

**GRANT ROAD REVERSIBLE LANE  
TRAFFIC FLOW AND CRASH ANALYSIS  
WITH AN UPDATE OF THE  
BROADWAY REVERSIBLE LANE STUDY**

*Prepared for*  
**City of Tucson**

*Prepared by*  
The logo for TRANSCORE, featuring the word "TRANSCORE" in a blue, sans-serif font with a blue swoosh above the "O".

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## **1. PURPOSE AND BACKGROUND**

The primary purpose of this study is to evaluate the traffic volume and crash impacts of the removal of the reversible traffic lane application from Grant Road between Stone Avenue on the west and Swan Road on the east. A secondary purpose of the study is to update the crash analysis that was conducted in an earlier study (*Crash Analysis of Reversible Lane Removal on Broadway Boulevard and 6<sup>th</sup> Street*, April 2004) to evaluate the impacts of removing the reversible lane on Broadway Boulevard between Euclid Avenue on the west and Country Club Road on the east. Exhibit 1 indicates the location of the reversible lane application on Grant Road evaluated in this study, and the location of the Broadway Boulevard study area.

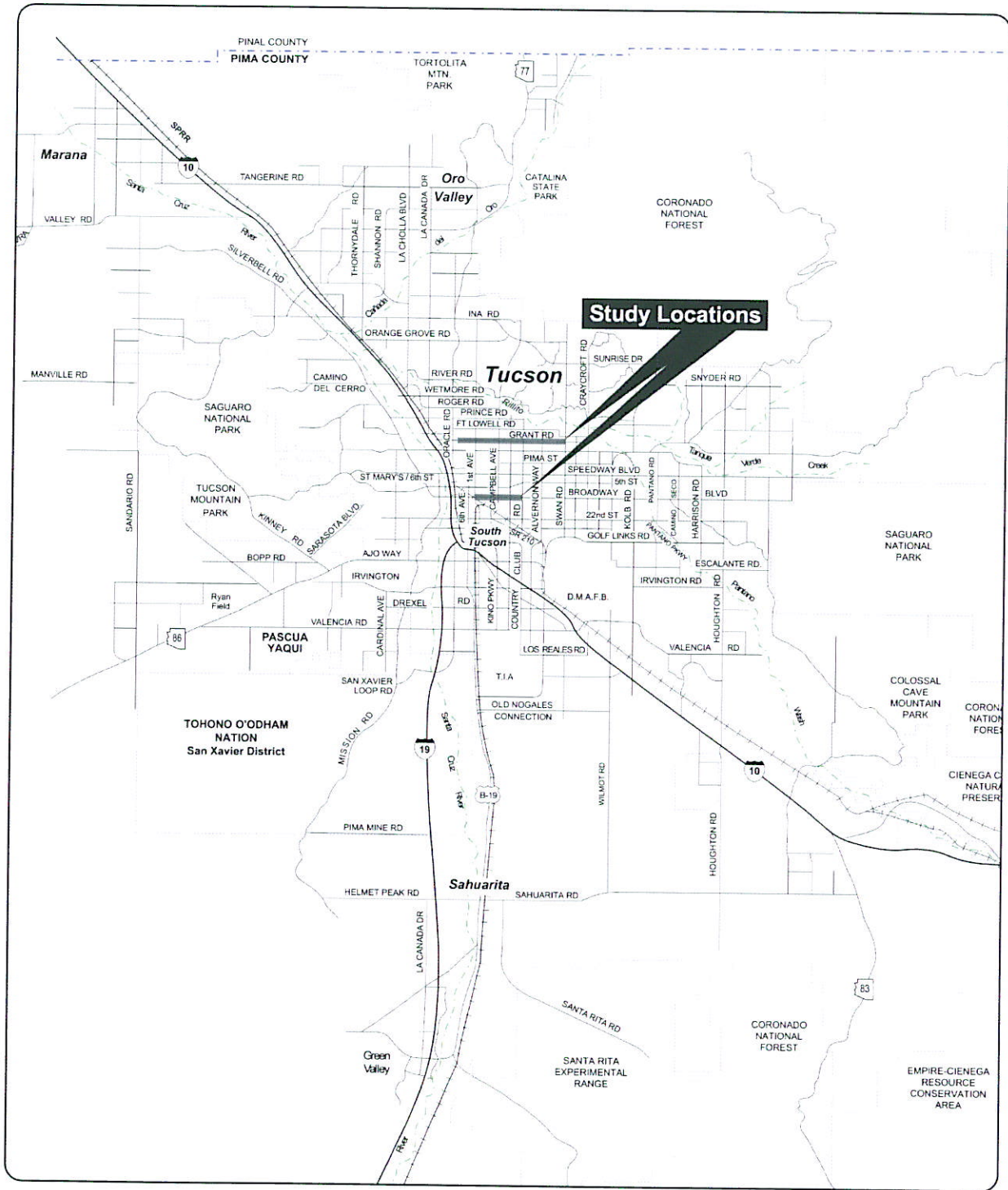
Grant Road, between Stone Avenue and Swan Road, has a five-lane cross section with two through lanes in each direction and a continuous two-way left-turn lane (TWLTL). For many years the TWLTL was operated as a reversible through traffic lane, providing an additional westbound through lane from 7:00 AM to 9:00 AM, and an additional eastbound through lane from 4:00 PM to 6:00 PM. This application was implemented as a congestion management measure along this heavily developed urban arterial, in conjunction with similar applications on three other east/west arterials in the Tucson urban core. Operation of the Grant Road reversible lane was terminated on June 20, 2004.

