



TRANSPORTATION TECHNICAL ADVISORY SUB-COMMITTEE AGENDA

Monday, April 25, 2011
12:00 p.m.

CVAG Offices
73-710 Fred Waring Drive, Suite 119
Palm Desert, CA 92260
(760) 346-1127

**THIS MEETING IS HANDICAPPED ACCESSIBLE.
ACTION MAY RESULT ON ANY ITEMS ON THIS AGENDA.**

1. **CALL TO ORDER** (Chairman Tom Rafferty, City of Indio)

2. **ROLL CALL**

A. **Member Roster**

P3

3. **PLEDGE OF ALLEGIANCE**

4. **PUBLIC COMMENTS**

This is the time and place for any person wishing to address the Transportation Technical Advisory Sub-Committee to do so.

5. **TRANSPORTATION TECHNICAL ADVISORY SUB- COMMITTEE / DIRECTOR
COMMENTS**

6. **CONSENT CALENDAR**

- A. **Approve the March 28, 2011 Transportation Technical Advisory Sub-Committee Minutes** **P4**

B. **Receive and File**

- 1) Status of Five I-10 Interchange Projects **P7**
- 2) CVAG Regional Arterial Program – Project Status Report **P9**
- 3) Transportation Technical Advisory Sub-Committee Roster **P11**

7. **DISCUSSION / ACTION**

- A. **Methodology to Determine Benefit Share Analysis for Interstate 10 Interchange Projects – Allyn Waggle** **P12**

Recommendation: Compare Past with Present Methodologies and Establish Standards for Determining the Proportionate Benefit Shares for the Date Palm Drive Interchange project, as well as any other Regional Transportation Projects for which use of a Traffic Projection Model would be appropriate.

- B. **Consider Clarification of TUMF for Solar Energy Projects – Jim Sullivan** **P38**

Recommendation: Recommend that the application of TUMF for the newly developing land use of Solar Power Generation be clarified so that TUMF would be charged on buildings associated with the project but not the solar arrays themselves.

8. **ANNOUNCEMENTS**

Upcoming Meetings:

Transportation Technical Advisory Sub-Committee – Monday, May 23, 2011, 12:00 p.m.

Transportation Committee – Monday, May 2, 2011, 10:00 a.m.

Executive Committee – Monday, April 25, 2011, 6:00 p.m.

All meetings will take place at 73-710 Fred Waring Drive, Suite 119, Palm Desert.

Item 2A

**TRANSPORTATION TECHNICAL
ADVISORY SUB-COMMITTEE
ROSTER**



Transportation Technical Advisory Sub-Committee Members	
City of Blythe	Jim Rodkey Director of Public Works
City of Cathedral City	Bill Bayne City Engineer
City of Coachella	Jonathan Hoy, TTAS Vice Chair City Engineer
City of Desert Hot Springs	Tim Wassil Director of Public Works
City of Indian Wells	Paul Goble Director of Public Works
City of Indio	Tom Rafferty, TTAS Chair Principal City Engineer
City of La Quinta	Tim Jonasson City Engineer, Director of Public Works
City of Palm Desert	Bo Chen City Engineer
City of Palm Springs	David Barakian City Engineer, Director of Public Works
City of Rancho Mirage	Bruce Harry Director of Public Works
County of Riverside	Mojahed Salama Engineering Division Manager
Agua Caliente Band of Cahuilla Indians	Margaret Park Director of Planning
SunLine Transit	Eunice Lovi Director of Planning

ITEM 6A

**TRANSPORTATION TECHNICAL ADVISORY
SUB-COMMITTEE
MINUTES OF MEETING
MONDAY, MARCH 28, 2011**



The audio file for this committee meeting can be found at <http://www.cvag.org/minutes.htm>

1. CALL TO ORDER

The Transportation Technical Advisory Sub-Committee (TTAS) meeting was called to order on Monday, March 28, 2011 at 12:03 p.m. by Chairman Tom Rafferty.

2. ROLL CALL

A roll call was taken and it was determined that a quorum was present.

MEMBERS/ ALTERNATES PRESENT

Jim Rodkey, Director of Public Works
Bill Bayne, City Engineer
Jonathan Hoy, City Engineer
Tim Wassil, Director of Public Works
Tom Rafferty, Principal Civil Engineer
Tim Jonasson, City Engineer/Dir. of Public Works
Bo Chen, City Engineer
Dave Barakian, Director of Public Works
Bruce Harry, Director of Public Works
Mojahed Salama, Engineering Division Manager
Paul Goble, Director of Public Works
Margaret Park, Director of Planning
Brenda Ramirez, Assistant Transit Planner

AGENCY

City of Blythe
City of Cathedral City
City of Coachella
City of Desert Hot Springs
City of Indio
City of La Quinta
City of Palm Desert
City of Palm Springs
City of Rancho Mirage
County of Riverside
City of Indian Wells
Agua Caliente Band of Cahuilla Indians
SunLine

MEMBERS NOT PRESENT

Paul Goble, Public Works Director

AGENCY

City of Indian Wells

MEMBERS VACANT

Cabazon Band of Mission Indians

ALSO PRESENT

Stephen J. Smith

AGENCY

IMS

STAFF PRESENT

Allyn Waggle
Mike Shoberg

3. PLEDGE OF ALLEGIANCE

Chairman Rafferty led those in attendance in the Pledge of Allegiance

4. **PUBLIC COMMENTS**

None

5. **TRANSPORTATION TECHNICAL ADVISORY SUB-COMMITTEE MEMBER / DIRECTOR COMMENTS**

Allyn Waggle reported on staffing changes at CVAG and indicated that Carol Rayner was no longer an employee. Mr. Waggle also reported that due to the clerks' absence, Mr. Waggle and Michael Shoberg would be staffing the TTAS meetings.

6. **CONSENT CALENDAR**

A. **Approve the February 28, 2011 Transportation Technical Advisory Sub-Committee Minutes**

Tim Wassil requested that his vote for an item on the February TTAS agenda regarding Item 7A, Proportionate Share Analysis report for Bob Hope Drive and Indian Avenue interchange projects, be changed from AYE to NAY. He did not understand the presentation at the time and voted erroneously.

