



Western Riverside Council of Governments Public Works Committee

AGENDA

**Thursday, April 11, 2024
2:00 PM**

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

Remote Meeting Locations:

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

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

**City of Calimesa
908 Park Avenue
Calimesa, CA 92320**

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

[Public Zoom Link](#)

**Meeting ID: 898 5444 6476
Passcode: 391456**

Dial in: 669 444 9171 U.S.

In compliance with the Americans with Disabilities Act and Government Code Section 54954.2, if special assistance is needed to participate in the Public Works Committee meeting, please contact WRCOG at (951) 405-6706. Notification of at least 48 hours prior to meeting time will assist staff in assuring that reasonable arrangements can be made to provide accessibility at the meeting. In compliance with Government Code Section 54957.5, agenda materials distributed within 72 hours prior to the meeting which are public records relating to an open session agenda item will be available for inspection by members of the public prior to the meeting at 3390 University Avenue, Suite 200, Riverside, CA, 92501.

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

Any member of the public requiring a reasonable accommodation to participate in this meeting in light of this announcement shall contact Lucy Felix 72 hours prior to the meeting at (951) 405-6706 or lfelix@wrcog.us. Later requests will be accommodated to the extent feasible.

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

1. CALL TO ORDER (Paul Toor, Chair)

2. PLEDGE OF ALLEGIANCE

3. ROLL CALL

4. PUBLIC COMMENTS

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

5. CONSENT CALENDAR

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

A. Action Minutes from the February 8, 2024, Public Works Committee Meeting

Requested Action(s):

1. Approve the Action Minutes from the February 8, 2024, Public Works Committee meeting.

6. REPORTS / DISCUSSION

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

A. I-REN Energy Fellowship Update: Member Agency Participation

Requested Action(s):

1. Receive and file.

B. Energy Resilience Plan 2.0 Update

Requested Action(s):

1. Receive and file.

C. Santa Ana Municipal Separate Storm Sewer System Permit Compliance Program Activities Update

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

D. TUMF Nexus Study - Release Draft for Review

Requested Action(s): 1. Request that the Executive Committee direct staff to release the draft TUMF Nexus Study update for a 30-day review / comment period.

7. REPORT FROM THE DEPUTY EXECUTIVE DIRECTOR

Chris Gray

8. ITEMS FOR FUTURE AGENDAS

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

9. GENERAL ANNOUNCEMENTS

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

10. NEXT MEETING

The next Public Works Committee meeting is scheduled for Thursday, June 13, 2024, at 2:00 p.m., in WRCOG's office at 3390 University Avenue, Suite 200, Riverside.

11. ADJOURNMENT

Public Works Committee

Action Minutes

1. CALL TO ORDER

The meeting of the WRCOG Public Works Committee was called to order by Chair Paul Toor at 2:01 p.m. on February 8, 2024, in the WRCOG office.

2. DECLARATION OF STATE OF EMERGENCY

A. Findings Regarding the Declaration of State of Emergency by the Governor

Action:

1. Authorized the February 8, 2024, Public Works Committee meeting to be held virtually due to the State of Emergency declared by the Governor and found that a meeting in person would present an imminent risk to the health of safety of the attendees.

RESULT:	APPROVED AS RECOMMENDED
MOVER:	Temecula
SECONDER:	Jurupa Valley
AYES:	Banning, Beaumont, Canyon Lake, Jurupa Valley, Lake Elsinore, Moreno Valley, Murrieta, Norco, Perris, Riverside, San Jacinto, Riverside, Temecula, County of Riverside, March JPA, RCTC, RTA

3. PLEDGE OF ALLEGIANCE

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

4. ROLL CALL

- City of Banning - Nathan Smith
- City of Beaumont - Robert Vestal
- City of Calimesa - Travis Bradshaw
- City of Canyon Lake - Stuart McKibbin
- City of Corona - Savat Kamphou
- City of Hemet - Noah Rau
- City of Jurupa Valley - Paul Toor (Chair)
- City of Lake Elsinore - Remon Habib
- City of Menifee - Nick Fidler
- City of Moreno Valley - Melissa Walker
- City of Murrieta - Jeff Hitch
- City of Norco - Sam Nelson

- City of Perris - John Pourkazemi
- City of Riverside - Gil Hernandez
- City of San Jacinto - Stuart McKibbin
- City of Temecula - Patrick Thomas
- County of Riverside - Alvin Medina
- March Joint Powers Authority (JPA) - Lauren Sotelo
- Riverside County Transportation Commission (RCTC) - Martha Masters
- Riverside Transit Agency (RTA) - Jennifer Nguyen

Absent:

- City of Eastvale
- City of Wildomar

5. PUBLIC COMMENTS

There were no public comments.

6. CONSENT CALENDAR

RESULT:	APPROVED AS RECOMMENDED
MOVER:	Temecula
SECONDER:	Riverside
AYES:	Banning, Beaumont, Corona, Hemet, Jurupa Valley, Lake Elsinore, Menifee, Moreno Valley, Murrieta, Norco, Perris, Riverside, San Jacinto, Temecula, County of Riverside, March JPA, RCTC, RTA
NO RESPONSE:	Canyon Lake

A. Action Minutes from the December 14, 2023, Public Works Committee Meeting

Action:

1. Approve the action minutes from the December 14, 2023, Public Works Committee meeting.

7. REPORTS / DISCUSSION

A. SoCalGas Regional Energy Pathways Program

Action:

1. Received and filed.

B. Access to StreetLight Data Program

Action:

1. Received and filed.

C. TUMF Nexus Study Activities Update

Action:

1. Received and filed.

8. REPORT FROM THE DEPUTY EXECUTIVE DIRECTOR

Chris Gray, Deputy Executive Director, thanked Committee members for participating remotely on short notice. Mr. Gray also thanked the City of Moreno Valley for inviting WRCOG to the dedication of the Moreno Beach Interchange held on Tuesday, which received substantial TUMF funding. Prior to the Zone TIP meetings, WRCOG staff is available to meet and introduce member agency staff and elected officials to the TUMF Program.

9. ITEMS FOR FUTURE AGENDAS

There were no requests for items for future agendas.

10. GENERAL ANNOUNCEMENT

There were no general announcements.

11. NEXT MEETING

The next Public Works Committee meeting is scheduled for Thursday, April 11, 2024, at 2:00 p.m., in WRCOG's office.

12. ADJOURNMENT

The meeting was adjourned at 2:50 p.m.



Western Riverside Council of Governments Public Works Committee

Staff Report

Subject: I-REN Energy Fellowship Update: Member Agency Participation
Contact: Tyler Masters, Program Manager, tmasters@wrcog.us, (951) 405-6732
Date: April 11, 2024

Recommended Action(s):

1. Receive and file.

Summary:

The Inland Regional Energy Network (I-REN) Energy Fellowship Program, in partnership with CivicSpark, an AmeriCorps Program, will place up to 27 Fellows at host agencies for 11 months at no cost to cities to provide capacity and support on important energy initiatives. I-REN is accepting host agency applications now through June 7, 2024. Hosts are encouraged to apply early, as fellow candidate selection is on a first come, first serve basis and allows the agency a wider selection of candidates.

Purpose / WRCOG 2022-2027 Strategic Plan Goal:

The purpose of this item is it to provide an update on the I-REN Energy Fellowship; applications are open to host a Fellow for the upcoming September Fellowship cycle. This item aligns with WRCOG's 2022-2027 Strategic Plan Goal #4.3 (Promote regional interaction and coordination with surrounding communities and service providers including schools, economic development interests, transportation and non-profit agencies) as well as Goal #6.1 (Incentive programs for savings electricity, water and other essential resources through the Inland Regional Energy Network).

Discussion:

Background

One of I-REN's three program sectors is Workforce, Education & Training (WE&T). The total budget for the WE&T Sector through 2027 is \$15.1M. The goal of this Sector is to ensure there is a trained workforce to support and realize energy efficiency savings goals across all sectors. I-REN is uniquely positioned to effectively support these initiatives through the direct connections to local governments and stakeholders that I-REN, and its Councils of Government member agencies, have with the communities in the Riverside and San Bernardino Counties. The intent of this Sector is not to duplicate initiatives already under delivery by Investor-Owned Utilities or various workforce organizations, but to supplement and tailor programs to fill gaps with a focus on enhancing energy and energy efficiency knowledge and

understanding.

Present Situation

I-REN provides public agencies with an opportunity to accelerate the implementation of Energy Efficiency Projects in the Inland Empire. In March 2023, I-REN launched one of its first WE&T programs, the I-REN Energy Fellowship, intended to increase energy efficiency knowledge capacity within public sector agencies. The I-REN Energy Fellows Program is a partnership with CivicSpark, an AmeriCorps Program, with a goal to place up to 27 Fellows directly with public agencies in the Inland Empire. The I-REN Energy Fellows are placed with a participating host member agency for 11 months at no cost to cities to provide capacity and support on important energy initiatives. Fellow requirements include a minimum of an associate degree from an accredited college or university, commitment to the full term of service, ability to work in a professional environment, and strong communication and teamwork skills.

Each Fellow will provide approximately 1,700 hours of time over the 11 months with their host agency, 300 - 400 hours of which will be for professional growth and learning opportunities provided by CivicSpark, I-REN, and the host agency. The remaining 1,300 - 1,400 hours will be dedicated to energy projects within the host agency, furthering the host agency and I-REN energy initiatives. The host agency would need to provide a space to work, access to a computer, and a supervisor to whom the Fellow will report to. The CivicSpark Program will take care of all the administrative matters for this Program. There is flexibility in the tasks that the Fellow could work on as long as the work pertains to energy efficiency.

A sample of the energy efficiency initiatives for the host agencies would include but not be limited to the following:

- Building energy benchmarking
- Develop building inventories and billing rate analysis
- Facility audits
- Identify and analyze energy efficiency projects within:
 - Climate Action Plans
 - Energy Action Plans
 - Capital Improvement Plan
 - Facility Equipment Replacement Plan
 - Energy Efficiency Project Development
- Community outreach regarding energy efficiency opportunities

Applications to become a host agency is currently open through June 7, 2024. Hosts that apply early will get the first pick of the Fellow candidates that apply in April, giving the host agency the most opportunity to pick a Fellow that best fits their energy project.

Host Agencies can apply at <https://civicspark.civicwell.org/california/>.

In its first cycle, I-REN placed a total of 11 Fellows throughout all three I-REN COG partner member agencies. Participating I-REN member and I-REN Fellow host sites include the Cities of Beaumont, Canyon Lake, Chino Hills, Corona, Grand Terrace, Norco, Ontario, Palm Springs, Perris, Rancho Cucamonga, and San Bernardino.

I-REN is also committed to providing the Fellows with meaningful professional growth opportunities. One recent highlight of this includes a March 2024 trip to the ESRI Campus in Redlands where the Fellows learned about data visualization and geographic information systems as it applies to energy efficiency. Additionally, I-REN will be encouraging and sponsoring the Fellows to attend the 15th Annual California Climate and Energy Collaborative (CCEC) Forum in June 2024 in Palm Springs, California. The CCEC Forum brings together several hundred local government staff, elected officials, and community organizations, to collaborate and learn from each other as they work to advance fair and equitable climate change and energy practices.

The WE&T team is currently exploring options to expand additional energy-related learning opportunities and resources for the I-REN Energy Fellows.

Prior Action(s):

None.

Financial Summary:

This item is for informational purposes only; therefore, there is no fiscal impact. All costs associated with the development of an I-REN Energy-Efficiency Fellowship Program are planned to be included in WRCOG's upcoming Fiscal Year 2024/2025 Agency Budget under the Energy & Environmental Department.

Attachment(s):

None.



Western Riverside Council of Governments Public Works Committee

Staff Report

Subject: Energy Resilience Plan 2.0 Update
Contact: Daniel Soltero, Program Manager, dsoltero@wrcog.us, (951) 405-6738
Date: April 11, 2024

Recommended Action(s):

1. Receive and file.
-

Summary:

To enhance infrastructure and assist communities with emergency events and outages as defined by the Adaptation Planning Grant Program, WRCOG is launching the Energy Resilience Plan (ERP) 2.0 to explore the feasibility of microgrids at key facilities and community resilience centers. The plan, which begins by identifying potential sites for microgrids and resilience centers, seeks to enhance infrastructure and community resilience while aligning member agencies with California's climate goals through strategic project development.

Purpose / WRCOG 2022-2027 Strategic Plan Goal:

The purpose of this item is to provide updates regarding facilities, infrastructure, and sites that could be considered for the ERP 2.0 feasibility studies, as well as to provide information on upcoming project activities. This item aligns with WRCOG's 2022-2027 Strategic Plan Goal #5 (Develop projects and programs that improve infrastructure and sustainable development in our subregion).

Discussion:

Background

The ERP 2.0's outreach and engagement activities with member agencies have commenced. Staff requested a list of facilities, infrastructure, and sites owned by WRCOG's member agencies that can be considered for microgrid or community resilience center feasibility studies. A microgrid is defined by the California Public Utilities Code as an interconnected, self-sufficient energy system within a clearly defined electrical boundary that can act as a single, controllable entity. Microgrids can connect to, disconnect from, or run in parallel to larger portions of the electric grid, and can be managed and isolated to withstand larger disturbances and maintain electrical supply to connected critical infrastructure. A microgrid provides energy resilience by disconnecting from the larger electric grid during outages and providing power to buildings or multiple customers within the boundary of the microgrid, leveraging energy resources such as solar panels, batteries, generators, etc.

A community resilience center is defined by the California Strategic Growth Council as a neighborhood-level building with comprehensive building and infrastructure upgrades that provides shelter and resources during climate and other emergencies, as well as year-round services and programming that strengthen community connections and the ability to withstand disasters. The ERP 2.0 will identify existing agency-owned sites that can undergo a microgrid feasibility study, and dependent on the building type, the sites may also be considered for the community resilience center feasibility studies.

Present Situation

In late February 2024, WRCOG staff sent a request to member agency staff and representatives from WRCOG's Public Works and Planning Directors Committees. The request included the WRCOG Energy Resilience Plan Toolkit (Attachment 1) that asks member agencies to submit details regarding potential sites, the site's energy needs and existing energy infrastructure, and known climate hazards and social vulnerabilities for the site's surrounding areas and population served. Member agencies that participated in the initial ERP were asked to confirm, add, or remove sites from the list that was collected in 2021, and members that did not participate were asked to provide a list and details for each site to be considered for the feasibility studies. The goal of this request is to develop a list of potential sites from all of WRCOG's member agencies that will help WRCOG staff identify locations to conduct the microgrid and community resilience center feasibility studies.

The information collected with the toolkit is important because it helps staff prioritize sites that are located in areas that may have vulnerabilities to power outages or environmental hazards that can cause disruptions to energy supply, disadvantaged communities that may be disproportionately impacted by loss of service from the facility, and to identify locations that can provide critical services during emergency events and year-round services to help constituents increase their resilience. Once this information has been gathered from all member agencies, staff will update the Facility Prioritization Matrix (Attachment 2) and coordinate with member agencies to select the candidate sites that will be considered for either a microgrid study or a community resilience center feasibility study. For example, a water pump station would be considered for a microgrid study, whereas a community center would be considered for a community resilience center. One of the overarching goals of the ERP 2.0 is that with close coordination with member agencies and outreach to constituents, this Plan would eventually lead to implementation of the identified projects.

Over the next year and throughout 2025, WRCOG will conduct outreach and engagement with member agencies to assess the potential sites and the member agency's interest for a potential microgrid or community resilience center identified through the ERP 2.0. As a requirement of an Adaptation Planning Grant that supports the ERP 2.0, community outreach will also be completed to gather input from residents on a community resilience center that is identified by the member agency. The community outreach will only commence once a member agency has indicated its interest to potentially implement a community resilience center at one of its candidate facilities. Community input will help inform WRCOG and the member agency on resources and services that can be provided by the community resilience center to help increase resilience, such as how to adapt to extreme heat events, emergency preparedness, first aid training, etc. WRCOG will be working closely with member agencies throughout development of the ERP 2.0 to ensure the member agency's interests and support are met, while being informed by the communities they serve.

Prior Action(s):

March 21, 2024: The Technical Advisory Committee received and filed.

August 7, 2023: The Executive Committee 1) accepted the ICARP Adaptation Planning Grant award, 2) authorized the Executive Director to execute the Grant Agreement, substantially as to form and subject to legal counsel's review and approval, with the Governor's Office of Planning and Research, and 3) authorized the Executive Director to execute the Partnership Agreement, substantially as to form and subject to legal counsel's review and approval, with GRID Alternatives Inland Empire.

Financial Summary:

Activities related to the Energy Resilience Plan 2.0 are included in the Fiscal Year 2023/2024 Budget under Program code 2250 in the General Fund (110).

Attachment(s):

[Attachment 1 - WRCOG Energy Resilience Plan Toolkit](#)

[Attachment 2 - WRCOG Facility Prioritization Matrix](#)

Attachment

WRCOG Energy Resilience Plan Toolkit



WRCOG Energy Resilience Plan Toolkit

This toolkit has been developed to complement the WRCOG Energy Resilience Plan. The purpose is to enable WRCOG member agencies to make informed decisions on resilience projects by evaluating the list of recommended strategies and key considerations generated based on resilience gaps identified.

1

Facility Details

Enter basic information about facility

Member Jurisdiction		←	Select Agency
Facility Name		←	
Building Type		←	Select primary occupancy
Secondary Function		←	Select secondary occupancy that it serves during an emergency
Number of People Served		←	Select range
Facility Age		←	Select range

User Input
Recommendations (to be used as guidance)

2

Regional Context

Identify applicable climate hazards and social vulnerabilities from dropdown menu

CLIMATE HAZARD	SENSITIVITY
Air Quality	
Drought	
Flooding	
Human Health Hazards	
Extreme Temperature (heat waves, cold snaps)	
Wildfire	
Landslides	
Other?	

Click to go to EPA's EJScreen tool to view environmental indicators

E.g. Earthquakes

SENSITIVITY
#N/A
#N/A
#N/A
#N/A
#N/A
#N/A
#N/A

Recommendations autopopulate based on agency selected. To be used as guidance to populate table on the left.

SOCIAL VULNERABILITY	SENSITIVITY
Socioeconomic Status	
Household Composition & Disability	
Minority Status & Language	
Housing & Transportation	

Click to view CDC/ATSDR Social Vulnerability Index map (2020)

SENSITIVITY
#N/A
#N/A
#N/A
#N/A

3

Critical Energy Needs

Identify energy requirements at the facility to maintain function

	NEEDED?	AVAILABILITY REQUIREMENTS
Computers/Equipment		
Cool Space Conditioning		
Heat Space Conditioning		
Lighting		
Communications/Server Rooms		
Security		
Pumps		
Other		

Recommendations autopopulate based on typology selected.

NEEDED	AVAILABILITY REQUIREMENTS
#N/A	n/a
#N/A	n/a
#N/A	n/a
#N/A	n/a
#N/A	n/a
#N/A	n/a
#N/A	n/a
#N/A	n/a

REFERENCE	
Uninterruptible	Resource must be continuously available and cannot experience even momentary disruptions in supply or quality.
Essential	Resource must be available during a specific activity for a given duration. Minor variations in resource quality can be tolerated without significant consequence.
Non-Essential	Resource can be lost or quality can be degraded for extended periods without severe consequence.
n/a	Not applicable

Check Availability Requirements.
If Need= N, corresponding Availability Requirements must be selected as n/a.
If Need= Y, corresponding Availability Requirements cannot be n/a.

4

Existing Infrastructure

Identify existing infrastructure condition options from dropdown menu

Electrical/Power System Condition	
HVAC System Condition	
Backup Generators	
Fuel storage tanks	
Power conditioning systems (UPS)	
Renewable energy supply	
Battery energy storage	
Multiple power feeds	
Opportunity for alternative technologies	
Space Availability	
Runtime Requirement and Sizing	
Maintenance and Testing	
Mechanical System Configuration and Location	
Building Systems Control and Monitoring	
Construction and Safety Requirements	
Utility/vendor relationships and system ownership	
Emergency response plan and personnel	
Electrical system capacity	
Critical heating/cooling loads	
Utility Tariff Structure	
Recent Energy Audit	
Off-site supply chain logistics	
Critical electrical loads	
Existing Comms network condition	

Selections made in this section help to identify energy infrastructure gaps and therefore inform strategy recommendations.

