

Appendices

**Appendix N      VMT Memorandum**

## Appendices

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## Memorandum

**To:** Heather Allen, AICP  
City of Anaheim

**From:** Atticus Washington, EIT  
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Kimley-Horn & Associates

**Re:** DRAFT SB 743 Analysis  
General Plan Focused Update

**Date:** December 17, 2024

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This memorandum documents Senate Bill (SB) 743 compliant analysis completed as part of the Programmatic Environmental Impact Report (PEIR) for the General Plan Focused Update Project (Project) in the City of Anaheim, California. With the passage of SB 743 in 2013, Vehicle Miles Travelled (VMT) become an important indicator for determining if new development will result in a “significant transportation impact” under the California Environmental Quality Act (CEQA). This memorandum summarizes the VMT analysis and resultant findings for the proposed land use development as part of the Project.

### Methodology and Assumptions

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For this analysis, the most recent version of Anaheim Traffic Analysis Model, (referred to as the “ATAM”) was used as the tool to determine VMT impacts. ATAM has been developed as a tool to help the City of Anaheim (“City”) forecast future traffic volumes and estimate the traffic effects of changes in land use and roadway facilities. The model is trip-based and considers the interactions between different land uses based on socio-economic data (SED) such as population, households, and employment. Adjustments in SED (population and employment) were made to the appropriate Traffic Analysis Zones (TAZ) in the ATAM Model to reflect the Project’s proposed land uses. The current version of the ATAM Model was updated by Fehr & Peers as part of this Project and maintains a base year condition of 2021 and horizon year of 2045.

For the Project scenario modeling, Fehr & Peers worked with the City to develop the base year and buildout without land use assumptions for the General Plan Focused Update. These land use scenarios are summarized in **Table 1**. As shown in **Table 1**, the General Plan Focused Update would result in a potential buildout total of 431,340 residents, reflecting a population growth of 85,341 residents, as compared to 50,111 population growth under buildout of the 2004 General Plan. The General Plan Focused Update would result in a total of 274,213 employees, which is an increase in 61,020 jobs from existing conditions, as compared to 53,120 employment growth under buildout of the 2004 General Plan.

Table 1 – ATAM Model Land Use Inputs by Scenario

Land Use	2021 Base Year	2045 Buildout under the 2004 General Plan (No Project)	2045 Buildout under the General Plan Focused Update (With Project)	GP Delta (No Project)	GP Delta (With Project)
Population	345,999	396,110	431,340	+50,111	+85,341
Households	105,689	134,139	154,801	+28,450	+49,112
School/College Enrollment	86,409	122,842	133,988	+36,433	+47,579
<b>Total Employment</b>	<b>213,193</b>	<b>266,313</b>	<b>274,213</b>	<b>+53,120</b>	<b>+61,020</b>
Retail Employment	12,671	28,475	34,259	+15,804	+21,588
Service Employment	92,101	88,968	90,349	-3,133	-1,752
Base Employment	108,421	148,870	149,605	+40,449	+41,184

Fehr & Peers also modified the future year (2045) roadway network to reflect buildout of the transportation network for the General Plan Focused Update as part of the forecasting assessment.

**VMT Impact Criteria**

The City of Anaheim Traffic Impact Analysis Guidelines for California Environmental Quality Act Analysis, June 2020 (City’s guidelines) outlines methodology for VMT assessment for land use projects and defines adopted thresholds of significance for impact assessment and are defined below. This transportation impact assessment compares VMT generated by buildout of the General Plan Focused Update (2045) to VMT generated by the Existing Base Year (2021) and to VMT generated by buildout of the 2004 General Plan (2045) at a total and per capita level to provide a comprehensive assessment.

**CEQA VMT Impact Threshold**

The following are the City of Anaheim thresholds of significance for use as part of the environmental review process under CEQA:

1. A project would result in a significant project-generated VMT impact if the baseline project-generated or cumulative project-generated VMT per service population exceeds 15% below the County of Orange baseline VMT per service population
2. The project’s effect on VMT would be considered significant if the baseline or cumulative link-level boundary Citywide VMT per service population increases under the plus project condition compared to the no project condition

Note that the Cumulative No Project scenario shall reflect the adopted RTP/SCS; as such, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant subject to consideration of other substantial evidence.

