Western Riverside Council of Governments
Public Works Committee

AGENDA

Thursday, December 14, 2023
2:00 PM

Western Riverside Council of Governments
3390 University Avenue, Suite 200
Riverside, CA 92501

Remote Meeting Locations:

March Joint Powers Authority
14205 Meridian Parkway, Suite 140
Riverside, CA 92518

County of Riverside Administrative Center
4080 Lemon Street, 8th Floor
Riverside, CA 92501

City of Calimesa
908 Park Avenue
Calimesa, CA 92320

Committee members are asked to attend this meeting in person unless remote accommodations have previously been requested and noted on the agenda. The below Zoom link is provided for the convenience of members of the public, presenters, and support staff.

Public Zoom Link
Meeting ID: 860 9081 2943
Passcode: 810357

Dial in: 669 900 9128 U.S.

In compliance with the Americans with Disabilities Act and Government Code Section 54954.2, if special assistance is needed to participate in the Public Works Committee meeting, please contact WRCOG at (951) 405-6702. Notification of at least 48 hours prior to meeting time will assist staff in assuring that reasonable arrangements can be made to provide accessibility at the meeting. In compliance with Government Code Section 54957.5, agenda materials distributed within 72 hours prior to the meeting which are public records relating to an open session agenda item will be available for inspection by members of the public prior to the meeting at 3390 University Avenue, Suite 200, Riverside, CA, 92501.

In addition to commenting at the Committee meeting, members of the public may also submit written comments before or during the meeting, prior to the close of public comment to lfelix@wrcog.us.

Any member of the public requiring a reasonable accommodation to participate in this meeting in light of this announcement shall contact Lucy Felix 72 hours prior to the meeting at (951) 405-6702 or lfelix@wrcog.us. Later requests will be accommodated to the extent feasible.

The Committee may take any action on any item listed on the agenda, regardless of the Requested Action.

1. CALL TO ORDER (Paul Toor, Chair)

2. PLEDGE OF ALLEGIANCE

3. ROLL CALL

4. PUBLIC COMMENTS

At this time members of the public can address the Committee regarding any items within the subject matter jurisdiction of the Committee that are not separately listed on this agenda. Members of the public will have an opportunity to speak on agendized items at the time the item is called for discussion. No action may be taken on items not listed on the agenda unless authorized by law. Whenever possible, lengthy testimony should be presented to the Committee in writing and only pertinent points presented orally.

5. CONSENT CALENDAR

All items listed under the Consent Calendar are considered to be routine and may be enacted by one motion. Prior to the motion to consider any action by the Committee, any public comments on any of the Consent Items will be heard. There will be no separate action unless members of the Committee request specific items be removed from the Consent Calendar.

A. Action Minutes from the October 12, 2023, Public Works Committee Meeting

Requested Action(s): 1. Approve the Action Minutes from the October 12, 2023, Public Works Committee meeting.

6. REPORTS / DISCUSSION

Members of the public will have an opportunity to speak on agendized items at the time the item is called for discussion.

A. High-Cube Warehouse Trip Generation Study

Requested Action(s): 1. Receive and file.

B. TUMF Nexus Study Activities Update

Requested Action(s): 1. Receive and file.

C. Climate Pollution Reduction Grants Funding Opportunity

Requested Action(s): 1. Receive and file.

7. REPORT FROM THE DEPUTY EXECUTIVE DIRECTOR
Chris Gray

8. ITEMS FOR FUTURE AGENDAS
Members are invited to suggest additional items to be brought forward for discussion at future Committee meetings.

9. GENERAL ANNOUNCEMENTS
Members are invited to announce items / activities which may be of general interest to the Committee.

10. NEXT MEETING
The next Public Works Committee meeting is scheduled for Thursday, February 8, 2024, at 2:00 p.m., in WRCOG's office at 3390 University Avenue, Suite 200, Riverside.

11. ADJOURNMENT

Public Works Committee

Action Minutes

1. CALL TO ORDER

The meeting of the WRCOG Public Works Committee was called to order by Chair Paul Toor at 2:03 p.m. on October 12, 2023, in the WRCOG office, 3390 University Avenue, Citrus Conference Room, Riverside.

2. PLEDGE OF ALLEGIANCE

Chair Toor led the Committee members and guests in the Pledge of Allegiance.

3. ROLL CALL

- City of Beaumont - Robert Vestal
- City of Calimesa - Michael Thornton
- City of Canyon Lake - Stuart McKibbin
- City of Corona - Rosalva Ureno
- City of Hemet - Noah Rau
- City of Jurupa Valley - Paul Toor
- City of Lake Elsinore - Remon Habib
- City of Menifee - Carlos Remo
- City of Moreno Valley - Melissa Walker
- City of Murrieta - Jeff Hitch
- City of San Jacinto - Stuart McKibbin
- City of Temecula - Amer Attar
- City of Wildomar - Jason Farag
- County of Riverside - Mark Lancaster
- March Joint Powers Authority (JPA) - Jeffrey Smith
- Riverside Transit Agency (RTA) - Mauricio Alvarez

Absent:

- City of Banning
- City of Eastvale
- City of Norco
- City of Perris
- City of Riverside
- Riverside County Transportation Commission (RCTC)

4. PUBLIC COMMENTS

There were no public comments.

5. CONSENT CALENDAR

RESULT:	**APPROVED AS RECOMMENDED**
MOVER:	County of Riverside
SECONDER:	Lake Elsinore
AYES:	Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Jurupa Valley, Lake Elsinore, Moreno Valley, Murrieta, San Jacinto, Temecula, Wildomar, County of Riverside, March JPA, RTA
ABSTAIN:	Menifee

A. Action Minutes from the August 10, 2023, Public Works Committee Meeting

Action:

1. Action the minutes from the August 10, 2023, Public Works Committee meeting.

6. REPORTS / DISCUSSION

A. TUMF Project Phases in the Transportation Improvement Program

Action:

1. Received and filed.

B. TUMF Nexus Study Activities Update

Action:

1. Received and filed.

C. VMT Mitigation Program Activities Update

Action:

1. Received and filed.

D. Analysis of Retail and Service Trends in the TUMF Program

Action:

1. Received and filed.

7. REPORT FROM THE DEPUTY EXECUTIVE DIRECTOR

Chris Gray, Deputy Executive Director, reported that in December there will be an update on the TUMF Nexus Study and on the logistics / warehouse trip generation study, as well as a presentation from RCTC on its funding opportunities. There will also be a future update on RIVCOM and a new forecast from SCAG next year.

8. ITEMS FOR FUTURE AGENDAS

The Committee asked for an update on:

- Electric bikes and neighborhood electric vehicles.
- TUMF fee calculation
- Streetlight Program
- Smart Cities
- Broadband and energy resilience activities.

9. GENERAL ANNOUNCEMENTS

There were no general announcements.

10. NEXT MEETING

The next Planning Directors Committee meeting is scheduled for Thursday, December 14, 2023, at 2:00 p.m., in WRCOG's office.

11. ADJOURNMENT

The meeting was adjourned at 3:14 p.m.

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: High-Cube Warehouse Trip Generation Study

Contact: Jason Pack, Principal, Fehr & Peers, j.pack@fehrandpeers.com, (951) 274-4800

Date: December 14, 2023

Recommended Action(s):

1. Receive and file.

Summary:

WRCOG commissioned a trip generation study in 2018 at local high-cube facilities to verify local trip generation data that was utilized in the previous TUMF Nexus Study update. Since the completion of that effort, a variety of factors have changed in the logistics industry. The most notable event, the COVID pandemic, increased the frequency and magnitude of on-line shopping; it is therefore appropriate to revisit the high-cube warehousing study as part of the current TUMF Nexus Study update. WRCOG retained Fehr & Peers to update the trip generation study with current trip generation information collected at the same locations as 2018.

Purpose / WRCOG 2022-2027 Strategic Plan Goal:

The purpose of this item is to summarize the results of the updated trip generation study. This effort aligns with WRCOG's 2022-2027 Strategic Plan Goal #5 (Develop projects and programs that improve infrastructure and sustainable development in our subregion).

Discussion:

Background

High-cube warehousing (HCW) has been emerging as an important development type in the subregion. Studies such as *Logistics & Distribution: An Answer to Regional Upward Social Mobility* and *Multi-County Goods Movement Action Plan* suggests that this trend is likely to increase over time due to the subregion's relative abundance of suitable sites compared to coastal counties. A recurring analytical problem for the analyses of traffic impacts associated with proposed high-cube warehouses is the lack of reliable data regarding the number and vehicle mix of trips generated by this land development type.

Studies have been conducted to increase the reliability of data on high-cube warehouses. A joint study conducted by the Commercial Real Estate Development Association (formerly known as National Association for Industrial and Office Parks / South Coast Air Quality Management District / Institute of

Transportation Engineers (ITE)) resulted in a consensus on the trip generation rates to be used for the most common type of high-cube facility, a category called “transload and short-term storage.” The findings of the joint study generally indicated trip generation rates for this use as being consistent with the trip generation rates for the broader category of high-cube warehouses as described by ITE in the 9th Edition of the Trip Generation Manual. However, the report did not settle the issue of trip generation rates for two other specific types of high-cube warehouses: “The single data points for fulfillment centers and parcel hubs indicate that they have significantly different vehicle trip generation characteristics compared to other HCWs. However, there are insufficient data from which to derive useable trip generation rates.”

As a result, WRCOG commissioned a trip generation study in 2018 at local high-cube facilities to verify local trip generation data specifically for fulfillment centers and parcel hubs that were utilized in the previous TUMF Nexus Study update. The frequency and magnitude of on-line shopping has increased, so the prevalence of high-cube warehouses has expanded since 2018. Since the TUMF Nexus Study update is on-going, WRCOG commenced an update of the trip generation study on high-cube warehouses. A memorandum for this update has been attached to this Staff Report.

Present Situation

The update methodology is summarized below.

- Number of sites: The previous study in 2018 reviewed potential candidate sites identified by WRCOG staff. As part of that study, a total of 16 sites were selected for inclusion into the study. Data collection at these same sites were included in this update to understand how trips generated by these high-cube warehousing sites have changed post-pandemic.
- Independent variables: ITEs Trip Generation Manual, which is the accepted manual utilized to generate the number of trips from land uses, measures the size of proposed developments using more than a dozen different independent variables, such as students (for schools) and acres (for parks), and so on. All related categories in both 9th and 10th Editions of the Trip Generation Manual are reported in Square Foot Gross Floor Area (GFA) measured in thousands of square feet, which is also the independent variable used for the TUMF Program. WRCOG provided GFA for all sites and employment data where available.
- The ITE Trip Generation Manual typically reports trip generation rates two ways; namely as the average rate, using the “best fit” mathematical relationship between the number of trips generated and the independent variable. R-squared, also known as the coefficient of determination, is used to measure how well the best fit equations match the surveyed traffic counts. The Trip Generation Manual recommends that the best fit equation only be used when the R2 is greater than or equal to 0.50 and certain other conditions are being met; otherwise, the average rate should be used.

Data Collection: The fulfillment centers and parcel hub sites included in the original study were also analyzed in this update. Traffic counts were collected at all site driveways using video cameras over a 72-hour period (Tuesday through Thursday) in February of 2023. Video collection was determined to be preferable to collection data by means of machine counts, which can be problematic for driveways where vehicles are maneuvering at slow speeds. Video counts provide the ability for human viewers to review the captured footage to classify vehicles into 5 types (car and large 2-axle, 3-axle, 4-axle, and 5+ axle truck). The three-day average was calculated and used for the purposes of this study.

Findings

This study evaluated how trip generation and vehicle mix may have changed in a post-pandemic environment using 2023 data compared to the previously collected 2018 data. The most relevant findings are summarized below:

Fulfillment Centers:

- The daily fleet mix seems to have changed such that there are more heavy vehicles and fewer passenger cars.
- There is reduced trip generation activity during the peak hours with more activity occurring in off-peak periods.
- For two of the larger Fulfillment Centers (Amazon and P&G), employment has decreased by almost 30%.
- It is recommended that WRCOG utilize the average rate of 1.74 trips/thousand square feet (KSF) for Fulfillment Centers.
- Trips, as a whole, from Fulfillment Centers has decreased. The average daily trip rate has decreased from 2.13 trips/KSF in 2018 to 1.74 trips/KSF in 2023. The PM peak hour trip rate has decreased from 0.165 trips/KSF in 2018 to 0.12 trips/KSF in 2023.

Parcel Hubs:

- The updated data showed an opposite trend compared to the Fulfillment Centers, with fewer trucks and an increase in passenger car trips.
- There is concurrence with the 2018 study recommendation that the Parcel Hub data does not provide meaningful information that should be used to establish a local trip generation rate for that land use without additional data collection at other Parcel Hub locations.

All-in-all, the 2023 data supports very similar conclusions from the 2018 study for both the Fulfillment Centers and the Parcel Hub facilities.

Next Steps

The TUMF Fee Calculation Handbook details the methodology for calculating the TUMF obligation for different categories of new development and, where necessary, to clarify the definition and calculation methodology for uses not clearly defined in the respective TUMF ordinances. One of the land uses that requires further clarification is high-cube warehouse. As summarized above, trip generation activity has reduced at the Fulfillment Centers analyzed, which may be considered a high-cube warehouse land use. WRCOG will initiate work on including any necessary changes to how TUMF is calculated for high-cube warehouses in the TUMF Handbook based on the reduced trips observed in this analysis. These changes will be brought forth to this Committee for review when a complete update is conducted at the conclusion of the TUMF Nexus Study update process.

Prior Action(s):

None.

Financial Summary:

Activities related to the cost for this study is included in the Fiscal Year 2023/2024 Agency budget under the TUMF Program (Fund 110).

Attachment(s):

Attachment 1 - High Cube Warehouse Trip Generation Memorandum

FEHR PEERS

Memorandum

Date: Updated November 13, 2023

To: Chris Gray, WRCOG
Chris Tzeng, WRCOG

From: Jason D. Pack, PE

Subject: TUMF High-Cube Warehouse Trip Generation Study Update

OC22-0941

Background

High-cube warehousing is emerging as an important development type in the Inland Empire. Studies such as Logistics & Distribution: *An Answer to Regional Upward Social Mobility*[1] and *Multi-County Goods Movement Action Plan*[2] suggests that this trend is likely to increase over time due to the Inland Empire's relative abundance of suitable sites compared to coastal counties.

A recurring analytical problem for the analyses of traffic impacts associated with proposed high-cube warehouses is the lack of reliable data regarding the number and vehicle mix of trips generated by this land development type. Specifically:

- The *2003 Fontana Truck Trip Generation Study*, which has been used for years by agencies in the Inland Empire, is based on the older type of high-cube warehouse. Newer warehouses generally are larger (often over 1 million square feet), much more automated, and generate far fewer trips per square foot.
- The use of overly-conservative estimates has produced results that were unreasonable when compared to actual field conditions. For example, the Environmental Impact Report (EIR) for the Skechers high-cube warehouse building in Moreno Valley included traffic forecasts that were substantially higher than the actual post-construction trip generation for both cars and trucks. Overstated forecasts are misleading to decision makers and could result in oversized infrastructure that could itself have environmental consequences, creates an undue burden on development, and could even have adverse legal consequences for the agencies involved.

[1] *Logistics & Distribution: An Answer to Regional Upward Social Mobility*, Dr. John Husing for SCAG, June 2004
[2] *Multi-County Goods Movement Action Plan*, Wilbur Smith Associates, August 2008

- In 2011 the Commercial Real Estate Development Association, also known by its former acronym NAIOP, commissioned a trip generation study of high-cube warehouses focused on large highly-automated warehouses in the Inland Empire. NAIOP had hoped that their study, which found trip-gen rates considerably lower than previous studies, would be used in CEQA analyses going forward. However, concerns about potential bias by the sponsoring party have placed into question the validity of the study results. Similarly, a study commissioned by SCAQMD was viewed as possibly having an anti-development bias.
- Finally, in 2015 NAIOP and SCAQMD jointly sponsored a trip-gen study for high-cube warehouses through a respected neutral party, the Institute of Transportation Engineers (ITE). The report for this study, *High-Cube Warehouse Vehicle Trip Generation Analysis*, was completed in 2016.

The joint NAIOP/SCAQMD/ITE study resulted in a consensus on the trip generation rates to be used for the most common type of High-Cube, a category they call "transload and short-term storage". The findings of the joint study generally indicated the trip generation rates for this use as being consistent with the trip generation rates for the broader category of High-Cube Warehouses as described by ITE in the 9th Edition of the *Trip Generation Manual*. However, the report did not settle the issue of trip generation rates for two other specific types of High-Cube Warehouses:

> *"The single data points for fulfillment centers and parcel hubs indicate that they have significantly different vehicle trip generation characteristics compared to other HCWs. However, there are insufficient data from which to derive useable trip generation rates."*

As part of the previous TUMF Nexus Study update in 2018, WRCOG commissioned a trip generation study at local High-Cube facilities to verify local trip generation data that can be utilized in the TUMF study. The results of that effort were documented in the *TUMF High-Cube Warehouse Trip Generation Study Technical Memorandum* (WSP, January 29, 2019) and is presented as **Attachment A**. Since the completion of that effort, a variety of factors have changed in the logistics industry. The most notable event, the COVID pandemic, increased the frequency and magnitude of on-line shopping and it is therefore appropriate to revisit the High-Cube warehousing study as part of the current TUMF update. WRCOG has retained Fehr & Peers to update the WSP 2019 study with current trip generation information collected at the same locations. The purpose of this memorandum is to summarize the results of our efforts.

Methodology

Number of Sites: The previous study reviewed potential candidate sites identified by WRCOG staff. As part of that study, a total of 16 sites were selected for inclusion into the study. Data collection at these same sites were included in this effort to understand how trips generated by these High-Cube warehousing sites have changed post-pandemic.

Independent Variables: ITE's Trip Generation Manual measures the size of proposed developments using more than a dozen different independent variables, such as students (for schools), acres (for parks), etc. All High-Cube related categories in both 9th and 10th Editions of the Trip Generation Manual are reported in Square Foot Gross Floor Area (GFA) measured in thousands of square feet (TSF), which is also the independent variable used for the TUMF program. Some other ITE employment categories use employment as the independent variable, as does SCAG in its Sustainable Communities Strategy. WRCOG provided GFA for all sites and employment data where available.

The ITE *Trip Generation Manual* typically reports trip generation rates two ways; namely as the average rate and using the "best fit" mathematical relationship between the number of trips generated and the independent variable. R-squared, also known as the coefficient of determination, is used to measure how well the best fit equations match the surveyed traffic counts. The *Trip Generation Manual* recommends that the best fit equation only be used when the R^2 is greater than or equal to 0.50 and certain other conditions being met; otherwise, the average rate should be used.

Data Collection

The fulfillment centers and parcel hub sites included in the original study and in this updated assessment are summarized in **Table 1**. Please note that, for site Location 1 (Chino Walmart), an additional building was added to the site that did not exist when the original study was completed. As such, that site's size has changed; while the other locations all remained the same.

Traffic counts were collected at all site driveways using video cameras over a 72-hour period (Tuesday through Thursday) in February of 2023. Video collection was determined to be preferable to collection data by means of machine counts, which can be problematic for driveways where vehicles are maneuvering at slow speeds. Video counts provide the ability for human viewers to review the captured footage to classify vehicles into 5 types (car, large 2-axle, 3-axle, 4-axle, and 5+ axle truck). The three-day average was calculated and used for the purposes of this study. The raw traffic count data is presented as **Attachment B**.

It should be noted that the Walmart fulfillment center site in Chino (Location 1) has expanded since the 2017 study. Two additional buildings have been constructed adjacent to the original building; one a 1,400,000 sq. ft. Walmart fulfillment center and the other a 190,000 sq. ft. facility occupied by Sika Corporation. Since data collected at the Walmart site includes counts to all three buildings, the size of all buildings combined was included in the assessment. Additionally, the building sizes for this complex were estimated since City staff do not have information as it is on state property.

Fulfillment Centers

By Building Size

Exhibit 1 displays a data plot of daily vehicle trips for the 11 fulfillment centers against building size as the independent variable. The average trip generation rate for fulfillments centers (see blue line in Exhibit 1) was found to be 1.74 trips/KSF (1,000 sq. ft.). The overall trip generation is lower than the trip generation collected in the previous study (2.2 trips/KSF) and is closer to the 1.4 trips/KSF found for conventional high-cube warehouses in the ITE/SCAQMD/NAIOP study.

Table 1 – Data Collection Sites and Site Attributes

Site and Location	Building Size (Sq. Ft.)	Number of Employees in 2023[a]
Fulfillment Centers		
1. Walmart: 6750 Kimball Avenue, Chino[c]	2,790,000	n/a
2. Amazon: 24208 San Michele Road, Moreno Valley	1,255,620	3,005
3. Lineage Logistics: 1001 Columbia Avene Riverside	507,050	558
4. P&G: 16110 Cosmos Street, Moreno Valley	1,106,400	650
5. Big 5: 6125 Sycamore Canyon Boulevard, Riverside	953,132	443
6. Nestle USA: 3450 Dulles Drive, Jurupa Valley	764,000	148
7. Home Depot: 11650 Venture Drive, Jurupa Valley	1,114,000	240
8. ACT Fulfillment Center: 3155 Universe Drive, Jurupa Valley	598,000	255
9. Petco: 4345 Parkhurst Street, Jurupa Valley	322,000	180
10. Komer: 11850 Riverside Drive, Jurupa Valley	649,000	113
11. Ross: 3404 Indian Avenue, Perris	1,284,000	n/a
Parcel Hubs		
1. Ryder Ecommerce by Whiplash: 15801 Meridian Parkway, Riverside	477,000	160
2. FedEx: 330 Resource Drive, Bloomington	448,000	n/a
3. FedEx Freight: 12100 Riverside Drive, Jurupa Valley	131,000	516
4. UPS Chain Logistics: 11811/11991 Landon Drive, Jurupa Valley	1,737,000	2,300
5. DHL: 12249 Holly Street North, Riverside	457,120	209[b]

Source: WRCOG Staff
[a] Employment provided by agency staff for each local agency. N/A = Not Available.
[b] Estimated employment based on parking provided.
[c] Includes the 1,200,000 sq. ft. building from the original study plus two additional buildings constructed since then. See text for complete description.

The best fit equation was a logarithmic relationship with R^2 of 0.50. This is shown as a red line in **Exhibit 1a**. An logarithmic relationship, meaning that the larger the building the lower the trip generation rate, is typical of expectations; however, the average rate shows a an improved R^2 of

0.77 and therefore we would recommend use of the average rate. **Exhibit 1b** sumarizes the previous data collected in 2018 for reference.

Exhibit 1a: Data Plot for Daily Total Vehicle Trip Ends against Building Size (Fulfillment Center); 2023 Data

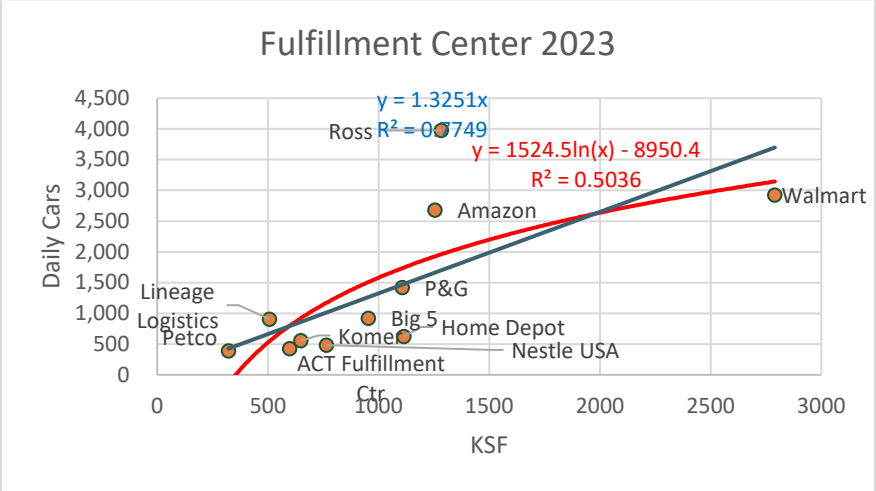


Exhibit 2b: Data Plot for Daily Total Vehicle Trip Ends against Building Size (Fulfillment Center); 2018 Data

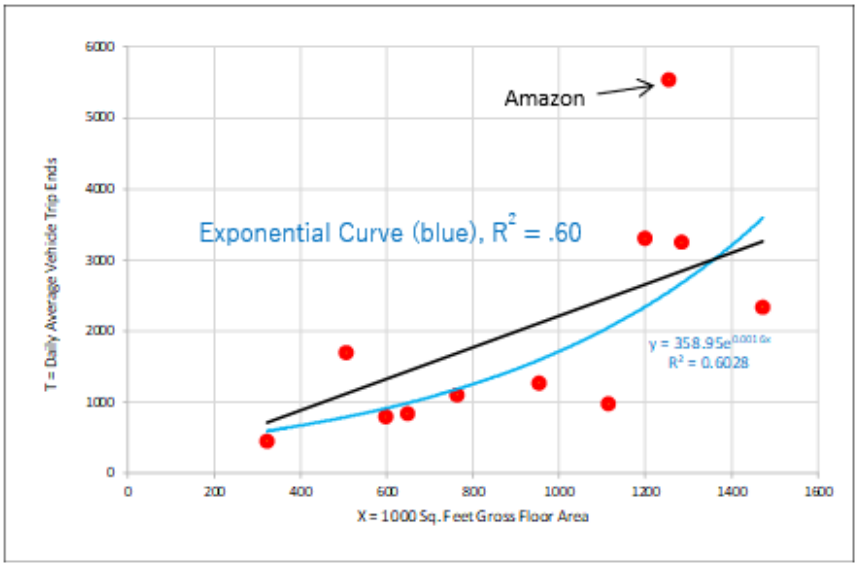


Exhibit 2a takes a deeper look at this by showing the daily vehicle trip generation rates for each of the 11 surveyed fulfillment centers sorted by the smallest to the largest building size from left to right. As shown, small sites tend to generate fewer trips per thousand square feet, but higher percentage of trucks while larger sites tend to generate a higher number of car trips but fewer truck trips. So not only is the overall trip generation rate affected by building size, the vehicle mix is affected as well. **Exhibit 2b** shows the previous data collected in 2018 for reference. Please also note that heavy vehicle trips generally increased at all locations; whereas passenger car trips decreased at many locations and light/medium duty trucks generally didn't vary compared to the 2018 data.

Exhibit 3a, Exhibit 3b, Exhibit 4a, and **Exhibit 4b** show data plots for the AM and PM peak hour vehicle trip ends against building size for both the 2023 data and the 2018 data. The fitted curves had a low R^2 during the AM peak hour and a high R^2 during the PM peak hour. We would recommend use of the average rate for consistency purposes.

Exhibit 5 compares the average trip generation rates of 11 fulfillment centers with the rates found for conventional transload and short-term storage warehouses in the 2016 high-cube warehouse trip generation study[3] by SCAQMD/NAIOP/ITE, the 2018 data from the previous study, and the most recent counts collected. As shown, the fulfillment centers have decreased in the number of vehicle trips generated – but medium- and heavy-duty truck rates have increased compared to the previous data collection effort.

Exhibit 5 also summarizes the AM and PM peak hour trip rates and the daily rates for fulfillment centers based on the findings of this study, and compares the results to rates for conventional transload and short-term storage warehouses.

