Transportation Impact Study for Kaiser Bed Tower Project

Prepared for:
City of Roseville

October 2022

RS22-4142

FEHR PEERS

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Executive Summary

This study analyzes the transportation impacts associated with the proposed Bed Tower Project (proposed Project) at the Kaiser Permanente Roseville Medical Center Campus (KPRMC). This report is intended as supplemental information to the *Draft Supplemental Environmental Impact Report for the Kaiser Permanente Roseville Medical Center Inpatient Bed Tower Project* (SEIR) (Dudek, July 2022). Specifically, this report documents the proposed Project's travel characteristics, traffic operations (i.e., level of service (LOS)) effects at nearby intersections, site access evaluation, and on-site circulation review.

The Project proposes a 278,000 square foot Bed Tower building, a new four-level plus rooftop parking garage with approximately 800 parking stalls, and supporting utility upgrades. The Project would also relocate the Campus's internal Loop Road to accommodate the Bed Tower building, reconfigure surface parking lots, and provide a new main hospital drop-off area adjacent to a new main hospital entrance in the proposed Bed Tower building. The Project would result in a net increase of 186 parking stalls, with a net decrease in supply in the west portion of the Campus and a net increase in supply in the northeast quadrant of the Campus. The Project proposes to close an existing driveway on Lead Hill Boulevard (Driveway 1) and add a new driveway (Driveway 6) about 400 feet west of Driveway 1 and 450 feet east of Rocky Ridge Drive. **Figure 4** provides a side-by-side comparison of the existing KPRMC Campus site plan with the proposed Campus site plan with the Project.

Impact Assessment

The following summarizes the Project's potential transportation impacts based on the significance criteria presented in Chapter 5.

Impact 1: The proposed Project would not physically disrupt an existing transit service/facility or interfere with implementation of a planned transit service/facility. This impact is **less than significant**.

Impact 2: The proposed Project would not physically disrupt an existing bicycle facility or interfere with implementation of planned bicycle facilities. This impact is **less than significant**.

Impact 3: The proposed Project would not physically disrupt an existing pedestrian facility, or conflict with adopted programs, plans, ordinances, or policies regarding pedestrian facilities. This impact is **less than significant**.

Impact 4: The proposed Project would qualify for screening per the screening criteria outlined in Section 4-9-A of the City of Roseville VMT Impact Standards.

Impact 5: The proposed Project would not result in a geometric design feature that is inconsistent with applicable design standards. This impact is **less than significant**.

Impact 6: The proposed Project would not result in roadway and transportation facilities that impede access for emergency response vehicles. This impact is **less than significant**.

Traffic Operations Analysis

Based on the *City of Roseville Design and Construction Standards*, a Short-Term Traffic Study is sufficient for this Project. This study analyzes traffic operations at 10 study intersections for the following scenarios during the weekday AM and PM peak hours:

- Baseline (2020) Conditions: represents pre-pandemic traffic conditions in February 2020.
- Baseline Plus Project: represents baseline (2020) conditions plus the proposed Bed Tower Project.

Table ES-1 presents the weekday AM and PM peak hour traffic operations at the study intersections.

Table ES-1: Peak Hour Intersection Operations

Intersection	Traffic Control	Peak Hour	Baseline Conditions		Baseline Plus Project	
			Delay	LOS	Delay	LOS
1. Atlantic St. / I-80 Westbound On-Ramp	Signal	AM	5.7	A [1]	5.8	A [1]
		PM	10.2	B	9.4	A
2. Eureka Rd. / Taylor Rd./I-80 Eastbound Ramps	Signal	AM	24.7	C [1]	25.3	C [1]
		PM	**54.0**	**D**	**51.2**	**D**
3. Eureka Rd. / Rocky Ridge Dr.	Signal	AM	**40.7**	**D**	**42.5**	**D**
		PM	31.4	C	31.3	C
4. Lead Hill Blvd. / Rocky Ridge Dr.	Signal	AM	17.4	B	17.6	B
		PM	27.7	C	28.0	C
5. Lead Hill Blvd. / Eureka Rd.	Signal	AM	**36.6**	**D**	**37.1**	**D**
		PM	**40.9**	**D**	**41.5**	**D**
6. Douglas Blvd. / I-80 Westbound Ramps	Signal	AM	21.2	C	21.2	C
		PM	**42.0**	**D**	**44.5**	**D**
7. Douglas Blvd. / I-80 Eastbound Ramps	Signal	AM	6.4	A [1]	6.5	A [1]
		PM	9.1	A	9.7	A
8. Douglas Blvd. / Rocky Ridge Dr.	Signal	AM	22.5	C	22.6	C
		PM	**43.1**	**D**	**40.1**	**D**
9. Douglas Blvd. / Eureka Rd.	Signal	AM	**40.4**	**D**	**41.0**	**D**
		PM	**40.2**	**D**	**44.8**	**D**
10. Douglas Blvd. / E. Roseville Pkwy.	Signal	AM	**39.8**	**D**	**39.9**	**D**
		PM	**48.2**	**D**	**48.1**	**D**

Notes:

BOLD indicates LOS D or worse operations.

1. Intersection analyzed using the HCM 2000 methodology due to unique intersection configurations that are incompatible with the HCM 6th Edition and HCM 2010 methodology.

Source: Fehr & Peers, 2022.

Table ES-1 shows seven of the 10 study intersections currently operate at LOS D or worse. However, the Project does not cause any of the study intersections to degrade from the baseline conditions LOS. Therefore, the Project is not expected to have a substantial effect on traffic operations at signalized intersections in the study area.

Project Access and Circulation

This study evaluates the following with regards to Project access and circulation:

- Estimate maximum vehicle queue lengths for outbound movements at Campus driveways.
- Estimate maximum vehicle queue lengths for left-turn ingress movements at Campus driveways.
- Evaluate proposed Campus access changes on Lead Hill Boulevard.
- Review of internal Campus circulation.

The outbound queue analysis shows maximum vehicle queue lengths exceeding the Campus driveway throat depth at Driveways 2, 3, 4, and 6 under baseline plus project conditions. Recommendations are presented below to address these conditions.

The left-turn ingress queue analysis shows left-turn pockets on Rocky Ridge Drive, Eureka Road, and Lead Hill Boulevard provide adequate storage to accommodate the maximum vehicle queues.

Lead Hill Boulevard Evaluation

This study evaluates stopping sight distance for vehicles approaching the proposed westbound left-turn pocket on Lead Hill Boulevard at Driveway 6. This analysis shows that the proposed design provides adequate stopping sight distance per the AASHTO Green Book standards.

In addition to the stopping sight distance analysis, this study identifies a few recommended modifications to Lead Hill Boulevard to discourage inappropriate vehicle movements. **Figure 22** illustrates the recommended modifications to Lead Hill Boulevard.

Campus Circulation Evaluation

Figure 25 illustrates the recommended modifications to the Campus site plan to facilitate on-site vehicle and pedestrian circulation. These include:

- Relocate the northeast drive aisle opening to Parking Lot 5 further west.
- Move the crosswalk across the Loop Road and the associated sidewalk to the west side of Driveway 6.
- Add “Keep Clear” pavement marking and “Do Not Block Intersection” signage at the Driveway 6 / Loop Road intersection.
- Relocate the fence and restrict landscaping height along the Loop Road to the west of the new parking garage.

- Add “Do Not Block Intersection” sign to southbound approach of Loop Road at Driveway 3.
- Apply high visibility crosswalk marking across the drive aisles into and out of the proposed main hospital drop-off area.

1. Introduction

Purpose

This study analyzes the transportation impacts associated with the proposed Bed Tower Project (proposed Project) at the Kaiser Permanente Roseville Medical Center Campus (KPRMC or Campus). This report is intended as supplemental information to the *Draft Supplemental Environmental Impact Report for the Kaiser Permanente Roseville Medical Center Inpatient Bed Tower Project* (SEIR) (Dudek, July 2022). Specifically, this report documents the proposed Project's travel characteristics, traffic operations (i.e., level of service (LOS)) effects at nearby intersections, site access evaluation, and on-site circulation review.

Overview of Proposed Project

Project Location

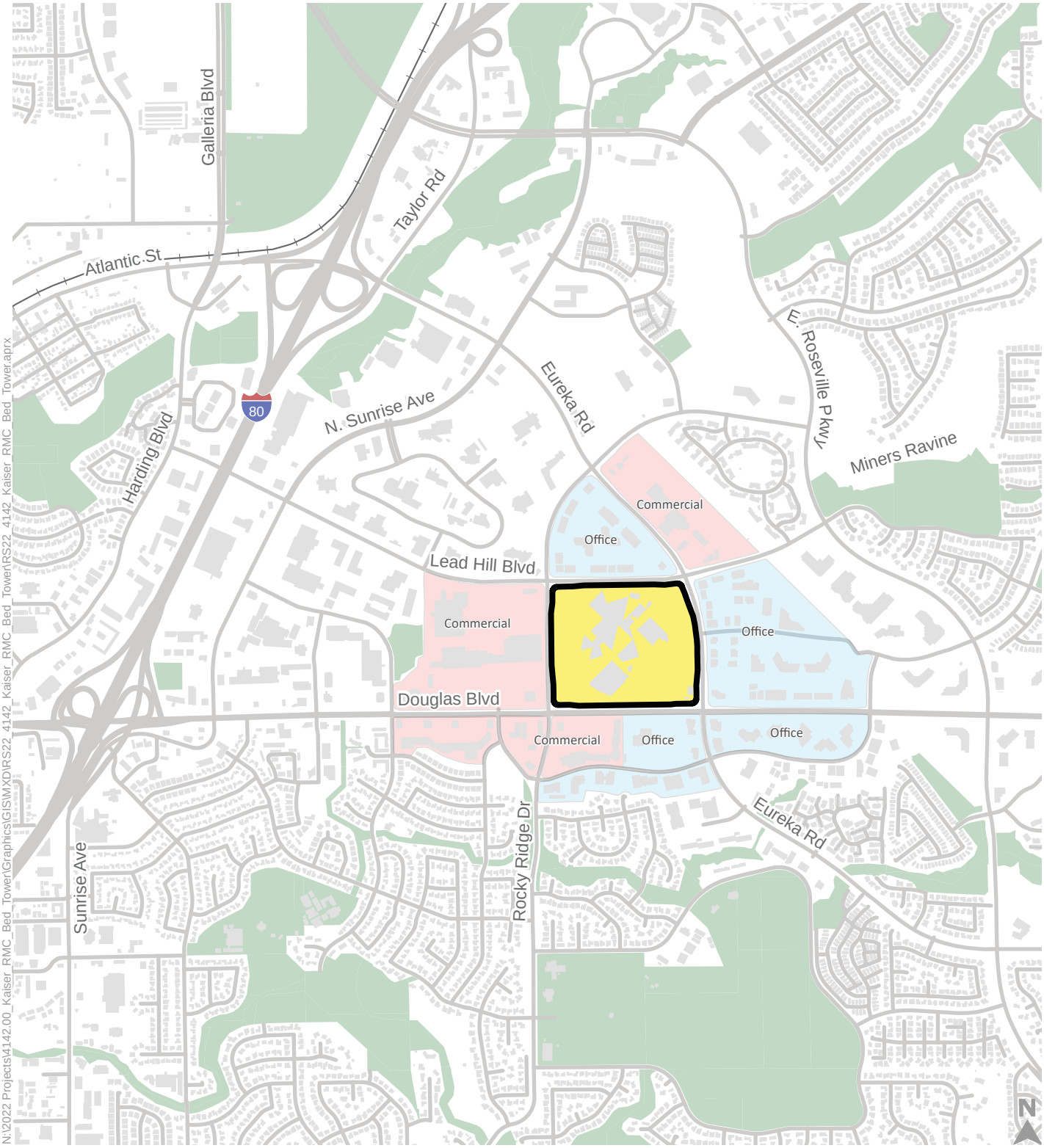
The proposed Project would be located on the KPRMC Campus at 1600 Eureka Road in Roseville, CA. **Figure 1** provides the general location of the 49-acre Campus within the broader study area. The Campus is bordered by Lead Hill Boulevard on the north, Douglas Boulevard on the south, Eureka Road on the east, and Rocky Ridge Drive on the west, as shown in **Figure 1**. Interstate 80 (I-80) is located about one mile west of the Project site. The Project site is included within the Northeast Roseville Specific Plan (NERSP) area. **Figure 1** shows the Campus is surrounded by commercial and office uses.

Existing KPRMC Campus

A detailed summary of the existing KPRMC Campus is presented in Chapter 2 (Baseline Conditions). **Figure 2** shows the existing KPRMC Campus site plan and the five existing access points from the surrounding roadway network. For purposes of this study, the five access points are referred to as follows:

- **Driveway 1**: On Lead Hill Boulevard roughly centered on the north side of the Campus.
- **Driveway 2**: On Lead Hill Boulevard about 275 feet west of Eureka Road.
- **Driveway 3**: On Eureka Road roughly centered on the east side of the Campus.
- **Driveway 4**: On Douglas Boulevard roughly centered on the south side of the Campus.
- **Driveway 5**: On Rocky Ridge Drive roughly centered on the west side of the Campus.

Figure 2 shows the permissible turning movements at each driveway. Driveway 1 has a sign stating "Ambulance Only" and has inbound arrow pavement markings indicating the driveway was intended for ambulance entry into the Campus. However, the traffic counts collected at this driveway indicate that non-emergency vehicles use this driveway for both ingress to and egress from the Campus. Since there are no physical impediments (i.e., raised median, diverter islands, etc.), **Figure 2** shows all movements (i.e., right-in, right-out, left-in, and left-out) as permissible.



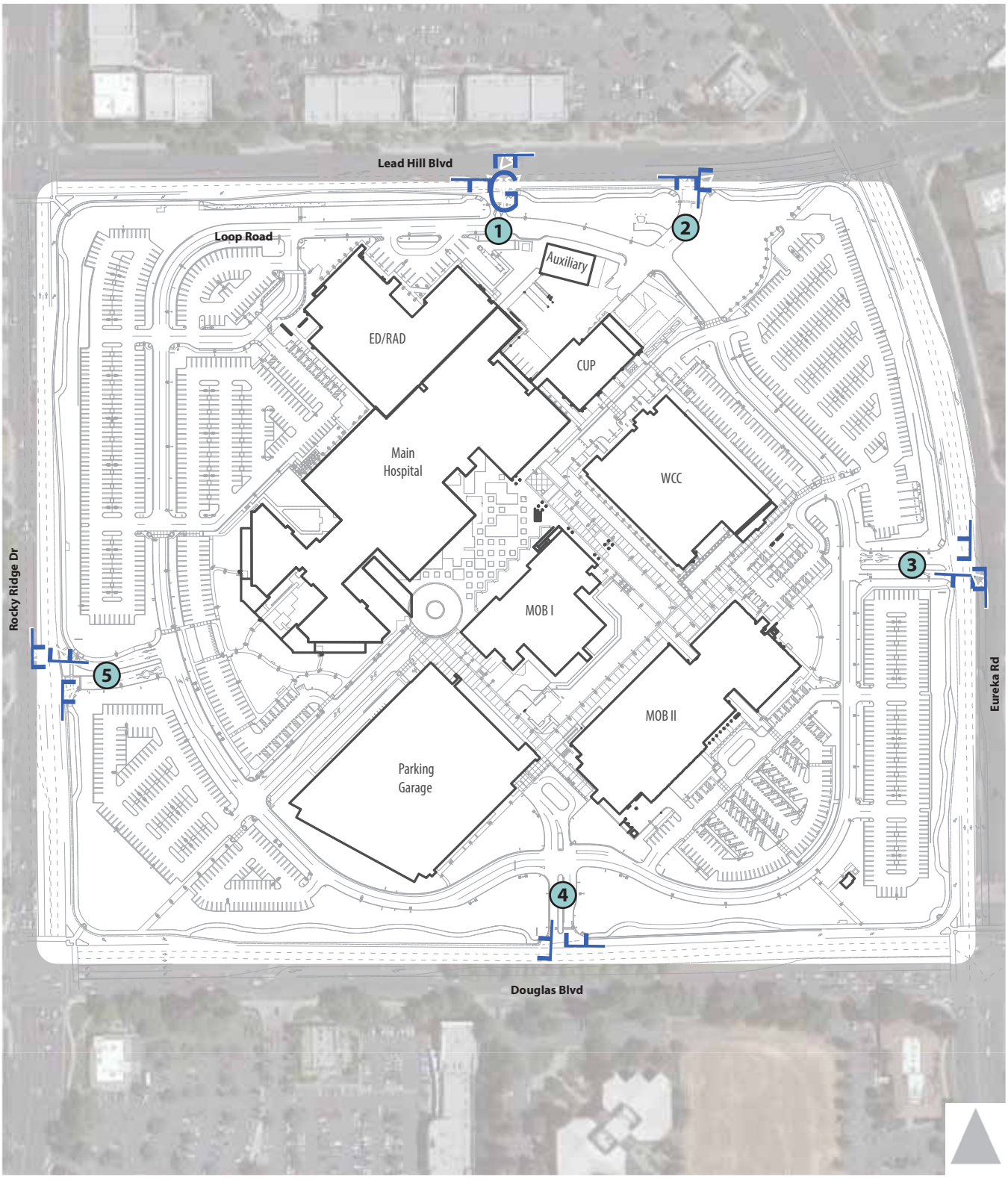
Kaiser Permanente Roseville Medical Center Campus

Professional Office

Commercial Retail

Figure 1

Project Location



Permitted Turning Movement

1 Existing Campus Driveway

Figure 2

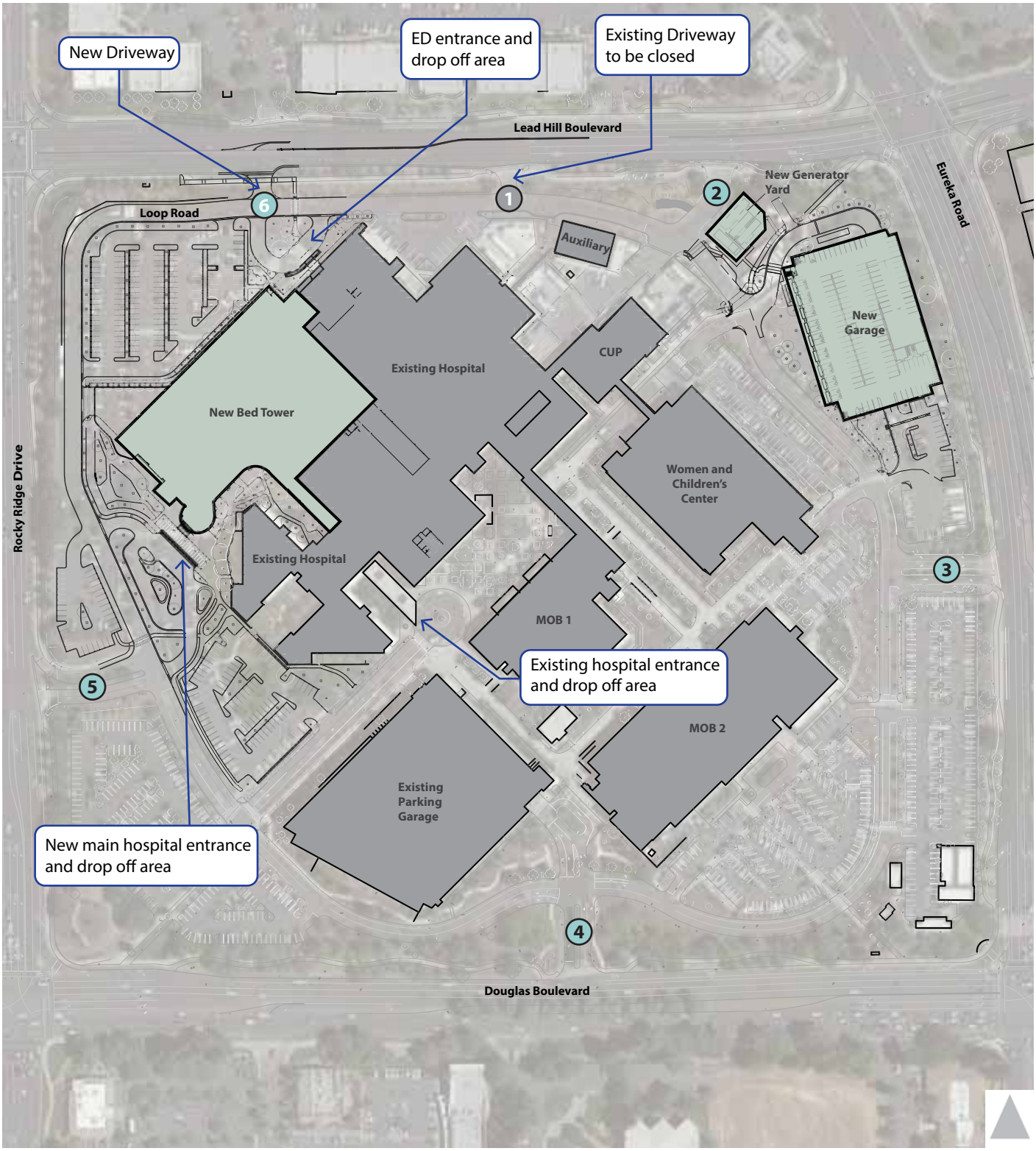
Existing KPRMC Campus

Project Land Use & Access

Figure 3 shows the KPRMC Campus site plan with the proposed Project additions and changes to the Campus access and circulation. The proposed Project would consist of:

- A 278,000 square-foot, six-story Bed Tower building consisting of 138 beds (108 medical beds, 30 Intensive Care Unit beds), six additional operating rooms, 36 additional Emergency Department treatment bays, and an in-patient pharmacy.
- A new four-level plus rooftop parking garage with approximately 800 parking stalls.
- Internal upgrades to the existing central utility plant (CUP) to support the new Bed Tower.
- A new generator yard built on a paved pad across from the existing CUP and adjacent to the new garage.
- A new main hospital entrance and drop off area.
- Shifting and extending the emergency department (ED) drop off area slightly east of its existing location to accommodate a reconfigured surface parking lot.
- Relocation of the internal Loop Road in the northwest quadrant of the Campus to accommodate the Bed Tower building and reconfiguration of surface parking lots.
- A new driveway (referred to as Driveway 6 in this study) on Lead Hill Boulevard about 400 feet west of Driveway 1 and 450 feet east of Rocky Ridge Drive near the ED drop off area.
- Closing Driveway 1 on Lead Hill Boulevard.

Figure 4 provides a side-by-side comparison of the existing KPRMC Campus site plan (i.e., **Figure 2**) with the proposed Campus site plan (i.e., **Figure 3**). **Figure 4** shows that the proposed Bed Tower building would be built adjacent to the existing hospital in the northwest portion of the Campus in an area currently developed with a surface parking lot (shown as Parking Lot 6 in **Figure 6**). The new parking garage would be built near the Women and Children's Center in the northeast portion of the Campus in an area currently developed with a surface parking lot (shown as Parking Lot 10 in **Figure 6**). The surface parking lots adjacent to the hospital in the northwest portion of the Campus would be reconfigured in response to the relocated Loop Road, new Bed Tower building, and to provide surface parking options near the new main hospital entrance and ED entrance.



