



**ERGAS 303  
ORANGEWOOD AVENUE/COTTON LANE  
TRAFFIC IMPACT ANALYSIS**

**Executive Summary**

The purpose of this traffic study is to evaluate the current and future transportation system within the project study area surrounding the site without and with the proposed project.

**Existing Traffic Data**

All of the study intersections currently operate at adequate LOS (Level of Service) during the AM and PM weekday peak hours.

**Future Traffic Data Without Project**

Several developments near the project site are expected to be constructed within the near future in the area. Expected trips from these developments were added to this analysis based on traffic assignments from the following reports:

- *Northern Farms Traffic Impact Analysis (TIA)* completed by Y2K Engineering, August 2019.
- *Cotton Lane and Northern Avenue TIA* completed by Kimley-Horn and Associates February 2019.
- *Residential Development Traffic Impact Study* completed by United Civil Group, June 2020.
- *Granite Vista TIA* completed by CivTech, 2014.
- *Clarius Park TIA* completed by Southwest Traffic Engineering, LLC (SWTE), April 2021.
- *Parkway 303 West TIA* completed by SWTE, June 2021.
- *WestMac 303 TIA* completed by SWTE, April 2021.
- *Lincoln Logistics TIA* completed by SWTE, November 2018.
- *Sarival Logistics Center TIA* completed by SWTE, February 2021.
- *West 303 Crossings TIA* completed by SWTE, November 2019.
- *VT 303 TIA* completed by SWTE, October 2020.
- *Loop 303 Bethany Business Park TIA* completed by SWTE, October 2020.
- *The Residences on Cotton Lane TIS* completed by SWTE, May 2021
- *Glendale 303 TIA* completed by United Civil Group, November 2020.

The intersections of Loop 303 Northbound Ramps/Glendale Avenue and Loop 303 Southbound Ramps/Glendale Avenue are expected to operate at an inadequate LOS in 2025 during the weekday peak hours without traffic from the project.

The remaining study intersections are expected to continue to operate at an acceptable LOS in 2022 and 2025 without the project during the weekday peak hours.



### **Future Traffic Data With Project**

The intersection of Loop 303 Northbound Ramps/Glendale Avenue is expected to operate at a poor LOS in 2022 with traffic from the project and 2025 without and with traffic from the project during the weekday AM peak hour.

Loop 303 Southbound Ramps/Glendale Avenue is anticipated to continue to experience an inadequate delay at the overall intersection in 2025 during the weekday PM peak hour without and with traffic from the project.

The southbound left/through turn lane at the intersection of Cotton Lane/Glendale Avenue is expected to operate at an inadequate LOS in 2025 during the AM and PM peak with traffic from the project.

The remaining study intersections are expected to continue to operate at an acceptable LOS in 2022 and 2025 without the project during the weekday peak hours.

### **Turn Lane Analysis**

The future two-way center left turn lane on Cotton Lane is expected to adequately serve southbound left turning vehicles at North Access, Middle Access, and South Access

The proposed northbound right turn lanes at North Access, Middle Access and South are expected to be free flow movements with minimal, if any, queue length and should be constructed with a minimum 160 feet of storage to meet MCDOT minimum requirements.

No queue overlap is expected to occur between any of the proposed access points.

### **Traffic Signal Warrant Analysis**

The intersection of Cotton Lane/Northern Avenue is anticipated to meet traffic signal warrants #1 and #2 in 2022 and 2025 without and with traffic from the project, with adjacent developments.

The intersection of Cotton Lane/Glendale Avenue is expected to meet traffic signal warrant #2 in 2025 with traffic from the project, with adjacent developments. However, there is limited right of way at the intersection. Furthermore, if the adjacent developments do not move forward, the traffic signal is not expected to be warranted nor will the intersection require mitigation. Eventually, development will occur on all four corners of this intersection, each approach will be widened to its final cross section, and a traffic signal will be installed further improving the operation of the intersection.