[3] *High-Cube Warehouse Vehicle Trip Generation Analysis*, Institute of Transportation Engineers, 2016

Exhibit 3a: Daily Vehicle Trip Generation Rates by Building Size for Each Fulfillment Center, 2023 Data

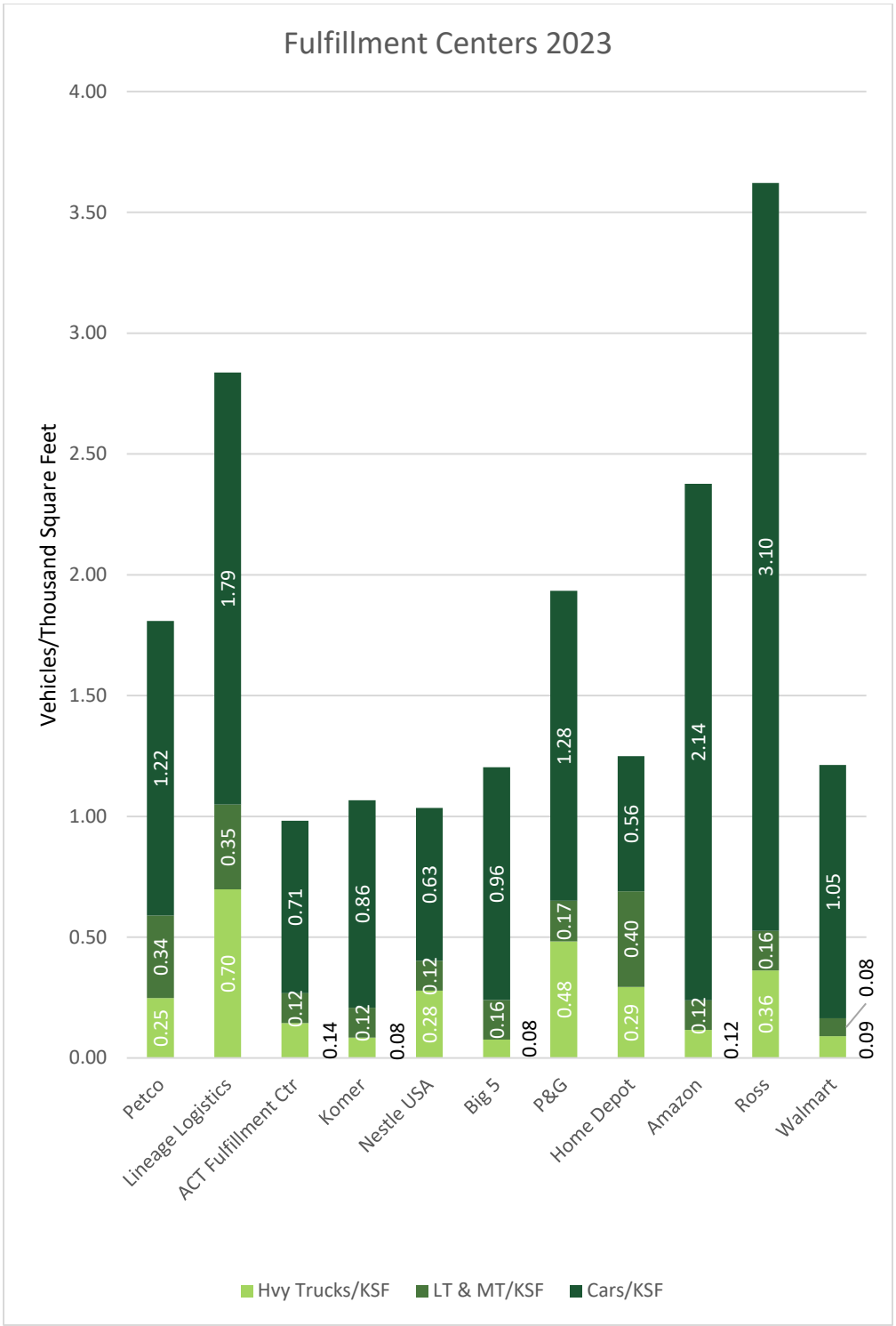


Exhibit 4b: Daily Vehicle Trip Generation Rates by Building Size for Each Fulfillment Center, 2018 Data

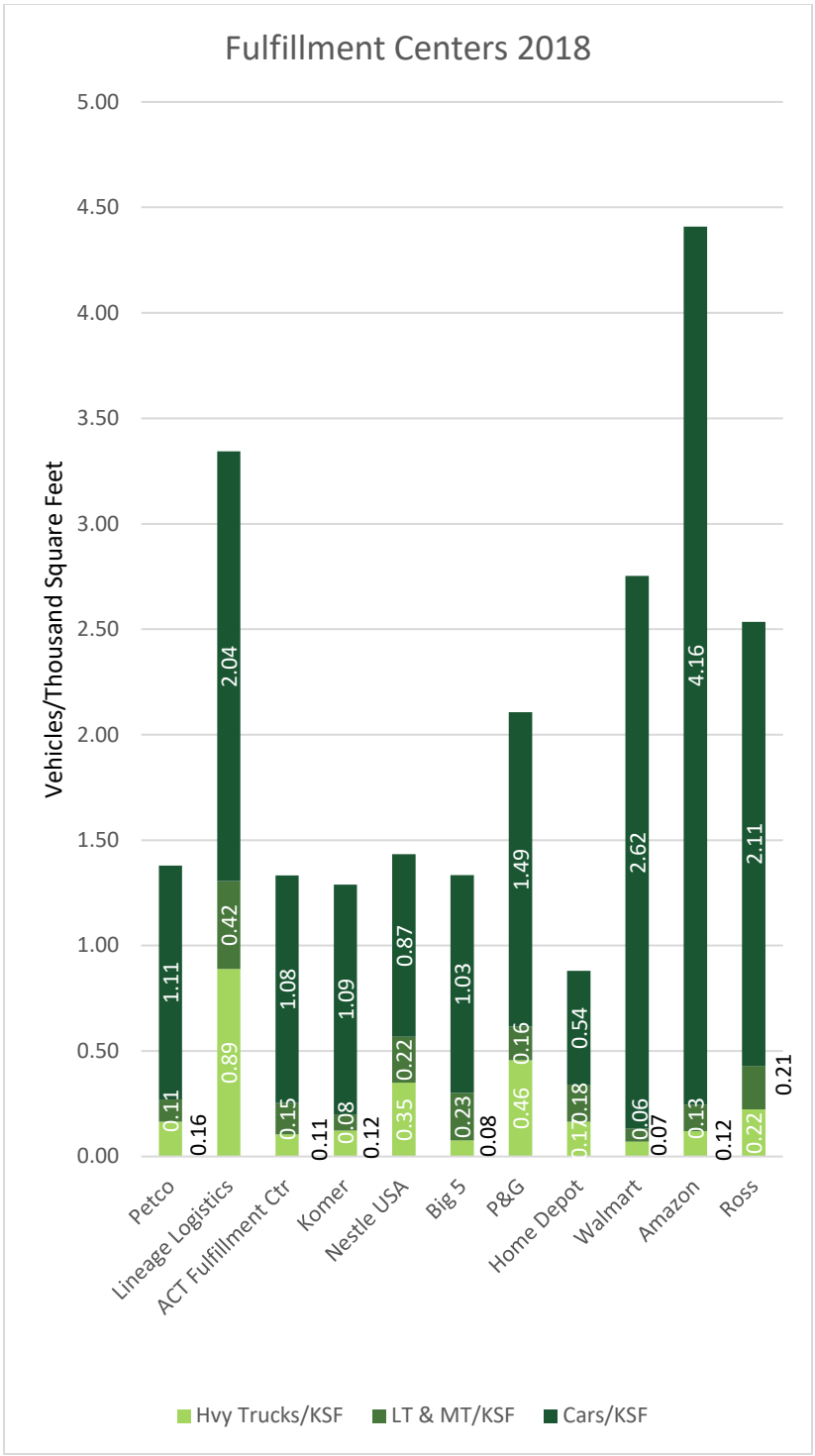


Exhibit 5a: Data Plot for AM Peak Hour Vehicle Trip Ends against Building Size (Fulfillment Center), 2023 Data

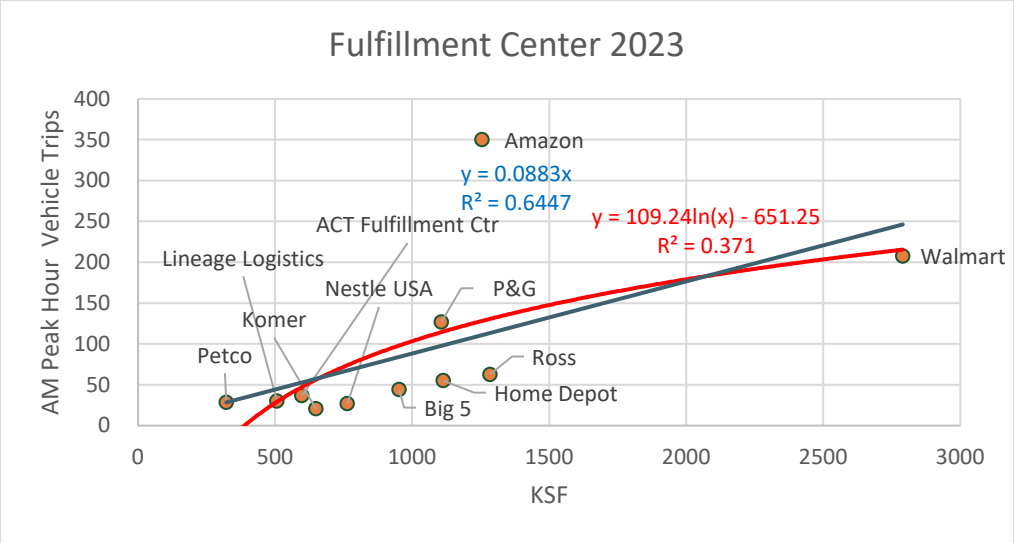


Exhibit 6b: Data Plot for AM Peak Hour Vehicle Trip Ends against Building Size (Fulfillment Center), 2018 Data

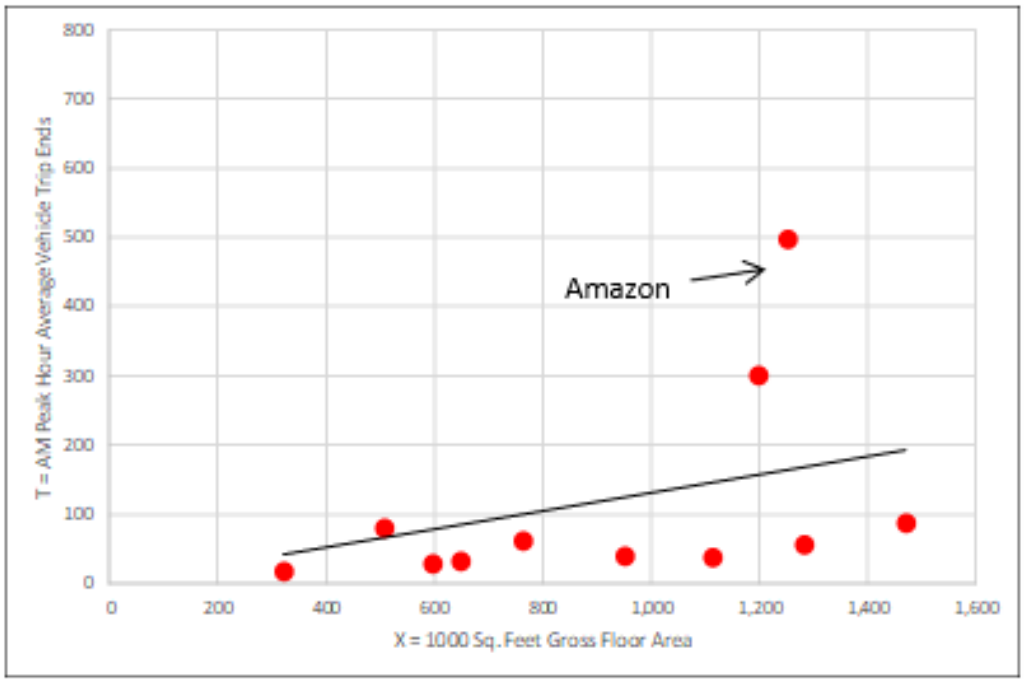


Exhibit 7a: Data Plot for PM Peak Hour Vehicle Trip Ends against Building Size (Fulfillment Center), 2023 Data

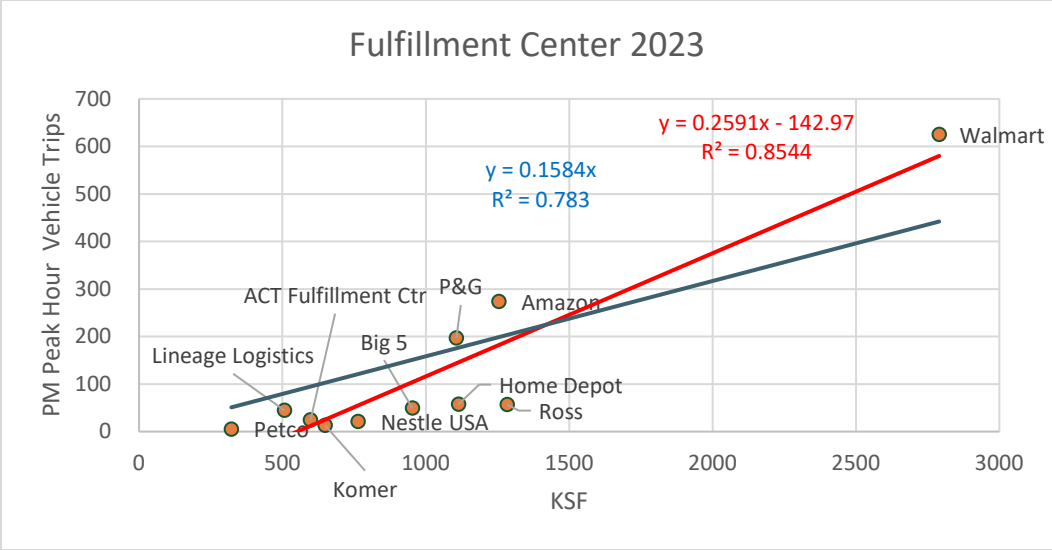


Exhibit 8b: Data Plot for PM Peak Hour Vehicle Trip Ends against Building Size (Fulfillment Center), 2018 Data

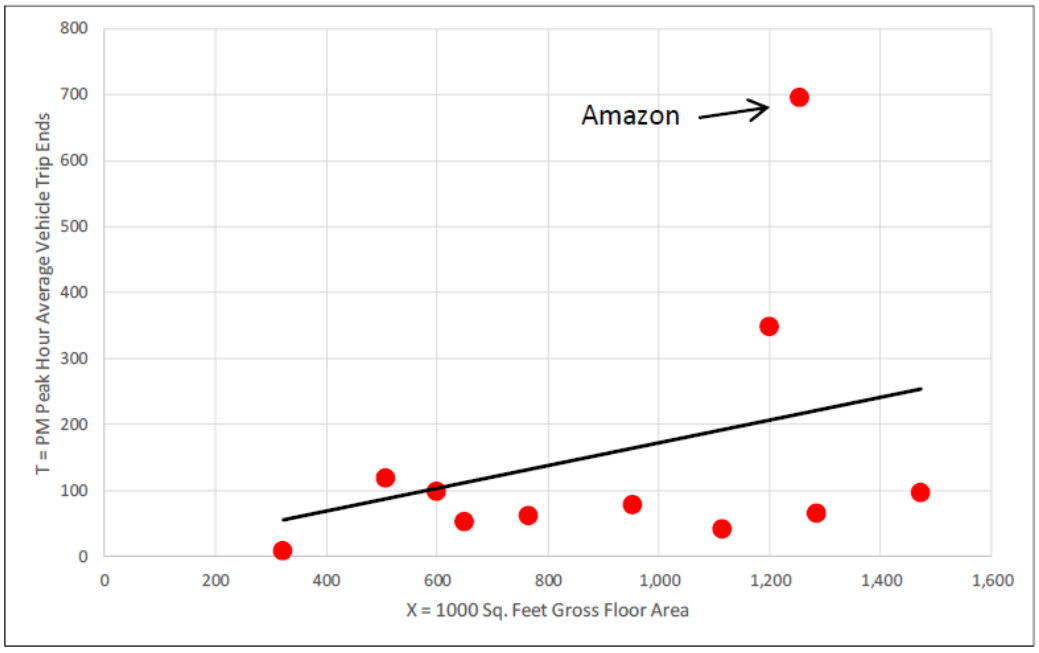


Exhibit 9: Conventional Warehouse vs Fulfillment Centers Trip Generation Rates per 1,000 sq. ft.

	AM				PM				Daily			
	Conventional	2018	2023	% Change	Conventional	2018	2023	% Change	Conventional	2018	2023	% Change
Cars	0.057	0.103	0.062	-40%	0.086	0.144	0.105	-27%	1.000	1.75	1.350	-23%
2-4 Axel Trucks	0.009	0.008	0.008	1%	0.013	0.011	0.006	-42%	0.221	0.162	0.167	3%
5-Axle Trucks	0.015	0.011	0.010	-8%	0.01	0.01	0.010	-2%	0.233	0.217	0.228	5%
Total	0.082	0.122	0.087	-29%	0.108	0.165	0.120	-27%	1.432	2.129	1.744	-18%
% Higher than Conventional		49%	6%			53%	12%			49%	22%	

Notes:
Conventional relates conventional transload and short-term storage warehouses in the 2016 high-cube warehouse trip generation study by SCAQMD/NAIOP/ITE.
2018 relates to data collected in the 2018 WSP study.
2023 relates to data collected as part of this effort.

By Employee

WRCOG staff provided employment numbers for some of the surveyed fulfillment centers which was provided by WRCOG staff in consultations with local agencies. The data provided by WRCOG is provided as **Exhibit 6** below:

Exhibit 6: Employment Information

Location Occupant	2018 Employment Data	2023 Employment Data
Fulfillment/Distribution Centers		
Walmart	500	n/a
Amazon	4,700	3,005
Lineage Logistics	478	558
P&G	1,000	650
Big 5	463	443
Nestle USA	n/a	148
Home Depot	n/a	240
ACT Fulfillment Ctr	n/a	255
Petco	169	180
Komer	235	113
Ross	1,900	n/a
Parcel Hubs		
UPS	n/a	160
FedEx	902	n/a
FedEx Freight	n/a	516
UPS Chain Logistics	n/a	2,300
DHL	n/a	209*

Notes:
n/a = Information not available.
* Employment estimated based on the number of parking spaces.

Exhibit 7a and **Exhibit 7b** shows a data plot showing daily total vehicle trip ends against the number of employees for the 2023 data and the 2018 data, respectively. The best fit equation for the 2023 dataset remains a logarithmic function which had an R^2 of 0.85, indicating a very good fit. The average trip generation rate for fulfillments centers (represented by the blue line in

Exhibit 10a: Data Plot for Daily Total Vehicle Trip Ends Against Employee (Fulfillment Center) – 2023 Data

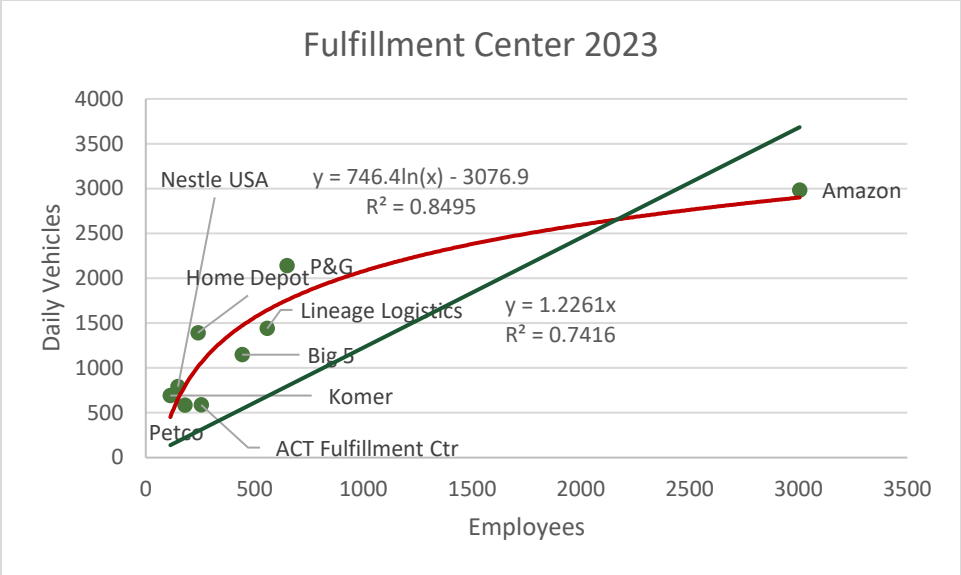


Exhibit 11b: Data Plot for Daily Total Vehicle Trip Ends Against Employee (Fulfillment Center) – 2018 Data

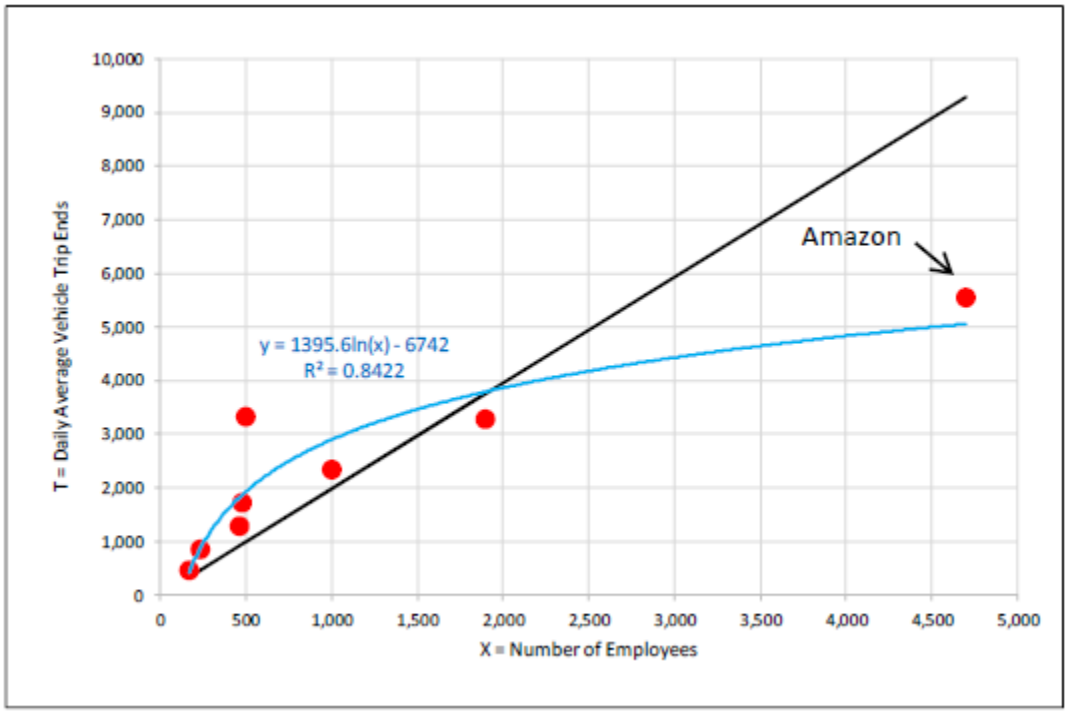


Exhibit 7a) was found to be 1.23 trips/employee, which is lower than the 2 trips/employee collected in the 2018 dataset.

The data plots for the AM and PM peak hour total vehicle trip ends against the number of fulfillment center employees are shown in Exhibits 8a, 8b, 9a, 9b for the 2023 AM, 2018AM, 2023 PM, and 2018 PM datasets; respectively.

Exhibit 12a: Data Plot for AM Peak Hour Total Vehicle Trip Ends Against Employee (Fulfillment Center) – 2023 Data

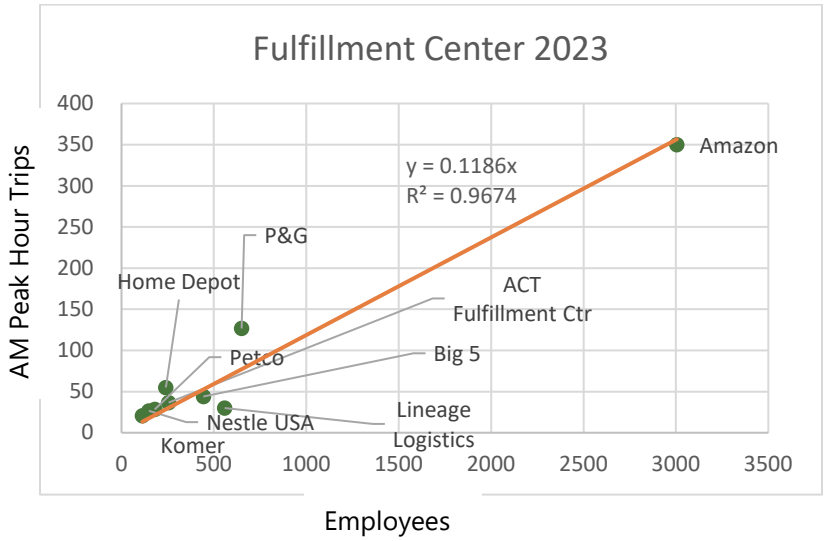


Exhibit 13b: Data Plot for AM Peak Hour Total Vehicle Trip Ends Against Employee (Fulfillment Center) – 2018 Data

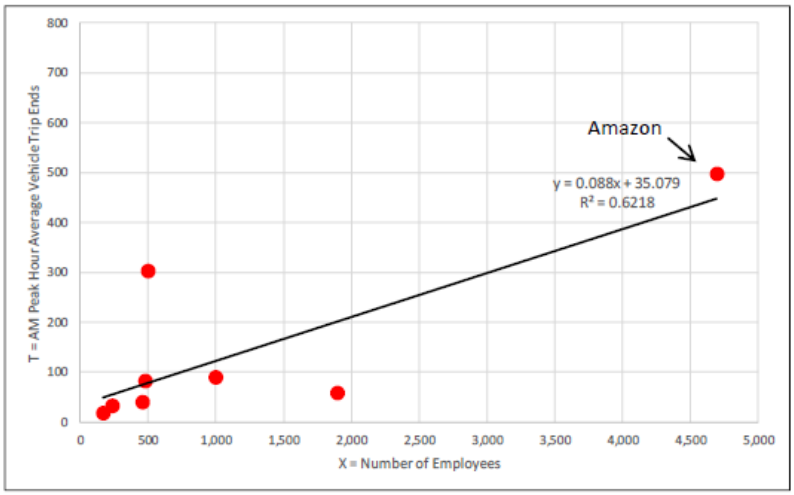


Exhibit 14a: Data Plot for PM Peak Hour Total Vehicle Trip Ends Against Employee (Fulfillment Center) – 2023 Data

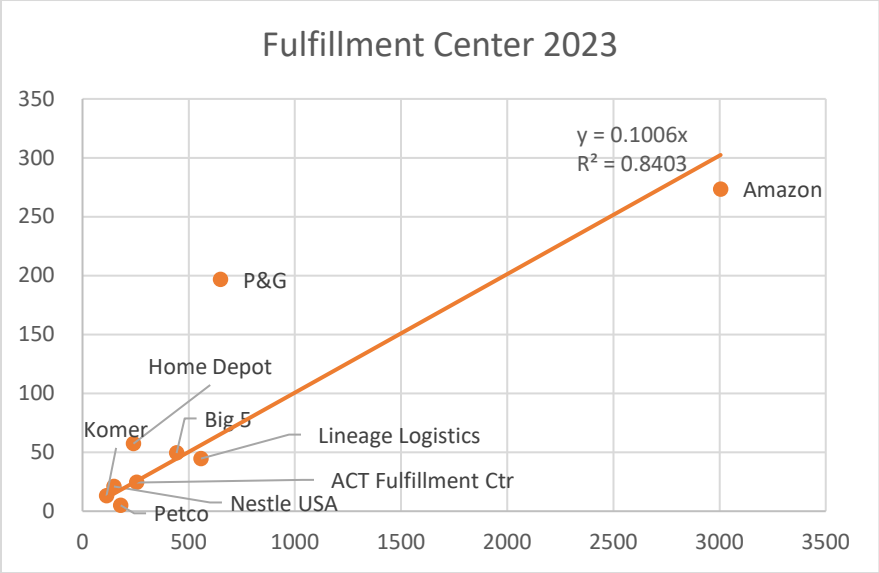


Exhibit 15b: Data Plot for PM Peak Hour Total Vehicle Trip Ends Against Employee (Fulfillment Center) – 2018 Data

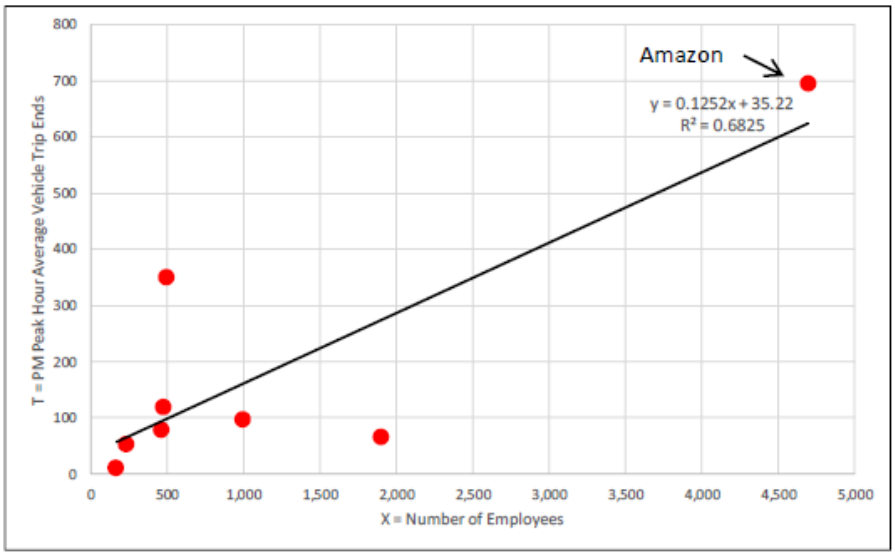


Exhibit 10 summarizes the AM and PM peak hour trip rates and the daily rates for trip generation per employee at fulfillment centers based on the findings of this study. When reviewing trip generation per employee, the updated data generally shows a decrease in car trips per employee but much higher truck trip rates compared to the previous study conclusions.

Exhibit 16: Summary of Trip Generation Rates per Employee for Fulfillment Centers

	AM			PM			Daily		
	2018	2023	% Change	2018	2023	% Change	2018	2023	% Change
Cars	0.102	0.100	-2%	0.139	0.101	-27%	1.673	1.504	-10%
2-4 Axle Trucks	0.006	0.013	120%	0.008	0.009	15%	0.125	0.264	111%
5-Axle Trucks	0.009	0.010	13%	0.008	0.013	58%	0.008	0.334	4073%
Total	0.118	0.123	4%	0.155	0.123	-21%	1.977	2.101	6%

Parcel Hubs

By Building Size

Exhibit 11a and **Exhibit 11b** displays daily vehicle trip generation rates by building size for each of five Parcel Hub sites collected in both 2018 (Exhibit 11b) and 2023 (Exhibit 11a). They are sorted by the smallest to the largest building size from left to right. In this case the small sites generate significantly more trips of every kind than the larger sites, which is the opposite to the pattern observed for fulfillment centers.

