



TOWN OF APPLE VALLEY TOWN COUNCIL STAFF REPORT

To: Honorable Mayor and Town Council **Date:** April 10, 2012
From: Brad Miller, Town Engineer **Item No:** 6
Subject: FOUR-WAY STOP AT THE INTERSECTION OF KAMANA ROAD AND
KASOTA ROAD

T.M. Approval: _____ **Budgeted Item:** Yes No N/A

RECOMMENDED ACTION:

Adopt Resolution 2012-17, "A Resolution of the Town Council of the Town of Apple Valley establishing the intersection of Kamana Road and Kasota Road as a four-way STOP intersection."

SUMMARY:

On March 14, 2012, the Traffic Safety Committee met and evaluated the need for four-way STOP controls at the intersection of Kamana Road and Kasota Road. The Committee concurred with the staff recommendation to establish the intersection as a four-way STOP. Attached is the staff report submitted to the Traffic Safety Committee for Council information.

ITEM # 2

To: Traffic Committee Members
From: Richard Pedersen, Deputy Town Engineer
Date: March 14, 2012
Subject: Four-way STOP sign installation at the intersection of Kamana Road and Kasota Road

Staff received a request to investigate the intersection of Kamana Road and Kasota Road to determine if a four-way stop is warranted. Currently, there are STOP signs on the northeast and southwest legs of the intersection on Kamana Road.

Staff performed a traffic engineering investigation, which included an evaluation of past records of vehicle conflict, traffic volumes, and a field review of the intersection. Attached is the intersection analysis by Mr. Jack Rydell, P.E., T.E., PTOE.

Recommendation

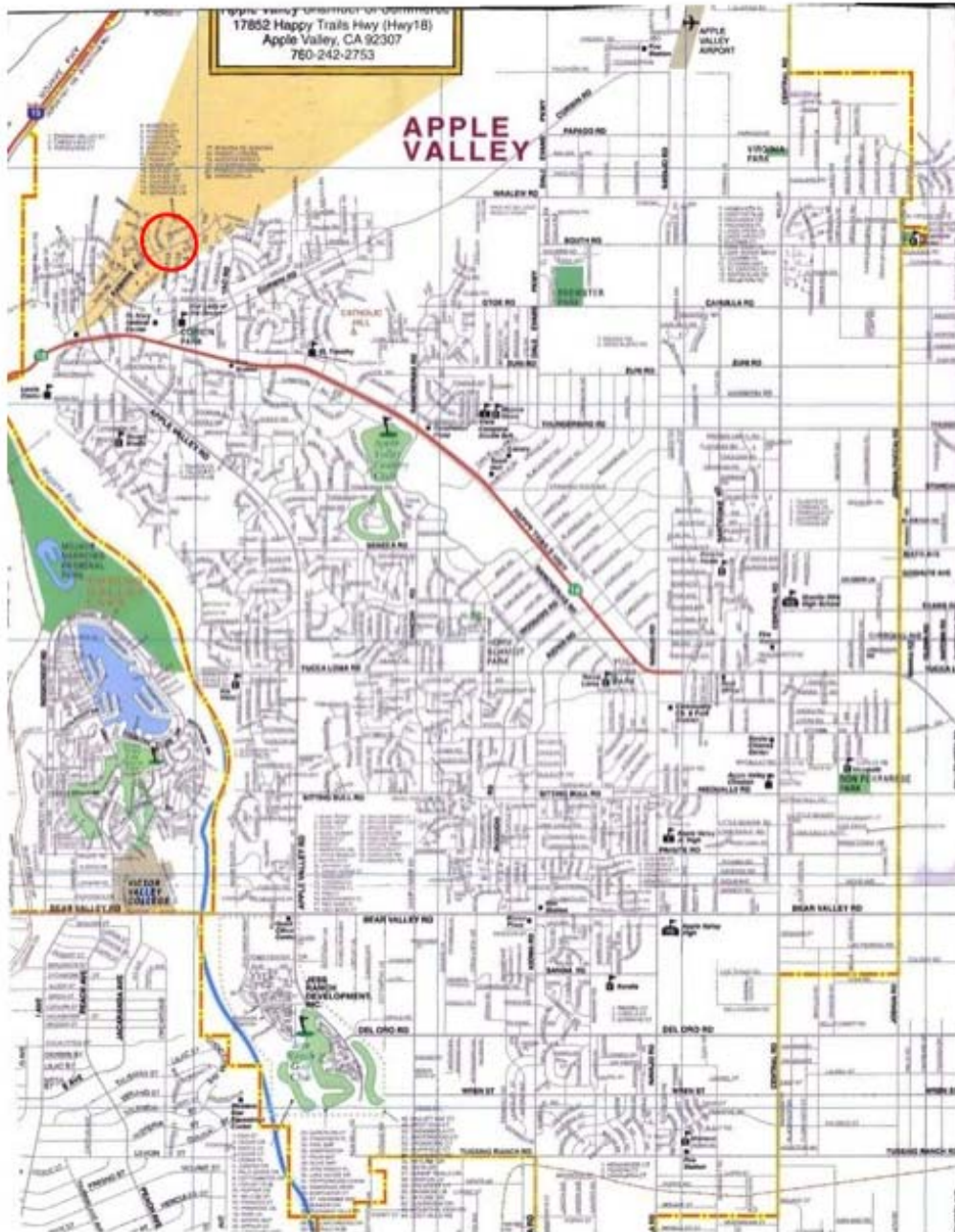
Staff recommends that four-way STOP controls be installed at the intersection of Kiowa Road and Ottawa Road.