IT WAS MOVED BY BRUCE HARRY AND SECONDED BY TIM JONASSON TO APPROVE THE MINUTE OF THE FEBRUARY 28, 2011 AS AMENDED. THE MOTION CARRIED WITH BO CHEN, BRENDA RAMIREZ AND DAVE BARAKIAN ABSTAINING FROM THE VOTE.

B. **Receive and File**

- 1) Status of Five I-10 Interchange Projects
- 2) CVAG Regional Arterial Program – Project Status Report
- 3) Transportation Technical Advisory Sub-Committee Roster

David Barakian offered updated information for the Project Status Report. Michael Shoberg requested that any changes be sent to him to assist in accurate record keeping.

IT WAS MOVED BY BRUCE HARRY AND SECONDED BY TIM JONASSON TO RECEIVE AND FILE ITEMS 6B.1 THROUGH B.3. THE MOTION CARRIED.

5. **DISCUSSION /ACTION**

A. **Pavement Management Analysis – Michael Shoberg**

Michael Shoberg started the presentation by informing the TTAS members that an envelope containing the results of the most recent traffic count survey had been placed at each of their places. The results are also on CVAG's website. Mr. Shoberg inquired as to whether the TTAS would consider reducing the frequency of the counts to every two years, or some other combination for major roads versus minor roads. Mr. Jonasson stated that the annual counts are important to identify trend lines in traffic flow. The TTAS indicated they would notify Mr. Shoberg of their preference.

IT WAS MOVED BY TIM WASSIL AND SECONDED BY DAVE BARAKIAN TO RECEIVE AND FILE THE PAVEMENT MANAGEMENT ANALYSIS FINAL REPORT UNTIL THE TTAS HAD AN OPPORTUNITY TO REVIEW THE FINDINGS; REPORT TO MR. SHOBERG ANY COMMENTS THEY MAY HAVE; AND CONSIDER THIS ITEM AT A FUTURE DATE FOR FINAL APPROVAL. THE MOTION CARRIED.

8. ANNOUNCEMENTS

Chairman Rafferty reported that the SB 821 grant funds Call for Projects is out and applications are due on April 21st. The projects will be presented to a review committee on May 10th.

Chairman Rafferty also reported that the RCTC Maintenance of Effort information from the jurisdictions was due last Thursday, March 24th. A committee of RCTC TAC members will meet on April 4th to discuss the impact of the MOE numbers. Mr. Barakian announced that RCTC will set up a phone conference call-in number so anyone wishing to participate in the meeting can do so. Interested members should contact Shirley Medina.

Chairman Rafferty reported that Highway Bridge Program applications for the current year are due August 15th.

Upcoming Meetings:

Transportation Technical Advisory Sub-Committee – Monday, April 25, 2011, 12:00 p.m.

Transportation Committee – Monday, April 4, 2011, 10:00 a.m.

Executive Committee – Monday, March 28, 2011, 6:00 p.m.

All meetings will take place at 73-710 Fred Waring Drive, Suite 119, Palm Desert.

9. ADJOURNMENT

There being no further business, the meeting was adjourned at 1:27 p.m.

Respectfully Submitted,

Joanna Stueckle

Joanna Stueckle
Executive Assistant

ITEM 6B.1

Coachella Valley Association of Governments
Transportation Technical Advisory Sub-Committee
April 25, 2011



Staff Report

Subject: Status of I-10 Interchange Projects

Contact: Michael Shoberg, Transportation Program Manager (mshoberg@cvag.org)

Recommendation: Receive and File

Background: Attached is the latest status report for the five interchange projects as of April 13, 2011.

A. Indian Canyon

The eastbound and westbound off ramps have been opened to traffic. The eastbound and westbound on ramps are scheduled for mid-May. Once the ramps are open the new bridge can accommodate traffic.

Future activity includes the following:

- One or two westbound lanes on I-10 will be closed to allow for work on the underside of the new bridge. A date has not been established.
- East bound and westbound on ramps are scheduled to be open mid-May.
- Traffic may be on the new bridge by mid to late May.
- The existing bridge over the freeway will be taken down which will require freeway closure. No schedule as of yet.

B. Gene Autry Trail/Palm Drive

- Recent activity included the removal of the old bridge over the freeway. Traffic was switched to the new bridge over the freeway. All new ramps except for the east and westbound loop ramps have been opened. Work continues on the bridge supports over the railroad. The new signal at Varner Road and Palm Drive is operational. Work on the abutments for the other half of the bridge over the freeway has started.

Future activity includes the following:

- Freeway closures will be needed for the falsework erection and removal.
- It is estimated that falsework erection for the new bridge will occur early to mid-June.

C. Date Palm Drive

The Board of Supervisors awarded the contract to SEMA construction at their regular meeting on February 15, 2011. After the final paperwork is done the notice to proceed will be issued and construction will start. The contract was awarded to SEMA Construction who had a low bid of \$14,832,124 which was \$4,643,770, or about 24%, below the engineer's estimate. Work should start by late April to early May. A preconstruction meeting has been set in early May. The groundbreaking is currently scheduled for May 13.

D. Bob Hope/Ramon Road

Freeway lanes may be closed to allow for work. Work over the railroad continues and falsework and girders placement has started. Stop signs at Varner and Rio Del Sol have been placed. There is now a three-way stop which will remain until the signals are energized.

Future activity includes the following:

- It is expected that the Bob Hope section between Ramon Road and Varner Road will be open for traffic this summer. The ramps will not be open until fall.
- The completion of the project is scheduled for the end of 2011.

E. Jefferson Street

The project lead has officially been changed from the City of Indio to the County. Work continues on the Project Approval and Environmental Document (PA&ED) phase of the project. The new Varner Road connection to Jefferson Street on the west side of Jefferson Street caused a change in the project description. A new environmental report with updated traffic, air quality, noise, biological and other studies needs to be updated because of the new project description. A number of environmental focus meetings have occurred to sort out the details. The schedule for completion of the environmental document is estimated to be April, 2012 but an effort is being made to shorten that timeframe if possible. No other work can be approved until the PA&ED is approved. Construction is anticipated to start in late 2014 or early 2015.

