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RIDER AND PATTERSON VEHICLE MILES TRAVELED (VMT) ANALYSIS

Ms. Tracy Zinn,

The following Vehicle Miles Traveled (VMT) Analysis has been prepared for the proposed Rider and Patterson (**Project**), which is located southwest corner of Patterson Avenue and Rider Street in the County of Riverside.

PROJECT OVERVIEW

The Project consists of the development of 591,203 square feet of high-cube fulfillment center warehouse use and 2 single family detached residential lots to be located on the existing Swallow Hills Circle. A preliminary site plan for the proposed Project is shown on Exhibit 1.

EXHIBIT 1: PRELIMINARY SITE PLAN



BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, requiring 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 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 County of Riverside adopted their Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled (December of 2020) (**County Guidelines**) (2). The adopted County Guidelines have been utilized to prepare this VMT analysis.

VMT SCREENING

Consistent with County Guidelines, land use projects should evaluate applicable VMT screening criteria based on their location, size, and land use type to determine if a presumption of a less than significant transportation impact can be made without the need of a full project level VMT analysis. County Guidelines list six screening criteria (see below), of which three (shown in bold) were selected for further review based on their applicability to the Project.

County Screening Criteria

- **Small Projects Screening**
- **High Quality Transit Areas (HQTA) Screening**
- Local Serving Retail
- Affordable Housing
- Local Essential Service
- **Map-Based Screening**

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

SMALL PROJECT SCREENING

The County Guidelines identify projects that generate fewer than 110 daily vehicle trips are presumed to have a less than significant impact absent substantial evidence to the contrary. Total daily vehicle trips generated by an industrial warehouse greater than 500,000 square feet would exceed the County's 110 daily vehicle trip threshold.

County Guidelines also identify those projects forecasted to generate greenhouse gas (GHG) emissions below 3,000 Metric Tons of Carbon Dioxide Equivalent (MTCO_{2e}) per year are also assumed to cause a less than significant VMT impact.¹ County Guidelines identifies that warehouse buildings (without refrigeration) below 208,000 square feet in total building size are expected to generate fewer than 3,000 MTCO_{2e} per year and would therefore be considered less

¹ County Guidelines; Page 19.

than significant. The Project is proposing square footages above the County's available project sizes for screening purposes for the warehousing component. The County Guidelines identifies single family dwelling unit projects having fewer than 110 units are expected to generate fewer than 3,000 MTCO₂e per year. As the Project is to contain 2 residential dwelling units, the residential component of the Project would meet the screening threshold.

Small Project/Low GHG Emissions based screening criteria is met only for the residential component.

HIGH QUALITY TRANSIT AREAS (HQTA) SCREENING

Projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"² or an existing stop along a "high-quality transit corridor"³) may be presumed to have a less than significant impact absent substantial evidence to the contrary. 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.

The Project is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor.

HQTA screening criteria is not met for either the residential or warehousing components.

MAP-BASED SCREENING

The County Guidelines note that "residential and office projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT."⁴ County Guidelines also state that the use of map-based screening for low VMT generating areas is also applicable for other employment uses such as the Project's industrial development. Urban Crossroads has obtained a VMT data table from County Staff for all TAZs within Riverside County that identifies VMT per capita and VMT per employee for the

² Pub. Resources Code, § 21064.3 ("Major transit stop" means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or 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.").

³ Pub. Resources Code, § 21155 ("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.").

⁴ Technical Advisory; Page 12

purposes of identifying of low VMT areas. The data utilizes the sub-regional Riverside Transportation Analysis Model (RIVTAM) to measure baseline VMT performance for individual TAZ's and a comparison was made to the applicable impact threshold (e.g., VMT per employee for office or industrial land uses and VMT per capita for residential land uses). Utilizing the RIVTAM Model the parcel of the Project was identified. The Project resides in TAZ 3731, which is shown to generate 17.22 VMT per employee (Warehouse) and 16.38 VMT per capita (Residential). The County threshold is 14.2 VMT per employee (Warehouse) and 15.2 VMT per capita (Residential). As such, the Project's TAZ would not qualify for low VMT area/map-based screening.

Map-Based screening criteria is not met for either the residential or warehousing components.

As the residential component of the Project meets the Small Project screening criteria it is not subject to further VMT analysis. However, the industrial warehousing component was not found to meet any of the available screening criteria outlined in the County's Guidelines and further VMT analysis is required for the warehousing component.

