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# **Appendix J**

## Vehicle Miles Traveled Analysis



**Eddie Jones Industrial Redevelopment Project**  
**250 Eddie Jones Way**  
**City of Oceanside**  
**April 20, 2022**

## **Draft Vehicle Miles Traveled Analysis**

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## 1.0 Introduction

The proposed project is a mix of about 30% manufacturing and about 70% warehousing with a total of up to 568,000 square feet of building space. The project will replace an existing manufacturing business with 172,305 sf resulting in a net building increase of approximately 395,695 sf.

The site is located at 250 Eddie Jones Way in Oceanside, California. The general location of the project is shown in **Figure 1**. A site plan is shown in **Figure 2**.

This report includes a Vehicle Miles Traveled (VMT) analysis to determine if there is a potential California Environmental Quality Act (CEQA) VMT transportation impact.





## 2.0 Vehicle Miles Traveled

A VMT analysis is required to satisfy the CEQA guidelines that utilize VMT as the measure of effectiveness for determining transportation impacts. The California Governor’s Office of Planning and Research (OPR) Technical Advisory developed guidance on implementing Senate Bill 743 (SB 743) that shifts the transportation impact measure of effectiveness from Level of Service (LOS) to VMT. The OPR *Transportation Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018 states on page 8 “As noted above, lead agencies have the discretion to set or apply their own thresholds of significance”. Excerpts from the OPR Technical Advisory are included in **Appendix A**.

The City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020 (“VMT Guidelines”) documents a threshold of 500 project Average Daily Traffic (ADT) if inconsistent with the General Plan and 1,000 project ADT if consistent with the General Plan as the trigger for requiring a VMT analysis. Excerpts from the City of Oceanside Guidelines are included in **Appendix B**. The City of Oceanside requires the VMT threshold to be based on the project trip generation without a trip credit for any existing uses.

The project trip generation was calculated using the Institute of Transportation Engineers *11<sup>th</sup> Edition Trip Generation*, September 2021. The project will include a mix of approximately 30% manufacturing and approximately 70% warehousing. The project (without a trip credit) is calculated to generate 1,530 daily trips, 161 AM peak hour trips (119 inbound and 41 outbound), and 175 PM peak hour trips (54 inbound and 121 outbound) as shown in **Table 1**.

**TABLE 1: PROJECT TRAFFIC GENERATION**

ITE 11th Edition				AM Peak Hour			PM Peak Hour		
Land Use	Rates & Size		Daily	IN	OUT	Total	IN	OUT	Total
<i>Proposed Project with Land Use 140: Manufacturing</i>									
Car Trip Rates:	4.75	/KSF		76%	24%	0.68	31%	69%	0.74
Size:	170.400	KSF	Cars: <b>809</b>	88	28	<b>116</b>	39	87	<b>126</b>
Truck Trip Rates:	0.45	/KSF		56%	44%	0.03	41%	59%	0.03
Size:	170.400	KSF	Trucks: <b>77</b>	<u>3</u>	<u>2</u>	<b>5</b>	<u>2</u>	<u>3</u>	<b>5</b>
<i>TOTAL Manufacturing Trips:</i>			<b>886</b>	91	30	<b>121</b>	41	90	<b>131</b>
<i>Proposed Project Land Use 154: High-Cube Transload and Short-Term Storage Warehouse</i>									
Car Trip Rates:	1.40	/KSF		77%	23%	0.08	28%	72%	0.10
Size:	397.600	KSF	Cars: <b>557</b>	24	7	<b>32</b>	11	29	<b>40</b>
Truck Trip Rates:	0.22	/KSF		49%	51%	0.02	47%	53%	0.01
Size:	397.600	KSF	Trucks: <b>87</b>	<u>4</u>	<u>4</u>	<b>8</b>	<u>2</u>	<u>2</u>	<b>4</b>
<i>TOTAL Warehouse and Distribution Trips:</i>			<b>644</b>	28	11	<b>40</b>	13	31	<b>44</b>
<b>Project Total:</b>			<b>1,530</b>	119	41	<b>161</b>	54	121	<b>175</b>

Source: Institute of Transportation Engineers (ITE) 11th Edition *Trip Generation*. KSF: 1,000 Square Feet.

As shown in Table 1, the project trip generation exceeds 1,000 ADT; therefore, a VMT analysis is required.

The City of Oceanside has developed a Project Information Form (PIF) to provide an initial screening of VMT requirements based on the project ADT. A completed PIF for this project is included in **Appendix C**. Please note the current project has been refined from what is in the PIF.

## 2.1 VMT Significance Criteria

The City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020 documents significance thresholds for transportation VMT impacts based on the project type.

As shown in **Table 2**, the significance thresholds for a transportation VMT impact is based on 15% below the regional average using a metric of Employee VMT.

**TABLE 2: CITY OF OCEANSIDE PROJECT THRESHOLDS FOR VMT TRANSPORTATION IMPACTS**

Project Type	Metric	Significance Thresholds
Industrial	Employee VMT	15% below regional average

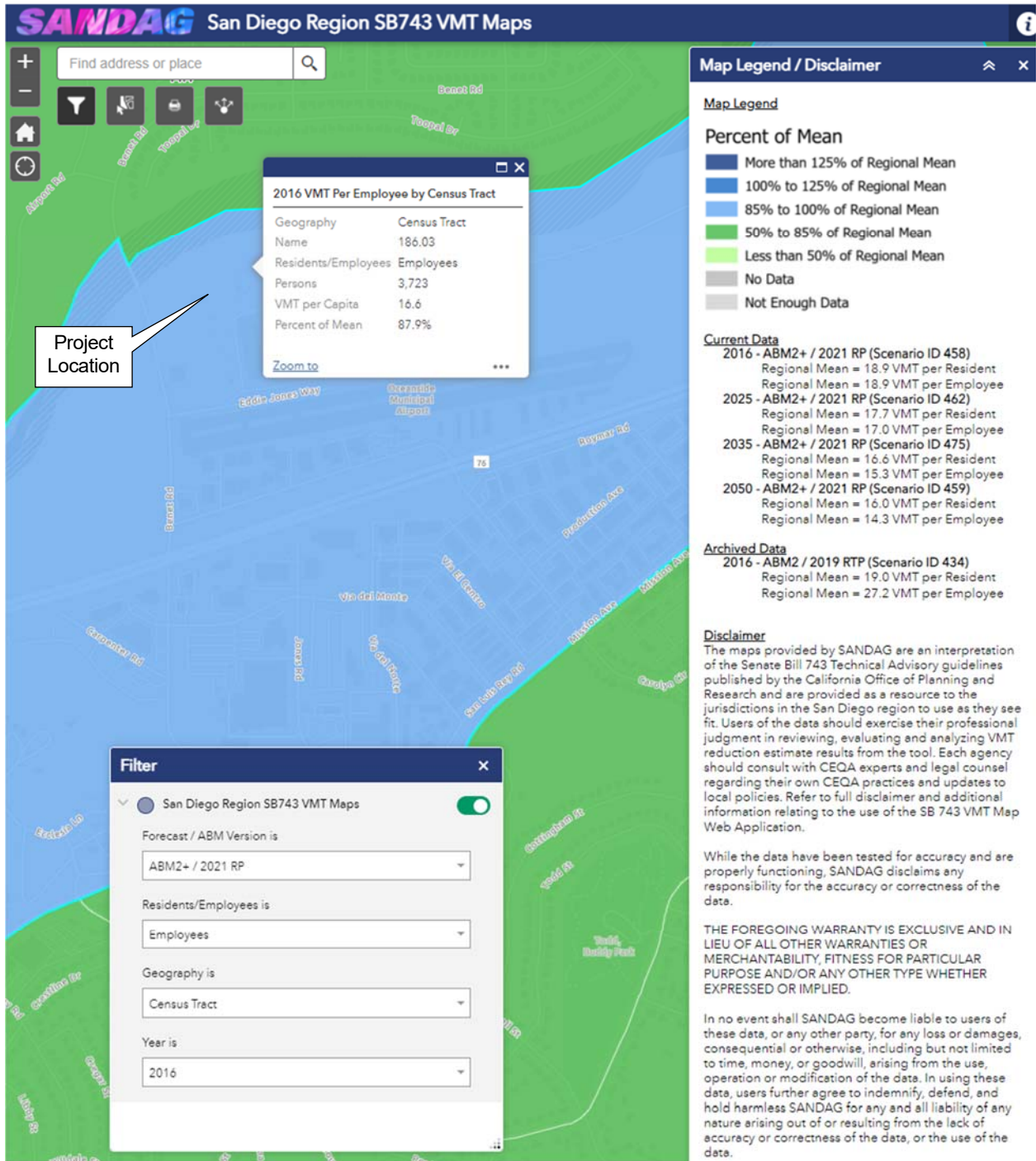
Source: City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020.

## 2.2 Employee VMT Analysis

The City VMT Guidelines require the most recent version of the San Diego Regional Association of Governments (SANDAG) SB 743 Concept Map to determine the Employee VMT at the census tract level for projects under 2,400 ADT, which is the case for this project. The most recent SANDAG ABM2+ Base Year 2016 map was applied.

As shown in **Figure 3**, the project location for employee VMT by Census Tract is at 87.9% of the regional mean; therefore, the project exceeds the 85% significance threshold and is considered to have a significant transportation VMT impact. The project exceeds the VMT threshold by 2.9%.

**Figure 3: SANDAG Employee VMT by Census Tract**



## 2.3 Proposed VMT Mitigation

The SANDAG Mobility Management VMT Reduction Calculator Tool was utilized to quantify a VMT reduction based on application of the following measure.

- 1) Voluntary Employer Commute Program. Employer offers a voluntary employer commute trip reduction program. The program may include a carpool or vanpool program, subsidized or discounted transit passes, bike amenities, commute trip reduction marketing, and preferential parking permit program.

The SANDAG Mobility Management VMT Reduction Calculator Tool summary is shown in **Table 3** with output included in **Appendix D**.

**TABLE 3: SANDAG VMT REDUCTION MEASURES**

VMT Mitigation Measure	Application	Project VMT % Reduction
Voluntary Employer Commute Program	Future employers will be given an outline of employee commute trip reductions to include disseminating information about SANDAG's iCommute program, carpools, vanpools, subsidized or discounted transit passes, bike amenities, trip reduction marketing, and preferential parking permit program.	-6.2%

Source: SANDAG

With application of the above VMT mitigation measures, the transportation VMT impact is mitigated to below a level of significance because the final VMT of 81.7% is less than 85% as shown in **Table 4**.

**TABLE 4: PROJECT VMT MITIGATION RESULTS**

Project VMT	Mitigation VMT % Reduction	VMT after Mitigation	Is Project VMT below 85% and Mitigated?
87.9%	-6.2%	81.7%	Yes

### 3.0 Conclusion

This VMT analysis was based on guidance from the Governor’s OPR Technical Advisory and the City of Oceanside *Draft Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020. OPR developed guidance for implementing Senate Bill 743 (SB 743) requirements that shifts the transportation impact measure of effectiveness from Level of Service (LOS) to VMT. The City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020 documents a threshold of 500 project Average Daily Traffic (ADT) if inconsistent with the General Plan and 1,000 project ADT if consistent with the General Plan as the trigger for requiring a VMT analysis. This project with 1,530 ADT is required to prepare a VMT analysis.

The threshold for a VMT impact is defined when a project exceeds a level of 15% below the existing VMT (i.e. greater than 85% of the regional mean) or is considered to shorten trips. The San Diego Regional Association of Governments (SANDAG) provides a map based VMT model for the San Diego region that includes the City of Oceanside. The project site is located in a Census Tract with a VMT per Employee of 87.9% of the regional mean; therefore, the project exceeds the 85% significance threshold and is considered to have a significant transportation VMT impact. The transportation VMT impact is mitigated to below a level of significance with a final VMT of 81.7%, which is less than 85% of the regional mean through the application of the following SANDAG measure:

- 1) Voluntary Employer Commute Program: Future employers will be given an outline of employee commute trip reductions to include disseminating information about SANDAG’s iCommute program, carpools, vanpools, subsidized or discounted transit passes, bike amenities, trip reduction marketing, and preferential parking permit program.