Left-turns from Grant Road were prohibited during the operation of the reversible lane. Signs over the TWLTL, and posted at the roadside, indicated the reversible lane hours of operation, direction of operation, and the prohibition of the left-turn movement.

Throughout its history, the public often expressed concern about the safety of the reversible lane through letters to the editor of the local newspapers and comments at public meetings on transportation issues. The application was often referred to as the “suicide” lane by the public and the local media. The City of Tucson eventually removed each of the reversible lane applications. A study conducted by the Federal Highway Administration of the reversible lane operations showed them to be among the safest in the nation (FHWA/RD-85/010, *Traffic Control for Reversible Flow Two-Way Left-Turn Lanes*, October 1984.). In fact, when the earliest reversible lane was removed from service along 6<sup>th</sup> Street, crashes increased. The removal of the reversible lane along Speedway Boulevard was done after the roadway was widened with the inclusion of a raised median. The Broadway reversible lane was terminated in February 2001.

The evaluation of the traffic and crash impacts of the reversible lane removal was conducted based on a comparison of before and after data. Traffic volume and crash data provided by the City of Tucson for the “before” and “after” conditions were compiled, summarized, and compared as part of this study. This assessment, along with the results and conclusions are provided in this document.

# Exhibit 1 PROJECT STUDY LOCATIONS



## ***2. EVALUATION OF THE TRAFFIC IMPACTS OF REVERSIBLE LANE REMOVAL***

### **2.1 STUDY METHODOLOGY**

There was concern by the City of Tucson that the removal of the reversible lane, and the subsequent congestion along Grant Road, might encourage traffic to divert to other roadways in the corridor. The traffic impacts of the reversible lane removal along Grant Road were evaluated through a comparison of the east/west traffic volumes in a corridor centered around Grant Road. The study segment of the roadway is approximately 4.6 miles long. The corridor extended one mile north and south of Grant Road and included the following primary east/west traffic arterials and collectors in the corridor:

- Fort Lowell Road
- Glenn Street
- Grant Road
- Pima/Elm Street
- Speedway Boulevard

Traffic volume data were collected by the City of Tucson along three north/south screenlines crossing the corridor. A screenline is an imaginary line that crosses each of the east/west roadways. Traffic volume data were collected on each of the east/west roadways at each screenline before and after the removal of the reversible lane. Exhibit 2 indicates the location of each of the screenlines, and their position relative to the east and west ends of the study roadway. The screenlines were placed approximately midway between each of the following north/south roadway pairs:

- Screenline #1: Between First Avenue and Mountain Boulevard
- Screenline #2: Between Campbell Avenue and Tucson Boulevard
- Screenline #3: Between Alvernon Way and Columbus Boulevard

The before period traffic data were collected on April 14 and 15, 2004, and the after period data were collected on April 26 and 27, 2005, and May 16 and 17, 2005 (Grant Road at Screenlines #1 and #2). The City provided 48 hour traffic counts by hour of the day. These data were summarized into the following for the before and after conditions at each screenline:

- Average 24-hour volume by direction of travel.
- Average 24-hour volume total for both directions of travel.
- Average AM peak-period volume by direction of travel (morning 2-hours of reversible lane operation).
- Average AM peak-period volume for both directions of travel.
- Average PM peak-period volume by direction of travel (afternoon 2-hours of reversible lane operation).
- Average PM peak-period volume for both directions of travel.
- Combined AM and PM peak-period average volume by direction of travel.