



## Town Council Agenda Report

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Date: June 9, 2020 Item No. 8

To: Honorable Mayor and Town Council

Subject: ALL-WAY STOP AT THE INTERSECTION OF OCOTILLA ROAD/  
MESQUITE ROAD AND ESAWS AVENUE

From: Douglas Robertson, Town Manager

Submitted by: Brad Miller, Town Engineer  
Engineering Department

Budgeted Item:  Yes  No  N/A

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### RECOMMENDED ACTION

For the purposes of this report, Ocotilla Road and Mesquite Road refer to the same roadway.

Adopt Resolution 2020-22, "A Resolution of the Town Council of the Town of Apple Valley establishing the intersection of Ocotilla Road and Esaws Avenue as an all-way STOP intersection."

### BACKGROUND

Staff has evaluated speed limits, collision history and overall traffic control measures at the intersection of Ocotilla Road and Esaws Avenue as part of a review of the school related traffic controls surrounding Granite Hills High School which is located on the northwest corner of the intersection. There is a marked crosswalk on the east leg of the intersection and the traffic on Esaws Avenue is required to stop at existing stop signs. Ocotilla Road south of Esaws Avenue and Esaws Avenue east of Ocotilla Road, although unpaved, provide through access to Highway 18 and Joshua Road respectively. This location has a variety of school related traffic control signs and markings, and there is a potential need to control vehicle/pedestrian conflicts in this area due to the close proximity to the school.

## **ANALYSIS**

This location is adjacent to Granite Hills High School, which would generate substantial pedestrian volumes. In addition, school bus stops are located in close proximity to this intersection. It is reasonable to establish all-way stop controls to reduce conflicts between motorists and pedestrians. Also, although Ocotilla Road south of the intersection is unpaved, there is the potential for northbound motorists to feel unconstrained travelling through the intersection. Establishing all-way stop controls at intersections adjacent to schools is a common practice in many jurisdictions.

Based on the proximity of the school, the need to control vehicle/pedestrian conflicts, and the exercise of Engineering judgement, Engineering staff is recommending that stop controls at Ocotilla Road and Esaws Avenue be changed to an all-way stop. Engineering staff supports the findings of the evaluation, and with Town Manager Robertson's approval, are bringing the change to an all-way stop at this intersection before Town Council to consider for approval and immediate appropriate implementation.

## **FISCAL IMPACT**

The project will be paid for using Measure I funds. The estimated project cost, which includes signage, markings, crosswalk modifications, and all other related activities and items is \$2,000.00.

## **ATTACHMENTS**

- A. Resolution 2020-22
- B. Engineering Analysis

**RESOLUTION NO. 2020-22**

**A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF APPLE VALLEY ESTABLISHING THE INTERSECTION OF OCOTILLA ROAD AND ESAWS AVENUE AS AN ALL-WAY STOP INTERSECTION.**

**WHEREAS**, a traffic engineering investigation has determined that establishing the intersection of Ocotilla Road and Esaws Avenue as an all-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 Ocotilla Road and Esaws Avenue as an all-way STOP intersection.

**Section 2:** Authorizes and directs the Town Manager to cause additional STOP signs to be placed on Ocotilla Road and Esaws Avenue.

**APPROVED and ADOPTED** by the Town Council of the Town of Apple Valley this the 9<sup>th</sup> day of June 2020.

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MAYOR, Scott Nassif

ATTESTED:

\_\_\_\_\_  
TOWN CLERK, La Vonda M-Pearson



November 15, 2019

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

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

**GRANITE HILLS HIGH SCHOOL  
TRAFFIC CONTROL EVALUATION**

**RECOMMENDATIONS**

1. Modify the traffic controls surrounding Granite Hills High School as indicated in Attachments B1 through B-3.
2. Establish all-way stop controls at the intersection of Esaws Avenue and Ocotilla Road.

**BACKGROUND**

As requested, I reviewed the school related traffic controls surrounding Granite Hills High School, which is located on the northwest corner of Esaws Avenue and Ocotilla Road. For the purposes of this report, Ocotilla Road and Mesquite Road refer to the same roadway.