As these thresholds were not intended to specifically address the appropriate methodology and metric for a general plan, the following thresholds of significance are proposed to evaluate the General Plan Focused Update:

1. Any increase in the VMT per Service Population calculated using the Origin/Destination method compared to the County of Orange baseline VMT per service population would be considered a significant impact.
2. Any increase in the total VMT or VMT per Service Population calculated using the Boundary Method or Origin/Destination method compared to the 2004 General Plan would be considered a significant impact.

These methodologies and metrics are detailed below.

## **VMT Analysis Methodology**

For both methodologies outlined above, VMT can be presented as total VMT or as VMT per Service Population. Total VMT represents all VMT generated in the City on a typical day. VMT per Service Population is an efficiency metric which represents VMT generated on a typical day per person who lives and/or works in the City. VMT per person can be measured as VMT per Service Population for projects and land use plans which include both residential and employment uses. Total VMT gives an estimate of the total travel, while VMT per person measures the efficiency of travel.

Total VMT and per person VMT estimates were calculated using the two methodologies outlined below. Please note that there are multiple methods to estimate VMT, and there are limitations in the available VMT assessment tool, ATAM, which is a typical four-step travel demand forecasting model. The model steps, which convert person trips to vehicle trips, limit the ability to separate trips by trip purpose while also accounting for all modal trips, as noted further below.

### ***Origin/Destination VMT***

The Origin/Destination (OD) method for calculating VMT sums all weekday VMT generated by trips with at least one trip end in the study area and tracks those trips to their estimated origins/destinations. The OD method is completed after the final loops of assignment in the travel demand model after person trips are converted to total vehicle trips. Origins are all vehicle trips that start in a specific traffic analysis zone, and destinations are all vehicle trips that end in a specific traffic analysis zone.

The OD method accounts for external trips and therefore provides a more complete estimate of all VMT within the study area. This methodology also estimates VMT consistent with VMT estimates in Air Quality, Noise, and Energy sections of an EIR. OD trip matrices do not separate trips by trip purpose, and therefore VMT cannot be calculated by home-based-work (HBW) attraction VMT per employee or home-based (HB) production VMT per resident, but only by total VMT. It should also be noted that, although VMT includes trips to/from the City that originate or are destined to locations outside of the model area, those trip lengths are artificially truncated at the model boundary.

### ***Boundary Method VMT***

The boundary method is the sum of all weekday VMT on a roadway network within a designated boundary. Boundary method VMT estimates VMT by multiplying the number of trips on each roadway segment by the length of that segment. This approach includes all trips, including those trips that do not begin or end in the designated boundary and is another way to summarize VMT. This is the only VMT method that captures the effect of cut-through and/or displaced traffic. The boundary utilized in the assessment below is the Anaheim City Boundary. The City boundary provide a focused assessment specific to Anaheim.

### VMT Estimates

The VMT estimates performed for each scenario are presented in **Table 2**. The existing “base year” analysis was performed for 2021. The analyses of VMT for the buildout of the 2004 General Plan and General Plan Focused Update were performed for year 2045. Notable takeaways from the VMT estimates include:

- Total Citywide VMT/Service Population is lower in the General Plan Focused Update compared to the County of Orange baseline VMT per service population.
- Total VMT generated by the City are higher in the General Plan Focused Update than the 2004 General Plan in year 2045.
- Total VMT/Service Population is lower in the General Plan Focused Update than the 2004 General Plan which indicates a more efficient mix of jobs and households in the Proposed Plan as residents and employees have shorter commutes on average.
- Total VMT/Service Population is forecast to improve with both General Plans compared to Existing (2021), and the General Plan Focused Update efficiency metric is slightly lower than the 2004 General Plan efficiency metric.
- Boundary VMT is lower under the General Plan Focused Update than the 2004 General Plan within the Anaheim City boundary. Boundary VMT/SP is lower under the both the General Plans compared to Existing (2021).

**Table 2 – Citywide VMT Summary**

Land Use	2021 Base Year	2045 Buildout under the 2004 General Plan (No Project)	2045 Buildout under the General Plan Focused Update (With Project)
Population	345,999	396,110	431,340
Households	105,689	134,139	154,801
Enrollment	86,409	122,842	133,988
Employment	213,193	266,313	274,213
Citywide Total OD VMT	16,572,825	19,610,078	20,298,951
Citywide Total OD VMT/SP <sup>1</sup>	25.67	24.97	24.18
City Boundary VMT <sup>2</sup>	12,227,043	13,912,052	14,081,321
City Boundary VMT/SP	18.94	17.72	16.77
Countywide Total OD VMT/SP <sup>1</sup>	26.03	26.73	26.55

Notes:

1. SP = Service Population; the sum of population, enrollment and employment.
2. The boundary method VMT estimated for Proposed GP are 1.2 percent higher than Current GP, which could be due to higher land uses in Proposed GP as well as the function of model noise in ATAM.

