Western Riverside Council of Governments
Public Works Committee

AGENDA

Thursday, May 11, 2017
2:00 p.m.

Transportation's 14th Street Annex
3525 14th Street
2nd Floor, Conference Room 3
Riverside, CA 92501

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) 955-8933. 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 the 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 items, will be available for inspection by members of the public prior to the meeting at 4080 Lemon Street, 3rd Floor, Riverside, CA, 92501.

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

1. CALL TO ORDER (Dan York, Chair)

2. SELF INTRODUCTIONS

3. PUBLIC COMMENTS

At this time members of the public can address the Public Works Committee regarding any items with 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.

4. 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. Summary Minutes from the April 13, 2017, Public Works Committee meeting are available for consideration. **P. 1**

Requested Action: *1. Approve the Summary Minutes from the April 13, 2017, Public Works Committee.*

B. TUMF Revenue and Expenditures Update ***Andrew Ruiz*** **P. 7**

Requested Action: *1. Receive and file.*

C. Financial Report Summary through March 2017 ***Andrew Ruiz*** **P. 15**

Requested Action: *1. Receive and file.*

D. Active Transportation Plan Update ***Christopher Gray*** **P. 21**

Requested Action: 1. *Receive and file.*

5. REPORTS/DISCUSSION

A. Regional Streetlight Program Activities Update ***Tyler Masters, WRCOG*** **P. 23**

Requested Action: *1. Discuss and provide input.*

B. Transportation Uniform Mitigation Fee (TUMF) Nexus Study Update ***Daniel Ramirez-Cornejo, WRCOG*** **P. 105**

Requested Action: *1. Discuss and provide input regarding the Draft Nexus Study.*

C. Transportation Uniform Mitigation Fee (TUMF) Calculation Handbook Update ***Daniel Ramirez-Cornejo, WRCOG*** **P. 121**

Requested Action: *1. Discuss and provide input.*

D. Transportation Uniform Mitigation Fee (TUMF) Soft Cost and Right-of-Way Allocations ***Christopher Gray, WRCOG*** **P. 131**

Requested Action: *1. Receive and file.*

E. Work Plan for Grant Writing Assistance Program For Local Jurisdictions ***Christopher Tzeng, WRCOG*** **P. 137**

Requested Action: *1. Approve the Work Plan for the Grant Writing Assistance Program.*

F. Request for Proposal Review Committee Members for WRCOG for On-Call Planning Services ***Christopher Tzeng, WRCOG*** **P. 141**

Requested Action: *1. Identify volunteers to assist WRCOG with the review of proposals and assist with interviews for On-Call Transportation Planning, Grant Writing, and Clean Cities Activities.*

6. REPORT FROM THE DIRECTOR OF TRANSPORTATION ***Christopher Gray***

7. ITEMS FOR FUTURE AGENDAS ***Members***

Members are invited to suggest additional items to be brought forward for discussion at future Public Works Committee meetings.

8. GENERAL ANNOUCEMENTS ***Members***

Members are invited to announce items / activities which may be of general interest to the Public Works Committee.

9. NEXT MEETING: The next Public Works Committee meeting is scheduled for Thursday, June 8, 2017, at 2:00 p.m., in Transportation's 14th Street Annex, 2nd Floor, Conference Room 3.

10. ADJOURNMENT

Page Intentionally Left Blank

Public Works Committee **Item 4.A**
April 13, 2017
Summary Minutes

1. CALL TO ORDER

The meeting of the Public Works Committee (PWC) was called to order at 2:02 p.m. by Chairman Dan York at Transportation's 14th Street Annex, 2nd Floor in Conference Room 3.

2. ROLL CALL

Members present:

Art Vela, City of Banning
Nelson Nelson, City of Corona
Craig Bradshaw, City of Eastvale
Mike Meyers, City of Jurupa Valley
Ati Eskandari, City of Lake Elsinore (2:15 p.m. arrival)
Jonathan Smith, City of Menifee
Ahmad Ansari, City of Moreno Valley (2:08 p.m. arrival)
Bob Moehling, City of Murrieta
Sam Nelson, City of Norco
Brad Brophy, Cities of Perris and San Jacinto
Jeff Hart, City of Riverside
Patrick Thomas, City of Temecula (2:04 p.m. arrival)
Dan York, City of Wildomar (Chair)
Patricia Romo, County of Riverside Transportation & Land Management (TMLA) (2:05 p.m. arrival)
Jeff Smith, March Joint Powers Authority
Grace Alvarez, Riverside County Transportation Commission (RCTC)
Rohan Kuruppu, Riverside Transit Agency

Staff present:

Christopher Gray, Director of Transportation
Christopher Tzeng, Program Manager
Andrew Ruiz, Program Manager
Daniel Ramirez-Cornejo, Staff Analyst
Lupe Lotman, Executive Assistant

Guests present:

Amer Attar, City of Temecula
Glenn Higa, TLMA
Mike Heath, City of Calimesa
Darren Henderson, Parsons Brinckerhoff
Aaron Hake, RCTC
Paul Rodriguez, Rodriquez Consulting Group

3. PUBLIC COMMENTS

There were no public comments.

4. CONSENT CALENDAR - *(Smith/Bradshaw) 15 yes; 0 no; 0 abstention. Items 4.A through 4.C were approved by a unanimous vote of those members present. The Cities of Calimesa, Canyon Lake, Hemet, Lake Elsinore, Moreno Valley, and Temecula were not present.*

A. Summary Minutes from the March 9, 2017, Public Works Committee meeting are available for consideration.

Action: *1. Approved the Summary Minutes from the March 9, 2017, Public Works Committee meeting.*

B. TUMF Revenue and Expenditures Update

Action: *1. Received and filed.*

C. Financial Report Summary through February 2017

Action: *1. Received and filed.*

5. REPORTS/DISCUSSION

A. Active Transportation Plan Update

Christopher Gray reported that following input from member jurisdictions, a list of 23 high priority projects have been included in the Active Transportation Network, which has been distributed for additional comments. WRCOG does foresee that cities where these projects lie within can utilize WRCOG's Grant Writing Program, as staff expects these projects meet the criteria set forth in the Program.

Mr. Gray explained that it will take an additional two months to finalize the list of projects and encouraged jurisdictions to submit questions or comments to staff. Also, during this time, the Plan will continue coordinating with the Riverside County Parks Department as it finalizes its Trail Master Plan. WRCOG staff is also verifying how the projects in the Active Transportation Plan (ATP) align with the projects in the TUMF network.

Committee Member Mike Meyers asked how active transportation facilities tie in with the TUMF Program.

Mr. Gray answered that currently Class I and Class II bike ways are eligible for reimbursements if constructed concurrently with the roadways. Currently, off-street ATP facilities are not eligible under the Program. As part of a comprehensive review of the TUMF Program, WRCOG is looking into developing a separate or additional project type for off-street facilities.

Action: *1. Received and filed.*

B. State and Federal Transportation Legislative Update

Aaron Hake reported on the recent state legislature and potential ramifications for WRCOG member jurisdictions. State Bill (SB) 1, or the Road Repair and Accountability Act of 2017, was passed. This initiative sought to address many problems, among them is the transportation revenue from the gas tax. SB 1 also seeks to correct the price based component of the gas tax which was creating problems for capital projects. The fuel efficiency of vehicles has contributed a lot to the reduction of revenue. $32 million was defunded from the Transportation Improvement Program, with the French Valley Parkway Interchange Project losing a large portion of funding as a result.

Mr. Hake encouraged the Committee to review SB 1 Section 36 on Road Repair and Rehabilitation that speaks to requirements on how and when to utilize the funds. To ensure the State funds are spent correctly, a constitutional amendment, ACA 5, was also passed to protect and dedicate SB 1 revenues to transportation-related infrastructure. Additionally, the reform includes the development of an office of the inspector general in Caltrans that oversees how funds are being spent. Among the highlights, the League of California Cities estimates annual returns for all jurisdictions of Riverside County at $84

million for local streets and roads, $15 million for transit, and $226 million for state highway maintenance. The statewide Active Transportation Program will receive $100 million annually for its competitive statewide funds.

Mr. Hake further explained that Senator Richard Roth and Assemblywoman Sabrina Cervantes negotiated $427 million in specific appropriations for Riverside County. To qualify for these funds, projects covered under these appropriations need to be completed by June 30, 2023.

Committee member Jonathan Smith asked if there has been any discussions to streamline the environmental approval process.

Committee member Ati Eskandari asked why are projects that are nearing Project Approval & Environmental Document approval not being considered.

Committee member Patricia Romo commented that this is a golden opportunity for the region that can lead to assistance for future projects.

Mr. Hake encouraged Committee members to speak with their City Council to take a support position on SB 132. Additionally, SB 1 states that the funds can be spent on road maintenance and rehabilitation, safety projects, grade separations, complete street components, and drainage and storm water capture projects, and traffic control devices. The legislature requires that cities submit to the California Transportation Commissions a list of projects that it expects to use funds on. RCTC will provide the list to the state controller so the funds can be disbursed.

Committee member Ati Eskandari asked when the funds would be available.

Mr. Hake answered that while the revenue will be collected in November 2017, at this time it is unknown when the disbursements will be made available.

Action: *1. Received and filed.*

C. Public Works Committee Video Conferencing Options

Christopher Gray reported that WRCOG is evaluating the feasibility of video conferencing. The Public Works Committee, like all WRCOG Committees, is subjected to the Brown Act. Requirements listed under the Brown Act include locations must be identified before meeting, have roll call votes, posted agenda, and be publically accessible. WRCOG expects to be moved into its new location by winter 2017 and is willing to explore video conferencing on a trial basis.

Mr. Gray continued that while WRCOG is waiting to move into its new location, cities are welcome to host video conferencing; however, they have to meet the requirements listed under the Brown Act.

The Cities of Banning and Temecula volunteered to explore video conferencing at their locations.

Committee member Mike Meyers asked, to be fair, if locations can alternate throughout the year.

Chairman Dan York added that bi-monthly meetings should be discussed.

Action: *1. Received and filed.*

D. Transportation Uniform Mitigation Fee (TUMF) Nexus Study Update

Daniel Ramirez-Cornejo reported that the draft Nexus Study was released in February and is available for comment during a 45-day review period. Multiple meetings with the Building Industry Association (BIA) have taken place since the release of the draft Nexus Study. The BIA had questions related to the projects included in the Program, cost assumptions for right-of-way, and the Vehicle Miles Traveled

methodological approach. Issues that are being addressed include senior housing that will be addressed in the TUMF Calculation Handbook in the next coming months that will be brought to the Committee for feedback. Another questions regarding the Nexus Study was with regard to agreements executed before adoption of an updated Nexus Study, the TUMF Network will be adjusted to reflect the BIA's review, and SB 132 obligated funding.

Committee member Patricia Romo provided an example to demonstrate the importance of the soft cost and contingency allocations to offset unexpected costs by discussing an issue that occurred with Magnolia Avenue Grade Separation. An issue with a median occurred in which the property was appraised at less than $100,000, while the owners estimate for the property was more than $5 million. After negotiations, the settled price was estimated to be $4.3 million.

Mr. Gray continued that soft costs are treated differently from construction in that total soft costs cannot be known until the project is physically under construction.

Darren Henderson added that since all the cost cannot be known, a cost estimate would need to be completed for all the projects in the Program, which would time consuming and costly.

Mr. Ramirez-Cornejo explained that the BIA questions facilities which resulted in a $90 million reduction to the TUMF Network. Also, if SB 132 passes, the TUMF Network will be adjusted for the obligated funding. These adjustments will result in a 5-6% reduction to TUMF.

Committee member Ati Eskandari asked if this is an opportunity to retrieve revenue loss.

Mr. Henderson replied that charges for new development cannot be used to recoup from past developments.

Committee member Eskandari asked if the SB 132 projects are not complete by 2023 and the state funding is no longer earmarked for these projects, will they be eligible for future TUMF funds.

Mr. Henderson replied that funding can be allocated in future Program updates, provided that the obligated funding is no longer committed to the project, the project meets the criteria for inclusion in the Program, and the project is approved by the Committee structure.

Action: *1. Received and filed.*

E. Transportation Uniform Mitigation Fee (TUMF) Agreement Policy

Christopher Gray reported on the TUMF Agreement Policy and what happens to those agreements when the Executive Committee takes action on the Nexus Study. The agreements with the Committee and developers are legally binding agreements and are not invalidated with the approval of the updated Nexus Study. All TUMF Agreements, including Reimbursement and Credit Agreements, which exist before the Nexus Study is adopted, will be honored for the lifetime of that agreement. Furthermore, agreements entered into based on the 2009 Nexus Study will only be valid if they are entered into prior to action on the Nexus Study.

Action: *1. Received and filed.*

F. Complete Streets Training Opportunities for WRCOG Member Jurisdictions

Christopher Gray reported on potential training opportunities that will be available to member jurisdictions. Several regional agencies, including Caltrans, Southern California Association of Governments (SCAG), and LA Metro have offered training on Complete Streets. The trainings offered have typically been two-day training sessions, with the first day focusing on planning and the second day focusing on design. WRCOG wants to provide sessions that fit the needs of WRCOG members, so

the sessions will be adjusted to the region with local examples. It is expected that the trainings will be directed at senior planners and engineers.

Committee member Mike Myers asked what level of training is being offered.

Mr. Gray responded that two levels of training take place, one being a two-to-four hour session for senior staff and the other being offered to city staff for design and implementation.

Chairman Dan York commented that the session can be valuable because other tools can be obtained to develop a more complete system. He also proposed including private consulting groups that work with the cities in the training sessions.

Action: *1. Received and filed.*

G. Riverside County Traffic Analysis Model (RIVTAM)

Christopher Tzeng provided a status update on the Riverside County Traffic Analysis (RIVTAM). A draft work plan will be available for review and comments to further define how an update might occur and contains a series of model specifications that the RIVTAM will have to meet, as well as the scope of work for the RIVTAM Update. The advantages when evaluating proposed costs will allow for a more in depth discussion on tradeoffs and encourages technical experts to recommend the best practice to implement.

WRCOG is willing to commit financial resources and staff to support the RIVTAM Update because it anticipates preparing for future nexus studies and WRCOG would like to use RIVTAM for planning and infrastructure projects.

Action: *1. Received and filed.*

6. REPORT FROM THE DIRECTOR OF TRANSPORTATION

Christopher Gray provided no additional report to the Committee.

7. ITEMS FOR FUTURE AGENDAS

There were no items for future agendas.

8. GENERAL ANNOUNCEMENTS

There were no general announcements.

9. NEXT MEETING: The next Public Works Committee meeting is scheduled for Thursday, May 11, 2017, at 2:00 p.m., in the Transportation 14th Street Annex, 2nd Floor, in Conference Room 3.

10. ADJOURNMENT: The meeting was adjourned at 3:25 p.m.

Page Intentionally Left Blank

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **TUMF Revenue and Expenditures Update**

Contact: **Andrew Ruiz, Program Manager, ruiz@wrcog.cog.ca.us, (951) 955-8587**

Date: **May 11, 2017**

The purpose of this item is to *update Committee members on the TUMF revenues, expenditures, and reimbursements since Program inception.*

Requested Action:

1. Receive and file.

For the month of March 2017, the TUMF Program received $4,596,816 in revenue.

To date, revenues received into the TUMF Program total $711,699,015. Interest amounts to $32,367,471, for a total collection of $744,066,486.

WRCOG has dispersed a total of $335,952,949.28 primarily through project reimbursements and refunds, and $21,366,533 in administrative expenses.

The Riverside County Transportation Commission share payments have totaled $321,810,315 through March 31, 2017.

Prior Action:

April 13, 2017: The Public Works Committee received report.

Fiscal Impact:

This item is informational only; therefore, there is no fiscal impact.

Attachment:

1. Summary TUMF Program Revenues.

Page Intentionally Left Blank

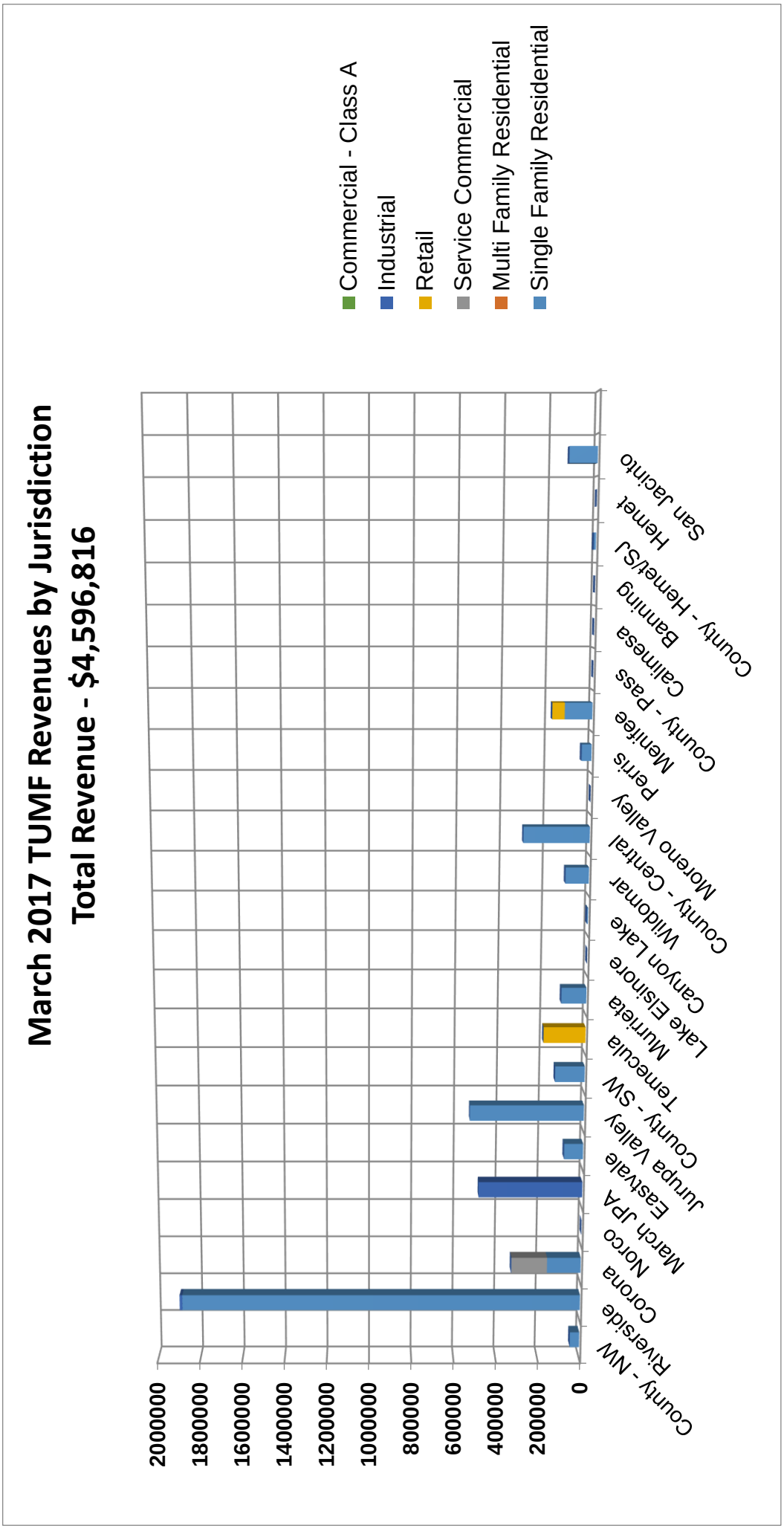
Item 4.B

TUMF Revenue and Expenditures Update

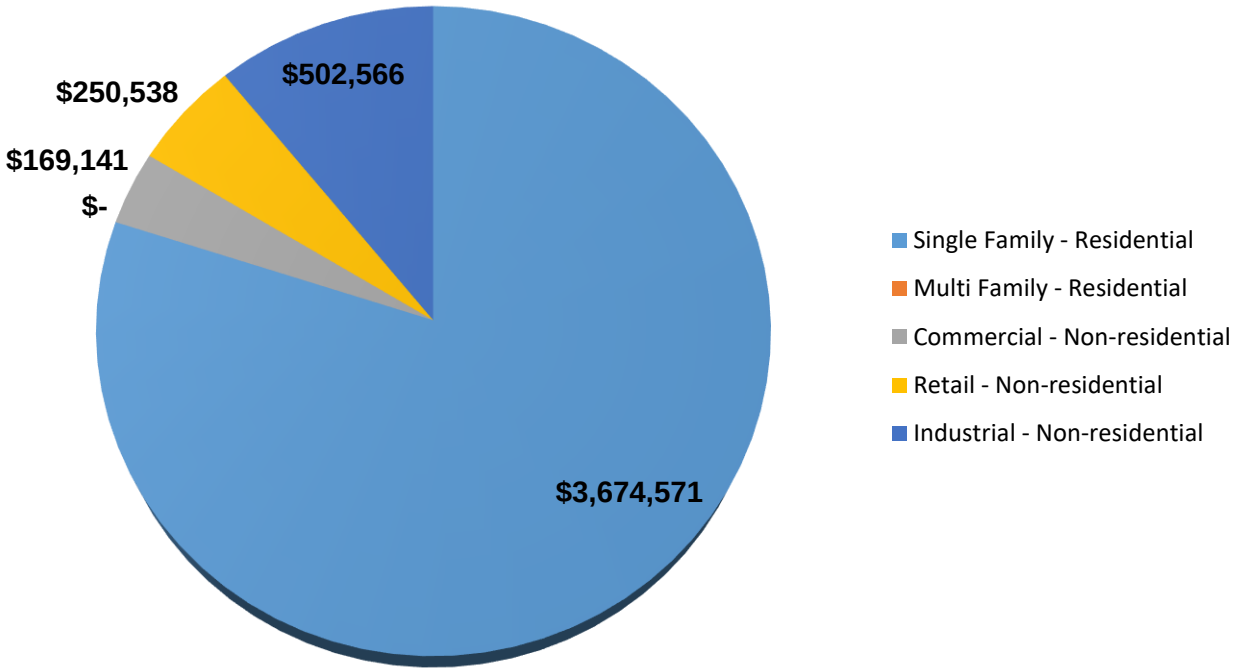
Attachment 1

Summary TUMF Program Revenues

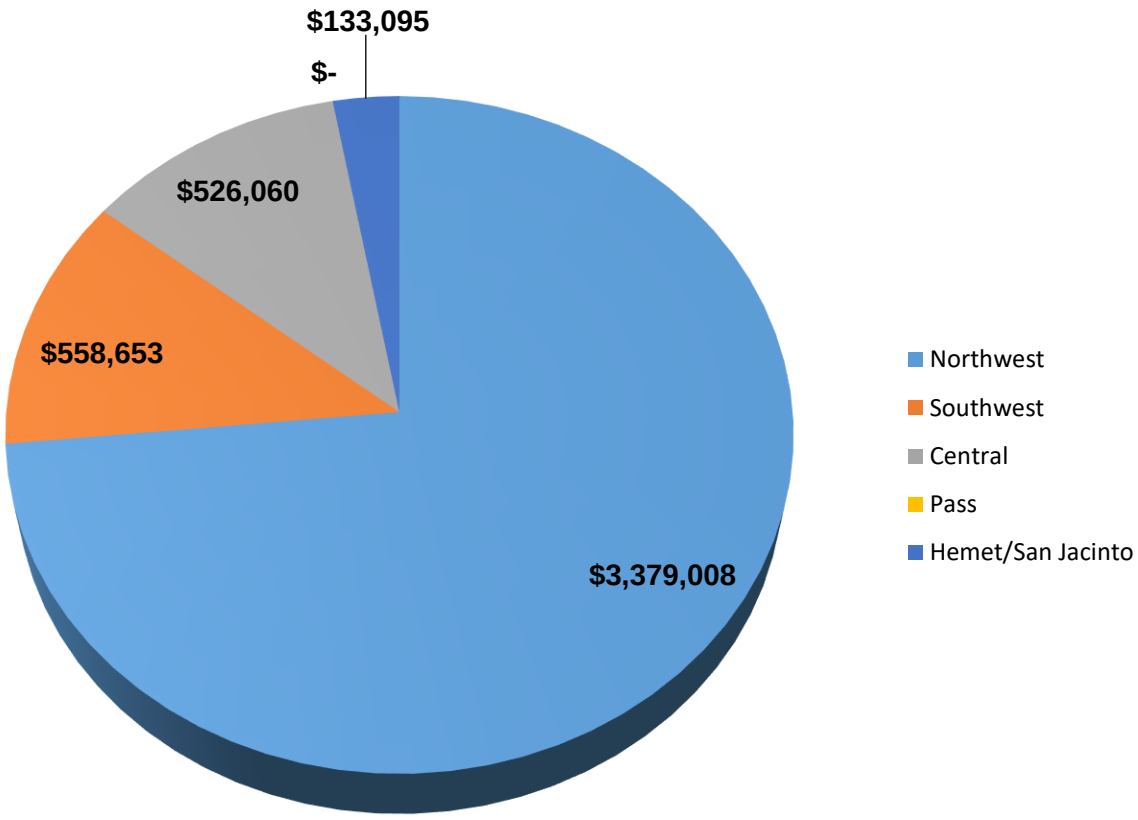
Page Intentionally Left Blank


March 2017 TUMF Revenues by Jurisdiction
Total Revenue - $4,596,816
Commercial - Class A
Industrial
Retail
Service Commercial
Multi Family Residential
Single Family Residential
2000000
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
County - NW
Riverside
Corona
Norco
March JPA
Eastvale
Jurupa Valley
County - SW
Temecula
Murrieta
Lake Elsinore
Canyon Lake
Wildomar
County - Central
Moreno Valley
Perris
Menifee
County - Pass
Calimesa
Banning
County - Hemet/SJ
Hemet
San Jacinto

March 2017 TUMF revenues by land-use type



March 2017 TUMF Revenues by Zone



Jurisdiction	Fiscal Year 15/16	2016 July	August	September	October	November	December	2017 January	February	March	Fiscal Year 16/17
Banning	$13,637	$0	$0	$0	$0	$0	$0	$4,688	$83,542	$0	**$88,230**
Beaumont	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
Calimesa	$20,344	$8,873	$197,212	$0	$0	$17,746	$0	$0	$0	$0	**$223,831**
Canyon Lake	$44,370	$4,437	$0	$4,437	$0	$0	$4,437	$0	$13,311	$4,437	**$31,059**
Corona	$5,913,963	$46,463	$145,693	$35,905	$142,253	$3,460	$429,392	$179,707	$605,546	$330,806	**$1,919,225**
Eastvale	$3,676,091	$70,984	$124,620	$20,786	$532,380	$0	$707,095	$70,984	$115,349	$88,730	**$1,730,928**
Hemet	$756,651	$0	$1,508	$60,165	$0	$0	$0	$0	$0	$0	**$61,674**
Jurupa Valley	$5,034,660	$168,587	$434,777	$310,555	$390,412	$702,734	$230,698	$536,056	$536,616	$532,380	**$3,842,814**
Lake Elsinore	$2,089,961	$97,603	$53,238	$106,476	$141,968	$8,873	$44,369	$116,624	$287,366	$0	**$856,517**
March JPA	$479,591	$0	$0	$0	$0	$326,652	$720,702	$0	$0	$487,771	**$1,535,126**
Menifee	$2,638,484	$568,179	$364,975	$248,444	$355,922	$301,682	$17,746	$159,714	$226,576	$180,013	**$2,423,251**
Moreno Valley	$2,923,749	$146,767	$230,698	$212,952	$212,666	$35,492	$35,492	$0	$720,018	$0	**$1,594,085**
Murrieta	$3,348,006	$105,181	$79,857	$97,802	$244,306	$208,814	$459,948	$0	$70,984	$115,349	**$1,382,241**
Norco	$216,329	$0	$52,923	$0	$0	$0	$0	$3,755	$0	$0	**$56,677**
Perris	$2,515,873	$173,105	$342,849	$415,754	$27,589	$248,444	$0	$8,873	$221,825	$44,365	**$1,482,804**
Riverside	$4,001,916	$194,893	$799,136	$544,556	$163,602	$133,095	$72,530	$239,938	$204,079	$1,894,956	**$4,246,784**
San Jacinto	$1,506,559	$70,984	$0	$195,206	$17,746	$133,095	$150,841	$8,873	$283,936	$124,222	**$984,903**
Temecula	$1,745,342	$245,056	$105,927	$0	$41,215	$33,086	$26,003	$0	$186,930	$194,747	**$832,963**
Wildomar	$900,614	$53,238	$79,857	$346,047	$221,825	$204,079	$221,825	$113,854	$124,222	$106,476	**$1,471,423**
County Central	$2,242,917	$241,196	$97,603	$292,809	$26,619	$34,404	$108,376	$26,619	$66,464	$301,682	**$1,195,771**
County Hemet/S.J.	$646,306	$8,873	$8,873	$141,968	$6,920	$8,873	$79,857	$8,873	$363,834	$8,873	**$636,944**
County Northwest	$892,990	$53,238	$11,096	$79,857	$253,989	$36,305	$79,857	$53,238	$70,984	$44,365	**$682,929**
County Pass	$44,365	$8,873	$0	$0	$0	$0	$0	$0	$17,746	$0	**$26,619**
County Southwest	$2,419,890	$178,955	$230,580	$111,668	$325,974	$126,352	$130,256	$139,484	$554,859	$137,644	**$1,935,771**
Total	**$ 44,072,606**	**$ 2,445,483**	**$ 3,361,423**	**$ 3,225,387**	**$ 3,105,385**	**$ 2,563,184**	**$ 3,519,424**	**$ 1,671,278**	**$ 4,754,188**	**$ 4,596,816**	**$ 29,242,569**

FY 16/17 Revenues by Zone	
Pass	$338,680
Southwest	$6,509,974
Central	$6,695,911
Northwest	$14,014,483
Hemet/SJ	$1,683,520
Total	**$29,242,569**

Page Intentionally Left Blank

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **Financial Report Summary through March 2017**

Contact: **Andrew Ruiz, Program Manager, ruiz@wrcog.cog.ca.us, (951) 955-8587**

Date: **May 11, 2017**

The purpose of this item is to *provide a monthly summary of WRCOG's financial statements in the form of combined Agency revenues and costs.*

Requested Action:

1. Receive and file.

Attached for Committee review is the Financial Report Summary through March 2017.

