5.14 TRAFFIC AND CIRCULATION

This section of the Draft Environmental Impact Report (EIR) is based upon the *Dignity Mercy Medical Center Redding – North State Pavilion Traffic Impact Analysis Report* (October 2018) prepared by GHD, which is included as Appendix 15.11, TRAFFIC IMPACT ANALYSIS REPORT. The purpose of this study is to address traffic and transportation impacts of the proposed project on surrounding streets and intersections. The *Traffic Impact Analysis Report* was prepared based on criteria set forth by the City of Redding. Mitigation measures are recommended, if necessary, to avoid or lessen project impacts on traffic and circulation. The following analysis of the potential environmental impacts related to traffic and circulation is derived from the following sources available for review at the City of Redding Development Services Department, Planning Division:

- City of Redding. *2000 - 2020 General Plan.* October 2000.
- City of Redding. *Active Transportation Plan*. April 2018.
- City of Redding. *Redding Municipal Code, Title 11, Vehicles and Traffic.* March 2018.
- City of Redding. *Redding Municipal Code, Title 13, Streets and Sidewalks.* March 2018.
- City of Redding. *Traffic Impact Assessment Guidelines*. January 2009.
- Shasta Regional Transportation Agency. *2015 Regional Transportation Plan*. June 2015.

This section provides baseline information on, and evaluates potential impacts on traffic and circulation related to the proposed project. The following traffic analysis scenarios were evaluated:

- *Existing Conditions. Existing* conditions quantify the current traffic operations at the study locations.

- *Existing Plus Project Conditions.* The *Existing Plus Project* condition is an analysis scenario in which traffic impacts with the proposed project are investigated in comparison to the *Existing* conditions scenario. Within this scenario, the project generated peak hour traffic volumes have been added to the *Existing* conditions volumes to obtain the *Existing Plus Project* traffic volumes.

The City of Redding *Traffic Impact Assessment Guidelines* (January 2009) defines the following scenarios as being appropriate for assessment cumulative conditions:

- Existing + Approved/Pending Project List, and
- Existing + Approved/Pending Project List + Proposed Project; or
- 2030 Shasta County Travel Demand Model (SCTDM) without Proposed Project, and
- 2030 SCTDM + Proposed Project

For the proposed project, City staff determined that the Year 2040 forecasts from the SCTDM are appropriate to address cumulative traffic conditions.

- *Year 2040 No Project Conditions. Year 2040 No Project* conditions refer to analysis scenarios that would exist following approximately twenty years of development in the City of Redding. The *Year 2040 No Project* conditions scenarios were forecasted using SCTDM.

- *Year 2040 Plus Project Conditions.* The *Year 2040 Plus Project* conditions is the analysis scenario in which traffic impacts associated with the project are investigated in comparison to the *Year 2040 No Project* condition scenario.

5.14.1 ENVIRONMENTAL SETTING

STREET CLASSIFICATIONS

The City of Redding's existing classification system is comprised of freeways, expressways, major arterials, and collector roadways. The City's *General Plan* designates these functional classifications, which govern engineering design standards and the level of service (LOS) expected of roadways.

- *Freeway System.* A principal arterial corridor that provides for safe and efficient movement of high volumes of traffic at relatively high speed. An expressway with fully controlled access.

- *Expressway System.* Excludes freeways. Provides for expeditious movement of large volumes of through traffic between areas and across the City and not intended to provide land access service.

- *Major Arterial System.* Provides for through traffic movement between areas and across the city and direct access to abutting properties, subject to necessary control of entrances, exits, and curb use.

- *Collector Street System.* Provides for traffic movement between major arterials and local streets and direct access to abutting properties.

- *Local Street System.* Provides for direct access to abutting land and for local traffic movements.

LOCAL ACCESS

Roadways that provide primary circulation in the vicinity of the proposed project are as follows:

- *Interstate 5 (I-5).* Interstate 5 is a major interstate freeway facility that traverses in the north-south direction through the State of California. Within Shasta County, I-5 serves as a major commuter and truck route linking the cities of Anderson, Redding and Shasta Lake.

- *Hartnell Avenue.* Hartnell Avenue is a two to four-lane east-west arterial that runs between Cypress Avenue and Airport Road.

- *Bechelli Lane.* Bechelli Lane is a two to four-lane, north-south arterial that runs between south of South Bonnyview Road to its northern terminus, approximately one mile to the north of Cypress Avenue.

- *Cypress Avenue.* Cypress Avenue is a four- to six-lane east-west arterial that runs between Pine Street and its eastern terminus, approximately 0.3 miles to the east of Victor Avenue.

- *Churn Creek Road.* Churn Creek Road is a two to four-lane, north-south arterial that runs between Airport Road and College View Drive.

STUDY INTERSECTIONS

The following list of critical study intersections were established through consultation with City of Redding and were analyzed under the scenarios described above for weekday AM and PM peak hour conditions:

- *Hartnell Avenue & Churn Creek Road (Intersection #1)*
- *Hartnell Avenue & Northwoods Way (Intersection #2)*
- *Hartnell Avenue & Bechelli Lane (Intersection #3)*
- *Hartnell Avenue & Shotwick Trail (Intersection #4)*
- *Hartnell Avenue & Cobblestone Business Park Driveway/Veterans Affairs Driveway (Intersection #5)*
- *Hartnell Avenue & Cobblestone Business Park Driveway/Retirement Community Driveway (Intersection #6)*
- *Hartnell Avenue & Parkview Avenue (South) (Intersection #7)*
- *Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8)*
- *Hartnell Avenue & Henderson Road (North) (Intersection #9)*
- *Hartnell & Cypress Avenue (Intersection #10)*
- *Henderson Road (South) & Parkview Avenue (South) (Intersection #11)*
- *Cypress Avenue & Bechelli Lane (Intersection #12)*
- *I-5 Southbound (SB) Ramps & Cypress Avenue (Intersection #13)*
- *I-5 Northboud (NB) Ramps & Cypress Avenue (Intersection #14)*
- *Cypress Avenue and Hilltop Drive (Intersection #15)*

The following principals were used to identify the study intersections:

Caltrans Guidelines

In December 2002, Caltrans published their *Guide for the Preparation of Traffic Impact Studies.* One of the stated objectives for the guide is the "provide guidance in determining if and when a traffic impact study (TIS) is needed". The guide goes on to suggest that a TIS is needed "When a project Generates 50 to 100 peak hour trips assigned to a State highway facility – and, affected State highway facilities are experiencing noticeable delay; approaching unstable traffic flow conditions (LOS "C" or "D")."

Based on consultation with City staff, it was estimated that the Caltrans freeway interchange area (I-5 at Cypress Avenue) currently operates at LOS "C" and "D" and that more than 50 peak hour trips may use the interchange. Thus, the intersections on Cypress Avenue, in the I-5 area, were included in the study.

City Guidelines

In January 2009, the City of Redding published their *Traffic Impact Analysis Guidelines*. One of the stated requirements in the guidelines is "A Traffic Impact Assessment (TIA) is required when a project would potentially cause a substantial increase in traffic in relation to the traffic levels and capacity of the street system. This is often the case when a project would add thirty-five (35) or more new vehicle trips (one-way) to City streets during a peak hour." In consultation with City staff, a preliminary trip generation and trip distribution was developed and critical intersections identified.

ALTERNATIVE TRANSPORTATION

The following section outlines existing and planned alternative transportation methods available in the project area.

Pedestrian Facilities

Henderson Road

Henderson Road (North), from Hartnell Avenue to the proposed project frontage, does not contain any sidewalks on the easterly or westerly sides of the roadway. Henderson Road (South) from the existing open space access to the intersection of Henderson Road & Parkview Avenue, does not contain any sidewalks on the northerly or southerly sides of the roadway. No marked crosswalks are present within the North or South segments of Henderson Road.

Parkview Avenue

Parkview Avenue, along the existing open space access, does not contain any sidewalks on the easterly or westerly sides of the roadway. Park Avenue (South), from Henderson Road (South) to Hartnell Avenue, contains sidewalks on the northerly and southerly sides of the roadway, terminating approximately 165 feet east of Henderson Road (South).

Bicycle Facilities

The California Streets and Highway Code (Section 890.4) define the various classes of bicycle facilities as follows:

- *Class I Bike Paths.* Class I facilities are completely separated right-of-ways designated for the exclusive use of bicycles. Cross-flows by pedestrians and motorized vehicles are minimized.

- *Class II Bike Lanes.* Class II facilities are restricted right-of-ways designated for the exclusive or semi-exclusive use of bicycles. Travel by motor vehicles or pedestrians are not allowed; except for vehicle parking and cross flows. In most cases, Class II Bikeways require a lane of at least four feet of well-maintained pavement for the cyclist to ride on.

- *Class III Bike Routes.* Class III facilities are shared right-of-ways either on the street or on the sidewalk, and are designated by signs placed on vertical posts or markings stenciled on the pavement. Any bikeway which shares a through-traffic right-of-way.

- *Class IV Bikeways.* Class IV facilities or separated bikeways, promote active transportation and provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and which are separated from vehicular traffic. Types of separation include, but are not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

Under existing conditions, the study roadways have very light bicycle use. Within the City of Redding the goals for bicycle and trail facilities are contained in the *Active Transportation Plan 2018*. The *Active Transportation Plan 2018* identifies the following existing and future bicycle facilities within the project's study area:

- *Existing Bikeway Network.*
    - Class II Buffered Bike Lanes:
        - Hartnell Avenue from Parkview Avenue to Cypress Avenue
    - Class II Bike Lanes:
        - Hartnell Avenue from Parkview Avenue to Northwoods Way
        - Cypress Avenue from Churn Creek Road to Victor Avenue
        - Cypress Avenue from Athens Avenue to Hartnell Avenue
        - Bechelli Lane from Third Street to Cypress Avenue
        - Churn Creek Road from South Bonnyview Road to Hartnell Avenue
    - Class II Bike Routes:
        - Hartnell Avenue from Northwoods Way to Churn Creek Road
        - Cypress Avenue from Hartnell Avenue to Churn Creek Road
        - Bechelli Lane from Cypress Avenue to northern dead end
        - Churn Creek Road from Hartnell Avenue to Cypress Avenue
- *Planned Bikeway Network.*
    - Class II Buffered Bike Lanes:
        - Hartnell Avenue from Cypress Avenue to Shasta View Drive
        - Bechelli Lane from South Bonnyview Road to Cypress Avenue
        - Churn Creek Road from South Bonnyview Road to Dana Drive
    - Class II Bike Lanes:
        - Cypress Avenue from Athens Avenue to Churn Creek Road
    - Class III Bike Routes:
        - Bechelli Lane from Cypress Avenue to northern dead end
- *Build-Out Bikeway Network.*
    - Class II Buffered Bike Lanes:
        - Hartnell Avenue from Cypress Avenue to Shasta View Drive
        - Bechelli Lane from South Bonnyview Road to Cypress Avenue
        - Churn Creek Road from South Bonnyview Road to Dana Drive
    - Class II Bike Lanes:
        - Cypress Avenue from Athens Avenue to Churn Creek Road

- Class II Bike Routes:

  - Bechelli Lane from Cypress Avenue to northern dead end
  - Hemstead Drive from Cypress Avenue to Bechelli Lane

Transit Services

Existing transit service is provided primarily by the Redding Area Bus Authority (RABA). RABA provides fixed route services, express route services and demand response services to the general public within the urbanized area of the Shasta County. RABA operates 15 fixed routes within the cities of Redding, Shasta Lake and Anderson.

Route 5 is a north-south direction service on Hartnell Avenue from the Downtown Transit Center. Route 5, which originates and terminates at the Downtown Transit Center, provides bus stops at the Sequoia Middle School, Village Plaza Shopping Center, Parsons Junior High School, and Alta Mesa Elementary School. The nearest Route 5 bus stop is located on the west side of Hartnell Avenue, south of Henderson Road, approximately 200 feet from the proposed project.

5.14.2 METHODOLOGY AND GUIDELINES

The following methodologies, including guidelines and standards of the City of Redding related to traffic and circulation were utilized in the evaluation of the proposed project's traffic impacts.

LEVEL OF SERVICE METHODOLOGIES

General LOS Methodologies

Intersection level of service (LOS) was been calculated for all control types using the methods documented in the Transportation Research Board's *Highway Capacity Manual 2000 and 2010*. LOS determinations are presented on a letter grade scale from "A" to "F", whereby LOS "A" represents free-flow operating conditions and LOS "F" represents over-capacity conditions.

Caltrans' *Guide for the Preparation of Traffic Impact Studies* recommends the use of procedures contained in the Highway Capacity Manual (HCM) for analyzing signalized intersections. In addition, in the City's *Traffic Impact Analysis Guidelines* one of the stated requirements in is that the "LOS analysis for signalized and stop controlled intersections in the study area shall be based on the lasts edition of the HCM."

The methodologies contained in the HCM are the most widely used in the traffic engineering industry and are used on the vast majority of the studies performed in California. GHD professionals have used the HCM methods for hundreds of studies that involve Caltrans and dozens of studies in the City of Redding. The GHD professionals that provided the analysis for this project consider the HCM methods to be the best available in the industry.

Intersection LOS Methodologies

Level of service definitions for different types of intersection controls are presented in Table 5.14-1, LEVEL OF SERVICE (LOS) CRITERIA FOR INTERSECTIONS. Intersection LOS was calculated for all control

types using the *Synchro 10* software by Trafficware. LOS calculations for signalized study intersections were performed using methods documented in HCM 2000. LOS calculations for unsignalized intersections were performed using HCM 2010.

Synchro has been in use for over twenty years and has become the most commonly used software for intersection analysis for typical traffic impact studies. Caltrans' *Guide for the Preparation of Traffic Impact Studies* identifies the Synchro software as accepted without prior consultation for intersection analysis, although the City's *Traffic Impact Analysis Guidelines* does not identify a specific software tool for analysis.

City of Redding LOS Guidelines

The City of Redding's *General Plan* contains the Transportation Element and specifies acceptable peak-hour LOS standards for transportation planning and project review. Specifically, *General Plan* Policy T1A reflects the following desired LOS for various areas of the community:

- *LOS C*. Most arterial streets and their intersections.
- *LOS D*. Downtown area where vitality, activity, and pedestrian and transit use are primary goals.
- *LOS D*. Streets within the State highway system and interchanges.
- *LOS D*. River crossing street corridors whose capacity is affected by adjacent intersections.

Consistent with the above stated *General Plan* Policy, LOS C is utilized as the standard acceptable threshold for all intersections and LOS D as the standard acceptable threshold for all intersection in the jurisdiction of Caltrans. However, the following intersections are considered to operate at LOS D and are under the jurisdiction of the City of Redding:

- *Hartnell Avenue & Cypress Avenue (Intersection #10)*
    - River crossing street corridor whose capacity is affected by adjacent intersection.

- *Cypress Avenue & Bechelli Lane (Intersection #12)*
    - Street within the State highway system and interchanges.

- *Cypress Avenue & Hilltop Drive (Intersection #15)*
    - Street within the State highway system and interchanges.

Table 5.14-1
LEVEL OF SERVICE (LOS) CRITERIA FOR INTERSECTIONS

LOS	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle (sec)	
				Signalized/ Roundabouts	Unsignalized /All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	< 10.0	< 10.0

LOS	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle (sec)	
				Signalized/ Roundabouts	Unsignalized /All-Way Stop
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10 and < 20.0	>10 and < 15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20 and < 35.0	>15 and < 25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35 and < 55.0	>25 and < 35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55 and < 80.0	>35 and < 50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	> 80.0	> 50.0

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

TRAFFIC SIGNAL WARRANTS

Traffic signals are used to provide an orderly flow of traffic through an intersection. Many times, they are needed to offer side street traffic an opportunity to access a major road where high volumes and/or high vehicle speeds impede crossing or turn movements. Signals do not, however, increase the capacity of an intersection. In fact, they often slightly reduce the number of total vehicles that can pass through an intersection in a given period of time. Signals can also cause an increase in traffic accidents if installed at inappropriate locations.

The term "signal warrants" refers to the list of established criteria used by public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an unsignalized intersection. This study has employed the signal warrant criteria presented in the latest edition of the California Manual on Uniform Traffic Control Devices (MUTCD) for all study intersections. The signal warrant criteria are based upon several factors, including the volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas.

The California MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, this study utilizes the peak hour volume-based Warrant 3 as one representative type of traffic signal warrant analysis. It should be noted that the Peak-Hour-Volume Warrant was only applied when the intersection was found to be operating at unacceptable LOS. Therefore, there may be instances when the unsignalized intersection operates at acceptable LOS conditions or better but still meets the Peak Hour Volume Warrant.

CITY OF REDDING TRAFFIC IMPACT ANALYSIS GUIDELINES

The City of Redding has established guidelines for the preparation of Traffic Impact Analysis (TIA) reports. The purpose of these guidelines is to streamline development review and approval by promoting consistent and adequate traffic analyses. A TIA is prepared for a project before a discretionary action is approved such as a land use general plan and/or zoning change, subdivision map, use permit, or other development entitlement application. By providing clear assumptions, methods, and format, these guidelines assist to expedite the creation and review of TIA reports consistent with requirements of the California Environmental Quality Act (CEQA), Subdivision Map Act, and Redding Municipal Code (RMC).

The analysis and findings in the TIA have been incorporated into this Draft EIR. Supplemental analysis may be required after the Draft EIR and accompanying draft TIA is again reviewed by City staff and comments received from citizens and other affected agencies, the Planning Commission, or the City Council. The City's *Traffic Impact Analysis Guidelines* (January 2009) also provide guidance for assessing traffic along local streets and residential collectors as follows:

"For local streets and some residential collector streets, access and livability are of primary importance. A capacity-based LOS analysis is not appropriate for evaluating project impacts. Instead, the objectives for the amount of traffic these streets may carry are:

- *Local Streets: 2,000 vehicles per day and 180 peak hour vehicles*
- *Residential Collectors: 4,000 vehicles per day and 360 peak hour vehicles*

The residential collector limit applies to collector streets having direct individual access from single-family lots. City staff will work with the preparer of the TIA to ensure the proper street classification is identified."

5.15.3 EXISTING CONDITIONS

The following *Existing* conditions analysis establishes the baseline traffic conditions under current conditions. The *Existing* condition is the analysis scenario in which current operations at study locations, assuming no project development, are analyzed. Figure 5.14-1, EXISTING LANE GEOMETRICS AND CONTROL, illustrates existing lane geometrics and controls for the project study area. Figure 5.14-2, EXISTING PEAK HOUR TRAFFIC VOLUMES, show the existing weekday peak hour volumes at study area locations.

