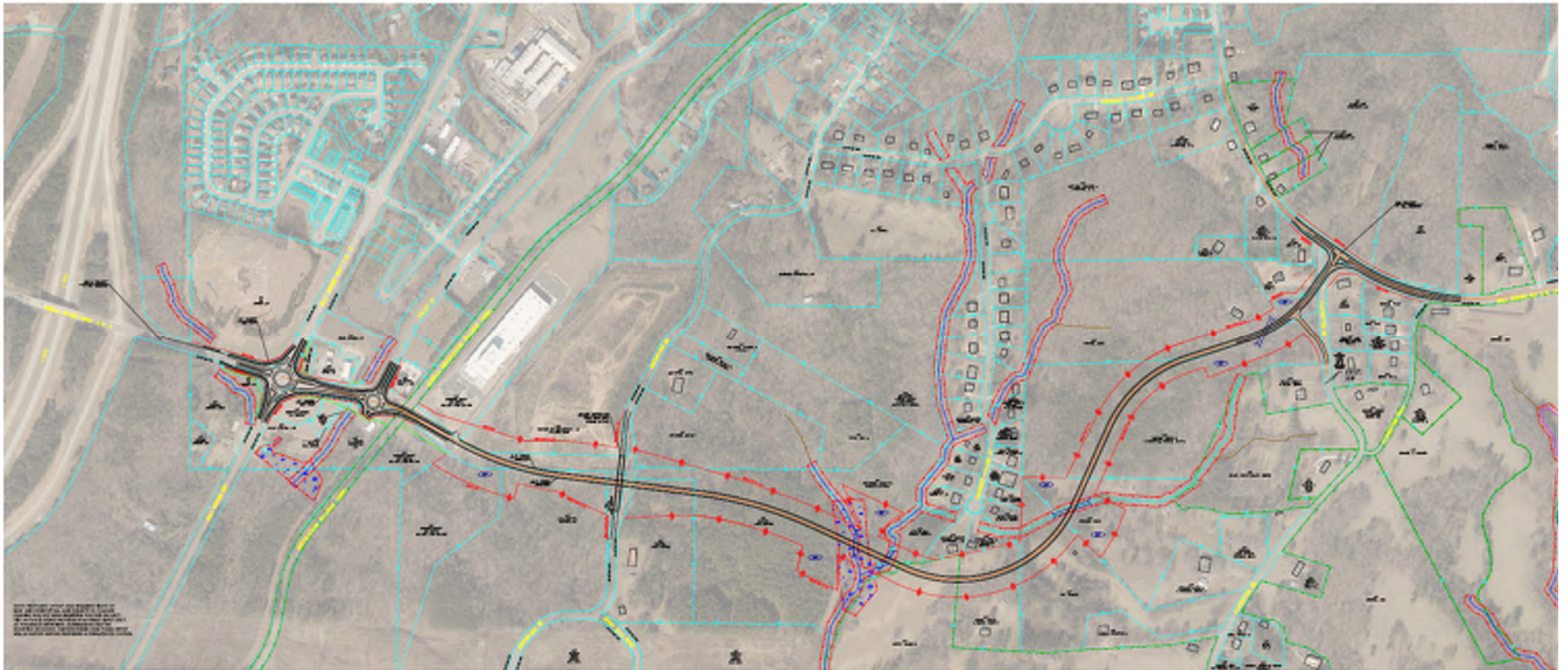
| Alternative No.   | A                   | A-2                 | B                   | B-C                 | C                   | C-D                 | D                   |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Displacements</b>  |                     |                     |                     |                     |                     |                     |                     |
| Residential   | 4                   | 2                   | 0                   | 2                   | 1                   | 0                   | 0                   |
| Commercial  | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| Church  | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| Other   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   | 0                   |
| <b>Proximity of proposed roadway to residences</b>  |                     |                     |                     |                     |                     |                     |                     |
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| less than 50'   | 6                   | 3                   | 0                   | 2                   | 1                   | 0                   | 0                   |
| less than 100'  | 10                  | 7                   | 3                   | 5                   | 4                   | 3                   | 3                   |
| less than 200'  | 12                  | 11                  | 9                   | 11                  | 10                  | 5                   | 6                   |
| less than 300'  | 17                  | 16                  | 11                  | 13                  | 13                  | 13                  | 14                  |
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| Stream Impact Length (feet)   | 632                 | 650                 | 1026                | 704                 | 413                 | 1874                | 2067                |