## VMT Impact Assessment

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Based on the VMT metrics presented in **Table 2**, the General Plan Focused Update would result in a lower Citywide VMT per Service Population in 2045 compared to the County of Orange Existing baseline VMT per service population and is considered to have a less-than-significant impacts:

- OD VMT/SP decreases from Existing Baseline (2021) to General Plan Focused Update (2045)
- OD VMT/SP is lower in the General Plan Focused Update than the 2004 General Plan in 2045
- Boundary VMT are higher in 2045 under the General Plan Focused Update than the 2004 General Plan
- Boundary VMT/SP are lower in 2024 under the General Plan Focused Update than the 2004 General Plan

The reduction in VMT per service population under the General Plan Focused Update, despite higher population and employment growth, demonstrates a shift toward more sustainable and efficient land use patterns. The plan emphasizes a mix of land uses, higher densities, and the strategic placement of employment centers closer to residential areas, which collectively reduce trip lengths and encourage alternative transportation modes such as walking, biking, and transit. Higher densities naturally shorten trip lengths by bringing residential, commercial, and employment activities into closer proximity. In these densely developed areas, people can access goods, services, and jobs more conveniently, minimizing the need for long vehicle trips. Additionally, mixed-use developments, often associated with higher-density areas, amplify this effect by combining residential units with shops, offices, and recreational spaces, enabling many trips to be completed on foot, by bike, or via transit.

Goals, policies and actions from the Proposed Anaheim General Plan Circulation Element Update that are also anticipated to reduce VMT are provided as **Attachment A**.

In addition, the City anticipates continued support of the following programs and efforts..

- Micro Transit Planning Efforts
- Mobility Hub Planning Efforts
- First-Last Mile Planning Efforts
- Transit Master Plan Planning Efforts
- East-West Connection (included in LRTP)

These programs and efforts are anticipated to contribute to the reduction in VMT within the City. Therefore, the General Plan Focused Update is anticipated to result in a **less-than-significant transportation impact related to VMT**.

## Analysis Limitations

The base year scenario was modeled for the year 2021 which was during the COVID-19 pandemic. The COVID-19 response has dramatically changed human activities and associated travel patterns. Performing more activities from home was already a trend due to the internet, but COVID-19 accelerated transitions to working and shopping from home. In addition, other disruptive trends related to demographic changes, new travel choices such as Uber and Lyft, and the potential for autonomous vehicle (AV) travel make predicting future travel demand and outcomes less certain. Given these limitations of modeling and

forecasting, the general consistency of the project with the broader SB 743 objectives and the legislative intent of CEQA noted below may warrant greater emphasis in the VMT impact assessment.

## Public Resources Code 21001. ADDITIONAL LEGISLATIVE INTENT

The Legislature further finds and declares that it is the policy of the state to:

(d) Ensure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions.

### VMT Estimates for Greenhouse Gas Assessment

VMT estimates were performed for the project using the Recommendations of the Regional Targets Advisory Committee (RTAC) methodology to utilize in the Greenhouse Gas Assessment. The estimates were performed using the Origin-Destination approach. The RTAC Methodology specifies to apply 100% of internal to internal trips (ii trips) and 50 percent of internal to external or external to internal trips (ix & xi trips). These estimates for each scenario are provided as **Attachment B**. Please note that these estimates differ from **Table 2** as those estimates applied 100 percent of ix & xi trips, consistent with transportation impact analysis.

## Attachment A – Anaheim Goals, Policies and Actions related to VMT Reduction

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### **Goal 1: Provide a vehicular transportation network that balances local and regional mobility needs within and through the city.**