Exhibit 17a: Daily Trip Generation Rates at Parcel Hubs

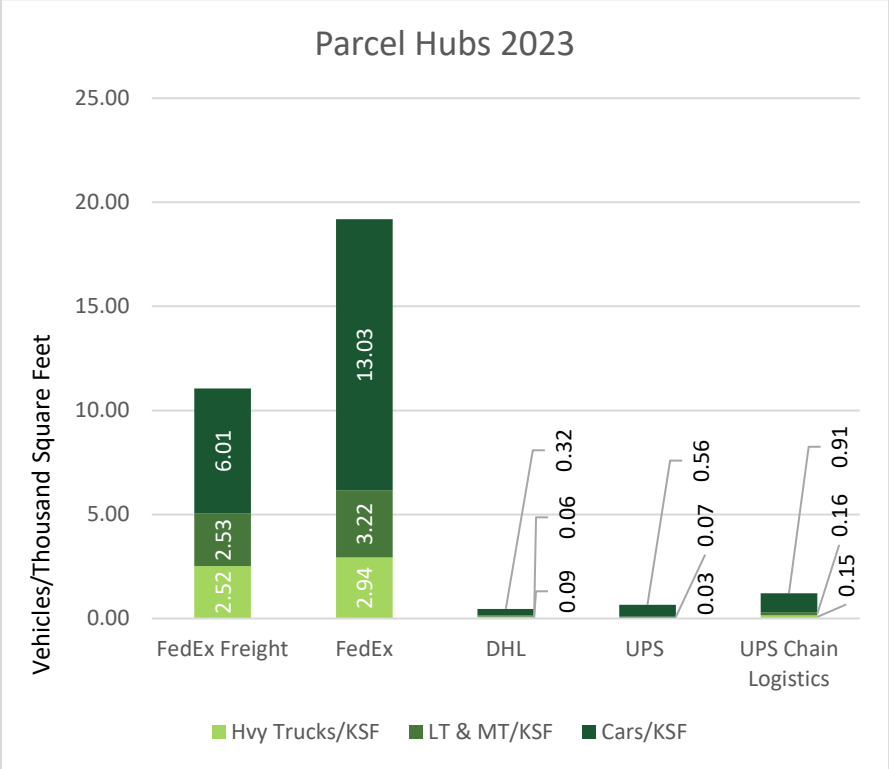


Exhibit 18a: Daily Trip Generation Rates at Parcel Hubs

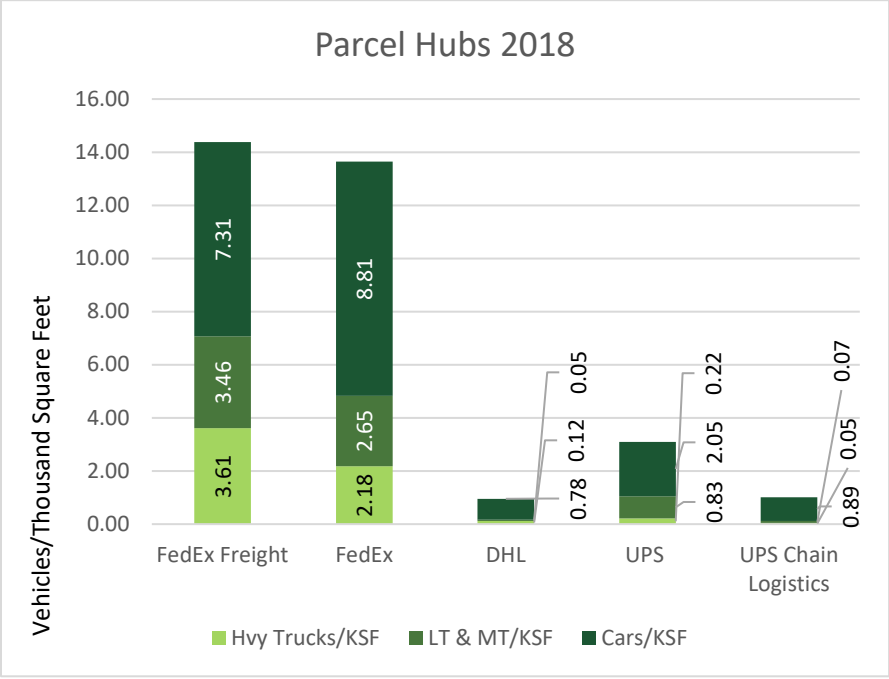


Exhibit 12a shows a data plot of daily vehicle trips of five parcel hubs against building size using the 2023 data. **Exhibit 12b** provides the 2018 data for comparison. As shown, the 2023 data set had a linear best fit; however, the slope of the line is very flat compared to a negative slope estimated in the 2018 dataset. Interestingly, both data sets showed remarkably similar data trends; albeit with different magnitude when compared to the previous dataset. **Exhibit 13** summarizes the trip generation rates by vehicle type for all surveyed Parcel Hub locations for both the 2018 data and the 2023 data. **Exhibit 14** summarizes the overall rate for all locations combined for both the 2018 and 2023 data.

Exhibit 19a: Data Plot for Daily Total Vehicle Trip Ends Against Building Size (Parcel Hubs) – 2023 Data

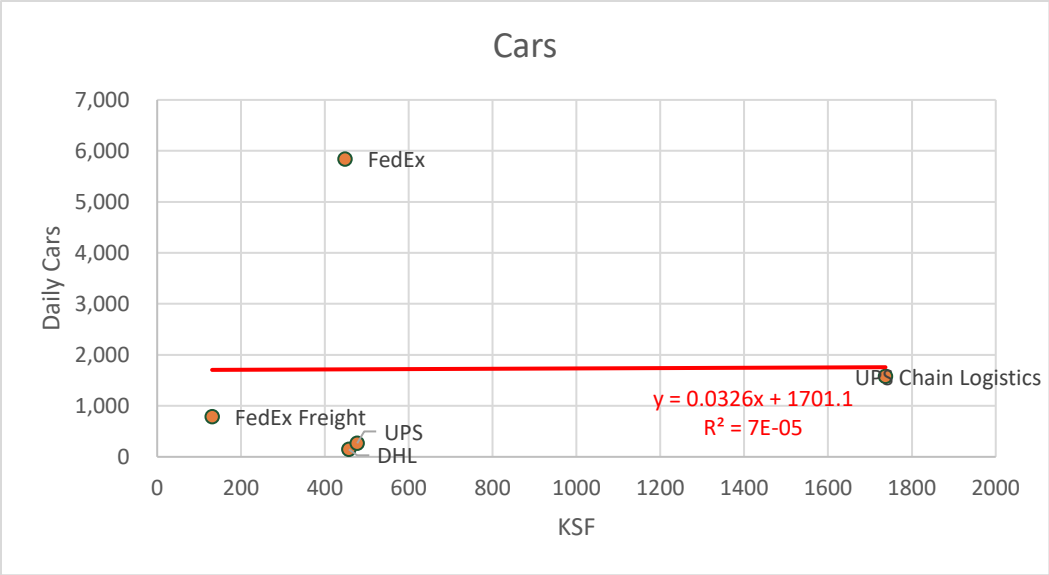


Exhibit 20a: Data Plot for Daily Total Vehicle Trip Ends Against Building Size (Parcel Hubs) – 2023 Data

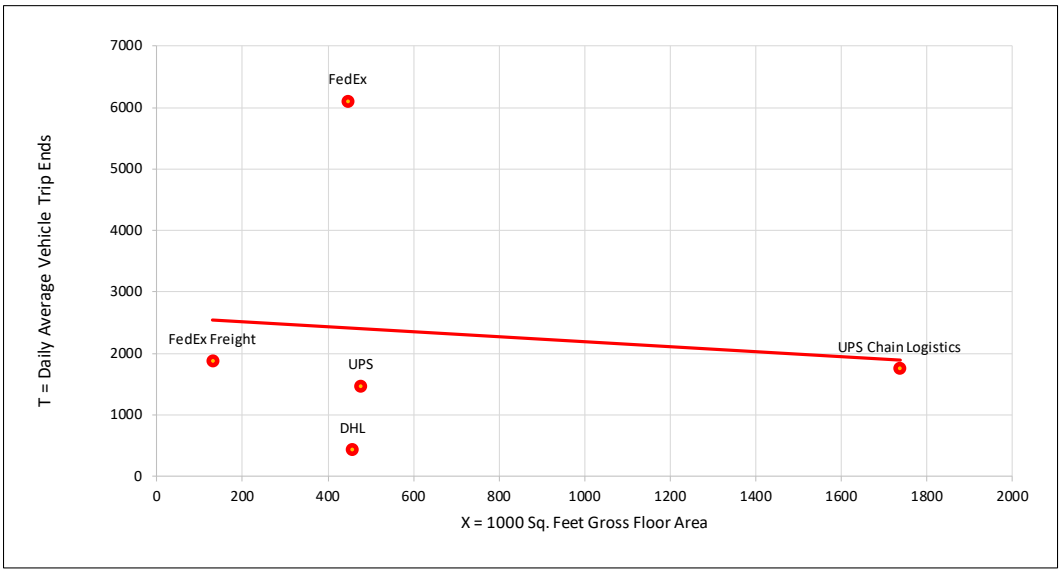


Exhibit 13: Trip Generation Rates per 1,000 sq. ft. for Parcel Hubs by Location – 2018 and 2023 Data

	2018 Data			2023 Data		
	Cars/KSF	Light & Medium Duty Trucks/KSF	Heavy Duty Trucks/KSF	Cars/KSF	Light & Medium Duty Trucks/KSF	Heavy Duty Trucks/KSF
FedEx Freight	7.31	3.46	3.61	6.01	2.53	2.52
FedEx	8.81	2.65	2.18	13.03	3.22	2.94
DHL	0.78	0.05	0.12	0.32	0.06	0.09
UPS	2.05	0.83	0.22	0.56	0.07	0.03
UPS Chain Logistics	0.89	0.07	0.05	0.91	0.16	0.15

Exhibit 14: Summary of Trip Generation Rates per 1,000 sq. ft. for Parcel Hubs – 2018 and 2023 Data

	Daily		
	2018	2023	% Change
Cars	2.39	2.65	11%
2-4 Axle Trucks	0.67	0.65	-3%
5-Axle Trucks	1.19	0.60	-49%
Total	3.59	3.90	9%

The basic premise of the ITE trip generation approach is that the number of trips generated by a project is proportional to its size. Neither the 2018 nor the 2023 datasets reflect this ITE premise in that the 2018 data indicated a negative slope (meaning an opposite relationship between trips and building size) and the 2023 data set showed essentially a flat slope (meaning no relationship between building size and the number of trips. Based on this observation, we would continue to concur with the 2018 study recommendation that the Parcel Hub data does not provide meaningful information that should be used to establish a local trip generation rate for that land use without additional data collection at other Parcel Hub locations.

It should be noted that the dataset did show an interesting trend when comparing between the data sets. For Parcel Hubs, in a post-pandemic setting, passenger car trips increased on average by 11% compared to the 2018 dataset; while 5-axle trucks showed a significant decrease (-49%) in trip rate (2-4 axle trucks remained relatively consistent showing a slight decrease of -3%).

Conclusions

This study evaluated how trip generation and vehicle mix may have changed in a post-pandemic environment using 2023 data compared to the previously collected 2018 data. The most interesting findings while reviewing and comparing the data are summarized below:

Fulfillment Centers

- The daily fleet mix seems to have changed such that there are more heavy vehicles and fewer passenger cars
- There is reduced trip generation activity during the peak hours with more activity occurring in off-peak periods
- For two of the larger Fulfillment Centers (Amazon and P&G), employment has decreased by almost 30%
- It is recommended that WRCOG utilize the average rate of 1.74 trips/KSF for Fulfillment Center

Parcel Hubs

- The updated data showed an opposite trend compared to the Fulfillment Centers, with fewer trucks and an increase in passenger car trips
- There is concurrence with the 2018 study recommendation that the Parcel Hub data does not provide meaningful information that should be used to establish a local trip generation rate for that land use without additional data collection at other Parcel Hub locations

Otherwise, the 2023 data supports very similar conclusions from the 2018 study for both the Fulfillment Centers and the Parcel Hub facilities.

Attachment A – 2019 WSP Study

Technical Memorandum

To: Daniel Ramirez-Cornejo, Program Manager, WRCOG

From: Billy Park, Supervising Transportation Planner, WSP

Subject: **TUMF High-Cube Warehouse Trip Generation Study**

Date: January 29, 2019

Background

High-cube warehousing is emerging as an important development type in the Inland Empire. Studies such as Logistics & Distribution: *An Answer to Regional Upward Social Mobility*[1] and *Multi-County Goods Movement Action Plan*[2] suggests that this trend is likely to increase over time due to the Inland Empire's relative abundance of suitable sites compared to coastal counties.

A recurring analytical problem for the analyses of traffic impacts associated with proposed high-cube warehouses is the lack of reliable data regarding the number and vehicle mix of trips generated by this land development type. Specifically:

- The *2003 Fontana Truck Trip Generation Study*, which has been used for years by agencies in the Inland Empire, is based on the older type of high-cube warehouse. Newer warehouses generally are larger (often over 1 million square feet), much more automated, and generate far fewer trips per square foot.
- The use of overly-conservative estimates has produced results that were unreasonable when compared to actual field conditions. For example, the Environmental Impact Report (EIR) for the Skechers high-cube warehouse building in Moreno Valley included traffic forecasts that were substantially higher than the actual post-construction trip generation for both cars and trucks. Overstated forecasts are misleading to decision makers and could result in oversized infrastructure that could itself have environmental consequences, creates an undue burden on development, and could even have adverse legal consequences for the agencies involved.
- In 2011 the Commercial Real Estate Development Association, also known by its former acronym NAIOP, commissioned a trip generation study of high-cube warehouses focused on large highly-automated warehouses in the Inland Empire. NAIOP had hoped that their study, which found trip-gen rates considerably lower than previous studies, would be used in CEQA analyses going forward. However, concerns about potential bias by the sponsoring party have placed into question the validity of the study results. Similarly, a study commissioned by SCAQMD was viewed as possibly having an anti-development bias.
- Finally, in 2015 NAIOP and SCAQMD jointly sponsored a trip-gen study for high-cube warehouses through a respected neutral party, the Institute of Transportation Engineers (ITE). The report for this study, *High-Cube Warehouse Vehicle Trip Generation Analysis*, was completed in 2016.

The joint NAIOP/SCAQMD/ITE study resulted in a consensus on the trip generation rates to be used for the most common type of high-cube warehouse, a category they call "transload and short-term storage". The findings of the joint study generally indicated the trip generation rates for this use as being consistent with the trip generation rates for the broader category of high-cube warehouses as described by ITE in the 9th Edition of the *Trip*

[1] *Logistics & Distribution: An Answer to Regional Upward Social Mobility*, Dr. John Husing for SCAG, June 2004
[2] *Multi-County Goods Movement Action Plan*, Wilbur Smith Associates, August 2008

Generation Manual. However, the report did not settle the issue of trip generation rates for two other specific types of high-cube warehouses:

> *"The single data points for fulfillment centers and parcel hubs indicate that they have significantly different vehicle trip generation characteristics compared to other HCWs. However, there are insufficient data from which to derive useable trip generation rates."*

The purpose of this technical memorandum is to gather sufficient data to develop reliable trip generation rates for fulfillment centers and parcel hubs for use in traffic impact studies in the Inland Empire.

Methodology

Number of Sites: The study team reviewed ITE's *Trip Generation Handbook 2nd* Edition, Chapter 4 of which describes how to perform a trip generation study that meets ITE's standards (which improves the defensibility of the results if they are used for CEQA analyses). ITE recommends that at least three sites, and preferably five, be surveyed for a given land use category. Based on the review of candidate sites identified by Western Riverside Council of Governments (WRCOG) staff, it was recommended that data be collected at a total of 16 sites for the purposes of this study.

Independent Variables: ITE's Trip Generation Manual measures the size of proposed developments using more than a dozen different independent variables, such as students (for schools), acres (for parks), etc. All High-Cube related categories in both 9th and 10th Editions of the Trip Generation Manual are reported in Square Foot Gross Floor Area (GFA) measured in thousands of square feet (TSF), which is also the independent variable used for the TUMF program. Some other ITE employment categories use employment as the independent variable, as does SCAG in its Sustainable Communities Strategy. WRCOG provided GFA for all sites and employment data for eight fulfillment centers and one parcel hub site.

The ITE *Trip Generation Manual* typically reports trip generation rates two ways; namely as the average rate and using the "best fit" mathematical relationship between the number of trips generated and the independent variable. R-squared, also known as the coefficient of determination, is used to measure how well the best fit equations match the surveyed traffic counts. The *Trip Generation Manual* recommends that the best fit equation only be used when the R^2 is greater than or equal to 0.50 and certain other conditions being met; otherwise the average rate should be used.

Data Collection

WRCOG provided a list of recommended trip generation study sites after reviewing potential sites within the Inland Empire with its member agencies. The list included 11 fulfillment centers and 5 parcel hub sites as follows:

Fulfillment Centers

1. Walmart: 6750 Kimball Ave, Chino, CA 91708
2. Amazon: 24208 San Michele Rd, Moreno Valley, CA 92551
3. Lineage Logistics: 1001 Columbia Ave Riverside, CA 92507
4. P&G: 16110 Cosmos Street, Moreno Valley, CA 92551
5. Big 5: 6125 Sycamore Canyon Blvd, Riverside, CA 92507
6. Nestle USA: 3450 Dulles Drive, Jurupa Valley, CA
7. Home Depot: 11650 Venture Drive, Jurupa Valley, CA
8. ACT Fulfillment Center: 3155 Universe Drive, Jurupa Valley, CA
9. Petco: 4345 Parkhurst Street, Jurupa Valley, CA
10. Komer: 11850 Riverside Drive, Jurupa Valley, CA
11. Ross: 3404 Indian Ave Perris, CA 92571

Parcel Hubs

12. UPS: 15801 Meridian Pkwy, Riverside, CA 92518
13. FedEx: 330 Resource Dr, Bloomington, CA 92316
14. FedEx Freight: 12100 Riverside Drive, Jurupa Valley, CA
15. UPS Chain Logistics: 11811/11991 Landon Drive, Jurupa Valley, CA
16. DHL: 12249 Holly St N, Riverside, CA 92509

Traffic counts were collected at all of these sites. These were 72-hour driveway counts collected using video cameras for three-midweek days starting June 26, 2018. Video collection was determined to be preferable to collection data by means of machine counts, which can be problematic for driveways where vehicles are maneuvering at slow speeds. Video counts provide the ability for human viewers to review the captured footage to classify vehicles into 5 types (car, large 2-axle, 3-axle, 4-axle, and 5+ axle truck). The three-day average was calculated and used for the purposes of this study.

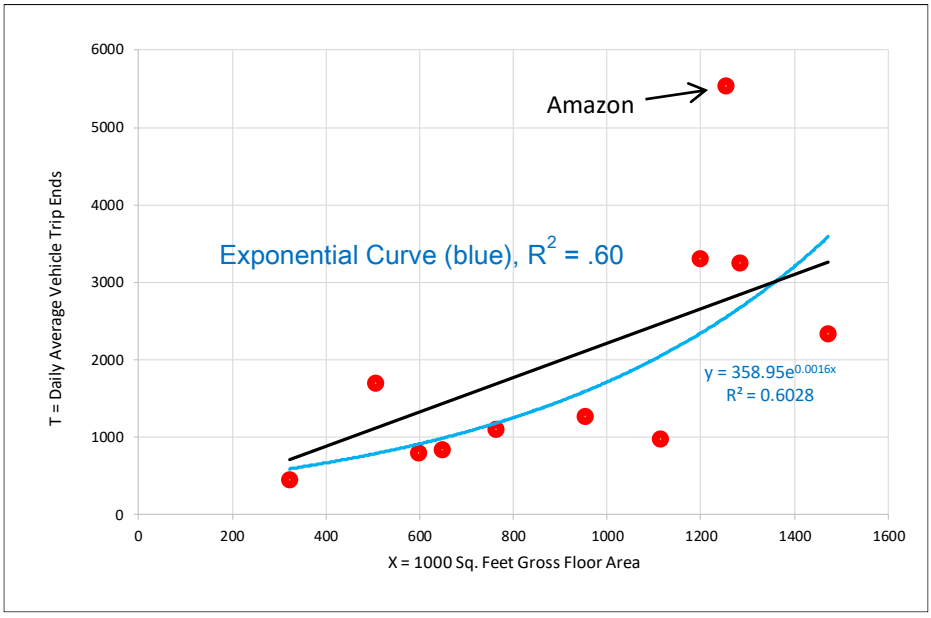
Fulfillment Centers

By Building Size

Exhibit 1 displays a data plot of daily vehicle trips for the 11 fulfillment centers against building size as the independent variable. The average trip generation rate for fulfillments centers (see black line in Exhibit 1) was found to be 2.2 trips/TSF, compared to the 1.4 trips/TSF found for conventional high-cube warehouses in the ITE/SCAQMD/NAIOP study (i.e. about 50% higher).

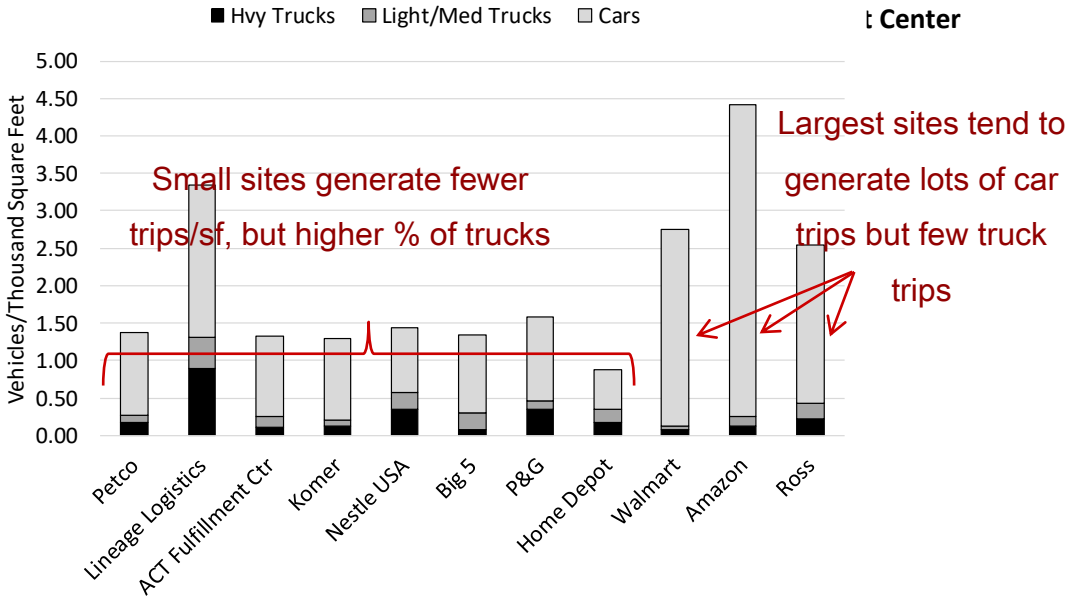
Exhibit 1 denotes one outlier data point representing the Amazon site in the upper right of the chart. As shown, the average daily trips generated at this facility is over 50% higher than the trips generated at the two sites of similar size (Walmart and Ross), which appears indicative of a greater frequency of same day e-commerce deliveries from Amazon to individual consumers.

Exhibit 1: Data Plot for Daily Total Vehicle Trip Ends against Building Size (Fulfillment Center)



The best fit equation was an exponential relationship with R^2 of 0.60 (i.e. high enough to meet the criteria of acceptability). This is shown as a blue line in Exhibit 1. An exponential relationship, meaning that the larger the building the higher the trip generation rate, is quite unusual.

Exhibit 2 takes a deeper look at this by showing the daily vehicle trip generation rates for each of the 11 surveyed fulfillment centers sorted by the smallest to the largest building size from left to right. As shown, small sites tend to generate fewer trips per thousand square feet, but higher percentage of trucks. On the other hand, largest sites tend to generate a higher number of car trips, but fewer truck trips. So not only is the overall trip generation rate affected by building size, the vehicle mix is affected as well.

Exhibit 

t Center

Exhibit 3 and

Exhibit 4 show data plots for AM and PM peak hour vehicle trip ends against building size (respectively). The fitted curves had a low R^2, and so we recommend using the average rate.

Exhibit 3: Data Plot for AM Peak Hour Vehicle Trip Ends against Building Size (Fulfillment Center)

Amazon →

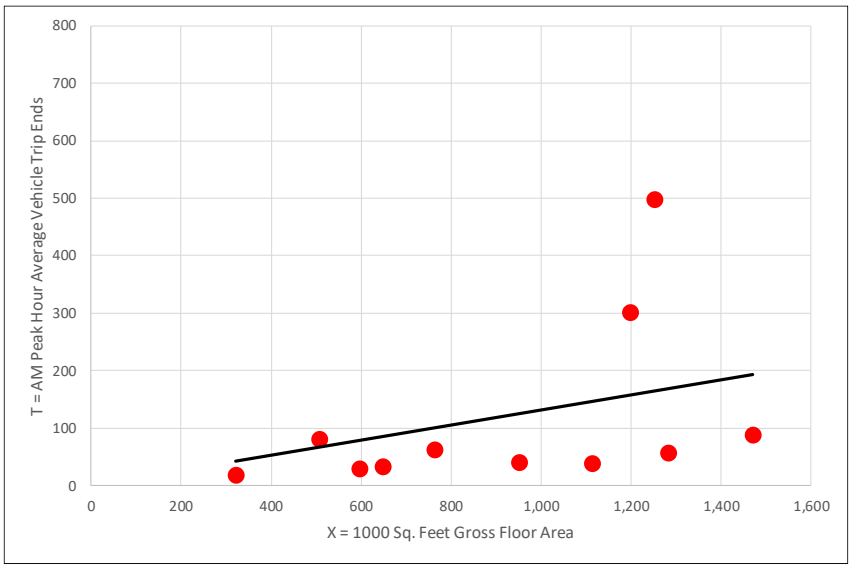


Exhibit 4: Data Plot for PM Peak Hour Vehicle Trip Ends against Building Size (Fulfillment Center)

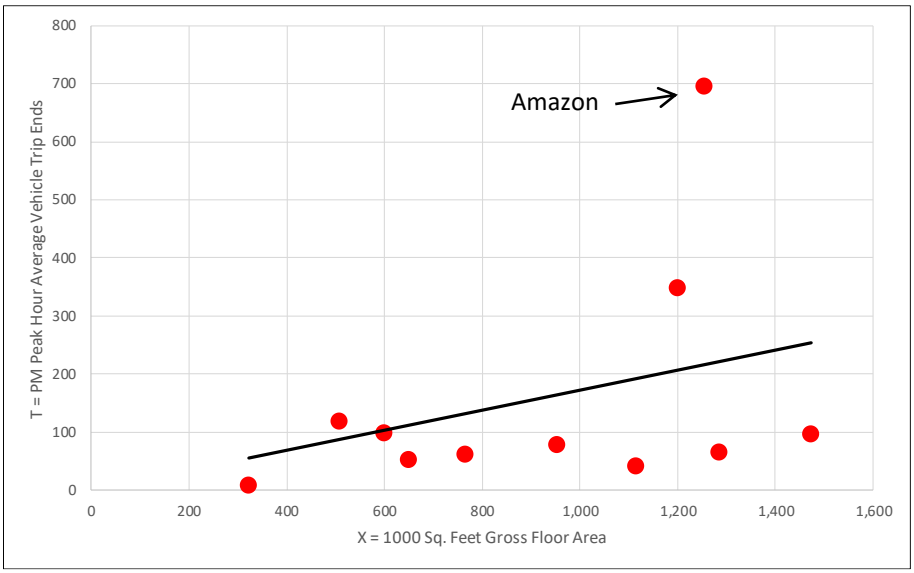
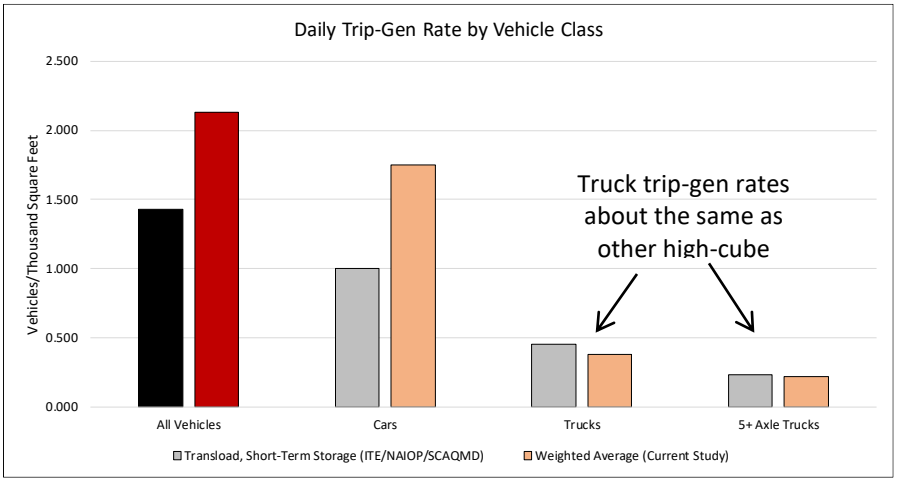


Exhibit 5 compares the average trip generation rates of 11 fulfillment centers with the rates found for conventional transload and short-term storage warehouses in the 2016 high-cube warehouse trip generation study[3] by SCAQMD/NAIOP/ITE. As shown, the fulfillment centers generate more daily vehicle trips than conventional warehouse facilities although trucks are roughly the same. This means that the additional trips by fulfillment centers are entirely due to additional car traffic, which is almost double the rate of car trips generated by conventional warehouses.

Exhibit 5: Conventional Warehouse vs Fulfillment Centers



Visual observation of the fulfillment center sites indicates the higher trip generation rates for cars appears to be mostly due to the use vans and passenger cars as delivery vehicles, particularly for the larger facilities operated by retailers such as Amazon and Walmart.

[3] *High-Cube Warehouse Vehicle Trip Generation Analysis*, Institute of Transportation Engineers, 2016

Exhibit 6 summarizes the AM and PM peak hour trip rates and the daily rates for fulfillment centers based on the findings of this study, and compares the results to rates for conventional transload and short-term storage warehouses.

