3.1 Transportation

This chapter describes potential environmental impacts related to transportation in the City of Vacaville associated with the proposed amendments to the Transportation Element of the City's General Plan and updates to the Energy and Conservation Action Strategy (ECAS). The impact analysis focuses on vehicle miles traveled (VMT) as the key metric for evaluating the City's transportation network. To provide context for the impact analysis, this chapter begins with a discussion of the environmental setting of the City's existing transportation system. Next, the regulatory framework is described, which provides part of the basis for impact significance thresholds used in the impact analysis. The chapter concludes with significance criteria, impact analysis findings, an examination of proposed changes to adopted Transportation Element policies, recommended mitigation measures, and the significance conclusion.

This chapter updates the transportation analysis of the General Plan EIR, specifically Section 4.14, Transportation. The General Plan EIR's transportation analysis relied upon LOS as the primary metric for evaluating transportation impacts. As described in Chapter 1.0, Introduction, of this EIR, level of service (LOS) may no longer be considered as a basis for evaluating transportation impacts under CEQA. Therefore, impacts TRA-1 through TRA-37 of the General Plan EIR have been superseded by this Supplemental EIR. The General Plan EIR's evaluation of conflicts with an adopted program, plan, ordinance or policy addressing transit, roadway, bicycle and pedestrian facilities remains a valid environmental issue and is described in this section.

Scoping comments related to transportation were received in response to the NOP for this SEIR. The California Department of Transportation (Caltrans) issued a comment letter supporting the project's stated objectives including the promotion of VMT as the citywide metric to understand the impact of development on the transportation network and the environment. The letter also mentioned that focus on meeting these objectives as well as the City's Energy and Conservation Action Strategy (ECAS) will assist the State in meeting statewide goals aimed at lowering greenhouse gas emissions. The NOP and scoping comments are provided in Appendix A of this Draft EIR.

3.1.1 Existing Conditions

This section provides contextual background to the City's transportation system. The General Plan addresses the overall planning and development of the circulation system for residents, employees, and visitors in a multi-modal framework. The General Plan addresses the correlation between the quality of the transportation network and the quality of life.

The City of Vacaville is located along the Interstate 80 (I-80) and Interstate 505 (I-505) corridors in Solano County. The City is situated about 35 miles west of Sacramento, and a slight longer distance east of cities in the East Bay (e.g., 38 miles to Walnut Creek). The following sections provide an overview of the City's transportation system, commute characteristics of its residents, and existing VMT.

Transportation System

The transportation system serving Vacaville consists of systems of roadways, transit facilities/services, and bicycle/ pedestrian facilities.

Roadway System

Vacaville is accessed by 11 distinct full or partial interchanges along from I-80 and I-505. Access to the city is also provided by surface streets such as Peabody Road, Vanden Road, Pleasants Valley Road, Gibson Canyon Road, Browns Valley Road, Midway Road, Fry Road, Hawkins Road, and Weber Road. Within the City, a series of arterials, collectors, and residential streets are provided. Refer to **Figure 3.1-1** for the City's existing roadway network.

Transit System

Fixed-route bus service within the City is provided by City Coach, which is operated by the City of Vacaville. Service is provided by three routes operated throughout much of the City. Most of its routes either begin or end at one of the two City transportation centers: the Vacaville Transit Plaza, located at the corner of Monte Vista Avenue and Cernon Street in the Downtown, and the Vacaville Transportation Center, located at the northeasterly corner of Allison Drive and Ulatis Drive.

Bicycle/Pedestrian System

Sidewalks are present on many City streets. Crosswalks are present at both signalized and unsignalized crossings. Bicycle routes include both on-street and off-street facilities located throughout the City as shown on **Figure 3.1-2**.

Truck Routes

The City has established an extensive truck route network on which vehicles exceeding a gross vehicle weight rating of 5 tons (i.e., the City's definition of "trucks") must travel unless they are destined for, or originated from, points within the city. The shortest and most direct routes must be used to and from the truck routes, and/or between locations within the city. Designated truck routes within the City are shown on **Figure 3.1-3**.

Aviation System

The Nut Tree Airport, which is situated in Vacaville a short distance north of I-80, serves as a valuable resource for business and recreational air travel.

Commute Characteristics of Vacaville Residents

The automobile is the most widely used mode of transportation in Vacaville. According to the U.S. Census Bureau, 2019 American Community Survey[1], 95 percent of Vacaville residents who work outside their home use a private vehicle for travel to and from work. This resource also shows the amount of time commuters take to get to work. Based on the data, about 29 percent of workers living in Vacaville traveled to work in less than 15 minutes, 30 percent traveled to work in 15 to 29 minutes, 27 percent traveled to work in 30 to 59 minutes, and 15 percent traveled to work in 60 minutes or more. Average travel time to work was estimated to be 29 minutes.