Prior Action:

April 13, 2017: The Public Works Committee received report.

Fiscal Impact:

This item is informational only; therefore there is no fiscal impact.

Attachment:

1. Financial Report Summary – March 2017.

Page Intentionally Left Blank

Item 4.C

Financial Report Summary through March 2017

Attachment 1

Financial Report Summary – March 2017

Page Intentionally Left Blank

Western Riverside Council of Governments
Monthly Budget to Actuals
For the Month Ending March 31, 2017

		Approved 6/30/2017 Budget	Thru 3/31/2017 Actual	Remaining 6/30/2017 Budget
	Revenues			
40001	Member Dues	309,410	306,410	3,000
42001	Other Revenue	-	4,050	(4,050)
42004	General Assembly	300,000	5,000	295,000
40601	WRCOG HERO	1,963,735	989,707	974,028
40603	CA HERO	7,615,461	5,020,989	2,594,472
40605	The Gas Company Partnership	62,000	58,654	3,346
40606	SCE WRELP	4,692	77,698	(73,006)
40607	WRCOG HERO Commercial	27,500	13,404	14,096
40609	SCE Phase III	10,643	10,634	9
40611	WRCOG HERO Recording Revenue	335,555	216,630	118,925
40612	CA HERO Recording Revenue	1,301,300	1,004,385	296,915
40614	Active Transportation	200,000	50,254	149,746
41201	Solid Waste	107,915	98,415	9,500
41401	Used Oil Opportunity Grants	290,227	264,320	25,907
41402	Air Quality-Clean Cities	228,000	161,750	66,250
40616	CCA Revenue	247,950	102,095	145,855
40617	Energy Admin Revenue	31,678	30,000	1,678
41701	LTF	701,300	701,250	50
43001	Commercial/Service - Admin (4%)	37,074	47,176	(10,102)
43002	Retail - Admin (4%)	142,224	83,425	58,799
43003	Industrial - Admin 4%)	128,446	145,867	(17,421)
43004	Residential/Multi/Single - Admin (4%)	1,067,271	569,560	497,711
43005	Multi-Family - Admin (4%)	224,983	90,294	134,689
43001	Commercial/Service	889,786	1,132,504	(242,718)
43002	Retail	3,413,375	2,002,198	1,411,177
43003	Industrial	3,082,710	3,500,813	(418,103)
43004	Residential/Multi/Single	25,614,514	13,669,166	11,945,348
43005	Multi-Family	5,399,595	2,167,048	3,232,547
	Total Revenues	**61,237,078**	**32,524,040**	**28,513,727**
	Expenditures			
	Wages and Benefits			
60001	Wages & Salaries	1,981,159	1,692,124	289,035
61000	Fringe Benefits	578,219	434,156	144,063
	Total Wages and Benefits	**2,619,378**	**2,126,280**	**493,098**
	General Operations			
63000	Overhead Allocation	1,520,636	1,160,494	360,142
65101	General Legal Services	450,949	510,069	(59,120)
65401	Audit Fees	25,000	23,879	1,121
65505	Bank Fees	25,500	115,751	(90,251)
65507	Commissioners Per Diem	46,950	40,050	6,900
73001	Office Lease	145,000	113,701	31,299
73003	WRCOG Auto Fuels Expense	678	399	279
73004	WRCOG Auto Maint Expense	33	33	0
73101	Special Mail Srvcs	1,500	1,028	472
73102	Parking Validations	3,755	3,710	45
73104	Staff Recognition	1,200	632	568
73107	Event Support	185,980	86,066	99,914
73108	General Supplies	21,021	13,428	7,593
73109	Computer Supplies	8,937	4,920	4,017
73110	Computer Software	13,705	24,396	(10,691)

Western Riverside Council of Governments
Monthly Budget to Actuals
For the Month Ending March 31, 2017

		Approved 6/30/2017 Budget	Thru 3/31/2017 Actual	Remaining 6/30/2017 Budget
73111	Rent/Lease Equipment	25,000	25,320	(320)
73113	Membership Dues	21,364	21,091	273
73114	Subcriptions/Publications	8,539	16,700	(8,161)
73115	Meeting Support/Services	14,809	7,577	7,232
73116	Postage	5,708	2,814	2,894
73117	Other Household Expenditures	2,523	5,240	(2,717)
73118	COG Partnership Agreement	40,000	17,772	22,228
73119	Storage	16,000	3,175	12,825
73122	Computer Hardware	4,000	337	3,663
73126	EV Charging Equipment	49,605	49,605	0
73201	Communications-Regular	2,000	1,763	237
73203	Communications-Long Distance	1,200	170	1,030
73204	Communications-Cellular	11,802	8,978	2,824
73206	Communications-Comp Sv	18,271	49,253	(30,982)
73209	Communications-Web Site	15,600	1,324	14,276
73301	Equipment Maintenance - General	7,070	11,499	(4,429)
73302	Equipment Maintenance - Computers	8,151	25,445	(17,294)
73405	Insurance - General/Business Liason	73,220	73,725	(505)
73407	WRCOG Auto Insurance	1,570	1,294	276
73502	County RCIT	2,500	787	1,713
73506	CA HERO Recording Fee	1,636,855	975,042	661,813
73601	Seminars/Conferences	23,035	12,390	10,646
73605	General Assembly	300,000	2,394	297,606
73611	Travel - Mileage Reimbursement	21,920	12,419	9,501
73612	Travel - Ground Transportation	8,779	3,464	5,315
73613	Travel - Airfare	22,837	12,474	10,363
73620	Lodging	19,016	9,175	9,841
73630	Meals	10,633	6,830	3,803
73640	Other Incidentals	14,888	9,435	5,453
73650	Training	12,200	919	11,281
73703	Supplies/Materials	41,851	300	41,551
73704	Newspaper Ads	21,863	10,700	11,163
73706	Radio & TV Ads	44,853	51,333	(6,480)
XXXXX	TUMF Projects	38,399,980	40,604,306	(2,204,326)
85101	Consulting Labor	3,497,028	2,237,895	1,259,133
85102	Consulting Expenses	245,000	4,577	240,423
85180	BEYOND Expenditures	2,023,000	274,366	1,748,634
90101	Computer Equipment/Software	31,500	21,227	10,273
90501	Office Improvements	100,000	(1,181,809)	1,281,809
97005	Benefits Transfer Out	-	(439,386)	439,386
97001	Operating Transfer Out	(1,518,136)	(1,033,406)	(484,730)
	Total General Operations	**56,198,774**	**44,017,070**	**12,181,704**
	Total Expenditures	**58,818,152**	**46,143,350**	**12,674,802**

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **Active Transportation Plan Update**

Contact: **Christopher Gray, Director of Transportation, gray@wrcog.cog.ca.us, (951) 955-8304**

Date: **May 11, 2017**

The purpose of this item is to *provide an update to the Committee members on the Western Riverside County Active Transportation Plan (ATP).*

Requested Action:

1. Receive and file.

WRCOG staff provided an update to the Public Works Committee (PWC) in April 2017 on the draft ATP. This report provides an update on the next steps that will finalize the proposed list of projects to be included in the ATP. The ATP will identify challenges to and opportunities for creating a safe, efficient, and complete active transportation network that will expand the availability of active modes of transportation for users both within the region and between neighboring regions.

Update

The draft Regional Active Transportation Network (list of projects) was to be presented to the PWC at the May meeting. However, with the anticipation that the draft TUMF Nexus Study agenda item will be a lengthy one, WRCOG staff will now present the final draft list of projects for discussion in June, and request the PWC approve the final list of projects in July.

The goal of presenting the final list of projects in June and voting in July is so that members can take back the list of projects to their respective jurisdictions for discussion with staff. The project team has received comments from various jurisdictions, and WRCOG staff and the project team have been conducting outreach with each jurisdictions to discuss and clarify the jurisdictions' comments. The project team is then incorporating any input that is a result of these discussions into the final list of projects. WRCOG staff is requesting that PWC members take the final list of projects presented in June back to their respective jurisdictions to discuss with the appropriate staff.

Staff wants to ensure that all member agencies have sufficient time to review the recommended list of projects. Therefore, staff would ask that any jurisdiction that has questions or comments about the Network contact WRCOG so that concerns can be addressed. WRCOG's project team is also coordinating with a concurrent effort by the Riverside County Regional Park and Open-Space District as part of its effort to develop an updated Trails Master Plan.

The goal of the Western Riverside County ATP is to focus the regional ATP on a subset of high priority, regional projects. It is critical to conduct a thorough review and focus the ATP on regionally significant projects, because WRCOG staff is evaluating the option of including active transportation projects in future Nexus Studies, thereby potentially making them eligible for TUMF funding.

Prior Action:

None.

Fiscal Impact:

Transportation Department activities are included in the Agency's adopted Fiscal Year 2016/2017 Budget under the Transportation Department.

Attachment:

None.

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **Regional Streetlight Program Activities Update**

Contact: **Tyler Masters, Program Manager, masters@wrcog.cog.ca.us, (951) 955-8378**

Date: **May 11, 2017**

The purpose of this item is to *provide the Committee with an update on the next steps that member jurisdictions are taking as they consider acquiring their streetlight and/or participating in the Program, the release of the Streetlight Retrofit, Operations and Maintenance Request for Proposals, logistics for the Streetlight workshop to assist member jurisdictions with new development and the Demonstration Area Tour results / Light Suite analysis.*

Requested Action:

1. Discuss and provide input.

WRCOG's Regional Streetlight Program will assist member jurisdictions with the acquisition and retrofit of their Southern California Edison (SCE)-owned and operated streetlights. The Program has three phases, which include: 1) streetlight inventory; 2) procurement and retrofitting of streetlights; and 3) ongoing operations and maintenance. The overall goal of the Program is to provide significant cost savings to the member jurisdictions.

Background

At the direction of the Executive Committee, WRCOG is developing a Regional Streetlight Program that will allow jurisdictions (and Community Service Districts) to purchase the streetlights within their boundaries that are currently owned / operated by SCE. Once the streetlights are owned by the member jurisdiction, the lamps will then be retrofitted to Light Emitting Diode (LED) technology to provide more economical operations (i.e., lower maintenance costs, reduced energy use, and improvements in public safety). Local control of the streetlight system allows jurisdictions opportunities to enable future revenue generating opportunities such as digital-ready networks, and telecommunications and IT strategies.

The goal of the Program is to provide cost-efficiencies for local jurisdictions through the purchase, retrofit, and maintain the streetlights within jurisdictional boundaries, without the need of additional jurisdictional resources. As a regional Program, WRCOG is working with jurisdictions to move through the acquisition process, develop financing recommendations, develop / update regional and community-specific streetlight standards, and implement a regional operations and maintenance agreement that will increase the level of service currently being provided by SCE.

Regional Streetlight Acquisition Update: The following jurisdictions have approved City Council Action / Direction to acquire the SCE-owned streetlights in their Jurisdiction's boundaries (this accounts for approximately 47,000 of the 55,000 acquirable streetlights in the subregion):

October 18, 2016 / March 21, 2017:	City of Moreno Valley
January 24, 2017:	City of Lake Elsinore
February 15, 2017:	City of Menifee

February 28, 2017:	City of Temecula
March 7, 2017:	City of Murrieta
March 8, 2017:	City of Wildomar
March 13, 2017:	Jurupa Community Services District
March 14, 2017:	City of Hemet
March 28, 2017:	City of Perris
March 28, 2017:	City of San Jacinto
April 12, 2017:	City of Eastvale

Next Steps: As of August 2015, SCE is no longer allowing jurisdictions to start discussions to acquire the streetlights within their jurisdictional boundaries. All WRCOG member jurisdictions pre-dated this August 2015 deadline and were provided the opportunity to assess streetlight acquisition opportunities. The member jurisdictions listed above have deemed it feasible to move forward, have met all SCE deadlines, and will continue the streetlight acquisition process.

To date, eleven WRCOG member jurisdictions have approved the Agreement. Upon the signing of the Agreement by the City Manager, city staff will distribute the document to SCE where they will package the Agreement and send it to the California Public Utilities Commission (CPUC). This process can take anywhere from six to twelve months (depending on valuation price). Cities with estimated streetlight sales prices exceeding $5 million will move forward in the CPUC as a "full filing," which require CPUC action and can take upwards of 6 to12 months for approval. For those cities with estimated streetlights sales prices of under $5 million, those will move forward in the CPUC as an "advice filing," and can be administratively approved within 2 to 6 months.

During this timeframe, WRCOG staff will be working with the member jurisdictions on identifying a regional financing option, preparing the member jurisdictions for the transfer of streetlights, hosting a workshop to assist interested jurisdictions with new development, and selecting a vendor to provide the services of ongoing retrofit, operation &Maintenance.

Request for Proposal (RFP) for Streetlight Retrofit, Operations & Maintenance

On March 10, 2017, WRCOG released an RFP for streetlight retrofit, operations & maintenance of the lighting fixtures that are going to be acquired on behalf of the participating jurisdictions. With several jurisdictions moving forward with the acquisition of the streetlights, SCE will no longer provide operations or maintenance on the acquired poles. SCE will continue to maintain any of the underground wiring that connects these streetlights to SCE's grid; however, the city will own, and need to maintain and operate the streetlight fixture and pole from the base of the pole and up.

The purpose of releasing the RFP is to select a vendor that will provide cost effective retrofit, operation and maintenance needs to support the transition of current streetlight technologies (high and low-pressure sodium vapor) lights to LED lighting, maintain / respond to streetlight knockdown / damaged poles, keeping in account economies of scales and increasing the level of services to the participating jurisdictions in Western Riverside County. Furthermore, the selected vendor will work with WRCOG and jurisdictional staff to provide supplemental assistance with the recording documents of each streetlight, installation of housing shields, complying with all state mandated laws, and coordinating with the removal and disposal of any existing luminaire heads / hazardous materials.

WRCOG has posted two addenda to this RFP for the following reasons:

1. Amend Contractor License requirements to include General Contractor License A (General Engineering Contractor) and to remove contractor license requirements C-7 (Low Voltage System) and C-8 (Concrete Contractor).
2. Amend the Schedule of Events to extend the due date of 'Responses to questions' and 'Proposal Due Date' by one week.

The following updated schedule of events provide an outlook of the status of the Streetlight Retrofit, Operations & Maintenance RFP:

Event	Date
1. RFP Distribution	March 10, 2017
2. Questions from Vendors about scope or approach due	March 27, 2017
3. Responses to questions posted on website	~~March 31, 2017~~ **April 7, 2017**
4. Proposal Due Date	~~May 4, 2017~~ **May 11, 2017**
5. Review of proposals	Week of ~~May 9, 2017~~ **May 16, 2017**
6. Potential Interviews	Week of ~~May 22, 2017~~ **May 29, 2017**
7. Anticipated decision and selection of Vendor(s)	Week of ~~May 29, 2017~~ **June 5, 2017**
8. Anticipated commencement date of work	Upon approval of contract by Executive Committee

The RFP can be found on the WRCOG website at http://www.wrcog.us.

Streetlight Workshop

At the request of member jurisdictions, WRCOG is developing a streetlight workshop that will assist jurisdictions to identify and understand SCE and city procedural differences between new streetlight developments as city-owned versus SCE-owned. Some member jurisdictions have developed policies requiring new developments plan / install streetlights under its ownership, and other jurisdictions are beginning to look into this. The workshop will allow WRCOG's members to share their jurisdictions' policies and procedures, while also hearing from SCE's planning department on the technical differences between the two processes so that jurisdictions can best plan new developments and articulate these changes to their developers.

This workshop is scheduled to be held at the City of Murrieta on Monday, May 15, 2017, between 8:00 a.m. and 12:00 p.m. To RSVP to this workshop, please contact Tyler Masters, Program Manager, at (951) 955-8378 or masters@wrcog.cog.ca.us.

Demonstration Area Tour Results / Light Suite

Between the months of November 2016 and January 2017, WRCOG hosted five Streetlight Demonstration Area Tours in the City of Hemet to showcase interested attendees the various lighting fixtures at five different locations. These five Demonstration Areas represent different street and land use types, from school, residential, and commercial areas, to low, medium, and high traffic street areas. A total of 12 outdoor lighting manufacturers participated in these Demonstration Areas.

The attendees that took part of the tours included elected officials, city staff, astronomers, lighting connoisseurs, and residents throughout Riverside County & San Bernardino County. Over 100 attendees analyzed and provided their feedback about the lighting fixtures in which was compiled into report that illustrates the preferred lighting scenarios that the attendees rated. The results obtained from the tours will be analyzed to help identify proper lighting systems to be implemented throughout Western Riverside County.

Accordingly, based off of the results from these five Demonstration Area Tours, WRCOG and its consultants have also drafted a document known as the Light Suite (Attachment 1) which provides City staff with a guide

on how to implement / regulate outdoor lighting within their community. The Light Suite contains seven sections and they are as follows:

- **Light Suite 1**: Specification of LED Cobra head Luminaires for New and Relocated Street Lighting Systems
  - Provides a review of luminaires to be used for new and relocated LED street lighting systems.
- **Light Suite 2**: Design Standards for New or Relocated Street lighting
  - Provides a reviews of standards for street lighting
- **Light Suite 3**: Specifications of LED Luminaires for Replacement of Cobra head Street Lighting Systems
  - Suggested luminaires used for replacement of legacy high intensity discharge street lighting systems
- **Light Suite 4**: Design Standards for LED Replacement Street Lighting
  - This section provides information on standards for street lighting that will help mitigate light pollution, reduce energy consumption, and minimizing light trespass.
- **Light Suite 5**: Proposed Riverside County Ordinance 655P Regulating Outdoor Lighting
  - Ordinance that helps to provide regulations for outdoor lighting
- **Light Suite 6**: Proposed Modernization of Riverside County Ordinance No. 915P Regulating Outdoor Lighting
  - Ordinance that illustrates requirements for outdoor lighting, health, property and residential areas.
- **Light Suite 7**: Suggested Community Outdoor Lighting Ordinance
  - Illustrates goals to promote and protect public health, safety, welfare, and quality of life by establishing regulations for outdoor lighting.

For additional information on these lighting documents, please contact Tyler Masters, Program Manager at (951) 955-8378 or masters@wrcog.cog.ca.us.

Prior Actions:

May 1, 2017: The Executive Committee received report.
April 20, 2017: The Technical Advisory Committee received report.

Fiscal Impact:

Activities for the Regional Streetlight Program are included in the Agency's adopted Fiscal Year 2016/2017 Budget.

Attachment:

1. Draft Light Suite.

Item 5.A

Regional Streetlight Program
Activities Update

Attachment 1

Draft Light Suite

Page Intentionally Left Blank

WRCOG LightSuite
For Outdoor Lighting Regulations

March 31, 2017

Introduction

Most communities have some sort of outdoor lighting regulation. Older regulations tend to focus on preventing objectionable light trespass and overlighting of sites, but more recently ordinances strive to prevent environmental impacts and to preserve dark skies at night for astronomy and star-gazing. The urgency of creating modernized lighting regulations recently increased dramatically with the 2016 announcement by the American Medical Association of its concern about the impact on human health and the environment caused by some types of LED lighting.

Riverside County is one of the first governing bodies in the world to restrict outdoor lighting to preserve the dark night sky. While the intent was primarily to benefit the Palomar Observatory, it also served to maintain one of the largest areas of dark skies in populated areas of Southern California, considered by many to be a significant contribution to quality of life in the County. But the original ordinances have been rendered obsolete by LED technology. In fact, LED lighting is now being installed throughout the County and without modern regulations, years of care and concern will be quickly undone by the careless installation of LED's that don't meet the recommendations of the AMA

As part of the WRCOG LED Street Lighting Conversion project, a group of modern lighting regulation documents, called the LightSuite, has been developed for use by WRCOG member communities and Riverside County. In addition to ensuring that all LED lighting complies with AMA recommendations, LightSuite modernizes all existing ordinances and coordinates them with State of California outdoor lighting regulations put in place since 2006. Properly implemented, LightSuite will help improve planning, permitting and enforcement in every community

In addition, the technical aspects of LightSuite have been reviewed by Cal Tech's principal astronomers and scientists and determined to be consistent with best practices to mitigate light pollution that could affect the work of Palomar Observatory.

Regulating Outdoor Lighting

In California, outdoor lighting became restricted by the California Code of Regulations on January 1, 2006. Title 24 Part 1 instituted a statewide lighting zone system. It has default zones for the entire state, but communities can change the zones throughout their jurisdiction. Title 24 Part 6, the Energy Efficiency standards, restrict the amount of light by limited power (watts) and energy per zone and need – including, to a certain extent, signs. Title 24, Part 11, CAL Green, the statewide sustainability code, restricts upward light, glare and off-site impacts per the lighting zone using the BUG (Backlight Uplight Glare) rating system for outdoor lighting. **Communities already have these tools** to regulate lighting through planning, permitting and inspection of all new buildings as well as for renovations, remodeling and additions.

But Title 24 alone is not adequate. It does not restrict residential lighting in specific important ways that have been proven to be needed for communities to resolve the common complaints among neighbors. It does not restrict streetlights. Communities must individually develop or modernize and implement several standards and regulations:

1. A **lighting ordinance** regulating lighting for buildings, site development such as parking lots and walkways, and other uses of outdoor lighting other than streets or signs.
2. A **design standard** that specifies the design of street lighting for developer projects that will become part of the community lighting system.
3. **Street lighting standards** for new roadways and intersections and for maintaining or revising existing street lighting.
4. **Specifications** for all LED street lighting products.

The **WRCOG LightSuite**

This suite of proposed ordinances and standards is provided free of charge for use by WRCOG communities and includes the following:

- LightSuite 1 - Specification of LED Cobrahead LUMINAIREs for New and Relocated Street Lighting Systems
- LightSuite 2 – Design Standards for New or Relocated Street Lighting
- LightSuite 3 – Specifications of LED luminaires for Replacement of Cobrahead Street Lighting Systems
- LightSuite 4 – Design Standards for LED Replacement Street Lighting
- LightSuite 5 – Proposed Riverside County Ordinance 655P Regulating Outdoor Lighting
- LightSuite 6 – Proposed Modernization of Riverside County Ordinance 915P Regulating Outdoor Lighting
- LightSuite 7 – Suggested Community Outdoor Lighting Ordinance

For questions concerning the WRCOG LightSuite or the LED Street Light Program, feel free to contact Tyler Masters, WRCOG Project Manager, at Masters@wrcog.cog.ca.us .

TABLE OF CONTENTS Page

SPECIFICATION OF LED COBRAHEAD LUMINAIRES FOR NEW AND RELOCATED STREET LIGHTING SYSTEMS

PART 1 – GENERAL

1.1. SCOPE

Luminaires to be used for new and relocated LED street lighting systems.

1.2.REFERENCES

The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by their basic designation only. Versions listed shall be superseded by updated versions as they become available.

A. American National Standards Institute (ANSI)
   1. C136.2-2004 (or latest), American National Standard for Roadway and Area Lighting Equipment—Luminaire Voltage Classification
   2. C136.10-2010 (or latest), American National Standard for Roadway and Area Lighting Equipment - Locking-Type Photocontrol Devices and Mating Receptacle Physical and Electrical Interchangeability and Testing
   3. C136.15-2011 (or latest), American National Standard for Roadway and Area Lighting Equipment – Luminaire Field Identification
   4. C136.22-2004 (R2009 or latest), American National Standard for Roadway and Area Lighting Equipment – Internal Labeling of Luminaires
   5. C136.25-2009 (or latest), American National Standard for Roadway and Area Lighting Equipment – Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures
   6. C136.31-2010 (or latest), American National Standard for Roadway Lighting Equipment – Luminaire Vibration
   7. C136.37-2011 (or latest), American National Standard for Roadway and Area Lighting Equipment - Solid State Light Sources Used in Roadway and Area Lighting.

B. American Society for Testing and Materials International (ASTM)
   1. B117-09 (or latest), Standard Practice for Operating Salt Spray (Fog) Apparatus
   2. D1654-08 (or latest), Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
   3. D523-08 (or latest), Standard Test Method for Specular Gloss
   4. G154-06 (or latest), Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

C. Council of the European Union (EC)
   1. RoHS Directive 2002/95/EC, on the restriction of the use of certain hazardous substances in electrical and electronic equipment

D. Federal Trade Commission (FTC)
   1. Green Guides, 16 CFR Part 260, Guides for the Use of Environmental Marketing Claims

E. Illuminating Engineering Society of North America (IESNA or IES)
   1. DG-21-15, Design Guide for Residential Lighting
   2. DG-4-03 (or latest), Design Guide for Roadway Lighting Maintenance
   3. HB-10-11 (or latest), IES Lighting Handbook, 10th Edition
   4. LM-50-99 (or latest), IESNA Guide for Photometric Measurement of Roadway Lighting Installations
   5. IES RES-1-16, Measure and Report on Luminaire Dirt Depreciation (LDD) in LED Luminaires for Street and Roadway Lighting Applications
   6. LM-61-06 (or latest), Approved Guide for Identifying Operating Factors Influencing Measured Vs. Predicted Performance for Installed Outdoor High Intensity Discharge (HID) Luminaires
   7. LM-79-08 (or latest), IESNA Approved Method for the Electrical and Photometric Measurements of Solid-Sate Lighting Products
   8. LM-80-08 (or latest), IESNA Approved Method for Measuring Lumen Maintenance of LED Light Sources
   9. RP-8-14 ANSI / IESNA American National Standard Practice for Roadway Lighting
   10. RP-16-10 (or latest), ANSI/IES Nomenclature and Definitions for Illuminating Engineering
   11. TM-3-95 (or latest), A Discussion of Appendix E - "Classification of Luminaire Lighting Distribution," from ANSI/IESNA RP-8-83
   12. TM-15-11 (or latest), Luminaire Classification System for Outdoor Luminaires
   13. TM-21-11 (or latest), Projecting Long Term Lumen Maintenance of LED Light Sources.

F. Institute of Electrical and Electronics Engineers (IEEE)
    1. IEEE C62.41.2-2002 (or latest), IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits
    2. ANSI/IEEE C62.45-2002 (or latest), IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits
G. National Electrical Manufacturers Association (NEMA)
    1. ANSI/NEMA/ANSLG C78.377-2008 (or latest), American National Standard for the Chromaticity of Solid State Lighting Products
H. National Fire Protection Association (NFPA)
    1. NFPA-70-14 – National Electrical Code (NEC)
I. Underwriters Laboratories (UL)
    1. 1449, Surge Protective Devices
    2. 1598, Luminaires and Poles
    3. 8750, Light Emitting Diode (LED) Equipment for Use in Lighting Products
J. City Standards for Street Lighting
K. Southern California Edison
    1. Standards for services to customer-owned street lighting systems
    2. Standard specifications for Public Works Construction (Greenbook) (latest edition), Subsections 700 and 701 and all included cross references.

1.3. RELATED DOCUMENTS

A. LightSuite 2, Design Standards for New and Relocated Street Lighting Systems.

1.4.DEFINITIONS

A. Lighting terminology used herein is defined in IES RP-16. See referenced documents for additional definitions.
    1. Exception: The term “driver” is used herein to broadly cover both drivers and power supplies, where applicable.
    2. Clarification: The term “LED light source(s)” is used herein per IES LM-80 to broadly cover LED package(s), module(s), and array(s).

1.5. QUALITY ASSURANCE

A. Before approval and purchase, furnish luminaire sample(s) identical to product configuration(s) submitted for inspection. Furnish IES LM-79 testing of luminaire sample(s) to verify performance is within manufacturer-reported tolerances.
B. After installation, Owner may perform IES LM-50 field measurements to verify performance requirements outlined in Table A, considering measurement uncertainties outlined in IES LM-61.

1.6. LIGHTING SYSTEM PERFORMANCE

A. Energy Conservation
   1. Lighting Controls
      a. See separate controls specification identified in section 1.2 above, if applicable.
      b. See section 2.1-B below for driver control interface and performance requirements.
      c. See section 2.1-K below for photocontrol receptacle requirements.

B. Photometric Requirements
   1. Luminaires shall meet the general criteria provided in the body of this specification and the criteria for each luminaire type defined in Table A.

1.7. REQUIRED SUBMITTALS FOR EACH LUMINAIRE TYPE DEFINED IN TABLE A AND EACH PROPOSED MANUFACTURER

A. Use Table D attached hereto for each proposed luminaire.

B. General submittal content shall include
   1. Completed Appendix E submittal form
   2. Luminaire cutsheets
   3. Cutsheets for LED light sources
   4. Cutsheets for LED driver(s)
      a. If dimmable LED driver is specified, provide diagrams illustrating light output and input power as a function of control signal.
   5. Cutsheets for surge protection device, if applicable
   6. Instructions for installation and maintenance
   7. Summary of luminaire recycled content and recyclability per the FTC Green Guides, expressed by percentage of luminaire weight

C. LM-79 luminaire photometric report(s) shall be produced by the test laboratory and include
   1. Name of test laboratory
      a. The test laboratory must hold National Voluntary Laboratory Accreditation Program (NVLAP) accreditation for the IES LM-79 test procedure.
   2. Report number
   3. Date
   4. Complete luminaire catalog number
      a. Provide explanation if catalog number in test report(s) does not match catalog number of luminaire submitted
         i. Clarify whether discrepancy does not affect performance, e.g., in the case of differing luminaire housing color.

ii. If nominal performance of submitted and tested products differ, submit additional LM-79 report(s) and derivation as indicated in Appendix C.

5. Description of luminaire, LED light source(s), and LED driver(s)
6. Goniophotometry
7. Colorimetry
8. IES TM-21-11 calculations that derive the lumen maintenance (lamp lumen depreciation or LLD) factor applied to photometric calculations specified herein. TM-21 calculations must apply to the maximum LED case temperature from ISTMT, shall not extrapolate beyond six times the duration of available LM-80 test data, and submitted in the spreadsheet format of the ENERGY STAR TM-21 calculator.

