CITY COUNCIL AGENDA REPORT

DEPARTMENT: Public Services **MEETING DATE:** January 17, 2017

PREPARED BY: Tina Cherry, Director **AGENDA LOCATION:** AR-2

TITLE: Installation of a 4-Way Stop at the Intersection of North Canyon Boulevard and East Scenic Drive

OBJECTIVE: To notify the City Council about the pending installation of new stop signs at North Canyon Boulevard and East Scenic Drive

BACKGROUND: On occasion, residents report concerns with certain street locations in the City. These requests typically assessed by staff by performing conduct traffic counts, conducting speed studies, and determine if there are appropriate traffic calming measures that may be utilized to mitigate concerns. Based on that assessment, either traffic safety improvement recommendations are developed for consideration by the City's Traffic Safety Committee (TSC) or the issue is turned over to the City's Traffic Engineer for further analysis and review to correct the identified traffic safety issue.

In November 2016, staff was approached by a resident expressing concerns regarding the intersection of North Canyon Boulevard and East Scenic Drive. Staff conducted a field investigation, and due to the large traffic volume in the area, as well as the unique orientation of the street, the item was referred to the Traffic Engineer for further investigation. Based on that review, the Traffic Engineer has recommended that the City install an all-way stop at the North Canyon Boulevard / East Scenic Drive intersection. The City's Municipal Code does not require formal City Council action to authorize the installation or removal of a stop sign. However, it has been the City's practice to communicate any stop sign modifications at a City Council meeting to properly inform the public about pending traffic safety adjustments.

ANALYSIS: The California Manual on Uniform Traffic Control Devices (MUTCD) includes methodologies for evaluating all-way stop-control warrants. Pursuant to the MUTCD, installation of an all-way stop-control requires that at least one of the warranting conditions be met, and that a traffic engineering study be performed.

Based on the analysis conducted by the City's Traffic Engineer, the following MUTCD methodology was used to evaluate the feasibility of installing an all-way stop-control at the North Canyon Boulevard / East Scenic Drive intersection:

- The need to control left-turn conflicts;
- The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
- Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and/or

- An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

The City Traffic Engineer determined that there is inadequate sight distance at the intersection location for westbound and eastbound approaching traffic. Furthermore, vehicles parked on the curb along the south portion of the intersection prevents eastbound and westbound vehicles from having proper sight distances to observe any incoming northbound traffic on North Canyon Boulevard.

Based on the assessment, the City Traffic Engineer has recommended the installation of an all-way stop at the North Canyon Boulevard / East Scenic Drive intersection. Pursuant to the recommendation, staff plans to post notices at the intersection location regarding the planned installation of the stop signs on Monday, January 23, 2016. Then, two weeks later during the week of February 6, 2017, staff will implement the installation of the new stop signs.

FISCAL IMPACTS: Funding to pay for the stop signs and stripping are available in the approved FY 2016/17 Street Maintenance operations budget.

COUNCIL ACTION REQUIRED: If the City Council concurs, the appropriate action would be a motion to receive and file the report.

MEMORANDUM

TO: Tina Cherry
City of Monrovia

FROM: Patrick A. Gibson, P.E., PTOE
Richard Gibson, LEED Green Associate

DATE: January 5, 2017

RE: All-Way Stop-Control Warrant Analysis for
North Canyon Boulevard & East Scenic Drive
Monrovia, California **Ref:** J1407a

Gibson Transportation Consulting, Inc. (GTC) was asked to investigate whether installation of all-way stop-control at the intersection of North Canyon Boulevard & East Scenic Drive (Study Intersection) is warranted based on existing conditions. This memorandum summarizes the analysis.