View list of Recommended Strategies

Attachment

WRCOG Facility Prioritization Matrix



WRCOG Facility Prioritization Matrix																																
Facility Overview				Community Value (Social Vulnerability)							Operational Needs (Energy Needs & Availability Requirements)							Physical Hazard Sensitivity						Existing Infrastructure								TOTAL SCORE
				The scale and vulnerability of the community served by the asset/facility.							The requirements for energy at the at the facility to maintain function.							The scale and nature of the physical threats to the asset/facility.						The asset's/facility's existing systems which influence its ability to operate								
Agency	Facility name	Building Type	Services Provided	People served	Socioeconomic Status	Household Composition & Disability	Minority Status & Language	Housing & Transportation	Overall Social Vulnerability	Relocatability	Computers/ Other Equipment	Space conditioning (heating/cooling)	Lighting	Communications/ Server Rooms (including Security)	Air Quality	Drought	Human Health Hazards	Flooding	Extreme Temperature (heat waves, cold)	Wildfire	Facility age- Old /Avg/New	Electrical/Power system condition	HVAC systems	Backup Generators	Fuel storage tanks	Power conditioning systems (UPS)	Renewable energy supply	Battery energy storage	Multiple power feeds	Opportunity for alternative technologies		
All responses translated from questionnaire and coded per category as highlighted in this row				<100=1 100-1k=2 1k-10k=3 >10k=4	4 percentiles [highest (4) to lowest (1)]				Y=1 N=3	Uninterruptible=3 Essential=2 Non-essential=1 N/A= 0				High=3 Medium=2 Low=1 N/A=0				<10 yrs=1 10-40yrs	Poor=3 Avg/Fair=2 Good=1	No=3 Yes- P=2 Yes-	Yes=1 Yes w/gap=2 No=3 Not needed= blank/0				Max=100							
			Attribute weights listed in this row	1.25					1.25	1.4	1.4	1.4	1.4	1.4	2.0	2.0	2.0	2.0	3	2.3	0.5	1	1	1	0.81	0.81	0.81	0.81	0.81	0.81		
CORONA	Wells 7, 8, 9A, 11, 12, 13, 14, 15, 17, 18	Water Wells	Groundwater pumped for treatment used as potable water																											86		
BEAUMONT	Beaumont Fire Station	Fire Station	Emergency ops																											83		
CORONA	Desalter	Potable WTP	Potable water treatment for distribution																											82		
CORONA	Sierra del Oro Treatment Plant	Potable WTP	Potable water treatment for distribution																											81		
CORONA	Garretson Blending Station	Blending station	Blend multiple sources of potable water for distribution																											81		
CORONA	Water Reclamation Facility 1	Water Reclamation	WWT to be used as reclaimed water																											81		
CORONA	Lester Water Treatment Plant	Potable WTP	Potable water treatment for distribution																											80		
CORONA	15 Wastewater Lift Stations	Lift station	Lift station																											80		
CORONA	Water Reclamation Facility 2	Water Reclamation	WWT to be used as reclaimed water																											80		
BEAUMONT	Beaumont Police Station	Police Station	Emergency ops																											80		
JURUPA VALLEY	County Sheriff's Station	Police Station	Emergency ops																											79		
CORONA	Mangular Blending Station	Blending station	Blend multiple sources of potable water for distribution																											79		
CORONA	Water Reclamation Facility 3	Water Reclamation	WWT to be used as reclaimed water																											79		
BEAUMONT	City of Beaumont WWTP	WWTP	24/7 WWTP																											78		
JURUPA VALLEY	County Fire Station 18	Fire Station	Emergency ops																											77		
JURUPA VALLEY	County Fire Station 16	Fire Station	Emergency ops																											77		
JURUPA VALLEY	County Fire Station 38	Fire Station	Emergency ops																											75		
BANNING	Water Canyon Production Wells	Water production well	Wells in water canyon to provide city water																											74		
BEAUMONT	Four Seasons Lift Station	WW Pump Station	Lift station																											73		
JURUPA VALLEY	County Fire Station 17	Fire Station	Emergency ops																											73		
BEAUMONT	Beaumont Mesa Lift Station	WW Pump Station	Lift station																											73		
RIVERSIDE	Riverside Water Quality Control Plant	Sewer treatment plant	Sewer treatment plant for potable use																											72		
BEAUMONT	Noble Creek Lift Station	WW Pump Station	Lift station																											71		
BEAUMONT	Marshall Creek Lift Station	WW Pump Station	Lift station																											71		
MURRIETA	Murrieta Fire Station 5	Fire Station	Emergency ops																											70		
MENIFEE	Fire Station #68	Fire Station	Emergency response																											70		
MENIFEE	Kay Cenicerros Senior Center	Senior Center	Senior center and shelter																											69		
MURRIETA	Murrieta Fire Station 2	Fire Station	Emergency ops																											69		
MENIFEE	City Hall	City Hall	City service hall																											69		
RIVERSIDE	Wood Rd Swer Lift Station	Lift station	Lift station																											69		
BEAUMONT	Upper Oak Valley Lift Station	WW Pump Station	Lift station																											69		
BEAUMONT	San Timoteo Repeater	Comms	Control/Comm for sewer conveyance																											68		
RIVERSIDE	Emergency Operation Center (EOC)	EOC	Emergency ops																											68		
BANNING	Wastewater Treatment Plant	WWTP	WWT for percolation ponds																											68		
TEMECULA	CalFIRE Station 12	Fire Station	Emergency ops																											68		
MURRIETA	Murrieta Fire Station 1/Admin	Fire Station	Back-up EOC																											68		
MENIFEE	Maintenance and Operations Center	Department ops center (DOC)	DOC location during rainstrom/flooding																											68		
BEAUMONT	Fairway Canyon Lift Station	WW Pump Station	Lift station																											68		
MURRIETA	Murrieta Fire Station 3	Fire Station	Emergency ops																											68		
BEAUMONT	Albert A. Chatigny, Sr. Community Re	Community Center	Emergency center, heat/cool center, children/senior serv																											67		
MURRIETA	Murrieta Fire Station 4	Fire Station	Emergency ops																											67		
BEAUMONT	Seneca Springs Lift Station	WW Pump Station	Lift station																											67		
MURRIETA	Murrieta Senior Center	Senior Center	Senior center and cool/heat center																											67		
MURRIETA	Murrieta Community Center	Community Center	Services for children/adults																											66		

WRCOG Facility Prioritization Matrix																															
Agency	Facility Overview			Community Value (Social Vulnerability)					Operational Needs (Energy Needs & Availability Requirements)					Physical Hazard Sensitivity					Existing Infrastructure										TOTAL SCORE		
				The scale and vulnerability of the community served by the asset/facility.					The requirements for energy at the at the facility to maintain function.					The scale and nature of the physical threats to the asset/facility.					The asset's/facility's existing systems which influence its ability to operate												
	People served	Socioeconomic Status	Household Composition & Disability	Minority Status & Language	Housing & Transportation	Overall Social Vulnerability	Relocatability	Computers/ Other Equipment	Space conditioning (heating/cooling)	Lighting	Communications/ Server Rooms (including Security	Air Quality	Drought	Human Health Hazards	Flooding	Extreme Temperature (heat waves, cold	Wildfire	Facility age- Old /Avg/New	Electrical/Power system condition	HVAC systems	Backup Generators	Fuel storage tanks	Power conditioning systems (UPS)	Renewable energy supply	Battery energy storage	Multiple power feeds	Opportunity for alternative technologies				
All responses translated from questionnaire and coded per category as highlighted in this row				<100=1 100-1k=2 1k-10k=3 >10k=4	4 percentiles [highest (4) to lowest (1)]					Y=1 N=3	Uninterruptible=3 Essential=2 Non-essential=1 N/A= 0				High=3 Medium=2 Low=1 N/A=0					<10 yrs=1 10-40yrs	Poor=3 Avg/Fair=2 Good=1	No=3 Yes- P=2 Yes-	Yes=1 Yes w/gap=2 No=3 Not needed= blank/0					Max=100			
			Attribute weights listed in this row	1.25					1.25	1.4	1.4	1.4	1.4	1.4	1.4	2.0	2.0	2.0	2.0	3	2.3	0.5	1	1	1	0.81	0.81	0.81	0.81	0.81	
BEAUMONT	Lower Oak Valley Lift Station	WW Pump Station	Lift station																												66
JURUPA VALLEY	Jurupa Valley City Hall	Admin	City service hall																												66
RIVERSIDE	Janet Goeske Senior Center	Senior Center	Senior center																												65
RIVERSIDE	Ysmael Villegas Community Center	Community Center	Service for children/adults																												65
MURRIETA	Murrieta Police Department	Police Station	Emergency ops																												65
WILDOMAR	Fire Station #61	Fire Station	Emergency ops																												64
MURRIETA	Murrieta Youth Center	Youth Center	Services for children																												63
TEMECULA	Temecula Field Operations Center	Field ops	Response ops, response equipment location																												63
TEMECULA	Mary Phillips Senior Center	Senior Center	Cool/heat center																												62
TEMECULA	Temecula City Hall	EOC	Emergency ops																												62
BANNING	Westward Lift Station	Lift station	Lift station																												61
WILDOMAR	City Hall	City Hall	EOC																												61
JURUPA VALLEY	City of Jurupa Valley, Fleet Maintenance	Maintenance	Field/Maintenance/Facilities Maintenance staff use																												61
EASTVALE	Fire Station 27	Fire Station	Fire Service																												61
EASTVALE	Fire Station 31	Fire Station	Fire Service																												60
JURUPA VALLEY	City of Jurupa Valley, Eddie D. Smith Senior Center	Senior Center	Senior center and shelter																												60
BANNING	Community Center	Community and senior center	Cool center, services for seniors																												59
MENIFEE	Lazy Creek Recreational Center	Rec Center	Service for children																												58
WILDOMAR	Facility #4	Cooling center	Cool center																												57
BANNING	Banning Police Station	Police Station	Emergency ops																												57
TEMECULA	Temecula Community Recreation Center	Community Center	Services for children/adults and emergency shelter																												57
MORENO	City of Moreno Valley Senior Center	Senior center	daily access and services for seniors, cooling center																												53
MORENO	City of Moreno Valley EOC	Emergency Operations Center	emergency response central command																												51
MORENO	City of Moreno Valley CRC	Community center /emergency shelter	emergency shelter for disasters, COOL center																												50
LAKE ELSINORE	Senior Center	cooling center	lunch service, cooling center																												45
LAKE ELSINORE	Planet Youth/ Tiny Tots	child care, school	child care, school																												44
LAKE ELSINORE	Neighborhood Center	child care, cooling center	child care, activities for kids																												44
WILDOMAR	Facility #3	Traffic Signals-citywide																													37



Western Riverside Council of Governments Public Works Committee

Staff Report

Subject: Santa Ana Municipal Separate Storm Sewer System Permit Compliance Program Activities Update

Contact: Richard Boon, Chief of Watershed Protection Division, Riverside County Flood Control and Water Conservation District, rboon@rivco.org, (951) 955-1273

Date: April 11, 2024

Recommended Action(s):

1. Receive and file.
-

Summary:

The Tentative Permit for the Santa Ana River Watershed represents a significant regulatory initiative aimed at improving water quality and managing stormwater discharges in the region. This item will provide a comprehensive review and analysis of key aspects of the Tentative Order, along with considerations for responding to the draft document.

Purpose / WRCOG 2022-2027 Strategic Plan Goal:

The purpose of this item is to provide an update on the Tentative Permit for the Santa Ana River Watershed. This effort aligns with WRCOG's 2022-2027 Strategic Plan Goal #5 (Develop projects and programs that improve infrastructure and sustainable development in our subregion).

Discussion:

Background

On January 20, 2022, the Santa Ana Regional Water Quality Control Board (Regional Board) released a [Staff Working Proposal](#) of a regional permit to the 60 jurisdictions of Orange, Riverside, and San Bernardino Counties (Permittees). On March 1, 2024, a [Tentative Permit](#) was released and on March 15, 2024, a [Public Workshop](#) was held by the Regional Board to discuss the draft permit and solicit comments.

The Riverside County Flood Control and Water Conservation District is designated as the Principal Permittee under the Santa Ana Municipal Separate Storm Sewer System (MS4) Permit and represents the co-permittees to implement area-wide programs required by the MS4 Permit through an Implementation Agreement.

Present Situation

The Presentation will include:

1. Overview of the Regional Permit:
 - The release of the Regional Permit is a highly significant act of environmental regulation by the Regional Board directly affecting the 60 local government jurisdictions of Orange, Riverside, and San Bernardino Counties.
 - The permit represents an escalation of regulatory requirements for municipalities establishing additional obligations for pollutant reduction, stormwater management practices, monitoring, and reporting.
 - A Tri-County Group, comprised of municipal stakeholders from Orange, Riverside, and San Bernardino Counties, is coordinating efforts to complete legal and technical reviews and formally respond to the Tentative Order.
2. Watershed Management Plan Requirement:
 - A crucial aspect of the Permit is the optional Watershed Management Plan (WMP) provisions, which provide an alternate regulatory compliance pathway.
 - A WMP would require commitments to strategies for reducing pollutant loads, enhancing green infrastructure, implementing Best Management Practices (BMPs), and fostering stakeholder engagement.
 - Developing a robust WMP maybe essential for ensuring compliance with the Permit and achieving long-term water quality goals albeit predicated on a multimillion-dollar funding commitment and additional compliance obligations.
3. Preliminary Costs of Compliance:
 - Compliance with the Regional Permit is expected to entail significant costs for permittees, including expenses related to infrastructure upgrades, BMP implementation, monitoring, and staff resources.
 - Collaborative funding approaches, grants, partnerships, and innovative financing tools may help mitigate the financial burden on individual jurisdictions.
4. Tri-County Group Next Steps:
 - Continued collaboration within the Tri-County Group is essential for sharing best practices, leveraging resources, advocating for regulatory flexibility, and collectively addressing common concerns.
 - Proactive engagement with the Regional Board and other relevant agencies will be necessary to influence the finalization of the permit and ensure that it aligns with the interests and needs of the tri-county area and, in particular, the Inland Empire.

Prior Action(s):

None.

Financial Summary:

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

Attachment(s):

None.



Western Riverside Council of Governments Public Works Committee

Staff Report

Subject: TUMF Nexus Study - Release Draft for Review
Contact: Chris Gray, Deputy Executive Director, cgray@wrcog.us, (951) 405-6710
Date: April 11, 2024

Recommended Action(s):

1. Request that the Executive Committee direct staff to release the draft TUMF Nexus Study update for a 30-day review / comment period.

Summary:

The TUMF Nexus Study draws a connection between the needs of the Program and the TUMF Program Fee Schedule. This draft Nexus Study identifies projects requiring mitigation from new development, determines what the cost of those projects will be, and what fees need to be assessed to fund these projects. Analysis through transportation modeling work has determined a list of projects eligible for mitigation. Staff has completed the draft Study and is requesting a recommendation to the Executive Committee to release the draft for a 30-day comment period.

Purpose / WRCOG 2022-2027 Strategic Plan Goal:

The purpose of this item is to provide an update on the draft TUMF Nexus Study. This effort aligns with WRCOG's 2022-2027 Strategic Plan Goal #5 (Develop projects and programs that improve infrastructure and sustainable development in our subregion).

Discussion:

Background

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

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

- It is considered a best practice to update on a regular basis

- Underlying growth forecasts have changed since the last update
- Travel behavior has changed, particularly viewed in light of COVID-19
- The project list has changed, with past projects completed and new projects identified
- Opportunity to add new project types, such as Intelligent Transportation System (ITS) infrastructure

Present Situation

Work has been completed on reviewing project cost data, local jurisdiction comments, and previously obligated funding. With this data, WRCOG has compiled a draft Nexus Study (Attachment 1). In order to be approved, a 60-day review / comment period is required. This period will provide WRCOG member agencies and the public an opportunity to make any comment(s) before a final draft is presented to the WRCOG Executive Committee.

The draft Nexus Study satisfies the needs of the Mitigation Fee Act (AB 1600) which governs imposing development impact fees in California. The draft Nexus Study confirms the following, as per AB 1600 rules:

1. Establish a nexus or reasonable relationship between the development impact fee's use and the type of project for which the fee is required.
2. The fee must not exceed the project's proportional "fair share" of the proposed improvement and cannot be used to correct current problems or to make improvements for existing development.

This draft document describes the various assumptions, data inputs and analysis leading to the determination of each major variable in the TUMF calculation, and ultimately, leads to the determination of the TUMF Schedule of Fees and the maximum "fair share" fee for each of the various use types defined in the TUMF Program. These two primary outputs are included in the draft document and represent the two main components of the Nexus Study.

The first output of the draft Nexus Study is the TUMF Network Cost Estimates (Table 4.4 of Attachment 1). This list includes all the infrastructure projects included in the TUMF Program. These infrastructure includes road widenings, interchanges, bridges, grade separations, transit projects, and ITS projects. Each project in this list is on the TUMF Regional System of Highways and Arterials will have potential TUMF funding. Eligible projects would include those that, due to congestion, have a need to be mitigated. This mitigation could be adding a lane to a road, widening a bridge, or improving an interchange. The Nexus Study also determines how much of the mitigation need is being caused by traffic from new development. From these calculations a total eligible funding figure is presented on each project, also known as a 'maximum TUMF share.' This figure represents the maximum amount of TUMF funding that the local agency can request to be allocated towards one of its projects.

The second key component of the Nexus Study is the TUMF Fee Schedule. The total cost to mitigate the TUMF Network is divided among the different types of developments in proportion to their expected traffic impacts. TUMF groups the various land use categories to simplify the administration of the Program. The main uses are Single-family Residential, Multi-family Residential, Service, Retail, and Industrial. The fee schedule represents the maximum fee permissible under California law for the purposes of the TUMF Program. The Executive Committee has the option to adopt lower fees; however, in doing so, each use category subject to a lower fee would not be contributing a fair share of the cost of their impacts. This would in turn require project funding to come from another source to close the

funding gap created. The fee calculation for residential and non-residential uses is located in Table 7.1 of Attachment 1.

Prior Action(s):

February 15, 2024: The Technical Advisory Committee received and filed.

February 14, 2024: The Admin and Finance Committee received and filed.

February 8, 2024: The Public Works Committee received and filed.

December 14, 2023: The Public Works Committee received and filed.

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

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

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

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

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

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

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

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

Financial Summary:

Funding for TUMF activities is included in the Fiscal Year 2023/2024 budget under the TUMF Program (1148) in the General Fund (110). 4% of all TUMF collections are allocated for administrative purposes. If the Nexus study is approved, the fiscal impact would likely occur in Fiscal Year 2024/2025, which would increase and decrease revenues across the various land use types. At that time, a budget amendment will be brought forward to amend the budget accordingly.

Attachment(s):

[Attachment 1 - Draft TUMF Nexus Study 2024](#)



TRANSPORTATION UNIFORM MITIGATION FEE NEXUS STUDY 2024 UPDATE

FINAL REPORT

Prepared for the Western Riverside Council of Governments

In Cooperation with

The City of Banning
The City of Beaumont
The City of Calimesa
The City of Canyon Lake
The City of Corona
The City of Eastvale
The City of Hemet
The City of Jurupa Valley
The City of Lake Elsinore
The City of Menifee
The City of Moreno Valley
The City of Murrieta
The City of Norco
The City of Perris
The City of Riverside
The City of San Jacinto
The City of Temecula
The City of Wildomar
The County of Riverside
Eastern Municipal Water District
March Joint Powers Authority
Morongo Band of Mission Indians
Riverside County Superintendent of Schools
Riverside Transit Agency
Western Municipal Water District

DRAFT

Prepared by GHD

DRAFT March 7, 2024



TABLE OF CONTENTS

TABLE OF CONTENTS	i
LIST OF TABLES.....	ii
1.0 INTRODUCTION AND PURPOSE OF THE NEXUS STUDY	1
1.1 Background	1
1.2 TUMF Nexus Study History	3
1.3 TUMF Nexus Study Process	5
1.3.1. Establish the TUMF Network Project List.....	7
1.3.2. Determine the TUMF Network Project Costs.....	8
1.3.3. Determine the TUMF Transit Component.....	9
1.3.4. Computing the Fee for Residential Developments	10
1.3.5. Computing the Fee for Non-Residential Developments	10
2.0 FUTURE GROWTH	13
2.1 Recent Historical Trend	13
2.2 Available Demographic Data	13
2.3 Demographic Assumptions Used for the Nexus Study Analysis	14
3.0 NEED FOR THE TUMF	21
3.1 Future Highway Congestion Levels.....	21
3.2 Future Transit Utilization Levels	24
3.3 The TUMF Concept	25
4.0 THE TUMF NETWORK.....	27
4.1 Identification of the TUMF Roadway Network	27
4.2 Backbone Network and Secondary Network.....	30
4.3 Future Roadway Transportation Needs.....	33
4.4 Public Transportation Component of the TUMF System	37
4.5 Existing Obligated Funding.....	40
4.6 Unfunded Existing Improvement Needs	40
4.7 Maximum TUMF Eligible Cost	42
4.8 TUMF Network Evaluation	53
5.0 TUMF NEXUS ANALYSIS.....	55
5.1 Future Development and the Need for Improvements	55
5.2 Application of Fee to System Components.....	56
5.3 Application of Fee to Residential and Non-Residential Developments	59
6.0 FAIR-SHARE FEE CALCULATION.....	60
6.1 Residential Fees	60
6.2 Non-Residential Fees.....	61
7.0 CONCLUSIONS.....	63
8.0 APPENDICES.....	64

LIST OF TABLES

Table 2.1 - Base Year Socioeconomic Estimates for Western Riverside County	14
Table 2.3 - Population, Households and Employment in Western Riverside County (2018 to 2045)	17
Table 2.4 - Population, Households and Employment in Western Riverside County (Existing to Future Change Comparison)	19
Table 3.1 - Regional Highway System Measures of Performance (2018 Existing to 2045 No-Build)	22
Table 4.1 - Unit Costs for Arterial Highway and Street Construction	35
Table 4.2 - Forecasted Daily Traffic in Western Riverside County	36
Table 4.3 - Unit Costs for Transit Capital Expenditures	39
Table 4.4 - TUMF Network Cost Estimates	45
Table 4.5 - TUMF Transit Cost Estimates	53
Table 4.6 - Regional Highway System Measures of Performance (2018 Existing and 2045 No-Build Scenarios to 2045 TUMF Build Scenario)	54
Table 5.1 - 2045 No-Build Peak Period Vehicle Trips by WRCOG Zone	57
Table 5.2 - 2045 No-Build Percent Peak Period Vehicle Trips By WRCOG Zone	57
Table 5.3 - Backbone-Secondary Network Share Calculation	58
Table 5.4 - Daily VMT Growth by Trip Purpose for Western Riverside County (2018 - 2045)	59
Table 6.1 - Fee Calculation for Residential Share	61
Table 6.2 - Fee Calculation for Non-Residential Share	62
Table 7.1 - Transportation Uniform Mitigation Fee for Western Riverside County	63

LIST OF FIGURES

Figure 1.1 - Flowchart of Key Steps in the TUMF Nexus Study Process	6
Figure 2.1 - Base Year Socioeconomic Estimates for Western Riverside County	15
Table 2.2 - Horizon Year Socioeconomic Estimates for Western Riverside County	16
Figure 2.2 - Horizon Year Socioeconomic Estimates for Western Riverside County	16
Figure 2.3 - Population, Households and Employment in Western Riverside County (2016 to 2045)	18
Figure 2.4 - Population, Households and Employment in Western Riverside County (Existing to Future Change Comparison)	20
Figure 4.1 - Regional System of Highways and Arterials for Western Riverside County	29
Figure 4.2 - The Backbone Network of Highways and Arterials for Western Riverside County	31
Figure 4.3 - Western Riverside County Area Planning Districts (TUMF Zones)	32
Figure 4.4 - Regional System of Highways and Arterials-TUMF Network Improvements	44

1.0 INTRODUCTION AND PURPOSE OF THE NEXUS STUDY

1.1 Background

Western Riverside County includes 18 incorporated cities and the unincorporated county covering an area of approximately 2,100 square miles. Through the mid 2000's, this portion of Riverside County was growing at a pace exceeding the capacity of existing financial resources to meet increasing demand for transportation infrastructure. Although the economic recession of the late 2000's, and the associated crises in the mortgage and housing industries, slowed this rate of growth, the regional economy has recovered and the projected rate of development in Western Riverside County remains high. Similarly, the impact of the COVID-19 pandemic on travel demand in the region has also passed, with travel demands, especially for the highway network, surpassing pre-pandemic levels.

Continued high growth in households and jobs in Western Riverside County could significantly increase congestion and degrade mobility if substantial investments are not made in transportation infrastructure. This challenge is especially critical for arterial roadways of regional significance, since traditional sources of transportation funding (such as the gasoline tax and local general funds) will not be nearly sufficient to fund the needed improvements. Development exactions only provide improvements near the development site, and the broad-based county-level funding sources (i.e., Riverside County's half-cent sales tax known as Measure A) designate only a small portion of their revenues for arterial roadway improvements.