| Stream buffers (acres)  | 0.77                | 0.80                | 1.41                | 0.71                | 0.31                | 2.13                | 2.40                |
| <b>Historical properties impacts</b>  |                     |                     |                     |                     |                     |                     |                     |
| Historical properties impacted (each)   | 4                   | 2                   | 2                   | 6                   | 6                   | 3                   | 3                   |
| Severity of impacts   | Adverse/Moderate    | Not Adverse         | Adverse/Low         | Adverse/Severe      | Adverse/Severe      | Adverse/Low         | Not Adverse         |
| Section 4f  | Yes                 | No                  | Yes                 | Yes                 | Yes                 | No                  | No                  |
| <b>Roadway Lengths (miles)</b>  |                     |                     |                     |                     |                     |                     |                     |
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| <b>Cost</b>   |                     |                     |                     |                     |                     |                     |                     |
| Construction  | \$18,690,000        | \$17,720,000        | \$16,980,000        | \$21,930,000        | \$22,040,000        | \$21,950,000        | \$26,120,000        |
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| Utilities   | \$2,300,000         | \$2,300,000         | \$2,000,000         | \$2,600,000         | \$2,600,000         | \$2,500,000         | \$2,500,000         |
| Mitigation  | \$561,000           | \$578,000           | \$1,389,000         | \$1,178,000         | \$377,000           | \$1,910,000         | \$2,153,000         |
| <b>TOTAL COST</b>   | <b>\$26,492,000</b> | <b>\$25,208,000</b> | <b>\$24,604,000</b> | <b>\$30,363,000</b> | <b>\$29,517,000</b> | <b>\$31,482,000</b> | <b>\$36,348,000</b> |



