

APPENDIX B

Vehicle Miles Traveled Analysis

VEHICLE MILES TRAVELED ANALYSIS

**KAISER PERMANENTE RIVERSIDE MEDICAL CENTER EXPANSION
CITY OF RIVERSIDE
RIVERSIDE COUNTY, CALIFORNIA**

This Vehicle Miles Traveled Analysis has been prepared under the supervision of
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LSA

October 2021

VEHICLE MILES TRAVELED ANALYSIS

KAISER PERMANENTE RIVERSIDE MEDICAL CENTER EXPANSION CITY OF RIVERSIDE RIVERSIDE COUNTY, CALIFORNIA

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1.0 EXECUTIVE SUMMARY

The proposed Kaiser Permanente Riverside Medical Center Expansion Project will include the expansion of the current Kaiser Permanente Riverside Medical Center facility by approximately 296,000 square feet. Additionally, a new parking structure with five-story plus rooftop parking deck will be constructed in the southwestern part of the project site and modifications will be made to some of the on-site surface parking lots.

The project site is located south of Magnolia Avenue between Park Sierra Drive and Polk Street in the City of Riverside (City). Both the current and proposed General Plan land use and zoning for the project site are Mixed Use-Urban and Commercial, respectively. As such, the project will not require a General Plan Amendment (GPA) or Zone Change (ZC). The project is anticipated to be completed by 2026.

Access to the project site is currently provided via five driveways: two driveways on Park Sierra Drive, one driveway on Magnolia Avenue, and two driveways on Polk Street. Upon completion of the project, access to the project site will be provided via six driveways. Following is a description of all driveways providing access to the site:

- Driveways on Park Sierra Drive:
 - Kaiser Driveway 1: This is an existing full-access driveway.
 - Kaiser Driveway 2: This is an existing full-access driveway.
- Driveways on Magnolia Avenue:
 - Kaiser Driveway 3: This is an existing right-in/right-out (RIRO) driveway.
 - Kaiser Driveway 4: This will be a future RIRO driveway, added as part of the proposed project. This driveway will be used by emergency vehicles only.
- Driveways on Polk Street
 - Kaiser Driveway 5: This is an existing full-access driveway with three entry lanes and one exit lane. The project will restripe the driveway with two entry lanes and two exit lanes for a separate left-turn lane and a separate right-turn lane exiting the project site.
 - Kaiser Driveway 6: This is an existing full-access driveway.

The project is forecast to generate 4,464 daily trips, with 345 trips occurring during the a.m. peak hour and 349 trips occurring during the p.m. peak hour.

The City adopted its *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* in July 2020. The City's guidelines recommend that a VMT analysis be prepared using RIVTAM. Due to the unique operational characteristics of the project, it was determined that using RIVTAM to calculate project VMT will not provide an accurate estimate. Therefore, based on discussion with City staff on May 24, 2021, Kaiser Permanente's existing and projected membership and staff database was used to calculate the project VMT.

The City's guidelines provides guidance regarding VMT analysis based on land use types. The proposed project is a hospital which falls under "other land use projects" category. Therefore, pursuant to the City's VMT analysis guidelines for "other land use projects", a significant VMT impact would occur if the net total VMT of the jurisdiction (City) with the project is higher than the net total VMT of the jurisdiction (City) without the project. The net total VMT includes trips that originate and end in the City (Internal-Internal trips), and trips that originate or end at the City from other jurisdictions (External-Internal and Internal-External trips).

Based on the VMT analysis, the project will have a significant and unavoidable transportation impact under CEQA. Therefore, the project is required to identify mitigation measures that will offset the project's VMT impact. To offset the project's VMT impact, appropriate mitigation measures related to Travel Demand Management (TDM) measures and any other mitigation measure need to be identified. TDM measures and strategies aim to promote overall mobility with the goal of reducing the number of single-occupancy vehicle trips and reducing greenhouse gas emissions. Implementation of the mitigation measures identified in this analysis is forecast to reduce the project's commute VMT between 4.207 and 32.037 percent. The proposed measures and strategies should be monitored for their usage and effectiveness. The TDM measures and strategies can help offset some of the VMT impacts of the project but will not reduce the impact to less than significant.

2.0 VEHICLE MILES TRAVELED ANALYSIS

2.1 BACKGROUND

On December 28, 2018, the California Office of Administrative Law cleared the revised California Environmental Quality Act (CEQA) guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on Vehicle Miles Traveled (VMT).

The City adopted its *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment* in July 2020. The City's guidelines recommend that a VMT analysis be prepared using RIVTAM. Due to the unique operational characteristics of the project, it was determined that using RIVTAM to calculate project VMT will not provide an accurate estimate. Therefore, based on discussion with City staff on May 24, 2021, Kaiser Permanente's existing and projected membership and staff database was used to calculate the project VMT. Detailed explanation of the VMT analysis methodology has been described below.

2.2 RIVERSIDE KAISER EXPANSION – VMT ANALYSIS

The project includes adding capacity to existing hospital services, as well as provision of additional services, thereby reducing overcrowding. Currently, members need to drive to regional Kaiser facilities to avail themselves of services due to capacity issues or unavailability of required services at the Riverside facility.

The regional travel demand model, RIVTAM, is one of the standard tools to evaluate proposed land use projects. However, given the limitations of the model to accurately reflect the rerouting of trips from other facilities, the unique nature of the project, and the availability of existing observed data from Kaiser, an alternative approach was employed for the evaluation of VMT impacts due to the project. The methodology is described in detail in the following sections.

2.2.1 Observed Data

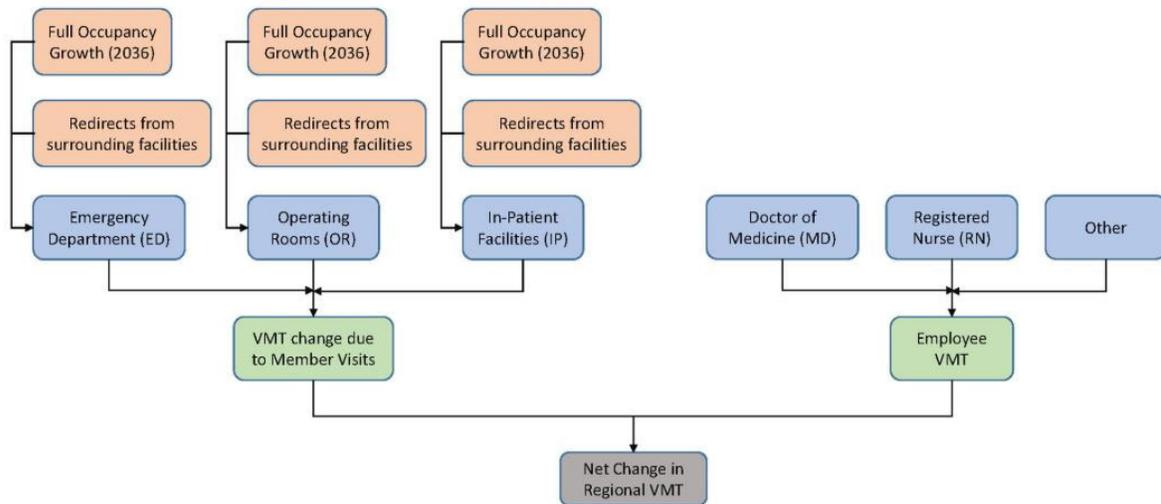
LSA used existing observed member visitation data provided by Kaiser at the Riverside and regional Kaiser facilities as well as existing employment data at the Riverside facility to evaluate the VMT impacts of the project. The data includes the following:

- Household zip codes of Kaiser members;
- Kaiser facilities visited by members;
- Distance between household zip codes and visited Kaiser facilities (including the Riverside facility); and
- Household zip codes of employees at the Riverside facility.

The household location data for the members and employees was only reviewed at zip code granularity to safeguard privacy of members and employees. Distance data from various zip codes to the Riverside facility and regional facilities was estimated using geocoding of the distances from

each zip code to the respective facilities. The analysis was conducted by evaluating the trip lengths from each zip code and then summarized at a regional level. Total project VMT was obtained as the sum of VMTs due to member visitations and employees. Figure 2-1 illustrates various components that were evaluated in the estimation of regional VMT change and/or added due to the proposed project. As shown in the figure, the project’s VMT was separately calculated for four components that are being added by the project: emergency, operating rooms, in-patient beds and new staff.

Figure 2-1: Regional Change in VMT due to Project Components



2.2.2 Trip Exchange

There is currently a deficiency in hospital capacity at the Riverside Kaiser facility. Therefore, patients have to travel to other regional Kaiser facilities (Fontana Medical Center, Orange County Anaheim Medical Center, Ontario Medical Center, and Moreno Valley Medical Center) to access different medical services, such as Emergency Department (ED), Operating Rooms (OR), In-patient Facility (IP), Intensive Care Unit (ICU), and Neonatal Intensive Care Unit (NICU). By virtue of expanding the Riverside Kaiser hospital facility, those patients will no longer have to travel to these other regional facilities, but can rather access these medical services at the Riverside facility due to shorter trip lengths to the Riverside facility compared to the other regional facilities. Therefore, the number of trips and associated trip lengths to these other facilities will be reduced with the expansion of the Riverside facility. Trips redirected from other regional Kaiser facilities to the Riverside facility by means of this expansion will have a reduced trip length, thereby contributing to a net reduction in VMT.

2.2.3 Member Visitation VMT

Proposed modifications (additional capacity or services) due to the project were isolated by the type of service and the VMT impact of each service was estimated individually and finally aggregated to identify the project VMT impacts.

The fundamental premise for this analysis is that the project is not going to generate a significant amount of new trips or VMT; rather, it will help in reducing the VMT of the region by redirecting trips for current members that are driving to regional facilities due to capacity constraints or absence of proposed services at the Riverside facility. Existing members are currently driving longer distances to the regional facilities even though Riverside is the closest facility. Expansion of the Riverside facility will shorten trip lengths for existing members, thus serving towards the goal of SB 743 and reducing Greenhouse Gas (GHG) emissions in the region.

The regional Kaiser facilities that will potentially contribute to the redirection of trips to the Riverside facility after the proposed expansion include the following and are shown in Figure 2-2:

- Fontana Medical Center;
- Orange County Anaheim Medical Center;
- Ontario Medical Center; and
- Moreno Valley Medical Center.

The VMT components for the analysis include member trips due to affected services. Affected services due to the expansion are identified as

- Emergency Department (ED);
- Operating Rooms (OR); and
- In-patient Facility (IP), which includes Surgery, Intensive Care Unit (ICU), and Neonatal Intensive Care Unit (NICU).