[1] Accessed at (on 12/9/2020): https://data.census.gov/cedsci/table?q=commute%20mode%20vacaville%20ca&tid=ACSST1Y2019.S0801&hidePreview=false

Figure 3.1-1: Existing Street Network

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Figure 3.1-2: Existing Bicycle Routes

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Figure 3.1-3 Existing Truck Routes

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City of Vacaville Base Year Travel Demand Model

Table 3.1-1 displays the base year (2015) model land use summary for the primary trip generating land uses in the City.

Table 3.1-1. City of Vacaville Base Year Model Land Use Summary

Land Use [1]	Units [2]	Quantity
Single-Family Units	du	24,867
Multi-Family Units	du	7,187
Age-Restricted Units	du	2,707
Office	ksf	928
Highway Commercial	ksf	1,491
General Retail [3]	ksf	7,186
Industrial	ksf	3,751
Warehouse	ksf	4,385
Students	Students	15,648

Notes:
1 Land uses shown are the primary "trip generating uses" within the City.
2 du = dwelling units. ksf = Thousand square feet of floor space.
3 General retail covers more specific retail uses such as supermarkets, restaurants and hotels.
Sources:
[a] City of Vacaville Base Year Travel Demand Model.

The US Census reports the following data for 2015 (year chosen to coincide with base year model validation date) for Vacaville[2]:

- There were 32,696 total jobs located within the Vacaville City limits. The most common industry was health care/social assistance (22 percent) followed by retail trade (17 percent) and accommodation/food service (11 percent). Jobs in the information, finance, insurance, real estate, professional/scientific/technical, management, and public administration sectors accounted for a combined 15 percent of all jobs.
- Approximately 54 percent of jobs paid less than $40,000 per year.
- About 77 percent of employed persons living in Vacaville commuted to work destinations outside the City.
- About 72 percent of jobs in Vacaville are filled by persons living outside the City.

Based on the above data, the City had an overall jobs-housing ratio of 1.02 in 2015 (based on the 32,696 total jobs and 32,054 dwelling units, excluding age-restricted units). So, while this jobs-housing ratio may appear 'balanced', the discrepancy between housing costs and wages within the City has contributed to large proportions of inflows and outflows of workers, as evidenced by the above commuting statistics.

Vehicle Miles Traveled (VMT)

By definition, one VMT occurs when a vehicle is driven on a roadway for one mile (regardless of how many people are traveling in the vehicle). VMT is used to measure the performance of the transportation network and to evaluate potential transportation-related impacts on the environment. VMT is often expressed on an efficiency basis (i.e., per unit, per resident, per thousand square feet, etc.) to understand whether people are traveling more or less by vehicle over time, across different areas, or across different planning scenarios. When the efficiency VMT metrics

[2] Source (accessed on December 10, 2020): https://onthemap.ces.census.gov/

show a decline in VMT over a baseline condition, this indicates that the transportation network is operating more efficiently, and that people have more travel choices.

Table 3.1-2 shows the Citywide Land Use Summary VMT from the base year travel demand model. This table shows that the City's land uses generate approximately 6.79 million VMT each weekday.

Table 3.1-2. City of Vacaville Base Year Travel Demand Model – Citywide Land Use Summary VMT

Area	VMT [1]
City of Vacaville	6,785,800

Notes:
1 Represents all trips that begin or end within Vacaville. Portion of trips beyond Vacaville City limits also included. Trips passing through the City without stopping (e.g., through travel on I-80) are excluded.
Sources:
[a] City of Vacaville.

Table 3.1-3 displays the average VMT per land use type from the base year travel demand model. The values shown in Table 3.1-3 are used as the baseline setting, against which the VMT by land use type associated with the Proposed General Plan is evaluated. The values from Table 3.1-3 appear reasonable based on the following:

- Multi-family units generate about two-thirds of the VMT as single-family units. This is intuitively correct given that they also generate about two-thirds of the number of daily trips as single-family units.
- Age-restricted units generate considerably less travel than the other unit types due to both limits of number of household occupants and low percentage of residents who are employed.
- The average office VMT of 91 miles per KSF of office space is reasonable given that office generates about 10 daily trips per KSF, meaning an average trip length of about nine miles.
- Highway commercial has the largest VMT per KSF due to a substantial amount of its trips being attracted from regional travel routes such as I-80 and I-505.
- The industrial and warehouse categories have the lowest VMT per KSF due to their much lower daily trip rates when compared to office and retail.

Table 3.1-3. City of Vacaville Base Year Model Average VMT by Land Use Type

Land Use [1]	Units [2]	Citywide Average VMT	Significance Threshold [3]
Single-Family Units	du	86.4	73.4
Multi-Family Units	du	58.5	49.7
Age-Restricted Units	du	37.6	32.0
Office	ksf	90.8	77.2
Highway Commercial	ksf	158.2	134.5
General Retail 4	ksf	121.5	103.3
Industrial	ksf	34.6	29.4
Warehouse	ksf	17.9	15.2

Notes:
1 Land uses shown are the primary "trip generating uses" within the City.
2 du = dwelling units. ksf = Thousand square feet of floor space.
3 Significance threshold is a 15 percent reduction from the Citywide average VMT for each land use category.
4 General retail also covers more specific retail uses such as supermarkets, restaurants, hotels, etc. The model does not contain separate land use categories for those use types.
Sources:
[a] City of Vacaville Base Year Travel Demand Model.