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## **Appendix A**

### **Excerpts from OPR Technical Advisory**

# TECHNICAL ADVISORY

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## ON EVALUATING TRANSPORTATION IMPACTS IN CEQA



December 2018

## D. General Principles to Guide Consideration of VMT

SB 743 directs OPR to establish specific “criteria for determining the significance of transportation impacts of projects[.]” (Pub. Resources Code, § 21099, subd. (b)(1).) In establishing this criterion, OPR was guided by the general principles contained within CEQA, the CEQA Guidelines, and applicable case law.

To assist in the determination of significance, many lead agencies rely on “thresholds of significance.” The CEQA Guidelines define a “threshold of significance” to mean “an identifiable **quantitative, qualitative<sup>12</sup> or performance level** of a particular environmental effect, non-compliance with which means the effect will **normally** be determined to be significant by the agency and compliance with which means the effect **normally** will be determined to be less than significant.” (CEQA Guidelines, § 15064.7, subd. (a) (emphasis added).) Lead agencies have discretion to develop and adopt their own, or rely on thresholds recommended by other agencies, “provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.” (*Id.* at subd. (c); *Save Cuyama Valley v. County of Santa Barbara* (2013) 213 Cal.App.4th 1059, 1068.) Substantial evidence means “enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached.” (*Id.* at § 15384 (emphasis added); *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108-1109.)

Additionally, the analysis leading to the determination of significance need not be perfect. The CEQA Guidelines describe the standard for adequacy of environmental analyses:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to **make a decision which intelligently takes account of environmental consequences**. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is **reasonably feasible**. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The **courts have looked not for perfection** but for **adequacy, completeness**, and a **good faith effort** at full disclosure.

(CEQA Guidelines, § 15151 (emphasis added).)

These general principles guide OPR’s recommendations regarding thresholds of significance for VMT set forth below.

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<sup>12</sup> Generally, qualitative analyses should only be conducted when methods do not exist for undertaking a quantitative analysis.

## E. Recommendations Regarding Significance Thresholds

As noted above, lead agencies have the discretion to set or apply their own thresholds of significance.

(*Center for Biological Diversity v. California Dept. of Fish & Wildlife* (2015) 62 Cal.4th 204, 218-223 [lead agency had discretion to use compliance with AB 32's emissions goals as a significance threshold]; *Save Cuyama Valley v. County of Santa Barbara* (2013) 213 Cal.App.4th at p. 1068.) However, Section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote: (1) reduction of greenhouse gas emissions; (2) development of multimodal transportation networks; and (3) a diversity of land uses. It further directed OPR to prepare and develop criteria for determining significance. (Pub. Resources Code, § 21099, subd. (b)(1).) This section provides OPR's suggested thresholds, as well as considerations for lead agencies that choose to adopt their own

The VMT metric can support the three statutory goals: “the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.” (Pub. Resources Code, § 21099, subd. (b)(1), emphasis added.) However, in order for it to promote and support all three, lead agencies should select a significance threshold that aligns with state law on all three. State law concerning the development of multimodal transportation networks and diversity of land uses requires planning for and prioritizing increases in complete streets and infill development, but does not mandate a particular depth of implementation that could translate into a particular threshold of significance. Meanwhile, the State has clear quantitative targets for GHG emissions reduction set forth in law and based on scientific consensus, and the depth of VMT reduction needed to achieve those targets has been quantified. Tying VMT thresholds to GHG reduction also supports the two other statutory goals. Therefore, to ensure adequate analysis of transportation impacts, OPR recommends using quantitative VMT thresholds linked to GHG reduction targets when methods exist to do so.

Various legislative mandates and state policies establish quantitative greenhouse gas emissions reduction targets. For example:

- Assembly Bill 32 (2006) requires statewide GHG emissions reductions to 1990 levels by 2020 and continued reductions beyond 2020.
- Senate Bill 32 (2016) requires at least a 40 percent reduction in GHG emissions from 1990 levels by 2030.
- Pursuant to Senate Bill 375 (2008), the California Air Resources Board GHG emissions reduction targets for metropolitan planning organizations (MPOs) to achieve based on land use patterns and transportation systems specified in Regional Transportation Plans and Sustainable Community Strategies (RTP/SCS). Current targets for the State's largest MPOs call for a 19 percent reduction in GHG emissions from cars and light trucks from 2005 emissions levels by 2035.
- Executive Order B-30-15 (2015) sets a GHG emissions reduction target of 40 percent below 1990 levels by 2030.

## **Appendix B**

### **Excerpts from City of Oceanside VMT and LOS Guidelines**

City of Oceanside

## Traffic Impact Analysis Guidelines for

# Vehicle Miles Traveled (VMT) and Level of Service Assessment



August 2020  
Final Version

### **Trip Distribution / Assignment Procedure**

Typically, two methods are used to determine trip distribution and assignment for transportation analysis and are considered acceptable by the City.

- The first method utilizes engineering judgement based on existing traffic data and land use patterns. This method requires the consultant to provide a map with project distribution and trip assignments to the City for review prior to conducting analysis.
- The second method utilizes the SANDAG Regional Travel Demand Model to perform a select zone or link analysis. **This approach is typically used for larger projects and shall be used for any project that generates over 2,400 ADT.**

Once trip distribution and assignment assumptions are submitted to the City, the City will review and provide feedback on assumptions. If necessary, the developer or consultant may coordinate with the City Traffic Engineer to discuss trip distribution and assignment for any clarification or considerations to travel patterns that are not readily apparent.

### **7.0 SCREENED OUT PROJECTS**

SB 743 eliminates the need for some projects to be analyzed for CEQA purposes that support VMT reduction, these projects are considered screened out for VMT analysis. Screened out is defined as projects not needed to be analyzed for CEQA purposes that already support VMT reduction.

The projects listed in **Table 2** are presumed to be considered VMT-reducing projects. The projects listed are either locally serving or are based on substantial evidence provided by the OPR Technical Advisory Committee supporting SB 743 implementation. A project may be required to conduct a VMT analysis at the discretion of City Staff if it is unclear the project qualifies as screened out or based on the City Traffic Engineer's discretion.

**Table 2 – Screened Out Projects**

Project Type
Projects located in a Transit Priority Areas (TPA) or Smart Growth Opportunity Area as identified in the most recent SANDAG San Diego Forward Regional Plan and is consistent with the General Plan at the time of project application. <sup>(1)(2)</sup>
Projects located in a low-VMT generating area identified on the most recent SANDAG SB 743 VMT Screening map
Locally serving K-12 schools
Day care centers
Local parks
Locally serving retail uses less than 50,000 square feet, including: gas stations, banks, restaurants, grocery stores, and shopping centers
Community institutions (Public libraries, fire stations, local government)
Locally serving hotels (e.g. non-destination hotels, non-regionally serving)
Student housing projects on or adjacent to college campuses
Local serving community colleges that are consistent with the assumptions noted in the most recent SANDAG Regional Transportation Plan/Sustainable Communities Strategy
Affordable housing projects <sup>(3)</sup>
Assisted living facilities
Senior housing (as defined by HUD)
Transit projects
Bike projects
Pedestrian projects
Safety improvement projects (e.g. RRFBs and high visibility crosswalks at uncontrolled locations, pedestrian count down timers, additionally projects identified through the Highway Safety Improvement Program)
Safe Routes to School
Projects generating less than 500 daily vehicle trips (if inconsistent with adopted General Plan)
Projects generating less than 1,000 daily vehicle trips (if consistent with adopted General Plan)

(1) Projects located in a TPA must be able to access the transit station within a ½ mile walking distance or 6 minute walk continuously without discontinuity of sidewalk or obstructions to the route. Qualifying transit stops means a site containing an existing rail transit station 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 (OPR, 2017). A high-quality transit corridor may also be considered if a corridor with fixed route bus service has service intervals no longer than 15 minutes during peak commute hours (OPR, 2017).

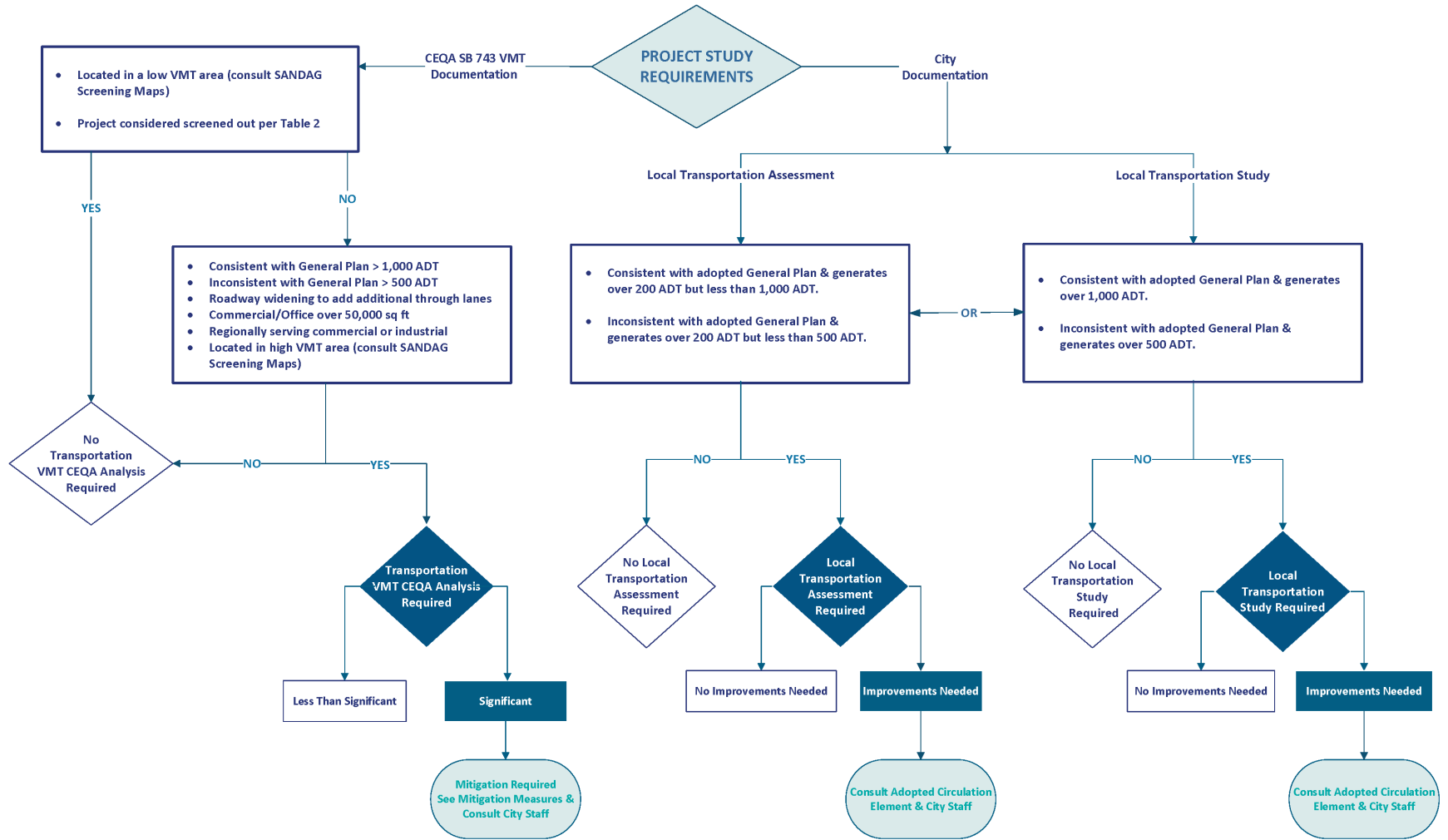
(2) Smart Growth Opportunity Area Map is provided in **Appendix B**. The most recent version available shall be used.

(3) If a project is a mix of affordable housing and market rate housing or unscreened use, only the affordable housing component would qualify as screened out. Additionally, any removal of affordable housing automatically requires CEQA VMT analysis.

**8.0 DETERMINING PROJECT STUDY REQUIREMENTS**

**Figure 8-1** helps guide development projects in determining the requirements from a local and state perspective in order to help determine study requirements. The screening flowchart indicates an overview of the circumstances where a detailed CEQA VMT analysis would or would not be required and when a project would require a Local Transportation Study or Local Transportation Assessment. The City maintains the discretion to require a project to conduct additional analysis if needed.

Figure 8-1 Project Study Requirements



\* Projects are not confined to what is listed above and will need to be coordinated with City Staff to determine study requirements for developments not listed. This flowchart is a generalization, it is up to the City's discretion to determine if additional analyses will be required and if potential mitigation or improvements are acceptable.