**EXISTING CONDITIONS**

Esaws Avenue and Ocotilla Road have a variety of school related traffic control signs and markings. 25 mph school speed limit signs are located on Esaws Avenue west of the school (for eastbound traffic), and on Ocotilla Road north of the school (for southbound traffic). Other than the school speed limit, Esaws Avenue and Ocotilla Road are unposted. Central Road, the primary north-south roadway west of the school has a posted 55 mph speed limit. Ramona Avenue, the primary east-west roadway north of the school has no posted speed limit. Central Road and Ocotilla Road in the vicinity of the school are classified as major collector roadways in the current functional classification map (California Roadway System Map 15U14). Esaws Avenue and Ramona Avenue are classified as local roadways.

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There is a traffic signal at Central Road and Esaws Avenue, with yellow school crosswalks on the north, east and west legs. There are stop controls for the east and west approaches of Esaws Avenue at Ocotilla Road. Esaws Road is unpaved east of Ocotilla Road, and Ocotilla Road is unpaved south of Esaws Avenue. Although unpaved, these portions of Esaws Avenue and Ocotilla Road provide through access to Highway 18 to the south (Ocotilla Road) and Joshua Road to the east (Esaws Avenue), as well as developments between these points.

The west school boundary on Esaws Avenue is located approximately 1,300 feet east of Central Road. Frontage on the north side in this area is vacant, as the entire south side between Central Road and Ocotilla Road. The north school boundary on Ocotilla Road is located approximately 1,300 feet south of Ramona Avenue. Frontage on the west side in this area is vacant, as is the east side between Esaws Avenue and a point approximately 600 feet south of Ramona Avenue, where there is limited residential development.

Existing school related traffic controls are illustrated in Attachment A.

## **ANALYSIS**

### **SCHOOL-RELATED TRAFFIC CONTROLS**

The recommendations contained in this evaluation are based on the current California Manual on Uniform Traffic Control Devices (CA MUTCD), the California Vehicle Code (CVC) and current traffic engineering practice. The general methodology is this evaluation is as follows:

- Ensure that the school-related traffic controls are consistent with the requirements and guidance of the CA MUTCD;
- Utilize traffic controls that are expected to increase motorist awareness of the school zone and encourage more appropriate driving behavior;
- Minimize excessive use of signage or other traffic controls in order to prevent the controls from losing effectiveness and impact; and,
- Provide an approach to applying school-related traffic controls that can be applied in a consistent manner throughout the Town.

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The CA MUTCD specifies the appropriate school area warning signage and pavement markings in various sections of Chapter 9. Some of the key standards include:

- School Warning Assembly A - Section 7B.09 states that an Assembly A shall be used on streets with prima facie 25 mph speed limits that are contiguous to a school building or school grounds. If used, the School Warning Assembly A should be posted at the school boundary, although it may be posted up to 500 feet in advance of the school boundary.
- School Crossing Assembly B – Section 7B.12 states that an Assembly B shall be posted at all yellow school crosswalks that are not controlled by a STOP sign, a YIELD sign or a traffic signal.
- School Speed Limit Assembly C – Section 7B.15 states that an Assembly C shall be used on streets with speed limits greater than 25 mph that are contiguous to a school building or school grounds. If used, the Assembly C should be posted at the school boundary, although it may be posted up to 500 feet in advance of the school boundary.
- School Advance Crossing Assembly D – Section 7B.11 states that an Assembly D shall be used in advance of any Assembly B or Assembly C. CA MUTCD Table 2C-4 establishes advance placement guidelines.
- End School Speed Limit Sign (S5-3) - Section 7B.15 states that the downstream end of an authorized and posted reduced school speed limit zone shall be identified with an S5-3 sign. For the purposes of this evaluation, it should be noted that Sections 7B.09, 7B.10 and 7B.15 specifically remove the use of the S5-2 sign (End School Zone) in California.
- Reduced School Speed Limit Ahead Sign (S4-5) – Section 7B.16 states that a Reduced School Speed Limit Ahead sign should be used to inform road users of a reduced speed zone where the speed limit is being reduced by more than 10 mph, or where engineering judgment indicates that advance notice would be appropriate for the Assembly D. If used, the Reduced School Speed Limit Ahead sign shall be followed by Assembly C. In addition, the speed limit displayed on the Reduced School Speed Limit Ahead sign shall be identical to the speed limit displayed on the subsequent Assembly C.