3.1.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal plans, policies, regulations, or laws related to transportation that would affect the project. However, federal regulations relating to the Americans With Disabilities Act, Title VI, and Environmental Justice relate to transit service.

State

Senate Bill 743

SB 743, passed in 2013, required the California Governor's Office of Planning and Research (OPR) to develop new CEQA guidelines that address traffic metrics under CEQA. As stated in the legislation, upon adoption of the new guidelines, "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 this division, except in locations specifically identified in the guidelines, if any." In December 2018, OPR published *Technical Advisory on Evaluating Transportation Impacts in CEQA,* which provided guidance for implementing SB 743. The *Technical Advisory* concluded that "achieving 15 percent lower VMT than existing development is both generally achievable and is supported by evidence that connects this level of reduction to the State's emissions goals". On December 28, 2018, the Resources Agency adopted CEQA Guidelines Section 15064.3. Under this guideline, VMT is the primary metric used to identify transportation impacts. On July 1, 2020, the provisions of Section 15064.3 became effective statewide.

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining the State Highway System (SHS). Federal highway standards are implemented in California by Caltrans. Any improvements or modifications to the SHS would need to be approved by Caltrans.

In May 2020, the California Department of Transportation (Caltrans) published the *Vehicle Miles Traveled-Focused Transportation Impact Study Guide (TISG)*, which replaced its *Guide for the Preparation of Traffic Impact Studies* (2002). The TISG generally endorses the policies, technical approaches, and recommendations from OPR's *Technical Advisory*. It also indicates that Caltrans intends to "transition away from requesting LOS or other vehicle operations analyses of land use projects", instead placing the focus on VMT and safety.

California Air Resources Board (ARB)

The ARB has specific guidance for VMT thresholds in the *ARB 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* (January 2019). This document provides recommendations for VMT reduction thresholds that would be necessary to achieve the state's GHG reduction goals and acknowledges that the SCS targets alone are not sufficient to meet climate goals. ARB concluded that a 14.3-percent reduction in total VMT per capita and a 16.8 percent reduction in light-duty VMT per capita (over current conditions; 2015-2018) was needed to meet these goals.

Local

City of Vacaville General Plan

As proposed to be amended, the Transportation of Element of the City's General Plan sets forth the following goals, policies, and actions that are directly or indirectly related to vehicle miles traveled.

Goal TR-7 Provide a balanced, multimodal transportation network that meets the needs of all users

Policies

Policy TR-P7.1 Continue to implement a local Complete Streets Policy.

Policy TR-P7.8 Prioritize transportation improvements that support and enhance travel by transit, bicycle, and pedestrian modes to and from designated Priority Development Areas (PDA).

Actions

Action TR-A7.5 Construct off-site transit facilities to enhance citywide transit service and to offset new developments' impact on citywide congestion levels and greenhouse gas emissions.

Action TR-A7.8 Consider including transportation improvements that will support and enhance travel by transit, bicycle, and pedestrian modes in updates to the Development Impact Fee program.

Goal TR-8 Increase bicycling by improving the network of bikeway and support facilities

Policies

Policy TR-P8.1 Construct the comprehensive network of on- and off-roadway bike routes identified in Figure TR-2 to encourage the use of bikes for commute, recreational, and other trips as part of new development and as funding allows in existing developed areas.

Policy TR-P8.5 Enhance and improve bicycle connections between neighborhoods and between neighborhoods and significant destinations, such as parks, schools, transit stops and transit centers, shopping centers, and employment centers.

Policy TR-P8.7 Encourage major employers to provide support facilities to encourage use of bikes for commute purposes.

Actions

Action TR-A8.5 Seek funding to construct bicycle infrastructure to enhance the citywide bike route network and to offset existing and new development's impacts on citywide congestion levels and greenhouse gas emissions.

Goal TR-10 Reduce traffic impacts through transportation systems management (TSM) and transportation demand management (TDM).

Policies

Policy TR-P10.2 Work cooperatively with the Solano Transportation Authority (STA) to promote transportation demand management programs to reduce peak-period trip generation

Policy TR-P10.3 Work with the Solano Transportation Authority (STA) to encourage major employers to adopt Transportation Systems Management (TSM) programs that will reduce peak-period trip generation by 20 percent or more from the vehicle trip generation currently observed at similar sites without a TSM program.

Policy TR-P10.4 Encourage Transportation Demand Management (TDM) programs that limit vehicle use, such as ridesharing and public transit, over those that extend the commute hour, such as flex-time and staggered work hours, to provide greater benefits to regional air quality.

Actions

Action TR-A10.1 Amend Chapter 10.60, Transportation System Management, of the Vacaville Municipal Code, to be in compliance with State law.

Goal TR-11 Support a comprehensive, convenient, and efficient transit system.