The following Figure 2-3 illustrates the flowchart of the VMT estimation process for the VMT change due to member visits. The net decrease in trip length was used to calculate the VMT. VMT estimation due to each of the proposed changes is described in detail in the following sections:

Figure 2-3: Flow Chart - VMT change due to member visits

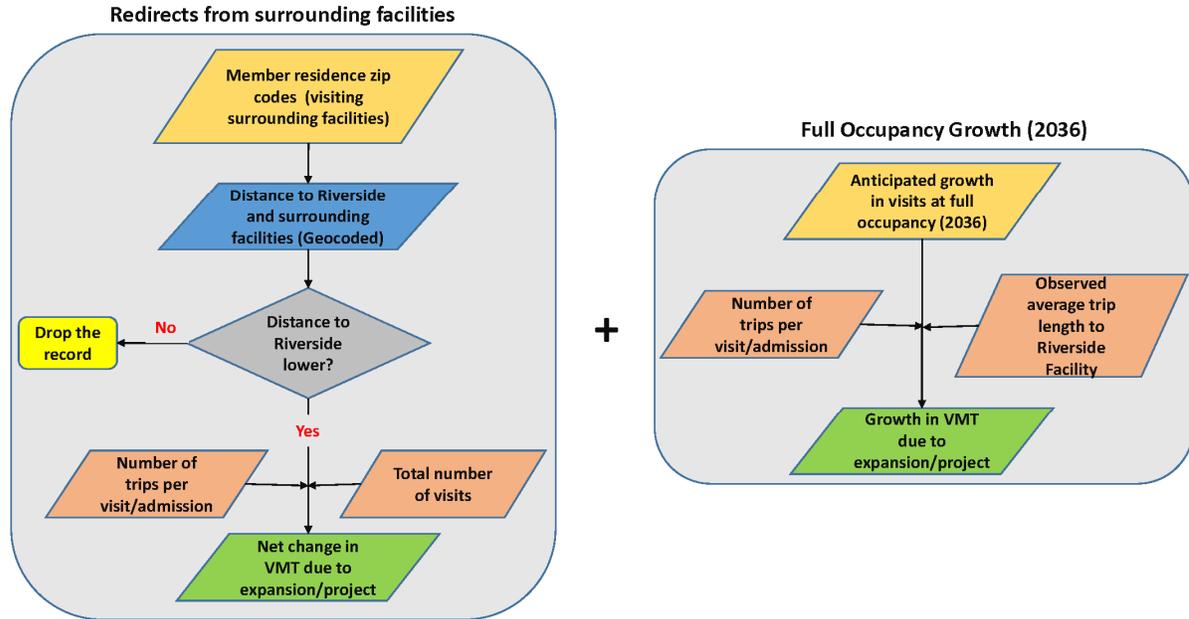


Figure 2-4A through Figure 2-4C illustrate the member visits rerouted to the project from regional Kaiser facilities for emergency department, operating rooms, and in-patient facility, separately. Figure 2-4D illustrates the total member visits rerouted to the project from regional Kaiser facilities.

2.2.3.1 Emergency Department

Kaiser extracted annual ED visitation data for the Riverside facility and the regional facilities identified above. The data for each facility included number of annual visitations to the facility from the member residential zip codes/origins. The distance from the residential zip codes to the currently visited facility as well as the distance to the Riverside facility was estimated by geocoding the dataset. Trips from the subset of zip codes, where the distance from the zip code to the Riverside facility is lower than the currently visited facility, were selected as the potential set of reroutes to the Riverside facility due to the proposed expansion. For example, as shown in Table 2-A, 7,386 ED visitations will be redirected from the regional facilities to the Riverside facility.

In addition to the potential reroutes, Kaiser also estimated the growth in the ED visitations (1,269, as shown in Table 2-A) for the project will reach Full Occupancy in 2036 based on their forecasts.

Kaiser proposes to add similar Emergency Department services to a facility in southern Riverside County. Currently, members have to travel to the Riverside facility for those activities. However, addition of similar services in the south will reduce a portion of existing trips coming to the Riverside facility. Kaiser estimated a total reduction of 940 existing trips due to additional similar services in southern Riverside County, including the Moreno Valley facility and the Murrieta facility, which are both currently under construction. Moreno Valley Diagnostic and Testing Expansion is projected to open on 7/5/2023 while the Murrieta Ambulatory Surgery Unit is projected to open on 12/14/22. Both facilities are projected to open before the project completion of the Riverside facility. An observed average trip length for all trips from southern Riverside County along with reduction in the

number of existing trips (940 trips) was used to estimate VMT reductions due to the similar services to be offered in the Moreno Valley facility and the Murrieta facility before the project completion of the Riverside facility.

A generic assumption of two trips (to/from) per ED visit was used to convert trips and average distances into daily VMT for ED reroutes.

2.2.3.2 Operating Rooms

A methodology similar to the ED methodology was used to estimate VMT impacts due to proposed changes to OR. The VMT estimation includes VMT reductions due to redirected visitations and growth at full occupancy (2036). The growth projection for the project is based on the ultimate occupancy of the project. The project is anticipated to expand occupancy/usage in phases and full occupancy will be achieved by year 2036. For purposes of this analysis, as a conservative approach, full occupancy was considered for preparation of the VMT analysis. Ambulatory OR services are currently available only at the Ontario Vineyard Ambulatory Surgery, so VMT estimates due to redirected visitations were estimated only for this facility. Table 2-B shows the difference in VMT due to OR services. Similar to ED visits, only two trips (to/from) were considered for VMT estimation purposes.

2.2.3.3 In-patient Facilities

As indicated before, IP facilities include services for Surgery, ICU, and NICU. The methodology used to estimate VMT changes is similar to ED and OR – redirected visitations and growth at full occupancy (2036). However, typical in-patient visits last multiple days and involve multiple trips; therefore, a few additional assumptions were made to estimate number of admits and VMT.

Information regarding IP facilities was available in terms of beds and patient days when the beds are occupied. Patient days were converted to number of admits using Average Length of Stay (ALOS) which was developed using observed data. A total of four trips (to/from per admission and to/from for one visitor trip per admission) was used to convert trips and average trips lengths to VMT compared to two trips that was used for ED and OR. Table 2-C shows the difference in VMT due to IP redirects and incremental capacity.

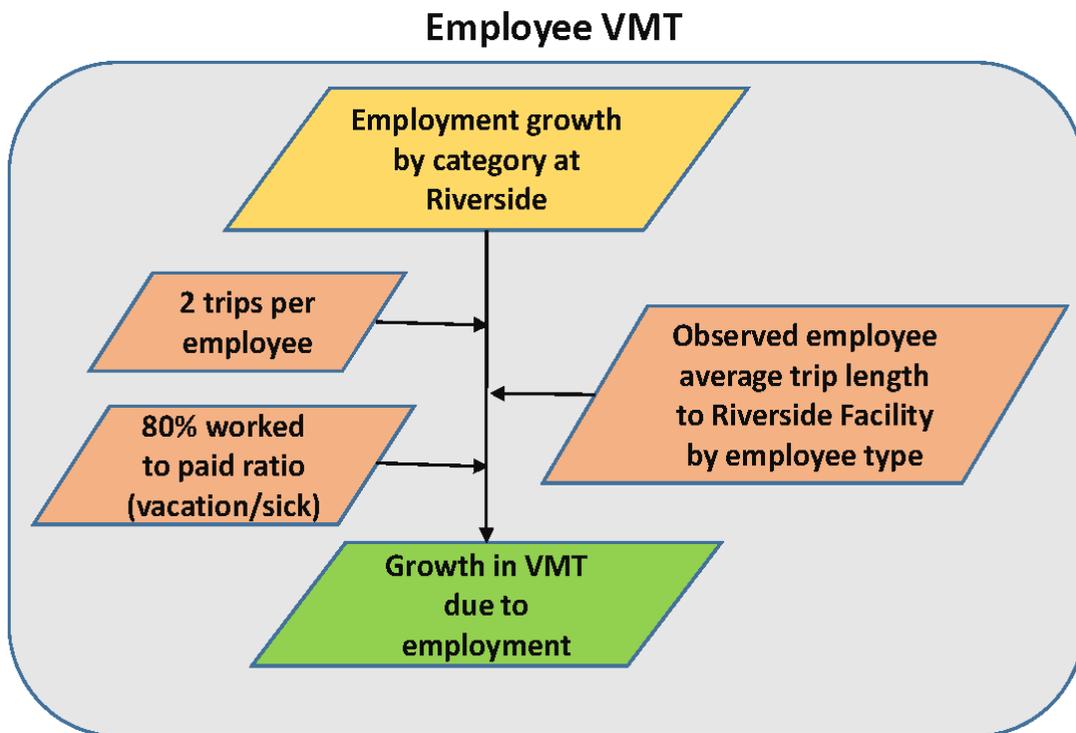
2.2.4 Employee VMT

VMT estimates for total project include both member trips and employee trips. Two daily trips were assumed per employee (Home-Work and Work-Home). Home-work/commute trips have the longest trip lengths and trips to lunch, meetings, and other work-related errands are minimal and usually much shorter in length; therefore, only commute trips were considered for developing employee VMT. There is a possibility that additional VMT may occur due to intermediate trips by employees such as work to lunch trips etc. The aggregate additional VMT from such occurrence will likely to be nominal and therefore will not substantially change the outcome of this analysis. As such, since commute VMT is the largest contributor to employee VMT trips, these trips were considered for purposes of this analysis. It is assumed that travel patterns by the new employees will be similar to that of current employees at the Riverside facility. Existing employees at the Riverside facility were categorized into Doctor of Medicine (MD), Registered Nurse (RN), and other staff. Average commute trip lengths from the employee residential zip codes to the Riverside facility were estimated by

geocoding the existing employee database. The employees were categorized by employee type as average commute trip length varies with household income. For example, based on the California Household Travel Survey (CHTS) and the American Community Survey (ACS), it has been observed that the average trip lengths for employees of higher income households are typically longer than those of lower income households.

The proposed project is an expansion to relieve overcrowding at the Riverside facility and other regional facilities. Even without the proposed expansion, Kaiser would hire employees at other facilities to meet the existing demand at those facilities. However, due to the proposed expansion, the employees that might otherwise be hired at other facilities would be redirected to the Riverside facility. However, as a conservative estimate, all employees added to the proposed project were included for calculation of employee VMT. The employment VMT was estimated by the three categories as mentioned above. Average trip lengths from the existing observed data were applied to measure employee related VMT. Table 2-D shows the detailed employment calculations. Figure 2-5 shows the employee VMT estimation process. Figure 2-6A through Figure 2-6C illustrate employee residence for MD, RN, and other staff for the Riverside Medical Center, separately. Figure 2-6D illustrates all employee residence for the Riverside Medical Center. Table 2-E summarizes the net daily VMT change for the project.

Figure 2-5: Employee VMT Estimation Process



The City’s guidelines provides guidance regarding VMT analysis based on land use types. The proposed project is a hospital which falls under “other land use projects” category. Therefore,

pursuant to the City's VMT analysis guidelines for "other land use projects", a significant VMT impact would occur if the net total VMT of the jurisdiction (City) with the project is higher than the net total VMT of the jurisdiction (City) without the project. The net total VMT includes trips that originate and end in the City (Internal-Internal trips), and trips that originate or end at the City from other jurisdictions (External-Internal and Internal-External trips). As demonstrated in Table 2-E, the net total VMT of the City with the project is higher than the net total VMT of the City without the project. Therefore, the project will have a significant and unavoidable transportation impact under CEQA.

Detailed VMT calculation tables, data, and assumptions are included in the Appendix G.

2.3 VMT MITIGATION MEASURES

When a lead agency identifies a significant CEQA impact, the agency must identify feasible mitigation measures in order to avoid or substantially reduce that impact. VMT impacts can be mitigated through more behavioral changes. Enforcement of mitigation measures will be subject to the mitigation monitoring requirements of CEQA, consistent with the regular police powers of the agency. These measures can also be incorporated as a part of plans, policies, regulations, or project designs. In general, transportation demand management (TDM) actions, active transportation amenities, and other measures to reduce the number of trips creating an impact are possible VMT mitigation strategies. As demonstrated in the VMT analysis, the only cause of the VMT impact is due to employee commute VMT. Therefore, most mitigation measures identified for the project aim to reduce employee commute VMT. As such, the project proposes the following VMT mitigation measures for this project.