EXISTING CONDITIONS

Figure 1 depicts the location of the Study Intersection. Currently this intersection is stop-controlled on the eastbound and westbound approaches and free flowing in the northbound and southbound directions. This intersection is slightly unusual in that the major approaches of the intersection are northbound and westbound as North Canyon Boulevard converts from a north-south road to an east-west road for a brief distance. This means that currently one of the major approaches is stop-controlled (westbound) while the other is not (northbound). As a result one of the minor approaches (in this case the southbound cul-de-sac with only two residential driveways) is not stop-controlled. Existing lane configurations and control are shown in Figure 2.

ALL-WAY STOP-CONTROL WARRANT ANALYSIS

An all-way stop-control warrant analysis of the Study Intersection was conducted for Existing Conditions.

Methodology

California Manual on Uniform Traffic Control Devices (California Department of Transportation, 2014) (California MUTCD) includes methodologies for evaluating

all-way stop-control warrants. To install all-way stop-control, at least one of these warrants should be met and an engineering study should be performed indicating that the installation of all-way stop-control would improve the overall safety and/or operation of the intersection.

Due to our familiarity with the study intersection and previous work in the City of Monrovia (City), GTC can conclude that traffic volumes, traffic collisions, and 85th percentile speeds are not great enough to warrant the installation of all-way stop-control. Further, there will be little to no additional development in the area of the study intersection that may substantially increase traffic volumes.

For this analysis, we only evaluated Optional Warrant which concerns sight distance between the minor and major approaches to determine if adequate sight distance exists for vehicles on the stop-controlled streets to safely enter the intersection. The following methodology, as quoted from the California MUTCD, was used to evaluate all-way stop-control warrants at the Study Intersection:

> *Optional Warrants*
>
> *Other criteria that may be considered in an engineering study include:*
>
> *A. The need to control left-turn conflicts;*
> *B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;*
> *C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and*
> *D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.*

Analysis

The California MUTCD methodology for all-way stop-control Optional Warrant C was applied to the intersection.

Optional Warrant (Sight Distance). Optional Warrant C is met, as adequate sight distance is not provided for eastbound traffic on East Scenic Drive or for westbound traffic on North Canyon Boulevard. Vehicles stopped on stop-controlled approaches must be provided adequate sight distance to determine when it is safe to enter an intersection. The amount of sight distance required depends on the speed of travel on the uncontrolled approaches. In this case, the 85th percentile speed on North Canyon Boulevard south of the intersection is 28 mph; therefore, vehicles stopped on the stop-controlled approaches must be given at least 220 feet of sight distance, and ideally would be provided at least 350 feet of sight distance. This means that vehicles stopped on the stop-controlled approaches should be able to see vehicles on the non-controlled approaches 220 to 350 feet away from the intersection.

As shown in Figure 3, vehicles parked along the west curb on the south leg of the Study Intersection would prevent eastbound vehicles on Scenic Drive from having the proper sight distance to see northbound traffic on North Canyon Boulevard. Likewise, Figure 4 shows that westbound vehicles on Canyon Boulevard would have to encroach beyond the Stop sign almost into the northbound flow of traffic in order to see northbound Canyon Boulevard traffic approaching the intersection.

Both of these sight distance restrictions could be rectified by installing all-way stop-control at this location, making sight distance a non-issue and increasing the safety of the intersection.

Summary

All-way stop-control is currently warranted based on sight distance issues in order to provide safer access to the intersection from the currently stop-controlled approaches.