Policies

Policy TR-P11.2 Encourage the expansion of an inter-city public transit/bus system to link Vacaville with neighboring communities.

Policy TR-P11.3 When financially feasible, support increased frequency and operational hours of public transit service consistent with current short- and long-range transit planning

3.1.3 Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed amendments to the Transportation Element of the City's General Plan would result in a significant transportation-related impact if they would:

- Conflict or be inconsistent with CEQA Guidelines § 15064.3, (b)(1), which states that, for land use projects "[v]ehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact."
- Construct additional roadway capacity that would lead to induced travel and increased VMT.
- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.

With regard to the first threshold, the City has selected a significance threshold for land use projects that is 15 percent below baseline conditions, as recommended in the OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA*. Page 18 of the *Technical Advisory* states: "A general plan, area plan, or community plan may have a significant impact on transportation if proposed new residential, office, or retail land uses would in aggregate exceed the respective thresholds recommended above".

With regard to the second threshold, the *Technical Advisory* indicates that transportation projects that would cause induced travel, as evidenced by an increase in VMT, would be considered to cause a significant impact. Thus, any increase in VMT caused by a roadway-capacity increasing project would be considered a significant impact. Appendix 2 to the *Technical Advisory* contains technical approaches for estimating the induced travel effects of transportation projects.

The last three items are analyzed based on information in the General Plan EIR.

3.1.4 Impact Analysis

Analysis Methodology

The transportation impact analysis relies primarily on the City of Vacaville travel demand model, which is a trip-based model that covers the entire City. It includes "external gateways" to reflect the freeway and surface street routes connecting the City to external areas (e.g., Peabody Road south of the City, I-80 east of the City) and appends trip lengths to those gateways to reflect the full distance of travel to external destinations such as Fairfield, Davis, the Bay Area, and Sacramento. The model uses a standard three-step trip generation, distribution, and assignment process (note that since a mode split component is not included, the model estimates vehicle trips only). The base year model was validated to 2015 conditions, while the cumulative model corresponds to 2050 conditions. Details about model land uses and roadway network assumptions are provided later in this chapter.

Because the proposed General Plan amendments do not include any modifications to the transportation system (and does not contemplate land use changes), this chapter focuses primarily on VMT both at a citywide level and for specific land use types and for specific roadway improvement projects. Following are definitions of three distinct types of VMT that are presented in this chapter.

- Citywide Land Use VMT – The values reported for this variable reflect the total VMT for all vehicle trips that have a trip end (i.e., origin or destination) in Vacaville. The VMT is not truncated at City boundaries (i.e., the entirety of a commute trip made by a Vacaville resident who works in Fairfield is counted). VMT associated with trips that pass through the city without stopping are excluded.
- VMT by Land Use Type – These values are calculated in the same manner as described directly above. For the residential uses, the VMT considers home-based trips only. Non-home-based trips by a resident cannot be tracked back to the household making the trip. Results are disaggregated at a traffic analysis zone (TAZ) level by land use type (e.g., residential, office, retail, etc.) to facilitate further detailed reviews of VMT efficiency in different parts of the City.
- VMT Effect of Roadway Projects – These values represent the net change in VMT caused by a given roadway widening or expansion project. The effect of the given project on VMT is calculated based a comparison (between the two model runs) of the summed VMT of all roadway links in the model (including on I-80 and I-505, as City roadway improvements may affect travel on these corridors).

General Plan VMT

The City's existing General Plan contemplates considerable land use growth including buildout of the City with the exception of the northeast area planning area (i.e., southeast of I-80 between Leisure Town Road and Weber Road). **Table 3.1-4** displays the growth in land use by category within Vacaville between the base year model and cumulative year model.

This table indicates that non-residential growth is expected to far outpace residential growth. Whereas an approximate 40 percent increase in residential is planned, the amount of industrial and office space is expected to more than triple. This will cause a significant change in travel behaviors among City residents; specifically, a lower proportion of commute trips by City residents are expected to leave the City.

The General Plan also contemplates a number of roadway widening/expansion projects throughout the City as well as improvements to certain interchanges on I-80 and I-505 that serve city residents and businesses. These planned roadway improvements are shown on **Figure 3.1-4**.

Table 3.1-4. City of Vacaville General Plan Land Use Summary

Land Use [1]	Units [2]	Quantity		Increase (Percent)
		Base Year	General Plan	
Single-Family Units	du	24,867	34,476	9,609 (39%)
Multi-Family Units	du	7,187	10,197	3,010 (42%)
Age-Restricted Units	du	2,707	2,790	83 (3%)
Office	ksf	928	3,165	2,237 (240%)
Highway Commercial	ksf	1,491	2,499	1,008 (68%)
General Retail [3]	ksf	7,186	10,927	3,741 (52%)
Industrial	ksf	3,751	11,744	7,993 (213%)
Warehouse	ksf	4,385	6,346	1,961 (45%)
Schools	students	15,648	23,147	7,499 (48%)

Notes:
1 Land uses shown are the primary "trip generating uses" within the City.
2 du = dwelling units. ksf = Thousand square feet of floor space.
3 General retail covers more specific retail uses such as supermarkets, restaurants and hotels.
Sources:
[a] City of Vacaville travel demand model.