Fiscal Impact

Installation of 2 stop signs	\$150 each
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Attachments

Location Map, All-Way STOP Controls Intersection Analysis



**LOCATION MAP
INTERSECTION OF KASOTA ROAD AND KAMANA ROAD**

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January 30, 2012

TO: Brad Miller P.E., Town Engineer
Town of Apple Valley

FROM: Jack Rydell, P.E., T.E., PTOE
Traffic Engineer

**KASOTA ROAD AND KAMANA ROAD
ALL-WAY STOP CONTROLS**

RECOMMENDATION

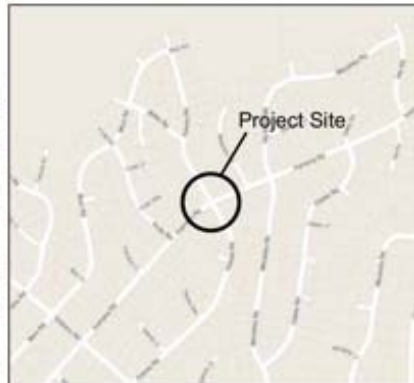
1. Consider the installation of all-way stop controls.

BACKGROUND

As requested I reviewed the intersection of Kasota Road and Kamana Road with respect to the need for all-way stop controls and offer the following comments.

DISCUSSION

Kasota Road in the subject vicinity is classified as a local roadway in the current functional classification map and runs north-south. It is unstriped with a pavement width of approximately 34 feet. There is a downgrade from north to south of approximately 4% north of Kamana Road and 3% south of Kamana Road. Kasota Road has a posted speed limit of 35 mph speed limit. Fronting development is single family residential. There are no sidewalks in the area. Kasota Road terminates approximately 2,000 north of the subject intersection and provides a through route to Highway 18 to the south.



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Kamana Road is also classified as a local roadway. It forms a four-legged intersection with Kasota Road and is controlled with stop signs, "STOP" pavement markings and a white limit lines. It is approximately 40 feet wide and has one lane of travel in each direction separated by centerline striping. Fronting development is single family residential. The posted speed limit is 45 mph. Kamana Road has a downgrade from east to west of approximately 1% east of the intersection and approximately 3% west of the intersection. There are no sidewalks on either side in the area. Kamana Road terminates to the east at Tao Road and to the west at Apple Valley Road.



Kamana Road has a downgrade from east to west of approximately 1% east of the intersection and approximately 3% west of the intersection. There are no sidewalks on either side in the area. Kamana Road terminates to the east at Tao Road and to the west at Apple Valley Road.

Volume counts were taken at this intersection in November 2006. The data showed an average weekday volume of approximately 1,701 vehicles per day on Kamana Road, with the westbound and eastbound volumes fairly evenly split (52% to 48%). Kasota Road had an average daily volume of 302 vehicles per day with the northbound volume heavier than southbound (58% to 42%). Field observations during a recent weekday morning confirmed the relatively light traffic on all approaches.

A review of the available SWITRS accident history at this location revealed one reported intersection type accidents since 2003. The accident occurred on 1/23/2004 and involved a vehicle making a U-turn (no direction was noted) hitting an eastbound vehicle that was proceeding straight.