## 9.0 SAN DIEGO REGIONAL GUIDELINES FOR VMT

The City of Oceanside utilizes the Institute of Transportation Engineers (ITE) San Diego Regional Guidelines (May 2019) to establish thresholds and methodology for VMT analysis. For analysis purposes the most recent version of these guidelines shall be utilized. The following sections summarize the VMT thresholds requirements for Oceanside in alignment with ITE. Thorough analysis explanation can be found in the most recent ITE guidance.

### Minimum Threshold for VMT Analysis

Based on the recommendations of the Institute of Transportation Engineers (ITE) for the San Diego section, **Table 3** indicates when a VMT analysis for CEQA is required. This is based on keeping consistent with the thresholds previously used and *SANDAG's Not So Brief Guide Trip Generation (2002)*. These thresholds are based on the understanding that SANDAG trip generation rates differ from ITE trip generation rates which OPR's recommendations are based on.

### Projects Consistent with the Adopted General Plan

The City's adopted General Plan represents the vision and goals the City has for the community. Projects that support these goals will adhere to the following VMT analysis thresholds identified in Table 3.

**Table 3 – Threshold for VMT Analysis for Projects Consistent with the Adopted General Plan**

	VMT Analysis Not Needed	VMT Analysis Needed <sup>(1)</sup>
Average Daily Traffic Volume (ADT)	Less than 1,000 ADT	Greater than 1,000 ADT

(1) If ADT is equal to 1,000 ADT, VMT analysis is required.

### Projects Inconsistent with the Adopted General Plan

The City's adopted General Plan represents the vision and goals the City has for the community. Projects that are not in support of the General Plan have a lower VMT threshold and will require a General Plan Amendment. The following VMT analysis thresholds for projects that are inconsistent are identified in **Table 4**.

**Table 4 – Threshold for VMT Analysis for Projects Inconsistent with the Adopted General Plan**

	VMT Analysis Not Needed	VMT Analysis Needed <sup>(1)</sup>
Average Daily Traffic Volume (ADT)	Less than 500 ADT	Greater than 500 ADT

(1) If ADT is equal to 500 ADT, VMT analysis is required.

The thresholds identified in Table 3 and Table 4 stem from the professional expertise and judgement of the ITE San Diego section. These thresholds reflect what is appropriate for the San Diego region to use for VMT and have previously helped determine LOS impacts.

## VMT Thresholds

This section identifies what type of VMT analysis is required based on the land use and thresholds identified in the previous section. If a project qualifies for a VMT analysis, the VMT analysis can be compared based on City-wide, Regional, or community basis. The method of comparison shall be agreed upon by the City Traffic Engineer and shall be appropriate based on the use of the site.

The following defines the metrics identified in **Table 5**. It is important the appropriate metrics are applied for each project.

### **VMT/Capita:**

Includes all vehicle-based person trips grouped and summed to the home location of individuals who are drivers or passengers on each trip. It includes home-based and non-home-based trips. The VMT for each home is then summed for all homes in a particular census tract and divided by the population of that census tract to arrive at Resident VMT/Capita.

### **VMT/Employee:**

Includes all vehicle-based person trips grouped and summed to the work location of individuals on the trip. This includes all trips, not just work-related trips. The VMT for each work location is then summed for all work locations in a particular census tract and divided by the number of employees of that census tract to arrive at Employee VMT/Employee.

### **Small Projects**

Small projects, under 2,400 ADT, shall utilize the most recent version of the SANDAG SB 743 Concept Maps. SANDAG has prepared an online mapping system that calculates average VMT/capita and VMT/employee at the census tract level. This tool determines the project's VMT/employee or VMT/capita to be compared to community, city, and/or regional averages. **Appendix C** provides an example of how to use the SANDAG Concept Maps to determine the project's VMT.

### **Large Projects**

Projects consisting of 2,400 ADT or higher will require the use of the most recent SANDAG model to determine VMT. The SANDAG transportation model provides a systematic analytical platform so that different alternatives and inputs can be evaluated in an iterative and controlled environment.

Table 5 identifies the significance thresholds for proposed land uses. Projects that exceed the significance thresholds are considered significant and will require VMT analysis and mitigation.

**Table 5 – City of Oceanside Project Threshold**

Project Type	Metric	Significance Threshold <sup>(1)</sup>
Residential	Resident VMT / Capita	15 % below regional average
Commercial	Employee VMT / Employee	15 % below regional average
Industrial	Employee VMT / Employee	15 % below regional average
Retail <sup>(2)</sup>	Net increase in the regional VMT	Net increase in regional VMT
Mixed-Use	Evaluate each land use separately	Based on proposed land use
Redevelopment <sup>(3)</sup>	Based on the proposed land use	Based on the proposed land use

(1) The City may request the applicant to analyze VMT using a more localized threshold if the project requires.

(2) Locally serving retail is presumed to decrease VMT however retail projects over 50,000 square feet are considered regionally serving.

(3) A redevelopment project that reduces VMT is presumed to have less than a significant impact and is screened out. The removal of affordable housing will require VMT analysis.

## 10.0 MITIGATION MEASURES AND STRATEGIES FOR VMT REDUCTION

A project that exceeds the thresholds identified in the previous tables is considered to have a significant impact and will require mitigation measures and strategies. With appropriate mitigation the project may be able to apply VMT reductions to part or all of the project depending on the land use and strategy chosen. It is critical to implement strategies that are appropriate for the land use, for example, a residential project would not implement a telecommute strategy but may include providing a bike facility and amenities on-site.

### SANDAG MOBILITY MANAGEMENT GUIDEBOOK

The purpose of the mitigation measures and strategies is to reduce the VMT generated by the project through a reduction of the distance driven or reducing the number of vehicle trips. It is recommended the SANDAG Mobility Management Guidebook (2019) be consulted to determine mitigation measures for the project site.

The guidebook consists of the following resources:

- Mobility Management Guidebook
- VMT Reduction Calculator Tool
- Calculator Design Document
- Recommendations for Application
- User Training Videos

**Figure 10-1** identifies the potential mobility management strategies included in the guidebook that are recommended for a project exceeding the VMT thresholds. It is also recommended the SANDAG iCommute and MTS programs be utilized for projects generating employment. Several opportunities included in these programs are identified in **Table 6. Appendix D** contains the SANDAG Mobility Management Guidebook for reference.

The VMT Reduction Calculator Tool evaluates the VMT impact of more than 20 mobility management strategies. The calculator can be utilized to determine how a strategy, when implemented, can reduce a project's VMT. **Appendix E** contains the SANDAG VMT Reduction Calculator Tool for reference, the calculator is available on the SANDAG website. All VMT reduction strategies utilized should be discussed with the City and provided with backup documentation. Any changes or overrides to input parameters should be discussed and approved by the City.

**Figure 10-1 Mobility Management Strategies**

	Strategy Type	Strategy Name	Included in VMT Calculator?
Project/Site Level	Employer Commute Programs	Comprehensive Employer Commute Program	✓
		Employer Carpool Program	✓
		Employer Transit Pass Subsidy	✓
		Employer Vanpool Program	✓
		Employer Telework Program	✓
		Employer Guaranteed Ride Home Program	
	Land Use Strategies	On-Site Bike Amenities	
		Higher-Density Development	
		Transit-Oriented Development	✓
	Parking Management	Mixed-Use Development	✓
		Parking Pricing	✓
		Parking Cash-Out	✓
		Reduced Parking	
		Unbundled Parking	
		Smart Parking	
Shared Parking			
Shared Mobility Parking			
Flexible Curb Space			
Community/City Level	Neighborhood Enhancements	Street Connectivity Improvement	✓
		Pedestrian Facility Improvement	✓
		Bikeway Network Expansion	✓
		Bike Facility Improvement	✓
		Bikeshare	✓
		Carshare	✓
		Community-Based Travel Planning	✓
		Transit Strategies	Transit Service Expansion
	Transportation System Management	Transit Frequency Improvements	✓
		Transit-Supportive Treatments	✓
		Transit Fare Reduction	✓
		Microtransit NEV Shuttle	✓
		Microtransit Commuter Shuttle	
		Adaptive Traffic Signal Systems	
		Smart Signals and Intersections	
		Optimized Signal Timing for Bicycles	
		Advanced Bicycle Detection	
		Real-Time Traveler Information	
		Active Traffic Management	
		Traffic Incident Management	
Roadway Weather Management			

Source: SANDAG Mobility Management Strategy Guidebook, June 2019

**Table 6 – Additional VMT Reduction Strategies for Employers**

<b>Additional VMT Reduction Strategies for Employers</b>
Establish and maintain participation in SANDAG's iCommute services for employers
Provide a monthly employer subsidy/pretax payroll deduction toward transit passes, carpool, or vanpool.
Encourage employees to register in SANDAG's iCommute program for rideshare matches.
Provide a monthly employer subsidy or incentives for employees or patrons who regularly commute by bicycle.
Host or sponsor regional events such as Bike to Work day, Rideshare Month
Participate in MTS promotions such as Free Ride Day and EcoPass
Implement an internal carpool program for employees
Designate an on-site point of contact for employee commute inquiries.

**OPR MITIGATION MEASURES**

**Table 7** identifies additional mitigation measures provided by the Office of Planning and Research (OPR).

**Table 7 – OPR Recommended Mitigation Measures**

Additional Mitigation Measures
Improve or increase access to transit.
Increase access to common goods and services, such as groceries, schools, and daycare.
Incorporate affordable housing into the project.
Incorporate a neighborhood electric vehicle network.
Orient the project toward transit, bicycle, and pedestrian facilities.
Improve pedestrian or bicycle networks, or transit service.
Implement or provide access to a commute reduction program.
Provide parking cash-out programs.
Unbundle parking costs.
Provide bicycle parking.
Limit or eliminate parking supply.
Provide traffic calming as a way to incentivize bicycling and/or walking.
Provide partially or fully subsidized transit passes.
Shift single occupancy vehicle trips to carpooling or vanpooling by providing ride-matching services or shuttle services.
Provide telework options.
Provide incentives or subsidies that increase the use of modes other than a single-occupancy vehicle.
Provide on-site amenities at places of work, such as priority parking for carpools and vanpools, secure bike parking, showers and locker rooms, and bicycle repair services.
Provide employee transportation coordinators at employment sites.
Provide a guaranteed ride home service to users of non-auto modes.
Contribute to a mobility fee program that funds multimodal transportation improvements, such as those described above.

**The City may decide to implement a VMT mitigation fee bank to fund projects that would help the City reduce GHG emissions and promote VMT reduction.** This would need to be developed specifically for VMT reduction projects for the City and cannot be preexisting to this document. Mitigation measures are not limited to this document and may be discussed with the City Traffic Engineer providing appropriate reduction methodologies are applied using documentation published by SANDAG, the California Air Resources Board (CARB), or the California Air Pollution Control Officers Association (CAPCOA). These resources provide quantifiable measures that may be used for project mitigation. Mitigation and reduction measures utilized should be documented and easily referenced in the document’s appendix.

## SIGNIFICANT AND UNAVOIDABLE IMPACTS

Projects that are unable to mitigate to a less than significant level of impact must provide a detailed statement of overriding considerations in accordance with CEQA Guidelines Sections 15091 and 15093. The following are direct quotes from the legislation to help project applicants understand CEQA law.