As per information provided by the applicant, and applicable VMT mitigation measures from the California Air Pollution Control Officers Association (CAPCOA) manual, the project intends to implement VMT mitigation measures including a TDM plan that aims to reduce single-occupancy vehicle (SOV) trips, decrease vehicle miles traveled, and improve mobility through information, encouragement, and incentives. The effect of these TDM measures in reducing the project's VMT were not factored in the VMT analysis. Therefore, implementation of the proposed TDM measures will result in an overall reduction in project VMT. TDM can be beneficial to all users, including patients, visitors, employees, and the community. TDM measures and strategies are environmentally responsible and sustainable. The VMT mitigation and TDM measures are as follows:

- **Preferential Parking (CAPCOA Measure TRT-8, Page 244):** Preferential parking is dedicated parking spaces reserved for users that use a non-SOV mode of transportation, such as carpool and vanpool. Preferential parking spaces are located near building entrances. Providing preferential parking encourages and incentivizes non-SOV trips. The project will provide preferential parking for vanpool and carpool on the west side of project site, near the MOB and the hospital. This area provides convenient access to both the MOB and the hospital. As an additional option, these spaces can be shaded as an additional amenity. While there is no quantified VMT reduction data available for this mitigation measure, this will encourage carpooling and vanpooling for project employees.

- **Carpooling (CAPCOA Measure TRT-3, Page 227):** Carpooling allows multiple passengers heading in a particular direction to ride in the same vehicle. Each vehicle can typically carry up to four passengers comfortably and thereby reduce single-occupancy trips and VMT. Information regarding carpooling should be provided on various platforms such as bulletin boards, intranet, new hire information packets, etc. To find a carpooling partner, a bulletin board or digital kiosk can be used for employees to post interest for a carpool partner. Information on carpool matching service, such as Waze Carpool, can help employees find carpool partners. Information on UberPool and Lyft Share can help find riders along the route to fill the empty seats and split the costs. As per the California Air Pollution Control Officers Association (CAPCOA) *Quantifying Greenhouse Gas Mitigation Measures*, dated August 2010, the associated commute VMT reduction ranges from 1.00-15.00 percent. The project will facilitate a carpooling program for employees and encourage employees to use the program so that reduction in commute VMT can be achieved.
- **Vanpooling (CAPCOA Measure TRT-3, Page 227):** Vanpooling allows multiple employees heading in the same direction to share one vehicle. The vehicle is typically larger and can carry more than four passengers. Information about vanpooling can be posted on bulletin boards and intranet (private network for employees), allowing employees to find available seats in an existing vanpool that matches their commuting preferences. The internal platform can also assist employees who want to start a new vanpool and share this information with other employees interested in vanpool. Designated parking spots will be reserved for employees arriving by vanpool. With more vanpool users, the overall VMT can be reduced. As per the CAPCOA manual, the associated commute VMT reduction is 1.00-15.00 percent. Similar to the carpool program, the project will facilitate a vanpool program for employees to achieve a reduction in commute VMT.
- **Guaranteed Ride Home Program:** The Guaranteed Ride Home Program (GRH Program) is funded by the Riverside County Transportation Commission (RCTC), which provides a safety net for employees using rideshare to work. It allows employees who rideshare to work to get home if an emergency arise, such as illness, unexpected overtime, or other emergencies. The GRH Program ensures that employees using ridesharing services will be reimbursed (up to twice per year) for a taxi ride, rental car or transit fare in the event of a qualifying emergency or circumstance. The GRH Program is essential in terms of relieving employee anxiety that may arise when considering rideshare alternatives. Rideshare alternatives include carpooling, vanpooling, riding public transit, bicycling, and walking to work. The GRH Program can help eliminate some of the major concerns employees may have concerning ridesharing to work. The project will provide information about the GRH Program to employees via emails, bulletin board and intranet so that employees participating in carpool/vanpool programs are signed up for the GRH Program. (Source: <https://www.ie511.org/rideshare/employers/core-rideshare-program/guaranteed-ride-home>)
- **Website:** A website allows all users to access information about the available transportation services. The website can provide essential travel information for first time visitors to the project. The website should include information such as address, site map, transportation options (carpool and vanpool), and timetables for transit routes near the project site. Additionally, external resource links to the Riverside Transit Agency (RTA) can be provided for users to access relevant transit schedules and transit network map. Additionally, the intranet

can provide employees the same information and resource links about carpooling, vanpooling, GRH Program, and other relevant information regarding transportation options and services. The project will be creating a webpage dedicated specifically for providing the above described information to its employees. As such, this mitigation measure will provide added information/benefit to employees using carpooling, vanpooling and GRH Program.

- **Marketing (CAPCOA Measure TRT-7, Page 240):** Marketing consists of outreach efforts to increase participation of transportation services. Marketing may be in the form of flyers, brochures, raffles, and other promotional events. Flyers can be posted for events such as National Bike to Work Day and World Car-Free Day to encourage employees to use alternative modes of transportation to reduce greenhouse gas emission. As per the CAPCOA manual, the associated commute VMT reduction is 0.80-4.00 percent. The project will be reaching out to employees informing them regarding these events and encouraging them to participate in the same.
- **Information Center:** Information center is a static board or an interactive kiosk where users can obtain information about various transportation services. An information center can also provide non-transportation information such as the building directory and site map. The project will set up the information center at commonly trafficked areas for the convenience of employees.
- **Bus Stop Amenities:** Bus stop amenities such as shelters, benches, and trash receptacles increase the appeal of bus stops and increase ridership by enhancing the quality of the public transit. Shelters at bus stops provides protection to passengers in the event of inclement weather. The project will provide bus stop amenities at existing stops on Magnolia Avenue within the vicinity of the project. The project will coordinate with City/RTA to determine constraints regarding the design and placement of shelters, benches, and trash receptacles prior to implementation of these added amenities. The project will also provide ADA compliant connectivity from the campus directly to the existing bus stop and provide golf cart shuttle services to and from the buildings to the existing bus stop. Figure 2-7 illustrates the upgraded pedestrian connectivity providing enhanced connection to the existing bus stop along Magnolia Avenue.
- **Telecommuting/Alternative Work Schedules (CAPCOA Measure TRT-6, Page 236):** Telecommuting allows employees to work remotely from home instead of in a traditional office environment. Telecommuting eliminates the need to be physically present at the worksite if the work can be done remotely. Alternative work schedules include a compressed work week, flexible daily work schedule, and staggered shifts to alleviate transportation demand during peak hours. Telecommuting and alternative work schedules can reduce the overall employee trips and reduce the internal site congestion during peak hours. Existing Kaiser Permanente medical campuses throughout the state already encourage telecommuting, especially since the beginning of the pandemic. The project will be providing the same telecommuting opportunities to employees who can work remotely. As per the CAPCOA manual, the associated commute VMT reduction is 0.07-5.50 percent.
- **Transportation Coordinator:** A transportation coordinator oversees, monitors, and promotes the TDM program. The project will hire an on-site transportation coordinator. The coordinator will answer questions that employees and patients have about the available transportation

services, prepare mobile amenities for employees, promote the TDM program through public outreach, conduct employee surveys about the TDM program and improve/adjust if necessary, and coordinate with local transit agencies and transportation authorities to relay up-to-date information about transit service changes and active/future projects. By attracting more people to utilize the TDM program, the project VMT can be further reduced.

- **Bus Passes (CAPCOA Measure TRT-4, Page 230):** RTA offers CommuterLink 30-day pass for \$95, which includes unlimited rides on CommuterLink routes and local fixed routes for 30 days. The project will provide partial subsidy of CommuterLink bus pass for new employees to encourage the use of public transit. As per the CAPCOA manual, the associated commute VMT reduction is 0.30-20.00 percent. The project will commit to providing this subsidy for the first three years after the project opening day.
- **IE Commuter Program (CAPCOA Measure TRT-1, Page 218):** IE Commuter is a joint program of the Riverside County Transportation Commission (RCTC) and San Bernardino County Transportation Authority (SBCTA) whose mission is to reduce traffic and improve air quality throughout the region by increasing the awareness and adoption of ridesharing. IE Commuter Program and its services are provided at a reduced cost to eligible employers and commuters in Riverside and San Bernardino Counties. IE Commuter Program helps employers to set up a customized rideshare program, including ridematching, rideshare incentives, GRH Program, etc. Employers can sign up to promote the ridesharing benefits to employees. IE Commuter Programs offers complimentary Average Vehicle Ridership (AVR) surveying, calculations, and reports to employers. With hundreds of thousands of registered members, the program is essential in helping commuters discover their best commute options. As described earlier, the project will be providing this information to all employees via emails, project website, information center, and transportation coordinator. As per the CAPCOA manual, the associated commute VMT reduction is 1.00-6.20 percent. (Source: <https://www.iecommuter.org/rp2/home/RFaq?page=about>)
- **Site Design:** Proper site design encourages and facilitates active modes of transportation. Improvements on sidewalks, crosswalks, and bicycle facilities help pedestrians and cyclists navigate the area safely and efficiently. Proper site design ensures seamless connectivity from public roadways to project site for those arriving using active modes of transportation. The project will be providing sidewalks, crosswalks and bicycle facilities for pedestrian and bicyclist throughout the project site.
- **Service Amenities:** Service amenities on-site reduces the need to travel off-site throughout the workday, and consequently reduces the vehicle trips in the surrounding area. Examples of service amenities include mail drop boxes, vending machines, ATMs, and food carts. The project will provide ATMs, cafeteria, café, gift shop, food carts and vending machines on site.
- **Bicycle Amenities (CAPCOA Measure TRT-5, Page 234):** Bicycle amenities can appeal to local employees and visitors biking to the site. Bicycle amenities include bike racks, lockers, repair station, and showers. The lack of bicycle amenities may deter existing cyclists from biking to the site. Bicycle amenities encourages bicycle use while promoting a healthier alternative to driving, reducing vehicle trips and parking demand. Additional bicycle parking, lockers and showers may accommodate the medical center expansion. Indoor bike storage rooms can be considered for enhanced security concerns and weather protection. As discussed under the “Site Design”

measure above, the project will be providing these amenities on site to encourage employees and visitors bike to the project site.