Existing Building

New Building

1 Existing Campus Driveway

1 Closed Campus Driveway

1 New Campus Driveway

Figure 3

Proposed Project Site Plan

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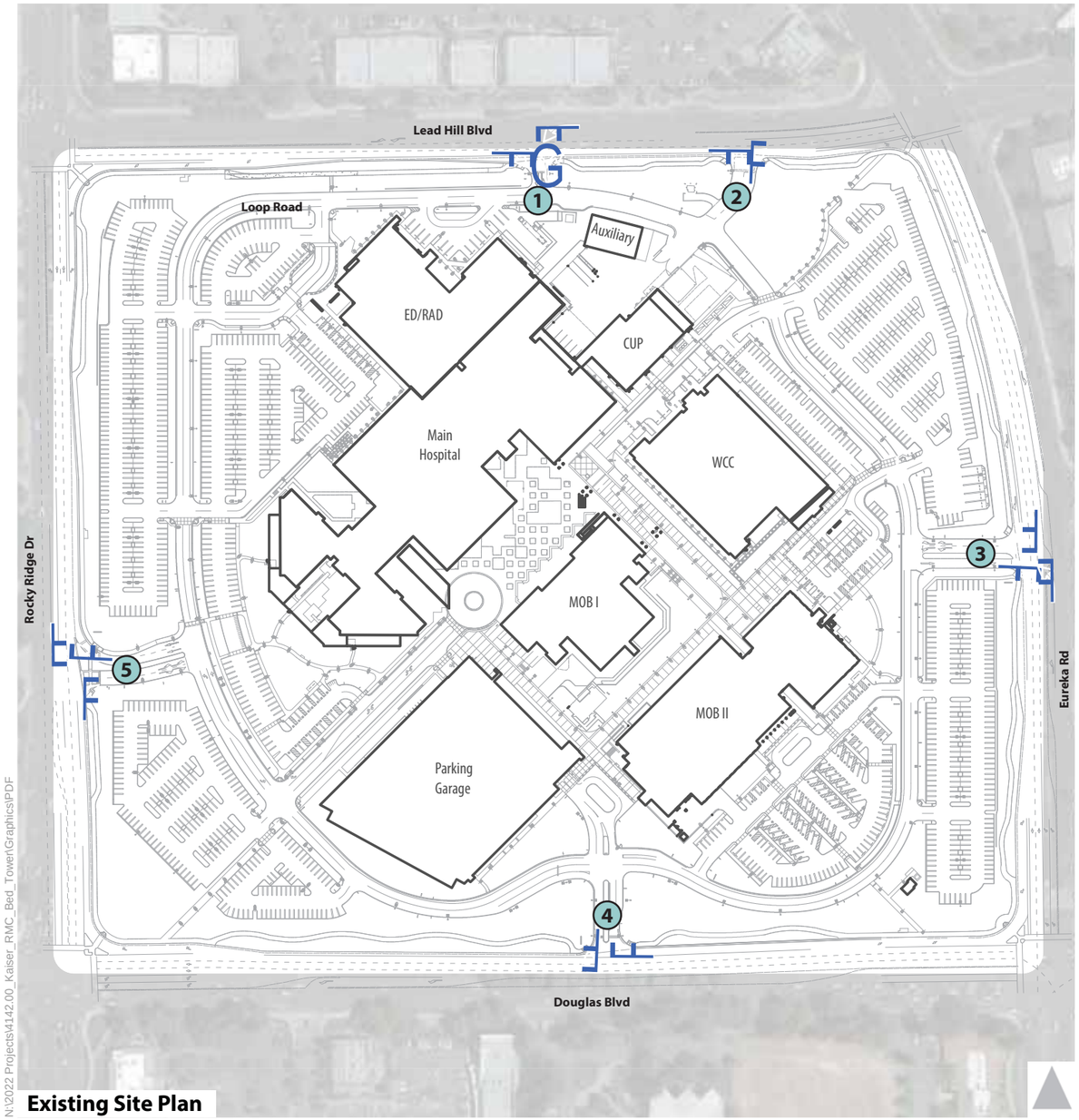
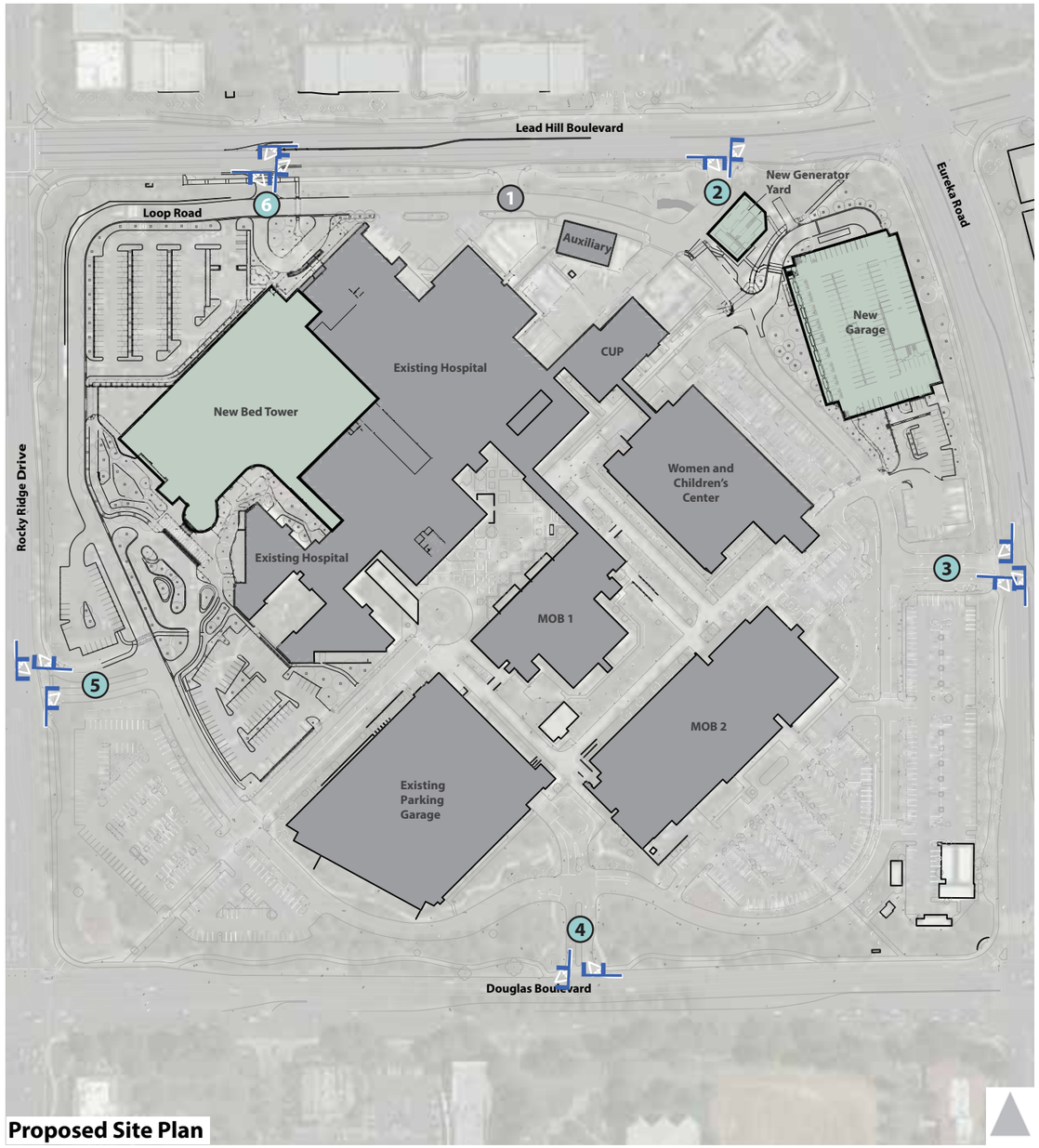


Existing Site Plan



Proposed Site Plan

Permitted Turning Movement

1 Existing Campus Driveway

1 Closed Campus Driveway

1 New Campus Driveway

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Figure 4

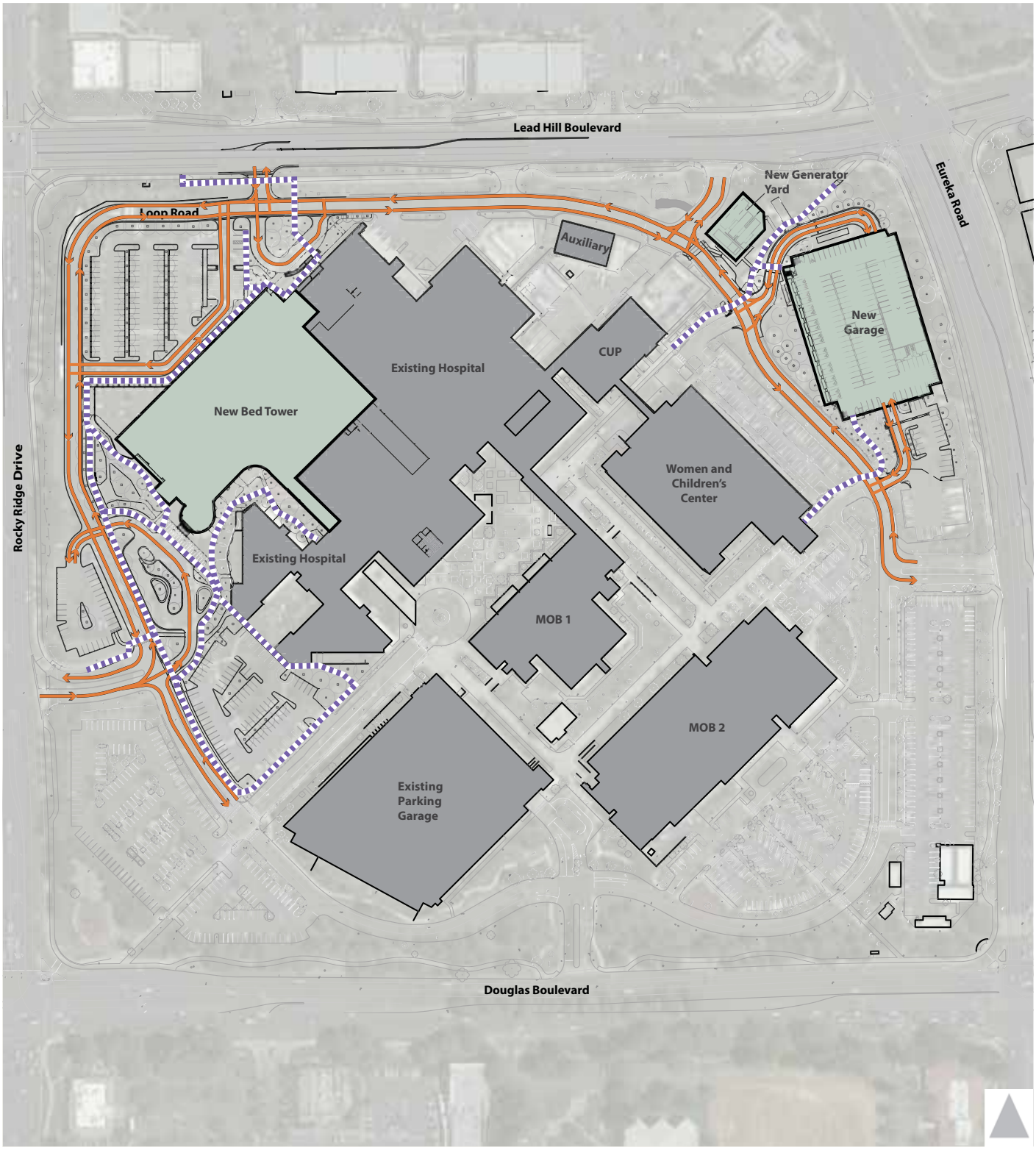
Proposed Project Changes to KPRMC Campus

Project Circulation

Figure 5 presents the vehicular and pedestrian circulation with the proposed Project. Driveway 5 on Rocky Ridge Drive would function as the main entry to the Campus, providing direct access to a new hospital drop off area fronting the new hospital entrance atrium and plaza. The existing main hospital entrance and drop off area would be repurposed as a secondary access.

The walkways in the northwest portion of the Campus would be reconfigured to accommodate the new Bed Tower building. These walkways would provide internal pedestrian circulation between the new hospital entrance and reconfigured surface parking lots to the north, west, and south of the new main hospital drop off. The walkways would also provide a continuous path along the north side of the Bed Tower building between the new main hospital entrance and ED entrance. A combination of new and existing pedestrian walkways would also connect the new main hospital drop off to Rocky Ridge Drive and the ED drop off to Lead Hill Boulevard.

Vehicular access to the new parking garage would primarily occur via Driveway 2 (on Lead Hill Boulevard) and Driveway 3 (on Eureka Road), which are directly north and south of the new parking garage, respectively.



Vehicle Circulation

Pedestrian Circulation

Figure 5

Project Vehicular & Pedestrian Circulation

2. Baseline Conditions

This chapter describes the environmental setting, which is the baseline scenario upon which Project-specific impacts are evaluated. The environmental setting for transportation includes baseline descriptions for roadway, bicycle, pedestrian, and transit facilities in the study area.

Generally, the baseline for this study represents transportation conditions in February 2022 when the notice of preparation (NOP) was released. In some cases, traffic data collected in May 2019 and February 2020 is used to represent baseline traffic levels. Traffic data from the City of Roseville traffic volume database indicate that traffic volumes in the study area were about seven to 14 percent lower in February 2022 than May 2019. The lower traffic volumes in February 2022 indicate that the traffic levels in the study area have not quite fully recovered from the effects of the novel coronavirus (COVID-19) pandemic. As shown in **Figure 1**, the area surrounding the KPRMC Campus has many professional office buildings. In February 2022, workers employed by these businesses may have chosen (or were required) to work remotely. Traffic volumes may rise as more workers resume their conventional commute travel and the public engages more frequently in in-person activities. Therefore, the analysis presented in this report uses the higher May 2019 and February 2020 traffic data to represent baseline conditions, where noted.

Existing KPRMC Campus

The KPRMC Campus is currently developed with seven buildings roughly totaling 1.5 million gross square feet inclusive of the parking garage and support buildings, as shown in **Table 1**.

Table 1: KPRMC Campus – Existing Building Gross Floor Area by Land Use

Land Use	Building	Floor Area
Hospital	Existing Main Hospital	350,579 BGSF
	Women & Children's Center	194,995 BGSF
	Hospital Sub-Total	*545,574 BGSF*
Medical Office	Medical Office Building 1	110,282 BGSF
	Medical Office Building 2	272,406 BGSF
	Medical Office Sub-Total	*382,688 BGSF*
	Hospital + Medical Office Sub-Total	***928,262 BGSF***
Support/Other Non-Medical Service	Douglas Parking Garage	563,577 BGSF
	Auxiliary Building	4,970 BGSF
	Fire Pump Building	392 BGSF
	Support/Non-Medical Sub-Total	*568,257 BGSF*
	Total KPRMC Campus	**1,497,201 BGSF**

Notes: BGSF = building gross square feet

Source: Kaiser Permanente, 2022.

Table 1 shows of the roughly 1.5 million square feet, approximately 928,000 square feet are hospital and medical office space. All existing hospital and medical office building space is currently occupied.

Campus Baseline Parking Inventory

Figure 6 shows the Campus had 3,077 parking stalls during a parking inventory taken in May 2019. Approximately half are in the Douglas parking garage on the south portion of the campus, with the remaining in surface parking lots mostly along the western and eastern portions of the Campus. As of February 2022, approximately 25 parking stalls in Lot 6B were temporarily occupied by screening tents due to the ongoing COVID-19 pandemic, including 14 ADA accessible stalls. To address this reduction in ADA accessible parking, 12 parking stalls in Lot 5 were converted to ADA accessible parking stalls.

Campus Baseline Trip Generation

Traffic counts at the Campus driveways were collected on May 14-15, 2019. **Figure 7** shows the baseline AM and PM peak hour volumes at the five campus driveways based on these 2019 traffic counts. **Table 2** presents the baseline KPRMC's vehicle trip generation per the May 2019 traffic counts.

Table 2: Baseline Trip Generation (2019) – KPRMC Campus

Time Period	Land Use[1]	Observed Trip Generation[2]			Trip Generation Rate[3]		
		Total	In	Out	Total	In	Out
Daily	928.3 KSF	19,898	9,949	9,949	21.44	50%	50%
Weekday Morning Peak Hour (7:45 AM to 8:45 AM)		1,487	1,239	248	1.60	83%	17%
Weekday Evening Peak Hour (4:30 PM to 5:30 PM)		1,593	365	1,228	1.72	23%	77%

Notes:
KSF = thousand square feet
1. Land Use is the baseline occupied square footage of hospital and medical office on the KPRMC campus (see Table 1).
2. Observed trip generation is the average of traffic counts collected at all Campus driveways on May 14-15, 2019.
3. Trip generation rate is calculated by dividing the observed trip generation by the occupied floor area (i.e., trips per KSF).
Source: Fehr & Peers, 2022.

As shown in **Table 2**, the KPRMC Campus generated approximately 19,900 vehicle trips per day, with approximately 1,500 vehicle trips occurring during the weekday AM peak hour (7:45 to 8:45 AM) and 1,600 vehicle trips occurring the weekday PM peak hour (4:30 to 5:30 PM) under baseline (2019) conditions. This is based on the average of the two days of traffic counts collected on May 14-15, 2019, and represents traffic levels reflecting the operating conditions of the KPRMC Campus during the May 2019 data collection period.

Parking Location	Parking Inventory by Space Type						
	General	ADA	Employee	Short-Term	Motorcycle	Other[1]	Total
1	58	45	0	20	0	0	123
2A	75	0	0	0	0	0	75
2B	83	0	0	0	0	0	83
3	69	18	0	0	5	0	92
4A	0	0	156	0	0	0	156
4B	0	0	69	0	0	0	69
5	54	0	0	0	0	0	54
6A	109	0	5	0	0	0	114
6B	66	14	0	0	0	3	83
7A	0	0	59	0	0	0	59
7B	0	0	142	0	0	0	142
7C	0	0	71	0	0	0	71
8	6	15	0	5	4	1	31
9	55	4	0	0	0	0	59
10	109	0	160	0	11	5	285
DG 1	161	0	60	0	0	10	231
DG 2	171	14	86	0	0	1	272
DG 3	153	14	85	0	4	7	263
DG 4	158	15	105	0	0	0	278
DG 5	152	15	94	0	0	0	261
DG 6	146	0	91	0	0	0	237
J	0	0	0	0	0	15	15
T	0	1	23	0	0	0	24
Total	**1,625**	**155**	**1,206**	**25**	**24**	**42**	**3,077**

Notes:
1. Other parking includes spaces designated for electric vehicles, recreational vehicles, patient drop-off, ambulances, and spaces restricted for specific vehicles/personnel (e.g., security, maintenance, etc.).

Based on parking inventory taken in May 2019.

As of February 2022, approximately 25 stalls in Lot 6B were temporarily occupied by screening tents for COVID-19, including the 14 ADA accessible stalls. As a result, 12 general parking stalls in Lot 5 were converted to ADA accessible parking stalls.

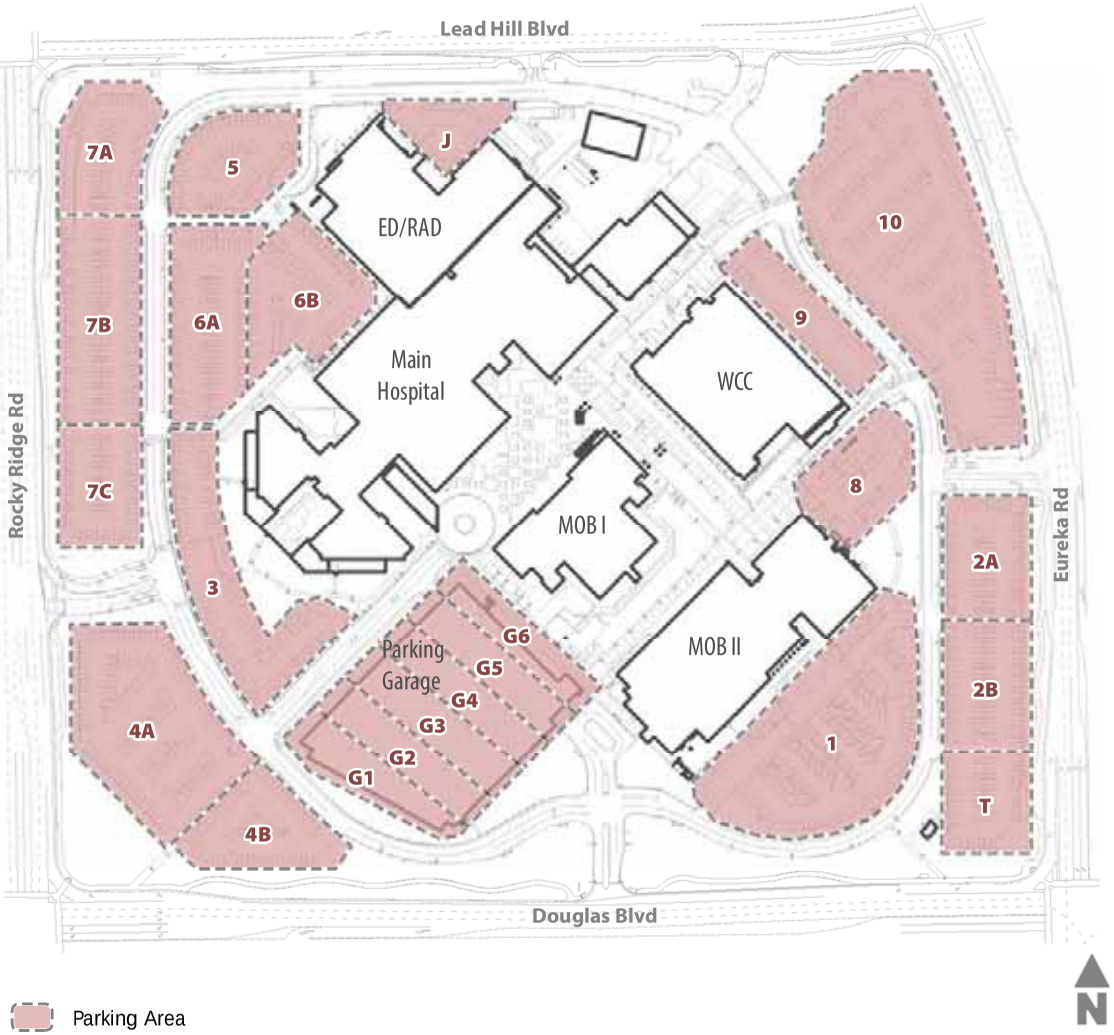
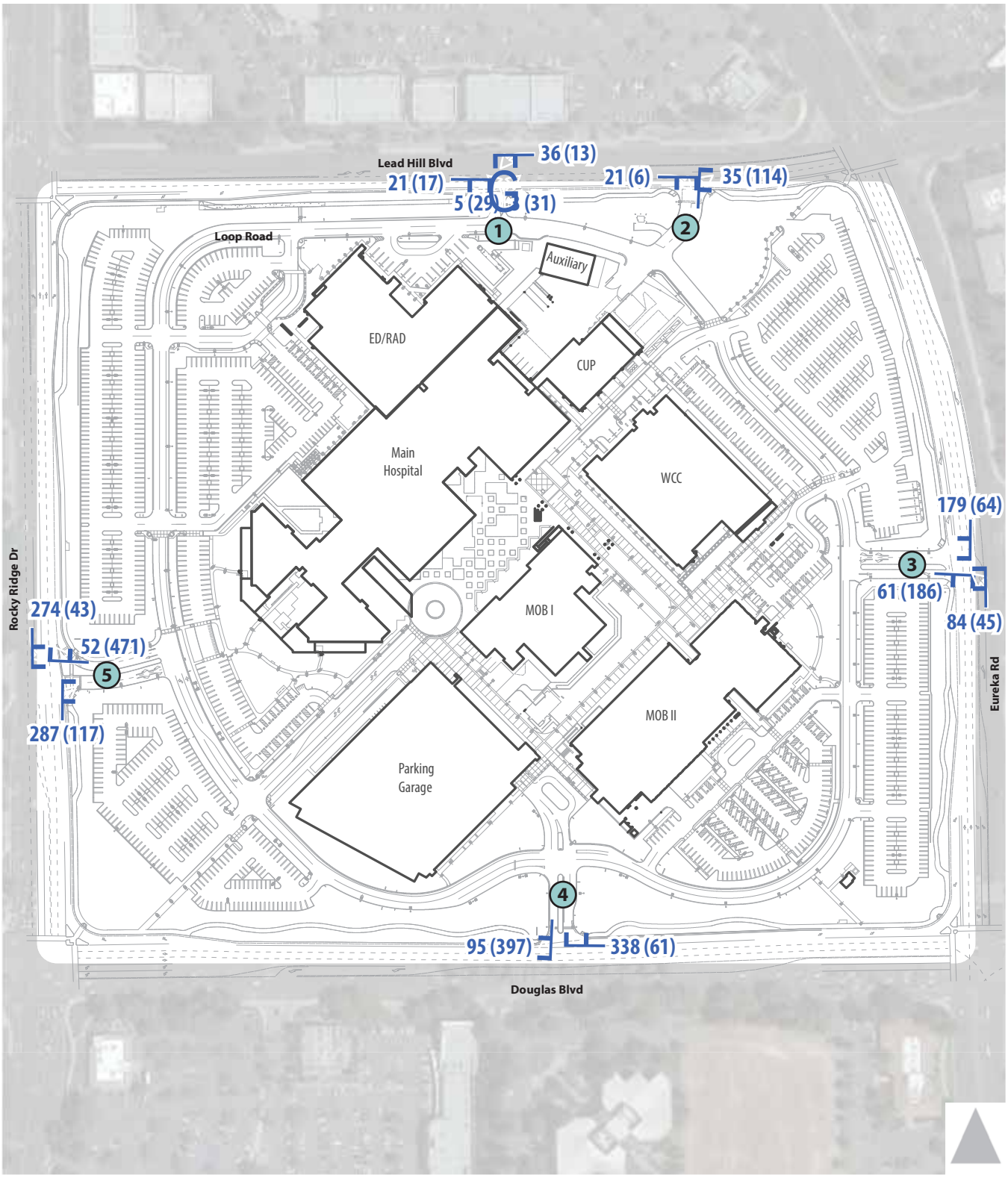


Figure 6

KPRMC Campus - Baseline (2019) Parking Inventory



Permitted Turning Movement

AM (PM) Traffic Volume

1 Existing Campus Driveway

Figure 7

KPRMC Campus - Baseline (2019)
AM & PM Peak Hour Driveway Volumes

The KPRMC Campus consists of both hospital and medical office buildings. These two uses generate vehicle trips at different rates (i.e., medical office space generates more vehicle trips per thousand square feet of floor area compared to hospital space). Therefore, this analysis uses the observed baseline trip generation shown in **Table 2**, the mix of hospital and medical office space, and weighted average trip generation rates contained in the *Trip Generation Manual, 11th Edition* (Institute of Transportation Engineers (ITE), 2021) to develop calibrated vehicle trip generation rates specific to the KPRMC Campus. **Table 3** presents these calibrated hospital and medical office vehicle trip generation rates. **Appendix A** provides the detailed calculation of these calibrated vehicle trip generation rates.

Table 3: KPRMC Campus Trip Generation Rates

Land Use	Daily	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
Hospital	11.86	0.83	74%	26%	0.88	30%	70%
Medical Office	35.09	2.71	87%	13%	2.91	20%	80%

Notes:

Trip generation rates are presented in vehicle trips per thousand square feet (KSF).

Trip generation rates are calculated using the campus's observed trip generation shown in Table 2, the existing mix of hospital and medical office space, and weighted average trip generation rates contained in the *Trip Generation Manual, 11th Edition* (Institute of Transportation Engineers (ITE) 2021).

Source: Fehr & Peers, 2022.

These trip generation rates represent the travel behavior reflecting the operating conditions of the KPRMC during May 2019. Since these trip generation rates represent pre-COVID-19 pandemic travel behavior, actual trip generation rates of the Campus could be lower or higher in the future depending on what aspects of pandemic travel behavior remain long-term.

