Appendix TRA

Trip Generation Analysis

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Re: Trip Generation Analysis for the Proposed Solar RV and Boat Storage Project

This report presents the results of the trip generation analysis of the proposed project at 3479 Pittsburg Antioch Highway in the City of Pittsburg. The project would involve construction of a 500 space RV & boat storage yard storage yard with an extensive solar installation. The property is currently undeveloped.

PROJECT TRIP GENERATION

The trip generation rates are based on the Institute of Transportation Engineers (ITE) rates for a self-storage facility (ITE Land Use Code 151) taken from the 10th Edition of the ITE Trip Generation Manual. There are no ITE rates available for a RV or boat storage facility and based on a review of the most similar rates in the ITE trip generation manual it was determined that using the per unit self-storage trip generation rates would provide the most accurate forcast of the project's potential trip generation. Please note that information on the trip rates proposed to be used for these forecasts are attached to this report. This includes copies of the pages from the ITE Manual that present the statistical details on the rates being used.

Please note a "*trip*" is defined in ITE's Trip Generation publication as a single or one-directional vehicular movement with either the origin or destination at the project sites. As a result, a trip can be either "*to*" or "*from*" the site. Consistently, a single visit to a site is counted as two trips (i.e., one to and one from the site). For the purposes of determining the reasonable worst-case impacts of traffic on the surrounding street network from a proposed project, the trips generated by this proposed development are estimated for the peak commute hours which represent the peak hours of "*adjacent street traffic*". This is the time period when the project traffic would generally contribute to the greatest amount of congestion. As shown in **Table 1**, the project is forecast to generate no more than about 10 new vehicle trips on the surrounding roadway system during the peak commute hours.

It should be noted that the trip generation survey data indicates the trip generation for storage facilities is generally low during the peak commute hours because most trips to these kinds of

Table 1
Project Trip Generation Calculations

Land Use	ITE Code	Size	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
ITE Self Storage Trip Rates - trips per 100 storage spaces	151		17.96	0.71	0.68	1.39	0.98	0.98	1.95
Project Trip Generation		***500 spaces***	***90***	***4***	***3***	***7***	***5***	***5***	***10***

Source: ITE Trip Generation, 10th Edition, 2018.

facilities occur during off-peak hours when customers towing trailers or driving RV's don't have to deal with commute traffic. The data indicates the peak trip generation for a storage facilitiy is normally on weekends with Saturday afternoon typically being the highest, about two thirds higher than the peak hour traffic from the facility on a weekday afternoon. However, the project would be forecast to generate no more than about 16 trips during the Saturday peak hour.

VEHICLE MILES TRAVELED

One performance measure that can be used to quantify the transportation impacts of a project is vehicle miles traveled (VMT). This section presents the extent of the VMT-related transportation impacts caused by the Project. The State has adopted new transportation analysis guidelines that specify vehicle miles traveled as the new metric for evaluating transportation impacts, and therefore a project's effect on automobile delay shall no longer constitute a significant impact. Because VMT is a relatively new method for measuring transportation impacts under CEQA, less data exists to estimate VMT than trip generation based on use and location. VMT is typically estimated using an area-wide travel demand model from a regional transportation agency that calculates VMT based on the number of vehicles multiplied by the typical distance traveled by each vehicle originating from or driving to a certain area.

VMT is a particularly useful metric for evaluating the impacts of growth on greenhouse gas (GHG) emissions because it can be used to estimate fuel consumption by motor vehicles. Increases in VMT cause proportional increases in greenhouse gas emissions and air pollution. The Office of Planning and Research (OPR) released their final proposed Guidelines in a Technical Advisory on Evaluating Transportation Impacts in CEQA, dated December 2018, which went into effect on July 1, 2020. The guidelines for VMT screening specify the following about small projects: "*Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.* ". As shown above in **Table 1** the proposed project could qualify for the screening criteria covering small projects since it is forecast to generate an increase in traffic of about 90 trips per day. Therefore, subject

to City approval, this project would be considered a small project that would have a less than significant impact on the VMT in the area.

Please don't hesitate to contact me if you have any questions or need addional information.