EXISTING INTERSECTION OPERATIONS

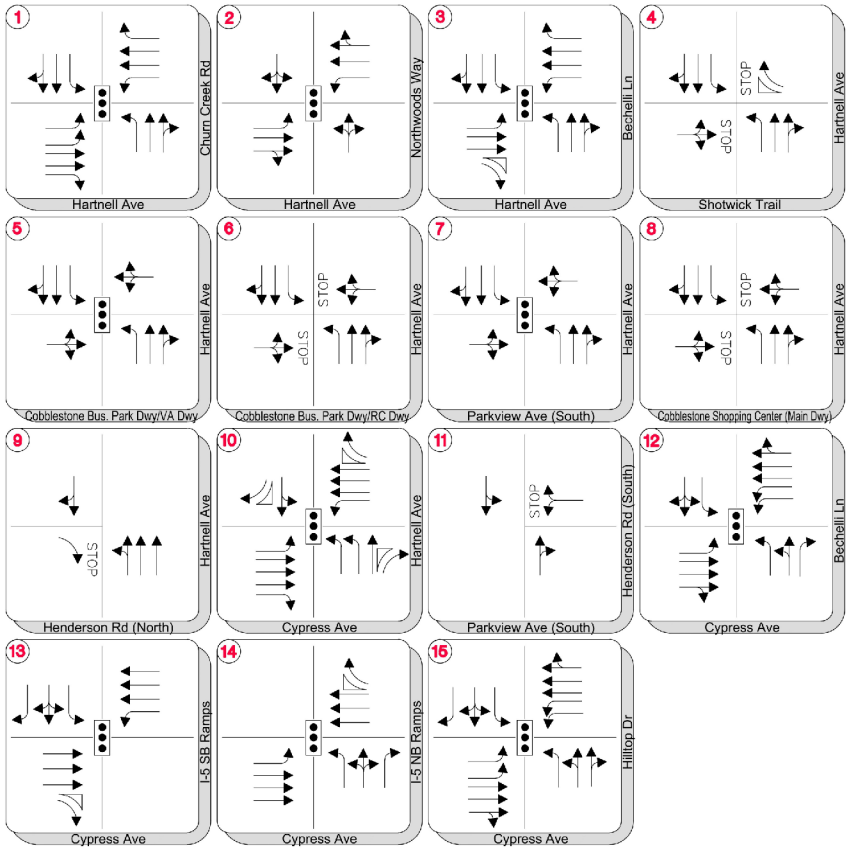
Existing weekday AM and PM peak hour intersection traffic operations were quantified utilizing the existing traffic volumes (Figure 5.14-2) and the existing intersection lane geometrics and control (Figure 5.14-1). Table 5.14-2, EXISTING INTERSECTION LEVEL OF SERVICE, contains a summary of the *Existing* study intersection LOS conditions.

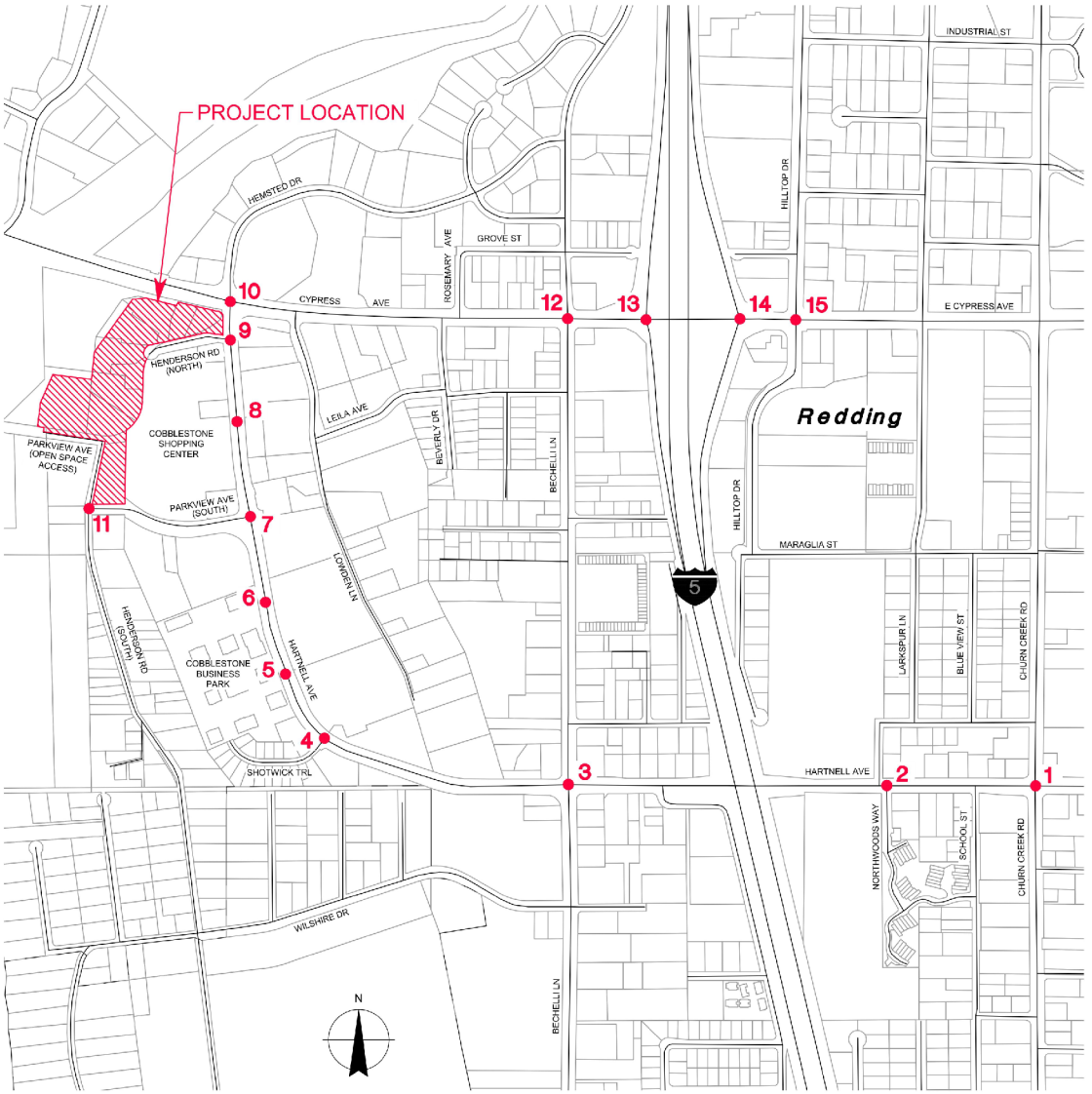
Table 5.14-2
EXISTING INTERSECTION LEVEL OF SERVICE

#	Intersection	Control Type	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?	Delay	LOS	Warrant Met?
1	**Hartnell Avenue & Churn Creek Road**	Signal	C	**37.9**	**D**	**-**	**39.0**	**D**	**-**
2	Hartnell Avenue & Northwoods Way	Signal	C	29.8	C	-	13.2	B	-
3	Harntell Avenue & Bechelli Lane	Signal	C	26.3	C	-	31.1	C	-
4	Hartnell Avenue & Shotwick Trail	TWSC	C	13.7	B	-	17.4	C	-
5	Hartnell Avenue & Cobblestone Business Park Driveway/VA Driveway	Signal	C	14.0	B	-	9.5	A	-
6	**Hartnell Avenue & Cobblestone Business Park Driveway/RC Driveway**	TWSC	C	19.3	C	**-**	**28.6**	**D**	No
7	Hartnell Avenue & Parkview Avenue (South)	Signal	C	5.3	A	-	9.1	A	-
8	**Hartnell Avenue & Cobblestone Shopping Center (Main Driveway)**	TWSC	C	16.8	C	**-**	**29.5**	**D**	No
9	Hartnell Avenue & Henderson Road (North)	TWSC	C	12.6	B	-	15.2	C	-
10	Hartnell Avenue & Cypress Avenue	Signal	D	27.8	C	-	27.0	C	-
11	Henderson Road (South) & Parkview Avenue (South)	TWSC	C	8.8	A	-	8.8	A	-
12	Cypress Avenue & Bechelli Lane	Signal	D	26.0	C	-	34.7	C	-
13	I-5 SB Ramps & Cypress Avenue	Signal	D	24.5	C	-	36.7	D	-
14	I-5 NB Ramps & Cypress Avenue	Signal	D	18.2	B	-	26.0	C	-
15	Cypress Avenue & Hilltop Drive	Signal	D	25.9	C	-	44.1	D	-

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal.
3. Warrant = Based on California MUTCD Warrant 3.
4. **Bold** = Unacceptable LOS.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.



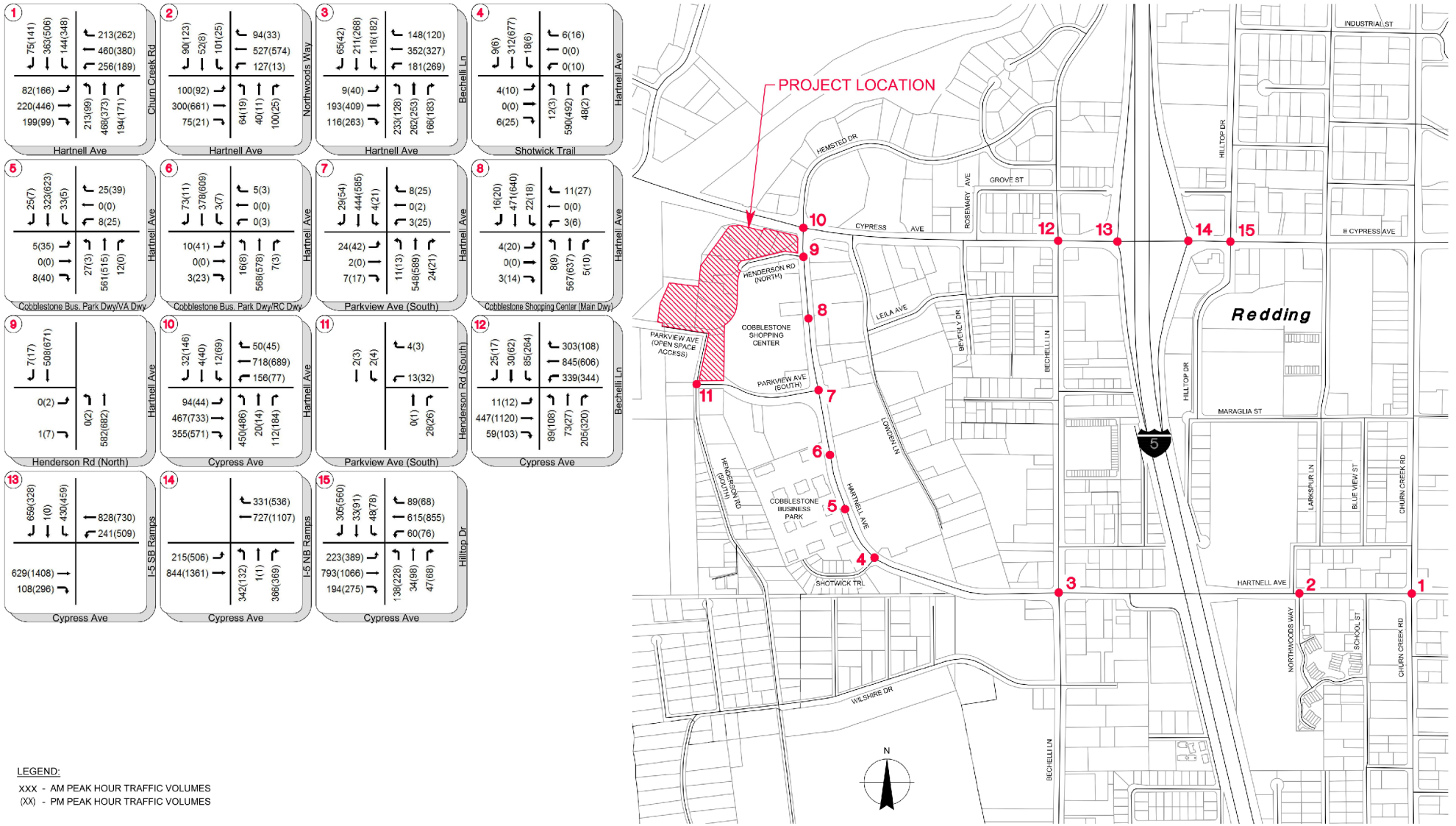


LEGEND:

VEHICLE LANE

TRAFFIC SIGNAL

SHN	Dignity Health North State Pavilion Project	Existing Lane Geometrics and Control Figure 5.14-1



LEGEND:

XXX - AM PEAK HOUR TRAFFIC VOLUMES
(XX) - PM PEAK HOUR TRAFFIC VOLUMES

SHN	Dignity Health North State Pavilion Project	Existing Peak Hour Traffic Volumes Figure 5.14-2

As shown in Table 5.14-2, all study intersections except the intersections listed below operate at or above the threshold LOS under *Existing* conditions:

- *Hartnell Avenue & Churn Creek Road (Intersection #1)*
- *Hartnell Avenue & Cobblestone Business Park Driveway/Retirement Community Driveway (Intersection #6)*
- *Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8)*

EXISTING QUEUES

For the purpose of this evaluation, a queue is a line of vehicles waiting to proceed through an intersection. The 95th-percentile queue is defined to be the queue length (in vehicles) that has only a 5-percent probability of being exceeded during the analysis time period. It is a useful parameter for determining the appropriate length of turn pockets. Table 5.14-3, EXISTING 95TH PERCENTILE QUEUE LENGTH – HARTNELL AVENUE CORRIDOR, and Table 5.14-4, EXISTING 95TH PERCENTILE QUEUE LENGTH – CYPRESS AVENUE CORRIDOR, present the *Existing* queues for critical intersections along the Hartnell Avenue and Cypress Avenue corridors in the vicinity of the proposed project.

Table 5.14-3
EXISTING 95TH PERCENTILE QUEUE LENGTH – HARTNELL AVENUE CORRIDOR

Intersection No.	Intersection/Approach	Control Type	Existing 95th Percentile Queue (feet)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	*Hartnell Avenue & Churn Creek Road*				
	Eastbound Left	Signal	68	***112***	100
	Eastbound Thru		129	240	-
	Eastbound Right		65	52	75
	Westbound Left		***328***	***239***	175
	Westbound Thru		207	180	-
	Westbound Right		78	61	145
	Northbound Left		***401***	***146***	115
	Northbound Thru		435	287	-
	Southbound Left		***204***	***532***	110
	Southbound Thru		238	325	-
2	*Hartnell Avenue & Northwoods Way*				
	Eastbound Left	Signal	***118***	***83***	75
	Eastbound Thru		157	171	-
	Westbound Left		***142***	22	90
	Westbound Thru		272	171	-
	Northbound Thru		211	46	-
	Southbound Thru		212	66	-
5	*Hartnell Avenue & Cobblestone Business Park Driveway/Veterans Affairs Driveway*				
	Northbound Left	Signal	43	8	60
	Northbound Thru		206	104	-
	Southbound Left		50	11	70
	Southbound Thru		121	129	-
7	*Hartnell Avenue & Parkview Avenue*				
	Eastbound Thru	Signal	26	0	-
	Westbound Thru		0	30	-
10	*Hartnell Avenue & Cypress Avenue*				
	Westbound Left	Signal	***232***	113	225

Note:
1. ***Bold*** = Queues exceed available storage capacity.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

Table 5.14-4
EXISTING 95TH PERCENTILE QUEUE LENGTH – CYPRESS AVENUE CORRIDOR

Intersection No.	Intersection/Approach	Control Type	Existing No Project 95th Percentile Queue (feet)		Available Storage
			AM Peak Hour	PM Peak Hour	
12	*Bechelli Lane & Cypress Avenue*				
	Eastbound Left	Signal	30	***116***	95
	Eastbound Thru		200	856	-
	Eastbound Thru/Right		109	533	-
	Westbound Left		190	181	300
	Westbound Thru		164	169	-
	Westbound Thru/Right		214	203	-
	Northbound Left/Thru		187	273	-
	Northbound Right		90	339	-
	Southbound Left		98	237	-
	Southbound Left/Thru/Right		95	212	-
13	*I-5 SB Ramps & Cypress Avenue*				
	Eastbound Thru	Signal	293	457	-
	Eastbound Right		***48***	***177***	30
	Westbound Left		***276***	***350***	215
	Westbound Thru		220	539	-
	Southbound Left		267	657	-
	Southbound Left/Thru/Right		367	672	-
	Southbound Right		305	***526***	375
14	*I-5 NB Ramps & Cypress Avenue*				
	Eastbound Left	Signal	***281***	***345***	230
	Eastbound Thru		229	545	-
	Westbound Thru		257	288	-
	Westbound Right		***108***	***171***	30
	Northbound Left		264	255	535
	Northbound Left/Thru/Right		340	336	-
	Northbound Right		291	287	635
15	*Hilltop Drive & Cypress Avenue*				
	Eastbound Left	Signal	151	***253***	220
	Eastbound Thru		201	279	-
	Eastbound Thru/Right		223	268	-
	Westbound Left		***117***	***269***	95
	Westbound Thru		218	997	-
	Westbound Thru/Right		242	946	-
	Northbound Left		104	241	-
	Northbound Left/Thru		120	226	-
	Northbound Thru/Right		54	154	-
	Southbound Left		78	***166***	130
	Southbound Left/Thru/Right		240	318	-
	Southbound Right		139	329	-

Note:
1. ***Bold*** = Queues exceed available storage capacity.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

5.14.4 TRIP GENERATION AND DISTRIBUTION

PROJECT TRIP GENERATION

Table 5.14-5, PROJECT TRIP GENERATION, provides a summary of the land use and quantities for the proposed project, along with corresponding ITE land use codes from which trip generation characteristics were established.

In order to calculate trip generation for the proposed project during the PM peak hour, PM peak hour counts were performed at four local medical complexes with similar uses to the proposed project. The PM peak hour is defined as the highest continuous hour of peak traffic flow counted between 4:00 p.m. and 6:00 p.m. under typical weekday conditions. When compared, the four local medical complexes were shown to generate less traffic compared to the published averaged rates and equations in the *ITE Trip General Manual 4th Edition*.

The following presents a summary of the trip generation information collected at the following four medical centers in Northern California. The traffic counts were obtained at the following locations that are considered comparable to the proposed project (refer to Appendix 15.8, TRAFFIC IMPACT ANALYSIS REPORT).

- Dignity Health Medical Center in Elk Grove, CA
- Creekside Medical Office Park in Folsom, CA
- Kaiser Permanente on Fair Oaks Boulevard Medical Offices in Sacramento, CA
- Shasta Orthopedics in Redding, CA

The proposed project will use ITE average rates for AM peak hour and the average rate derived from the four local medical complexes for the PM peak hour. Table 5.14-5 presents the trip generation rates for AM and PM peak hours for the proposed project.

Table 5.14-5
PROJECT TRIP GENERATION

Land Use Category (ITE Code)	Unit	Daily Trip Rate/Unit	AM Peak Hour Trip Rate			PM Peak Hour Trip Rate		
			Total	In%	Out%	Total	In%	Out%
Medical-Dental Office Building (720)	1,000 sf	36.13	2.39	79%	21%	2.54	24%	76%
Land Use Description	**Quantity (Units)**	**Daily Trips**	**AM Peak Hour Trips**			**PM Peak Hour Trips**		
			Total	**In**	**Out**	**Total**	**In**	**Out**
Dignity Health Medical Center Redding	130	4,697	311	245	65	330	79	251
TOTAL		**4,697**	**311**	**245**	**65**	**330**	**79**	**251**

Notes:
1. Trip rates based on *ITE Trip Generation Manual 9th Edition* average rates for daily and AM peak hour conditions.
2. Trip rates for PM peak hour were generated using driveway counts.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

As shown in Table 5.14-5, it is estimated that the proposed project would generate approximately 311 AM peak hour trips and 330 PM peak hour trips.