Roadway System

Figure 8 illustrates the existing roadway network in the study area including the roadway classifications, number of travel lanes, and posted speed limits. The following key roadways serve the Project site:

- **Douglas Boulevard** is an east-west major arterial connecting the City of Roseville and unincorporated community of Granite Bay. It extends from Vernon Street in Downtown Roseville on the west to the Folsom Lake State Park – Granite Bay Entrance on the east. Douglas Boulevard provides access to I-80 via an interchange about one mile west of the KPRMC Campus. East of I-80, Douglas Boulevard features three travel lanes in each direction, generally divided by a raised median. It has posted speed limits that range from 35 to 45 miles per hour (MPH) in the study area.
- **Eureka Road** is a major arterial connecting the City of Roseville and unincorporated community of Granite Bay. It begins at the I-80 / Eureka Road/Atlantic Street interchange, which is about one

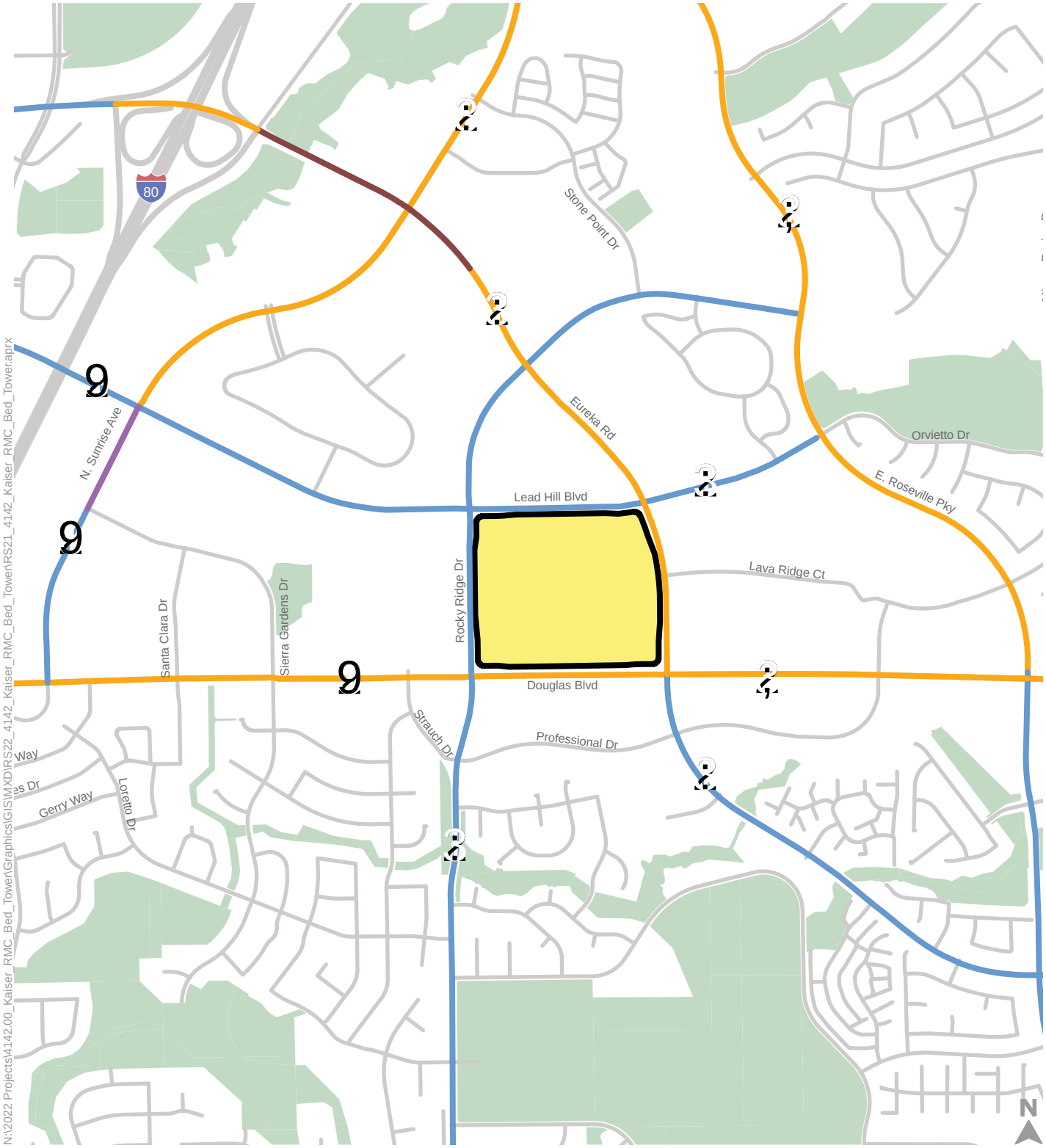
mile northwest of the Campus, and extends easterly about 5.5 miles to Auburn Folsom Road in Granite Bay. Adjacent to the Campus, Eureka Road features three travel lanes in each direction divided by a raised landscaped median with a posted speed limit of 40 MPH.

- **Rocky Ridge Drive** is a minor north-south arterial that extends from Cirby Way northerly to East Roseville Parkway. The roadway is about two miles long and features two travel lanes in each direction generally separated by a striped center two-way left-turn lane with a posted speed limit of 40 MPH.
- **Lead Hill Boulevard** is a minor east-west arterial that extends from Harding Boulevard easterly to East Roseville Parkway. The roadway is about 1.5 miles in length and features two travel lanes in each direction generally separated by a striped center two-way left-turn lane with a posted speed limit of 40 MPH.

Baseline Traffic Volumes

As described above, this study conservatively presents pre-pandemic traffic count data to represent baseline vehicle traffic conditions. **Figure 9** presents the baseline (May 2019) daily traffic volumes on major roadways in the study area. This is presented for informational purposes only and is not used for roadway capacity or LOS analysis.

Refer to Chapter 6 (Traffic Operations Analysis) for an analysis of the baseline peak hour traffic operations (i.e., LOS) of key intersections in the study area.



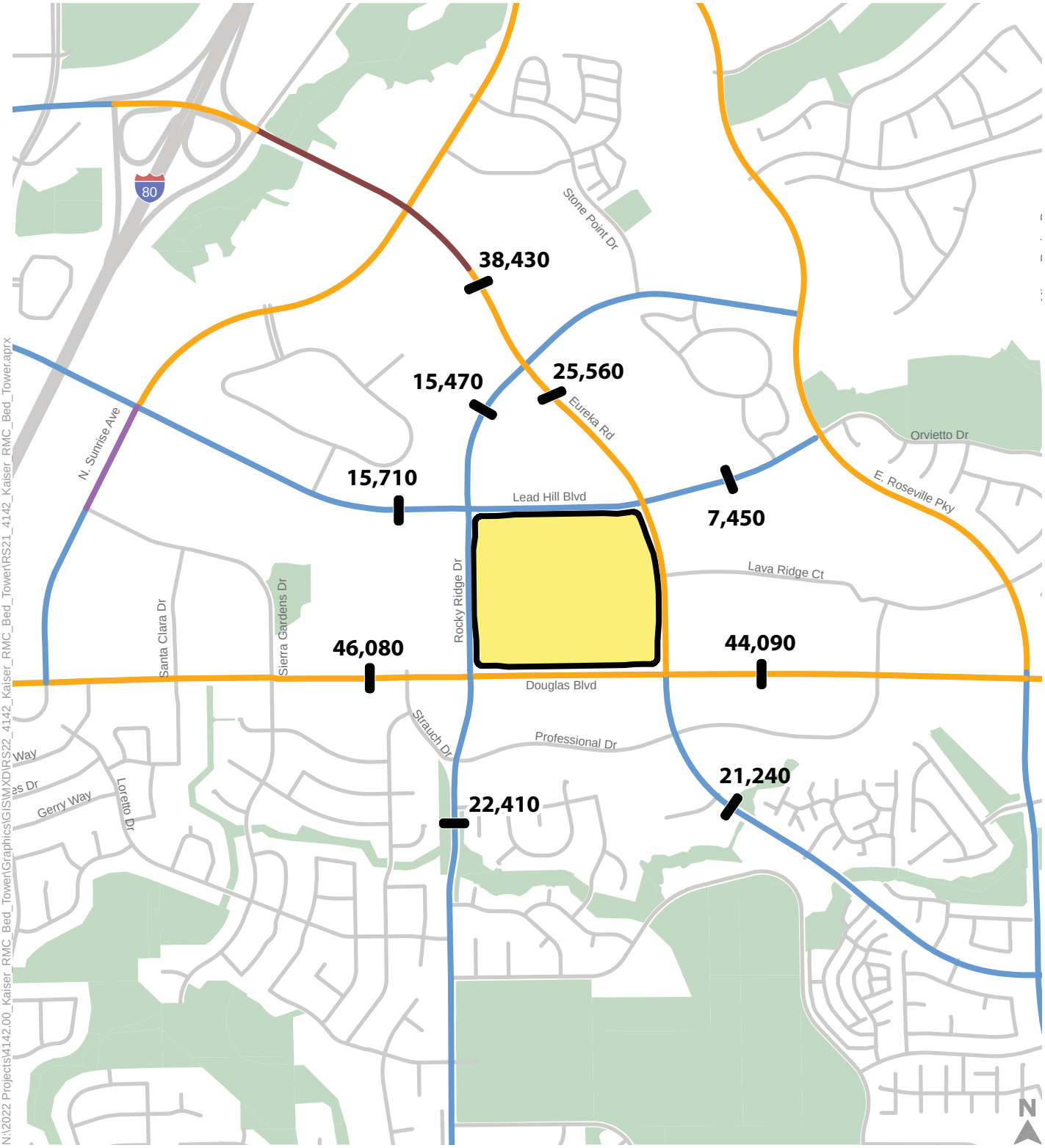
Kaiser Permanente Roseville Medical Center Campus

Roadway Classifications (Number of Lanes)

- Major Arterial (6 lanes)
- Major Arterial (7 lanes)
- Minor Arterial (4 lanes)
- Minor Arterial (5 lanes)

Figure 8

Existing Roadway Network



Kaiser Permanente Roseville Medical Center Campus

X,XXX Baseline (2019) Daily Traffic Volumes

Roadway Classifications (Number of Lanes)

- Major Arterial (6 lanes)
- Major Arterial (7 lanes)
- Minor Arterial (4 lanes)
- Minor Arterial (5 lanes)

Figure 9

Baseline (2019) Daily Traffic Volumes

Transit System

Roseville Transit provides fixed-route local and commuter bus service, public dial-a-ride demand-response bus service, and Americans with Disabilities Act (ADA) paratransit service in the City of Roseville. **Figure 10** shows the local fixed-route transit service in the immediate study area. Route L serves bus stops along the east, west, and south perimeters of the Campus, and operates Monday through Saturday on one-hour headways. Routes C and F serve bus stops that are a quarter mile walk from the southwest corner of the Campus. Routes C, F, and L have very low ridership according to the *City of Roseville Short-Range Transit Plan* (SRTP).

The Sierra Gardens Transfer Point is about a half-mile west of the KPRMC Campus, and serves Routes A, B, C, E, F, and L. The Sierra Gardens Transfer Point provides connections to multiple transit routes, which provide transit riders with access to multiple destinations in the city.

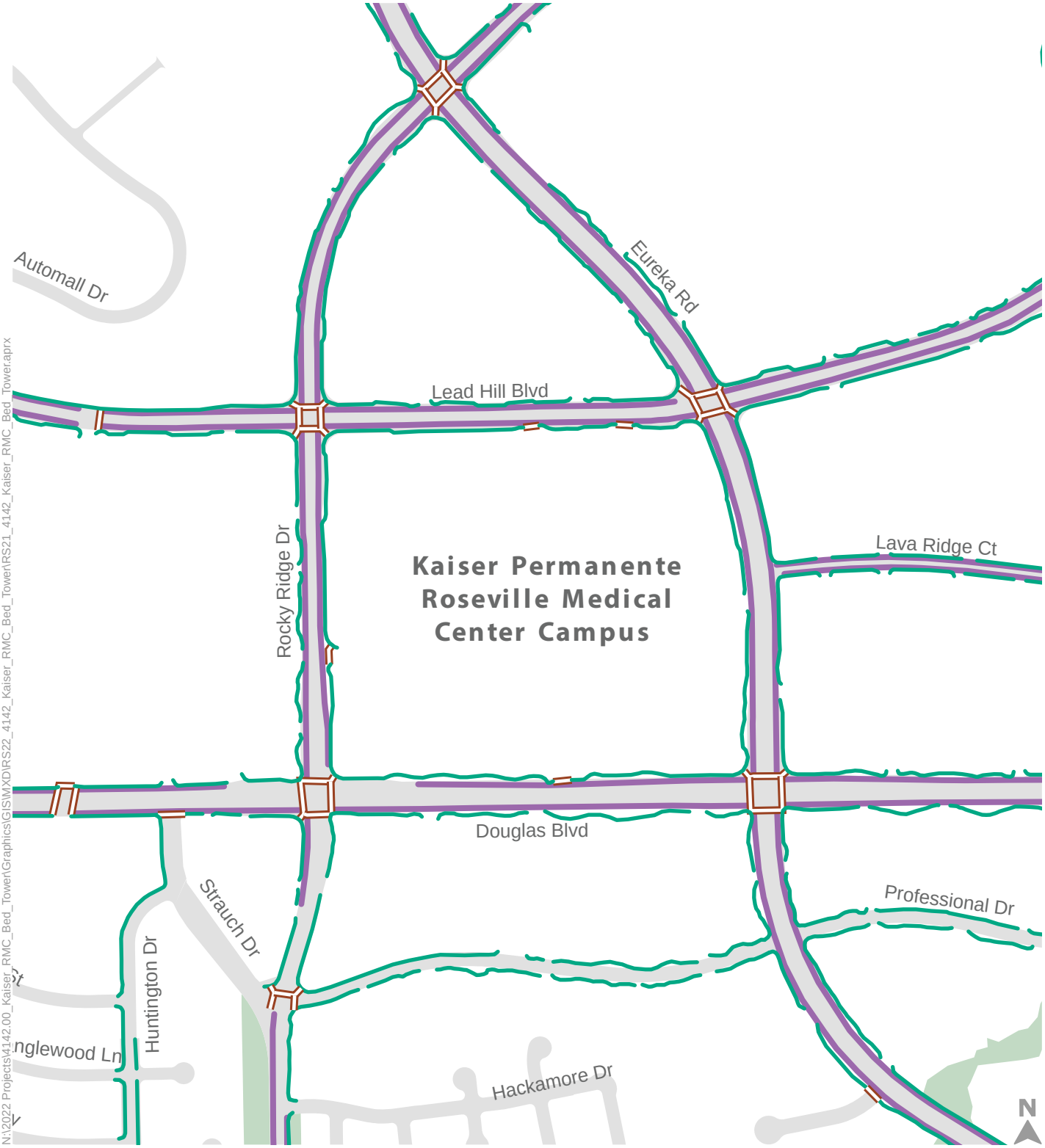
In addition to the transit facilities and services described above, there is an existing bus stop shelter on the south side of Lead Hill Boulevard about 200 feet east of the Rocky Ridge Drive near the northwest corner of the Campus. This bus shelter is not currently served by any fixed-route transit service. Similarly, an existing bus shelter pad (i.e., concrete pad without a bus shelter or signed bus stop) is located on the east side of Rocky Ridge Drive about 200 feet north of Driveway 5. This pad is not currently served by any fixed-route transit service.

South Placer Express/Rapid Link

Roseville Transit, working closely with the Placer County Transportation Planning Agency, Placer County, and the City of Lincoln has identified an opportunity to provide fixed-route bus service between downtown Lincoln, the Westfield Galleria at Roseville, Sutter Roseville Medical Center, KPRMC, and the Sacramento Regional Transit (SacRT) Watt/I-80 light rail station. This new regional service, called the South Placer Express in grant applications and branded as “Rapid Link” by Roseville Transit, will provide service with 30-minute headways from approximately 6:00 AM to 9:00 PM on weekdays. The route is scheduled to begin in 2023 as a three-year pilot program and includes the purchase of five grant funded electric buses. The schedule will be structured to provide transfer opportunities to Placer County Transit at the Westfield Galleria transit center and to SacRT light rail service at the Watt/I-80 light rail station.

The planned Rapid Link bus service would serve the KPRMC via an existing bus stop on westbound Douglas Boulevard west of Eureka Road and a new bus stop at the existing bus shelter pad on northbound Rocky Ridge Drive north of Driveway 5. Southbound buses from the Westfield Galleria and Sutter Roseville Medical Center would use the Douglas Boulevard stop while northbound buses from the Watt/I-80 light rail station would use the Rocky Ridge Drive stop.[1]

[1] Information on Rapid Link provided by City of Roseville. Scofield, Ed. Email to Rob Hananouchi. June 2022.



Pedestrian Facilities
- Sidewalk
- Crosswalk

Bicycle Facilities
- Class II Bike Lane

Figure 10

Existing Bicycle and Pedestrian Network

Bicycle Facilities

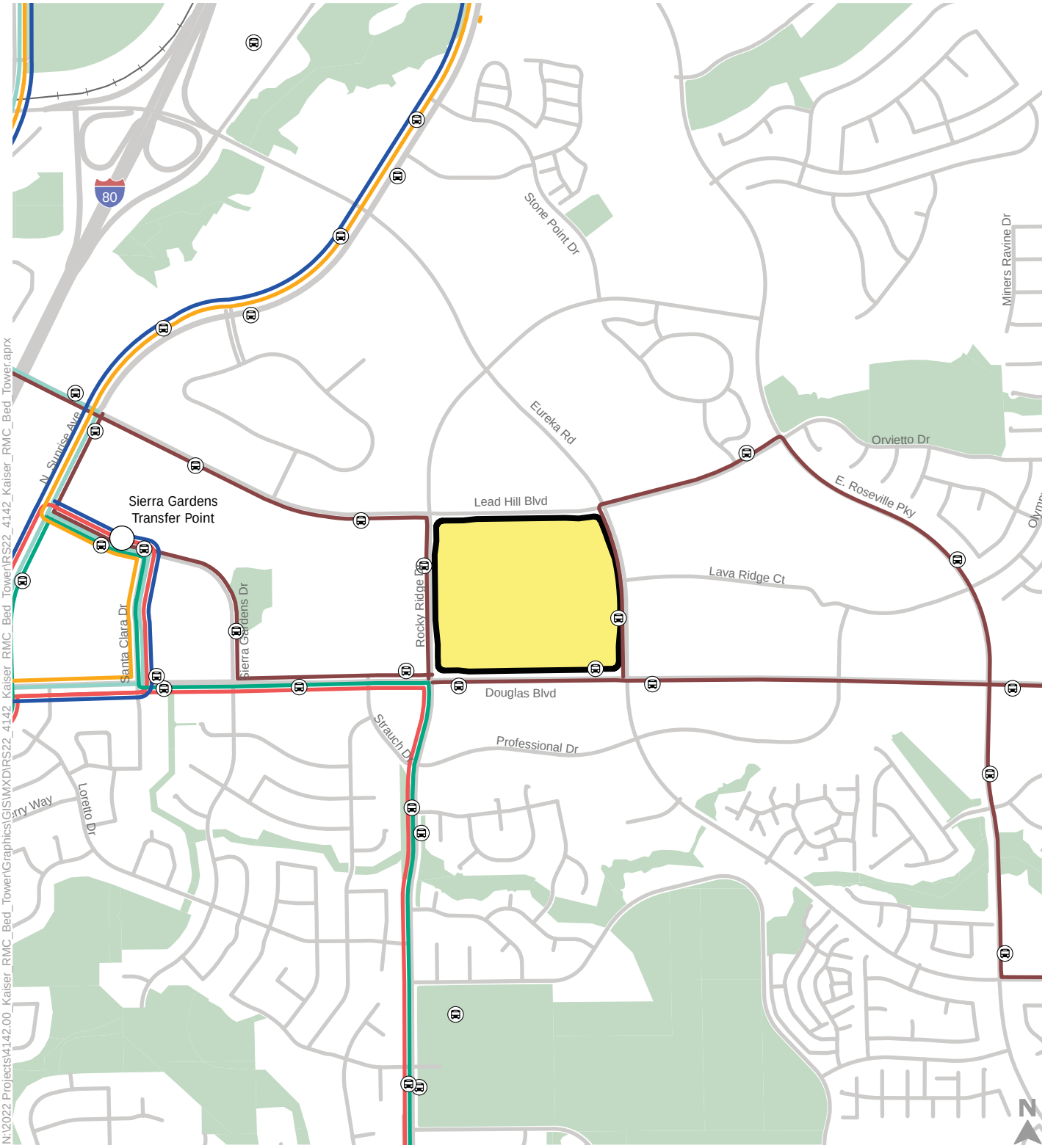
Bicycle facilities are typically categorized in the following classifications:

- **Class I Multi-Use Off-Street Paths** (also known as shared-use paths) are paved trails that are separated from roadways and allow for shared use by both cyclists and pedestrians.
- **Class II On-Street Bike Lanes** are designated for use by bicycles by striping, pavement legends, and signs.
- **Class III On-Street Bike Routes** are designated by signage for shared bicycle use with vehicles but do not necessarily include any additional pavement width for bicyclists.
- **Class IV Separated Bikeways** (also known as protected bikeways or cycle tracks) are separated bikeways improve upon buffered bike lanes by providing vertical separation between bike lanes and the adjacent travel lanes. Vertical separation can be provided with concrete curb and gutter, bollards or on-street parking.

Figure 11 displays the existing bicycle facilities located near the Project site. Class II bike lane facilities are present in both directions on all the arterial roadways in the Project vicinity. Rocky Ridge Drive, Lead Hill Boulevard, Eureka Road, Douglas Boulevard, and East Roseville Parkway all have Class II bike lanes, which provide bikeway connections to the immediate surrounding area. The Miners Ravine trail, a class I shared-use path, is located about one-half mile east of the Campus via Lead Hill Boulevard and provides connections to downtown Roseville, east Roseville, and Granite Bay.

Pedestrian Facilities

Figure 11 displays the existing pedestrian sidewalk facilities and marked crosswalks at major intersections near the Project site. As shown, sidewalks surround the entire perimeter of the Campus and include connections to an internal network of pedestrian walkways on the Campus. This existing pedestrian system provides access routes between KPRMC buildings and transit stops located along the perimeter of the Campus. Signalized intersections in the study area generally include marked crosswalks across most legs of the intersection with push-button and pedestrian signal heads to facilitate pedestrian crossings.



Kaiser Permanente Roseville Medical Center Campus

Bus Stop

City of Roseville Transit Routes

- Route A
- Route B
- Route C
- Route F
- Route E
- Route L

Figure 11

Existing Transit Network

3. Regulatory Setting

Existing transportation policies, laws, and regulations that would apply to the Project are summarized below. This information provides a context for the impact discussion related to the Project's consistency with applicable regulatory conditions and development of significance criteria (presented in Chapter 5) for evaluating Project impacts.

State

The State of California has enacted several pieces of legislation that outline the state's commitment to encourage land use and transportation planning decisions and investments that reduce vehicle miles traveled (VMT) and contribute to reductions in greenhouse gas (GHG) emissions in line with state climate goals. The legislation with applicability to the analysis of the Project includes senate bill (SB) 743.

Senate Bill 743

SB 743, passed in 2013, required the California Governor's Office of Planning and Research (OPR) to amend the CEQA guidelines to establish new metrics for determining the significance of transportation impacts. Enacted as part of SB 743 (2013), Public Resources Code (PRC) section 21099, subdivision (b)(1), directed the OPR to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated."

Subdivision (b)(2) of PRC section 21099 further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to [CEQA], except in locations specifically identified in the guidelines, if any."

OPR published its proposal for the comprehensive updates to the CEQA Guidelines in November 2017 which included proposed updates related to analyzing transportation impacts pursuant to SB 743. The updated CEQA Guidelines were adopted on December 28, 2018; and according to the new CEQA Guidelines Section 15064.3, VMT replaced congestion as the metric for determining transportation impacts. The guidelines state that "lead agencies may elect to be governed by these provisions of this section immediately. Beginning July 1, 2020, the provisions of this section shall apply statewide."

To provide guidance to agencies implementing the new CEQA requirements, OPR published the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory) in December 2018. The Technical Advisory describes considerations agencies may use in selecting VMT metrics, calculation methodologies, and significance thresholds. The Technical Advisory does not mandate the use of specific metrics, methodologies, or significance thresholds, because lead agencies have discretion to select those that are appropriate for the local land use and transportation context.

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining the State Highway System (SHS). Within the study area, the SHS consists of I-80 and SR 65. Federal highway standards are implemented in California by Caltrans. Any improvements or modifications to the SHS would need to be approved by Caltrans. As part of its responsibilities, Caltrans reviews local development projects subject to CEQA to assess potential impacts on the SHS based on the following technical guidance.

- *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (VMT TISG)
- *Traffic Safety Bulletin 20-02-R1: Interim Local Development Intergovernmental Review Safety Review Practitioners Guidance* (Caltrans Safety Impact Guidance)

VMT-Focused Transportation Impact Study Guide

On May 20, 2020, Caltrans adopted the *VMT-Focused Transportation Impact Study Guide* (TISG) (Caltrans 2020a). The TISG provides guidance on how Caltrans will review land use projects, with focus on VMT analysis and supporting state land use goals, state planning priorities, and GHG emission reduction goals; as well as identifying land use projects' possible transportation impacts to the SHS and potential non-capacity increasing mitigation measures.

The TISG emphasizes that VMT analysis is Caltrans' primary review focus and references the OPR Technical Advisory as a basis for the guidance in the TISG. Notably, the TISG recommends the use of the recommended thresholds in the Technical Advisory for land use projects. The TISG also references the Technical Advisory for screening thresholds that would identify projects and areas presumed to have a less-than-significant transportation impact. Caltrans supports streamlining for projects that meet these screening thresholds because they help achieve VMT reduction and mode shift goals.

Caltrans Safety Impact Guidance

In December 2020, Caltrans released the *Interim Land Development and Intergovernmental Review Safety Review Practitioners Guidance* (Caltrans 2020b). The Caltrans Safety Impact Guidance provides technical instructions on how to evaluate potential safety impacts on the SHS. This guidance largely focuses on the actions of Caltrans district staff in performing the analysis and providing relevant impact information to lead agencies. The interim guidance recommends that safety analyses include a review of three primary elements related to transportation safety—design standard compliance, collision history, and collision risk

(consistent with the Federal Highway Administration's Systemic Approach to Safety). The interim guidance does not establish specific analysis methods or significance thresholds for determining safety impacts under CEQA. Additionally, Caltrans notes that local agencies may use the interim guidance at their own discretion as a guide for review of local facilities.