### Section 15091 Findings:

*“ (a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding.*

*The possible findings are:*

*(1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.*

*(2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.*

*(3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.*

*(b) The findings required by subdivision (a) shall be supported by substantial evidence in the record.*

*(c) The finding in subdivision (a)(2) shall not be made if the agency making the finding has concurrent jurisdiction with another agency to deal with identified feasible mitigation measures or alternatives. The finding in subdivision (a)(3) shall describe the specific reasons for rejecting identified mitigation measures and project alternatives.*

*(d) When making the findings required in subdivision (a)(1), the agency shall also adopt a program for reporting on or monitoring the changes which it has either required in the project or made a condition of approval to avoid or substantially lessen significant environmental effects. These measures must be fully enforceable through permit conditions, agreements, or other measures.*

*(e) The public agency shall specify the location and custodian of the documents or other material which constitute the record of the proceedings upon which its decision is based.*

*(f) A statement made pursuant to Section 15093 does not substitute for the findings required by this section.”*

### Section 15093 – Statement of Overriding Considerations:

*“ (a) CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposal project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered “acceptable.”*

*(b) When the lead agency approves a project which will result in the occurrence of significant effects which are identified in the final EIR but are not avoided or substantially lessened, the agency shall state in writing the specific reasons to support its action based on the final EIR and/or other information in the record. The statement of overriding considerations shall be supported by substantial evidence in the record.*

*(c) If an agency makes a statement of overriding considerations, the statement should be included in the record of the project approval and should be mentioned in the notice of determination. This statement does not substitute for, and shall be in addition to, findings required pursuant to Section 15091.”*

**Appendix C**

**City of Oceanside Project Information Form**

## PROJECT INFORMATION FORM (PIF)

THE FOLLOWING IS TO BE COMPLETED BY THE PROJECT APPLICANT:

PROJECT INFORMATION FORM			
1.	PROJECT DESCRIPTION:		
2.	PROJECT LOCATION:		
3.	LAND USE: _____ SIZE/DENSITY: _____		
4.	ZONING AND LAND USE CONSISTENT WITH ADOPTED GENERAL PLAN?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5.	PROJECT LOCATED IN TRANSIT PRIORITY AREA <sup>1</sup> , SMART GROWTH AREA <sup>2</sup> , OR LOW VMT AREA <sup>3</sup> ?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
6.	PROJECT TRIP GENERATION: _____ ADT	<input type="checkbox"/> < 200 ADT <input type="checkbox"/> ≥ 200 ADT <input type="checkbox"/> ≥ 1,000 ADT <input type="checkbox"/> ≥ 2,400 ADT	
<b>ATTACHMENTS</b>			
A.	PROJECT LOCATION MAP	<input type="checkbox"/> Attached	
B.	PROJECT TRIP DISTRIBUTION	<input type="checkbox"/> Attached	
C.	PROJECT TRIP ASSIGNMENT	<input type="checkbox"/> Attached	

1) Projects located in a TPA must be able to access the transit station within a ½ mile walking distance or 6 minute walk continuously without discontinuity of sidewalk or obstructions to the route. Qualifying transit stops means a site containing an existing rail transit station 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 (OPR, 2017). A high-quality transit corridor may also be considered if a corridor with fixed route bus service has service intervals no longer than 15 minutes during peak commute hours (OPR, 2017).

(2) See Appendix B.

(3) Based on the most recent SANDAG SB 743 Screening Map. Example shown in Appendix C.

### TO BE COMPLETED BY CITY STAFF AND RETURNED TO PROJECT APPLICANT

PROJECT STUDY REQUIREMENTS				
1)	Does the project require a CEQA VMT analysis?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Incomplete <sup>(1)</sup>
	A. If yes, does the project require a SANDAG Model Run?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
2a)	Does the project require a Local Transportation Study?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Incomplete <sup>(1)</sup>
<b>OR</b>				
2b)	Does the project require a Local Transportation Assessment?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Incomplete <sup>(1)</sup>

<sup>(1)</sup> Incomplete application or additional information is needed to determine study requirements.

## Project Description

The proposed project is a 50/50 mix of manufacturing and warehousing (566,280 sf total). Project will replace an existing manufacturing business with 172,305 sf

## VMT PIF Trip Generation

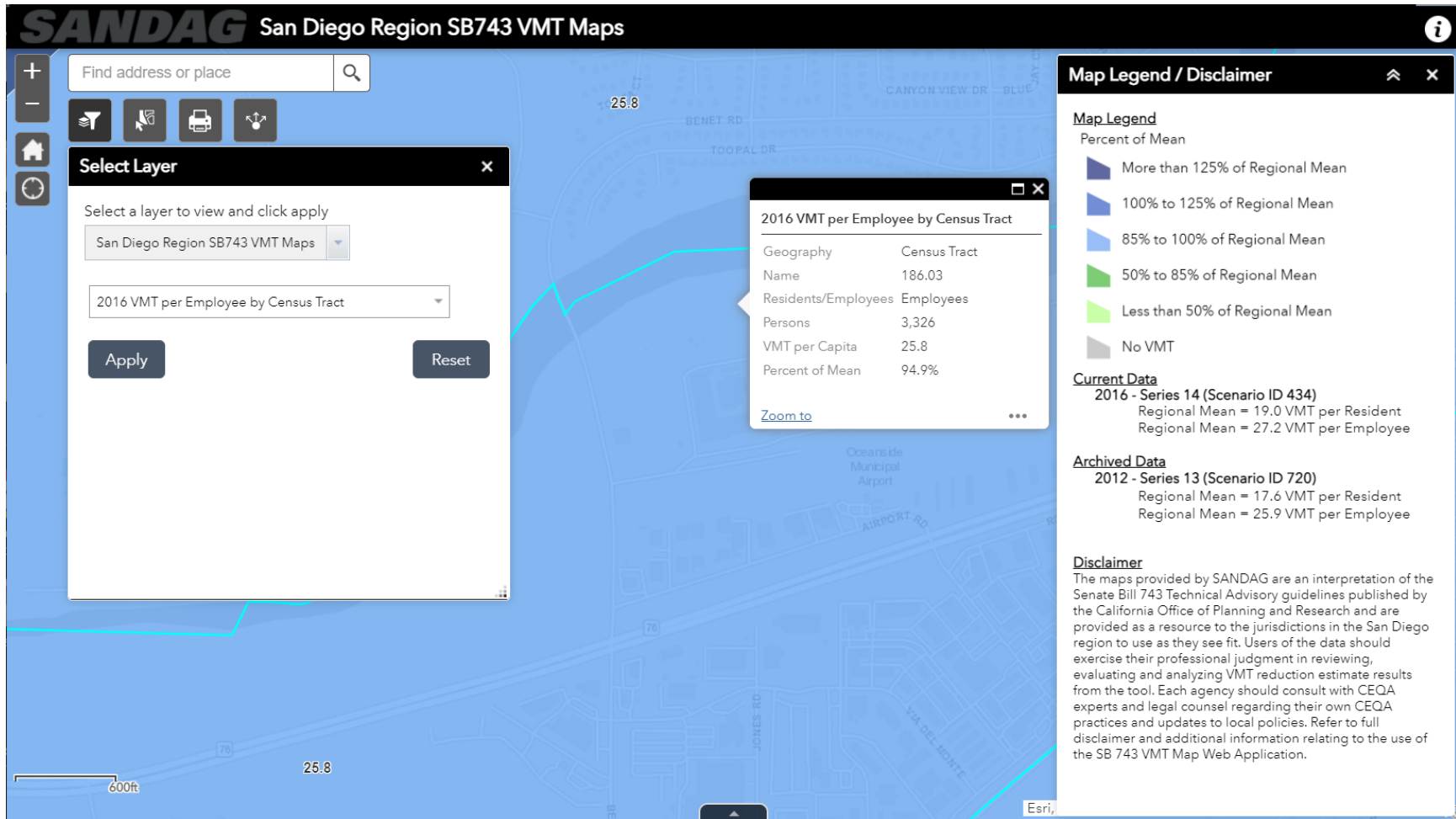
The VMT is based on a trip generation without trip credit for a previous use.

ITE 11th Edition		AM Peak Hour			PM Peak Hour			
Land Use	Rates & Size	Daily	IN	OUT	Total	IN	OUT	Total
<i>Proposed Project with Land Use 140: Manufacturing</i>								
Car Trip Rates:	4.75 /KSF		76%	24%	0.68	31%	69%	0.74
Size:	283.140 KSF	Cars: <b>1,345</b>	146	46	<b>193</b>	65	145	<b>210</b>
Truck Trip Rates:	0.45 /KSF		56%	44%	0.03	41%	59%	0.03
Size:	283.140 KSF	Trucks: <b>127</b>	<u>5</u>	<u>4</u>	<b>8</b>	<u>3</u>	<u>5</u>	<b>8</b>
<i>TOTAL Manufacturing Trips:</i>		<b>1,472</b>	151	50	<b>201</b>	68	150	<b>218</b>
<i>Proposed Project Land Use 154: High-Cube Transload and Short-Term Storage Warehouse</i>								
Car Trip Rates:	1.40 /KSF		77%	23%	0.08	28%	72%	0.10
Size:	283.140 KSF	Cars: <b>396</b>	17	5	<b>23</b>	8	20	<b>28</b>
Truck Trip Rates:	0.22 /KSF		49%	51%	0.02	47%	53%	0.01
Size:	283.140 KSF	Trucks: <b>62</b>	<u>3</u>	<u>3</u>	<b>6</b>	<u>1</u>	<u>2</u>	<b>3</b>
<i>TOTAL Warehouse and Distribution Trips:</i>		<b>459</b>	20	8	<b>28</b>	9	22	<b>31</b>
<b>Project Total:</b>		<b>1,931</b>	171	58	<b>229</b>	78	171	<b>249</b>

Source: Institute of Transportation Engineers (ITE) 11th Edition *Trip Generation*. KSF: 1,000 Square Feet.



# SANDAG Screen Line Map (Series 14 Current Data)



# Land Use: 140 Manufacturing

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## Description

A manufacturing facility is an area where the primary activity is the conversion of raw materials or parts into finished products. Size and type of activity may vary substantially from one facility to another. In addition to the actual production of goods, a manufacturing facility typically has an office and may provide space for warehouse, research, and associated functions. General light industrial (Land Use 110) and industrial park (Land Use 130) are related uses.

## Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Minnesota, Missouri, New Jersey, New York, Oregon, Pennsylvania, South Dakota, Texas, Vermont, Washington, and West Virginia.

## Source Numbers

177, 179, 184, 241, 357, 384, 418, 443, 583, 598, 611, 728, 747, 875, 879, 940, 969, 1067, 1068, 1082