PROJECT TRIP DISTRIBUTION

The approximate distribution of trips that can be expected from the proposed project were simulated based on the Shasta County Regional Traffic Model, the traffic engineer's knowledge of the City of Redding and surrounding project area, as well as input from City staff. Figure 5.14-3, TRIP DISTRIBUTION, depicts the trip distribution based on the current roadway circulation system for the proposed project.

PROJECT ACCESS ROADWAYS

Site access is proposed at the following locations: one full-access southern driveway to Henderson Road (South); one full-access driveway to Parkview Avenue (Open Space Access); and two full-access driveways to Henderson Road (North) (refer to Figure 5.14-4, PROJECT SITE PLAN).

5.14.5 REGULATORY SETTING

STATE

California Department of Transportation

The Caltrans published *Guide for the Preparation of Traffic Impact Studies* (December 2002) states the following: *"Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS."*

REGIONAL

Shasta County 2015 Regional Transportation Plan

Shasta Regional Transportation Agency (SRTA) is the federally-designated metropolitan planning organization (MPO) and state-designated regional transportation planning agency (RTPA) for Shasta County. SRTA is required to prepare and adopt a comprehensive regional transportation plan (RTP) covering a minimum 20-year planning horizon. The RTP for Shasta County is updated every four years. The purpose of the RTP is to "encourage and promote the safe and efficient management, operations, and development of a regional intermodal transportation system that, when linked with appropriate land use planning will serve the mobility needs of goods and people" (California Transportation Commission 2010 RTP Guidelines). The RTP is implemented by way of shorter term transportation improvement and work programs.

Shasta County 2010 Bicycle Transportation Plan

The Shasta County Bicycle Transportation Plan (BTP) provides the long term framework to improve and encourage bicycle transportation throughout the Shasta County. The overall goal of the BTP is to provide a safe, effective, efficient, balanced, and coordinated bicycling system that serves the needs of the people within the unincorporated region of Shasta County. The BTP supports the bicycle transportation goals within the general plans of Shasta County, and the cities of Anderson, Redding, and Shasta Lake. Additionally, the BTP provides a transportation environment that encourages and promotes non-motorized means of transportation.

LOCAL

City of Redding Bikeway Action Plan 2010 – 2015

The purpose of the *Bikeway Action Plan 2010-2015* is to improve bicycle transportation within the City of Redding by identifying and prioritizing necessary system improvements, establishing bicycle-friendly policies, and outlining needed bicycle-related education, promotion and enforcement standards. The *Bikeway Action Plan 2010-2015*, adopted in 2010, inventories the City's existing bikeway network, and plans for new bikeways consistent with the *General Plan*, and the complete streets goal of the circulation element.

City of Redding Active Transportation Plan

The City of Redding *Active Transportation Plan* supports the health, vitality, and prosperity of the community. The purpose of the *Active Transportation Plan* is to lay the foundation for the establishment of a safe, efficient, comfortable, and connected active transportation network (i.e., pedestrian and bicycle networks/facilities) that is not only used, but intrinsic to the lifestyle of Redding residents and visitors. The *Active Transportation Plan* is an update to the *Bikeway Action Plan 2010-2015* and builds on local planning efforts to create safe and vibrant active transportation environments.

City of Redding Municipal Code

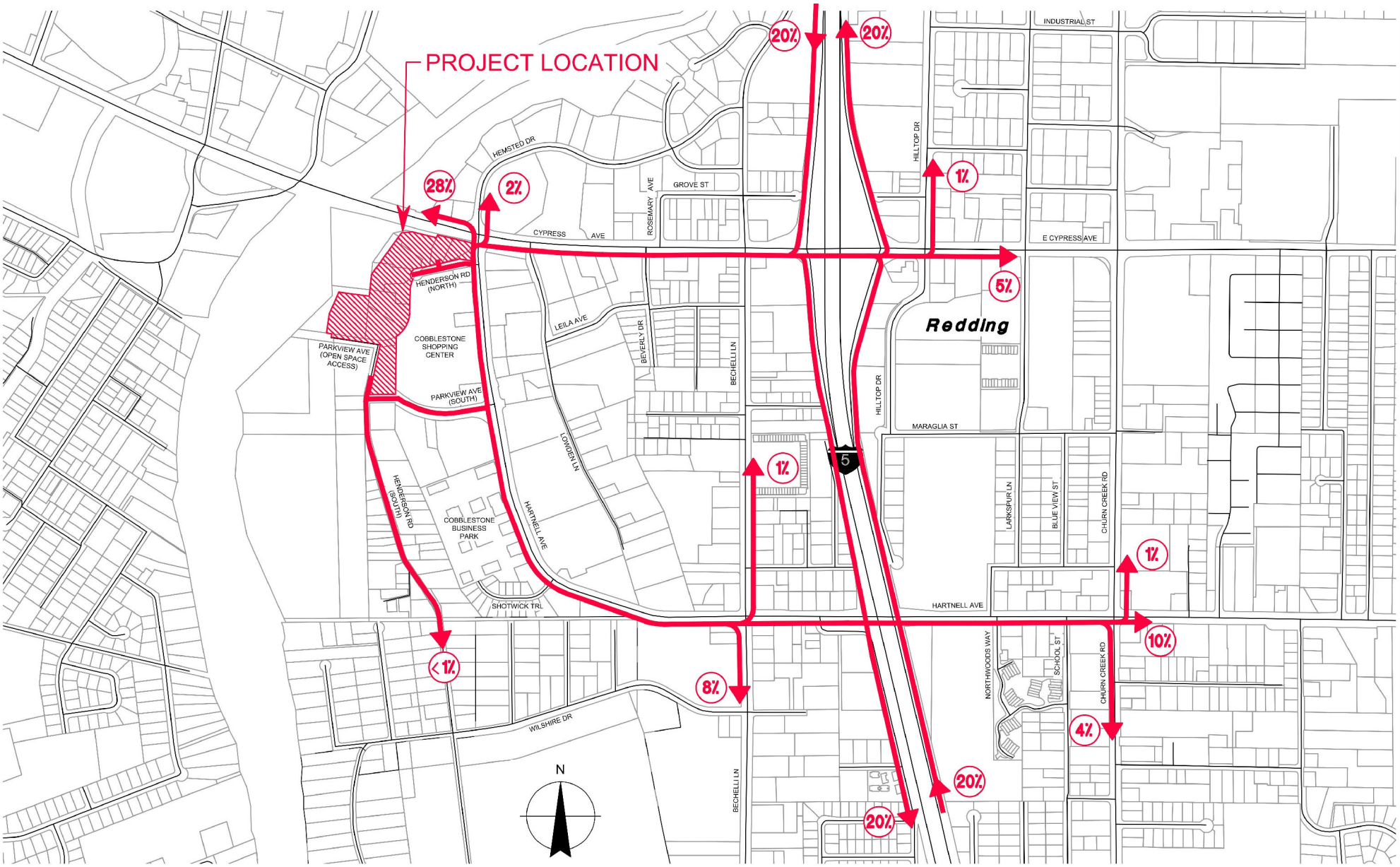
Redding Municipal Code (RMC) Title 11, *Vehicles and Traffic,* regulates traffic signs and signals; traffic on public and private roads; parking restrictions; turning movement restrictions; allowable speed limit under different circumstances; crosswalks and bicycle lanes; as well as many other chapters that deal with traffic restrictions. RMC Title 13, *Streets and Sidewalks*, provides requirements for safe and desirable travel ways along City streets and sidewalks.

City of Redding Citywide Transportation Development Impact Fee Program

The City of Redding adopted the current Citywide Transportation Development Impact Fee Program (TIF) as part of the comprehensive fee study in 2000. Between 2000 and 2009 the transportation fees were increased to reflect inflation and the projects prioritized for construction scheduling. In 2013, the TIF Program was updated through a comprehensive fee study along with the other City development impact fees. A nexus study for an update to the 2013 Study to account for changes in population growth rates and the expected intensity of future development within the City was adopted in 2017. The Development Impact Fee Program is contained in RMC §16.20.160.

City of Redding General Plan

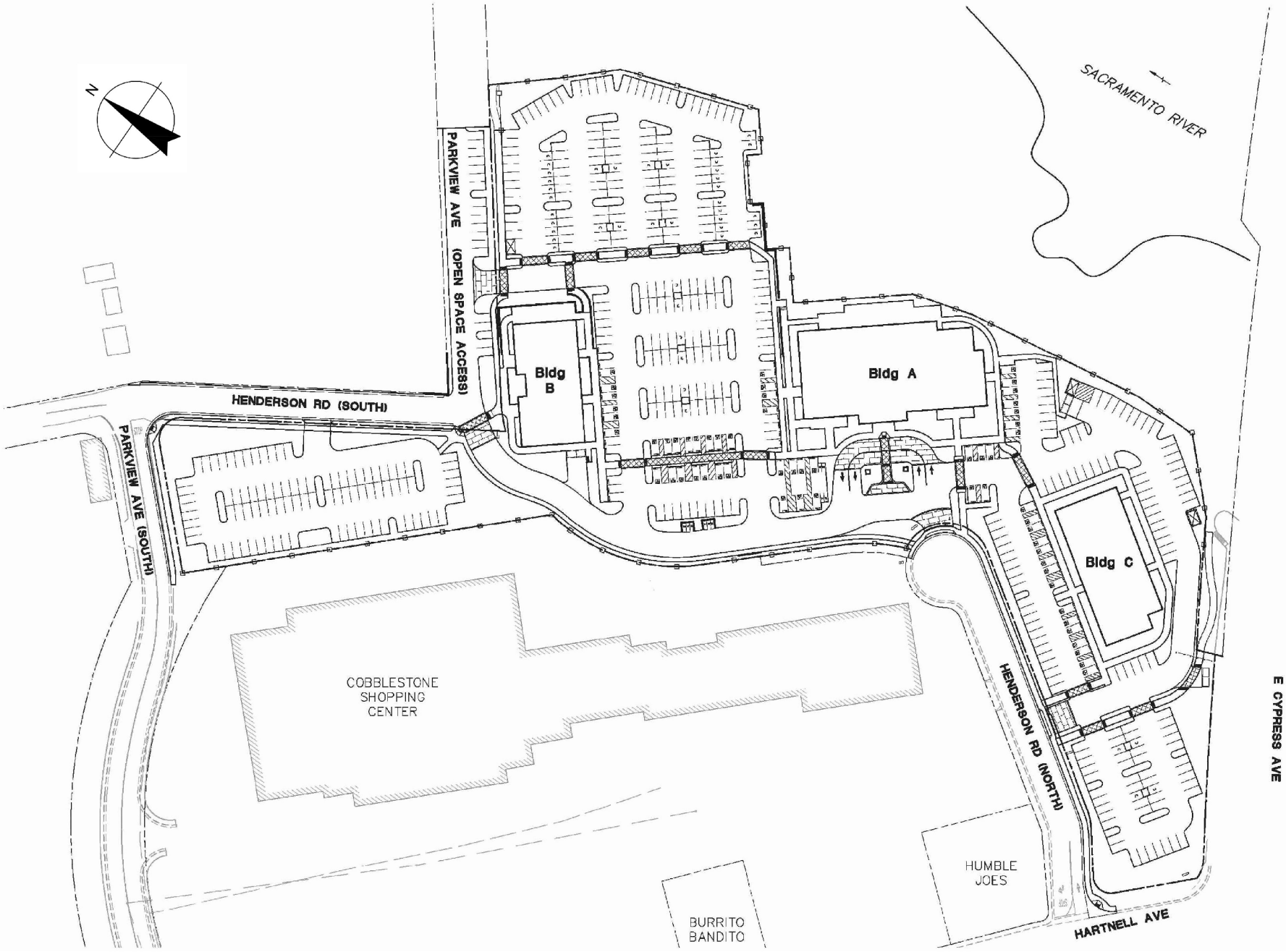
The City of Redding *General Plan* Transportation Element provides the necessary framework to guide the growth and development of the City's transportation-related infrastructure. The Transportation Element also integrates land use and transportation panning by ensuring that all existing and future developments have adequate circulation. Transportation goals and policies are discussed within the Transportation Element of the City's *General Plan*. The goals and policies that apply to the proposed project are discussed below in Table 5.14-6, CONSISTENCY WITH APPLICABLE CITY OF REDDING GENERAL PLAN GOALS AND POLICIES FOR TRANSPORTATION.



Dignity Health North State Pavilion Project

Trip Distribution

Figure 5.14-3



SHN	Dignity Health North State Pavilion Project	Project Site Plan Figure 5.14-4

Table 5.14-6
CONSISTENCY WITH APPLICABLE CITY OF REDDING GENERAL PLAN GOALS AND POLICIES FOR TRANSPORTATION

General Plan Goals and Policies	Consistency Analysis
GENERAL PLAN GOAL T1 *PROVIDE SAFE, EFFICIENT, AND COMFORTABLE ROUTES FOR WALKING, BICYCLING, AND PUBLIC TRANSPORTATION TO INCREASE USE OF THESE MODES OF TRANSPORTATION, ENABLE CONVENIENT AND ACTIVE TRAVEL AS PART OF DAILY ACTIVITIES, AND MEET THE NEEDS OF ALL USERS OF THE STREETS.*	
Policy T1A: Ensure that multimodal infrastructure improves transportation choices for pedestrians, bicyclists, motorists, and public transportation riders of all ages and abilities and that all users are considered and included in the planning, design, approval, construction, and operation of new streets, and the alteration and maintenance phases of existing streets by: • Including infrastructure that promotes a safe means of travel for all users along the right of way, such as sidewalks, shared-use paths, bicycle lanes, and paved shoulders. • Provide pedestrian and bike connections from developments to adjacent main streets, open space areas, parks, transit stops, schools, commercial and employment centers, and other activity centers as opportunities arise. • Designing new development to incorporate street connectivity for all users. • Including new or alteration of existing infrastructure that facilitates safe crossing of the right-of-way for all users, such as: accessible curb ramps, high-visibility crosswalks, pedestrian refuge islands, smaller curb radii, corner bulbouts, pedestrian signals, and bicycle detection at traffic signals where warranted. • Incorporating street design features and techniques that promote safe and comfortable travel along streets by pedestrians, bicyclists, and public transportation riders. Examples include: constructing traffic-calming mechanisms in neighborhoods; providing pedestrian refuge medians on busy streets; reducing the number of motor vehicle lanes and/or widths where appropriate; providing transit turnouts; and constructing physical buffers and separations between vehicular traffic and other users. • Providing features that improve the comfort, convenience, and safety of users such as pedestrian-oriented/wayfinding signs, pedestrian-scale lighting, benches and other street furniture, bicycle parking facilities, comfortable and attractive public transportation stops and facilities, street trees, landscape, and planting strips.	**Consistent.** The proposed project's design and adjoining roadway improvements include multimodal opportunities as noted below: • The proposed project would be designed and constructed consistent with the provisions of RMC Title 11, *Traffic and Vehicles,* and RMC Title 13, *Street and Sidewalks*, and provide appropriate bicycle signage per direction by the City. The proposed project has been designed to provide a 6-foot wide sidewalk and landscape buffer along the east side of Henderson Road (South), a 6-foot sidewalk along the northwest side of Henderson Road (North), and an 8-foot wide sidewalk along the project's southern frontage along the Parkview Avenue (Open Space Access) connection from Henderson Road (South) to the Henderson Open Space. A pedestrian walkway commencing approximately 200 feet west of the intersection of Henderson Road (North) and Hartnell Avenue, will provide pedestrian access to the northerly portion of the Henderson Open Space and Sacramento River. This walkway will also provide pedestrian access from the existing Cypress Avenue stairway to the project site and the Henderson Open Space. Refer to Figures 3-6b and 3-6c, ENLARGED SITE PLANS. • Access to the proposed project and the Henderson Open Space from the south will be provided from Hartnell Avenue and then Parkview Avenue (South) via an existing sidewalk abutting the Cobblestone Shopping Center. Then from this point westward, a 6-foot wide sidewalk will be constructed along Parkview Avenue (South) to its intersection with Henderson Road (South) where the 6-foot wide sidewalk will continue north along the east side of Henderson Road (South). The sideway will terminate and then cross the eastern portion of the Parkview Avenue (Open Space Access) and the 28-foot wide project driveway that connects to Henderson Road (North). The sidewalk will continue as a path along the southern portion of Building 'B' then proceed easterly to the Henderson Open Space via an 8-foot wide sidewalk paralleling Parkview Avenue (Open Space). Bicycle routes throughout the project site and on adjoining streets have been defined to facilitate access to the RABA transit stop located approximately 200 feet from the project site at the intersection of Henderson Road (North) and Hartnell Avenue. The proposed project also includes 28 secured bicycle racks onsite (refer to Figure 3-6a, PROPOSED SITE PLAN). • The perimeter sidewalks would connect to a 5-foot concrete meandering path along the site's northern boundary and provide a linkage to internal 5-foot wide pedestrian walkways between the proposed buildings and parking lots. These internal walkways would provide access to the exterior sidewalks that provide connections to the RABA transit stop. The project is also proposing the addition of crosswalks at all project driveway locations.