D. Predicted dirt depreciation per IES RES-1-16 Page 72 Tables 7 and 8 for the optical system used.

E. Computer-generated point-by-point photometric analysis of maintained photopic light levels.

1. Calculations shall be for maintained values, i.e. Light Loss Factor (LLF) < 1.0, where LLF = LLD x LDD x LATF, and
   a. Lamp Lumen Depreciation (LLD)
      i. Shall be 0.8 (L_{80}) for all luminaires
   b. Luminaire Dirt Depreciation (LDD) per IES RES-1-16 and assuming 5-year cleaning cycle.
   c. Luminaire Ambient Temperature Factor (LATF) = 1.00
2. Use of IES HB-10 mesopic multipliers
   a. Shall be disallowed herein, by assuming an S/P ratio of 1.00 for all luminaires.
3. Calculation/measurement points shall be per IES RP-8.
4. Software shall be AGI32 using roadway methods and insofar as possible, on representative sections of all planned new or relocated designs.

F. Summary of Joint Electron Devices Engineering Council (JEDEC) or Japan Electronics and Information Technology Industries (JEITA) reliability testing performed for LED packages

G. Summary of reliability testing performed for LED driver(s)

H. Written product warranty as per section 1.7 below

I. Safety certification and file number

1. Applicable testing bodies are determined by the US Occupational Safety Health Administration (OSHA) as Nationally Recognized Testing Laboratories (NRTL) and include: CSA (Canadian Standards Association), ETL (Edison Testing Laboratory), and UL (Underwriters Laboratory).

1.8.WARRANTY

A. Provide a minimum ten-year warranty covering maintained integrity and functionality of
   1. Luminaire housing, wiring, and connections
   2. LED light source(s)
      a. Negligible light output from more than 10 percent of the LED packages constitutes luminaire failure.
   3. LED driver(s)
      a.Failure to dim if connected to a control system and using proper components constitutes luminaire failure

B. Warranty period shall begin upon installation, or as negotiated by owner such as in the case of an auditable asset management system.

C. Warranty to provide for replacement of product with new product of equivalent appearance, CCT, CRI, and photometric performance.

D. Upon request prior to approval, manufacturer may be required to provide proof of financial viability which may include any information deemed necessary to determine the manufacturer's ability to fully service their warranty.

PART 2 – PRODUCTS

2.1. LUMINAIRES

A. General Requirements
   1. Luminaires shall be as specified for each type in Table B.
   2. Luminaire shall have an external label per ANSI C136.15
   3. Luminaire shall have an internal label per ANSI C136.22.
   4. Nominal luminaire input wattage shall account for nominal applied voltage and any reduction in driver efficiency due to sub-optimal driver loading.
   5. Luminaires shall start and operate in -20°C to +40°C ambient.
   6. Electrically test fully assembled luminaires before shipment from factory.
   7. Effective Projected Area (EPA) of the luminaire shall not exceed the EPA of the luminaire being replaced.
   8. Luminaires shall be designed for ease of component replacement and end-of-life disassembly.
   9. Luminaires shall be rated for the ANSI C136.31 Vibration Level indicated in Table A.
   10. LED light source(s) and driver(s) shall be RoHS compliant.
   11. Transmissive optical components shall be applied in accordance with OEM design guidelines to ensure suitability for the thermal/mechanical/chemical environment.

B. Driver
   1. Rated case temperature shall be suitable for operation in the luminaire operating in the ambient temperatures indicated in section 2.1-A above.
   2. Shall accept the voltage or voltage range indicated in Table A at 50/60 Hz, and shall operate normally for input voltage fluctuations of plus or minus 10 percent.
   3. Shall have a minimum Power Factor (PF) of 0.90 at full input power and across specified voltage range.
   4. Control signal interface
      a. Luminaire types indicated “Required” in Table A shall accept a control signal as specified via separate controls specification referenced in section 1.2 above, e.g., for dimming.
      b. Luminaire types indicated “Not Required” in Table A need not accept a control signal.

C. Electrical transient and surge immunity
   1. Luminaire shall meet the “Elevated” requirements in Appendix D. Manufacturer shall indicate on submittal form (Appendix E) whether failure of the electrical immunity system can possibly result in disconnect of power to luminaire.

D. Electromagnetic interference
   1. Shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range.
   2. Shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.

E. Electrical safety testing
   1. Luminaire shall be listed for wet locations by an OSHA NRTL.
   2. Luminaires shall have locality-appropriate governing mark and certification.

F. Painted or finished luminaire components exposed to the environment
   1. Shall exceed a rating of six per ASTM D1654 after 1000hrs of testing per ASTM B117.
   2. The coating shall exhibit no greater than 30% reduction of gloss per ASTM D523, after 500 hours of QUV testing at ASTM G154 Cycle 6.

G. Thermal management
   1. Mechanical design of protruding external surfaces (heat sink fins) for shall facilitate hose-down cleaning and discourage debris accumulation.
   2. Liquids or other moving parts shall be clearly indicated in submittals, shall be consistent with product testing, and shall be subject to review by Owner.

H. IES TM-15 limits for Backlight, Uplight, and Glare (BUG Ratings) shall be as specified for each luminaire type in Table A.
   1. Calculation of BUG Ratings shall be for initial (worst-case) values, i.e., Light Loss Factor (LLF) = 1.0.

I. Minimum Color Rendering Index (CRI): 70.

J. Correlated Color Temperature (CCT)
   1. Nominal 2700K (3000K for certain applications only).
   2. Allowable 2580 to 2870K per IES LM-79.
   3. Allowable -.006 to .006 D_{uv} per IES LM-79.

K. The following shall be in accordance with corresponding sections of ANSI C136.37
   1. Wiring and grounding
      a. All internal components shall be assembled and pre-wired using modular electrical connections.
   2. Mounting provisions
      a. Specific configurations are indicated in Table A
   3. Terminal blocks for incoming AC lines
   4. Photocontrol receptacle
   5. Latching and hinging
   6. Ingress protection

L. Luminaire Construction
   1. Weight
      a. The net weight of each luminaires less than 46 (21 kg) pounds including mounting devices and backlight shields.
   2. Housing
      a. Tool-less entry
      b. Die-cast aluminum alloy meeting ASTM Specification A380. Alternate materials may be considered but shall be submitted to the Owner for review and approval.
      c. Encloses the mounting hardware, LED arrays, control receptacle, terminal board, and electronic driver.
      d. Includes a surface to facilitate leveling with a spirit level.
      e. Integral heat sink characteristics, such that all enclosed components will operate within their designed operating temperatures under expected service conditions. No external or removable heat shields or heat sinks are permitted.
      f. Designed to encourage water shedding.
      g. Designed to minimize dirt and bug accumulation on the optic surface.
      h. Permanently affixed easily-viewable nameplate inside of each luminaire housing containing the manufacturer's name, manufacturer's catalog number, date of manufacture (month and year), plant location, input power consumption, driver output current, IEC IP Rating, correlated color temperature (CCT), IES light distribution type, IESNA TM-15 BUG ratings, and serial number.

i. City approved luminescent name plate meeting American National Standard for Roadway and Area Lighting Equipment-Luminaire Field Identification (ANSI C136.15-2015) shall be permanently affixed on the exterior of the Luminaire to be visible from the ground.

3. Mounting Provisions**.**

a. Standard heavy gauge slip fitter clamping assembly suitable for secure attachment over the end of a nominal two 2" IP (2.375" OD) steel pipe with an approved means of clamping it firmly in mounting bracket. The slip fitter mounting clamp must contain an approved shield around the pipe entrance to block the entry of birds.

b. Leveling adaptor to permit at least 15 degrees of correction to level luminaire with respect to normal to photometric nadir (straight down).

c. Adaptor fittings for nominal 1.5 inch IP, 1.75 inch IP, 2.25 inch IP and 2.5 inch IP mast arms.

4. Access Door-Panel.

a.Die-cast aluminum door-panel composed of aluminum alloy A380. Alternate materials may be considered but shall be submitted to the Owner for review and approval.

b.Provides access to the terminal strip and LED driver.

c.Hinged to the luminaire housing and suitably latched and fastened at the closing end.

d.Easily removed.

e.Captive hardware for the hinge and fastening devices.

5. Hardware.

a.Machine screws, locknuts, pins and set screws necessary to make a firm assembly, and for its secure attachment to the mast arm, must be furnished in place.

b.Hardware must be of stainless steel, zinc plated steel, copper silicon alloy or other non-corrosive metal, and where necessary must be suitably plated to prevent electrolytic action by contact with dissimilar metals.

6. Finish**.**

a.Polyester powder coat with a minimum 2.0 mil thickness.

b.Surface texture and paint quality subject to approval.

c.Color must be as specified in the order.

d.Finish must exceed a rating of six per ASTM D1654 after 1000 hours of testing per ASTM B117.

e.The coating must exhibit no greater than 30% reduction of gloss per ASTM D523 after 500 hours of QUV testing at ASTM G154 Cycle 6.

7. Ingress Protection.
    a. Electric compartment housing must have an ingress protection rating of IP54 or better as described in ANSI C136.25-2013.
    b. The optical system must have a minimum rating of IP 66.
    c. Listed for wet locations by a U.S. Occupational Safety Health Administration (OSHA) Nationally Recognized Laboratory (NRTL) and have a safety certification and file number indicating compliance with UL 1598.
8. LED Optical Arrays
    a. Factory installed.
    b. No required field adjustment for specified photometric performance.
9. Terminal Block
    a. High grade molded plastic of the barrier or safety type.
    b. Within the water tight part of the housing in a readily accessible location.
    c. Pre-wired to all luminaire components
    d. Copper plated clamp-type pressure connector approved type for "line" connections, to accommodate wire sizes from #14 to #6 A.W.G.
    e. Internal component connections either the screw-clamp or quick disconnect type.

2.2. PRODUCT MANUFACTURERS AND APPROVED PRODUCTS

A. Approved manufacturers are listed in Table A.
B. Select products to replace existing luminaires using Tables A, B and per project requirements, including application notes. See LightSuite 4 for a recommended system to minimize the number of different luminaires to be used on a project.
C. Specific products proposed for a specific project should be submitted using Table D along with a physical sample.
D. Optimize performance for the existing conditions. For illuminating engineering, WRCOG will provide access to AGI32 models to determine best possible performance under common circumstances found throughout Western Riverside County.

2.3. MANUFACTURER SERVICES

A. The manufacturer shall provide full support for the project including, but not limited to, AGI-32 lighting calculations, required tests and certifications, and all other services necessary to permit products to be applied as intended by these specifications.
B. The manufacturer shall notify the contractor immediately of product changes and bulletins and provide new specifications and test reports.
C. Manufacturer or local sales representative shall provide installation and troubleshooting support in person and shall identify the name of a factory trained sales agent in Riverside County to service the Project.

TABLE A
APPROVED MANUFACTURERS OF LIGHTING PRODUCTS

Candidate luminaires for street and roadway lighting products were tested and evaluated in the winter of 2016-2017. The following manufacturers' products were generally found to be of suitable quality and performance. However, specific products to be used shall meet the minimum performance requirements from Table B. Make necessary changes due to the nature of the specific project, changes due to product offerings, and/or changes required by the Owner. Listed alphabetically; no preference due to order is intended.

Acuity Brands Lighting (American Electric Lighting and other brands)
Hubbell Lighting (Beacon Lighting and other brands)
Cree Lighting
Eaton Lighting (Streetworks and other brands)
General Electric (Current and other brands)
Leotek Lighting
Philips Lighting (Lumec and other brands)

All the above manufacturers have demonstrated products that can meet the performance requirements of Table B, provide satisfactory results when used in non-RP-8 compliant installations in product testing, meet the requirements of these specifications, and passed a table top review.

Application Notes

1. Other products from these and other manufacturers meeting all project requirements and these specifications may exist. Careful comparison of proposed luminaires' goniophotometrics, colorimetry, photometric performance, and other project data, and tabletop disassembly and evaluation of construction is strongly urged.
2. Periodic review of the selection criteria and approved manufacturers is urged. LED lighting is a field of rapid change in technology and many new companies have entered the business, as well as the continued evolution of products by all manufacturers. Price alone should not be the deciding criterion.
3. Standard AGI-32 test designs for analysis and comparison are available through WRCOG to help assess candidate luminaires only. Actual proposed designs of each project should be analyzed to ensure proper performance in situ.
4. LightSuite 4 provides a Kilolumen classification system to minimize the number of different products (SKU's) to be used for community-wide conversion. Most manufacturers will be able to provide luminaires in each classification e.g. low, medium low, etc.

TABLE B

PHOTOMETRIC PERFORMANCE REQUIREMENTS

(Coordinate with LightSuite 4 Decisions)

Less than 5 Kilolumens

	Type II	**Type III**	**Type IV**
Street-side Coefficient of Utilization[3]	67% min.		
Backlight (B)	0 or1		
Uplight (U)	0		
Glare (G)	0 or 1		
House Side Shield Required[1]	If B1, otherwise by request		
Cul-de-sac shield required[2]	By request		

Nominal 5 to 7.5 Kilolumens

	Type II	**Type III**	**Type IV**
Street-side Coefficient of Utilization[3]	73% min.	70% min.	63% min.
Backlight (B)	0 or1		
Uplight (U)	0		
Glare (G)	0 or 1		
House Side Shield Required[1]	If B1, otherwise by request		
Cul-de-sac shield required[2]	Yes		

Nominal 7.5 to 12.5 Kilolumens

	Type II	**Type III**	**Type IV**
Street-side Coefficient of Utilization[3]	76% min.	74% min.	70% min.
Backlight (B)	0, 1 or 2		
Uplight (U)	0		
Glare (G)	0, 1, or 2	0, 1, 2 or 3	0, 1, 2 or 3
House Side Shield Required[1]	If B2, otherwise by request		
Cul-de-sac shield required[2]	Yes		

Nominal 12.5 to 17.5 Kilolumens

	Type II	**Type III**	**Type IV**
Street-side Coefficient of Utilization[3]	80% min.	76% min.	75% min.
Backlight (B)	0, 1 or 2		
Uplight (U)	0		
Glare (G)	0, 1, or 2	0, 1, 2 or 3	0, 1, 2 or 3
House Side Shield Required[1]	If B2 or B3; otherwise by request		
Cul-de-sac shield required[2]	Yes		

Footnotes for all luminaires

[1] If installed on a residential street or residential collector; optional to install by request by Owner or as additional service

[2] If installed on a residential cul-de-sac or L intersection

[3] Without detachable shields

THERE IS NO TABLE C

TABLE D

PRODUCT SUBMITTAL FORM

Luminaire Type[1]		
Manufacturer		
Model number		
Housing finish color		
Tenon nominal pipe size (inches)		
Nominal luminaire weight (lb)		
Nominal luminaire EPA (ft^2)		
Nominal input voltage (V)		
ANSI vibration test level	❒ Level 1 (Normal)	☐ Level 2 (bridge/overpass)
Nominal BUG Ratings		
Make/model of LED light source(s)		
Make/model of LED driver(s)		
Dimmability	❒ Dimmable	☐ Not dimmable
Control signal interface		
Upon electrical immunity system failure	☐ Possible disconnect	☐ No possible disconnect
Thermal management	☐ Moving parts	❒ No moving parts
Lumen maintenance testing duration (hr)		
Reported lumen maintenance life (hr) [2]		
Warranty period (yr)		
Parameter	Nominal value	Tolerance (%)
Initial photopic output (lm)		
Maintained photopic output (lm)		
Lamp lumen depreciation		
Initial input power (W)		
Maintained input power (W)		
Initial LED drive current (mA)		
Maintained LED drive current (mA)		
Drive current used		
In-situ LED T_c (°C)		
CCT (K)		
Additional product description		

[1] See Table A, and attach supporting documentation as required.

[2] Value shall be no less than as specified in section 1.6-C, and shall not exceed six times the testing duration indicated in the row above. Value shall be consistent with values submitted in the rows below for maintained light output, maintained input power, and maintained drive current.

DESIGN STANDARDS FOR NEW OR RELOCATED STREET LIGHTING

Section 1. INTENT

The purpose of this Standard is to provide standards for street lighting that will:

A. Provide high quality street lighting for the community meeting or exceeding minimum national recommendations.

B. Help mitigate light pollution, reduce skyglow and improve the nighttime environment for astronomy and the Palomar Observatory and the overall enjoyment of the naturally dark night sky;

C. Minimize adverse offsite impacts of lighting such as light trespass, and obtrusive light.

D. Help protect human health and wellness and the natural environment from the adverse effects of man-made outdoor lighting.

E. Conserve energy and resources to the greatest extent possible.

Section 2. CONFORMANCE WITH APPLICABLE LAWS, CODES, REGULATIONS and STANDARDS

All street lighting shall be installed in conformance with the provisions of this standard and the applicable provisions of the standards of the community regulating the installation of such fixtures, the California Building Code Title 24 Part 1, the California Electrical Code Title 24 Part 3, the California Building Energy Efficiency Standards Title 24 Part 6, the California Sustainability Standards Title 24 Part 11 “CalGreen”, and all other applicable requirements.

Section 3. SCOPE

This standard shall apply to the construction, alteration, movement, enlargement, replacement and installation of street lighting and its related electrical service throughout the community including but not limited to:

A. Street lighting for public streets, roadways, alleys and other rights of way including walkways and bikeways.

B. Street lighting for private roadways, walkways and bikeways.

C. Street lighting for private developments where the street lighting will be deeded to the community at some time in the future.

Exceptions to Section 3

1. Facilities, sites or roadways under the sole jurisdiction of the Federal or State Governments or within the jurisdiction of a sovereign nation.
2. Lighting specifically governed by a Federal or State regulation or statute.
3. Lighting subject to the terms of a Special Plan approved by the community.

Section 4. ALTERNATE MATERIALS AND METHODS OF INSTALLATION.

This standard is not intended to prevent the use of any design, material or method of installation not expressly forbidden, provided any such alternate has been approved if it:

A. Provides at least approximate equivalence to the applicable specific requirements of this standard; and

B. Is otherwise satisfactory and complies with the intent of this standard.

Section 5. DEFINITIONS.

A. **Street Lighting** means luminaire(s), installed outdoors, and used to illuminate a street or roadway and/or any part of the public right of way including but not limited to, sidewalks, bikeways, alleys, intersections, ramps, underpasses, overpasses, curbs, medians, or shoulders.

B. **Street** means major, collector and local roads where pedestrians and bicyclists are generally present.

C. **Roadway** means, freeways, expressways, limited access roads, and roads on which pedestrians, cyclists and parked vehicles are generally not present.

D. **Residential street** means a street that is exclusively serving residential properties and for which the posted speed limit is 25 mph (40 kph) or less.

E. **Luminaire** means a complete illuminating device, lighting fixture or other device that emits light, consisting of light source(s) together with the parts designed to distribute the light, to position and protect the light source(s), to regulate the electrical power, and to connect the light sources to the power supply.

F. **IES** means the Illuminating Engineering Society of North America.

G. **RP-8** means the current version of the IES Recommended Practice for Roadway Lighting, RP-8.

H. **RP-22** means the current version of the IES Recommended Practice for Tunnel Lighting RP-22.

I. **DG-21** means the current version of the IES Design Guide for Residential Street Lighting.

J. **TM-15** means the current version of the IES Technical Memorandum, Luminaire Classification System for Outdoor Luminaires

K. **Palomar Zone A** is established by Riverside County Ordinance 655 and means all properties and land uses in plan view within the circular area fifteen (15) miles in radius centered on Palomar Observatory.

L. **Palomar Zone B** is established by Riverside County Ordinance 655 and means all properties and land uses in plan view the circular ring area between by two circles, one forty-five (45) miles in radius centered on Palomar Observatory, and the other the perimeter of Zone A.

M. **Palomar Zone C** means the remainder of Riverside County outside of the perimeter of Zone B.

N. **BUG rating of an outdoor luminaire** means the ranking of the luminaire using a photometric report to establish the Backlight (B), Uplight (U) and Glare (G) ranking per IES TM-15.

O. **LED** means light emitting diode solid state lighting source.

P. **Dedicated LED** means a luminaire with a hard-wired LED light generating module and a separate driver.

Q. Photometric Report means a complete photometric report from a NVLAP certified test laboratory.

R. AASHTO means the American Association of State Highway Traffic Officials.

Section 6. TITLE 24 LIGHTING ZONES

A. For the purposes of complying California Code of Regulations, Title 24, Part 1, Section 10-114 and Title 24, Part 11, Section 5.106.8, Zone A as defined above shall be Lighting Zone 1 (LZ-1), Zone B as defined above shall be Lighting Zone 2 (LZ-2). The balance of the County shall be LZ-2 or LZ-3 per the statewide default zones or as set by the community.

B. The community shall establish a method for applicant(s) to request and to set a different lighting zone per Title 24, Part 1 Section 10-114 for a specific parcel or project.

Section 7. GENERAL REQUIREMENTS.

A. Streetlights shall utilize dedicated LED luminaries and shall be designed per these Standards, field inspected and approved prior to requesting energizing or acceptance.

B. All wiring for street lighting shall be underground, per these standards and these specifications for power to be supplied from community owned service points from the utility.

C. Street lighting on private roads shall be constructed per these Standards.

D. Street lighting shall be designed and installed per the Title 24 Lighting Zones as described herein.

E. Street lighting shall be fully shielded and emit no uplight (BUG rating U=0).

Exception to Section 7. (D.) Decorative street lights not meeting the BUG requirements for the Lighting Zone in which they are proposed and having uplight (BUG rating U≠0) are not permitted except by Special Plan or special permission of the community.

Section 8. ILLUMINATING ENGINEERING REQUIREMENTS FOR NEW STREET LIGHTING INSTALLATIONS

A. Scope

1. All streets and roadways unless otherwise directed by community.
2. Walkways and sidewalks directly associated with streets and roadways to be illuminated.

B. Not in scope

1. Walkways and bikeways not directly associated with a street or roadway.
2. Service roads for public facilities and parks, unless otherwise directed by community.

C. Street and Roadway lighting requirements

1. Lighting for all streets and roadways shall be per RP-8.

2. The community shall establish whether the street to be lighted is a “major”, “collector”, or “local” for the purposes of designing street lighting.

3. The pedestrian area classification shall be “LOW” conflict except for the following:

   a. Within ¼ mile (400 m) of the property line of any school, library, city hall, retail shopping districts senior center, park, bus stop or hospital, the pedestrian area classification shall be “MEDIUM”.

   b. Within 1/8 mile (200 m) of any transit station, the pedestrian area classification shall be “HIGH”

   c. As determined by community.

EXCEPTION TO Section 8. (A.)

1) In Zone A and Lighting Zone 1 (LZ-1), for residential streets, street lighting shall be limited to (1) light at each residential street or residential street/residential minor collector intersection and (1) light mod block per DG-21. There shall be no requirements to meet illuminance, luminance or uniformity requirements. Lighting for walkways and sidewalks may be incidental because of the street lights.

2) Exception 1 to Section 8. (A.), may be applied to any residential street with the approval of community.

D. Intersection lighting requirements

1. Unless otherwise permitted by community, provide at least four pedestrian crossing safety lights at each signaled intersection.

2. Light levels shall be per RP-8.

3. The pedestrian area classification shall be the highest of any of the intersecting streets or roadways within 1/8 mile (200m) of the intersection.

EXCEPTION to Section 8. (D.)

1) Partial lighting for isolated intersections per RP-8 when permitted by community.

E. Other lighting requirements

1. The following shall be illuminated per RP-8 unless otherwise directed by community.

   a. Railroad grade crossings

   b. Overpasses and bridges

   c. Roundabouts

   d. Ramps and similar elements

2. The pedestrian area classification shall be the highest of any of the connecting streets or roadways.

3. Tunnels and underpasses shall be illuminated per RP-22.

F. Chromaticity

1. Per Table 8-1.

	Palomar Zone A and Lighting Zone LZ-1	**Palomar Area B and C and Lighting Zones LZ-2 through LZ-4**
Maximum Color Temperature		
Intersection Safety Lights	2700K	2700K or 3000K
Highways, Arterials and Major Collectors	2700K	2700K or 3000K
Minor Collectors and Streets	2700K	2700K
Residential Streets	2700K	2700K

Table 8-1. Maximum Allowed Color Temperature Per Lighting Zones

Application Notes

A. 2700K has been tested and accepted by WRCOG for intersection safety lights and highways, arterials and major collectors.

B. Per IES there no significant difference in any performance characteristic involving safety or security between 2700K and 3000K.

C. 2700K causes less light pollution per lumen than does 3000K.

Section 9. PRODUCT SPECIFICATIONS

A. Luminaires shall comply with the current WRCOG LightSuite 1, Specification of LED Cobrahead Luminaires for New and Relocated Street Lighting Systems.

B. Design shall include selection of luminaires, poles, mast arms, and other components affecting the performance of the street lighting system.

C. Poles, mast arms, bases, electrification and all other parts of the street lighting system shall meet engineering standards of the community.

Application Note: LightSuite 4 Table 7-2 suggests a system for minimizing the number of different types of luminaires (SKU's) in order to simplify product ordering, replacement and stock management.

Section 10.
SUBMITTALS FOR APPROVAL

A. Plan(s) of the proposed lighting installation clearly identifying:

1. The criteria for each roadway segment, intersection, and other elements as required in Section 8. (C.), (D.), and (E.), above. Information affecting criteria selection, such as proximity to a school or transit stop shall be included. Calculations representing typical stretches of roadways or streets may be permitted for each condition of Lighting Zone, pedestrian area classification, posted speed or other differences.

2. The AASHTO pavement type(s), e.g. R1, R2, etc.

3. Point-by point lighting calculations on a grid not larger than 2.5’ x 2.5 (.75m x .75m).

4. Calculation summaries showing average, minimum, and maximum values and ratios as contained in the tables of criteria in RP-8.

5. Calculations to include roadways, intersections, walkways, and all other parts of the project for which criteria were developed under Section 9. (A.) 1.

6. Schedule of luminaires including mounting height, mast arm length, and pole base locations.

B. Specifications for each luminaire to include:

1. Product datasheet.

2. Photometric report.

    a. Must clearly indicate BUG rating per TM-15.

3. Drawing of pole or standard including base details.

4. Drawing of mast arm if used.

5. Datasheet for driver and surge suppressor.

6. Datasheet for photocell.

END OF SECTION

SPECIFICATIONS OF LED LUMINAIRES FOR REPLACEMENT OF COBRAHEAD STREET LIGHTING SYSTEMS

PART 1 – GENERAL

1.1. SCOPE

Luminaires to be used for replacement of legacy high intensity discharge street lighting systems.

1.2.REFERENCES

The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by their basic designation only. Versions listed shall be superseded by updated versions as they become available.

A. American National Standards Institute (ANSI)
   1. C136.2-2004 (or latest), American National Standard for Roadway and Area Lighting Equipment—Luminaire Voltage Classification
   2. C136.10-2010 (or latest), American National Standard for Roadway and Area Lighting Equipment - Locking-Type Photocontrol Devices and Mating Receptacle Physical and Electrical Interchangeability and Testing
   3. C136.15-2011 (or latest), American National Standard for Roadway and Area Lighting Equipment – Luminaire Field Identification
   4. C136.22-2004 (R2009 or latest), American National Standard for Roadway and Area Lighting Equipment – Internal Labeling of Luminaires
   5. C136.25-2009 (or latest), American National Standard for Roadway and Area Lighting Equipment – Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures
   6. C136.31-2010 (or latest), American National Standard for Roadway Lighting Equipment – Luminaire Vibration
   7. C136.37-2011 (or latest), American National Standard for Roadway and Area Lighting Equipment - Solid State Light Sources Used in Roadway and Area Lighting

B. American Society for Testing and Materials International (ASTM)
   1. B117-09 (or latest), Standard Practice for Operating Salt Spray (Fog) Apparatus

2. D1654-08 (or latest), Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
3. D523-08 (or latest), Standard Test Method for Specular Gloss
4. G154-06 (or latest), Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

C. Council of the European Union (EC)
1. RoHS Directive 2002/95/EC, on the restriction of the use of certain hazardous substances in electrical and electronic equipment

D. Federal Trade Commission (FTC)
1. Green Guides, 16 CFR Part 260, Guides for the Use of Environmental Marketing Claims

E. Illuminating Engineering Society of North America (IESNA or IES)
1. DG-21-15, Design Guide for Residential Lighting
2. DG-4-03 (or latest), Design Guide for Roadway Lighting Maintenance
3. HB-10-11 (or latest), IES Lighting Handbook, 10th Edition
4. LM-50-99 (or latest), IESNA Guide for Photometric Measurement of Roadway Lighting Installations
5. IES RES-1-16, Measure and Report on Luminaire Dirt Depreciation (LDD) in LED Luminaires for Street and Roadway Lighting Applications
6. LM-61-06 (or latest), Approved Guide for Identifying Operating Factors Influencing Measured Vs. Predicted Performance for Installed Outdoor High Intensity Discharge (HID) Luminaires
7. LM-79-08 (or latest), IESNA Approved Method for the Electrical and Photometric Measurements of Solid-Sate Lighting Products
8. LM-80-08 (or latest), IESNA Approved Method for Measuring Lumen Maintenance of LED Light Sources
9. RP-8-14 ANSI / IESNA American National Standard Practice for Roadway Lighting
10. RP-16-10 (or latest), ANSI/IES Nomenclature and Definitions for Illuminating Engineering
11. TM-3-95 (or latest), A Discussion of Appendix E - "Classification of Luminaire Lighting Distribution," from ANSI/IESNA RP-8-83
12. TM-15-11 (or latest), Luminaire Classification System for Outdoor Luminaires
13. TM-21-11 (or latest), Projecting Long Term Lumen Maintenance of LED Light Sources

F. Institute of Electrical and Electronics Engineers (IEEE)
1. IEEE C62.41.2-2002 (or latest), IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits

2. ANSI/IEEE C62.45-2002 (or latest), IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits

G. National Electrical Manufacturers Association (NEMA)
   1. ANSI/NEMA/ANSLG C78.377-2008 (or latest), American National Standard for the Chromaticity of Solid State Lighting Products

H. National Fire Protection Association (NFPA)
   1. NFPA-70-14 – National Electrical Code (NEC)

I. Underwriters Laboratories (UL)
   1. 1449, Surge Protective Devices
   2. 1598, Luminaires and Poles
   3. 8750, Light Emitting Diode (LED) Equipment for Use in Lighting Products

J. City Standards for Street Lighting

K. Southern California Edison
   1. Standards for services to customer-owned street lighting systems
   2. Standard specifications for Public Works Construction (Greenbook) (latest edition), Subsections 700 and 701 and all included cross references.

