

TECHNICAL MEMORANDUM

DATE: April 20, 2026
TO: Wei Sun, City of Moreno Valley
FROM: Alex So, Urban Crossroads, Inc.
JOB NO: 16301-01 VMT

SUBJECT: RIVERSIDE UNIVERSITY HEALTH SYSTEM MEDICAL CENTER (RUHS) MASTER PLAN VEHICLE MILES TRAVELED (VMT) ANALYSIS

Urban Crossroads, Inc. has completed the following Vehicle Miles Traveled (VMT) Analysis for the Riverside University Health System Medical Center (RUHS) Master Plan (Master Plan/Project) located on the northwest corner of Nason Street and Cactus Avenue surrounded on all sides by the City of Moreno Valley.

MASTER PLAN OVERVIEW

A Master Plan is a conceptual long-range plan intended to guide future phases of development at the RUHS Medical Center campus through at least 2055. In addition to development in Phase I, the Master Plan contemplates that the future phases of development will include an additional six buildings and four parking structures. The six new buildings are planned to include a one-story inpatient medical care facility building with a 90,000 square foot floor area, a 3-story inpatient medical care facility of 168,000 square feet, and four 2- to 3-story medical office buildings with a combined floor area of 343,000 square feet. The four new parking structures would consist of 2- to 3-story structures and would accommodate approximately 3,154 parking spaces. The Master Plan is shown in Attachment A and described in Table 1.

TABLE 1: MASTER PLAN PROGRAM

Master Plan Program	Quantity	Units
Phase I:		
Emergency Dept. Expansion	55.000	TSF
Medical Office Building	29.000	TSF
Master Plan Future Phases:		
Medical Office Building #2	49.000	TSF
Inpatient Medical Care #2	90.000	TSF
Medical Office Building #3	43.000	TSF
Medical Office Building #4	45.000	TSF
Medical Office Building #5	23.000	TSF
Inpatient Medical Care #3	56.000	TSF

TSF = thousand square feet

BACKGROUND

The California Environmental Quality Act (CEQA) requires all lead agencies to use VMT as the metric for identifying transportation impacts associated with land use projects. Although this Master Plan is being processed with the County of Riverside it is located wholly within the City of Moreno Valley, therefore, at the direction of County transportation staff, this VMT analysis has been prepared in accordance with the City of Moreno Valley Transportation Impact Analysis Preparation Guide for Vehicle Miles Traveled and Level of Service Assessment (June 2020) (**City Guidelines**) (1).

TRAFFIC MODELING METHODOLOGY

City Guidelines identifies the Riverside County Model (RIVCOM) as the appropriate tool for conducting VMT analysis for land use projects in the City of Moreno Valley¹. RIVCOM was developed by the Western Riverside Council of Governments (WRCOG) and initially released in June 2021. The most current release of RIVCOM is version 4.0.1, and represents the most current sub-regional transportation modeling tool for Western Riverside County. RIVCOM is a useful tool to estimate VMT as it considers interaction between different land uses based on socio-economic data such as population, households, and employment.

VMT TERMINOLOGY

The terms below are used throughout this document.

- **Vehicle Miles Traveled (VMT).** VMT reflects both the number of vehicle trips and the distances those trips travel, expressed as total vehicle-miles on the roadway system. VMT is commonly used to evaluate transportation-related effects such as greenhouse gas emissions, air quality, and energy use.

¹ Email correspondence from the City of Moreno Valley (January 28, 2025) confirmed the use of the RIVCOM travel demand model for VMT analysis.

- **Service Population (SP).** Service population is the combined total of residents and employees. VMT per service population is an efficiency metric defined as typical weekday VMT divided by the number of people who live and/or work within the specified area.
- **Home-Based Work (HBW) VMT.** HBW VMT represents VMT associated with commute travel to and from employment locations. It is sometimes described as employee- or workplace-attracted commute VMT.
- **HBW VMT per Employee.** For the purposes of this analysis, VMT is presented as HBW VMT per employee, consistent with County guidance for employment-generating projects (e.g., office and industrial). HBW VMT per employee is an efficiency metric representing typical weekday VMT generated exclusively by HBW trips, normalized by the number of employees.