Table 5.14-6
CONSISTENCY WITH APPLICABLE CITY OF REDDING GENERAL PLAN GOALS AND POLICIES FOR TRANSPORTATION

General Plan Goals and Policies	Consistency Analysis
	• The City's *Parks, Trails, and Open Space Master Plan* identifies the following bicycle routes that abut or are in close proximity to the proposed project. Cypress Avenue west of the intersection with Hartnell Avenue is a Class 2 route and east of the intersection it is a Class 3 route. Hartnell Avenue between Cypress Avenue and Bechelli Lane is a Class 2 route as is Bechelli Lane to the east. The proposed project would be designed and constructed consistent with the provisions of RMC Title 11, *Traffic and Vehicles,* and RMC Title 13, *Street and Sidewalks.* As a result, development of the proposed project would not result in a conflict with any of the existing Class 2 and 3 bicycle routes. Cypress Avenue could be accessed via Henderson Avenue (North) and then northerly along Hartnell Avenue to Cypress Avenue where one could proceed west or east to Bechelli Lane. Proceeding from Henderson Road (South) to Parkview Avenue (South) and then to Hartnell Avenue, one can access Cypress Avenue to the north or proceed south then east along Hartnell Avenue to Bechelli Lane. Traffic calming measures such as bulb-outs, hardscape crosswalks, and a curvilinear street section between the Henderson Road (North) cul-de-sac that Building 'A' fronts and the Parkway Avenue (Open Space Access) and Henderson Road (South) intersection are proposed to maintain acceptable traffic speeds and volumes. • The project proposes approximately 92,100 square feet of landscaped areas including parking islands, perimeter landscaping, landscaped sidewalks, planting trips and internal "campus type" landscaping. Also proposed is the planting of approximately 224 trees throughout the site to enhance the site's aesthetics (refer to Figure 3-9a, LANDSCAPE LAYOUT. As previously noted, the project provides access to the RABA transit stop at the intersection of Henderson Road (North) and Hartnell Avenue to serve the project and local residents.
GENERAL PLAN GOAL T2 *ESTABLISH A SYSTEMATIC COMPLETE STREETS RETROFIT PROGRAM THAT WILL EFFECTIVELY ALTER EXISTING APPROPRIATELY IDENTIFIED STREETS INTO COMPLETE STREETS AS RESOURCES BECOME AVAILABLE.*	
Policy T2A: Identify and prioritize physical improvements that would make bicycle and pedestrian travel safer along current key bicycling and walking routes. Establish an implementation strategy to construct needed improvements. Undertake improvements as part of street projects where feasible.	**Consistent.** The proposed project would be designed and constructed consistent with the provisions of RMC Title 11, *Traffic and Vehicles,* and RMC Title 13, *Street and Sidewalks*, and provide appropriate pedestrian and bicycle signage providing direction from within and outside the proposed project area to the Henderson Open Space and Cypress Avenue as identified in the Consistency Analysis for Policy T1A. The perimeter sidewalks along Henderson Road (North and South) and Parkview Avenue (Open Space Access) would connect to 5-foot hardscaped pedestrian walkways meandering throughout the proposed project to linkages between the proposed buildings and parking lots. These internal walkways would provide access to the exterior sidewalks that would provide connections to the existing RABA transit stop as previously noted. The project is also proposing the addition of hardscape crosswalks at all project driveway locations.
Policy T2B: Identify intersection and other locations where collisions have occurred or that present safety challenges for pedestrians, bicyclists, or other users, including, but not limited to, intersections within one mile of schools; consider gathering additional data through methods such as walkability/bikeability audits.	**Consistent.** Henderson Road (North), from Hartnell Avenue to the proposed project frontage does not contain any sidewalks on the easterly or westerly sides of the roadway. Henderson Road (South), from the existing open space access to the intersection of Henderson Road and Parkview Avenue (South), does not contain any sidewalks on the northerly or southerly sides of the roadway. No marked crosswalks are present within the

Table 5.14-6
CONSISTENCY WITH APPLICABLE CITY OF REDDING GENERAL PLAN GOALS AND POLICIES FOR TRANSPORTATION

General Plan Goals and Policies	Consistency Analysis
	North or South segments of Henderson Road. Parkview Avenue, along the existing open space access, does not contain any sidewalks on the easterly or westerly sides of the roadway. Park Avenue (South), from Henderson Road (South) to Hartnell Avenue, contains sidewalks on the northerly and southerly sides of the roadway, terminating approximately 165 feet east of Henderson Road (South). The proposed project will rectify these deficiencies as noted in responses to the Consistency Analysis for Policy T1A and T2A.
GENERAL PLAN GOAL T3 *ENSURE THAT EXISTING STANDARDS, PROGRAMS, AND PROCEDURES INCLUDE COMPLETE STREETS IMPLEMENTATION AS A MAIN FOCUS.*	
Policy T3C: Collaborate with RABA to incorporate infrastructure to assist users in employing multiple means of transportation in a single trip in order to increase transportation access and flexibility. Examples include, but are not limited to, provisions for bicycle access on public transportation, secure bicycle racks at transit stops, and public transportation access to trails and recreational locations.	**Consistent.** As previously noted an existing RABA transit stop is located at the intersection of Henderson Road (North) and Hartnell Avenue that currently serves local residences and businesses and will serve the proposed project. Bicycle routes on adjoining streets have been defined to facilitate access to the transit stop. The proposed project also includes secure bicycle racks onsite.
Policy T3E: Encourage new development in close proximity to existing employment, housing, schools, commercial centers, and other services and amenities.	**Consistent.** As noted in Section 5.9, LAND USE AND PLANNING, the proposed project is located in an area of the City that has experienced office, service and retail commercial growth and renovation (the existing Cobblestone Center). In close proximity, existing and future residential land uses are located to the east along Lowden Lane and to the south along Henderson Road (South) to Wilshire Drive. The Henderson Open Space and Sacramento River to the west of the proposed project site provides a significant recreational and open space amenity.
GENERAL PLAN GOAL T5 *COORDINATE TRANSPORTATION AND LAND USE PLANNING; PROTECT EXISTING AND PLANNED LAND USES FROM TRANSPORTATION-RELATED CONFLICTS; PROMOTE MULTI-MODAL TRANSPORTATION OPTIONS.*	
Policy T5A: Establish the following peak-hour LOS standards for transportation planning and project review. They reflect the special circumstances of various areas of the community: - Use LOS "C" – for most arterial streets and their intersections. - Use LOS "D" – for the Downtown area where vitality, activity, and pedestrian and transit use are primary goals. - Use LOS "D" – for streets within the State highway system and interchanges. - Use LOS "D" – for river-crossing street corridors whose capacity is affected by adjacent intersections.	**Consistent.** While this EIR analyzes the proposed project's consistency with the City of Redding *General Plan,* pursuant to CEQA §15125(d), the City of Redding Planning Commission and/or City Council will ultimately make the determination of the proposed project's consistency with the City of Redding *General Plan*. The City's 2009 *Traffic Impact Analysis Guidelines* have been accepted as appropriate implementing refinements to the *General Plan* goals. The guidelines meet the intent of the *General Plan* and provide flexibility to determine appropriate mitigation thresholds (refer to Subsection 5.14.6, *Standards of Significance*). Notably, the City Council and, as appropriate, the Planning Commission, have historically treated the LOS standards set forth in Policy T5A as targets rather than absolute standards that must be achieved in all instances. Thus, projects may cause impacts that exceed LOS C or LOS D, as applicable, provided that the projects provide mitigation consistent with the City's 2009 *Traffic Impact Analysis Guidelines*. The proposed project would increase traffic in sufficient volumes to cause LOS to decline below City LOS targets at certain locations which are Hartnell Avenue and Cobblestone Shopping Center Main Driveway (Intersection #8) and Hartnell Avenue and Cypress Avenue (Intersection #10). Implementation of **MM 5.14-1** through **MM 5.14-4** would reduce impacts to *less than significant* levels.
Policy T5B: Require development projects to construct both on and offsite improvements as necessary to mitigate the effects of increased traffic generated by the project and	**Consistent.** A *Traffic Impact Analysis Report* has been prepared for the proposed project. The analysis focuses on potential impacts to roadways and intersections consistent with the City of Redding *General Plan*

Table 5.14-6
CONSISTENCY WITH APPLICABLE CITY OF REDDING GENERAL PLAN GOALS AND POLICIES FOR TRANSPORTATION

General Plan Goals and Policies	Consistency Analysis
maintain peak-hour LOS standards established by Policy T5A. The traffic analysis used to establish mitigating measures shall be based on the City's Traffic Model or other City-approved method. Improvements may be deferred by the City upon approval of a Deferred Improvement Plan which identifies improvement needed, costs, funding sources, and other pertinent data required by the City.	transportation objectives and policies. Development of the proposed project and all other approved and pending development would increase traffic at sufficient volumes to cause the LOS to decline below City standards under *Existing* and *Year 2040* conditions for some roadway segments and intersections. Implementation of **MM 5.14-1** through **MM 5.14-4** would accommodate traffic volume increases.
Policy T5D: Encourage employers to provide incentives for employees utilizing alternatives to the single occupant automobile, such as car pools, van pools, buses, bicycling, and walking.	**Consistent.** Refer to discussion under Policy T1A, above. Based on the project as proposed, the minimum onsite parking required by the RMC is 548 parking spaces. As depicted in Figure 3-6a, PROPOSED SITE PLAN, in Section 3.0, PROJECT DESCRIPTION, the project proposes a total of 549 parking spaces that included 417 standard spaces, 44 compact spaces, 10 motorcycle spaces, 59 standard accessible parking spaces, 11 van accessible parking spaces, and 28 secured bicycle racks (refer to Figure 3-6a, PROPOSED SITE PLAN). Dignity Health encourages employees to car pool. Thirty-three (33) of the standard parking spaces will have electric vehicle charging stations, and 44 standard spaces will be preferential parking for clean air vehicles.
Policy T5F: Route through truck traffic around existing and future residential neighborhoods and incompatible commercial areas to the extent feasible.	**Consistent.** The most expedient route that truck traffic will utilize to access the proposed project is from Hartnell Avenue to either Henderson Road (North) or Henderson Road (South) via Parkview Avenue (South). There is no reason why any truck traffic would utilize Henderson Road south of Parkview Avenue (South) which is a residential area.
Policy T5G: Continue to utilize signage and enforcement to clearly demonstrate the City's intent to reduce truck traffic and parking in residential districts.	**Consistent.** As a condition of project approval appropriate enforcement signage will be placed at locations as determined appropriate by the City Engineer.
GENERAL PLAN GOAL T7 *BUILD AND MAINTAIN A SAFE AND EFFICIENT LOCAL STREET SYSTEM WITH THE AIM OF MEETING LOS STANDARDS.*	
Policy T7A: Establish a system of street cross-sections that will: - Accommodate all improvements necessary to handle forecasted volumes at adopted LOS standards. - Accommodate bicycles and transit facilities. - Attain the design objectives for streets as addressed in the Community Development and Design Element.	**Consistent.** The proposed project would be developed consistent with the RMC and City of Redding Construction Standards. All street improvements will be constructed to accommodate forecasted volumes at adopted LOS standards. Additionally, the proposed project has been designed to accommodate bicycle facilities. The proposed project provides sufficient right-of-way for sidewalks and street side landscaping. Street tree planning is also provided as a unifying visual element along Henderson Road (North and South), the driveway connection between Henderson Road (North and South), Park View Avenue (Henderson Open Space Access) and Park View Avenue (South).
Policy T7B: Require streets to be dedicated and improved in accordance with adopted street standards; allow modifications to standard street sections when approved by the Planning Commission and City Engineer.	**Consistent.** The proposed project would be developed in accordance with the RMC and City of Redding Construction Standards, which are consistent with the Policy.
Policy T7C: Maximize intersection and driveway spacing on arterial and collector streets. Required shared/common driveways wherever feasible.	**Consistent.** The proposed project would be developed in accordance with the RMC and City of Redding Construction Standards, which are consistent with the Policy.
Policy 17D: Provide right-turn lanes for arterial-to-arterial and arterial-to-collector intersections wherever feasible.	**Consistent.** Mitigation Measure **MM 5.14-1** requires that prior to prior to Certificate of Occupancy for the first building that at the Hartnell and Cypress Avenue (Intersection #10) that a southbound thru/right lane be constructed.
Policy T7F: Assess fees on new development sufficient to cover the fair share portion of that development's impacts on the local and regional transportation system. Exceptions may be when new development generates significant public benefits (e.g., low-income	**Consistent.** As required by the RMC, the project applicant is required to pay the Redding Citywide Traffic Impact Fee (TIF). The TIF is used for projects throughout the City as identified in the City's Capital Improvement Plan (CIP).

Table 5.14-6
CONSISTENCY WITH APPLICABLE CITY OF REDDING GENERAL PLAN GOALS AND POLICIES FOR TRANSPORTATION

General Plan Goals and Policies	Consistency Analysis
housing, primary-wage-earner employment), and alternative sources of funding for the improvements can be obtained to offset foregone revenues.	
Policy T7I: Require assurance of long-term, private maintenance for all private streets constructed within the City.	**Consistent.** As a condition of approval of the proposed project the applicant would be required to maintain all onsite parking areas, sidewalks, and the internal circulation network.
GENERAL PLAN GOAL T8 *ENSURE INTERAGENCY AND REGIONAL COORDINATION WITH REGARD TO TRANSPORTATION PLANNING AND IMPROVEMENTS.*	
Policy T8B: Work closely with Caltrans and the RTPA to ensure that State facilities which go through the City, including Eureka Way (SR-299), SR-44, SR-273, I-5, and intersections/interchanges that involve those facilities, are maintained at an acceptable LOS as defined in this element.	**Consistent.** The project applicant shall participate in the Redding Citywide TIF, to help fund the improvements required to allow State facilities and intersections to operate at acceptable LOS D.
GENERAL PLAN GOAL T9 *PROTECT RESIDENTIAL NEIGHBORHOODS FROM EXCESSIVE THROUGH TRAFFIC, WHERE FEASIBLE.*	
Policy T9A: Develop neighborhood protection plans when traffic studies or monitoring confirm excessive traffic volumes, substantial through traffic, speeding, or accidents in specific residential areas.	**Consistent.** The proposed project will be developed in accordance with the RMC and City of Redding Construction Standards to ensure acceptable local street traffic volumes, which are consistent with the policy.
Policy T9B: Emphasize the use of landscape and other visual deterrents to through traffic; install physical measures only as a last resort.	**Consistent.** The proposed project utilizes a mix of Eastern Redbud, Autumn Blaze Maple trees, Coast Redwood, Afghan Pine, Oleander, Crape Myrtle, Chitalpa, and California Sycamore trees, and a variety of shrubs around the site's perimeter, adjacent to and Henderson Road (North), Parkview Avenue (Open Space Access), Henderson Road (South) and Parkview Avenue (South). Refer to Section 5.2, AESTHETICS, and Figure 3-11a, LANDSCAPE LAYOUT.
Policy T9C: Establish street design standards and review criteria intended to avoid the creation of local streets that will encourage excessive speed and/or which will ultimately function as collectors. Factors that may contribute to a local street functioning as a collector include: - Excessive length (typically greater than one-half mile). - Excessive width. - The lack of other streets which may be used to convey traffic to nearby arterials.	**Consistent.** Traffic calming measures are incorporated into the proposed project design such as bulb-outs, hardscape crosswalks, and a curvilinear street section between the Henderson Road (North) cul-de-sac that Building 'A' fronts and the Parkway Avenue (Open Space Access) and Henderson Road (South) intersection. Implementation of these project design elements along these local roadways would serve to discourage excessive speeding and discourage the use of the streets as collectors.
Policy T9D: Encourage new neighborhoods to incorporate detached sidewalks and to establish landscape "parkways" between the curb and sidewalk. Continuous and consistent tree-planting to form canopy closure is encouraged.	**Consistent.** The proposed project would be developed consistent with City of Redding Construction Standards that allow for sidewalks. The proposed project would provide a 5-foot detached sidewalk with a 6-foot landscape buffer along the Henderson Road (South) and an 8-foot detached sidewalk with a landscape buffer varying in width with a 10-foot wide minimum along Parkview Avenue (Open Space Access). The perimeter landscape buffer, where feasible, includes continuous tree planting; refer to Section 5.2, AESTHETICS, and Figure 3-11a, LANDSCAPE LAYOUT.
Policy T9E: Route through traffic around the perimeters of neighborhoods where possible.	**Consistent.** The most expedient routes that vehicular traffic will utilize to access the proposed project is from Hartnell Avenue to either Henderson Road (North) or Henderson Road (South) via Parkview Avenue (South). These streets essentially route through traffic around the existing Henderson Road (South) neighborhood south

Table 5.14-6
CONSISTENCY WITH APPLICABLE CITY OF REDDING GENERAL PLAN GOALS AND POLICIES FOR TRANSPORTATION

General Plan Goals and Policies	Consistency Analysis
	of Parkview Avenue (South).
GENERAL PLAN GOAL T10 *PROVIDE AN ATTRACTIVE, SAFE, AND CONTINUOUS SYSTEM OF SIDEWALKS AND OTHER PEDESTRIAN FACILITIES.*	
Policy T10A: Provide pedestrian-oriented features, such as benches, enhanced landscape, and trash receptacles, in commercial areas, particularly in the Downtown and Park Marina areas.	**Consistent.** Although the project is not located in the Downtown or Park Marina areas, the proposed project provides for a significant amount of onsite landscaping of approximately 92,100 square feet with 224 trees, trash receptacles, and direct access to the Henderson Open Space via Parkview Avenue (Open Space Access) and onsite project walkways.
Policy T10B: Require new development to provide sidewalks or other pedestrian-dedicated facilities on both sides of new public streets. Exceptions may be appropriate where topography is difficult, proposed lots are of a rural or semi-rural nature, or where the development plan illustrates that pedestrians will be accommodated by alternative means.	**Consistent.** The proposed project would be developed consistent with City of Redding Construction Standards that allow for this type of sidewalk. The proposed project would provide a 5-foot sidewalk only along the east side of Henderson Road (South) and an 8-foot sidewalk only along the northern side of Parkview Avenue (Open Space Access). This is due to the undeveloped parcels that would be required to provide sidewalks as a condition of their future development. Sidewalks, 5 feet wide, would be located along Henderson Road (North).
Policy T10C: Work with neighborhoods to decide where curbs, gutters, and sidewalks are needed on unimproved local streets and how to pay for the improvements; establish sidewalk continuity wherever feasible.	**Consistent.** The proposed project would be designed and constructed consistent with the provisions of RMC Title 11, *Traffic and Vehicles,* and RMC Title 13, *Street and Sidewalks*. The proposed project will be responsible for constructing curbs, gutters, and sidewalks to provide continuity, in particular along Henderson Road (South) from Parkview Avenue (South) to the Henderson Road (North) intersection with Hartnell Avenue.
Policy T10F: Require all new or renovated pedestrian facilities to be of a sufficient width to ensure pedestrian comfort and safety and to accommodate the needs of the physically disabled.	**Consistent.** The proposed project would be developed in accordance with the RMC and City of Redding Construction Standards, which are consistent with the policy.
Policy T10G: Restrict speed limits in residential neighborhoods, Downtown, and other areas of the City where pedestrian activities are strongly encouraged to reduce the potential for pedestrian injuries and fatalities.	**Consistent.** Refer to the Consistency Analysis for Policy T9E.
GENERAL PLAN GOAL T12 *MAKE IT EASIER AND SAFER FOR PEOPLE TO TRAVEL BY BICYCLE.*	
T12B: Incorporate facilities suitable for bicycle use in the design of interchanges, intersections, and other street-improvement/maintenance projects.	**Consistent.** The proposed project includes bicycle parking to encourage the use of bicycles as an alternative form of commuting to the facility. In addition, the proposed project facilitates access to the bicycle routes that abut or are in close proximity to the proposed project. Cypress Avenue west of the intersection with Hartnell Avenue is a Class 2 route and east of the intersection it is a Class 3 route. Hartnell Avenue between Cypress Avenue and Bechelli Lane is a Class 2 route as is Bechelli Lane to the east. The proposed project would be designed and constructed consistent with the provisions of RMC Title 11, *Traffic and Vehicles,* and RMC Title 13, *Street and Sidewalks.*
Policy T12C: Make improvements to streets, signs, and traffic signals as needed to improve bicycle travel.	**Consistent.** Refer to the Consistency Analysis for Policies T1A, T2A, and T2B. Traffic signal and intersection improvements required of the proposed project as discussed under **MM 5.14-1, MM 5.14-3** and **MM 5.14-4.**
Policy T12G: Require new development to provide bicycle facilities or pay in-lieu fees based on the fair share of that development's impacts on the bikeway system and needs identified on the Comprehensive Bicycle Plan.	**Consistent.** Onsite secured bicycle racks are incorporated into the project design.

Source: City of Redding. *2000 – 2020 General Plan*. October 2000.