F. SR86S/Airport Boulevard

The contractor started work on the project on Monday, April 11, 2010. Preliminary work, such as ESA fencing, electrical line relocation, etc., has started.

Future activity includes the following:

- Closure of Airport Boulevard for six months to facilitate construction of the interchange.

FISCAL ANALYSIS: Funding for all of the interchange projects except for Jefferson Street has been budgeted for and secured through various funding sources so there is no additional fiscal impact.

COACHELLA VALLEY ASSOCIATION OF GOVERNMENTS

Regional Arterial Program - Project Status Report

4/19/2011



ITEM 6B.2

Project Description	Lead Agency	Programmed Start	Programmed Finish	Status
Interchanges				
Indian Cyn/I-10	PS	Oct. 2009	May, 2012	Deck on new bridge poured, work continues
Palm Dr-Gene Autry TR/I-10	COR	Nov. 2009	May, 2012	New bridge complete, traffic transferred late March
Date Palm/I-10	Various	Oct. 2010	Nov. 2012	Contract award on February 15, work should start by end of April
Bob Hope-Ramon/I-10	COR	Sept. 2009	Oct. 2011	Project well under way. Girders over railroad being built
Monterey Ramp Improvements	PD	March 2011	March 2012	In design & environmental, construction Fall 2011
Jefferson/I-10	COR	Nov. 2014	Dec. 2016	Draft environmental document being prepared
Arterial Links				
Monterey Ave. Corridor (fr. Country Club to Dinah Shore)	RM	July 2009	Dec. 2009	Project complete, final invoices processed, project closed out
Monterey Ave. (fr. I-10 to Ramon)	COR	Sept. 2008	June 2009	Project complete, final invoices received, project closed out
Ave. 42 (fr. Golf Ctr. Pkwy. To Clinton St.)	Indio	Jan. 2008	May 2011	Project complete, waiting for final invoices
Jackson St. (fr. I-10 to Ave. 42)	Indio	April 2008	Dec. 2008	Project complete, project closed out
Jefferson (fr. Hwy. 111 to Indio Blvd.)	COR		June 2009	Project is complete, final bill received, project closed out
Varner Rd. (fr. Adams to Jefferson)	Indio	Feb. 2003	Dec. 2013	Project complete except for near Jefferson intersection. Under construction
Fred Waring (thru Palm Desert & Indian Wells)	IW	Sept. 2007	Feb. 2008	Project complete, final bills and close-out received and processed
Fred Waring (Washington to Adams)	LQ			Project complete, final bills and close-out received and processed
Fred Waring (Adams to Port Maria)	COR	No schedule		Final signatures received, ready to start design phase
Cook Street Widening (fr. Fred Waring to Frank Sinatra)	PD	Feb. 2011	Aug. 2011	Project scheduled by City Spring/Summer 2011
Monroe (fr. Ave. 52 to I-10)	Indio	May 2011	August 2011	Done from I-10 to Ave. 49. Project completion Fall/Winter of 2012/2013.
Madison St. (fr. Ave. 52 to Indio Blvd.)	Indio		Sept. 2013	Under design and construction section from Miles to Fred Waring on hold
Varner Rd. (fr. Ramon to Monterey)	Multi	Jan. 2008	July 2010	Project complete, subject to future agreement in 2013
Ave. 50 (fr. Jefferson to Jackson)	Indio	April 2008	Dec. 2008	Project complete
Miles (fr. WWR to Clinton)	COR	March 2009	Nov. 2010	Project Complete. Waiting for Final Invoices
SR-111 (fr. Cathedral Cyn. To Date Palm)	RCTC	Oct. 1997	July 1998	Project is on hold
SR 111 - Phase 2 (Indian Wells)	IW	May 2011	Sept. 2011	Construction scheduled for summer/fall 2011
SR 111 - Phase 3 (Indian Wells)	IW	May 2012	Sept. 2012	Construction scheduled for summer/fall 2012
Portola Ave. North of Gerald Ford Drive	PD		2012	Project complete, subject to future reimbursement agreement
Bridges				
Portola Ave. (at Whitewater Channel)	PD		Dec. 2006	Project complete, project closed out
Indian Canyon (fr. Garnet to & Incl. RR Crossing)	PS	May 2011	June 2012	In design
Dillon Road Grade Separation	Various		Summer 2009	Project complete, waiting for final invoices
Gene Autry (fr. I-10 to Vista Chino incl. WWR & RR crossing)	PS		Dec. 2011	Bridge over RR under construction in conjunction with interchange work
Indian Canyon (across WWR)	PS		Nov. 2011	In design, construction Spring/Summer 2011
Miles Ave. at WWR	COR		May. 2009	Bridge complete waiting for final invoices
Adams Street Bridge	LQ	Sept. 2010	Aug. 2012	Design complete expect award of contract for construction Spring 2011
Cathedral Canyon Bridge	CC			PA&ED to start in November, 2010
PSR Projects				

Da Vall Interchange	CC	June 2010	July 2011	Under development by TyLin, PSR on hold because of State budget
Portola Interchange PA & ED	PD	Feb. 2006	March 2011	Completion expected winter/spring of 2011
Monroe Interchange	Indio			Under development by AECOM, PSR on hold because of State budget
Jackson Interchange	Indio	May 2007	Sept. 2008	Under development by AGA, PSR on hold because of State budget
Golf Center Parkway Interchange	Indio	May 2007	Dec. 2007	Under development by AECOM, PSR on hold because of State budget
Dillon Road/I-10 Interchange	COA	Sept. 2007	July 2010	PSR Approved
Dillon Road/SR 86S Interchange	COA	Sept. 2007	Sept. 2010	PSR Approved

COR-County of Riverside; RM-Rancho Mirage; IW-Indian Wells; PD-Palm Desert, PS-Palm Springs; CC-Cathedral City; COA-Coachella LQ-La Quinta;