- Coordinate with the Orange County Transportation Authority (OCTA) to maintain consistency with the Orange County Master Plan of Arterial Highways' (MPAH) vision of accommodating regional travel demand needs and pursuing MPAH amendments to address local needs as needed.
- Provide enhanced access to destinations through the use of Intelligent Transportation Systems (ITS).
- Require that new development projects prepare transportation studies per the City's traffic impact analysis guidelines and pay appropriate fees towards required improvements.
- Continue working with the Federal Highway Administration (FHWA), the California Department of Transportation (Caltrans), OCTA, TCA, the Public Utilities Commission, and other appropriate agencies to improve regional throughput while also addressing localized impacts and effects on facilities.
- Strive to maintain acceptable vehicle operations along City roadways and intersections and maintain a peak hour level of service no worse than D at street intersections.
- Continue to participate in the OCTA CMP as outlined in the City's traffic impact analysis guidelines.
- Engage in federal, state, and regional planning efforts with FHWA, the Southern California Association of Governments (SCAG), OCTA, adjacent Cities, and other jurisdictions, as appropriate, to develop a transportation network that balances traffic flow and multimodal needs.
- Strive to implement roadway improvements that provide consistency of facility types and dimensions along corridors.
- Work with regional partners to evaluate and plan for emerging transportation modes and technologies.

### **Goal 2: Support bicycling, walking, and other active transportation modes.**

- Implement bikeways recommended in the City's Bicycle Master Plan.
- Support roadway design principles that support a safe, pleasant, and comfortable experience for bicyclists and pedestrians.
- Coordinate with adjacent jurisdictions and regional agencies to encourage the development of a connected bikeway network across jurisdictional boundaries.
- Consider pedestrian, bicycle, and transit connectivity to the city's key destinations and trip generators.
- Work with Caltrans to provide appropriate improvements for bicyclists and pedestrians at locations along and/or intersecting Caltrans' facilities.

- Apply for funding for state, local, and regional non-motorized projects, as appropriate.
- Support installation of pedestrian and bicycle amenities in appropriate locations, in order to enhance non-motorized transportation.
- Encourage developers to provide improved pedestrian and bicycle connectivity between developments and the circulation network, as well as between complementary uses, as appropriate.
- Implement pedestrian improvements that support pedestrian comfort and safety and a pleasant walking experience along streets and corridors.
- Maximize the use of easements and public rights-of-way along flood channels, utility corridors, rail lines and streets for the establishment of new bicycle and pedestrian paths.
- Monitor and consider the implementation of new technologies and innovative treatments in bicycle- and pedestrian-friendly design.
- Develop strategies to address and manage emerging shared mobility technologies and programs.
- Pursue the completion of the Equestrian, Riding, and Hiking Trails Plan in a manner that complements bicycle and pedestrian facilities.
- Consider grade-separated pedestrian crossings around recreational and tourism destinations to increase pedestrian safety and minimize conflicts with vehicles.
- Continue to require consistency with CALGreen bike parking standards for new developments.

### **Goal 3: Support and promote public transit and ridesharing.**

- Support the efforts of OCTA, the Anaheim Transportation Network (ATN), and other regional, state, and federal agencies to provide improved transit service within and throughout the city.
- Enhance the ARTIC role as a regional transit and mobility hub.
- Evaluate transit connections between ARTIC, the Anaheim Resort, and Specific Plan areas.
- Continue to support OCTA ACCESS, similar paratransit, and senior transit programs.
- Work to improve first/last mile access to transit stops and stations, as appropriate.
- Support transit user comfort by providing bus stops with seating, shelters, lighting, and other passenger amenities.
- Work with agencies such as Metrolink, OCTA, and ATN to support integration and service between various transit operations and stations/stops in the city.
- Support and participate in California High-Speed Rail (CA HSR), Metrolink and other regional, state, and federal agencies' efforts to improve rail transit service within and throughout the city.
- Support the development of multi-modal access to public transit in areas where increased development and travel demand are expected.
- Explore opportunities to provide, where feasible, bus turnouts and other transit priority treatments along heavily traveled arterials and high-quality transit corridors in order to minimize traffic conflicts and encourage transit ridership.

- Encourage and support ridesharing programs to serve resident, employee, and visitor needs through means other than single occupant vehicles.
- Explore implementation of microtransit and demand-responsive services in order to complement, enhance, and expand existing transit services—including first and last mile services.
- Plan for Transportation Network Company (TNC) and taxi passenger loading needs as part of roadway planning efforts.

#### **Goal 4: Facilitate safe goods movement throughout and within the city.**

- Continue to restrict truck traffic to designated truck routes.
- Support a system of freight movement that minimizes conflicts with other modes of travel.
- Consider e-commerce and other goods movement related needs as part of planning and development efforts, when appropriate.
- Work with railroad operators to minimize operational delays due to conflicts with local roadways.