## Proposed Project

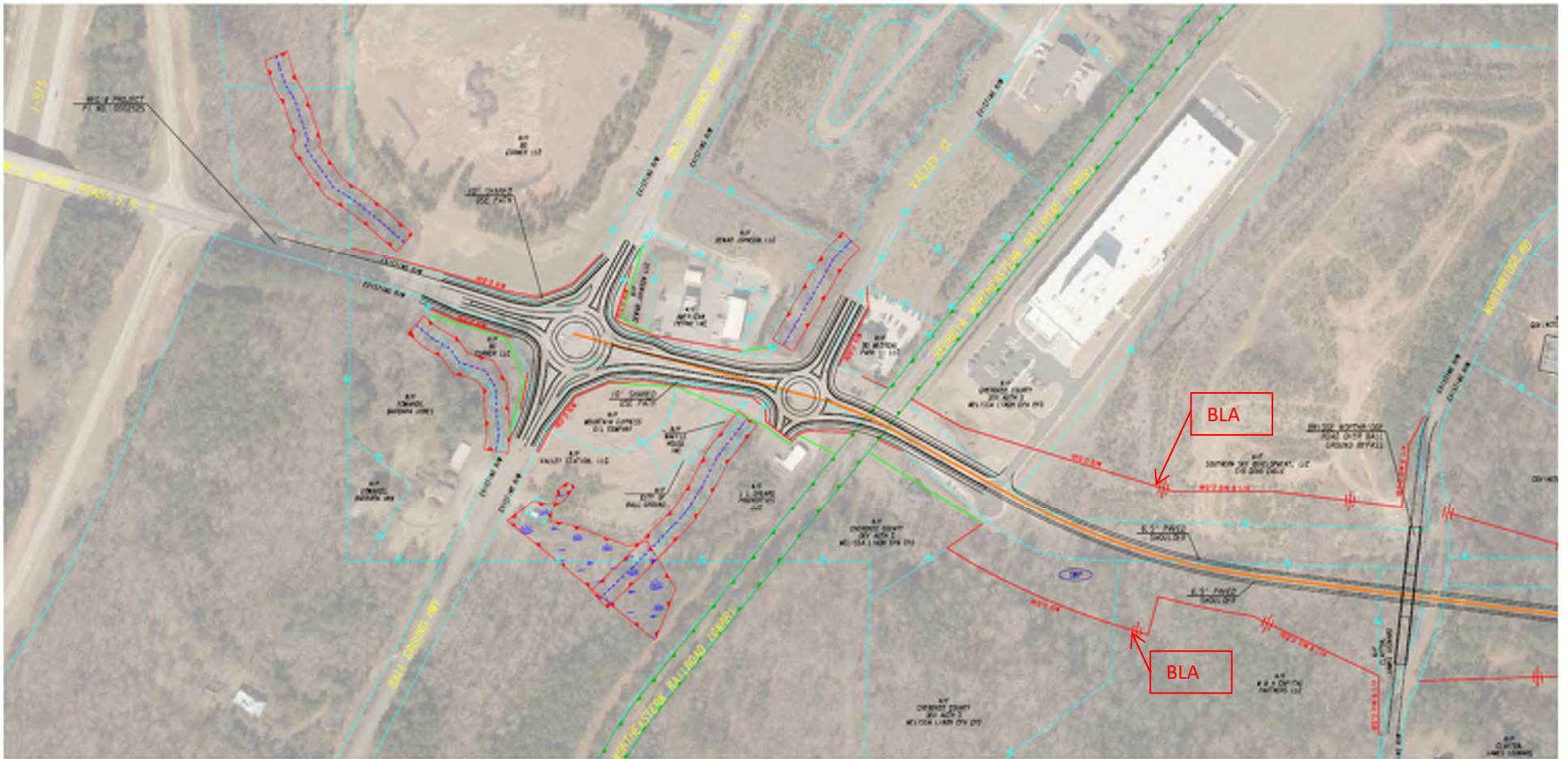
- Preferred Alternative - Alternative B
  - The preferred alternative will reduce truck traffic in downtown Ball Ground, improve level of service, reduce crashes, and improve pedestrian safety. The preferred alternative accomplishes the goals of the project with the lowest total cost, minimal impacts to historic properties, and zero displacements.
- Project Length: 1.5 Miles
- Functional Classification: Rural Minor Arterial
- Design Speed: 45 mph
- Lighting for Roundabouts
- Stormwater
  - Not in MS4 Area
  - Water quality mitigation is anticipated in Etowah River Basin