SUMMARY AND CONCLUSIONS

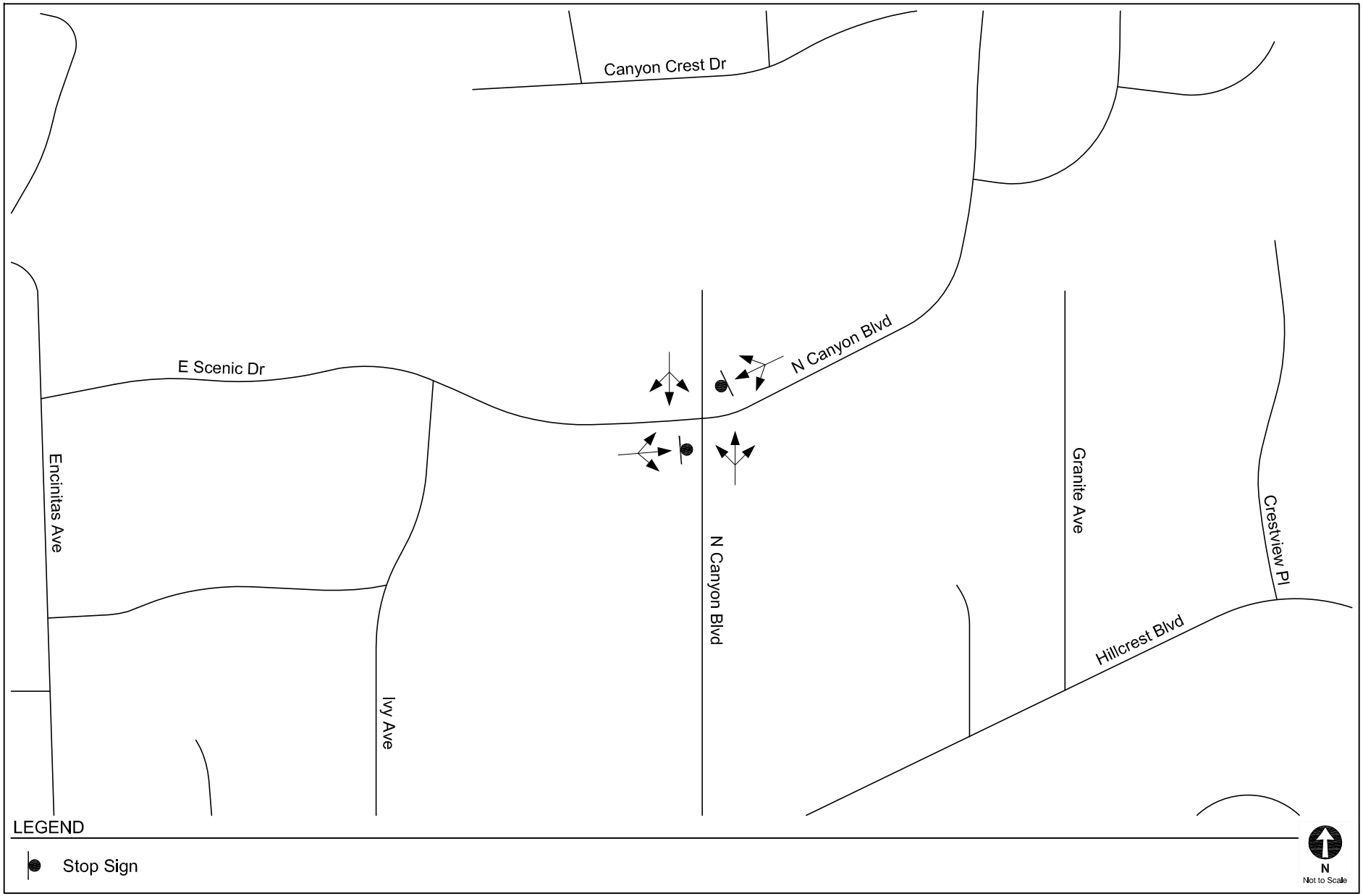
- The City is investigating the proper traffic control strategy for the intersection of North Canyon Boulevard & East Scenic Drive in order to alleviate conflicts arising from the non-standard nature of the intersection.

- Adequate sight distance is not provided on the westbound or eastbound approaches. Vehicles parked on the curb along the south leg of the intersection prevent eastbound and westbound vehicles at the stop-controlled approaches from having the proper sight distance to see northbound traffic on North Canyon Boulevard.

- The installation of an all-way stop-control strategy is warranted at the Study Intersection due to the restricted sight distances that exist today.