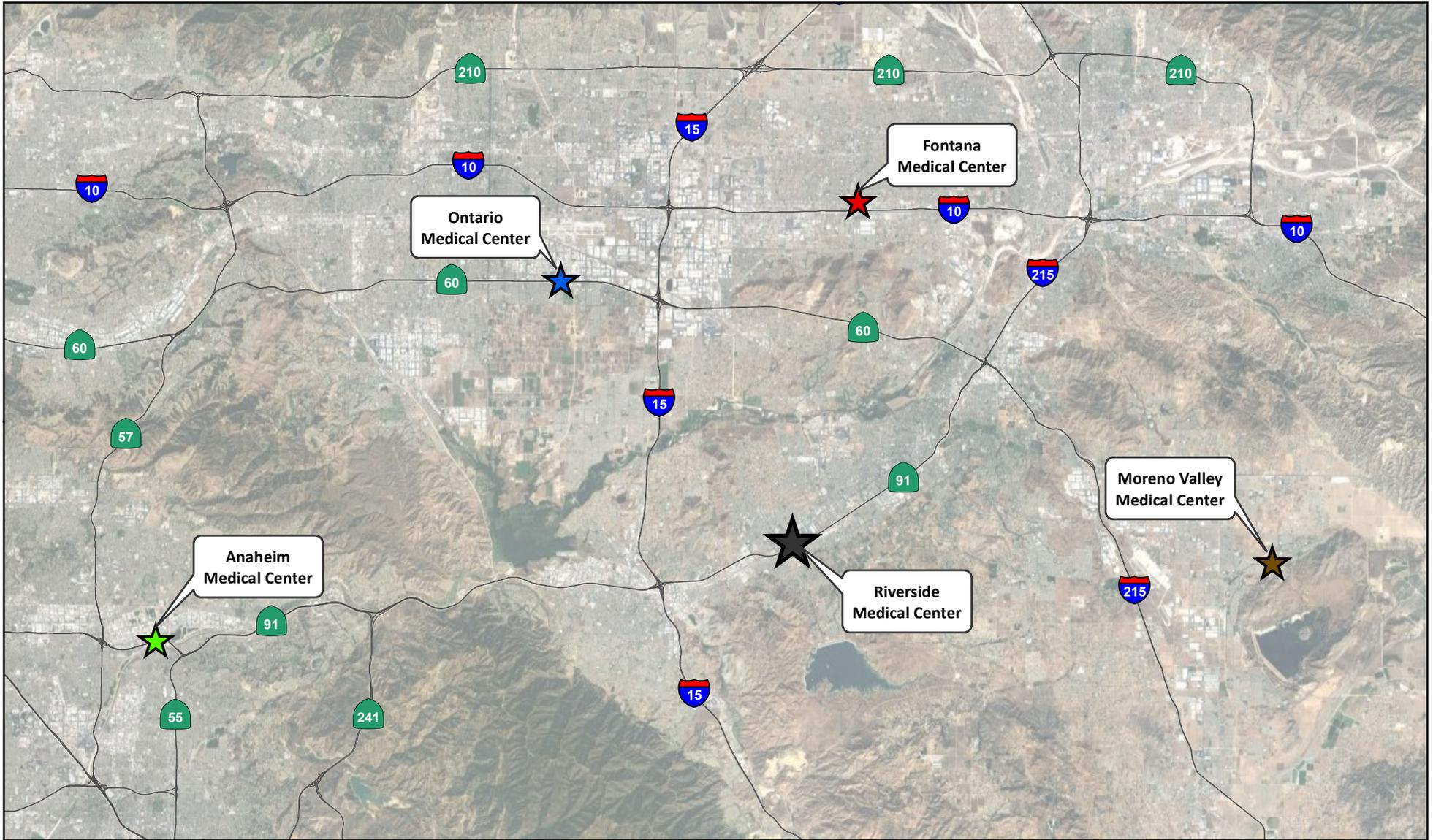
- **Passenger Loading Zones:** Passenger loading zones are designated for vehicles dropping off or picking up passengers only. Passenger loading zones reduce the need to circulate the site to find a parking space or idle in an undesignated area to pick up/drop off a passenger. The project will provide a passenger loading zone in front of the hospital and MOB. Passenger loading zones also provide a safe area for patients to access buildings directly to and from vehicles without crossing through the parking lot.
- **Pedestrian Connectivity:** As part of the proposed project, the parking lots will be restriped as per current City standards. Additionally, a parking structure will be added as part of the proposed project. The project will ensure that pedestrian connectivity is enhanced and is ADA compliant as per requirements for hospital campus. This includes enhanced pedestrian connectivity at the drop-off area for the emergency department. Figure 2-7 illustrates the pedestrian circulation within the project site.
- **Wayfinding:** Wayfinding signage provides directions to buildings and parking lots and guides visitors to their destination within the site. The project currently provides wayfinding signs at entrances to inform patients and visitors of the location of buildings and parking lot information. Existing wayfinding signs can be updated to separate employee parking and visitor parking and provide directions to the new passenger loading zone once the project is built. Additionally, wayfinding signs can be added to provide directions to the tech dock and loading zone for delivery trucks.
- **Locate Project near Bike Path/Bike Lane (CAPCOA Measure LUT-8, Page 181):** Bicycling can be a viable alternative to work commutes. Class II bike lanes exist in the northbound and southbound directions of Golden Avenue and La Sierra Avenue near the project site. Class II bike lanes also exist in the westbound and eastbound directions of Magnolia Avenue along the project frontage. Proposed future Class II bike lanes will be added along both directions of Tyler Street near the project site. Combined with the bicycle amenities provided on-site, the existing bike facilities around the project site will make it appealing for local employees and patients to bike to the project site.
- **Provide EV Parking and EV Charging in Parking Lot (CAPCOA Measure SDT-8, Page 205):** Accessible EV parking and preferred parking for EVs at the project site will encourage the use of EVs. Conductive or inductive EV charging stations installed at EV parking spots provide incentives for using EV to access the project. Designating EV parking with charging stations at favorable locations (e.g. near main entrances or major access points) can raise awareness about using EV to reduce GHG emissions. Although the use of EV is not directly associated with VMT reduction, it eliminates fuel combustion, therefore reducing GHG emissions, which is the ultimate goal of SB 743. Currently, the facility has 8 EV charging stations within the parking lot. The project will be providing EV Ready stalls as per the requirement in the City's Municipal Code, since the facility is aiming for LEED (Leadership in Energy and Environmental Design) certification. Also, the existing EV ownership percentage for Riverside County is 1.337. Assuming that a similar percentage of employees and visitors will be using EVs, the associated GHG emissions and corresponding VMT reduction is 1.337 percent. (Source:

<https://www.energy.ca.gov/data-reports/energy-insights/zero-emission-vehicle-and-charger-statistics>)

In conclusion, TDM measures and strategies aim to promote overall mobility with the goal of reducing the number of single-occupancy vehicle trips and reducing greenhouse gas emissions. Implementation of the above mitigation measures will possibly reduce the project's commute VMT between 4.507 and 52.037 percent. The proposed measures and strategies should be monitored for their usage and effectiveness. The TDM measures and strategies can help offset some of the VMT impacts of the project but will not reduce the impact to a less than significant level. Therefore, the project will have a significant and unavoidable transportation impact under CEQA.

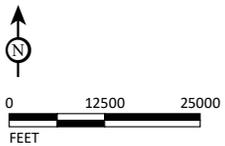
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- Figure 2-2: Location of Regional Kaiser Facilities
- Figure 2-3: Flow Chart - VMT change due to member visits
- Figure 2-4A: Emergency Department Member Visits Rerouted to Project from Regional Kaiser Facilities
- Figure 2-4B: Operating Rooms Member Visits Rerouted to Project from Regional Kaiser Facilities
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- Figure 2-5: Employee VMT Estimation Process
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LSA

FIGURE 2-2



SOURCE: ESRI Streetmap, 2013; Google Earth, 2019.

R:\KSP1904 Kaiser Riverside Expansion\Traffic\Sept 2021\GIS\Reports\fig2-2_MC_Locations.mxd (9/15/2021)

*Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis
Location of Regional Kaiser Facilities*