# Preferred Alternative



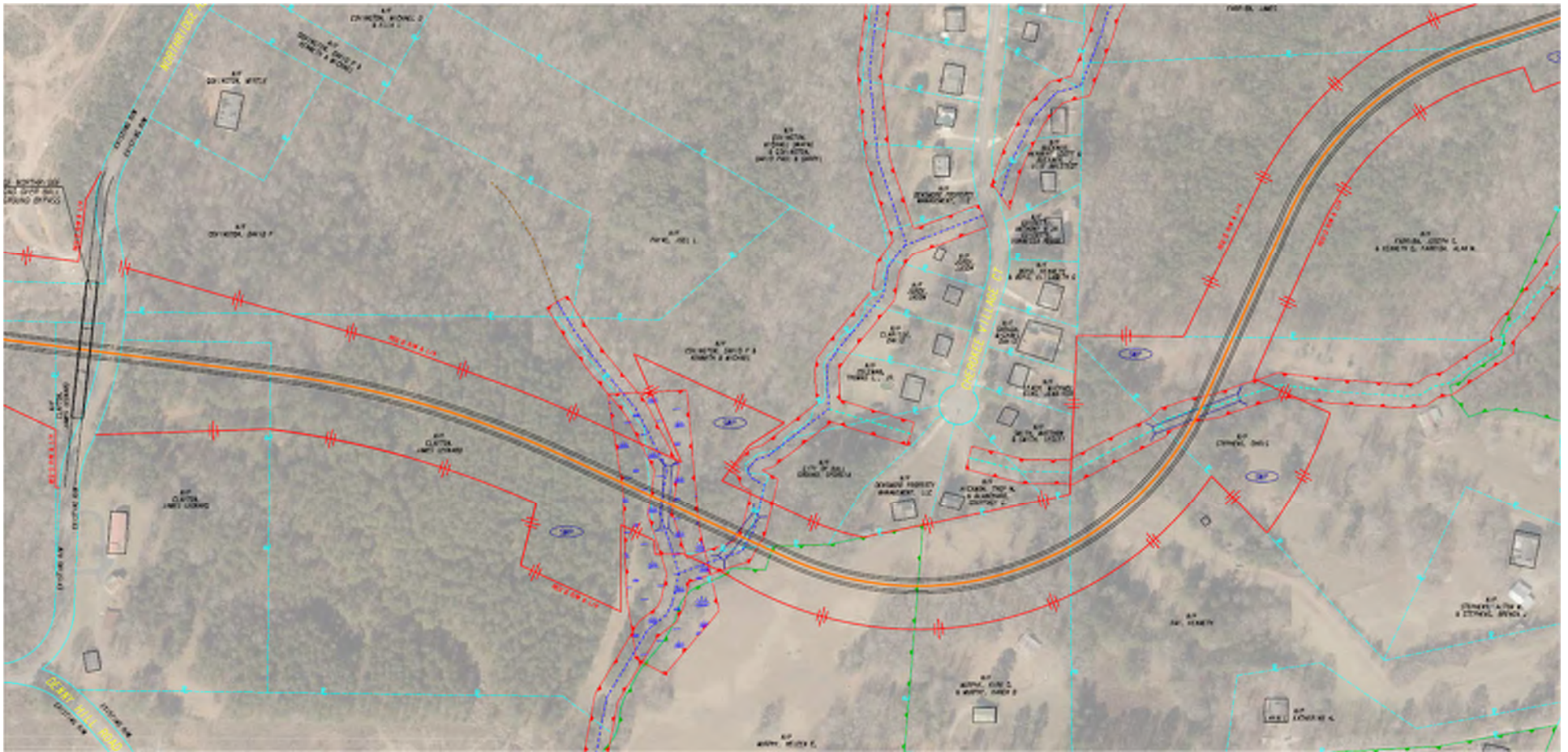
# Preferred Alternative

## Layout 1 of 3



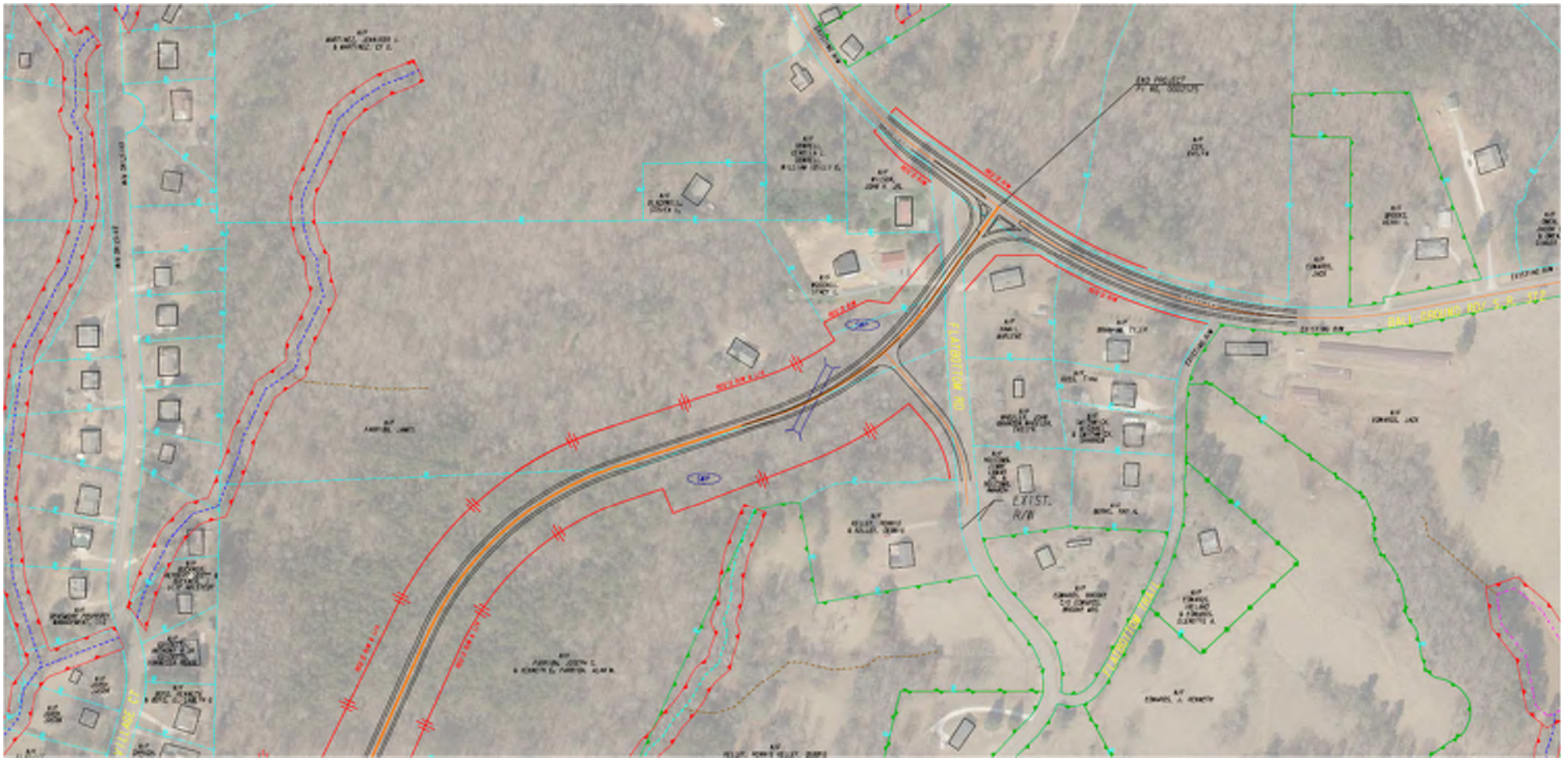
# Preferred Alternative

## Layout 2 of 3



# Preferred Alternative

## Layout 3 of 3



## Design Variances/Exceptions

- No Design Exceptions anticipated
- Potential Design Variances:
  - Maximum Grade
    - Grades approaching Georgia Northeastern Railroad
    - Steep grades approaching Northridge Road
  - Intersection Sight Distance
    - Vertical curvature on the Truck Bypass near Northridge Road may not be suitable to provide minimum intersection sight distance
    - Limited Access should be acquired in this area

## Major Structures

- Northridge Road Bridge over Truck Bypass
  - The proposed bridge will be approximately 80 feet above the Truck Bypass
  - 350 ft long
  - 28 ft wide with 11 ft lanes and 2 ft shoulders.

## Railroad Involvement

- Georgia Northeastern Railroad (GNRR)
- Managed by Patriot Rail Co.
- Typically Two Trains Daily, 6 AM to 6 PM, 10 MPH