# Manufacturing (140)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
On a: Weekday

**Setting/Location: General Urban/Suburban**

Number of Studies: 53

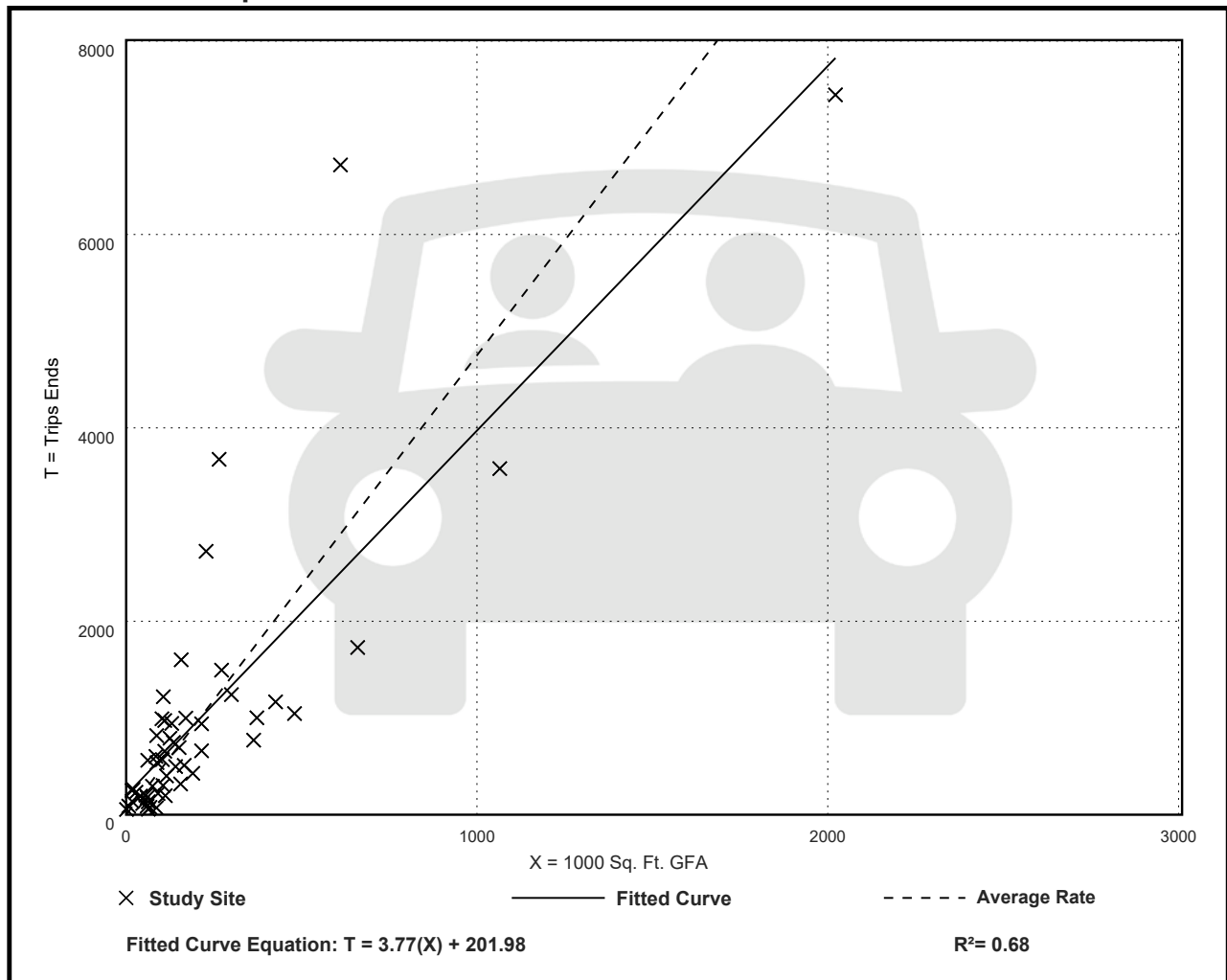
Avg. 1000 Sq. Ft. GFA: 208

Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.75	0.83 - 49.50	3.20

## Data Plot and Equation



# Manufacturing (140)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**

**On a: Weekday,**

**Peak Hour of Adjacent Street Traffic,**

**One Hour Between 7 and 9 a.m.**

**Setting/Location: General Urban/Suburban**

Number of Studies: 48

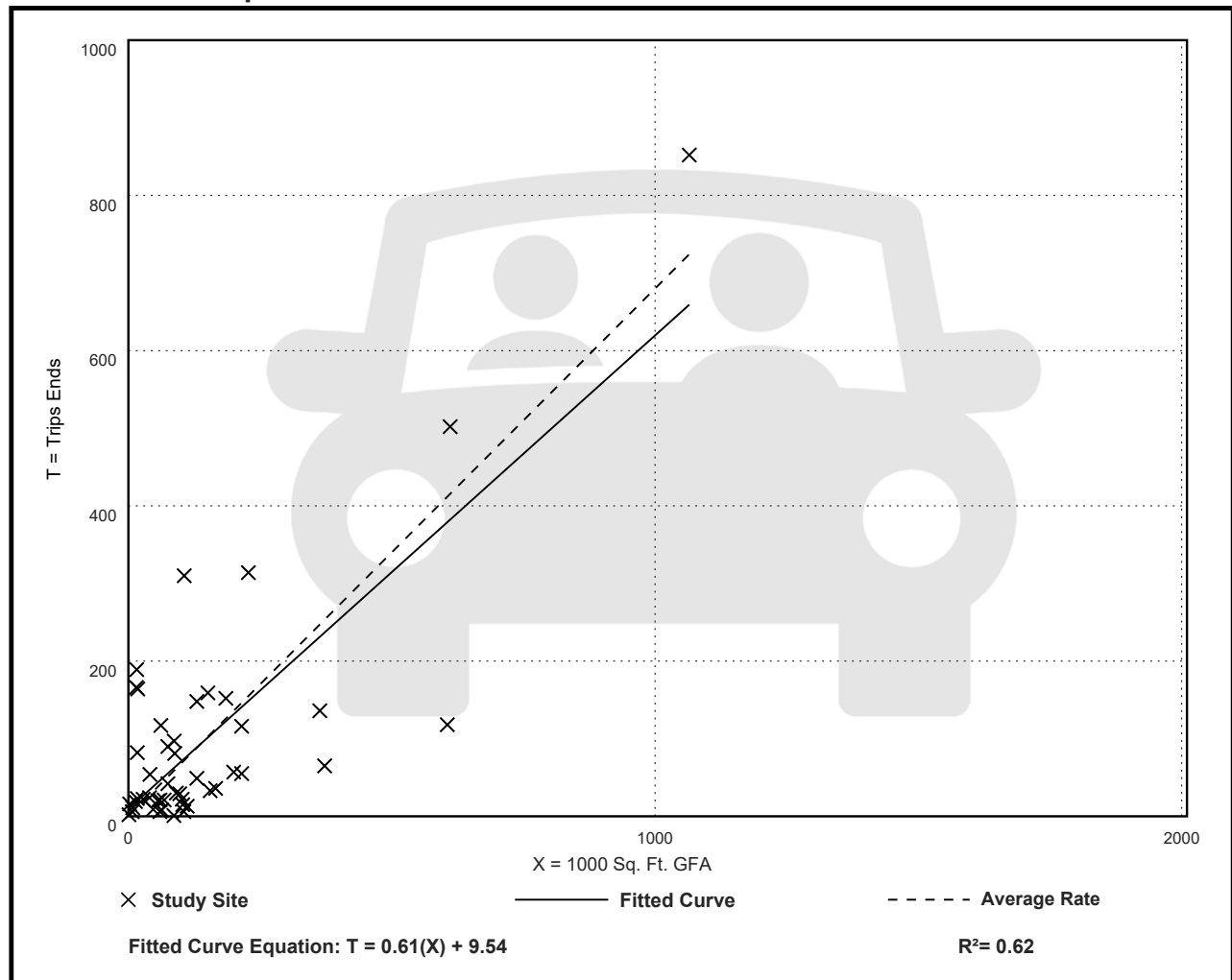
Avg. 1000 Sq. Ft. GFA: 138

Directional Distribution: 76% entering, 24% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.68	0.01 - 11.93	1.03

## Data Plot and Equation



# Manufacturing (140)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**

**On a: Weekday,**

**Peak Hour of Adjacent Street Traffic,**

**One Hour Between 4 and 6 p.m.**

**Setting/Location: General Urban/Suburban**

Number of Studies: 55

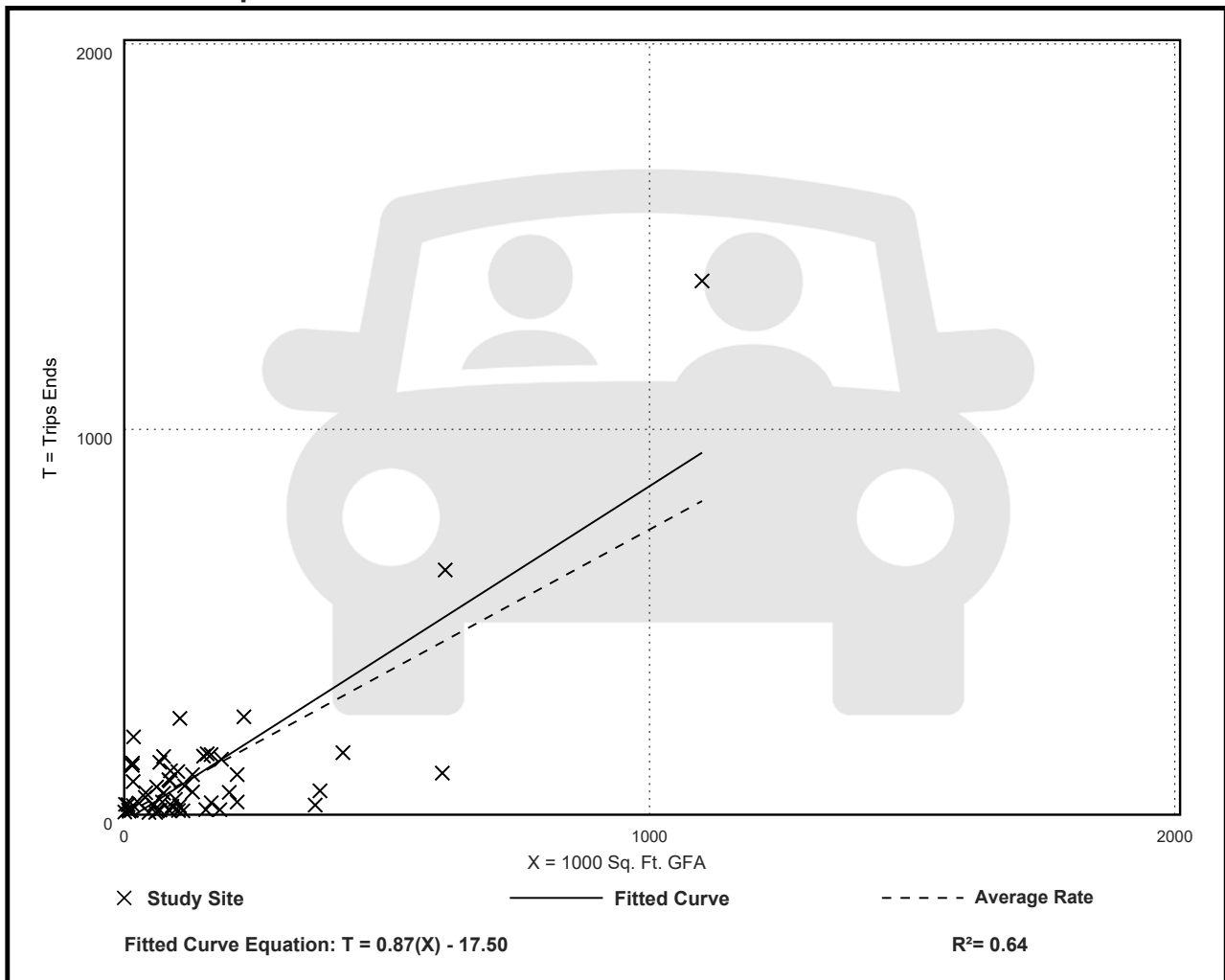
Avg. 1000 Sq. Ft. GFA: 142

Directional Distribution: 31% entering, 69% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.74	0.07 - 11.37	0.93

## Data Plot and Equation



# Manufacturing (140)

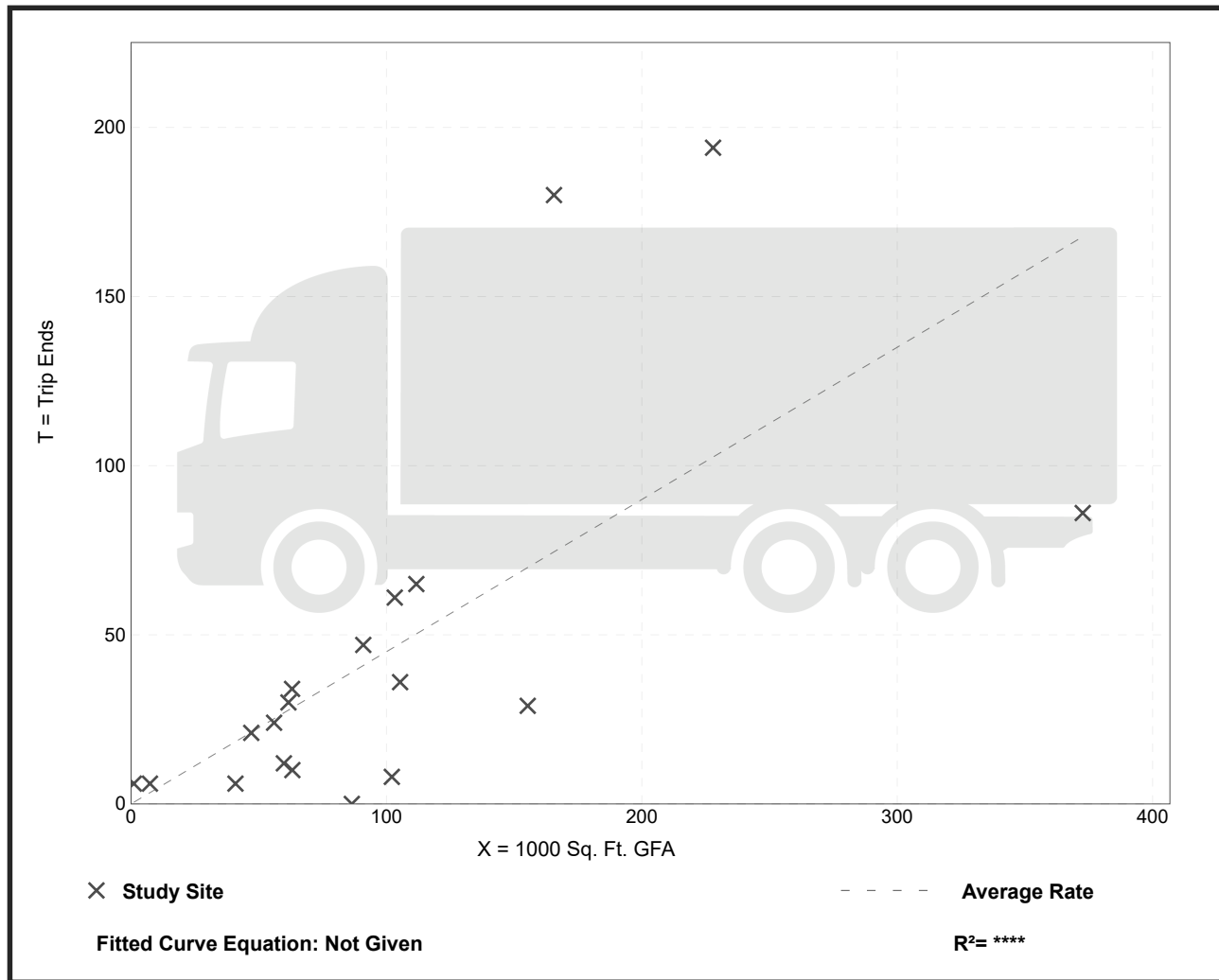
**Truck Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday**