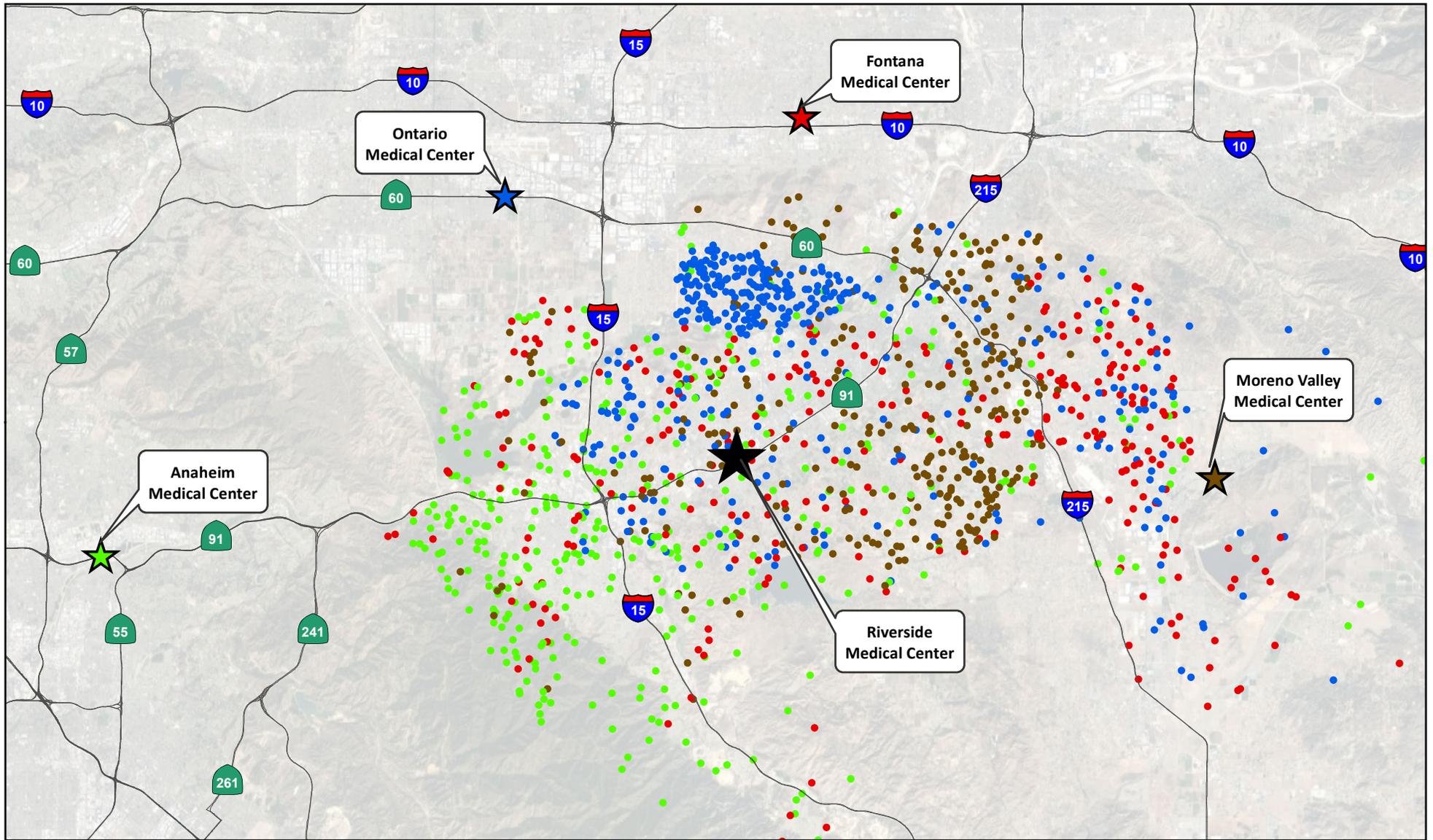


FIGURE 2-4A

LSA

LEGEND

- 1 Dot = 5 ED Visits
- ED_Anahaim
- ED_Ontario
- ED_Fontana
- ED_Moreno

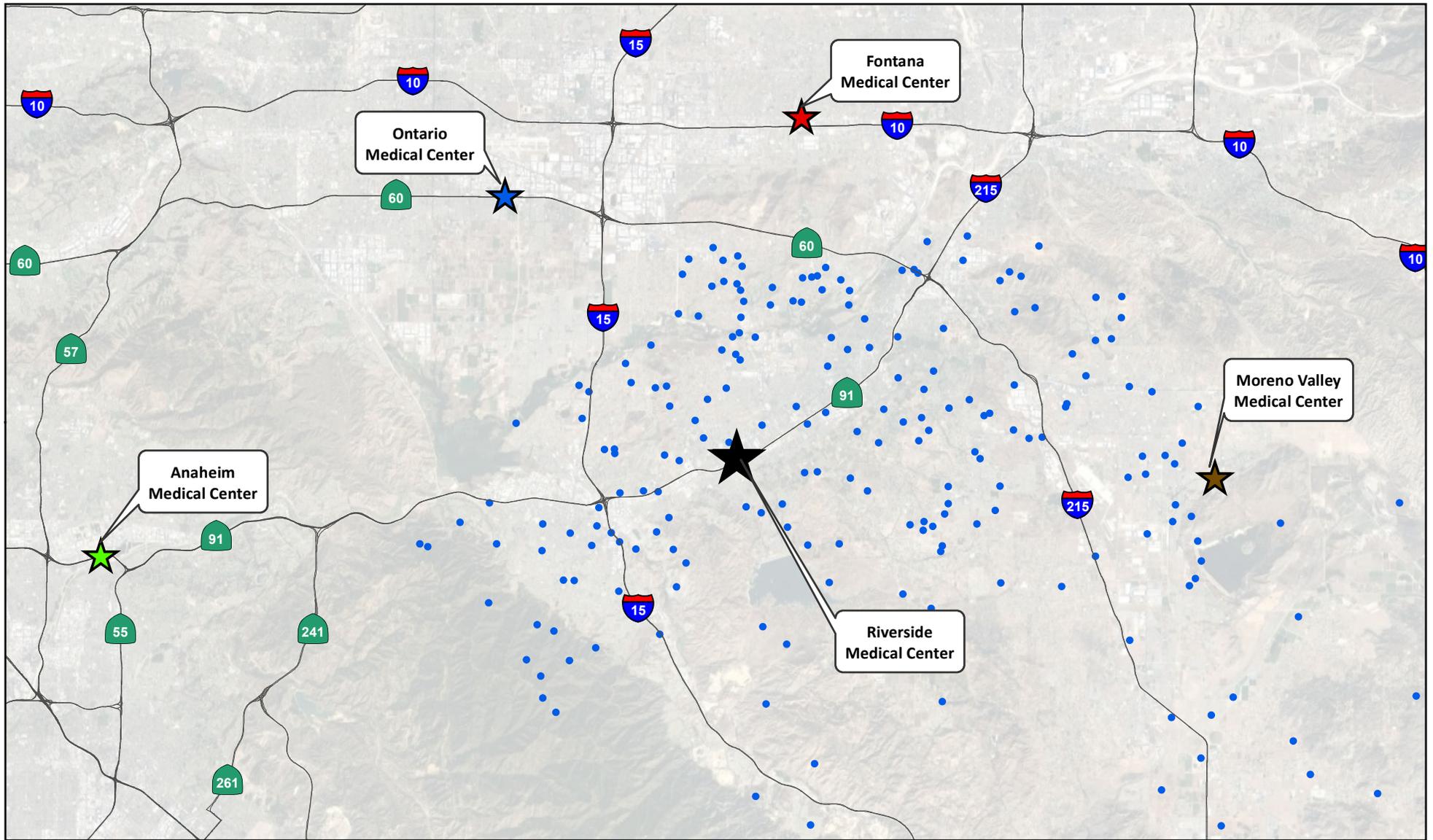


SOURCE: ESRI Streetmap, 2013; Google Earth, 2019.

R:\KSP1904 Kaiser Riverside Expansion\Traffic\Sept 2021\GIS\Reports\LatestMaps\fig2-4A_ED_Visits.mxd (9/15/2021)

*Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis*

Emergency Department Member Visits Rerouted to Project from Regional Kaiser Facilities



LSA

LEGEND

1 Dot = 5 OR Visits

• OR_Ontario



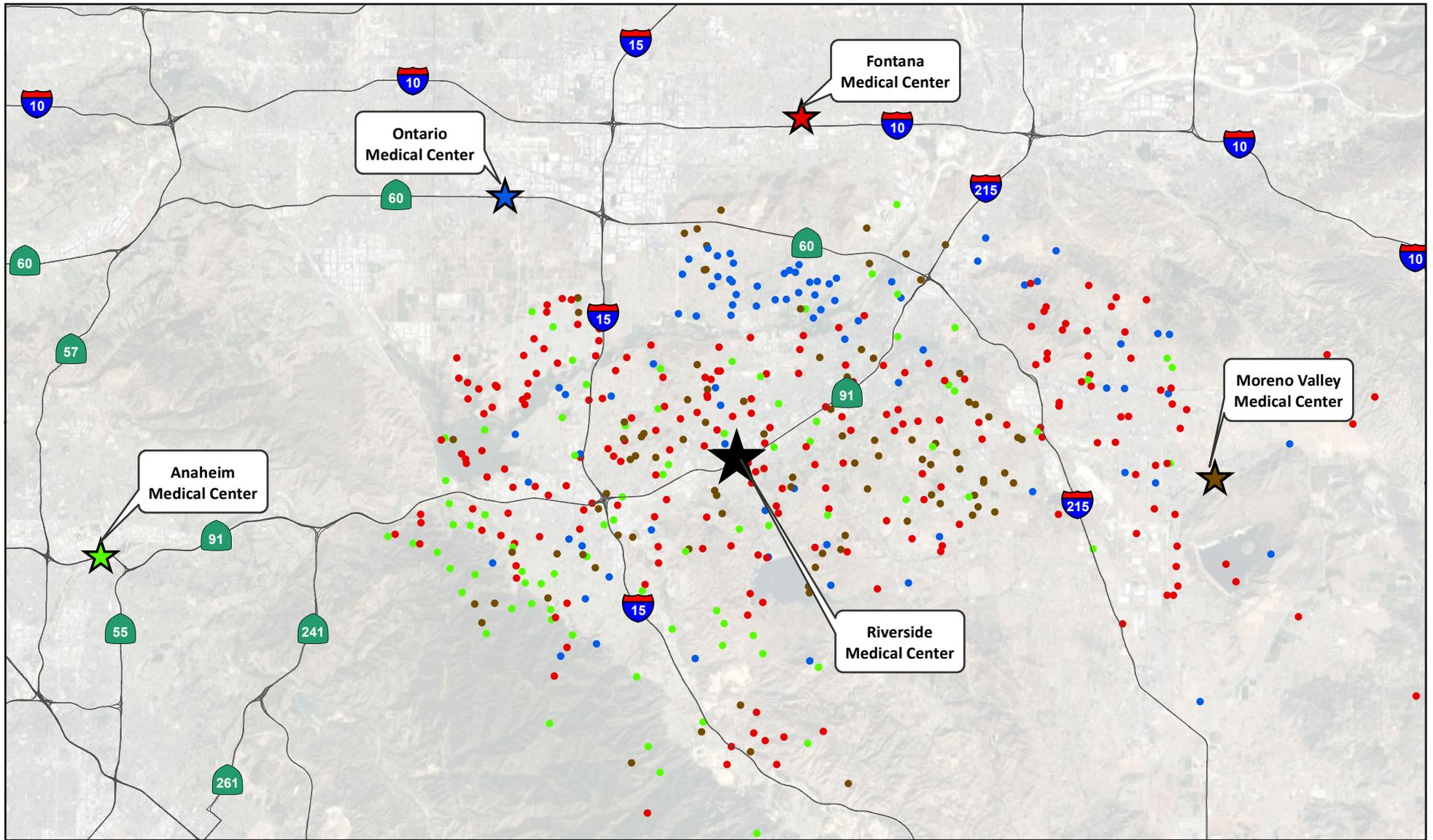
SOURCE: ESRI Streetmap, 2013; Google Earth, 2019.

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FIGURE 2-4B

*Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis*

Operating Room Member Visits Rerouted to Project from Regional Kaiser Facilities



LSA

LEGEND

- 1 Dot = 5 IP Visits
- IP_Anaheim
- IP_Ontario
- IP_Fontana
- IP_Moreno



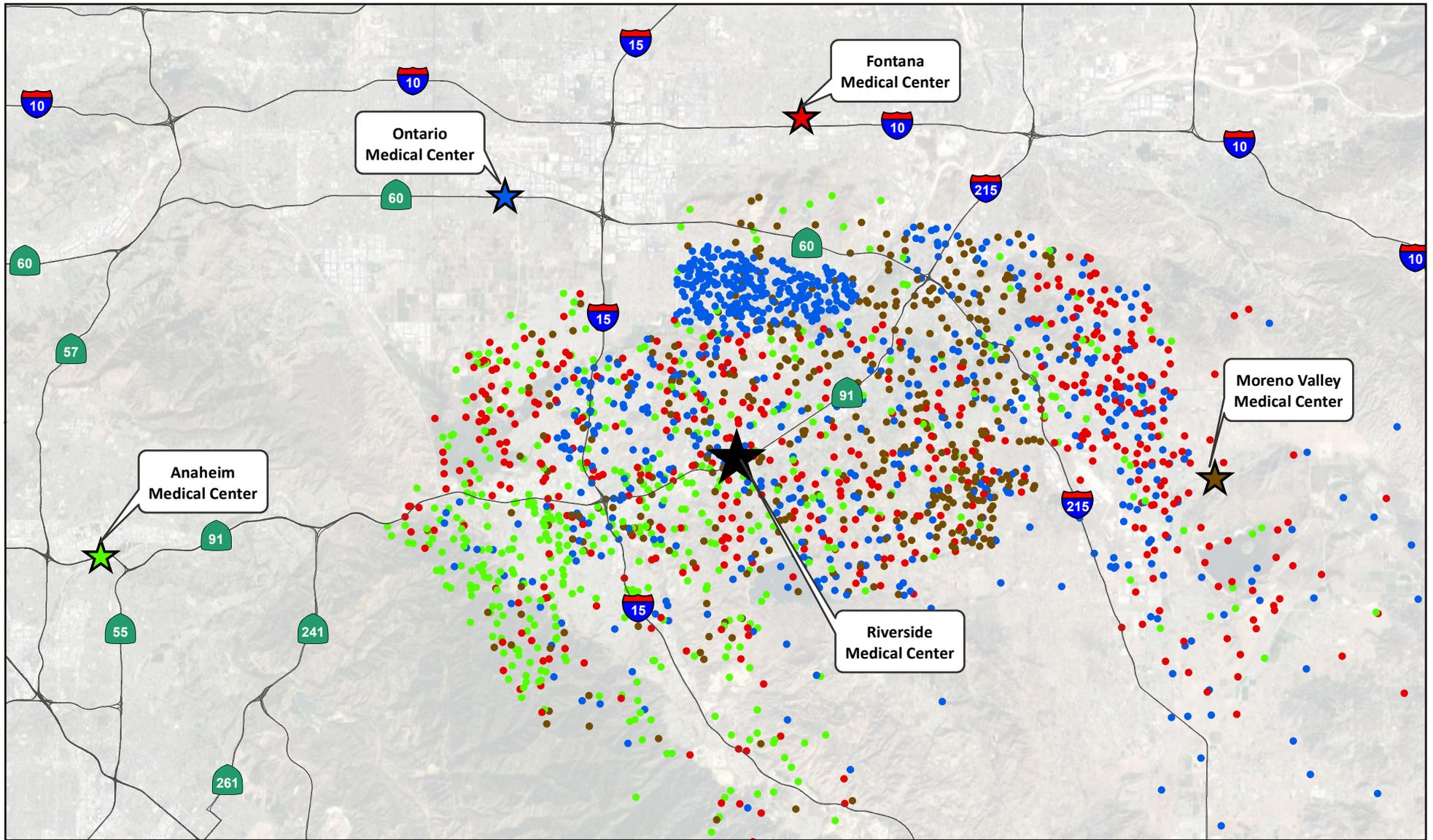
SOURCE: ESRI Streetmap, 2013; Google Earth, 2019.