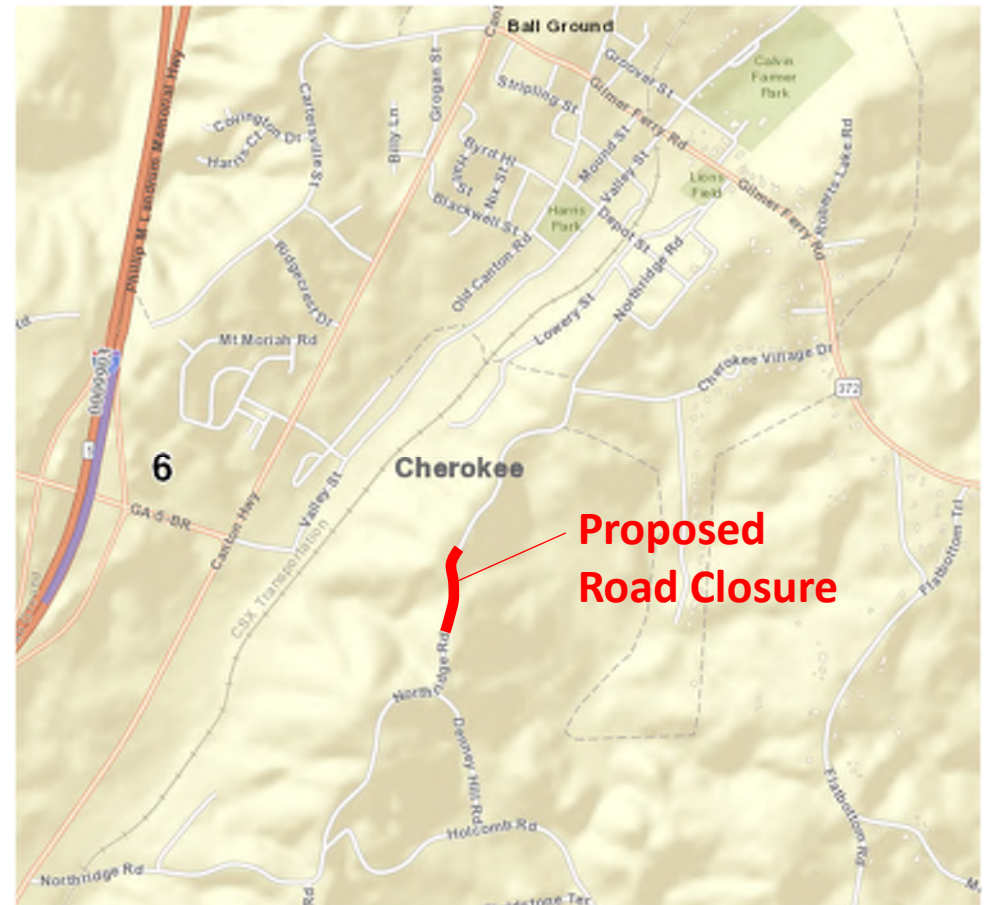


## Utility Involvement

- Cherokee County Water and Sewer Authority
- City of Ball Ground Water
- City of Ball Ground Sewer
- Georgia Power
- Amicalola Electrical Membership Corporation
- TDS Telecom
- AGL
- Elijay Telephone Company
- Windstream

## Offsite Detours

- Offsite detour will likely be required for a portion of Northridge Road to build grade separation over Truck Bypass
- Detour routes have not been established, reviewed or approved



