
Appendix M-2

Vehicle Miles Traveled Analyses

Appendix M-2A

VMT Analysis



June 7, 2022

Mr. Dan Fairbanks
March Joint Powers Authority
14205 Meridian Parkway, Suite 140
Riverside, CA 92518

SUBJECT: GATEWAY AVIATION D-1 VEHICLE MILES TRAVELED (VMT) ANALYSIS

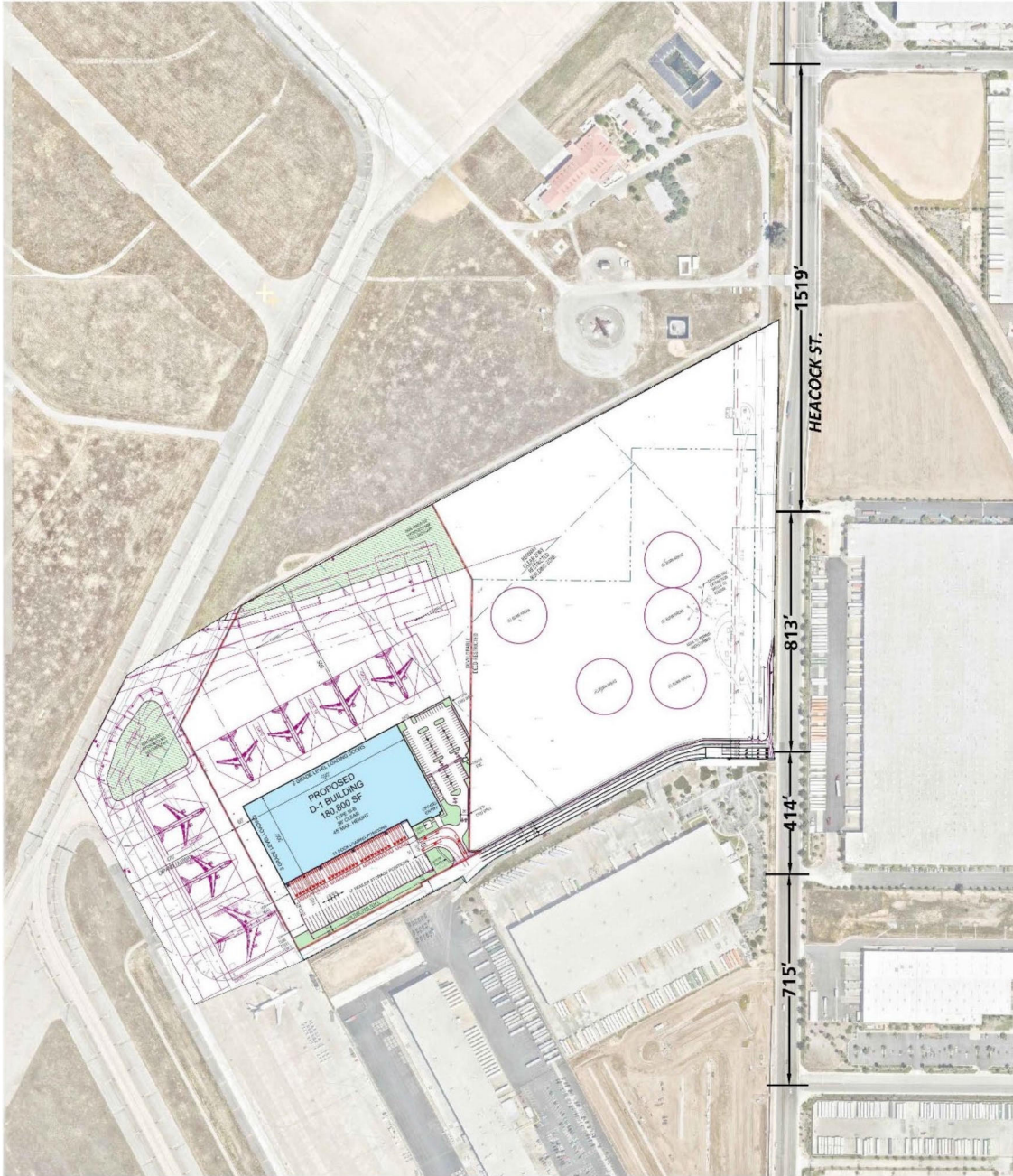
Dear Mr. Dan Fairbanks:

The following VMT Analysis has been prepared for the proposed Gateway Aviation D-1 (**Project**), which is located in the southeastern portion of the March Air Reserve Base, west of Heacock Street, and south of Krameria Avenue in the jurisdiction in the March Joint Powers Authority (March JPA) jurisdiction.

PROJECT OVERVIEW

The proposed Project includes the development of a gateway air freight cargo center, which consists of the construction of an approximately 180,800 square foot cargo building with 9 grade-level loading doors, 31 truck dock positions, and 37 trailer storage positions. The cargo building would contain approximately 9,000 square feet of office space. Preliminary site plan can be found in Exhibit 1.

EXHIBIT 1: PRELIMINARY SITE PLAN



LEGEND:

- FULL** = FULL ACCESS
- EVA** = EMERGENCY VEHICLE ACCESS ONLY



BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate took effect July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December of 2018) (**Technical Advisory**) (1). Based on OPR's Technical Advisory, the Western Riverside Council of Governments (WRCOG) prepared a WRCOG SB 743 Implementation Pathway Document Package (March 2019) to assist its member agencies with implementation tools necessary to adopt analysis methodology, impact thresholds, and mitigation approaches for VMT. To add to the previous work effort, WRCOG in February 2020 released its Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment (**WRCOG Guidelines**) (2), which provides specific procedures for complying with the new CEQA requirements for VMT analysis. Through consultation with March JPA staff, it is our understanding that the March JPA has yet to adopt its own VMT analysis guidelines and thresholds. For the purposes of this analysis, the recommended VMT analysis methodology and thresholds identified within the Technical Advisory and WRCOG Guidelines have been used.

VMT ANALYSIS

VMT MODELING

WRCOG Guidelines identifies RIVCOM as the appropriate tool for conducting VMT analysis for land development projects in the March JPA. WRCOG is the developer/owner of RIVCOM and recently launched the new modeling tool for use by its member agencies in August 2021. At the time this analysis was prepared, the RIVCOM tool was in its 4th update (also referred to as version 3.0). It has been determined that this analysis would be prepared based on version 3.0 of RIVCOM.