Exhibit 6: Summary of Trip Generation Rates per Thousand Square Feet of Gross Floor Area for Fulfillment Centers

Vehicle Class	AM Peak Hour		PM Peak Hour		Daily	
	Conventional Warehouse*	Fulfillment Center	Conventional Warehouse	Fulfillment Center	Conventional Warehouse	Fulfillment Center
Cars	0.057	0.103	0.086	0.144	1.000	1.750
2-4 Axle Trucks	0.009	0.008	0.013	0.011	0.221	0.162
5-Axle Trucks	0.015	0.011	0.010	0.010	0.233	0.217
Total	0.082	0.122	0.108	0.165	1.432	2.129
%Higher than Conventional		49%		52%		49%

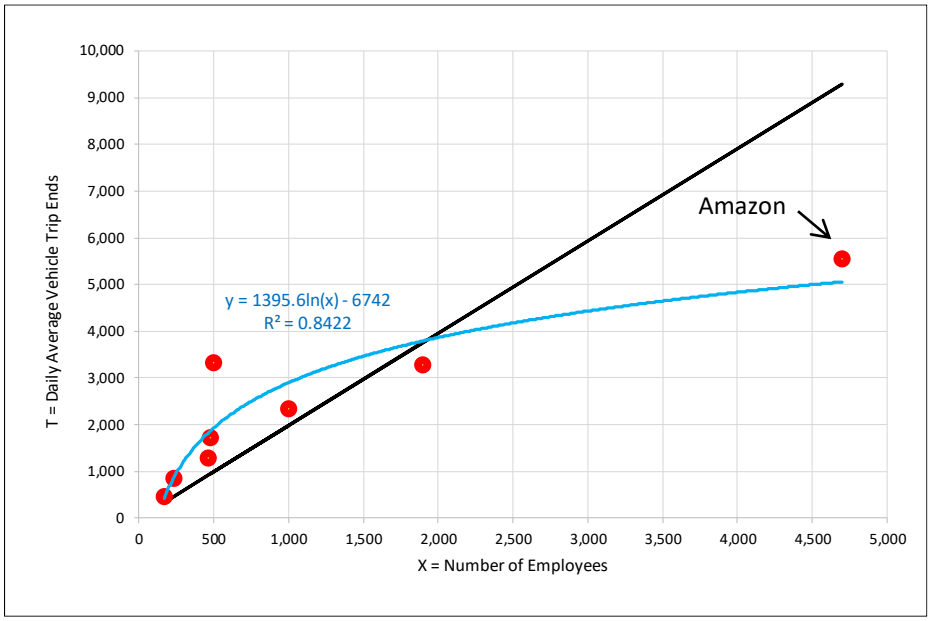
* Transload, Short-Term Storage category in 2016 TIE/ NAIOP/ SCAQMD study

By Employee

The WRCOG contacted the surveyed fulfillment centers and obtained employment data for eight of the eleven sites. Exhibit 7 shows a data plot for those eight sites for daily total vehicle trip ends against the number of employees. The best fit equation was logarithmic function which had an R^2 of 0.84, indicating a very good fit. Notably, the Amazon site, which was an outlier for trip generation based on floor area (see Exhibit 1), correlates more closely to other sites when employment is used instead. The average trip generation rate for fulfillments centers (represented by the black line in Exhibit 7) was found to be 2.0 trips/TSF

No comparison was made to any previous rates per employees because none of the previous high-cube warehouse related trip generation studies included correlation of trips with employment data.

Exhibit 7: Data Plot for Daily Total Vehicle Trip Ends against Employee (Fulfillment Center)



The data plots for the AM and PM peak hour total vehicle trip ends against the number of fulfillment center employees are shown in Exhibit 8 and Exhibit 9. The best fit equations are linear regressions (shown with black lines) which show a good R^2 for both the AM and PM peak periods.

Exhibit 8: Data Plot for AM Peak Hour Total Vehicle Trip Ends against Employee (Fulfillment Center)

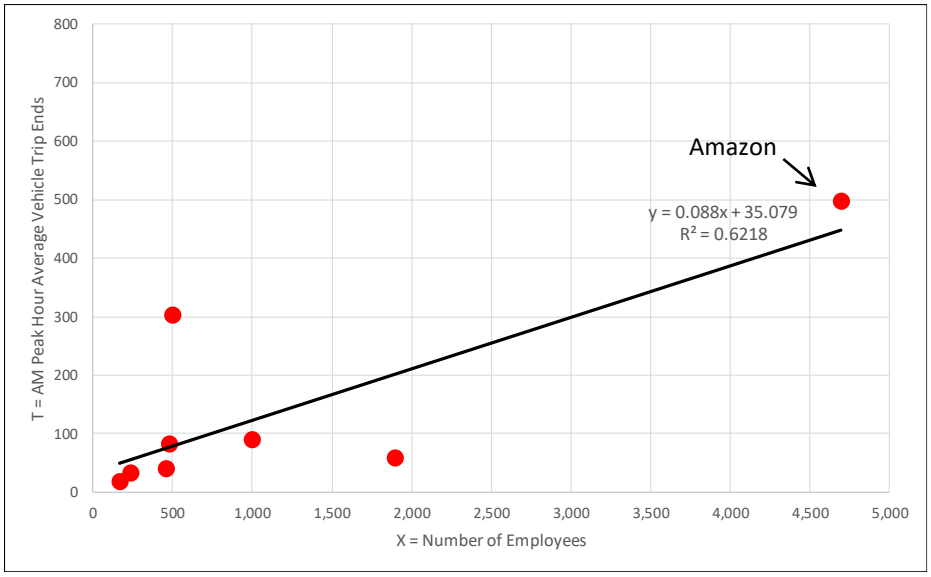


Exhibit 9: Data Plot for PM Peak Hour Total Vehicle Trip Ends against Employee (Fulfillment Center)

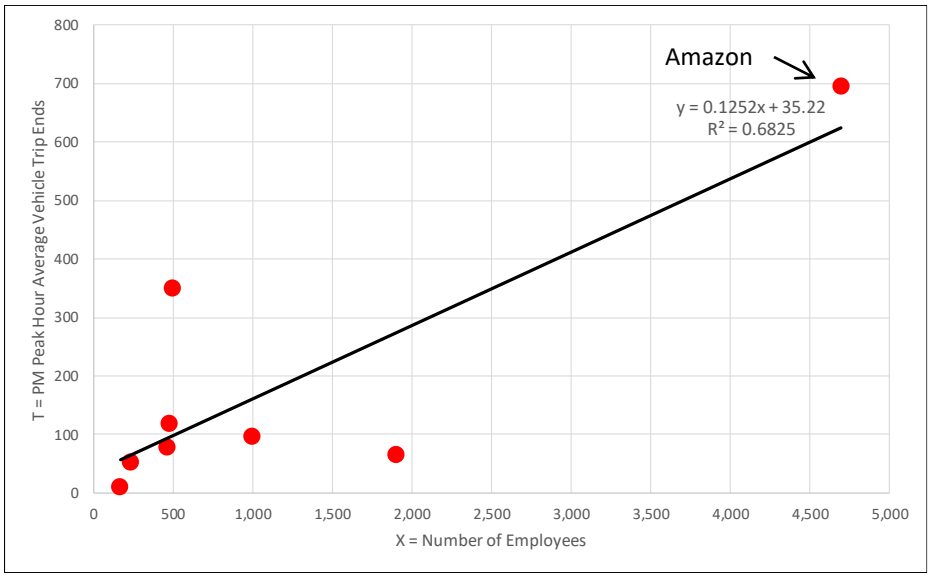


Exhibit 10 summarizes the AM and PM peak hour trip rates and the daily rates for trip generation per employee at fulfillment centers based on the findings of this study.

Exhibit 10: Summary of Trip Generation Rates per Employee for Fulfillment Centers

Vehicle Class	AM Peak Hour	PM Peak Hour	Daily
Cars	0.102	0.139	1.673
2-4 Axle Trucks	0.006	0.008	0.125
5-Axle Trucks	0.009	0.008	0.178
Total	0.118	0.155	1.977

Parcel Hubs

By Building Size

Exhibit 11 displays daily vehicle trip generation rates by building size for each of five parcel hub sites. They are sorted by the smallest to the largest building size from left to right. In this case the small sites generate significantly more trips of every kind than the larger sites, which is the opposite to the pattern observed for fulfillment centers.

Exhibit 11: Daily Trip Generation Rates at Parcel Hubs

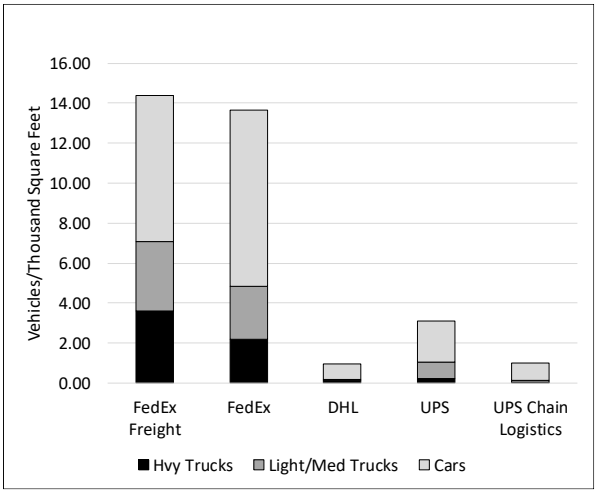


Exhibit 12 shows a data plot of daily vehicle trips of five parcel hubs against building size. As shown, a linear best fit was negative. During the collection of traffic data, construction activity was observed at the FedEx site potentially tainting the validity of these data to represent typical trip generation characteristics. To determine if the trip generation at this site was contributing to the poor data correlation, Exhibit 13 displays the same daily data plot without the FedEx site. The linear best fit shows a positive slope, but remains almost flat effectively indicating no correlation between the daily trips and building size based on the analysis of these sites.

The basic premise of the ITE trip generation approach is that the number of trips generated by a project is proportional to its size. That premise does not hold true for the parcel hubs in this sample and so no meaningful trip generation rates could be determined based on the data collected in support of this study. It should be recognized that a sample size of four or five sites represents the minimum recommended by ITE for valid trip generation studies, and for this reason, it is recommended that additional sites would need to be investigated and included in the data set to develop a more definitive finding on trip generation rates. Furthermore, it may be appropriate to determine the specific function at each site, due to the disparity between the rates observed at the FedEx sites versus the other three sites. It is likely that the function served by the respective sites is significantly different, as reflected in the trip generation rates, thereby necessitating reclassification of these uses for comparative purposes.

Exhibit 12: Data Plot for Daily Total Vehicle Trip Ends against Building Size (Parcel Hubs)

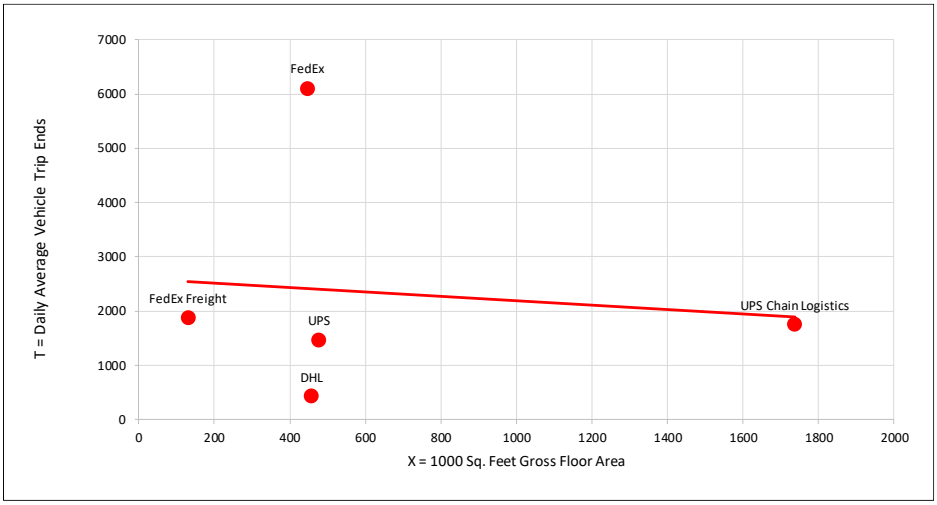
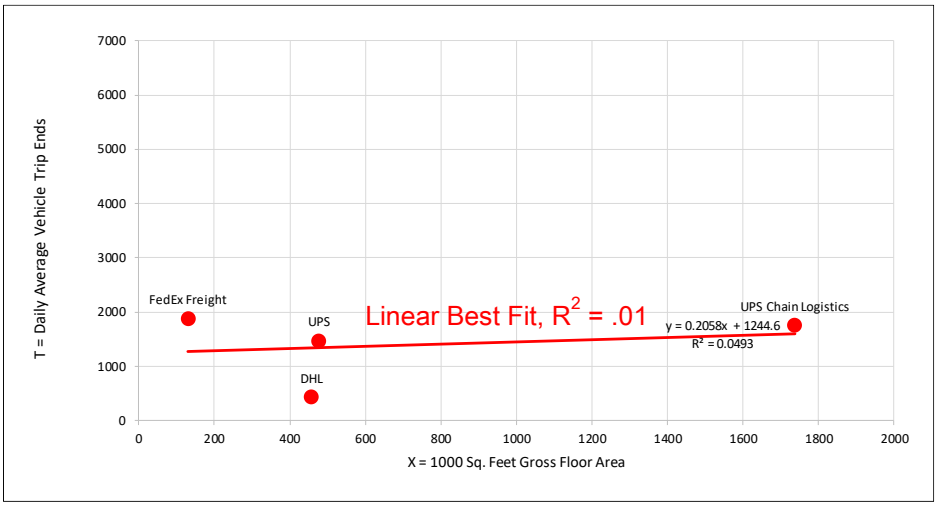


Exhibit 13: Data Plot for Daily Vehicle Trip Ends against Building Size without Construction Site



Conclusions

Our survey of 11 fulfillment centers produced trip generation rates based on the gross floor area of the sites that satisfies ITE's standards for use. The findings of the study indicate that the daily trip generation rates for fulfillment centers is approximately 2.1 trips per thousand square feet of gross floor area, which is roughly 50% higher than the comparable rate for conventional transload and short term storage warehouses previously defined in the ITE *Trip Generation Manual* Version 10. The results of the study further indicate that the higher rates were entirely due to more cars traffic at these sites; the trip generation rates for trucks was found to comparable to those at conventional warehouses.

Employment data were available for eight out of 11 fulfillment center sites. This provided the ability to determine trip generation rates per employee. The study results indicate that that trip generation for fulfillment centers is approximately 2.0 trips per employee. The study also found that the trip generation rate per employee correlated more closely that the trip generation rate per thousand square feet of gross floor area.

The data from the five parcel hubs did not show any statistically meaningful relationship between trips and building size. Therefore, no trip generation rate could be calculated. However, the data collected at these sites may provide a useful basis for further comparison with additional sites to provide more data points for analysis.

Attachment B – Raw Traffic Counts

Project Folder Counts Link
Google Map Link

Location #	Location Name	Type	Daily/AM/PM	Driveway 1 IN Vehicle Class						Driveway 1 OUT Vehicle Class					
				1	2	3	4	5	Total	1	2	3	4	5	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily	564	8	3	8	28	611	449	7	1	4	14	475
			AM	38	0	0	0	4	42	3	0	0	1	1	88
			PM	91	0	1	1	0	93	86	0	0	1	1	88
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	0	0	0	0	0	0	1	0	0	0	0	2
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
3	Lineage logistics	Fulfillment Center	Daily	109	2	0	0	0	111	256	4	0	0	2	261
			AM	2	0	0	0	0	2	2	0	0	0	0	2
			PM	2	0	0	0	0	2	6	0	0	0	0	6
4	P&G	Fulfillment Center	Daily	8	12	75	0	269	365	0	0	0	0	0	0
			AM	1	0	3	0	17	20	0	0	0	0	0	0
			PM	0	0	4	0	6	10	0	0	0	0	0	0
5	Big 5 Distribution Center	Fulfillment Center	Daily	1	0	0	0	0	1	342	1	0	0	0	343
			AM	0	0	0	0	0	0	5	0	0	0	0	5
			PM	0	0	0	0	0	0	36	0	0	0	0	36
6	Nestle USA Distribution Center	Fulfillment Center	Daily	0	1	0	0	0	1	37	8	26	9	104	185
			AM	0	0	0	0	0	0	0	1	1	1	4	7
			PM	0	0	0	0	0	0	1	0	1	0	6	9
7	The Home Depot Distribution Center	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily	152	1	0	0	0	153	153	1	0	0	0	154
			AM	10	0	0	0	0	10	1	0	0	0	0	1
			PM	0	0	0	0	0	0	0	0	0	0	0	0
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily	225	22	17	4	25	293	225	15	11	11	30	293
			AM	10	1	1	0	1	13	1	0	1	1	2	5
			PM	2	0	1	1	1	5	5	1	0	0	2	7
11	Ross Distribution Center	Fulfillment Center	Daily	378	0	0	0	0	378	471	0	0	0	0	471
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
12	UPS Riverside	Parcel Hub	Daily	40	1	0	0	0	42	33	3	0	1	0	37
			AM	2	0	0	0	0	2	1	0	0	0	0	1
			PM	1	0	0	0	0	1	1	0	0	0	0	1
13	FedEx 330 Resource Dr	Parcel Hub	Daily	10	0	1	0	3	15	62	148	325	126	628	1,289
			AM	0	0	0	0	0	0	2	5	10	3	29	49
			PM	0	0	0	0	0	0	0	2	16	6	16	40
14	Fedex Freight	Parcel Hub	Daily	390	8	60	106	154	718	397	7	44	106	177	731
			AM	16	1	3	0	7	26	16	0	5	1	7	29
			PM	17	0	0	22	0	40	16	1	1	5	1	24
15	UPS Supply Chain Logistics	Parcel Hub	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily	25	5	2	4	20	55	27	6	1	5	21	58
			AM	6	0	0	0	1	7	0	0	0	0	2	2
			PM	0	0	0	1	1	2	1	0	0	0	1	2

Location #	Location Name	Type	Daily/AM/PM	Driveway 2 IN Vehicle Class						Driveway 2 OUT Vehicle Class					
				1	2	3	4	5	Total	1	2	3	4	5	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily	234	8	1	1	4	249	66	3	1	3	7	80
			AM	13	0	0	0	0	13	1	0	0	0	0	2
			PM	29	0	0	0	0	30	5	0	1	0	0	6
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	40	0	1	0	0	42	6	0	1	0	0	7
			AM	11	0	0	0	0	11	0	0	0	0	0	0
			PM	1	0	0	0	0	1	0	0	0	0	0	0
3	Lineage logistics	Fulfillment Center	Daily	217	12	73	0	178	480	70	10	76	0	174	331
			AM	3	2	0	0	9	14	0	0	5	0	2	7
			PM	7	0	5	0	4	17	3	0	1	0	9	13
4	P&G	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
5	Big 5 Distribution Center	Fulfillment Center	Daily	452	2	0	0	0	454	112	1	0	0	0	113
			AM	28	0	0	0	0	28	0	0	0	0	0	1
			PM	3	0	0	0	0	3	7	0	0	0	0	7
6	Nestle USA Distribution Center	Fulfillment Center	Daily	202	4	0	0	1	207	199	4	0	0	0	203
			AM	6	0	0	0	0	6	2	0	0	0	0	3
			PM	1	0	0	0	0	1	5	0	0	0	0	5
7	The Home Depot Distribution Center	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily	131	3	0	0	0	134	131	3	0	0	0	134
			AM	5	0	0	0	0	6	2	1	0	0	0	2
			PM	1	0	0	0	0	1	13	0	0	0	0	13
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily	44	23	6	25	40	138	44	21	7	26	40	138
			AM	3	1	0	2	5	11	0	1	1	2	2	6
			PM	1	0	0	0	1	2	2	0	0	1	0	3
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily	53	0	0	0	0	53	53	0	0	0	0	53
			AM	2	0	0	0	0	2	1	0	0	0	0	1
			PM	0	0	0	0	0	0	0	0	0	0	0	0
11	Ross Distribution Center	Fulfillment Center	Daily	1,592	3	1	0	0	1,596	3	0	0	0	0	3
			AM	26	0	0	0	0	26	0	0	0	0	0	0
			PM	4	0	0	0	0	4	0	0	0	0	0	0
12	UPS Riverside	Parcel Hub	Daily	61	10	1	2	6	81	48	8	2	2	5	65
			AM	5	1	0	0	0	6	0	1	0	0	0	1
			PM	1	0	0	0	0	2	3	0	0	1	0	4
13	FedEx 330 Resource Dr	Parcel Hub	Daily	72	144	505	145	679	1,545	16	1	2	0	4	23
			AM	10	8	29	2	23	71	3	0	0	0	0	3
			PM	4	28	17	8	29	86	1	0	0	0	0	1
14	Fedex Freight	Parcel Hub	Daily												
			AM												
			PM												
15	UPS Supply Chain Logistics	Parcel Hub	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily	49	2	0	0	0	52	46	1	0	0	0	47
			AM	1	0	0	0	0	2	1	0	0	0	0	1
			PM	0	0	0	0	0	0	1	0	0	0	0	1

Location #	Location Name	Type	Daily/AM/PM	Driveway 3 IN Vehicle Class						Driveway 3 OUT Vehicle Class					
				1	2	3	4	5	Total	1	2	3	4	5	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily	378	8	8	10	23	427	588	7	6	9	30	640
			AM	19	1	1	0	1	22	3	1	0	0	0	4
			PM	53	1	1	0	2	57	176	0	0	1	3	181
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	127	0	0	0	0	128	184	1	0	0	0	184
			AM	61	0	0	0	0	61	5	0	0	0	0	5
			PM	7	0	0	0	0	7	27	0	0	0	0	27
3	Lineage logistics	Fulfillment Center	Daily	129	0	0	0	0	130	125	0	0	0	0	126
			AM	3	0	0	0	0	3	2	0	0	0	0	2
			PM	2	0	0	0	0	2	5	0	0	0	0	5
4	P&G	Fulfillment Center	Daily	53	0	0	0	0	53	53	0	0	0	0	53
			AM	2	0	0	0	0	2	2	0	0	0	0	2
			PM	3	0	0	0	0	3	4	0	0	0	0	0
5	Big 5 Distribution Center	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
6	Nestle USA Distribution Center	Fulfillment Center	Daily	43	11	26	4	107	192	1	0	1	0	1	3
			AM	1	1	1	0	8	11	0	0	0	0	0	0
			PM	1	0	2	1	4	7	0	0	0	0	0	0
7	The Home Depot Distribution Center	Fulfillment Center	Daily	69	58	124	29	167	448	68	64	127	29	161	449
			AM	2	5	5	2	7	21	2	7	6	2	7	24
			PM	4	2	7	1	9	23	3	2	6	1	11	23
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
11	Ross Distribution Center	Fulfillment Center	Daily	1	0	0	0	0	1	1,512	4	1	0	0	1,517
			AM	0	0	0	0	0	0	11	0	0	0	0	11
			PM	0	0	0	0	0	0	19	0	0	0	0	19
12	UPS Riverside	Parcel Hub	Daily	28	0	0	0	0	29	48	0	0	0	1	49
			AM	3	0	0	0	0	3	0	0	0	0	0	0
			PM	0	0	0	0	0	0	4	0	0	0	0	4
13	FedEx 330 Resource Dr	Parcel Hub	Daily	1,108	13	5	0	2	1,128	1,093	13	5	0	2	1,113
			AM	42	0	0	0	1	43	27	0	0	0	1	28
			PM	7	2	1	0	0	10	29	2	1	0	0	31
14	Fedex Freight	Parcel Hub	Daily												
			AM												
			PM												
15	UPS Supply Chain Logistics	Parcel Hub	Daily	194	2	1	0	0	197	195	2	1	0	0	198
			AM	25	0	0	0	0	25	2	0	0	0	0	2
			PM	3	0	0	0	0	3	17	0	0	0	0	17
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily												
			AM												
			PM												

Location #	Location Name	Type	Daily/AM/PM	Driveway 4 IN Vehicle Class						Driveway 4 OUT Vehicle Class					
				1	2	3	4	5	Total	1	2	3	4	5	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily	67	11	32	4	62	176	162	23	25	8	81	299
			AM	5	1	1	0	2	10	0	1	0	0	4	6
			PM	5	0	3	0	3	11	64	1	1	0	8	73
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	0	0	0	0	0	0	88	1	0	0	0	89
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	12	0	0	0	0	12
3	Lineage logistics	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
4	P&G	Fulfillment Center	Daily	0	0	0	0	0	0	652	2	0	0	0	654
			AM	0	0	0	0	0	0	65	0	0	0	0	65
			PM	0	0	0	0	0	0	65	0	0	0	0	65
5	Big 5 Distribution Center	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
6	Nestle USA Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
7	The Home Depot Distribution Center	Fulfillment Center	Daily	246	4	0	0	0	251	240	5	0	0	0	244
			AM	9	0	0	0	0	9	1	0	0	0	0	1
			PM	2	0	0	0	0	2	9	0	0	0	0	9
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily												
			AM												
			PM												
11	Ross Distribution Center	Fulfillment Center	Daily	10	15	75	1	243	344	9	13	97	1	222	342
			AM	0	1	4	0	6	11	0	1	1	0	11	14
			PM	0	1	2	0	12	15	1	1	7	0	10	18
12	UPS Riverside	Parcel Hub	Daily	3	0	0	0	0	4	3	0	1	0	0	4
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
13	FedEx 330 Resource Dr	Parcel Hub	Daily	218	0	0	0	0	218	214	0	0	0	0	214
			AM	6	0	0	0	0	6	7	0	0	0	0	7
			PM	3	0	0	0	0	3	4	0	0	0	0	4
14	Fedex Freight	Parcel Hub	Daily												
			AM												
			PM												
15	UPS Supply Chain Logistics	Parcel Hub	Daily	203	20	33	6	81	343	183	14	30	7	83	317
			AM	19	1	2	0	3	25	5	1	1	0	6	13
			PM	6	0	1	1	5	13	17	1	2	0	1	21
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily												
			AM												
			PM												

Location #	Location Name	Type	Daily/AM/PM	Driveway 5 IN Vehicle Class						Driveway 5 OUT Vehicle Class					
				1	2	3	4	5	Total	1	2	3	4	5	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily	159	5	1	0	1	166	95	2	0	0	0	98
			AM	14	0	0	0	0	15	1	0	0	0	0	1
			PM	6	1	0	0	0	7	22	0	0	0	0	22
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	834	2	0	0	0	837	683	2	0	0	0	684
			AM	130	0	0	0	0	131	16	0	0	0	0	16
			PM	46	0	0	0	0	46	90	0	0	0	0	90
3	Lineage logistics	Fulfillment Center	Daily												
			AM												
			PM												
4	P&G	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
5	Big 5 Distribution Center	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
6	Nestle USA Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
7	The Home Depot Distribution Center	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily	81	13	20	4	40	158	83	13	10	8	46	160
			AM	13	1	2	0	2	18	6	1	0	0	3	10
			PM	1	0	1	0	0	2	5	0	1	1	1	8
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily												
			AM												
			PM												
11	Ross Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
12	UPS Riverside	Parcel Hub	Daily												
			AM												
			PM												
13	FedEx 330 Resource Dr	Parcel Hub	Daily	137	0	0	0	0	137	611	2	0	0	0	613
			AM	7	0	0	0	0	7	19	0	0	0	0	19
			PM	3	0	0	0	0	3	18	0	0	0	0	18
14	Fedex Freight	Parcel Hub	Daily												
			AM												
			PM												
15	UPS Supply Chain Logistics	Parcel Hub	Daily	371	52	12	10	52	497	389	58	13	15	48	523
			AM	71	1	0	1	5	78	5	0	1	0	1	7
			PM	5	2	1	1	3	12	76	5	0	2	5	88
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily												
			AM												
			PM												

Location #	Location Name	Type	Daily/AM/PM	Driveway 6 IN Vehicle Class						Driveway 6 OUT Vehicle Class					
				1	2	3	4	5	Total	1	2	3	4	5	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily	81	1	0	0	0	82	81	1	0	0	0	82
			AM	2	0	0	0	0	2	2	0	0	0	0	2
			PM	29	0	0	0	0	29	29	0	0	0	0	29
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	345	0	0	0	0	345	249	1	0	0	0	250
			AM	106	0	0	0	0	106	6	0	0	0	0	6
			PM	32	0	0	0	0	32	38	0	0	0	0	38
3	Lineage logistics	Fulfillment Center	Daily												
			AM												
			PM												
4	P&G	Fulfillment Center	Daily	644	2	0	0	0	646	0	0	0	0	0	0
			AM	25	0	0	0	0	26	0	0	0	0	0	0
			PM	107	0	0	0	0	107	0	0	0	0	0	0
5	Big 5 Distribution Center	Fulfillment Center	Daily	5	13	33	36	31	118	6	24	32	16	41	118
			AM	0	2	1	0	0	4	0	1	1	3	1	6
			PM	0	0	0	0	2	2	0	0	1	0	0	1
6	Nestle USA Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
7	The Home Depot Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily												
			AM												
			PM												
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily												
			AM												
			PM												
11	Ross Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
12	UPS Riverside	Parcel Hub	Daily												
			AM												
			PM												
13	FedEx 330 Resource Dr	Parcel Hub	Daily	1,387	4	0	0	0	1,391	909	1	0	0	0	910
			AM	52	0	0	0	0	52	40	0	0	0	0	40
			PM	25	0	0	0	0	25	32	0	0	0	0	32
14	Fedex Freight	Parcel Hub	Daily												
			AM												
			PM												
15	UPS Supply Chain Logistics	Parcel Hub	Daily	19	2	0	0	0	20	21	1	0	0	0	22
			AM	5	0	0	0	0	5	1	0	0	0	0	1
			PM	0	0	0	0	0	0	3	0	0	0	0	3
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily												
			AM												
			PM												

Location #	Location Name	Type	Daily/AM/PM	Driveway 7 IN Vehicle Class						Driveway 7 OUT Vehicle Class					
				1	2	3	4	5	Total	1	2	3	4	5	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily												
			AM												
			PM												
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	6	18	59	3	66	151	6	19	43	4	79	150
			AM	0	2	1	0	5	7	0	0	2	0	3	5
			PM	0	1	2	0	2	5	0	2	1	0	5	8
3	Lineage logistics	Fulfillment Center	Daily												
			AM												
			PM												
4	P&G	Fulfillment Center	Daily	0	0	0	0	0	0	8	10	81	2	265	367
			AM	0	0	0	0	0	0	0	0	2	0	9	11
			PM	0	0	0	0	0	0	0	0	2	0	9	11
5	Big 5 Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
6	Nestle USA Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
7	The Home Depot Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily												
			AM												
			PM												
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily												
			AM												
			PM												
11	Ross Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
12	UPS Riverside	Parcel Hub	Daily												
			AM												
			PM												
13	FedEx 330 Resource Dr	Parcel Hub	Daily												
			AM												
			PM												
14	Fedex Freight	Parcel Hub	Daily												
			AM												
			PM												
15	UPS Supply Chain Logistics	Parcel Hub	Daily												
			AM												
			PM												
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily												
			AM												
			PM												

Location #	Location Name	Type	Daily/AM/PM	Driveway 8 IN Vehicle Class						Driveway 8 OUT Vehicle Class					
				1	2	3	4	5	Total	1	2	3	4	5	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily												
			AM												
			PM												
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	1	0	0	0	0	1	111	0	0	0	0	111
			AM	0	0	0	0	0	0	1	0	0	0	0	1
			PM	0	0	0	0	0	0	7	0	0	0	0	7
3	Lineage logistics	Fulfillment Center	Daily												
			AM												
			PM												
4	P&G	Fulfillment Center	Daily												
			AM												
			PM												
5	Big 5 Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
6	Nestle USA Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
7	The Home Depot Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily												
			AM												
			PM												
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily												
			AM												
			PM												
11	Ross Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
12	UPS Riverside	Parcel Hub	Daily												
			AM												
			PM												
13	FedEx 330 Resource Dr	Parcel Hub	Daily												
			AM												
			PM												
14	Fedex Freight	Parcel Hub	Daily												
			AM												
			PM												
15	UPS Supply Chain Logistics	Parcel Hub	Daily												
			AM												
			PM												
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily												
			AM												
			PM												