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FIGURE 2-4C

*Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis*

In-Patient Facility Member Visits Rerouted to Project from Regional Kaiser Facilities



LSA

LEGEND

- 1 Dot = 5 Member Visits
- Fontana MC
- Anaheim MC
- Ontario MC
- Moreno Valley MC



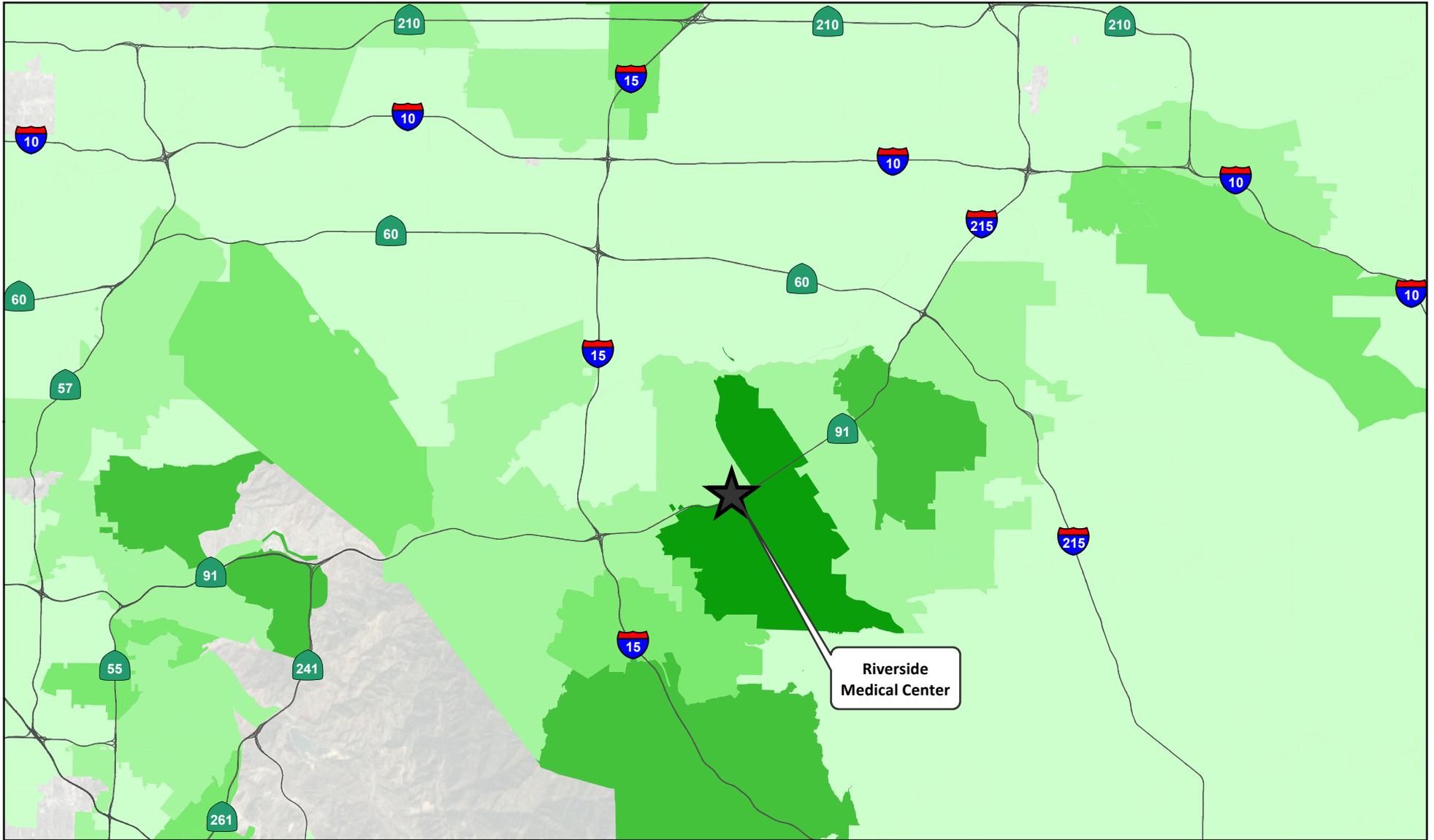
SOURCE: ESRI Streetmap, 2013; Google Earth, 2019.

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FIGURE 2-4D

*Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis*

Total Member Visits Rerouted to Project from Regional Kaiser Facilities



LSA

LEGEND

- 0 - 2 MD emp
- 14 - 24 MD emp
- 3 - 7 MD emp
- 25+ MD emp
- 8 - 13 MD emp



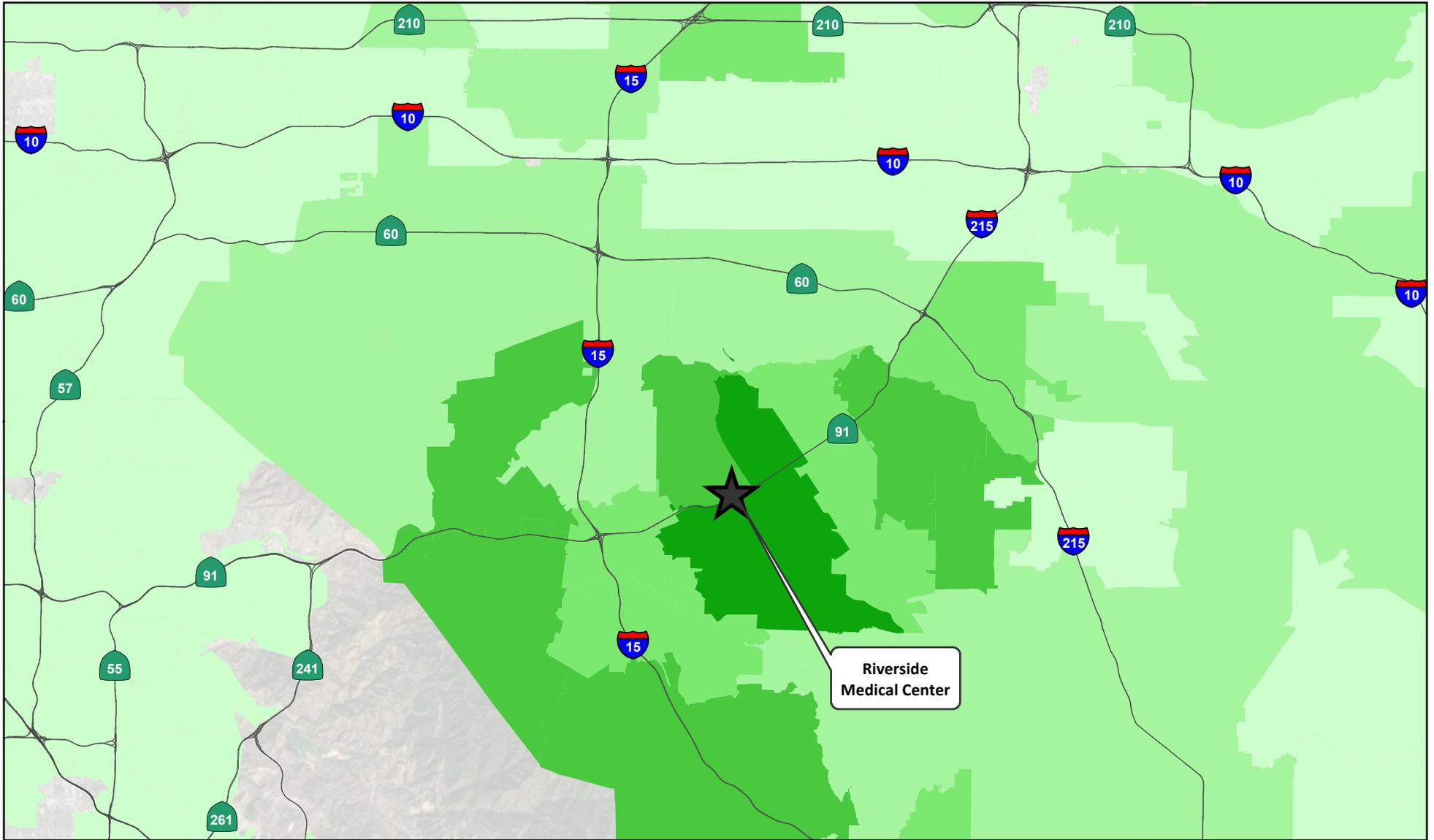
SOURCE: ESRI Streetmap, 2013; Google Earth, 2019.

R:\KSP1904 Kaiser Riverside Expansion\Traffic\Sept 2021\GIS\Reports\fig2-6A_MD_Employee.mxd (9/15/2021)

FIGURE 2-6A

*Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis*

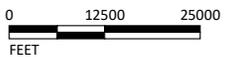
Kaiser Permanente Riverside Medical Center Doctor of Medicine (MD) Employee Residence