For the legal speed limit of 35 mph on Kasota Road, the minimum stopping sight distance per AASHTO (American Association of State Highway and Transportation Officials) standards is approximately 250 feet. AASHTO also provides for an adjustment to stopping sight distance based on grade. Since the approaching grade to the north of the intersection is a downgrade of 4% and the approaching grade

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to the south is an upgrade of 3%, the minimum stopping sight distances for the legal speed are 257 feet and 237 feet, respectively. Field measurements revealed that visibility for both the east and west approaches of Kamana Road satisfy these minimum stopping sight distances.

The California Manual of Uniform Traffic Control Devices (CA MUTCD) provides guidance for the installation of all-way stop controls. It suggests that all-way stop controls may be considered when:

- There is a crash problem, as indicated by 5 or more reported crashes in a 12-month period that are susceptible to correction by all-way stop installation. Such crashes include right- and left-turn collisions as well as right-angle collisions.
- Where minimum traffic volumes are observed that include an average of at least 300 vehicles per hour entering the intersection from the major street for any 8 hours of an average day, and a combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street of at least 200 units per hour for the same 8 hours.



The CA MUTCD also provides other criteria that may be considered, including:

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

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Based on the above criteria, the collision and volume guidelines are not satisfied and do not support all-way stop control installation. However the following criteria listed above may be applicable to this location:

The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes –

Field observations revealed pedestrians walking along and crossing Kasota Road. There are no sidewalks along either Kasota Road or Kamana Road which forces pedestrians to walk within the roadway and in close proximity to vehicles travelling at relatively high rates of speed for this residential area. This creates the potential for significant conflict between pedestrians and motorists, especially when they are attempting to cross Kasota Road.



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

Both roadways function as local collectors and provide direct access to arterial roadways (Highway 18 and Apple Valley Rd). Motorists appear to have an expectation that both roadways have equal priority and motorists on Kamana Road, after stopping, often assume that motorists on Kasota Road are also required to stop. This can result in motorists on Kamana Road proceeding through the intersection without regard for approaching traffic on Kasota Road.

Additional factors to be considered in determining the appropriateness of all-way stop control at this location should include:

- The CA MUTCD suggests that determining which roadways to install stop controls on can include consideration of controlling a roadway that has dips, or bumps that already require drivers to use lower operating speeds. The north leg of Kasota Road has a dip that requires motorists to reduce their speed to comfortably traverse the dip.
- Kamana Road is not stop controlled at adjacent intersections. This creates an expectation to motorists on this roadway that they are on a through highway and

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contributes to their expectation that traffic on Kasota Road is also required to stop.

- Installing new stop controls generally increase noise and air pollution, as well as motorist delay due to motorists being required to stop whereas they did not have to previously. The volumes on Kasota Road are low enough, however, that the impact would not be expected to be significant.
- It was noted that this intersection had equestrian activity, likely travelling north on Kasota Road to its terminus and riding trails. This can create an increased potential for conflicts between motorists driving on Kasota Road and equestrians. Installing stop controls would reduce this conflict potential.

CONCLUSION

The traffic volumes and reported accident history at this location do not satisfy CA MUTCD warrants for the installation of all-way stop controls. However issues related to motorist expectations, intersection operational characteristics, pedestrian walkability and crossing opportunities, and potential equestrian conflicts justify the consideration of all-way stop controls.

JR: Kasota Rd at Kamana Rd All-Way Stop Control Analysis - 1-30-12

Attach.

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RESOLUTION NO. 2012-17

**A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF
APPLE VALLEY ESTABLISHING THE INTERSECTION OF
KAMANA ROAD AND KASOTA ROAD AS A FOUR-WAY STOP
INTERSECTION.**

WHEREAS, a traffic engineering investigation has determined that establishing the intersection of Kamana Road and Kasota Road as a four-way STOP intersection is warranted in accordance with Section 52.0111 of the San Bernardino County Code as adopted by the Town of Apple Valley.

NOW THEREFORE, THE TOWN COUNCIL OF THE TOWN OF APPLE VALLEY DOES RESOLVE AND ORDER AS FOLLOWS:

Section 1: Approves and establishes the intersection of Kamana Road and Kasota Road as a four-way STOP intersection.

Section 2: Authorizes and directs the Town Manager to cause additional STOP signs to be placed on Kamana Road and Kasota Road.

APPROVED and **ADOPTED** this the 10th day of April, 2012.

MAYOR

ATTESTED:

TOWN CLERK