Item 6B.3



Transportation Technical Advisory Sub-Committee Attendance Roster

CVAG is dark in August and December

FY 10/ 11

CVAG Jurisdiction	July	Sept	Oct	Nov	Jan	Feb	Mar	April	May	June
Blythe		X	X	X		X	X			
Cathedral City		X				X	X			
Coachella		X	X	X		X	X			
Desert Hot Springs		X	X	X		X	X			
Indian Wells		X	X			X				
Indio		X	X	X		X	X			
La Quinta		X	X	X		X	X			
Palm Desert		X	X	X		X	X			
Palm Springs		X	X	X		X	X			
Rancho Mirage		X	X	X		X	X			
Riverside County		X		X		X	X			
Agua Caliente Band		X		X		X	X			
SunLine Transit		X	X	X		X	X			

X = In Attendance

 = Absent

ITEM 7A

**Coachella Valley Association of Governments
Transportation Technical Advisory Sub-Committee
April 25, 2011**



Staff Report

Subject: Methodology to Determine Benefit Share Analysis for Interstate 10 Interchange Projects

Contact: Allyn Waggle, Deputy Executive Director (awaggle@cvag.org)

Recommendation: Compare Past with Present Methodologies and Establish Standards for Determining the Proportionate Benefit Shares for the Date Palm Drive Interchange project, as well as any other Regional Transportation Projects for which use of a Traffic Projection Model would be appropriate.

Background: In order to equitably assign the 25% portion of local costs, in 2003 CVAG's Executive Committee approved a percentage distribution by proportionate share of costs for five interchange projects on Interstate 10; at Indian Avenue, at Palm Drive/ Gene Autry Trail, at Date Palm Drive, at Bob Hope Drive/ Ramon Road, and at Jefferson Street. At that time the approved traffic projection model was the Coachella Valley Area Transportation Study (CVATS) model, a slightly modified version of a model utilized by the Southern California Association of Governments (SCAG).

Recently the TTAS was requested to consider changes in the proportionate share distribution of two of those interchanges named above, Indian Avenue and Bob Hope Drive/ Ramon Road, based on an updated distribution analysis using the Riverside County-wide Transportation Demand Forecasting Model (RIVTAM) meant to bring all of Riverside County's transportation planning agencies under a uniform procedure for predicting future traffic loads for regional and inter-regional infrastructure projects. Participants in development of the new model included the Western Riverside Council of Governments (WRCOG), the Riverside County Transportation Commission (RCTC), Caltrans and SCAG.

Multiple questions have been raised regarding outcome of the recently updated distribution analysis. Staff has arranged with the consultant for this project, Urban Crossroads, Inc., to collect and provide additional information to address these questions. Carleton Waters, Principal with Urban Crossroads, will be present at the TTAS meeting to explain and discuss the logic for the methodologies used for past proportionate share analyses, and recommend the methodology appropriate for future projects. Mr. Waters will have additional information and material to present at the meeting.

Staff is now soliciting input from the TTAS regarding the appropriate methodologies to be used to determine the benefit share analysis for the remaining interstate projects, as well as any other regional transportation projects for which use of a traffic projection model would be appropriate.

Attached is the 2001 report for the distribution of local share responsibility for the interchange projects. A chapter is dedicated to methodologies, which staff proposes to discuss today.

Fiscal Analysis: There is no cost for the proposed recommendation.

**I-10 INTERCHANGE
BENEFIT SHARE ANALYSIS
County of Riverside, California**

Prepared for:

**Mr. Scott Staley
COUNTY OF RIVERSIDE
4080 Lemon Street, 8th Floor
Riverside, CA 92501**

Prepared by:

**Urban Crossroads, Inc.
41 Corporate Park, Suite 210
Irvine, CA 92606**

**John Kain, AICP
Carleton Waters, P.E.**

July 17, 2001

**JN:00017-0015-05
JK:CW:pr**

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
1.0 INTRODUCTION	1
2.0 METHODOLOGY	4
CVATS Traffic Analysis Zone (TAZ) Structure	4
CVATS Land Use Data and Socioeconomic Data (SED)	4
Trip Generation	5
Trip Distribution	6
Time of Day Trip Table Factoring Procedure	7
Traffic Assignment and Model Validation	7
Specialized Analysis Procedures	8
3.0 TRAFFIC SOURCE ANALYSIS	9
4.0 BENEFIT AREA AND DISTRICT DEFINITION	11
5.0 TRAFFIC CONTRIBUTION ANALYSIS	13

APPENDICES

I-10 INTERCHANGE BENEFIT ASSESSMENT TECHNICAL COMMITTEE	
WORKSHOP MINUTES	A
I-10 INTERCHANGE SELECT LINK TRAFFIC ASSIGNMENT PLOTS	B
TRANPLAN TRAFFIC CONTRIBUTION ANALYSIS REPORT	C

LIST OF EXHIBITS

<u>EXHIBIT</u>		<u>PAGE</u>
A	I-10 INTERCHANGE BENEFIT ASSESSMENT AREAS/CVATS TRAFFIC ANALYSIS ZONE OVERLAY.....	2

LIST OF TABLES

<u>TABLE</u>		<u>PAGE</u>
1	INDIAN AVENUE/INDIAN CANYON DRIVE SUMMARY	14
2	PALM DRIVE/GENE AUTRY TRAIL SUMMARY	15
3	DATA PALM DRIVE SUMMARY	17
4	RAMON ROAD SUMMARY	18
5	JEFFERSON STREET SUMMARY	19

1.0 INTRODUCTION

This report documents the analysis of benefit areas and subarea traffic contributions for the following interchanges located on Interstate 10 in the Coachella Valley:

- Indian Avenue/Indian Canyon Drive.
- Palm Drive/Gene Autry Trail.
- Date Palm Drive.
- Ramon Road.
- Jefferson Street.

The overall interchange analysis area is depicted on Exhibit A. This report describes the methodology used in this work effort and the resulting traffic sources, the interchange improvement benefit areas defined, and the calculated traffic shares (contribution) by benefit area for each interchange.