Local

City of Roseville 2035 General Plan

The following policies from the *City of Roseville General Plan 2035* (2020) Circulation Element are relevant to this study.

- **Policy CIRC2.1:** Maintain a LOS "C" standard at a minimum of 70 percent of all signalized intersections and roadway segments in the City during the a.m. and p.m. peak hours. Exceptions to the LOS "C" standard may be considered where improvements required to achieve the standard would adversely affect pedestrian, bicycle, or transit access, and where feasible LOS improvements and travel-demand-reducing strategies have been exhausted.
- **Policy CIRC3.1:** Promote transit service that is convenient, cost-effective, and responsive to the challenges and opportunities of serving Roseville and surrounding communities, and explore opportunities for transit innovation and service improvements.
- **Policy CIRC3.5:** Consider access to health care, community services and employment, and the needs of persons who may be transit-dependent when making decisions regarding transit service.
- **Policy CIRC3.7:** Pursue transit routes that optimize ridership.
- **Policy CIRC4.1:** The City will review and condition projects as appropriate, to reduce travel demand per capita and per employee by promoting increased density near transit, improving the quality of non-vehicular transportation options, providing incentives for non-vehicular travel, encouraging the mixing of complementary land uses in proximity to one another, and using other feasible methods.
- **Policy CIRC4.3:** Specific Plan Amendments and land use development projects not included in a Specific Plan shall be evaluated for consistency with the City's VMT Impact Standards.
- **Policy CIRC4.4:** If the evaluation required by CIRC4.3 finds a Specific Plan Amendment or land use development project not included in an adopted Specific Plan is inconsistent with thresholds established within the City's VMT Impact Standards, on-site land use, transportation, and urban design-related VMT-reducing features should be prioritized to demonstrate consistency. If feasible on-site features cannot achieve the VMT threshold, Specific Plan Amendments and land use development projects outside Specific Plan Areas may demonstrate equivalent consistency through off-site actions or fair-share fee contributions, or if consistency cannot be achieved, shall implement all feasible measures.

- **Policy CIRC5.1:** Develop a comprehensive and safe system of recreational and commuter bicycle routes and trails that provides connections between the City's major destinations (including employment) and housing areas and between its existing and planned bikeways.
- **Policy CIRC6.1:** Establish and maintain a safe and continuous pedestrian network that provides connections between residential areas and commercial retail and services, employment, public services, parks, and public transit.
- **Policy CIRC6.3:** Enhance pedestrian-friendly street environments and design public spaces and destinations in a way that encourages walking.
- **Policy CIRC6.4:** Sidewalks shall be required in all new Specific Plan Areas, with new roadway construction, and with roadway expansion.
- **Policy CIRC6.5:** In reviewing proposed development projects and implementing public projects, the City will incorporate standards designed to protect the security of pedestrians and minimize the potential for collisions involving pedestrians.

Northeast Roseville Specific Plan

The KPRMC Campus is located within the NERSP, which was originally adopted by the City on April 8, 1987 and has been amended multiple times since its original adoption, with the latest amendment occurring on September 18, 2013. The NERSP establishes goals, policies, and implementation measures for the provision, phasing, and financing of land use, community services, roadways, and infrastructure. The following transportation policies and implementation measures applicable to the proposed Project:

- The Medical Campus Component of the Specific Plan states that "[d]evelopment within the Medical Campus land use shall comply with the City of Roseville TSM Ordinance. A TSM Plan shall be submitted for the review, and approval of the Transportation Commission, concurrent with the submittal of any development plans." A description of the City of Roseville TSM Ordinance is provided under Section 3.6.3, "Regulatory Setting," of this SEIR.
- The Circulation Component of the Specific Plan includes the following policy and implementation measures:
    - Plan Policy 2: Provide for alternatives to the automobile as the means around and through the site.
      Implementation:
        - Long-term and short-term bicycle parking will be required for all non-residential developments consistent with the California Green Building Code.
        - Designated parking spaces for Clean Air/Carpool/EV will be required for all non-residential developments consistent with the California Green Building Code.

      vii. require that all development comply with and implement the City of Roseville TSM ordinance.

City of Roseville Design and Construction Standards

The *City of Roseville Design and Construction Standards* (City of Roseville 2021a) provide for coordinated and standardized development of City facilities, including roadways. The Design and Construction Standards apply to, regulate, and guide preparation of traffic and VMT impact studies, the design and preparation of plans, and the construction of streets, highways, alleys, drainage, traffic signals, site access, bus shelter pads, and related public improvements. All public roadway infrastructure improvements must be designed and constructed in accordance with the City's Design and Construction Standards, Caltrans' *Standard Specifications* (Caltrans 2018), and the latest edition of the City's *Americans with Disabilities Act (ADA) Transitions Plan* (City of Roseville 2009).

The Design and Construction Standards includes an updated Section 4 titled "VMT Impact Standards," which outline the City's guidelines for preparing Traffic Impact Studies and VMT Impact Studies.

Section 4-4 describes the types of Traffic Impact Studies required of proposed projects in the City, including when Short-Term Traffic Studies are sufficient and when Long-Term Traffic Studies are warranted. Specifically, a Short-Term Traffic Study is sufficient when "the proposed land use is consistent with the General Plan, therefore the project's long term impact is already accounted for via the City's Capital Improvement Program (CIP) which was derived from the City-wide traffic model." Conversely, a Long-Term Traffic Study is generally required when a proposed project's land use "is not consistent with the assumptions of the City's travel demand forecasting model, with regard to intensity of development and/or type of use."

Section 4-7 states that the purpose of VMT impact studies is to "provide the necessary information to allow an assessment of the potential VMT effects associated with proposed projects as they relate to circulation policies established by the City. VMT impact studies are also used to identify appropriate mitigation and/or recommendations where practicable to offset project impacts."

Section 4-9 describes the methodology for conducting a VMT impact study. This includes whether a project may qualify for screening from additional VMT analysis, or whether a full VMT analysis with comparison to the appropriate threshold is required. The City's guidelines note that a project may be screened from additional VMT analysis if it complies with one or more of nine criteria, which include:

1. Within the scope of a prior CEQA analysis; including analysis performed for the General Plan
2. Small projects (generating 110 trips or less per day)
3. Projects near transit stations (within 0.5 miles of an existing major transit stop)
4. Affordable residential development
5. Redevelopment projects (if leads to a net overall decrease when compared to the existing land use)
6. Local-serving retail projects (less than 50,000 square feet)
7. Other local-serving development (improves destination proximity at the discretion of the City)
8. Development in low VMT areas (defined as a project in a TAZ that meets the City's thresholds)
9. Transportation projects not generating new VMT

Because the City's 2035 General Plan Update assumes a larger buildout of the Medical Center, the Project meets the first screening criterion. Please see Chapter 5 (Impact Assessment) for additional information regarding the Project's VMT impacts.

The City's Design Standards also set forth the requirements for project site access and driveway locations (Section 5); traffic signals, signs, and striping (Section 6); street design, including street classes and widths, rights-of-way, pavement engineering, curb and gutters, sidewalks, pedestrian walks and bike paths, intersections, sight distances, and driveway standards (Section 7); traffic noise barriers (Section 12); and bikeway design standards (Section 13).

The Construction Standards regulate construction-area traffic control (Section 12); set forth the developer's and contractor's responsibilities (Section 21); specify the details for construction of street improvements including barricades, bikeways, bridges, bollards, curb, curb and gutter, driveways, pavement, curb ramps, sidewalk, survey monuments and tunnels (Section 71); application of traffic stripes and pavement markings (Section 84); installation of pavement markers (Section 85); and installation of traffic signals (Section 86).

Transportation Systems Management Ordinance

The City has a Transportation Systems Management (TSM) program, the purpose of which is to develop an integrated and cooperative approach between the City and the business community to promote alternative transportation options, reduce traffic congestion, and improve air quality in the Roseville area. The TSM program applies to businesses or common work locations (such as office building/complex, commercial/retail center, or industrial building/park) with 50 or more employees. The City's TSM requirements are located in Chapter 11.33 of the Roseville Municipal Code.

The goals and intent of the TSM program are to:

- Reduce total vehicle emissions in the City by reducing the number of vehicular trips that might otherwise be generated by home-to-work commuting.
- Reduce peak-hour traffic circulation in the City by reducing both the number of vehicular trips and the vehicular miles traveled that might otherwise be generated by home-to-work commuting by a minimum of 20%.
- Increase the efficiency of the existing transportation network in the City.
- Promote an integrated and cooperative approach between the City and the business community to promote alternative transportation opportunities and improve the air quality in Roseville.
- Cooperate and coordinate with other cities, counties, communities, and regional agencies in these endeavors.

Typical measures included in a TSM include the provision of bicycle lockers and on-site showering facilities, workplace ride-share programs, and employee education and incentive programs to use alternative transportation.

The NERSP specifically states that "[d]evelopment within the Medical Campus land use shall comply with the City of Roseville TSM Ordinance. A TSM Plan shall be submitted for the review, and approval of the Transportation Commission, concurrent with the submittal of any development plans."

The Project is subject to the City's TSM ordinance requirements. Kaiser has a TSM plan already in place that would be amended to include the proposed Project. These requirements would reduce the number of vehicle trips and VMT that might otherwise be generated by the Project.

Traffic Impact Fee Programs

The City currently participates in four traffic mitigation fee programs to fund capital projects in Roseville and south Placer County. Within the City, traffic impact fees are used to fund improvements contained in the CIP. The funding for those improvements is nexus-based and is designed to fund improvements. The fee structure considers both the number and length of trips generated by new land developments, and as such, it is considered a type of VMT-based fee program. The traffic mitigation fees are collected by the participating agencies at building permit issuance. The payment of Roseville impact fees in lieu of improvements has typically been determined to function as mitigation for those projects consistent with the general plan. The fee program is funding improvements identified and required as part of the 2035 General Plan EIR and the payment of fees reflects individual projects' fair share contribution towards these improvements. This Project would be subject to City traffic impact fee programs, which would represent its fair share contribution towards these improvements.

City of Roseville Short-Range Transit Plan 2018-2025

The *City of Roseville Short-Range Transit Plan* (SRTP) 2018-2025 (LSC 2018) provides a detailed business plan to guide transit improvements in the City. The plan reviews demographics and transit needs, evaluates effectiveness and efficiency of existing services, analyzes a wide range of system options, and provides operational, capital and institutional plans, including an implementation plan. The City's plan was prepared jointly with the development of parallel SRTPs for Placer County Transit, Auburn Transit, and the Western Placer Consolidated Transit Service Agency.

This study references the SRTP to identify baseline transit data and potential planned transit improvements in the study area. Within the study area, the SRTP recommends revising Routes C, G, F, E, and L. The SRTP notes that ridership on Routes C, G, F, and E, as well as Route L east of Eureka Road is low. To this end, the plan recommends two potential strategies for further consideration:

- Modify Routes C, G, F, E, and L to eliminate unproductive segments and provide one-hour headways minimum. Figures 23 and 32 in the SRTP show examples for how this could be accomplished. Under both of these examples, the recommended local fixed-route service would continue to serve the Campus and the bus stops along the Campus's perimeter.
- Eliminate Routes C, G, F, and E; modify Route L, and replace with transportation network company (TNC) or microtransit service. Figure 24 in the SRTP shows an example for how Route L would be modified and supplemented with TNC service. In this example, Route L would continue to serve

the Campus and the bus stops along the Campus's perimeter. The microtransit service or TNC subsidy would be provided in areas of the city previously served by Routes C, G, F, E, and L.

Note that in August 2022, Routes E and G were combined and branded as Route E. This included changes to Route E to provide more direct service between the Galleria Mall and Sierra College campus and eliminate service on Sierra College Boulevard between Rocklin Road and Douglas Boulevard. This is consistent with the SRTP recommendation to eliminate unproductive segments.

City of Roseville Bicycle Master Plan

The *City of Roseville Bicycle Master Plan* (2008) includes the following policies that are relevant to the Project:

- Support facilities that encourage bicycling should, to the extent feasible, be made a standard component of all new public and private projects.
- Provide short-term bike parking (bike racks) conveniently located at businesses entrances and safe, secure long-term covered bike parking (lockers, cages, rooms) at employment sites.
- Where construction operations occur near Class II or III bikeways, the developer/ contractor will be responsible for maintaining clear and clean paths of travel.
- Street maintenance overlay projects and other construction projects within the public right-of-way and along designated bikeways shall be reviewed for conformance with the Bicycle Master Plan. Where existing facilities are not in conformance with the Bicycle Master Plan and current City standards, the facilities may be brought up to standards where determined feasible by the Public Works Director/City Engineer.

City of Roseville Pedestrian Master Plan

The *City of Roseville Pedestrian Master Plan* (2011) was adopted by the City Council to establish policies, projects, and programs that improve the pedestrian system in Roseville and increase walking for transportation, recreation, and health. The Pedestrian Master Plan includes goals, policies, and implementation measures for pedestrian improvements and programs; a recommended pedestrian network; and a Capital Improvements Program (CIP) that establishes a 20-year framework for improvements to the pedestrian environment. The Pedestrian Master Plan includes the following policies that are relevant to the Project:

- Provide continuous and direct pedestrian connections between residential areas, schools, shopping areas, public services, employment centers, parks, and public transit stops.
- Sidewalks and street crossings should provide access for all people, regardless of physical abilities, consistent with the Americans with Disabilities Act (ADA) and ADA Transition Plan.

4. Project Travel Characteristics

This chapter describes the forecasted travel characteristics of the proposed Project.

Project Description

As presented in Chapter 1 (Introduction), the Project proposes a 278,000 square foot Bed Tower building, a new four-level plus rooftop parking garage with approximately 800 parking stalls, and supporting utility upgrades. As support facilities, the new parking garage, new generator yard, and supporting utility upgrades to the existing CUP are not expected to independently generate new trips. Instead, the change in Campus trip generation is driven by the additional hospital space created by the Bed Tower building.

Parking

As shown in **Figure 4**, the Project would result in the following changes to parking areas on the Campus:

- The surface parking lot to the northwest of the existing main hospital (Lot 6) would be replaced by the proposed Bed Tower Building.
- The surface parking lot at the northeast portion of the campus (Lot 10) would be mostly replaced by the proposed new parking garage (a small surface lot adjacent to the new parking garage would remain).
- The surface parking lots in the northwest portion of the KPRMC Campus (Lots 3, 5, and 7) would be reconfigured to accommodate the relocated Loop Road, proposed Bed Tower Building, and new hospital drop off area.

Figure 12 presents the forecasted parking supply with the Project's proposed changes to Campus parking. Note that the parking supply for the new parking garage and reconfigured surface parking lots are estimates based on the site plan and data provided by the project applicant.

As shown in **Figure 12**, the total campus parking supply is anticipated to increase from 3,077 spaces to 3,263 spaces with the Project, a net increase of 186 parking stalls. **Table 4** shows the detailed change in parking supply in the west and northeast portions of the Campus with the Project.

Parking Location	Parking Inventory by Space Type						
	General	ADA	Employee	Short-Term	Motorcycle	Other[1]	Total
1	58	45	0	20	0	0	123
2A	75	0	0	0	0	0	75
2B	83	0	0	0	0	0	83
3	78	15	0	0	0	0	93
4A	0	0	156	0	0	0	156
4B	0	0	69	0	0	0	69
5	98	22	0	0	0	0	120
7	35	0	0	0	0	0	35
8	6	15	0	5	4	1	31
9	55	4	0	0	0	0	59
10	33	0	0	0	0	5	38
DG 1	161	0	60	0	0	10	231
DG 2	171	14	86	0	0	1	272
DG 3	153	14	85	0	4	7	263
DG 4	158	15	105	0	0	0	278
DG 5	152	15	94	0	0	0	261
DG 6	146	0	91	0	0	0	237
New Garage	272	20	450	0	10	48	800
J	0	0	0	0	0	15	15
T	0	1	23	0	0	0	24
Total	**1,734**	**180**	**1,219**	**25**	**18**	**87**	**3,263**

Notes:
1. Other parking includes spaces designated for electric vehicles, recreational vehicles, patient drop-off, ambulances, and spaces restricted for specific vehicles/personnel (e.g., security, maintenance, etc.).

Parking supply for Lots 3, 5, 7, and 10 based on site plan provided by project applicant.

Parking space type for New Garage based on review of ground level floor plan and Fehr & Peers estimate assuming no change to existing parking stall designations in other parking lots.

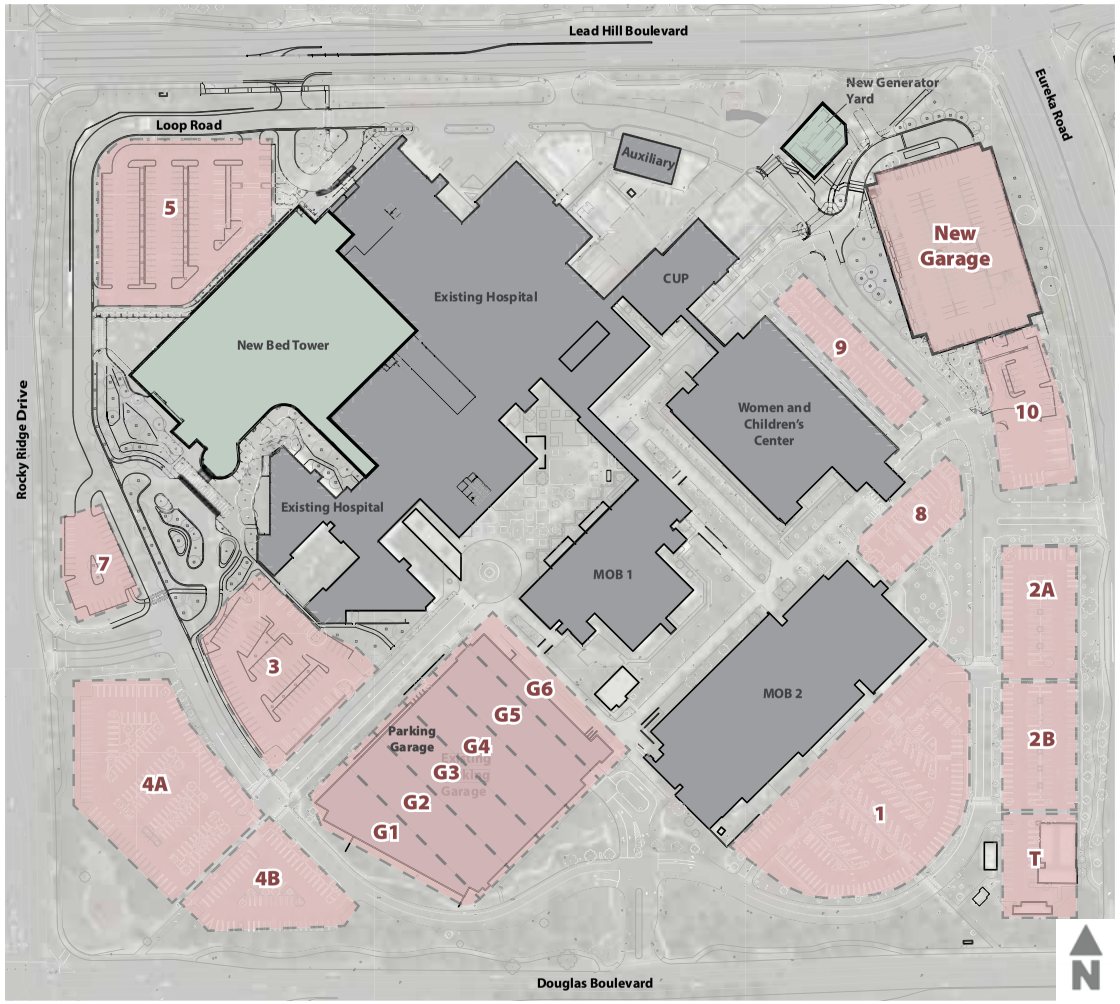


Figure 12

KPRMC Campus - With Project Parking Supply

Table 4: Proposed Change in Campus Parking Supply

Parking Location	Baseline (2019)	With Project	Net Change
West Campus			
3	92	93	+1
4A	156	156	0
4B	69	69	0
5	54	120	+66
6A	114	0	-114
6B	83	0	-83
7A	59	0	-59
7B	142	0	-142
7C	71	35	-36
West Campus Sub-Total	*840*	*473*	*-367*
Northeast Campus			
10	285	38	-247
New Parking Garage	0	800	+800
Northeast Campus Sub-Total	*285*	*838*	*+553*
Campus Total	**3,077**	**3,263**	+186

Source: Fehr & Peers, 2022.

Table 4 shows that the total number of parking stalls in the west portion of the Campus would decrease from 840 to 473, while the number of parking stalls in the northeast portion of the Campus would increase from 285 to 838, largely attributable to the new parking garage. Most of the decrease in the west portion of the Campus is due to the loss of existing staff spaces in Parking Lot 7A-7C. The remaining surface parking lots on the west portion of the Campus with the Project (i.e., Parking Lots 3, 5, and 7) would be designated for patients and visitors given their proximity to the new main hospital entrance and ED entrance. Meanwhile, the new parking garage would provide staff parking that compensates for lost staff parking in Lot 7.

Trip Generation

This study calculates the Project's vehicle trip generation using the vehicle trip generation rates that are calibrated to the KPRMC Campus (see **Table 3**). **Table 5** presents the Project's estimated weekday daily, AM peak hour, and PM peak hour vehicle trip generation, as well as the KPRMC Campus's total vehicle trip generation with the proposed Project.

Table 5: Project Vehicle Trip Generation Estimate

Land Use	Daily	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
Proposed Project							
Bed Tower Building (Hospital)[1]	3,297	230	170	60	245	74	171
KPRMC Campus Baseline							
Existing KPRMC Campus[2]	19,898	1,487	1,239	248	1,593	365	1,228
Campus: Baseline Plus Project	23,195	1,717	1,409	308	1,838	439	1,399

Notes:

1. Vehicle trip generation estimate for the proposed 278,000 gross square-foot Bed Tower building calculated using the Campus specific trip generation rate for hospital presented in Table 3.
2. Baseline vehicle trip generation of the Campus based on counts collected on May 14-15, 2019, as shown in Table 2.

Source: Fehr & Peers, 2022.

As shown, the proposed Project would generate approximately 3,300 daily vehicle trips, with 230 vehicle trips occurring during the weekday AM peak hour (7:45 to 8:45 AM) and 245 vehicle trips occurring the weekday PM peak hour (4:30 to 5:30 PM). This would result in a total of 23,195 daily vehicle trips, 1,717 AM peak hour vehicle trips, and 1,838 PM peak hour vehicle trips generated by the entire Campus.

Trip Distribution

This study estimates the distribution of Project trips using the following data:

- Baseline (2019) turning movement counts at the KPRMC Campus driveways and signalized intersections at the Campus perimeter.
- Select zone analysis of the travel analysis zone (TAZ) representing the KPRMC Campus in the City of Roseville travel forecasting model.
- Google Maps recommended travel routes during the AM and PM peak hour between the Campus and major gateways to/from the study area (i.e., I-80 east and west; Douglas Boulevard to the east and west; Eureka Road to the southeast; Atlantic Street to the northwest; etc.).

In addition to the above factors, the distribution of vehicle trips to the KPRMC Campus is influenced by where drivers park on the Campus and permitted turning movements at Campus driveways. With the loss of staff parking in Lot 7 and addition of the new garage (see **Table 4**), many staff who park on the west portion of the Campus would likely shift to parking in the new parking garage. This would reduce staff vehicle trips to the west side of the Campus and increase vehicle trips to the northeast portion of the Campus.

The expanded capacity of the hospital via the proposed Bed Tower Building would also generate more member/patient and visitor trips to the hospital drop-off and patient/visitor serving parking areas on the west side of the Campus. Overall, the net effect on vehicle trips to/from the Campus and surrounding City roadways is expected to be as follows:

- Minimal net change in vehicle trips to the west side of the Campus. The additional patient/visitor trips generated by the Bed Tower building would be offset by reductions in staff vehicle trips as they shift their travel routes to the new parking garage.
- An increase in trips to the northeast quadrant of the Campus reflecting the new parking supply provided by the new parking garage.

Therefore, this analysis assigns net new trips generated by the Project to the new parking garage, which generally results in an increase in trips using Driveway 2 on Lead Hill Boulevard and Driveway 3 on Eureka Road, and negligible changes to trips to other Campus driveways.

Figure 13 presents the Project daily trip distribution, while **Figure 14** illustrates the Project trip distribution during the weekday AM peak hour and **Figure 15** illustrates the Project trip distribution during the weekday PM peak hour.

Given the right-turn only restrictions at the Lead Hill Boulevard and Eureka Road driveways, traveling west on Lead Hill Boulevard requires relatively circuitous routes for Project trips leaving the Campus. Therefore, only a small percentage of Project trips (5 percent or less) are likely to head west on Lead Hill Boulevard. Instead, most outbound Project trips are expected to use Douglas Boulevard (i.e., heading west towards I-80 and Downtown Roseville) or Eureka Road (i.e., heading northwest towards Atlantic Street or Galleria Boulevard) as an alternate route to Lead Hill Boulevard.