Location #	Location Name	Type	Daily/AM/PM	Driveway 9 IN Vehicle Class						Driveway 9 OUT Vehicle Class					
				1	2	3	4	5	Total	1	2	3	4	5	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily												
			AM												
			PM												
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	1
			AM	0	0	0	0	0	0	0	0	0	0	0	0
			PM	0	0	0	0	0	0	0	0	0	0	0	0
3	Lineage logistics	Fulfillment Center	Daily												
			AM												
			PM												
4	P&G	Fulfillment Center	Daily												
			AM												
			PM												
5	Big 5 Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
6	Nestle USA Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
7	The Home Depot Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily												
			AM												
			PM												
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily												
			AM												
			PM												
11	Ross Distribution Center	Fulfillment Center	Daily												
			AM												
			PM												
12	UPS Riverside	Parcel Hub	Daily												
			AM												
			PM												
13	FedEx 330 Resource Dr	Parcel Hub	Daily												
			AM												
			PM												
14	Fedex Freight	Parcel Hub	Daily												
			AM												
			PM												
15	UPS Supply Chain Logistics	Parcel Hub	Daily												
			AM												
			PM												
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily												
			AM												
			PM												

Location #	Location Name	Type	Daily/AM/PM	Driveway 10 IN Vehicle Class						Driveway 10 OUT Vehicle Class											
				1	2	3	4	5	Total	1	2	3	4	5	Total	Cars	2-Axle	3-Axle	4-Axle	5-Axle	Total
1	Walmart Fulfillment Center	Fulfillment Center	Daily													2,925	83	79	47	250	3,384
			AM													101	5	4	1	12	207
			PM													597	2	6	3	18	625
2	ONT6 Amazon Warehouse	Fulfillment Center	Daily	0	0	0	0	0	0	0	0	0	0	0	0	2,682	43	105	6	145	2,982
			AM	0	0	0	0	0	0	0	0	0	0	0	0	337	3	3	0	7	350
			PM	0	0	0	0	0	0	0	0	0	0	0	0	261	3	3	0	7	273
3	Lineage logistics	Fulfillment Center	Daily													907	29	149	0	354	1,439
			AM													12	2	5	0	11	30
			PM													25	1	6	0	13	45
4	P&G	Fulfillment Center	Daily													1,418	27	157	2	534	2,139
			AM													95	1	5	0	25	127
			PM													180	0	7	0	15	197
5	Big 5 Distribution Center	Fulfillment Center	Daily													918	40	65	52	72	1,147
			AM													34	3	2	3	2	44
			PM													46	0	1	0	2	49
6	Nestle USA Distribution Center	Fulfillment Center	Daily													483	27	54	13	213	790
			AM													10	2	2	1	11	27
			PM													7	0	3	1	9	21
7	The Home Depot Distribution Center	Fulfillment Center	Daily													624	131	251	58	328	1,392
			AM													14	12	11	3	14	55
			PM													18	3	14	2	20	57
8	ACT Fulfillment - Corporate Office	Fulfillment Center	Daily													427	32	30	11	86	587
			AM													26	2	2	0	6	37
			PM													20	1	2	1	1	24
9	Petco Animal Supplies - Mira Loma Distribution Center	Fulfillment Center	Daily													392	47	13	51	80	582
			AM													14	2	1	3	7	28
			PM													3	1	0	1	1	5
10	Komar Distribution Services (facility 1)	Fulfillment Center	Daily													557	38	28	15	55	692
			AM													15	1	2	1	3	21
			PM													7	1	1	1	3	13
11	Ross Distribution Center	Fulfillment Center	Daily													3,975	35	173	3	465	4,651
			AM													38	2	6	0	17	63
			PM													24	1	9	0	22	57
12	UPS Riverside	Parcel Hub	Daily													265	23	5	6	12	311
			AM													11	2	0	0	0	13
			PM													10	0	1	1	1	12
13	FedEx 330 Resource Dr	Parcel Hub	Daily													5,838	326	844	272	1,317	8,597
			AM													215	14	40	4	54	327
			PM													124	34	34	14	45	252
14	Fedex Freight	Parcel Hub	Daily													787	15	104	212	331	1,449
			AM													31	1	8	2	13	55
			PM													33	1	2	27	1	64
15	UPS Supply Chain Logistics	Parcel Hub	Daily													1,576	150	89	39	264	2,118
			AM													133	3	4	1	16	157
			PM													128	8	4	3	14	157
16	DHL Supply Chain - Recruiting Center	Parcel Hub	Daily													146	14	3	9	40	213
			AM													9	1	0	0	3	12
			PM													2	0	0	1	1	5

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: TUMF Nexus Study Activities Update

Contact: Chris Gray, Deputy Executive Director, cgray@wrcog.us, (951) 405-6710

Date: December 14, 2023

Recommended Action(s):

1. Receive and file.

Summary:

The TUMF Nexus Study draws a connection between the needs of the Program and the TUMF Program Fee Schedule. This Nexus Study identifies projects requiring mitigation from new development, determines what the cost of those projects will be, and what fees need to be assessed to fund these projects. Recent analysis through transportation modeling work has determined a list of projects eligible for mitigation. This list includes freeway interchanges, arterial widenings, bridges, and grade separations. WRCOG staff will present the updated list of eligible projects, discuss project cost revisions, and the eligibility of Intelligent Transportation System (ITS) costs.

Purpose / WRCOG 2022-2027 Strategic Plan Goal:

The purpose of this item is to provide updated study results showing which projects are eligible for funding in the TUMF Program. This effort aligns with WRCOG's 2022-2027 Strategic Plan Goal #5 (Develop projects and programs that improve infrastructure and sustainable development in our subregion).

Discussion:

Background

At its October 4, 2021, meeting, the Executive Committee gave direction for staff to begin work on a TUMF Nexus Study update. The TUMF Nexus Study draws a connection between the needs of the Program and the TUMF Program Fee Schedule. This Nexus Study identifies projects requiring mitigation from new development, determines what the cost of those projects will be, and which fees need to be assessed to fund these projects. TUMF Nexus Study updates have occurred on a regular basis with updates done in 2005, 2009, 2011, and 2017.

The key reasons for a Nexus Study update include the following:

- It is considered a best practice to update on a regular basis
- Underlying growth forecasts have changed since the last update
- Travel behavior has changed, particularly viewed in light of COVID-19
- The project list has changed, with past projects completed and new projects identified
- Opportunity to add new project types, such as ITS infrastructure

Staff and consultants have worked to update the three key elements of the Nexus Study:

1. Land use forecasts
2. List of TUMF projects
3. Project cost estimates

Present Situation

Land Use Forecasts: The updated Nexus Study uses the land use forecasts for the region developed during the SCAG Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS) adopted in 2020. The 2017 Nexus Study uses the SCAG RTP/SCS from 2016. WRCOG, consultants, and member agencies conducted a detailed review of the SCAG data at the Traffic Analysis Zone (TAZ) level to verify that the existing and projected distributions matched local data.

The forecasts done for the 2020 RTP/SCS differ from the forecasts for the 2016 RTP/SCS. While the growth in population has remained steady from the 2016 RTP/SCS forecast, the growth in employment has declined in the 2020 study. As changes in employment directly impact traffic modeling, this will have an impact on the level of mitigation needed when compared with the previous Nexus Study.

Roadway Network: Since 2021, staff has been working with local agencies to update the needs of the TUMF Network. Staff has met with representatives of all TUMF Program participating agencies. Each agency has had an opportunity to make revisions, corrections, and additions to the TUMF Network. WRCOG has met with all of WRCOG's member agencies which have submitted requests for additions and changes to the Network.

Since 2021, WRCOG staff has been working with local agencies on potential updates to the Nexus Study. The process to include projects in the updated Nexus Study is as follows:

1. WRCOG member agency requests that a project be added.
2. The Nexus Study consultant includes the proposed project in the Nexus Study travel demand model.
3. WRCOG staff and consultants evaluate the project against objective criteria such as traffic volume, volume to capacity (V/C) ratio, and number of future lanes. Projects must have a minimum of four lanes to be included in the Nexus Study.
4. If the proposed project meets the above criteria, then the project is included in the Nexus Study project list.

This process has been completed. An analysis on all TUMF facilities has been evaluated with results shared with the Public Works Committee (PWC) on October 12, 2023. Facilities with a V/C ratio over 0.9 would be eligible for funding. The analysis shows that some facilities previously eligible in 2017 may no longer be eligible. For bridges, eligibility is connected to the eligibility of the segment in which it resides. If a bridge is needed in an eligible segment, then that bridge will be added as an eligible project. Bridge

projects are separate projects from their corresponding segment and have separate projects costs. For interchanges, a comprehensive analysis was done analyzing the V/C ratio of all the ramps and overpasses / underpasses for each interchange.

WRCOG staff have met with several agencies to discuss the updated eligibility of the TUMF Network. Staff answered questions on individual segments, the modeling results, and eligibility determination. There were some inconsistencies and errors in the analysis. These have been corrected and full lists are now presented to the PWC. Attachment 1 to this Staff Report shows all eligible facilities in the network along with the recommended improvements. To assist in review, WRCOG staff created maps by TUMF Zone showing the eligibility of the Network. The map also points out segments that either dropped eligibility from the 2017 Nexus Study to today, or gained eligibility in the Nexus Study update. These maps are included in Attachment 2. Attachment 3 provides a summary of all Network change requests from member agencies, including roadway segments, interchanges, bridges, and ITS improvements.

Project Costs: A study has been completed to determine the average cost of facilities in the TUMF Program. The study analyzed recent project bids from nearby regions. The Nexus Study assigns an average cost for a facility based on several general factors of a project. These factors include terrain, land use, complexity of an interchange, length of a bridge. These costs will determine the overall program cost which would in turn would determine the appropriate fee for mitigation. Michael Baker International is currently updating the unit costs previously identified and that work should be completed by December 31, 2023.

ITS: The Nexus Study update includes a change to specifically allow ITS improvements to be an eligible cost in the Program. Additionally, if a deficient corridor is in need of mitigation, but is constrained from widening due to right-of-way constraints, funding can be allocated for ITS improvements only. The Nexus Study project cost for such a facility would reflect only the eligible ITS improvements and not further widening. ITS corridors are addressed in Attachments 1 and 3.

Facilities losing eligibility: WRCOG will honor all allocations in both the Zone Transportation Improvement Programs (TIPs) and reimbursement agreements, despite findings in the Nexus Study update deeming projects ineligible. However, once a project is ineligible it cannot receive further funding requests. If additional funding is needed that has not been identified in the TIP, it would be important for the local agency to request those funds in the annual TIP process prior to the adoption of the Nexus Study update. In addition, those projects that are allocated on the TIP, but do not already have reimbursement agreements, should establish a reimbursement agreement as soon as possible to avoid those funds falling out of subsequent TIPs.

Prior Action(s):

October 12, 2023*:* The Public Works Committee received and filed.

August 10, 2023: The Public Works Committee received and filed.

June 8, 2023: The Public Works Committee received and filed.

April 13, 2023: The Public Works Committee approved the updated TUMF Nexus Study Roadway

Network.

July 11, 2022: The Executive Committee received and filed.

March 17, 2022: The Technical Advisory Committee received and filed.

March 10, 2022: The Public Works Committee received and filed.

October 4, 2021: The Executive Committee gave direction to 1) begin work on a TUMF Nexus Study update; 2) update the TUMF Administrative Plan to expand the TUMF-eligible project list to include Intelligent Transportation Systems projects; 3) work with the Riverside County Transportation Commission and Riverside Transit Agency to evaluate options to mitigate VMT impacts from new development outside of the TUMF Nexus Study update; and 4) begin work on an update of the Analysis of Development Impact Fees in Western Riverside County.

Financial Summary:

Funding for TUMF activities is included in the Fiscal Year 2023/2024 budget under the TUMF Program (1148) in the General Fund (110). 4% of all TUMF collections are allocated for administrative purposes.

Attachment(s):

Attachment 1 - Nexus Study Project List

Attachment 2 - TUMF Network Maps

Attachment 3 - Nexus Study Project Requests

Attachment

Nexus Study Project List

Zone	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	NETWORK	MILES	EXISTING LANES	FUTURE LANES	% COMPLETE	TOPO	LANDUSE	INTERCHG	BRIDGE	ITS	% EXIST NEED	EXIST V/C	FUTURE V/C	TUMF V/C SHARE
Pass	Banning	8th	Wilson	I-10	Secondary	0.54	2	2	0%	1	2	0	0	0	0%	0.25	0.37	
Pass	Banning	Highland Springs	Cherry Valley	Oak Valley (14th)	Backbone	1.53	2	2	0%	1	2	0	0	0	0%	0.28	0.50	
Pass	Banning	Highland Springs	I-10	interchange	Backbone	0.00	0	0	0%	1	2	2	0	0	0%	1.16	1.43	52%
Pass	Banning	Highland Springs	Oak Valley (14th)	Wilson (8th)	Backbone	0.73	4	4	0%	1	2	0	0	0	0%	0.29	0.49	
Pass	Banning	Highland Springs	Wilson (8th)	Sun Lakes	Backbone	0.76	4	4	0%	1	2	0	0	0	0%	0.46	0.68	
Pass	Banning	I-10 Bypass South	I-10	Morongo Trail (Apache Trail)	Backbone	3.29	0	2	0%	1	2	0	0	0	0%	0.04	0.05	
Pass	Banning	I-10 Bypass South	I-10	interchange	Backbone	0.00	0	0	0%	1	2	2	0	0	0%	0.73	0.86	
Pass	Banning	I-10 Bypass South	San Gorgonio	bridge	Backbone	0.00	0	2	0%	1	2	0	300	0	0%	0.26	0.31	
Pass	Banning	I-10 Bypass South	UP/Hargrave	railroad crossing	Backbone	0.00	0	2	0%	1	2	0	0	0	0%	0.26	0.31	
Pass	Banning	Lincoln	Sunset	SR-243	Secondary	2.01	2	2	0%	1	2	0	0	0	0%	0.14	0.16	
Pass	Banning	Ramsey	8th	Highland Springs	Secondary	3.55	4	4	0%	1	2	0	0	0	0%	0.24	0.33	
Pass	Banning	Ramsey	I-10	8th	Secondary	1.70	2	2	0%	1	2	0	0	0	0%	0.10	0.13	
Pass	Banning	SR-243	I-10	Wesley	Secondary	0.62	2	2	0%	1	2	0	0	0	0%	0.31	0.46	
Pass	Banning	Sun Lakes	Highland Home	Sunset	Secondary	1.00	0	4	0%	1	2	0	0	0	0%	0.10	0.11	
Pass	Banning	Sun Lakes	Highland Springs	Highland Home	Secondary	1.33	4	4	0%	1	2	0	0	0	0%	0.04	0.05	
Pass	Banning	Sun Lakes	Montgomery Creek	bridge	Secondary	0.00	0	4	0%	1	2	0	200	0	0%	0.10	0.11	
Pass	Banning	Sun Lakes	Smith Creek	bridge	Secondary	0.00	0	4	0%	1	2	0	300	0	0%	0.10	0.11	
Pass	Banning	Sunset	I-10	interchange	Secondary	0.00	0	0	0%	1	2	3	0	0	0%	0.53	0.91	
Pass	Banning	Sunset	Ramsey	Lincoln	Secondary	0.28	2	2	0%	1	2	0	0	0	0%	0.13	0.23	
Pass	Banning	Wilson	Highland Home	8th	Secondary	2.51	4	4	0%	1	2	0	0	0	0%	0.06	0.12	
Pass	Banning	Wilson	Highland Springs	Highland Home	Secondary	1.01	4	4	100%	1	2	0	0	0	0%	0.14	0.24	
Pass	Beaumont	1st	Pennsylvania	Highland Springs	Secondary	1.10	2	2	0%	1	2	0	0	0	0%	0.51	0.71	
Pass	Beaumont	1st	Viele	Pennsylvania	Secondary	1.28	2	2	0%	1	2	0	0	0	0%	0.48	0.57	
Pass	Beaumont	6th	I-10	Highland Springs	Secondary	2.24	4	4	0%	1	2	0	0	0	0%	0.23	0.47	
Pass	Beaumont	Beaumont	Oak Valley (14th)	I-10	Backbone	1.37	4	4	0%	1	2	0	0	0	0%	0.31	0.37	
Pass	Beaumont	Desert Lawn	Champions	Oak Valley (STC)	Secondary	0.99	2	2	0%	1	3	0	0	0	0%	0.45	0.80	
Pass	Beaumont	Oak Valley (14th)	Highland Springs	Pennsylvania	Secondary	1.13	4	4	0%	2	3	0	0	0	0%	0.05	0.11	
Pass	Beaumont	Oak Valley (14th)	I-10	interchange	Secondary	0.00	0	0	0%	1	2	2	0	0	0%	0.90	1.14	99%
Pass	Beaumont	Oak Valley (14th)	Oak View	I-10	Secondary	0.65	4	4	50%	1	2	0	0	0	0%	0.69	1.04	
Pass	Beaumont	Oak Valley (14th)	Pennsylvania	Oak View	Secondary	1.40	4	4	0%	1	2	0	0	0	0%	0.14	0.26	
Pass	Beaumont	Oak Valley (STC)	Tukwet Canyon	I-10	Secondary	2.58	2	2	0%	1	3	0	0	0	0%	0.09	0.38	
Pass	Beaumont	Oak Valley (STC)	UP Railroad	Tukwet Canyon	Secondary	2.94	2	2	0%	2	3	0	0	0	0%	0.01	0.23	
Pass	Beaumont	Pennsylvania	6th	1st	Secondary	0.53	2	4	18%	1	2	0	0	0	0%	0.52	0.74	
Pass	Beaumont	Pennsylvania	I-10	interchange	Secondary	0.00	0	0	0%	1	2	0	0	0	0%	0.51	0.63	
Pass	Beaumont	Potrero	Noble Creek	bridge	Backbone	0.00	4	4	0%	1	3	0	500	0	0%	0.01	0.37	
Pass	Beaumont	Potrero	Oak Valley (San Timoteo Can	SR-60	Backbone	0.72	2	4	65%	1	3	0	0	0	0%	0.01	0.37	
Pass	Beaumont	Potrero	SR-60	interchange	Backbone	0.00	0	0	0%	1	3	2	0	0	0%	0.39	0.84	
Pass	Beaumont	Potrero	SR-60	4th	Backbone	0.45	4	4	0%	1	3	0	0	0	0%	0.01	0.25	
Pass	Beaumont	Potrero	UP	railroad crossing	Backbone	0.00	4	4	0%	1	3	0	0	0	0%	0.01	0.37	
Pass	Beaumont	SR-79 (Beaumont)	I-10	California	Backbone	1.15	4	4	0%	1	2	0	0	0	100%	1.05	1.18	46%
Pass	Beaumont	SR-79 (Beaumont)	I-10	interchange	Backbone	0.00	0	0	0%	1	2	2	0	0	0%	2.20	2.37	12%
Pass	Calimesa	Bryant	County Line	Avenue L	Secondary	0.38	2	2	0%	1	2	0	0	0	0%	0.38	0.61	
Pass	Calimesa	Calimesa	County Line	I-10	Secondary	0.80	4	4	0%	1	2	0	0	0	0%	0.13	0.38	
Pass	Calimesa	Calimesa	I-10	interchange	Secondary	0.00	0	0	0%	1	2	2	0	0	0%	0.54	1.59	
Pass	Calimesa	Cherry Valley	I-10	interchange	Backbone	0.00	0	0	0%	1	3	2	0	0	0%	0.93	1.51	95%
Pass	Calimesa	Cherry Valley	Roberts	Desert Lawn	Backbone	0.75	2	2	0%	1	3	0	0	0	0%	0.71	1.37	
Pass	Calimesa	County Line	7th	Bryant	Secondary	1.83	2	2	0%	1	2	0	0	0	13%	0.54	0.71	
Pass	Calimesa	County Line	I-10	interchange	Secondary	0.00	0	0	0%	1	2	3	0	0	0%	0.88	1.26	
Pass	Calimesa	Desert Lawn	Palmer	Champions	Secondary	1.42	2	2	0%	1	3	0	0	0	0%	0.04	0.44	
Pass	Calimesa	Singleton	Avenue L	Condit	Secondary	1.86	4	4	0%	2	3	0	0	0	0%	0.43	0.64	
Pass	Calimesa	Singleton	Condit	Roberts	Secondary	0.85	2	4	0%	1	2	0	0	0	0%	0.74	1.14	
Pass	Calimesa	Singleton	I-10	interchange	Secondary	0.00	0	0	0%	1	2	2	0	0	0%	1.04	0.99	0%
Pass	Calimesa	Tukwet Canyon	Roberts	Palmer	Secondary	0.50	4	4	0%	1	3	0	0	0	0%	0.71	1.37	
Southwest	Canyon Lake	Goetz	Railroad Canyon	Newport	Backbone	0.50	4	4	0%	2	2	0	0	0	0%	0.35	0.53	
Southwest	Canyon Lake	Railroad Canyon	Canyon Hills	Goetz	Backbone	1.95	6	6	0%	2	2	0	0	0	0%	0.71	0.94	
Northwest	Corona	6th	SR-91	Magnolia	Secondary	4.50	4	4	0%	1	1	0	0	0	0%	0.43	0.55	
Northwest	Corona	Auto Center	Railroad	SR-91	Secondary	0.48	4	4	0%	1	2	0	0	0	0%	0.31	0.32	
Northwest	Corona	Cajalco	Bedford Canyon	I-15	Secondary	0.15	4	4	0%	1	2	0	0	0	0%	0.51	0.79	
Northwest	Corona	Cajalco	I-15	Temescal Canyon	Backbone	0.50	4	4	0%	1	2	0	0	0	0%	0.47	0.62	
Northwest	Corona	Cajalco	I-15	interchange	Backbone	0.00	0	0	0%	1	2	0	0	0	0%	1.59	2.08	42%
Northwest	Corona	Foothill	California	I-15	Backbone	0.89	4	4	0%	1	2	0	0	0	0%	0.29	0.42	
Northwest	Corona	Foothill	Lincoln	California	Backbone	2.81	4	4	0%	1	2	0	0	0	0%	0.30	0.42	
Northwest	Corona	Foothill	Paseo Grande	Lincoln	Backbone	2.60	4	4	0%	3	3	0	0	0	0%	0.45	0.61	
Northwest	Corona	Foothill	Wardlow Wash	bridge	Backbone	0.00	4	4	0%	3	3	0	300	0	0%	0.47	0.63	
Northwest	Corona	Green River	Dominguez Ranch	Palisades	Backbone	0.56	6	6	0%	2	2	0	0	0	0%	0.53	0.60	
Northwest	Corona	Green River	Palisades	Paseo Grande	Backbone	2.01	4	4	0%	2	2	0	0	0	0%	0.66	0.77	
Northwest	Corona	Green River	SR-91	Dominguez Ranch	Backbone	0.52	6	6	0%	1	2	0	0	0	0%	0.53	0.61	
Northwest	Corona	Hidden Valley	Norco Hills	McKinley	Secondary	0.59	4	4	0%	2	2	0	0	0	0%	0.52	0.72	
Northwest	Corona	Lincoln	Parkridge	Ontario	Secondary	3.20	4	4	0%	1	2	0	0	0	0%	0.58	0.65	
Northwest	Corona	Magnolia	6th	Sherborn	Secondary	0.46	4	6	0%	1	2	0	0	0	100%	0.91	1.07	91%
Northwest	Corona	Magnolia	Rimpau	Ontario	Secondary	1.17	6	6	0%	1	2	0	0	0	0%	0.71	0.73	
Northwest	Corona	Magnolia	Sherborn	Rimpau	Secondary	0.53	6	6	0%	1	2	0	0	0	60%	0.93	1.04	77%
Northwest	Corona	Magnolia	Temescal Creek	bridge	Secondary	0.00	4	6	0%	1	2	0	300	0	0%	0.93	1.08	86%
Northwest	Corona	Main	Grand	Ontario	Secondary	0.88	2	2	0%	1	3	0	0	0	0%	0.78	0.81	
Northwest	Corona	Main	Hidden Valley	Parkridge	Secondary	0.35	4	6	0%	1	2	0	0	0	100%	0.94	1.12	83%
Northwest	Corona	Main	Ontario	Foothill	Secondary	0.89	4	4	0%	1	2	0	0	0	0%	0.40	0.50	
Northwest	Corona	Main	Parkridge	SR-91	Secondary	0.91	6	6	0%	1	1	0	0	0	8%	0.62	0.73	
Northwest	Corona	Main	SR-91	S. Grand	Secondary	0.81	4	4	0%	1	1	0	0	0	8%	0.66	0.65	
Northwest	Corona	McKinley	Arlington Channel	bridge	Secondary	0.00	6	6	0%	1	1	0	100	0	0%	0.81	0.89	
Northwest	Corona	McKinley	BNSF	railroad crossing	Secondary	0.00	4	4	0%	1	1	0	0	0	0%	0.81	0.89	
Northwest	Corona	McKinley	Hidden Valley	Promenade	Secondary	0.40	4	4	0%	1	2	0	0	0	0%	0.70	0.86	
Northwest	Corona	McKinley	Promenade	SR-91	Secondary	0.33	6	6	0%	1	1	0	0	0	0%	0.61	0.66	
Northwest	Corona	McKinley	SR-91	Magnolia	Secondary	0.31	4	4	0%	1	1	0	0	0	0%	0.76	0.81	
Northwest	Corona	Ontario	Buena Vista	Main	Secondary	0.65	6	6	0%	1	2	0	0	0	0%	0.47	0.47	
Northwest	Corona	Ontario	Fullerton	Rimpau	Secondary	0.42	6	6	0%	1	1	0	0	0	0%	0.36	0.49	
Northwest	Corona	Ontario	I-15	El Cerrito	Secondary	0.88	4	6	0%	1	2	0	0	0	32%	0.69	0.93	
Northwest	Corona	Ontario	Kellogg	Fullerton	Secondary	0.32	6	6	0%	1	1	0	0	0	0%	0.36	0.42	