1.3. RELATED DOCUMENTS

A. LightSuite 2, Design Standards for New and Relocated Street Lighting Systems.

1.4.DEFINITIONS

A. Lighting terminology used herein is defined in IES RP-16. See referenced documents for additional definitions.
   1. Exception: The term “driver” is used herein to broadly cover both drivers and power supplies, where applicable.
   2. Clarification: The term “LED light source(s)” is used herein per IES LM-80 to broadly cover LED package(s), module(s), and array(s).

1.5. QUALITY ASSURANCE

A. Before approval and purchase, furnish luminaire sample(s) identical to product configuration(s) submitted for inspection. Furnish IES LM-79 testing of luminaire sample(s) to verify performance is within manufacturer-reported tolerances.

B. After installation, Owner may perform IES LM-50 field measurements to verify performance requirements outlined in Table A, considering measurement uncertainties outlined in IES LM-61.

1.6. LIGHTING SYSTEM PERFORMANCE

A. Energy Conservation
   1. Lighting Controls
      a. See separate controls specification identified in section 1.2 above, if applicable.
      b. See section 2.1-B below for driver control interface and performance requirements.
      c. See section 2.1-K below for photocontrol receptacle requirements.

B. Photometric Requirements
   1. Luminaires shall meet the general criteria provided in the body of this specification and the criteria for each luminaire type defined in Table A.

1.7. REQUIRED SUBMITTALS FOR EACH LUMINAIRE TYPE DEFINED IN TABLE A AND EACH PROPOSED MANUFACTURER

A. Use Table D attached hereto for each proposed luminaire.

B. General submittal content shall include
   1. Completed Appendix E submittal form
   2. Luminaire cutsheets
   3. Cutsheets for LED light sources
   4. Cutsheets for LED driver(s)
      a. If dimmable LED driver is specified, provide diagrams illustrating light output and input power as a function of control signal.
   5. Cutsheets for surge protection device, if applicable
   6. Instructions for installation and maintenance
   7. Summary of luminaire recycled content and recyclability per the FTC Green Guides, expressed by percentage of luminaire weight

C. LM-79 luminaire photometric report(s) shall be produced by the test laboratory and include
   1. Name of test laboratory
      a. The test laboratory must hold National Voluntary Laboratory Accreditation Program (NVLAP) accreditation for the IES LM-79 test procedure.
   2. Report number
   3. Date
   4. Complete luminaire catalog number
      a. Provide explanation if catalog number in test report(s) does not match catalog number of luminaire submitted
         i. Clarify whether discrepancy does not affect performance, e.g., in the case of differing luminaire housing color.

ii. If nominal performance of submitted and tested products differ, submit additional LM-79 report(s) and derivation as indicated in Appendix C.

5. Description of luminaire, LED light source(s), and LED driver(s)
6. Goniophotometry
7. Colorimetry
8. IES TM-21-11 calculations that derive the lumen maintenance (lamp lumen depreciation or LLD) factor applied to photometric calculations specified herein. TM-21 calculations must apply to the maximum LED case temperature from ISTMT, shall not extrapolate beyond six times the duration of available LM-80 test data, and submitted in the spreadsheet format of the ENERGY STAR TM-21 calculator.

D. Predicted dirt depreciation per IES RES-1-16 Page 72 Tables 7 and 8 for the optical system used.

E. Computer-generated point-by-point photometric analysis of maintained photopic light levels.

1. Calculations shall be for maintained values, i.e. Light Loss Factor (LLF) < 1.0, where LLF = LLD x LDD x LATF, and
   a. Lamp Lumen Depreciation (LLD)
      i. Shall be 0.8 (L_{80}) for all luminaires
   b. Luminaire Dirt Depreciation (LDD) per IES RES-1-16 and assuming 5-year cleaning cycle.
   c. Luminaire Ambient Temperature Factor (LATF) = 1.00
2. Use of IES HB-10 mesopic multipliers
   a. Shall be disallowed herein, by assuming an S/P ratio of 1.00 for all luminaires.
3. Calculation/measurement points shall be per IES RP-8.
4. Software shall be AGI32 using roadway methods and insofar as possible, on WRCOG standard test designs.

F. Summary of Joint Electron Devices Engineering Council (JEDEC) or Japan Electronics and Information Technology Industries (JEITA) reliability testing performed for LED packages

G. Summary of reliability testing performed for LED driver(s)

H. Written product warranty as per section 1.7 below

I. Safety certification and file number

1. Applicable testing bodies are determined by the US Occupational Safety Health Administration (OSHA) as Nationally Recognized Testing Laboratories (NRTL) and include: CSA (Canadian Standards Association), ETL (Edison Testing Laboratory), and UL (Underwriters Laboratory).

1.8.WARRANTY

A. Provide a minimum ten-year warranty covering maintained integrity and functionality of
   1. Luminaire housing, wiring, and connections
   2. LED light source(s)
      a. Negligible light output from more than 10 percent of the LED packages constitutes luminaire failure.
   3. LED driver(s)
      a.Failure to dim if connected to a control system and using proper components constitutes luminaire failure

B. Warranty period shall begin upon installation, or as negotiated by owner such as in the case of an auditable asset management system.

C. Warranty to provide for replacement of product with new product of equivalent appearance, CCT, CRI, and photometric performance.

D. Upon request prior to approval, manufacturer may be required to provide proof of financial viability which may include any information deemed necessary to determine the manufacturer's ability to fully service their warranty.

PART 2 – PRODUCTS

2.1. LUMINAIRES

A. General Requirements
   1. Luminaires shall be as specified for each type in Table B.
   2. Luminaire shall have an external label per ANSI C136.15
   3. Luminaire shall have an internal label per ANSI C136.22.
   4. Nominal luminaire input wattage shall account for nominal applied voltage and any reduction in driver efficiency due to sub-optimal driver loading.
   5. Luminaires shall start and operate in -20°C to +40°C ambient.
   6. Electrically test fully assembled luminaires before shipment from factory.
   7. Effective Projected Area (EPA) of the luminaire shall not exceed the EPA of the luminaire being replaced.
   8. Luminaires shall be designed for ease of component replacement and end-of-life disassembly.
   9. Luminaires shall be rated for the ANSI C136.31 Vibration Level indicated in Table A.
   10. LED light source(s) and driver(s) shall be RoHS compliant.
   11. Transmissive optical components shall be applied in accordance with OEM design guidelines to ensure suitability for the thermal/mechanical/chemical environment.

B. Driver
   1. Rated case temperature shall be suitable for operation in the luminaire operating in the ambient temperatures indicated in section 2.1-A above.
   2. Shall accept the voltage or voltage range indicated in Table A at 50/60 Hz, and shall operate normally for input voltage fluctuations of plus or minus 10 percent.
   3. Shall have a minimum Power Factor (PF) of 0.90 at full input power and across specified voltage range.
   4. Control signal interface
      a. Luminaire types indicated "Required" in Table A shall accept a control signal as specified via separate controls specification referenced in section 1.2 above, e.g., for dimming.
      b. Luminaire types indicated "Not Required" in Table A need not accept a control signal.

C. Electrical transient and surge immunity
   1. Luminaire shall meet the "Elevated" requirements in Appendix D. Manufacturer shall indicate on submittal form (Appendix E) whether failure of the electrical immunity system can possibly result in disconnect of power to luminaire.

D. Electromagnetic interference
   1. Shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range.
   2. Shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.

E. Electrical safety testing
   1. Luminaire shall be listed for wet locations by an OSHA NRTL.
   2. Luminaires shall have locality-appropriate governing mark and certification.

F. Painted or finished luminaire components exposed to the environment
   1. Shall exceed a rating of six per ASTM D1654 after 1000hrs of testing per ASTM B117.
   2. The coating shall exhibit no greater than 30% reduction of gloss per ASTM D523, after 500 hours of QUV testing at ASTM G154 Cycle 6.

G. Thermal management
   1. Mechanical design of protruding external surfaces (heat sink fins) for shall facilitate hose-down cleaning and discourage debris accumulation.
   2. Liquids or other moving parts shall be clearly indicated in submittals, shall be consistent with product testing, and shall be subject to review by Owner.

H. IES TM-15 limits for Backlight, Uplight, and Glare (BUG Ratings) shall be as specified for each luminaire type in Table A.
   1. Calculation of BUG Ratings shall be for initial (worst-case) values, i.e., Light Loss Factor (LLF) = 1.0.

I. Minimum Color Rendering Index (CRI): 70.

J. Correlated Color Temperature (CCT)
   1. Nominal 2700K (3000K for certain applications only).
   2. Allowable 2580 to 2870K per IES LM-79.
   3. Allowable -.006 to .006 D_{uv} per IES LM-79.

K. The following shall be in accordance with corresponding sections of ANSI C136.37
   1. Wiring and grounding
      a. All internal components shall be assembled and pre-wired using modular electrical connections.
   2. Mounting provisions
      a. Specific configurations are indicated in Table A
   3. Terminal blocks for incoming AC lines
   4. Photocontrol receptacle
   5. Latching and hinging
   6. Ingress protection

L. Luminaire Construction
   1. Weight
      a. The net weight of each luminaires less than 46 (21 kg) pounds including mounting devices and backlight shields.
   2. Housing
      a. Tool-less entry
      b. Die-cast aluminum alloy meeting ASTM Specification A380. Alternate materials may be considered but shall be submitted to the Owner for review and approval.
      c. Encloses the mounting hardware, LED arrays, control receptacle, terminal board, and electronic driver.
      d. Includes a surface to facilitate leveling with a spirit level.
      e. Integral heat sink characteristics, such that all enclosed components will operate within their designed operating temperatures under expected service conditions. No external or removable heat shields or heat sinks are permitted.
      f. Designed to encourage water shedding.
      g. Designed to minimize dirt and bug accumulation on the optic surface.
      h. Permanently affixed easily-viewable nameplate inside of each luminaire housing containing the manufacturer's name, manufacturer's catalog number, date of manufacture (month and year), plant location, input power consumption, driver output current, IEC IP Rating, correlated color temperature (CCT), IES light distribution type, IESNA TM-15 BUG ratings, and serial number.
      i. City approved luminescent name plate meeting American National Standard for Roadway and Area Lighting Equipment-Luminaire Field

Identification (ANSI C136.15-2015) shall be permanently affixed on the exterior of the Luminaire to be visible from the ground. In addition, the name plate shall indicate nominal lumen package rounded to the nearest thousand lumens, e.g. 2800 lumens would read as “3KL” and 11200 lumens would read as “11KL”.

3. Mounting Provisions**.**
   a. Standard heavy gauge slip fitter clamping assembly suitable for secure attachment over the end of a nominal two 2” IP (2.375” OD) steel pipe with an approved means of clamping it firmly in mounting bracket. The slip fitter mounting clamp must contain an approved shield around the pipe entrance to block the entry of birds.
   b. Leveling adaptor to permit at least 15 degrees of correction to level luminaire with respect to normal to photometric nadir (straight down).
   c. Adaptor fittings for nominal 1.5 inch IP, 1.75 inch IP, 2.25 inch IP and 2.5 inch IP mast arms.
4. Access Door-Panel.
   a. Die-cast aluminum door-panel composed of aluminum alloy A380. Alternate materials may be considered but shall be submitted to the Owner for review and approval.
   b. Provides access to the terminal strip and LED driver.
   c. Hinged to the luminaire housing and suitably latched and fastened at the closing end.
   d. Easily removed.
   e. Captive hardware for the hinge and fastening devices.
5. Hardware.
   a. Machine screws, locknuts, pins and set screws necessary to make a firm assembly, and for its secure attachment to the mast arm, must be furnished in place.
   b. Hardware must be of stainless steel, zinc plated steel, copper silicon alloy or other non-corrosive metal, and where necessary must be suitably plated to prevent electrolytic action by contact with dissimilar metals.
6. Finish**.**
   a. Polyester powder coat with a minimum 2.0 mil thickness.
   b. Surface texture and paint quality subject to approval.
   c. Color must be as specified in the order.
   d. Finish must exceed a rating of six per ASTM D1654 after 1000 hours of testing per ASTM B117.
   e. The coating must exhibit no greater than 30% reduction of gloss per ASTM D523 after 500 hours of QUV testing at ASTM G154 Cycle 6.

7. Ingress Protection.
    a. Electric compartment housing must have an ingress protection rating of IP54 or better as described in ANSI C136.25-2013.
    b. The optical system must have a minimum rating of IP 66.
    c. Listed for wet locations by a U.S. Occupational Safety Health Administration (OSHA) Nationally Recognized Laboratory (NRTL) and have a safety certification and file number indicating compliance with UL 1598.
8. LED Optical Arrays
    a. Factory installed.
    b. No required field adjustment for specified photometric performance.
9. Terminal Block
    a. High grade molded plastic of the barrier or safety type.
    b. Within the water tight part of the housing in a readily accessible location.
    c. Pre-wired to all luminaire components
    d. Copper plated clamp-type pressure connector approved type for "line" connections, to accommodate wire sizes from #14 to #6 A.W.G.
    e. Internal component connections either the screw-clamp or quick disconnect type.

2.2. PRODUCT MANUFACTURERS AND APPROVED PRODUCTS

A. Approved manufacturers are listed in Table A.
B. Select products to replace existing luminaires using Tables A and B, including application notes, as recommended in LightSuite 4.
C. Specific products proposed for a specific project should be submitted using Table C along with a physical sample.
D. Optimize performance for the existing conditions. For illuminating engineering, WRCOG will provide access to AGI32 models to determine best possible performance under common circumstances found throughout Western Riverside County.

2.3. MANUFACTURER SERVICES

A. The manufacturer shall provide full support for the project including, but not limited to, AGI-32 lighting calculations, required tests and certifications, and all other services necessary to permit products to be applied as intended by these specifications.
B. The manufacturer shall notify the contractor immediately of product changes and bulletins and provide new specifications and test reports.
C. Manufacturer or local sales representative shall provide installation and troubleshooting support in person and shall identify the name of a factory trained sales agent in Riverside County to service the Project.

TABLE A
APPROVED MANUFACTURERS OF LIGHTING PRODUCTS

Candidate luminaires for street and roadway lighting products were tested and evaluated in the winter of 2016-2017. The following manufacturers' products were generally found to be of suitable quality and performance. However, specific products to be used shall meet the minimum performance requirements from Table B. Make necessary changes due to the nature of the specific project, changes due to product offerings, and/or changes required by the Owner. Listed alphabetically; no preference due to order is intended.

Acuity Brands Lighting (American Electric Lighting and other brands)
Hubbell Lighting (Beacon Lighting and other brands)
Cree Lighting
Eaton Lighting (Streetworks and other brands)
General Electric (Current and other brands)
Leotek Lighting
Philips Lighting (Lumec and other brands)

All the above manufacturers have demonstrated products that can meet the performance requirements of Table B, provide satisfactory results when used in non-RP-8 compliant installations when used per Table C, meet the requirements of these specifications, and passed a table top review.

Application Notes

1. Other products from these and other manufacturers meeting all project requirements and these specifications may exist. Careful comparison of proposed luminaires' goniophotometrics, colorimetry, photometric performance, and other project data, and tabletop disassembly and evaluation of construction is strongly urged.
2. Periodic review of the selection criteria and approved manufacturers is urged. LED lighting is a field of rapid change in technology and many new companies have entered the business, as well as the continued evolution of products by all manufacturers. Price alone should not be the deciding criterion.
3. Standard AGI-32 test designs for analysis and comparison are available through WRCOG.

TABLE B
MINIMUM PHOTOMETRIC PERFORMANCE REQUIREMENTS

Less than 5 Kilolumens

	Type II	**Type III**	**Type IV**
Street-side Coefficient of Utilization[3]	67% min.		
Backlight (B)	0 or1		
Uplight (U)	0		
Glare (G)	0 or 1		
House Side Shield Required[1]	If B1, otherwise by request		
Cul-de-sac shield required[2]	By request		

Nominal 5 to 7.5 Kilolumens

	Type II	**Type III**	**Type IV**
Street-side Coefficient of Utilization[3]	73% min.	70% min.	63% min.
Backlight (B)	0 or1		
Uplight (U)	0		
Glare (G)	0 or 1		
House Side Shield Required[1]	If B1, otherwise by request		
Cul-de-sac shield required[2]	Yes		

Nominal 7.5 to 12.5 Kilolumens

	Type II	**Type III**	**Type IV**
Street-side Coefficient of Utilization[3]	76% min.	74% min.	70% min.
Backlight (B)	0, 1 or 2		
Uplight (U)	0		
Glare (G)	0, 1, or 2	0, 1, 2 or 3	0, 1, 2 or 3
House Side Shield Required[1]	If B2, otherwise by request		
Cul-de-sac shield required[2]	Yes		

Nominal 12.5 to 17.5 Kilolumens

	Type II	**Type III**	**Type IV**
Street-side Coefficient of Utilization[3]	80% min.	76% min.	75% min.
Backlight (B)	0, 1 or 2		
Uplight (U)	0		
Glare (G)	0, 1, or 2	0, 1, 2 or 3	0, 1, 2 or 3
House Side Shield Required[1]	If B2 or B3; otherwise by request		
Cul-de-sac shield required[2]	Yes		

Footnotes for all luminaires

[1] If installed on a residential street or residential collector; optional to install by request by Owner or as additional service

[2] If installed on a residential cul-de-sac or L intersection

[3] Without detachable shields

TABLE C

PRODUCT SUBMITTAL FORM

Luminaire Type[1]		
Manufacturer		
Model number		
Housing finish color		
Tenon nominal pipe size (inches)		
Nominal luminaire weight (lb)		
Nominal luminaire EPA (ft^2)		
Nominal input voltage (V)		
ANSI vibration test level	❒ Level 1 (Normal)	☐ Level 2 (bridge/overpass)
Nominal BUG Ratings		
Make/model of LED light source(s)		
Make/model of LED driver(s)		
Dimmability	❒ Dimmable	☐ Not dimmable
Control signal interface		
Upon electrical immunity system failure	☐ Possible disconnect	☐ No possible disconnect
Thermal management	☐ Moving parts	❒ No moving parts
Lumen maintenance testing duration (hr)		
Reported lumen maintenance life (hr) [2]		
Warranty period (yr)		
Parameter	Nominal value	Tolerance (%)
Initial photopic output (lm)		
Maintained photopic output (lm)		
Lamp lumen depreciation		
Initial input power (W)		
Maintained input power (W)		
Initial LED drive current (mA)		
Maintained LED drive current (mA)		
Drive current used		
In-situ LED T_c (°C)		
CCT (K)		
Additional product description		

END OF SECTION

[1] See Table A, and attach supporting documentation as required.

[2] Value shall be no less than as specified in section 1.6-C, and shall not exceed six times the testing duration indicated in the row above. Value shall be consistent with values submitted in the rows below for maintained light output, maintained input power, and maintained drive current.

DESIGN STANDARDS FOR LED REPLACEMENT STREET LIGHTING

Section 1. INTENT

The purpose of this Standard is to provide standards for street lighting that will:

A. Provide a high-quality conversion of existing street lighting that insofar as possible maintains essential qualities of the existing installation.

B. Typically allow for reduced energy consumption of the existing street lighting by at least 50% compared to the existing legacy lighting system.

C. Equip each luminaire with the means to communicate to a community-wide lighting network.

D. Help mitigate light pollution, reduce skyglow and improve the nighttime environment for astronomy and the Palomar Observatory and the overall enjoyment of the naturally dark night sky;

E. Minimize adverse offsite impacts of lighting such as light trespass, and obtrusive light.

F. Help protect human health and wellness and the natural environment from the adverse effects of man-made outdoor lighting.

Section 2. CONFORMANCE WITH APPLICABLE LAWS, CODES, REGULATIONS and STANDARDS

All street lighting shall be installed in conformance with the provisions of this standard and the applicable provisions of the standards of the community regulating the installation of such fixtures, the California Building Code Title 24 Part 1, the California Electrical Code Title 24 Part 3, the California Building Energy Efficiency Standards Title 24 Part 6, the California Sustainability Standards Title 24 Part 11 “CalGreen”, and all other applicable requirements.

Section 3. SCOPE

This standard shall apply the conversion of legacy street lighting systems employing high intensity discharge (HID) lighting sources to light-emitting diode (LED) light sources for:

A. Street lighting for public streets, roadways, alleys and other rights of way including walkways and bikeways.

B. Street lighting for private roadways, walkways and bikeways.

C. Street lighting for private developments where the street lighting will be deeded to the community at some time in the future.

Exceptions to Section 3

1. Facilities, sites or roadways under the sole jurisdiction of the Federal or State Governments or within the jurisdiction of a sovereign nation.

2. Lighting specifically governed by a Federal or State regulation or statute.

3. Lighting subject to the terms of a Special Plan approved by the community.

Section 4. ALTERNATE MATERIALS AND METHODS OF INSTALLATION.

This standard is not intended to prevent the use of any design, material or method of installation not expressly forbidden, provided any such alternate has been approved if it:

A. Provides at least approximate equivalence to the applicable specific requirements of this standard; and

B. Is otherwise satisfactory and complies with the intent of this standard.

Section 5. DEFINITIONS.

A. **Street lights** means luminaire(s), installed outdoors, and used to illuminate a street or roadway and/or any part of the public right of way including but not limited to, sidewalks, bikeways, alleys, intersections, ramps, overpasses, curbs, medians, or shoulders.

B. **Street** means major, collector and local roads where pedestrians and bicyclists are generally present.

C. **Roadway** means, freeways, expressways, limited access roads, and roads on which pedestrians, cyclists and parked vehicles are generally not present.

D. **Residential street** means a street that is exclusively serving residential properties and for which the posted speed limit is 25 mph (40 kph) or less.

E. **Luminaire** means a complete illuminating device, lighting fixture or other device that emits light, consisting of light source(s) together with the parts designed to distribute the

light, to position and protect the light source(s), to regulate the electrical power, and to connect the light sources to the power supply.

F. **Legacy luminaire** means an existing cobrahead luminaire using a high intensity discharge light source including high pressure sodium (HPS), low pressure sodium (LPS), metal halide (MH), ceramic metal halide (CMH), or mercury vapor (MV).

G. **IES** means the Illuminating Engineering Society of North America.

H. **RP-8** means the current version of the IES Recommended Practice for Roadway Lighting, RP-8.

I. **RP-22** means the current version of the IES Recommended Practice for Tunnel Lighting RP-22.

J. **DG-21** means the current version of the IES Design Guide for Residential Street Lighting.

K. **TM-15** means the current version of the IES Technical Memorandum, Luminaire Classification System for Outdoor Luminaires

L. **Palomar Zone A** is established by Riverside County Ordinance 655 and means all properties and land uses in plan view within the circular area fifteen (15) miles in radius centered on Palomar Observatory.

M. **Palomar Zone B** is established by Riverside County Ordinance 655 and means all properties and land uses in plan view the circular ring area between by two circles, one forty-five (45) miles in radius centered on Palomar Observatory, and the other the perimeter of Zone A.

N. **Palomar Zone C** means the remainder of Riverside County outside of the perimeter of Zone B.

O. **BUG rating of an outdoor luminaire** means the ranking of the luminaire using a photometric report to establish the Backlight (B), Uplight (U) and Glare (G) ranking per IES TM-15.

P. **LED** means light emitting diode solid state lighting source.

Q. **Dedicated LED** means a luminaire with a hard-wired LED light generating module and a separate driver.

R. **Photometric Report** means a complete photometric report from a NVLAP certified test laboratory.

S. **AASHTO** means the American Association of State Highway Traffic Officials.

T. **Roadway lighting distribution types as defined by IES**

a. **Type I is** a long, narrow symmetrical distribution having a preferred lateral width of 15 degrees in the cone of maximum candlepower. Typically, luminaires are located in the center of a roadway, such as in a median, where the mounting height is approximately equal to the roadway width on either side.

b. **Type II is** a mildly asymmetric distribution is used for wide walkways, on ramps and entrance roadways, and narrow streets. Typically, the width of the roadway does not exceed 1.75 times the mounting height.

c. **Type III** is an asymmetric distribution commonly used for lighting streets and roadways**.** Typically, the width of the roadway does not exceed 2.75 times the mounting height.

d. **Type IV** is the most asymmetric distribution, commonly used for intersection safety lighting and extremely wide roadways. Typically, the width of the roadway does not exceed 3.75 times the mounting height.

Section 6. TITLE 24 LIGHTING ZONES

A. For the purposes of complying California Code of Regulations, Title 24, Part 1, Section 10-114 and Title 24, Part 11, Section 5.106.8, Zone A as defined above shall be Lighting Zone 1 (LZ-1), Zone B as defined above shall be Lighting Zone 2 (LZ-2). The balance of the County shall be LZ-2 or LZ-3 per the statewide default zones or as set by the community.

B. The community shall establish a method for applicant(s) to request and to set a different lighting zone per Title 24, Part 1 Section 10-114 for a specific parcel or project.

Section 7. DESIGN OF REPLACEMENT LIGHTING

A. General

1. Obtain a GIS computer database of the community's street lighting system. Determine the extent to which the database is acceptably accurate for the determinations to be made in this section. If necessary, devise an alternative course of action acceptable to the community.

2. Determine whether any street lights are made unnecessary by an immediately adjacent street light. Typical situations include intersections where intersection safety lights were added after the street light system was already in place. As approved by the community, identify redundant lighting for removal.

3. Determine whether the community currently has street lighting standards, and determine the extent to which they are met.

4. Review the current lighting system's performance relative to RP-8. Discuss and determine the desired outcome with the community.

    a. If the existing lighting system does not meet RP-8, it is unlikely that simply replacing legacy luminaires with LED luminaires will bring an existing installation into compliance without changing pole locations, mounting heights, or mast arm lengths.

    b. If the existing lighting system exceeds RP-8, determine whether reducing light levels to RP-8 is acceptable.

5. Review a map of the community with the community. Make and confirm determinations of characteristics in RP-8 (regardless of whether complying or not) that are to be used to determine lighting levels, including but not limited to:

    a. Which are streets and which are roadways.

    b. Which streets and roadways are "major", "collector", or "local" as defined by RP-8.

    c. Where pedestrian conflict levels are low, medium or high.

    d. Which streets are adjacent to or share the ROW with mass transit stops or bicycle paths.

    e. Other considerations used to establish lighting requirements at the discretion of the community

6. For each legacy luminaire in the system, determine the appropriate LED replacement per Section 7. (D.) or (E.) below.

B. Street lighting shall be fully shielded and emit no uplight (BUG rating U=0).

C. Street lighting chromaticity shall be determined from Table 7-1.

D. Typical procedure for selecting appropriate LED luminaires without RP-8 compliance.

1. Determine each legacy luminaire's primary characteristics

    a. Light Source

    b. Wattage of lamp

c. Photometric type (e.g. type II medium, type III short, etc.)

2. Determine whether replacement is to be type a, b, or c as follows:

a. Most energy efficiency – recommended for most applications, generally maintains existing minimum light levels, improves uniformity. Typically considered acceptable when replacing HPS or LPS legacy systems with 2700K or 3000K LED lighting.

b. Compromise between energy efficiency and higher light levels – recommended for certain applications where the pedestrian area classification or some other factor suggests a modestly higher light level.

c. Most lighting - provides average light levels higher than existing lighting – in locations where community needs transcend energy and cost savings.

Application Notes:

- Most WRCOG communities should use types (a.) for most of their luminaires to maximize payback.

- Kilolumen classification system takes lumen maintenance into account.

3. For intersection safety lighting, type IV luminaires may be considered in place of existing Type III or Type II.

4. Note nominal LED kilolumen classifications in Table 7-2. To minimize the number of different luminaires to stock and maintain, this system is based on nominal lumen packages for up to six lumen package groups (Small, Medium Small, Medium, Medium High, High, and Very High).

5. Select nominal LED luminaire kilolumens of matching photometric type from Table 7-3, column (a), (b), or (c).

EXCEPTION TO Section 7. (D.)
In Zone A and Lighting Zone 1 (LZ-1), for residential streets, street lighting shall be limited to (1) light at each residential street or residential street/residential minor collector intersection and (1) light mod block per DG-21. There shall be no requirements to meet illuminance, luminance or uniformity requirements. Lighting for walkways and sidewalks may be incidental because of the street lights. This exception may be applied to any residential street with the approval of community.

E. Procedure for selecting appropriate LED luminaires where RP-8 or another similar standard is preferred or required.

1. Refer to LightSuite 2

Table 7-1. Maximum Allowed Color Temperature Per Lighting Zones

	Palomar Zone A and Lighting Zone LZ-1	**Palomar Area B and C and Lighting Zones LZ-2 through LZ-4**
Maximum Color Temperature		
Intersection Safety Lights	2700K	2700K or 3000K
Highways, Arterials and Major Collectors	2700K	2700K or 3000K
Minor Collectors and Streets	2700K	2700K
Residential Streets	2700K	2700K

Application Notes

a) 2700K has been tested and accepted by WRCOG for intersection safety lights and highways, arterials and major collectors.
b) Per IES there no significant difference in any performance characteristic involving safety or security between 2700K and 3000K.
c) 2700K causes less light pollution per lumen than does 3000K.

TABLE 7-2

SUGGESTED KILOLUMEN (KL) CLASS REPLACEMENT LUMINAIRE SYSTEM FOR MINIMUM TYPES (SKU's) OF LED LUMINAIRES

Light Output LED Kilolumen (KL) Class	**Application Group (a.)**	**Application Group (b.)**	**Application Group (c.)**
Low (L)	Nominal 2 KL (~20 watt)	Nominal 2.5 KL (~25 watt)	Nominal 3 KL (~30 watt)
Medium low (ML)	Nominal 4.5 KL (~45 watt)	Nominal 6 KL (~60 watt)	Nominal 7.5 KL (~75 watt)
Medium (M)	Nominal 7.5 KL (~75 watt)	Nominal 10 KL (~100 watt)	Nominal 12.5 KL (~125 watt)
Medium High (MH)	Nominal 10 KL (~100 watt)	Nominal 12.5 KL (~125 watt)	Nominal 15 KL (~150 watt)
High (H)	Nominal 12.5 KL (~125 watt)	Nominal 15 KL (~150 watt)	Nominal 17.5KL (~175 watt)
Very High (VH)	Nominal 17.5 KL (~175 watt)	Nominal 20 KL (~200 watt)	Nominal 25 KL (~250 watt)

Application Notes

- Wattage values assume 100 luminaire lumens per watt. Efficacy of products will probably increase over time, reducing the watts for each KL package and increasing the energy savings.