The final work product would not have been possible without the participation of the members of the I-10 Interchange Benefit Assessment Technical Committee. The participants in this effort were:

Agency/Jurisdiction

Cathedral City

Cathedral City

City of Desert Hot Springs

City of Desert Hot Springs

City of Indio

City of Indio

City of La Quinta

City of La Quinta

City of Palm Desert

City of Palm Springs

City of Palm Springs

Participant

Jerry V. Jack

Bill Bayne

Joe Guzzetta

Nick Nickerson

Terry Hagen

Amir H. Modarressi

Chris A. Voyt

Steve Speer

Mark Greenwood

Bob Mohler

Dave Barakian

City of Rancho Mirage	Bruce Harry
Coachella Valley Association of Governments	Anne Azzu
Coachella Valley Association of Governments	Allyn Waggle
Coachella Valley Association of Governments	Carol Cross
County of Riverside	Scott Staley

Each member attended 1 or more of the 4 Technical Committee workshops. Workshops occurred approximately monthly, beginning in January, 2001. The minutes of the workshops are included as Appendix "A" of this report. The Technical Committee was responsible for developing and refining the benefit areas for each interchange. The technical committee also reviewed the traffic contribution calculations that are presented in this final report.

2.0 METHODOLOGY

The analysis of subarea traffic contributions for the various I-10 interchanges was performed using the Coachella Valley Transportation Study (CVATS) travel demand modeling tool. A summary description of the CVATS model structure and process is provided below for the updated version of the model developed by the Southern California Association of Governments (SCAG) Inland Empire office in 1999.

CVATS Traffic Analysis Zone (TAZ) Structure

There are a total of 360 TAZs in the CVATS model, including cordon stations (roadways such as the I-10 Freeway that carry traffic into and out of the study area). Exhibit A (presented previously) depicts the traffic analysis zone (TAZ) structure of the CVATS model. Many of the 360 TAZs have been further subdivided for purposes of reflecting jurisdiction city limits in the land use and socioeconomic data (SED) projections and subtotals.

CVATS Land Use Data and Socioeconomic Data (SED)

The CVATS model relies on a combination of SED and land use data to forecast future travel demand throughout the Coachella Valley. The CVATS model currently uses a 1997 baseline (validation year) and a 2020 horizon year. The CVATS model has recently been updated by Southern California Association of Governments (SCAG) staff. The input SED corresponds to the data officially adopted by CVAG. Further information on the input data is available from CVAG staff. Regular updates ensure the ongoing validity and accuracy of the model in developing meaningful future year traffic forecasts. The following land use variables are utilized in the CVATS model:

- RES 1 - Very Low Density Residential (0 - 2 dwelling units per acre).
- RES 2 - Low Density Residential (3 - 6 dwelling units per acre).
- RES 3 - Medium Density Residential (7 - 15 dwelling units per acre).
- RES 4 - High Density Residential (16 - 21 dwelling units per acre).

- RES 5 - Very High Density Residential (22 + dwelling units per acre).
- TOUR - Tourist Facilities, Resort, Hotels, etc.
- PARK - Parks and Golf Courses, etc.
- COMM - General and Neighborhood Commercial Centers, Central Business Districts, etc.
- PUBL - Public Facilities (Fire Stations, etc.).
- OFFI - Professional Offices, Government Buildings, Health Care Facilities, etc.
- LIND - Light Industrial Uses.
- HIND - Heavy Industrial Uses.
- SCH - Schools (all levels).

In addition, land use defined as transportation/public utilities (power line easements, etc.) and open space (vacant land, agricultural uses, preserves, etc.) are also included in the land use databases to account for all of the acreage (land area) within each traffic analysis zone (TAZ). All of the land use variables are defined in terms of acres of use.

The CVATS model also utilizes several socioeconomic data variables, including:

- SPOP - Seasonal Population (visitor & part-year residents).
- LABF - Labor Force (by TAZ of residence).
- SCHNR - School Enrollment.

Each of the SED variables is quantified in terms of persons/population. Again, details regarding this data are available from CVAG.

Trip Generation

The trip generation procedure for the CVATS Model is implemented as a stand alone program, with the number of TAZs coded in as a fixed value. The input variables described previously are provided for each TAZ in the CVATS study area. The total

number of trips produced in or attracted to a geographical area is directly related to the land use and demographic variables of each TAZ. Characteristics of the household and land use type influence the number of trips produced by and attracted to a particular transportation analysis zone.

The CVATS trip generation model estimates the number of peak season vehicle trips produced on an average weekday for each analysis zone. In the CVATS model, special consideration is given to seasonal peak trips to address the traffic fluctuation that occurs when visitors and part-time residents from colder climates stay temporarily in the Coachella Valley. These seasonal population increases cause increased travel demand (trips/traffic). Trips are estimated by five trip types:

- (1) Home-Based Work (HBW)
- (2) Home-Based Social/Recreational (HBSR)
- (3) Home-Based Shopping/Personal Business (HBSHPB)
- (4) Home-Based School (HBSCH)
- (5) Non-Home-Based (NHB)

The Home-Based trip is defined as a trip originating at home or where the trip destination is home. The first four categories of trips described above are examples of Home-Based trips. The Non-Home-Based trip type refers to trips that do not originate at home or do not have a destination at home, (e.g., traveling from work directly to dinner). The reader is referred to the CVATS model documentation report for further information on the CVATS trip generation procedures.

Trip Distribution

Once the trip generation within each TAZ has been calculated, the distribution of trips between zones where trips are produced and zones where trips are attracted must be determined. In the traffic model, this function is achieved using a "gravity" distribution

model. The gravity model is utilized because it has been demonstrated to perform reasonably well and is widely accepted.

The gravity distribution model is based on the well known gravity formula, where the distribution of trips is proportional to the attractiveness of a land use and the distance (or travel time) from the point of trip production. The propensity to favor trips over shorter distances as opposed to trips over longer distances in the distribution process is expressed in terms of a travel time distribution function or curve. A unique distribution curve is utilized for each trip purpose. These curves reflect the tendency of trips to be made over longer distances for employment purposes, while trips for non-employment purposes, such as shopping, are generally shorter.