Northwest	Corona	Ontario	Lincoln	Buena Vista	Secondary	0.32	4	4	0%	1	2	0	0	0	0%	0.67	0.71	
Northwest	Corona	Ontario	Main	Kellogg	Secondary	0.78	6	6	0%	1	1	0	0	0	0%	0.39	0.41	
Northwest	Corona	Ontario	Rimpau	I-15	Secondary	0.67	6	6	0%	1	1	0	0	0	7%	0.45	0.57	
Northwest	Corona	Railroad	Auto Club	Buena Vista	Secondary	2.45	4	4	0%	1	2	0	0	0	0%	0.26	0.30	
Northwest	Corona	Railroad	BNSF	railroad crossing	Secondary	0.00	4	4	0%	1	2	0	0	0	0%	0.31	0.34	
Northwest	Corona	Railroad	Buena Vista	Main (at Grand)	Secondary	0.58	2	2	0%	1	2	0	0	0	0%	0.69	0.73	
Northwest	Corona	River	Corydon	Main	Secondary	2.28	4	4	0%	1	2	0	0	0	25%	0.71	0.85	
Northwest	Corona	Serfas Club	SR-91	Green River	Secondary	0.96	4	4	0%	1	2	0	0	0	0%	0.58	0.59	
Northwest	Eastvale	Archibald	Remington	River	Secondary	3.40	4	4	82%	1	3	0	0	1	24%	0.62	0.93	
Northwest	Eastvale	Hamner	Amberhill	Limonite	Secondary	0.71	2	6	55%	1	3	0	0	0	0%	0.68	1.08	
Northwest	Eastvale	Hamner	Bellegrave	Amberhill	Secondary	0.20	6	6	0%	1	3	0	0	1	0%	0.57	1.16	
Northwest	Eastvale	Hamner	Limonite	Schleisman	Secondary	1.00	6	6	0%	1	3	0	0	1	0%	0.38	0.63	
Northwest	Eastvale	Hamner	Mission	Bellegrave	Secondary	3.03	2	6	60%	1	3	0	0	0	44%	0.86	1.30	
Northwest	Eastvale	Hamner	Schleisman	Santa Ana River	Secondary	0.82	2	6	23%	1	3	0	0	0	100%	1.24	1.41	33%
Northwest	Eastvale	Hellman	Cucamonga Creek	bridge	Secondary	0.00	2	4	0%	1	2	0	275	0	0%	0.69	1.44	
Northwest	Eastvale	Hellman	Schleisman	Walters	Secondary	0.55	2	4	81%	1	2	0	0	0	0%	0.86	1.69	
Northwest	Eastvale	Hellman	Walters	River	Secondary	1.41	2	4	0%	1	2	0	0	0	0%	0.69	1.44	
Northwest	Eastvale	Limonite	Archibald	Hellman (Keller SBD Co.)	Secondary	1.12	0	2	0%	1	3	0	0	0	0%	0.00	0.35	
Northwest	Eastvale	Limonite	Cucamonga Creek	bridge	Secondary	0.00	0	4	0%	1	3	0	500	0	0%	0.64	0.75	
Northwest	Eastvale	Limonite	Eastvale Gateway	Hamner	Secondary	0.26	6	6	0%	1	3	0	0	1	100%	0.95	1.36	90%
Northwest	Eastvale	Limonite	Hamner	Sumner	Secondary	1.00	4	6	75%	1	3	0	0	0	50%	0.80	1.16	
Northwest	Eastvale	Limonite	Harrison	Archibald	Secondary	0.49	4	4	0%	1	3	0	0	0	0%	0.55	0.70	
Northwest	Eastvale	Limonite	I-15	Eastvale Gateway	Secondary	0.29	6	6	0%	1	3	0	0	1	100%	0.93	1.32	92%
Northwest	Eastvale	Limonite	I-15	interchange	Secondary	0.00	0	0	0%	1	3	0	0	0	0%	0.67	1.07	
Northwest	Eastvale	Limonite	Sumner	Harrison	Secondary	0.50	6	6	0%	1	3	0	0	1	0%	0.77	0.97	
Northwest	Eastvale	River	Hellman	Archibald	Secondary	0.75	2	4	48%	1	2	0	0	0	0%	0.67	1.01	
Northwest	Eastvale	Schleisman	600' e/o Cucamonga Creek	Harrison	Backbone	0.87	6	6	0%	1	2	0	0	1	0%	0.69	1.17	
Northwest	Eastvale	Schleisman	A Street	Hamner	Backbone	0.27	4	6	0%	1	2	0	0	0	0%	0.50	0.84	
Northwest	Eastvale	Schleisman	Cucamonga Creek	bridge	Backbone	0.00	6	6	0%	1	2	0	200	0	0%	0.72	1.27	
Northwest	Eastvale	Schleisman	Harrison	Sumner	Backbone	0.49	4	4	0%	1	2	0	0	1	18%	0.62	0.96	
Northwest	Eastvale	Schleisman	San Bernardino County	600' e/o Cucamonga Creek	Backbone	0.65	6	6	0%	1	2	0	0	1	0%	0.65	1.23	
Northwest	Eastvale	Schleisman	Scholar	A Street	Backbone	0.31	5	6	0%	1	2	0	0	0	0%	0.50	0.80	
Northwest	Eastvale	Schleisman	Sumner	Scholar	Backbone	0.50	2	4	0%	1	2	0	0	0	0%	0.85	0.97	
San Jacint	Hemet	Domenigoni	Sanderson	State	Backbone	2.14	4	4	0%	1	3	0	0	0	0%	0.41	0.69	
San Jacint	Hemet	Domenigoni	Warren	Sanderson	Backbone	1.77	4	6	0%	1	3	0	0	0	0%	0.82	1.13	
San Jacint	Hemet	Sanderson	Acacia	Menlo	Secondary	0.98	4	4	0%	1	2	0	0	0	0%	0.74	0.92	
San Jacint	Hemet	Sanderson	Domenigoni	Stetson	Secondary	1.09	4	4	0%	1	2	0	0	0	26%	0.79	1.11	
San Jacint	Hemet	Sanderson	Menlo	Esplanade	Secondary	1.00	4	4	0%	1	2	0	0	0	0%	0.72	0.95	
San Jacint	Hemet	Sanderson	RR Crossing	Acacia	Secondary	0.42	4	4	0%	1	2	0	0	0	0%	0.82	0.97	
San Jacint	Hemet	Sanderson	Stetson	RR Crossing	Secondary	0.58	4	4	0%	1	2	0	0	0	0%	0.77	1.11	
San Jacint	Hemet	SR-74	Winchester	Warren	Backbone	2.59	4	6	11%	1	2	0	0	0	25%	0.83	1.05	
San Jacint	Hemet	SR-74 (Florida)	Columbia	Ramona	Secondary	2.58	4	4	0%	1	2	0	0	0	0%	0.47	0.57	
San Jacint	Hemet	SR-74 (Florida)	Warren	Cawston	Secondary	1.02	4	4	0%	1	2	0	0	0	0%	0.62	0.96	
San Jacint	Hemet	SR-74/SR-79 (Florida)	Cawston	Columbia	Secondary	4.03	4	4	0%	1	2	0	0	0	0%	0.38	0.63	
San Jacint	Hemet	State	Chambers	Stetson	Secondary	0.51	4	4	0%	1	2	0	0	0	0%	0.51	0.93	
San Jacint	Hemet	State	Domenigoni	Chambers	Secondary	1.31	4	4	0%	1	2	0	0	0	0%	0.44	0.92	
San Jacint	Hemet	State	Florida	Esplanade	Secondary	1.74	4	4	0%	1	2	0	0	0	0%	0.33	0.53	
San Jacint	Hemet	State	Stetson	Florida	Secondary	1.25	2	2	0%	1	1	0	0	0	0%	0.57	0.80	
San Jacint	Hemet	Stetson	Cawston	State	Secondary	2.52	4	4	0%	1	2	0	0	0	0%	0.49	0.68	
San Jacint	Hemet	Stetson	Warren	Cawston	Secondary	1.00	2	4	0%	1	3	0	0	0	0%	0.59	0.96	
San Jacint	Hemet	Warren	Esplanade	Domenigoni	Secondary	5.02	2	4	9%	1	3	0	0	0	31%	0.79	1.10	
San Jacint	Hemet	Warren	Salt Creek	bridge	Secondary	0.00	2	4	0%	1	3	0	300	0	0%	0.64	1.05	
Northwest	Jurupa Valley	Armstrong	San Bernardino County	Valley	Secondary	1.53	2	4	34%	2	3	0	0	0	33%	0.83	1.14	
Northwest	Jurupa Valley	Bellegrave	Cantu-Galleano Ranch	Van Buren	Secondary	0.29	2	4	63%	1	3	0	0	0	0%	0.43	0.78	
Northwest	Jurupa Valley	Cantu-Galleano Ranch	Wineville	Bellegrave	Secondary	1.82	0	2	90%	1	3	0	0	0	0%	0.14	0.27	
Northwest	Jurupa Valley	Etiwanda	Philadelphia	SR-60	Secondary	1.05	4	6	67%	1	3	0	0	0	100%	1.11	1.49	65%
Northwest	Jurupa Valley	Etiwanda	SR-60	Limonite	Secondary	2.95	4	4	0%	1	3	0	0	0	12%	0.61	0.84	
Northwest	Jurupa Valley	Limonite	Clay	Riverview	Secondary	2.45	4	4	0%	1	3	0	0	0	0%	0.64	0.79	
Northwest	Jurupa Valley	Limonite	Etiwanda	Van Buren	Secondary	2.73	2	4	75%	1	3	0	0	0	23%	0.80	0.91	
Northwest	Jurupa Valley	Limonite	I-15	Wineville	Secondary	0.47	6	6	0%	1	3	0	0	0	15%	0.82	0.90	
Northwest	Jurupa Valley	Limonite	Van Buren	Clay	Secondary	0.79	4	4	0%	1	3	0	0	0	0%	0.67	0.84	
Northwest	Jurupa Valley	Limonite	Wineville	Etiwanda	Secondary	0.99	4	4	0%	1	3	0	0	0	9%	0.76	0.80	
Northwest	Jurupa Valley	Market	Rubidoux	Santa Ana River	Secondary	1.19	2	4	0%	1	3	0	0	0	40%	0.86	1.06	
Northwest	Jurupa Valley	Market	Santa Ana River	bridge	Secondary	0.00	2	4	0%	1	3	0	1,000	0	0%	1.13	1.32	45%
Northwest	Jurupa Valley	Mission	Milliken	SR-60	Secondary	2.10	4	4	0%	1	3	0	0	0	58%	0.90	1.06	
Northwest	Jurupa Valley	Mission	SR-60	Santa Ana River	Secondary	7.24	4	4	0%	1	3	0	0	0	13%	0.57	0.78	
Northwest	Jurupa Valley	Riverview	Limonite	Mission	Secondary	0.95	4	4	0%	1	3	0	0	0	0%	0.55	0.56	
Northwest	Jurupa Valley	Rubidoux	Pine	Mission	Secondary	2.90	4	4	0%	2	3	0	0	0	9%	0.86	1.11	
Northwest	Jurupa Valley	Rubidoux	SR-60	interchange	Secondary	0.00	0	0	0%	2	3	3	0	0	0%	1.61	1.88	28%
Northwest	Jurupa Valley	Valley	Armstrong	Mission	Secondary	0.48	4	4	0%	1	3	0	0	0	100%	1.22	1.47	44%
Northwest	Jurupa Valley	Van Buren	Bellegrave	Santa Ana River	Backbone	3.99	4	6	0%	1	2	0	0	0	59%	1.03	1.13	44%
Northwest	Jurupa Valley	Van Buren	SR-60	Bellegrave	Backbone	1.57	4	6	0%	1	2	0	0	0	100%	1.02	1.10	44%
Southwest	Lake Elsinore	Corydon	Mission	Grand	Secondary	1.53	2	4	50%	1	3	0	0	0	0%	0.73	1.02	
Southwest	Lake Elsinore	Diamond	Mission	I-15	Secondary	0.24	6	6	0%	1	3	0	0	0	0%	0.73	0.93	
Southwest	Lake Elsinore	Franklin (integral to Railroa	I-15	interchange	Secondary	0.00	0	0	0%	1	3	0	0	0	0%	0.66	1.25	
Southwest	Lake Elsinore	Grand	Lincoln	Toft	Secondary	1.29	4	4	0%	1	3	0	0	0	0%	0.47	0.65	
Southwest	Lake Elsinore	Grand	Toft	SR-74 (Riverside)	Secondary	0.86	2	4	6%	1	3	0	0	0	0%	0.68	0.92	
Southwest	Lake Elsinore	Lake	I-15	Lincoln	Secondary	3.25	2	4	28%	2	3	0	0	0	76%	0.99	1.28	77%
Southwest	Lake Elsinore	Lake	I-15	interchange	Secondary	0.00	0	0	0%	2	3	3	0	0	0%	1.08	1.25	48%
Southwest	Lake Elsinore	Lake	Temescal Wash	bridge	Secondary	0.00	2	4	0%	2	3	0	110	0	0%	1.12	1.31	46%
Southwest	Lake Elsinore	Mission	Railroad Canyon	Bundy Canyon	Secondary	2.39	4	4	0%	1	3	0	0	0	0%	0.48	0.74	
Southwest	Lake Elsinore	Nichols	I-15	Lake	Secondary	1.80	2	4	0%	1	3	0	0	0	0%	0.59	0.96	
Southwest	Lake Elsinore	Nichols	I-15	interchange	Secondary	0.00	0	0	0%	1	3	2	0	0	0%	0.63	1.12	
Southwest	Lake Elsinore	Nichols	Temescal Wash	bridge	Secondary	0.00	0	0	0%	1	3	0	200	0	0%	0.63	1.12	
Southwest	Lake Elsinore	Railroad Canyon	I-15	Canyon Hills	Backbone	2.36	6	6	50%	1	3	0	0	0	2%	0.86	1.12	
Southwest	Lake Elsinore	Railroad Canyon	I-15	interchange	Backbone	0.00	0	0	0%	1	3	0	0	0	0%	2.48	3.04	26%
Southwest	Lake Elsinore	SR-74	I-15	interchange	Backbone	0.00	0	0	0%	1	3	2	0	0	0%	1.60	2.03	38%
Southwest	Lake Elsinore	SR-74 (Collier/Riverside)	I-15	Lakeshore	Secondary	2.15	2	4	26%	1	2	0	0	0	31%	0.86	1.05	
Southwest	Lake Elsinore	SR-74 (Grand)	Riverside	SR-74 (Ortega)	Secondary	0.64	2	4	0%	1	2	0	0	0	100%	1.19	1.37	38%

Southwest	Lake Elsinore	SR-74 (Riverside)	Lakeshore	Grand	Secondary	1.74	2	4	24%	1	2	0	0	0	31%	0.78	0.91		
Southwest	Lake Elsinore	Temescal Canyon	I-15	Lake	Secondary	1.21	2	4	0%	2	3	0	0	0	0%	0.64	1.17		
Southwest	Lake Elsinore	Temescal Canyon	Temescal Wash	bridge	Secondary	0.00	2	4	0%	2	3	0	250	0	0%	0.85	1.28		
Central	Menifee	Briggs	Newport	Scott	Secondary	3.05	2	2	0%	1	3	0	0	0	0%	0.18	0.48		
Central	Menifee	Briggs	Salt Creek	bridge	Secondary	0.00	0	2	0%	1	3	0	600	0	0%	0.41	0.74		
Central	Menifee	Briggs	Simpson	Old Newport	Secondary	1.50	0	2	17%	1	3	0	0	0	0%	0.35	0.78		
Central	Menifee	Briggs	SR-74 (Pinacate)	Simpson	Secondary	2.50	0	2	77%	1	3	0	0	0	0%	0.05	0.23		
Central	Menifee	Ethanac	BNSF San Jacinto Branch	railroad crossing	Backbone	0.00	2	4	0%	1	3	0	0	0	0%	0.32	0.61		
Central	Menifee	Ethanac	Goetz	Murrieta	Backbone	0.99	4	4	0%	1	2	0	0	0	0%	0.27	0.87		
Central	Menifee	Ethanac	I-215	interchange	Backbone	0.00	0	0	0%	1	2	3	0	0	0%	0.62	1.21		
Central	Menifee	Ethanac	Murrieta	I-215	Backbone	0.90	4	4	0%	1	2	0	0	0	0%	0.29	0.77		
Central	Menifee	Ethanac	Sherman	Matthews	Backbone	0.61	2	4	0%	1	3	0	0	0	0%	0.32	0.61		
Central	Menifee	Garbani	I-215	interchange	Secondary	0.00	0	0	0%	1	3	2	0	0	0%	1.58	2.02	67%	
Central	Menifee	Goetz	Juanita	Lesser Lane	Secondary	2.61	2	4	0%	1	3	0	0	0	0%	0.70	0.94		
Central	Menifee	Goetz	Newport	Juanita	Secondary	1.36	2	2	0%	1	3	0	0	0	0%	0.65	0.97		
Central	Menifee	Holland	Antelope	Menifee	Secondary	0.70	2	4	64%	1	2	0	0	0	0%	0.17	0.50		
Central	Menifee	Holland	Bradley	Haun	Secondary	0.75	2	4	0%	1	2	0	0	0	0%	0.62	0.94		
Central	Menifee	Holland	Haun	Antelope	Secondary	0.31	0	4	0%	1	2	0	0	0	0%	0.74	0.96		
Central	Menifee	Holland	I-215 overcrossing	bridge	Secondary	0.00	0	4	0%	1	2	0	350	0	0%	0.76	0.96		
Central	Menifee	Holland	Murrieta	Bradley	Secondary	1.03	2	4	0%	1	2	0	0	0	0%	0.52	0.87		
Central	Menifee	McCall	Aspel	Menifee	Secondary	0.95	2	4	45%	1	3	0	0	0	0%	0.38	0.71		
Central	Menifee	McCall	I-215	Aspel	Secondary	1.23	4	6	0%	1	3	0	0	0	0%	0.34	0.65		
Central	Menifee	McCall	I-215	interchange	Secondary	0.00	0	0	0%	1	3	0	0	0	0%	1.58	2.02	39%	
Central	Menifee	Menifee	Aldergate	Newport	Backbone	0.98	4	4	0%	1	3	0	0	0	0%	0.45	0.63		
Central	Menifee	Menifee	Garbani	Scott	Backbone	1.00	2	4	0%	1	3	0	0	0	0%	0.64	0.96		
Central	Menifee	Menifee	Holland	Garbani	Backbone	1.03	4	4	0%	1	3	0	0	0	0%	0.41	0.54		
Central	Menifee	Menifee	Newport	Holland	Backbone	1.07	4	4	0%	1	3	0	0	0	0%	0.44	0.72		
Central	Menifee	Menifee	Salt Creek	bridge	Backbone	0.00	4	4	0%	1	3	0	315	0	0%	0.36	0.55		
Central	Menifee	Menifee	Simpson	Aldergate	Backbone	0.64	4	4	0%	1	3	0	0	0	0%	0.39	0.73		
Central	Menifee	Menifee	SR-74 (Pinacate)	Simpson	Backbone	2.50	4	4	0%	1	3	0	0	0	11%	0.70	0.98		
Central	Menifee	Menifee/Whitewood	Scott	Murrieta City Limit	Backbone	0.53	4	4	0%	1	3	0	0	0	0%	0.44	0.76		
Central	Menifee	Murrieta	Ethanac	McCall	Secondary	1.95	2	2	0%	1	3	0	0	0	0%	0.52	0.84		
Central	Menifee	Murrieta	McCall	Newport	Secondary	2.03	2	4	10%	1	3	0	0	0	0%	0.60	0.84		
Central	Menifee	Murrieta	Newport	Bundy Canyon	Secondary	3.00	2	2	0%	1	3	0	0	0	0%	0.43	0.69		
Central	Menifee	Newport	Goetz	Murrieta	Backbone	1.81	6	6	0%	1	3	0	0	0	0%	0.59	0.85		
Central	Menifee	Newport	I-215	Menifee	Backbone	1.02	6	6	0%	1	3	0	0	0	36%	0.93	1.08	85%	
Central	Menifee	Newport	Lindenberger	SR-79 (Winchester)	Backbone	3.58	6	6	0%	1	3	0	0	0	0%	0.51	0.69		
Central	Menifee	Newport	Menifee	Lindenberger	Backbone	0.77	6	6	0%	1	3	0	0	0	0%	0.66	0.94		
Central	Menifee	Newport	Murrieta	I-215	Backbone	1.99	4	6	87%	1	3	0	0	0	27%	0.84	1.08		
Central	Menifee	Scott	I-215	Briggs	Backbone	1.98	4	6	0%	1	3	0	0	0	5%	0.45	0.82		
Central	Menifee	Scott	I-215	interchange	Backbone	0.00	0	0	0%	1	3	0	0	0	0%	1.17	1.54	57%	
Central	Menifee	Scott	Murrieta	I-215	Backbone	1.94	2	6	0%	1	3	0	0	0	0%	0.72	1.03		
Central	Menifee	Scott	Sunset	Murrieta	Backbone	1.01	2	4	0%	1	3	0	0	0	0%	0.94	1.32	91%	
Central	Menifee	SR-74	Matthews	Briggs	Backbone	1.89	4	6	0%	1	3	0	0	0	0%	0.72	0.98		
Central	Moreno Valley	Alessandro	I-215	Perris	Backbone	3.52	4	6	75%	1	2	0	0	0	0%	0.61	0.80		
Central	Moreno Valley	Alessandro	Moreno Beach	Gilman Springs	Backbone	4.13	2	4	0%	1	3	0	0	0	0%	0.24	0.66		
Central	Moreno Valley	Alessandro	Nason	Moreno Beach	Backbone	0.99	2	2	0%	1	2	0	0	0	0%	0.22	0.48		
Central	Moreno Valley	Alessandro	Perris	Nason	Backbone	2.00	2	2	0%	1	2	0	0	0	0%	0.55	0.75		
Central	Moreno Valley	Cactus	I-215	Heacock	Secondary	2.17	4	6	83%	1	2	0	0	0	7%	0.66	0.84		
Central	Moreno Valley	Cactus	I-215	interchange	Secondary	0.00	0	0	0%	1	2	0	0	0	0%	1.22	1.43	40%	
Central	Moreno Valley	Day	Ironwood	SR-60	Secondary	0.28	4	4	0%	1	2	0	0	0	0%	0.53	0.63		
Central	Moreno Valley	Day	SR-60	interchange	Secondary	0.00	0	0	0%	1	2	0	0	0	0%	1.03	1.21	60%	
Central	Moreno Valley	Day	SR-60	Eucalyptus	Secondary	0.77	6	6	0%	1	2	0	0	0	0%	0.45	0.58		
Central	Moreno Valley	Eucalyptus	Frederick	Heacock	Secondary	1.01	4	4	0%	1	2	0	0	0	0%	0.51	0.67		
Central	Moreno Valley	Eucalyptus	Heacock	Kitching	Secondary	1.01	2	2	0%	1	2	0	0	0	0%	0.53	0.71		
Central	Moreno Valley	Eucalyptus	I-215	Towngate	Secondary	1.00	4	6	42%	1	2	0	0	0	0%	0.52	0.72		
Central	Moreno Valley	Eucalyptus	Kitching	Moreno Beach	Secondary	2.42	4	4	98%	1	2	0	0	0	0%	0.19	0.28		
Central	Moreno Valley	Eucalyptus	Moreno Beach	Theodore	Secondary	2.28	4	4	47%	1	2	0	0	0	0%	0.01	0.12		
Central	Moreno Valley	Eucalyptus	Towngate	Frederick	Secondary	0.67	4	4	0%	1	2	0	0	0	0%	0.43	0.69		
Central	Moreno Valley	Frederick	SR-60	Alessandro	Secondary	1.63	4	4	0%	1	2	0	0	0	5%	0.42	0.59		
Central	Moreno Valley	Gilman Springs	SR-60	Alessandro	Backbone	1.67	2	4	0%	1	3	0	0	0	0%	0.65	0.73		
Central	Moreno Valley	Gilman Springs	SR-60	interchange	Backbone	0.00	0	0	0%	1	3	0	0	0	0%	0.60	0.76		
Central	Moreno Valley	Heacock	Cactus	San Michele	Secondary	2.79	4	4	77%	1	2	0	0	0	0%	0.56	0.96		
Central	Moreno Valley	Heacock	Reche Vista	Cactus	Secondary	4.73	4	4	92%	1	2	0	0	0	0%	0.47	0.66		
Central	Moreno Valley	Heacock	San Michele	Harley Knox	Secondary	0.74	2	2	0%	1	3	0	0	0	0%	0.11	0.22		
Central	Moreno Valley	Ironwood	Day	Heacock	Secondary	2.01	4	4	0%	1	2	0	0	0	0%	0.69	0.84		
Central	Moreno Valley	Ironwood	SR-60	Day	Secondary	1.33	4	4	0%	1	2	0	0	0	0%	0.82	1.02		
Central	Moreno Valley	Lasselle	Alessandro	John F Kennedy	Secondary	1.00	4	4	0%	1	2	0	0	0	0%	0.68	0.79		
Central	Moreno Valley	Lasselle	John F Kennedy	Oleander	Secondary	3.16	4	4	0%	1	2	0	0	0	13%	0.72	1.01		
Central	Moreno Valley	Moreno Beach	Reche Canyon	SR-60	Secondary	1.23	2	4	0%	1	2	0	0	0	5%	0.32	0.65		
Central	Moreno Valley	Moreno Beach	SR-60 overcrossing	bridge	Secondary	0.00	2	4	0%	1	2	0	250	0	0%	0.95	1.27	87%	
Central	Moreno Valley	Nason	SR-60	Alessandro	Secondary	1.51	4	4	0%	1	2	0	0	0	0%	0.66	0.83		
Central	Moreno Valley	Perris	Cactus	Harley Knox	Backbone	3.64	6	6	0%	1	2	0	0	0	18%	0.69	1.01		
Central	Moreno Valley	Perris	Ironwood	Sunnymead	Backbone	0.52	4	4	80%	1	2	0	0	0	0%	0.74	0.93		
Central	Moreno Valley	Perris	Reche Vista	Ironwood	Backbone	2.09	2	2	0%	1	2	0	0	0	0%	0.34	0.46		
Central	Moreno Valley	Perris	SR-60	interchange	Backbone	0.00	0	0	0%	1	2	3	0	0	0%	2.03	2.62	34%	
Central	Moreno Valley	Perris	Sunnymead	Cactus	Backbone	2.00	4	4	25%	1	2	0	0	0	0%	0.62	0.76		
Central	Moreno Valley	Pigeon Pass	Ironwood	SR-60	Secondary	0.40	4	4	0%	1	2	0	0	0	87%	0.94	1.07	74%	
Central	Moreno Valley	Pigeon Pass/CETAP Corrido	Hidden Springs	Ironwood	Secondary	2.66	4	4	0%	1	2	0	0	0	0%	0.40	0.48		
Central	Moreno Valley	Reche Canyon	Moreno Valley City Limit	Locust	Secondary	0.35	2	2	0%	2	3	0	0	0	0%	0.02	0.19		
Central	Moreno Valley	Reche Vista	Country	Heacock	Backbone	0.44	2	4	0%	2	2	0	0	0	100%	0.92	0.95	51%	
Central	Moreno Valley	Redlands	Locust	Alessandro	Secondary	2.75	2	4	5%	1	2	0	0	0	27%	0.80	0.97		
Central	Moreno Valley	Redlands	SR-60	interchange	Secondary	0.00	0	0	0%	1	2	0	0	0	0%	0.47	0.51		
Central	Moreno Valley	Theodore	SR-60	Eucalyptus	Secondary	0.26	2	4	0%	1	2	0	0	0	0%	0.46	0.99		
Central	Moreno Valley	Theodore	SR-60	interchange	Secondary	0.00	0	0	0%	1	2	0	0	0	0%	0.44	0.75		
Southwest	Murrieta	California Oaks	I-15	Jackson	Secondary	0.50	6	6	0%	1	2	0	0	0	0%	0.76	0.89		
Southwest	Murrieta	California Oaks	Jackson	Clinton Keith	Secondary	1.76	4	4	0%	1	2	0	0	0	0%	0.65	0.77		
Southwest	Murrieta	California Oaks	Jefferson	I-15	Secondary	0.32	4	4	0%	1	2	0	0	0	0%	0.47	0.61		
Southwest	Murrieta	Clinton Keith	Copper Craft	Toulon	Backbone	1.31	6	6	0%	1	3	0	0	0	35%	0.76	0.95		