LSA

LEGEND

- 0 - 5 RN emp
- 41 - 80 RN emp
- 6 - 20 RN emp
- 81+ RN emp
- 21 - 40 RN emp



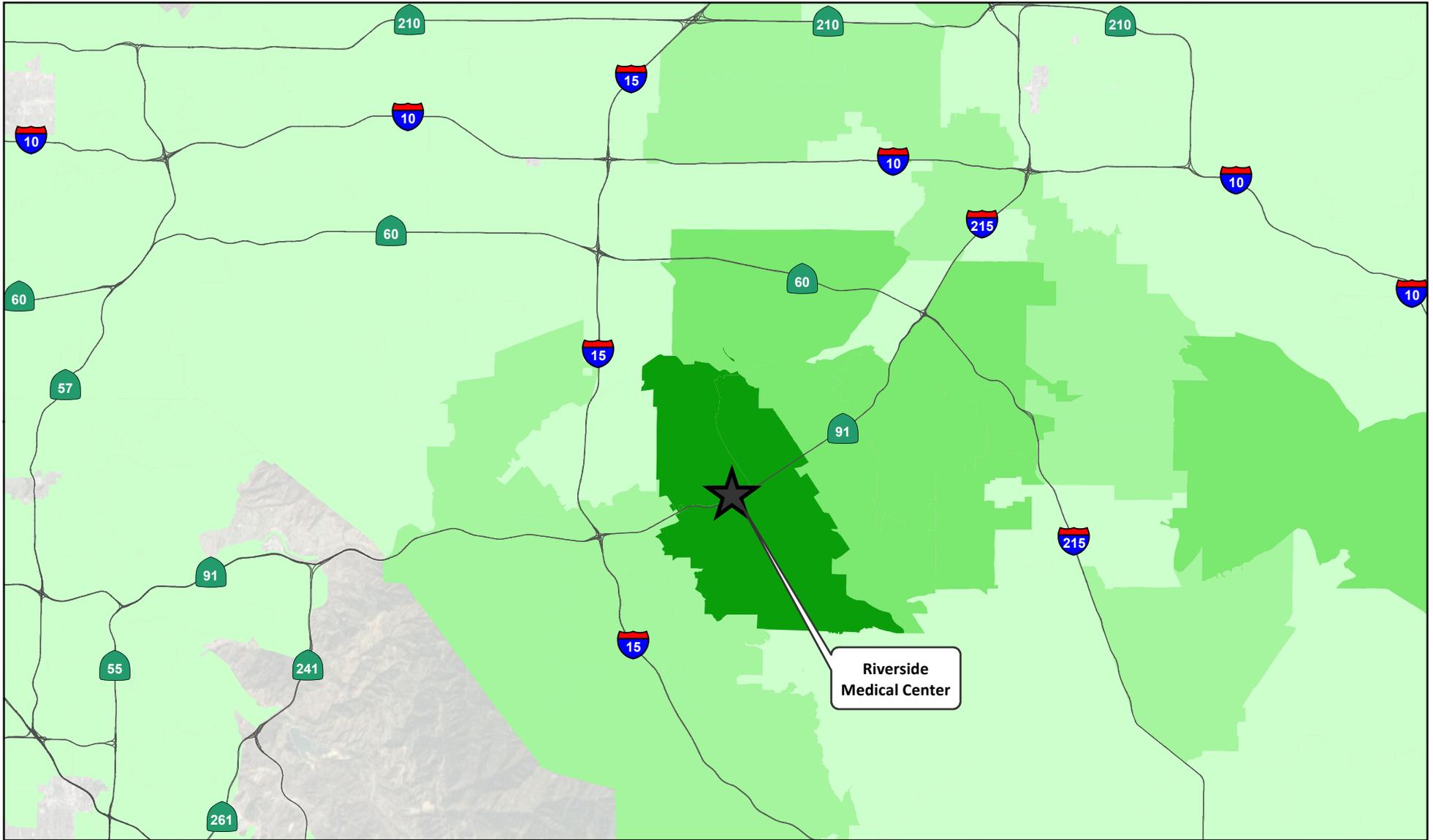
SOURCE: ESRI Streetmap, 2013; Google Earth, 2019.

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FIGURE 2-6B

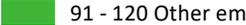
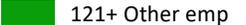
*Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis*

Kaiser Permanente Riverside Medical Center Registered Nurse (RN) Employee Residence



LSA

LEGEND

- | | |
|---|--|
|  0 - 30 Other emp |  91 - 120 Other emp |
|  31 - 60 Other emp |  121+ Other emp |
|  61 - 90 Other emp | |



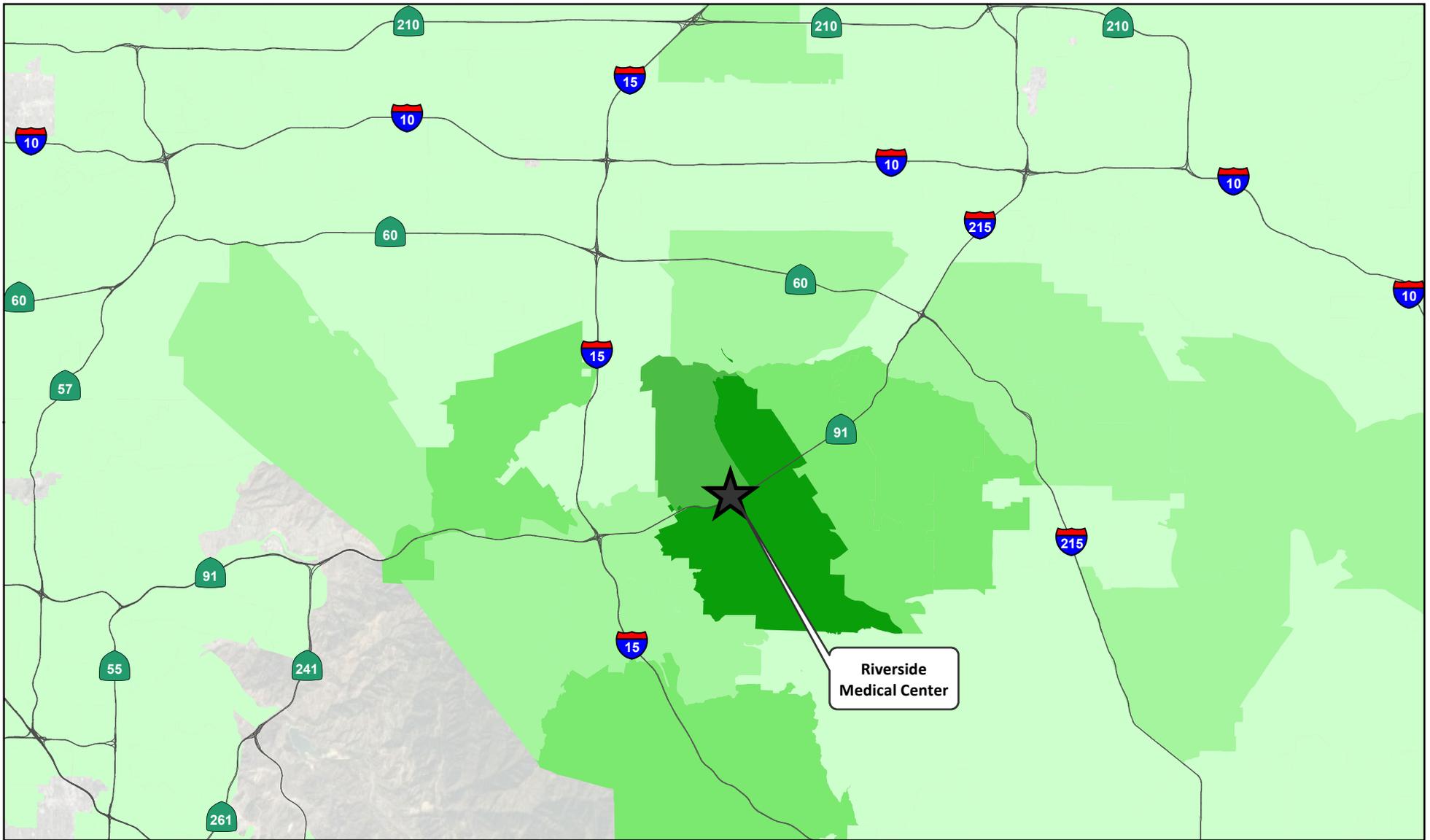
SOURCE: ESRI Streetmap, 2013; Google Earth, 2019.

R:\KSP1904 Kaiser Riverside Expansion\Traffic\Sept 2021\GIS\Reports\fig2-6C_Other_Employee.mxd (9/15/2021)

FIGURE 2-6C

*Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis*

Kaiser Permanente Riverside Medical Center Other Employee Residence



LSA

LEGEND

- 1 - 50 emp
- 151 - 200 emp
- 51 - 100 emp
- 201+ emp
- 101 - 150 emp



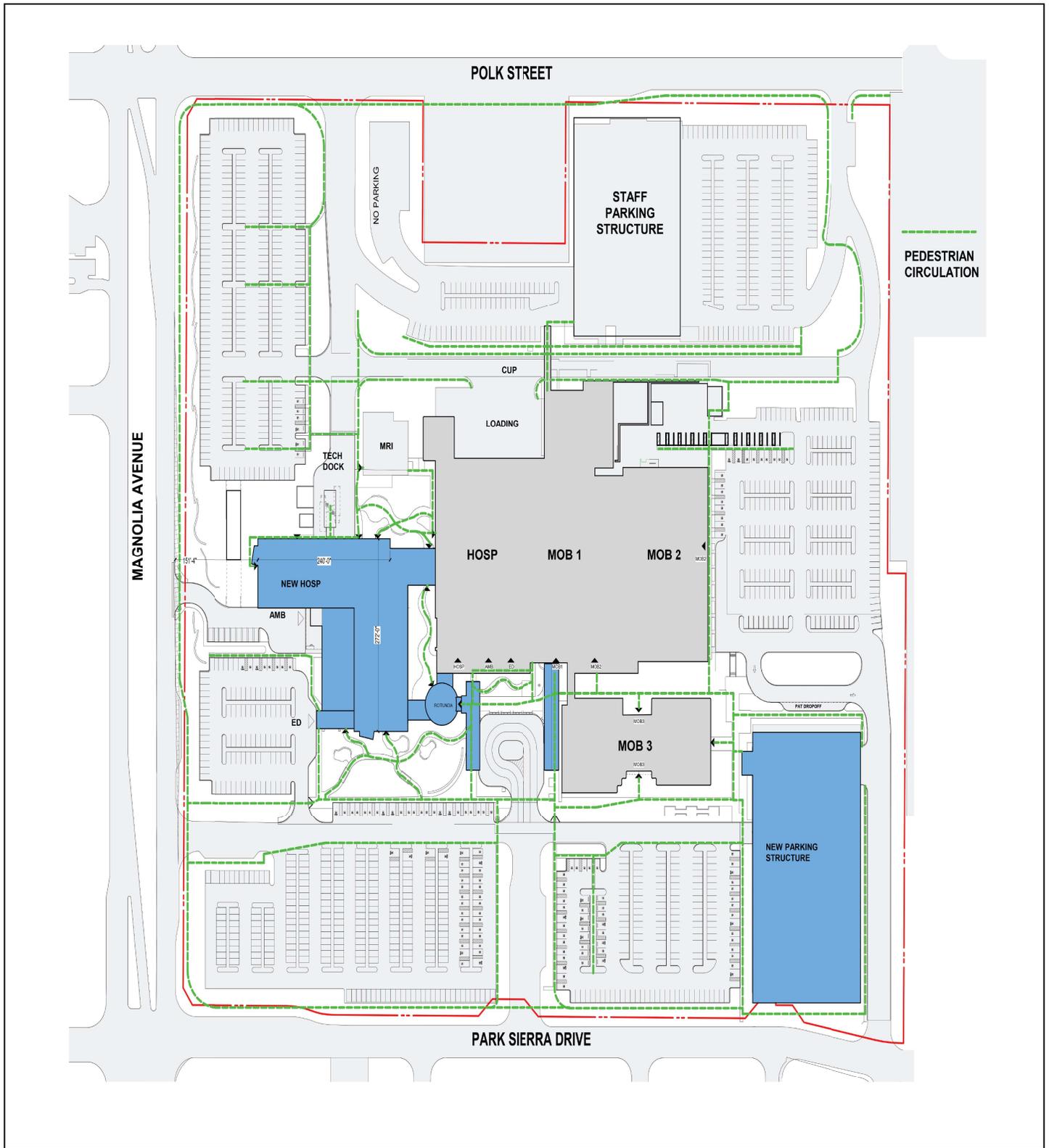
SOURCE: ESRI Streetmap, 2013; Google Earth, 2019.

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FIGURE 2-6D

*Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis*

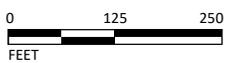
Kaiser Permanente Riverside Medical Center All Employee Residence



PEDESTRIAN
CIRCULATION

LSA

FIGURE 2-7



SOURCE: CO Architects (07/19/2021)
I:\KSP1904\Reports\Traffic\fig2-7_Ped_Circulation.ai (09/16/2021)

Kaiser Permanente Riverside Medical Center Expansion
Vehicle Miles Traveled Analysis

Pedestrian Circulation

Table 2-A: Difference in VMT due to Emergency Department Visitations

| Annual | Visits | Vehicle Miles Traveled (VMT) |
|--|---------------|-------------------------------------|
| Total Growth (patient visits) ¹ | 8,655 | |
| Growth due to redirects (patient visits) ² | 7,386 | (142,272) |
| Growth to full occupancy - 2036 (patient visits) ³ | 1,269 | 21,516 |
| Reduction in similar facility visits ⁴ | (940) | (6,543) |
| Total | 7,715 | (127,298) |

¹ Emergency Department growth projections were provided by Kaiser Permanente.