VMT METRIC AND SIGNIFICANCE THRESHOLD

As stated in the Technical Advisory, for projects that are not residential or retail land use types, the Technical Advisory identifies VMT per employee as the appropriate VMT metric for analysis. Therefore, the Project's land uses should be evaluated based on the metric of VMT per employee. A significant impact to VMT would occur if the addition of the Project's industrial component would result in Project-generated **VMT per employee to exceed 15% below the WRCOG's baseline of 29.97 VMT per employee for a regional average significance threshold of 25.47 VMT per employee**¹.

¹ These values were calculated and derived from the RIVCOM base year and cumulative traffic models and then interpolated for the baseline 2022 year for the entire WRCOG region.

PROJECT LAND USE CONVERSION

In order to evaluate Project VMT, standard land use information must first be converted into a RIVCOM compatible input data. The RIVCOM model utilizes socio-economic data (SED) (e.g., population, households, employment, etc.) instead of land use information for the purposes of vehicle trip estimation. Project land use information such as building square footage must first be converted to SED for input into RIVCOM. Table 1 summarizes the employment estimates for the Project. It should be noted that the employment estimates were provided by the Project team and are based on market understanding of potential tenants’ use.

TABLE 1: EMPLOYMENT ESTIMATES

Land Use	Quantity (in square feet)	Estimated Employees ²
Air Freight Cargo Center	180,800	150

The RIVCOM model was then run inclusive of the Project’s SED inputs.

PROJECT VMT CALCULATION AND COMPARISON TO IMPACT THRESHOLD

The Technical Advisory identifies that for land uses other than residential and retail, the measure of VMT should be VMT per employee. RIVCOM was utilized to calculate Project-generated VMT for the non-retail employment generating land uses and that value was then divided by the Project’s employment estimate to derive Project-generated VMT per employee. Project generated home-based work (HBW) VMT was then calculated for both the base year model (2018) and cumulative year model (2045); and linear interpolation was used to determine the Project’s baseline (2022) HBW VMT. Table 2 HBW VMT as calculated from RIVCOM for the Project’s land uses, the number of Project employees and Project VMT per employee.

TABLE 2: VMT PER EMPLOYEE

	Base Year	Cumulative Year	Baseline
VMT	3,546	3,017	3,468
Employment	150	150	150
VMT per Employee ³	23.64	20.11	23.12

Table 3 provides a comparison between Project VMT per employee to the WRCOG significance threshold of 25.47. The Project’s VMT per employee was found to be below the WRCOG significance threshold by 9.23%. Therefore, the Project’s impact on VMT is less than significant.

² Based on market understanding of potential tenants’ use.

³ HBW VMT per Employee is a measure of all auto trips between home and work and does not include heavy duty truck trips or freight, which is consistent with OPR guidance.

TABLE 3: PROJECT VMT PER EMPLOYEE COMPARISON

	Baseline VMT per Employee
Impact Threshold	25.47
Project	23.12
Percent Change	-9.23%
Potentially Significant	No

PROJECTS CUMULATIVE IMPACT

The WRCOG Guidelines consistent with the Technical Advisory states that cumulative impacts on VMT “... metrics such as VMT per capita or VMT per employee, i.e., metrics framed in terms of efficiency (as recommended below for use on residential and office projects), cannot be summed because they employ a denominator. A project that falls below an efficiency-based threshold that is aligned with long-term goals and relevant plans has no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa. This is similar to the analysis typically conducted for greenhouse gas emissions, air quality impacts, and impact that utilize plan compliance as a threshold of significance.” As the Project was found to be less than significant in the project level analysis. The Project is also considered to have a less than significant cumulative impact as well.

CONCLUSION

Based on the results of this analysis the following finding are made; the Project was found to be below the WRCOG region VMT per employee threshold by 9.23%. The Project’s impact on VMT is considered less than significant.

If you have any questions, please contact me directly at aso@urbanxroads.com.

Respectfully submitted,

URBAN CROSSROADS, INC.



Alex So
Senior Analyst

REFERENCES

1. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.
2. **Western Riverside Council of Governments (WRCOG).** *Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment.* February 13, 2020.

June 9, 2022

Mr. Wei Sun
City of Moreno Valley
14177 Frederick St.
Moreno Valley, CA 92552

MERIDIAN D-1 GATEWAY AVIATION CENTER TRAFFIC ANALYSIS

Mr. Wei Sun,

This Traffic Analysis letter has been prepared for the Meridian D-1 Gateway Aviation Center Traffic Analysis (dated March 25, 2022), which is located in the southeastern portion of the March Air Reserve Base, west of Heacock Street and south of Krameria Avenue in the City of Moreno Valley. A copy of the City's traffic consultant's comments dated April 7, 2022 are provided in Attachment A.

COMMENT #1

Study should be prepared in accordance with Moreno Valley's TIA Guidelines. (p.1)

RESPONSE #1

Text has been added in Section 1 *Summary of Findings* to discuss that the traffic study was prepared in accordance with the City of Moreno Valley's traffic study guidelines.

COMMENT #2

Section 1.2: The section discusses the future SB RTL at the Heacock and Project Access Road intersection. Revise the description to clearly identify it as SBRTL on the west side of Heacock.

RESPONSE #2

Text has been added to Section 1.2 *Project Overview* to discuss that access into the Project site will also be served by the dedicated southbound right turn lane on the west side of Heacock Street.

COMMENT #3

Table 1-1: Intersection #20 (Perris and Harley Knox) is within City of Perris's jurisdiction. Revise table.

RESPONSE #3

Table 1-1 has been updated to note that intersection #20 is located within the jurisdiction of the City of Perris.

COMMENT #4

The following comments are for the various recommendations listed in Table 1-2 to address any deficiencies within the study area. Revise or clarify.

- a) Int #5: Addition of a third WB and EB through lane is not funded by TUMF. Provide a fair share contribution.
- b) Int #6: There is no 2nd lane to accept additional proposed southbound left turn lane. There is no right-of-way to add an additional SB lane due to existing channel along the east side of Heacock.
- c) Int #11 warranted a traffic signal under "OY Without Project" scenario. It is at the City's discretion if signalizing this intersection is needed at this time.
- d) Int #12: The proposed second SB left turn lane can be provided if the south departure leg is widened to accommodate the SBTL. Improvement cost should include such widening and any necessary transitions.
- e) Int #15: There is no 2nd lane to accept additional proposed north left turn lane.
- f) Int #17: Provide a traffic signal warrant for proposed traffic signal under the 2045 Without Project scenario.
- g) The traffic signals along Heacock are maintained by the City of Moreno Valley. Fair share contributions for the improvements at these traffic signal should solely be provided to the City of Moreno Valley.