## Right of Way

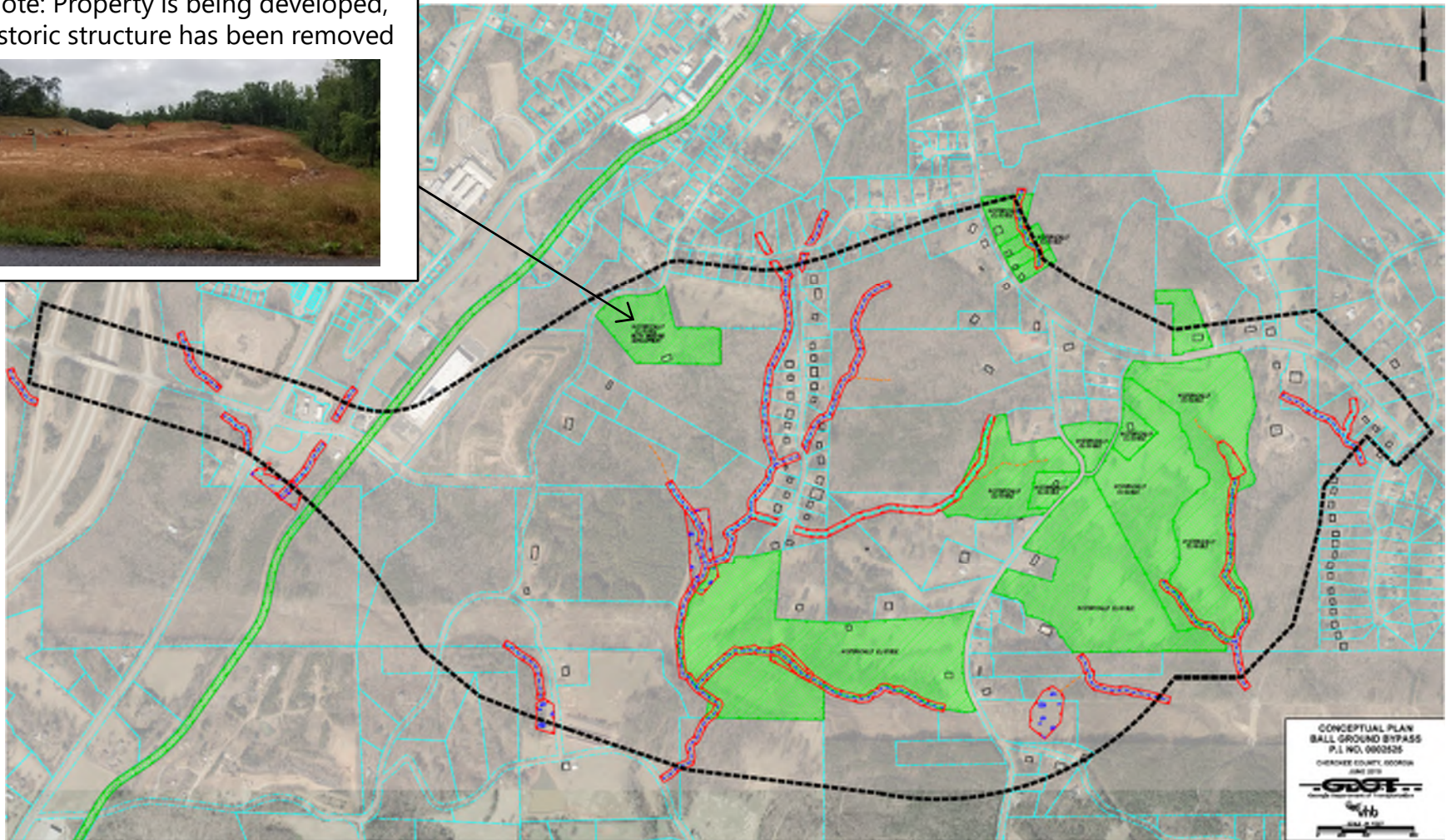
- Existing ROW width: 70 – 100 ft (Howell Bridge Rd.)
- Proposed required ROW width: 100 – 220 ft
- Anticipated number of impacted parcels: 32
- Displacements anticipated: 0
- Access Control: Partial Limited Access

## Public and Stakeholder Involvement

- An online stakeholder meeting presenting several alternatives was held on 06/05/2020 with the comment period running through 07/3/2020
  - 226 people formally commented
  - 164 were in support of the project
  - 25 were opposed
  - 1 was uncommitted
  - 34 expressed conditional support
- Additional public involvement will be needed to present the preferred alternative as well as any off-site detours
- A public involvement plan should be prepared prior to additional outreach

# Environmental Resources

Note: Property is being developed,  
historic structure has been removed



## Environmental Information

- NEPA or GEPA documents are not anticipated
- Potential adverse effects to eligible historic properties
- Impacts anticipated to wetlands and streams
- Permits/coordination anticipated:
  - CWA Section 404 – Regional Permit 35
  - GAEPD Stream Buffer Variance
  - NPDES
  - Section 106
  - PAR is not anticipated to be required