VMT ANALYSIS

VMT MODELING

The County Guidelines identify RIVTAM as the appropriate tool for conducting VMT analysis for land development projects in the County of Riverside. RIVTAM 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. RIVTAM is a travel forecasting model that represents a sub-area (Riverside County) of the Southern California Association of Governments (SCAG) regional traffic model. RIVTAM was designed to provide a greater level of detail and sensitivity in the Riverside County area as compared to the regional SCAG model.

VMT METRIC AND SIGNIFICANCE THRESHOLD

As stated in the County Guidelines, industrial land use projects should utilize the efficiency metric VMT per employee⁵. The County Guidelines describe the following significance threshold for other employment (i.e., non-office) land uses:

"A project would result in a significant project generated VMT impact if its VMT exceeds the existing countywide average Work VMT per employee." For the County of Riverside, the countywide average Work VMT per employee is **14.2 Work VMT per employee**⁶.

PROJECT LAND USE CONVERSION

In order to evaluate Project Work VMT per employee, standard land use information (i.e., building square footage) must first be converted into a RIVTAM compatible dataset. The RIVTAM model utilizes socio-economic data (SED) (e.g., population, households, employment, etc.) instead of land use information for the purposes of commute VMT estimation. Project building square

⁵ County Guidelines; Figure 4; Page 21

⁶ County Guidelines; Figure 6; Page 22

footage must first be converted to an appropriate employment type and employee estimate for input into RIVTAM. Table 1 presents the estimated number of employees used to represent the Project in RIVTAM.

TABLE 1: EMPLOYMENT DENSITY FACTORS

| Land Use | Quantity | Employment Factor ⁷ | Project Employees |
|-----------|------------|--------------------------------|-------------------|
| Warehouse | 591,203 SF | 1 employee per 1,030 SF | 574 |

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

PROJECT'S WORK VMT CALCULATION AND COMPARISON TO IMPACT THRESHOLD

As described previously, industrial land uses are to be evaluated utilizing the efficiency metric Work VMT per employee. This is obtained by dividing project-generated VMT by the Project's employee estimate to obtain the efficiency metric of Work VMT per employee. Table 2 presents Work VMT for the Project's TAZ for baseline conditions, the estimated number of Project employees, and the resulting efficiency metric Work VMT per employee.

TABLE 2: PROJECT WORK VMT PER EMPLOYEE

| | Project |
|-----------------------|---------|
| Home-based Work VMT | 9,642 |
| Employment | 574 |
| Work VMT per Employee | 16.8 |

Table 3 provides a comparison between Project VMT per employee to the County's significance threshold of 14.2 VMT per employee.

TABLE 3: PROJECT VMT PER EMPLOYEE COMPARISON

| | Baseline |
|--------------------------|----------|
| County Threshold | 14.2 |
| Project | 16.8 |
| Percent Above Threshold | +18.31% |
| Potentially Significant? | Yes |

As shown in Table 3, Project generated Work VMT per employee exceeds the County's adopted threshold by 18.31%, which is potentially significant.

PROJECT'S TOTAL VMT CALCULATION AND COMPARISON TO IMPACT THRESHOLD

For the purposes of fully disclosing potential VMT impacts, this analysis also includes a supplemental VMT evaluation measuring Project total VMT for all vehicle types (i.e., both passenger cars and trucks) and all trip purposes. Total VMT is estimated utilizing total vehicle trips consistent with the Project's greenhouse gas analysis multiplied by the average trip length for each vehicle type. Average vehicle trip length for passenger cars has been obtained from

⁷ County of Riverside General Plan; Appendix E-2, Table E-2

RIVTAM's Origin/Destination (OD) trip matrices. The 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. For the purposes of this analysis the average trip length for passenger cars as obtained from RIVTAM is 15.14 miles. Whereas the average trip length for light heavy-duty trucks (LHDT) and heavy heavy-duty trucks (HHDT) used for this analysis has been obtained from the South Coast Air Quality Management District's (SCAQMD) Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce emissions (WAIRE) Program (May 2021) (3). SCAQMD's rule 2305 is based on a 15.3-mile trip length for LHDT and 39.9-mile trip length for HHDT.

TABLE 4: PROJECT TOTAL VMT

| | Project |
|------------------|---------------|
| Automobile VMT | 15,685 |
| Truck VMT | 6,576 |
| Total VMT | 22,261 |

Table 5 presents the calculation of VMT per SP, which is simply the product of total VMT for the Project divided by the Project warehousing component's service population (SP) or in this case the number of Project employees.