RESPONSE #4

- a) Tables 1-2 and 1-3 have been revised to reflect fair share payment for the recommendations for intersection #5. Fair share costs have been added for the identified improvements for intersection #5.
- b) The identified improvements for intersection 6 have been revised for Opening Year Cumulative traffic conditions to recommend modification of the traffic signal cycle length to 120-seconds during the AM and PM peak hours. The identified improvements to the southbound approach were not updated under Horizon Year traffic conditions because it is assumed that John F. Kenned Drive will be widened to its ultimate width, therefore providing the additional receiving lane. The applicable analysis and tables have been updated.
- c) Comment noted, no changes are necessary to the traffic study.
- d) Table 1-2 has been updated to include an improvement to widen the south leg of intersection #12 to provide an additional receiving lane. Since this roadway is included in the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF) program, the Project contribution has been identified as a fee payment.
- e) The identified improvements to intersection 15 have been updated to include restriping of the west leg to provide an additional receiving lane for the dual northbound left turn

lanes. It is recommended to prohibit parking along Nandina Avenue for the length of the additional receiving lane, until the second lane along Nandina is tapered into one lane.

- f) Traffic signal warrant analysis has been conducted for intersection 17 under each analysis scenario. A summary of the results are provided on Table 1-3, which indicates that intersection 17 is anticipated to meet a peak hour traffic signal warrant under Horizon Year (2045) Without Project With Heacock Street Extension conditions.
- g) Tables 1-2 and 1-3 have been updated to reflect 100% of the fair share cost of traffic signal installation and modification to the City of Moreno Valley for those intersections along Heacock Street.

COMMENT #5

Under Section 1.5.3 and 1.5.4, the Division has the following comments and requires revisions:

- a) Under “With Project. Without Extension (Peak)” scenario, Intersection #11 will operate at a deficient LOS in the AM peak hour only when compared to “Horizon Year without Project, Without Extension” scenario.
- b) Under the “With Project, With Extension (Non-Peak)” scenario, Intersection #11 will operate at a deficient LOS in the AM peak hour only.
- c) Under the “With Project, With Extension (Peak)” scenario, Intersection #11 will operate at a deficient LOS in the AM peak hour only (D to E). Revise Section 7.4.4 too.
- d) Note: Per City’s TIA Guidelines, LOS D is considered acceptable LOS for boundary intersections.

RESPONSE #5

- a) Section 1.5.3 *Horizon Year (2045) Conditions – Without Heacock Street Extension* has been updated to discuss that intersection #11 will also operate at a deficient LOS during the AM peak hour under Horizon Year (2045) With Project conditions.
- b) The text in this section has been updated to clarify that intersection #11 is anticipated to operate at a deficient LOS with the addition of Project (Non-Peak) traffic during the AM peak hour. It should be noted, the intersection operates at an unacceptable LOS during the PM peak hour under Without and With Project traffic conditions.
- c) The text in this section correctly identifies the changes to the LOS during the peaks hours compared to the Without Project traffic conditions. As such, no changes are necessary to Section 1.5.4 or Section 7.4.4.
- d) The text in Section 2.6.3 *City of Moreno Valley* has been updated to clarify that LOS D is considered acceptable LOS for all boundary intersections.

COMMENT #6

Section 1.6.1: Clarify which scenario will be improved with the recommendations listed.

RESPONSE #6

The site adjacent and site access improvements listed in Section 1.6.1 *Site Adjacent and Site Access Recommendations* are considered Project design features and are assumed to be in place under all With Project traffic scenarios. Text has been added to this section to discuss that these improvements are assumed in place for With Project traffic scenarios.

COMMENT #7

Section 1.7.1: Exhibit 1-6 shows that turning movements will be very close to the proposed curb. It is recommended that the radius for the SWC be increased to 50-ft. The exhibit also shows that entering trucks will slightly encroach into the EB dual left turn lanes.

RESPONSE #7

Exhibit 1-6 has been updated to recommend a 50-foot curb for the southwest corner and a 10-foot offset of the eastbound left turn stop bar to accommodate the wide turning radius of heavy trucks.

COMMENT #8

Table 1-4 shows a 100-ft storage length for a SBRTL at Intersection #10; however, the report had previously identified a proposed 225-ft SBRTL length. Clarify discrepancy.

RESPONSE #8

Table 1-4 has been updated to identify a 225-foot pocket length recommendation for the southbound left turn lane, consistent with the report text and exhibits.

COMMENT #9

Table 2-5 should include Intersection #17 (Heacock and Nandina).

RESPONSE #9

Intersection 17 has been added to Table 2-5.

COMMENT #10

Provide a result summary of the traffic signal warrant analysis for each scenario.

RESPONSE #10

Table 1-3 has been added to Section 1.5.5 *Traffic Signal Warrant Analysis Summary*, which provides a summary of the traffic signal warrant analysis for each scenario.

COMMENT #11

Section 2.6.3: Clarify that LOS D is the minimum acceptable LOS and not the actual LOS for the intersection within or adjacent to the City boundary.

RESPONSE #11

Text has been updated in Section 2.6.3 *City of Moreno Valley* to clarify that the minimum acceptable Level of Service (LOS) is D, not that the minimum LOS is D.

COMMENT #12

Section 3.4: Section should state that the City of Moreno Valley Bicycle Master Plan identifies Class II Bike lanes along the project frontage on Heacock Street.

RESPONSE #12

Text has been added to discuss that there are Class II bike lanes along Heacock Street.

COMMENT #13

Update Exhibit 3-10 with Figure 15 from the City's Bicycle Master Plan.

RESPONSE #13

Exhibit 3-10 has been updated to show the City's Bicycle Master Plan exhibit.

COMMENT #14

Exhibit 3-1: Intersection #12 has a RTO for the WBRTL. Intersection #15 has a RTO for the EBRTL. Intersection #19 should be Perris and Nandina, not Indian and Nandina. Revise exhibit.

RESPONSE #14

Exhibit 3-1 has been updated based on the changes discussed above.

COMMENT #15

Why are EB dual left turn lanes proposed at Intersection #10 if the project is expected to generate 41(42) peak hour trips in the AM(PM) peak hours?

RESPONSE #15

Although the anticipated traffic volumes are below 50 trips during the AM and PM peak hour, dual eastbound left turn lanes are still recommended to improve intersection operations. Trucks will likely utilize the outside left turn lane, thereby allowing passenger cars to utilize the inside turn lane. This is anticipated to improve operations but allowing passenger cars to queue alongside trucks, instead of behind trucks, therefore reducing the queue length. Since dual eastbound left turn lanes are recommended, a traffic signal is also recommended for the intersection to improve safety.

COMMENT #16

The proposed traffic signal for Intersection #10 is not warranted. The benefit of this signal is questionable and would result in a short spacing between the Heacock/Cardinal intersection if that intersection is signalized in the future. It is not recommended that this intersection be signalized.