STUDY INTERSECTION LOCATION

FIGURE 1



STUDY INTERSECTION LOCATION

FIGURE 2

N

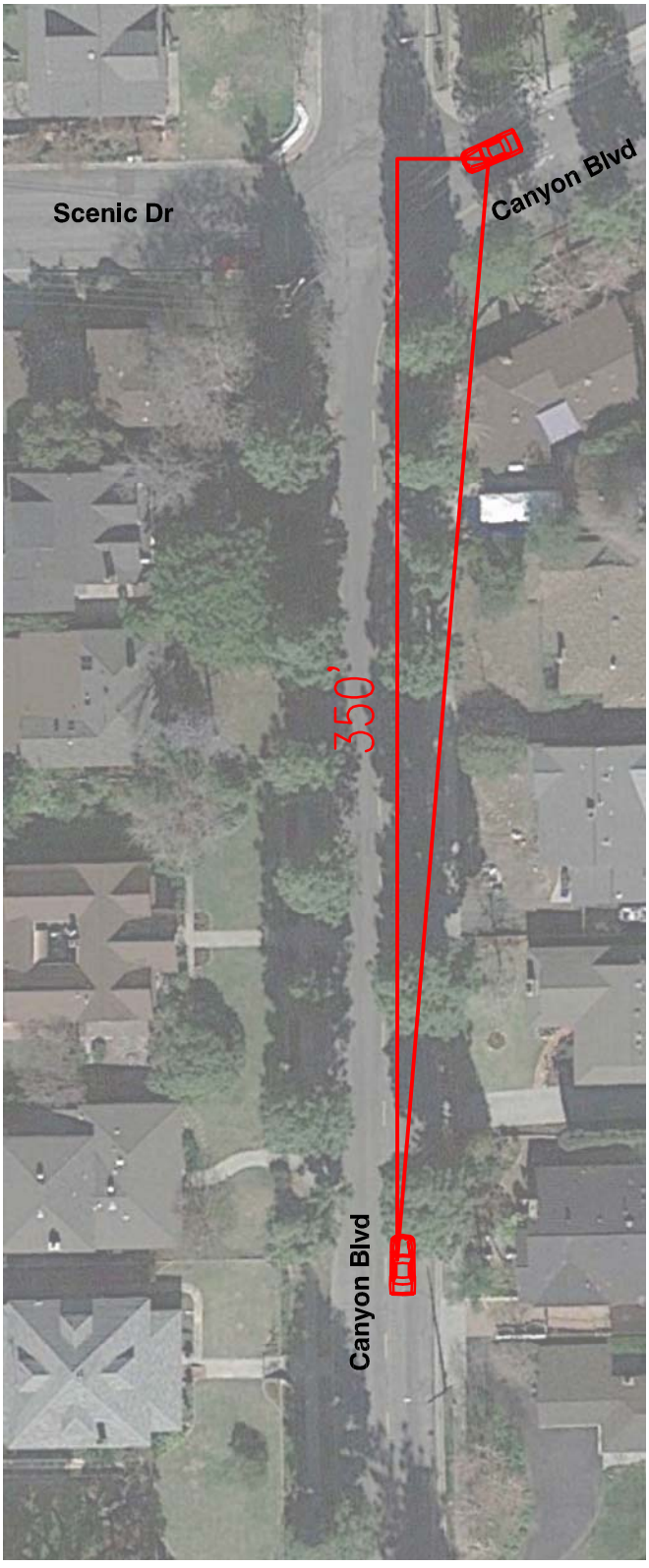
60 0 60 120

1" = 60'

GRAPHIC SCALE

CANYON BOULEVARD & SCENIC DRIVE SIGHT DISTANCE - EASTBOUND

FIGURE 3



N

60 0 60 120

1" = 60'

GRAPHIC SCALE

CANYON BOULEVARD & SCENIC DRIVE SIGHT DISTANCE - WESTBOUND

FIGURE 4