In anticipation of the continued future growth projected in Riverside County, several county-wide planning processes were initiated in 1999. These planning processes include the Riverside County General Plan Update, the Community Environmental Transportation Acceptability Process (CETAP) and the Multi-Species Habitat Conservation Plan (MSHCP). Related to these planning processes is the need to fund the mitigation of the cumulative regional transportation impacts of future new development.

Regional arterial highways in Western Riverside County are forecast to carry significant traffic volumes by 2045. While some localized fee programs exist to mitigate the local impacts of new development on the transportation system in specific areas, and while these programs are effective locally, they are insufficient in their ability to meet the regional demand for transportation infrastructure. Former Riverside County Supervisor Buster recognized the need to establish a comprehensive funding source to mitigate the cumulative regional transportation impacts of new development on regional arterial highways. The need to establish a comprehensive funding source for arterial highway improvements has evolved into the development of the Transportation Uniform Mitigation Fee (TUMF) for Western Riverside County.

In February 1999, the cities of Temecula, Murrieta and Lake Elsinore, the Western Riverside Council of Governments (WRCOG), the Riverside County Transportation Commission (RCTC) and the Building Industry Association (BIA) met to discuss the

concept of a TUMF. The intent of this effort was to have the southwest area of Western Riverside County act as a demonstration for the development of policies and a process for a regional TUMF Program before applying the concept countywide. From February 1999 to September 2000, the Southwest Area Transportation Infrastructure System Funding Year 2020 (SATISFY 2020) Program progressed with policy development, the identification of transportation improvements, traffic modeling, cost estimates, fee scenarios and a draft Implementation Agreement.

In May 2000, Riverside County Supervisor Tavaglione initiated discussions in the northwest area of Western Riverside County to determine the level of interest in developing a TUMF for that area of the county. Interest in the development of a northwest area fee program was high. In August 2000, the WRCOG Executive Committee took action to build upon the work completed in the southwest area for the SATISFY 2020 program and to develop a single consolidated mitigation fee program for all of Western Riverside County. This action was predicated on the desire to establish a single uniform mitigation fee program to mitigate the cumulative regional impacts of new development on the regional arterial highway system, rather than multiple discrete and disparate fee programs with varying policies, fees and improvement projects. A TUMF Policy Committee comprising regional elected officials was formed to recommend and set policies for staff to develop the TUMF Program and provide overall guidance to all other staff committees.

While the TUMF cannot fund all necessary transportation system improvements, it is intended to address a current transportation funding shortfall by establishing a new revenue source that ensures future new development will contribute toward addressing its indirect cumulative traffic impacts on regional transportation infrastructure. Funding accumulated through the TUMF Program will be used to construct transportation improvements such as new arterial highway lanes, reconfigured freeway interchanges, railroad grade separations and new regional express bus services that will be needed to accommodate future travel demand in Western Riverside County. By levying a fee on new developments in the region, local agencies will be establishing a mechanism by which developers and in turn new county residents and employees will effectively contribute their “fair share” toward sustaining the regional transportation system.

This TUMF Nexus Study is intended to satisfy the requirements of California Government Code Chapter 5 Section 66000-66008 Fees for Development Projects (also known as California Assembly Bill 1600 (AB 1600) or the Mitigation Fee Act), which governs imposing development impact fees in California. The Mitigation Fee Act requires that all local agencies in California, including cities, counties, and special districts follow two basic rules when instituting impact fees. These rules are as follows:

- 1) Establish a nexus or reasonable relationship between the development impact fee's use and the type of project for which the fee is required.
- 2) The fee must not exceed the project's proportional “fair share” of the proposed improvement and cannot be used to correct current problems or to make improvements for existing development.

1.2 TUMF Nexus Study History

The TUMF Program is implemented through the auspices of WRCOG. As the council of governments for Western Riverside County, WRCOG provides a forum for representatives from 18 cities, the Riverside County Board of Supervisors, the Eastern and Western Municipal Water Districts, the Riverside County Superintendent of Schools, the March Joint Powers Authority, the Riverside Transit Agency and the Morongo Band of Mission Indians to collaborate on issues that affect the entire subregion, such as air quality, solid waste, transportation and the environment. WRCOG strives to "respect local control, provide regional perspective, and make a difference" to elevate the quality of life throughout the subregion. A current list of the standing WRCOG TUMF related committees and committee membership is included in **Appendix A**.

The initial WRCOG TUMF Nexus Study was completed in October 2002 and adopted by the WRCOG Executive Committee in November 2002. Its purpose was to establish the nexus or reasonable relationship between new land development projects in Western Riverside County and the proposed development impact fee that would be used to improve regional transportation facilities. It also identified the proportional "fair share" of the improvement cost attributable to new development.

Consistent with the provisions of the Mitigation Fee Act, the WRCOG Executive Committee has established that the TUMF Nexus Study will be subject of a comprehensive review of the underlying program assumptions at least every five years to confirm the Nexus. Acknowledging the unprecedented and unique nature of the TUMF Program, the Executive Committee determined that the first comprehensive review of the Program should be initiated within two years of initial adoption of the Program primarily to validate the findings and recommendations of the study and to correct any program oversights. The results of the first review of the Program were documented in the TUMF Nexus Study 2005 Update adopted by the WRCOG Executive Committee on February 6, 2006. A second comprehensive review of the TUMF Program was conducted in 2008 and 2009 in part to address the impacts of the economic recession on the rate of development within the region and on transportation project costs. The findings of the 2009 review of the program were adopted by the WRCOG Executive Committee on October 5, 2009.

A third comprehensive review of the TUMF Program was conducted in 2014 and 2015 leading to a Draft Nexus Study document being distributed for review in August 2015. The WRCOG Executive Committee subsequently considered comments related to the Draft Nexus Study 2015 Update at the meeting held on September 14, 2015, where it was resolved to "delay finalizing the Nexus Study for the TUMF Program Update until the 2016 Southern California Association of Governments' 2016 Regional Transportation Plan / Sustainable Communities Strategy growth forecast is available for inclusion in the Nexus Study". The Southern California Association of Governments (SCAG) adopted the 2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy (2016 RTP/SCS) on April 7, 2016, enabling WRCOG staff to proceed with finalizing the update of the TUMF Nexus Study. The WRCOG TUMF Nexus Study 2016 Update Report was ultimately adopted by the WRCOG Executive Committee on July 10, 2017.

On September 3, 2020, SCAG adopted Connect SoCal; The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy of the Southern California Association of Governments (2020 RTP/SCS). As stated in the plan document “Connect SoCal embodies a collective vision for the region’s future, through the horizon year of 2045. It is developed with input from a wide range of constituents and stakeholders within the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura, including public agencies, community organizations, elected officials, tribal governments, the business community and the general public. Connect SoCal is an important planning document for the region, allowing public agencies who implement transportation projects to do so in a coordinated manner, while qualifying for federal and state funding.”

The adoption of the 2020 RTP/SCS confirmed new growth forecasts for the region that were used as the basis to develop the Connect SoCal plan. These forecasts also provide a foundational element for updating the TUMF program and the associated nexus determination prompting WRCOG to initiate the current program update. The 2020 RTP/SCS growth forecasts are used directly in the fee calculation as the basis for determining the anticipated growth in households and employment in the region through the program horizon year of 2045. These forecasts are also integrated into the Riverside County Transportation Analysis Model (RivCoM) used to forecast the cumulative regional traffic impacts of new development on the arterial highway network in Western Riverside County.

Completed in 2021 to succeed the Riverside County Traffic Analysis Model (RIVTAM), RivCoM provides a valuable tool for supporting a variety of transportation planning activities in Riverside County, including the update of the TUMF Nexus Study. RivCoM was developed under the leadership of WRCOG in conjunction with regional partners with the intent to provide jurisdictions in Riverside County with a traffic forecasting tool that, while consistent with the SCAG regional travel demand model, provides a more appropriate level of detail to support transportation planning at the County or City level.

RivCoM is a critical tool for quantifying the cumulative regional traffic impacts of new development as part of the TUMF Nexus Study Update. Utilizing the 2020 RTP/SCS growth forecasts, RivCoM is used to quantify changes in travel demand and traffic conditions on the regional highway network, with a specific focus on the TUMF Network. RivCoM outputs are used to analyze project eligibility and quantify the fair share of traffic growth that is attributable to new development as inputs to determining the fee. The adoption of the Connect SoCal plan and the availability of RivCoM to serve as a critical tool for quantifying network impacts for the TUMF Nexus Study Update were key factors driving the schedule for this update of the fee.

To ensure new development continues to contribute a fair share of the cost to mitigate its cumulative regional transportation impacts in the period between the comprehensive review of program assumptions completed at least every five years, the WRCOG Executive Committee has also established that the TUMF Schedule of Fees will be reviewed annually, and adjusted, as needed, on July 1st to reflect current costs. The revised schedule of fees will typically be recalculated in February of each year based

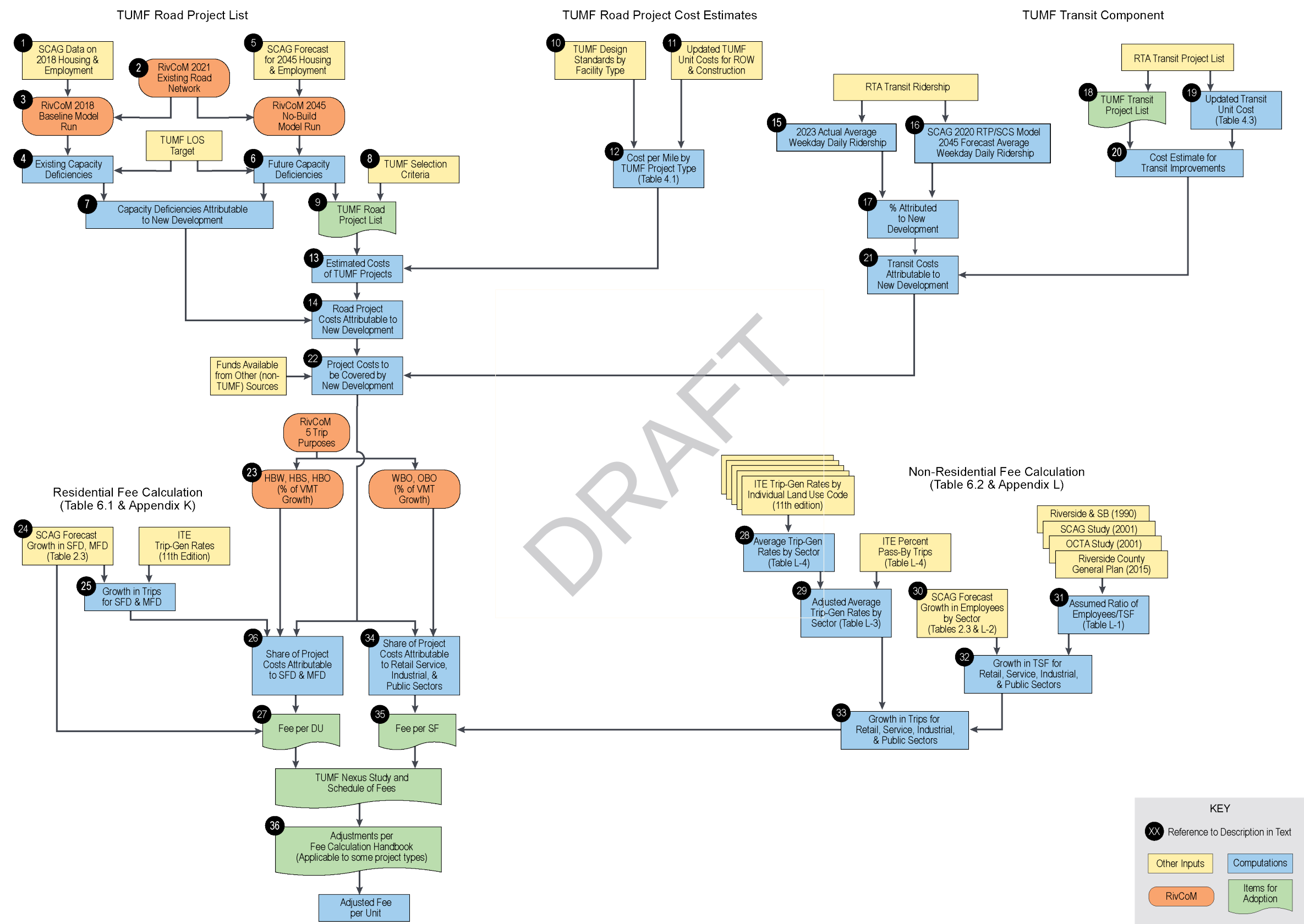
on the percentage increase or decrease in the Engineering News Record (ENR) Construction Cost Index (CCI) for the twelve (12) month period from January of the prior year to January of the current year, and the percentage increase or decrease in the National Association of Realtors (NAR) Median Sales Price of Existing Single Family Homes in the Riverside/San Bernardino Metropolitan Statistical Area for the twelve (12) month period from the 3rd Quarter of the second year prior to the 3rd Quarter of the prior year (to coincide with the publication of the most recently updated index). If approved by the Executive Committee, the resultant percentage change for each of the indices will be applied to the unit cost assumptions for roadway and bus transit costs, and land acquisition costs, respectively, to reflect the combined effects of changes in eligible project costs on the resultant per unit fee for each defined land use category. The most recent annual cost adjustment to the TUMF Schedule of Fees was adopted by the WRCOG Executive Committee on July 12, 2021.

1.3 TUMF Nexus Study Process

In coordination with WRCOG, city and county representatives and other interested parties have reviewed the underlying assumptions of the Nexus Study as part of this comprehensive program review. In particular, the most recent socioeconomic forecasts developed by SCAG as the basis for the 2020 RTP/SCS were incorporated. This use of the most recent SCAG forecasts resulted in a shift of the program base year from 2012 to 2018, as well as a shift in the program horizon year from 2040 to 2045. Furthermore, the TUMF Network was re-examined in detail based on travel demand forecasts derived from the most recent version of the Riverside County Model (RivCoM) to more accurately reflect future project needs to address the cumulative regional impacts of new development in Western Riverside County as well as eliminating those projects having been completed prior to the commencement of the Nexus review in 2021.

The subsequent chapters of this Nexus Study document describe the various assumptions, data inputs and analysis leading to the determination of each major variable in the TUMF calculation, and ultimately leading to the determination of the TUMF Schedule of Fees that indicates the maximum "fair share" fee for each of the various use types defined in the TUMF program. The overall process for establishing the TUMF nexus is summarized in this section, including the flow chart in **Figure 1.1** that illustrates the various technical steps in this fee calculation process. Each technical step that was followed to determine the TUMF Schedule of Fees and establish the program nexus is summarized below, with the numbers denoted on the flow chart correlating to the steps described. The flow chart also incorporates color coding of the steps to indicate those steps that involved the application of RivTAM, steps that utilized other input data, steps that are computations of various inputs, and steps that required specific actions of the various WRCOG committees to confirm major variables. Where appropriate, the flow chart also includes specific cross references to the sections or tables included in this Nexus Study document that correlate to the particular step.

Figure 1.1 - Flowchart of Key Steps in the TUMF Nexus Study Process



1.3.1. Establish the TUMF Network Project List

The roadway network in Western Riverside County must be evaluated to determine how new development activity will impact the performance of the network, and how the resultant traffic impacts can be mitigated by completing various roadway improvements. The following steps integrate the latest SCAG socio-economic forecasts into RivCoM as the basis for determining future roadway deficiencies and identifying the list of eligible improvements to address these future deficiencies. The rational and methodology for accomplishing these steps is further explained in **Chapters 2 and 3** of this report, with the resultant TUMF Network described in **Chapter 4**.

- 1) The SCAG 2020 RTP/SCS was developed using housing and employment data for 2018 as its base year. This adopted dataset was integrated into RivCoM providing a critical analytic tool to support the Nexus Study Update.
- 2) The RivCoM model¹ has datasets available that represent the capacity of the different facilities in the road network for several different study years. For this nexus update, the RivCoM 2018 base network that was developed following the adoption of the SCAG 2020 RTP was selected as the one most closely resembling current conditions. This network was subsequently reviewed and updated, including a detailed review by WRCOG staff and participating jurisdictions, to identify projects that were completed on the arterial network in the period between 2016 and December 2021. The arterial network was then recoded to reflect the changes to the TUMF Network to create a 2021 Existing Network as the base network for analysis. A second version of the base network was also developed adding only those facilities that had been identified on the 2016 TUMF network that did not currently exist and therefore were not represented by a link(s) in RivCoM. The Supplemental 2021 Existing Network was utilized as the basis for assessing only those projects that did not currently exist on the TUMF Network.
- 3) RivCoM was run using the 2018 socio-economic data (SED) and the 2021 Existing Networks to produce the baseline volumes on the roads in the TUMF Network.
- 4) The baseline volume-to-capacity (V/C) ratio was then determined. The target LOS for TUMF facilities is "D", meaning that facilities with LOS "E" or "F", i.e. those with a V/C ratio of 0.9 or higher, are deemed to have inadequate capacity. The result of this step is a list of roads that have existing capacity deficiencies.

¹ The macro-level traffic forecasting was conducted using the Riverside County Transportation Analysis Model (RivCoM). RivCoM is consistent of SCAG's six-county model with additional detail (traffic analysis zones and local roads) added within Riverside County. It was developed for use in traffic studies in Riverside County as a replacement for the Riverside County Transportation and Analysis Model (RivTAM) integrating an updated modeling platform to improve run time and reliability, as well as a more focused model area, more detailed network and zone structure, and post processors to satisfy more recent legislative requirements. RivCoM has both the geographic scope needed to analyze all TUMF facilities and conformity with regional planning assumptions. There is a memorandum of understanding among the jurisdictions of Riverside County that encourages the use of the RivCoM model for use in regional traffic studies.

- 5) The SCAG 2020 RTP/SCS was developed using housing and employment data for 2045 as its forecast horizon year. This adopted dataset was also used as the future base year for the TUMF update calculation.
- 6) RivTAM was run using the 2021 Existing Networks with the land use assumptions for 2045. These “Future No-Build” scenarios was used to determine where deficiencies would occur in the roadway system if development occurred as expected but no roadway improvements were implemented.
- 7) Comparing the existing capacity deficiencies with the future deficiencies showed where new deficiencies would occur that are entirely attributable to growth in households and employment. Comparing the existing and future traffic volume to capacity ratio on the roads that are currently deficient shows the portion of the future deficiency that is attributable to growth.
- 8) It is generally acknowledged that the TUMF program cannot and should not attempt to fund every roadway improvement needed in Western Riverside County. WRCOG has adopted a set of selection criteria that was used to choose which roadway improvements would be eligible for TUMF funding.
- 9) The selection criteria were applied to the forecast deficiencies to identify projects for the TUMF Project List. The project list was subsequently reviewed to confirm the eligibility of proposed projects, including projects previously included in the TUMF program, as well as additional projects requested for inclusion as part of the current update. The project list was then subsequently updated to reflect those projects considered eligible for TUMF funding as part of the 2024 Nexus Study Update.

1.3.2. Determine the TUMF Network Project Costs

The estimated costs of proposed improvements on the TUMF Network are calculated based on the prices of construction materials, labor and land values for the various eligible project types included as part of the TUMF program. The approach and outcomes of the following steps is described in **Chapter 4** of this report.

- 10) The TUMF program has design standards covering the road project components that are eligible for TUMF funding. This ensures that projects in jurisdictions with different design standards are treated equally².
- 11) Current cost values for labor and materials such as cement, asphalt, reinforcing steel, etc., as derived from Caltrans cost database, RCTC and other sources, were tabulated and updated to December 2023. Additionally, the ROW cost components per square foot for various land use types were also updated based on current property valuations in Riverside County as researched by Overland, Pacific and Cutler.

² A jurisdiction may choose to design to a higher standard, but if it does so, TUMF will only fund up to the equivalent of what costs would have been had the TUMF design standards been followed.

- 12) The cost values for the contributing labor, materials and land components were applied to estimated quantities of these components for the various roadway project types that are eligible under TUMF to generate aggregate unit cost values for each project type (road costs per lane-mile, typical costs per arterial-freeway interchange, bridge costs per linear foot, etc.).
- 13) The unit costs from the previous step were then applied to the project list to estimate the costs of the improvements on the TUMF project list.
- 14) The percentage of each project that was attributable to new development was then applied to the costs of TUMF road projects to find the total road project cost that is attributable to new development.

1.3.3. Determine the TUMF Transit Component

A portion of the TUMF funding is made available for transit services that provide an alternative to car travel for medium-to-long distance intra-regional trips. The eligible transit projects and their associated costs are determined using the following steps, with additional explanation provided in **Chapter 4** of this report.

- 15) Actual average weekday daily ridership for Riverside Transit Agency (RTA) transit bus services was tabulated for 2023.
- 16) Forecast average weekday daily ridership for RTA bus transit services was retrieved from the SCAG 2020 RTP/SCS Model for horizon year 2045.
- 17) The growth in ridership between 2023 and 2045 was compared to determine the portion of 2045 average weekday daily ridership that is attributable to existing passengers and the portion attributable to new growth.
- 18) A proposed transit project list was provided by RTA staff and was reviewed to confirm the validity of the project list to establish a final recommended transit project list to be included as part of the program. The result was the TUMF Transit Project List.
- 19) RTA provided information on current costs for the listed transit infrastructure.
- 20) The cost information was then used to determine the cost of the items on the TUMF Transit Project List.
- 21) The percent attribution from Step 17 was applied to the project cost estimates from the previous step to determine the cost of transit improvements that are attributable to new development.
- 22) The costs for road and transit projects that are attributable to new development are then combined along with information on other (non-TUMF) funds to determine the total cost for TUMF projects that is to be covered by new development through the imposition of the fees. The available alternate funding sources were reviewed as part of the Nexus update, specifically including the completion of a detailed review of available federal, state and local funding sources administered by RCTC.

1.3.4. Computing the Fee for Residential Developments

Having determined the total project costs to be covered by new development under the TUMF program, it is necessary to divide these costs among different types of developments roughly in proportion to their expected traffic impacts. The following steps describes the process for determining the proportion attributable to new residential development. The approach for accomplishing these steps along with the findings of this analysis are described in detail in **Chapter 5** and **Chapter 6** of this report.