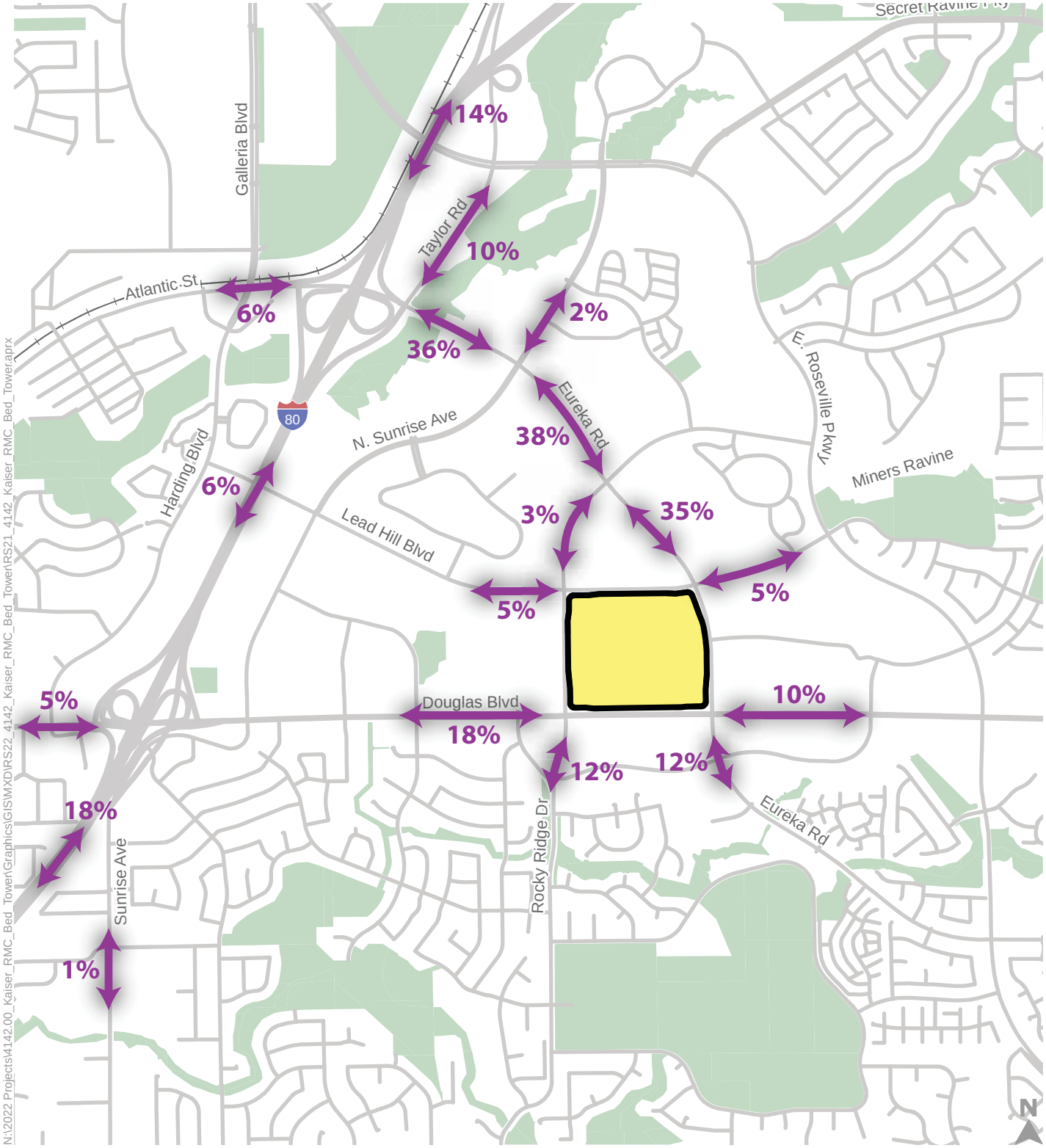


Figure 13

Project Trip Distribution - Daily

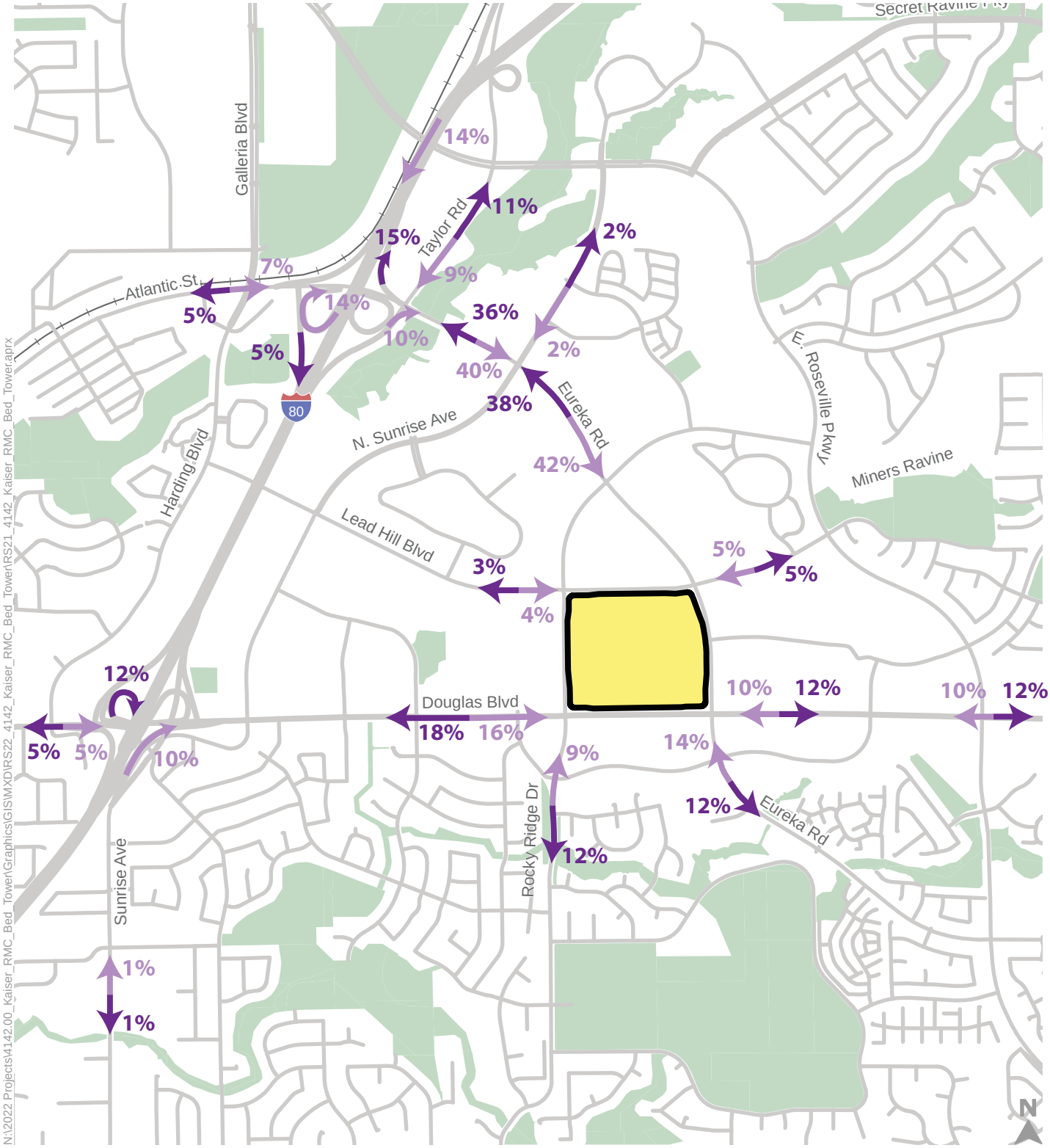


Figure 14

Project Trip Distribution - AM Peak Hour

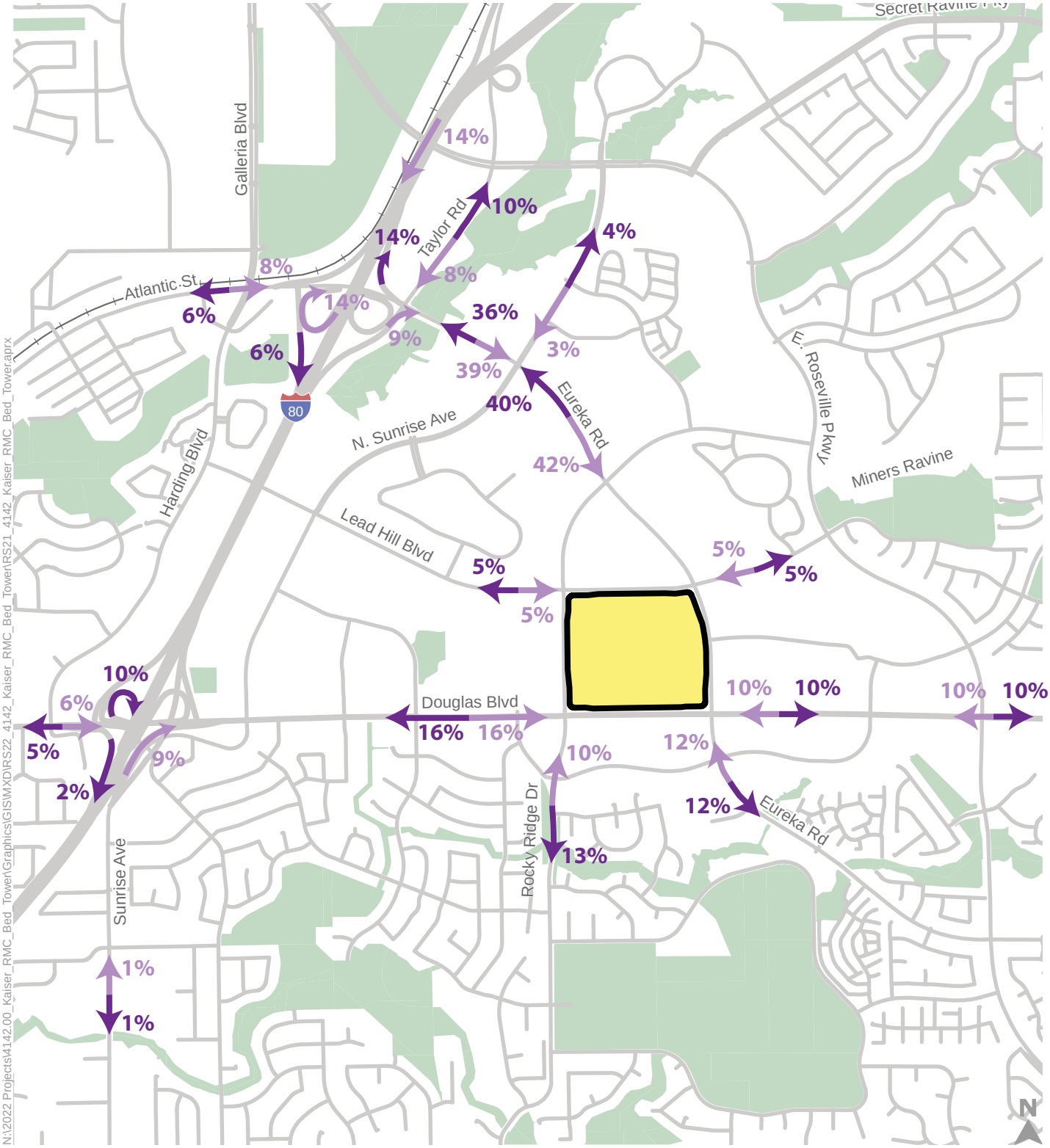


Figure 15

Project Trip Distribution - PM Peak Hour

5. Impact Assessment

This chapter describes the evaluation of potential transportation impacts associated with the operation of the Project and, in instances where the Project would cause a significant impact, identifies potential mitigation measures that would lessen the severity of the impact. This chapter begins with presenting the significance criteria used to evaluate Project impacts to the roadway, bicycle, pedestrian, and transit systems, and then assesses whether the Project would result in a significant impact based on these criteria. The information in this chapter is consistent with the transportation impact analysis contained in the SEIR for the Project (Dudek, July 2022).

Significance Criteria

The significance criteria are based on Appendix G of the State CEQA Guidelines and various City of Roseville published plans described in Chapter 3 (Regulatory Setting).

Consistent with Appendix G of the CEQA Guidelines, a significant impact would occur if development of the proposed Project would do any of the following:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system including transit, roadway, bicycle, and pedestrian facilities.
- Conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b).
- Substantial increase in hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Potential to cause inadequate emergency access.

These questions alone do not identify specific measurable thresholds to determine impact significance. To supplement the questions, additional information is provided below to define how the City of Roseville determines impact significance.

Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System

The Project would result in a significant transportation impact if it would do any of the following.

- Physically disrupt an existing transit service/facility, bicycle facility, or pedestrian facility within the City of Roseville.
- Interfere with implementation of a planned transit service/facility, bicycle facility, or pedestrian facility within the City of Roseville as identified in the City of Roseville 2035 General Plan, City of Roseville Short-Range Transit Plan, City of Roseville Bicycle Master Plan, or City of Roseville Pedestrian Master Plan.

Conflict or be Inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b)

Section 15064.3, subdivision (b) of the CEQA Guidelines outlines the criteria for analyzing a project's transportation impacts. For land use projects, this section states that "[v]ehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact."

The Project would result in a significant transportation impact if it would:

- Not qualify for screening per the screening criteria outlined in Section 4-9-A of the City of Roseville VMT Impact Standards.
- Exceed the applicable VMT threshold identified in Section 4-10 of the City of Roseville VMT Impact Standards.

Per Section 4-10 of the City of Roseville VMT Impact Standards, the applicable VMT threshold for a non-residential project is 15 percent below baseline VMT per service population; or a net overall decrease in total City VMT when compared to baseline VMT.

Increase in Hazards Because of a Geometric Feature or Incompatible Uses

The Project would result in a significant transportation impact if it would result in a geometric design feature that is inconsistent with applicable design standards of the City of Roseville, as presented in the *City of Roseville Design and Construction Standards*.

Potential to Cause Inadequate Emergency Access

The Project would result in a significant transportation impact if it would result in roadway and transportation facilities that impede access for emergency response vehicles.

Impact Assessment

Impact 1: The proposed Project would not physically disrupt an existing transit service/facility or interfere with implementation of a planned transit service/facility.

The study area is served by three local fixed-route bus routes operated by Roseville Transit. As described under Impacts 2 and 3 below, the KPRMC Campus provides adequate pedestrian and bicycle facilities to access existing bus stops and local fixed-route bus service. The proposed Project would not disrupt these existing bus transit services, nor would it disrupt access to existing transit facilities.

The proposed Project would result in additional employment and capacity for serving patients in the areas served by existing transit, consistent with General Plan policy CIRC 4.1. This would potentially result in additional transit ridership demand. The SRTP indicates that the local fixed-route buses that serve the study area have very low ridership. Therefore, these routes would have capacity to accommodate

additional riders generated by the Project. Furthermore, the proposed Project would not conflict with policies related to transit in the City's General Plan and NERSP.

With regard to planned transit service and facilities, the SRTP recommends modifying the local fixed-route bus service in the study area (see Chapter 3 (Regulatory Setting) for details). In summary, the SRTP recommends eliminating unproductive segments of existing fixed-route service, provide one-hour headways minimum, and replace the unproductive service with transportation network company (TNC) or microtransit service. On September 7, 2022, the Roseville City Council approved a contract for the implementation of microtransit service. Details of the microtransit service implementation will be determined in the coming months, but would likely provide comparable service to the existing dial-a-ride demand response service without immediate changes to local fixed-route bus service. Roseville Transit is in the process of conducting a comprehensive operational analysis. However, the ultimate modifications to local fixed-route bus service have not been determined.

The proposed Driveway 6 on Lead Hill Boulevard is about 200 feet east of an existing unused bus shelter. This location is consistent with adopted City design standards as the driveway is more than 240 feet from the Rocky Ridge Drive intersection and is not within a bus turnout or the straight portion of an acceleration lane (see Design & Construction Standard Details ST-46, ST-48, and ST-49; and Design Standards section 5-3). Therefore, Driveway 6 would not interfere with future use of the bus shelter, if needed to support future fixed-route bus service.

The planned Rapid Link bus service described in Chapter 2 (Baseline Conditions) would serve an existing bus stop on westbound Douglas Boulevard as well as a new bus stop on northbound Rocky Ridge Drive about 200 feet north of Driveway 5. The Project would not result in any changes to the Campus frontage or existing transit facilities along Douglas Boulevard or Rocky Ridge Drive, nor would it result in a substantial increase in trips to Driveway 4 or Driveway 5 such that it would interfere with the implementation of this future bus service. Based on the known planned changes to transit service, the Project would not interfere with the implementation of planned transit services or facilities.

In summary, the proposed Project would not disrupt an existing transit facility or interfere with implementation of a planned transit service or facility. Therefore, this impact would be **less than significant**.

Mitigation Measures

None required.

Impact 2: The proposed Project would not physically disrupt an existing bicycle facility or interfere with implementation of planned bicycle facilities.

A continuous set of on-street and/or off-street bicycle facilities are present to connect the Campus with the surrounding area. A bicyclist can ride in existing class II bike lanes on Lead Hill Boulevard,

Eureka Road, Douglas Boulevard, or Rocky Ridge Drive to travel to or from the Campus. The Miners Ravine Trail (Class I shared-use path) is about a half-mile east of the Campus via Lead Hill Boulevard and provides connections to Downtown Roseville, east Roseville, and Granite Bay.

The proposed Project would not disrupt these existing bicycle facilities. These bikeways provide defined bicycle facilities for bicyclists to use to travel between the Project site and the surrounding area. The Project would be consistent with applicable policies, plans, and programs contained in the City's General Plan and Bikeway Master Plan.

The planned bicycle network identified in the City's 2035 General Plan and City's Bikeway Master Plan is largely built out in the study area. Specifically, the class II on-street bike lanes on the surrounding arterial streets (i.e., Lead Hill Boulevard, Douglas Boulevard, Eureka Road, and Rocky Ridge Drive) identified in the General Plan and Bikeway Master Plan exist today. Therefore, the proposed Project would not interfere with implementation of planned bicycle facilities.

In summary, the proposed Project would not disrupt an existing bicycle facility or interfere with implementation of a planned bicycle facility. Therefore, this impact would be **less than significant**.

Mitigation Measures

None required.

Impact 3: The proposed Project would not physically disrupt an existing pedestrian facility, or conflict with adopted programs, plans, ordinances, or policies regarding pedestrian facilities.

Continuous pedestrian facilities are present or proposed on the KPRMC Campus for medical staff, visitors, or patients to use to walk between major destinations on the Campus (e.g., medical office buildings, main hospital, Women & Children's Center, parking garages, and surface parking lots). Furthermore, pedestrian facilities are present that connect the major destinations on the Campus to public sidewalks on the surrounding roadways. This includes sidewalks connecting to existing commercial services and bus stops along Eureka Road, Lead Hill Boulevard, Rocky Ridge Drive, and Douglas Boulevard. This is consistent with relevant policies in the City's 2035 General Plan and City's Pedestrian Master Plan, such as Policy CIRC6.1.

Existing sidewalks surround the entire perimeter of the Campus along adjacent local streets. The proposed Project would not cause changes to these existing sidewalks, with one exception. The proposed new driveway (Driveway 6) would require modifying the sidewalk along the south side of Lead Hill Boulevard to comply with ADA requirements based on the existing slope. The existing sloped sidewalk would need to extend further west to ensure the sidewalk grade does not exceed the maximum allowed slope per ADA requirements. This modification would replace the existing sidewalk and would result in a continuous walkway along Lead Hill Boulevard as exists currently. Although the Project would modify the existing

sidewalk to comply with ADA regulations, it would not eliminate or permanently disrupt the existing sidewalk facility or pedestrian network.

Sidewalks would continue to surround the perimeter of the Campus with the addition of the Project. The City's Pedestrian Master Plan does not identify any additional planned pedestrian facilities in the study area beyond what exists under baseline conditions. Therefore, the Project would not interfere with implementation of planned pedestrian facilities.

In summary, the proposed Project would not significantly disrupt an existing pedestrian facility or interfere with implementation of a planned pedestrian facility. Therefore, this impact would be **less than significant**.

Mitigation Measures

None required.

Impact 4: The proposed Project would qualify for screening per the screening criteria outlined in Section 4-9-A of the City of Roseville VMT Impact Standards.

Section 4-9-A of the *City of Roseville Design and Construction Standards* states that a project may be screened from additional VMT analysis if it complies with one of nine criteria. Based on a review of these criteria, the project would meet the first criterion, "Within Scope of Prior CEQA Analysis." Specifically, the Project meets this criterion because the City's 2035 General Plan Update EIR assumed growth of the KPRMC Campus which adequately covers the proposed Project.

The City of Roseville adopted its General Plan 2035 and certified the corresponding EIR in August 2020 (City of Roseville 2020). The General Plan EIR explicitly states that "future projects consistent with the General Plan will not require further VMT analysis, pursuant to the tiering provisions of CEQA." This is in reference to CEQA Guidelines Section 15183(a): "CEQA mandates that projects which are consistent with the development density established by existing zoning, community plan, or general plan policies for which an EIR was certified shall not require additional environmental review, except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site." Further, the General Plan EIR states that "quantitative analysis would not be required if it can be demonstrated that a project is consistent with the General Plan and would generate VMT which is equivalent or less than what was assumed in this General Plan EIR."

The transportation impact analysis for the General Plan EIR used the Roseville travel forecasting model to estimate VMT for the City. The KPRMC Campus is located within its own travel analysis zone (TAZ), TAZ 256, in the Roseville travel forecasting model. **Table 6** presents the land use inputs for TAZ 256 (i.e., the KPRMC Campus) in the 2035 Roseville travel forecasting model and compares these General Plan EIR land use inputs to the Project's proposed gross floor area totals.

Table 6: Roseville 2035 General Plan EIR: Travel Forecasting Model Inputs for KPRMC

Land Use	Roseville 2035 General Plan EIR Travel Forecasting Model – TAZ 256	KPRMC Campus with Project
Hospital	962,000 SF	823,574 SF
Medical Office	434,000 SF	382,688 SF
General Office	362,000 SF	-
Total	**1,758,000 SF**	**1,206,262 SF**

Notes:
SF = square feet
Source: *Roseville 2035 General Plan Update Final EIR*, 2020. Kaiser Permanente, 2022.

Table 6 shows that the land use assumed for the General Plan EIR traffic analysis is greater than the total land use for the KPRMC Campus with the Project. Since the 2035 General Plan EIR traffic analysis assumed more development, it can reasonably be determined that the Project would generate less daily VMT than what was analyzed in the General Plan EIR. Therefore, pursuant to Section 4-9-A of the City's Design Standards, the Project would qualify for screening from additional VMT analysis, as the Project's VMT impact was considered in the General Plan EIR. This assessment is further supported by the analysis presented in **Appendix B**.

Impact 5: The proposed Project would not result in a geometric design feature that is inconsistent with applicable design standards.

The Project proposes closing existing Driveway 1 and adding Driveway 6 on Lead Hill Boulevard. Driveway 1 is about 150 feet west of a business park driveway on the north side of Lead Hill Boulevard. This driveway offset is inconsistent with City of Roseville Design & Construction Standard Detail ST-47 ("Minimum Driveway or Street Offset on Minor Arterial"). The proposed Driveway 6 location is consistent with City of Roseville Design and Construction Standards and Details (see Section 5-3 and Detail ST-46).

Driveway 6 would allow right-in, right-out, and left-in access, but prohibit left-turn egress by extending the existing raised median on Lead Hill Boulevard. The extended median would create mirrored left-turn pockets (westbound into Driveway 6 and eastbound into the business park) that are consistent with City of Roseville Design and Construction Standards section 5-6 ("Left Turn Deceleration/Acceleration Lanes for Driveways").

Other than the changes described above, the Project would not change the design of adjacent local roadways. Since the Project's proposed changes are consistent with the City's design standards and the Project would not result in a geometric design feature that is inconsistent with the City's design standards this impact would be **less than significant**.

Mitigation Measures

None required.

Impact 6: The proposed Project would not result in roadway and transportation facilities that impede access for emergency response vehicles.

The Project would close Driveway 1 and add Driveway 6 on Lead Hill Boulevard, which would be consistent with City design standards as described in Impact 5 above. Driveway 6 is forecasted to serve a similar level of traffic demand with the Project as Driveway 1 under baseline conditions (see weekday peak hour traffic volumes in **Figure 7** and **Figure 20**). Driveway 6 would be approximately the same distance to the emergency department ambulance bays as the existing Driveway 1. In summary, ambulances traveling to KPRMC would have about the same travel distance and mix with a similar level of traffic demand. Therefore, the Project would not impede ambulance access with the closure of Driveway 1 and addition of Driveway 6 on Lead Hill Boulevard.

The City of Roseville Fire Department Station No. 4 is located about one-half mile south of the Campus at 1900 Eureka Road, while City of Roseville Fire Department Station No. 6 is located about one mile north of the campus at 1430 East Roseville Parkway. The proposed Project would not result in changes to the roadway or transportation facilities that would block the access of fire department vehicles as they travel from either of these stations. Therefore, this impact would be **less than significant**.

Mitigation Measures

None required.