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- Slow School Crossing Pavement Marking – Section 7C.03 states that SLOW SCHOOL XING markings shall be used in accordance with the provisions of CVC 21368 in advance of all yellow school crosswalks. In addition, they shall not be used where the crossing is controlled by stop signs, traffic signals, or yield signs. They shall be yellow, with the word XING at least 100 feet in advance of the school crosswalk.
- School Bus Stop Ahead Sign (S3-1) - Section 7B.13 states that a school bus stop ahead sign shall be installed in advance of an approved school bus stop where there is not a clear view in advance of the stop from a distance of 200 feet.

Detailed sketches of all recommendations are illustrated in Attachments B1-B3. Attachment C identifies the various traffic control signage used in these recommendations. The following information discusses the rationale supporting the recommendations.

CVC Section 22352 identifies a 25 mph school speed limit when approaching or passing a school building or the grounds thereof, contiguous to a highway and posted with a standard "SCHOOL" warning sign, while children are going to or leaving the school either during school hours or during the noon recess period. It also allows for placing "SCHOOL" warning signs at any distance up to 500 feet away from school grounds.

The definition of a "school building" is clearly understood and its common use has been applied in the development of these recommendations. The term "school grounds" is not defined in either the California Vehicle Code or the CA MUTCD. However, there is a definition contained within the California Code of Regulations, Section 11993, which states the following:

*"On school grounds" means the immediate area surrounding the school including, but not limited to, the school building, the gymnasium, athletic fields, and the site parking lots."*

Based on this definition, the school grounds on Ocotilla Road are considered to be from Esaws Avenue to a point approximately 1,200 feet north of Esaws Avenue. This includes the athletic fields north of the school buildings. On Esaws Avenue, the school grounds are considered to extend from Ocotilla Road to a point approximately 1,300 feet west of Ocotilla Road. This includes the parking lot area west of the school buildings and south of the athletic fields. The vacant land between the school and

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Central Road is not considered as school grounds as it does not meet the definition stated previously.

There is no posted general speed limits on Esaws Avenue or Ocotilla Road; however both qualify for a 55 mph prima facie speed limit per California Vehicle Code (CVC) Section 22349 (b). Since Esaws Avenue would qualify for a general speed limit of 55 mph, it is appropriate to have a school speed limit adjacent to the school. The existing Assembly C east of Central Road is located approximately 420 feet east of Central Road, which is approximately 880 feet in advance of the school boundary. This exceeds the criteria discussed previously. For compliance with the CVC and CA MUTCD, it is appropriate to relocate the Assembly C to a point approximately 830 feet east of Central Road, which would place it on an existing sign post approximately 470 feet in advance of the school boundary. The existing Assembly A on this post is unnecessary and should be removed. Esaws Avenue continues easterly from Ocotilla Road as an unpaved roadway that provides through access to Joshua Road, as well as intermediary residences. To adequately notify motorists approaching the school on this portion of roadway, it would be appropriate to install an Assembly C approximately 200 feet east of Ocotilla Road.

Since Ocotilla Road would also qualify for a general speed limit of 55 mph, it is appropriate to have a school speed limit adjacent to the school. The existing Assembly C is located approximately 1,400 feet north of Esaws Avenue, which is approximately 200 feet in advance of the school boundary. Although this is consistent with the criteria discussed previously, the need for additional required signage suggests that the Assembly C could be relocated southerly to the school boundary. This would place it on a lightpole, replacing the existing Assembly A, which is unnecessary. Ocotilla Road continues southerly from Esaws Avenue as an unpaved roadway that provides through access to Highway 18, as well as intermediary residences. To adequately notify motorists approaching the school on this portion of roadway, it would be appropriate to install an Assembly C approximately 300 feet south of Esaws Avenue.

S4-5 (reduced school speed limit ahead) signs are recommended on Esaws Avenue west of the school and on Ocotilla Road north of the school in advance of the Assembly C's in these areas. The general speed limit on these two roadways is 55 mph, which would require a reduction of more than 10 mph to the school speed limit and requires the use of this sign. They are recommended for placement immediately in advance of the Assembly C's, which supports the relocation of the Assembly C's. S4-5 signs are not recommended in advance of the Assembly C's on Esaws Avenue east of the school and on Ocotilla Road south of the school due to the recommended all-way stop controls for the intersection of Esaws Avenue and Ocotilla Road. The recommended all-way

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stop controls will require motorists to stop prior to entering the school boundary; whereas motorists approaching the school from the north (Ocotilla Road) or west (Esaws Avenue) will enter the school boundary from a 55 mph roadway.