### **Crash Analysis**

Crash history for the existing study intersections was obtained from the Arizona Department of Transportation (ADOT) from 1 January 2017 to 31 December 2019.

A total of seven crashes were reported at the intersection of Loop 303 Ramps/Glendale Avenue within the three-year period. Single vehicles made up approximately 70% of the



crashes at this intersection. This may be due to the intersection being in a current low volume traffic area.

One crash was reported at the intersection of Loop 303 Ramps/Northern Avenue during the three-year study period, which resulted in injury. The relatively small number of collisions at the intersection cannot be used to identify any meaningful crash trends.

The intersection of Cotton Lane/Glendale Avenue had a total of five reported crashes during the three-year study period. Angle crashes made up approximately 60% of the crashes at this intersection. These crashes could be due to the ALL-WAY STOP control and the limited capacity of the intersection frustrating drivers.

Five collisions were reported at the intersection of Cotton Lane/Northern Avenue during the study period. One of these crashes resulted in injury. Two of these crashes were rear-ends. These crashes may be due to driver frustration with ALL-WAY STOP control and limited capacity at the intersection

The intersection of 171<sup>st</sup> Avenue/Orangewood Avenue had one reported crash during the three-year study period. This crash was an angle collision. The relatively small number of collisions at the intersection cannot be used to identify any meaningful crash trends.

### **Mitigation**

The intersection of Loop 303 Northbound Ramps/Glendale Avenue is expected to operate at a poor LOS in 2022 with traffic from the project and 2025 without and with traffic from the project during the weekday AM peak hour. The delay experienced at the intersection is due to the limited capacity provided for the relatively large eastbound left, eastbound through, and northbound right turning volumes traveling to/from Glendale Avenue. The eastbound left turn lane and northbound through lane at the intersection can be restriped to provide dual eastbound left turn lanes and a northbound shared through/right turn lane. The intersection is expected to operate at an adequate LOS in 2025 with traffic from project with these improvements at the intersection of Loop 303 Northbound Ramps/Glendale Avenue.

Loop 303 Southbound Ramps/Glendale Avenue is anticipated to experience an inadequate delay at the overall intersection in 2025 during the weekday PM peak hour without and with traffic from the project. This delay is due to the limited capacity provided for the relatively large westbound left turning movement limiting the acceptable green time for eastbound through and right turning vehicles. The westbound left turn lane at the intersection can be restriped to provide dual westbound left turn lanes at the intersection. This improvement is anticipated to alleviate the delays at the intersection.



The southbound left/through turn lane at the intersection of Cotton Lane/Glendale Avenue is expected to operate at an inadequate LOS in 2025 during the AM and PM peak with traffic from the project. The delay is due to the limited capacity and ALL-WAY STOP control of the intersection inefficiently serving the relatively large number of southbound traffic volumes, as each vehicle is required to stop and proceed through the intersection one at a time. As future developments are constructed on the southeast and southwest corners of Cotton Lane/Glendale Avenue, the intersection will be widened to its ultimate cross section and offered an exclusive left turn lane, two through lanes, and a dedicated right turn lane. As noted in the *Glendale 303 TIA*, a traffic signal is warranted at this intersection with that project. As such it is expected to be installed as part of the Glendale 303 project and improve the intersections level of service to an adequate level.

### **Recommendations**

The proposed northbound right turn lanes at North Access, Middle Access, and South Access should be constructed with a minimum 160 feet of storage to meet MCDOT minimum requirements.

## Lavelle, Christina

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**From:** Heathcoat, Alan  
**Sent:** Tuesday, October 26, 2021 1:36 PM  
**To:** Lavelle, Christina  
**Cc:** Abbo, Tony  
**Subject:** RE: ERGAS ZON21-20  
**Attachments:** Ergas Executive Summary Approved.pdf

Christina,

Attached is a stamped approved Executive Summary for Ergas 303. I have reviewed and approved this executive summary



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