6. Traffic Operations Analysis

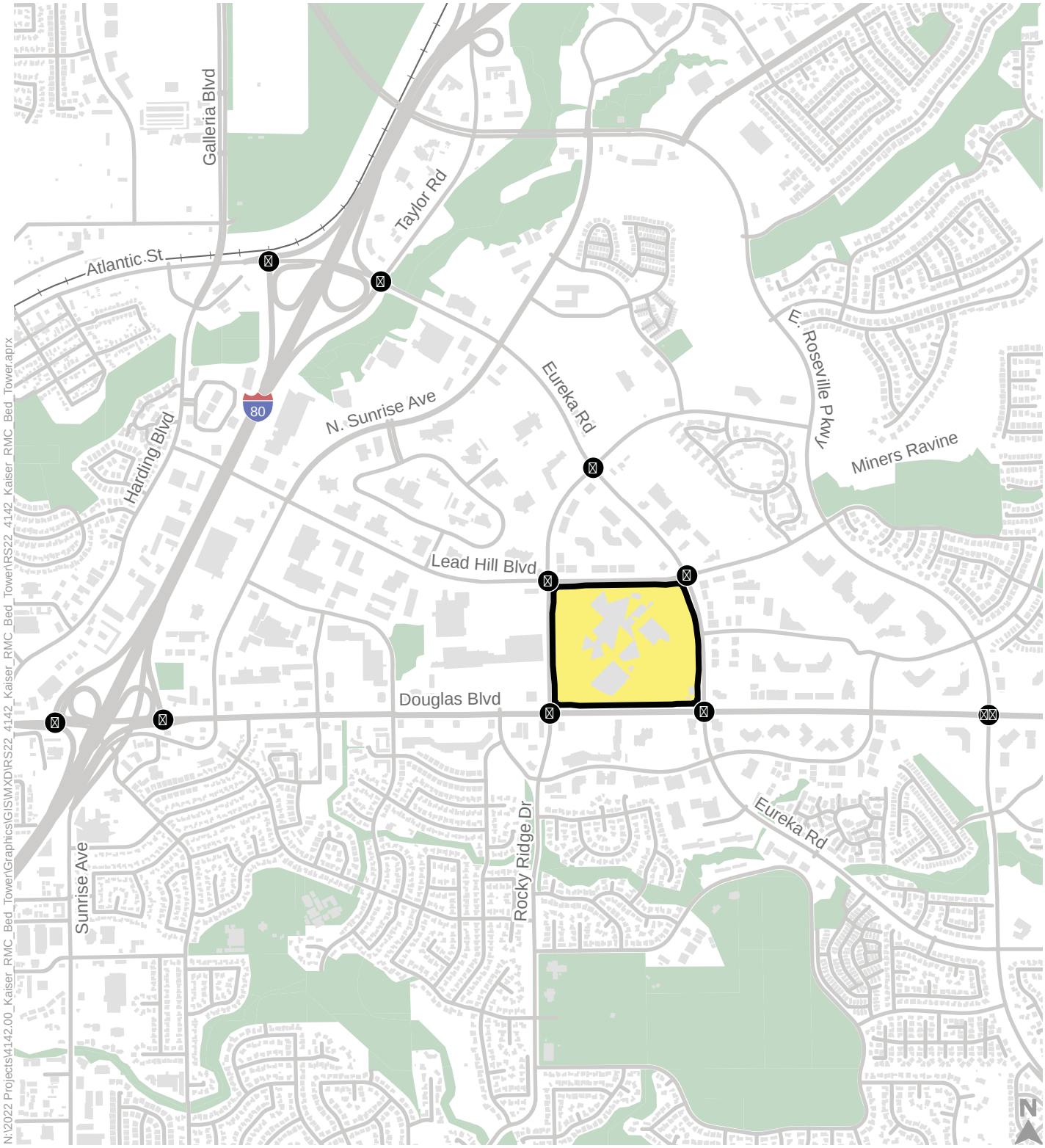
This chapter presents an analysis of the potential effects of the Project with respect to traffic operations (i.e., vehicle delay and LOS) at signalized intersections within the vicinity of the Project site.

Study Area and Periods

This study analyzes traffic conditions at the following ten study intersections during the weekday AM and PM peak hours (see **Figure 16**).

1. Atlantic Street / I-80 Westbound On-Ramp
2. Eureka Road / Taylor Road/I-80 Eastbound Ramps
3. Eureka Road / Rocky Ridge Drive
4. Lead Hill Boulevard / Rocky Ridge Drive
5. Lead Hill Boulevard / Eureka Road
6. Douglas Boulevard / I-80 Westbound Ramps
7. Douglas Boulevard / I-80 Eastbound Ramps
8. Douglas Boulevard / Rocky Ridge Drive
9. Douglas Boulevard / Eureka Road
10. Douglas Boulevard / East Roseville Parkway

These intersections were selected for analysis in consultation with City of Roseville staff and consider the Project's size, location, and generation and spatial distribution of vehicle trips.



Study Intersections

Kaiser Permanente Roseville Medical Center Campus

Figure 16

Study Intersections

Study Scenarios

Per the *City of Roseville Design and Construction Standards*, a Short-Term Traffic Study is sufficient when "the proposed land use is consistent with the General Plan, therefore the project's long-term impact is already accounted for via the City's Capital Improvement Program which was derived from the City-wide traffic model."

As described in Impact 4 in the Impact Assessment section, the proposed Kaiser Bed Tower Project is covered by the 2035 General Plan EIR and accounted for the City-wide traffic model. A trip generation analysis of the proposed Kaiser Bed Tower Project demonstrates that the Project generates fewer trips than the development assumed in the City's travel forecasting model (see **Appendix C**). Pursuant to Section 4-4 of the City's Design Standards, a Short-Term Traffic Study is sufficient to analyze the traffic effects of the proposed Project and a future scenario need not be analyzed.

Therefore, this study analyzes traffic conditions for the following scenarios:

- Baseline (2020) Conditions: represents pre-pandemic traffic conditions in February 2020. Specifically, this study reports the existing (2020) traffic analysis results from the *Transportation Impact Study for the Roseville Housing Element Update* (Fehr & Peers, 2021) for consistency.

- Baseline Plus Project: represents baseline (2020) conditions plus the proposed Kaiser Bed Tower Project.

Analysis Methodology

Motorized vehicle LOS is a qualitative measure of traffic flow from the perspective of motorists and is an indication of the comfort and convenience associated with driving. Typical factors that affect motorized vehicle LOS include speed, travel time, traffic interruptions, and freedom to maneuver. The *Highway Capacity Manual, 6th Edition* (HCM) documents empirical LOS criteria and methods of calculation (Transportation Research Board, 2016). The HCM defines six levels of service ranging from LOS A (representing free-flow vehicular traffic conditions with little to no congestion) to LOS F (oversaturated conditions where traffic demand exceeds capacity resulting in long queues and delays). The LOS definitions and calculations contained in the HCM are the prevailing measurement standard used throughout the United States and are used in this study. Motorized vehicle LOS definitions for signalized intersections are discussed below.

Signalized Intersections

The LOS at signalized intersections is based on the average control delay (i.e., delay resulting from initial deceleration, queue move-up time, time stopped on an intersection approach, and final acceleration) experienced per vehicle traveling through the intersection. **Table 7** summarizes the relationship between delay and LOS for signalized intersections.

Table 7: Level of Service Definitions – Signalized Intersections

Level of Service	Description	Average Control Delay[1]
A	Volume-to-capacity ratio is low and either progression is exceptionally favorable or cycle length is very short. Most vehicles arrive during the green phase and travel through the intersection without stopping.	< 10.0
B	Volume-to-capacity ratio is low, progression is highly favorable, and/or cycle lengths are short. More vehicles stop than with LOS A.	> 10.0 to 20.0
C	Progression is favorable or cycle length is moderate. 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.	> 20.0 to 35.0
D	Volume-to-capacity ratio is higher and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0
E	Volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	> 55.0 to 80.0
F	Volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	> 80.0

Notes:

1. Average control delay presented in seconds per vehicle.

Source: *Highway Capacity Manual, 6th Edition*. Transportation Research Board, 2016.

This study analyzes traffic operations at study intersections using the Synchro 11 traffic operations software program. Synchro 11 software applies the methodologies presented in the HCM 6th Edition, and considers peak hour traffic volumes, lane configurations, signal timings, signal coordination, and other pertinent parameters of intersection operations to calculate average control delay and LOS. Per City standards, the traffic operations analysis applies a 1.0 peak hour factor (PHF) for all movements at study intersections for all analysis scenarios.[2]

The study also uses the SimTraffic micro-simulation module of the Synchro 11 software to analyze weekday PM peak hour operations at intersections 1 through 3 (i.e., Eureka Road corridor from I-80 to Rocky Ridge Drive) and 6 through 10 (i.e., Douglas Boulevard corridor). SimTraffic accounts for interactions between intersections, queue spillback, vehicle platooning, etc. SimTraffic also produces more accurate estimates of vehicular queuing (when compared to more deterministic methods).

[2] The PHF measures the degree of peaking within the peak hour. A PHF of 1.0 represents uniform flow across all four 15-minute periods, while a PHF of 0.25 indicates all travel occurred during a single 15-minute window.

Traffic Operations Performance Criteria

The *City of Roseville General Plan Circulation Element* Policy CIRC2.1 requires that the City maintain a LOS C standard at a minimum of 70 percent of all signalized intersections and roadway segments in the City during the AM and PM peak hours.

The *Transportation Impact Study for the Roseville Housing Element Update* (Housing Element TIS) (Fehr & Peers, 2021) shows that 88 percent (AM peak hour) and 83 percent (PM peak hour) of signalized intersections operate at LOS C or better under existing (2020) conditions. The Housing Element TIS also forecasts 80 percent (AM peak hour) and 73 percent (PM peak hour) of signalized intersections in the City would operate at LOS C or better under cumulative conditions. These results indicate that traffic operations at signalized intersections in the City meet the minimum 70 percent requirement identified in Policy CIRC2.1 of the *Roseville General Plan* under both baseline (2020) and cumulative conditions.

The study intersections analyzed in this study are among the intersections the Housing Element TIS show as operating at LOS D or worse under existing (2020) conditions, as shown below:

2. Eureka Road / Taylor Road/I-80 Eastbound Ramps (LOS D during the PM peak hour)
3. Eureka Road / Rocky Ridge Drive (LOS D during the AM peak hour)
5. Eureka Road / Lead Hill Boulevard (LOS D during the AM and PM peak hours)
6. Douglas Boulevard / I-80 Westbound Ramps (LOS D during the PM peak hour)
8. Douglas Boulevard / Rocky Ridge Drive (LOS D during the PM peak hour)
9. Douglas Boulevard / Eureka Road (LOS D during the AM and PM peak hours)
10. Douglas Boulevard / East Roseville Parkway (LOS D during the AM and PM peak hours)

These seven intersections are also forecasted to operate at LOS D or worse under cumulative conditions in the Housing Element TIS. However, as noted above, the results in the Housing Element TIS demonstrate that traffic operations at signalized intersections in the City overall meet the minimum 70 percent requirement identified in Policy CIRC2.1 of the *Roseville General Plan* both under baseline (2020) and cumulative conditions. Therefore, it can be reasonably inferred that these LOS D or worse operations are expected with (and therefore, consistent with) the Roseville General Plan.

Baseline Conditions

This study presents traffic analysis results that reflect pre-COVID-19 pandemic traffic conditions to represent baseline (2020) conditions. Specifically, this study reports the existing (2020) traffic analysis results from the Housing Element TIS. These results are based on AM and PM peak period turning movement count data obtained from the City of Roseville traffic count database for mid-week days of February 20, 25, and 26, 2020.

Figure 17 presents the baseline (2020) weekday AM and PM peak hour traffic volumes, lane configurations, and traffic controls at each study intersection.

Table 8 presents the weekday AM and PM peak hour traffic operations at the study intersections under baseline (2020) conditions (refer to **Appendix D** for detailed calculations). This table shows seven of the 10 study intersections operate at LOS D or worse during the weekday AM and/or PM peak hours under baseline conditions.

Table 8: Peak Hour Intersection Operations – Baseline (2020) Conditions

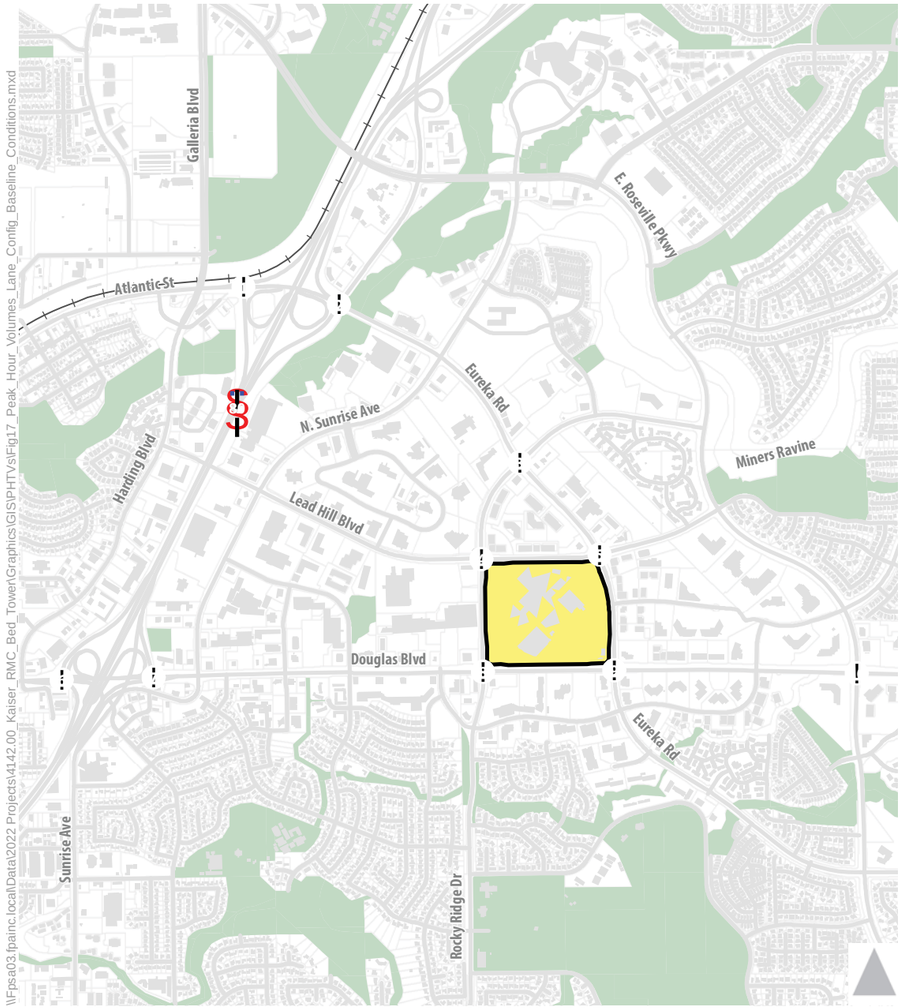
Intersection	Traffic Control	Peak Hour	Baseline Conditions	
			Delay[1]	LOS[2]
1. Atlantic St. / I-80 Westbound On-Ramp	Signal	AM	5.7	A [3]
		PM	10.2	B
2. Eureka Rd. / Taylor Rd./I-80 Eastbound Ramps	Signal	AM	24.7	C [3]
		PM	**54.0**	**D**
3. Eureka Rd. / Rocky Ridge Dr.	Signal	AM	**40.7**	**D**
		PM	31.4	C
4. Lead Hill Blvd. / Rocky Ridge Dr.	Signal	AM	17.4	B
		PM	27.7	C
5. Lead Hill Blvd. / Eureka Rd.	Signal	AM	**36.6**	**D**
		PM	**40.9**	**D**
6. Douglas Blvd. / I-80 Westbound Ramps	Signal	AM	21.2	C
		PM	**42.0**	**D**
7. Douglas Blvd. / I-80 Eastbound Ramps	Signal	AM	6.4	A [3]
		PM	9.1	A
8. Douglas Blvd. / Rocky Ridge Dr.	Signal	AM	22.5	C
		PM	**43.1**	**D**
9. Douglas Blvd. / Eureka Rd.	Signal	AM	**40.4**	**D**
		PM	**40.2**	**D**
10. Douglas Blvd. / E. Roseville Pkwy.	Signal	AM	**39.8**	**D**
		PM	**48.2**	**D**

Notes:

BOLD indicates LOS D or worse operations.

1. Average control delay for signalized intersections is the weighted average for all movements.
2. LOS = level of service calculated per the thresholds presented in Table 7.
3. Intersection analyzed using the HCM 2000 methodology due to unique intersection configurations that are incompatible with the HCM 6th Edition and HCM 2010 methodology.

Source: *Transportation Impact Study for the Roseville Housing Element Update*, Fehr & Peers, 2021.



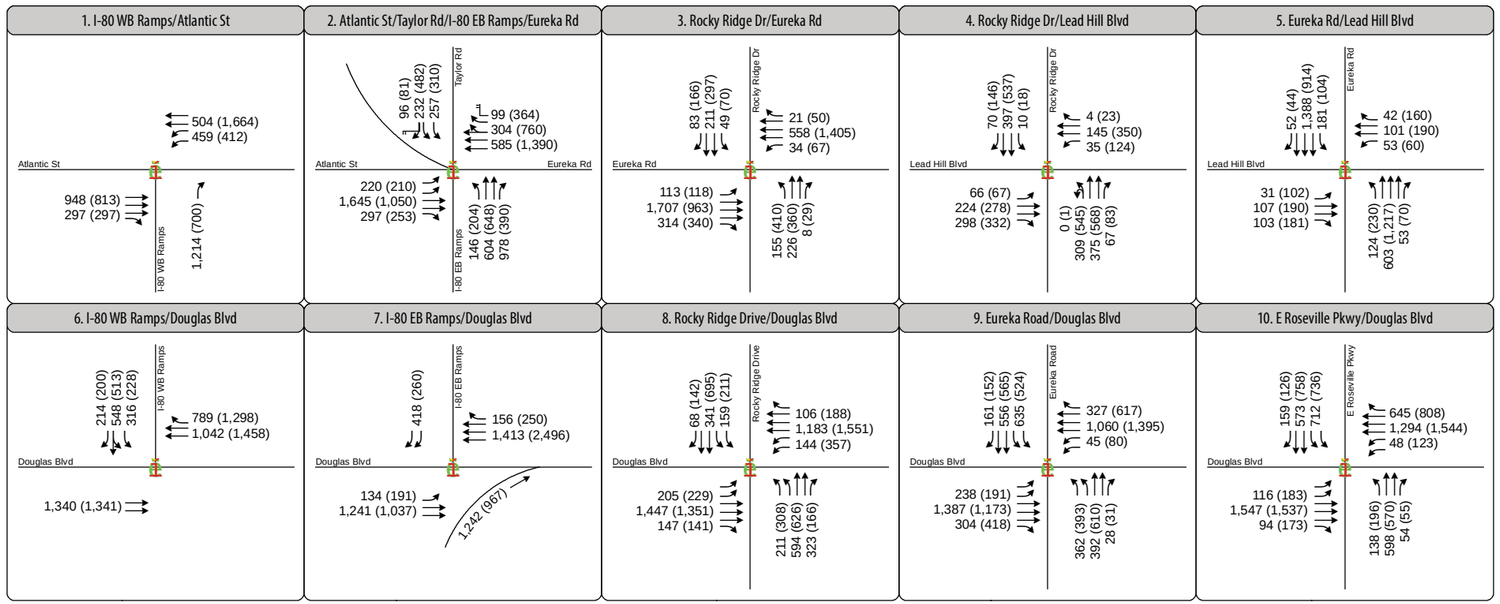


Figure 17

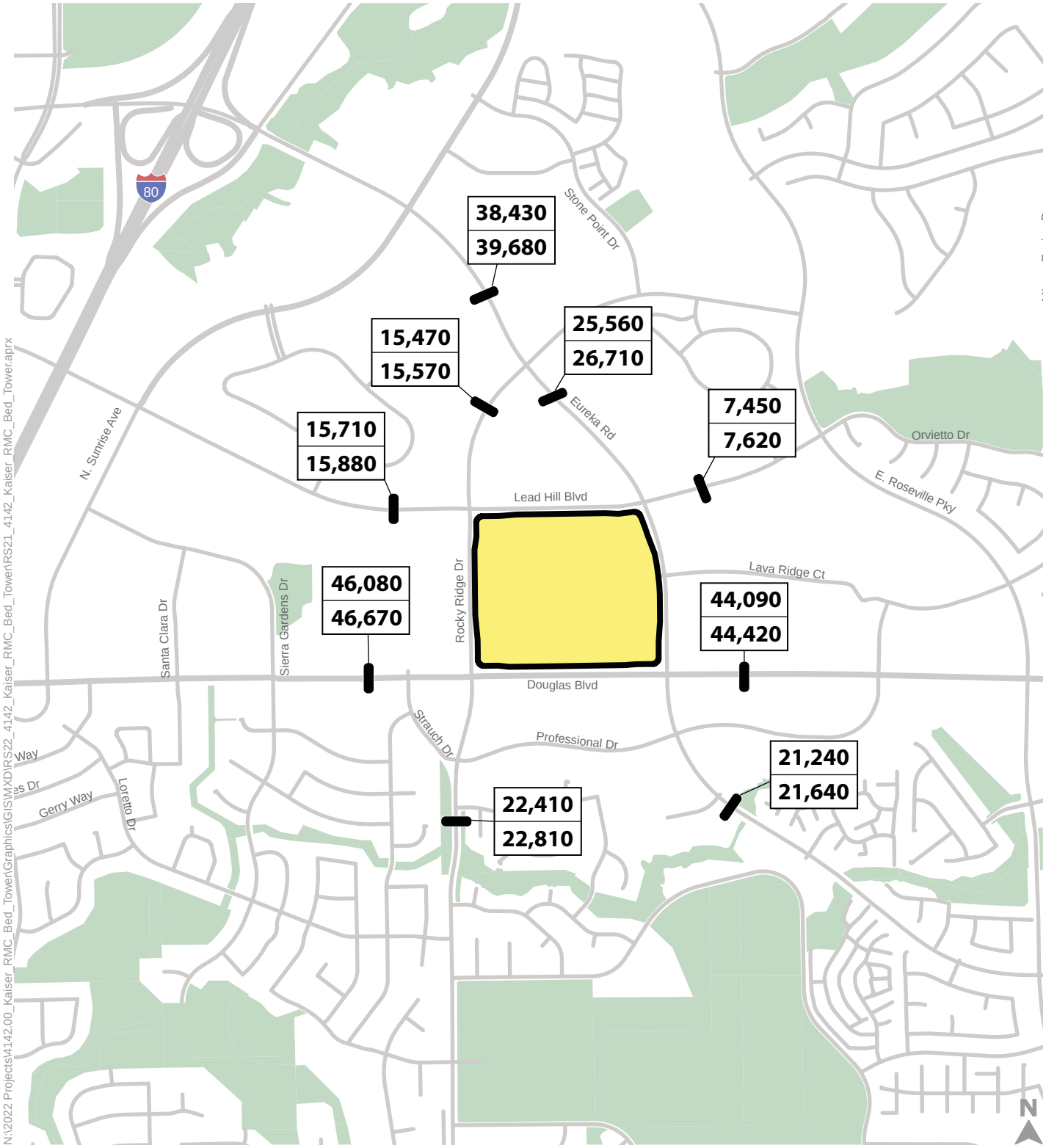
Peak Hour Traffic Volumes and Lane Configurations - Baseline (2020) Conditions

Baseline Plus Project Conditions

New vehicle trips generated by the proposed Project are assigned to the study intersections and Campus driveways in accordance with the project travel characteristics presented in Chapter 4 (Project Travel Characteristics). Specifically, the trips generated by the Project (see **Table 6**) are assigned to the roadway network according to the trip distribution presented in **Figure 12** (weekday daily), **Figure 13** (weekday AM peak hour), and **Figure 14** (weekday PM peak hour). The net increase in trips to the Campus generated by the Project are assigned to the new parking garage, which generally results in an increase in trips using the Lead Hill Boulevard and Eureka Road driveways (Driveways 2 and 3). The project trip assignment also considers the permitted turn movements (i.e., right-turn only restrictions) at the Campus driveways.

The net increase in Project trips are added to the baseline (2020) traffic volumes to yield baseline plus project forecasts. **Figure 17** presents the baseline plus project daily traffic forecasts on major roadways in the study area. These daily traffic volumes are presented for informational purposes only and not used for a roadway capacity or LOS analysis.

Figure 18 presents the weekday AM and PM peak hour project trip assignment at each study intersection. These Project trips are added to the baseline (2020) turning movement volumes (see **Figure 16**) to yield the baseline plus project weekday AM and PM peak hour forecasts at study intersections (see **Figure 19**). **Figure 20** presents the weekday AM and PM peak hour traffic forecasts at the Campus driveways under baseline plus project conditions.