5.14.6 STANDARDS OF SIGNIFICANCE

CITY OF REDDING SIGNIFICANCE THRESHOLDS

To implement the intent of the City's *General Plan* policies, in January 2009, the City of Redding published their *Traffic Impact Analysis Guidelines* and has been accepted as appropriate implementing refinements to the *General Plan* goals related to transportation and traffic (refer to Table 5.14-6, above). The *Traffic Impact Analysis Guidelines* meet the intent of the *General Plan* and provide flexibility to determine appropriate mitigation thresholds. According to the City's *Traffic Impact Analysis Guidelines*, a project will have a significant impact when:

Signalized Intersections

- The project causes an acceptable LOS to decline to an unacceptable LOS, or
- The project increases the overall average delay by more than 5 seconds per vehicle at an intersection having an unacceptable LOS without project traffic, or
- The project causes an unacceptable increase in vehicular queues at an intersection.

The guidelines memorialized the following approach to further refine the determination of significant impacts for signalized intersections:

- Where the LOS is already below the CEQA threshold and the project's impacts are nominal (i.e. increases the total intersection delay by more than five seconds). A small increase in overall delay would not be determined as significant under this situation.

Unsignalized Two-Way Stop Intersections

- The project causes the following to occur for the worst-case movement:
    - The LOS declines to an unacceptable LOS, and
    - The volume to capacity ratio exceeds 0.75, and
    - The 95th percentile queue exceeds 75 feet (3 vehicles), or
- The project causes the worst-case movement's acceptable LOS to decline to an unacceptable LOS and the peak hour volume signal warrant is met, or
- The project increases the average delay for the worst-case movement by more than 5 seconds per vehicle at an intersection that has an unacceptable LOS without the project and the intersection also meets the peak hour volume signal warrant, or
- The project causes and unacceptable increase in vehicular queues at an intersection.

The guidelines memorialized the following approach to further refine the determination of significant impacts for unsignalized two-way stop intersections:

- *Volume to Capacity Ratio.* The City's criteria can find the project's impact less than significant if the volume-to-capacity (v/c) ratio is 0.75 or less. Under this scenario, the side-street or driveway consumes no more than 75-percent of the available capacity and thus does not trigger a significant impact.

- *95th Percentile Queue.* The City's criteria can find the project's impact less than significant if, during the analysis period, side-street or driveway vehicular queues are less than 75-feet (3 vehicles). Under this scenario, the side-street or driveway queues are not excessive and thus a significant impact is not triggered.

- *Meeting the Traffic Signal Warrant.* The City's criteria can find the project's impact less than significant if the California Manual of Traffic Control Devices (MUTCD) Peak Hour signal warrant is not met. The MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. The peak hour warrant (Warrant 3) is considered representative as is typically the only warrant considered in a CEQA technical study. Under this scenario, the total volume of traffic using the study intersection does not meet the peak hour warrant as defined in the MUTCD and thus a significant impact is not triggered.

Timing and Funding for Mitigation Measures

Consistent with the City of Redding *Traffic Impact Assessment Guidelines*, the following mitigation guidelines are considered applicable for the proposed project:

- *Impacts Under Existing Plus Project Conditions.* It is the project's responsibility to install the project's recommended improvements at the time of development in order to mitigate impacts to a less than significant level. The project is 100 percent responsible for these improvements.

- *Impacts Under Cumulative Conditions.* If the project's fair share of a cumulative impact is 25 percent or more, then the recommended improvements shall be installed at the time of development, subject to a reimbursement agreement. If the recommended improvement is included in the current list of Traffic Impact Fee (TIF) projects, reimbursement will be in the form of either TIF credit or payment from the TIF.

  If the project's fair share of a cumulative impact is less than 25 percent, then the project will be required to pay its fair share of the cost of the improvements to be constructed later by others, prior to the realization of the impact. If the recommended improvement is included in the current list of TIF projects, then payment of the project's TIF fee will be considered mitigation for the impact.

CEQA SIGNIFICANCE CRITERIA

In accordance with State *CEQA Guidelines*, the effects of a project are evaluated to determine whether they would result in a significant adverse impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to reduce or avoid any significant impacts that are identified. The criteria used to determine the significance of impacts may vary depending on the nature of the project. The following significance thresholds related to traffic and circulation has been derived from Appendix G of the State *CEQA Guidelines*:

- *Cause an increase in traffic which exceeds one or more significance criteria established in the City of Redding's Traffic Impact Assessment Guidelines (January 2009).* Refer to Impact 5.14-1 and Impact 5.14-4, below.

- *Exceed, either individually or cumulatively, a level of service standard established by the County congestion management agency for designated roads or highway.* Refer to AREAS OF NO PROJECT IMPACT, below.

- *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.* Refer to AREAS OF NO PROJECT IMPACT, below.

- *Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).* Refer to Impact 5.14-2, below.

- *Result in inadequate emergency access.* Refer to AREAS OF NO PROJECT IMPACT, below.

- *Result in inadequate parking capacity.* Refer to AREAS OF NO PROJECT IMPACT, below.

- *Conflict with adopted policies, plans or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).* Refer to Impact 5.14-3, below.

Based on these standards, the effects of the proposed project have been categorized as either a less than significant impact or a potentially significant impact. Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant and unavoidable impact.

AREAS OF NO PROJECT IMPACT

In June 2018, the City conducted an Initial Study to determine significant effects of the proposed project. In the course of this evaluation, certain impacts of the proposed project were found to not to be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type. The effects determined not to be significant are not required to be included in primary analysis sections of the Draft EIR. As such, the following impacts either are not applicable to the proposed project or are not reasonably foreseeable and are not addressed further within this section (refer to Section 10.0, EFFECTS FOUND NOT TO BE SIGNIFICANT):

- *Exceed, either individually or cumulatively, a level of service standard established by the County congestion management agency for designated roads or highway.*

- *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 risk?*

- *Result in inadequate emergency access?*

- *Result in inadequate parking capacity?*

5.14.7 POTENTIAL IMPACTS AND MITIGATION MEASURES

Traffic and circulation impacts are analyzed below according to topic. Mitigation measures directly correspond with an identified impact.

IMPACT 5.14-1 ***Implementation of the proposed project may cause an increase in traffic which exceeds significance criteria established in the City of Redding's Traffic Impact Assessment Guidelines.***

Significance: Potentially Significant Impact.

Impact Analysis: Project trip generation is discussed in Subsection 5.14.4, *Trip Generation and Distribution*, above. As shown previously in Table 5.14-5, it is estimated that the proposed project will generate approximately 311 AM peak hour trips and 330 PM peak hour trips. The *Existing Plus Project* condition is the analysis scenario in which traffic impacts associated with the proposed project are investigated in comparison to the *Existing* condition scenario. *Existing Plus Project* conditions were simulated by superimposing traffic generated by the proposed project onto *Existing Conditions* intersection traffic volumes.

Existing Plus Project Intersection Operations

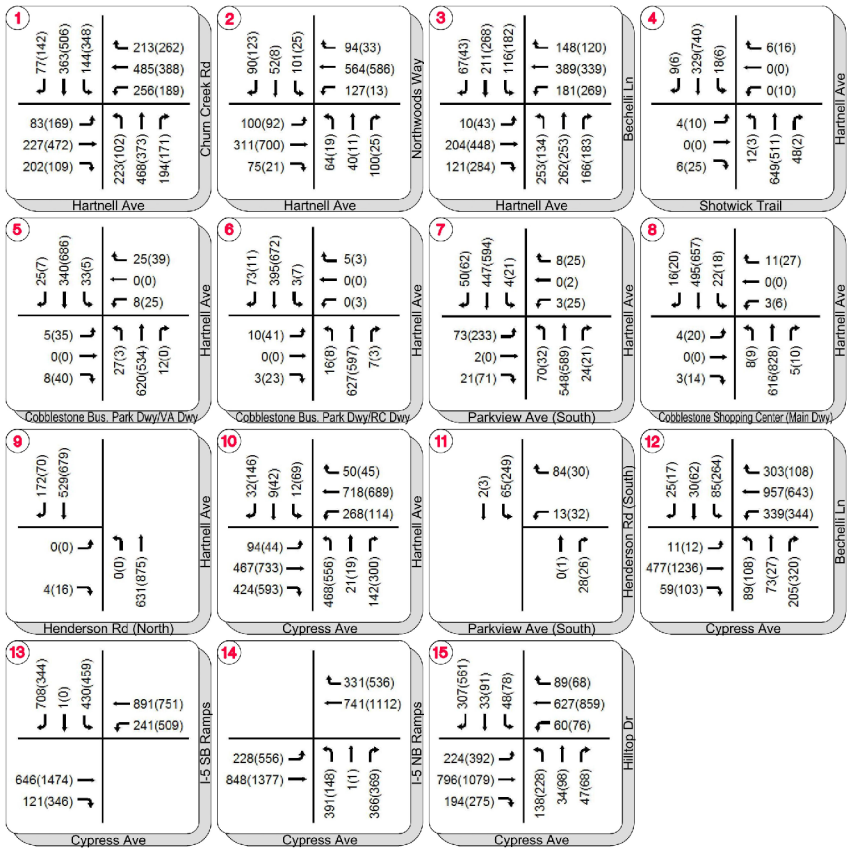
Existing Plus Project AM and PM peak hour intersection traffic operations were quantified utilizing the *Existing Plus Project* traffic volumes (refer to Figure 5.14-5, EXISTING PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES, and the existing intersection lane geometrics and control (Figure 5.14-1)). Table 5.14-7, EXISTING PLUS PROJECT LEVEL OF SERVICE**,** contains a summary of the *Existing Plus Project* study intersection LOS conditions.

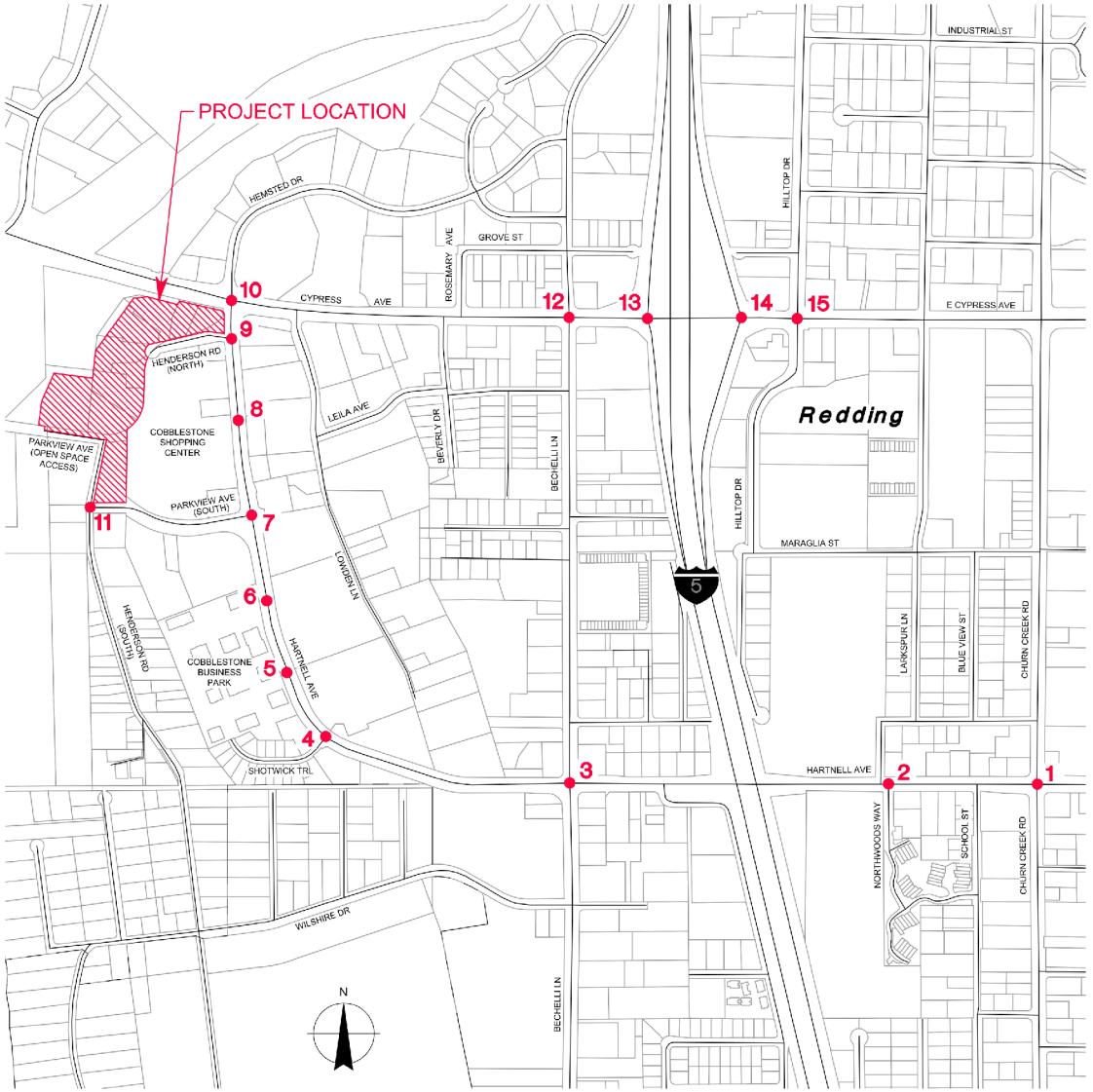
Table 5.14-7
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

#	Intersection	Control Type	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?	Delay	LOS	Warrant Met?
1	**Hartnell Avenue & Churn Creek Road**	Signal	C	**38.4**	**D**	**-**	**39.7**	**D**	**-**
2	Hartnell Avenue & Northwoods Way	Signal	C	32.0	C	-	13.4	B	-
3	Hartnell Avenue & Bechelli Lane	Signal	C	27.0	C	-	31.5	C	-
4	Hartnell Avenue & Shotwick Trail	TWSC	C	14.4	B	-	19.2	C	-
5	Hartnell Avenue & Cobblestone Business Park Driveway/VA Driveway	Signal	C	14.4	B	-	9.6	A	-
6	**Hartnell Avenue & Cobblestone Business Park Driveway/RC Driveway**	TWSC	C	20.8	C	**-**	**33.7**	**D**	No
7	Hartnell Avenue & Parkview Avenue (South)	Signal	C	9.5	A	-	14.5	B	-
8	**Hartnell Avenue & Cobblestone Shopping Center (Main Driveway)**	TWSC	C	17.8	C	**-**	**37.4**	**E**	No
9	Hartnell Avenue & Henderson Road (North)	TWSC	C	14.2	B	-	14.8	B	-
10	Hartnell Avenue & Cypress Avenue	Signal	D	31.1	C	-	29.6	C	-
11	Henderson Road (South) & Parkview Avenue (South)	TWSC	C	9.2	A	-	12.5	B	-
12	Cypress Avenue & Bechelli Lane	Signal	D	26.2	C	-	34.8	C	-
13	I-5 SB Ramps & Cypress Avenue	Signal	D	24.7	C	-	37.5	D	-
14	I-5 NB Ramps & Cypress Avenue	Signal	D	19.0	B	-	27.8	C	-
15	Cypress Avenue & Hilltop Drive	Signal	D	26.1	C	-	44.3	D	-

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal.
3. Warrant = Based on California MUTCD Warrant 3.
4. **Bold** = Unacceptable LOS.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.





LEGEND:

XXX - AM PEAK HOUR TRAFFIC VOLUMES
(XX) - PM PEAK HOUR TRAFFIC VOLUMES

SHN	Dignity Health North State Pavilion Project	Existing Plus Project Peak Hour Traffic Volumes Figure 5.14-5

As shown in Table 5.14-7, all study intersections, except the following are projected to operate at or above the threshold LOS for *Existing Plus Project* conditions:

- *Hartnell Avenue & Churn Creek Road (Intersection #1)*
- *Hartnell Avenue & Cobblestone Business Park Driveway/Retirement Community Driveway (Intersection #6)*
- *Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8)*

Existing Plus Project Queues

As noted above under, a queue is a line of vehicles waiting to proceed through an intersection. The 95th-percentile queue is defined to be the queue length (in vehicles) that has only a 5-percent probability of being exceeded during the analysis time period.

Table 5.14-8, EXISTING PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH – HARTNELL AVENUE CORRIDOR, and Table 5.14-9, EXISTING PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH – CYPRESS AVENUE CORRIDOR, present the *Existing* and *Existing Plus Project* queues for critical intersections along the Hartnell Avenue and Cypress Avenue corridors in the vicinity of the proposed project.

Table 5.14-8
EXISTING PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH – HARTNELL AVENUE CORRIDOR

Intersection No.	Intersection/Approach	Control Type	Existing 95th Percentile Queue (ft)		Existing Plus Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
1	*Hartnell Avenue & Churn Creek Road*						
	Eastbound Left	Signal	68	***112***	69	***113***	100
	Eastbound Thru		129	240	133	255	-
	Eastbound Right		65	52	65	61	75
	Westbound Left		***328***	***239***	***328***	***239***	175
	Westbound Thru		207	180	218	183	-
	Westbound Right		78	61	86	61	145
	Northbound Left		***401***	***146***	***424***	***148***	115
	Northbound Thru		435	287	435	287	-
	Southbound Left		***204***	***532***	***204***	***532***	100
	Southbound Thru		238	325	240	325	-
2	*Hartnell Avenue & Northwoods Way*						
	Eastbound Left	Signal	***118***	***83***	***118***	***84***	75
	Eastbound Thru		157	171	163	186	-
	Westbound Left		***142***	22	***142***	22	90
	Westbound Thru		272	171	292	178	-
	Northbound Thru		211	46	213	46	-
	Southbound Thru		212	66	214	66	-
5	*Hartnell Avenue & Cobblestone Business Park Driveway/Veterans Affairs Driveway*						
	Northbound Left	Signal	43	8	43	8	60
	Northbound Thru		206	104	234	108	-
	Southbound Left		50	11	50	11	70
	Southbound Thru		121	129	129	144	-
7	*Hartnell Avenue & Parkview Avenue*						
	Eastbound Thru	Signal	26	0	66	154	-
	Westbound Thru		0	30	0	31	-
10	*Hartnell Avenue & Cypress Avenue*						
	Westbound Left	Signal	***232***	113	***463***	158	225

Note:
1. ***Bold*** = Queues exceed available storage capacity.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

Table 5.14-9
EXISTING PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH – CYPRESS AVENUE CORRIDOR

Intersection No.	Intersection/Approach	Control Type	Existing 95th Percentile Queue (ft)		Existing Plus Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
12	*Bechelli Lane & Cypress Avenue*						
	Eastbound Left	Signal	30	***116***	41	***116***	95
	Eastbound Thru		200	856	203	1124	-
	Eastbound Thru/Right		109	533	128	1159	-
	Westbound Left		190	181	190	181	300
	Westbound Thru		164	169	188	172	-
	Westbound Thru/Right		214	203	235	204	-
	Northbound Left/Thru		187	273	190	273	-
	Northbound Right		90	339	94	339	-
	Southbound Left		98	237	98	256	-
	Southbound Left/Thru/Right		95	212	119	236	-
13	*I-5 SB Ramps & Cypress Avenue*						
	Eastbound Thru	Signal	293	457	293	457	-
	Eastbound Right		***48***	***177***	***58***	***177***	30
	Westbound Left		***276***	***350***	***288***	***351***	215
	Westbound Thru		220	539	251	539	-
	Southbound Left		267	657	267	832	-
	Southbound Left/Thru/Right		367	672	381	828	-
	Southbound Right		305	***526***	329	***632***	375
14	*I-5 NB Ramps & Cypress Avenue*						
	Eastbound Left	Signal	***281***	***345***	***284***	***353***	230
	Eastbound Thru		229	545	234	558	-
	Westbound Thru		257	288	271	292	-
	Westbound Right		***108***	***171***	***124***	***171***	30
	Northbound Left		264	255	278	257	535
	Northbound Left/Thru/Right		340	336	357	340	-
	Northbound Right		291	287	291	291	635
15	*Hilltop Drive & Cypress Avenue*						
	Eastbound Left	Signal	151	***253***	152	***253***	220
	Eastbound Thru		201	279	201	281	-
	Eastbound Thru/Right		223	268	224	268	-
	Westbound Left		***117***	***269***	***117***	***269***	95
	Westbound Thru		218	997	227	1178	-
	Westbound Thru/Right		242	946	242	1025	-
	Northbound Left		104	241	114	270	-
	Northbound Left/Thru		120	226	120	230	-
	Northbound Thru/Right		54	154	54	154	-
	Southbound Left		78	***166***	100	***174***	130
	Southbound Left/Thru/Right		240	318	270	319	-
	Southbound Right		139	329	172	352	-

Note:
1. ***Bold*** = Queues exceed available storage capacity.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

Existing Plus Project – Significant Impacts

As noted above in Table 5.14-7, the following study intersections are projected to operate at or above the threshold LOS under *Existing Plus Project* conditions; however, in accordance with the City of Redding *Traffic Impact Guidelines* (January 2009), the proposed project's contribution to these intersections are not considered significant as discussed below for each intersection.