- 23) California legislation encourages the use of vehicle miles of travel (VMT) as the primary indicator of traffic impacts because it combines the number of vehicle trips and the average length of those trips to reflect the proportional impact to the roadway network. As a result, the methodology for determining the relative distribution of traffic impacts between residential and non-residential uses for the purposes of TUMF utilizes a VMT based approach. The RivCoM 2021 Existing Network and 2045 No-Build model runs were examined to determine the VMT of various trip types that would take place in Western Riverside County (excluding through trips). The results were compared to determine the growth in VMT for each trip type. Per WRCOG policy (based on National Cooperative Highway Research Program (NCHRP) recommended practice) trips originating in or destined for a home are attributed to residential development while trips where neither the origin nor the destination are a home are attributed to non-residential development.
- 24) The SCAG 2020 RTP/SCS socio-economic forecasts were used to estimate the number of single-family and multi-family dwelling units that will be developed during the 2018 to 2045 period.
- 25) The Institute of Transportation Engineers' (ITE's) trip generation rates, which come from surveys of existing sites for various development types, were then used to estimate the daily number of trips that will be generated by future single- and multi-family developments that will occur in the region from 2018 to 2045.
- 26) The cost to be covered by residential development was divided into the portion attributable to new single-family dwellings and portion attributable to new multi-family development to calculate the cost share for each use.
- 27) The cost share for single-family dwellings and multi-family dwellings was divided by the number of dwellings of each type to determine the fee level required from each new dwelling unit to cover their fair share of the cost to mitigate the impacts of new developments.

1.3.5. Computing the Fee for Non-Residential Developments

A process similar to that used for residential units was used to determine the fee level for non-residential development. However, the determination of fees for non-residential development involves additional steps due to the additional complexity of accounting for a greater variety of development types within each use category. **Chapter 5** and **Chapter 6** of this report provide additional explanation regarding the methodology for accomplishing these steps along with the results of this analysis.

- 28) Like most impact fee programs, TUMF groups similar development projects together into general use categories to simplify the administration of the program. TUMF groups the various land use categories found in ITE's Trip Generation Manual into four non-residential categories (industrial, retail, service, and government/public sector) based on the North American Industry Classification System (NAICS), which is also used by the U.S. Census Bureau and SCAG for demographic classifications, and is the basis for such classifications in the SCAG Regional Travel Demand Model as well as and the RivCoM model. The ITE trip generation rates for all uses were reviewed for accuracy updated to reflect the most current ITE published rates. The median value for the trip-generation rates for all uses within each category was used in the nexus study to represent the trip-generation characteristics for the category as a whole.
- 29) The trip-generation rates of retail uses and service uses were adjusted to take into account the share of pass-by trips these uses generate. Pass by trip rates for various retail and service uses were derived from the ITE Trip Generation Manual to determine the median value of all uses as the basis for the adjustment. The ITE pass by trip rates for all uses were reviewed for accuracy and updated to reflect the most current ITE published rates.
- 30) The SCAG 2020 RTP/SCS socio economic forecasts included non-residential employment for 2018 and 2045. These forecasts were used to estimate the growth in employment in each of the four non-residential uses.
- 31) The SCAG employment forecasts are denominated in jobs while development applications are typically denominated in square feet of floorspace. The ratio of floorspace per employee was determined as a median value derived from four studies, including a comprehensive study San Bernardino and Riverside Counties conducted in 1990, an OCTA study conducted in 2001, a SCAG study (including a specific focus on Riverside County) conducted in 2001, and the Riverside County General Plan adopted in 2015.
- 32) The forecast growth in employees was multiplied by the floorspace per employee to produce a forecast of the floorspace that will be developed for each of the four non-residential use types.
- 33) The trip-generation rate for each of the four uses was multiplied by the forecast of new floorspace to estimate the number of trips generated by each use.
- 34) The amount of project costs to be covered by non-residential development was split between the four non-residential uses to determine the TUMF cost share for each.
- 35) The TUMF cost share for each of the four non-residential uses was divided by the forecast growth in floorspace to determine the fee level required from each new square foot of non-residential development to cover their fair share of the cost to mitigate the impacts of new developments.
- 36) WRCOG has adopted a TUMF Fee Calculation Handbook that allows for fee adjustments to be made to account for unusual circumstances for certain types of residential and non-residential development (fuel filling stations, golf courses, high-cube warehouses, wineries, electric charging stations, etc.) These

adjustments are intended to calculate a fairer proportional fee based on the unique trip generation characteristics of these particular development types.

The outcome of this process is a schedule of fees for the various use categories identified as part of the TUMF program. The study conclusions including the Schedule of Fees is presented in **Chapter 7** of this report. The schedule of fees represents the **maximum** fee permissible under California law for the purposes of the TUMF program. The WRCOG Executive Committee has the option to adopt lower fees, however, in doing so each use category subject to a lower fee would not be contributing a fair share of the cost of their impacts. This would in turn create a funding gap for the program that would necessitate identifying additional project funding from some other source in order to ensure the cumulative regional impacts of new development are being mitigated fully in accordance with the program.



2.0 FUTURE GROWTH

2.1 Recent Historical Trend

Western Riverside County experienced robust growth in the period from the late 1990's to the mid 2000's. The results of Census 2000 indicate that in the year 2000, Western Riverside County had a population of 1.187 million representing a 30% increase (or 2.7% average annual increase) from the 1990 population of 912,000. Total employment in Western Riverside County in 2000 was estimated by the SCAG to be 381,000 representing a 46% increase (or 3.9% average annual increase) over the 1990 employment of 261,000.

Despite the impacts of the Great Recession and the associated residential mortgage and foreclosure crisis, and more recently with the shifting of population during and following the COVID-19 pandemic, Western Riverside County has continued to grow due to the availability of relatively affordable residential and commercial property, and a generally well-educated workforce. By 2010, the population of the region had grown to 1.742 million, a further 47% growth in population from 2000. Similarly, total employment in the region had also grown from 2000 to 2010 with 434,000 employees estimated to be working in Western Riverside County. This represents a 12% increase from the 381,000 employees working in the region in 2000.

2.2 Available Demographic Data

A variety of alternate demographic information that quantifies future population, household and employment growth is available for Western Riverside County. For earlier versions of the TUMF Nexus Study, the primary available source of consolidated demographic information for Western Riverside County was provided by SCAG. SCAG is the largest of nearly 700 Councils of Government (COG) in the United States and functions as the Metropolitan Planning Organization (MPO) for six counties in Southern California including Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial. SCAG is mandated by the federal government to research and plan for issues of regional significance including transportation and growth management. As part of these responsibilities, SCAG maintains a comprehensive database of regional socioeconomic data and develops demographic projections and travel demand forecasts for Southern California.

In preparation for the 2020 RTP/SCS, SCAG undertook robust stakeholder engagement, including participation by WRCOG, Riverside County and the various cities in Western Riverside County, to develop regional demographic forecasts. Using input from regional stakeholders regarding anticipated patterns and rates of development, SCAG compiled and disseminated the forecasts that were ultimately adopted in 2020, including those specific to Western Riverside County. The SCAG forecasts adopted for the 2020 RTP/SCS were subsequently used as the basis for RivCoM and are used as the basis for this TUMF Nexus Study Update.

2.3 Demographic Assumptions Used for the Nexus Study Analysis

A major distinction between data used for the TUMF Nexus Study 2016 Update and the SCAG 2020 RTP/SCS data used for this 2024 Update is the change in the base year from 2012 to 2018, as well as the change in the horizon year from 2040 to 2045. This shift in the base year and horizon year demographic assumptions of the program carries through all aspects of the nexus analysis, including the travel demand forecasting, network review and fee calculation.

The SCAG 2020 RTP/SCS data were compared to the 2016 RTP/SCS data used in the TUMF Nexus Study 2016 Update. As can be seen in **Table 2.1** and **Figure 2.1**, the 2018 data reflects an increase in population and single-family households, and a very slight decline in multi-family households. Employment grew substantially overall, with significant growth in industrial employment, largely attributable to the rapid expansion of warehousing and logistics facilities in Western Riverside County. In contrast, there was a notable decline in government and public sector employment in the region from 2012 to 2018

Table 2.1 - Base Year Socioeconomic Estimates for Western Riverside County

SED Type	2016 Update (2012)	2024 Update (2018)	Change	Percent
Total Population	1,773,935	1,905,440	131,505	7%
Total Households	525,149	554,573	29,424	6%
Single-Family	366,588	397,407	30,819	8%
Multi-Family	158,561	157,166	-1,395	-1%
Total Employment	460,787	570,420	109,633	24%
Industrial	120,736	169,334	48,598	40%
Retail	65,888	73,814	7,926	12%
Service	253,372	308,703	55,331	22%
Government/Public Sector	20,791	18,569	-2,222	-11%

Source: SCAG 2016 RTP/SCS; SCAG 2020 RTP/SCS

Figure 2.1 – Base Year Socioeconomic Estimates for Western Riverside County

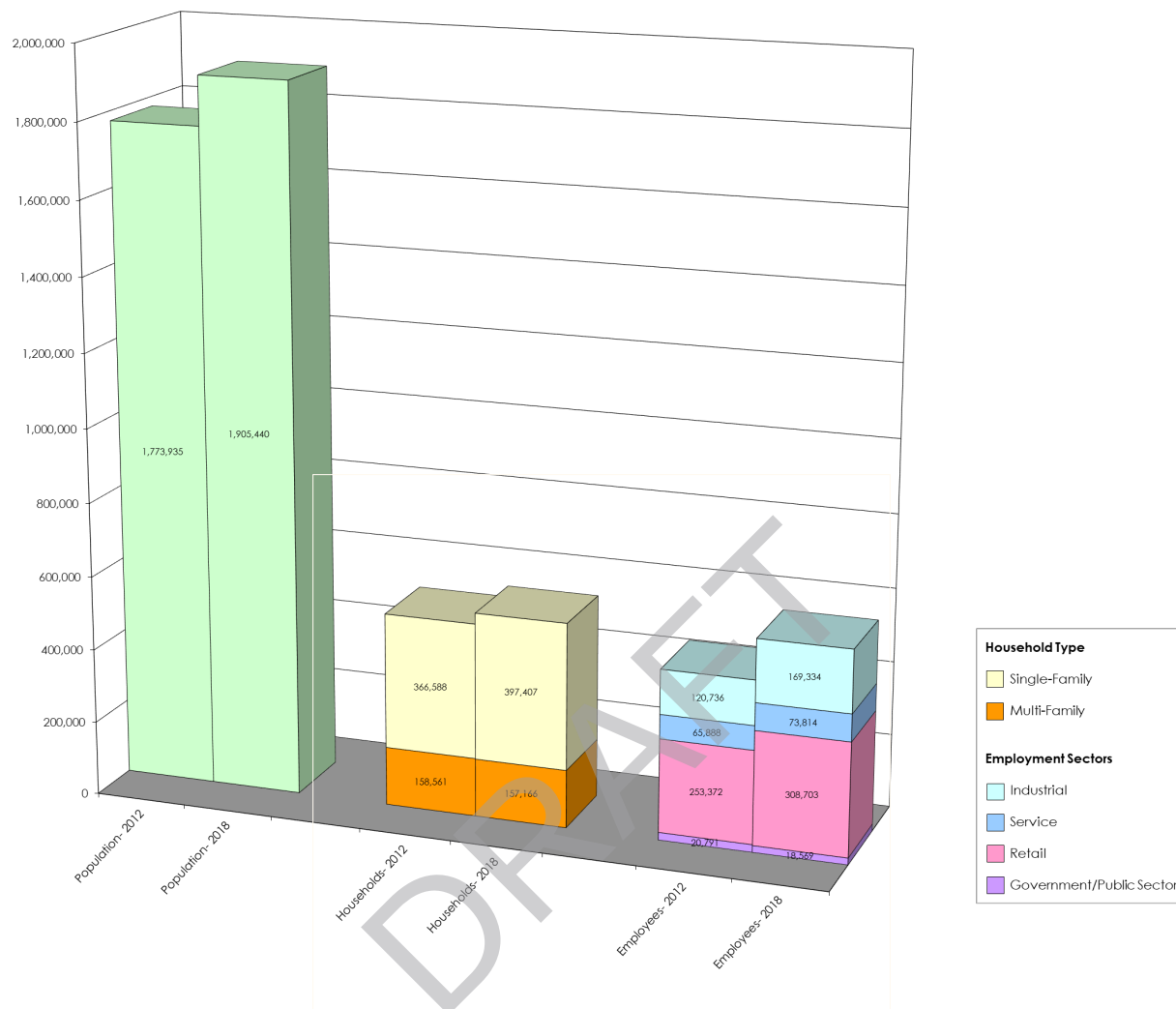


Table 2.2 and **Figure 2.2** compare the socioeconomic forecasts for the program horizon year of 2045 used in the TUMF Nexus Study 2016 Update and 2045 for this study. The most recent forecasts reflect an increase in the horizon year population and households, and a decrease in overall employment in Western Riverside County. The change in employment was not, however, consistent across sectors. The retail employment forecast has decreased approximately 15% from 2040 to 2045, while the industrial employment forecast has increased over 20%. This shift is consistent with the emergence of e-commerce as an alternative to traditional “brick and mortar” retail.

Table 2.2 - Horizon Year Socioeconomic Estimates for Western Riverside County

SED Type	2016 Update (2040)	2024 Update (2045)	Change	Percent
Total Population	2,429,633	2,533,876	104,243	4%
Total Households	775,231	812,399	37,168	5%
Single-Family	539,631	564,898	25,267	5%
Multi-Family	235,600	247,501	11,901	5%
Total Employment	861,455	846,442	-15,013	-2%
TUMF Industrial	201,328	245,915	44,587	22%
TUMF Retail	101,729	86,929	-14,800	-15%
TUMF Service	528,092	482,958	-45,134	-9%
TUMF Government/Public Sector	30,306	30,640	334	1%

Source: SCAG 2016 RTP/SCS; SCAG 2020 RTP/SCS

Figure 2.2 - Horizon Year Socioeconomic Estimates for Western Riverside County

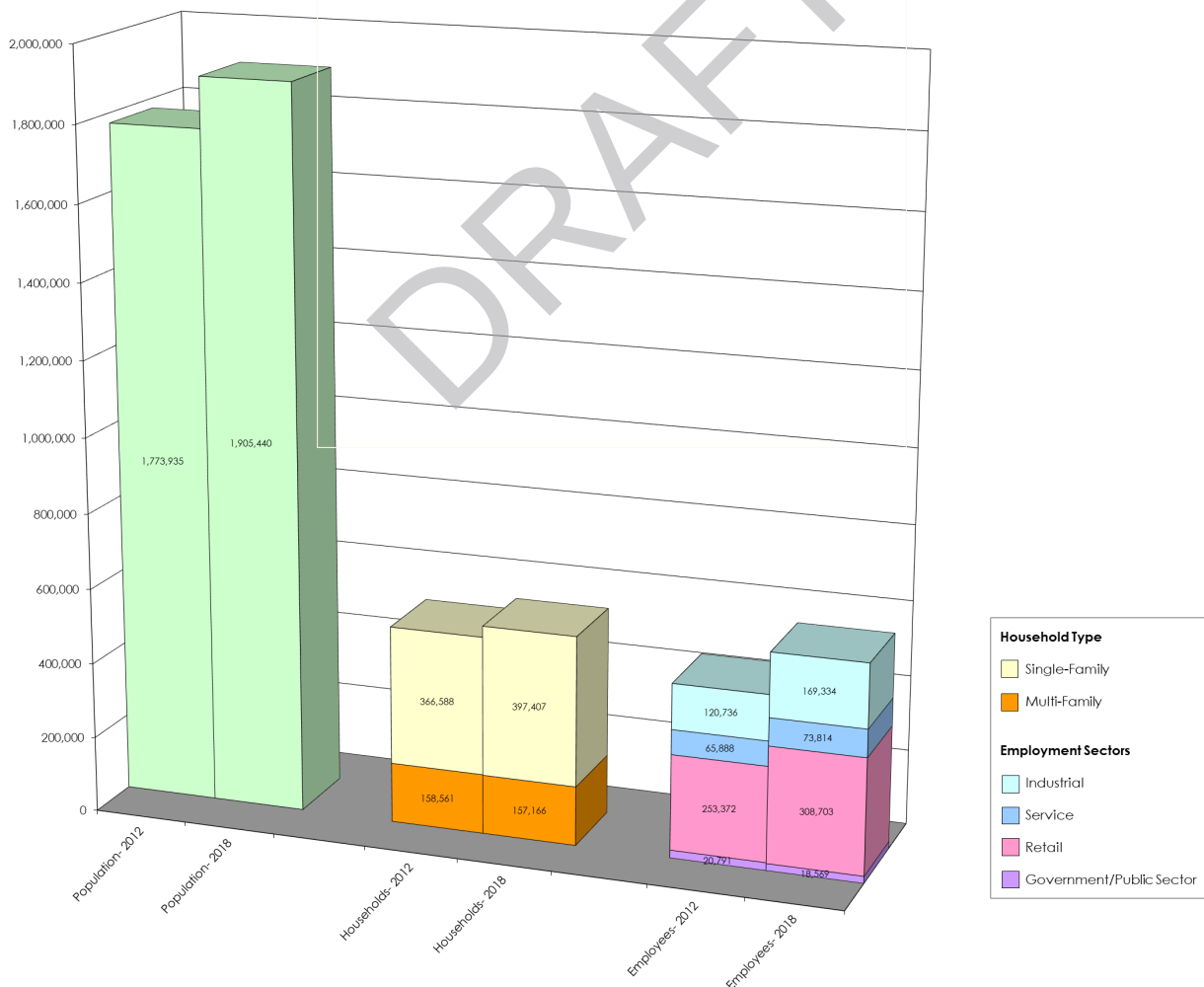


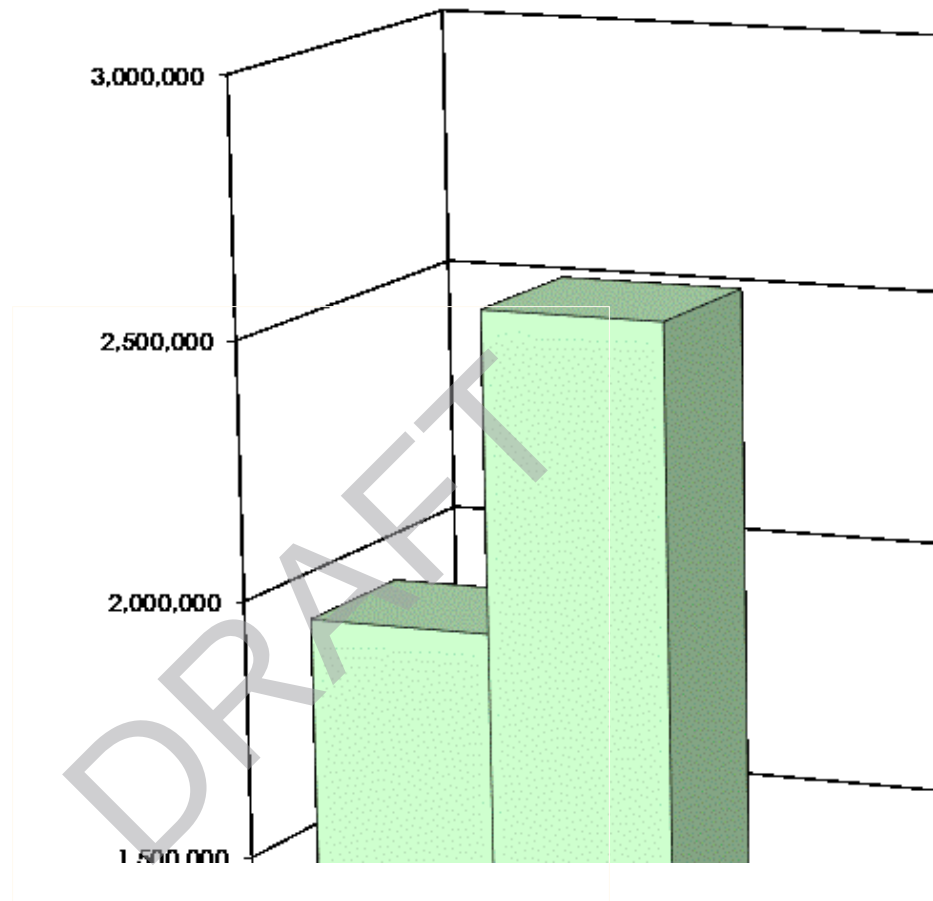
Table 2.3 and **Figure 2.3** summarize the socioeconomic data obtained from SCAG and used as the basis for completing this Nexus Study analysis. The SCAG employment data for 2018 and 2045 was provided for thirteen employment sectors consistent with the California Employment Development Department (EDD) Major Groups including: Farming, Natural Resources and Mining; Construction; Manufacturing; Wholesale Trade; Retail Trade; Transportation, Warehousing and Utilities; Information; Financial Activities; Professional and Business Service; Education and Health Service; Leisure and Hospitality; Other Service; and Government. For the purposes of the Nexus Study, the EDD Major Groups were aggregated to Industrial (Farming, Natural Resources and Mining; Construction; Manufacturing; Wholesale Trade; Transportation, Warehousing and Utilities), Retail (Retail Trade), Service (Information; Financial Activities; Professional and Business Service; Education and Health Service; Leisure and Hospitality; Other Service) and Government/Public Sector (Government). These four aggregated sector types were used as the basis for calculating the fee as described in **Section 6.2. Appendix B** provides a table detailing the EDD Major Groups and corresponding North American Industry Classification System (NAICS) Categories that are included in each non-residential sector type.

