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Mr. Don Young, PE
City of Redlands
35 Cajon St, Suite 15-A
Redlands CA 92373

Reference: Traffic Memorandum — Project No. 18-1004
Zanja Trail - 7th Street to Church Street

Mr. Young:

This memorandum is in response to the CEQA questions in traffic section listed in the Draft Initial Study and Mitigated Negative Declaration (IS and MND) for Zanja Trail. A recreation trail (pedestrians, bicycles, etc.) has been proposed along the historic Zanja irrigation channel in the City of Redlands. The first portion of the Zanja Trail is under construction between Lincoln Street and Wabash Avenue.

This traffic memorandum was developed to answer the CEQA questions and assess the potential impact to the roadway system due to the further development of the trail.

Project Description

The Project will begin at west side of 7th Street and end with a crossing at Church Street. The Project includes two elements: a Zanja Trail Gateway Monument at the eastside end of 7th Street, and a 0.3-mile trail from 7th Street to Church Street. The trail is characterized as a pedestrian trail from 7th Street to 9th Street and a multipurpose trail from 9th Street to Church Street.

The following project information is based on the drafted IS and MND prepared by ECORP Consulting, Inc.

The Redlands Conservancy prepared a Master Plan that was accepted by Redlands City Council on December 15, 2015. It identifies the route, potential amenities, and opportunities and constraints of the full Zanja trail alignment, which originally extended from Wabash Avenue to 9th Street/Redlands Boulevard and has since been revised to

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extend to 7th Street, approximately 2.3 miles. This Initial Study focuses only on the 7th Street to Church Street portion of the trail.

7th Street to 9th Street Trail Segment:

This trail segment will be approximately 600 feet long, within a 54 to 60-foot-wide alignment from 7th Street to 9th Street. This space is currently used as a surface parking for a religious facility located north of the Hatfield Buick dealership. In this area the Zanja Channel has been placed underground.

The trail will begin at the western curb of 7th Street, north of Redlands Boulevard, where an enhanced paving crosswalk will be installed. A Zanja Trail Gateway Monument will be installed on the eastern side of 7th Street. A 6-foot-wide natural surface pedestrian trail will be built within a 12 to 18 foot wide strip of landscaping north of the Hatfield Buick dealership. Currently part of the west part of the area is a paved parking. Paving will be removed from this area and be replaced with new paving on the east end of this segment.

Landscaping will include native trees and shrubs to provide shade and help shield pedestrians from vehicles using the parking lot. Interpretive way-finding and mile-marking signs will also be installed along the route and at the northwest corner of Redlands Boulevard and 7th Street. The area north of the trail will include a two-way drive aisle and parking. Existing fencing will remain in place.

9th Street to Church Street Trail Segment:

This trail segment will be approximately 1,050 feet long and extend from the western curb of 9th Street to the western curb of Church Street. This segment of the trail alignment will be constructed within an area owned by City of Redland's Successor Agency and within right of way owned by the San Bernardino County Flood Control District.

Improvements will include an enhanced pavement street crossing at 9th Street. The proposed trail alignment will consist of a 6-foot-wide natural surface pedestrian trail and a 12-foot-wide Class I bicycle lane. This segment will also be part of the Orange Blossom Trail alignment. Along this segment, both the pedestrian trail and the Class I bicycle lane will be located north of the Zanja Channel with a soft fence consisting of a 30-inch-high post and rail wood fence separating the path from the channel.

Along the route, interpretive way-finding and mile-marking signs will be installed. Removable lockable bollards will be installed at the trail entrances at 9th Street and Church Street to deter motorized vehicles from entering the trail. If necessary, the

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Orange Blossom Trail bicycle path will also serve as an access road for San Bernardino Flood Control District vehicles. Trash receptacles and dog waste removal units will be installed at road crossings. Native plantings and shade trees will be planted along the route.

Proposed site improvements will avoid work in the Zanja Channel or the portions of its banks that have been designated as under the jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board and/or California Department of Fish and Wildlife.

Existing Conditions

The study area includes the streets intersecting with the Zanja Trail, which are 7th Street, 9th Street, and Church Street for this project.

7th Street is a two-lane north-south street. 7th Street is a 60-foot wide local street based on the Figure 5-5 and Figure 5-6 in City of Redlands General Plan 2035(GP).

9th Street is a two-lane north-south street. 9th Street is a 60-foot wide local street based on the Figure 5-5 and Figure 5-6 in City of Redlands GP.

Church Street is two-lane north-south street. Church Street is a 64-foot wide Collector as shown in GP Figure 5-5 and Figure 5-6. Church Street is categorized as a collector residential (standard) as shown in GP Figure 5-6. The posted speed limit is 35 mph near the Zanja Channel.

