

WALTER P MOORE

June 4, 2009

Mr. Will Hampton
Communications Director
City of Round Rock
221 East Main Street
Round Rock, TX 78664

Re: Effects of Lane Reconfiguration along Mays at Main/Round Rock
Round Rock Downtown Master Plan
Round Rock, Texas
Walter P Moore Project Number 73-08029-00

Dear Mr. Hampton:

This letter is in response to your request for a capacity analysis of the signalized intersection of Main/Round Rock and Mays. This analysis is to compare existing conditions with those anticipated to result from implementing the proposed roadway improvements as described in the Round Rock Downtown Master Plan draft dated May 1, 2009.

Existing Conditions

Existing conditions capacity analysis was conducted for AM and PM peak hours for the signalized intersection of Main/Round Rock and Mays using *Synchro*, software developed to automate procedures found in the *Highway Capacity Manual*. Results of the capacity analysis are reported in Level of Service (LOS) format, with the most favorable conditions designated as LOS A and the poorest conditions indicated by LOS F. Level of service is based on the amount of delay each vehicle encounters at the intersection. Traffic volumes were provided by the City of Round Rock and are believed to reasonably reflect a typical weekday while school is in session. Existing traffic signal timings as provided by the City of Round Rock were used in the analysis.

To provide for the heavy left turn demands, the signals are configured to serve only one direction at a time, which is referred to as "split phasing." While an appropriate strategy for the existing configuration for this intersection, it is one of the most inefficient methods of traffic signal timing because intersection movements which do not conflict cannot be served simultaneously. Because of the heavy left turn demands along Mays, the inside through lanes function as de facto left turn lanes.

The existing lane configuration of the intersection and the AM and PM peak hour levels of service are presented in **Figure 1**.

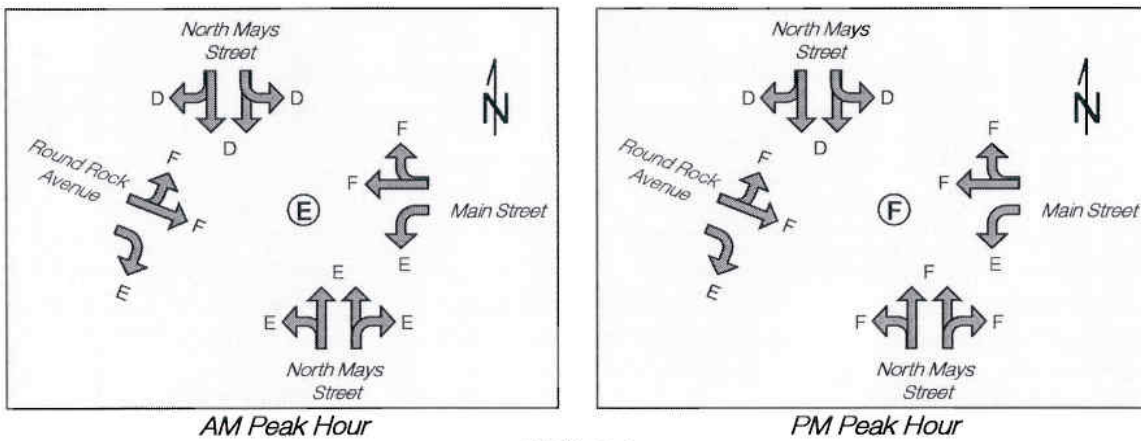


FIGURE 1
Existing Lane Configurations and Peak Hour Levels of Service
For Main/Round Rock and Mays

Proposed Improvements

Two strategies are proposed for the subject intersection: the reconfiguration of the intersection into a traditional four-legged intersection by eliminating Round Rock Avenue and extending Main Street to Mays, and the reconfiguration of Mays Street into a three lane roadway with on-street parking and a continuous left turn lane. Round Rock is proposed to be eliminated from Brown to Mays, restoring the street grid system and allowing the Main Street corridor to be contiguous across Mays. The reconfiguration of Mays into a three-lane roadway eliminates the "de facto left turn lane" condition and allows the center lane to be used for left turns. The existing traffic signal would be reconfigured to provide left turn signal heads. The split phasing would be eliminated and a traditional timing and phasing plan that allows for simultaneous movements would be introduced.

As part of the master plan analysis, existing traffic volumes were redistributed to other roadways. This redistribution recognizes the effect that a grid street network has on travel patterns. For example, traffic that previously traveled eastbound along Round Rock to turn right at Mays was redistributed between Liberty and Main. Optimized traffic signal timings which are coordinated with adjacent signalized intersections were developed for this intersection and used in the analysis. The proposed lane configuration of the intersection and the anticipated AM and PM peak hour levels of service are presented in Figure 2.

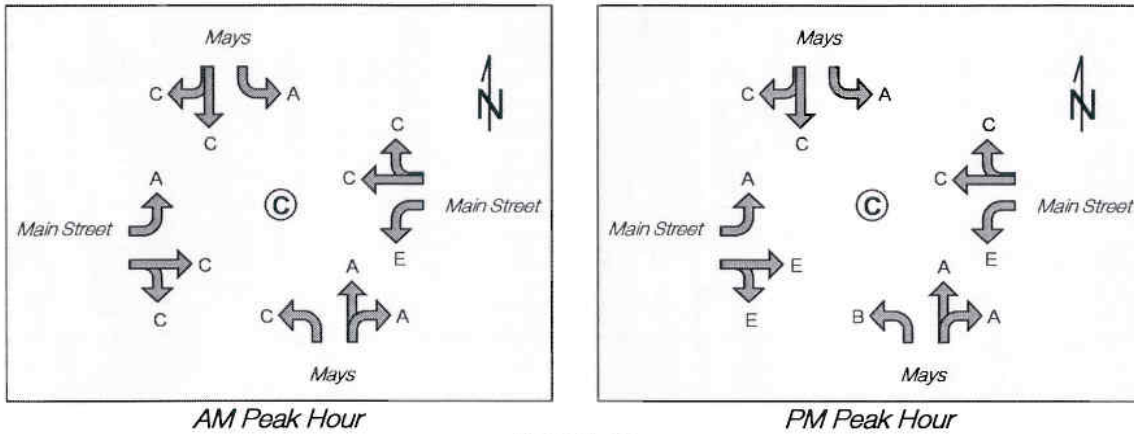


FIGURE 2
 Proposed Lane Configurations and Peak Hour Levels of Service
 For Main and Mays

Summary

The reconfiguration of Mays from four lanes to three lanes with a continuous left turn lane allows left turning traffic along Mays to be separated from through traffic at intersections. The traffic signals can then be modified to include left turn signal heads and associated timing and phasing plans. These improvements, along with the elimination of Round Rock between Brown and Mays, increase the efficiency of the Main and Mays intersection. This analysis demonstrates the improvements proposed by the Round Rock Downtown Master Plan allows for the creation of a walkable community while balancing the needs of motorists.

Please let me know if you have any questions or need additional information.

Yours very truly,

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