VMT ANALYSIS METHODOLOGY

For this analysis, VMT has been estimated using the Production/Attraction (PA) method and the Boundary method. VMT is presented as VMT per employee, total VMT and VMT per service population.

- **Production/Attraction (PA) VMT** - the PA method for calculating HBW VMT sums all weekday VMT associated with trips that have at least one trip-end in the study area (i.e., city boundary or project area), organized by trip purpose. In this framework, productions represent land uses that generate trips (such as residences), while attractions represent land uses that draw trips (such as employment centers). The PA method allows VMT to be evaluated by trip purpose, consistent with the Office of Land Use and Climate Innovation (LCI) Technical Advisory and City Guidelines.
- **Boundary Method VMT** - the boundary method calculates VMT occurring on roadway links within a defined boundary by multiplying link volumes by link lengths and summing across the network. Because it includes all travel on the network—regardless of where trips begin or end—it can capture pass-through, cut-through, or displaced traffic.

VMT METRIC AND SIGNIFICANCE THRESHOLD

The City of Moreno Valley has adopted the following thresholds of significance related to VMT for land use projects. The following thresholds are to be applied to determine potential project-generated VMT impacts².

1. A project would have a significant VMT impact if, in the Existing Plus project, its net VMT per capita (for residential projects) or per employee (for office, industrial and other employment generating projects) exceeds the per capita or per employee VMT threshold for Moreno Valley. For all other uses, a net increase in VMT would 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:

² City Guidelines; Page 26

- a. For residential projects its net VMT per capita exceeds the average VMT per capita for Moreno Valley in the RTP/SCS horizon-year
- b. For office, industrial, and other employment generating projects, its net VMT per employee exceeds the average VMT per employee for Moreno Valley in the RTP/SCS horizon year.
- c. For all other land development project types, a net increase in VMT in the RTP/SCS horizon year would be considered a significant impact

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 the thresholds described in the City Guidelines were not intended to specifically address the appropriate methodology for a programmatic level analysis, the following threshold of significance has been used to evaluate the proposed Master Plan to try and stay as consistent as possible with the City’s adopted impact thresholds:

- Any increase in the HBW VMT per employee calculated using the PA method or VMT per service population calculated using the boundary method compared to the City of Moreno Valley horizon year would be considered a significant impact.

VMT ESTIMATES

Project VMT estimates were performed using the RIVCOM (2045) model as completion of the Master Plan is not anticipated to occur until 2055. To represent the Master Plan in RIVCOM, standard land use information such as building square footage was converted into a RIVCOM compatible dataset. The RIVCOM model utilizes socio-economic data (SED) (e.g., population and employment) as key inputs for the purposes of vehicle trip estimation. Table 3 presents the SED inputs used to represent buildout of the Master Plan.

TABLE 3: MASTER PLAN EMPLOYMENT ESTIMATES

Land Use	Employees
Emergency Dept. Expansion / Inpatient Medical Care	693
Medical Office Building	1,969
Other	42
Total	2,874

Employment estimates were obtained in the [RUHS Long Range Master Plan](#).

Horizon Year VMT estimates performed for the City of Moreno Valley and the Master Plan are presented in Table 4. The proposed Master Plan was found to generate lower HBW VMT per employee as compared to the Citywide average HBW VMT per employee.

TABLE 4: VMT SUMMARY

	Citywide Horizon Year	Master Plan Horizon Year
Employees	71,270	2,874
HBW VMT	1,844,537	64,690
HBW VMT per Employee	25.9	22.5

The Master Plan’s cumulative effect on VMT has been calculated using the boundary method. Table 5 summarizes Citywide boundary VMT under both Horizon Year No Project and Horizon Year With Master Plan conditions. Citywide VMT per service population was found to not increase under the with Master Plan scenario, therefore, the Master Plan’s cumulative effect on VMT does not exceed the City’s impact threshold.