- *Hartnell Avenue & Churn Creek Road (Intersection #1).* The intersection of Hartnell Avenue & Churn Creek Road (Intersection #1) is a signalized intersection with a target LOS of C; however as previously noted above in Table 5.14-2, the *Existing* LOS of this intersection is an unacceptable LOS D in both the AM peak hour and PM peak hour. The proposed project traffic contribution at this intersection is not considered significant due to the project not causing an acceptable LOS under *Existing* conditions to decline to an unacceptable LOS under *Existing Plus Project* conditions (projected to be LOS D). In addition, project-related traffic at this intersection would result in a 0.5 second increase in vehicle delay which is under the maximum 5 second delay threshold for signalized intersections that have an unacceptable LOS without project traffic (i.e., *Existing* conditions). Therefore, the proposed project's *Existing Plus Project* traffic contribution to the intersection of Hartnell Avenue & Churn Creek Road (Intersection #1) is considered *less than significant* and no mitigation is required.

- *Hartnell Avenue & Cobblestone Business Park Driveway/Retirement Community Driveway (Intersection #6).* The intersection of Hartnell Avenue & Cobblestone Business Park/Retirement Community Driveway (Intersection #6) is a two-way stop controlled (TWSC) intersection with a target LOS of C; however as previously noted above in Table 5.14-2, the *Existing* LOS of this intersection is an unacceptable LOS D during the PM peak hour. The proposed project would not cause any of the thresholds identified above for a TWSC intersection to be exceeded. Therefore, the proposed project's *Existing Plus Project* traffic contribution to the intersection of Hartnell Avenue & Cobblestone Business Park/Retirement Community Driveway (Intersection #6) is considered *less than significant* and no mitigation is required.

- *Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8).* The intersection of Hartnell Avenue & Cobblestone Shopping Center (Main Driveway)(Intersection #8) is a TWSC intersection with a target LOS of C; however as previously noted above in Table 5.14-2, the *Existing* LOS of this intersection is an unacceptable LOS D during the PM peak hour. The proposed project would not cause any of the thresholds identified above for a TWSC intersection to be exceeded. Therefore, the proposed project's *Existing Plus Project* traffic contribution to the intersection of Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #6) is considered *less than significant* and no mitigation is required under *Existing Plus Project* conditions.

Table 5.14-10, EXISTING PLUS PROJECT SIGNIFICANT IMPACTS, presents the intersections projected to display unacceptable queuing under the *Existing Plus Project* conditions and those intersections that warrant mitigation.

Table 5.14-10
EXISTING PLUS PROJECT SIGNIFICANT IMPACTS

#	Intersection	Control Type	Target LOS	Existing LOS	Existing Plus Project LOS	Existing Delay (D1)	Existing Plus Project Delay (D2)	Delay Increase (D2-D1)	Signal Warrant Met?	V/C	95% Queue (veh)	Significant Impact?
AM Peak Hour												
1	Hartnell Ave & Churn Creek Rd	Signal	C	C	D	37.9	38.4	0.5	-	0.71	-	No
10	**Hartnell Ave & Cypress Ave**	**Signal**	**D**	**C**	**C**	**27.8**	**31.1**	**3.3**	**-**	**0.58**	**19**	**Yes**
PM Peak Hour												
1	Hartnell Ave & Churn Creek Rd	Signal	C	D	D	39.0	39.7	0.7	-	0.73	-	No
6	Hartnell Ave & Cobblestone Bus Park Dwy/RC Dwy	TWSC	C	D	D	28.6	33.7	5.1	No	0.38	2	No
8	Hartnell Ave & Cobblestone Shopping Center (Main Dwy)	TWSC	C	D	E	29.5	37.4	7.9	No	0.27	1	No

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach of TWSC intersections, average of all approaches for Signal.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

The following improvements would provide acceptable intersection operations under *Existing Plus Project* conditions where a potentially significant project impact has been identified.

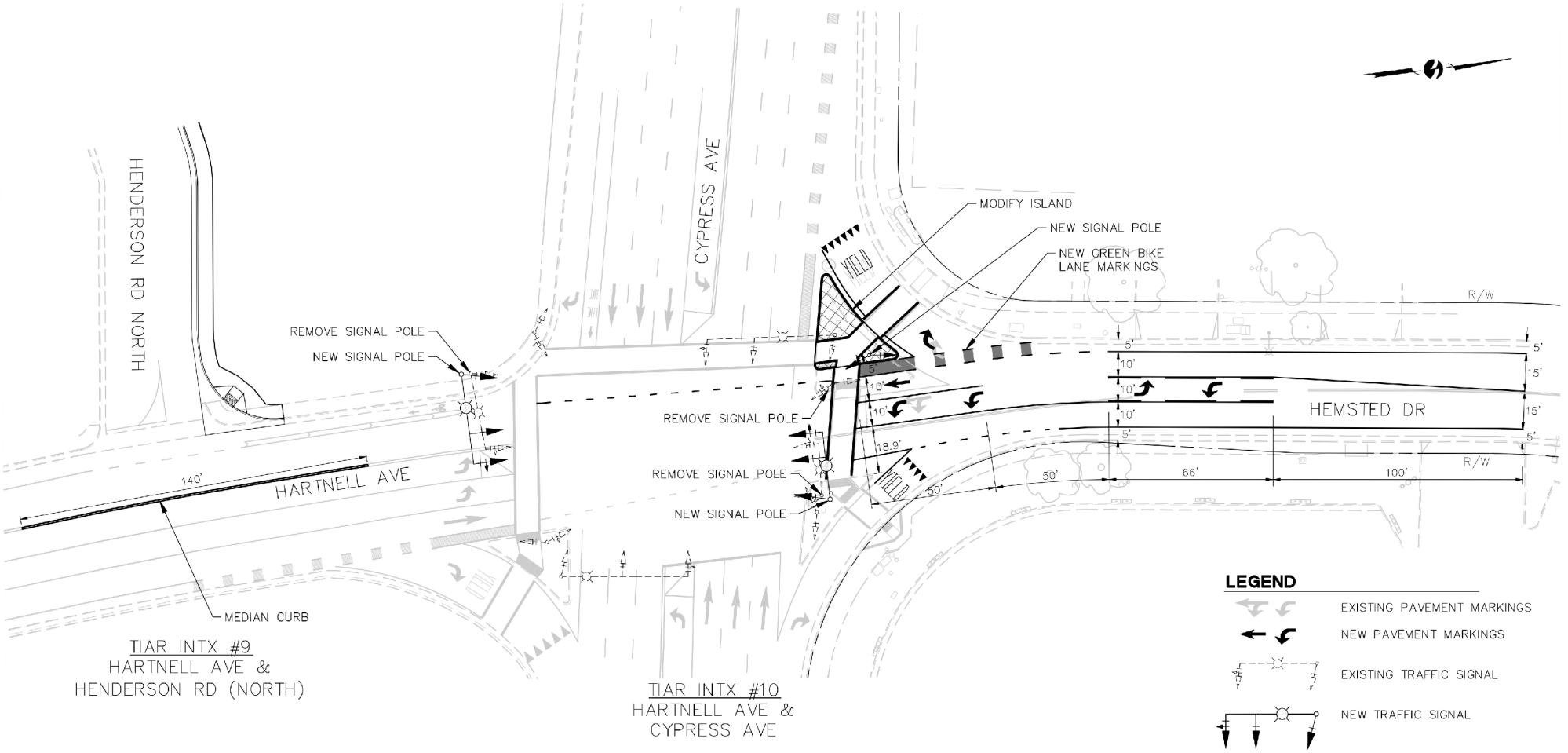
- *Hartnell Avenue & Cypress Avenue (Intersection #10).* The proposed project creates a potentially significant impact at this intersection by increasing the westbound left queue from 10 to 19 cars for the AM peak hour. The available storage capacity for westbound left movement is nine cars. Construction of recommended intersection improvements (refer to **MM 5.14-1**) would reduce the *Existing Plus Project* impact at this intersection to a *less than significant* level. Refer to Figure 5.14-6, INTERSECTION MITIGATION EXHIBIT.

Traffic Calming

Based upon concerns raised by local residents, potential increases in local traffic volumes were evaluated along Henderson Road and Wilshire To complete this evaluation, traffic volumes were collected and measured against the threshold identified in the City's *Traffic Impact Assessment Guidelines* (January 2009) for local roadway segments. Refer to Subsection 5.14.2, *Methodologies and Guidelines*, above.

Henderson Road. Henderson Road, from Parkview Avenue to Wilshire Drive, is within the City limits and is signed as a 25 MPH zone. There are not any sidewalks along this road. The pavement on Henderson Road varies from approximately 21 to 30 feet wide.

Wilshire Road. Wilshire Drive, between Henderson Road and Bechelli Lane, is under a combination of City and County jurisdiction. Wilshire Drive does not have a posted speed limit. There are not any sidewalks along this road, with the exception of a very short section near Bechelli Lane. The pavement on Wilshire Drive varies from approximately 22 to 34 feet wide.



APRIL 14, 2017

SCALE: 1" = 40'

SHN	Dignity Health North State Pavilion Project	Intersection Mitigation Exhibit Figure 5.14-6

Existing Traffic Volumes. 24-Hour traffic counts were performed on Thursday, September 13, 2018 at two separate locations along this corridor. One count was performed on Wilshire Drive, between Birch Way and John Street. The second 24-Hour count was performed along Henderson Road, 300 feet south of Parkview Avenue. These daily traffic counts were used to produce the average daily traffic (ADT) and the AM and PM peak hour traffic flow. Of the two locations, the Wilshire Drive location had a higher daily traffic count of 731 vehicles, with an AM peak hour of 56 vehicles, and a PM peak hour of 68 vehicles. The Henderson Road location had a daily traffic count of 472 vehicles, an AM peak hour of 31 vehicles, and a PM peak hour of 47 vehicles. Therefore, the traffic impact for the project is controlled by the Wilshire Drive traffic volumes.

From the City of Redding *Traffic Impact Assessment Guidelines* (January 2009), the threshold for traffic on a residential local street is 2,000 vehicles per day and 180 vehicles per peak hour. Based on this criteria Wilshire Drive existing peak hour traffic volumes do not exceed the TIA guideline volumes.

Projected Traffic Volumes. The *Dignity Mercy Medical Center Redding – North State Pavilion Traffic Impact Analysis Report* (October 2018) estimates that 8 percent of the project traffic will utilize Bechelli Lane to the south for coming/going to the project site. It is estimated that less than 1 percent of the project traffic will use the Henderson Road/Wilshire Drive cut-through route as a shortcut to/from Bechelli Lane. In order to ensure that this cut-through percentage is not underestimated, this memorandum analyzes a "worst-case" situation with 5 percent of the project traffic using this cut-through.

The proposed project is anticipated to generate 4,697 daily trips to/from the project site, with an AM Peak Hour volume of 311 trips, and 330 PM peak hour trips. Based on 5 percent of the project traffic using Wilshire Drive and Henderson Road as a cut-through, the ADT would increase by 235 vehicles, assuming half of the vehicles in both the eastbound and westbound directions. This would bring the ADT of the roadway to approximately 966 vehicles. The AM peak hour is projected to increase by 16 vehicles and the PM peak hour is projected to increase by 16 vehicles. This brings the AM peak hour to approximately 72 vehicles, and the PM peak hour to approximately 84 vehicles.

Based on the above projected traffic volumes for Wilshire Drive, using 5 percent of the project traffic, Wilshire Drive will continue to operate well below the City's *Traffic Impact Assessment Guidelines* thresholds of 2,000 vehicles per day and 180 vehicles per hour during the peak hours. Since the project does not cause significant impacts to the Henderson Road/Wilshire Drive corridor, traffic mitigation measures are not recommended and impacts are considered *less than significant*.

Mitigation Measures:

MM 5.14-1: Prior to prior to Certificate of Occupancy for the first building the following improvements shall be completed by the project applicant to the satisfaction of the City of Redding Public Works Department:

- *Hartnell Avenue & Cypress Avenue (Intersection #10).* Construct a southbound left turn pocket; construct a southbound thru/right lane; and convert intersection to an eight phase traffic signal.

Level of Significance After Mitigation: Under the *Existing Plus Project* condition, the westbound queue at intersection of Hartnell Avenue & Cypress Avenue (Intersection #10) is projected to be 463 feet as compared to 232 feet under *Existing* conditions. Implementation of **MM 5.14-1** (prior to occupancy) requires converting the intersection of Hartnell Avenue & Cypress Avenue (Intersection #10) to an eight phase traffic signal and adding a southbound lane. With implementation of this measure, the westbound left queue is projected to be 259 feet. Impacts are considered *less than significant* with mitigation incorporated.

IMPACT 5.14-2	***Project implementation would not create temporary traffic delays or increase hazards due to a design features such as sharp curves or dangerous intersections.***

Significance: Less Than Significant Impact.

Impact Analysis: No obstacles to sight distance are expected to result from the construction of the proposed project. Existing roads surrounding the proposed project are generally straight and generally void of visual obstructions.

Short-Term Construction

Some traffic delays can be expected during project construction; however, the traffic impacts during construction are temporary in nature and will cease upon completion of construction activities. A Traffic Management Plan (TMP) is required to be developed by the project applicant and approved by the City Transportation and Engineering Department prior to the initiation of any construction activities to minimize disruption to existing traffic flow conditions. The TMP addresses details regarding road closures, provisions to maintain access to any adjacent properties, prior notices, adequate sign-posting, detours (including for bicyclists), and permitted hours of construction activity as determined appropriate by the City. Adequate local and emergency access to adjacent uses is required to be provided at all times. The TMP shall be reviewed and approved by the Redding Police and Fire Departments, and other emergency service providers so that construction does not create any hazards or interfere with any emergency response or evacuation plans. Mitigation Measure **MM 5.14-2** is required to ensure accurate monitoring and implementation of the TMP.

Long-Term Operation

Improvements identified for Hartnell Avenue & Cypress Avenue (Intersection #10) would be implemented through **MM 5.14-1** (refer to discussion under Impact 5.14-1, above). All intersection improvements and project driveways would be constructed in accordance with the RMC and construction standards. No new design or features would be introduced that would result in transportation-related hazards or safety concerns. This impact is considered to be *less than significant*.

Mitigation Measures:

MM 5.14-2: Prior to commencement of any construction activities, the project applicant shall submit a Traffic Management Plan (TMP) to the City of Redding Public Works Department. The TMP shall address temporary safety and traffic concerns along Henderson Road (South), Parkview Avenue (Open Space Access), Henderson Road (North), Parkview Avenue

(South) and along the site's northern interface with Cypress Avenue and eastern interface with Hartnell Avenue. At a minimum, the TMP shall include plans clearly denoting any proposed lane closures, proposed vehicle/bicyclist/pedestrian rerouting plans, and a traffic signage plan to ensure adequate circulation during the short-term construction process. The TMP shall be subject to review and approval by the City of Redding City Engineer. In addition, if temporary road or lane closures are determined necessary, notification shall be provided to the Redding Fire Department and Police Department.

Level of Significance After Mitigation: Impacts would be *less than significant* with mitigation incorporated.

IMPACT 5.14-3	***Implementation of the proposed project would not conflict with adopted policies, plans or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).***

Significance: Less Than Significant Impact.

Impact Analysis: The following discussion evaluates the proposed project's impact on pedestrian, bicycle, and transit operations within the immediate vicinity of the site. Local roadways in the immediate project vicinity (e.g., Cypress Avenue and Hartnell Avenue) have existing sidewalk facilities.

Pedestrian Facilities

Henderson Road (North), from Hartnell Avenue to the proposed project frontage, does not contain any sidewalks on the easterly or westerly sides of the roadway. Henderson Road (South) from the existing open space access to the intersection of Henderson Road & Parkview Avenue (Intersection #7), does not contain any sidewalks on the northerly or southerly sides of the roadway. No marked crosswalks are present within the North or South segments of Henderson Road.

Parkview Avenue, along the existing open space access, does not contain any sidewalks on the easterly or westerly sides of the roadway. Park Avenue (South), from Henderson Road (South) to Hartnell Avenue, contains sidewalks on the northerly and southerly sides of the roadway, terminating approximately 165 feet east of Henderson Road (South). Currently, pedestrian activity is very light on Parkview Avenue and Henderson Road (North). With the development of the proposed project, pedestrian traffic is expected to increase slightly due to the proximity of the project to surrounding residential and the transit connections on Hartnell Avenue.

In an effort to facilitate efficient pedestrian movement within the immediate project vicinity, the proposed project would add sidewalks on Henderson Road (North) along the project frontage; on Parkview Avenue (South) along the project frontage; on Henderson Road (South) along the project frontage; and on Parkview Avenue (Open Space Access) along the project frontage. The new sidewalks would also provide a linkage to internal pedestrian walkways between the proposed buildings and parking lots. These internal walkways would provide access to the exterior sidewalks that would facilitate access to the RABA bus stop on Hartnell Avenue (Route 5) approximately 200 feet from the project site. The proposed project would be designed and constructed consistent with the provisions of

RMC Title 11, *Traffic and Vehicles,* and RMC Title 13, *Street and Sidewalks.* Because these improvements are included as part of the project design, potential impacts are considered to be *less than significant*.

