

Group Manager: Elizabeth Nolen
Lead Engineer: Clancy Black
Geometric Analyst: Jake Tolbert
AutoCAD Designer: Alex Evans

Roundabout Design

Riverton, Utah at 4570 West and Riverton Blvd.

Acknowledgements
Project Sponsor: Trace Robinson
Graduate Mentor: Todd Wood
Professors: Dr. Schultz & Dr. Saito

Problem Statement

Design a roundabout for Riverton City to be located at 4570 West and Riverton Boulevard. The design must accommodate projected 2040 traffic volumes.

Design Parameters

- 2040 Traffic Volumes
- Level of Service: C
- Design Vehicle: WB-67
- 30 MPH Approach Speeds

Final Design

A single lane roundabout was selected with a single entry lane for each approach. Each approach also has a right-turn or through bypass lane in order to achieve the required level of service. NCHRP Report 672 and the AASHTO Greenbook were used to determine other design values. AutoCAD Civil 3D was used for design drawings.

- Roundabout Diameter– 150 ft.
- Circulatory Road Width– 18 ft.
- Apron Width– 12 ft.
- Crosswalk Length– 10 ft.

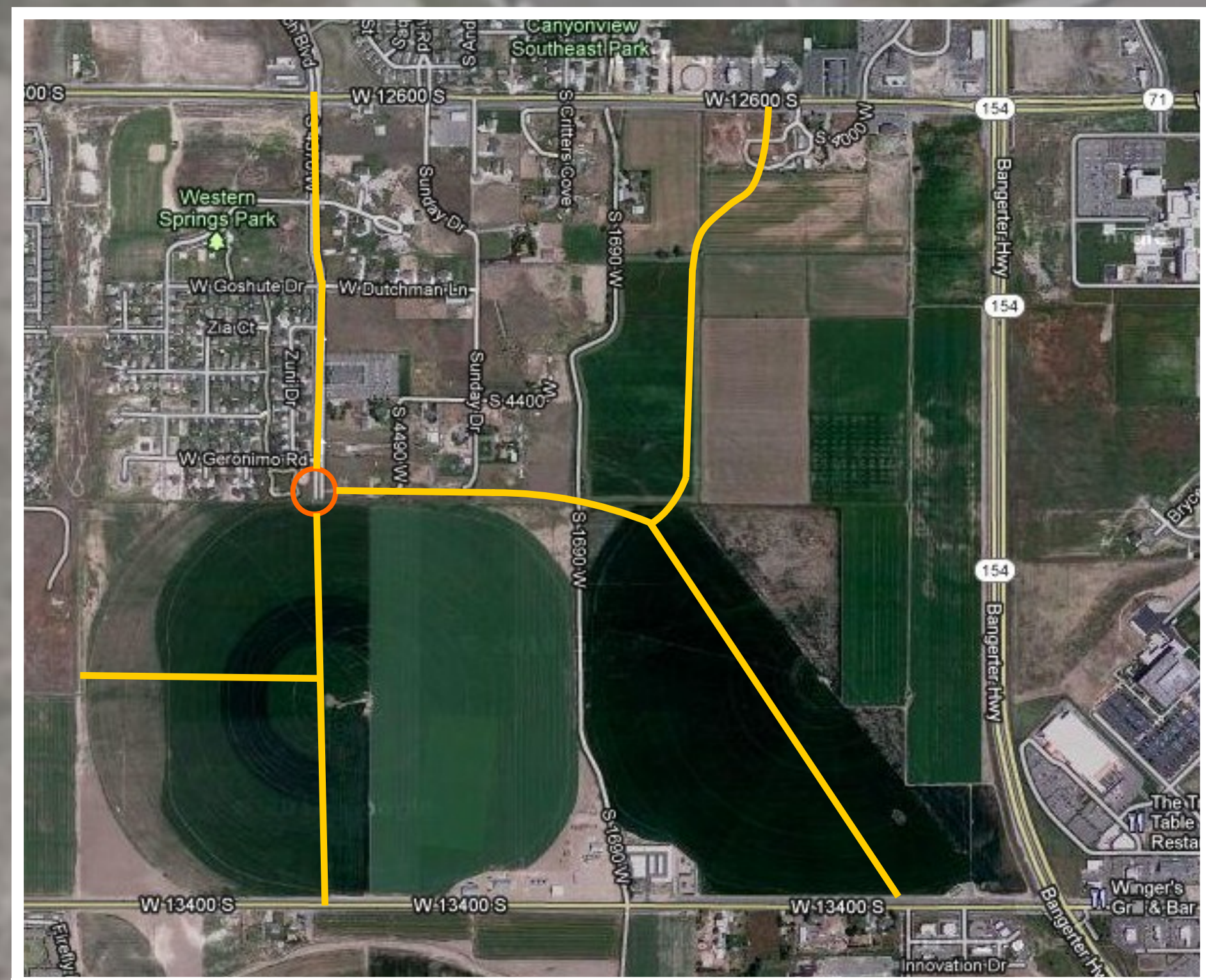


Figure 1: Roundabout Location and Future Alignments

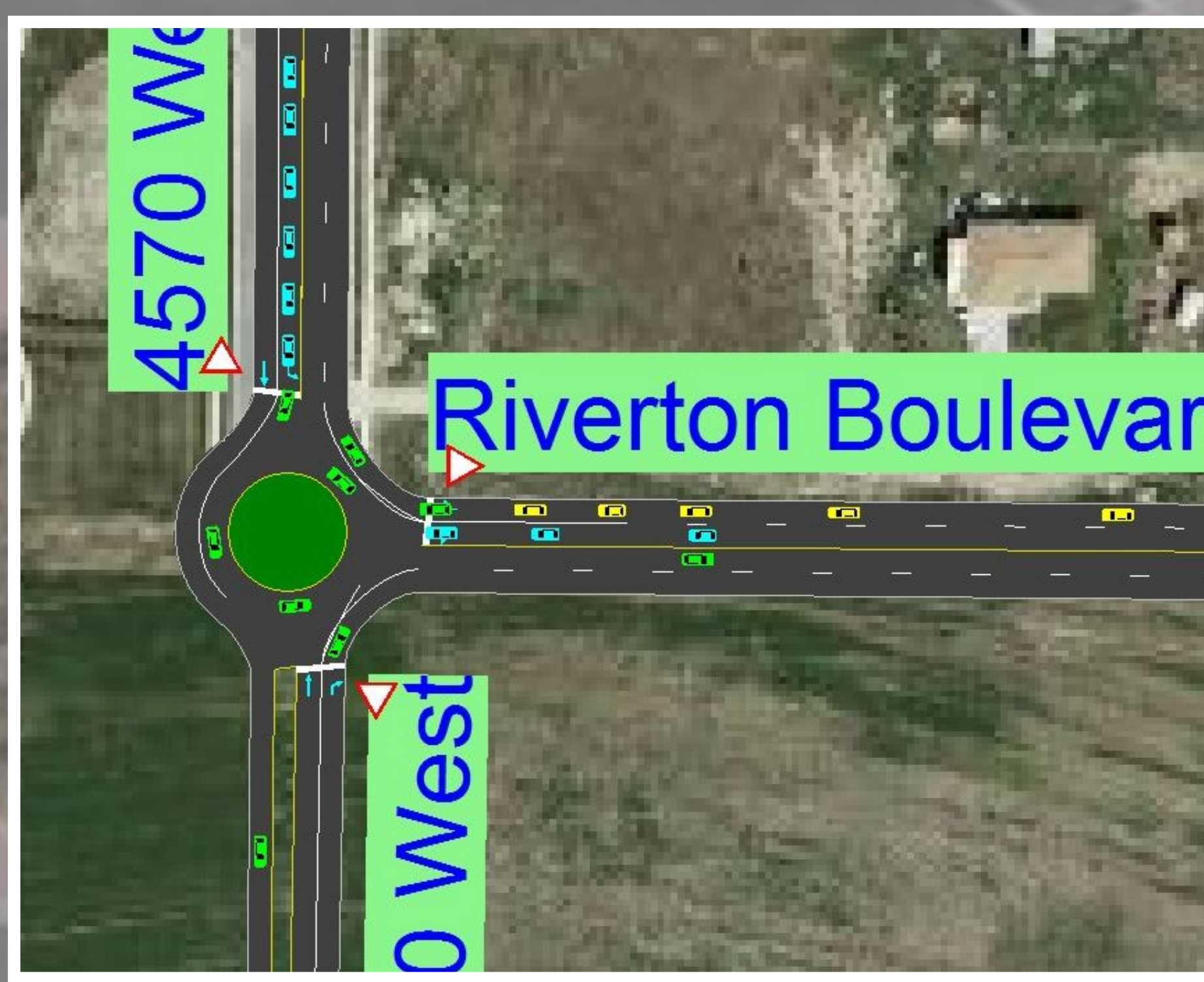


Figure 2: Synchro Simulation

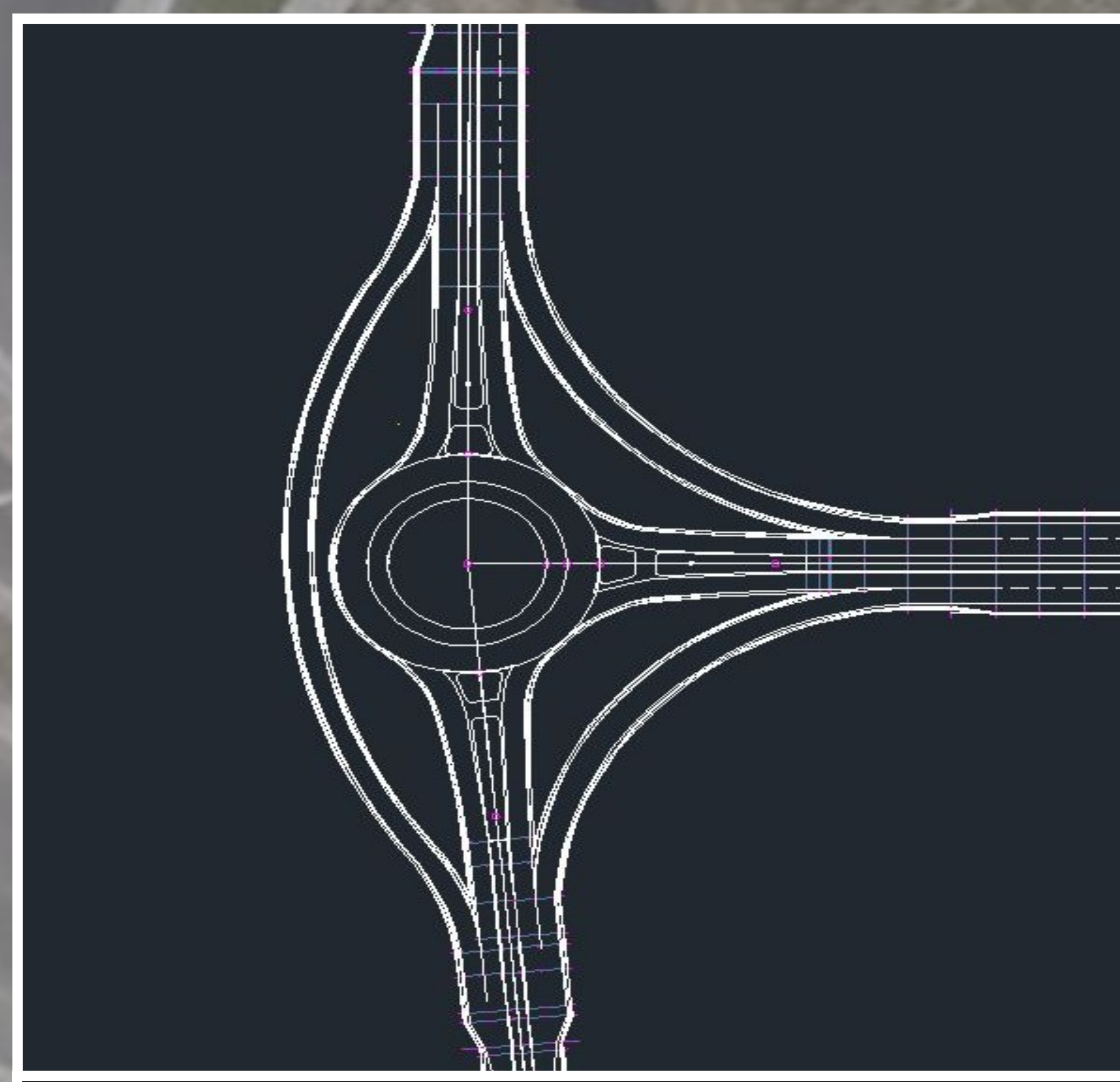


Figure 3: Final Geometric Design

Site Analysis

The proposed site is located in a regional commercial zone. Development in the next 3-5 years will include major retail locations and high density residential. The site is boxed in by 4 major arterial roads. The intersection needs to provide safe and efficient internal circulation for the development. This makes a roundabout an ideal solution for the site.

Traffic Analysis

The 2010 Highway Capacity Manual roundabout methodology was used for traffic analysis. A spreadsheet was created to allow design iteration and for use in future roundabout designs. A Synchro model was created for traffic simulation. Results were used to determine lane configurations and basic geometric design.