Table 2.3 - Population, Households and Employment in Western Riverside County (2018 to 2045)

SED Type	2018	2045	Change	Percent
Total Population	1,905,440	2,533,876	628,436	33%
Total Households	554,573	812,399	257,826	46%
Single-Family	397,407	564,898	167,491	42%
Multi-Family	157,166	247,501	90,335	57%
Total Employment	570,420	846,442	276,022	48%
TUMF Industrial	169,334	245,915	76,581	45%
TUMF Retail	73,814	86,929	13,115	18%
TUMF Service	308,703	482,958	174,255	56%
TUMF Government/Public Sector	18,569	30,640	12,071	65%

Source: SCAG 2020 RTP/SCS

**Figure 2.3 - Population, Households and Employment in Western Riverside County
(2016 to 2045)**



The combined effects of the changes in the base year and horizon year socioeconomic data are modest reductions in the total growth in population and single-family households, but a notable increase in multi-family households. The change in total employment is reduced by 31%, with the most significant reduction in employment growth in the retail sector (-63%), while the industrial sector saw only a slight reduction in total employment growth compared to the 2016 Nexus Update (5%). The Government/public sector employment growth has increased by 27% from the 2016 Nexus Study to the 2024 Nexus Study, although the total number of jobs increased is relatively small as a share of the total employment. **Table 2.4** and **Figure 2.4** provide a comparison of the changes in population, households and employment between the 2016 Nexus Update and the 2024 Nexus Update. The table and figure clearly illustrate the reduction in the rate of growth in Western Riverside County largely attributable to the effects of the economic recession. This reduced rate of growth in the region will serve as the basis for reevaluating the level of impact of new development on the

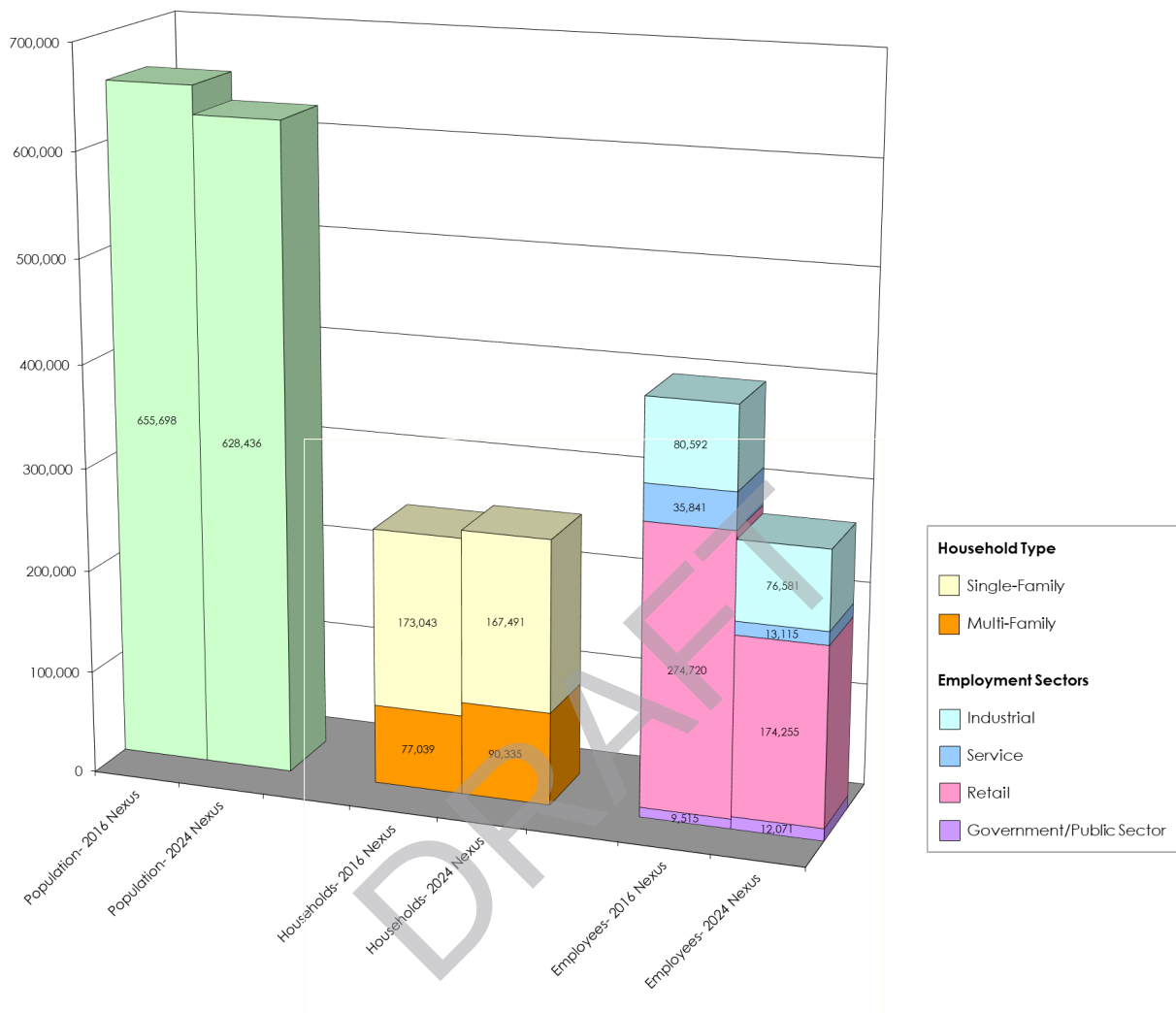
transportation system in the next section, as well as providing the basis for the determination of the fair share fee for each land use type.

**Table 2.4 - Population, Households and Employment in Western Riverside County
(Existing to Future Change Comparison)**

SED Type	2016 Update (2012-2040)	2024 Update (2018-2045)	Difference	Percent
Total Population	655,698	628,436	-27,262	-4%
Total Households	250,082	257,826	7,744	3%
Single-Family	173,043	167,491	-5,552	-3%
Multi-Family	77,039	90,335	13,296	17%
Total Employment	400,668	276,022	-124,646	-31%
TUMF Industrial	80,592	76,581	-4,011	-5%
TUMF Retail	35,841	13,115	-22,726	-63%
TUMF Service	274,720	174,255	-100,465	-37%
TUMF Government/Public Sector	9,515	12,071	2,556	27%

Source: SCAG 2016 RTP/SCS; SCAG 2020 RTP/SCS

**Figure 2.4 - Population, Households and Employment in Western Riverside County
(Existing to Future Change Comparison)**



3.0 NEED FOR THE TUMF

All new developments have some effect on the transportation infrastructure in a community, city or county due to an increase in travel demand. Increasing usage of the transportation facilities leads to more traffic, progressively increasing VMT, traffic congestion and decreasing the level of service (LOS)³. To meet the increased travel demand and keep traffic flowing, improvements to transportation facilities become necessary to sustain pre-development traffic conditions.

The projected growth in Western Riverside County (33% growth in population and 48% growth in employment in 27 years) and the related growth in VMT can be expected to increase congestion and degrade mobility if substantial investments are not made in the transportation infrastructure. This challenge is especially critical for arterial highways and roadways that carry a significant number of the trips between cities, since traditional sources of transportation improvement funding (such as the gasoline tax and local general funds) will not be nearly sufficient to fund the improvements needed to serve new development. Development exactions generally provide only a fraction of the improvements with those being confined to the area immediately adjacent to the respective development, and the broad-based county-level funding sources (i.e., Riverside County's half-cent sales tax known as Measure A) designate only a small portion of their revenues for arterial roadway improvements.

This section documents the existing and future congestion levels that demonstrate the need for future improvements to the transportation system to specifically mitigate the cumulative regional transportation impacts of new development. It then describes the TUMF concept that has been developed to fund future new developments' fair share of needed improvements.

The forecast of future congestion levels is derived from Year 2045 No-Build travel demand forecasts for Western Riverside County developed using RivCoM. The Year 2045 No-Build scenario evaluates the effects of 2045 population, employment and resultant traffic generation on the 2021 existing arterial highway network.

3.1 Future Highway Congestion Levels

To support the evaluation of the cumulative regional impacts of new development on the existing arterial highway system in Western Riverside County, existing (2018) and future (2045) SED were modeled on the existing (2021) arterial highway network using RivCoM. To quantify traffic growth impacts, various traffic measures of effectiveness were calculated for the AM and PM peak periods for each of the two scenarios. The

³ The Highway Capacity Manual 6th Edition – A Guide for Multimodal Mobility Analysis (Transportation Research Board, National Academy of Sciences, Washington, D.C., 2016, Volume 1 – Concepts, pp 5-3) describes LOS as a “quantitative stratification of performance measure or measures representing quality of service....HCM defines six levels of service, ranging from A to F, for each service measure or combination of measures. LOS A represents the best operating conditions from the traveler's perspective and LOS F the worst.”

WRCOG TUMF study area was extracted from the greater regional model network for the purpose of calculating measures for Western Riverside County only. Peak period performance measures for the Western Riverside County TUMF study area included total VMT, total vehicle hours of travel (VHT), total combined vehicle hours of delay (VHD), and total VMT experiencing unacceptable level of service (LOS E). These results were tabulated in **Table 3.1**. Plots of the Network Extents are attached in **Appendix C**.

Total Arterial VMT, VHT, VHD and LOS E Threshold VMT were calculated to include all principal arterials, minor arterials and major connectors, respectively. Regional values for each threshold were calculated for a total of all facilities including arterials, freeways, freeway ramps and High-Occupancy Vehicle (HOV) lanes.

Table 3.1 - Regional Highway System Measures of Performance (2018 Existing to 2045 No-Build)

Measure of Performance*	Peak Periods (Total)			
	2018 Existing	2045 No-Build	% Change	% Annual
VMT - Total ALL FACILITIES	23,284,724	29,897,254	28%	0.9%
VMT - FREEWAYS	13,514,522	15,490,284	15%	0.5%
VMT - ALL ARTERIALS	9,770,202	14,406,970	47%	1.4%
TOTAL - TUMF ARTERIAL VMT	6,216,985	8,597,200	38%	1.2%
VHT - TOTAL ALL FACILITIES	541,350	915,439	69%	2.0%
VHT - FREEWAYS	263,792	399,128	51%	1.5%
VHT - ALL ARTERIALS	277,558	516,311	86%	2.3%
TOTAL TUMF ARTERIAL VHT	174,455	320,869	84%	2.3%
VHD - TOTAL ALL FACILITIES	108,900	338,056	210%	4.3%
VHD - FREEWAYS	66,156	170,649	158%	3.6%
VHD - ALL ARTERIALS	42,745	167,407	292%	5.2%
TOTAL TUMF ARTERIAL VHD	33,249	124,863	276%	5.0%
VMT LOS E - TOTAL ALL FACILITIES	5,605,070	13,369,483	139%	3.3%
VMT LOS E - FREEWAYS	4,725,471	9,316,891	97%	2.5%
VMT LOS E & F - ALL ARTERIALS	879,599	4,052,592	361%	5.8%
TOTAL TUMF ARTERIAL VMT w/ LOS E or worse	765,782	3,184,133	316%	5.4%
% of TUMF ARTERIAL VMT w/ LOS E or worse	12%	37%		

* Based on RivCoM 2018 base network and SCAG 2020 RTP/SCS SED with updated 2021 arterial network as existing in December 2021

NOTES:

Volume is adjusted by PCE factor

VMT = vehicle miles of travel (the total combined distance that all vehicles travel on the system)

VHT = vehicle hours of travel (the total combined time that all vehicles are traveling on the system)

VHD = vehicle hours of delay (the total combined time that all vehicles have been delayed on the system based on the difference between forecast travel time and free-flow (ideal) travel time)

LOS = level of service (based on forecast volume to capacity ratios).

LOS E or Worse was determined by V/C ratio that exceeds 0.9 thresholds as indicated in the Riverside County General Plan.

The following formulas were used to calculate the respective values:

$VMT = \text{Link Distance} * \text{Total Daily Volume}$

$VHT = \text{Average Loaded (Congested) Link Travel Time} * \text{Total Daily Volume}$

$VHD = VHT - (\text{Free-flow (Uncongested) Link Travel Time} * \text{Total Daily Volume})$

$VMT \text{ LOS E or F} = VMT \text{ (on links where Daily V/C exceeded 0.90)}$

Note: Volume to capacity (v/c) ratio thresholds for LOS E are based on the Transportation Research Board 2010 Edition of the Highway Capacity Manual (HCM 2010) LOS Maximum V/C Criteria for Multilane Highways with 45 mph Free Flow Speed (Exhibit 14-5, Chapter 14, Page 14-5).

The calculated values were compared to assess the total change between 2018 Existing and 2045 No-Build scenarios, and the average annual change between 2018 Existing and 2044 No-Build. As can be seen from the RivCoM outputs summarized in **Table 3.1**, the additional traffic generated by new development will cause peak period VMT on the arterial highway network to increase by approximately 47% by the year 2045 (approximately 1.4% per year). In the absence of additional improvements to the transportation network in Western Riverside County, the growth in VMT will cause congestion on the highway system to increase almost exponentially, with the most significant increase in congestion observed on the arterial highway system that includes the TUMF Network. Many facilities will experience a significant increase in vehicle delay and deterioration in LOS to unacceptable levels because of new development and the associated growth in traffic. According to the Highway Capacity Manual 6th Edition – A Guide for Multimodal Mobility Analysis (Transportation Research Board, National Academy of Sciences, Washington, D.C., 2016), “LOS E describes operation at or near capacity. Operations...at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering...or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic stream....the physical and psychological comfort afforded drivers is poor.”

The Congestion Management Program for Riverside County (CMP) published by the Riverside County Transportation Commission (RCTC) in 2011 designates LOS E as the “traffic standards must be set no lower than LOS E for any segment or intersection along the CMP System of Highways and Roadways” in Riverside County. “The intent of the CMP is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality.”⁴ The CMP provides a mechanism for monitoring congestion on the highway system and, where congestion is observed, establishes procedures for developing a deficiency plan to address improvement needs. The reactive nature of the CMP to identify and remediate existing congestion differs from the proactive nature of the TUMF program to anticipate and provide for future traffic needs. For this reason, the TUMF

⁴ Congestion Management Program for Riverside County – Executive Summary (Riverside County Transportation Commission, 2011) Page ES-3, ES-1

program follows the guidance of the Highway Capacity Manual in establishing LOS E as the threshold for unacceptable level of service, and subsequently as the basis for measuring system performance and accounting for existing needs. This approach ensures a more conservative accounting of existing system needs as part of the determination of the “fair share” of mitigating the cumulative regional impacts of future new development on the transportation system.

The continuing need for a mitigation fee on new development is shown by the adverse impact that new development will have on Western Riverside County's transportation infrastructure, and particularly the arterial highway network. As a result of the new development and associated growth in population and employment in Western Riverside County, additional pressure will be placed on the transportation infrastructure with the total peak period VMT on the Western Riverside County Regional System of Highways and Arterials (RSHA; also referred to as the TUMF Network) estimated to increase by approximately 38% or 1.2% compounded annually.

As shown in **Table 3.1**, the peak period VMT on arterial facilities within the TUMF Network experiencing LOS E or worse will increase by approximately 316% or 5.4% compounded annually in Western Riverside County in the period between 2018 and 2045. By 2045, 37% of the total VMT on the TUMF arterial highway system is forecast to be traveling on facilities experiencing daily LOS E or worse. Without improvements to the TUMF arterial highway system, the total vehicle hours of delay (VHD) experienced by area motorists on TUMF arterial highways during the peak periods will increase by approximately 5.0% per year. The combined influences of increased travel demand and worsened LOS that manifest themselves in severe congestion and delay highlighting the continuing need to complete substantial capacity expansion on the TUMF arterial highway system to mitigate the cumulative regional impact of increased travel demand resulting from new development.

The RivCoM outputs summarized in **Table 3.1** clearly demonstrate that the travel demands generated by future new development in the region will lead to increasing levels of traffic congestion, especially on the arterial roadways. The need to improve these roadways to accommodate the anticipated growth in VMT and relieve future congestion is therefore directly linked to the future development which generates the additional travel demand.

3.2 Future Transit Utilization Levels

In addition to the roadway network, public transportation will play a role in serving future travel demand in the region. Transit represents a critical component of the transportation system by providing an alternative mode choice for those not wanting to use an automobile, and particularly for those who do not readily have access to an automobile. As population and employment in Western Riverside County grows because of new development, demand for regional transit services in the region is also expected to grow.

While some future transit trips will be accommodated by inter-regional transit services such as Metrolink, a substantial number of the trips within Western Riverside County will be served by bus transit services and for this reason the provision of regional bus transit service is considered integral to addressing the cumulative regional transportation impacts of new developments. Regional bus transit services within Western Riverside County are primarily provided by RTA.

In 2023, RTA reported average weekday daily ridership of 16,575 on their network of buses⁵. The SCAG 2020 RTP/SCS forecasts for RTA average weekday daily ridership in 2045 is 57,282. These values were used to represent the existing and future transit trips consistent with the analysis of highway trips described in **Section 3.1**. The existing and future transit ridership were compared to assess the impact of new development on transit demand. Average weekday daily ridership would be expected to grow by 40,707 between 2023 and 2045, or an average increase of 1,850 weekday daily riders each year. Average weekday daily system ridership is summarized in **Appendix D**.

The future growth in demand for public transit services is reflective of the cumulative regional impacts of new development, and the associated increase in demand for all types of transportation infrastructure and services to accommodate this growth. Furthermore, bus transit ridership is expected to grow as the improved services being planned and implemented by RTA attract new riders and encourages existing riders to use transit more often as an alternative to driving. Attracting additional riders to bus transit services contributes to the mitigation of the cumulative regional transportation impacts of new development by reducing the number of trips that need to be served on the highway system. The need to provide additional bus transit services within Western Riverside County to satisfy this future demand is therefore directly linked to the future development that generates the demand.

3.3 The TUMF Concept

A sizable percentage of trip-making for any given local community extends beyond the bounds of the individual community as residents pursue employment, education, shopping and entertainment opportunities elsewhere. As new development occurs within a particular local community, this dispersal of trips of all purposes by new residents and the new business that serve them generates additional travel demand and contributes to the need for transportation improvements within their community and in the other communities of Western Riverside County. The idea behind a uniform mitigation fee is to have new development throughout the region contribute uniformly to paying the fair share cost of improving the transportation facilities that serve these trips between communities. Thus, the fee is intended to be used primarily to improve

⁵ RTA, like most public transportation agencies, have seen significant short-term declines in transit ridership resulting from changes in travel demands, mode choice and trip distribution following the COVID-19 pandemic. RTA's 2016 actual average weekday daily ridership was 30,700. Post COVID-19, the RTA actual average weekday daily ridership in 2023 was 16,575, a decline of almost 50% of pre-pandemic ridership levels. These levels would be expected to continue to recover toward pre-pandemic levels as potential riders resume more regular work schedules, and apprehension toward the use of transit services for public health reasons wane.

transportation facilities that serve trips between communities within the region (in particular, arterial roadways and regional bus transit services).

Some roadways serve trips between adjacent communities, while some also serve trips between more distant communities within the region. The differing roadway functions led to the concept of using a portion of the fee revenues for a backbone system of arterial roadways that serve the longer-distance trips (i.e. using TUMF revenues from the entire region), while using a second portion of the fee revenues for a secondary system of arterials that serve inter-community trips within a specific subregion or zone (i.e. using TUMF revenues from the communities most directly served by these roads – to some extent, a return-to-source of that portion of the funds). Reflecting the importance of public transit to provide an alternative to highway travel as part of a balanced regional transportation strategy, a third portion of fee revenues was reserved for improvements to regional bus transit services (i.e. using TUMF revenues from the entire region).

Much, but not all, of the new trip-making in a given area is generated by residential development (i.e. when people move into new homes, they create new trips on the transportation system as they travel to work, school, shopping or entertainment). Some of the new trips are generated simply by activities associated with new businesses (i.e. new businesses will create new trips through the delivery of goods and services, etc.). Apart from commute trips by local residents coming to and from work, and the trips of local residents coming to and from new businesses to get goods and services, the travel demands of new businesses are not considered to be directly attributable to residential development. The consideration of different sources of new travel demand is therefore reflected in the concept of assessing both residential and non-residential development for their related transportation impacts.

In summary, the TUMF concept includes the following:

- A uniform fee that is levied on new development throughout Western Riverside County.
- The fee is assessed roughly proportionately on new residential and non-residential development based on the relative impact of each new use on the transportation system.
- A portion of the fee is used to fund capacity improvements on a backbone system of arterial roadways that serve longer-distance trips within the region; a portion of the fee is returned to the subregion or zone in which it was generated to fund capacity improvements on a secondary system of arterial roadways that link the communities in that area; and a portion of the fee is used to fund improvements to regional bus transit services that serve trips between the communities within the region.

4.0 THE TUMF NETWORK

4.1 Identification of the TUMF Roadway Network

An integral element of the initial Nexus Study was the designation of the Western Riverside County Regional System of Highways and Arterials. This network of regionally significant highways represents those arterial and collector highway and roadway facilities that primarily support inter-community trips in Western Riverside County and supplement the regional freeway system. As a result, this system also represents the extents of the network of highways and roadways that would be eligible for TUMF funded improvements. The TUMF Network does **not** include the freeways of Western Riverside County as these facilities primarily serve longer distance inter-regional trips and a significant number of pass-through trips that have no origin or destination in Western Riverside County⁶.

The TUMF Network is the system of roadways that serve inter-community trips within Western Riverside County and therefore are eligible for improvement funding with TUMF funds. The RSHA for Western Riverside County was identified based on several transportation network and performance guidelines as follows:

1. Arterial highway facilities proposed to have a minimum of four lanes at ultimate build-out (not including freeways).
2. Facilities that serve multiple jurisdictions and/or provide connectivity between communities both within and adjoining Western Riverside County.
3. Facilities with forecast traffic volumes in excess of 20,000 vehicles per day in the future horizon year.
4. Facilities with forecast volume to capacity ratio of 0.90 (LOS E) or greater in the future horizon year.
5. Facilities that accommodate regional fixed route transit services.
6. Facilities that provide direct access to major commercial, industrial, institutional, recreational or tourist activity centers, and multi-modal transportation facilities (such as airports, railway terminals and transit centers).

Appendix E includes exhibits illustrating the various performance measures assessed during the definition of the RSHA.

Transportation facilities in Western Riverside County that generally satisfied these guidelines were initially identified, and a skeletal regional transportation framework evolved from facilities where several guidelines were observed. Representatives of all WRCOG constituent jurisdictions reviewed this framework in the context of current local transportation plans to define the TUMF Network, which was subsequently endorsed by

⁶ Since pass-through trips have no origin or destination in Western Riverside County, new development within Western Riverside County cannot be considered responsible for mitigating the impacts of pass-through trips. The impact of pass-through trips and the associated cost to mitigate the impact of pass-through trips (and other inter-regional freeway trips) is addressed in the Riverside County Transportation Commission (RCTC) Western Riverside County Freeway Strategic Plan, Phase II – Detailed Evaluation and Impact Fee Nexus Determination, Final Report dated May 31, 2008.