RESPONSE #16

See Response #15. Additionally, based on the City of Moreno Valley General Plan, Heacock Street is classified as an Arterial roadway. The City of Moreno Valley's design guidelines specify a minimum of 450-feet between adjacent intersections along an Arterial roadway. Driveway 1 is approximately 2,300 feet to Krameria Avenue and approximately 1,100 feet to Cardinal Avenue. Therefore, Driveway 1 meets the spacing criteria between intersections.

COMMENT #17

No site plan was provided so the project boundary is unknown, and it is unclear if the project will take direct access onto Heacock. If so, the analysis should identify the VMT impacts within the City of Moreno Valley since the impact will extend beyond the MJPA jurisdiction.

- a) The City of Moreno Valley still uses a modified RIVTAM model due to the City's recent General Plan Update (GPU). The analysis should reflect the latest GPU. Analyzing the VMT impacts in 2040 is more effective in evaluating any VMT impacts within the GPU.

RESPONSE #17

In the original VMT analysis, the preliminary site plan has been added as Exhibit 1. The proposed Project will take access on Heacock Street via Driveway 1, as shown on Exhibit 1.

- a) Additionally, a supplemental VMT analysis using Moreno Valley's VMT guidelines and been performed to provide a VMT analysis. The Moreno Valley VMT analysis is based on RIVTAM and a modified version of RIVTAM inclusive of the City of Moreno Valley General Plan update for the cumulative year model.

COMMENT #18

On Page 3, Section "Project VMT Calculation and Comparison to Impact Threshold", the report states that the baseline VMT was determined using linear interpolation between the base year and cumulative year. Table 2 should include the VMT per employee for the base year, baseline year (without project), baseline year (with project), and cumulative year in Table 2.

RESPONSE #18

In the original VMT analysis, Table 3 has been updated to include Project VMT per employee for Project base year, cumulative year and baseline year (with project). Table 4 has been updated to provide a Project VMT per employee comparison for baseline conditions.

COMMENT #19

Provide source of the WRCOG's baseline VMT per employee.

RESPONSE #19

The original VMT analysis has been updated to provide a source for the WRCOG baseline VMT per employee.

COMMENT #20

Provide turning templates for all movements to and from Heacock Street showing that turns are feasible. Using a STAA design vehicle. See comment #7.

RESPONSE #20

See Response #7. Exhibit 1-6 has been updated to utilize STAA design vehicles. Truck turning templates have not been evaluate for left turns out of Driveway 1 since trucks are only anticipated to utilize Heacock Street to the south (see Exhibit 4-1 for the Project truck trip distribution).

COMMENT #21

Provide a sight distance exhibit for each driveway along Heacock Street.

RESPONSE #21

See Response #15 and #16. Traffic signal installation is still recommended at Driveway 1 as part of the Project design features. Additionally, Driveway 1 currently exists as a cross-street stop-controlled intersection. As such, sight distance has not been evaluated for Driveway 1 since the intersection will be signalized.

COMMENT #22

Project may be required to improve Intersection #10 with PCC pavement or as directed by the City Engineer.

RESPONSE #22

Comment noted, no changes to the traffic study are necessary.

If you have any questions or comments, I can be reached at (949) 861-0177.

Respectfully submitted,

URBAN CROSSROADS, INC.



Charlene So, PE
Principal

ATTACHMENT A
CITY OF MORENO VALLEY COMMENTS



MEMORANDUM

To: Wei Sun, City Traffic Engineer
From: Lillyanna Diaz, Consultant Assistant Engineer
CC: Carolina Fernandez, HRG
Date: April 7, 2022
Subject: **MJPA Gateway Aviation D-1 VMT Analysis; Transportation Engineering Division 1st Review Comments**

The following findings and comments are based on the information provided in the Meridian D-1 Gateway Aviation Center Traffic Analysis prepared by Urban Crossroads, dated March 25, 2022 and Gateway Aviation D-1 Vehicles Miles Traveled (VMT) Analysis prepared by Urban Crossroads, dated February 23, 2022.

The proposed project is located within MJPA jurisdiction and will have one signalized access point along Heacock Street, between Krameria Ave and Cardinal Avenue. The following intersections analyzed in the report are within or adjacent to the City's boundary:

- Int #5: Heacock St and Cactus Ave
- Int #6: Heacock St and Meyer Dr/JFK Dr
- Int #7: Heacock St and Gentian Ave
- Int #8: Heacock St and Iris Ave
- Int #9: Heacock St and Krameria Ave
- Int #10: Heacock St and Access Road
- Int #11: Heacock St and Cardinal Ave
- Int #12: Heacock St and San Michele Rd
- Int #14: Indian Ave and San Michele Rd
- Int #15: Indian Ave and Nandina Ave
- Int #17: Heacock St and Nandina Ave
- Int #18: Perris Blvd and San Michele Rd
- Int #19: Perris Blvd and Nandina Ave

In addition to the study area intersections listed above, the following roadway segments within the City's boundary were analyzed:

- Heacock – Cactus to Iris
- Heacock – Iris to San Michele
- Heacock – San Michele to Harley Knox
- Cactus – West of Heacock
- Indian – San Michele to Harley Knox
- Perris – San Michele to Harley Knox
- San Michele – Heacock to Perris
- Nandina – Heacock to Perris

The following summarizes my comments related to the above-mentioned referenced Traffic Analysis (TA) and Vehicle Miles Traveled (VMT) Analysis.