According to the City of Redlands GP, this portion of the Zanja Trail is classified as Class I route (bike path).

Omnitrans provides public transit operations in the area. However, there are no routes on 7th Street, 9th Street, and Church Street. The nearest bus route is OmniTrans Route 19 on Citrus Avenue, about 1,000 feet south of Church Street at the Zanja Trail, and OmniTrans Route 8 on Orange Street, about 1,000 feet west of 7th Street at the Zanja Trail.

Project Trip Generation

Project trips are the number of vehicle trips that are generated by a project. While the creation of a new trail or the extension of a trail may draw a few vehicles to the area so that people can walk the trail, HKA anticipates that the number of vehicles added to the area to walk this 1,650 feet of trail will be less than 10 trips a weekday. This is less than the average daily fluctuation of traffic volumes.

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The reason that anticipated traffic volumes will not increase much is that proposed project is making an attractive, identified trail of an area that is currently used by pedestrians and non-motorized vehicles. The less than a half a mile project planned do not include restaurants, parks, or other amenities that will generate project trips. No additional analysis of vehicle project trips is required.

Vehicular Traffic

This portion of the Zanja Trail crosses 7th Street, 9th Street, and Church Street, 24 hour counts were taken by Counts Unlimited. On April 10, 2018, the 24 hour volumes on 7th Street, from Stuart Avenue to East Redlands Boulevard, was 595, on 9th Street from Stuart Avenue to East Central Avenue was 801, and on Church Street from Stuart Avenue to East Central Avenue was 7,582. The following table summarizes the ADTs and peak hour volumes.

Table 1: ADT in 2018 Vehicular Volume

Street	Segment	ADT	AM Peak Hour	PM Peak Hour	Street Peak
7th Street	Stuart Avenue to Redlands Boulevard	595	39	47	56
9th Street	Stuart Avenue to Redlands Boulevard	801	72	68	80
Church Street	Stuart Avenue to Central Avenue	7,582	601	664	664

AM Peak Hour – Highest hourly volume between 7 – 9 AM.
PM Peak Hour – Highest hourly volume between 4 – 7 PM.
Street Peak – Highest hourly volume in a 24 hour period.

Pedestrian Warrant

The non-vehicular traffic volumes along the Orange Blossom Trail and at Church Street north of Redlands High School was compared to the Manual of Uniform Traffic Control Devices (MUTCD) Warrant 4 "Pedestrian Warrant" to determine if the traffic control signals are needed at the crossings of the three streets.

Based on the Section 4C.05 Warrant 4, Pedestrian Volume in MUTCD, the need for traffic control signals at any crossings is determined by analyzing the situation with the following criteria:

1. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the

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corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5 (see attachment); or

2. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-7 (see attachment)

3. The Pedestrian Volume signal warrant shall not be applied at locations where the distances to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.

4. If this warrant is met and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4E.

If one of the standards is met, a traffic control signal at the crossing may be required.

The project's path follows the Zanja Channel which currently provides informal pedestrian and non-motorized access between downtown Redlands, University of Redlands and businesses and residences in the general area. The proposed path crosses Church Street less than 500 feet north of Redlands High School and probably provides walking and biking access between the high school and the students' homes.

Besides the current non-motorized traffic experience, additional users are expected when the trail is developed and landscaped. To gauge the impacts of the additional traffic, the current non-motorized traffic in the area was counted at the proposed trail crossing at Church Street and counts were taken of the users of the developed portion of the Orange Blossom Trail where it crosses Dearborn Street.

The Orange Blossom Trail currently provides a paved and a natural surface path from Wabash Avenue to Grove Street. It has been opened for more than two years and is probably a good indicator of the number of additional users that will be added in the project area. Since the number of users of the Orange Blossom, or any trail, is probably highest on the weekend, the counts were taken for 8 hours on a Saturday. The counts are attached and a summary is included in Table 2 below.

The number of existing users of the path north of the school were counted twice. The count of pedestrians and non-motorized vehicles at the project location on Church Street were taken during a weekday AM peak period when the most students will be

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traveling to school. Redlands High School students starts most days at 7:30 am. The students' departure times vary due to after-school sports or activities, work or other commitments so there is not a concentration of student traffic in the afternoon as there is in the morning.

The count of pedestrians and non-motorized vehicles at the project location on Church Street were also taken during the middle of the day on a weekend. The results are shown in the table below.