² Member zip codes where distance to the Riverside facility is lower than regional facilities were selected. Difference in distance from member residential zipcode to current and Riverside facilities were estimated. Two trips (to/from) were assumed.

³ Existing average trip length from member zip codes to the Riverside facility was used. Two trips (to/from) were assumed.

⁴ Kaiser proposes to add Emergency Department (ED) services to facilities in southern Riverside County. Currently, members have to travel to the Riverside facility for ED services. However, addition of ED services in the south will reduce a portion of existing trips coming to the Riverside facility.

Table 2-B: Difference in VMT due to Operating Rooms Service Changes

| Annual | Cases | Vehicle Miles Traveled (VMT) |
|--|--------------|-------------------------------------|
| Total Growth (cases) ¹ | 1,699 | |
| Growth due to redirects (cases) ² | 1,648 | (29,133) |
| Growth to full occupancy - 2036 (cases) ³ | 51 | 905 |
| Total | 1,699 | (28,228) |

1 Operating Rooms growth projections were provided by Kaiser Permanente.

2 Member zip codes where distance to the Riverside facility is lower than regional facilities were selected. Difference in distance from member residential zipcode to current and Riverside facilities were estimated. Two trips (to/from) were assumed.

3 Existing average trip length from member zip codes to the Riverside facility was used. Two trips (to/from) were assumed.

Table 2-C: Difference in VMT due to In-patient Facility Service Changes

| Annual | Surgery | | Intensive Care Unit (ICU) | | Neonatal Intensive Care Unit (NICU) | | Total | |
|---|--------------|------------------------------|---------------------------|------------------------------|-------------------------------------|------------------------------|--------------|------------------------------|
| | Admits | Vehicle Miles Traveled (VMT) | Admits | Vehicle Miles Traveled (VMT) | Admits | Vehicle Miles Traveled (VMT) | Admits | Vehicle Miles Traveled (VMT) |
| Total Growth (admits) | 4,354 | | 800 | | 873 | | 6,027 | |
| Growth due to redirects (admits) ² | 2,411 | (107,256) | 79 | (3,556) | 79 | (7,490) | 2,569 | (118,302) |
| Growth to full occupancy - 2036 (admits) ³ | 1,943 | 66,075 | 721 | 24,529 | 794 | 27,006 | 3,458 | 117,610 |
| Total | 4,354 | (41,181) | 800 | 20,973 | 873 | 19,516 | 6,027 | (692) |

1 In-patient Facility growth projections were provided by Kaiser Permanente.

2 Member zip codes where distance to the Riverside facility is lower than regional facilities were selected. Difference in distance from member residential zipcode to current and Riverside facilities were estimated. Four trips (1 member trip to/from and 1 visitor trip to/from per admit) were assumed for Surgery and ICU, whereas 7 trips were used for NICU due to longer average length of stay (ALOS) to calculate VMT.

3 Existing average trip length from member zip codes to the Riverside facility was used. Four trips (1 member trip to/from and 1 visitor trip to/from per admit) were assumed for Surgery and ICU, whereas 7 trips were used for NICU due to longer average length of stay (ALOS) to calculate VMT.

Table 2-D: Employee Related VMT

| | MD | Nurse | Other | Total |
|------------------------------|------|-------|-------|-------|
| KFH ¹ | 0 | 86 | 167 | 253 |
| SCPMG ² | 12 | 29 | 38 | 79 |
| Total | 12 | 115 | 205 | 332 |
| VMT/Employee | 43.5 | 36.7 | 36.5 | - |
| VMT Incremental ³ | 417 | 3,374 | 5,988 | 9,780 |

Notes:

¹ KFH: Kaiser Foundation Hospitals

² SCPMG: Southern California Permanente Medical Group

³ Incorporates a 80% worked to paid ratio.

KFH Full-time Equivalent (FTE) represents departments that are impacted by census & new bed tower capacity:

M/S, ICU, NICU, IP Pharmacy, Food & Nutrition, Patient Transportation, Admitting, EVS, Dialysis, Materials Management, and Linen.

Table 2-E: Net Daily VMT Change for the Project

| Daily VMT | |
|----------------------|-------|
| Emergency Department | (349) |
| Operating Room | (113) |
| Inpatient Beds | (2) |
| Employees | 9,780 |
| Total | 9,316 |

APPENDIX A:

VMT CALCULATIONS

Appendix A-1: Growth in Service Capacity due to the Project

| Annual | Existing Capacity (patient visits/cases/admits) | Expanded Capacity (patient visits/cases/admits) | Growth (patient visits/cases/admits) | Growth due to redirects (patient visits/cases/admits) | Growth to full occupancy - 2036 (patient visits/cases/admits) |
|--|---|---|---|---|--|
| Emergency Department (ED) | 63,150 | 71,805 | 8,655 | 7,386 | 1,269 |
| Operating Rooms (OR) | 9,800 | 11,499 | 1,699 | 1,648 | 51 |
| In-Patient Facility (IP) | | | | | |
| Surgery | | | 4,354 | 2,411 | 1,943 |
| Intensive Care Unit (ICU) | | | 800 | 79 | 721 |
| Post partum | | | 0 | 0 | 0 |
| Labor, Delivery, Recovery and Postpartum (LDRP) | | | 0 | 0 | 0 |
| Neonatal Intensive Care Unit (NICU) | | | 873 | 79 | 794 |

Source: Kaiser Permanente

Appendix A-2: Difference in VMT due to Emergency Department Visitations

| | Baseline (Existing 2019) | | | | | | Project Incremental Impact (Future @ Full Occupancy 2036) | | | | | |
|--------------------------------|--------------------------|--------|--------------|--|---|-----------------------|---|----------------------------------|--|--------------------|--|-------------------|
| | Central/West | South | Total RMC ED | RMC Admitted Inpatients to <24 hour Observation ¹ | Central/West Membership going to adjacent KP MC ED ³ | Total Existing Visits | Central/West (Existing) | Central/West Growth ⁴ | CDU shift of volume from IP Setting to ED ¹ | South ² | Redirect Volume from adjacent KP MCAs ³ | Total Incremental |
| Visits | 50,580 | 6,767 | 57,347 | 1,956 | 7,386 | 66,689 | No Change | 1,269 | No Change | (940) | 7,386 | 7,715 |
| VMT ⁵ | No Impact | 47,100 | | | 308,076 | | No Impact | 21,516 | No Impact | (6,543) | (142,272) | (127,298) |
| Total Incremental Trips | | | | | | | | | | | 15,430 | |

Source: Kaiser Permanente

Notes:

1. A clinical decision unit will be added to the new ED shifting patients currently observed for up to 23 hours 59 min from Inpatient setting to the ED.
2. Added contract in the south to reduce volume to RMC from South Riverside.
3. Volume anticipated to redirect from adjacent KP MC EDs (FMC & OVMC) to RMC ED once capacity is added. Lower acuity levels 3-5 with disposition status "Home" or "LWBS".
4. Planned new growth from the Central/West using the same proportion by zips of existing C/W visits. The incremental volume above what the current capacity is able to accommodate.
5. VMT based on number of car trips (visits) generated by the project and distances cars travel to and from the project. Point of origin based on member home zip. Miles from geocoding based on fastest route.

Appendix A-3: Difference in VMT due to Operating Rooms Service Changes

| | Baseline (Existing 2019) | | | | | Project Incremental Impact (Future @ Full Occupancy 2036) | | | | |
|------------------|------------------------------|--|-----------|---------------------------------------|-------------|---|---------------------------------------|--------------------------------------|-------------------------|-------------------|
| | Existing 7 ORs (normal hrs.) | Existing 7 ORs (Extended & Weekend hrs.) | Total RMC | Existing 2.2 ORs Ontario-Vineyard ASC | Total Cases | Existing 7 ORs (normal hrs.) | New 8 ORs (Eliminate Eve./Wkend hrs.) | New 8 Ors (Shift OVASC Cases to RMC) | Central/West Growth | Total Incremental |
| Cases | 5,474 | 4,392 | 9,866 | 1,648 | 11,514 | No Change | No Change | No Change | 51 | 51 |
| VMT ⁵ | No Impact | No Impact | | 88,981 | | No Impact | No Impact | (29,133) | 905 | (28,228) |
| | | | | | | | | | Total Incremental Trips | 102 |

Source: Kaiser Permanente

Notes:

1. A clinical decision unit will be added to the new ED shifting patients currently observed for up to 23 hours 59 min from Inpatient setting to the ED.
2. Added contract in the south to reduce volume to RMC from South Riveside.
3. Volume anticipated to redirect from adjacent KP MC EDs (FMC & OVMC) to RMC ED once capacity is added. Lower acuity levels 3-5 with disposition status "Home" or "LWBS".
4. Planned new growth from the Central/West using the same proportion by zips of existing C/W visits.
5. VMT based on number of car trips (visits) generated by the project and distances cars travel to and from the project. Point of origin based on member home zip. Miles from geocoding based on fastest route.

Appendix A-4: Difference in VMT due to In-patient Facility Service Changes

| | Licensed Beds | | | | | Incremental Capacity | | | Admits going to adjacent MCAs | Adjacent MCAs VMT | Admits due to C/W growth | C/W Growth VMT | Total Trips | Total VMT |
|--------------|------------------|-------------------------|------------|--------------|-----------------------|----------------------|------|--------------|-------------------------------|-------------------|--------------------------|----------------|---------------|--------------|
| | Existing-Current | Existing-Post Bed Tower | Bed Tower | Campus Total | Incremental Lic. Beds | Patient Days | ALOS | Admits | | | | | | |
| Med/Surg | 150 | 150 | 96 | 246 | 96 | 29,784 | 6.8 | 4,354 | 2,411 | (107,256) | 1,943 | 66,075 | 17,418 | (41,181) |
| ICU/CCU | 22 | 22 | 20 | 42 | 20 | 5,475 | 6.8 | 800 | 79 | (3,556) | 721 | 24,529 | 3,202 | 20,973 |
| Post Partum | 30 | 30 | 0 | 30 | 0 | 0 | | | | | | | | |
| LDRP | 5 | 5 | 0 | 5 | 0 | 0 | | | | | | | | |
| NICU | 19 | 0 | 36 | 36 | 17 | 4,716 | 5.4 | 873 | 79 | (7,490) | 794 | 27,006 | 3,730 | 19,516 |
| Total | 226 | 207 | 152 | 359 | 133 | 39,975 | | 6,028 | | | | | 24,349 | (692) |

Source: Kaiser Permanente

Notes:

NICU ALOS based on FMC MAR 2021 YTD to account to increased level of acuity to be provided at RMC.

ALOS for M/S & ICU is a weighted ALOS average for both services based on MAR 2021 YTD.

Trips for M/S & ICU assumes 4 per admit.

Trips for NICU at adjacent facilities assumes 7 per admit since it's a longer LOS (16 days), and 4 trips per admit for growth volume since its a shorter LOS (<6 days).

ALOS = Average length of Stay

NICU = Neonatal Intensive Care Unit