**Setting/Location: General Urban/Suburban**  
Number of Studies: 19  
Avg. 1000 Sq. Ft. GFA: 101  
Directional Distribution: 50% entering, 50% exiting

## Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.45	0.00 - 5.50	0.34

## Data Plot and Equation



# Manufacturing (140)

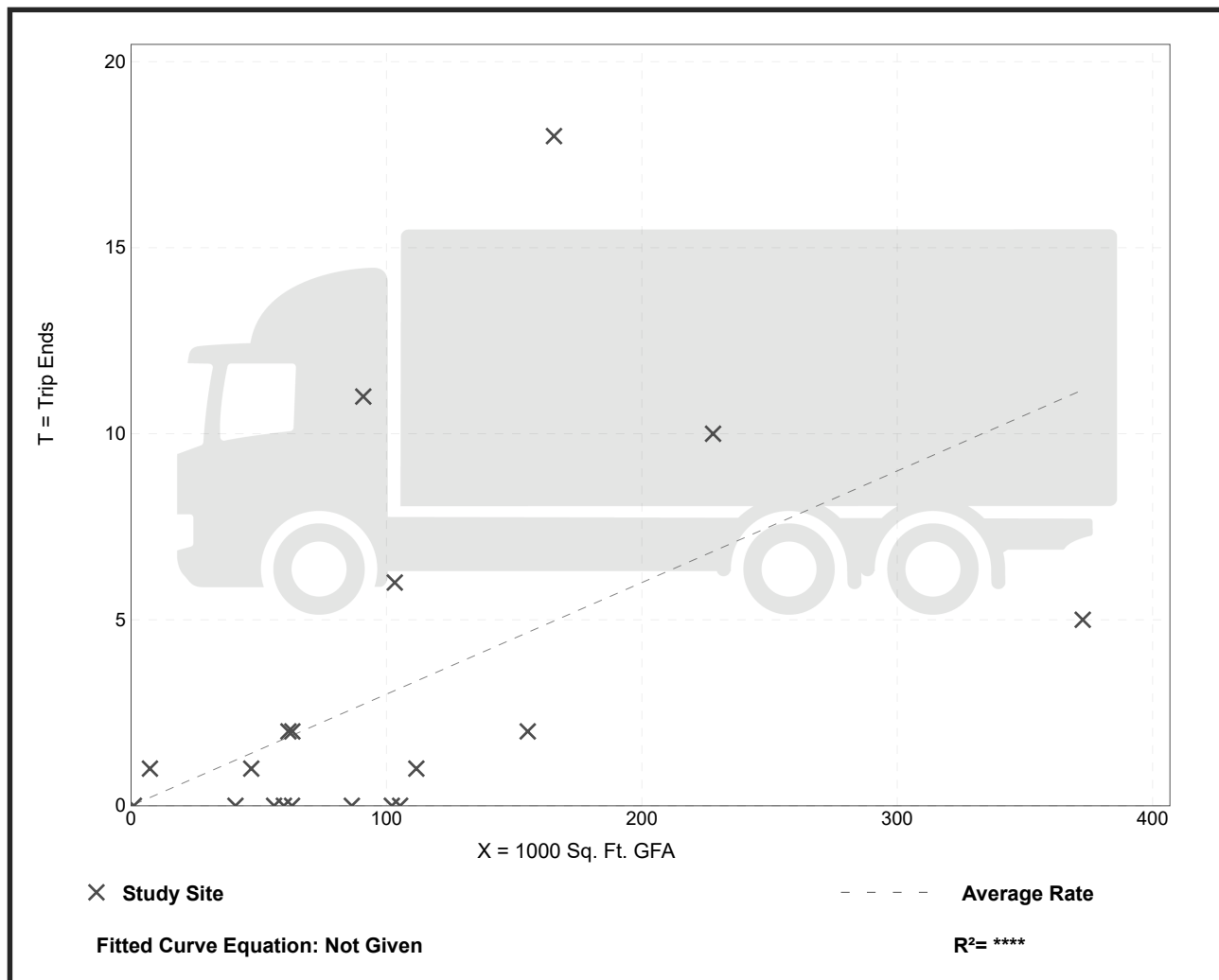
**Truck Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**

**Setting/Location: General Urban/Suburban**  
 Number of Studies: 19  
 Avg. 1000 Sq. Ft. GFA: 101  
 Directional Distribution: 56% entering, 44% exiting

## Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.03	0.00 - 0.14	0.04

## Data Plot and Equation





# Land Use: 154

## High-Cube Transload and Short-Term Storage Warehouse

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### Description

A high-cube warehouse (HCW) is a building that typically has at least 200,000 gross square feet of floor area, has a ceiling height of 24 feet or more, and is used primarily for the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. A typical HCW has a high level of on-site automation and logistics management. The automation and logistics enable highly-efficient processing of goods through the HCW. A high-cube warehouse can be free-standing or located in an industrial park.

The HCWs included in this land use include transload and short-term storage facilities. A transload facility has the primary function of consolidation and distribution of pallet loads (or larger) for manufacturers, wholesalers, or retailers. A transload facility typically has little storage duration, high throughput, and its operations are high efficiency. A short-term HCW is a distribution facility often with custom/special features built into the structure for the movement of large volumes of freight with only short-term storage of products.

Some limited assembly and repackaging may occur within the facility.

A high-cube warehouse may contain a mezzanine. In a HCW setting, a mezzanine is a free-standing, semi-permanent structure that is commonly supported by structural steel columns and that is lined with racks or shelves. The gross floor area (GFA) values for the study sites in the database for this land use do NOT include the floor area of the mezzanine. The GFA values represent only the permanent ground-floor square footage.

The amount of office/employee welfare space that is provided within a HCW can be highly variable but is typically an insignificant portion of the overall building square footage. Within the trip generation database, common values are between 3,000 and 5,000 square feet for a Cold Storage HCW and between 5,000 and 10,000 square feet for Transload, Fulfillment Center, and Parcel Hub HCW (all of which are less than one percent of total GFA for a site). Therefore, for the trip generation data plots, any office space that is part of the normal operation of the warehouse is included in the total GFA.

Warehousing (Land Use 150), high-cube fulfillment center warehouse (Land Use 155), high-cube parcel hub warehouse (Land Use 156), and high-cube cold storage warehouse (Land Use 157) are related land uses.

***The number of dock doors at a HCW is a potential independent variable. Future data submissions should include that information.***

## **Additional Data**

The High-Cube Warehouse/Distribution Center-related land uses underwent specialized consideration through a commissioned study titled “High-Cube Warehouse Vehicle Trip Generation Analysis,” published in October 2016. The results of this study are posted on the ITE website at <http://library.ite.org/pub/a3e6679a-e3a8-bf38-7f29-2961becdd498>.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

The sites were surveyed in the 1980s, the 2000s, and the 2010s in Alberta (CAN), California, Florida, Michigan, New Jersey, Texas, and Washington.

## **Source Numbers**

331, 605, 619, 642, 645, 649, 739, 750, 752, 903, 904, 941, 942, 943, 969

# High-Cube Transload and Short-Term Storage Warehouse (154)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA  
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 91