TABLE 7-3

RECOMMENDED NOMINAL DIRECT CONVERSION LED LUMINAIRE WHEN REPLACING EXISTING LEGACY LUMINAINRES

Refer to application notes, below and Section 7. (D.)

Incumbent Legacy Luminaire[1]				**LED KL Class** [5] **of Replacement Luminaire**			**Approx. Watts Saved Each**		
Source	Lamp Watts	System Watts[2]	Luminaire Lumens[3]	(a.)	(b.)	(c.)	(a.)	(b.)	(c.)
Low Pressure Sodium (LPS)	35	63	3360	L	L	L	43	38	33
	55	84	5600	L	L	L	64	59	54
	90	131	9450	ML	ML	ML	86	71	56
	135	182	15750	M	M	M	107	82	57
	180	229	23100	L	L	L	129	104	79
High Pressure Sodium (HPS)	70	83	4060	L	L	L	63	58	53
	100	117	6650	ML	ML	ML	72	57	42
	150	193	11200	M	M	M	118	93	68
	200	246	15400	MH	MH	MH	146	121	96
	250	313	19250	H	H	H	188	163	138
	400	485	35000	VH	VH	VH	310	285	235
Metal Halide (MH)	70	90	3960	L	L	L	70	65	60
	100	129	6120	ML	ML	ML	84	69	54
	175	210	10800	M	M	M	135	110	85
	250	295	15800	MH	MH	MH	195	170	145
	400	458	27300	H	H	H	333	308	283
Mercury Vapor (MV)	100	120	2880	L	L	L	100	95	90
	175	205	6040	L	L	L	185	180	175
	250	285	9000	ML	ML	ML	240	225	210
	400	454	16500	MH	MH	MH	354	329	304

Footnotes

[1] Most street luminaires in Western Riverside County are either LPS or HPS.
[2] Lamp + Ballast watts
[3] Initial lamp lumens x luminaire efficiency (approximate, varies with fixture type)
[4] Nominal luminaire watts (Total of LED and driver)
[5] See Table 7-3

Application Notes

- Column (a.) will produce the fastest payback and is recommended for community projects in which the purchase cost of light poles must be amortized.
- This conversion table is suggested for general purpose use in replacing legacy lighting systems with 2700K to 3000K LED's available in the winter of 2016-2017. To adjust for future improvement in luminous efficacy, be sure to provide approximately the same number of LED lumens. LED watts are typical for products available in spring, 2017.

- LED luminaire lumens are generally lower than legacy luminaires because of the ability of LED optical systems to achieve a greater percentage of utilization than legacy luminaires.
- Acceptable results will generally occur if care is taken to replace luminaire distribution types (e.g. Type III medium) with like.
- All values are nominal and represent average expected outcomes. Differences of less than 15-20% are probably not significant for this table.
- Use of this table does not ensure compliance with IES RP-8-14. In many cases, pole height, mast arm length and/or pole spacing may not permit compliance with RP-8-14 regardless of existing legacy source luminaires. If compliance with RP-8-14 is required, lighting calculations will be necessary and may result in different LED luminaire watts and lumens. Analysis using WRCOG standard AGI32 street models is recommended. See LightSuite 3 for recommended illuminating engineering standards.
- Lumen maintenance of the legacy light source as compared to LED lighting has been considered for each lamp type. Some legacy light sources have less lumen depreciation than others.

Section 8. PRODUCT SPECIFICATIONS

A. Luminaires shall comply with the current WRCOG LightSuite 3, Specification of LED Products for Replacement of Cobrahead Street Lighting Luminaires.

Section 9. SUBMITTALS FOR APPROVAL

A. Plan(s) of the proposed lighting installation clearly identifying:

1. The criteria for each roadway segment, intersection, and other elements as required in Section 8. (C.), (D.), and (E.), above. Information affecting criteria selection, such as proximity to a school or transit stop shall be included. Calculations representing typical stretches of roadways or streets may be permitted for each condition of Lighting Zone, pedestrian area classification, posted speed or other differences.

2. The AASHTO pavement type(s), i.e. R1, R2, R3, or R4.

3. Point-by point lighting calculations on a grid not larger than 2.5’ x 2.5 (.75m x .75m).

4. Calculation summaries showing average, minimum, and maximum values and ratios as contained in the tables of criteria in RP-8.

5. Calculations to include roadways, intersections, walkways, and all other parts of the project for which criteria were developed under Section 9. (A.) 1.

6. Schedule of luminaires including mounting height, mast arm length, and pole base locations.

B. Specifications for each luminaire to include:

1. Product datasheet.
2. Photometric report.
    a. Must clearly indicate BUG rating per TM-15.
3. Drawing of pole or standard including base details.
4. Drawing of mast arm if used.
5. Datasheet for driver and surge suppressor.
6. Datasheet for photocell.

END OF SECTION

PROPOSED RIVERSIDE COUNTY ORDINANCE 655P REGULATING OUTDOOR LIGHTING

Section 1. INTENT

The purpose of this Ordinance is to provide regulations for outdoor lighting that will:

a. Ensure adequate outdoor illumination can be provided.
b. Help mitigate light pollution, reduce skyglow and improve the nighttime environment for astronomy and the Palomar Observatory and the overall enjoyment of the naturally dark night sky;
c. Minimize adverse offsite impacts of lighting such as light trespass, and obtrusive light.
d. Help protect human health and wellness and the natural environment from the adverse effects of man-made outdoor lighting.
e. Conserve energy and resources to the greatest extent possible.

Section 2. CONFORMANCE WITH APPLICABLE LAWS, CODES, REGULATIONS and ORDINANCES.

All outdoor luminaires shall be installed in conformance with the provisions of this ordinance and the applicable provisions of the ordinances of the County of Riverside regulating the installation of such fixtures, the California Building Code Title 24 Part 2, the California Electrical Code Title 24 Part 3, the California Building Energy Efficiency Standards Title 24 Part 6, the California Sustainability Standards Title 24 Part 11 “CalGreen”, and all other applicable requirements.

Section 3. SCOPE

The provisions of this code apply to the construction, alteration, movement, enlargement, replacement and installation of outdoor lighting throughout the unincorporated areas of Riverside County, including but not limited to:

A. Lighting on private property, such structures, areas, features, security and advertising.
B. Lighting for private roadways, walkways and bikeways.
C. Lighting for public property such as structures, areas, features, security and advertising.

Exceptions to Section 3

1. Facilities, sites or roadways under the sole jurisdiction of the Federal or State Governments or within the jurisdiction of a sovereign nation.
2. Lighting specifically governed by a Federal or State regulation or statute.
3. Lighting subject to the terms of a special plan approved by the County.

Section 4.
APPROVED MATERIALS AND METHODS OF INSTALLATION.

This ordinance is not intended to prevent the use of any design, material or method of installation not specifically forbidden, provided any such alternate has been approved. The Planning Director may approve any such proposed alternate if it:

A. Provides at least approximate equivalence to the applicable specific requirements of this ordinance; and
B. Is otherwise satisfactory and complies with the intent of this ordinance.

Section 5. DEFINITIONS.

A. **Luminaire** means a complete illuminating device, lighting fixture or other device that emits light, consisting of light source(s) together with the parts designed to distribute the light, to position and protect the light source(s), to regulate the electrical power, and to connect the light sources to the power supply.
B. **Outdoor luminaire** means a luminaire, whether permanently installed or portable, that is installed outdoors, whether completely or partly exposed or under a canopy, and used for general or task illumination for any of the following applications:
   1. Lighting for and around buildings and structures.
   2. Lighting for parks and recreational facilities.
   3. Parking lots and garages.
   4. Landscape lighting.
   5. Outdoor advertising displays and other signs.
   6. General area lighting for commerce, industry or security.
   7. Street and roadway lighting.
   8. Walkway, bikeway and lighting.
C. **Class I lighting** means all outdoor luminaires used for but not limited to outdoor sales or eating areas, assembly or repair area, outdoor advertising displays and other signs, recreational facilities and other similar applications when color rendition is important.
D. **Class II lighting** means all outdoor lighting used for but not limited to illumination for walkways, private roadways and streets, equipment yards, parking lot and outdoor security when color rendering is not important.

E. **Class III lighting** means that lighting not meeting Class I or Class II purposes and used primarily for decorative effects. Examples of Class III lighting include, but are not limited to, the illumination of flag poles, trees, fountains, statuary, and building walls.

F. **Planning Director** means the Director of Planning of the County of Riverside or representative(s) designated by the Planning Director.

G. **IES** means the Illuminating Engineering Society of North America.

H. **Zone A** means the circular area fifteen (15) miles in radius centered on Palomar Observatory.

I. **Zone B** means the circular ring area defined by two circles, one forty-five (45) miles in radius centered on Palomar Observatory, and the other the perimeter of Zone A.

J. **Zone C** means the remainder of the County outside of the perimeter of Zone B.

K. **Individual** means any private individual, tenant, lessee, owner or any commercial entity, including, but not limited to, companies, partnerships, joint ventures or corporations.

L. **Installed** means any installation of outdoor luminaires after the effective date of this ordinance. Projects with construction plans approved by the County prior to the effective date of this ordinance are excluded from installation in compliance with this ordinance.

M. **BUG rating of an outdoor luminaire** means the ranking of the luminaire using a photometric report to establish the Backlight (B), Uplight (U) and Glare (G) ranking according to IES TM-15-11.

N. **Fully Shielded Luminaire** means an outdoor luminaire where no light is emitted at or above an angle of 90 degrees above the nadir as evidenced by a photometric test report from a NVLAP accredited testing laboratory in which the uplight value (U) is 0. Any structural part of the luminaire providing shielding shall be permanently attached.

O. **Partly Shielded luminaire** means outdoor luminaires that have a U (uplight) rating between 1 and 4.

P. **Unshielded luminaire** means outdoor luminaires that are not Fully Shielded or Partly Shielded and have a U (uplight) rating of 5 or no rating at all.

Q. **Outdoor Advertising Display** means advertising structures and signs used for outdoor advertising purposes, not including onsite advertising signs, as further defined and permitted in Article XIX of Ordinance No. 348.

R. **Outdoor Recreational Facilities** means public or private facilities designed and equipped for the conduct of sports, leisure time activities and other customary and usual recreational activities. Outdoor recreational facilities include, but are not limited to, fields for softball, baseball, football, soccer, and any other field sports, courts for tennis, basketball, volleyball, handball and other court sports, for which the level of play according to IES RP-6-15 Section 4.4 is Class III or Class IV.

S. **Outdoor Sports Facilities** include fields for softball, baseball, football, soccer, and other field sports, courts for tennis, basketball, volleyball, handball and other court sports, and outdoor stadiums in which the level of play, according to RP-6-15 Section 4.4 is Class I or Class II.

T. **Lamp or source.** Generic term for a man-made source of light. In the context of this Code, a lamp is the user-replaceable electrically powered light bulb, fluorescent or neon tube, or LED light source.

U. **LED** means light emitting diode solid state lighting source.

1. **LED Hybrid** means a dedicated LED luminaire employing LED devices of two or more different colors, typically a white LED and a colored LED. For the purposes of this Ordinance, the white LED shall not exceed 3000K and the other color LED(s) must be green, amber, orange and/or red. Blue or violet LEDs are not permitted.
2. **LED Amber** means an LED luminaire employing amber or yellow colored LED devices.
3. **Filtered LED (FLED)** means a dedicated LED luminaire employing white LED devices and has a permanently affixed color filter to remove blue light and giving the appearance of an amber or yellow-green light.

V. **Curfew** means a time established for listed lighting systems to be automatically extinguished.

W. **Dedicated LED** means a luminaire with a hard-wired LED light generating module and a separate driver.

X. **Outdoor Luminaire Light Output** means the amount of light, measured in lumens, generated by a luminaire. The luminaire lumens shall be the rated lumens of the luminaire according to a photometric report from a NVLAP certified test laboratory.

Section 6.
TITLE 24 LIGHTING ZONES

For the purposes of complying California Code of Regulations, Title 24, Part 1, Section 10-114 and Title 24, Part 6, Section 140.7, Zone A as defined above shall be Lighting Zone 1 (LZ-1), Zone B as defined above shall be Lighting Zone 2 (LZ-2) . The balance of the County shall be LZ-2 or LZ-3 per the statewide default zones.

The Planning Director shall establish a method for applicant(s) to request and for the Planning Director to set a different lighting zone per Title 24, Part 1 Section 10-114 for a specific parcel or project.

Section 7.
GENERAL REQUIREMENTS.

Light sources are restricted by lighting zone according to the following Tables:

TABLE 7-1 Class I Lighting (color rendering is important)

ALL LUMINAIRES SHALL BE FULLY SHIELDED			
Source	**Zone A and LZ-1**	**Zone B and/or LZ-2**	**Zone C and/or LZ-3**
LED >3000K	Not allowed	Not allowed	Not allowed
LED 3000K	Allowed	Allowed	Allowed
LED 2700K or less	Allowed	Allowed	Allowed
Incandescent or 2700K or lower LED replacement lamps	Allowed	Allowed	Allowed
LED amber, hybrid or filtered	Allowed[1]	Allowed[1]	Allowed[1]
Metal halide, fluorescent, compact fluorescent, induction	Not allowed	Allowed if 3000K or less	Allowed if 3000K or less
High pressure sodium	Allowed[1]	Allowed[1]	Allowed[1]
Low pressure sodium	Allowed[2]	Allowed[2]	Allowed[2]
Neon or cold cathode	Not allowed	Not allowed	Not allowed
Other light sources[3]	Not allowed	Not allowed	Not allowed

Notes

[1] Not recommended due to poor color rendering

[2] Not recommended – source is obsolete and has no color rendering

[3] For light sources not listed, applicants may appeal as provided under Section 3.

TABLE 7-2 Class II Lighting (color rendering is not important)

ALL LUMINAIRES SHALL BE FULLY SHIELDED			
Source	**Zone A and LZ-1**	**Zone B and LZ-2**	**Zone C and LZ-3 or 4**
LED >3000K	Not allowed	Not allowed	Not allowed
LED 3000K	Not allowed	Allowed	Allowed
LED 2700K or less	Allowed	Allowed	Allowed
Incandescent or 2700K or lower LED replacement lamps	Allowed	Allowed	Allowed
LED amber, hybrid or filtered	Allowed	Allowed	Allowed
Metal halide, fluorescent, compact fluorescent, induction	Not allowed	Not allowed	Not allowed
High pressure sodium	Allowed	Allowed	Allowed
Low pressure sodium	Allowed[1]	Allowed[1]	Allowed[1]
Neon or cold cathode	Not allowed	Not allowed	Not allowed
Other light sources[2]	Not allowed	Not allowed	Not allowed

Notes

[1] Not recommended – source is obsolete and has no color rendering

[2] For light sources not listed, applicants may appeal as provided under Section 3.

TABLE 7-3 Class III Lighting (decorative lighting)

LUMINAIRES SHALL BE FULLY SHIELDED EXCEPT AS NOTED			
Source	**Zone A and LZ-1**	**Zone B and LZ-2**	**Zone C and LZ-3 or 4**
LED >3000K	Not allowed	Not allowed	Not allowed
LED 3000K	Not allowed	Allowed	Allowed
LED 2700K or less	Allowed May be partly shielded or unshielded up to 450 lumens	Allowed May be partly shielded or unshielded up to 600 lumens	Allowed May be partly shielded or unshielded up to 1000 lumens
LED amber, hybrid or filtered			
Incandescent or 2700K or lower LED replacement lamps			
Metal halide, fluorescent, compact fluorescent, induction	Not allowed	Not allowed	Not allowed
High pressure sodium	Allowed	Allowed	Allowed
Low pressure sodium[1]	Allowed[1]	Allowed[1]	Allowed[1]
Neon or cold cathode	Not allowed	Not allowed	Not allowed
Other light sources[2]	Not allowed	Not allowed	Not allowed

Notes

[1] Not recommended – source is obsolete and has no color rendering

[2] For light sources not listed, applicants may appeal as provided under Section 3.

Section 8.
SUBMISSION OF PLANS AND EVIDENCE OF COMPLIANCE.

The application for any required County approval for work involving nonexempt outdoor luminaires shall include evidence that the proposed work will comply with this ordinance. The submission shall contain, but not be limited to, the following:

A. The location of the site where the outdoor luminaires will be installed;
B. Plans indicating the location and type of fixtures on the premises;
C. A description of the outdoor luminaires, including, but not limited to, manufacturer's catalog cuts and drawings.
D. Photometric reports from a NVLAP accredited laboratory indicating luminaire light source type, color temperature, and BUG rating.

The above required plans and descriptions shall be sufficiently complete to enable the County to readily determine whether compliance with the requirements of this ordinance will be secured. If such plans and descriptions cannot enable this ready determination, by reason of the nature or configuration of the devices, fixtures or lamps proposed, the applicant shall submit further evidence of compliance enabling such determination.

Section 9.
PROHIBITIONS.

A. All lighting shall be off between 11:00 p.m. and one hour before sunrise, except as follows:

1. Motion sensors may be used for Class I lighting after 11:00 p.m.

2. Class II lighting may remain on all night but shall employ motion sensors to turn lights off or dim lights when there is no motion after 11:00 p.m.

3. On-premise advertising signs shall only be illuminated while the business facility is open to the public

4. Outdoor advertising displays may remain lighted until midnight.

5. Outside sales, commercial, assembly, repair, and industrial areas shall only be lighted when such areas are actually in use.

6. Outdoor recreational facilities may remain lighted to complete recreational activities that are in progress and under illumination in conformance with this ordinance at 11:00 p.m.

B. Operation of searchlights or aerial lasers for advertising purposes is prohibited.

C. All external sign and billboard lighting shall be top-down. Bottom mounted signs are prohibited. Signs shall comply with the sign code.

D. Use of mercury vapor lamps is prohibited.

Section 10.
PERMANENT EXCEPTIONS.

A. Nonconformance. All outdoor luminaires existing and legally installed prior to the effective date of this ordinance are exempt from the requirements of this ordinance except that:

1. When existing luminaries are reconstructed or replaced, such reconstruction or replacement shall be in compliance with this ordinance.

2. Sections 9 b, c, d and e regarding hours of operation shall apply.

B. Fossil Fuel Light. All outdoor luminaires producing light directly by combustion of fossil fuels (such as kerosene lanterns, and gas lamps) are exempt from the requirements of this ordinance.

C. Holiday Decorations. Lights used for holiday decorations are exempt from the requirements of this ordinance.

D. Outdoor Sports Facilities may employ either:

a. Up to 6000K LED lighting systems provided (1) the lighting system employs shielding to completely prevent uplight; (2) the lighting is controlled by motion sensors or from a control booth; and (3) the lighting is dimmable and designed to use the least amount of light necessary for the activity; and (4) the lighting system has a fixed curfew of 11:00PM that can be overridden from the control booth.

b. Up to 5700K Metal halide lighting systems provided (1) the lighting system employs shielding to completely prevent uplight; (2) the lighting is controlled from a control booth and does not automatically turn on; (3) the lighting system has a fixed curfew of 11:00PM that can be overridden from the control booth.

Section 11.
TEMPORARY EXEMPTIONS.

A. Information Required. Any individual may submit a written request to the Planning Director for a temporary exemption from the requirements of this ordinance. The filing fee for the temporary exemption shall be $50.00. The Request for Temporary Exemption shall contain the following information:

1. Name, address and telephone number of the applicant;

2. Location of the outdoor luminaires for which the exemption is requested;

3. Specific exemption(s) requested;

4. Use of the outdoor luminaires involved;

5. Duration of the requested exemption(s);

6. Type of outdoor light fixture to be used, including the light source and color temperature, total lumen output, character of the shielding, if any;

7. Previous temporary exemptions, if any;

8. Such other data and information as may be required by the Planning Director. The Planning Director shall have ten (10) business days from the date of receipt of the

Request for Temporary Exemption to approve or disapprove the request. The applicant will be notified of the decision in writing.

B. Duration of Approval. The exemption shall be valid for not more than thirty (30) consecutive days from the date of issuance of approval. Exemptions are renewable for a period of not more than fifteen (15) consecutive days. Requests for renewal of a temporary exemption shall be processed in the same manner as the original request. No outdoor luminaires shall be exempted from this ordinance for more than forty-five days during any twelve (12) month period.

Exception to Section 11 (B.): An exemption for portable lighting for construction shall be valid for one year and may be renewable on an annual basis.

C. Appeals. An applicant or any interested person may file an appeal from the decision of the Planning Director within 10 days of the date of mailing of the notice of decision to the applicant. The appellant may appeal that decision, in writing, to the Board of Supervisors, on forms provided by the Planning Department, which shall be accompanied by a filing fee of $25.00. Upon receipt of a completed appeal, the Clerk of the Board shall set the matter for hearing before the Board of Supervisors not less than five days nor more than 30 days thereafter and shall give written notice of the hearing to the appellant and the Planning Director. The Board of Supervisors shall render its decision within 30 days following the close of the hearing on the appeal.

Section 12.
EMERGENCY EXEMPTIONS.

This ordinance shall not apply to portable temporary lighting used by law enforcement or emergency services personnel to protect life or property.

Section 13.
CONFLICTS.

Where any provision of the statutes, codes or laws of the United States of America or the State of California conflicts with any provision of this ordinance, the most restrictive shall apply unless otherwise required by law.

Section 14.
VIOLATIONS AND PENALTIES.

It shall be unlawful for any individual to operate, erect, construct, enlarge, alter, replace, move, improve, or convert any lighting structure, or cause the same to be done, contrary to or in violation of any provision of this ordinance.

Any individual violating any provision of this ordinance shall be deemed guilty of an infraction or misdemeanor as hereinafter specified. Such individual shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of anyof the provisions of this ordinance is committed, continued, or permitted.

Any individual convicted of a violation of this ordinance shall be (1) guilty of an infraction offense and punished by a fine not exceeding one hundred dollars ($100) for a first violation: (2) guilty of an infraction offense and punished by a fine not exceeding two hundred fifty dollars ($250) for a second violation on the same site and perpetrated by the same individual. The third and any additional violations on the same site and perpetrated by the same individual shall constitute a misdemeanor offense and shall be punishable by a fine not exceeding one thousand dollars ($1,000) or six months in jail, or both. Payment of any penalty herein shall not relieve an individual from the responsibility for correcting the violation.

Section 15.
VIOLATIONS CONSTITUTE PUBLIC NUISANCE.

Any lighting structure erected, constructed, enlarged, altered, replaced, moved, improved, or converted contrary to the provisions of this ordinance shall be, and the same is hereby declared to be, unlawful and a public nuisance and subject to abatement in the manner provided by law. Any failure, refusal or neglect to obtain a permit as required by this ordinance shall be prima facie evidence of the fact that a public nuisance has been committed in connection with the erection, construction, enlargement, alteration, replacement, improvement, or conversion of a lighting structure erected, constructed, enlarged, altered, repaired, moved, improved, or converted contrary to the provisions of this ordinance.

Section 16.
SEVERABILITY.

If any provision of this ordinance or the application thereof to any individual or circumstance is invalid, the invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application, and to this end the provisions of this ordinance are severable.

Section 17.
EFFECTIVE DATE.

This ordinance shall take effect and be in force thirty (30) days after the date of its adoption.

PROPOSED MODERNIZATION OF RIVERSIDE COUNTY ORDINANCE NO. 915P REGULATING OUTDOOR LIGHTING

Proposed changes are underlined and in bold.

The Board of Supervisors of the County of Riverside ordains as follows:

Section 1. FINDINGS

The Board of Supervisors finds that inadequately shielded outdoor lighting results in a waste of natural resources and **causes** light trespass. The Board of Supervisors further finds that ~~at certain levels,~~ light trespass~~,~~ and associated glare~~,~~ may jeopardize the health, safety or general welfare of Riverside County residents and degrade their quality of life. **The Board of Supervisors also finds that these concerns are sufficiently different from the negative impacts of light pollution that are currently regulated by Ordinance 655 to warrant this specific Ordinance.**

Section 2. PURPOSE

The purpose of this Ordinance is to provide minimum requirements for outdoor lighting in order to reduce light trespass, and to protect the health, property, and well-being of residents in the unincorporated areas of the County.

Section 3. AUTHORITY

This Ordinance is adopted pursuant to the Board of Supervisors' police power as set forth under Article XI, section 7 of the California Constitution.

Section 4. DEFINITIONS

As used in this Ordinance, the following terms shall have the following meanings:

a. Adequately shielded. ~~Shielding of an outdoor luminaire by opaque components or materials, such that light rays are limited to the parcel of origin and the light source is not visible from another property or public right-of-way.~~ A luminaire using a combination of internal or attached shielding and/or aiming to control light radiation onto the property on which is it located.

b. Glare. Light emitting from an outdoor luminaire that causes ~~reduced vision or momentary blindness.~~visual disability or discomfort.

c. Light source (lamp). An electrical bulb, tube, diode, or other device that produces artificial light or illumination.

d. ~~Light trespass.~~ **Trespassing Light.** Light falling across a property line onto another lot or parcel of land or onto a public right-of-way. The presence of ~~light trespass~~ **trespassing light** shall be determined in accordance with Section 7 of this Ordinance.

e. Luminaire. A complete lighting unit consisting of one or more lamps, **LED arrays or other light sources**, ~~the lamp~~ **light source mounting** or holder, any reflector or lens, and any other components or accessories.

f. Outdoor Luminaire. ~~Outdoor luminaires~~, A luminaire, whether permanent or portable, ~~including general light fixtures, searchlights, spotlights, and floodlights; and the light cast by such fixtures~~ installed outdoors.

Section 5. STANDARD

a. All outdoor luminaires ~~in~~ shall be located, adequately shielded, and directed such that no direct light falls outside the parcel of origin, or onto the public right-of-way, **except as allowed in Section 7.** Outdoor luminaires shall not blink, flash, or rotate.

EXCEPTION TO Section 5.(a.). Less than fully shielded decorative luminaires permitted by Ordinance 655 Table 7-3.

b. All outdoor luminaires shall be rated 3000K or less correlated color temperature (CCT).

EXCEPTION TO Section 5(b.) New luminaires shall comply with Ordinance 655.

c. All outdoor luminaires shall be turned off or dimmed at least 50% after a curfew time, defined as the later of either (1) 10:00PM or (2) 1 hour after the close of business. Luminaires may be controlled by motion sensors after curfew.

Section 6. EXEMPTIONS

The following outdoor luminaires shall be exempt from the provisions of this Ordinance when properly installed and in compliance with all County ordinances:

a. Luminaires used or otherwise required by law enforcement or other emergency personnel.

b. Luminaires used to illuminate publicly-owned property, including but not limited to, parks, recreation areas, schools, streets, street signs and sidewalks.

c. Luminaires used to illuminate authorized public and private monuments.

d. Luminaires authorized by a provision of state or federal law as long as that lighting conforms to the requirements of the state or federal law.

e. Luminaires used for holiday decoration.

f. Luminaires producing light directly by the combustion of fossil fuels (such as kerosene lanterns, and gas lamps).

g. Neon luminaires.

h. Luminaires used to illuminate agricultural activities, operations or facilities as defined in Section 5 of Riverside County Ordinance No. 625.

i. Luminaires used to illuminate for parking areas and other outdoor spaces directly serving a facility operating 24 hours are not required to be turned down or off as required under Section 5 (c.).

j. Luminaires used to illuminate sports courts and fields, provided that they are equipped with controls to prevent operation after 10PM Sunday through Thursday and 11PM Friday and Saturday.

Section 7. DETERMINATION OF LIGHT TRESPASS

A determination of light trespass shall be made by ~~observation of the allegedly non-conforming luminaire~~**(s) measurement of the allegedly trespassing light onto** ~~from~~ the complaining party's property. A "complaining party" may be either an owner or occupant of private property or a public entity. **Trespassing light occurs when the amount of light measured at the property line in any plane caused by one or more luminaires exceeds the following limits:**

Maximum Light Limit	Pre-curfew	Post-curfew
Onto any residential property, in-patient health care facility, dormitory, hotel or motel	3 lux (0.3 foot-candle)	1 lux (0.1 foot-candle)
Onto any non-residential property or public right of way	8 lux (0.8 foot-candle)	3 lux (0.3 foot-candle)

Section 8. SECURITY LIGHTING

Security lighting **solely** triggered by motion or noise shall be allowed subject to all of the provisions of this Ordinance except Section 5 (c.).

Section 9. NON-CONFORMING OUTDOOR LUMINAIRES

Outdoor luminaires existing on the effective date of this Ordinance that do not meet the requirements as set forth herein shall be brought into compliance or removed as follows:

a. Within three (3) months of the effective date of this Ordinance, where redirection of the light fixture is feasible and will bring the light fixture into compliance; or

b. Within six (6) months of the effective date of this Ordinance, in all other cases.

Section 10. COMPLIANCE METHODS

Outdoor luminaires not meeting the standards of Section 5 be brought into compliance in any of the following ways:

a. Redirection of the luminaire;

b. Shielding of the light source;

c. Redesign or relocation of the luminaire;

d. Replacement of the luminaire with a conforming luminaire; or

e. Removal of the luminaire.

Section 11. ENFORCEMENT

The Riverside County Sheriff and Code Enforcement Departments shall have the primary responsibility for enforcing this Ordinance.