TABLE 5: PROJECT EFFECT ON VMT

	Service Population	Boundary VMT	VMT per Service Population
Citywide Horizon Year No Project	336,593	3,435,312	10.2
Citywide Horizon Year With Master Plan	339,468	3,451,478	10.2

CONCLUSION

Based on the results of this VMT analysis, the following findings are made:

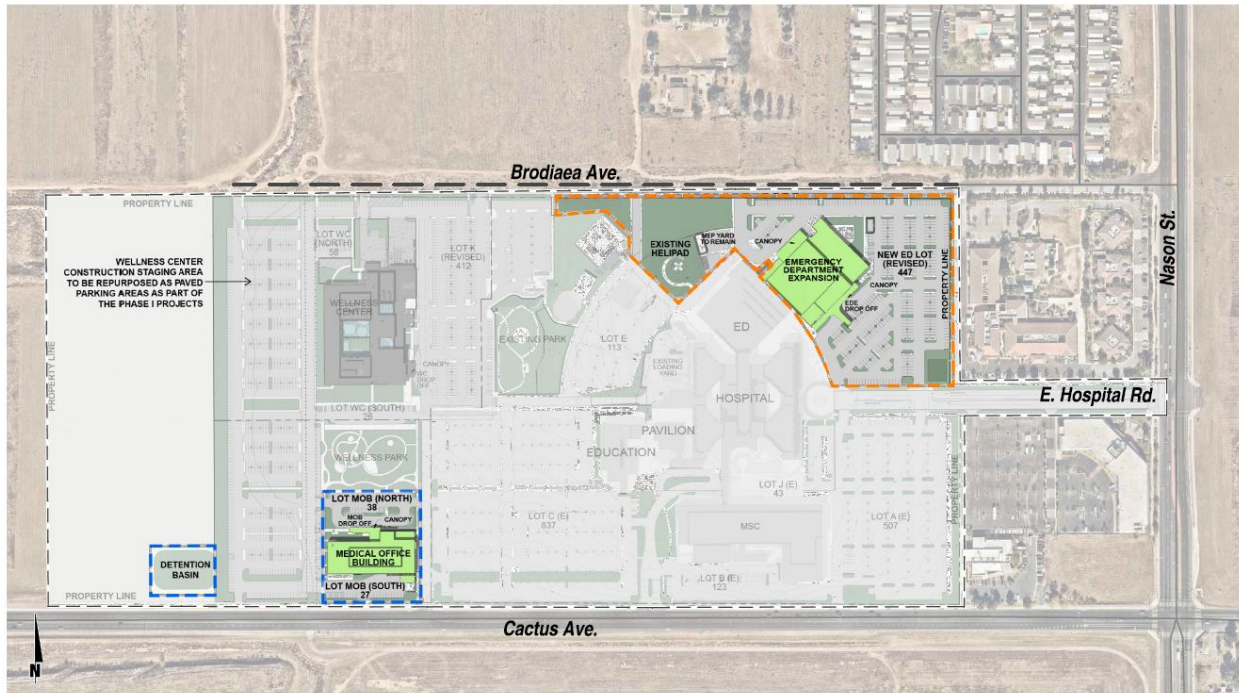
- The Master Plan HBW VMT per employee was found to be less than average HBW VMT per employee for horizon year conditions.
- Using the boundary method, the Citywide VMT per service population under the horizon-year scenario does not increase compared to the No Project condition.

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

REFERENCES

1. **City of Moreno Valley.** *Transportation Impact Analysis Preparation Guide for Vehicle Miles Traveled and Level of Service Assessment.* City of Moreno Valley : s.n., June 2020.

ATTACHMENT A: MASTER PLAN SITE PLAN



LEGEND:

- MEDICAL OFFICE BUILDING (MOB)
- EMERGENCY DEPARTMENT EXPANSION (EDE)



**ATTACHMENT B:
RIVCOM MODEL OPERATION OUTPUTS**

Model Year	2045
TAZ	1233
Daily_Home-Based (incl. IEHB) Prod VMT	7283.087891
Daily_HBW (incl. EIBW) Attr VMT	64627.32031
Daily_Total Auto OD From VMT	47811.76563
Daily_Total Auto OD To VMT	51504.03516
Daily_Total Auto OD Intra VMT	92.051582
Daily_Total Truck OD From VMT	1961.21228
Daily_Total Truck OD To VMT	1967.051514
Daily_Total Truck OD Intra VMT	1.394096
Daily_Total OD From VMT	49772.98438
Daily_Total OD To VMT	53471.08984
Daily_Total OD Intra VMT	93.445679
Daily_Total_TripLen	13.876223
Population	0
Employment	2875
Enrollment	0