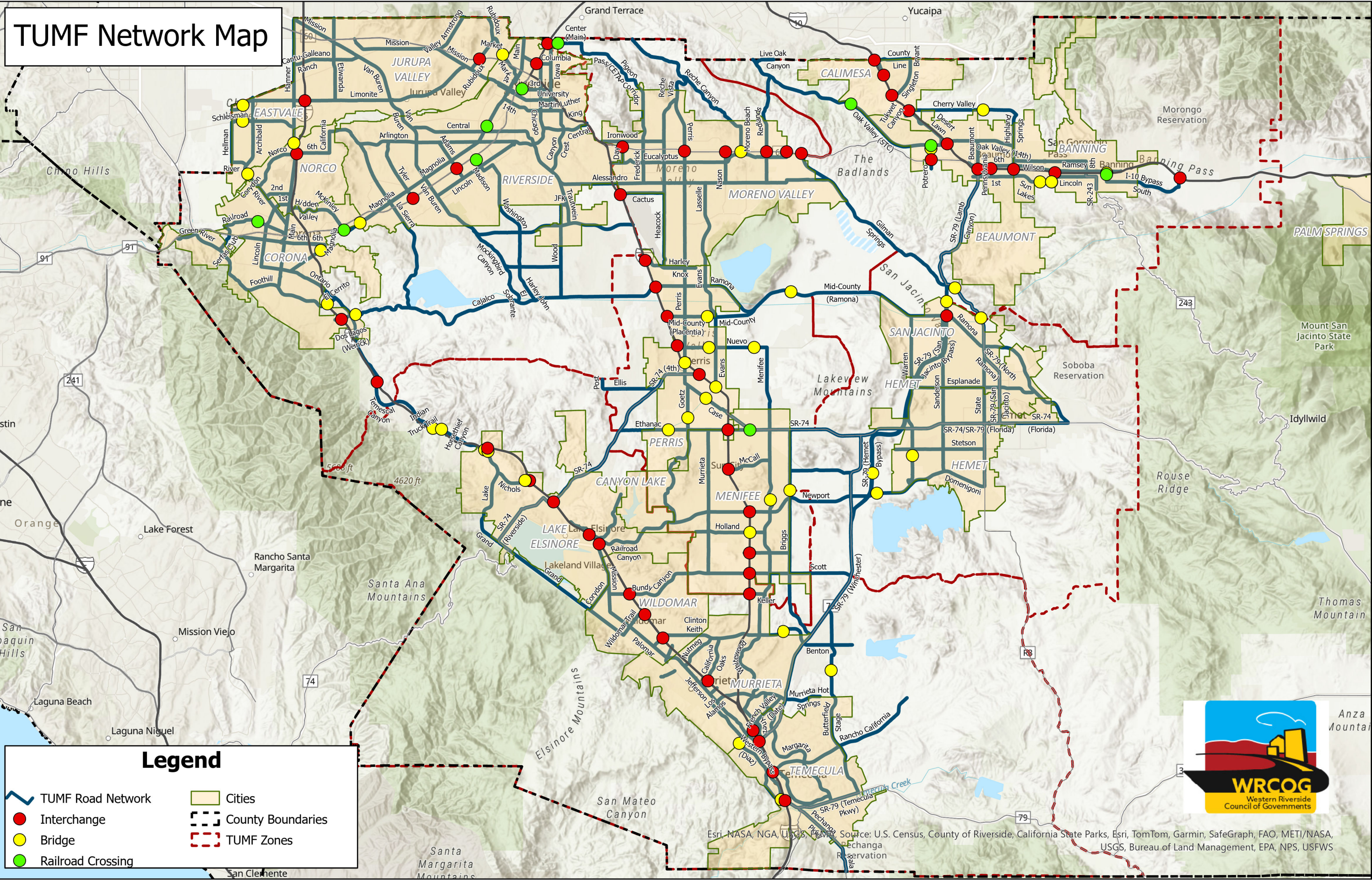
the WRCOG Public Works Committee, WRCOG Technical Advisory Committee, TUMF Policy Committee and the WRCOG Executive Committee.

The RSHA is illustrated in **Figure 4.1**. As stated previously, the RSHA represents those regional significant highway facilities that primarily serve inter-community trips in Western Riverside County and therefore also represents the extents of the network of highways and roadways that would be eligible for TUMF funded improvements.

The TUMF Network was reviewed as part of the 2024 Nexus Update to ensure facilities generally still met the previously described performance guidelines, and/or that the scope and magnitude of specific improvements to the TUMF Network were roughly proportional to the impacts needing to be mitigated. This review process resulted in the removal of various facilities from the TUMF Network, as well as various changes in the scope and magnitude of specific improvements to the TUMF Network. The resulting TUMF Network used as the basis for this Nexus Update is discussed in **Section 4.3** of this report.



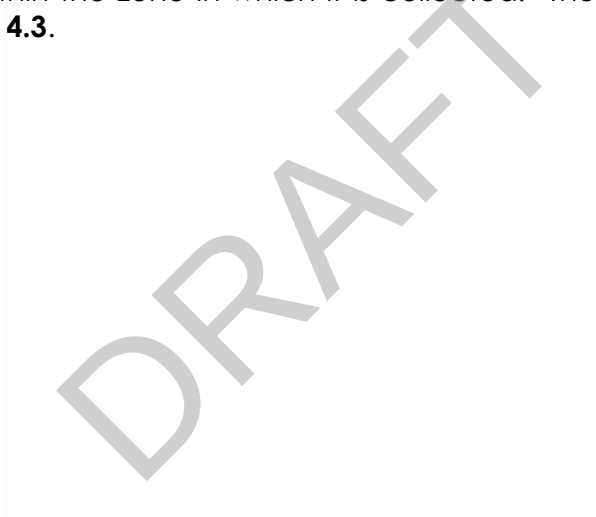
Figure 4.1 - Regional System of Highways and Arterials for Western Riverside County



4.2 Backbone Network and Secondary Network

As indicated previously, the TUMF roadway network was refined to distinguish between facilities of “Regional Significance” and facilities of “Zonal Significance.” Facilities of Regional Significance were identified as those that typically are proposed to have a minimum of six lanes at general plan build-out⁷, extend across and/or between multiple Area Planning Districts⁸, and are forecast to carry at least 25,000 vehicles per day in 2045. The Facilities of Regional Significance have been identified as the “backbone” highway network for Western Riverside County. A portion of the TUMF fee is specifically designated for improvement projects on the backbone system. The backbone network is illustrated in **Figure 4.2**.

Facilities of Zonal Significance (the “secondary” network) represent the balance of the RSHA for Western Riverside County. These facilities are typically within one zone and carry comparatively lesser traffic volumes than the backbone highway network, although they are considered significant for circulation within the respective zone. A portion of the TUMF is specifically designated for improvement projects on the secondary network within the zone in which it is collected. The WRCOG APD or zones are illustrated in **Figure 4.3**.



⁷ Although facilities were identified based on the minimum number of lanes anticipated at general plan buildout, in some cases it was determined that there was not sufficient demand for all additional lanes on some facilities until beyond the current timeframe of the TUMF Program (2045). As a result, only a portion of the additional lanes on these facilities have currently been identified for funding with TUMF revenues, reflecting the cumulative impact of new development through the current duration of the TUMF Program.

⁸ Area Planning Districts (APD) are the five aggregations of communities used for regional planning functions within the WRCOG area. Area Planning Districts are interchangeably referred to as TUMF Zones.

Figure 4.2 - The Backbone Network of Highways and Arterials for Western Riverside County



[illegible]

4.3 Future Roadway Transportation Needs

For the purpose of calculating a “fair share” fee for new development, it is necessary to estimate the cost of improvements on the TUMF system that will be needed to mitigate the cumulative regional impacts of future transportation demands created by new development. Estimates of the cost to improve the network to mitigate the cumulative impacts of new development were originally developed based on unit costs prepared for the Coachella Valley Association of Governments (CVAG) Regional Arterial Cost Estimate (RACE)⁹, and the WRCOG Southwest District SATISFY 2020 Summary of Cost Estimates¹⁰ (TKC/WRCOG 2000). The RACE cost estimates were developed based on a summary of actual construction costs for projects constructed in Riverside County in 1998.

The initial unit cost estimates for the TUMF (based on inflated RACE cost estimates) were reviewed in the context of the SATISFY 2020 Draft Cost Estimates and were consolidated to provide typical improvement costs for each eligible improvement type. The refinement of unit costs was completed to simplify the process of estimating the cost to improve the entire TUMF network. Based on RACE and SATISFY 2020, consolidated cost estimates included typical per mile or lump sum costs for each of the improvement types eligible under the TUMF Program. The resultant revised unit cost estimates were used as the basis for estimating the cost to complete the necessary improvements to the TUMF network to mitigate the cumulative regional transportation impacts of new development.

Variations in the consolidated cost estimates for specific improvement types were provided to reflect differences in topography and land use across the region. Unit costs for roadway construction were originally varied to account for variations in construction cost (in particular, roadway excavation and embankment cost) associated with construction on level (code 1) rolling (code 2) and mountainous (code 3) terrain, respectively. Right-of-way acquisition costs which originally included consideration for land acquisition, documentation and legal fees, relocation and demolition costs, condemnation compensation requirements, utility relocation, and environmental mitigation costs were also varied to account for variations in right-of-way costs associated with urban (developed commercial/residential mixed uses – code 1), suburban (developed residential uses – code 2) and rural (undeveloped uses – code 3) land uses, respectively. Lump sum costs for interchange improvements were originally varied to account for variations in cost associated with new complex, new standard (or fully reconstructed), or major (or partially reconstructed) or minor (individual ramp improvements) interchange improvements.

As part of the 2024 TUMF Nexus Update, the original unit cost categories were revised to generate entirely new unit cost values based on the most recent available construction cost, labor cost and land acquisition cost values for comparable projects within

⁹ Parsons Brinckerhoff/Coachella Valley Association of Governments, 1999, Regional Arterial Cost Estimate (RACE)

¹⁰ TKC/Western Riverside Council of Governments, 2000, SATISFY 2020 Summary of Cost Estimates

Riverside County. The recalculation of the TUMF unit cost components was completed as part of the 2024 Nexus Update to reflect the effects of significant changes in materials, labor and land acquisition costs including the influences of supply chain disruptions during and following the COVID-19 pandemic, and the elevated rates of inflation prevailing in the past few years. **Appendix F** provides a detailed outline of the assumptions and methodology leading to the revised TUMF unit cost assumptions developed as part of the 2024 Nexus Update. A new category was also added to the cost assumptions to facilitate the use of intelligent transportation systems (ITS) to enhance traffic flows in arterial corridors that require mitigation but cannot accommodate construction of additional lane capacity.

Section 8.5.1 of the Riverside County Integrated Project (RCIP) Multiple Species Habitat Conservation Plan (MSHCP) adopted by the Riverside County Board of Supervisors on June 17, 2003 states that “each new transportation project will contribute to Plan implementation. Historically, these projects have budgeted 3% - 5% of their construction costs to mitigate environmental impacts.” This expectation is reiterated in the Western Riverside County Multiple Species Habitat Conservation Plan Nexus Fee Study Update (Economic & Planning Systems, Inc., October 2020) Section 6 which indicates that “about 44% of the revenue for the program” is expected to be derived from non-fee sources, including “the Measure A sales tax which is authorized through 2039 and other transportation funding sources such as the Transportation Uniform Mitigation Fees (TUMF).” Consistent with the MSHCP Nexus Report, an amount equal to 5% of the construction cost for new TUMF network lanes, bridges and railroad grade separations will be specifically included as part of TUMF Program with revenues to be provided to the Western Riverside County Regional Conservation Authority (RCA) for the acquisition of land identified in the MSHCP. The relevant sections of the MSHCP document and the most recent MSHCP Nexus Report are included in **Appendix F**.

Table 4.1 summarizes the unit cost estimate assumptions used to develop the TUMF network cost estimate as part of the current Nexus Update. **Table 4.1** also includes a comparison of the original TUMF unit cost assumptions and the 2016 Nexus Study unit cost assumptions that demonstrates the significant increases in unit costs observed during recent years. In most cases the unit cost assumptions have more than doubled from those used for the 2016 Nexus Study. Cost estimates are provided in current year values as indicated.

To estimate the cost of improving the regional network to provide for traffic growth from new development, the network characteristics and performance guidelines (outlined in **Section 4.1**) were initially used as a basis for determining the needed improvements. The initial list of improvements was then compared with local General Plan Circulation Elements to ensure that the TUMF network included planned arterial roadways of regional significance. A consolidated list of proposed improvements and the unit cost assumptions were then used to establish an initial estimate of the cost to improve the network to mitigate for future traffic growth associated with new development. This initial list of proposed improvements has since been revised and updated as part of each subsequent Nexus Update to reflect the completion of projects, changing levels of development and associated changes in travel demand and transportation system impacts to be mitigated as part of the TUMF program.

Table 4.1 - Unit Costs for Arterial Highway and Street Construction

Component Type	Original Cost Assumptions as published October 18, 2002	Cost Assumptions per 2016 Nexus Study July 10, 2017	Cost Assumptions per 2024 Nexus Update	Description
Terrain 1	\$550,000	\$692,000	\$1,132,000	Construction cost per lane mile - level terrain
Terrain 2	\$850,000	\$878,000	\$1,740,000	Construction cost per lane mile - rolling terrain
Terrain 3	\$1,150,000	\$1,064,000	\$2,350,000	Construction cost per lane mile - mountainous terrain
Landuse 1	\$900,000	\$2,509,000	\$7,830,000	ROW cost factor per lane mile - urban areas
Landuse 2	\$420,000	\$2,263,000	\$5,440,000	ROW cost factor per lane mile - suburban areas
Landuse 3	\$240,000	\$287,000	\$490,000	ROW cost factor per lane mile - rural areas
Interchange 1	n/a	\$50,032,000	\$84,190,000	Complex new interchange/interchange modification cost
Interchange 2	\$20,000,000	\$25,558,000	\$43,490,000	New interchange/interchange modification total cost
Interchange 3	\$10,000,000	\$12,343,000	\$22,550,000	Major interchange improvement total cost
Bridge 1	\$2,000	\$3,180	\$4,800	Bridge total cost per lane per linear foot
RRXing 1	\$4,500,000	\$6,376,000	\$18,200,000	New Rail Grade Crossing per lane
RRXing 2	\$2,250,000	\$2,733,000	\$6,900,000	Existing Rail Grade Crossing per lane
ITS 1			\$686,400	Infrastructure for ITS of roadway segments per route mile
Planning	10%	10%	10%	Planning, preliminary engineering and environmental assessment costs based on construction cost only
Engineering	25%	25%	25%	Project study report, design, permitting and construction oversight costs based on construction cost only
Contingency	10%	10%	10%	Contingency costs based on total segment cost
Administration		4%	4%	TUMF program administration based on total TUMF eligible network cost
MSHCP		5%	5%	TUMF component of MSHCP based on total TUMF eligible construction cost

As indicated in **Table 2.4** and **Figure 2.4**, the anticipated rate of forecasted growth in Western Riverside County has been reduced by 4% for population, 3% for single-family residential and 31% for employment. This reduced rate of forecasted socioeconomic growth has a commensurate impact on the forecasted daily traffic in the region as demonstrated by the 2016 Nexus Study VMT compared to the 2024 Nexus Update VMT in **Table 4.2**. As shown in the table, the forecast peak period VMT on the TUMF arterial network in the year 2045 as the basis for the 2024 Nexus Update is more than 5% less than the comparable peak period VMT for 2040 used for the 2016 Nexus Study.

Table 4.2 – Forecasted Daily Traffic in Western Riverside County

Measure of Performance	2024 Nexus Update		2016 Nexus Study	
	Peak Period		Peak Period	
	2018 Existing	2045 No-Build	2012 Existing	2040 No-Build
VMT - Total ALL FACILITIES	23,284,724	29,897,254	19,532,437	29,277,587
VMT - FREEWAYS	13,514,522	15,490,284	11,019,155	14,487,570
VMT - ALL ARTERIALS	9,770,202	14,406,970	8,513,282	14,790,016
TOTAL - TUMF ARTERIAL VMT	6,216,985	8,597,200	5,585,202	9,089,495

Source: RivCoM 2018 base network and SCAG 2020 RTP/SCS SED with updated 2021 arterial network as existing in December 2021; RivTAM 2012 network and SCAG 2016 RTP/SCS SED with updated 2015 arterial network completed by WSP, September 2016

As a result of the reduced forecast traffic growth in the region, it is anticipated that the cumulative regional impacts of new development on the arterial highway and transit systems in the region is also reduced necessitating a reduction in the projects identified on the TUMF Network to mitigate the impacts of new development. As part of the 2024 Nexus Update, the list of proposed improvements included in the initial Nexus Study and validated during the subsequent Nexus updates was reviewed for accuracy and, where necessary, amended to remove or modify projects that have changed in need to mitigate impacts based on changes in the patterns of growth and travel demand within the region. Projects completed since the adoption of the 2016 Nexus Update were also removed from the network to reflect the fact that mitigation at these locations is no longer required. The specific network changes were screened by the WRCOG Public Works Committee for consistency with TUMF network guidelines including travel demand and traffic performance.

Based on the findings of the network screening, elements of specific projects were revised to reflect necessary network corrections and modifications to project assumptions. A matrix summarizing the disposition of the requests received as part of the 2024 TUMF Nexus Update was developed and is included in **Appendix G**.

Eligible arterial highway and street improvement types to mitigate the cumulative regional transportation impacts of new development on Network facilities include:

1. Construction of additional Network roadway lanes
2. Construction of new Network roadway segments
3. Expansion of existing Network bridge structures
4. Construction of new Network bridge structures
5. Expansion of existing Network interchanges with freeways
6. Construction of new Network interchanges with freeways
7. Grade separation of existing Network at-grade railroad crossings
8. Installation of ITS along Network roadway segments

All eligible improvement types, with the exception of ITS, provide additional capacity to Network facilities to accommodate future traffic growth generated by new development in Western Riverside County. ITS provides the ability to improve traffic

flows along corridors where capacity expansion is not possible. Following the comprehensive update of the TUMF Program, the estimated total cost to improve the RSHA for Western Riverside County is \$4.8 billion with this cost including all arterial highway and street planning, engineering, design, right-of-way acquisition and capital construction costs, but not including transit, MSHCP or program administration costs that will be subsequently described. It should be noted that the full cost to improve the TUMF Network cannot be entirely attributed to new development and must be adjusted to account for the previous obligation of other funds to complete necessary improvements and unfunded existing needs. **Sections 4.5 and 4.6** describe the adjustments to the total TUMF Network improvement need to account for existing needs and obligated funds.

In addition to the arterial highway and street improvement costs indicated above, the TUMF Nexus Update included specific consideration for the TUMF Program obligation to the MSHCP program to mitigate the impact of TUMF network improvements on species and habitat within Western Riverside County. The TUMF obligation to MSHCP was calculated at a rate of 5% of the total construction (capital) cost of new lane segments, bridges and railroad grade separations on the TUMF Network. The total obligation to the MSHCP as indicated in the TUMF Network cost fee table is approximately \$64.3 million, although the total obligation specific to the TUMF program is reduced to account for MSHCP obligations associated with improvements addressing existing needs and therefore excluded from TUMF.

The TUMF 2024 Nexus Update similarly includes specific consideration of the costs associated with WRCOG administration of the TUMF Program. The average cost for WRCOG to administer the TUMF Program was calculated at a rate of 4% of the total eligible cost of new lane segments (including interchanges, bridges and railroad grade separations) on the TUMF Network and new transit services. Administration costs incurred by WRCOG include direct salary, fringe benefit and overhead costs for WRCOG staff assigned to administer the program and support participating jurisdictions, and costs for consultant, legal and auditing services to support the implementation of the TUMF program. The total cost for WRCOG administration of the TUMF Program as indicated in the TUMF Network cost fee table is approximately \$163.1 million.

The detailed TUMF network cost calculations are provided in **Section 4.7**, including each of the individual segments and cost components considered as part of the TUMF Program, and the maximum eligible TUMF share for each segment following adjustments for obligated funding and unfunded existing needs as described in subsequent sections.

4.4 Public Transportation Component of the TUMF System

In addition to the roadway network, public transportation plays a key role in serving future travel demand in the region. Public transportation serving inter-community trips is generally provided in the form of public bus transit services and in particular express bus or other high frequency services between strategically located community transit

centers. In Western Riverside County, these bus transit services are typically provided by RTA. Transit needs to serve future regional travel in Western Riverside County via bus transit include vehicle acquisitions, transit centers, express bus stop upgrades, maintenance facilities and other associated capital improvements to develop express bus or other high frequency inter-community transit bus services within the region. Metrolink commuter rail service improvements were not included in the TUMF Program as they typically serve longer inter-regional commute trips equivalent to freeway trips on the inter-regional highway system.

The network of regionally significant bus transit services represents those express bus and other high frequency transit bus services that primarily support inter-community trips in Western Riverside County and supplement the regional highway system and inter-regional commuter rail services. As a result, this portion of the bus transit system also represents the extents of the network of bus services that would be eligible for TUMF funded improvements.

The TUMF Bus Transit Network is the system of bus services that serve inter-community trips within Western Riverside County and therefore are eligible for improvement funding with TUMF funds. The Bus Transit Network for Western Riverside County was identified based on several transit network and performance guidelines as follows:

1. Bus transit routes (or corridors comprised of multiple overlapping routes) proposed to have a frequency of greater than three buses per direction during peak hours at ultimate build out.
2. Routes or corridors that serve multiple jurisdictions and/or provide connectivity between communities, both within and adjoining western Riverside County.
3. Routes or corridors with forecast weekday bus ridership in excess of 1,000 person trips per day by 2040.
4. Routes or corridors that are proposed to provide timed interconnections with at least four other routes or corridors at ultimate build out.
5. Routes or corridors that utilize the majority of travel along the TUMF RSHA.
6. Routes or corridors that provide direct access to areas of forecast population and employment growth, major commercial, industrial, institutional, recreational or tourist activity centers, and multi-modal transportation facilities (such as airports, railway terminals and transit centers).

Express bus routes and other high-frequency bus transit routes and corridors in Western Riverside County that generally satisfied the respective guidelines were identified by RTA. Updated cost estimates for improving the infrastructure serving public transportation, including construction of transit centers and transfer facilities, express bus stop upgrades, and capital improvements needed to develop express bus and other high frequency bus transit service within the region were also provided by RTA. The updated transit unit cost data provided by RTA are shown in **Table 4.3**.

Table 4.3 - Unit Costs for Transit Capital Expenditures

Component Type*	Original Cost Assumptions as published October 18, 2002	Cost Assumptions per 2016 Nexus Study July 10, 2017	Cost Assumptions per 2024 Nexus Update	Description
Transit Center 1		\$6,000,000	\$7,465,000	Relocation/expansion of existing Regional Transit Center with up to 14 bus bays and park and ride
Transit Center 2	\$6,000,000	\$9,000,000	\$11,195,000	New Regional Transit Center with up to 14 bus bays and park and ride
Transfer Facility		\$1,000,000	\$1,245,000	Multiple route transfer hub
O & M Facility		\$50,000,000	\$62,186,000	Regional Operations and Maintenance Facility
Green Technology			\$100,000	ZEB technology enhancements
Bus Stop	\$10,000	\$40,000	\$50,000	Bus Stop Amenities Upgrade on TUMF Network
BRT Service Capital	\$540,000	\$60,000	\$75,000	BRT/Limited Stop Service Capital (per stop**)
Vehicle Fleet 1***			\$160,000	Small Sized Bus/Van Contract Operated
Vehicle Fleet 2		\$155,000	\$300,000	Medium Sized Bus Contract Operated
Vehicle Fleet 3	\$325,125	\$585,000	\$1,271,000	Large Sized Bus Directly Operated
COA Study		\$950,000	\$1,150,000	Comprehensive Operational Analysis Study component of Nexus Study Update

* Transit Cost Component Types were restructured as part of the 2016 Nexus Update in accordance with the RTA Comprehensive Operational Analysis (January 2015)

** BRT Service Capital Cost Assumption was based on a per mile unit prior to the 2016 Nexus Update. 2016 Nexus Update uses a per stop unit cost for BRT Service Capital

*** Vehicle Fleet component was restructured as part of the 2024 Nexus Update with the inclusion of Small Sized Bus/Van Contract Operated as Vehicle Fleet 1 and subsequent renumbering of Vehicle Fleet 2 and 3, respectively

The estimated total cost for future RTA bus transit services to accommodate forecast transit demand is approximately \$217.9 million with this cost including all planning, engineering, design and capital improvement costs. Detailed transit component cost estimates are included in **Section 4.7**. The full cost to improve RTA bus transit services cannot be entirely attributed to new development and must be adjusted to account for existing needs. **Section 4.6** describes the adjustments to the total transit cost to account for existing needs.