Section 12. VIOLATIONS AND PENALTIES

Any person who violates any provision of this Ordinance once or twice within a one hundred and eighty (180) day period shall be guilty of an infraction. Any person who violates any provision of this Ordinance more than twice within a one hundred and eighty (180) day period shall be guilty of a misdemeanor. Each day a violation is committed or allowed to continue shall constitute a separate offense and shall be punishable as such. Penalties shall not exceed the following amounts.

a. For the first violation within a one hundred and eighty (180) day period the minimum mandatory fine shall be one hundred dollars ($100).

b. For the second violation within a one hundred and eighty (180) day period the minimum mandatory fine shall be two hundred and fifty dollars ($250).

c. For any further violations within a one hundred and eighty (180) day period the minimum mandatory fine shall be five hundred dollars ($500) or imprisonment in the County jail for a period not exceeding six (6) months, or both.

Section 13. CONFLICT BETWEEN ORDINANCE REQUIREMENTS

This Ordinance shall neither replace the requirements of the zoning Ordinance or any other County ordinances, including but not limited to County Ordinance No. 655, nor supersede the terms of any private Covenants, Conditions and Restrictions (CC&Rs). However, when there is a conflict in the requirements of this and any other ordinance, the more stringent requirements shall apply. The County of Riverside does not enforce private CC&Rs.

Section 14. SEVERABILITY.

If any provision of this Ordinance or the application thereof to any person or circumstance, is held invalid, such invalidity shall not affect the remainder of the Ordinance or the application of such provision(s) to other persons or circumstances.

Section 15. SAVINGS CLAUSE

The adoption of this Ordinance shall not in any manner affect the prosecution of ordinance violations, which violations were committed prior to the effective date of this Ordinance, nor be construed as a waiver of any permit, license, penalty or penal provisions applicable to such violations. The provisions of this Ordinance, insofar as they are substantially the same as ordinance provisions previously adopted by Riverside County relating to the same subject matter, shall be construed as restatements and continuations, and not as new enactments.

Section 16. EFFECTIVE DATE

This Ordinance shall take effect 30 days after its adoption.

Suggested Community Outdoor Lighting Ordinance

Section 1. Purpose.

The purpose of this ordinance is to implement the goals of the General Plan and protect and promote public health, safety, welfare, and quality of life by establishing regulations and a process for review of outdoor lighting that will accomplish the following:

A. Protect against light pollution in all its forms, thereby reclaiming the ability to view the night sky and thereby help preserve the quality of life and scenic value of this desirable visual resource;

B. Help protect and enhance human health and wellness and wildlife habitation and migration by minimizing light pollution and its impact on all forms of life, consistent with the June 2016 position on outdoor lighting by the American Medical Association.

C. Promote lighting practices and systems to conserve energy, decrease dependence on fossil fuels and limit greenhouse gas emissions consistent with the California Global Warming Solutions Act and other applicable state and federal law.

D. Ensure that sufficient lighting can be provided where needed to promote safety and security on public and private property, and to allow for reasonable lighting for commercial properties and activities,

E. Provide easily understood regulations for residential lighting that help minimize obtrusive light and mitigate neighbor-to-neighbor lighting issues;

F. *Provide practical regulations for non-residential lighting that are consistent with the* California Code of Regulations, Title 24, Parts 1, 2, 6 and 11.

G. Allow reasonable flexibility in the style of lighting fixtures and the technology used to generate and control light; and,

H. Permit appropriate lighting employing historic and current technology, evolving advancements, energy use and economic needs.

Section 2. Applicability

A. Except as described below, all outdoor lighting installed or modified after the date of effect of this Ordinance shall comply with these requirements. This includes, but is not limited to, new lighting, replacement lighting, additions and alterations, or any other lighting whether attached to structures, poles, the earth, or any other location, including lighting installed by any third party.

Exception to Section 2. (A.): Any lighting-specific requirements in the following shall take precedence over this ordinance.

a. Specific use permit.
b. Federal, state, or county laws or regulations.

Exemptions from Section 2. (A.) The following are not regulated by this Ordinance:

1. Indoor lighting.
2. Lighting within public right-of-way or easement for the principal purpose of illuminating streets, roads, sidewalks, walkways, bikeways, bridges, tunnels and other public means of conveyance and travel.
3. Lighting permitted prior to the effective date of this Ordinance
4. Lighting solely for signs (lighting for signs is regulated by the Sign Ordinance).
5. Repairs to existing luminaires, but not including new replacement luminaires or modifications to existing luminaires.
6. Temporary lighting for one-time events.
7. Underwater lighting in swimming pools and other water features.
8. Temporary lighting and seasonal lighting, except that temporary lighting and seasonal lighting are not permitted in or within 100 feet (30.5 meters) of Public Open Space.
9. Short-term lighting associated with activities authorized by a valid temporary use permit, special event permit or film permit.
10. Construction or emergency lighting provided such lighting is temporary and is discontinued immediately upon completion of the construction work or abatement of the emergency necessitating said lighting.

B. Applications for land use entitlements after the effective date of this ordinance shall include compliance with this chapter as a condition of approval.

Section 3. General Requirements for all Outdoor Lighting.

A. Compliance with State Code All lighting and controls shall comply with the California Title 24 California Code of Regulations, Title 24, Parts 1, 2, 6 and 11.

B. **Shielding** All luminaires shall be fully shielded and shall not emit light into the upper hemisphere around the luminaire once installed. Support and mounting systems for luminaires shall not allow post-installation adjustments that could defeat compliance of this requirement.

Exceptions to Section 3. (A.)

a. Decorative lighting as permitted herein.
b. Landscape lighting as permitted herein.
c. Architectural floodlighting and outlining as permitted herein.

C. **Turned off or reduced after curfew** Automated control systems, such as motion sensors, astronomic timer switches and lighting control systems, shall be used to meet the curfew requirements of 17.41.050 and the technical and energy efficiency requirements of California Code of Regulations Title 20 Section 1605.1(I) and Title 24 Part 6 Sections 130.2, 140.7 and 150.1. Manual initiation switches are permitted as long as they do not defeat the automatic shut off function.

Exceptions to Section 3. (B.)

a. Egress lighting as required by Title 24 Part 2 Section 1006.
b. Lighting for facilities having 24 hour operations or business.
c. Lighting required for accessibility.
d. Lighting required by statue, law or ordinance to operate all night.
e. One luminaire per residence that illuminates the address or apartment number.
f. Lighting by special permit.

D. Lighting Color (Chromaticity). The correlated color temperature of all outdoor lighting shall be 3000 Kelvin or less, with tolerance within the ANSI standard C78.377 of LED sources.

Exceptions to 17.41.040 (C.)

a. Amber sources necessary to protect beach and environmentally sensitive habitat areas, as determined by the planning director.
b. Legally required monochromatic light sources including but not limited to, aviation obstruction lighting, traffic signal lighting, and marine lighting
c. As allowed by a special use permit.

E. Prevention of Light Trespass All lighting shall be designed and implemented to mitigate light trespass onto adjacent properties. The maximum allowable light trespass shall be per Table 1 and Table 2**.**

F. Lighting Not Permitted None of the following are permitted except by special permit:

1. Dynamic lighting, such as moving lights, color changing lighting,
2. Luminaires exceeding 500,000 peak candelas or 500,000 lumens
3. Laser lighting
4. Unshielded lighting such as string lights, light rope, neon lighting, or LED tubing.
5. Lighting within Public Open Space areas.

Section 4. Lighting Zones

A. Lighting Zones The Planning Director shall develop and maintain a lighting zone map of the community identifying the following zones as defined and required by the California Code of Regulations, Title 24, Part 1, Section 10-114 as follows:

Lighting Zone 0 (Zero), which shall include Environmentally Sensitive Habitat Area (ESHA), Public Open Space (POS) Area, and other areas within the community that are undeveloped or intended to be preserved in a natural state and for which lighting is only provided for safety or to meet applicable Federal, State or community requirements.

Lighting Zone 1 (One), which shall include all areas of the community that are adjacent to Lighting Zone 0, rural in character, and/or which are determined by the Planning Director to be suitable for low levels of exterior lighting at night.

Lighting Zone 2 (Two), which shall include all areas of the community that are semi-urban or urban in character, and/or which are determined by the Planning Director to be suitable needs for modest levels of exterior lighting at night.

Lighting Zone 3 (Three), which shall include all areas of the City that are urban in character or have high night light level requirements for specific property uses which are determined by the Planning Director to be suitable needs for medium to high levels of exterior lighting at night.

Lighting Zone 4 (Four) shall not be used in the community except by special permit.

B. Posting of Zoning Map The Lighting Zone Map shall be posted on the Web Site of the City and made available to the public.

C. **Administration of Lighting Zones** The Planning Director shall develop a process to review proposed changes and appeals to the Lighting Zone map, which shall be approved by City Council. Approved changes and appeals shall be updated onto the Lighting Zone Map. The Planning Director shall notify the California Energy Commission according to California Code of Regulations, Title 24, Part 1, Section 10-144(d).

Section 5. Lighting Zone Specific Lighting Requirements

A. **Applicability** In addition to the foregoing, all outdoor lighting must meet the following requirements per Lighting Zone and whether the property being lighted is residential or non-residential. Residential properties shall comply with Table 1 and non-residential properties shall comply with Table 2 as described below. For the purposes of these requirements, multi-family residential properties of 8 domiciles or more shall be considered non-residential.

B. Curfew

1. **Residential lighting** All exterior lighting shall be extinguished at the curfew time by an automatic shut off device. Motion sensor controlled lighting may used after curfew if it is fully shielded and located within 10 feet of a building entrance.

2. **Non-residential lighting** All exterior lighting shall be extinguished or dimmed 50% at the curfew time under the control of an automatic device. Motion sensor controlled lighting may be used to turn on or increase the light level for fully shielded lighting at building entrances, exits, parking lots and walkways.

C. Maximum Lumens For a dedicated fluorescent, LED or HID luminaire, the allowed maximum rated lumens per a photometric report or manufacturer's product literature. For a line voltage socket luminaire or a low voltage socket luminaire, the rated lumens of the lamp installed in it.

D. Maximum Mounting Height The maximum mounting height above adjacent grade. See Figure 2.

Exception 1 to 17.41.060 (D): There is no maximum mounting height for fully recessed luminaires.

Exception 1 to 17.41.060 (D): For multi-story residential buildings and motels with exterior entrance doors, the maximum mounting height shall be 8 feet above adjacent floor unless recessed into an adjacent ceiling, soffit or overhang.

E. Landscape lighting Landscape lighting is permitted per Table 1 and Table 2. Downlight only means that the luminaire emits no light above 90 degrees relative to nadir (no light upwards). Shielded uplight means a luminaire aimed upward within 30 degrees of straight up that employs a baffle or louver to prevent glare. See Figure 3.

F. Architectural Floodlighting and Outlining The use of lighting to illuminate building facades, statuary, and similar edifices for appearance or other needs not involving visual

tasks such as walking or driving may be permitted in lighting zones 2 and 3 if all the following conditions are met:

1. A plan and rendering is submitted for review and approval by the Planning Director.

2. The amount of exposed light sources does not exceed 20,000 lumens per acre of the site.

3. The average illumination of a façade or edifice shall not exceed 5 footcandles (50 lux).

4. Such lighting shall be extinguished at curfew.

No such lighting may be used without a permit, and shall not be allowed in lighting zones 0 and 1 under any conditions.

Section 6. Plan Review and Permitting

A. **Plan Review** All outdoor lighting installations or installations involving new lighting or the modification, alteration, or replacement of outdoor lighting shall submit plans and related information as listed below and receive a permit prior to proceeding with any work.

1. Plans depicting the proposed luminaires.

2. Product specification data such as manufacturer's data sheets for each luminaire and control device(s) or systems being used.

3. For non-residential properties, signed pages of required documents for Title 24 – Part 6 Section 140.7 and Title 24 – Part 11 Section 5.106.8 demonstrating compliance.

4. Details, elevations, summaries or calculations as required to demonstrate compliance with this Ordinance.

B. Alternative Means and Methods Deviations from the lighting standards provided in this chapter may be approved pursuant to a site plan review in accordance with Section 17.62.040. The request shall state the circumstances and conditions relied upon for the site plan review and shall be accompanied by accurate plans and a legal description of the subject property. In addition, the following information shall be submitted:

1. Plans depicting the proposed light fixtures;

2. Detailed description of the circumstances which necessitate the deviation;

3. Details on the use of the proposed light fixtures for which the deviation is requested, including the type of outdoor light fixture(s) to be used, the total light output and character of the shielding, if any; and

4. Such other data and information as may be required by the planning director.

C. Appeals The site plan review may be granted if the community makes the following findings:

1. There are special circumstances or conditions applying to the land, buildings or outdoor light fixtures for which the site plan review is sought, which are peculiar to the project and do not apply generally to the land, buildings, or outdoor light fixtures in the surrounding area.

2. The strict application of this chapter would deprive the applicant of the reasonable use of the land or buildings, and the proposed deviation is the most restrictive means that will accomplish the purpose.

3. The proposed deviation will achieve the purpose and intent of this chapter, including light trespass, and will not adversely affect neighborhood character or the public health, safety or welfare.

4. The proposed project will not be contrary to or in conflict with the general purposes and intent of this title, nor the goals, objectives and policies of the general plan.

Section 7. Lighting Allowed by Temporary Use Permit Only. (RESERVED)

Section 8. Conflicts with other Laws.

In the event the provisions in this Ordinance conflict with other laws, this Ordinance shall be applied in a manner intended to carry out all provisions of law to the maximum extent feasible. When there is an irreconcilable conflict between the provisions of this Ordinance and the provisions of federal or state law, the provisions of federal or state law shall prevail over the provisions contained in this Ordinance only to the extent necessary to avoid a violation of those other laws or code provisions.

Section 9. Application of Ordinance to Legal Non-Conforming Lighting.

A. Amortization. A property owner shall comply with the requirements of this Ordinance by (date.) Any non-compliant lighting still in place after this compliance deadline shall become and remain extinguished. A property owner may apply for an extension of this deadline by submitting a request to the planning director thirty days before the compliance deadline detailing why an extension is needed. Any non-compliant lighting shall remain extinguished while the request is pending. Upon demonstration of good cause for providing a property owner additional time to comply with the requirements of this section, the planning director may extend the property owner's time to comply and/or may require a plan for compliance that required partial compliance in advance of full compliance. For purposes of this section, the term "good cause" shall mean a significant financial or other hardship which warrants an extension or conditional extension of the time limit for compliance established herein. In no instance, shall the planning director issue an extension of the compliance period in excess of one year's time. The planning director's decision shall be appealable.

B. Change of Use. If a property with non-compliant lighting changes use, then all outdoor lighting shall be brought into compliance with this chapter before the new use begins. Any uncorrected non-compliant lighting shall be removed or remain extinguished.

C. Resumption of Use after Abandonment. If a property with non-compliant lighting is abandoned for a period of six months or more, then all outdoor lighting shall be brought into compliance with this chapter before any resumption of use of the property occurs. Any uncorrected non-compliant lighting shall be removed or remain extinguished.

Section 10. Enforcement and Penalties. (RESERVED)

Section 11. Definitions.

For the purposes of this Chapter only, the following words and phrases are defined as follows:

"Curfew" means the time of day when lighting restrictions, based on zoning district, are in effect.

"Directional lighting" means methods of directing light downward, rather than upward or outward, with the intention of directing light where it is needed.

"Fully shielded" means a light fixture constructed and installed in such a manner that all light emitted by the fixture, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected below the horizontal plane through the fixture's lowest light-emitting part.

"Glare" means lighting entering the eye directly from a light fixture or indirectly from reflective surfaces that causes visual discomfort or reduced visibility.

"Hardscape" means permanent surface improvements to the site including parking lots, driveways, entrances, curbs, ramps, stairs, steps, medians, walkways and non-vegetated landscaping that is 10 feet or less in width, that are made of materials such as, but not limited to, concrete, asphalt, stone and gravel.

"Lamp" means, in generic terms, a source of optical radiation (i.e., "light"), often called a "bulb" or "tube". Examples include incandescent, fluorescent, high-intensity discharge (HID) lamps, and low pressure sodium (LPS) lamps, as well as light-emitting diode (LED) modules and arrays.

"Light pollution" means the material adverse effect of artificial light including, but not limited to, glare, light trespass, sky glow, energy waste, compromised safety and security, and impacts on the nocturnal environment, including light sources that are left on when they no longer serve a useful function.

"Light trespass" means light that falls beyond the property it is located on. Permissible levels of light trespass shall be limited to those specific, quantitative thresholds of light intensity set forth in Tables 1 and 2. Light trespass shall be measured in the vertical plane of the property line on which the lighting in question is located. Field measurements to determine light trespass compliance shall not include the effect of light produced by street lights or other lighting not produced by luminaires under the jurisdiction of this Ordinance or produced by luminaires on other properties.

"Lumen" means the unit of measure used to quantify the amount of visible light produced by a lamp or emitted from a luminaire (as distinct from "watt," a measure of power consumption).

"Luminaire" means outdoor electrically powered illuminating devices, including a light source, outdoor reflective or refractive surfaces, lenses, electrical connectors and components, and all parts used to mount the assembly, distribute the light and/or protect the lamp, whether permanently installed or portable.

"Seasonal lighting" means lighting installed and operated in connection with holidays or traditions. Seasonal lighting must be temporary lighting as defined herein and removed within 30 days of the date of installation, and shall not be re-installed within the same calendar year.

"Sky glow" means the brightening of the nighttime sky that results from scattering and reflection of artificial light by moisture and dust particles in the atmosphere. Sky glow is caused by light directed or reflected upwards or sideways and reduces one's ability to view the night sky.

"Temporary lighting" means lighting that (a) employs a cord and plug and is not permanently wired and (b) is installed and removed when the temporary need is over, not to exceed 30 days without a special use permit.

"Shielded Uplighting" means landscape lighting illuminating trees and landscape features employing an extended tube baffle or louver and aimed at least 60 degrees above horizontal.

"Outlining" means exposed light sources attached to structures for the primary purpose of attraction, branding or decoration.

"Dynamic lighting" means lighting that flashes, chases, changes color, or changes intensity for any purpose other than serving as a traffic signal, safety light, or aviation or marine marker.

"Light trespass" means light from one property also lighting an adjacent property. The amount of trespass is calculated and measured in the vertical plane at 5' above grade at the property line of the site on which the light(s) is located. If the adjacent property is a public street or sidewalk, then the point at which trespassing light is calculated and measured shall be the center of the public property or right-of-way between the property on which the light originates and any adjacent property.

Section 12 Tables

Continued on Next Page

Table 1 – Residential Lighting Limits

Restriction	**Lighting Zone 0 (Zero)**	**Lighting Zone 1 (One)**	**Lighting Zone 2 (Two)**	**Lighting Zone 3 (Three)**
Curfew	1 hour after sunset	11:00PM	11:00PM	11:00PM
Maximum lumens per fully shielded luminaire	600 Must be 2700K or lower	900	900	900
Unshielded and decorative lighting	None allowed	One per residence not to exceed 300 lumens	Two per residence not to exceed 300 lumens	Three per residence not to exceed 600 lumens
Maximum mounting height above adjacent grade	8 feet	12 feet	12 feet	15 feet
Landscape lighting	None allowed	Downlight only not to exceed 300 lumens	Downlight and/or shielded uplight not to exceed 450 lumens per luminaire	Downlight and/or shielded uplight not to exceed 600 lumens per luminaire
Maximum landscape lighting lumens per acre	0	6000	12000	18000
Maximum allowable light trespass pre-curfew	0	0.1 footcandle (1 lux)	0.2 footcandle (2 lux)	0.5 footcandle (5 lux)

Table 2 – Non Residential and Multi-family Residential Lighting Limits

Restriction	**Lighting Zone 0 (Zero)**	**Lighting Zone 1 (One)**	**Lighting Zone 2 (Two)**	**Lighting Zone 3 (Three)**
Curfew	1 hour after sunset	11:00PM	11:00PM	11:00PM
Maximum lumens per fully shielded luminaire	600	2500	5000	15000
Unshielded and decorative lighting	None allowed	None allowed	Maximum 600 lumens per luminaire not to exceed 12000 lumens per acre.	Maximum 900 lumens per luminaire not to exceed 18000 lumens per acre
Maximum mounting height above adjacent grade	8 feet	20 feet	25 feet	35 feet
Landscape lighting	None allowed	Downlight only not to exceed 450 lumens	Downlight and/or shielded uplight not to exceed 600 lumens per luminaire	Downlight and/or shielded uplight not to exceed 900 lumens per luminaire
Maximum landscape lighting lumens per acre	0	9000	12000	18000
Maximum allowable light trespass pre-curfew	0	0.1 footcandle (1 lux)	0.2 footcandle (2 lux)	0.5 footcandle (5 lux)

END OF ORDINANCE

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **Transportation Uniform Mitigation Fee (TUMF) Nexus Study Update**

Contact: **Daniel Ramirez-Cornejo, Staff Analyst, cornejo@wrcog.cog.ca.us, (951) 955-8307**

Date: **May 11, 2017**

The purpose of this item is to *provide Committee members with an update on the progress of the TUMF Nexus Study update, including the response to comments received during the comment period.*

Requested Action:

1. Discuss and provide input regarding comments on the Draft Nexus Study.

WRCOG's TUMF Program is a regional fee program designed to provide transportation and transit infrastructure that mitigates the impact of new growth in Western Riverside County. Each of WRCOG's member jurisdictions and the March JPA participates in the Program through an adopted ordinance, collects fees from new development, and remits the fees to WRCOG. WRCOG, as administrator of the TUMF Program, allocates TUMF to the Riverside County Transportation Commission (RCTC), groupings of jurisdictions – referred to as TUMF Zones – based on the amounts of fees collected in these groups, and the Riverside Transit Agency (RTA). The TUMF Nexus Study is intended to satisfy the requirements of California Government Code Chapter 5 Section 66000-66008 (also known as the California Mitigation Fee Act), which governs imposing development impact fees in California. The Study establishes a nexus, or reasonable relationship, between the development impact fee's use and the type of project for which the fee is required. The TUMF Program is a development impact fee and is subject to the California Mitigation Fee Act (AB 1600, Govt. Code § 6600), which mandates that a Nexus Study be prepared to demonstrate a reasonable and rational relationship between the fee and the proposed improvements for which the fee is used. AB 1600 also requires the regular review and update of the Program and Nexus Study to ensure the validity of the Program. The last TUMF Program Update was completed in October 2009.

Draft TUMF Nexus Study

Nexus Study updates: WRCOG staff has determined that some modifications to the TUMF Network, which is a key determinant of the fee, are appropriate given recent State Legislation, as well as questions from stakeholders regarding the status of certain projects that were under construction during the preparation of the Nexus Study. These modifications will result in a reduced fee schedule as shown in the table below.

The largest single change in network results from the anticipated passage of SB 132, which is a companion bill to the recently enacted SB 1. SB 132 provides over $400 million in direct transportation funding for five projects in Western Riverside County, including three that were included in the draft TUMF Nexus Study. These three projects include the following:

- McKinley Avenue Grade Separation
- Limonite Avenue / I-15 interchange
- Hamner Avenue Bridge

The final draft fee schedule in the TUMF Nexus Study is below:

Land Use Type	Current Fee	Draft Nexus Study Fee	% Change from current fee – with TUMF Network adjustments
Single-Family Residential	**$8,873**	**$9,418**	**6%**
Multi-Family Residential	**$6,231**	**$6,134**	**<0%**
Industrial	**$1.73**	**$1.77**	**3%**
Retail	**$10.49**	**$12.31**	**17%**
Service	**$4.19**	**$4.56**	**9%**

Staff will not be accepting any additions to the TUMF Network but will be removing projects if a jurisdiction formally requests to do so based on the extensive outreach related to the network previously completed. Additionally, the Public Works Committee formally reviewed and approved the roadway network after numerous iterations and meetings with jurisdictions. Staff forwarded this information to the Technical Advisory Committee (TAC) and the Executive Committee for approval.

On February 28, 2017, WRCOG released the draft TUMF Nexus Study for review and comment, with the comment period extending through April 21, 2017. With the comment period now closed, staff, in consultation with legal counsel and the TUMF consultant, is reviewing all comments submitted on the draft TUMF Nexus Study and will be preparing responses to each individual comment. Staff will provide an update on the response to comments and once finalized, the responses will be posted on the WRCOG website. WRCOG received ten formal comment letters on the draft TUMF Nexus Study. Each correspondence is briefly summarized below. Staff has compiled all the comments submitted on the draft TUMF Nexus Study (Attachment 1).

The City of Calimesa submitted a letter of support and recommended that a phase-in approach be utilized for fee increases.

NAIOP submitted a letter of support on the draft TUMF Nexus Study.

The Corona Chamber of Commerce submitted a letter of support on the draft TUMF Nexus Study.

KWC Engineers, as a representative of the development firm Castle and Cooke, submitted a letter of support on the draft TUMF Nexus Study recommended that WRCOG consider a phase-in approach for fee increases.

The City of Moreno Valley provided comments, primarily on the TUMF Network and requested a number of changes to the funding provided for facilities in Moreno Valley. The City also recommended that any fee increase be implemented through a phasing process.

County of Riverside District 1 Supervisor, Kevin Jeffries, submitted a comment letter that notes negative impacts on retail uses from any proposed fee increase. This letter also states that the Nexus Study incentivizes industrial and mining uses by not considering the full impact of truck related uses.

Pacific Retail Partners submitted a letter, which primarily addresses the impact of a TUMF fee increase on retail uses.

The BIA submitted three comment letters. The first letter is a review of the Nexus Study conducted by the law firm of Rutan & Tucker, LLP, which questions impact fees in general, the TUMF Program, and elements of the Nexus Study. The second letter is from Proactive Engineering Consultants West and raises questions about cost calculations in the TUMF Program, primarily costs for right-of-way and other soft costs like planning and design. The third letter is a request to phase in any fee increases for single-family residential uses.

WRCOG also retained a consultant to conduct a peer review of the draft TUMF Nexus Study during the comment period.

Staff also followed up with Highland Fairview, who submitted a formal comment letter on the draft 2015 TUMF Nexus Study, to determine whether they had any questions on the latest draft TUMF Nexus Study. Staff at Highland Fairview determined that all of their comments from 2015 had been addressed by WRCOG in the draft TUMF Nexus Study.

With the receipt of a letter of support from NAIOP and no further comments from Highland Fairview, the BIA is the remaining party who provided significant comments on the 2015 Draft Nexus Study.

While WRCOG is finalizing the responses to each individual comment, staff would like to provide a few general responses that address a number of comments received, which are below:

TUMF Network: As part of the Nexus Study update, WRCOG engaged in a comprehensive review of the network by taking multiple approaches. WRCOG worked with TUMF consultants, stakeholders, and member jurisdiction staff over the course of the Nexus Study update to develop the TUMF Network. The proposed network was then distributed to the Public Works Committee and the Executive Committee for their approval, which occurred December 8, 2016, and January 9, 2017, respectively. Each WRCOG member jurisdiction had an opportunity to provide comments on the TUMF Network throughout this process and no further changes to the network will be forthcoming. The only possible network edits will be to remove any completed or partially completed projects based on a review of existing conditions for each roadway in question.

Soft cost and right-of-way allocations: The TUMF Program allows planning, engineering and contingency costs for eligible projects to be reimbursed through the Program. The TUMF Nexus Study currently defines planning costs as those associated with "planning, preliminary engineering and environmental assessment costs" with the eligible amount being 10% of the estimated TUMF eligible construction cost only. Engineering costs are defined in the TUMF Nexus Study as "project study report, design, permitting and construction oversight costs" based on 25% of the estimated eligible construction cost only. Contingency is provided based on 10% of the total estimated eligible facility cost. Staff has discussed this item with member jurisdictions and determined that there are instances in which the actual cost to complete the planning and engineering phases of a project often exceed the TUMF Program allocations. In such cases, the member jurisdiction is responsible for securing other funding sources to complete the phases. As for the right-of-way allocations, the TUMF Program adjusts the right-of-way component by implementing a 75% global reduction to account for instances in which right-of-way is dedicated for the TUMF improvements.

Vehicle Miles Traveled (VMT) approach: SB 743 establishes the use of VMT as the preferred basis for measuring traffic impacts, in recognition of the fact that VMT more accurately reflects traffic impacts as it takes into account both the number of trips being made and the distance of those trips. Consistent with SB 743, consideration of travel impacts in terms of peak period VMT more accurately reflects the realities of travel behavior as the basis for determining impacts on the regional transportation system by reflecting the peak demands on the system based on the number of trips and the cumulative distance these trips occupy facilities in the system. Variation in trip length for different trip purposes is important to quantify since the impact associated with a trip is not limited to whether a trip occurs or not. A longer distance trip occupies more roadways over a longer period of time (all else being equal), and therefore goes through more intersections and consumes more capacity requiring greater levels of mitigation. As the purpose of the TUMF is to mitigate the traffic impacts of future growth, a VMT based approach better aligns with this purpose than a more simplistic trip-based methodology.

WRCOG staff anticipates the following schedule regarding review of the Nexus Study by the WRCOG Committees. The opportunity for member jurisdictions and stakeholders to provide public testimony on the Nexus Study will be at the June 5, 2017, Executive Committee meeting.

May 18, 2017: Technical Advisory Committee discusses response to comments on the draft TUMF Nexus Study.

June 5, 2017:	Executive Committee discusses final response to comments on the draft TUMF Nexus Study.
June 8, 2017:	Public Works Committee makes a recommendation on the draft TUMF Nexus Study.
June 14, 2017:	Administration & Finance Committee makes a recommendation on the draft TUMF Nexus Study.
June 15, 2017:	Technical Advisory Committee makes a recommendation on the draft TUMF Nexus Study.
July 10, 2017:	Executive Committee takes action on the draft TUMF Nexus Study.
Fall 2017:	Any change in fee goes into effect (depending on each member jurisdiction's approval of TUMF Ordinance / Resolutions).

The above schedule is tentative and subject to change depending on input from our Committees and stakeholders.

Prior Actions:

April 20, 2017:	The Technical Advisory Committee received report.
April 13, 2017:	The Public Works Committee received report.
April 12, 2017:	The Administration & Finance Committee received report.

Fiscal Impact:

TUMF activities are included in the Agency's adopted Fiscal Year 2016/2017 Budget under the Transportation Department.