TABLE 5: PROJECT TOTAL VMT PER SP

| | Project |
|------------------|---------|
| SP | 574 |
| Total VMT | 22,261 |
| Total VMT per SP | 38.78 |

Table 6 identifies a comparison between Project's total VMT per SP to an applicable impact threshold. Although not specified by County Guidelines, consistent with other impact thresholds already utilized by the County, it is reasonable to assume that a project with a total VMT per SP that exceeds the existing jurisdictional average total VMT per SP would result in a potentially significant impact. Since the County Guidelines do not utilize the VMT per SP metric and would therefore not include an associated impact threshold for this metric, a suitable impact threshold was instead obtained from information previously published by the Western Riverside Council of Governments (WRCOG). WRCOG previously provided VMT calculations from the RIVTAM base year and cumulative year models for each of its member agencies and the unincorporated areas within the WRCOG region. For the purposes of this evaluation, the average VMT per SP for the RIVTAM base year model for the unincorporated WRCOG region is 37.87.

TABLE 6: PROJECT VMT PER SP COMPARISON

| | Baseline |
|--------------------------|----------|
| Regional Threshold | 37.87 |
| Project | 38.78 |
| Percent Above Threshold | +2.40% |
| Potentially Significant? | Yes |

PROJECT'S CUMULATIVE EFFECT ON VMT

The Technical Advisory states that, "a project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact."⁸ In other words, since the Project generated VMT per employee efficiency metric as compared to the County's impact threshold is potentially significant, the Project's cumulative effect on VMT is also presumed to be potentially significant.

VMT REDUCTION

Transportation Demand Management (TDM) strategies in the form of commute trip reduction measures have been reviewed for the purpose of reducing Project related VMT impacts (i.e., commute trips) determined to be potentially significant. As the future building tenants are not known for the Project, the effectiveness of any commute trip reduction measure may be limited. In addition to specific tenancy considerations, locational context is also a major factor relevant to the potential application and effectiveness of TDM measures.

A project can only realize a quantifiable reduction in commute VMT under the most favorable circumstances and ideal local conditions when implementing trip reduction program measures. In practical terms, ideal conditions are rarely realized due to variables such as a project's locational context limitation (i.e., non-urban areas). Additionally, to achieve ideal conditions a project must achieve one hundred percent employee participation, and maximum employee eligibility, which are not generally expected. This is more difficult to presume since future building tenants are not known at this time. The Project should include the following VMT reduction measures that have the potential to reduce work/commute VMT, although no quantified benefit is taken. The Project's design includes the following components:

- Implement pedestrian network improvements to encourage people to walk:
 - Along the Project frontage with Patterson, construct a 10-foot-wide DG trail and a 6-foot-wide sidewalk.
 - Along the Project frontage with Rider Street, construct a 5-foot-wide sidewalk.
 - Along the Project frontage with Walnut, construct 5-foot-wide sidewalk.
- Provide preferential carpool/vanpool parking spaces to encourage carpooling:
 - Provide preferred parking spaces for carpools, vanpools, and clean air EVs.
- Implement additional end of trip bicycle facilities to encourage safe and comfortable bicycle travel:
 - Provide short-term bicycle parking spaces - permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by.
 - Provide long-term bicycle storage lockers, inside the building.

⁸ Page 6 of the Technical Advisory.

CONCLUSION

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

- The Project was evaluated against screening criteria as outlined in the County Guidelines. The Project's residential component meets the Small Project screening criteria; no further VMT analysis is required for this component. However, the Project's warehousing component was not found to meet any available screening criteria, and a VMT analysis was performed.
- The Project's VMT analysis found the Project to exceed the County's Work VMT per employee threshold by 18.31% and is determined to have a potentially significant transportation impact.
- Although not specified by County Guidelines, Project total VMT was also found to exceed the Unincorporated WRCOG region baseline average total VMT per SP by 2.40%, which also results in potentially significant transportation impact.
- As future tenants of the Project are unknown at this time, the effectiveness of mitigation measures such as those listed above cannot be guaranteed to reduce Project VMT to a level of less than significant. Therefore, the Project's VMT impact is considered significant and unavoidable.

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

Respectfully submitted,

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REFERENCES

1. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.
2. **County of Riverside.** *Transportation Analysis Guidelines for Level of Service Vehicle Miles Traveled.* County of Riverside : s.n., December 2020.
3. **SCAQMD.** *Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce emissions (WAIRE) Program.* May 2021.