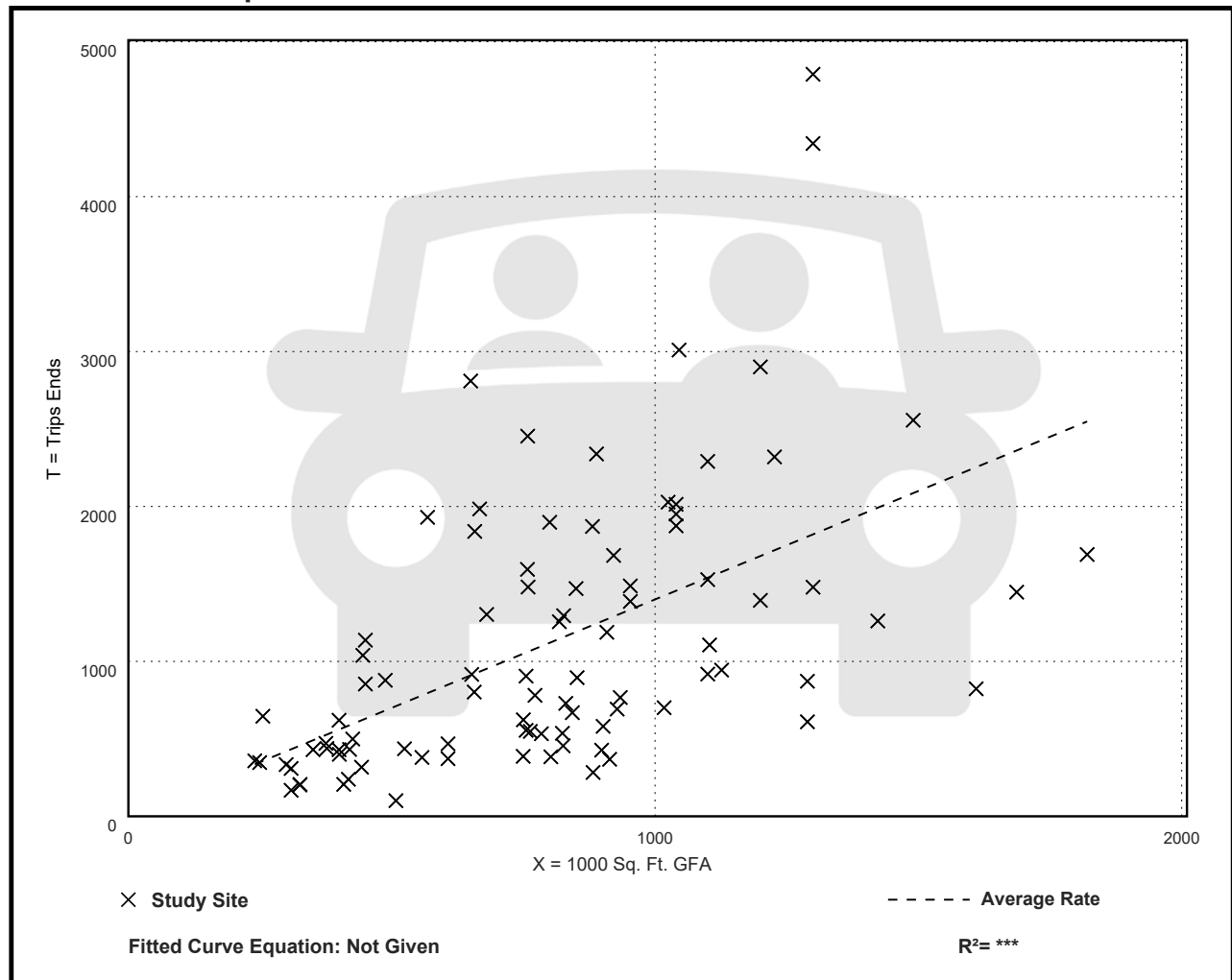
Avg. 1000 Sq. Ft. GFA: 798

Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.40	0.20 - 4.32	0.86

## Data Plot and Equation



# High-Cube Transload and Short-Term Storage Warehouse (154)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 102

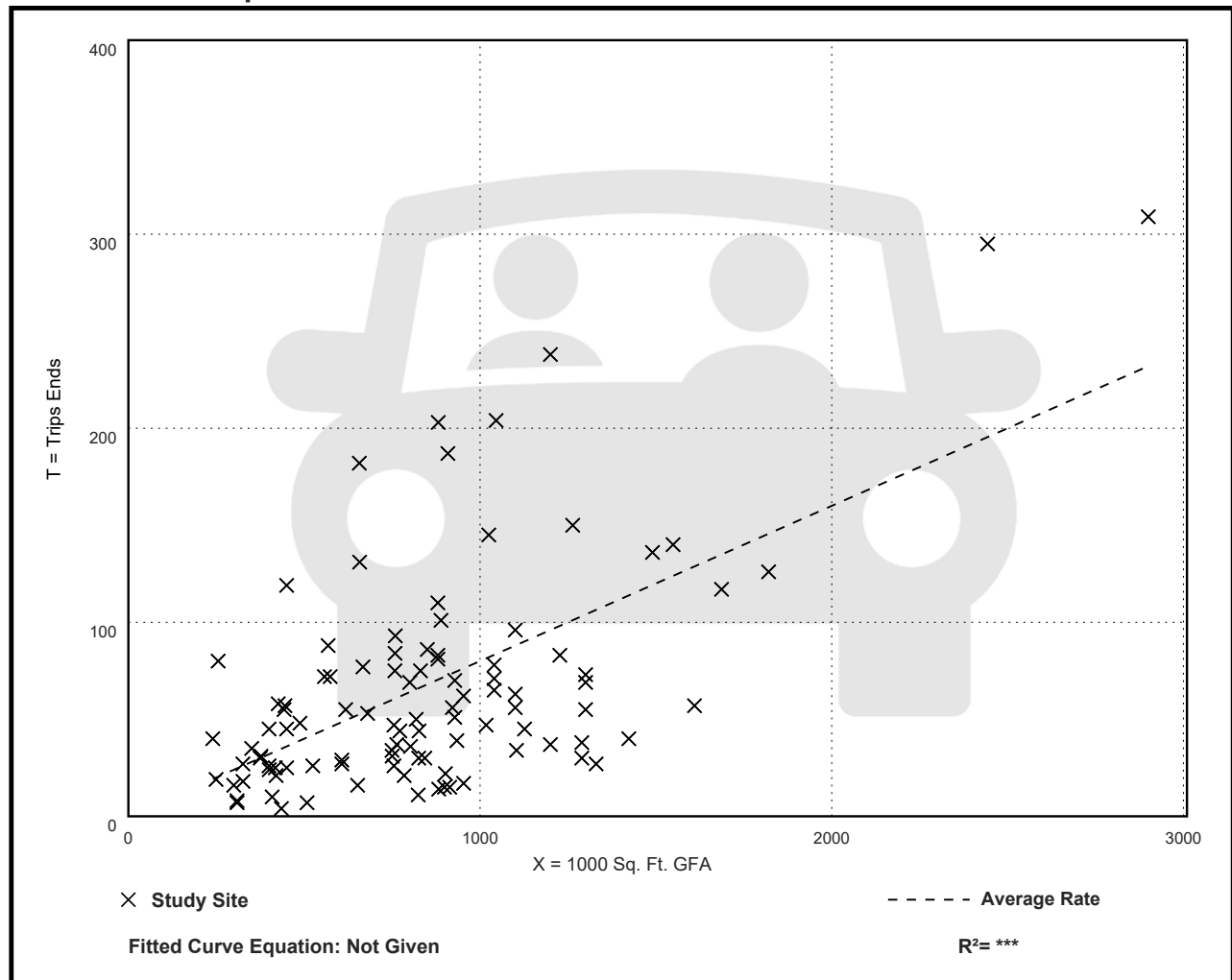
Avg. 1000 Sq. Ft. GFA: 846

Directional Distribution: 77% entering, 23% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.08	0.01 - 0.31	0.05

## Data Plot and Equation



# High-Cube Transload and Short-Term Storage Warehouse (154)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 103

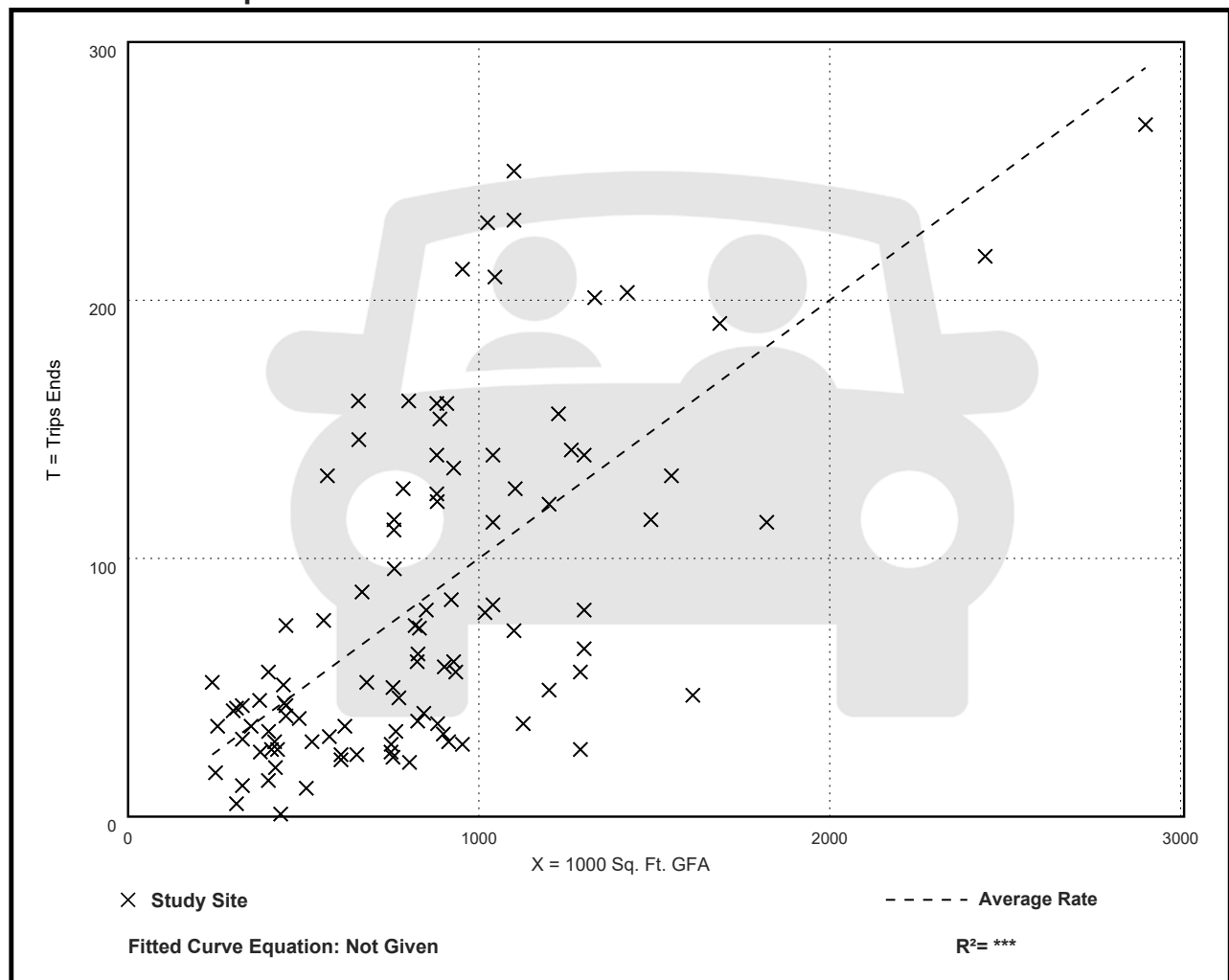
Avg. 1000 Sq. Ft. GFA: 840

Directional Distribution: 28% entering, 72% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.10	0.00 - 0.25	0.06

## Data Plot and Equation



# High-Cube Transload and Short-Term Storage Warehouse (154)

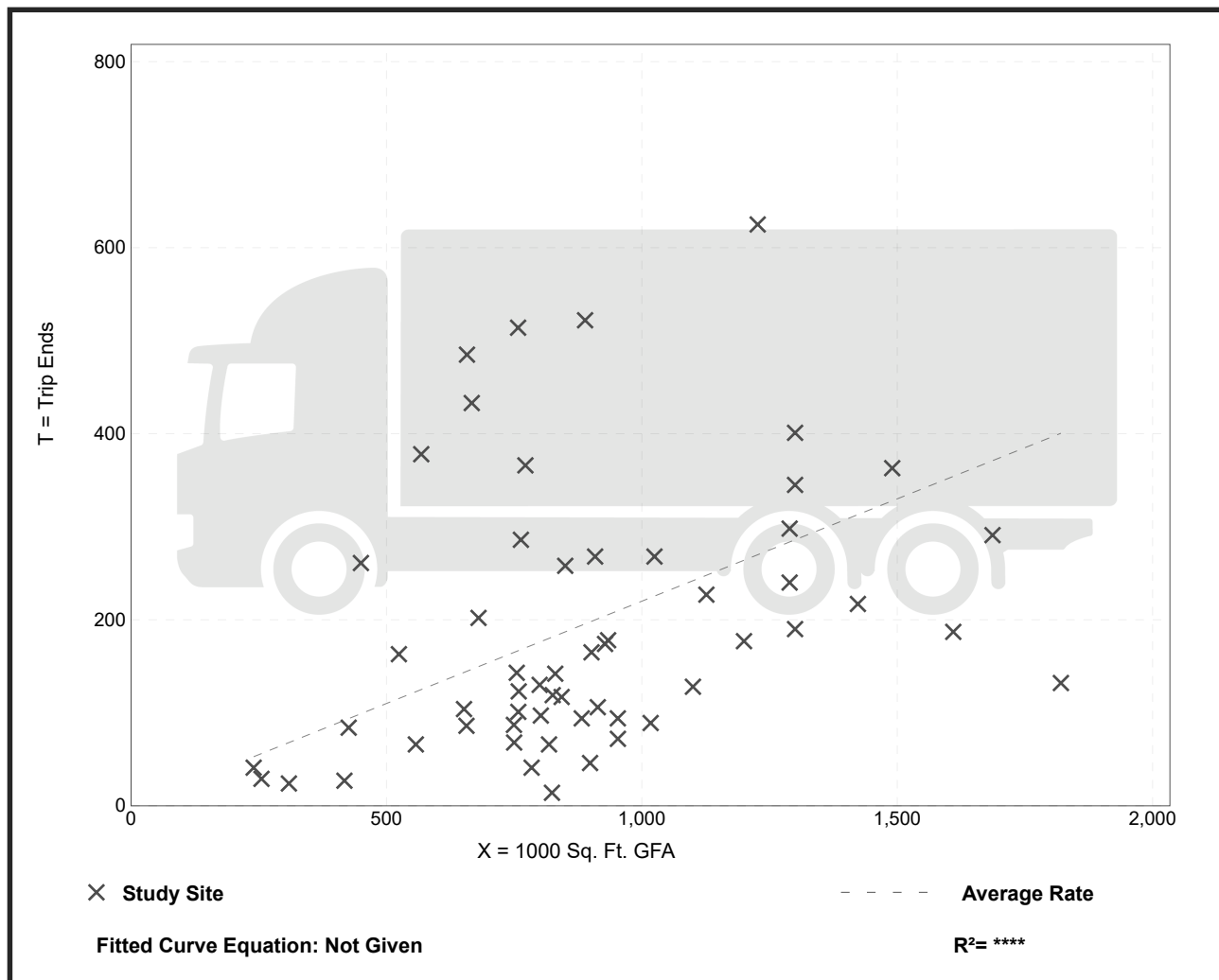
Truck Trip Ends vs: 1000 Sq. Ft. GFA  
On a: Weekday

Setting/Location: General Urban/Suburban  
Number of Studies: 57  
Avg. 1000 Sq. Ft. GFA: 892  
Directional Distribution: 50% entering, 50% exiting

## Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.22	0.02 - 0.74	0.16

## Data Plot and Equation



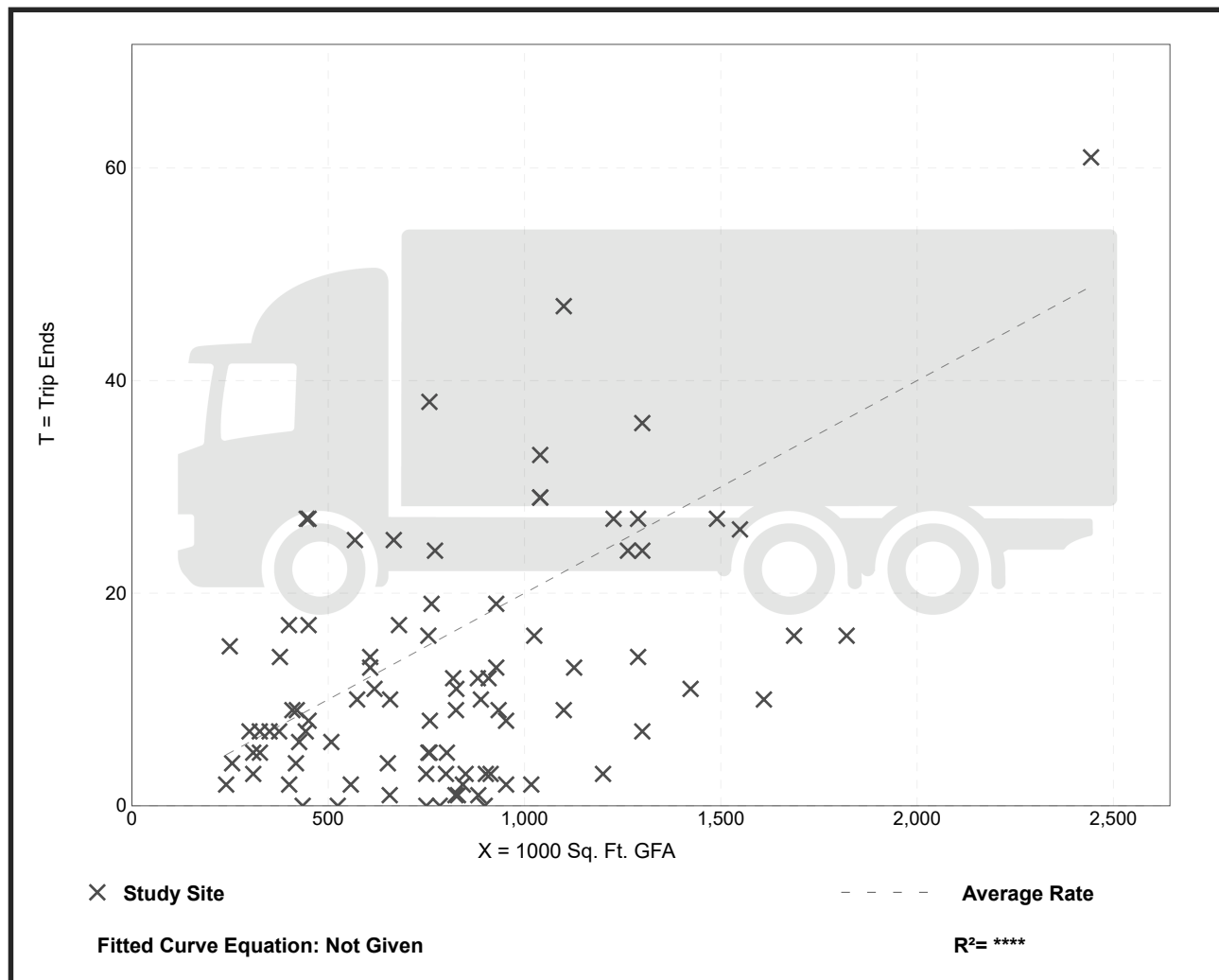
# High-Cube Transload and Short-Term Storage Warehouse (154)

**Truck Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 90  
 Avg. 1000 Sq. Ft. GFA: 812  
 Directional Distribution: 49% entering, 51% exiting

## Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.02	0.00 - 0.06	0.01

## Data Plot and Equation



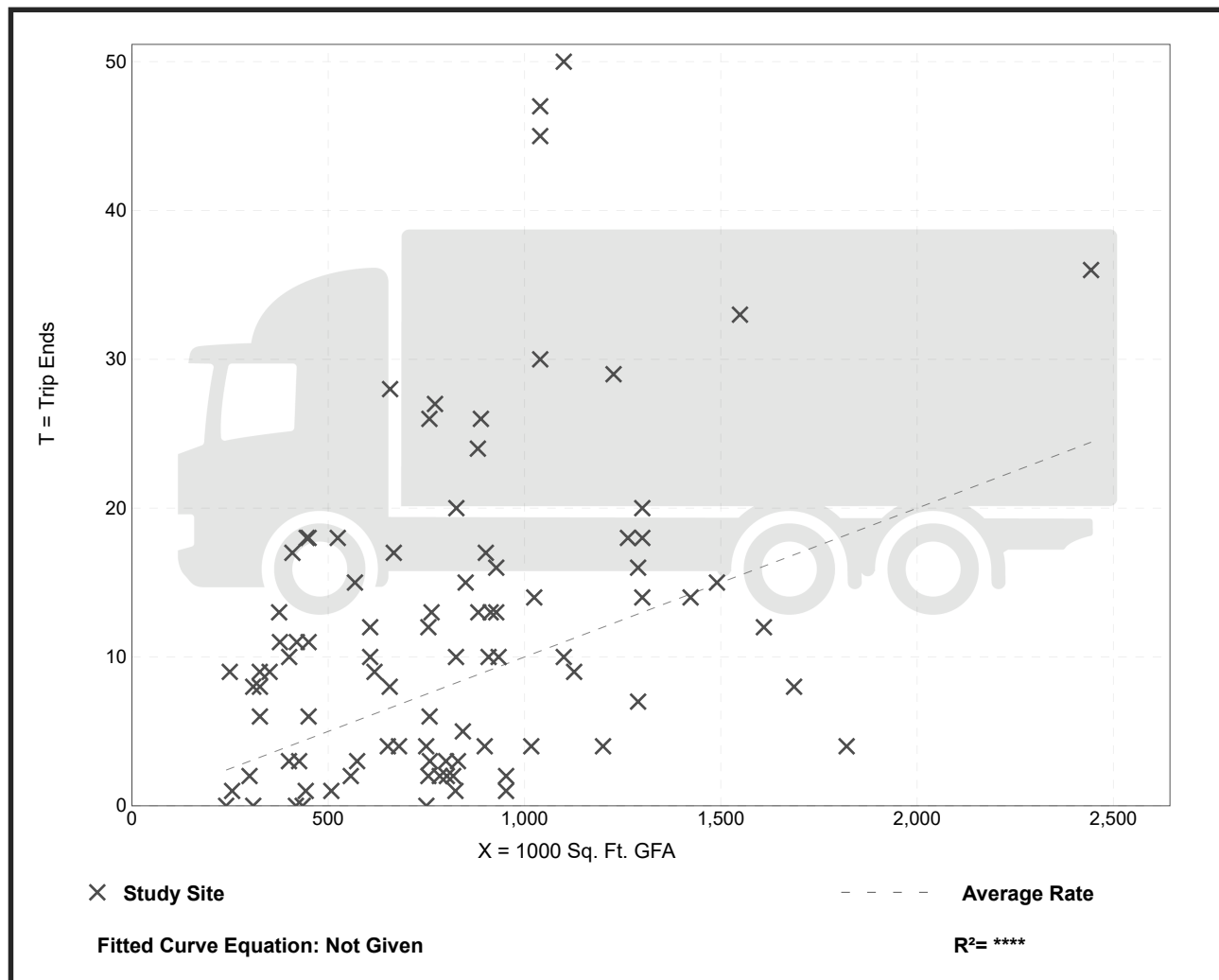
# High-Cube Transload and Short-Term Storage Warehouse (154)

**Truck Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 91  
 Avg. 1000 Sq. Ft. GFA: 807  
 Directional Distribution: 47% entering, 53% exiting

## Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.01	0.00 - 0.05	0.01

## Data Plot and Equation



## **Appendix D**

### **SANDAG VMT Reduction Output**

Project Information	
Project Name (optional):	Eddie Jones Industrial
Project Address (optional):	
Project Type (optional):	
Scale of Analysis:	Project/Site
Analysis Location:	Oceanside
CPA (if applicable):	n/a

Project/Site Results				
Project-Level Strategies		VMT Type	Change in VMT	Exclusions
Employer Commute Trip Reduction Programs				
1A	Voluntary Employer Commute Program	Employee commute trips	-6.2%	
1B	Mandatory Employer Commute Program	Employee commute trips		Strategy 1A selected
1C	Employer Carpool Program	Employee commute trips		Included in 1A or 1B
1D	Employer Transit Pass Subsidy	Employee commute trips		Included in 1A or 1B
1E	Employer Vanpool Program	Employee commute trips		Included in 1A or 1B
1F	Employer Telework Program	Employee commute trips		
Land Use Strategies				
2A	Transit Oriented Development	Project-generated trips		
2B	Mixed Use Development	Project-generated trips		
Parking Management				
3A	Parking Pricing	Project-generated trips		
3B	Parking Cash Out	Employee commute trips		
<b>Employee Commute Trips - Total Change in VMT</b>			<b>-6.2%</b>	
<b>Project-Generated Trips - Total Change in VMT</b>				

## Citations for all Project-Level Strategies

### 1A. Voluntary Employer Commute Program

- (1). California Air Pollution Control Officers Association. 2010. "Quantifying Greenhouse Gas Mitigation Measures." [www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf](http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf)
- (2). Cambridge Systematics. 2009. "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions." Technical Appendices. Prepared for the Urban Land Institute. [www.reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf](http://www.reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf)
- (3). Boarnet, Marlon G., Hsin-Ping Hsu, and Susan Handy. 2014. "Impacts of Employer-Based Trip Reduction Programs and Vanpools on Passenger Vehicle Use and Greenhouse Gas Emissions: Policy Brief." [www.arb.ca.gov/cc/sb375/policies/ebtr/ebtr\\_brief.pdf](http://www.arb.ca.gov/cc/sb375/policies/ebtr/ebtr_brief.pdf)

### 1B. Mandatory Employer Commute Program

- (1). California Air Pollution Control Officers Association. 2010. "Quantifying Greenhouse Gas Mitigation Measures." [www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf](http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf)
- (2). City of South San Francisco. 2015. "2015 Genentech Annual Report." [http://ci-ssf-ca.granicus.com/MetaViewer.php?view\\_id=2&clip\\_id=859&meta\\_id=62028](http://ci-ssf-ca.granicus.com/MetaViewer.php?view_id=2&clip_id=859&meta_id=62028)
- (3). Cambridge Systematics. 2009. "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions." Technical Appendices. Prepared for the Urban Land Institute. [www.reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf](http://www.reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf)

### 1C. Employer Carpool Program

- (1). Ewing, R. 1993. "TDM, Growth Management and the Other Four out of Five Trips." *Transportation Quarterly*, Vol. 48, No. 3.
- (2). Victoria Transport Policy Institute. "Ridesharing: Carpooling and Vanpooling." *TDM Encyclopedia*. [www.vtpi.org/tdm/tdm34.htm](http://www.vtpi.org/tdm/tdm34.htm)
- (3). California Air Pollution Control Officers Association. 2010. "Quantifying Greenhouse Gas Mitigation Measures." [www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf](http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf)
- (4). New York State Department of Transportation. 2019. Data from 511NYRideshare program participants.

### 1D. Employer Transit Pass Subsidy

- (1). Nelson Nygaard. 2010. "Santa Monica LUCE Trip Reduction Impacts Analysis." City of Santa Monica Land Use and Circulation Element, Final EIR. [www.smgov.net/Departments/PCD/Plans/2010-Land-Use-and-Circulation-Element/](http://www.smgov.net/Departments/PCD/Plans/2010-Land-Use-and-Circulation-Element/)
- (2). Transportation Research Board. 2010. "TCRP Report 95 Chapter 19: Employer and Institutional TDM Strategies." [www.trb.org/Publications/TCRPReport95.aspx](http://www.trb.org/Publications/TCRPReport95.aspx)
- (3). Boarnet, Marlon G., Hsin-Ping Hsu, and Susan Handy. 2014. "Impacts of Employer-Based Trip Reduction Programs and Vanpools on Passenger Vehicle Use and Greenhouse Gas Emissions: Policy Brief." [www.arb.ca.gov/cc/sb375/policies/ebtr/ebtr\\_brief.pdf](http://www.arb.ca.gov/cc/sb375/policies/ebtr/ebtr_brief.pdf)

### 1E. Employer Vanpool Program

- (1). SANDAG. 2018. Commute Behavior Survey.
- (2). SANDAG. 2016. Activity Based Model. (v14.0.1, scenario ID 232)
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