Sincerely,

Stephen C. Abrams
President, Abrams Associates
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Land Use: 151
Mini-Warehouse

Description

A mini-warehouse is a building in which a number of storage units or vaults are rented for the storage of goods. They are typically referred to as "self-storage" facilities. Each unit is physically separated from other units, and access is usually provided through an overhead door or other common access point.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 10:30 and 11:30 a.m. and 1:15 and 2:15 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Colorado, Massachusetts, Minnesota, New Jersey, Texas, and Utah.

Source Numbers

212, 403, 551, 568, 642, 708, 724, 850, 868, 876

Mini-Warehouse
(151)

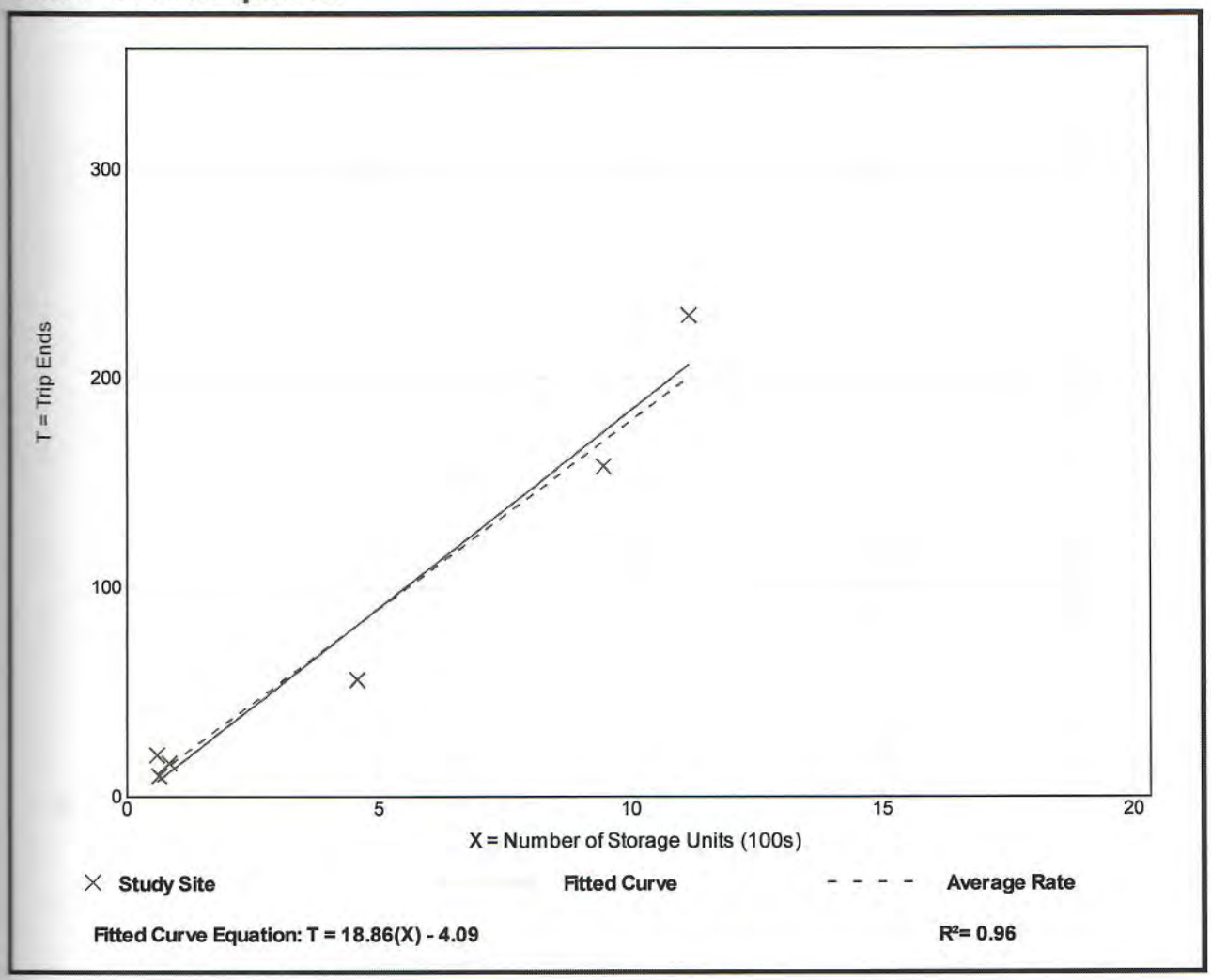
Vehicle Trip Ends vs: Storage Units (100s)
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. Num. of Storage Units (100s): 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Storage Unit (100s)