Southwest	Murrieta	Clinton Keith	I-215	Whitewood	Backbone	0.75	6	6	0%	1	3	0	0	0	0%	0.67	0.76	
Southwest	Murrieta	Clinton Keith	Toulon	I-215	Backbone	0.90	4	6	47%	1	3	0	0	0	52%	0.88	1.06	
Southwest	Murrieta	French Valley (Date)	Murrieta Hot Springs	Winchester Creek	Backbone	0.24	0	4	0%	1	2	0	0	0	0%	0.77	1.21	
Southwest	Murrieta	French Valley (Date)	Winchester Creek	Margarita	Backbone	0.61	4	4	0%	1	2	0	0	0	0%	0.04	0.08	
Southwest	Murrieta	Jackson	Whitewood	Ynez	Secondary	0.53	4	4	0%	1	2	0	0	0	0%	0.32	0.62	
Southwest	Murrieta	Jefferson	Murrieta Hot Springs	Cherry	Secondary	2.26	4	6	11%	1	2	0	0	0	0%	0.47	0.80	
Southwest	Murrieta	Jefferson	Nutmeg	Murrieta Hot Springs	Secondary	2.37	2	2	0%	1	2	0	0	0	0%	0.46	0.63	
Southwest	Murrieta	Jefferson	Palomar	Nutmeg	Secondary	1.02	0	2	75%	2	3	0	0	0	0%	0.07	0.10	
Southwest	Murrieta	Keller	I-215	Whitewood	Backbone	0.75	2	2	0%	1	2	0	0	0	0%	0.20	0.45	
Southwest	Murrieta	Keller	I-215	interchange	Backbone	0.00	0	0	0%	1	2	0	0	0	0%	0.09	0.06	
Southwest	Murrieta	Los Alamos	Jefferson	I-215	Secondary	1.77	4	4	0%	1	2	0	0	0	0%	0.24	0.38	
Southwest	Murrieta	Murrieta Hot Springs	I-215	Margarita	Secondary	1.45	6	6	0%	1	2	0	0	0	11%	0.82	1.08	
Southwest	Murrieta	Murrieta Hot Springs	Jefferson	I-215	Secondary	1.16	6	6	0%	1	2	0	0	0	17%	0.62	0.90	
Southwest	Murrieta	Murrieta Hot Springs	Margarita	SR-79 (Winchester)	Secondary	1.01	4	6	8%	1	3	0	0	0	57%	0.93	1.33	93%
Southwest	Murrieta	Nutmeg	Jefferson	Clinton Keith	Secondary	1.97	4	4	0%	1	3	0	0	0	0%	0.45	0.69	
Southwest	Murrieta	Whitewood	Clinton Keith	Los Alamos	Secondary	2.01	3	4	56%	2	3	0	0	0	0%	0.45	0.76	
Southwest	Murrieta	Whitewood	Keller	Clinton Keith	Backbone	2.00	4	4	0%	1	3	0	0	0	0%	0.54	0.84	
Southwest	Murrieta	Whitewood	Los Alamos	Murrieta Hot Springs	Secondary	1.93	2	2	0%	1	2	0	0	0	0%	0.45	0.75	
Southwest	Murrieta	Whitewood	Menifee City Limit	Keller	Backbone	0.55	4	4	0%	1	3	0	0	0	0%	0.39	0.74	
Southwest	Murrieta	Whitewood	Murrieta Hot Springs	Jackson	Secondary	0.80	0	2	66%	2	2	0	0	0	0%	0.15	0.16	
Southwest	Murrieta	Ynez	Jackson	SR-79 (Winchester)	Secondary	1.22	4	4	0%	1	2	0	0	0	0%	0.62	1.00	
Northwest	Norco	1st	Mountain	Hamner	Secondary	0.26	4	4	0%	1	3	0	0	0	0%	0.38	0.51	
Northwest	Norco	1st	Parkridge	Mountain	Secondary	0.26	2	2	0%	1	3	0	0	0	0%	0.75	0.89	
Northwest	Norco	2nd	River	I-15	Secondary	1.39	2	2	0%	1	3	0	0	0	7%	0.74	0.85	
Northwest	Norco	6th	Hamner	California	Secondary	1.71	4	4	0%	1	2	0	0	0	9%	0.68	0.76	
Northwest	Norco	6th	I-15	interchange	Secondary	0.00	0	0	0%	1	2	3	0	0	0%	2.57	2.77	11%
Northwest	Norco	Arlington	Crestview	Fairhaven	Secondary	1.00	2	4	0%	1	3	0	0	0	100%	0.79	0.94	
Northwest	Norco	California	Arlington	6th	Secondary	1.05	2	4	5%	1	2	0	0	0	78%	0.96	1.14	77%
Northwest	Norco	Corydon	River	5th	Secondary	1.46	2	2	0%	1	2	0	0	0	0%	0.52	0.78	
Northwest	Norco	Hamner	Santa Ana River	bridge	Secondary	0.00	2	6	0%	1	3	0	1,200	0	0%	1.41	1.67	34%
Northwest	Norco	Hamner	Santa Ana River	Hidden Valley	Secondary	3.25	4	6	0%	1	2	0	0	0	6%	0.65	0.80	
Northwest	Norco	Hidden Valley	Hamner	I-15	Secondary	0.19	4	4	0%	1	2	0	0	0	100%	1.14	1.23	27%
Northwest	Norco	Hidden Valley	I-15	Norco Hills	Secondary	1.46	4	4	0%	2	2	0	0	0	3%	0.55	0.70	
Northwest	Norco	Norco	Corydon	Hamner	Secondary	1.20	2	2	0%	1	2	0	0	0	0%	0.33	0.48	
Northwest	Norco	North	California	Crestview	Secondary	0.25	2	2	0%	1	3	0	0	0	100%	0.96	1.19	80%
Northwest	Norco	River	Archibald	Corydon	Secondary	1.14	2	4	90%	1	2	0	0	0	79%	1.20	1.56	54%
Central	Perris	11th/Case	Perris	Goetz	Backbone	0.30	2	4	0%	1	2	0	0	0	0%	0.76	0.85	
Central	Perris	Case	Goetz	I-215	Backbone	2.36	2	4	42%	1	2	0	0	0	40%	0.80	1.18	
Central	Perris	Case	San Jacinto River	bridge	Backbone	0.00	2	4	0%	1	2	0	125	0	0%	1.18	1.88	71%
Central	Perris	Ethanac	I-215	Sherman	Backbone	0.35	2	4	0%	1	2	0	0	0	0%	0.53	1.15	
Central	Perris	Ethanac	Keystone	Goetz	Backbone	2.24	0	2	38%	1	3	0	0	0	0%	0.07	0.30	
Central	Perris	Ethanac	San Jacinto River	bridge	Backbone	0.00	0	2	0%	1	3	0	400	0	0%	0.07	0.30	
Central	Perris	Evans	Morgan	Rider	Secondary	0.50	4	4	0%	1	3	0	0	0	50%	0.83	1.06	
Central	Perris	Evans	Nuevo	I-215	Secondary	1.99	0	4	0%	1	3	0	0	0	0%	0.00	0.33	
Central	Perris	Evans	Oleander	Ramona	Secondary	1.00	4	4	0%	1	3	0	0	0	0%	0.71	1.10	
Central	Perris	Evans	Placentia	Nuevo	Secondary	1.52	0	4	51%	1	3	0	0	0	9%	0.54	0.79	
Central	Perris	Evans	Ramona	Morgan	Secondary	0.59	4	4	0%	1	3	0	0	0	0%	0.80	1.15	
Central	Perris	Evans	Rider	Placentia	Secondary	0.56	2	2	79%	1	3	0	0	0	11%	0.55	0.69	
Central	Perris	Evans	San Jacinto River	bridge	Secondary	0.00	0	4	0%	1	3	0	400	0	0%	0.00	0.13	
Central	Perris	Goetz	Case	Ethanac	Backbone	2.16	2	4	97%	1	3	0	0	0	100%	1.06	1.38	66%
Central	Perris	Goetz	Lesser	Ethanac	Secondary	2.04	2	4	12%	1	3	0	0	0	7%	0.79	1.13	
Central	Perris	Goetz	San Jacinto River	bridge	Backbone	0.00	2	4	0%	1	3	0	400	0	0%	1.13	1.50	61%
Central	Perris	Harley Knox	I-215	Indian	Secondary	1.53	4	4	0%	1	2	0	0	0	0%	0.31	0.38	
Central	Perris	Harley Knox	I-215	interchange	Secondary	0.00	0	0	0%	1	2	3	0	0	0%	0.99	1.62	88%
Central	Perris	Harley Knox	Indian	Perris	Secondary	0.50	6	6	0%	1	2	0	0	0	0%	0.12	0.15	
Central	Perris	Harley Knox	Perris	Redlands	Secondary	0.50	4	4	0%	1	2	0	0	0	0%	0.25	0.47	
Central	Perris	Mid-County (Placentia)	I-215	Perris	Backbone	0.87	0	4	41%	1	2	0	0	0	0%	0.05	0.21	
Central	Perris	Mid-County (Placentia)	I-215	interchange	Backbone	0.00	0	0	0%	1	2	2	0	0	0%	0.46	0.85	
Central	Perris	Mid-County (Placentia)	Perris	Evans	Backbone	1.57	0	4	52%	1	2	0	0	0	0%	0.03	0.11	
Central	Perris	Mid-County (Placentia)	Perris Valley Storm Channel	bridge	Backbone	0.00	0	4	0%	1	2	0	300	0	0%	0.03	0.11	
Central	Perris	Nuevo	I-215	Murrieta	Secondary	1.36	4	6	18%	1	2	0	0	0	0%	0.51	0.83	
Central	Perris	Nuevo	I-215	interchange	Secondary	0.00	0	0	0%	1	2	3	0	0	0%	1.53	2.50	60%
Central	Perris	Nuevo	Murrieta	Dunlap	Secondary	1.00	2	4	0%	1	3	0	0	0	0%	0.35	0.68	
Central	Perris	Nuevo	Perris Valley Storm Channel	bridge	Secondary	0.00	4	4	0%	1	3	0	300	0	0%	0.35	0.67	
Central	Perris	Perris	Citrus	Nuevo	Backbone	0.50	6	6	0%	1	3	0	0	0	0%	0.66	0.97	
Central	Perris	Perris	Harley Knox	Ramona	Backbone	1.00	6	6	0%	1	3	0	0	0	0%	0.86	1.04	
Central	Perris	Perris	I-215 overcrossing	bridge	Backbone	0.00	4	4	0%	1	2	0	300	0	0%	0.78	1.10	
Central	Perris	Perris	Nuevo	11th	Backbone	1.75	2	4	74%	1	2	0	0	0	0%	0.72	0.99	
Central	Perris	Perris	Ramona	Citrus	Backbone	2.49	4	6	35%	1	3	0	0	0	39%	0.83	1.06	
Central	Perris	Ramona	Evans	Mid-County (2,800 ft E of Rider)	Backbone	2.62	4	4	0%	1	2	0	0	0	0%	0.62	1.06	
Central	Perris	Ramona	I-215	Perris	Backbone	1.44	4	6	77%	1	2	0	0	0	26%	0.77	0.79	
Central	Perris	Ramona	I-215	interchange	Backbone	0.00	0	0	0%	1	2	3	0	0	0%	1.80	2.08	24%
Central	Perris	Ramona	Perris	Evans	Backbone	1.00	6	6	0%	1	2	0	0	0	0%	0.67	0.82	
Central	Perris	SR-74 (4th)	Ellis	I-215	Backbone	2.33	4	4	0%	1	2	0	0	0	22%	0.78	1.03	
Central	Perris	SR-74 (Matthews)	I-215	interchange	Secondary	0.00	0	0	0%	1	2	3	0	0	0%	1.41	2.42	67%
Central	Perris	SR-74 (Matthews)	I-215	Ethanac	Secondary	1.25	4	4	0%	1	2	0	0	0	0%	0.69	0.98	
Northwest	Riverside	14th	Market	Martin Luther King	Secondary	0.89	4	4	0%	1	2	0	0	0	0%	0.66	0.76	
Northwest	Riverside	1st	Market	Main	Secondary	0.08	2	2	0%	1	1	0	0	0	0%	0.24	0.50	
Northwest	Riverside	3rd	BNSF	railroad crossing	Secondary	0.00	4	4	0%	1	2	0	0	0	0%	0.77	0.90	
Northwest	Riverside	3rd	SR-91	I-215	Secondary	1.34	3	4	81%	1	2	0	0	0	0%	0.49	0.59	
Northwest	Riverside	Adams	Arlington	SR-91	Secondary	1.56	4	4	0%	1	2	0	0	0	0%	0.49	0.48	
Northwest	Riverside	Adams	SR-91	Lincoln	Secondary	0.54	4	4	0%	1	2	0	0	0	0%	0.44	0.64	
Northwest	Riverside	Adams	SR-91	interchange	Secondary	0.00	0	0	0%	1	2	3	0	0	0%	1.46	1.52	10%
Northwest	Riverside	Alessandro	Arlington	Trautwein	Backbone	2.42	6	6	0%	2	2	0	0	1	73%	1.03	1.16	48%
Northwest	Riverside	Arlington	Fairhaven	La Sierra	Secondary	0.61	4	4	0%	1	3	0	0	0	0%	0.68	0.77	
Northwest	Riverside	Arlington	La Sierra	Magnolia	Backbone	5.84	4	4	0%	1	2	0	0	0	13%	0.68	0.77	
Northwest	Riverside	Arlington	Magnolia	Alessandro	Backbone	2.73	4	6	0%	2	2	0	0	0	36%	0.80	0.93	
Northwest	Riverside	Buena Vista	Santa Ana River	Redwood	Secondary	0.30	4	4	0%	1	2	0	0	0	0%	0.83	1.17	
Northwest	Riverside	Canyon Crest	Central	Country Club	Secondary	0.59	4	4	0%	2	3	0	0	0	0%	0.70	0.77	

Northwest	Riverside	Canyon Crest	Country Club	Via Vista	Secondary	0.93	2	4	12%	2	3	0	0	0	100%	1.30	1.48	32%
Northwest	Riverside	Canyon Crest	Martin Luther King	Central	Secondary	0.95	4	4	0%	2	2	0	0	0	71%	1.02	1.16	55%
Northwest	Riverside	Canyon Crest	Via Vista	Alessandro	Secondary	0.68	4	4	0%	2	3	0	0	0	0%	0.59	0.72	
Northwest	Riverside	Central	Alessandro	SR-91	Secondary	2.09	4	4	0%	1	2	0	0	0	5%	0.75	0.87	
Northwest	Riverside	Central	Chicago	I-215/SR-60	Secondary	2.22	4	4	0%	1	2	0	0	0	32%	0.80	0.96	
Northwest	Riverside	Central	SR-91	Magnolia	Secondary	0.73	4	4	0%	1	2	0	0	0	6%	0.64	0.71	
Northwest	Riverside	Central	Van Buren	Magnolia	Secondary	3.53	4	4	0%	1	2	0	0	0	0%	0.43	0.53	
Northwest	Riverside	Chicago	Alessandro	Spruce	Secondary	3.43	4	4	0%	1	2	0	0	0	43%	0.85	0.99	
Northwest	Riverside	Chicago	Spruce	Columbia	Secondary	0.75	4	4	0%	1	2	0	0	0	0%	0.72	0.85	
Northwest	Riverside	Columbia	I-215	interchange	Secondary	0.00	0	0	0%	1	2	3	0	0	0%	2.96	3.74	28%
Northwest	Riverside	Columbia	Main	Iowa	Secondary	1.09	4	4	0%	1	2	0	0	0	0%	0.62	0.71	
Northwest	Riverside	Iowa	3rd	University	Secondary	0.51	4	4	0%	1	2	0	0	0	0%	0.65	0.73	
Northwest	Riverside	Iowa	Center	3rd	Secondary	2.26	4	6	12%	1	2	0	0	0	11%	0.82	0.93	
Northwest	Riverside	Iowa	University	Martin Luther King	Secondary	0.51	4	4	0%	1	2	0	0	0	0%	0.24	0.36	
Northwest	Riverside	JFK	Trautwein	Wood	Secondary	0.48	2	4	10%	1	3	0	0	0	0%	0.54	0.68	
Northwest	Riverside	La Sierra	Arlington	SR-91	Secondary	3.56	4	4	0%	1	2	0	0	0	0%	0.43	0.51	
Northwest	Riverside	La Sierra	Indiana	Victoria	Secondary	0.78	4	6	65%	1	2	0	0	0	0%	0.71	0.80	
Northwest	Riverside	La Sierra	SR-91	Indiana	Secondary	0.19	6	6	0%	1	2	0	0	0	0%	0.77	0.85	
Northwest	Riverside	Lemon (NB One way)	Mission Inn	University	Secondary	0.08	2	2	0%	1	3	0	0	0	0%	0.11	0.15	
Northwest	Riverside	Lincoln	Jefferson	Washington	Secondary	1.00	2	2	0%	1	2	0	0	0	0%	0.26	0.49	
Northwest	Riverside	Lincoln	Van Buren	Jefferson	Secondary	2.00	4	4	0%	1	2	0	0	0	0%	0.23	0.48	
Northwest	Riverside	Lincoln	Washington	Victoria	Secondary	1.43	2	2	0%	1	2	0	0	0	0%	0.39	0.56	
Northwest	Riverside	Madison	BNSF	railroad crossing	Secondary	0.00	2	4	0%	1	2	0	0	0	0%	0.81	0.80	
Northwest	Riverside	Madison	SR-91	Victoria	Secondary	0.86	2	4	20%	1	2	0	0	0	0%	0.65	0.66	
Northwest	Riverside	Magnolia	BNSF	railroad crossing	Secondary	0.00	4	4	0%	1	2	0	0	0	0%	0.90	1.04	
Northwest	Riverside	Magnolia	BNSF Railroad	Tyler	Secondary	2.70	4	4	0%	1	2	0	0	0	53%	0.82	0.96	
Northwest	Riverside	Magnolia	Harrison	14th	Secondary	5.98	4	4	0%	1	2	0	0	0	0%	0.62	0.79	
Northwest	Riverside	Magnolia	Tyler	Harrison	Secondary	0.65	6	6	0%	1	2	0	0	0	0%	0.52	0.66	
Northwest	Riverside	Main	1st	San Bernardino County	Secondary	2.19	4	4	0%	1	2	0	0	0	43%	0.76	0.94	
Northwest	Riverside	Market	14th	Santa Ana River	Secondary	2.59	2	4	76%	1	2	0	0	0	21%	0.72	0.92	
Northwest	Riverside	Martin Luther King	14th	I-215/SR-60	Secondary	2.22	4	6	29%	1	2	0	0	0	41%	0.78	0.87	
Northwest	Riverside	Mission Inn	Redwood	Lemon	Secondary	0.79	2	2	0%	1	3	0	0	0	0%	0.26	0.47	
Northwest	Riverside	Redwood (SB One way)	Mission Inn	University	Secondary	0.08	4	4	0%	1	3	0	0	0	0%	0.59	0.74	
Northwest	Riverside	Trautwein	Alessandro	Van Buren	Secondary	2.19	4	4	0%	2	2	0	0	0	43%	0.88	1.04	
Northwest	Riverside	Tyler	Hole	Wells	Secondary	1.06	4	4	0%	1	2	0	0	0	0%	0.52	0.53	
Northwest	Riverside	Tyler	Magnolia	Hole	Secondary	0.27	6	6	0%	1	2	0	0	0	0%	0.30	0.30	
Northwest	Riverside	Tyler	SR-91	Magnolia	Secondary	0.43	6	6	0%	1	2	0	0	0	0%	0.31	0.37	
Northwest	Riverside	Tyler	SR-91	interchange	Secondary	0.00	0	0	0%	1	2	2	0	0	0%	1.56	1.90	35%
Northwest	Riverside	Tyler	Wells	Arlington	Secondary	1.35	2	2	0%	1	2	0	0	0	0%	0.59	0.62	
Northwest	Riverside	University	Redwood	SR-91	Secondary	0.86	4	4	0%	1	3	0	0	1	0%	0.60	0.71	
Northwest	Riverside	University	SR-91	I-215/SR-60	Secondary	2.08	4	4	0%	1	2	0	0	1	2%	0.52	0.65	
Northwest	Riverside	Van Buren	Santa Ana River	SR-91	Backbone	3.81	4	6	91%	1	2	0	0	0	58%	0.94	1.05	72%
Northwest	Riverside	Van Buren	SR-91	Mockingbird Canyon	Backbone	3.08	4	6	16%	1	2	0	0	0	95%	1.00	1.10	51%
Northwest	Riverside	Van Buren	Trautwein	Orange Terrace	Backbone	1.27	5	6	22%	1	2	0	0	0	0%	0.69	0.89	
Northwest	Riverside	Van Buren	Wood	Trautwein	Backbone	0.43	6	6	0%	1	2	0	0	0	0%	0.79	0.85	
Northwest	Riverside	Victoria	Lincoln	Arlington	Secondary	0.16	2	2	0%	1	2	0	0	0	0%	0.86	1.11	
Northwest	Riverside	Victoria	Madison	Washington	Secondary	0.52	2	2	0%	1	2	0	0	0	0%	0.36	0.55	
Northwest	Riverside	Washington	Victoria	Hermosa	Secondary	2.06	2	4	14%	1	2	0	0	0	34%	0.83	0.94	
Northwest	Riverside	Wood	Bergamont	Krameria	Secondary	0.39	4	4	0%	1	3	0	0	0	0%	0.55	0.77	
Northwest	Riverside	Wood	JFK	Van Buren	Secondary	0.70	2	4	0%	1	3	0	0	0	0%	0.81	1.03	
Northwest	Riverside	Wood	Van Buren	Bergamont	Secondary	0.11	4	4	0%	1	3	0	0	0	0%	0.50	0.69	
San Jacint	San Jacinto	Esplanade	Mountain	State	Secondary	2.55	4	4	0%	1	2	0	0	0	0%	0.33	0.39	
San Jacint	San Jacinto	Esplanade	State	Warren	Secondary	3.53	2	2	0%	1	3	0	0	0	0%	0.37	0.55	
San Jacint	San Jacinto	Mid-County (Ramona)	Sanderson/SR-79 (Hemet Byp	interchange	Backbone	0.00	0	0	0%	1	2	0	0	0	0%	0.61	0.85	
San Jacint	San Jacinto	Mid-County (Ramona)	Warren	Sanderson	Backbone	1.73	4	4	0%	1	2	0	0	0	0%	0.57	0.61	
San Jacint	San Jacinto	Ramona	Cedar	SR-74	Backbone	1.10	4	4	0%	1	2	0	0	0	0%	0.29	0.35	
San Jacint	San Jacinto	Ramona	Main	Cedar	Backbone	2.40	0	4	57%	1	2	0	0	0	68%	0.93	0.97	57%
San Jacint	San Jacinto	Ramona	Sanderson	State	Backbone	2.39	6	6	0%	1	2	0	0	0	0%	0.48	0.63	
San Jacint	San Jacinto	Ramona	State	Main	Backbone	2.66	4	4	0%	1	2	0	0	0	0%	0.58	0.67	
San Jacint	San Jacinto	Sanderson	Ramona	Esplanade	Secondary	3.55	4	4	0%	1	3	0	0	0	0%	0.53	0.84	
San Jacint	San Jacinto	SR-79 (North Ramona)	State	San Jacinto	Secondary	1.02	2	2	0%	1	2	0	0	0	0%	0.55	0.70	
San Jacint	San Jacinto	SR-79 (San Jacinto)	7th	SR-74	Secondary	2.25	4	4	0%	1	2	0	0	0	0%	0.32	0.46	
San Jacint	San Jacinto	SR-79 (San Jacinto)	North Ramona Blvd	7th	Secondary	0.25	2	2	0%	1	2	0	0	0	0%	0.70	0.80	
San Jacint	San Jacinto	State	Ramona	Esplanade	Secondary	1.99	4	4	0%	1	2	0	0	0	0%	0.60	0.78	
San Jacint	San Jacinto	State	Gilman Springs	Quandt Ranch	Secondary	0.76	2	4	0%	1	3	0	0	0	0%	0.82	1.01	
San Jacint	San Jacinto	State	Quandt Ranch	Ramona	Secondary	0.70	4	4	0%	1	3	0	0	0	0%	0.39	0.46	
San Jacint	San Jacinto	State	San Jacinto River	bridge	Secondary	0.00	4	4	0%	1	3	0	500	0	0%	0.86	1.03	
San Jacint	San Jacinto	Warren	Ramona	Esplanade	Secondary	3.47	2	4	11%	1	3	0	0	0	0%	0.67	0.89	
Southwest	Temecula	Butterfield Stage	Calle Chapos	La Serena	Secondary	0.70	4	4	0%	2	3	0	0	1	0%	0.58	0.93	
Southwest	Temecula	Butterfield Stage	La Serena	Rancho California	Secondary	0.91	4	4	0%	2	3	0	0	1	100%	0.95	1.21	85%
Southwest	Temecula	Butterfield Stage	Murrieta Hot Springs	Calle Chapos	Secondary	0.82	4	4	0%	2	3	0	0	1	0%	0.61	1.15	
Southwest	Temecula	Butterfield Stage	Pauba	SR-79 (Temecula Pkwy)	Secondary	1.69	2	4	93%	2	3	0	0	0	0%	0.49	0.84	
Southwest	Temecula	Butterfield Stage	Rancho California	Pauba	Secondary	0.85	4	4	0%	2	3	0	0	1	5%	0.55	0.88	
Southwest	Temecula	French Valley (Cherry)	Jefferson	Diaz	Backbone	0.56	0	2	54%	1	2	0	0	0	0%	0.00	0.58	
Southwest	Temecula	French Valley (Cherry)	Murrieta Creek	bridge	Backbone	0.00	0	2	0%	1	2	0	420	0	0%	0.00	0.58	
Southwest	Temecula	French Valley (Date)	I-15	interchange	Backbone	0.00	0	0	0%	1	2	1	0	0	0%	0.19	0.29	
Southwest	Temecula	French Valley (Date)	Margarita	Ynez	Backbone	0.91	4	4	0%	1	2	0	0	0	0%	0.20	0.34	
Southwest	Temecula	French Valley (Date)	Ynez	Jefferson	Backbone	0.73	0	2	55%	1	2	0	0	0	0%	0.07	0.15	
Southwest	Temecula	Jefferson	Cherry	Rancho California	Secondary	2.29	4	4	0%	1	1	0	0	1	0%	0.34	0.92	
Southwest	Temecula	Margarita	Murrieta Hot Springs	SR-79 (Temecula Pkwy)	Secondary	7.68	4	4	0%	1	3	0	0	1	5%	0.65	1.04	
Southwest	Temecula	Old Town Front	Rancho California	I-15/SR-79 (Temecula Pkwy)	Secondary	1.45	4	4	0%	1	1	0	0	0	0%	0.68	1.37	
Southwest	Temecula	Pechanga Pkwy	SR-79 (Temecula Pkwy)	Via Gilberto	Secondary	1.32	6	6	0%	1	1	0	0	0	0%	0.72	1.02	
Southwest	Temecula	Pechanga Pkwy	Via Gilberto	Pechanga Pkwy	Secondary	1.44	4	4	0%	1	1	0	0	0	0%	0.42	0.52	
Southwest	Temecula	Rancho California	I-15	interchange	Secondary	0.00	0	0	0%	1	1	3	0	0	0%	1.55	2.67	63%
Southwest	Temecula	Rancho California	Jefferson	Margarita	Secondary	1.89	4	6	53%	1	1	0	0	0	40%	0.90	1.37	99%
Southwest	Temecula	Rancho California	Margarita	Butterfield Stage	Secondary	1.96	4	4	0%	1	1	0	0	0	0%	0.63	0.74	
Southwest	Temecula	SR-79 (Temecula Pkwy)	I-15	Pechanga Pkwy	Secondary	0.90	6	6	0%	1	3	0	0	0	100%	1.08	1.42	65%
Southwest	Temecula	SR-79 (Temecula Pkwy)	Pechanga Pkwy	Butterfield Stage	Secondary	3.08	6	6	0%	1	3	0	0	1	0%	0.65	0.88	
Southwest	Temecula	SR-79 (Winchester)	I-15	interchange	Backbone	0.00	0	0	0%	1	1	0	0	0	0%	1.58	1.80	24%