Traffic Analysis

1. Study should be prepared in accordance with Moreno Valley's TIA Guidelines. (p.1)
2. Section 1.2: The section discusses the future SB RTL at the Heacock and Project Access Road intersection. Revise the description to clearly identify it as SBRTL on the west side of Heacock.
3. Table 1-1: Intersection #20 (Perris and Harley Knox) is within City of Perris's jurisdiction. Revise table.
4. The following comments are for the various recommendations listed in Table 1-2 to address any deficiencies within the study area. Revise or clarify.
 - a. Int #5: Addition of a third WB and EB through lane is not funded by TUMF. Provide a fair share contribution.
 - b. Int #6: There is no 2nd lane to accept additional proposed southbound left turn lane. There is no right-of-way to add an additional SB lane due to existing channel along the east side of Heacock.
 - c. Int #11 warranted a traffic signal under "OY Without Project" scenario. It is at the City's discretion if signalizing this intersection is needed at this time.
 - d. Int #12: The proposed second SB left turn lane can be provided if the south departure leg is widened to accommodate the SBTL. Improvement cost should include such widening and any necessary transitions.
 - e. Int #15: There is no 2nd lane to accept additional proposed north left turn lane.
 - f. Int #17: Provide a traffic signal warrant for proposed traffic signal under the 2045 Without Project scenario.
 - g. The traffic signals along Heacock are maintained by the City of Moreno Valley. Fair share contributions for the improvements at these traffic signal should solely be provided to the City of Moreno Valley.
5. Under Section 1.5.3 and 1.5.4, the Division has the following comments and requires revisions:
 - a. Under "With Project. Without Extension (Peak)" scenario, Intersection #11 will operate at a deficient LOS in the AM peak hour only when compared to "Horizon Year without Project, Without Extension" scenario.
 - b. Under the "With Project, With Extension (Non-Peak)" scenario, Intersection #11 will operate at a deficient LOS in the AM peak hour only.
 - c. Under the "With Project, With Extension (Peak)" scenario, Intersection #11 will operate at a deficient LOS in the AM peak hour only (D to E). Revise Section 7.4.4 too.
 - d. Note: Per City's TIA Guidelines, LOS D is considered acceptable LOS for boundary intersections.
6. Section 1.6.1: Clarify which scenario will be improved with the recommendations listed.
7. Section 1.7.1: Exhibit 1-6 shows that turning movements will be very close to the proposed curb. It is recommended that the radius for the SWC be increased to 50-ft. The exhibit also shows that entering trucks will slightly encroach into the EB dual left turn lanes.
8. Table 1-4 shows a 100-ft storage length for a SBRTL at Intersection #10; however, the report had previously identified a proposed 225-ft SBRTL length. Clarify discrepancy.
9. Table 2-5 should include Intersection #17 (Heacock and Nandina).
10. Provide a result summary of the traffic signal warrant analysis for each scenario.
11. Section 2.6.3: Clarify that LOS D is the minimum acceptable LOS and not the actual LOS for the intersection within or adjacent to the City boundary.

12. Section 3.4: Section should state that the City of Moreno Valley Bicycle Master Plan identifies Class II Bike lanes along the project frontage on Heacock Street.
13. Update Exhibit 3-10 with Figure 15 from the City's [Bicycle Master Plan](#).
14. Exhibit 3-1: Intersection #12 has a RTO for the WBRTL. Intersection #15 has a RTO for the EBRTL. Intersection #19 should be Perris and Nandina, not Indian and Nandina. Revise exhibit.
15. Why are EB dual left turn lanes proposed at Intersection #10 if the project is expected to generate 41(42) peak hour trips in the AM(PM) peak hours?
16. The proposed traffic signal for Intersection #10 is not warranted. The benefit of this signal is questionable and would result in a short spacing between the Heacock/Cardinal intersection if that intersection is signalized in the future. It is not recommended that this intersection be signalized.

VMT Analysis

17. No site plan was provided so the project boundary is unknown, and it is unclear if the project will take direct access onto Heacock. If so, the analysis should identify the VMT impacts within the City of Moreno Valley since the impact will extend beyond the MJPA jurisdiction.
 - a. The City of Moreno Valley still uses a modified RIVTAM model due to the City's recent General Plan Update (GPU). The analysis should reflect the latest GPU. Analyzing the VMT impacts in 2040 is more effective in evaluating any VMT impacts within the GPU.
18. On Page 3, Section "Project VMT Calculation and Comparison to Impact Threshold", the report states that the baseline VMT was determined using linear interpolation between the base year and cumulative year. Table 2 should include the VMT per employee for the base year, baseline year (without project), baseline year (with project), and cumulative year in Table 2.
19. Provide source of the WRCOG's baseline VMT per employee.

Site Plan

20. Provide turning templates for all movements to and from Heacock Street showing that turns are feasible. Using a STAA design vehicle. See comment #7.
21. Provide a sight distance exhibit for each driveway along Heacock Street.
22. Project may be required to improve Intersection #10 with PCC pavement or as directed by the City Engineer.

Please let me know if you have any questions or comments regarding the above comments or need any additional information.

Thank you.

May 16, 2022

Mr. Dan Fairbanks
March JPA
14205 Meridian Parkway, Suite 140
Riverside, CA 92518