Bicycle Facilities

The proposed project includes bicycle parking in accordance with City development standards to encourage the use of bicycles as an alternative form of commuting to the facility. Project study area roadways currently experience relatively light bicycle use and bicycle traffic is projected to remain very light with development of the proposed project. Impacts are not considered significant.

Transit Facilities

As noted above under Subsection 5.14.1, *Environmental Setting*, Route 5 is a north-south direction service on Hartnell Avenue from the Downtown Transit Center. Route 5, which originates and terminates at the Downtown Transit Center, provides bus stops at the Sequoia Middle School, Village Plaza Shopping Center, Parsons Junior High School, and Alta Mesa Elementary School. The nearest RABA bus stop is located approximately 200 feet from the project site. RABA has reviewed the proposed project and has not indicated that a new bus turn out is required for the project. Impacts are therefore considered *less than significant*.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: No mitigation measures are required. Impacts would be *less than significant*.

5.14.8 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

The analysis of cumulative impacts focuses on those effects that, when combined together with other similar activities or projects could result in a large enough effect or impact that would be considered cumulatively significant. If the individual project's contribution is substantial enough, it may be considered cumulatively significant. In some instances, a project-specific impact may not combine with effects from other activities, in which case, the project's contribution to a cumulative effect would be less than considerable.

The cumulative setting for traffic and circulation consists of traffic generated by all existing and future (cumulative) development in the project area including buildout of the City and County general plan land uses under *Year 2040* conditions. This geographic extent is appropriate for the cumulative analysis as it captures all of the roadways and intersections considered in the traffic analysis for the proposed project which includes an evaluation of long-term traffic conditions based on traffic volumes contained in Shasta County's county-wide transportation demand model for *Year 2040*.

For cumulative *Year 2040* base conditions, there are no transportation improvements assumed "in place." In other words, the configuration of the existing roadways are assumed to remain unchanged for the cumulative *Year 2040* base analysis. For the purposes of the cumulative analysis, the planning horizon for future traffic condition considers cumulative conditions in the *Year 2040*. *Year 2040 Plus Project* conditions were subsequently developed by superimposing the proposed project-generated traffic on top of the *Year 2040* base traffic volumes.

IMPACT 5.14-4 ***Implementation of the proposed project could result in increased traffic volumes at study area intersections under Year 2040 cumulative plus project conditions.***

Significance: Potentially Significant Impact.

Impact Analysis: *Year 2040* conditions refer to future long-term condition where buildout of all remaining vacant *General Plan* land uses are developed, even though this is highly unlikely given the projected rate of growth, along with supporting circulation system improvements. *Year 2040 No Project* conditions refers to a cumulative *No Project* condition refer to a scenario in which all remaining vacant *General Plan* land uses are developed, also highly unlikely, except for the proposed project.

Year 2040 No Project

The *Year 2040 No Project* condition is the analysis scenario in which future operations at study locations, assuming no project development, are analyzed. *Year 2040 No Project* condition intersection traffic volumes are illustrated in Figure 5.14-7, YEAR 2040 NO PROJECT PEAK HOUR TRAFFIC VOLUMES.

Year 2040 No Project Intersection Operations

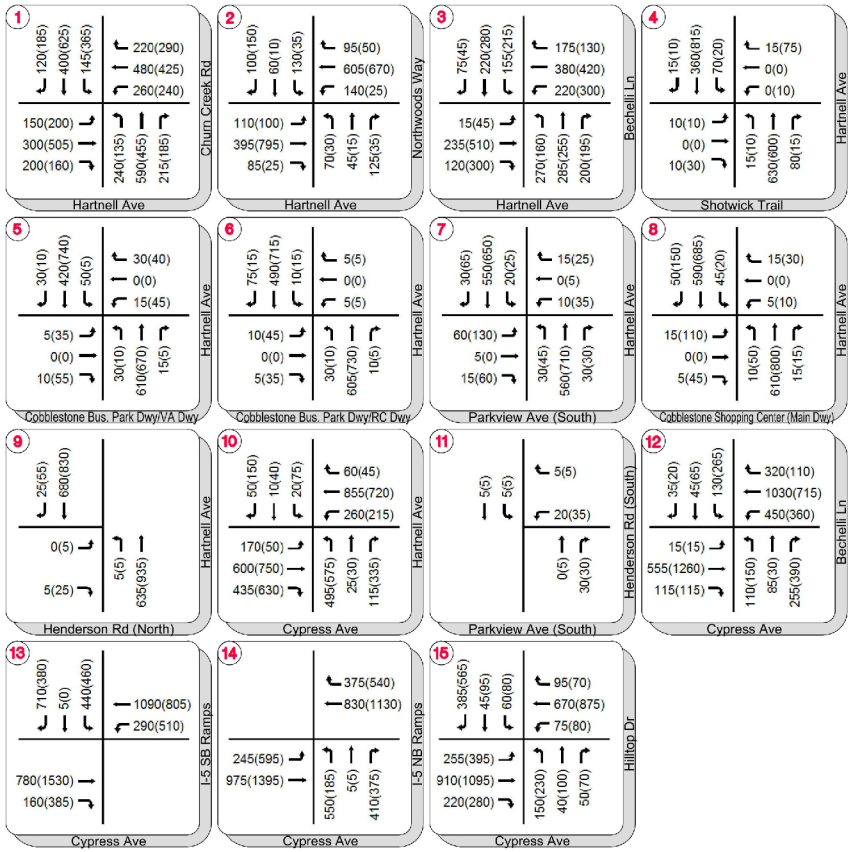
Table 5.14-11, YEAR 2040 NO PROJECT LEVEL OF SERVICE, contains a summary of the *Year 2040 No Project* study intersection LOS conditions.

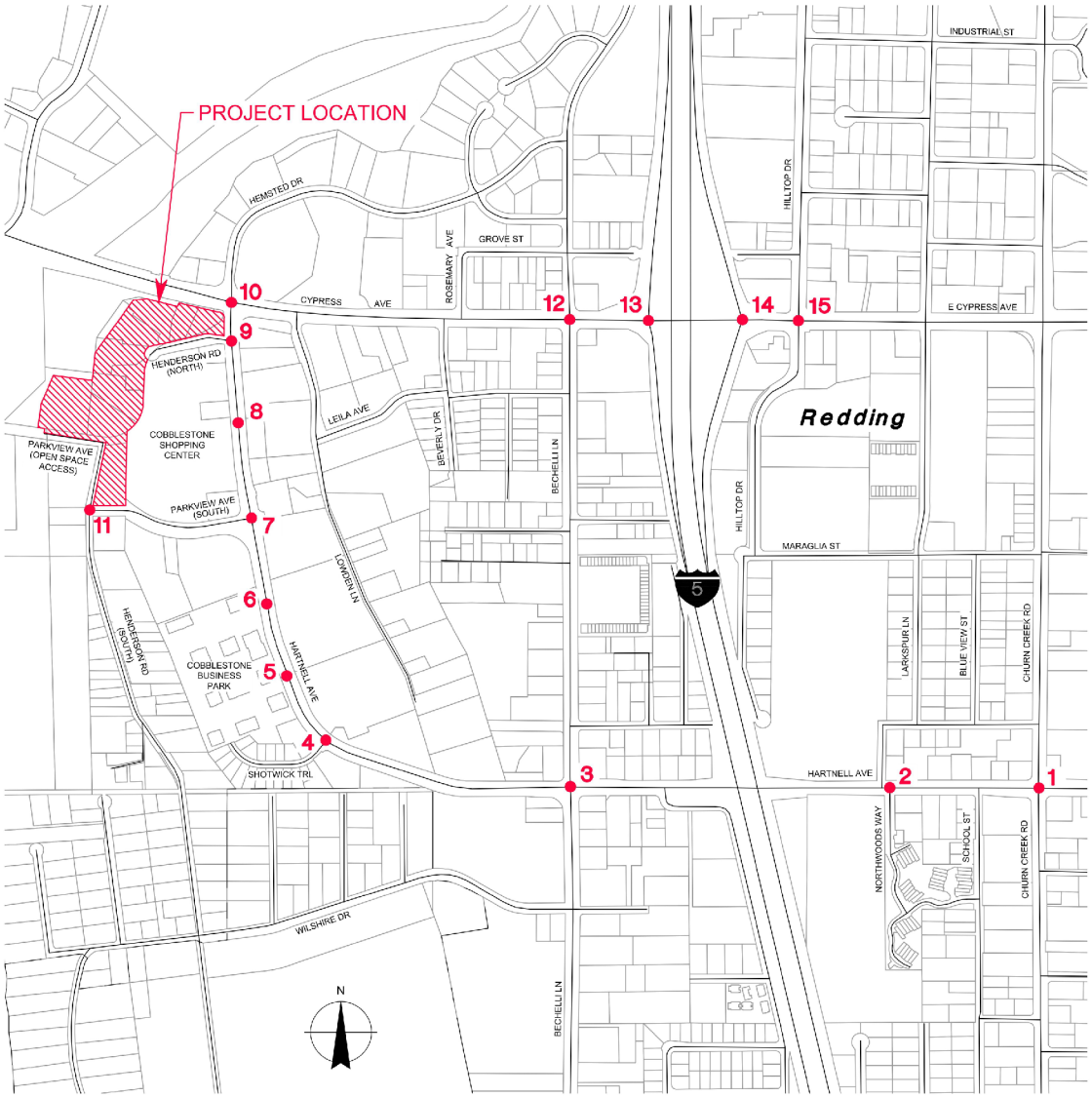
Table 5.14-11
YEAR 2040 NO PROJECT INTERSECTION LEVEL OF SERVICE

#	Intersection	Control Type	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?	Delay	LOS	Warrant Met?
1	**Hartnell Avenue & Churn Creek Road**	Signal	C	**42.4**	**D**	**-**	**47.8**	**D**	**-**
2	**Hartnell Avenue & Northwoods Way**	Signal	C	**35.3**	**D**	-	15.4	B	-
3	Hartnell Avenue & Bechelli Lane	Signal	C	29.7	C	-	34.1	C	-
4	Hartnell Avenue & Shotwick Trail	TWSC	C	17.2	C	-	21.3	C	-
5	Hartnell Avenue & Cobblestone Business Park Driveway/VA Driveway	Signal	C	15.2	B	-	10.0	A	-
6	**Hartnell Avenue & Cobblestone Business Park Driveway/RC Driveway**	TWSC	C	20.4	C	**-**	**37.8**	**E**	No
7	Hartnell Avenue & Parkview Avenue (South)	Signal	C	9.0	A	-	10.7	B	-
8	**Hartnell Avenue & Cobblestone Shopping Center (Main Driveway)**	TWSC	C	**27.4**	**D**	**No**	**OVR**	**F**	**Yes**
9	Hartnell Avenue & Henderson Road (North)	TWSC	C	14.0	B	-	19.3	C	-
10	Hartnell Avenue & Cypress Avenue	Signal	D	32.4	C	-	32.6	C	-
11	Henderson Road (South) & Parkview Avenue (South)	TWSC	C	8.8	A	-	8.8	A	-
12	Cypress Avenue & Bechelli Lane	Signal	D	28.1	C	-	38.5	D	-
13	I-5 SB Ramps & Cypress Avenue	Signal	D	25.1	C	-	38.9	D	-
14	I-5 NB Ramps & Cypress Avenue	Signal	D	22.7	C	-	31.7	C	-
15	Cypress Avenue & Hilltop Drive	Signal	D	28.5	C	-	45.3	D	-

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal.
3. Warrant = Based on California MUTCD Warrant 3.
4. **Bold** = Unacceptable LOS.
5. OVR = Intersection delay exceeds 300 seconds.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.





LEGEND:

XXX - AM PEAK HOUR TRAFFIC VOLUMES
(XX) - PM PEAK HOUR TRAFFIC VOLUMES

Dignity Health North State Pavilion Project

Year 2040 No Project Peak Hour Traffic Volumes

Figure 5.14-7

As shown in Table 5.14-11, all study intersections except the intersections listed below are projected to operate at or above the threshold LOS under *Year 2040 No Project* conditions:

- *Hartnell Avenue & Churn Creek Road (Intersection #1)*
- *Hartnell Avenue & Northwoods Way (Intersection #2)*
- *Hartnell Avenue & Cobblestone Business Park/Retirement Community Driveway (Intersection #6)*
- *Hartnell Avenue & Cobblestone Shopping Center Driveway (Intersection #8)*

Year 2040 No Project Queues

Table 5.14-12, YEAR 2040 NO PROJECT 95TH PERCENTILE QUEUE LENGTH – HARTNELL AVENUE CORRIDOR, and Table 5.14-13, YEAR 2040 NO PROJECT 95TH PERCENTILE QUEUE LENGTH – CYPRESS AVENUE CORRIDOR, present the *Year 2040 No Project* queues for critical intersections along the Hartnell Avenue and Cypress Avenue corridors in the vicinity of the proposed project.

Table 5.14-12
YEAR 2040 NO PROJECT 95TH PERCENTILE QUEUE LENGTH – HARTNELL AVENUE CORRIDOR

Intersection No.	Intersection/Approach	Control Type	Year 2040 No Project 95th Percentile Queue (feet)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	*Hartnell Avenue & Churn Creek Road*				
	Eastbound Left	Signal	***107***	***135***	100
	Eastbound Thru		170	288	-
	Eastbound Right		***102***	***120***	75
	Westbound Left		***328***	***301***	175
	Westbound Thru		221	205	-
	Westbound Right		86	76	145
	Northbound Left		***449***	***208***	115
	Northbound Thru		576	392	-
	Southbound Left		***204***	***601***	110
	Southbound Thru		277	453	-
2	*Hartnell Avenue & Northwoods Way*				
	Eastbound Left	Signal	***127***	***93***	75
	Eastbound Thru		206	240	-
	Westbound Left		***157***	36	90
	Westbound Thru		345	229	-
	Northbound Thru		272	64	-
	Southbound Thru		265	82	-
5	*Hartnell Avenue & Cobblestone Business Park Driveway/Veterans Affairs Driveway*				
	Northbound Left	Signal	46	17	60
	Northbound Thru		234	145	-
	Southbound Left		63	11	70
	Southbound Thru		158	166	-
7	*Hartnell Avenue & Parkview Avenue*				
	Eastbound Thru	Signal	54	68	-
	Westbound Thru		0	41	-
10	*Hartnell Avenue & Cypress Avenue*				
	Westbound Left	Signal	***451***	***253***	225

Note:
1. ***Bold*** = Queues exceed available storage capacity.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

Table 5.14-13
YEAR 2040 NO PROJECT 95TH PERCENTILE QUEUE LENGTH – CYPRESS AVENUE CORRIDOR

Intersection No.	Intersection/Approach	Control Type	Year 2040 No Project 95th Percentile Queue (feet)		Available Storage
			AM Peak Hour	PM Peak Hour	
12	*Bechelli Lane & Cypress Avenue*				
	Eastbound Left	Signal	74	***127***	95
	Eastbound Thru		220	673	-
	Eastbound Thru/Right		184	696	-
	Westbound Left		220	187	300
	Westbound Thru		256	199	-
	Westbound Thru/Right		319	233	-
	Northbound Left/Thru		220	307	-
	Northbound Right		124	449	-
	Southbound Left		126	317	-
	Southbound Left/Thru/Right		161	323	-
13	*I-5 SB Ramps & Cypress Avenue*				
	Eastbound Thru	Signal	306	467	-
	Eastbound Right		***103***	***178***	30
	Westbound Left		***290***	***347***	215
	Westbound Thru		251	533	-
	Southbound Left		320	773	-
	Southbound Left/Thru/Right		446	781	-
	Southbound Right		375	***582***	375
14	*I-5 NB Ramps & Cypress Avenue*				
	Eastbound Left	Signal	***300***	***367***	230
	Eastbound Thru		283	530	-
	Westbound Thru		287	302	-
	Westbound Right		***145***	***176***	30
	Northbound Left		439	290	535
	Northbound Left/Thru/Right		519	367	-
	Northbound Right		436	317	635
15	*Hilltop Drive & Cypress Avenue*				
	Eastbound Left	Signal	168	***242***	175
	Eastbound Thru		243	290	-
	Eastbound Thru/Right		268	282	-
	Westbound Left		***148***	***256***	95
	Westbound Thru		277	588	-
	Westbound Thru/Right		285	513	-
	Northbound Left		129	267	-
	Northbound Left/Thru		130	240	-
	Northbound Thru/Right		67	144	-
	Southbound Left		***154***	***177***	130
	Southbound Left/Thru/Right		351	355	-
	Southbound Right		256	418	-

Note:
1. ***Bold*** = Queues exceed available storage capacity.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

Year 2040 Plus Project

The *Year 2040 Plus Project* condition is the analysis scenario in which traffic impacts associated with the proposed project are investigated in comparison to the *Year 2040 No Project* condition scenario. *Year 2040 Plus Project* conditions were simulated by superimposing traffic generated by the proposed project onto *Year 2040 No Project* intersection traffic volumes. Figure 5.14-8, YEAR 2040 PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES, illustrates the *Year 2040 Plus Project* peak hour volumes at study intersection locations.

Year 2040 Plus Project Intersection Operations

Table 5.14-14, YEAR 2040 PLUS PROJECT INTERSECTION LEVEL OF SERVICE, contains a summary of the *Year 2040 Plus Project* study intersection LOS conditions.