Kaiser Permanente Roseville Medical Center Campus

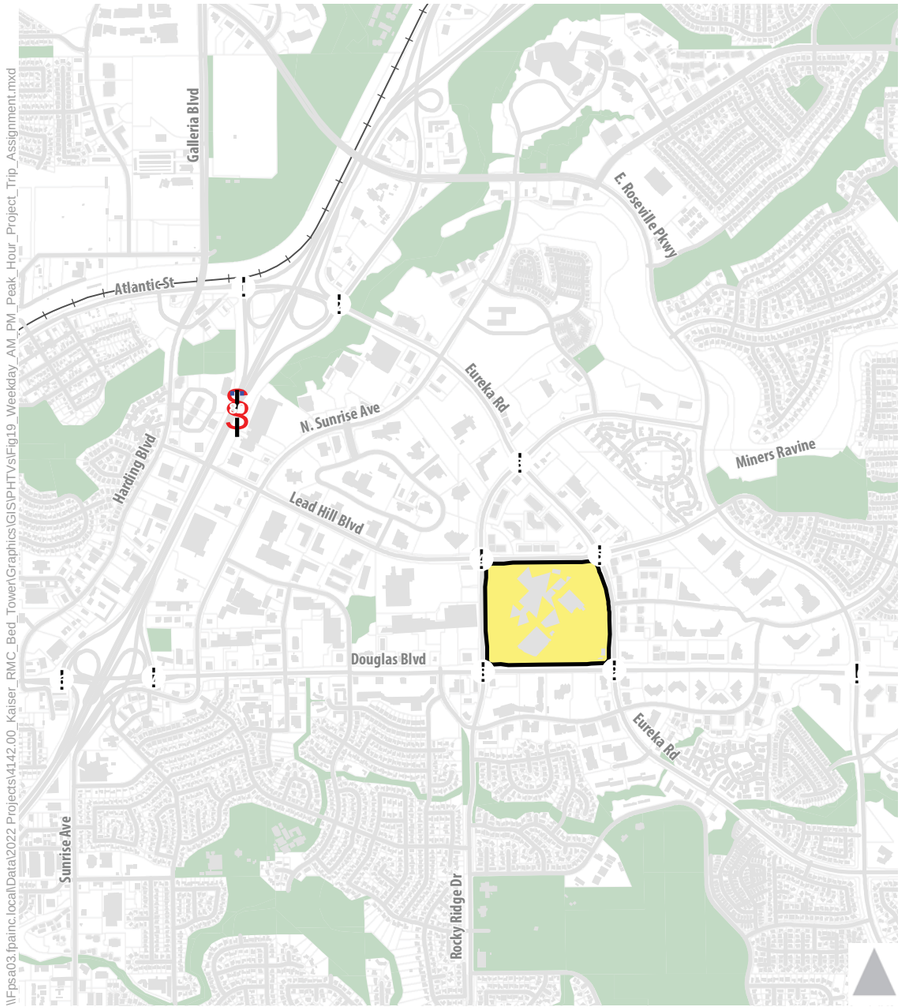
x,xxx
x,xxx

Baseline (2019) Daily Traffic Volumes

Baseline Plus Project Daily Traffic Forecasts

Figure 18

Baseline Plus Project Daily Traffic Forecasts



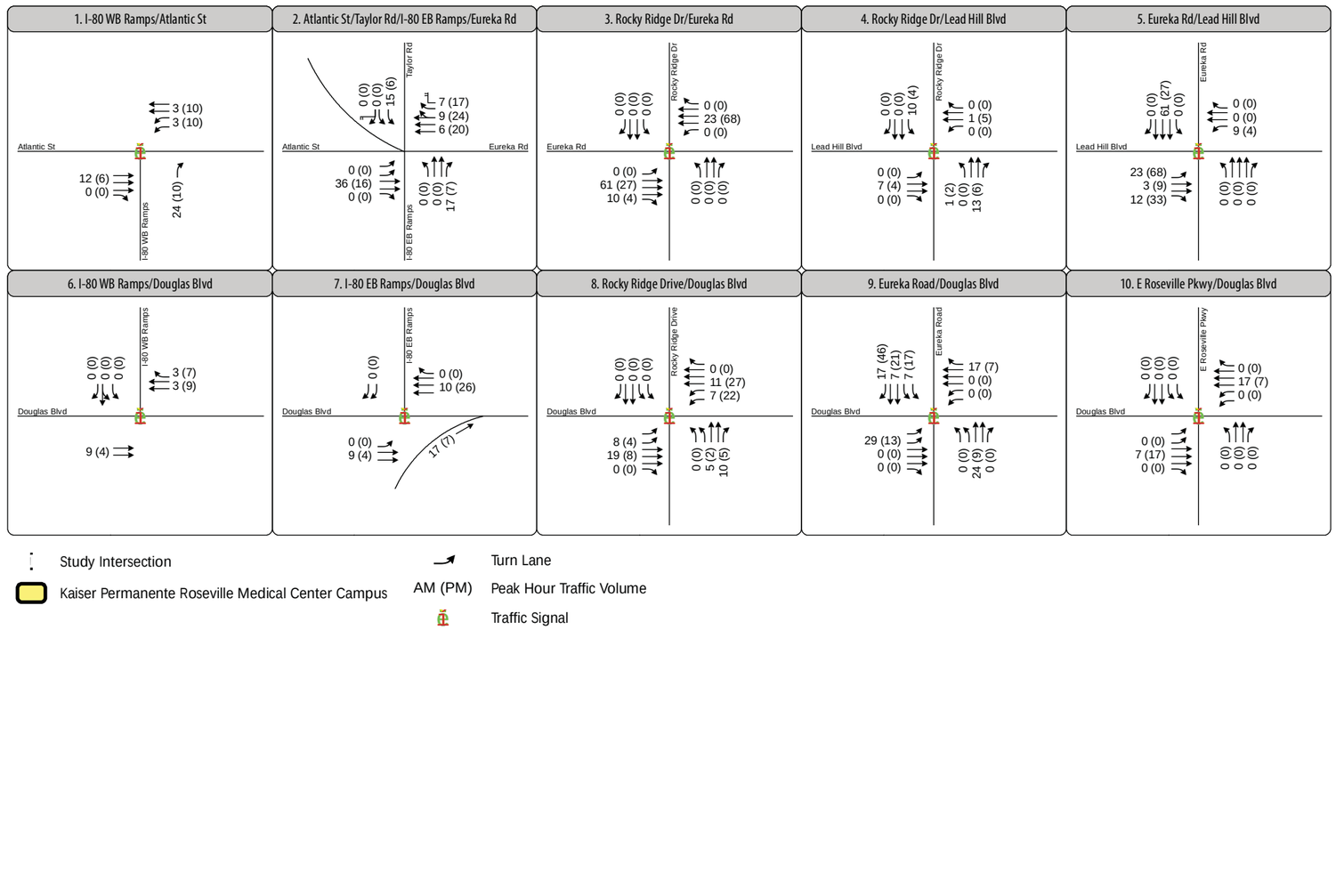
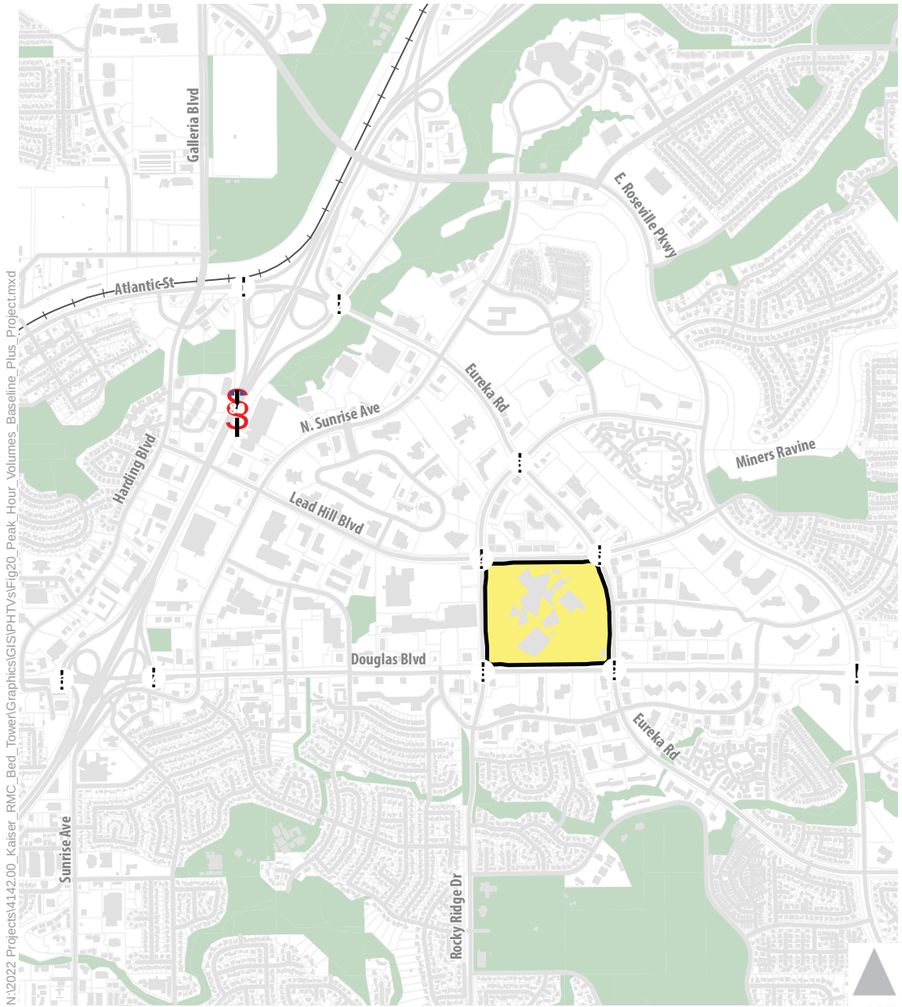


Figure 19

Weekday AM and PM Peak Hour
Project Trip Assignment



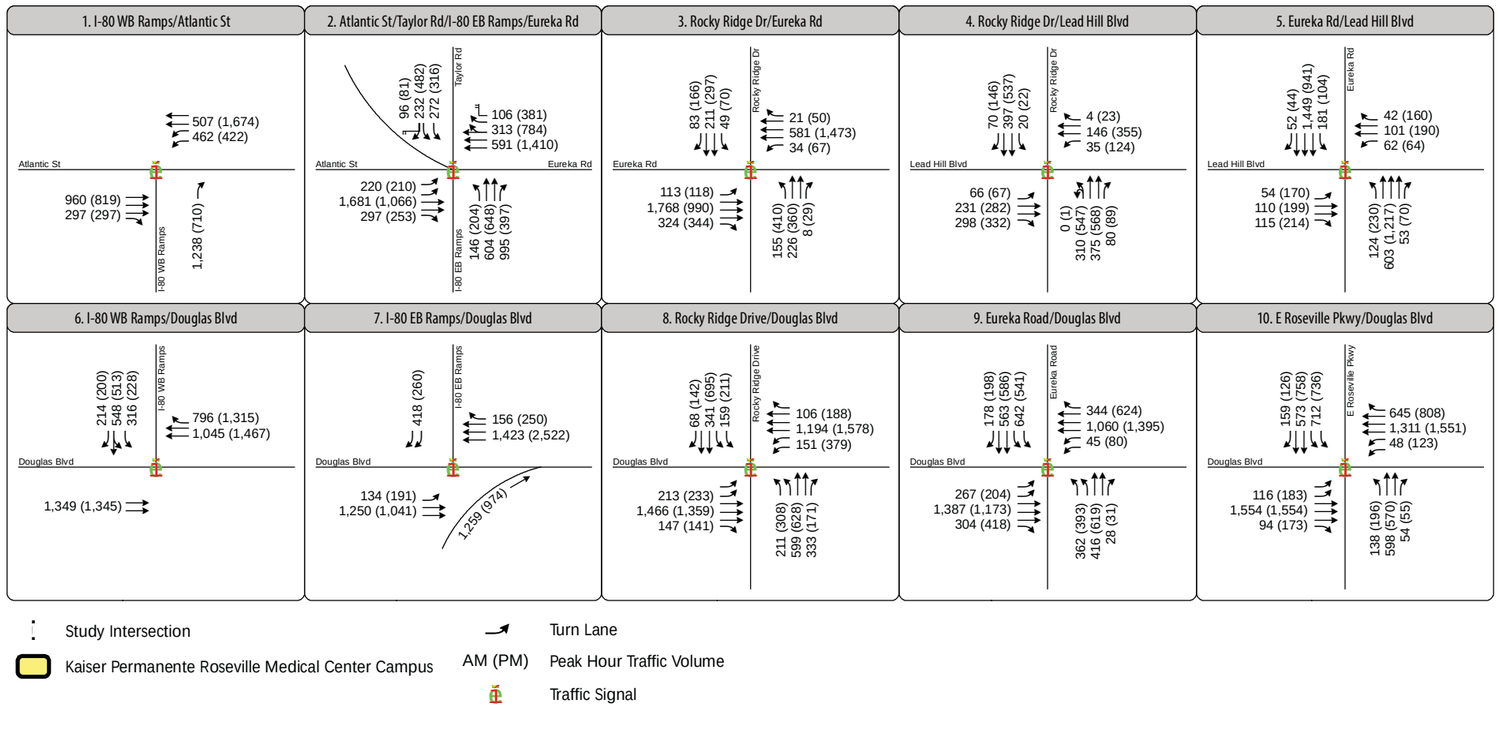
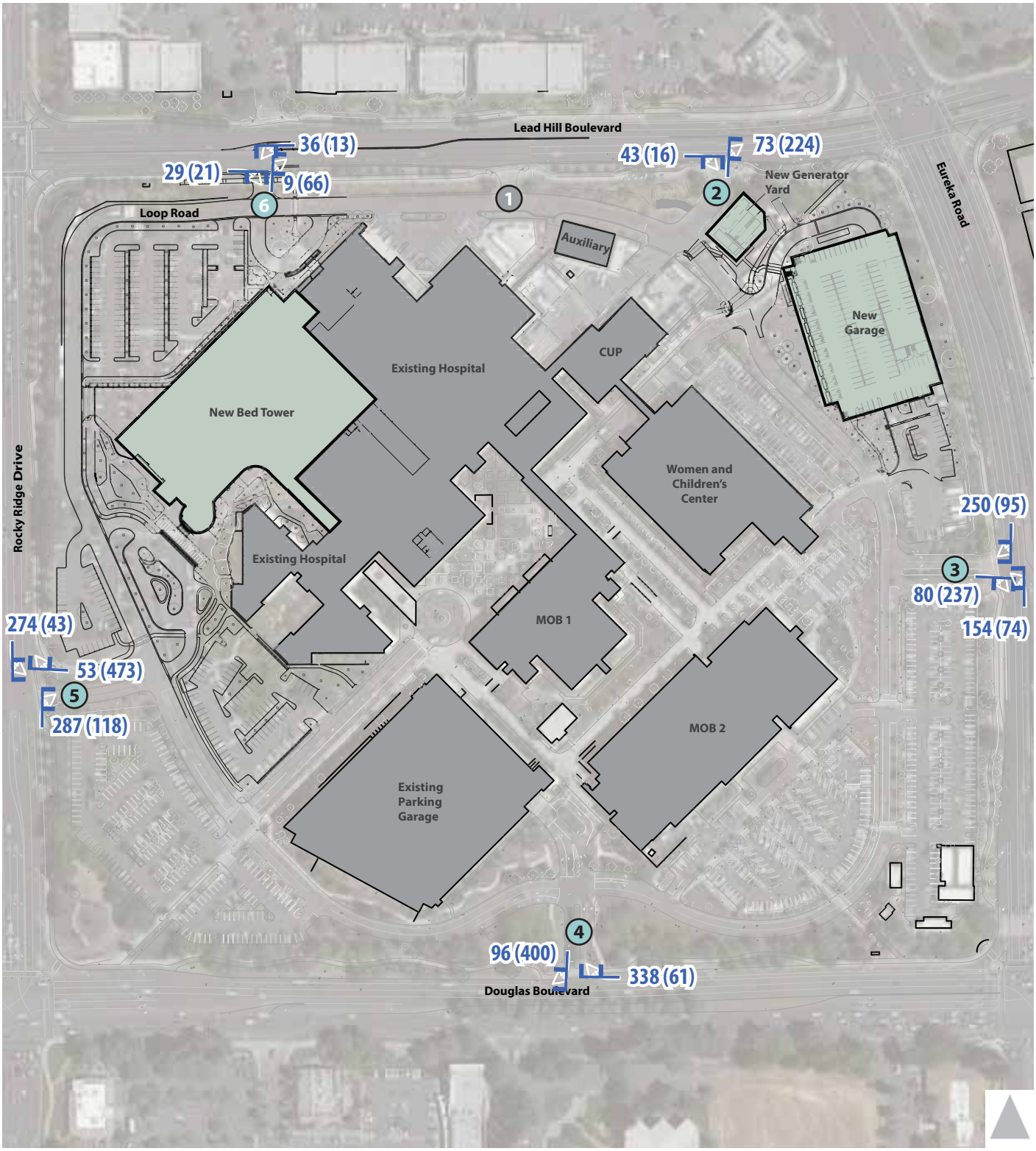


Figure 20

Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus Project Conditions



Permitted Turning Movement

AM (PM) Traffic Volume

1 Existing Campus Driveway

1 Closed Campus Driveway

1 New Campus Driveway

Figure 21

KPRMC Campus - Baseline Plus Project Driveway Forecasts

Table 9 presents the weekday AM and PM peak hour traffic operations at the study intersections under baseline plus project conditions (refer to **Appendix E** for detailed calculations). This table shows seven of the 10 study intersections operate continue to operate at LOS D or worse during the weekday AM and/or PM peak hours. However, none of the intersections degrade from their baseline LOS.

Table 9: Peak Hour Intersection Operations – Baseline Plus Project Conditions

Intersection	Traffic Control	Peak Hour	Baseline (2020) Conditions		Baseline Plus Project	
			Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Atlantic St. / I-80 Westbound On-Ramp	Signal	AM	5.7	A [3]	5.8	A [3]
		PM	10.2	B	9.4	A
2. Eureka Rd. / Taylor Rd./I-80 Eastbound Ramps	Signal	AM	24.7	C [3]	25.3	C [3]
		PM	**54.0**	**D**	**51.2**	**D**
3. Eureka Rd. / Rocky Ridge Dr.	Signal	AM	**40.7**	**D**	**42.5**	**D**
		PM	31.4	C	31.3	C
4. Lead Hill Blvd. / Rocky Ridge Dr.	Signal	AM	17.4	B	17.6	B
		PM	27.7	C	28.0	C
5. Lead Hill Blvd. / Eureka Rd.	Signal	AM	**36.6**	**D**	**37.1**	**D**
		PM	**40.9**	**D**	**41.5**	**D**
6. Douglas Blvd. / I-80 Westbound Ramps	Signal	AM	21.2	C	21.2	C
		PM	**42.0**	**D**	**44.5**	**D**
7. Douglas Blvd. / I-80 Eastbound Ramps	Signal	AM	6.4	A [3]	6.5	A [3]
		PM	9.1	A	9.7	A
8. Douglas Blvd. / Rocky Ridge Dr.	Signal	AM	22.5	C	22.6	C
		PM	**43.1**	**D**	**40.1**	**D**
9. Douglas Blvd. / Eureka Rd.	Signal	AM	**40.4**	**D**	**41.0**	**D**
		PM	**40.2**	**D**	**44.8**	**D**
10. Douglas Blvd. / E. Roseville Pkwy.	Signal	AM	**39.8**	**D**	**39.9**	**D**
		PM	**48.2**	**D**	**48.1**	**D**

Notes:

BOLD indicates LOS D or worse operations.

1. Average control delay for signalized intersections is the weighted average for all movements.
2. LOS = level of service calculated per the thresholds presented in Table 7.
3. Intersection analyzed using the HCM 2000 methodology due to unique intersection configurations that are incompatible with the HCM 6th Edition and HCM 2010 methodology.

Source: Fehr & Peers, 2022.

The results presented in **Table 9** show delay decreasing slightly at a couple study intersections during the PM peak hour. This slight decrease is likely the result of adding traffic to movements that experience less delay than the overall intersection average (i.e., resulting in a slight decrease in the weighted average), and variation that occurs when averaging the results of multiple microsimulation model runs.

Overall, the results presented in **Table 9** show the addition of Project trips is not expected to degrade traffic operations at any study intersection. All study intersections that operate at an acceptable LOS C or better continue to operate acceptably with the Project. Similarly, all study intersections that operate at LOS D or worse do not degrade to a worse LOS grade with the addition of Project trips. Therefore, the Project is not expected to have a substantial effect on traffic operations at signalized intersections in the study area.

7. Project Access and Circulation

This chapter presents an evaluation of the Campus access points and on-site Campus circulation. Specifically, this study evaluates the following:

- Estimate maximum vehicle queue lengths for outbound movements at Campus driveways.
- Estimate maximum vehicle queue lengths for left-turn ingress movements at Campus driveways.
- Evaluate proposed Campus access changes on Lead Hill Boulevard.
- Review of internal Campus circulation.

Driveway Throat Depth Evaluation

This study analyzes outbound vehicle queues to assess whether the Campus driveways provide adequate storage (i.e., driveway throat depth) to accommodate weekday AM and PM peak hour demand. **Table 10** presents the maximum outbound vehicle queues at the Campus driveways under baseline and baseline plus project conditions (refer to **Appendix F** for technical calculations). Note that baseline conditions results are based on Campus driveway counts collected in May 2019, consistent with traffic data presented in **Figure 7** and **Table 2**.

Table 10: Maximum Outbound Vehicle Queues at Campus Driveways

Driveway	Throat Depth[1]	Peak Hour	Maximum Vehicle Queue Length[2]	
			Baseline (2019) Conditions	Baseline Plus Project
Driveway 1 (Lead Hill Boulevard (center))	35 feet	AM	25 feet	Driveway Closed with Project
		PM	**75 feet**	
Driveway 2 (Lead Hill Boulevard (east))	125 feet	AM	50 feet	75 feet
		PM	100 feet	**150 feet**
Driveway 3 (Eureka Road)	150 feet	AM	75 feet	75 feet
		PM	150 feet	**175 feet**
Driveway 4 (Douglas Boulevard)	110 feet	AM	100 feet	100 feet
		PM	**275 feet**	**275 feet**
Driveway 6 (Lead Hill Boulevard (proposed – west))	35 feet	AM	Driveway Does Not Exist	25 feet
		PM		**75 feet**

Notes:

1. Driveway throat depths estimated based on aerial imagery and Campus site plan provided by the project applicant.
2. Maximum queue based on Exhibit 4-2 "Minimum Required Throat Depth for Right-Turn Only Movements (Unsignalized Project Driveways)" from the *City of Roseville Design and Construction Standards* (see **Appendix F**). Queue length in feet estimated assuming each vehicle occupies on average 25 feet of space.

BOLD indicates maximum vehicle queue exceeds the driveway throat depth.

Source: Fehr & Peers, 2022.

This analysis applies the nomograph shown as Exhibit 4-2 ("Minimum Required Throat Depth for Right-Turn Only Movements (Unsignalized Project Driveways)") from the *City of Roseville Design and Construction Standards*. Note that inbound vehicle queues are not evaluated since inbound movements do not yield at the Loop Road and field observations indicate minimal vehicle queues for entering traffic. Similarly, Driveway 5 on Rocky Ridge Drive is not evaluated since: (1) the outbound right-turn is a channelized free movement; (2) field observations indicate the driveway provides adequate storage for the occasional outbound queue when vehicles yield to northbound traffic on Rocky Ridge Drive; and (3) the driveway would experience a minimal increase in trips with the Project (one additional AM peak hour trip and two additional PM peak hour trips).

The following is recommended based on the results in **Table 10** (see **Figure 25**):

- Add "Keep Clear" pavement markings and "Do Not Block Intersection" signage (CAMUTCD R10-7) at the Loop Road intersection with Driveway 6 (i.e., new driveway on Lead Hill Boulevard).[3]
- Add "Do Not Block Intersection" signage (CAMUTCD R10-7) to the southbound stop sign on the Loop Road at the intersection with Driveway 3 (i.e., Eureka Road driveway).[4]

Table 10 shows that the maximum vehicle queue at Driveway 4 extends beyond the Loop Road intersection during the weekday PM peak hour. However, the Project does not add to this maximum queue and improvements to reduce vehicle queues are infeasible;[5] therefore, no changes are recommended.

Table 10 shows that maximum vehicle queue length is 25 feet more than the provided throat depth at Driveways 2 and 3 under baseline plus project conditions. Field observations at these driveways show that the maximum queue occurs infrequently, and that vehicle queues are often a "rolling queue" as vehicles find gaps on the adjacent roadway. Therefore, these maximum queues are unlikely to greatly impact circulation on the Loop Road or inbound movements onto the Campus. When maximum queue events occur, the queue would shorten relatively quickly as vehicles depart the driveway onto the major roadway.

Left-Turn Ingress Movements

This study analyzes the maximum left-turn ingress vehicle queues to assess the adequacy of left-turn storage to accommodate weekday AM and PM peak hour demand. **Table 11** presents the maximum vehicle queues for left-turn ingress movements under baseline and baseline plus project conditions (refer to **Appendix F** for technical calculations). All left-turn ingress movements occur at unsignalized locations where the left-turns yield to on-coming traffic. Therefore, this study estimates the maximum vehicle

[3] Relocation of the Loop Road to increase throat depth is not feasible due to the proximity of existing parking.

[4] This signage is only recommended for this approach because southbound motorists queuing in the intersection could potentially block the flow of inbound traffic. This would not occur on northbound approach.

[5] Relocation of the Loop Road to increase throat depth is not feasible due to the proximity of the existing parking garage and MOB II. Reconfiguring Driveway 4 to provide free right-turn movements for outbound trips is infeasible since it would create a potentially hazardous weaving section between Driveway 4 and Rocky Ridge Drive on Douglas Boulevard.

queues for these left-turns using the *Estimation of Maximum Queue Lengths at Unsignalized Intersections* (ITE Journal, November 2001) methodology. Note that baseline conditions results are based on Campus driveway counts collected in May 2019, consistent with traffic data presented in **Figure 7** and **Table 2**.

Table 11: Maximum Vehicle Queues – Left-Turn Ingress at Campus Driveways

Movement/Driveway	Storage[1]	Peak Hour	Maximum Vehicle Queue Length[2]	
			Baseline (2019) Conditions	Baseline Plus Project
Westbound left-turn at Driveway 1 (Lead Hill Boulevard)	125 feet[3]	AM	75 feet	Driveway Closed with Project
		PM	50 feet	
Northbound left-turn at Driveway 3 (Eureka Road)	200 feet	AM	100 feet	150 feet
		PM	100 feet	100 feet
Southbound left-turn at Driveway 5 (Rocky Ridge Drive)	225 feet[4]	AM	200 feet	225 feet
		PM	100 feet	100 feet
Westbound left-turn at proposed Driveway 6 (Lead Hill Boulevard)	225 feet	AM	Driveway Does Not Exist	75 feet
		PM		50 feet

Notes:

1. Left-turn pocket storage estimated based on aerial imagery and Campus site plan provided by the project applicant. Represents the striped left-turn length (i.e., excludes taper).
2. Maximum queue based on Estimation of Maximum Queue Lengths at Unsignalized Intersections (ITE Journal, November 2001) methodology. See **Appendix F** for calculations.
3. Left-turn occurs from a center two-way left-turn lane with no marked left-turn pocket. The storage (125 feet) represents the distance between the Lead Hill Boulevard (center) driveway and the adjacent driveway to the business park on the north side of Lead Hill Boulevard.
4. Left-turn occurs from a striped left-turn lane within a center two-way left-turn lane. The storage (225 feet) represents the striped left-turn lane length, although approximately 200 feet of additional storage (i.e., 425 feet total) is available within the center two-way left-turn lane before a raised median prevents entry into the center two-way left-turn lane.

Source: Fehr & Peers, 2022.

Table 11 shows the left-turn pockets analyzed for this study provide adequate storage to accommodate the maximum vehicle queues during the weekday AM and PM peak hours under both baseline (2019) and baseline plus project conditions.

Lead Hill Boulevard Access Evaluation

The Project's proposed closure of Driveway 1 and addition of Driveway 6 on Lead Hill Boulevard would address several issues:

- Driveway 1 is currently located on the south of Lead Hill Boulevard about 150 feet west of an existing business park driveway on the north side of the street. This "offset" is inconsistent with City design standards, as described in Impact 5 (see above).