Each distribution curve is represented in the gravity formula through travel time friction factors that identify the curve for different elements of time. The distribution process is performed uniquely for each trip purpose. The end result of the process is a trip table or matrix for each trip purpose which records the trip interaction between zones on a daily production/attraction basis. Because the production/attraction trip table is not directional, it must be transformed to an origin/destination table through the matrix processes of transposition and factoring.

Time of Day Trip Table Factoring Procedure

The CVATS model structure only considers daily traffic conditions and does not provide any explicit information on peak hour conditions. Time of day factoring consists of transposing the trip table, adding the original and transposed tables together, and dividing by a factor of 2.

Traffic Assignment and Model Validation

Traffic assignment is the process by which trip interchanges between zones, determined in the distribution process, are assigned to specific route paths in the roadway network. The

CVATS model utilizes an incremental loading procedure that loads traffic onto the system in 10 increments. The end result is a forecast of traffic volumes on each roadway link. The model validation (base) year has been updated to 1994 by the SCAG Inland Empire office.

Specialized Analysis Procedures

The final step of the traffic contribution analysis using the CVATS tool requires the analyst to prepare specialized CVATS model runs. The TRANPLAN® software control files for the CVATS model have been modified to explicitly track the origin and destination of every trip utilizing the overcrossings/undercrossings or bridge structure(s) at each of the interchanges evaluated in this analysis. Traffic using the overcrossings/undercrossings was identified as the focus of the analysis both for simplicity sake and also because the bridge structure represents the most significant cost in improving each interchange.

3.0 TRAFFIC SOURCE ANALYSIS

The first step in the benefit assessment work effort was to identify the appropriate benefit assessment area for each interchange. This can be thought of as the “traffic shed” or source of traffic using each interchange. Oversize plots of the daily traffic volumes associated with each interchange (select link analysis) were prepared and discussed with the I-10 Interchange Benefit Assessment Technical Committee at the second workshop on February 16, 2001. Appendix “B” of this report includes reproducible (11” x 17”) versions of the interchange select link traffic assignment plots for each of the five interchanges. The initial expectation of the Technical Committee was that the traffic source for each interchange would represent a generalized north-south corridor that would form a natural benefit area for each individual interchange. A brief synopsis of the findings of the traffic source analysis is provided for each interchange.

Indian Avenue/Indian Canyon Drive - A north/south orientation of traffic was observed for the traffic using this interchange. This type of orientation was consistent with the expectations of the Technical Committee. Generally, a fairly even distribution of traffic usage from north and south of the freeway was also observed at this interchange.

Palm Drive/Gene Autry Trail – Traffic using the Palm Drive/Gene Autry Trail interchange also tended to be oriented on a north/south axis. Usage of this interchange was higher from the north than from the south.

Date Palm Drive – The traffic pattern at the Date Palm Drive interchange exhibited higher usage from the north than from the south. Traffic from the south also exhibited a strong east-west orientation, with a significant portion of the interchange traffic using Vista Chino to access the interchange from points to the west of the interchange. This was attributed to the diagonal orientation of I-10 Freeway with respect to the general arterial roadway system.

Ramon Road – The orientation of traffic using the Ramon Road interchange also exhibited a strong east-west orientation, with a relatively small component falling within a north-south corridor.

Jefferson Street – Traffic utilizing the Jefferson Street interchange overlaps with the existing Washington Street interchange benefit area to the west. It also overlaps with the potential future Monroe Street benefit area to the east. A fairly even split between utilization from north and south of the freeway was also observed at this location.

The findings of the traffic source analysis were used by the Technical Committee to refine the benefit area definitions. These refinements are discussed in the next section of this report.

4.0 BENEFIT AREA AND DISTRICT DEFINITION

The basic goal of the benefit area and district definition and refinement work effort was to determine appropriate overall benefit area boundaries and subareas or benefit district boundaries for the interchanges. The subareas or districts generally aggregate to City boundaries so that separate City and County fee structures can be defined as needed.

The initial set of benefit areas and districts were developed assuming that each interchange would have a separate benefit area. The Technical Committee agreed to a single benefit area for the 4 northerly interchanges after reviewing the traffic source analysis at the February 16, 2001 workshop (Workshop #2). This is identified as the Northwest Interchanges Benefit Area on Exhibit A (presented previously). The Jefferson Street Benefit Area also identified on Exhibit A. The previous benefit areas for Monterey Avenue, Cook Street, and Washington Street are also identified on Exhibit A.

Benefit districts were then established within each benefit area. The benefit districts are based on jurisdictional boundaries within each benefit area. The following districts have been established within the Northwest Interchanges Benefit Area:

- Benefit District # 1 – Unincorporated Riverside County
- Benefit District # 2 – City of Desert Hot Springs
- Benefit District # 3 – City of Palm Springs
- Benefit District # 4 – Cathedral City
- Benefit District # 5 - City of Rancho Mirage

Similarly, the districts defined for the Jefferson Street Interchange Benefit Area are:

- Benefit District # 6 – Unincorporated Riverside County
- Benefit District # 7 – City of Indio
- Benefit District # 8 – City of La Quinta

Benefit District # 6 is purposely shown twice on Exhibit A, reflecting the Unincorporated Riverside County areas that are separated by the City of Indio. The benefit areas were then used as input to the next step of the analysis process, the traffic contribution analysis.

5.0 TRAFFIC CONTRIBUTION ANALYSIS

The final stage of the work effort was analyzing the traffic share contributions at each interchange. This analysis was performed twice. The initial analysis was based on data was provided by SCAG. The second analysis was based on more current jurisdiction boundary data that was provided by CVAG. The analysis is based on traffic using the overcrossing/undercrossing of the I-10 freeway at each interchange location. This approach was taken because the bridge structures are the most costly element of the freeway interchange. The traffic is reported in terms of “trip-ends” (each trip consists of two trip-ends). A brief synopsis of the findings of the traffic source analysis is provided for each interchange. Appendix “C” contains the TRANPLAN analysis output report.