VMT Analysis

Table 3.1-5 shows the Citywide Land Use VMT Summary from the cumulative year travel demand model, which represents General Plan buildout. This table shows that a 38 percent increase in VMT attributable to land use growth in the City is expected with General Plan buildout. This provides an early glimpse into the overall change in VMT efficiency with implementation of the General Plan as amended by the proposed project. Specifically, with the exception of age-restricted units, all land uses in Table 3.1-4 are projected to grow by more than 38 percent. Yet, the overall increase is just 38 percent. This result is being caused by an improved jobs-housing balance, in which fewer residents are required to commute long distance outside the City limits for work purposes.

Table 3.1-5. City of Vacaville Cumulative Year Travel Demand Model – Citywide Land Use VMT Summary

Area	Citywide Land Use VMT Summary [1]		Percent Increase
	Base Year	General Plan	
City of Vacaville	6,785,800	9,381,610	38%

Notes:
1 Represents all trips that begin or end within Vacaville. Portion of trips beyond Vacaville City limits also included. Trips passing through the City without stopping (e.g., through travel on I-80) are excluded.
Sources:
[a] City of Vacaville Cumulative Travel Demand Model.

Table 3.1-6 displays the average VMT per land use type under the General Plan. Later, these values are compared against thresholds derived from the base year model (i.e., the baseline condition) to evaluate VMT efficiency by land use type.

Figure 3.1-4 Roadway Improvements in 2050

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Table 3.1-6. City of Vacaville Cumulative Year Model Average VMT by Land Use Type

Land Use [1]	Units [2]	Citywide Average VMT under General Plan Buildout
Single-Family Units	du	76.5
Multi-Family Units	du	55.5
Age-Restricted Units	du	35.0
Office	ksf	83.4
Highway Commercial	ksf	158.1
General Retail [3]	ksf	125.1
Industrial	ksf	28.3
Warehouse	ksf	15.7

Notes:
1 Land uses shown are the primary "trip generating uses" within the City.
2 du = dwelling units. ksf = Thousand square feet of floor space.
3 General retail covers more specific retail uses such as supermarkets, restaurants and hotels.

Sources:
[a] City of Vacaville Cumulative Year Travel Demand Model

Like most models, the Vacaville travel demand model does not explicitly consider how emerging trends, new technologies, and evolving user preferences may shape the future of travel. Significant uncertainties exist at the present time that prevent explicit modeling of these new modes and emerging trends for the analysis of the General Plan. Some of these emergent changes that could influence future travel forecasts include:

- Substitution of internet shopping and home delivery for some shopping or meal-related travel.
- Substitution of telework for commute travel.
- New travel modes and choices including transportation network companies (TNCs) such as Uber and Lyft, car share, bike share, scooter share, and on-demand micro-transit.
- Automated and connected vehicles.

The impact of new modes on individual and household travel behavior also is not fully understood and is the subject of ongoing research. It would be speculative at this time to have made assumptions about their degree of impact in the cumulative condition analysis.

The City has selected 13 distinct roadway improvement projects for project-level VMT analysis. These facilities are listed in **Table 3.1-7.** For each facility, model runs were conducted using the base year and cumulative year version of the City's travel demand model. The net change in VMT predicted by the model for each roadway improvement and for each horizon is reported in the table. These values represent "short-term" VMT change because they represent an initial set of travel behavior changes (e.g., change trip destination, change trip route, etc.) that may be expected. However, they do not capture the full effects of induced travel, which are described below. Table 3.1-7 indicates that the individual effect of most roadway projects would be a decrease in VMT, with reductions more significant under the General Plan buildout scenario. This is to be expected given the amount of growth planned within the City that will rely on the expanded/lengthened roadways for their travel needs. Without those projects, existing facilities may be close to capacity, resulting in rerouting of trips to longer routes.