Average Rate	Range of Rates	Standard Deviation
17.96	12.25 - 33.33	4.13

Data Plot and Equation



Fitted Curve Equation: T = 18.86(X) - 4.09

R^2= 0.96

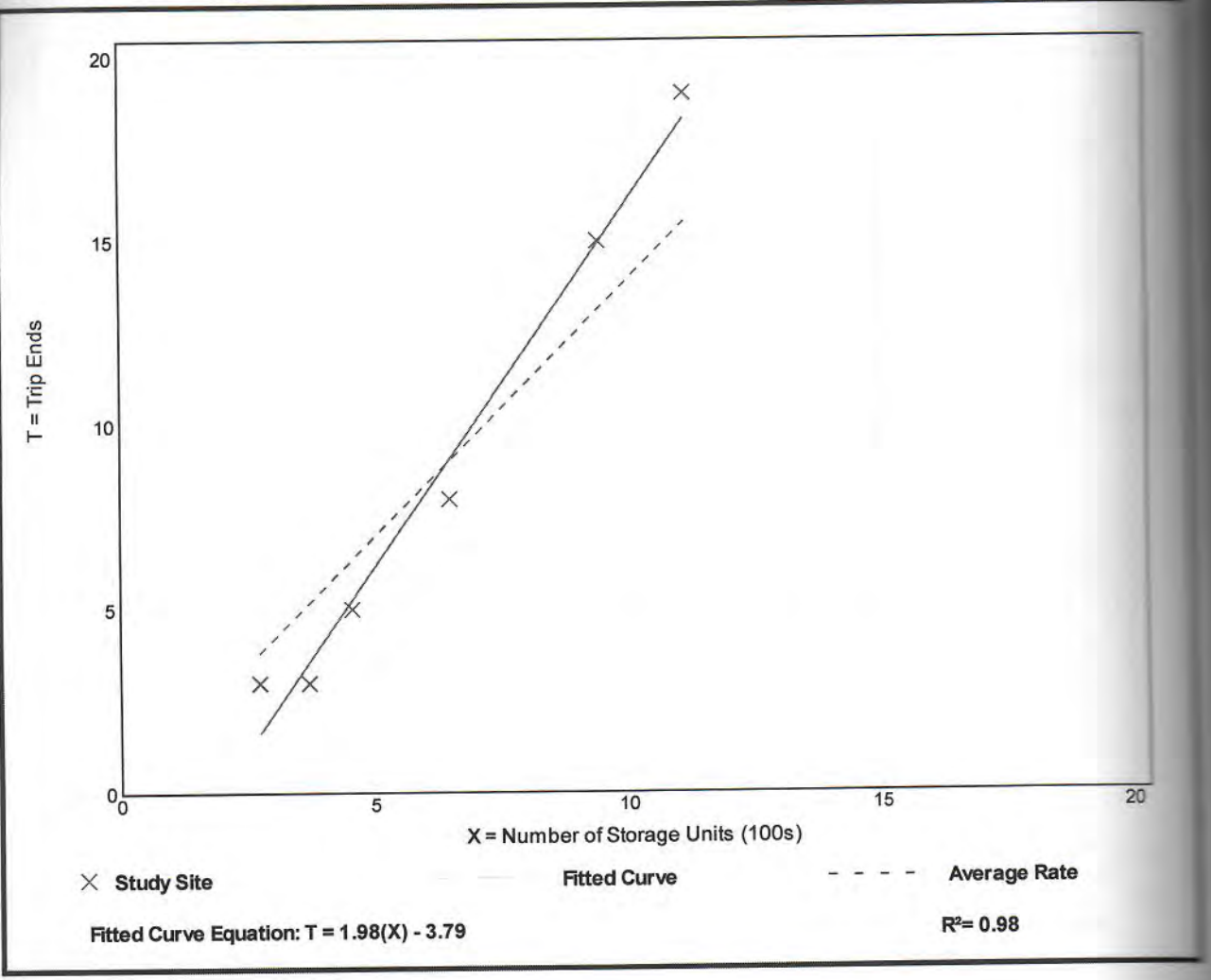
Mini-Warehouse
(151)