Attachment:

1. Draft TUMF Nexus Study comments.

Item 5.B

Transportation Uniform Mitigation Fee (TUMF) Nexus Study Update

Attachment 1

Draft TUMF Nexus Study comments

Page Intentionally Left Blank

Comment	Agency / Stakeholder	Submitted Comment
City of Calimesa		
A1.1	City of Calimesa	The City also appreciates WRCOG implementing a phased approach for the fee increases for single family residential and retail land use categories. This will allow the City time to work with developers on moving current projects forward without the threat of substantial fee increases in the near term.
City of Moreno Valley		
A2.1	City of Moreno Valley	The original Draft TUMF Nexus Study was distributed in August of 2015 and included comments from private developers, the BIA and governmental agencies. Include a summary of how comments/questions were addressed in the Final TUMF Nexus Study.
A2.2	City of Moreno Valley	There was no mention in the TUMF Nexus Study of any fee reductions for affordable housing or senior housing projects. WRCOG staff has recently informed a perspective developer in Moreno Valley that a reduced fee for senior housing will be implemented in the next two to three months. It is strongly recommended that a fee reduction mechanism for affordable housing and senior housing be evaluated and implemented within the final TUMF Nexus Study.
A2.3	City of Moreno Valley	An updated fee chart was provided at the March 6, 2017 WRCOG Executive Committee meeting that included a phase-in option for fee increase implementation from July 1, 2017 to July 1, 2020. In order to minimize the proposed increases in fees across the board, it is highly recommended that a phase-in fee implementation mechanism be considered as an option and included in the Final TUMF Nexus Study.
A2.4	City of Moreno Valley	Clarify whether Cities will be required to make up the difference in fees if the implementation is phased and measured against a 100% threshold on the effective date.
A2.5	City of Moreno Valley	Include a section on how WRCOG will handle reimbursements/credits from developers and agencies who built facilities on the network under the currently-adopted Nexus Study, and those facilities are now being deleted from the network in the 2017 study.
A2.6	City of Moreno Valley	Provide explanation of how Maximum TUMF Share was calculated for each facility in Moreno Valley, for example, which outside fund sources and from what reference. For example, Gilman Springs Road from 60 to Alessandro; and Reche Vista from City limit to Heacock. Also provide detail in Section 4.5, p. 39 what amounts and locations are covered in Existing Obligated Funding. Also provide more information in Section 4.7.
A2.7	City of Moreno Valley	Provide explanation of how new "% completed" were developed. Several differ from those reported by Moreno Valley. Specifically, several percent's are too high for the facility.
A2.8	City of Moreno Valley	City was aware that Perris Boulevard street segment was potentially to be removed from network, which is now reflected in the 2017 Draft. However, City requests that Perris/60 interchange remain on the Network.
A2.9	City of Moreno Valley	City's formal comments dated August 27, 2015 are not shown in the comment matrices nor were they addressed. Please incorporate and they are repeated here.

A2.10	City of Moreno Valley	The City has the following comments on the Draft 2015 TUMF Nexus Study dated August 17, 2015: Include State Route (SR) 60/Moreno Beach Interchange as a line item – this location is already on the 2009 network as a Type 2 interchange and appears to have been missed. On the Draft 2015 network, the SR-60/Moreno Beach interchange cost would be $37,483,000, the same as other Type 2 interchanges.
A2.11	City of Moreno Valley	Ironwood Avenue from SR-60 to Day Street as shown in Appendix G-1 should state “Full funding available from other sources” instead of “City to fund with local sources.”
A2.12	City of Moreno Valley	Since SR-60/Nason Interchange is shown on the 2015 Draft Nexus study at $11,128,000, please reference the City’s February 6, 2015 request that WRCOG acknowledge the City’s $19,106,000 savings as satisfaction against the $999,302.77 loss to the network. (As an alternate option as suggested in our letter, for ease of accounting $14,100,000 could be shown on the network, which would consist of $13,069,951 allocated in TUMF TIP funds plus $1,000,000 50% TUMF reduction deficit make-up.)
A2.13	City of Moreno Valley	Heacock from San Michelle to Harley Knox segment - will the $300k network reduction affect current funding on the proposed TIP? City is moving forward with the Heacock project and opposes any reduction in funding for this segment.
A2.14	City of Moreno Valley	Nason from Fir (south of SR-60) to Alessandro was completed in 2016 with 100% City funds and City will bill (or request savings against the network) for the 2009 TUMF maximum share.
A2.15	City of Moreno Valley	Section 1.1.1., subsection (4) - "list of roads that have existing capacity deficiencies" - where is this list?
A2.16	City of Moreno Valley	Include the August 8, 2015 comment letter from the BIA's consultant, referenced on p. 35 in Section 4.3.
A2.17	City of Moreno Valley	Section 4.3, page 35, reference to Appendix G should include a description of what's included in G-1 and G-2, and the dates of actions by WRCOG and committees.
A2.18	City of Moreno Valley	Provide a fee comparison table to show differences from 2009 to 2017.
A2.19	City of Moreno Valley	In Appendix A, correct the spelling of the committee member Gutierrez's first name to the following: Yxstian
A2.20	City of Moreno Valley	In Appendix F, page F-3, the pavement thickness appears too thin for the streets in the TUMF program. For example, for minor arterials and above, the City's minimum pavement thickness is 0.5-ft of asphalt and 1.0-ft aggregate base. This promotes a stronger pavement structure and longer life, avoiding premature reconstruction. The City recommends WRCOG verify pavement sections with their member agencies.
A2.21	City of Moreno Valley	In Exhibit F-2, master unit cost summary, "ramp realignment" cost is blank.
A2.22	City of Moreno Valley	In Exhibit F-2, master unit cost summary, what types of street lights are assumed and are eligible - LED, HPSV, or other?

A2.23	City of Moreno Valley	Referencing Exhibit F-4, Land Use cost assumption page, include in the study an explanation of how the 25% was derived.
A2.24	City of Moreno Valley	In Appendices G, G-1 and G-2, include dates of each agency's comments.
A2.25	City of Moreno Valley	In Appendices G, G-1 and G-2, include City's comments of 8/27/15. Specific comments are listed in #9 above.
A2.26	City of Moreno Valley	In Appendix G-1, Theodore Street from 60 to Eucalyptus, comment should state City will provide $19.7 million in local funding, not $20 million. Reference City's February 5, 2015 comment letter.
A2.27	City of Moreno Valley	In Appendix G-2, Ironwood from 60 to Day should remain on the network, with zero dollars, contingent on allocating the funds to another Moreno Valley street.
A2.28	City of Moreno Valley	In Exhibit G-2 and H-1, Day / 60 Interchange maximum value can be $15 million. $17,897,000 is too high for the improvements needed.
A2.29	City of Moreno Valley	In Appendix G-2, Moreno Beach/60 interchange, see previous comment for this location. Restore as Type 2 interchange at 35% completion level.
A2.30	City of Moreno Valley	Figure 4.4 - Transit Center (Mobility Hub) should be shown on the NW corner of Alessandro Boulevard and Nason Street
A2.31	City of Moreno Valley	Page 46 - Harley Knox terminates at Redlands Avenue, not Evans Road. Diagrams and any costs associated should be updated
A2.32	City of Moreno Valley	Page 28 - reference to year 2035. Horizon year is 2040.
A2.33	City of Moreno Valley	Exhibit E-1 should be updated to reflect 2017 built conditions. Perris Boulevard 4 lanes s/o Heacock; Cactus Avenue 6 lanes Elsworth Street to Heacock Street; Ironwood Avenue 4 lanes Heacock to Perris
A2.34	City of Moreno Valley	Page 46 - Day Street (SR-60 to Eucalyptus) should reflect 80% complete 5 lanes exist, 6 future. Funds should be added to complete the segment
A2.35	City of Moreno Valley	Page 10 Nexus Study and TUMF Fee Calculation Handbook consideration should be given to add a special category for Amazon Fulfilment Centers

A2.36	City of Moreno Valley	In Appendix F, page F-2 Typical Roadway Cross Section, City recommends updating the 4-foot bicycle lane to a minimum of 6 feet, as this is the typical width on Arterial Roadways.
A2.37	City of Moreno Valley	In Exhibit H-1, Alessandro from 215 to Perris: correct the % complete from 74% to 60%. Alessandro from Perris to Nason: correct % complete from 19% to 15%.
A2.38	City of Moreno Valley	In Exhibit H-1, Gilman Springs from 60 to Alessandro, why does this not have full value?
A2.39	City of Moreno Valley	In Exhibit H-1, Eucalyptus from 215 to Towngate: correct the % complete from 42% to 25%.
A2.40	City of Moreno Valley	In Exhibit H-1, Heacock from Cactus to San Michelle: correct the % complete from 77% to 15%.
A2.41	City of Moreno Valley	In Exhibit H-1, Day from Ironwood to 60: correct the number of existing lanes from 4 to 3.
A2.42	City of Moreno Valley	In Exhibit H-1, Eucalyptus from Heacock to Kitching: correct the number of future lanes from 2 to 4.
A2.43	City of Moreno Valley	In Exhibit H-1, Lasselle from JFK to Oleander, change Oleander to Harley Knox.
A2.44	City of Moreno Valley	In Exhibit H-1, Pigeon Pass/CETAP corridor from Cantarini to Ironwood, change number of future lanes to 4.
A2.45	City of Moreno Valley	In Exhibit H-1, Nason from 60 to Alessandro, the City completed widening with 100% City funds and will bill WRCOG the maximum TUMF share from 2009 study (Fir to Alessandro segment).
A2.46	City of Moreno Valley	In Exhibit L-1, include Logistics in the Industrial sector.
County of Riverside District 1		
A3.1	County of Riverside - District 1	WRCOG's proposal to significantly increase the TUMF for new retail business facilities will put western Riverside County at a significant competitive disadvantage in not only seeking small and medium business creation - but will substantially harm our ability to advance permanent job creation in those sectors. Additionally this office believes that the proposed fee structure will significantly hamper our ability to comply with and/or achieve the above state regulatory directives for live - work housing balances in western Riverside County.

A3.2	County of Riverside - District 1	The preliminary TUMF study conclusion itself acknowledges the potential adverse impact of the proposed increases fee structure, as evidenced by the recommendation to delay (or spread) the substantial increases over a few years.
A3.3	County of Riverside - District 1	Furthermore, the proposed rate structure continues to appear to incentivize warehouse and mining development in Riverside County over other non-residential uses. These rates appear to only consider trip counts, and do not seem to take into account the extra burden of heavy trucks on congestion and road maintenance costs.
A3.4	County of Riverside - District 1	In closing, spreading an excessive fee increase over a few years will not make Western Riverside County any more competitive in advancing and achieving local job creation this county so desperately needs, and will instead simply serve to advance the personal and financial costs of "exporting" our county's labor force each day.
Building Industry Association (BIA)		
A4.1	BIA	Given the state of the housing market / development climate for single family homes, the BIA respectfully requests that WRCOG apply the same two-year freeze and subsequent two-year phase in for single family home development that is being applied to the retail development industry in the study.
BIA (Rutan & Tucker, LLP)		
A5.1	BIA	The Draft Study accurately recites the requirements of the Mitigation Fee Act that must be met in order to adopt or amend valid fees, but significant parts of the Draft Study fail to comply with those requirements;
A5.2	BIA	The Draft Study's proposed change so as to calculate "impacts" based on new use of a VMT methodology may be theoretically acceptable, but it raises important questions about the accuracy and fairness of the assumptions and conclusions of the VMT inputs used in the Draft Nexus Study for allocation of costs of new TUMF improvements, e.g., assumptions or data supporting the proposed reliance use of "peak hour" trips for residential sources. WRCOG should be asked to provide additional, more focused, data on these issues.
A5.3	BIA	The Draft Study fails to properly take into account the probability of new State funding for many of the improvements included in the study;
A5.4	BIA	The Draft Study does not appear to take into account – and credit -- other, non-TUMF, funding sources for the proposed facilities and improvements (e.g., existing surpluses, interest, local non-TUMF tax revenues generated by new development, etc.)
A5.5	BIA	The Draft Study, in its present draft form, does not appear to provide sufficient evidence and analysis to meet the requirements of the Mitigation Fee Act or other applicable laws.

A5.6	BIA	Threshold Issues Raised by "Transportation Impact Fees - Generally: Despite the increased reliance upon traffic impact fees by many agencies in California, such fees suffer inherent conceptual and causal weaknesses not common to other infrastructure fees. There are legitimate concerns about the "accuracy" or fairness of using “development mitigation fees” in the context of funding improvements to streets, highways, and other components of a road system that serves, and benefits, a large, open-ended, community...One obvious error in some current practice is the calculation of traffic impact fees based on loading the network with the new development's traffic and looking for congestion. This violates the basic principle of impact fee design, namely, that all users face the marginal cost.
A5.7	BIA	"Nexus” Requirements - Generally: WRCOG must show "reasonable nexus" and "rough proportionality" between impacts caused and the amount of fees charged to justify TUMF. Here, the TUMF program allows fees to be collected from development in one area of the WRCOG and to be expended on roads in areas that are far distant from the homes or employment of the fee payers. It is questionable whether the WRCOG is vested with legal authority to transfer fee proceeds beyond the jurisdictions in which they are collected or generated. Also, the imposition of development fees depends upon exercise of police power authority, which generally can be exercised only within the territorial boundaries of the city or county imposing the fee or regulation
A5.8	BIA	Temporal nexus question: in addition, the rational nexus test usually requires that there must be a temporal connection between when the fee is imposed or collected, and when the agency collecting the fee uses it to provide the public benefits or facilities for which the fee is imposed. (See, e.g. Gov. Code §§ 66001(c) and 66006.) It is not clear that the TUMF program is depositing, accounting for, and applying the fee revenues collected in a timely manner as required by the Fee Act.
A5.9	BIA	Credits for prior fee collections? If the TUMF program currently has any previously-collected fee proceeds on deposit which have not already been spent on or committed to specific TUMF improvement programs, those ‘surplus’ or uncommitted fee balances should be shown as a credit going forward.
A5.10	BIA	Interest on collected fees? Does the TUMF program disclose its interest earnings on collected, but unspent, fee revenues? Any such interest accruals should be shown as a credit going forward.
A5.11	BIA	Reasonable “fees” or disguised “taxes”? The courts have emphasized that these nexus requirements are of constitutional significance, and essential to the validity of any attempt to impose “mitigation fees” of any type. The requirement for demonstration of a reasonable nexus is also one critical distinction between a “fee” from a “tax.” Purported “fees” which exceed the reasonable costs of providing the facilities or services for which they are imposed are properly regarded as “taxes” rather than fees.
A5.12	BIA	The WRCOG bears the burden of producing evidence to justify its fees, not only as to the amount of the fees but as to their nature and as to their allocation.
A5.13	BIA	(A) Gov. Code § 66001(a)(2) -- Identification of specific facilities to be funded by TUMF? Gov. Code § 66001(a)(2) requires that the agency establishing fees must “identify the use to which the fee is to be put” and if that intended use is “financing public facilities” then the agency must identify those facilities. While the Draft Nexus Study appears to have a fairly specific list of facilities and improvements that are to be funded by the TUMF, has that list been “finalized” or adopted in a capital improvement plan by the governing board of WRCOG or the participating agencies? WRCOG and its members should demonstrate that adequate and reasonably funding commitments have been secured to cover that portion of the costs of new facilities which cannot lawfully be attributed to “new” development paying TUMF fees.
A5.14	BIA	(B) Gov. Code § 66001(b) -- Determination of reasonable costs of facilities? Gov. Code § 66001(b) requires the WRCOG to make certain determinations based on finding a reasonable relationship between the “reasonable costs” of the proposed facilities “attributable to the development on which the fee is imposed,” and the proposed new TUMF fees.

A5.15	BIA	(C) Gov. Code § 66000(g) – Existing deficiencies? California law expressly prohibits the calculation or imposition of fees on new development in order to address existing needs or deficiencies. (Gov. Code § 66000(g) [prohibiting fees from including any costs attributable to "existing deficiencies"]; Bixel Assoc. v. City of Los Angeles (1989). 216 Cal.App.3d 1208.) It is not clear from my review of the Draft Update as to whether the study sufficiently segregates existing transportation deficiencies and roads operating at below-standard levels from new and improved roadways and facilities due needed as a consequence of new development. Lanes of highway and road surface, and other transportation infrastructure, must generally be built in large bulk units not easily susceptible to nuanced allocation.
A5.16	BIA	(D) Gov. Code § 66005.1 – Special treatment for transportation impact fees imposed on housing developments meeting transit-oriented criteria? The Nexus Study does not appear to acknowledge this statute, which was added to the Mitigation Fee Act in 2008, and became effective in January 2011. Section 66005.1 specifically applies to any fee imposed "for purposes of mitigating vehicular traffic impacts" – like the TUMF. It requires that for housing developments meeting certain criteria (e.g. located within ½ mile of a transit station), the agency must set the traffic impact fees "at a rate that reflects a lower rate of trip generation" than the rate generally applicable to housing that does not meet those criteria (with some exceptions)
A5.17	BIA	Selection of appropriate road segments to be funded by Fee?
A5.18	BIA	Some of the costs may be for improvements in quality (not just capacity improvements to the existing road facilities - this creates benefits enjoyed by all existing users and should thus be allocated differently. Cf. Gov't Code §66001(g).
A5.19	BIA	Costs attributable to building less than 100% of new lanes? (See discussion under item 4(C) above.
A5.20	BIA	Excessive "contingency" percentages. The cost estimates used in the study appear to include unusually large (excessive?) "contingency" percentages over and above the remaining cost estimates. It would be reasonable to try to ascertain if the Nexus Study is adequately supported by substantial evidence as to these estimates.
A5.21	BIA	The Draft Nexus Study points out that this fee analysis, for the first time, is based on use of VMT methodologies, in contrast to previous TUMF Nexus Studies. WRCOG's cover letter acknowledges that this change in methodology appears to result in allocating a larger percentage of the estimated costs of mitigation projects to "residential" development than under previous approaches.
A5.22	BIA	WRCOG cites no legal authority specifically approving the use of that VMT methodology for the purposes of calculating or allocating transportation impact mitigation fees. While WRCOG notes that VMT analyses are increasingly used in the context of CEQA studies and for measuring project-specific (or program-specific) "impacts" on traffic in that context, that is not the same as attempting to use VMT for the purposes of allocating the costs of mitigating traffic/transportation impacts between various sub-sets of users of open-ended public roads and highways. Attempting to rely on VMT in this new Draft Nexus Study for the purpose of allocating the estimated costs of mitigation work therefore should require that WRCOG provide more comprehensive data/evidence supporting the assumptions in the Draft Nexus Study, and should more fully account for VMT from all sources of anticipated increases in traffic impacts using TUMF facilities.
A5.23	BIA	To the extent that VMT is being used, some observations may be made: Fees should be proportionate to new development's contribution to the anticipated increase in traffic impacts. "Traffic impact" here is measured as "peak-hour" vehicle-miles of travel, and is the product of peak-hour trips generated per dwelling unit (or per square feet of gross floor area for nonresidential use), the percentage of these trips that are not stopping as part of a longer trip somewhere else (i.e., non-pass-by trips), and a relative index of trip length within the area.

A5.24	BIA	Question as to whether data supports the assumptions about residential units as sources of peak hour trips;
A5.25	BIA	Question as to whether estimates here as to trips per day are properly adjusted for "peak hour" congestion.
A5.26	BIA	Question as to whether the trips attributed to/generated by residential users are properly adjusted for travel at times outside of "peak hour." Non-peak trips would have less impact -- and create less need for additional improvements and fees.
A5.27	BIA	Assuming $3,139M is accurate estimate of total costs of all proposed improvements, the Draft Nexus Study appears to impose all such costs on new private sector development.
A5.28	BIA	Are there any allocations to "orphan shares" (users who add to impacts and transportation needs but which are exempt from TUMF for policy reasons)?
A5.29	BIA	Any allocation of costs to existing users – other users who benefit from improvements in quality of transportation system?
A5.30	BIA	Any allocation of costs to exempt or public sector users or users not otherwise subject to the TUMF fees?
A5.31	BIA	Any allocation of costs to users of subject road system originating outside the TUMF program area?
A5.32	BIA	New State funding -- e.g., SB 132 provides substantial new funding for transportation improvements in Riverside County ($427 M), and at least some of those funds would be targeted at TUMF projects (e.g., Interstate 5/Limonite Interchange; Hamner Bridge widening; possibly others such as McKinley grade separation and Jurupa Avenue grade separation). Such State contributions should therefore be reflected as credits in the Draft Nexus Study and thus reducing the TUMF project costs to be funded by fees on new development.)
A5.33	BIA	Other Transportation Funding Sources (feds, regional, local taxes, etc.)
A5.34	BIA	Although we are informed that approximately $80 million of proposed projects/facilities were removed from the Draft Study in anticipation of State transportation funding being provided for those projects, it appears that the Draft Study should remove additional projects, or otherwise reflect appropriate credits, for additional State transportation funding being provided in the Governor's recent allocation of SB-1 revenues. Governor Brown's new proposal for increased gas taxes and vehicle registration fees to provide more State funding for road improvements... is this addressed in the TUMF Nexus Study?

A5.35	BIA	Credits for additional tax revenues/street improvements from new development? New development ultimately will be paying property and gasoline taxes, in addition to TUMF fees, that will be used to fund arterial roads. In addition, local jurisdictions in WRCOG will require subdividers and other developments to provide (at developer cost) internal streets and key access road improvements, in addition to roads and highways funded by TUMF.
A5.36	BIA	CEQA compliance is an additional issue that should be raised at the appropriate time before the WRCOG considers or adopts any new TUMF requirements, although CEQA is distinct from the "nexus study" requirement addressed in this memo. CEQA provides only limited exemptions for actions establishing fees and those limited exemptions only apply if the fees are not designed to increase services or expand a system. (Pub. Res. Code § 21080(b)(8); CEQA Guidelines § 15273.) That is not the case here, since the TUMF itself admits that it is largely intended to expand and improve road facilities. Therefore action on the new TUMF fees is not exempt from CEQA (cf., CEQA Guideline § 15273(b).)
BIA (Proactive Engineering Consultants West)		
A6.1	BIA	The initial review was limited to confirming that the 2016 up-date had made the Lane Mile Network changes recommended by PECW/BIA when we conducted our last review in 2015. The changes we requested in 2015 to WRCOG related to eliminating new lane improvements from the network which already existed physically on the ground. Many of the changes we requested in 2015 were not made with the 2016 up-date. PECW/BIA had several conference calls with WRCOG staff, and ultimately they agreed with over 90% of our recommendations and up-dated their study accordingly, for a total reduction amount of over $80,000,000.
A6.2	BIA	In addition to reviewing the lane mile network changes, PECW and the BIA continue to question WRCOG on the high “percentage of construction” cost numbers for consulting fees for Planning and Engineering. TUMF uses a flat 10% of construction cost for “Planning Consulting Fees” and 25% for “Engineering Consultant Fees”. Both are two times the average regional cost for public works planning and engineering consulting. When questioned about the high numbers (which currently total over $640,000,000 in the 2016 up-date) WRCOG responded that they are told by the public works directors that 10% for planning and 25% for engineering is needed. If the consulting percentages were reduced to industry standards of 5% for planning and 12% for engineering, the total cost would reduce by more than $320,000,000.
A6.3	BIA	The last issue PECW was asked to review was the cost to acquire Right of Way (ROW) for the Land Use Category 2. TUMF identifies three separate land use categories within the network. Land use 1 (for developed urban areas), Land Use 2 (developed suburban areas) and Land Use 3 (for undeveloped rural areas). The 2016 up-date increased all three categories, however Land Use 2 increased by 280%. The study calculated the cost to acquire Right of Way by a simple formula: (segment length x number of new lanes x cost per lane mile). The cost for acquiring R/W in Land Use 3 is $287,000 per lane mile. The cost for acquiring R/W in Land Use 2 is $2,263,000/lane mile. There are two major flaws with the Nexus study in their calculations for determining cost of Right of Way. 1) The study does not make any adjustments for segments where portions of, or all of the Right of Way needed for the new lane construction is already dedicated. 2) The study does not make any adjustments for segments where portions of, or all of the Land Use Categories are actually 3 (undeveloped) and not 2 (developed).
KWC Engineers		
A7.1	KWC Engineers	In our review of the Nexus Study we have seen how the WRCOG has included TUMF eligible facilities within and adjacent to our Alberhill project, particularly along the Temescal Canyon Road, Lake Street and Nichols Road corridors, along with the I-15 Freeway interchanges at Lake Street and Nichols. In addition, WRCOG has added other additional significant TUMF eligible improvements within Lake Elsinore which bodes well with the emerging development within the City. We understand that City’s management and WRCOG have spent significant time selecting projects within the City. Based on the proposed TUMF Study, we have estimated that Castle & Cooke’s projects will generate over $100,000,000 in TUMF revenue to WRCOG. The amount of TUMF eligible improvements is significantly improved over the 2009 Nexus Study. We are in support of those TUMF eligible facilities that are currently proposed in the Draft TUMF 2017 Nexus Study.

A7.2	KWC Engineers	Our other comment of the study is relative to the proposed fee increase, particularly for single and multi-family housing, and commercial development. As always we are concerned when fee increases are required of developers, and in this case the significant increase of $3.00/SF for the commercial fee will be challenging for those of us developing commercial property. Our suggestion to WRCOG is to consider a phased fee increase over time for all your fee increases. On behalf of Castle & Cooke, we support the TUMF Nexus Study and we ask for your consideration of our suggestion for the phased fee increase over time.
NAIOP (Commercial Real Estate Development Association)		
A8.1	NAIOP	As an industry group, we appreciate the effort WRCOG took to involve NAIOP as a stakeholder in your study and decision making process. We understand the need to raise fees from time to time and continue to remember and appreciate WRCOG's willingness to lower fees in difficult economic times. We hope the stakeholder process WRCOG undertook becomes a model for future decision making in the County and we support the newly proposed TUMF fee.
Pacific Retail Partners		
A9.1	Pacific Retail Partners	The methodology does not reflect reality. A Shopping Center is a "follower" of the residential market. Homes are built first (and therefore create the first trip to the new area), then a new Shopping Center becomes viable. Many of the trips to Shopping Centers are simply serving the passer by trips already created by the residential properties.
A9.2	Pacific Retail Partners	We use the term "Shopping Center" intentionally. A Shopping Center is a mix of "Retail" and "Service". There is a mix of these uses in a Shopping Center. Uses like a drycleaner, hair salon, food establishments, banks, credit unions and dentists all fall under Service. We have been paying a TUMF fee on our Shopping Centers based upon the "Retail" fee structure, while more than 50% of shop space today is not Retail, but rather Service. The county may have been over collecting against Shopping Centers since the inception of TUMF.
A9.3	Pacific Retail Partners	The Shopping Center world is changing rapidly. The internet has become a strong competitor and Shopping Centers will need to reinvent themselves. Paying the largest fee per square foot currently and now being asked to pay the largest increase will severely hurt the industry. Also, we would like to confirm that the new study contemplates all the new '·delivery truck" trips from fulfillment centers. These "Delivery Trips" should reduce retail trips.
A9.4	Pacific Retail Partners	We think cities and counties still want retail for the tax dollars. Punishing retail with the largest fee and increase seems counterproductive to this goal. Fees (all fees) for a Shopping Center currently being developed in Riverside County cities is fast approaching$40/sf. In addition to fees, Shopping Center developers are asked to pay mitigation "fair share" costs for road improvements not covered by a transportation fee or program. These costs are just fees under a different name.
Corona Chamber of Commerce		
A10.1	Corona Chamber of Commerce	On behalf of the hundreds of employers we work with daily, thank you to WRCOG for your work to update the Transportation Uniform Mitigation Fee (TUMF) program through the completion of the required nexus study. TUMF is a key part of Riverside County's multi-jurisdictional public-private policy strategy to build great infrastructure and great communities and this nexus study helps keep the program on track for the challenges ahead for developers and communities.

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **Transportation Uniform Mitigation Fee (TUMF) Calculation Handbook Update**

Contact: **Daniel Ramirez-Cornejo, Staff Analyst, cornejo@wrcog.cog.ca.us, (951) 955-8307**

Date: **May 11, 2017**

The purpose of this item is to *provide an update to the Committee members on the TUMF Calculation Handbook to include a component for Active Senior Living developments.*

Requested Action:

1. Discuss and provide input.

WRCOG's Transportation Uniform Mitigation Fee (TUMF) Program is a regional fee program designed to provide transportation and transit infrastructure that mitigates the impact of new growth in Western Riverside County. Each of WRCOG's member jurisdictions and the March JPA participates in the Program through an adopted ordinance, collects fees from new development, and remits the fees to WRCOG. WRCOG, as administrator of the TUMF Program, allocates TUMF to the Riverside County Transportation Commission (RCTC), groupings of jurisdictions – referred to as TUMF Zones – based on the amounts of fees collected in these groups, and the Riverside Transit Agency (RTA).

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.

Background

During the development of the TUMF Program, it was realized that certain land uses require special attention regarding the assessment / calculation of TUMF because of unique, site-specific characteristics. To address these special uses / circumstances, WRCOG developed a Fee Calculation Handbook to detail the methodology for calculating TUMF obligations for different categories of new development and, where necessary, to clarify the definition and calculation methodology for such uses. The fee calculations provide step-by-step work sheets on how fees are calculated for unique uses such as auto dealerships, fueling stations and high cube warehouses. The last update to the Fee Calculation Handbook occurred in October 2015, which included a revision to the government / public exemption language.

Currently, the TUMF Calculation Handbook does not have a designated component for Active Senior Living developments. WRCOG staff has discussed this with the Public Works Committee members and has received several requests from stakeholders regarding the potential for this type of land use to be included in the TUMF Calculation Handbook. Staff, in consultation with TUMF consultant, has prepared a draft component for inclusion in the TUMF Calculation Handbook, which acknowledges the reduced trip generation from this type of development than the standard residential land use category. The approach developed is as follows:

Senior adult housing (also commonly referred to as "active senior living") is generally defined in the Trip Generation 9th Edition (Institute of Traffic Engineers, 2012) as detached and/or detached housing units in independent living developments, including retirement communities, age-restricted housing and active adult communities, that may include amenities such as golf courses, swimming pools, 24-hour security, transportation, and common recreational facilities, but generally lack centralized dining and on-site health facilities. Residents in active senior living communities live independently and are typically active (requiring little to no medical supervision), which differs from congregate care facilities (including senior assisted living facilities) and nursing homes that are specific types of group quarters (as described in **Section 5.3**) whose primary function is to provide care for elderly persons or other persons who are unable to adequately care for themselves.