## Project Responsibilities

| Project Activity                            | Party Responsible for Performing Task(s) |
|---|--|
| Concept Development                         | Cherokee County/VHB                      |
| Design                                      | Cherokee County/Consultant (TBD)         |
| Right-of-Way Acquisition                    | Cherokee County/Consultant (TBD)         |
| Utility Coordination (Preconstruction)      | GDOT District                            |
| Utility Relocation (Construction)           | Utility Owner                            |
| Letting to Contract                         | GDOT                                     |
| Construction Supervision                    | GDOT                                     |
| Providing Material Pits                     | Contractor                               |
| Providing Detours                           | Contractor                               |
| Environmental Studies, Documents, & Permits | Cherokee County/Consultant (TBD)         |
| Environmental Mitigation                    | Cherokee County/Consultant (TBD)         |
| Construction Inspection & Materials Testing | GDOT                                     |

## Project Costs and Responsibilities

### Project Cost Estimate Summary and Funding Responsibilities:

|                               | PE Activities |                        | ROW         | Reimbursable Utilities | CST*         | Total Cost   |
|-------------------------------|---------------|------------------------|-------------|------------------------|--------------|--------------|
|                               | PE Funding    | Section 404 Mitigation |             |                        |              |              |
| <b>Date of Estimate:</b>      | 1/7/2020      | 1/7/2020               | Date        | 12/8/2020              | 12/10/2020   |              |
| <b>Funded By:</b>             | Local         | Local                  | State       | State                  | State        |              |
| <b>Programmed Cost:</b>       | \$650,000     |                        | N/A         | N/A                    | N/A          | \$650,000    |
| <b>Estimated Cost:</b>        | \$2,400,000   | \$1,389,000            | \$4,235,000 | \$2,032,580            | \$17,245,488 | \$27,302,068 |
| <b>Total Cost Difference:</b> |               |                        |             |                        |              | \$26,652,068 |



## Project Risks

- Project Cost – Funding Availability
- Section 4(f) With Federal Funding
- Community/Neighborhood Opposition
- Impacts to Historic Properties
- High Cuts and Fills, Potential Rock Excavation
- Water Quality Treatment Requirements
- Future Residential/Commercial Development  
Conflicting With Potential Alternative Alignments

## Discussion Topics

- Lighting Agreement is required with City of Ball Ground
- Project Framework Agreement is required with Cherokee County
- No specialty or proprietary items are anticipated



**Questions and  
Comments?**

**Mayor**  
A. R. Roberts, III

**Council Members**  
John Byrd  
Frank Homiller  
Mickey O'Malley  
Lee Prettyman  
Andrenia Stoner



**CITY OF BALL GROUND**  
[www.cityofballground.com](http://www.cityofballground.com)

**City Manager**  
Eric Wilmarth

**City Attorney**  
Darrell Caudill

**City Clerk**  
Karen Jordan

*We Roll Out the Red Carpet Not the Red Tape.™*

January 25, 2021

Georgia Department of Transportation  
District Traffic Engineer  
District 6  
30 Great Valley Parkway  
White, Georgia 30184

Re: Indication of Roundabout Support

To Whom it May Concern:

The **City of Ball Ground** supports the consideration of roundabouts at the location specified below.

State/County Route Numbers:

**SR 372 Spur FM SR 5 BU @ Howell Bridge Rd TO SR 372 SO/Ball Ground**

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 of the electric energy used for any lighting installed and the maintenance thereof (if needed)
- Any maintenance costs associated with the landscaping as approved by the local government and the Georgia Department of Transportation (after construction is complete)

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 of the conditions are hereby agreed to. The undersigned are duly authorized to execute this agreement.

This is the 25<sup>th</sup> day of January, 2021

Attest:

*Karen Jordan*  
City Clerk

By: *Eric Wilmarth*

Title: Mayor, City of Ball Ground