Vehicle Trip Ends vs: **Storage Units (100s)**
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: 6
Avg. Num. of Storage Units (100s): 6
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Storage Unit (100s)

Average Rate	Range of Rates	Standard Deviation
1.39	0.81 - 1.70	0.33

Data Plot and Equation



Fitted Curve Equation: T = 1.98(X) - 3.79

R^2= 0.98

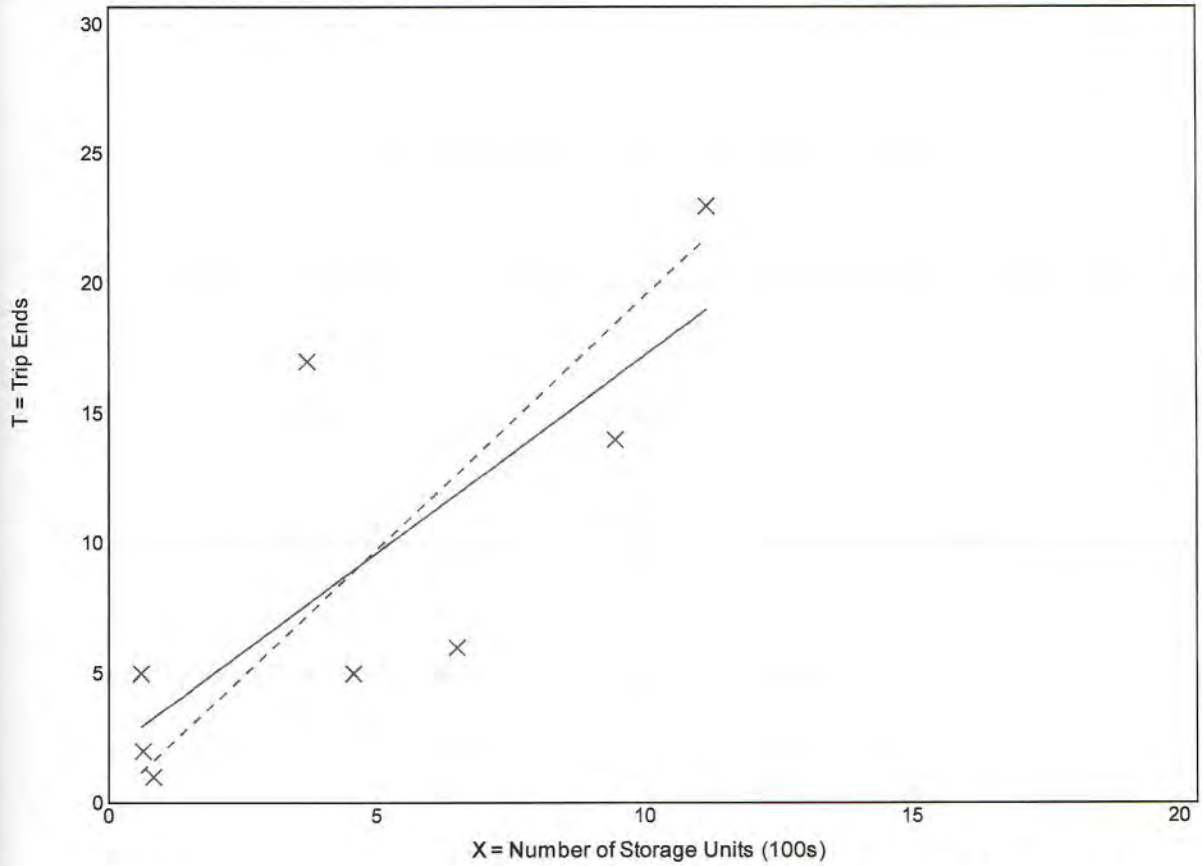
Mini-Warehouse
(151)

Vehicle Trip Ends vs: **Storage Units (100s)**
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: 8
Avg. Num. of Storage Units (100s): 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Storage Unit (100s)

Average Rate	Range of Rates	Standard Deviation
1.95	0.92 - 8.33	1.40

Data Plot and Equation



Fitted Curve Equation: T = 1.52(X) + 2.02

R^2= 0.61