Table 2: Non-vehicular Traffic Counts

Location	**Peak Counts**			
	10:45 AM – 11:45 AM (Saturday)			
Orange Blossom Trail	33			
Church Street at Channel – North of High School	**7:00 AM – 8:00 AM (Weekday)**		**11:00 AM– 12:00 PM (Saturday)**	
	Street	**Channel**	**Street**	**Channel**
	15	1	11	3
Future Total on Channel	34		36	

Adding the counts from the highest hour counted at the Orange Blossom Trail to the existing users of the project area at Church Street will provide a conservative volume of anticipated additional users to the proposal project.

Figures 4C-5 and 4C-7 attached shows the total anticipated crossings of Church Street per hour in this project are below the standard curve in these two figures. This number of crossing does not meet the lower limit of the criteria. A traffic control signal is not required at the Church Street crossing of Zanja Street.

The Zanja Trail intersects 7th Street within 300 feet of a stop control on 7th Street. The trail crossing will be 190 feet from the traffic control at the 7th Street and Redlands Boulevard Intersection. Therefore, the Pedestrian Volume signal warrant shall not be applied to the Zanja Trail crossing on 7th Street.

The Zanja Trail intersects 9th Street within 300 feet of a stop control on 9th Street. The trail crossing will be 200 feet from the traffic control at the 9th Street and Central Avenue Intersection. Therefore, the Pedestrian Volume signal warrant shall not be applied to the Zanja Trail crossing on 9th Street.

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CEQA Questions

The following questions are from Section 4.17.2 Transportation / Traffic (XVII) Environmental Checklist and Discussion in Drafted IS and MND:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Would the project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒

The proposed project will not conflict with current applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, as low average daily vehicular trips will have minimum impact on the intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit. No impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐

The proposed project will comply with the San Bernardino Associated Governments' Congestion Management Plan (SANBAG's CMP). The project trips are far below the average daily fluctuation of traffic counts. A less than significant impacts will occur.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

No airport or air transit facility is nearby the proposed project site. Proposed project is the construction of new recreation facilities for pedestrian and bicycle activities only. No impact will occur.

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d)	Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

The Zanja Trail will intersect with 7th Street, 9th Street and Church Street which may result in an increase to potential hazards when people cross the streets. At the Church Street crossing, enhanced pavement paths will mitigate traffic accidents between vehicles and pedestrians or bicycle riders.

e)	Would the project result in inadequate emergency access?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☐	No Impact ☒

Since the trail will be an open space for non-vehicular traffic, the proposed project will not impact emergency access. Therefore, no impact will occur.

f)	Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance or safety of such facilities?	Potentially Significant Impact ☐	Less than Significant with Mitigation Incorporated ☐	Less than Significant Impact ☒	No Impact ☐

The nearest bus routes are OmniTrans Route 19 on Citrus Avenue, about 1,000 feet south of Church Street at the Zanja Trail, and OmniTrans Route 8 on Orange Street, about 1,000 feet west of 7th Street at the Zanja Trail. Some pedestrian or bicyclists might use this transit route and use the existing sidewalks or roads to reach the trail and parks. A less than significant impact will occur.

Mitigation Measures / Recommendation

The Zanja Trail will intersect with 7th Street, 9th Street, and Church Street that may result in an increase to potential hazards when people crossing the streets. At the 9th Street crossing, enhanced pavement paths will mitigate traffic accidents between vehicles and pedestrians or bicycle riders.

Conclusions

HKA anticipates that the number of vehicles added to the area to walk this 1,650 of the trails will be less than 10 trips a weekday which is less than the average daily fluctuation of traffic counts.

Pedestrian Warrant 4 of the MUTCD does not apply for 7th Street and 9th Street as both streets are stopped controlled within 300 feet of the proposed Zanja Trail crossing.

Taking the pedestrian and non-motorized vehicle volumes at the existing Orange Blossom Trail resulted in a highest hourly volume of 33. Adding those 33 pedestrian and non-motorized vehicle volumes to the existing volumes of the pedestrian and non-motorized vehicle volumes existing at Church Street resulted in less than 50 pedestrian and non-motorized vehicle volumes per hour. That number of pedestrian and non-motorized vehicle crossings does not meet any criteria under Pedestrian Warrant 4. No traffic control is required at the Church Street and proposed Zanja Trail crossing.

HKA recommends no additional analysis of the traffic impacts be required.

If you have any questions regarding this analysis, please feel free to contact either myself or Sergio Mendoza at (909) 884-3222.

Sincerely,

Anne M. Hernandez, P.E.
Principal

Attachments: 8 Hour Pedestrian and Non-Motorized Vehicle Counts
ADT Classified Counts
MUTCD Figure 4C-5. Warrant 4, Pedestrian Four-Hour Volume
MUTCD Figure 4C-7. Warrant 4, Pedestrian Peak Hour