



Memorandum

To: Dave Klockeman, City Engineer

From: Bill Hange, City Traffic Engineer

Date: July 12, 2011

Re: US 34 & Madison Traffic Data Summary 2011

Traffic data collection was conducted during the first six months of 2011 to monitor traffic patterns and conditions following construction of the Continuous Flow Intersection (CFI) at US 34 & Madison Avenue. Manual observations of all vehicular turning movements were conducted on 1/4/11 and 6/14/11 for the morning and evening peak hours. Automatic counts (using tube counters) of 24 hour volumes in each travel lane were also conducted on 6/14/11. Accident data has been collected for the entire six month period and compared with annual data from the last three years. Also obtained for comparison purposes were pm peak turn counts from 6/6/05.

A critical concern in the design and operation of the CFI was accommodating existing heavy turning movements to and from the north leg of the intersection. Specifically, the southbound left turn volume was higher than the southbound through and right turn volume. Also, the north leg received more volume from westbound to northbound right turns than from northbound traffic on Madison Avenue. The data collected for this study confirms that these patterns have been maintained following the completion of the CFI and through the present. Additionally, the volumes for these critical movements have increased significantly in the pm peak as compared with the 2005 data. These findings support the choice of the CFI and the related traffic signal timing to allow more green time for the heavy southbound left turn movement, while maintaining acceptable green time for through volume on US 34. The provision of a channelized westbound to northbound lane is justified by the high volumes using this lane as compared with other travel lanes

on Madison Avenue.

The other legs of this intersection also continue to operate as expected. The south leg contains higher southbound than northbound traffic. This is likely due to the new turn restrictions at the entrance to the large shopping center in the southwest corner of the intersection. The northbound left turn volume is relatively low and the single left turn lane is adequate. The CFI design had minimal impacts to the configuration of the east and west legs and traffic patterns also have been maintained.

A review of accident data for the past three years does not indicate any adverse conditions that may be associated with the new CFI configuration for Madison Avenue but possibly some for US 34. Overall, accidents for the entire intersection have been declining during this period. During the end of 2010, there were a few rear end type crashes approaching the south crossover signal. There does not appear to be a continuing pattern of this type of crash in early 2011. On US 34, there does appear to be an increase in the frequency of left turn angle crashes in both directions. The CFI configuration required that the stop bar location in both EB & WB left turn lanes to be moved back significantly and motorists must travel further into the intersection to negotiate a left turn. This may be more challenging for some motorists, especially while turning on a permissive green ball signal indication. Further monitoring of this crash type is recommended.

Please see the attached diagram for more information on the traffic data collected for this study.