Indian Avenue/Indian Canyon Drive – The 2020 CVAG model data indicates that 39,846 vehicles use this overcrossing each day. Table 1 summarizes the traffic contribution (trip-ends) by district. Table 1 also provides a summary of the percent contribution for each district/jurisdiction. Any trip-end not located within the Northwest Interchanges Benefit Area is referenced as “external” traffic on Table 1 (and subsequent tables). External traffic (trip-ends outside the Benefit Area) are prorated into the other contributing districts. The largest contributor is the City of Palm Springs (50.5%), followed by the Unincorporated Riverside County (27.8%). The City of Desert Hot Springs, Cathedral City, and the City of Rancho Mirage contribute 12.4%, 6.5%, and 2.8%, respectively, of the traffic at this interchange.

Palm Drive/Gene Autry Trail – Table 2 summarizes the traffic share analysis at the Palm Drive/Gene Autry Trail interchange. The CVATS 2020 model indicates that 46,124 vehicles will utilize this overcrossing. The City of Palm Springs is the highest contributor at this location (37.6%), followed closely by the Unincorporated County of Riverside (32.4%). The City of Desert Hot Springs is responsible for (16.9%) of the total traffic, with Cathedral City at (10.6%) and the City of Rancho Mirage at (2.6%).

TABLE 1**INDIAN AVENUE/INDIAN CANYON DRIVE SUMMARY**

TOTAL TRIPS							
DISTRICT	1	2	3	4	5	6 - 9	Row Total
1: County Unincorporated	43	0	3,607	393	260	2,276	6,579
2: Desert Hot Springs	64	0	1,793	291	203	1,570	3,921
3: Palm Springs	3,671	1,592	1,488	493	133	5,049	12,426
4: Cathedral City	0	0	400	0	0	0	400
5: Rancho Mirage	0	0	161	0	0	0	161
6 - 9: External	3,138	480	4,609	1,558	617	5,957	16,359
Column Total	6,916	2,072	12,058	2,735	1,213	14,852	39,846
Row Total	6,579	3,921	12,426	400	161	16,359	39,846
Grand Total Trip-Ends	13,495	5,993	24,484	3,135	1,374	31,211	79,692

CONTRIBUTION SUMMARY (INCLUDING REGIONAL CONTRIBUTION)

DISTRICT	TRIP-ENDS	%
1: County Unincorporated	13,495	27.84%
2: Desert Hot Springs	5,993	12.36%
3: Palm Springs	24,484	50.50%
4: Cathedral City	3,135	06.47%
5: Rancho Mirage	1,374	02.83%
6 - 9: External	31,211	
Grand Total	79,692	100.0%

Note: External contributions are prorated to the other contributing districts.

TABLE 2**PALM DRIVE/GENE AUTRY TRAIL SUMMARY**

TOTAL TRIPS							
DISTRICT	1	2	3	4	5	6 - 9	Row Total
1: County Unincorporated	106	0	5,914	1,625	899	5,899	14,443
2: Desert Hot Springs	6	0	2,451	895	605	3,725	7,682
3: Palm Springs	5,374	2,651	277	479	0	5,197	13,978
4: Cathedral City	1,432	746	535	0	0	1,460	4,173
5: Rancho Mirage	42	19	154	0	0	2	217
6 - 9: External	938	541	2,632	134	66	1,320	5,631
Column Total	7,898	3,957	11,963	3,133	1,570	17,603	46,124
Row Total	14,443	7,682	13,978	4,173	217	5,631	46,124
Grand Total Trip-Ends	22,341	11,639	25,941	7,306	1,787	23,234	92,248

CONTRIBUTION SUMMARY (INCLUDING REGIONAL CONTRIBUTION)

DISTRICT	TRIP-ENDS	%
1: County Unincorporated	22,341	32.37%
2: Desert Hot Springs	11,639	16.86%
3: Palm Springs	25,941	37.59%
4: Cathedral City	7,306	10.59%
5: Rancho Mirage	1,787	02.59%
6 - 9: External	23,234	
Grand Total	92,248	100.0%

Note: External contributions are prorated to the other contributing districts.

Date Palm Drive – The traffic projected to use this interchange by the CVATS 2020 model exceeds 70,000 vehicles per day (71,141 ADT). Table 3 summarizes the traffic contribution data and calculations at this location. Cathedral City is the highest contributor at this interchange (52.48% of the total traffic). The City of Palm Springs is the second highest with a contribution of 20.6%. Unincorporated County of Riverside contributes 15.0%, followed by the City of Rancho Mirage (10.3%) and the City of Desert Hot Springs (1.6%).

Ramon Road – The Ramon Road interchange is the most highly utilized interchange evaluated in this analysis. A total of 72,281 vehicles per day (vpd) are projected to use this freeway crossing. Table 4 presents the traffic contribution data and analysis for the Ramon Road interchange. Unincorporated Riverside County is the largest contributor at this location (47.1%) and the City of Rancho Mirage, City of Palm Springs, and Cathedral City all contribute between 18.5% and 16.3%. The City of Desert Hot Springs only contributes 0.7% of the total traffic at this location.

Jefferson Street – Table 5 summarizes the traffic contribution data for traffic utilizing the Jefferson Street interchange overcrossings. Due to the unusual configuration of this interchange, the traffic contribution analysis evaluates 2 distinct bridge structures. The total traffic crossing the I-10 Freeway at this interchange is 21,514 vpd. External traffic accounts for a large percentage of the total traffic because of the overlap in utilization with the existing Washington Street Interchange benefit area to the west, as well as the potential future Monroe Street Interchange benefit area to the east. The external traffic has been prorated into the contributions of the remaining jurisdictions within this district. City of Indio therefore contributes 58.1% of the traffic, and the City of La Quinta contributes 33.2% of the traffic. The unincorporated County of Riverside contributes only 8.7% of the traffic at this location.