**SUBJECT: GATEWAY AVIATION D-1 VEHICLE MILES TRAVELED (VMT)
SUPPLEMENTAL ANALYSIS**

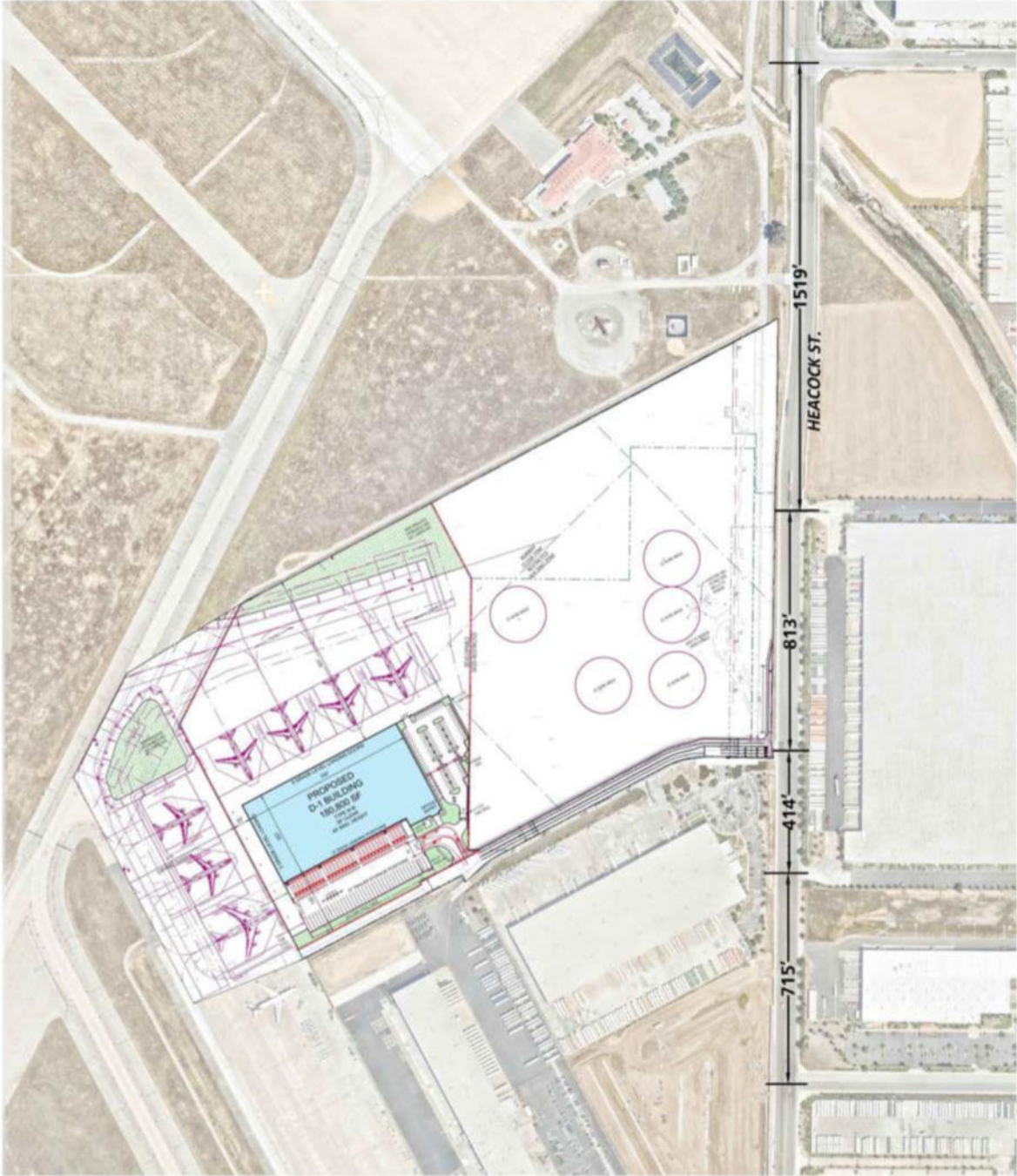
Mr. Dan Fairbanks,

Urban Crossroads, Inc. is pleased to provide the following Vehicle Miles Traveled (VMT) Supplemental Analysis for the Gateway Aviation D-1 development (**Project**) which is located in the southeastern portion of the March Air Reserve Base, west of Heacock Street, and south of Krameria Avenue in the March Joint Powers Authority (March JPA) jurisdiction. This VMT analysis was prepared at the request of the City of Moreno Valley and is presented for informational purposes only.

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The proposed Project includes the development of a gateway air freight cargo center, which consists of the construction of an approximately 180,800 square foot cargo building with 9 grade-level loading doors, 31 truck dock positions, and 37 trailer storage positions. The cargo building would contain approximately 9,000 square feet of office space. Preliminary site plan is shown in Exhibit 1.

EXHIBIT 1: PRELIMINARY SITE PLAN



LEGEND:
FULL = FULL ACCESS
EVA = EMERGENCY VEHICLE ACCESS ONLY



BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December of 2018) (**Technical Advisory**) (1). Based on OPR's Technical Advisory, the City of Moreno Valley has developed its own City of Moreno Valley Traffic Impact Analysis Preparation Guide for Vehicle Miles Traveled and Level of Service Assessment (June 2020) (**City Guidelines**) (2). This VMT analysis has been developed based on the adopted City Guidelines.

VMT SCREENING

The City Guidelines list standardized screening methods for project level VMT analysis that can be used to identify when a proposed land use development project is anticipated to result in a less than significant impact thereby eliminating the need to conduct a full VMT analysis. To aid in the project-level VMT screening process, the City of Moreno Valley utilizes the Western Riverside Council of Governments (WRCOG) VMT Screening Tool (**Screening Tool**). The web-based Screening Tool allows a user to select an assessor's parcel number (APN) to determine if a project's physical location meets one or more of the land use screening methods documented in the City Guidelines. The City Moreno Valley VMT screening steps, as described within the City Guidelines, are listed below:

- Step 1: Transit Priority Area (TPA) Screening
- Step 2: Low VMT Area Screening
- Step 3: Project Type Screening

A land use development project need only meet one of the above screening methods to result in a less than significant impact.

TPA SCREENING

The Technical Advisory and City Guidelines describe projects that are located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"¹ or an existing stop along a "high-quality transit corridor"²) may be presumed to have a less than significant impact absent substantial evidence to the contrary.

¹ Pub. Resources Code, § 21064.3 ("Major transit stop" means a site containing any of the following: (a) An existing rail or bus rapid transit station. (b) A ferry terminal served by either a bus or rail transit service. (c) The intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").

² Pub. Resources Code, § 21155(b) ("[...] For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. [...]").

However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Based on the Screening Tool results presented in Attachment A, the Project site is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor.

TPA screening is not met.

LOW VMT AREA SCREENING

The City Guidelines state that, “residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker, or per service population that is similar to the existing land uses in the low VMT area.”³ The Project’s physical location is selected in the Screening Tool to determine project generated VMT as compared to the City’s impact threshold. The parcel containing the proposed Project was selected within the Screening Tool. Based on the Screening Tool results, the Project resides within TAZ 3,727 and was shown to generate 14.46 VMT per employee, whereas the City’s impact threshold is 11.01 VMT per employee (See Attachment A). The Project is not located in a low VMT area.

Low VMT area screening is not met.

PROJECT TYPE SCREENING

The City Guidelines identify small projects that are anticipated to generate low traffic volumes (i.e., fewer than 400 daily trips), and by association low greenhouse gas (GHG) emissions, which are also assumed to cause a less than significant impact.

The ITE Trip Generation Manual (10th Edition, 2017) (1) does not currently have any trip generation rates for an air freight cargo center, as such, trip generation estimates for the proposed Project have been developed using data collected at a similar facility with operations similar to those proposed. The existing facility surveyed does not fly between the hours of 10 PM and 7 AM with 6 flights per day (where one flight equals 1 inbound and 1 outbound), but ground operations function 24-hours a day. The maximum number of aircraft that can be parked and unloaded at any given time is 5. Cargo arrives on the planes and is sorted in the cargo building to be distributed to off-site distribution centers. Attachment B Table 1 summarizes the count data collected at the existing facility (the count data is attached to this scoping agreement). Traffic

³ City Guidelines; page 23.

counts were conducted at the existing facility on 3 consecutive days and counts were conducted to capture the trips associated with the air freight portion separately from the existing high-cube warehouse use that supports the air freight cargo use. Although the traffic counts for the existing facility were conducted during the ongoing COVID-19 pandemic, there is the potential that the trip generation would likely be overstated due to the increase in online shopping in comparison to pre-COVID conditions; however, no adjustments have been made to the empirical data in an effort to determine a conservative trip generation. The average data for all 3 days has been calculated in Attachment B Table 1.

Attachment B Table 2 shows the trip generation rates developed for the existing facility which have been calculated based on aircraft parking positions for passenger cars and trucks using the data collected at the site shown in Attachment B Table 1 (see bottom of Table 1, used the average of the 3 days). The trip generation rates were calculated by dividing the average trips (average of 3 days) by the maximum number of aircraft parking positions (which is 5 parking positions).