Table 3.1-7. City of Vacaville Roadway Improvement Projects – Net Change in VMT					
#	Roadway	Description of Improvement	Length	Net Change in VMT [1]	
				Base Year	General Plan Buildout
1	Vaca Valley Parkway	Extend from Wrentham Dr to Gibson Canyon Road as a two-lane road	4,200 ft.	-2,965	-4,527
		Widen from four to six lanes from Crescent Dr to I-505 [2]	4,750 ft.	-201	-4,286
		Widen from two to four lanes from I-505 to Browns Valley Road	7,900 ft.	+143	-4,394
2	Browns Valley Road	Widen from two to four lanes from Browns Street to Vaca Valley Parkway	7,250 ft.	-155	-643
3	East Monte Vista	Widen from two to four lanes from County Airport Road to Vaca Valley Parkway	7,900 ft.	-162	-467
4	California Drive overcrossing of I-80	Extend from California / Marshall to Cherry Glen Road as two-lane road	3,900 ft.	-755	-2,538
5	Midway Road	Widen from two to four lanes from I-80 to western City limits [3]	5,300 ft.	+27	-198
6	Leisure Town Rd	Widen from two/four lanes to six lanes from Orange Drive to Fry Road	17,400 ft.	+2,419	-8,989
7	Nut Tree Road overcrossing of I-80	Widen from four to six lanes from Orange Drive to East Monte Vista Avenue	950 ft.	-680	-823
8	Fry Road	Widen from two to four lanes from Leisure Town Rd to Carroll Way	1,850 ft.	-610	-190
9	Elmira Road	Widen from two to four lanes from Leisure Town Rd to Carroll Way	1,850 ft.	+96	+232
10	Hawkins Road	Widen from two to four lanes from Leisure Town Rd to Carroll Way	1,850 ft.	-577	+91
11	Orange Drive Extension	Extend as two-lane road from Walnut Road to Weber Road	7,950 ft.	-28	-50
12	Lagoon Valley Road/ I-80 interchange	Reconstruct interchange[4]	-	0	0
13	Gibson Canyon Road	Widen to provide a two-way left-turn lane from East Hemlock Way to Farrell Drive [4]	-	0	0
		Combined Effect of all Projects [5]		+2,626	-33,158

Notes:

1 This is considered the short-term effect of each project on VMT. Refer to above text for details.
2 Includes improvements at I-505/Vaca Valley Parkway interchange.
3 Includes improvements at I-505/Midway Road interchange.
4 This is not a capacity-increasing improvement. Therefore, model shows no net change in VMT.
5 Values shown here are not the summation of each listed above, but rather the overall VMT change derived from including/excluding all projects from the City's base year and cumulative year models.

Sources:

[a] City of Vacaville Base Year and Cumulative Travel Demand Model.

Appendix 2 to the *Technical Advisory* provides an in-depth discussion of induced travel and ways of estimating it. Induced travel occurs when roadway capacity is expanded in an area of present or projected future congestion. The effect typically manifests over a number of years. Lower travel times make the modified facility more attractive to travelers, potentially resulting in any/all of the following:

- Longer trips (i.e., reduced travel time increases the attractiveness of destinations that are farther away),
- Mode choice changes (travel by automobile may become more appealing),
- Route changes (i.e., shifting away from slower routes, despite being longer in distance),
- New trips (i.e., increasing travel speeds can induce additional trips), and
- Land use changes (i.e., reduced travel times along a corridor) may lead to land development farther along that corridor).

While some of the above travel behavior changes would occur soon after a facility is built or expanded, other effects (e.g., land use changes) typically occur over a number of years. Most travel demand models are not able to fully capture the induced travel effects like those mentioned above.

To quantify induced travel demand, Appendix 2 of the *Technical Advisory* recommends the use of an induced travel VMT calculator, which is found on the website for the National Center for Sustainable Transportation at UC Davis.[3] The calculator allows users to estimate the VMT induced annually as a result of expanding the capacity of roadways in one of California's urbanized counties. The calculator was applied to estimate the combined induced VMT of the 13 projects shown in Table 3.1-7. **Table 3.1-8** shows the results and indicates that an induced VMT of approximately 130,000 per day would be expected with buildout of currently planned roadway improvements.

Table 3.1-8. City of Vacaville Roadway Improvement Projects – VMT Caused by Induced Travel

Project(s)	Induced Travel VMT Calculator [1]			
	Inputs			Output
	Facility Type	County	Number of Miles	Daily VMT Added
City of Vacaville Roadway Improvements [2]	Class II and III [3]	Solano	31	129,863

Notes:
1 Refer to https://blinktag.com/induced-travel-calculator/index.html for induced travel VMT calculator
2 Refer to Table 3.1-7 for list of improvements.
3 Class II and III improvements are on non-interstate freeways or expressways, and principal arterials, respectively.

Sources:
a Fehr & Peers, 2021.

[3] Calculator (accessed on December 22, 2020) is found at: https://blinktag.com/induced-travel-calculator/index.html

Impacts and Mitigation Measures

Impact TRA-1 Implementation of the City's General Plan would generate average VMT per dwelling unit and per thousand square feet of non-residential space that exceeds the applicable significance threshold. This impact is considered significant.

The City has selected a threshold of 15 percent below the City-wide average baseline VMT per dwelling unit (for residential, specific to unit type) or per KSF (for non-residential, specific to use type). Therefore, if any of the VMT metrics presented in Table 3.1-6 for the General Plan exceeded 85 percent of the value under the baseline condition, VMT impacts on transportation would be considered significant. **Table 3.1-9** displays this comparison.

This table indicates that for residential, office, industrial, and warehousing, the General Plan would have an average VMT that is less (i.e., more efficient) than the base year value. However, since the applicable threshold is 15 percent below the base value, the VMT threshold is only met for industrial space. An additional reduction ranging from three to ten percent would be needed for these categories to reach the applicable VMT threshold. The two retail categories would have average VMT that is slightly greater (i.e., less efficient) than the base year value. These uses would require a reduction ranging from 15 to 17 percent to reach the VMT threshold.