#### **Goal 5: Provide a network of Complete Streets that are accessible for all modes and users.**

- Apply Complete Streets principals and improvements to serve all modes and user abilities.
- Minimize disruptions to traffic and pedestrian/bicycle flow.
- Pursue arterial grade separations at railroad crossings.
- Consider improvements to other modes of travel in conjunction with roadway expansions or additions.
- Continue implementing traffic calming measures to discourage speeding and cut-through traffic on residential streets, where appropriate.
- Encourage developers to provide access and circulation for all modes within development projects, as appropriate.
- Ensure that the City's mobility network is consistent with the Americans with Disability Act (ADA) and encourages barrier-free accessibility.
- Consider all affected and planned transportation modes when improving a corridor or specific locations along the transportation network.
- Consider local land use and context when designing transportation facilities.
- Continue to monitor and evaluate the development of new mobility technologies and the potential effects of implementing a transportation network that accommodates all modes and users.
- Work with schools and school districts within the city to encourage parents and children to walk or bike to school through programs such as Safe Routes to School.
- Consistent with the City's Green Element, complete the comprehensive program of corridor landscaping and improve streetscapes in a manner than improves the experience of affected roadway users.

#### **Goal 6: Support efforts to enhance transportation safety.**

- Improve citywide awareness of safety for all roadway users.

- Continue to plan for and implement emergency vehicle and fire truck access and pre-emption requirements.
- Plan for and consider development of key evacuation routes.
- Support Local Roadway Safety Plan implementation efforts and Neighborhood Traffic Management Program Implementation efforts.

## **Goal 7: Develop a mobility network that is fiscally sound.**

- Continue to qualify for funds for transportation improvements by complying with OCTA's Measure M eligibility requirements as well as state and federal funding requirements.
- Continue Capital Improvement Program (CIP) funding processes for transportation improvements based on the needs of the City's multiple transportation modes.
- Consider prioritizing maintenance and reconstruction projects.
- Require new development to pay traffic fees, or a fair share if appropriate based upon City guidelines.
- Continue to monitor and pursue discretionary funding sources at the federal, state, regional, and local levels.
- Focus upon the financial sustainability of the City's transportation systems.

## **Goal 8: Adhere the State's greenhouse gas emission reduction goals and reduce vehicle miles traveled (VMT).**

- Cooperate with OCTA, the South Coast Air Quality Management District, and other service providers to publicize and encourage ridesharing for City residents and workers.
- Participate in and encourage private employer participation in OCTA's rideshare and vanpool programs to reduce vehicle trips generated in the city.
- Support and encourage the development of public and/or private infrastructure facilitating the use of electric and other alternative fuel vehicles.
- Work with OCTA, employers, and developers to utilize transportation demand management (TDM) strategies in order to reduce congestion and achieve environmental goals.
- Require development proposals to analyze transportation impacts using the City's VMT thresholds and, if possible, mitigate potential impacts through transportation demand management (TDM) strategies and other appropriate improvements.

## **Goal 9: Support the safe operation of aviation and heliport facilities within and in proximity to the City.**

- Work toward providing reliable travel times and mode choices in order to connect Anaheim visitors, residents, and businesses with aviation facilities.
- Ensure that private heliports and adjacent developments are reviewed and constructed in compliance with the Airport Environs Land Use Plan for Heliports adopted by the Airport Land Use Commission.
- Implement and maintain appropriate policies identified in the Airport Environs Land Use Plan for the Fullerton Municipal Airport and Joint Forces Training Base Los Alamitos, which addresses

compatible land use designations, noise issues, environmental impacts, and safety considerations within and adjacent to airport facilities.

- Ensure that all new projects are developed in compliance with Federal Aviation Administration (FAA) requirements and the California Airport Land Use Planning Handbook developed by the State of California Department of Transportation, Division of Aeronautics.
- Monitor and study the implications of new technologies such as drones and vertiports within City limits.

Attachment B – Daily VMT Summary (RTAC Methodology)

Land Use	2021 Base Year	2045 General Plan No Project	2045 General Plan With Project
Internal-Internal	2,029,099	2,386,717	2,542,837
Internal-External <sup>1</sup>	3,644,765	4,308,950	4,433,599
External-Internal <sup>1</sup>	3,636,340	4,312,606	4,454,927
<b>Total</b>	<b>9,310,204</b>	<b>11,008,273</b>	<b>11,431,363</b>

Notes:

1. Only 50% of Internal-External and External-Internal VMT is considered in this summary.