The next step in the benefit assessment process is to develop preliminary cost estimates for the improvements needed at each interchange. The traffic shares data can be used in conjunction with the preliminary cost estimates to determine the total

TABLE 3**DATE PALM DRIVE SUMMARY**

TOTAL TRIPS							
DISTRICT	1	2	3	4	5	6 - 9	Row Total
1: County Unincorporated	18	7	2,784	2,558	668	2,448	8,483
2: Desert Hot Springs	20	0	1	158	97	261	537
3: Palm Springs	2,033	1	0	4,631	0	35	6,700
4: Cathedral City	2,818	568	4,916	7,537	2,003	14,800	32,642
5: Rancho Mirage	1,177	544	247	1,590	0	4,170	7,728
6 - 9: External	1,031	21	6,779	5,458	238	1,524	15,051
Column Total	7,097	1,141	14,727	21,932	3,006	23,238	71,141
Row Total	8,483	537	6,700	32,642	7,728	15,051	71,141
Grand Total Trip-Ends	15,580	1,678	21,427	54,574	10,734	38,289	142,282

CONTRIBUTION SUMMARY (INCLUDING REGIONAL CONTRIBUTION)

DISTRICT	TRIP-ENDS	%
1: County Unincorporated	15,580	14.98%
2: Desert Hot Springs	1,678	01.61%
3: Palm Springs	21,427	20.60%
4: Cathedral City	54,574	52.48%
5: Rancho Mirage	10,734	10.32%
6 - 9: External	38,289	
Grand Total	142,282	100.0%

Note: External contributions are prorated to the other contributing districts.

TABLE 4**RAMON ROAD SUMMARY**

TOTAL TRIPS							
DISTRICT	1	2	3	4	5	6 - 9	Row Total
1: County Unincorporated	240	0	2,981	3,353	4,400	15,506	26,480
2: Desert Hot Springs	41	0	0	0	0	194	235
3: Palm Springs	4,152	0	0	0	0	1,607	5,759
4: Cathedral City	4,092	0	0	0	24	1,274	5,390
5: Rancho Mirage	4,785	334	283	478	0	2,029	7,909
6 - 9: External	3,146	57	7,165	5,638	4,215	6,287	26,508
Column Total	16,456	391	10,429	9,469	8,639	26,897	72,281
Row Total	26,480	235	5,759	5,390	7,909	26,508	72,281
Grand Total Trip-Ends	42,936	626	16,188	14,859	16,548	53,405	144,562

CONTRIBUTION SUMMARY (INCLUDING REGIONAL CONTRIBUTION)

DISTRICT	TRIP-ENDS	%
1: County Unincorporated	42,936	47.10%
2: Desert Hot Springs	626	00.69%
3: Palm Springs	16,188	17.76%
4: Cathedral City	14,859	16.30%
5: Rancho Mirage	16,548	18.15%
6 - 9: External	53,405	
Grand Total	144,562	100.0%

Note: External contributions are prorated to the other contributing districts.

TABLE 5**JEFFERSON STREET SUMMARY**

TOTAL TRIPS					
DISTRICT	6	7	8	1 - 5, 9	Row Total
6: County Unincorporated	41	155	62	439	697
7: Indio	155	434	323	5,676	6,588
8: La Quinta	57	283	0	4,319	4,659
1 - 5, 9: External	732	3,723	1,349	14,766	20,570
Column Total	985	4,595	1,734	25,200	32,514
Row Total	697	6,588	4,659	20,570	32,514
Grand Total Trip-Ends	1,682	11,183	6,393	45,770	65,028

CONTRIBUTION SUMMARY (INCLUDING REGIONAL CONTRIBUTION)

DISTRICT	TRIP-ENDS	%
6: County Unincorporated	1,682	8.7%
7: Indio	11,183	58.1%
8: La Quinta	6,393	33.2%
1 - 5, 9: External	45,770	
Grand Total	65,028	100.0%

Note: External contributions are prorated to the other contributing districts.

\\SERVER\UcData\UcJobs\00017\del\010418\[T5.xls]Summary

cost attributable to each jurisdiction. It will then be the responsibility of each jurisdiction to determine how to raise the necessary funds. If federal, state, or regional funding can be obtained, these should be credited against the external traffic contribution/cost. Any remaining surplus could then be used to reduce the pro rata share for each local jurisdiction.

ITEM 7B

Coachella Valley Association of Governments
Transportation Technical Advisory Sub-Committee
April 25, 2011



Staff Report

Subject: Consider Clarification of TUMF for Solar Energy Projects

Contact: Jim Sullivan, GIS Program Director (jsullivan@cvag.org)

Recommendation: Recommend that the application of TUMF for the newly developing land use of Solar Power Generation be clarified so that TUMF would be charged on buildings associated with the project but not the solar arrays themselves.

Background: There are several large solar energy projects underway in the Coachella Valley, with the first likely to seek building permits in early summer of 2011. CVAG has been receiving questions about the proper application of TUMF to these projects.

The Institute of Transportation Engineers, *Trip Generation, 8th Edition*, which is the source for the Daily Trip Generation Rate upon which the Transportation Uniform Mitigation Fee (TUMF) is calculated, does not currently have a category for solar projects. The daily trip generation rate estimates for solar projects from environmental impact reports and similar documents, is uniformly very low, much less than 1 daily trip per acre. The only large scale study that staff has identified *Research study: energy development and the transportation system* published by the Colorado Department of Transportation estimates photovoltaic solar fields generate 5 trips per acre annually.

Staff recommends that buildings associated with solar projects be charged TUMF at the appropriate current TUMF rate such as Industrial for maintenance or storage buildings (Industrial is calculated at both \$1031.56 per 1,000 square feet of gross floor area and \$7.666.40 per acre of improved area, with the highest of those being the TUMF due) or Office Building for office space (\$5,187.40 per 1,000 square feet of gross floor area) but that no TUMF be charged on the solar arrays themselves.

FISCAL ANALYSIS: Research indicates the daily trips generated by the land area used to maintain a photovoltaic array or thermal energy equipment is very low. Therefore, there will be an insignificant TUMF impact. However, by clarifying that all accessory buildings are subject to payment of TUMF guarantees there can be no incorrect interpretations of the impacts for this land use