Table 3.1-9. City of Vacaville VMT Thresholds for Land Uses

Land Use [1]	Units [2]	VMT per Land Use Type			Reduction Needed to Achieve Threshold
		Base Year Model [3]	General Plan Buildout	Threshold (i.e., 85 percent of Base Condition) [3]	
Single-Family Units	du	86.4	76.5	73.4	4.1%
Multi-Family Units	du	58.5	55.5	49.7	10.5%
Age-Restricted Units	du	37.6	35.0	32.0	8.6%
Office	ksf	90.8	83.4	77.2	7.4%
Highway Commercial	ksf	158.2	158.1	134.5	14.9%
General Retail [4]	ksf	121.5	125.1	103.3	17.4%
Industrial	ksf	34.6	28.3	29.4	-
Warehouse	ksf	17.9	15.7	15.2	3.2%

Notes:
1 Land uses shown are the primary "trip generating uses" within the City.
2 du = dwelling units. ksf = Thousand square feet of floor space.
3 Refer to Table 3.1-3.
4 General retail covers more specific retail uses such as supermarkets, restaurants and hotels.

Sources:
[a] City of Vacaville Cumulative Year Travel Demand Model

CEQA Guidelines Section 15183 (Projects Consistent with a Community Plan, General Plan, or Zoning) specifies that projects that 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. In this instance, the impacts of all land use projects contemplated in the City's General Plan have been analyzed to determine their effect on VMT, which is the preferred metric for analyzing the transportation system per CEQA Guidelines 15064.3.

Future projects consistent with the General Plan will not require further VMT analysis pursuant to CEQA. However, those projects would be subject to Mitigation Measure TRA-1 (in Section 3.1-6) unless it can be demonstrated that the project's specific land use type and location is in a "VMT efficient" location. To perform such evaluations, the City has prepared a report entitled *Interim SB 743 Implementation Guidelines for City of Vacaville* (January 2021). These streamlining provisions do not alleviate the need for evaluation of project impacts to related to other components of the transportation system, such as pedestrian/bicycle facilities, transit facilities and services, hazards, emergency access, construction, etc. Proposed projects that are not consistent with the General Plan require VMT impact analysis in a manner prescribed by the *SB 743 Implementation Guidelines for City of Vacaville*.

Impact TRA-2 Implementation of the City's General Plan would result in additional roadway capacity that would lead to induced travel and increased VMT. This impact is considered significant.

Table 3.1-7 lists 13 specific roadway capacity projects within the Vacaville City Limits and their short-term effects on VMT. While some projects cause a net increase in VMT, most cause a decrease in VMT. The induced travel effects of these projects were also evaluated. This metric relates to longer term effects, such as land use changes and mode choice shifts that may occur for a number of years. As shown in Table 3.1-8, buildout of the General Plan would cause an induced VMT of approximately 130,000 miles of travel per day. Therefore, the VMT impacts of transportation projects on VMT would be considered significant.

Impact TRA-3 The project would not conflict with a program, plan, ordinance or policy addressing transit, bicycle or pedestrian facilities.

The General Plan EIR found that the General Plan includes policies that provide for an integrated network of bicycle and pedestrian facilities, as well as for the needs of transit users. The Plan calls for the construction and enhancement of a bike route network to encourage non-motorized transport between neighborhoods and between neighborhoods, in addition to key destinations for commute, recreational, and other purposes. The Plan also requires the City to develop a series of continuous pedestrian walkways within the Downtown and residential neighborhoods and to design separated pedestrian paths and trails to be convenient, visible, and safe. The Plan encourages improvements in the transit network by supporting expansion of both local services, when financially feasible and the intercity system, while working to enhance rideshare parking opportunities. New developments are required to include transit amenities unless justification for non-provision is provided, bike paths or bike lanes when appropriate, and adequate public and private bicycle parking and storage facilities. The roadway network in new developments must also be designed to accommodate transit vehicles and facilitate transit routes and on-street bicycle lanes where feasible and as a grid pattern to improve access and circulation for all modes. Implementation of the City's General Plan would therefore support and would not conflict with plans, programs and policies regarding bicycle or pedestrian facilities, or decrease the performance and safety of such facilities.

The General Plan EIR notes that the General Plan would allow for development to occur in areas not currently served by public transit at equal service levels to the rest of the Local Tax Base Area. This would be in conflict with the accessibility and geographic coverage goals of the Vacaville City Coach Short Range Transit Plan. Implementation of the policies and implementing actions in the proposed amendments to the Transportation Element of the General Plan, in particular Policies TR-P8.3 and TR-P8.4 and Action TR-A8.3, would establish policies and procedures to evaluate transit demand generated by new development and means to provide for transit demand beyond what can be expected from other established funding sources. Impacts related to potential conflicts with a program, plan, ordinance or policy addressing transit, bicycle or pedestrian facilities would be **less than significant**.