- The Project would eliminate Driveway 1 and construct Driveway 6 on Lead Hill Boulevard. The proposed location of Driveway 6 is consistent with City design standards, as described in Impact 1 and Impact 5 above.
- Since Driveway 1 currently permits all movements (see **Figure 2**), it would have experienced in a notable increase in traffic demand given its proximity to the new parking garage if it remained in its current configuration, particularly for left-turn ingress and egress movements. This would have increased potential left-turn ingress conflicts in the existing center two-way left-turn lane given the proximity to the business park driveway.
- Driveway 1's short throat depth (see **Table 10**) would have resulted in vehicle queues that would potentially block inbound traffic and hinder circulation on the internal Loop Road.
- Driveway 6 is located further from the new parking garage and prohibits outbound left-turns. This results in lower traffic demand, which is particularly important given the driveway's short throat depth necessitated by the proximity of the internal Loop Road and need to maintain nearby parking.

In addition to the Project's proposed changes, this study recommends the following off-site modifications to Lead Hill Boulevard (see **Figure 22**):

1. Widen and extend the existing raised median in the eastbound left-turn pocket approaching Eureka Road as shown on **Figure 22**.
2. Add a "No U-turn" sign (CAMUTCD R3-4) facing westbound traffic in the widened median.
3. Configure westbound left-turn pocket at Driveway 6 with raised medians as shown on **Figure 22** to prevent outbound trips from the business park driveway on the north side of Lead Hill Boulevard from using it.

Recommendations 1 and 2 above address potential inappropriate vehicle movements at Driveway 2. Although Driveway 2 is designed for right-in/right-out access, the traffic counts show occasional drivers making left-turn ingress and egress movements. Drivers can conceivably make these left-turn movements since the raised median on Lead Hill Boulevard is narrow and ends approximately 50 feet west of Driveway 2 where it transitions into a center two-way left-turn lane. With the addition of the new parking garage, potential demand to make these left-turn movements may increase. Recommendations 1 and 2 would discourage and reduce the occurrence of these left-turn movements.

Similarly, drivers leaving the business park driveway opposite Driveway 6 may be inclined to cleverly maneuver into the new westbound left-turn pocket. Recommendation 3 above is intended to discourage this movement.

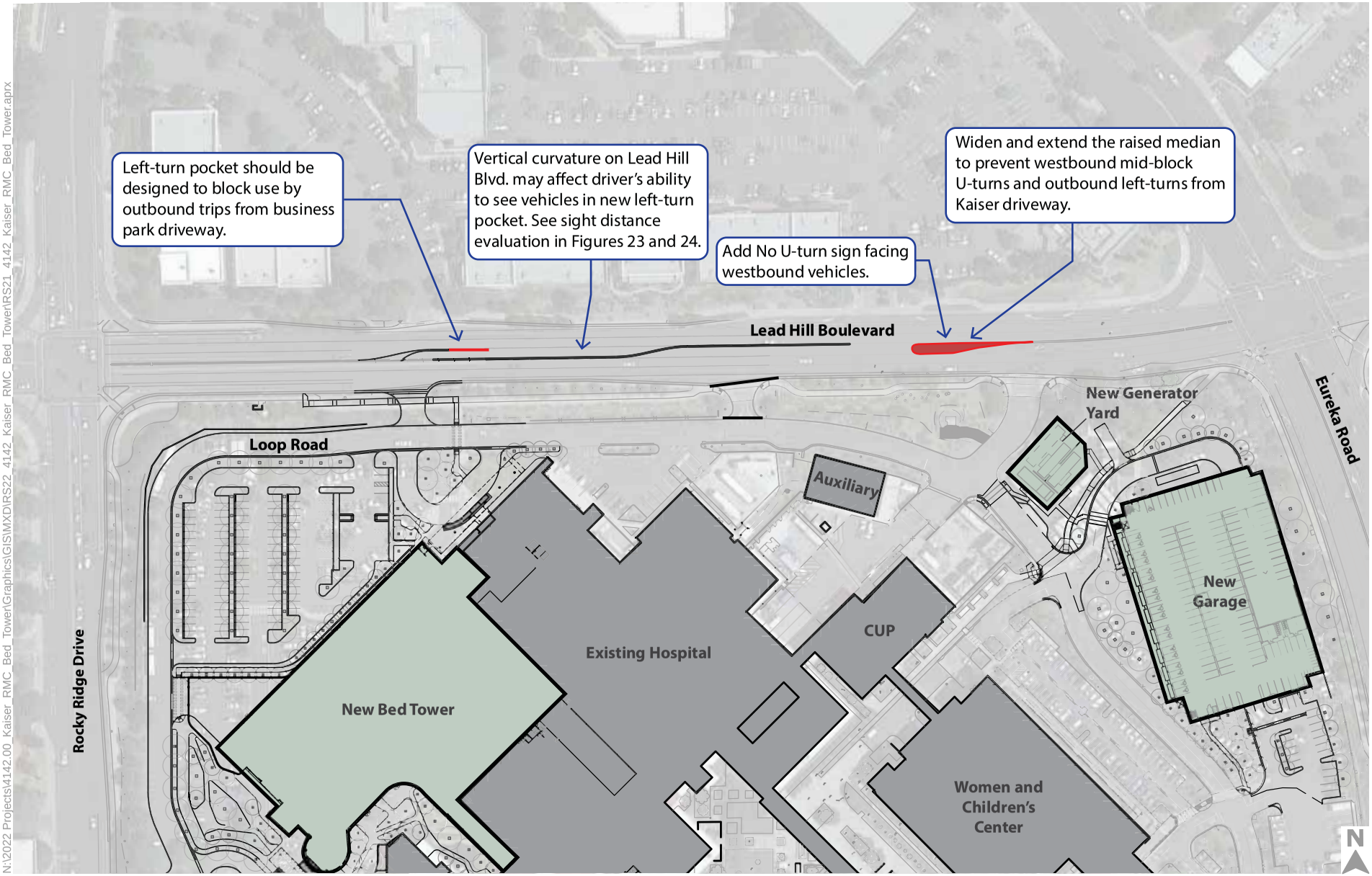


Figure 22

Lead Hill Boulevard Recommendations

Sight Distance Evaluation

Lead Hill Boulevard features a crest vertical curve along the Campus's frontage, which may affect a westbound driver's sight lines of vehicles waiting in the proposed westbound left-turn pocket at Driveway 6. Therefore, this study conducts a stopping sight distance evaluation using guidance from *A Policy on Geometric Design of Highways and Streets, 7th Edition* (American Association of State Highway and Transportation Officials (AASHTO)), also known as the "AASHTO Green Book."

The stopping sight distance analysis considers following data and guidance from Section 3.2 of the AASHTO Green Book:

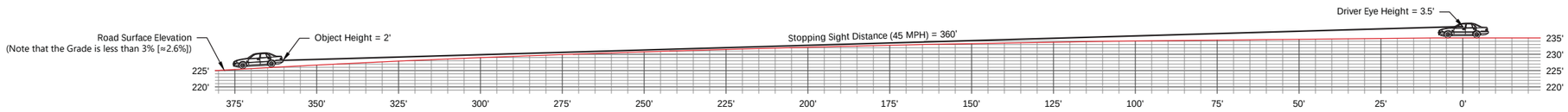
- The City of Roseville Engineering and Traffic Survey of Lead Hill Boulevard identifies an 85th percentile speed of 44.9 MPH for this roadway segment. Therefore, this stopping sight distance analysis uses a design speed of 45 MPH (i.e., 5 MPH above the posted 40 MPH speed limit), which correlates to a stopping sight distance of 360 feet per Table 3-1 of the AASHTO Green Book.
- The height of the driver's eye is considered to be 3.5 feet above the road surface, per section 3.2.6.1 of the AASHTO Green Book.
- The height of object is considered to be 2.0 feet above the road surface, per section 3.2.6.2 of the AASHTO Green Book.

The degree of slope on Lead Hill Boulevard progressively increases as it travels west from its high point near Driveway 1 towards the proposed Driveway 6. Based on an iterative review of placement of driver eye and subject vehicle along Lead Hill Boulevard, a single vehicle queued in the proposed westbound left-turn pocket represented a "worst-case" scenario for driver sight lines. **Figure 23** presents the stopping sight distance analysis for a single vehicle queue in the westbound left-turn pocket.

This study also evaluates stopping sight distance for the forecasted maximum three vehicle queue in the proposed westbound left-turn pocket. **Figure 24** presents the stopping sight distance analysis for this condition.

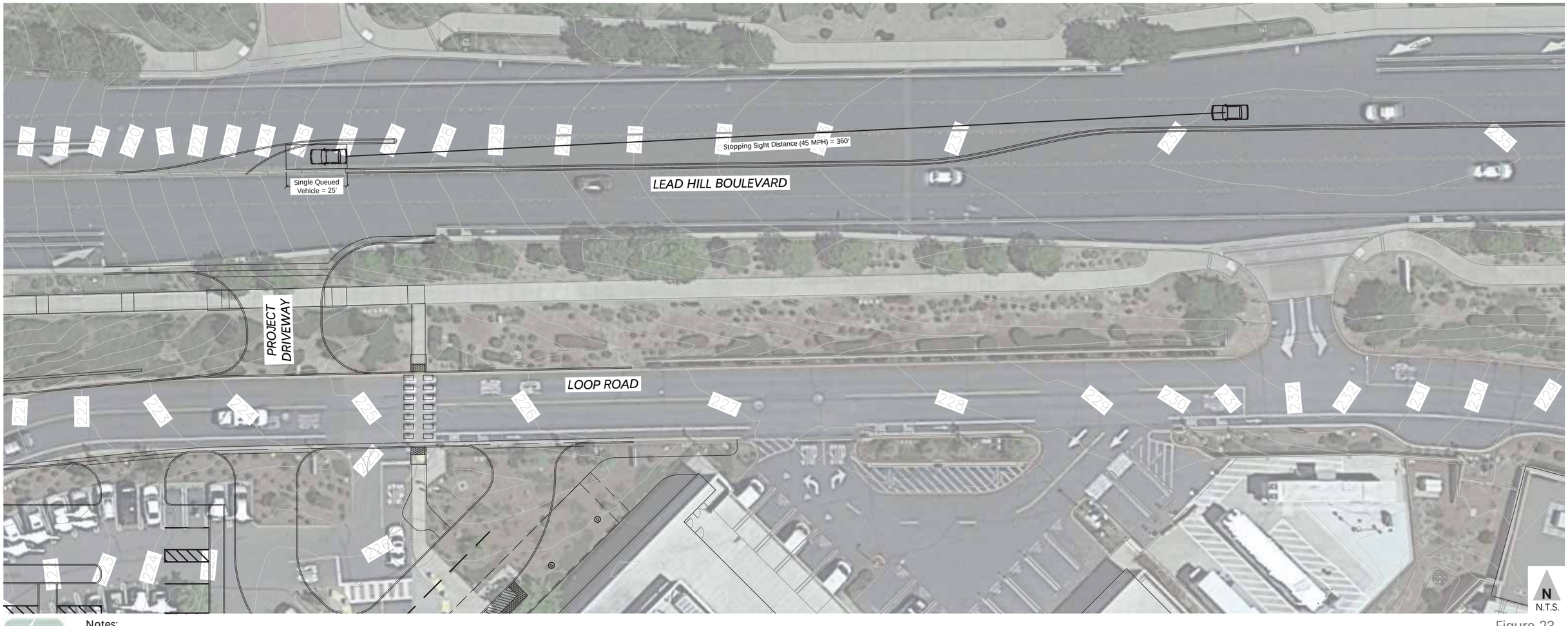
Figure 23 and **Figure 24** indicate that the driver sightline (shown in black) would remain above the pavement (shown in red) for the entirety of the sightline. Therefore, the proposed placement and design of Driveway 6 would provide adequate stopping sight distance per the AASHTO Green Book standards.

Motorists waiting in the westbound left-turn lane at Driveway 6 would have an adequate sightline of oncoming eastbound traffic due to the considerable drop in grade immediately west of the driveway. The Lead Hill Boulevard / Rocky Ridge Drive intersection's elevation is about 10 feet below that of the westbound left-turn into Driveway 6.



Stopping Sight Distance on Crest Vertical Curve

Stopping Sight Distance Calculated Per 'The Green Book, A Policy on Geometric Design of Highways and Streets' AASHTO 2018, 7th Edition, Chapter 3.2 Sight Distance



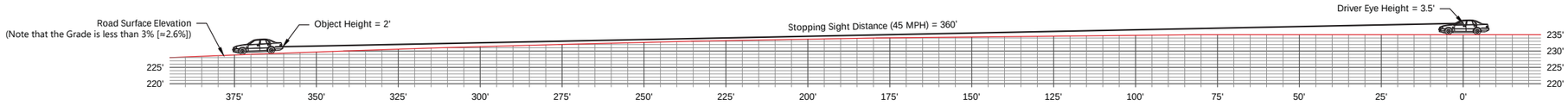
Notes:

1. Topographic Map of Lead Hill Boulevard and Site Plan Base Mapping Provided by BKF Engineers, August 2022
2. On-Site Measurements Have Not Been Performed to Confirm this Finding.

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.

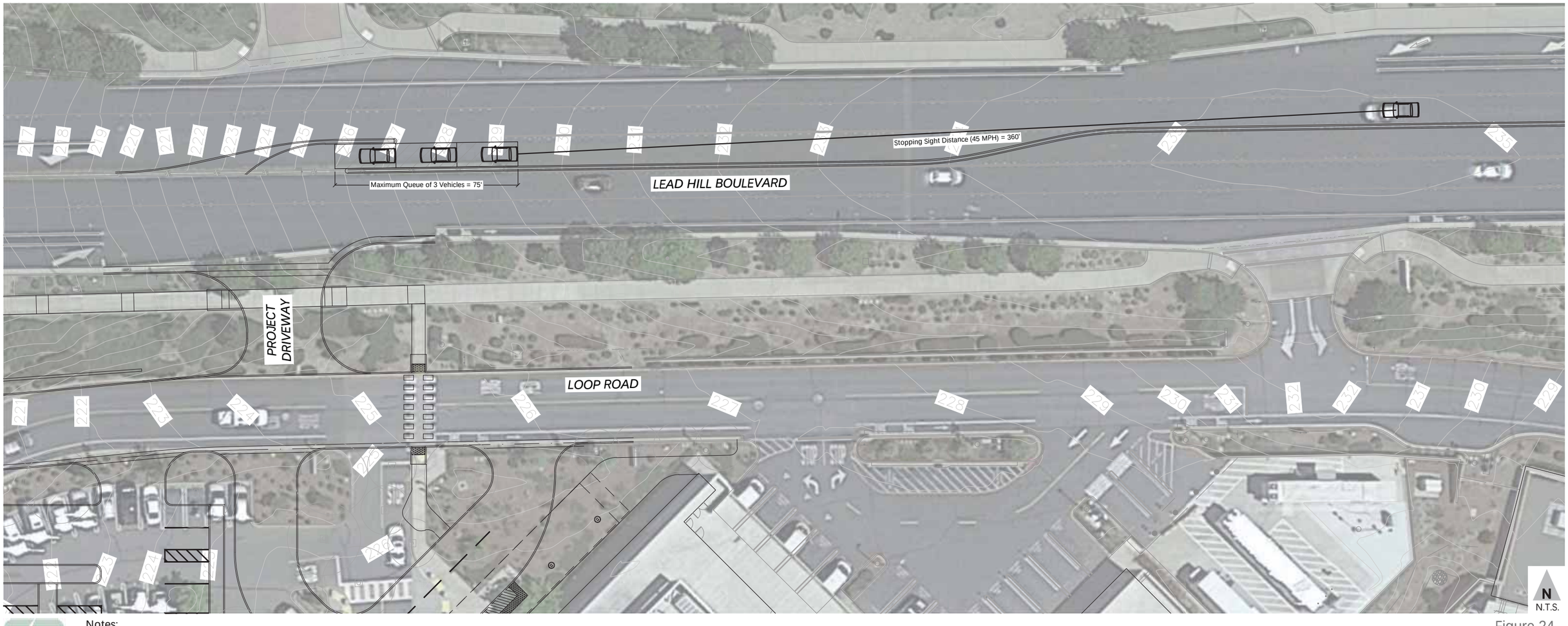
Figure 23

Stopping Sight Distance
Lead Hill Boulevard - Westbound 25' Queue



Stopping Sight Distance on Crest Vertical Curve

Stopping Sight Distance Calculated Per 'The Green Book, A Policy on Geometric Design of Highways and Streets' AASHTO 2018, 7th Edition, Chapter 3.2 Sight Distance



Notes:

1. Topographic Map of Lead Hill Boulevard and Site Plan Base Mapping Provided by BKF Engineers, August 2022
2. On-Site Measurements Have Not Been Performed to Confirm this Finding.

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.

Figure 24

Stopping Sight Distance
Lead Hill Boulevard - Westbound 75' Queue

Campus Circulation Evaluation

Figure 4 shows the Project's proposed changes to Campus circulation, including the relocation of the Loop Road, a new main hospital entrance and drop off area, and new or relocated pedestrian crossings. **Figure 5** shows the vehicular and pedestrian circulation with the proposed Project.

Vehicular Circulation

The Loop Road would continue to provide vehicular circulation around the perimeter of the KPRMC Campus. The Loop Road would provide direct access to most parking areas on the Campus, including the reconfigured surface parking lots in the northwest portion of the Campus and the new parking garage. Existing parking access points along the Loop Road are either side-street or all-way stop-controlled. Therefore, this study recommends that the new or modified access points along the Loop Road also be stop-controlled at locations shown in **Figure 25**.

Pedestrian Circulation

The Project proposes sidewalks along the inside of the relocated Loop Road in the northwest quadrant of the Campus. **Figure 3** and **Figure 5** show crosswalks across the Loop Road connecting to surface parking lots, adjacent roadways, and Project components, such as the generator yard and new parking garage.

An existing crosswalk across the Loop Road near the ED drop off provides a pedestrian facility between the Campus and Lead Hill Boulevard. The Project site plan shows this crosswalk would remain at its current location, which is approximately 40 feet (less than two car lengths) east of the proposed new driveway, Driveway 6 (measured from edge of curb return to the center of the crosswalk). Given the location's proximity to the new driveway, westbound vehicle queues approaching Driveway 6 would periodically block the crosswalk, and eastbound vehicles yielding to a crossing pedestrian could block inbound traffic from Driveway 6. Therefore, this study recommends moving the crosswalk to the west side of Driveway 6, as described in the Recommendations below.

Recommendations

This study recommends several enhancements or modifications to facilitate on-site vehicle and pedestrian circulation. **Figure 25** illustrates these recommendations on the Campus site plan. These recommendations include:

- **Relocate the northeast drive aisle opening to Parking Lot 5 further west.** The current location is very close to the proposed Driveway 6 and entrance to the ED drop off area. This leaves minimal throat depth for eastbound vehicles queued on the Loop Road. Relocating this access provides more throat depth on the Loop Road and shifts vehicle movements into and out of Parking Lot 5 further from Driveway 6.
- **Move the crosswalk across the Loop Road and the associated sidewalk to the west side of Driveway 6.** This would address the awkward spacing and queuing issues described above

creating a more intuitive intersection design at Driveway 6. It would also provide a more logical pedestrian circulation pattern that is on the outside of the ED drop-off roadway.

- **Add "Keep Clear" pavement marking and "Do Not Block Intersection" signage at the Driveway 6 / Loop Road intersection**. Due to Driveway 6's short driveway throat, a two-vehicle queue would extend partially onto the Loop Road, and the occasional three-vehicle maximum queue would potentially block both inbound movements and circulation on the Loop Road. Therefore, this study recommends "Keep Clear" pavement markings and "Do Not Block Intersection" signage (CAMUTCD R10-7).

- **Relocate the fence and restrict landscaping height along the Loop Road to the west of the new parking garage**. The proposed northern access to the new garage would occur at the existing northern drive aisle to Parking Lot 10. A field review of this location shows the existing fence and landscaping along the east side of the Loop Road interferes with driver's sightline of approaching vehicles on the Loop Road from the south – see image taken from this location below (note that the parked vehicles in the image would be replaced with landscaping with the Project).

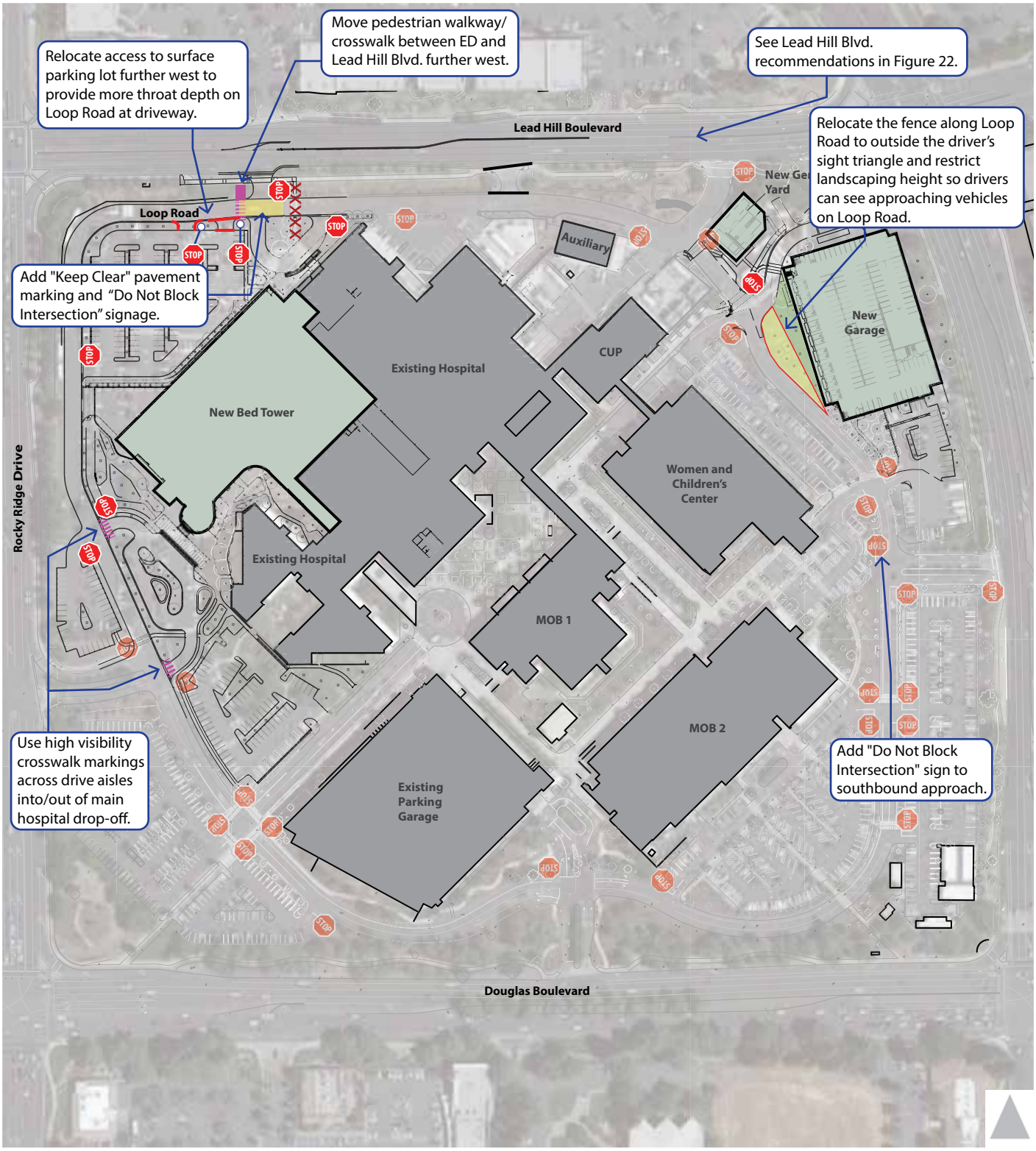
Image: Existing access to Lot 10 at Loop Road looking south. Approximate location of the proposed northern access to new garage at the Loop Road.

Although the fence is relatively short (approximately two feet tall), the descending grade of the Loop Road positions the intersection several feet below approaching vehicles. During a field visit to the location, the combination of the fence, horizontal curvature, and descending grade made approaching passenger cars on the Loop Road visible for less than one second.

Therefore, this study recommends moving the fence outside the driver's sight triangle and restricting landscape material height such that drivers can adequately see approaching vehicles on the Loop Road. **Figure 25** illustrates the area to the west of the new parking garage where landscape material should have a restricted height. The fence should also be relocated outside this area.

- **Add "Do Not Block Intersection" sign to southbound approach of Loop Road at Driveway 3**. A southbound left-turning vehicle from the Loop Road would have the potential to inhibit ingress movements if it blocks the intersection when moving to enter the back of vehicle queue. Therefore, this study recommends "Do Not Block Intersection" signage (CAMUTCD R10-7) be placed on the southbound approach.

- **Apply high visibility crosswalk marking across the drive aisles into and out of the proposed main hospital drop-off area.** The Project site plan does not show any crosswalk markings at the drive aisles into and out of the proposed new main hospital drop-off area. This study recommends high visibility crosswalk markings at these locations given the potential pedestrian demand between the new main hospital entrance and adjacent surface parking lots, and the number of vehicles entering and exiting the drop-off area.



Existing Stop Sign

New Stop Sign

Figure 25

Campus Access & Circulation Recommendations

Appendix A:
Campus Trip Generation Data

Appendix B: Consistency with Roseville General Plan EIR Assessment

FEHR PEERS

Appendix C:
City Travel Forecasting Model
Trip Generation Evaluation

FEHR PEERS

Appendix D:
Technical Calculations – Baseline Conditions

Appendix E:
Technical Calculations –
Baseline Plus Project Conditions

FEHR PEERS

Appendix F:
Technical Calculations – Queuing Analysis