Southwest	Temecula	SR-79 (Winchester)	Murrieta Hot Springs	Jefferson	Backbone	2.71	6	6	0%	1	1	0	0	1	84%	0.96	1.24	81%
Southwest	Temecula	Western Bypass (Diaz)	Cherry	Rancho California	Backbone	2.14	0	2	93%	1	2	0	0	0	0%	0.18	0.45	
Southwest	Temecula	Western Bypass (Vincent M	I-15	interchange	Backbone	0.00	0	0	0%	3	2	0	0	0	0%	2.30	3.07	36%
Southwest	Temecula	Western Bypass (Vincent M	Murrieta Creek	bridge	Backbone	0.00	0	2	0%	3	2	0	300	0	0%	0.01	0.05	
Southwest	Temecula	Western Bypass (Vincent M	Rancho California	SR-79 (Front)	Backbone	1.48	0	2	15%	3	2	0	0	0	0%	0.01	0.05	
Northwest	Unincorporate	Alessandro	Trautwein	Vista Grande	Backbone	1.22	6	6	0%	2	2	0	0	0	0%	0.79	0.93	
Northwest	Unincorporate	Alessandro	Vista Grande	I-215	Backbone	1.26	6	6	0%	2	2	0	0	0	0%	0.85	1.04	
Southwest	Unincorporate	Benton	SR-79	Eastern Bypass	Backbone	2.40	2	2	0%	1	3	0	0	0	0%	0.26	0.35	
Southwest	Unincorporate	Briggs	Scott	SR-79 (Winchester)	Secondary	3.39	2	4	56%	1	3	0	0	0	0%	0.41	0.70	
Southwest	Unincorporate	Butterfield Stage	Tucalota Creek	bridge	Secondary	0.00	4	4	0%	2	3	0	200	0	0%	0.88	0.99	
Southwest	Unincorporate	Butterfield Stage (Pourroy)	Auld	Murrieta Hot Springs	Secondary	2.27	0	4	17%	2	3	0	0	0	23%	0.88	0.99	
Northwest	Unincorporate	Cajalco	El Sobrante	Harley John	Backbone	0.86	2	6	0%	2	3	0	0	0	40%	0.95	1.04	64%
Northwest	Unincorporate	Cajalco	Harley John	Harvil	Backbone	5.81	2	6	6%	1	2	0	0	0	63%	0.87	1.05	
Northwest	Unincorporate	Cajalco	Harvil	I-215	Backbone	0.28	4	6	0%	1	3	0	0	0	0%	0.78	0.84	
Northwest	Unincorporate	Cajalco	La Sierra	El Sobrante	Backbone	6.11	2	6	0%	3	3	0	0	0	0%	0.78	0.85	
Northwest	Unincorporate	Cajalco	Temescal Canyon	La Sierra	Backbone	3.21	2	6	2%	3	3	0	0	0	100%	1.06	1.19	45%
Northwest	Unincorporate	Cajalco	Temescal Wash	bridge	Backbone	0.00	2	6	0%	3	3	0	175	0	0%	1.13	1.27	39%
Northwest	Unincorporate	Cantu-Galleano Ranch	Hamner	Wineville	Secondary	0.94	6	6	0%	1	3	0	0	0	0%	0.47	0.95	
Central	Unincorporate	Center (Main)	BNSF	railroad crossing	Secondary	0.00	2	2	0%	1	2	0	0	0	0%	0.46	0.82	
Central	Unincorporate	Center (Main)	I-215	Mt Vernon	Secondary	1.66	2	2	0%	1	2	0	0	0	4%	0.39	0.67	
Central	Unincorporate	Center (Main)	I-215	interchange	Secondary	0.00	0	0	0%	1	2	3	0	0	0%	2.38	3.22	36%
Pass	Unincorporate	Cherry Valley	Bellflower	Noble	Backbone	1.47	0	2	0%	1	3	0	0	0	0%	0.08	0.23	
Pass	Unincorporate	Cherry Valley	Highland Springs	Bellflower	Backbone	0.44	2	2	0%	1	3	0	0	0	0%	0.03	0.10	
Pass	Unincorporate	Cherry Valley	Noble	Roberts	Backbone	3.40	2	2	0%	1	3	0	0	0	0%	0.41	0.61	
Pass	Unincorporate	Cherry Valley	San Timoteo Wash	bridge	Backbone	0.00	2	2	0%	1	3	0	300	0	0%	0.26	0.41	
Southwest	Unincorporate	Clinton Keith	Warm Springs Creek	bridge	Backbone	0.00	4	4	0%	1	3	0	1,200	0	0%	0.62	0.79	
Southwest	Unincorporate	Clinton Keith	Whitewood	SR-79	Backbone	2.54	0	4	75%	1	3	0	0	0	0%	0.62	0.79	
San Jacint	Unincorporate	Domenigoni	San Diego Aqueduct	bridge	Backbone	0.00	4	6	0%	1	3	0	300	0	0%	0.88	1.12	
San Jacint	Unincorporate	Domenigoni	SR-79 (Winchester)	Warren	Backbone	3.10	4	6	0%	1	3	0	0	0	0%	0.88	1.13	
Northwest	Unincorporate	Dos Lagos (Weirick)	Temescal Canyon	I-15	Secondary	0.17	4	4	0%	1	3	0	0	0	22%	0.52	0.72	
Northwest	Unincorporate	El Cerrito	I-15	Ontario	Secondary	0.56	4	4	0%	1	3	0	0	0	0%	0.15	0.26	
Northwest	Unincorporate	El Sobrante	Mockingbird Canyon	Cajalco	Secondary	1.05	2	2	0%	2	3	0	0	0	0%	0.62	0.78	
Central	Unincorporate	Ellis	Post	SR-74	Secondary	2.65	2	4	0%	1	3	0	0	0	0%	0.20	0.46	
Central	Unincorporate	Ethanac	SR-74	Keystone	Backbone	1.07	0	2	0%	1	3	0	0	0	0%	0.04	0.19	
Central	Unincorporate	Gilman Springs	Alessandro	Bridge Road	Backbone	5.00	2	4	0%	2	3	0	0	0	41%	0.87	1.43	
San Jacint	Unincorporate	Gilman Springs	Bridge	Sanderson	Backbone	2.95	2	2	0%	1	3	0	0	0	0%	0.62	0.84	
San Jacint	Unincorporate	Gilman Springs	Massacre Canyon Wash	bridge	Secondary	0.00	2	4	0%	1	3	0	100	0	0%	0.85	1.11	
San Jacint	Unincorporate	Gilman Springs	Sanderson	State	Secondary	2.54	2	4	0%	1	3	0	0	0	0%	0.83	1.07	
Southwest	Unincorporate	Grand	Ortega	Corydon	Secondary	4.96	2	4	10%	1	2	0	0	0	16%	0.80	1.06	
Northwest	Unincorporate	Harley John	Scottsdale	Cajalco	Secondary	1.19	2	2	0%	1	3	0	0	0	0%	0.38	0.73	
Northwest	Unincorporate	Harley John	Washington	Scottsdale	Secondary	0.12	4	4	0%	1	3	0	0	0	0%	0.38	0.65	
Southwest	Unincorporate	Horsethief Canyon	Temescal Canyon	I-15	Secondary	0.17	2	2	0%	1	3	0	0	0	0%	0.81	0.64	
Southwest	Unincorporate	Indian Truck Trail	Temescal Canyon	I-15	Secondary	0.18	6	6	0%	1	3	0	0	0	0%	0.15	0.21	
Northwest	Unincorporate	La Sierra	El Sobrante	Cajalco	Secondary	2.36	2	2	0%	2	3	0	0	0	0%	0.50	0.83	
Northwest	Unincorporate	La Sierra	Victoria	El Sobrante	Secondary	2.23	4	4	0%	2	3	0	0	0	40%	0.85	1.03	
Pass	Unincorporate	Live Oak Canyon	Oak Valley (STC)	San Bernardino County	Secondary	2.81	2	2	0%	2	3	0	0	0	0%	0.36	0.47	
Central	Unincorporate	Menifee	Nuevo	SR-74 (Pinacate)	Backbone	4.07	2	4	6%	1	3	0	0	0	0%	0.69	0.98	
Central	Unincorporate	Mid-County	Evans	Ramona (2,800 ft E of Rider)	Backbone	0.77	0	4	0%	3	3	0	0	0	0%	0.08	0.45	
San Jacint	Unincorporate	Mid-County (Ramona)	Bridge	Warren	Backbone	2.35	2	4	10%	1	3	0	0	0	0%	0.78	1.04	
Central	Unincorporate	Mid-County (Ramona)	Pico Avenue	Bridge Road	Backbone	5.95	2	6	8%	1	3	0	0	0	0%	0.82	1.43	
Central	Unincorporate	Mid-County (Ramona)	Ramona (2,800 ft E of Rider)	Pico Avenue	Backbone	0.44	4	4	0%	1	3	0	0	0	0%	0.37	0.96	
Central	Unincorporate	Mid-County (Ramona)	San Jacinto River	bridge	Backbone	0.00	2	6	0%	1	3	0	1,300	0	0%	0.78	1.33	
Northwest	Unincorporate	Mockingbird Canyon	Van Buren	El Sobrante	Secondary	3.41	2	4	0%	2	3	0	0	0	31%	0.76	0.97	
Central	Unincorporate	Mount Vernon/CETAP Corri	Center	Pigeon Pass	Secondary	0.61	2	4	46%	3	3	0	0	0	0%	0.58	0.96	
Southwest	Unincorporate	Murrieta Hot Springs	SR-79 (Winchester)	Pourroy	Secondary	1.75	4	4	0%	1	3	0	0	0	4%	0.46	0.86	
Central	Unincorporate	Nuevo	Dunlap	Menifee	Secondary	2.00	2	4	0%	1	3	0	0	0	100%	0.76	1.30	
Central	Unincorporate	Nuevo	San Jacinto River	bridge	Secondary	0.00	2	4	0%	1	3	0	400	0	0%	0.77	1.36	
Southwest	Unincorporate	Pala	Pechanga	San Diego County	Secondary	1.39	2	2	0%	2	3	0	0	0	48%	0.88	1.48	
Central	Unincorporate	Pigeon Pass/CETAP Corrid	Hidden Springs	Mount Vernon	Secondary	3.95	0	2	74%	3	3	0	0	0	0%	1.16	1.33	40%
Central	Unincorporate	Post	Santa Rosa Mine	Ellis	Secondary	0.44	2	2	0%	2	3	0	0	0	0%	0.58	1.07	
Southwest	Unincorporate	Pourroy	SR-79 (Winchester)	Auld	Secondary	2.28	2	4	84%	2	3	0	0	0	0%	0.42	0.57	
Southwest	Unincorporate	Rancho California	Butterfield Stage	Glen Oaks	Secondary	4.26	2	4	0%	1	1	0	0	0	0%	0.65	0.93	
Central	Unincorporate	Reche Canyon	Reche Vista	Moreno Valley City Limit	Secondary	3.20	0	0	0%	2	3	0	0	0	0%	0.02	0.19	
Central	Unincorporate	Reche Canyon	San Bernardino County	Reche Vista	Backbone	3.35	2	2	0%	3	3	0	0	0	0%	0.84	0.91	
Central	Unincorporate	Reche Vista	Reche Canyon	Country	Backbone	1.22	2	2	0%	2	2	0	0	0	0%	0.81	0.83	
Central	Unincorporate	Redlands	San Timoteo Canyon	Locust	Secondary	2.54	2	2	0%	2	3	0	0	0	100%	1.32	1.51	31%
Pass	Unincorporate	San Timoteo Canyon	San Bernardino County	UP Railroad	Secondary	5.65	2	2	0%	2	3	0	0	0	22%	0.31	0.66	
Pass	Unincorporate	San Timoteo Canyon	UP Railroad	railroad crossing	Secondary	0.00	2	2	0%	2	3	0	0	0	0%	0.08	0.48	
Central	Unincorporate	Scott	Briggs	SR-79 (Winchester)	Backbone	3.04	2	2	0%	1	3	0	0	0	0%	0.12	0.53	
San Jacint	Unincorporate	SR-74	Briggs	SR-79 (Winchester)	Backbone	3.54	4	6	0%	1	3	0	0	0	14%	0.63	1.06	
Central	Unincorporate	SR-74	Ethanac	Ellis	Backbone	2.72	4	4	0%	2	3	0	0	0	34%	0.87	1.17	
Southwest	Unincorporate	SR-74	I-15	Ethanac	Backbone	4.97	4	6	9%	2	3	0	0	0	64%	0.93	1.23	92%
San Jacint	Unincorporate	SR-79 (Hemet Bypass)	Domenigoni	Winchester	Backbone	1.50	0	2	0%	1	3	0	0	0	0%	0.59	0.76	
San Jacint	Unincorporate	SR-79 (Hemet Bypass)	San Diego Aqueduct	bridge	Backbone	0.00	0	2	0%	1	3	0	300	0	0%	0.62	0.86	
San Jacint	Unincorporate	SR-79 (Hemet Bypass)	SR-74 (Florida)	Domenigoni	Backbone	3.22	0	2	1%	1	3	0	0	0	0%	0.62	0.86	
Pass	Unincorporate	SR-79 (Lamb Canyon)	California	Gilman Springs	Backbone	5.23	4	4	0%	2	3	0	0	0	100%	1.21	1.43	42%
San Jacint	Unincorporate	SR-79 (San Jacinto Bypass)	Mid-County (Ramona)	SR-74 (Florida)	Backbone	6.50	0	4	0%	1	3	0	0	0	0%	0.55	0.73	
San Jacint	Unincorporate	SR-79 (Sanderson)	Gilman Springs	Ramona	Backbone	1.58	4	6	0%	1	3	0	0	0	100%	1.18	1.34	37%
San Jacint	Unincorporate	SR-79 (Sanderson)	San Jacinto River	bridge	Backbone	0.00	4	6	0%	1	3	0	1,400	0	0%	1.21	1.41	39%
San Jacint	Unincorporate	SR-79 (Winchester)	Domenigoni	Keller	Backbone	4.90	6	6	10%	1	2	0	0	0	0%	0.55	0.82	
Southwest	Unincorporate	SR-79 (Winchester)	Hunter	Murrieta Hot Springs	Backbone	1.14	4	6	88%	1	3	0	0	0	75%	0.95	1.04	66%
Southwest	Unincorporate	SR-79 (Winchester)	Keller	Thompson	Backbone	2.47	4	6	9%	1	2	0	0	0	0%	0.56	0.71	
Southwest	Unincorporate	SR-79 (Winchester)	La Alba	Hunter	Backbone	0.51	4	6	0%	1	2	0	0	0	100%	1.10	1.22	39%
San Jacint	Unincorporate	SR-79 (Winchester)	SR-74 (Florida)	Domenigoni	Secondary	3.23	2	2	0%	1	3	0	0	0	0%	0.66	1.05	
Southwest	Unincorporate	SR-79 (Winchester)	Thompson	La Alba	Backbone	1.82	4	6	0%	1	2	0	0	0	25%	0.82	0.99	
Northwest	Unincorporate	Temescal Canyon	Dawson Canyon	I-15	Secondary	0.49	4	4	0%	2	3	0	0	0	43%	0.66	1.01	
Northwest	Unincorporate	Temescal Canyon	Dos Lagos	Leroy	Secondary	1.10	4	4	0%	2	3	0	0	0	0%	0.48	0.74	
Southwest	Unincorporate	Temescal Canyon	Horsethief Canyon Wash	bridge	Secondary	0.00	2	4	0%	2	3	0	240	0	0%	0.66	0.86	
Northwest	Unincorporate	Temescal Canyon	I-15	interchange	Secondary	0.00	0	0	0%	2	3	3	0	0	0%	0.85	1.35	

Northwest	Unincorporate	Temescal Canyon	I-15	Park Canyon	Secondary	2.02	2	4	10%	3	3	0	0	0	27%	0.69	1.02	
Southwest	Unincorporate	Temescal Canyon	Indian Truck Trail	I-15	Secondary	2.57	2	4	0%	2	3	0	0	0	0%	0.64	0.97	
Southwest	Unincorporate	Temescal Canyon	Indian Wash	bridge	Secondary	0.00	2	4	0%	2	3	0	105	0	0%	0.61	0.80	
Northwest	Unincorporate	Temescal Canyon	Leroy	Dawson Canyon	Secondary	1.89	4	4	0%	2	3	0	0	0	0%	0.46	0.71	
Northwest	Unincorporate	Temescal Canyon	Ontario	Tuscany	Secondary	0.65	2	4	20%	2	3	0	0	0	0%	0.68	1.07	
Northwest	Unincorporate	Temescal Canyon	Park Canyon	Indian Truck Trail	Secondary	2.55	4	4	0%	2	3	0	0	0	0%	0.02	0.12	
Northwest	Unincorporate	Temescal Canyon	Tuscany	Dos Lagos	Secondary	0.91	4	4	0%	2	3	0	0	0	0%	0.72	1.08	
Northwest	Unincorporate	Van Buren	Mockingbird Canyon	Wood	Backbone	4.42	4	6	0%	1	2	0	0	0	47%	0.89	1.04	
Northwest	Unincorporate	Van Buren	Orange Terrace	I-215	Backbone	1.89	6	6	0%	1	2	0	0	0	0%	0.71	0.99	
Northwest	Unincorporate	Washington	Hermosa	Harley John	Secondary	3.96	2	4	26%	1	3	0	0	0	0%	0.73	0.92	
Northwest	Unincorporate	Wood	Krameria	Cajalco	Secondary	2.99	2	4	4%	1	3	0	0	0	17%	0.56	0.83	
Southwest	Wildomar	Bundy Canyon	I-15	Monte Vista	Backbone	0.22	4	6	0%	2	3	0	0	0	75%	0.84	1.16	
Southwest	Wildomar	Bundy Canyon	I-15	interchange	Backbone	0.00	0	0	0%	2	3	3	0	0	0%	1.12	1.77	75%
Southwest	Wildomar	Bundy Canyon	Mission	I-15	Secondary	0.94	2	4	32%	1	2	0	0	0	0%	0.60	0.90	
Southwest	Wildomar	Bundy Canyon	Monte Vista	Sunset	Backbone	3.14	2	4	0%	3	3	0	0	0	37%	0.89	1.18	
Southwest	Wildomar	Clinton Keith	I-15	Copper Craft	Backbone	1.96	2	4	58%	2	3	0	0	0	60%	0.89	1.01	
Southwest	Wildomar	Clinton Keith	Palomar	I-15	Backbone	0.55	4	4	0%	1	2	0	0	0	0%	0.69	0.80	
Southwest	Wildomar	Grand	Corydon	Wildomar Trail	Secondary	2.02	2	2	0%	1	2	0	0	0	0%	0.72	0.89	
Southwest	Wildomar	Mission	Bundy Canyon	Palomar	Secondary	0.84	4	4	0%	1	2	0	0	0	0%	0.20	0.43	
Southwest	Wildomar	Palomar	Clinton Keith	Washington	Secondary	0.74	2	4	0%	1	3	0	0	0	0%	0.59	0.88	
Southwest	Wildomar	Palomar	Mission	Clinton Keith	Secondary	2.79	2	4	21%	2	3	0	0	0	0%	0.60	0.88	
Southwest	Wildomar	Wildomar Trail	Baxter	Palomar	Secondary	0.74	2	4	0%	1	2	0	0	0	35%	0.82	0.94	
Southwest	Wildomar	Wildomar Trail	I-15	Baxter	Secondary	0.29	2	4	0%	1	3	0	0	0	73%	0.87	1.06	
Southwest	Wildomar	Wildomar Trail	I-15	interchange	Secondary	0.00	0	0	0%	1	3	3	0	0	0%	0.94	1.15	85%
Southwest	Wildomar	Wildomar Trail	Palomar	Grand	Secondary	0.51	2	2	0%	1	2	0	0	0	0%	0.87	1.03	

Attachment

TUMF Network Maps

TUMF Network - Nexus Study System Map

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Road Labels show Existing to Future Lanes for Nexus Study Update

Legend

- Eligible
- Ineligible

Location Projects - Ineligible/Complete
- interchange
- bridge
- railroad crossing

Location Projects - Eligible/Incomplete
- interchange
- bridge
- railroad crossing

TUMF Zone

TUMF Network - Nexus Study
Northwest Zone

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Road Labels show Existing to Future Lanes for Nexus Study Update

Legend

- Eligible
- Ineligible
- Eligible in 2017
- Ineligible in 2017
- Added Segments in 2023

Location Projects - Ineligible/Complete
- interchange
- bridge
- railroad crossing

Location Project - Eligible/Incomplete
- interchange
- bridge
- railroad crossing
- TUMF Zone

TUMF Network - Nexus Study
Southwest Zone

Road Labels show Existing to Future Lanes for Nexus Study Update

Legend

- Eligible
- Ineligible
- Eligible in 2017
- Ineligible in 2017
- Added Segments in 2023

Location Projects - Ineligible/Complete
- interchange
- bridge
- railroad crossing

Location Project - Eligible/Incomplete
- interchange
- bridge
- railroad crossing
- TUMF Zone

TUMF Network - Nexus Study
Central Zone

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Road Labels show Existing to Future Lanes for Nexus Study Update

Legend

- Eligible
- Ineligible
- Eligible in 2017
- Ineligible in 2017
- Added Segments in 2023

Location Projects - Ineligible/Complete
- interchange
- bridge
- railroad crossing

Location Project - Eligible/Incomplete
- interchange
- bridge
- railroad crossing
- TUMF Zone

TUMF Network - Nexus Study
Pass Zone

Road Labels show Existing to Future Lanes for Nexus Study Update

Legend

- Eligible
- Ineligible
- Eligible in 2017
- Ineligible in 2017
- Added Segments in 2023

Location Projects - Ineligible/Complete
- interchange
- bridge
- railroad crossing

Location Project - Eligible/Incomplete
- interchange
- bridge
- railroad crossing
- TUMF Zone

TUMF Network - Nexus Study
Hemet/San Jacinto Zone

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Mid-County (Ramona) (2 to 6)
Mid-County (Ramona) (2 to 4)
Mid-County (Ramona) (4 to 4)
SR-79 (Lamb Canyon) (4 to 4)
SR-79 (Sanderson) (4 to 6)
Gilman Springs (2 to 4)
State (2 to 4)
Ramona (6 to 6)
Ramona (4 to 4)
Warren (2 to 4)
W 7TH ST
Esplanade (2 to 2)
Esplanade (4 to 4)
Ramona (0 to 4)
Ramona (4 to 4)
Sanderson (4 to 4)
State (4 to 4)
SR-79 (San Jacinto) (4 to 4)
SR-79 (San Jacinto Bypass) (0 to 4)
W Menlo Ave
SR-74/SR-79 (Florida) (4 to 4)
SR-74 (Florida) (4 to 4)
SR-74 (4 to 6)
State (2 to 2)
East Hemet
CALIFORNIA AVE
Stetson (2 to 4)
Stetson (4 to 4)
Stetson Ave
Egan
Ramona Bowl
Domenigoni (4 to 4)
Domenigoni (4 to 6)
SR-79 (Winchester) (2 to 2)
SR-79 (Hemet Bypass) (0 to 2)
GRAND AVE
9th ST
Winchester
Simpson Rd
Briggs (0 to 2)
Menifee (4 to 4)
Menifee (2 to 4)
McCall (2 to 4)
Nuevo (2 to 4)
Nuevo Rd
Lakeview Ave
Lakeview
Juniper Springs
Newport (6 to 6)
SR-79 (Winchester) (6 to 6)
Menifee Lakes Country Club
Loma Linda University,
Diamond Valley
Soboba Reservation
Soboba Rd
San Jacinto River
Golden Eagle Course
Hemet
Valle Vista
San Jacinto
Gilman Hot
243
74

Road Labels show Existing to Future Lanes for Nexus Study Update

Legend

- Eligible
- Ineligible
- Eligible in 2017
- Ineligible in 2017

Location Projects - Ineligible/Complete
- interchange
- bridge
- railroad crossing

Location Project - Eligible/Incomplete
- interchange
- bridge
- railroad crossing

TUMF Zone

Attachment

Nexus Study Project Requests

2023 TUMF Nexus Study Update - Network Addition Requests

Northwest Zone

City/ County	Street Name	From	To	Recommendation
Eastvale	Hellman	River Road	Walter	Add to network for continuity and mitigate future v/c deficiency
Eastvale	Hellman	Schleisman	Walter	Add to network for continuity and mitigate future v/c deficiency
Eastvale	Hellman	Cucamonga Creek	bridge	Add to network for continuity and mitigate future v/c deficiency
Eastvale	River Rd	Archibald	Hellman	Add to network for continuity and mitigate future v/c deficiency
Eastvale	Limonite ITS	city wide		Add to network for deficient links with no capacity increase
Eastvale	Hamner ITS	city wide		Add to networks for deficient links with no capacity increase
Eastvale	Schliesman ITS	city wide		Add to networks for deficient links with no capacity increase
Eastvale	Archibald ITS	city wide		Add to networks for deficient links with no capacity increase
Eastvale	Limonite	Cucamonga Creek	bridge	Bridge length increased to 500'
Riverside	University ITS	Market St	Canyon Crest	Add to networks for deficient links with no capacity increase
Riverside	Tyler ITS	California Ave	Indiana Ave	Do not add - no V/C deficiency
Riverside	Alessandro Blvd ITS	Fairview Ave	Meridian	Add to networks for deficient links with no capacity increase
County	Markham St	Mockingbird Canyon	Wood Rd	Do not add - no regional connectivity or V/C deficiency

Central Zone

City/ County	Street Name	From	To	Recommendation
Menifee	Garbani	Haun	Antelope	Do not add - no future v/c deficiency
Menifee	Garbani	I-215	interchange	Add to network to mitigate future v/c deficiency
Menifee	Garbani	I-215	Menifee	Do not add - no future v/c deficiency
Menifee	Garbani	Menifee	Briggs	Do not add - no future v/c deficiency
Menifee	Holland	City Limits (West)	Murrieta	Do not add - no future v/c deficiency
Menifee	Holland	Murrieta	Bradley	Add to network for continuity and mitigate future v/c deficiency
Menifee	Holland	Bradley	Haun	Add to network for continuity and mitigate future v/c deficiency
Menifee	Holland	Antelope	Muenifee	Add to network for continuity and mitigate future v/c deficiency
Menifee	Scott	Haun	Menifee	Already on TUMF Network
Menifee	Scott	Menifee	Briggs	Already on TUMF Network
Menifee	Scott	Sunset	Murrieta	Already on TUMF Network
Menifee	Briggs	Simpson	Angler	Already on TUMF Network
Menifee	Briggs	Salt Creek	bridge	Already on TUMF Network
Perris	Ethanac	Bridge	San Jacinto River	Already on TUMF Network
Unincorporated	Grand Ave	Briggs Rd	SR-79	Do not add - no future v/c deficiency

San Jacinto Zone

City/ County	Street Name	From	To	Recommendation
Hemet	Stetson	Warren	0.85 Miles w/o Warren	Do not add - no regional connectivity or V/C deficiency
San Jacinto	7th St	Western Terminus	Warren Rd	Do not add - no future v/c deficiency
San Jacinto	7st St	Channel adjacent to Warren	bridge	Do not add - no future v/c deficiency

Pass Zone

City/ County	Street Name	From	To	Recommendation
Banning	Highland Springs	Cherry Valley	Oak Valley	Already on TUMF Network - no v/c deficiency
Banning	Cottonwood	I-10	interchange	Do not add - no connectivity to regional network
Banning	Wilson	Highland Springs	Highland Home	Already on TUMF Network - no v/c deficiency
Banning	Sun Lakes	Smith Creek	bridge	Segment already on TUMF Network - Bridge added

Southwest Zone

City/ County	Street Name	From	To	Recommendation
Lake Elsinore	Camino del Norte	Summerhill	Main	Do not add - no connectivity to regional network
Lake Elsinore	Summerhill	Railroad Canyon	Greenwald	Do not add - no regional connectivity or V/C deficiency
Lake Elsinore	Nichols	I-15	Lake	Already on TUMF Network
Wildomar	Inland Valley Dr	I-15	bridge	Do not add - no connectivity to regional network
Wildomar	Palomar	Starbuck	Washington	Already on TUMF Network
Wildomar	Bundy Canyon	I-15	City Limits (Sunset)	Already on TUMF Network
Murrieta	Orange Springs Parkway	Clinton Keith	Scott	Do not add - no regional connectivity or V/C deficiency
Murrieta	Calle del Oso Oro	Vineyard Pkwy	Washington	Do not add - no regional connectivity or V/C deficiency
Murrieta	Calle del Oso Oro	1500 w/o Vineyard Pkwy	bridge	Do not add - no regional connectivity or V/C deficiency
Murrieta	Adams	Murrieta Hot Springs/Hawthorne	Cherry	Do not add - no regional connectivity or V/C deficiency
Temecula	Ynez Road	Rancho California	Santiago	Do not add - no connectivity to regional network
Temecula	Ynez Road/DePortola Road	Santiago	Margarita	Do not add - no connectivity to regional network
Temecula	ITS	Major Arterials (Winchester, Rancho California, Butterfield Stage, Temecula Pkwy, Margarita, Jefferson	City limits	Add to network for deficient links with no capacity increase

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **Climate Pollution Reduction Grants Funding Opportunity**

Contact: **Casey Dailey, Director of Energy & Environmental Programs, cdailey@wrcog.us, (951) 405-6720**

Date: **December 14, 2023**

Recommended Action(s):

1. Receive and file.

Summary:

The 2022 Inflation Reduction Act established the Climate Pollution Reduction Grants (CPRG) Program, which funds both planning and implementation grant opportunities. One million dollars was allocated to the Riverside / San Bernardino Metropolitan Statistical Area (MSA) to prepare a Priority Climate Action Plan (PCAP). Following submittal of the PCAP, the Riverside / San Bernardino MSA will be eligible to submit an application for implementation grants. This subsequent application is due April 1, 2024.

Purpose / WRCOG 2022-2027 Strategic Plan Goal:

The purpose of this item is to share information regarding the upcoming CPRG implementation grant opportunity.

Potential implementation grant activities cover a wide spectrum of issue areas and overlap with multiple goals and actions with the adopted WRCOG 2022-2027 Strategic Plan, including:

Goal 2: Identify and help secure grants and other potential funding opportunities for projects and programs that benefit member agencies.

Goal 5: Develop projects and programs that improve infrastructure and sustainable development in our subregion.

5.1 Support Investment in projects, infrastructure, and programs in the region including:

5.1.1 Transportation infrastructure

Goal 6: Develop and implement programs that support resilience for our region.

6.1 Incentivize programs for saving electricity, water, and other essential resources through the Inland

Regional Energy Network.

6.2 Support the efforts to promote the Clean Cities Coalition.

Discussion:

Background

In 2022, the Biden / Harris Administration and Congress established the $5B CPRG Program as part of the Inflation Reduction Act (IRA). The CPRG implementation grants are designed to enable states, municipalities, tribes, and territories to achieve the following goals:

1. Implement ambitious measures that will achieve significant cumulative greenhouse gas (GHG) emissions reductions by the year 2030 and beyond.
2. Pursue measures that will achieve substantial community benefits (such as reduction of criteria air pollutants [CAPs] and hazardous air pollutants), particularly in low-income and disadvantaged communities.
3. Complement other funding sources to maximize these GHG emissions reductions and community benefits.
4. Pursue innovative policies and programs that are replicable and can be scaled up across multiple jurisdictions.

The U.S. Environmental Protection Agency (EPA) has allocated funding to 117 entities nationally to prepare preliminary studies that will be used to identify GHG emissions reduction strategies. This funding was provided to states as well as regional governments representing MSAs. MSAs are designated by the U.S. Census and represent countywide or multi-county areas with a significant level of economic interaction. Within southern California, the following MSAs received $1M each to prepare this initial planning study (PCAP):

- Los Angeles / Orange County MSA
- Riverside / San Bernardino MSA
- Oxnard / Ventura / Thousand Oaks MSA

SBCOG is leading the preparation of the PCAP for the Riverside / San Bernardino MSA with assistance from SCAG, AQMD, WRCOG, CVAG, and other stakeholders.

The CPRG Program does not allow for individual municipalities to submit grant funding requests directly to EPA. The CPRG Program does allow for municipalities and other agencies to serve as sub-applicants or partner with regional entities on a grant application. WRCOG anticipates that any grant application to EPA would be structured in this manner, which ensures that money would flow from EPA to the MSA, and then to individual government agencies for project implementation.

Present Situation

Implementation Grant Application: Any of the entities which received a planning grant and submit a PCAP are eligible to apply for an implementation grant. Up to $4.6B will be allocated to these entities with the maximum grant amount of $500M. Given the relative size of the Riverside / San Bernardino MSA, the region could be eligible for up to $200M in funding, though any award would be through a

competitive process. Applications for CPRG grants are due in April, with the awards anticipated to be announced in October. The grant period extends through 2030.

One key requirement for the implementation grants is that any proposed GHG emissions reduction program, policy, or project that agencies want to fund must be first identified in the PCAP to be eligible for the larger funding amounts. EPA encourages eligible applicants to seek implementation funds for GHG emissions reduction measures that will significantly reduce cumulative GHG emissions by 2030 and beyond, and that will accelerate decarbonization across one or more major sectors responsible for GHG emissions. EPA will score grant applications based on multiple evaluation criteria, with an emphasis on the magnitude of near-term GHG emissions reductions that will be achieved by the proposed measures. Additionally, EPA will prioritize applications which demonstrate regional collaboration. Therefore, programs or projects which are multi-jurisdictional or implemented at a larger scale will be scored higher than programs or projects which are limited to one jurisdiction.

When considering potential GHG emissions reduction measures, it is important to also understand the current state of GHG emissions in the Riverside / San Bernardino MSA since reduction measures which provide the highest level of GHG emissions reduction are more likely to receive funding. Based on the most recent CAP completed for the WRCOG subregion, which is also reflective of the emission profile of the larger MSA, the primary sectors contributing to GHG reduction include:

- On-road transportation (light- and heavy-duty vehicles) - 50%
- Residential energy (electricity and natural gas usage) - 23%
- Non-residential energy (electricity and natural gas usage) - 19%

Therefore, 90% of all GHG emissions are associated with vehicles and buildings. The remaining 10% of emissions are related to solid waste, off-road equipment, water / wastewater, and other sectors.

The implementation grant application is not limited to these sectors and the EPA is encouraging applicants to consider a variety of creative solutions to reduce GHG emissions in a variety of sectors. The EPA also recognizes that each state and region has a different emissions profile and some reduction measures may be more applicable in certain circumstances.

Other Grant Requirements

As with other grants, EPA is also asking applicants to evaluate equity and environmental justice considerations, particularly as it relates to low-income and disadvantage communities. Any grant application will therefore have to document how these communities benefit from any proposed GHG emissions reduction measures. Also, any GHG emissions reduction measures that specifically benefit those low-income and disadvantaged communities may be more likely to receive funding.

The CPRG Program also expects applicants to document outcomes associated with the implementation of GHG emissions reduction measures.

Example outputs could include:

- Number of alternative fuel vehicle charging / fueling stations constructed
- Amount of renewable energy installed
- Number of policies implemented in support of the GHG emissions reduction measures

- Number of workshops or trainings held in support of the GHG emissions reduction measures

The CPRG Program also requests applicants document GHG emissions reductions for both the near-term (2025 to 2030) and long-term (2025 to 2050) for any completed implementation activities.

Award Funding and Incremental / Full Funding

What is unique about the CPRG Program is that it will provide full funding subsequent to grant award. EPA will provide this funding to the agency who applied for the award. The agency which receives these funds will then be responsible for tracking any expenditures and then preparing the appropriate report as noted above. For example, if SBCOG were to apply for funding for the Riverside / San Bernardino County MSA and is awarded the funding, EPA will provide those funds to SBCOG, which will then be responsible for the distribution of funds to entities within the MSA.

Given this funding structure and the potential size of any grant award, there is a need for some administrative entity to facilitate this process. Specific tasks that could be required include:

- Conducting outreach with local governments to make them aware of this funding source
- Working directly with local governments to assist with project development
- Tracking funding requests to ensure an equitable distribution of funds
- Managing any formal or informal process, such as a Call for Projects, to facilitate the flow of funding from the MSA to local governments
- Working with local governments to prepare appropriate reports to comply with EPA requirements

No cost sharing / matching funds or leveraged resources are required as a condition of eligibility under this competition. Funds awarded under this Program cannot be used to meet the matching funds requirement under another federal grant program.

More information on the CPRG Program and the Notice of Funding Opportunity (NOFO) for the Implementation Grants can be found below:

- CPRG Program
- Notice of Funding Opportunity

Next Steps

There are a number of outstanding questions to be addressed prior to the application submittal in April 2024. These questions include:

- Is there interest within the WRCOG region to pursue this funding?
- Are there topics, programs, or projects our members would want to prioritize?
- Are there topics, programs or projects our members would want to de-emphasize or choose to not participate in?
- Are the proposed projects consistent with the WRCOG mission?
- How would funds be distributed to different jurisdictions?
- Should administrative oversight be maintained by WRCOG or shared with some combination of other partners (CVAG, SBCOG, I-REN)?

This item was presented to the Executive Committee, Administration & Finance Committee, Technical Advisory Committee, and the I-REN Executive Committee. All expressed support to pursue this funding opportunity and discussed mechanisms to provide feedback to WRCOG staff regarding their relative priorities.

This item is being presented to the Public Works Committee to notify them of the available funding opportunity and also discuss opportunities for member agencies to engage in the application process.

Prior Action(s):

December 4, 2023: The Executive Committee received and filed.

November 16, 2023: The Technical Advisory Committee received and filed.

November 8, 2023: The Administration & Finance Committee received and filed.

Financial Summary:

WRCOG's support of the PCAP is limited to existing staff time and is included in the adopted Fiscal Year 2023/2024 Agency budget. The grant would potentially be awarded in Fiscal Year 2024/2025 and would be reflected in that year's budget.

Attachment(s):

None.