Table 5.14-14
YEAR 2040 PLUS PROJECT INTERSECTION LEVEL OF SERVICE

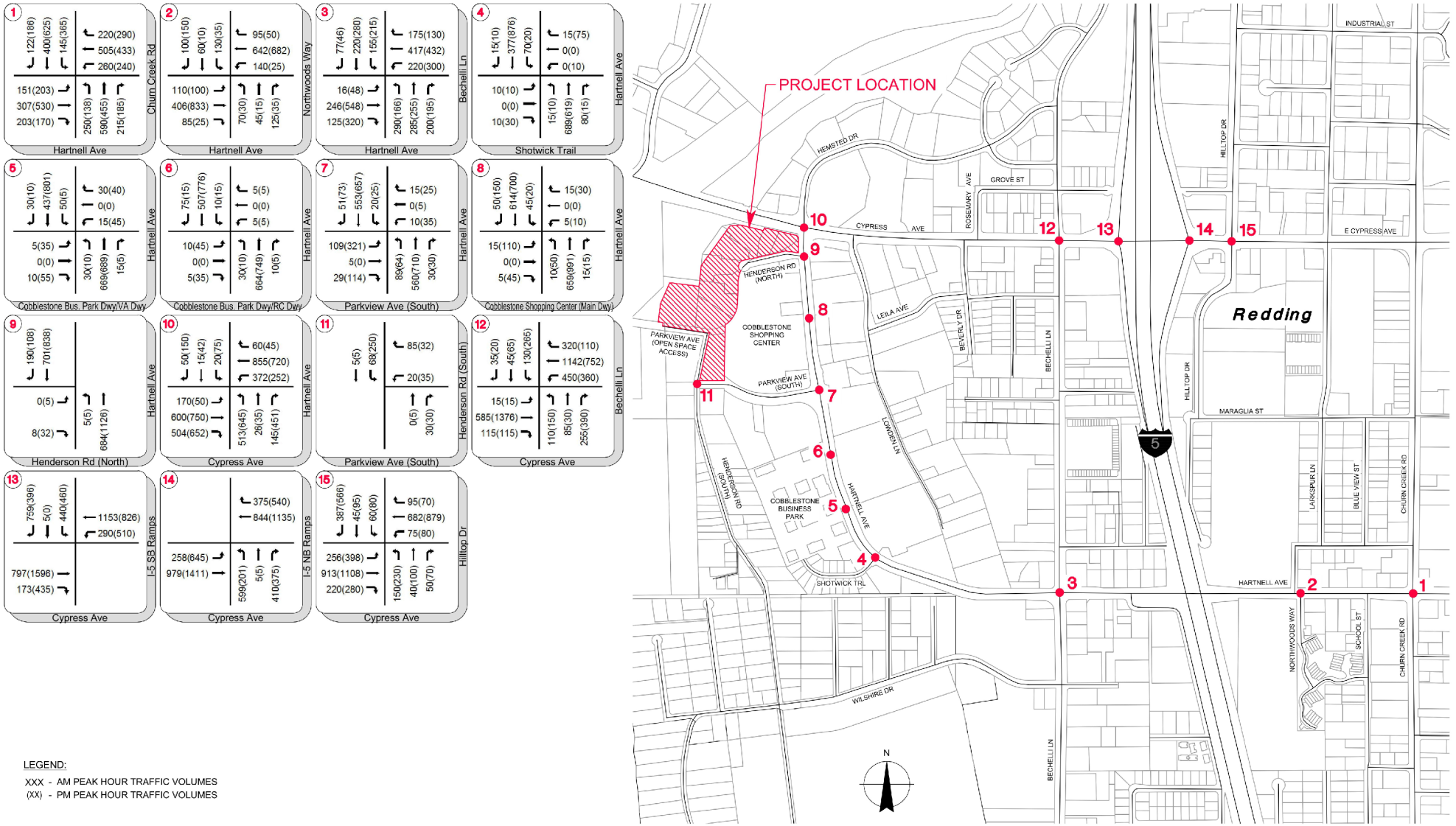
#	Intersection	Control Type	Target LOS	AM Peak Hour			PM Peak Hour		
				Delay	LOS	Warrant Met?	Delay	LOS	Warrant Met?
1	**Hartnell Avenue & Churn Creek Road**	Signal	C	**43.4**	**D**	**-**	**48.5**	**D**	**-**
2	**Hartnell Avenue & Northwoods Way**	Signal	C	**36.0**	**D**	-	15.6	B	-
3	Hartnell Avenue & Bechelli Lane	Signal	C	29.8	C	-	34.6	C	-
4	Hartnell Avenue & Shotwick Trail	TWSC	C	18.3	C	-	23.5	C	-
5	Hartnell Avenue & Cobblestone Business Park Driveway/VA Driveway	Signal	C	15.7	B	-	10.0	B	-
6	**Hartnell Avenue & Cobblestone Business Park Driveway/RC Driveway**	TWSC	C	21.8	C	**-**	**46.0**	**E**	No
7	Hartnell Avenue & Parkview Avenue (South)	Signal	C	13.0	B	-	20.0	B	-
8	**Hartnell Avenue & Cobblestone Shopping Center (Main Driveway)**	TWSC	C	**29.8**	**D**	**No**	**OVR**	**F**	**Yes**
9	Hartnell Avenue & Henderson Road (North)	TWSC	C	15.5	C	-	18.3	C	-
10	Hartnell Avenue & Cypress Avenue	Signal	D	35.1	D	-	35.6	D	-
11	Henderson Road (South) & Parkview Avenue (South)	TWSC	C	9.1	A	-	12.3	B	-
12	Cypress Avenue & Bechelli Lane	Signal	D	28.2	C	-	38.9	D	-
13	I-5 SB Ramps & Cypress Avenue	Signal	D	25.3	C	-	40.1	D	-
14	I-5 NB Ramps & Cypress Avenue	Signal	D	25.0	C	-	37.1	D	-
15	Cypress Avenue & Hilltop Drive	Signal	D	28.6	C	-	45.5	D	-

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for Signal.
3. Warrant = Based on California MUTCD Warrant 3.
4. **Bold** = Unacceptable LOS.
5. OVR = Intersection delay exceeds 300 seconds.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

As shown in Table 5.14-14, all study intersections, except intersections listed below, are projected to operate at or above the threshold LOS:

- *Hartnell Avenue & Churn Creek Road (Intersection #1)*
- *Hartnell Avenue & Northwoods Way (Intersection #2)*
- *Hartnell Avenue & Cobblestone Business Park Driveway/Retirement Community Drive (Intersection #6)*
- *Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8)*



LEGEND:

XXX - AM PEAK HOUR TRAFFIC VOLUMES
(XX) - PM PEAK HOUR TRAFFIC VOLUMES

Dignity Health North State Pavilion Project

Year 2040 Plus Project Peak Hour Traffic Volumes

Figure 5.14-8

Year 2040 Plus Project Queues

Table 5.14-15, YEAR 2040 PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH – HARTNELL AVENUE CORRIDOR, and Table 5.14-16, YEAR 2040 PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH – CYPRESS AVENUE CORRIDOR, present the *Year 2040 No Project* and *Year 2040 Plus Project* queues for critical intersections along the Hartnell Avenue and Cypress Avenue corridors in the vicinity of the proposed project.

Table 5.14-15
YEAR 2040 PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH – HARTNELL AVENUE CORRIDOR

Intersection No.	Intersection/Approach	Control Type	2040 No Project 95th Percentile Queue (ft)		Year 2040 Plus Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
1	*Hartnell Avenue & Churn Creek Road*						
	Eastbound Left	Signal	***107***	***135***	***107***	***136***	100
	Eastbound Thru		170	288	173	304	-
	Eastbound Right		***102***	***120***	***107***	***132***	75
	Westbound Left		***328***	***301***	***328***	***301***	175
	Westbound Thru		221	205	234	209	-
	Westbound Right		86	76	92	81	145
	Northbound Left		***449***	***208***	***427***	***213***	115
	Northbound Thru		576	392	576	392	-
	Southbound Left		***204***	***601***	***204***	***601***	100
	Southbound Thru		277	453	279	453	-
2	*Hartnell Avenue & Northwoods Way*						
	Eastbound Left	Signal	***127***	***93***	***127***	***94***	75
	Eastbound Thru		206	240	212	256	-
	Westbound Left		***157***	36	***157***	36	90
	Westbound Thru		345	229	376	236	-
	Northbound Thru		272	64	272	64	-
	Southbound Thru		265	82	265	82	-
5	*Hartnell Avenue & Cobblestone Business Park Driveway/Veterans Affairs Driveway*						
	Northbound Left	Signal	46	17	46	17	60
	Northbound Thru		234	145	262	151	-
	Southbound Left		63	11	64	11	70
	Southbound Thru		158	166	165	185	-
7	*Hartnell Avenue & Parkview Avenue*						
	Eastbound Thru	Signal	54	68	103	334	-
	Westbound Thru		0	41	0	42	-
10	*Hartnell Avenue & Cypress Avenue*						
	Westbound Left	Signal	***451***	***253***	***718***	***297***	225

Note:
1. ***Bold*** = Queues exceed available storage capacity.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

Table 5.14-16
YEAR 2040 PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH – CYPRESS AVENUE CORRIDOR

Intersection No.	Intersection/Approach	Control Type	Year 2040 No Project 95th Percentile Queue (ft)		Year 2040 Plus Project 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
12	*Bechelli Lane & Cypress Avenue*						
	Eastbound Left	Signal	74	***127***	74	***127***	95
	Eastbound Thru		220	673	245	745	-
	Eastbound Thru/Right		184	696	196	772	-
	Westbound Left		220	187	221	187	300
	Westbound Thru		256	199	265	202	-
	Westbound Thru/Right		319	233	319	236	-
	Northbound Left/Thru		220	307	220	439	-
	Northbound Right		124	449	124	463	-
	Southbound Left		126	317	131	317	-
	Southbound Left/Thru/Right		161	323	161	323	-
13	*I-5 SB Ramps & Cypress Avenue*						
	Eastbound Thru	Signal	306	467	306	467	-
	Eastbound Right		***103***	***178***	***222***	***178***	30
	Westbound Left		***290***	***347***	***316***	***361***	215
	Westbound Thru		251	533	293	533	-
	Southbound Left		320	773	358	773	-
	Southbound Left/Thru/Right		446	781	494	781	-
	Southbound Right		375	***582***	***402***	***582***	375
14	*I-5 NB Ramps & Cypress Avenue*						
	Eastbound Left	Signal	***300***	***367***	***300***	***367***	230
	Eastbound Thru		283	530	283	530	-
	Westbound Thru		287	302	287	307	-
	Westbound Right		***145***	***176***	***145***	***176***	30
	Northbound Left		439	290	***552***	290	535
	Northbound Left/Thru/Right		519	367	651	367	-
	Northbound Right		436	317	565	317	635
15	*Hilltop Drive & Cypress Avenue*						
	Eastbound Left	Signal	168	***242***	172	***242***	220
	Eastbound Thru		243	290	252	291	-
	Eastbound Thru/Right		268	282	271	285	-
	Westbound Left		***148***	***256***	***165***	***262***	95
	Westbound Thru		277	588	294	860	-
	Westbound Thru/Right		285	513	285	790	-
	Northbound Left		129	267	129	269	-
	Northbound Left/Thru		130	240	130	249	-
	Northbound Thru/Right		67	144	67	166	-
	Southbound Left		***154***	***177***	***154***	***177***	130
	Southbound Left/Thru/Right		351	355	321	360	-
	Southbound Right		256	418	256	418	-

Note:
1. ***Bold*** = Queues exceed available storage capacity.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

Year 2040 Plus Project – Significant Impacts

As noted above in Table 5.14-14, the following study intersections are projected to operate at or above the threshold LOS under *Year 2040 Plus Project* conditions; however, in accordance with the City's *Traffic Impact Assessment Guidelines* (January 2009), the proposed project's contribution to Hartnell Avenue & Churn Creek Road (Intersection #1), Hartnell Avenue & Northwoods Way (Intersection #2), and Hartnell Avenue & Cobblestone Business Park Driveway/Retirement Community Driveway (Intersection #6) are not considered significant as discussed below.

- *Hartnell Avenue & Churn Creek Road (Intersection #1).* As noted above in Table 5.14-11, the *Year 2040 No Project* LOS of this signalized intersection is projected to be an unacceptable LOS D in both the AM peak hour and PM peak hour. The proposed project traffic contribution at this intersection is not considered significant due to the project not causing an acceptable LOS to decline to an unacceptable LOS under *Year 2040 Plus Project* conditions (projected to be LOS D). In addition, project-related traffic at this intersection would result in between a 0.7 second increase (PM peak hour) and 1 second increase (AM peak Hour) in vehicle delay which is under the maximum 5 second delay threshold for signalized intersections that have an unacceptable LOS without project traffic (i.e., *Year 2040 No Project* conditions) (refer to Table 5.14-17, below). Therefore, the proposed project's *Year 2040 Plus Project* traffic contribution to the intersection of Hartnell Avenue & Churn Creek Road (Intersection #1) is considered *less than significant* and no mitigation is required.

- *Hartnell Avenue & Northwoods Way (Intersection #2).* As noted above in Table 5.14-11, the *Year 2040 No Project* LOS of this signalized intersection is projected to be an unacceptable LOS D in the AM peak hour. The proposed project traffic contribution at this intersection is not considered significant due to the project not causing an acceptable LOS to decline to an unacceptable LOS under *Year 2040 Plus Project* conditions (projected to be LOS D). In addition, project-related traffic at this intersection would result in a 0.7 second increase (AM peak hour) in vehicle delay which is under the maximum 5 second delay threshold for signalized intersections that have an unacceptable LOS without project traffic (i.e., *Year 2040 No Project* conditions) (refer to Table 5.14-17, below). Therefore, the proposed project's *Year 2040 Plus Project* traffic contribution to the intersection of Hartnell Avenue & Northwoods Way (Intersection #2) is considered *less than significant* and no mitigation is required.

- *Hartnell Avenue & Cobblestone Business Park Driveway/Retirement Community Driveway (Intersection #6).* As noted above in Table 5.14-11, the *Year 2040 No Project* LOS of this TWSC intersection is an unacceptable LOS E during the PM peak hour. The proposed project would not cause any of the thresholds identified above for a TWSC intersection to be exceeded. Therefore, the proposed project's *Year 2040 Plus Project* traffic contribution to the intersection of Hartnell Avenue & Cobblestone Business Park/Retirement Community Driveway (Intersection #6) is considered *less than significant* and no mitigation is required.

- *Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8).* Refer to Table 5.14-17, YEAR 2040 PLUS PROJECT SIGNIFICANT IMPACTS, below.

Table 5.14-17, YEAR 2040 PLUS PROJECT SIGNIFICANT IMPACTS, presents the intersections projected to display unacceptable queuing under the *Year 2040 Plus Project* conditions and those intersections that warrant mitigation. According to Table 5.14-7, the proposed project's incremental traffic contribution is cumulatively considerable.

Table 5.14-17
YEAR 2040 PLUS PROJECT SIGNIFICANT IMPACTS

#	Intersection	Control Type	Target LOS	Year 2040 LOS	Year 2040 Plus Project LOS	Year 2040 Delay (D1)	Year 2040 Plus Project Delay (D2)	Delay Increase (D2-D1)	Signal Warrant Met?	V/C	95% Queue (veh)	Significant Impact?
AM Peak Hour												
1	Hartnell Ave & Churn Creek Rd	Signal	C	D	D	42.4	43.4	1	-	0.79	-	No
2	Hartnell Ave & Northwoods Way	Signal	C	D	D	35.3	36.0	0.7	-	0.74	-	No
8	Hartnell Ave & Cobblestone Shopping Center	TWSC	C	D	D	27.4	29.8	2.4	No	0.13	1	No
10	**Hartnell Ave & Cypress Ave**	**Signal**	**D**	**C**	**D**	**32.4**	**35.1**	**2.7**	**-**	**0.67**	**29**	**Yes**
PM Peak Hour												
1	Hartnell Ave & Churn Creek Rd	Signal	C	D	D	47.8	48.5	0.7	-	0.82	-	No
6	Hartnell Ave & Cobblestone Bus Park Dwy/RC Dwy	TWSC	C	E	E	37.8	46	8.2	No	0.51	3	No
8	**Hartnell Ave & Cobblestone Shopping Center**	**TWSC**	**C**	**F**	**F**	**OVR**	**OVR**	**>5**	**Yes**	**1.85**	**13**	**Yes**
10	**Hartnell Ave & Cypress Ave**	**Signal**	**D**	**C**	**D**	**32.6**	**35.6**	**3**	**-**	**0.76**	**12**	**Yes**

Notes:
1. TWSC = Two Way Stop Control
2. LOS = Delay based on worst minor street approach of TWSC intersections, average of all approaches for Signal.
3. OVR = Intersection delay exceeds 300 seconds.
4. Addition of project traffic results in significant queue spillback. Specifically for Intersection #10 the spillback is for the westbound left.

Source: GHD. *Dignity Mercy Medical Center Redding North State Pavilion Traffic Impact Analysis Report*. October 2018.

The following improvements would provide acceptable intersection operations under *Year 2040 Plus Project* conditions where a potentially significant project impact has been identified.

- *Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8).* The Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) intersection is projected to operate at an unacceptable LOS D and LOS F during the AM and PM peak hours, respectively. Implementation of the proposed project creates a potentially significant impact during each peak hour period by increasing the delay by more than 5 seconds per vehicle and meeting the peak hour traffic signal warrants at an intersection operation at unacceptable LOS in the *No Project* condition. Construction of recommended intersection improvements (refer to **MM 5.14-3**) would reduce the *Year 2040 Plus Project* impact at this intersection to a *less than significant* level.

- *Hartnell Avenue & Cypress Avenue (Intersection #10).* The proposed project creates a potentially significant impact at this intersection by increasing the westbound left queue from 10 to 19 cars for the AM peak hour. The available storage capacity for westbound left movement is nine cars. Construction of intersection improvements (refer to **MM 5.14-1**) would reduce the *Existing Plus Project* impact at this intersection to a *less than significant* level. For *Year 2040 Plus Project* conditions, implementation of **MM 5.14-4** that includes the payment of the pro-rated cost share representing 33 percent of the cost of constructing additional left turn lanes at this intersection would reduce the projected impact to a *less than significant* level.

Mitigation Measures:

MM 5.14-3: *Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8).* Prior to prior to Certificate of Occupancy for the first building the following improvements shall be completed by the project applicant to the satisfaction of the City of Redding Public Works Department:

- Restripe southbound left turn lane to a two-way left turn lane.
- Restripe eastbound left/thru/right to a left/thru and right turn pocket.

MM 5.14-4: *Hartnell Avenue & Cypress Avenue (Intersection #10).* Prior to prior to Certificate of Occupancy for the first building project applicant shall pay the pro-rated cost share representing 33 percent of the cost of constructing the following intersection improvements: Construct dual left turn pockets for the westbound approach; and expand southbound Hartnell Avenue to accommodate dual left turns from Cypress Avenue. The fee shall be established based on an engineer's cost estimate of the improvements prepared by the project applicant and approved by the City of Redding Public Works Department.

Level of Significance After Mitigation: As previously discussed, for *Year 2040 Plus Project* conditions, the intersection of Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8) will be LOS F and the traffic signal warrant will be met under cumulative conditions.

As described above under *Timing and Funding of Mitigation Measures*, if the project's fair share of a cumulative impact is 25 percent or more, then the recommended improvements shall be installed at the time of development, subject to a reimbursement agreement. If the project's fair share of a cumulative impact is less than 25 percent, then the project will be required to pay its fair share of the cost of the improvements to be constructed later by others, prior to the realization of the impact. If the recommended improvement is included in the current list of TIF projects, then payment of the project's TIF fee will be considered mitigation for the impact.

The Hartnell Avenue & Cobblestone Shopping Center (Main Driveway) (Intersection #8) is not included within the City's current TIF program. As a result and due to the uncertainty in timing of the ultimate redevelopment of the Cobblestone Shopping Center, the project proposes to implement intersection improvements as required by **MM 5.14-3** prior to occupancy. With implementation of the mitigation measure, the intersection will operate at LOS D; the eastbound thru/left land volume to capacity ratio is reduced to 0.509, which is below the City's significance threshold of 0.75; and the east bound thru/left lane 95^{th} percentile queue is also reduced to 65 feet, which is beloe the City's significance threshold of 75 feet (3 vehicles). Implementation of **MM 5.14-3** prior to occupancy affords the City the opportunity to ensure construction of the identified improvement.

For the intersection of Hartnell Avenue & Cypress Avenue (Intersection #10) implementation of **MM 5.14-4** requires a pro-rated fair-share payment for the construction dual left turn pockets for the westbound approach; and expanding southbound Hartnell Avenue to accommodate dual left turns from Cypress Avenue. With implementation of this measure adequate intersection storage capacity will be achieved under *Year 2040 Plus Project Conditions*. Impacts are considered *less than significant* with mitigation incorporated.

Mitigation measures identified for this proposed project would serve to reduce *Year 2040 Plus Project* traffic impacts to cumulatively *less than significant* levels.