Impact TRA-4 The project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

This issue was not evaluated in the General Plan EIR. The General Plan contains policies on the safe design of the roadway system that would discourage the creation of geometric hazards when applied to future roadway improvements. In addition, the General Plan itself is designed to minimize conflicts of incompatible uses by providing for the orderly development of the City. This impact would be **less than significant**.

Impact TRA-5 Result in inadequate emergency access.

The General Plan EIR found that the General Plan contains policies and implementing actions that ensure efficient circulation and adequate access are provided in the City, which would help facilitate emergency response. Furthermore, Action TR-A5.2 of the General Plan requires the City to improve emergency vehicle response times. Implementation of the General Plan policies would ensure that adequate emergency access is provided in Vacaville and is considered in the review of individual development projects subject to the General Plan. However, despite these policies, the General Plan EIR found that failure to meet LOS standards on certain roadways would result in a significant and unavoidable impact. There is no substantial evidence in the General Plan EIR that inadequate emergency access would be a significant issue in the planning area absent the application of LOS policies that are no longer used to evaluate the effectiveness of the circulation system. Therefore this impact would be **less than significant**.

3.1.5 Cumulative Impacts

Because of the nature of the propose amendments to the Transportation Element of the City's General Plan, cumulative impacts are incorporated into the analysis of Impacts TRA-1 and TRA-2. As discussed above, the cumulative VMT impacts of the proposed project would be significant.

3.1.6 Mitigation Measures

MM-TRA-1 The General Plan Transportation Element and/or the Transportation Demand Management chapter of the Vacaville Municipal Code should be amended as follows:

Implementation Measures

Proposed development projects that could have a potentially significant VMT impact shall consider reasonable and feasible project modifications and other measures during the project design and environmental review stage of project development that would reduce VMT effects in a manner consistent with state guidance on VMT decrease. The below list of potential measures is not intended to be exhaustive, and not all measures may be feasible, reasonable, or applicable to all projects. The purpose of this list is to identify options for future development proposals, not to constrain projects to this list, or to require that a project examine or include all measures from this list. Potential measures include:

- improving access to transit;
- increasing access to common goods and services, such as groceries, schools, and daycare;
- incorporating affordable housing, including low-income housing, into residential and mixed-use development;
- orienting the project toward transit, bicycle and pedestrian facilities;
- improving pedestrian or bicycle networks, or transit service;
- implementing traffic calming;
- providing bicycle parking;
- unbundling parking costs;
- implement employer parking cash-out programs;
- implementing a commuter reduction program;
- providing car-sharing, bike sharing, and ride-sharing programs;
- providing transit subsidies or passes;
- providing ride-matching services;
- providing telework options;
- providing incentives or subsidies that increase the use of modes other than single-occupant vehicle;
- providing on-site amenities at places of work, such as priority parking for carpools and vanpools, secure bike parking, and showers and locker rooms;
- providing employee transportation coordinators at employment sites;
- providing a guaranteed ride home service to users of non-auto modes;
- increasing project density;
- increasing the mix of uses within the project or within the project's surroundings;
- increasing connectivity and/or intersection density on the project site; and/or

Significance after Mitigation

Although implementing Mitigation Measure TRA-1 would achieve meaningful reductions in VMT generated by land uses within the City, the City at this time cannot guarantee that VMT will be reduced to the degree that it meets state goals related to VMT reduction. Some projects have development agreements, and the City cannot unilaterally change land use and transportation frameworks of them to focus on reducing vehicular travel demand. The magnitude of VMT reduction also depends on factors, such as demographics, household preferences for housing types and locations, the cost of fuel, and the competitiveness of transit relative to driving. Therefore, this impact is considered **significant and unavoidable**.

MM-TRA-2 Roadway projects in Vacaville that would increase VMT should include strategies that offset the increase to the extent feasible.

Implementation Measures

Proposed roadway projects that could have a potentially significant VMT impact shall consider reasonable and feasible project modifications and other measures during the project design and environmental review stage to reduce VMT effects in a manner consistent with state guidance on VMT decrease. The below list of potential measures is not intended to be exhaustive, and not all measures may be feasible, reasonable, or applicable to all projects. The purpose of this list is to identify options, not to constrain projects to this list, or to require that a project examine or include all measures from this list. Potential measures include:

- implementing complete streets, whereby comfortable and convenient bicycle, pedestrian, and transit facilities are provided in conjunction with the roadway improvement
- expanding the transit system including greater geographic coverage, duration, and frequency of service
- Implementing or funding off-site travel demand management
- Implementing Intelligent Transportation Systems (ITS) strategies to improve passenger throughput on existing lanes

Significance after Mitigation

Although implementing Mitigation Measure TRA-2 could reduce VMT depending on the type of roadway project and strategies selected, the City at this time cannot guarantee that VMT will be reduced to the degree that no net increase in VMT occurs. Therefore, this impact is considered **significant and unavoidable**.

3.1.7 References

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