Based on the calculated trip generation rates for aircraft parking positions shown in Attachment B Table 2, the Project's trip generation is summarized in Attachment B Table 3. The proposed Project trip generation is based on the anticipated operations for the site. Specifically, it has been assumed that the building can accommodate 7 aircraft parking positions with approximately 17 flights per day occurring during the typical Non-Peak season (6 days a week from January to late November). The Project is anticipated to generate a total of 1,276 trip-ends per day with 178 AM peak hour trips and 98 PM peak hour trips on a typical Non-Peak season day. The Peak season, which is anticipated to only occur 4 weeks in the year (late November through late December), will include an additional 6 flights per day for a total of 23 flights per day (or an increase in 35.3% from the Non-Peak, approximately 256 flights over a 4-week period). The maximum annual flight operations would not exceed the currently available civilian air cargo operations capacity under the Joint Use Agreement. Flight operations would occur between the hours of 7 AM and 11 PM (approximately 5% of the proposed Project flight operations would occur between 10 PM and 11 PM). The Project is anticipated to generate a total of 1,880 trip-ends per day with 262 AM peak hour trips and 144 PM peak hour trips on a Peak season day. As the Project is estimated to generate 1,276 non-peak and 1,880 peak vehicle trip-ends per day and both would exceed the 400 daily trip threshold.

In addition, local serving retail buildings with less than 50,000 square feet or other local serving essential services (e.g., day care centers, public schools, etc.) are presumed to have a less than significant impact absent substantial evidence to the contrary. The Project does not intend to develop any local serving retail or essential services.

Project type screening is not met.

Based on a more detailed review of the applicable VMT screening steps, it is determined that the Project is not eligible for screening and a VMT analysis will be required consistent with City Guidelines.

VMT ANALYSIS

VMT MODELING

City Guidelines identifies RIVTAM as the appropriate tools for conducting VMT analysis for land development projects in the Moreno Valley. Based on discussion with City staff, it was determined that this analysis would be prepared based on an unmodified version of RIVTAM for the base year model and a modified version of RIVTAM inclusive of the recent City of Moreno Valley General Plan update for the cumulative year model.

VMT METRIC AND SIGNIFICANCE THRESHOLD

As stated in the City Guidelines, office uses should be evaluated based on the metric VMT per employee metric. The City Guidelines describes the following significance thresholds for VMT analyses⁴:

1. A project would have a significant VMT impact if, in the Existing Plus Project, its net VMT per employee (for office and industrial projects) exceeds the per employee VMT threshold for Moreno Valley be considered a significant impact.
2. 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. If it is not consistent with the RTP/SCS, then it would have a significant VMT impact if:
 - a. For office and industrial projects, its net VMT per employee exceeds the average VMT per employee for Moreno Valley in the RTP/SCS horizon year.

WRCOG publishes jurisdictional averages for its member agencies and for the City of Moreno Valley the base year (2012) VMT per employee is 11.01. For the cumulative year (2040), based on City staff's direction is to utilize thresholds outlined in the Moreno Valley General Plan Update EIR. The General Plan Update EIR shows the City of Moreno Valley citywide average VMT in the horizon (cumulative) year to be 14.40 per employee.

TABLE 1: CITY OF MORENO VALLEY

	Base Year	Cumulative Year
VMT per Employee	11.01	14.40

PROJECT LAND USE CONVERSION

In order to evaluate Project VMT, standard land use information must first be converted into a RIVTAM compatible dataset. The model utilizes socio-economic data (SED) (e.g., population, households, employment, etc.) instead of land use information for the purposes of vehicle trip estimation. Project land use information such as building square footage must first be converted to SED for input into RIVTAM. Table 2 presents the estimated number of Project employees and population used to populate the RIVTAM model. It should be noted that the employment

⁴ City Guidelines; Page 26

estimates were provided by the Project team and are based on market understanding of potential tenants' use.

TABLE 2: EMPLOYMENT ESTIMATES

Land Use	Quantity	Estimated Employees ⁵
Air Freight Cargo Center	180,800 SF	150

The RIVTAM model was then run inclusive of the Project's SED inputs.

PROJECT'S EMPLOYEE VMT CALCULATION AND COMPARISON TO IMPACT THRESHOLD

As noted previously, RIVTAM was utilized to calculate project generated VMT for the Project. That value was then divided by the Project's employment estimate to derive the efficiency metric of VMT per employee in the base year and the cumulative year inclusive of the City's General Plan Update. Table 3 presents home-based work VMT for the Project's TAZ for both base year and cumulative year conditions, the number of Project employees, and the resulting VMT per employee.

TABLE 3: PROJECT VMT PER EMPLOYEE

	Project Base Year	Project Cumulative Year
VMT	2,181	2,302
Employment	150	150
VMT per Employee ⁶	14.54	15.35

Table 4 provides a comparison between Project VMT per employee to the City's significance threshold of 11.01 in base year conditions and 14.40 for cumulative year inclusive of the City's General Plan update conditions.

TABLE 4: PROJECT VMT PER EMPLOYEE COMPARISON

	Base Year	Cumulative Year
City Threshold	11.01	14.40
Project	14.54	15.35
Percent Change	+32.06%	+6.60%

The Project's VMT per employee was found to exceed the City's significance threshold in either the base year or cumulative year.

⁵ Based on market understanding of potential tenants' use.

⁶ HBW VMT per Employee is a measure of all auto trips between home and work and does not include heavy duty truck trips or freight, which is consistent with OPR direction and City Guidelines.

CONCLUSION

- The Project's was evaluated against screening criteria as outlined in the City Guidelines. The Project was not found to meet any available screening criteria, and a project level VMT analysis was performed.
- The Project's VMT analysis found the Project to exceed the City's VMT per employee threshold by 32.06% in the base year conditions and 6.60% in cumulative year conditions.

The preceding informational VMT analysis, as requested by the City of Moreno Valley, utilized the City of Moreno Valley's adopted methodologies, transportation demand model, years of analyses, and thresholds that differ from the March JPA, which is the lead agency for this Project. The March JPA utilizes the WRCOG thresholds and RIVCOM for modeling. A comparison of VMT results between the two agencies should not be made, doing so would be an "apples-to-oranges" comparison.

If you have any questions, please contact me directly at aso@urbanxroads.com.

Respectfully submitted,

URBAN CROSSROADS, INC.



Alexander So
Senior Associate

REFERENCES

1. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.
2. **City of Moreno Valley.** *Traffic Impact Analysis Preparation Guide for Vehicle Miles Traveled and Level of Service Assessment.* City of Moreno Valley : s.n., June 2020.
3. **Institute of Transportation Engineers.** *Trip Generation Manual.* 11th Edition. 2021.