Both detached and attached senior adult housing are typically built in higher density sole purpose developments with age restrictions or limitations on residents. As such, active senior living housing units typically demonstrate trip generation rates significantly below those of standard single-family and multi-family residential unit developments. Furthermore, according to Trip Generation 9th Edition, the trip generation rates for detached and attached dwelling units in active senior housing units are very similar, and more closely reflect the trip generation rates of multi-family dwelling units.

For the purpose of determining the TUMF obligation, all dwelling units in eligible active senior living developments (both detached and attached), regardless of density, will be considered multi-family dwelling units. The methodology outlined in **Worksheet A.1.3** and described as follows will be applied to determine the equivalent number of multi-family dwelling units for all types of active senior living dwelling units.

1. Complete the active senior living qualification checklist and provide the required supporting documentation pursuant to Cal. Civ. Code § 51.11 and Cal. Bus. & Prof. Code § 11010.05 [2016].
2. Multiply the total number of eligible active senior living dwelling units (both detached and attached) by 0.53 to determine the equivalent number of multi-family dwelling units (*i.e. for the example facility it is 413 x 0.53 = 218.9 equivalent multi-family dwelling units*)
3. Use the resultant value as the number of multi-family dwelling units to calculate the TUMF obligation using **Worksheet A.1.1** for standard residential fee calculations.

Worksheet A.1.3 Active Senior Living TUMF Calculation Worksheet

1. Active Senior Living Characteristics Checklist

☐ **Minimum number of 20 dwelling units in community**
Submit Site Plan indicating the total number of associated dwelling units spaces

☐ **Local zoning and/or governing documents**
Submit local zoning and/or governing documents characterizing development as senior citizen housing (active senior living) pursuant to Cal. Civ. Code § 51.11

☐ **Occupancy restriction statement**
Submit Public Report with statement of occupancy restrictions pursuant to Cal. Bus. & Prof. Code § 11010.05 [2016]

2. Active Senior Living TUMF Calculation

	X 0.53	**=**	
Enter Total Number of Active Senior Living Dwelling Units (both detached and attached)			

Prior Action:

None.

Fiscal Impact:

Transportation Department activities are included in the Agency's adopted Fiscal Year 2016/2017 Budget under the Transportation Department.

Attachment:

1. Active Senior Living Summary.

Page Intentionally Left Blank

1.1. Active Senior Living

1.1.1. Summary

Senior adult housing (also commonly referred to as "active senior living") is generally defined in the Trip Generation 9th Edition (Institute of Traffic Engineers, 2012) as detached and/or detached housing units in independent living developments, including retirement communities, age-restricted housing and active adult communities, that may include amenities such as golf courses, swimming pools, 24-hour security, transportation, and common recreational facilities, but generally lack centralized dining and on-site health facilities. Residents in active senior living communities live independently and are typically active (requiring little to no medical supervision), which differs from congregate care facilities (including senior assisted living facilities) and nursing homes that are specific types of group quarters (as described in **Section 5.3**) whose primary function is to provide care for elderly persons or other persons who are unable to adequately care for themselves.

Both detached and attached senior adult housing are typically built in higher density sole purpose developments with age restrictions or limitations on residents. As such, active senior living housing units typically demonstrate trip generation rates significantly below those of standard single-family and multi-family residential unit developments. Furthermore, according to Trip Generation 9th Edition, the trip generation rates for detached and attached dwelling units in active senior housing units are very similar, and more closely reflect the trip generation rates of multi-family dwelling units. For this reason, all dwelling units in eligible active senior living developments (both detached and attached) regardless of density are considered multi-family dwelling units for the purpose of calculating the applicable TUMF obligation.

For the purpose of determining the TUMF obligation, all dwelling units in eligible active senior living developments (both detached and attached) regardless of density will be considered multi-family dwelling units. The methodology outlined in **Worksheet A.1.3** and described as follows will be applied to determine the equivalent number of multi-family dwelling units for all types of active senior living dwelling units.

1. Complete the active senior living qualification checklist and provide the required supporting documentation pursuant to Cal. Civ. Code § 51.11 and Cal. Bus. & Prof. Code § 11010.05 [2016].
2. Multiply the total number of eligible active senior living dwelling units (both detached and attached) by 0.53 to determine the equivalent number of multi-family dwelling units
   (*i.e. for the example facility it is 413 x 0.53 = 218.9 equivalent multi-family dwelling units*)
3. Use the resultant value as the number of multi-family dwelling units to calculate the TUMF obligation using **Worksheet A.1.1** for standard residential fee calculations.

1.1.2. Detailed Narrative

Trip Generation 9th Edition (Institute of Traffic Engineers, 2012) includes two separate definitions for senior adult housing (commonly referred to as "active senior living"). Detached senior adult housing is defined as "detached independent living developments, including retirement communities, age-restricted housing and active adult communities. These developments may include amenities such as golf courses, swimming pools 24-hour security, transportation, and common recreational facilities. However, they generally lack centralized dining and on-site health facilities. Detached senior communities may or may not be gated." Attached senior adult housing is similar to detached senior housing, "except they contain apartment-like residential units. Attached senior adult housing may include limited social and recreational services, but typically lacks centralized dining or medical facilities." In both types of active senior living dwelling units, residents "live independently and are typically active (requiring little to no medical supervision)", which differs from congregate care facilities (including senior assisted living facilities) and nursing homes that are specific types of group quarters (as described in **Section 5.3**) whose primary function is to provide care for elderly persons or other persons who are unable to adequately care for themselves.

Both detached and attached senior adult housing are typically built in higher density sole purpose developments with age restrictions or limitations on residents. As shown in **Table 4.3**, active senior living housing units typically demonstrate trip generation rates significantly below those of standard single-family and multi-family residential unit developments. Furthermore, according to Trip Generation 9th Edition, the trip generation rates for detached and attached dwelling units in active senior housing units are very similar, and more closely reflect the trip generation rates of multi-family dwelling units. For this reason, all dwelling units in eligible active senior living developments (both detached and attached) regardless of density are considered multi-family dwelling units for the purpose of calculating the applicable TUMF obligation.

Section 51.11 of the California Civil Code (Cal. Civ. Code § 51.11) defines a senior citizen housing development specifically in Riverside County as "a residential development developed with more than 20 units as a senior community by its developer and zoned as a senior community by a local governmental entity, or characterized as a senior community in its governing documents." Additionally, Section 11010.05 of the 2016 California Business and Professions Code (Cal. Bus. & Prof. Code § 11010.05 [2016]) elaborates that any "person who proposes to create a senior citizen housing development, as defined in Section 51.3 or 51.11 of the Civil Code, shall include in the application for a public report a complete statement of the restrictions on occupancy that are to be applicable in the development. Any public report issued for a senior housing development shall also include a complete statement of the restrictions on occupancy to be applicable in the development." To demonstrate a development qualifies as active senior living for the purposes of determining the TUMF obligation, applicants will be required to provide copies of local government zoning and/or governing documents, and the public report statement developed pursuant to Cal. Civ. Code § 51.11 and Cal. Bus. & Prof. Code § 11010.05 [2016], respectively.

In accordance with Section 6.1 and Appendix B of the Transportation Uniform Mitigation Fee Nexus Study 2009 Update Final Report (Western Riverside Council of Governments, As Amended September 12, 2011), and as discussed previously, both detached and attached senior adult housing, regardless of density, will be considered to be multi-family dwelling units for the purpose of calculating the applicable TUMF obligation. The TUMF obligation for multi-family (and all residential) land uses is based on the total number of dwelling units associated with the specific development and is calculated using **Worksheet A.1.1** for standard residential fee calculations. However, in the case of active senior living communities, vehicle trips generated to and from the site are typically lower than standard residential uses due to the age of the residents (who are typically retired from full time employment) and the provision of various ancillary recreational and entertainment amenities within the community. For this reason, it is necessary to determine the multi-family dwelling unit equivalency for the purpose of calculating the TUMF obligation.

A review of Trip Generation 9th Edition indicates the weekday average daily vehicle trip generation rate for detached senior adult housing is 3.68 trips per dwelling unit, while the rate for attached senior adult housing is 3.44 trips per dwelling unit (an average of 3.56 daily trips per dwelling unit). By comparison, standard multi-family uses have a weekday daily trip generation rate of 6.72 trips per dwelling unit. **Table 4.3** summarizes the various characteristics of senior active living, including trip generation rates, and establishes the equivalent multi-family dwelling units for the purpose of calculating the TUMF obligation for all senior active living dwelling units.

Table 4.3 – Characteristics of Senior Adult Housing in Active Senior Living Developments

Land Use Type (ITE Code)	*Average Number of Dwelling Units*	*Average Daily Vehicle Trips per Dwelling Unit*	*TUMF Weighted Equivalent Multi-family Dwelling Unit**
Senior Adult Housing - Detached (251)	780	3.68	
Senior Adult Housing - Attached (252)	46	3.44	***0.53***
Median All TUMF Multi-Family Use Types		6.72	

Source: Trip Generation 9th Edition, Institute of Traffic Engineers, 2012

Note: * - TUMF weighted equivalent multi-family dwelling units based on relative trip generation per dwelling unit for adult senior living and all TUMF multi-family use types.

The multi-family dwelling unit equivalency for active senior living dwelling units is based on the comparison of average daily trip generation characteristics for detached and attached senior adult housing as defined in the Trip Generation Manual in terms of trips per dwelling unit, and the median trip generation rate for all TUMF multi-family dwelling unit types. Based on this information, each active senior housing dwelling unit represents the equivalent of 0.53 multi-family dwelling units in terms of the relative trip generation rate.

For the purpose of calculating the TUMF obligation for *all types of qualifying active senior living dwelling units*, the total number of qualifying dwelling units in the development will be multiplied by *0.53* to determine the equivalent number of multi-family dwelling units. The *equivalent multi-family dwelling units will be used for the purpose of calculating the TUMF* at the rate prescribed by the respective local jurisdictions TUMF Ordinance and supported by the TUMF Nexus Study.

Application of this methodology will account for variations in the trip generation rates of senior active living dwelling units and standard multi-family dwelling units. For example, an average active senior living community with 413 detached and/or attached dwelling units would have the equivalent of 218.9 multi-family dwelling units (413 x 0.53).

Community facilities, including, but not limited to, recreation rooms, swimming pools, laundry facilities, security gatehouses, storage rooms, garages and maintenance buildings, that are provided for the sole and exclusive use of community residents (and their permitted guests) are considered to be ancillary to the primary multi-family residential land use of active senior living developments, and through their availability contribute to the lower trip generation rates observed. The development or expansion of these types of ancillary community facilities would not require separate payment of TUMF fees. However, the development of non-residential retail, service or industrial facilities (including, but not limited to, convenience markets, club houses, management offices and sales offices) that are developed conjunction with an active senior living community but are not limited to the sole and exclusive use of community residents (and their guests) and are available for use by or accessible to the general public would be considered as separate land uses and would require payment of the TUMF fee in accordance with Section 6.2 of the Nexus Study and the provisions of the respective local TUMF Ordinance.

A.1 Fee Calculation Worksheets for Residential Use Types

Worksheet A.1.3 Active Senior Living TUMF Calculation Worksheet

1. Active Senior Living Characteristics Checklist

☐ **Minimum number of 20 dwelling units in community**
Submit Site Plan indicating the total number of associated dwelling units

☐ **Local zoning and/or governing documents**
Submit local zoning and/or governing documents characterizing development as senior citizen housing (active senior living) pursuant to Cal. Civ. Code § 51.11

☐ **Occupancy restriction statement**
Submit Public Report with statement of occupancy restrictions pursuant to Cal. Bus. & Prof. Code § 11010.05 [2016]

2. Active Senior Living TUMF Calculation

	X	0.53	=	
Enter Total Number of Active Senior Living Dwelling Units (both detached and attached)				**Enter this value as (part of) the Total Number of Multi-Family Dwelling Units in Worksheet A.1.1**

Page Intentionally Left Blank

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **Transportation Uniform Mitigation Fee (TUMF) Soft Cost and Right-of-Way Allocations**

Contact: **Christopher Gray, Director of Transportation, gray@wrcog.cog.ca.us, (951) 955-8304**

Date: **May 11, 2017**

The purpose of this item is to *provide Committee members with a review of the TUMF Program allocations for soft costs and right-of-way acquisition.*

Requested Action:

1. Receive and file.

The TUMF Program uses a series of average costs to determine the costs of specific improvements to the TUMF Network, such as interchanges and bridges. The WRCOG Executive Committee has adopted the Engineering News Record (ENR) Construction Cost Index (CCI) and the National Association of Realtors (NAR) Median Sales Price of Existing Single Family Homes in the Riverside / San Bernardino Metropolitan Statistical Area indices as the benchmark to set the cost assumptions for the TUMF Program. In addition to the unit cost assumptions for various projects, the TUMF Program contains allocations of constructions costs for soft costs and right-of-way acquisition.

TUMF Program allocations

Since Program inception, TUMF has set aside percentages of construction costs for soft cost, right-of-way, and contingency expenditures. During the development of the Program, WRCOG and stakeholders determined that the Program would allocate 10% of construction costs for planning expenditures and 25% of construction costs for engineering expenditures. For contingency, the Program allocates 10% of construction and right-of-way costs.

As a result of the release of the draft TUMF Nexus Study, WRCOG received comments from the Building Industry Association (BIA) regarding specific elements of the fee calculations including right-of-way costs and the calculation of soft costs that they considered to be excessive. Staff provided additional documentation to the BIA in response to previous questions including a database of the actual property records used to substantiate the right-of-way calculations. Additionally, WRCOG staff and TUMF consultant have met with the BIA to discuss other issues related to right-of-way, specifically how the program includes a global 75% reduction factor to account for instances in which existing right-of-way may already be available. Therefore, the Nexus Study only allocates 25% of anticipated right-of-way costs to new development. Below is the TUMF Program's approach to the right-of-way allocation:

- Nexus Study, from the inception of the Program, acknowledges that jurisdictions do not have to buy 100% of the right-of-way needed to develop a project;
- All roadway right-of-way costs are reduced by 75% to account for this instance;
- Some projects will require no additional right-of-way, some projects will require significant additional right-of-way;

- Global 75% discount accounts for these varied circumstances.

This approach to the right-of-way allocation is included in the draft TUMF Nexus Study as shown in Exhibit F-4 (Attachment 1).

Staff conducted a review of a few projects in which the right-of-way allocation in the TUMF Program was less than the actual cost of the right-of-way incurred to complete the project. In these instances, the jurisdictions needed to secure other funding sources to cover the additional cost for right-of-way above the amount allocated in the Program.

Staff also conducted a similar review of the soft cost allocations for the Program and has received feedback from member jurisdictions demonstrating that the TUMF Program allocations are often understated from actual costs to complete the planning and design projects.

Member jurisdictions have provided staff with a number of projects in which the allocations in the Program are often less than actual costs and staff is requesting that Committee members discuss ongoing projects and future projects in which the same will occur.

Prior Actions:

April 20, 2017: The Technical Advisory Committee received report.
April 13, 2017: The Public Works Committee received report.
April 12, 2017: The Administration & Finance Committee received report.

Fiscal Impact:

TUMF activities are included in the Agency's adopted Fiscal Year 2016/2017 Budget under the Transportation Department.

Attachment:

1. Draft TUMF Nexus Study - Exhibit F-4.

Item 5.D

Transportation Uniform Mitigation Fee (TUMF) Soft Cost and Right-of-Way Allocations

Attachment 1

Draft TUMF Nexus Study – Exhibit F-4

Page Intentionally Left Blank

EXHIBIT F-4 (Continued)
WRCOG Transportation Uniform Mitigation Fee
Cost Assumption Estimate - 2016 Nexus Update

Landuse 1 - ROW Urban areas

	Unit	Unit Cost	Quantity / lane mile	Cost / lane mile
III. RIGHT OF WAY ITEMS				
Urban				
Travel Way	square foot	$105.58	95,040.00	$10,034,348
Project Cost / Lane mile			25%	**$2,508,587**

Landuse 2 - ROW Suburban Areas

	Unit	Unit Cost	Quantity / lane mile	Cost / lane mile
III. RIGHT OF WAY ITEMS				
Suburban				
Travel Way	square foot	$95.25	95,040.00	$9,052,603
Project Cost / Lane mile			25%	**$2,263,151**

Landuse 3 - ROW Rural areas

I. Roadway Items	Unit	Unit Cost	Quantity / lane mile	Cost / lane mile
III. RIGHT OF WAY ITEMS				
Rural				
Travel Way	square foot	$3.03	95,040.00	$287,496
Project Cost / Lane mile				**$287,496**

Page Intentionally Left Blank

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **Work Plan for Grant Writing Assistance Program for Local Jurisdictions**

Contact: **Christopher Tzeng, Program Manager, tzeng@wrcog.cog.ca.us, (951) 955-8379**

Date: **May 11, 2017**

The purpose of this item is to *approve the Work Plan on the proposed Grant Writing Assistance Program WRCOG would like to commence, in order to provide direct assistance to its member jurisdictions.*

Requested Action:

1. Approve the Work Plan for the Grant Writing Assistance Program.

WRCOG would like to commence the proposed Grant Writing Assistance Program since WRCOG has received requests to assist its member jurisdictions in grant writing. WRCOG has set aside funds to assist and is proposing to create a Grant Writing Assistance Program to assist member jurisdictions on an as-needed basis as funding is available. WRCOG convened a Focus Group for two meetings to discuss the parameters and guidelines for the program and drafted a Work Plan based off input from the Focus Group members and Committee members. The Work Plan was provided at the March Public Works Committee meeting for review and comment and is brought forth at the May meeting for approval.

WRCOG Grant Writing Assistance Program Work Plan

Background: WRCOG has received requests to assist member jurisdictions in preparing proposals for grant opportunities, especially the Caltrans Active Transportation Plan. WRCOG has identified short-term funds to commence a grant writing assistance program for its member jurisdictions. In order to create a program that best assists WRCOG's member jurisdictions, WRCOG staff convened a Focus Group of member jurisdiction staff to provide feedback on program specifics, which are summarized in this document. WRCOG is proposing this Work Plan for the Grant Writing Assistance Program funds to be reviewed by the WRCOG committee structure and approved by the Executive Committee.

WRCOG envisions that once the funds have been approved, WRCOG staff will proceed with a Request for Proposals (RFP) from consultants to serve on a "bench" to provide grant writing assistance to WRCOG member jurisdictions. The bench of consultants will then be made available to member jurisdictions on a first-come, first-served basis. The consultants will assist jurisdictions with the grant application process only.

Expectation of member agency accepting assistance: In order for the Program to run effectively and utilize funds efficiently, the member agency accepting grant writing assistance must agree to the following:

- Define project parameters and provide consultant a basic project description
- Dedicate sufficient resources:
  - Attain all the necessary material on the information checklist provided by the consultant
  - Attend kick-off meeting to ensure consultant has needed information to prepare grant application
  - Respond to inquiries from the consultant in a timely manner

- Be the responsible party for grant submittal, including signatory on application and actual submittal of the application

It is expected that once the member agency is awarded the assistance on a grant application, and the consultant is selected to assist, all parties will conduct a kick-off meeting to discuss the proposal and attain necessary information to begin work on the grant application. The consultant will prepare the grant application, and all necessary exhibits, tables, etc., for review by the member agency staff. The member agency will then provide comments to be addressed by the consultant, and the consultant will then revise the application based on comments provided. Finally, the consultant will provide the member agency staff with a final draft for review and submittal.

If the member agency is willing, after the results of the grant opportunities are provided, the consultant and the member agency may request a debrief from the grantor agency for a lessons learned opportunity. WRCOG will encourage the member agency to participate in this opportunity so that the grant writing assistance Program can display an efficient and successful process in the long run.

Focus Group: WRCOG convened a Focus Group to examine the Program details and logistics, since no such program has been undertaken before, and to gather input and feedback from the member jurisdictions that would be utilizing the Program. WRCOG requested two members from the Public Works Committee, Dan York (City of Wildomar) and Nelson Nelson (City of Corona), and two members from the Planning Directors' Committee, Richard Sandzimier (City of Moreno Valley) and Steven Weiss (formerly of County of Riverside). WRCOG also included staff from Riverside County Transportation Commission (RCTC), which has indicated that it is also looking into implementing a similar program for grant opportunities that deal with capital projects; including RCTC in the Focus Group ensures there are no duplicative efforts. The Focus Group met twice – in November 2016 and February 2017 – to first establish details and logistics, and then to provide feedback for the Work Plan.

Grant Writing Assistance Program criteria: A few central items are listed below for the Program:

- The Program is meant for direct assistance to WRCOG member agencies.
- WRCOG will hire the consultants to provide assistance on behalf of member agencies. No procurement or contracts are needed from the applicant.

After careful deliberation, the Focus Group identified specific criteria for projects to qualify for assistance through the Program. First, grant proposals receiving assistance must show a nexus to the core components of WRCOG's Sustainability Framework. The Sustainability Framework is a foundational document for planning in Western Riverside County as it consists of six core components adopted by the Executive Committee, a body made up of elected officials from every WRCOG member agency. In addition, grant proposals must also show a nexus to a regionally significant plan, such as WRCOG's Subregional Climate Action Plan (CAP), the Western Riverside County Active Transportation Plan, and/or the RCTC Long-Range Plan. Lastly, a grant proposal is preferred to be multi-jurisdictional, but is not mandatory – this is to align with many grant opportunities that favor larger, regional projects. These criteria are proposed for the initial phase of the Program to ensure WRCOG and its member agencies show positive returns from funding for the Grant Writing Assistance Program.

Eligible grants: For this pilot round of the Program, WRCOG is proposing to focus on a few main grant opportunities. Proposed grants are as follows:

- Active Transportation Program
- Caltrans Sustainable Transportation Planning Grant Program
- Affordable Housing and Sustainable Communities (AHSC) Program
- Clean Cities related grants
- New planning grant opportunities

To maintain flexibility with the Program, new planning grant opportunities are included so that other planning grant opportunities may be considered. It was discussed at length that planning grants are not as plentiful as

infrastructure / transportation (implementation / capital improvement) grants. Therefore, this category will provide assistance if any grant opportunities that focus on planning grants become available – such as ones that help fund General Plans, Specific Plans, or Community Plans. Based on previous experiences, WRCOG believes planning grant applications are not as resource intensive as infrastructure applications, thus allowing the Program funds to be utilized efficiently. The Program is not intended to assist on infrastructure grant opportunities, i.e., TIGER, HSIP, FASTLANE, etc.

Clean Cities grants would be for Clean Cities Coalition members only and focus on any grant opportunities related to Clean Cities activities, such as electric vehicle charging stations and City / County Fleet purchasing. Funds for assistance with these grants will be allocated from Clean Cities Coalition Program funds. WRCOG administers the Coalition on behalf of the jurisdictions and agencies that pay member dues, and would like to increase the Coalition's effectiveness by assisting Coalition member agencies attain grant funding.

Project applicant screening: In order to ensure funds for the Program are utilized effectively and efficiently, a screening application has been created to assess projects. This screening process is meant to ensure Program criteria, as outlined above, is met. It also will evaluate if the project proposed is the preferred multi-jurisdictional and "innovative" project.

Tentatively, there will be a soft limit on the assistance each jurisdiction receives – no jurisdiction will receive assistance on more than two grants. This is a soft limit as it will be based on the number of applications received.

After it is determined that a proposed project meets the criteria, WRCOG staff will follow-up with the applicant and assign an appropriate consultant to begin assisting on the grant application.

Grant opportunities repository: Members of the Focus Group brought up the possibility of looking into a repository of information on grants. It was determined that there are grant opportunities that follow a similar timeframe from cycle to cycle; opportunities are released around the same time period each cycle. This repository would serve as a reminder to member jurisdictions of upcoming grant opportunities and deadlines. The repository would be updated twice a year and would extend its focus to include planning grant opportunities. Updates would be provided to the Planning Directors' and Public Works Committees on a quarterly basis. The consultant(s) hired to perform grant writing assistance will also be asked to contribute to regular updates of the repository. In addition, WRCOG will look into what other COGs and County Transportation Commissions have in place to achieve this function.

Grant writing consultant requirements: As noted above, grant writing assistance to WRCOG member agencies will be provided by consultants.

Based on the discussion with Focus Group members, the grant writing consultant will need to display a familiarity with the WRCOG subregion so that they understand which grants apply best to the member jurisdictions and how the subregion / member jurisdictions can be most competitive. They should also have direct knowledge of planning grants that can be utilized for work on General Plans, Specific Plans, Community Plans, etc. Lastly, in order to ensure WRCOG member jurisdictions receive the most adequate assistance, the RFP will indicate specific categories for consultants to choose from.

The consultants will also be asked to create a checklist of information and needs from the member jurisdiction so the process of assisting can be more streamlined and efficient.

Steps to attain grant writing assistance: WRCOG released a RFP for On-Call Planning Services, which includes a Scope of Work for grant writing assistance. Proposals are due on May 8, 2017. WRCOG staff, along with staff from partner agencies, will review the proposals. After the review of proposals, consultants will be selected for the grant writing assistance "bench."

1. At the appropriate time, depending on available grant opportunities, the application to request for grant writing assistance will be released to WRCOG member agencies.
2. WRCOG member agency submits request for grant writing assistance.

3. WRCOG staff will review the applications within seven calendar days.
4. If the applicant meets the criteria set in this Work Plan, WRCOG will work with the applicant to select a proper consultant.
5. Kick-off meeting will be held with agency and consultant.

The criteria set in this Work Plan and included on the application serve as basic standards for proposals to be evaluated. The selection of proposals for grant writing assistance will be at the discretion of WRCOG based on available funding, and WRCOG reserves the right to decide the proposals that receive grant writing assistance.

Prior Action:

March 9, 2017: The Public Works Committee received report.

Fiscal Impact:

This item is included in the Agency's adopted Fiscal Year 2016/2017 Budget under the Transportation Department.

Attachment:

None.

Western Riverside Council of Governments
Public Works Committee

Staff Report

Subject: **Request for Proposal Review Committee Members for On-Call Planning Services**

Contact: **Christopher Tzeng, Program Manager, tzeng@wrcog.cog.ca.us, (951) 955-8379**

Date: **May 11, 2017**

The purpose of this item is to *request members of the PWC to serve on a Proposal Review Committee (PRC) to review proposals in response to WRCOG's On-Call Planning Services RFP. WRCOG will be asking WRCOG members and partner agencies.*

Requested Action:

1. Identify volunteers to assist WRCOG with the review of proposals and assist with interviews for On-Call Transportation Planning, Grant Writing, and Clean Cities Activities.

WRCOG released a Request for Proposal (RFP) for On-Call Planning Services in March 2017. Proposals are due on May 8, 2017. WRCOG identified eight disciplines to provide direct assistance to its member agencies. WRCOG staff would like to request member agencies' involvement in the proposal review process.

Review of the proposals will occur in May, with interviews occurring in June. The following is a timeline of events for reviewers:

i. Review proposals – May 15 - 31, 2017
ii. Conference call to discuss evaluations and determine interviews – May 31, 2017
iii. Interview with consultants – weeks of June 5 and 12, 2017

Background

WRCOG has historically hired consultants through specific RFP's. Over the past few years, the need to expand the breadth of consultants has become evident from a number of requests from WRCOG member agencies requesting assistance in a variety of disciplines as they move forward with their jurisdiction's sustainable planning efforts. WRCOG also wanted to create efficiencies whereby we can allocate work without an RFP process.

Based on these requests and follow-up discussions with partner agencies, WRCOG released an On-Call Planning RFP in late March 2017. The RFP is contained eight separate disciplines/section including:

1. On-Call Transportation Planning – tasks may include:
   a. RIVTAM operation – produce forecasts, plots, SED contained in RIVTAM
   b. TUMF programmatic maintenance – Program visioning exercise
   c. Active Transportation Program Development and Implementation – make recommendations on Program development, longevity and integration with TUMF

2. Clean Cities Activities – tasks may include:
   a. Conduct meetings

b. Participate in trainings
c. Conduct research furthering advanced clean transportation in subregion

3. Climate Change / Sustainability – tasks may include:
   a. WRCOG Subregion Climate Action Plan update
      i. Monitor Plan implementation
      ii. Perform PEIR

4. General Plan / Sustainability Support – tasks may include:
   a. Work with member agencies to update one or more elements of General Plan with respect to Sustainability Planning
   b. Prepare feasibility study for a regional Sustainability Center

5. Healthy Communities – tasks may include:
   a. Produce health indicator data for WRCOG utilization
   b. Develop one or more multi-jurisdictional healthy community initiatives
   c. Facilitate Healthy Community Initiative(s)

6. Grant Writing Assistance
   a. Provide technical grant writing assistance to WRCOG member agencies for the specific grants listed below:
      i. Active Transportation Plan
      ii. Caltrans Sustainable Transportation Planning Grant Program
      iii. Affordable Housing and Sustainable Communities (AHSC) Program
   b. Provide a grant repository of planning grants for WRCOG member agencies

7. Demographic and economic forecasting – tasks may include:
   a. Produce economic and demographic forecasting and research economic and demographic trends for WRCOG utilization
   b. Develop subregional branding platform to attract specific industries to the subregion
   c. Develop subregional economic development strategy

8. WRCOG General Support – tasks may include:
   a. Assist WRCOG with management of projects

The evaluation process will emphasize the key staff firms are proposing for the various efforts and the firms qualifications and experience with similar projects and clients. WRCOG is encouraging firms with offices located within Riverside County to apply even though WRCOG lacks a formal local preference policy.

After the RFP evaluation process, WRCOG will determine those firms / teams that will work on each specific section / discipline. Member agency assistance is requested to review proposals and participate in interviews.

Prior Action:

February 9, 2017: The Public Works Committee received report.

Fiscal Impact:

This item is included in the Agency's adopted Fiscal Year 2016/2017 Budget under the Transportation Department.

Attachment:

None.