

Evaluation and Design of Roundabouts at Jalgel, Majmah, KSA

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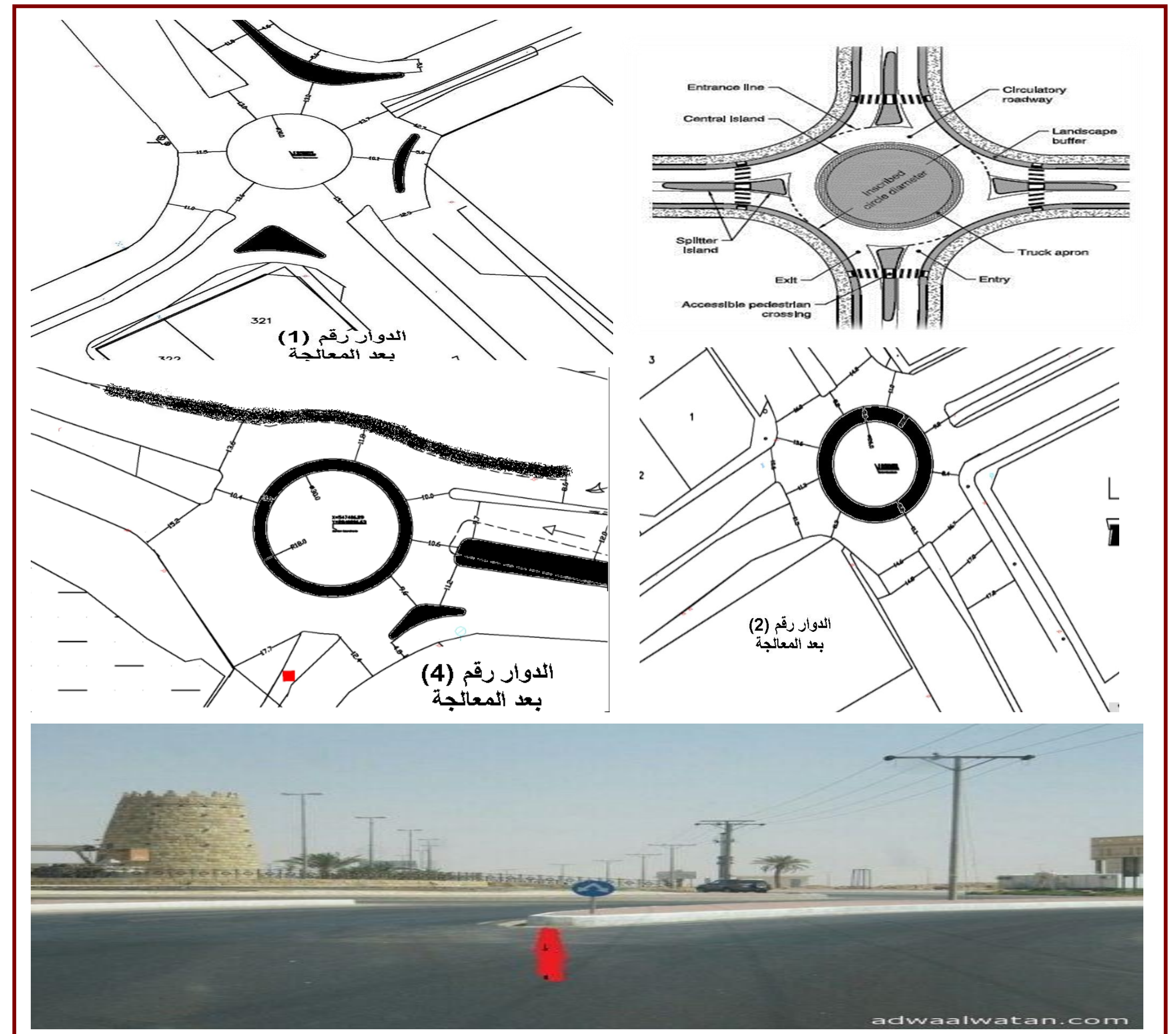
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Abstract

Roundabouts are type of circular intersections or junction in which road traffic flows almost continuously in one direction around a central island. They require entering traffic to give way to traffic already in the circle and optimally observe various design rules to increase safety. Designing the geometry of a roundabout involves choosing between trade-offs of **safety** and **capacity**. Roundabouts operate most safely when their geometry forces traffic to enter and circulate at slow speeds. Horizontal curvature and narrow pavement widths are used to produce this reduced-speed environment. Conversely, the capacity of roundabouts is negatively affected by these low-speed design elements.

Many concerns have been raised against current roundabouts constructed at Jalagel city. This Senior Design aims mainly to evaluate the roundabouts at the study area in its current state and propose a new design for those needed modifications.

Graphs



Main Results

The project is managed to achieve many results considering the purpose which it is established for:

1. Roundabouts at jalagel city are revised considering the safety hazards for the drivers.
2. Roundabouts with major problems on their function are discovered.
3. Engineering Solutions are presented to these roundabouts.
4. Solutions are taken by Jalagel municipality to be under progress.

Objectives

The present study of Galagl's roundabouts aims to:

- Prepare a complete report about roundabouts state at Jalagel city.
- Check the Safety Hazards and traffic performance for these roundabouts.
- Redesign the improper roundabouts.
- Help Majmah municipality to take rational decisions concerning the roundabouts state at Jalagel city.

Methodology

The methodology adopted in that project could be summarized in the following steps:

1. Surveying: this step involving the process of collecting all the needed data by students and drawing maps.
2. Roundabouts Traffic analysis: in this step students collect and analyze the traffic at roundabouts understudy.
3. Roundabouts design and evaluation: students use their engineering state of art to design and evaluate roundabouts at Jalagel city.
4. A complete report is presented by the end of the project.

References

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3. Brown, Mike. *The design of roundabouts*. 1995.
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