ATTACHMENT A
WRCOG SCREENING TOOL

WRCOG VMT Screening Tool

Heacock Medical Clinic, 12810 X

Show search results for Heacock Med...

VMT Impact Screening

Input Output

Zoom in to your project location close enough that the blue parcel layer appears. Select Western Riverside County Parcels in the drop-down below, then use the black square to select your project parcels. When ready, click on the Execute button. To clear the selection or start over, click on the "X" on the output tab once the tool has run. All results based on RIVTAM Model*

Western Riverside County Parcels... [X] []

Execute

Layer List

All results based on RIVTAM Model.

- Output Layer
- Western Riverside County Parcels (Zoom in to view)
- Transit Priority Area
- RIVTAM TAZs with total VMT per service population below jurisdictional average under 2012 base year model
- RIVTAM TAZs with Home-based VMT per resident below jurisdictional average under 2012 base year model
- RIVTAM TAZs with Home-based work VMT per worker below jurisdictional average under 2012 base year model
- RIVTAM TAZs with total VMT per service population below WRCOG subregional average under 2012 base year model
- RIVTAM TAZs with Home-based VMT per resident below WRCOG subregional average under 2012 base year model
- RIVTAM TAZs with Home-based work VMT per worker below WRCOG subregional average under 2012 base year model
- City Boundaries
- TUMF Zone Boundaries

(1 of 2)

APN:294170010; TAZ:3,727

Within a Transit Priority Area (TPA)?
No (Fail)

Within a low VMT generating TAZ based on Total VMT?
No (Fail)
Jurisdictional average 2012 daily total VMT per service population = 37.87
Project TAZ 2012 daily total VMT per service population = 1,017.45

Within a low VMT generating TAZ based on Residential Home-Based VMT?
No (Fail)
Jurisdictional average 2012 daily residential home-based VMT per capita = 19.04
Project TAZ 2012 daily residential home-based VMT per capita = 21.55

Within a low VMT generating TAZ based on Home-Based Work VMT?
Yes (Pass)
Jurisdictional average 2012 daily home-based work VMT per worker = 14.83
Project TAZ 2012 daily home-based work VMT per worker = 14.46

Notes:

- TPA designation is based on October 2018 conditions.
- Screening results are based on location of parcel centroids. If results are desired considering the full parcel, please refer to the associated map layers to visually review parcel and TAZ boundary relationship.
- If VMT screening is desired for current baseline conditions, contact WRCOG for 2012 and 2040 VMT data. Interpolated VMT results can be obtained using the complete data set.
- VMT results do not account for full length of trips that occur beyond the SCAG region.

ATTACHMENT B
PROJECT TRIP GENERATION

TABLE 1: EXISTING EMPERICAL DATA

Land Use	Building 1 ²						Daily
	AM Peak Hour			PM Peak Hour			
	In	Out	Total	In	Out	Total	
Day 1: May 12, 2020							
Passenger Cars:	66	11	77	2	36	38	676
Truck Trips:							
2-axle:	1	0	1	1	2	3	26
3-axle:	1	3	4	4	2	6	63
4+axle:	3	5	8	8	9	17	115
- Truck Trips	5	8	13	13	13	26	204
TOTAL TRIPS (Actual Vehicles) ¹	71	19	90	15	49	64	880
Day 2: May 13, 2020							
Passenger Cars:	80	45	125	2	29	31	740
Truck Trips:							
2-axle:	1	0	1	2	2	4	21
3-axle:	2	4	6	2	1	3	56
4+axle:	5	2	7	5	11	16	102
- Truck Trips	8	6	14	9	14	23	179
TOTAL TRIPS (Actual Vehicles) ¹	88	51	139	11	43	54	919
Day 3: May 14, 2020							
Passenger Cars:	77	65	142	3	57	60	724
Truck Trips:							
2-axle:	0	0	0	2	1	3	12
3-axle:	2	3	5	10	2	12	82
4+axle:	4	1	5	5	16	21	114
- Truck Trips	6	4	10	17	19	36	208
TOTAL TRIPS (Actual Vehicles) ¹	83	69	152	20	76	96	932
AVERAGE OF 3 DAYS							
Passenger Cars:	74	40	115	2	41	43	713
Truck Trips:							
2-axle:	1	0	1	2	2	3	20
3-axle:	2	3	5	5	2	7	67
4+axle:	4	3	7	6	12	18	110
- Truck Trips	6	6	12	13	15	28	197
TOTAL TRIPS (Actual Vehicles)¹	81	46	127	15	56	71	910

* Note: data collected on May 12 - 14, 2020.

¹ TOTAL TRIPS = Passenger Cars + Truck Trips.

² Building 1 calculated by totaling counts from Driveway 1 and Driveway 3 (driveway serving PrimeAir only).

TABLE 2: CALCULATED TRIP GENERATION RATES

Land Use	Units ¹	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Air Freight Cargo Center ²	APP							
Passenger Cars		14.867	8.067	22.933	0.467	8.133	8.600	142.667
2-Axle Trucks		0.133	0.000	0.133	0.333	0.333	0.667	3.933
3-Axle Trucks		0.333	0.667	1.000	1.067	0.333	1.400	13.400
4+-Axle Trucks		0.800	0.533	1.333	1.200	2.400	3.600	22.067

¹ APP = Aircraft Parking Positions

² Average trip generation rates developed from empirical data summarized on Table 4-1.

Calculated by dividing average trips (see bottom of Table 4-1) by maximum aircraft parking positions (5 APP).

TABLE 3: PROJECT TRIP GENERATION SUMMARY

Project	Quantity Units ¹	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Typical Day (Non-Peak Season, 48 Weeks)								
Gateway Aviation								
Passenger Cars:	7 APP	104	56	160	3	57	60	1,000
2-axle:		1	0	1	2	2	4	28
3-axle:		2	5	7	7	2	9	94
4+-axle:		6	4	10	8	17	25	154
Total Trucks:		9	9	18	17	21	38	276
TOTAL TRIPS (Actual Vehicles)²		113	65	178	20	78	98	1,276
Peak Season (4-Weeks)								
Gateway Aviation								
Passenger Cars: ³	7 APP	153	82	235	4	84	88	1,472
2-axle:		1	0	1	3	3	6	42
3-axle:		3	7	10	10	3	13	138
4+-axle:		9	6	15	12	25	37	228
Total Trucks:		13	13	26	25	31	56	408
TOTAL TRIPS (Actual Vehicles)²		166	95	262	29	115	144	1,880

¹ APP = Aircraft Parking Positions

² TOTAL TRIPS = Passenger Cars + Truck Trips.

³ Non-peak trip generation has been increased by the increase in flights from 17 per day to 23 flights per day during the peak season.