4.5 Existing Obligated Funding

For some of the facilities identified in the TUMF network, existing obligated funding has previously been secured through traditional funding sources to complete necessary improvements. Since funding has been obligated to provide for the completion of needed improvements to the TUMF system, the funded cost of these improvements will not be recaptured from future developments through the TUMF Program. As a result, the TUMF network cost was adjusted accordingly to reflect the availability of obligated funds.

To determine the availability of obligated funds, WRCOG staff, in conjunction with RCTC staff, completed a review of the current Federal Transportation improvement Program (FTIP) to identify TUMF eligible projects that were also programmed to receive funding from alternate sources. A table summarizing the obligated funds for segments of the TUMF network is included in **Appendix H**. A total of \$277.3 million in obligated funding was identified for improvements to the TUMF system. The estimated total TUMF network project cost was subsequently reduced by this amount.

4.6 Unfunded Existing Improvement Needs

A review of the existing traffic conditions on the TUMF network (as presented in **Table 3.1**) indicates that some segments of the roadways on the TUMF system currently experience congestion and operate at unacceptable levels of service. In addition, demand for inter-community transit service already exists and future utilization of proposed inter-community transit services will partially satisfy this existing demand. The need to improve these portions of the system is generated, at least in part, by existing demand, rather than solely the cumulative regional impacts of future new development, so future new development cannot be assessed for the equivalent cost share of improvements providing for this existing need.

To account for existing need in the TUMF Network, the cost for facilities identified as currently experiencing LOS E or F was adjusted. This was done by identifying the portion of any segment of the TUMF Network with a volume to capacity (v/c) ratio of greater than 0.9 (the threshold for LOS E) in the RivCoM 2018 Existing scenario and extracting the share of the overall facility cost to improve that portion. This cost adjustment provides for the mitigation of incremental traffic growth on those TUMF segments with an existing high level of congestion. The following approach was applied to account for incremental traffic growth associated with new development as part of the existing need methodology:

1. Facilities with an existing need were identified by reviewing the RivCoM 2018 Existing scenario assigned traffic on the 2021 existing network and delineating

those facilities included on the TUMF Cost Fee Summary Table that have an average directional v/c exceeding 0.90¹¹.

- a. Weighted directional v/c values were used to determine existing need for network segments, which was calculated by:
 - i. Determining the length for the portion of each segment (model link), and calculating the ratio of link length to the overall segment length
 - ii. Generating the average directional v/c for each link, for both directions in AM and PM periods, and multiplying by link/segment length ratio
 - iii. Determining the maximum peak-period peak-direction v/c for each link, representing the highest directional v/c in either AM or PM
 - iv. Calculating weighted average v/c for each TUMF segment, based on the sum of all weighted max v/c values of each link within a segment
 - b. A similar method was used to determine existing need for spot improvements including interchanges, railroad crossings and bridges. However, no weighting was used in the calculation of existing need for spot improvements. For these facilities, the peak-period peak-direction v/c values (highest directional v/c in either AM or PM) were utilized in the existing need calculation. This was based on the individual link within a network segment where a bridge or railroad crossing is located, or on- and off-ramps in the case of interchanges.
2. Initial costs of addressing the existing need were calculated by estimating the share of a particular roadway segments "new lane" cost, or individual spot improvement cost (including all associated ROW and soft costs).
 3. Incremental growth in v/c was determined by comparing the average directional existing year v/c for the TUMF facilities (delineated under step one) with the horizon year v/c for the corresponding segments and spot improvements calculated based on the RivCoM 2045 No-Build scenario assigned traffic on the 2021 existing network using the same methodology as the existing year v/c.

¹¹ The RivCoM 2021 Existing Network used for the TUMF Nexus Study analyses reflects the RivCoM 2018 base year network augmented to include highways facilities on the TUMF Network as they existed in December 2021. A second version of the base network was also developed adding only those facilities that had been identified on the 2016 TUMF Nexus study 2040 Build scenario that did not currently exist in December 2021 and therefore were not represented by a link(s) in the RivCoM base network. The Supplemental 2021 Existing Network was utilized as the basis for determining existing and future v/c for only those projects that did not currently exist on the 2021 TUMF Network.

4. The proportion of the incremental growth attributable to new development was determined by dividing the result of step three with the total 2045 No-Build scenario v/c in excess of LOS E.
5. For those segments experiencing a net increase in v/c over the base year, TUMF will 'discount' the cost of existing need improvements by the proportion of the incremental v/c growth through 2045 No-Build compared to the 2018 Baseline v/c (up to a maximum of 100%).

The unfunded cost of existing highway improvement needs (including the related MSHCP obligation) totals \$586.6 million. **Appendix H** includes a detailed breakdown of the existing highway improvement needs on the TUMF network, including the associated unfunded improvement cost estimate for each segment and spot improvement experiencing unacceptable LOS.

For transit service improvements, the cost to provide for existing demand was determined by multiplying the total transit component cost by the share of future transit trips representing existing demand. The cost of existing transit service improvement needs is \$63.0 million representing 28.9% of the TUMF transit component. **Appendix H** includes tables reflecting the calculation of the existing transit need share and the existing transit need cost.

4.7 Maximum TUMF Eligible Cost

A total of \$277.3 million in obligated funding was identified for improvements to the TUMF system. Since these improvements are already funded with other available revenue sources, the funded portion of these projects cannot also be funded with TUMF revenues. Furthermore, the total cost of the unfunded existing improvement need is \$586.6 million. These improvements are needed to mitigate existing transportation deficiencies and therefore their costs cannot be assigned to new development through TUMF.

Based on the estimated costs described in **Sections 4.3** and **4.4**, the total value to complete the identified TUMF network and transit improvements, and administer the program is \$5.2 billion. Having accounted for obligated funds and unfunded existing needs as described in **Sections 4.5** and **4.6**, respectively, the estimated maximum eligible value of the TUMF Program is \$4.3 billion. The maximum eligible value of the TUMF Program includes approximately \$3.9 billion in eligible arterial highway and street related improvements and \$154.8 million in eligible transit related improvements. An additional \$57.2 million is also eligible as part of the TUMF Program to mitigate the impact of eligible TUMF related arterial highway and street projects on critical native species and wildlife habitat, while \$163.1 million is provided to cover the costs incurred by WRCOG to administer the TUMF Program.

Figure 4.4 illustrates the various improvements to the RSHA included as part of the TUMF network cost calculation. **Table 4.4** summarizes the TUMF network cost calculations for each of the individual segments. This table also identifies the maximum eligible TUMF share for each segment having accounted for obligated funding and unfunded

existing need. A detailed breakdown of the individual cost components and values for the various TUMF Network segments is included in **Appendix H. Table 4.5** outlines the detailed transit component cost estimates. It should be noted that the detailed cost tables (and fee levels) are subject to regular review and updating by WRCOG and therefore WRCOG should be contacted directly to obtain the most recently adopted version of these tables (and to confirm the corresponding fee level).



Figure 4.4 - Regional System of Highways and Arterials–TUMF Network Improvements



Figure 4.4

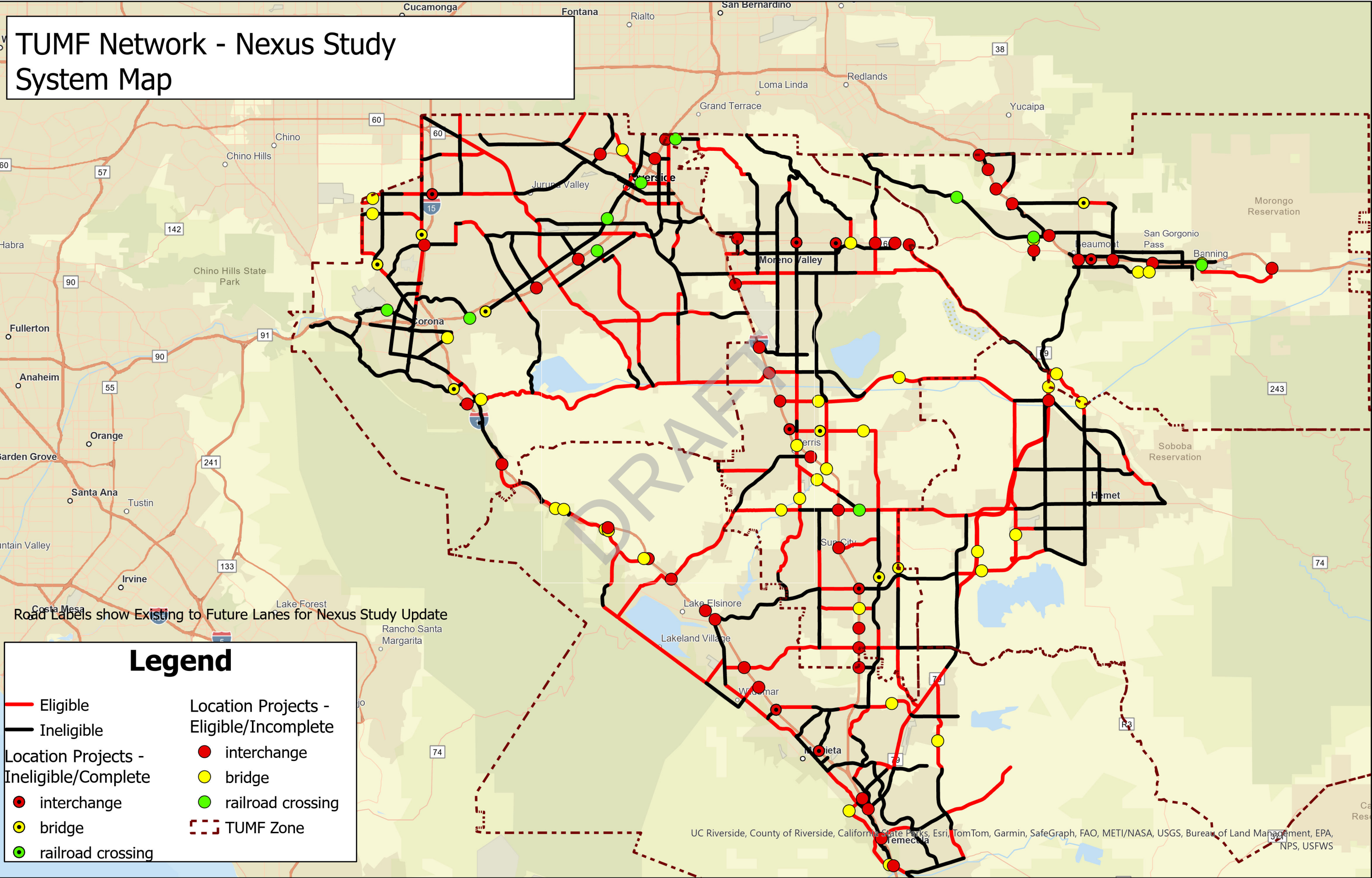


Table 4.4 - TUMF Network Cost Estimates

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	TOTAL COST	MAXIMUM TUMF SHARE
Central		Menifee	Ethanac	Goetz	Murrieta		\$0	\$0
Central		Menifee	Ethanac	I-215	Murrieta		\$0	\$0
Central		Menifee	Ethanac	I-215	interchange		\$32,698,000	\$32,698,000
Central		Menifee	Ethanac	Sherman	Matthews		\$2,674,000	\$2,674,000
Central		Menifee	Ethanac	BNSF San Jacinto Branch	railroad crossing		\$105,560,000	\$105,560,000
Central		Menifee	Menifee	SR-74 (Pinacate)	Simpson		\$1,307,000	\$1,307,000
Central		Menifee	Menifee	Salt Creek	bridge		\$4,384,000	\$4,384,000
Central		Menifee	Menifee	Simpson	Aldergate		\$0	\$0
Central		Menifee	Menifee	Aldergate	Newport		\$0	\$0
Central		Menifee	Menifee	Newport	Holland		\$0	\$0
Central		Menifee	Menifee	Holland	Garbani		\$0	\$0
Central		Menifee	Menifee	Garbani	Scott		\$4,353,000	\$4,353,000
Central		Menifee	Menifee/Whitewood	Scott	Murrieta City Limit		\$0	\$0
Central		Menifee	Newport	Goetz	Murrieta		\$0	\$0
Central		Menifee	Newport	Murrieta	I-215		\$1,130,000	\$1,130,000
Central		Menifee	Newport	I-215	Menifee		\$0	\$0
Central		Menifee	Newport	Menifee	Lindenberger		\$0	\$0
Central		Menifee	Newport	Lindenberger	SR-79 (Winchester)		\$0	\$0
Central		Menifee	Scott	I-215	Briggs		\$8,635,000	\$8,635,000
Central		Menifee	Scott	I-215	interchange		\$0	\$0
Central		Menifee	Scott	Sunset	Murrieta		\$4,388,000	\$4,388,000
Central		Menifee	Scott	Murrieta	I-215		\$16,949,000	\$12,949,000
Central		Menifee	SR-74	Matthews	Briggs		\$8,254,000	\$8,254,000
Central		Moreno Valley	Alessandro	I-215	Perris		\$13,420,000	\$13,420,000
Central		Moreno Valley	Alessandro	Perris	Nason		\$0	\$0
Central		Moreno Valley	Alessandro	Nason	Moreno Beach		\$0	\$0
Central		Moreno Valley	Alessandro	Moreno Beach	Gilman Springs		\$18,019,000	\$18,019,000
Central		Moreno Valley	Gilman Springs	SR-60	Alessandro		\$7,291,000	\$7,291,000
Central		Moreno Valley	Gilman Springs	SR-60	interchange		\$0	\$0
Central		Moreno Valley	Perris	Reche Vista	Ironwood		\$0	\$0
Central		Moreno Valley	Perris	Ironwood	Sunnymead		\$0	\$0
Central		Moreno Valley	Perris	SR-60	interchange		\$32,698,000	\$11,192,000
Central		Moreno Valley	Perris	Sunnymead	Cactus		\$0	\$0
Central		Moreno Valley	Perris	Cactus	Harley Knox		\$0	\$0
Central		Moreno Valley	Reche Vista	Country	Heacock		\$7,486,000	\$3,799,000
Central		Perris	11th/Case	Perris	Goetz		\$4,582,000	\$4,582,000
Central		Perris	Case	Case	I-215		\$20,876,000	\$20,876,000
Central		Perris	Case	San Jacinto River	bridge		\$1,740,000	\$1,235,000
Central		Perris	Ethanac	Keystone	Goetz		\$6,056,000	\$6,056,000
Central		Perris	Ethanac	San Jacinto River	bridge		\$5,568,000	\$5,568,000
Central		Perris	Ethanac	I-215	Sherman		\$5,316,000	\$5,316,000
Central		Perris	Goetz	Case	Ethanac		\$284,000	\$188,000
Central		Perris	Goetz	San Jacinto River	bridge		\$5,568,000	\$3,398,000
Central		Perris	Mid-County (Placentia)	I-215	Perris		\$15,655,000	\$15,655,000
Central		Perris	Mid-County (Placentia)	I-215	interchange		\$63,061,000	\$63,061,000
Central		Perris	Mid-County (Placentia)	Perris	Evans		\$22,985,000	\$22,985,000
Central		Perris	Mid-County (Placentia)	Perris Valley Storm Channel	bridge		\$8,352,000	\$8,352,000
Central		Perris	Perris	Harley Knox	Ramona		\$0	\$0
Central		Perris	Perris	Ramona	Citrus		\$7,063,000	\$7,063,000
Central		Perris	Perris	Citrus	Nuevo		\$0	\$0
Central		Perris	Perris	Nuevo	11th		\$6,927,000	\$6,927,000
Central		Perris	Perris	I-215 overcrossing	bridge		\$0	\$0
Central		Perris	Ramona	I-215	Perris		\$5,039,000	\$5,039,000
Central		Perris	Ramona	I-215	interchange		\$32,698,000	\$7,725,000
Central		Perris	Ramona	Perris	Evans		\$0	\$0
Central		Perris	Ramona	Evans	Mid-County (2,800 ft E of Rider)		\$0	\$0
Central		Perris	SR-74 (4th)	Ellis	I-215		\$0	\$0
Central		Unincorporated	Ethanac	SR-74	Keystone		\$4,666,000	\$4,666,000
Central		Unincorporated	Gilman Springs	Alessandro	Bridge Road		\$30,601,000	\$30,601,000
Central		Unincorporated	Menifee	Nuevo	SR-74 (Pinacate)		\$16,684,000	\$16,684,000
Central		Unincorporated	Mid-County	Evans	Ramona (2,800 ft E of Rider)		\$12,156,000	\$12,156,000
Central		Unincorporated	Mid-County (Ramona)	Ramona (2,800 ft E of Rider)	Pico Avenue		\$0	\$0
Central		Unincorporated	Mid-County (Ramona)	Pico Avenue	Bridge Road		\$47,769,000	\$47,769,000
Central		Unincorporated	Mid-County (Ramona)	San Jacinto River	bridge		\$36,192,000	\$36,192,000
Central		Unincorporated	Reche Canyon	San Bernardino County	Reche Vista		\$0	\$0
Central		Unincorporated	Reche Vista	Reche Canyon	Country		\$0	\$0
Central		Unincorporated	Scott	Briggs	SR-79 (Winchester)		\$0	\$0
Central		Unincorporated	SR-74	Ethanac	Ellis		\$0	\$0
Northwest		Corona	Cajalco	I-15	Temescal Canyon		\$0	\$0
Northwest		Corona	Cajalco	I-15	interchange		\$0	\$0
Northwest		Corona	Foothill	Paseo Grande	Lincoln		\$0	\$0
Northwest		Corona	Foothill	Wardlow Wash	bridge		\$0	\$0
Northwest		Corona	Foothill	Lincoln	California		\$0	\$0
Northwest		Corona	Foothill	California	I-15		\$0	\$0
Northwest		Corona	Green River	SR-91	Dominguez Ranch		\$0	\$0
Northwest		Corona	Green River	Dominguez Ranch	Palisades		\$0	\$0
Northwest		Corona	Green River	Palisades	Paseo Grande		\$0	\$0
Northwest		Eastvale	Schleisman	San Bernardino County	600' e/o Cucamonga Creek		\$648,000	\$648,000
Northwest		Eastvale	Schleisman	Cucamonga Creek	bridge		\$0	\$0
Northwest		Eastvale	Schleisman	600' e/o Cucamonga Creek	Harrison		\$866,000	\$866,000
Northwest		Eastvale	Schleisman	Harrison	Sumner		\$488,000	\$488,000
Northwest		Eastvale	Schleisman	Sumner	Scholar		\$7,625,000	\$7,625,000
Northwest		Eastvale	Schleisman	Scholar	A Street		\$2,364,000	\$2,364,000
Northwest		Eastvale	Schleisman	A Street	Hammer		\$4,167,000	\$4,167,000

Table 4.4 - TUMF Network Cost Estimates (continued)