Opposite of each Assembly C, S5-3 ("END SCHOOL SPEED ZONE") signs should be installed for compliance with the CA MUTCD. The recommendations identify installations of these signs on Esaws Avenue and Ocotilla Road, including the removal of obsolete S5-2 ("END SCHOOL ZONE") signs.

The CA MUTCD requires installation of Assembly D's in advance of all Assembly C's. The recommendations identify new installations as well as relocations on Esaws Avenue and in Ocotilla Road to satisfy this requirement.

There are two bus stop locations for the school as indicated on the attached sketches. The recommendations include removal of the existing "SCHOOL BUS STOP 400 FT" and "SCHOOL BUS STOP 200 FT" signs on Esaws Avenue and Ocotilla Road. These signs are obsolete and should be replaced with the current S3-1 sign. On Esaws Avenue, it is recommended that the new sign be located at the location of the existing easterly sign. On Ocotilla Road, the new sign should be located further north. These recommended locations will place the signs approximately 200 feet in advance of the bus stops. School bus stop ahead signs are not recommended east or south of the school since the proposed all-way stop controls at Esaws Avenue and Ocotilla Road will allow adequate visibility of the stop locations.

The existing school crosswalks (Central Road at Esaws Avenue, Esaws Avenue at Ocotilla Road) are standard crosswalks, utilizing two transverse lines. High visibility crosswalks, such as continental or ladder, increase motorist awareness of the crossing and the potential for encountering pedestrians. They have been proven to increase motorist yielding to crossing pedestrians, thus enhancing safety. Their use is supported by pedestrian advocacy groups and have become standard in many public agencies. It is recommended that the standard school crosswalks be replaced with high visibility ladder crosswalks at the two locations. It is also recommended that white limit lines be installed 4 feet in advance of the school crosswalks. This action will increase the separation between vehicles and pedestrians in the crosswalk, thus enhancing safety and reducing the potential for collisions.

#### **ALL-WAY STOP CONTROL**

The CA MUTCD provides guidance for the installation of all-way stop controls. It suggests that all-way stop controls may be considered when:

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- **Warrant A** - Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.
- **Warrant B** - 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.
- **Warrant C** - Where the vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour. When the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, as it does at this intersection, the minimum vehicular volume warrants may be reduced to 70 percent of the above values.
- **Warrant D** - Where none of the above Warrants are satisfied, but Warrants B and C are satisfied 80 percent. For this warrant, the 70 percent reduction for Warrant C cannot be applied.

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.

Traffic volumes at the intersection of Esaws Avenue and Ocotilla Road would clearly fall well below the minimum thresholds to satisfy Warrant C, and a review of the available SWITRS data revealed no reported intersection crashes since 2014. However, the following criteria listed above are applicable to this location:

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**The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes** – This location is adjacent to Granite Hills High School, which would generate substantial pedestrian volumes. In addition, the school bus stops are located in close proximity to this intersection. It is reasonable to establish all-way stop controls to reduce conflict between motorists on Ocotilla Road, which is currently uncontrolled, and pedestrians. Although Ocotilla Road south of the intersection is unpaved, there is the potential for northbound motorists to feel unconstrained and engage in excessive speeds travelling through the intersection. Establishing all-way stop controls at intersections adjacent to schools is a common practice in many jurisdictions.

This recommendation would require installation of R1-1 (stop) signs on the north and south approaches of Ocotilla Road at Esaws Avenue, as well as R1-3P (“ALL-WAY”) plaques below all stop signs. Stop ahead warning signs on Ocotilla Road are not recommended due to the expected sufficient visibility of the new stop signs, low vehicular volumes approaching the intersection, and to provide consistency with the signage used on Esaws Avenue. It is suggested that notification of the new stop controls be provided to motorists for a few weeks prior to installation by changeable message signs or other appropriate techniques.

JR: Granite Hills High School Traffic Control Evaluations - 11-15-19

Attach.



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