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	TOTAL COST	MAXIMUM TUMF SHARE
Northwest	Jurupa Valley	Van Buren			SR-60	Bellegrave	\$23,928,000	\$10,461,000
Northwest	Jurupa Valley	Van Buren			Bellegrave	Santa Ana River	\$60,900,000	\$0
Northwest	Riverside	Alessandro			Arlington	Trautwein	\$2,410,000	\$2,410,000
Northwest	Riverside	Arlington			La Sierra	Magnolia	\$0	\$0
Northwest	Riverside	Arlington			Magnolia	Alessandro	\$46,465,000	\$46,465,000
Northwest	Riverside	Van Buren			Santa Ana River	SR-91	\$5,230,000	\$4,392,000
Northwest	Riverside	Van Buren			SR-91	Mockingbird Canyon	\$39,493,000	\$21,292,000
Northwest	Riverside	Van Buren			Wood	Trautwein	\$0	\$0
Northwest	Riverside	Van Buren			Trautwein	Orange Terrace	\$7,574,000	\$7,574,000
Northwest	Unincorporated	Alessandro			Trautwein	Vista Grande	\$0	\$0
Northwest	Unincorporated	Alessandro			Vista Grande	I-215	\$0	\$0
Northwest	Unincorporated	Cajalco			El Sobrante	Harley John	\$10,580,000	\$9,817,000
Northwest	Unincorporated	Cajalco			Harvil	Harvil	\$166,492,000	\$166,492,000
Northwest	Unincorporated	Cajalco			I-215	I-215	\$1,238,000	\$1,238,000
Northwest	Unincorporated	Cajalco			Temescal Canyon	La Sierra	\$49,596,000	\$35,953,000
Northwest	Unincorporated	Cajalco			Temescal Wash	bridge	\$4,872,000	\$1,907,000
Northwest	Unincorporated	Cajalco			La Sierra	El Sobrante	\$96,453,000	\$96,453,000
Northwest	Unincorporated	Van Buren			Mockingbird Canyon	Wood	\$67,429,000	\$67,429,000
Northwest	Unincorporated	Van Buren			Orange Terrace	I-215	\$0	\$0
Pass	Banning	Highland Springs			Wilson (8th)	Sun Lakes	\$0	\$0
Pass	Banning	Highland Springs			I-10	interchange	\$63,061,000	\$32,516,000
Pass	Banning	Highland Springs			Oak Valley (14th)	Wilson (8th)	\$0	\$0
Pass	Banning	Highland Springs			Cherry Valley	Oak Valley (14th)	\$0	\$0
Pass	Banning	I-10 Bypass South			I-10	Morongo Trail (Apache Trail)	\$50,110,000	\$50,110,000
Pass	Banning	I-10 Bypass South			I-10	interchange	\$63,061,000	\$63,061,000
Pass	Banning	I-10 Bypass South			San Gorgonio	bridge	\$4,176,000	\$4,176,000
Pass	Banning	I-10 Bypass South			UP/Hargrave	railroad crossing	\$52,780,000	\$52,780,000
Pass	Beaumont	Beaumont			Oak Valley (14th)	I-10	\$0	\$0
Pass	Beaumont	Potrero			Oak Valley (San Timoteo Cany	SR-60	\$1,100,000	\$1,100,000
Pass	Beaumont	Potrero			SR-60	interchange	\$63,061,000	\$29,561,000
Pass	Beaumont	Potrero			UP	railroad crossing	\$40,020,000	\$40,020,000
Pass	Beaumont	Potrero			Noble Creek	bridge	\$0	\$0
Pass	Beaumont	Potrero			SR-60	4th	\$0	\$0
Pass	Beaumont	SR-79 (Beaumont)			I-10	California	\$0	\$0
Pass	Beaumont	SR-79 (Beaumont)			I-10	interchange	\$63,061,000	\$7,408,000
Pass	Calimesa	Cherry Valley			I-10	interchange	\$63,061,000	\$59,773,000
Pass	Calimesa	Cherry Valley			Roberts St	Roberts Rd	\$3,053,000	\$3,053,000
Pass	Unincorporated	Cherry Valley			Bellflower	Noble	\$6,411,000	\$6,411,000
Pass	Unincorporated	Cherry Valley			Highland Springs	Bellflower	\$0	\$0
Pass	Unincorporated	Cherry Valley			Noble	Roberts St	\$0	\$0
Pass	Unincorporated	Cherry Valley			San Timoteo Wash	bridge	\$0	\$0
Pass	Unincorporated	SR-79 (Lamb Canyon)			California	Gilman Springs	\$0	\$0
San Jacinto	Hemet	Domenigoni			Warren	Sanderson	\$7,726,000	\$7,726,000
San Jacinto	Hemet	Domenigoni			Sanderson	State	\$0	\$0
San Jacinto	Hemet	SR-74			Winchester	Warren	\$35,208,000	\$35,208,000
San Jacinto	San Jacinto	Mid-County (Ramona)			Warren	Sanderson	\$0	\$0
San Jacinto	San Jacinto	Mid-County (Ramona)			Sanderson/SR-79 (Hemet Bypa	interchange	\$0	\$0
San Jacinto	San Jacinto	Ramona			Sanderson	State	\$0	\$0
San Jacinto	San Jacinto	Ramona			State	Main	\$0	\$0
San Jacinto	San Jacinto	Ramona			Main	Cedar	\$31,518,000	\$26,928,000
San Jacinto	San Jacinto	Ramona			Cedar	SR-74	\$0	\$0
San Jacinto	Unincorporated	Domenigoni			SR-79 (Winchester)	Warren	\$13,508,000	\$13,508,000
San Jacinto	Unincorporated	Domenigoni			San Diego Aqueduct	bridge	\$4,176,000	\$4,176,000
San Jacinto	Unincorporated	Gilman Springs			Bridge	Sanderson	\$0	\$0
San Jacinto	Unincorporated	Mid-County (Ramona)			Bridge	Warren	\$9,221,000	\$9,221,000
San Jacinto	Unincorporated	SR-74			Briggs	SR-79 (Winchester)	\$15,417,000	\$15,417,000
San Jacinto	Unincorporated	SR-79 (Hemet Bypass)			SR-74 (Florida)	Domenigoni	\$13,901,000	\$13,901,000
San Jacinto	Unincorporated	SR-79 (Hemet Bypass)			San Diego Aqueduct	bridge	\$4,176,000	\$4,176,000
San Jacinto	Unincorporated	SR-79 (Hemet Bypass)			Domenigoni	Winchester	\$6,542,000	\$6,542,000
San Jacinto	Unincorporated	SR-79 (San Jacinto Bypass)			Mid-County (Ramona)	SR-74 (Florida)	\$56,690,000	\$56,690,000
San Jacinto	Unincorporated	SR-79 (Sanderson)			Gilman Springs	Ramona	\$6,899,000	\$2,555,000
San Jacinto	Unincorporated	SR-79 (Sanderson)			San Jacinto River	bridge	\$19,488,000	\$7,651,000
San Jacinto	Unincorporated	SR-79 (Winchester)			Domenigoni	Keller	\$0	\$0

Table 4.4 - TUMF Network Cost Estimates (continued)

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	TOTAL COST	MAXIMUM TUMF SHARE
Southwest			Canyon Lake	Goetz	Railroad Canyon	Newport	\$0	\$0
Southwest			Canyon Lake	Railroad Canyon	Canyon Hills	Goetz	\$0	\$0
Southwest			Lake Elsinore	Railroad Canyon	I-15	Canyon Hills	\$0	\$0
Southwest			Lake Elsinore	Railroad Canyon	I-15	interchange	\$0	\$0
Southwest			Lake Elsinore	SR-74	I-15	interchange	\$63,061,000	\$24,162,000
Southwest			Murrieta	Clinton Keith	Copper Craft	Toulon	\$0	\$0
Southwest			Murrieta	Clinton Keith	Toulon	I-215	\$2,076,000	\$2,076,000
Southwest			Murrieta	Clinton Keith	I-215	Whitewood	\$0	\$0
Southwest			Murrieta	French Valley (Date)	Murrieta Hot Springs	Winchester Creek	\$7,321,000	\$7,321,000
Southwest			Murrieta	French Valley (Date)	Winchester Creek	Margarita	\$0	\$0
Southwest			Murrieta	Whitewood	Menifee City Limit	Keller	\$0	\$0
Southwest			Murrieta	Whitewood	Keller	Clinton Keith	\$0	\$0
Southwest			Temecula	French Valley (Cherry)	Jefferson	Diaz	\$3,929,000	\$3,929,000
Southwest			Temecula	French Valley (Cherry)	Murrieta Creek	bridge	\$5,846,000	\$5,846,000
Southwest			Temecula	French Valley (Date)	Margarita	Ynez	\$0	\$0
Southwest			Temecula	French Valley (Date)	Ynez	Jefferson	\$5,010,000	\$5,010,000
Southwest			Temecula	French Valley (Date)	I-15	interchange	\$122,076,000	\$122,076,000
Southwest			Temecula	SR-79 (Winchester)	Murrieta Hot Springs	Jefferson	\$2,697,000	\$2,697,000
Southwest			Temecula	SR-79 (Winchester)	I-15	interchange	\$0	\$0
Southwest			Temecula	Western Bypass (Diaz)	Cherry	Rancho California	\$2,285,000	\$2,285,000
Southwest			Temecula	Western Bypass (Vincent Moro)	Rancho California	SR-79 (Front)	\$23,629,000	\$23,629,000
Southwest			Temecula	Western Bypass (Vincent Moro)	I-15	interchange	\$0	\$0
Southwest			Temecula	Western Bypass (Vincent Moro)	Murrieta Creek	bridge	\$4,176,000	\$4,176,000
Southwest			Unincorporated	Benton	SR-79	Eastern Bypass	\$0	\$0
Southwest			Unincorporated	Clinton Keith	Whitewood	SR-79	\$5,539,000	\$5,539,000
Southwest			Unincorporated	Clinton Keith	Warm Springs Creek	bridge	\$0	\$0
Southwest			Unincorporated	SR-74	I-15	Ethanac	\$27,699,000	\$26,347,000
Southwest			Unincorporated	SR-79 (Winchester)	Keiler	Thompson	\$34,213,000	\$34,213,000
Southwest			Unincorporated	SR-79 (Winchester)	Thompson	La Alba	\$27,699,000	\$27,699,000
Southwest			Unincorporated	SR-79 (Winchester)	La Alba	Hunter	\$7,854,000	\$3,042,000
Southwest			Unincorporated	SR-79 (Winchester)	Hunter	Murrieta Hot Springs	\$595,000	\$442,000
Southwest			Wildomar	Bundy Canyon	I-15	Monte Vista	\$1,362,000	\$1,362,000
Southwest			Wildomar	Bundy Canyon	Monte Vista	Sunset	\$24,818,000	\$24,818,000
Southwest			Wildomar	Bundy Canyon	I-15	interchange	\$32,698,000	\$24,613,000
Southwest			Wildomar	Clinton Keith	Palomar	I-15	\$0	\$0
Southwest			Wildomar	Clinton Keith	I-15	Copper Craft	\$5,030,000	\$0
Subtotal							\$2,334,940,000	\$1,965,138,000

Table 4.4 - TUMF Network Cost Estimates (continued)

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	TOTAL COST	MAXIMUM TUMF SHARE
Central	Menifee			Briggs	Newport	Scott	\$0	\$0
Central	Menifee			Briggs	SR-74 (Pinacate)	Simpson	\$2,991,000	\$2,991,000
Central	Menifee			Briggs	Simpson	Old Newport	\$5,430,000	\$5,430,000
Central	Menifee			Briggs	Salt Creek	bridge	\$8,352,000	\$8,352,000
Central	Menifee			Garbani	I-215	interchange	\$63,061,000	\$42,483,000
Central	Menifee			Goetz	Juanita	Lesser Lane	\$11,378,000	\$11,378,000
Central	Menifee			Goetz	Newport	Juanita	\$0	\$0
Central	Menifee			Holland	Murrieta	Bradley	\$15,708,000	\$15,708,000
Central	Menifee			Holland	Bradley	Haun	\$11,439,000	\$11,439,000
Central	Menifee			Holland	Haun	Antelope	\$9,456,000	\$9,456,000
Central	Menifee			Holland	I-215 overcrossing	bridge	\$9,744,000	\$9,744,000
Central	Menifee			Holland	Antelope	Menifee	\$3,844,000	\$3,844,000
Central	Menifee			McCall	I-215	Aspel	\$5,354,000	\$5,354,000
Central	Menifee			McCall	I-215	interchange	\$0	\$0
Central	Menifee			McCall	Aspel	Menifee	\$2,288,000	\$2,288,000
Central	Menifee			Murrieta	Ethanac	McCall	\$0	\$0
Central	Menifee			Murrieta	Murrieta	Newport	\$7,967,000	\$7,967,000
Central	Menifee			Murrieta	Newport	Bundy Canyon	\$0	\$0
Central	Moreno Valley			Cactus	I-215	Heacock	\$5,617,000	\$5,617,000
Central	Moreno Valley			Cactus	I-215	interchange	\$0	\$0
Central	Moreno Valley			Day	Ironwood	SR-60	\$0	\$0
Central	Moreno Valley			Day	SR-60	interchange	\$0	\$0
Central	Moreno Valley			Day	SR-60	Eucalyptus	\$0	\$0
Central	Moreno Valley			Eucalyptus	I-215	Towngate	\$8,843,000	\$8,843,000
Central	Moreno Valley			Eucalyptus	Towngate	Frederick	\$0	\$0
Central	Moreno Valley			Eucalyptus	Frederick	Heacock	\$0	\$0
Central	Moreno Valley			Eucalyptus	Heacock	Kitching	\$0	\$0
Central	Moreno Valley			Eucalyptus	Kitching	Moreno Beach	\$0	\$0
Central	Moreno Valley			Eucalyptus	Moreno Beach	Theodore	\$0	\$0
Central	Moreno Valley			Frederick	SR-60	Alessandro	\$0	\$0
Central	Moreno Valley			Heacock	Cactus	San Michele	\$0	\$0
Central	Moreno Valley			Heacock	Reche Vista	Cactus	\$0	\$0
Central	Moreno Valley			Heacock	San Michele	Harley Knox	\$0	\$0
Central	Moreno Valley			Ironwood	SR-60	Day	\$0	\$0
Central	Moreno Valley			Ironwood	Day	Heacock	\$0	\$0
Central	Moreno Valley			Lasselle	Alessandro	John F Kennedy	\$0	\$0
Central	Moreno Valley			Lasselle	John F Kennedy	Oleander	\$0	\$0
Central	Moreno Valley			Moreno Beach	Reche Canyon	SR-60	\$18,797,000	\$18,797,000
Central	Moreno Valley			Moreno Beach	SR-60 overcrossing	bridge	\$3,480,000	\$3,028,000
Central	Moreno Valley			Nason	SR-60	Alessandro	\$0	\$0
Central	Moreno Valley			Pigeon Pass	Ironwood	SR-60	\$0	\$0
Central	Moreno Valley			Pigeon Pass/CETAP Corridor	Hidden Springs	Ironwood	\$0	\$0
Central	Moreno Valley			Reche Canyon	Moreno Valley City Limit	Locust	\$0	\$0
Central	Moreno Valley			Redlands	Locust	Alessandro	\$39,789,000	\$39,789,000
Central	Moreno Valley			Redlands	SR-60	interchange	\$0	\$0
Central	Moreno Valley			Theodore	SR-60	Eucalyptus	\$3,966,000	\$3,966,000
Central	Moreno Valley			Theodore	SR-60	interchange	\$0	\$0
Central	Perris			Ellis	Goetz	Evans	\$9,526,000	\$9,526,000
Central	Perris			Evans	Oleander	Ramona	\$0	\$0
Central	Perris			Evans	Ramona	Morgan	\$0	\$0
Central	Perris			Evans	Morgan	Rider	\$0	\$0
Central	Perris			Evans	Rider	Placentia	\$0	\$0
Central	Perris			Evans	Placentia	Nuevo	\$6,492,000	\$6,492,000
Central	Perris			Evans	Nuevo	Ellis	\$17,705,000	\$17,705,000
Central	Perris			Evans	San Jacinto River	bridge	\$11,136,000	\$11,136,000
Central	Perris			Evans	I-215	bridge	\$8,352,000	\$8,352,000
Central	Perris			Goetz	Lesser	Ethanac	\$7,845,000	\$7,845,000
Central	Perris			Harley Knox	I-215	Indian	\$0	\$0
Central	Perris			Harley Knox	I-215	interchange	\$32,698,000	\$28,740,000
Central	Perris			Harley Knox	Indian	Perris	\$0	\$0
Central	Perris			Harley Knox	Perris	Redlands	\$0	\$0
Central	Perris			Nuevo	I-215	Murrieta	\$16,971,000	\$16,971,000
Central	Perris			Nuevo	I-215	interchange	\$32,698,000	\$19,736,000
Central	Perris			Nuevo	Murrieta	Dunlap	\$4,367,000	\$4,367,000
Central	Perris			Nuevo	Perris Valley Storm Channel	bridge	\$0	\$0
Central	Perris			SR-74 (Matthews)	I-215	Ethanac	\$0	\$0
Central	Perris			SR-74 (Matthews)	I-215	interchange	\$32,698,000	\$21,835,000
Central	Unincorporated			Center (Main)	I-215	MT Vernon	\$0	\$0
Central	Unincorporated			Center (Main)	I-215	interchange	\$32,698,000	\$11,912,000
Central	Unincorporated			Center (Main)	BNSF	railroad crossing	\$20,010,000	\$20,010,000
Central	Unincorporated			Ellis	Post	SR-74	\$11,550,000	\$11,550,000
Central	Unincorporated			Mount Vernon/CETAP Corridor	Center	Pigeon Pass	\$2,582,000	\$2,582,000
Central	Unincorporated			Nuevo	Dunlap	Menifee	\$8,737,000	\$2,505,000
Central	Unincorporated			Nuevo	San Jacinto River	bridge	\$5,568,000	\$5,568,000
Central	Unincorporated			Pigeon Pass/CETAP Corridor	Hidden Springs	Mount Vernon	\$8,106,000	\$8,106,000
Central	Unincorporated			Post	Santa Rosa Mine	Ellis	\$0	\$0
Central	Unincorporated			Reche Canyon	Reche Vista	Moreno Valley City Limit	\$0	\$0
Central	Unincorporated			Redlands	San Timoteo Canyon	Locust	\$0	\$0

Table 4.4 - TUMF Network Cost Estimates (continued)

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	TOTAL COST	MAXIMUM TUMF SHARE
Northwest			Corona	6th	SR-91	Magnolia	\$0	\$0
Northwest			Corona	Auto Center	Railroad	SR-91	\$0	\$0
Northwest			Corona	Cajalco	Bedford Canyon	I-15	\$0	\$0
Northwest			Corona	Hidden Valley	Norco Hills	McKinley	\$0	\$0
Northwest			Corona	Lincoln	Parkridge	Ontario	\$0	\$0
Northwest			Corona	Magnolia	6th	Sherborn	\$7,054,000	\$6,419,000
Northwest			Corona	Magnolia	Temescal Creek	bridge	\$4,176,000	\$3,580,000
Northwest			Corona	Magnolia	Sherborn	Rimpau	\$0	\$0
Northwest			Corona	Magnolia	Rimpau	Ontario	\$0	\$0
Northwest			Corona	Main	Grand	Ontario	\$0	\$0
Northwest			Corona	Main	Ontario	Foothill	\$0	\$0
Northwest			Corona	Main	Hidden Valley	Parkridge	\$5,314,000	\$4,389,000
Northwest			Corona	Main	Parkridge	SR-91	\$0	\$0
Northwest			Corona	Main	SR-91	S. Grand	\$0	\$0
Northwest			Corona	McKinley	Hidden Valley	Promenade	\$0	\$0
Northwest			Corona	McKinley	Promenade	SR-91	\$0	\$0
Northwest			Corona	McKinley	SR-91	Magnolia	\$0	\$0
Northwest			Corona	McKinley	Arlington Channel	bridge	\$0	\$0
Northwest			Corona	McKinley	BNSF	railroad crossing	\$105,560,000	\$105,560,000
Northwest			Corona	Ontario	I-15	El Cerrito	\$13,451,000	\$13,451,000
Northwest			Corona	Ontario	Lincoln	Buena Vista	\$0	\$0
Northwest			Corona	Ontario	Buena Vista	Main	\$0	\$0
Northwest			Corona	Ontario	Main	Kellogg	\$0	\$0
Northwest			Corona	Ontario	Kellogg	Fullerton	\$0	\$0
Northwest			Corona	Ontario	Fullerton	Rimpau	\$0	\$0
Northwest			Corona	Ontario	Rimpau	I-15	\$0	\$0
Northwest			Corona	Railroad	Auto Club	Buena Vista	\$0	\$0
Northwest			Corona	Railroad	BNSF	railroad crossing	\$40,020,000	\$40,020,000
Northwest			Corona	Railroad	Buena Vista	Main (at Grand)	\$0	\$0
Northwest			Corona	River	Corydon	Main	\$0	\$0
Northwest			Corona	Serfas Club	SR-91	Green River	\$0	\$0
Northwest			Eastvale	Archibald	Remington	River	\$3,382,000	\$3,382,000
Northwest			Eastvale	Hamner	Mission	Bellevue	\$5,279,000	\$5,279,000
Northwest			Eastvale	Hamner	Bellevue	Amberhill	\$199,000	\$199,000
Northwest			Eastvale	Hamner	Amberhill	Limonite	\$2,787,000	\$2,787,000
Northwest			Eastvale	Hamner	Limonite	Schleisman	\$991,000	\$991,000
Northwest			Eastvale	Hamner	Schleisman	Santa Ana River	\$5,533,000	\$3,675,000
Northwest			Eastvale	Hellman	Schleisman	Walters	\$1,594,000	\$1,594,000
Northwest			Eastvale	Hellman	Walters	River	\$21,503,000	\$21,503,000
Northwest			Eastvale	Hellman	Cucamonga Creek	bridge	\$3,828,000	\$3,828,000
Northwest			Eastvale	Limonite	I-15	Eastvale Gateway	\$289,000	\$289,000
Northwest			Eastvale	Limonite	I-15	interchange	\$0	\$0
Northwest			Eastvale	Limonite	Eastvale Gateway	Hamner	\$255,000	\$255,000
Northwest			Eastvale	Hamner	Sumner	Sumner	\$1,094,000	\$1,094,000
Northwest			Eastvale	Limonite	Sumner	Harrison	\$497,000	\$497,000
Northwest			Eastvale	Limonite	Harrison	Archibald	\$0	\$0
Northwest			Eastvale	Limonite	Archibald	Hellman (Keller SBD Co.)	\$4,885,000	\$4,885,000
Northwest			Eastvale	Limonite	Cucamonga Creek	bridge	\$13,920,000	\$0
Northwest			Eastvale	River	Hellman	Archibald	\$5,948,000	\$5,948,000
Northwest			Jurupa Valley	Armstrong	San Bernardino County	Valley	\$6,192,000	\$6,192,000
Northwest			Jurupa Valley	Bellevue	Cantu-Galleano Ranch	Van Buren	\$464,000	\$464,000
Northwest			Jurupa Valley	Cantu-Galleano Ranch	Wineville	Bellevue	\$793,000	\$793,000
Northwest			Jurupa Valley	Etiwanda	Philadelphia	SR-60	\$1,515,000	\$989,000
Northwest			Jurupa Valley	Etiwanda	SR-60	Limonite	\$0	\$0
Northwest			Jurupa Valley	Limonite	I-15	Wineville	\$0	\$0
Northwest			Jurupa Valley	Limonite	Wineville	Etiwanda	\$0	\$0
Northwest			Jurupa Valley	Limonite	Etiwanda	Van Buren	\$2,981,000	\$2,981,000
Northwest			Jurupa Valley	Limonite	Van Buren	Clay	\$0	\$0
Northwest			Jurupa Valley	Limonite	Clay	Riverview	\$0	\$0
Northwest			Jurupa Valley	Market	Rubidoux	Santa Ana River	\$5,181,000	\$0
Northwest			Jurupa Valley	Market	Santa Ana River	bridge	\$13,920,000	\$6,204,000
Northwest			Jurupa Valley	Mission	Milliken	SR-60	\$0	\$0
Northwest			Jurupa Valley	Mission	SR-60	Santa Ana River	\$0	\$0
Northwest			Jurupa Valley	Riverview	Limonite	Mission	\$0	\$0
Northwest			Jurupa Valley	Rubidoux	Pine	Mission	\$0	\$0
Northwest			Jurupa Valley	Rubidoux	SR-60	interchange	\$32,698,000	\$9,051,000
Northwest			Jurupa Valley	Valley	Armstrong	Mission	\$0	\$0
Northwest			Norco	1st	Parkridge	Mountain	\$0	\$0
Northwest			Norco	1st	Mountain	Hamner	\$0	\$0
Northwest			Norco	2nd	River	I-15	\$0	\$0
Northwest			Norco	6th	Hamner	California	\$0	\$0
Northwest			Norco	6th	I-15	interchange	\$32,698,000	\$3,489,000
Northwest			Norco	Arlington	Crestview	Fairhaven	\$4,342,000	\$4,342,000
Northwest			Norco	California	Arlington	6th	\$15,237,000	\$12,525,000
Northwest			Norco	Corydon	River	5th	\$0	\$0
Northwest			Norco	Hamner	Santa Ana River	bridge	\$33,408,000	\$11,455,000
Northwest			Norco	Hamner	Santa Ana River	Hidden Valley	\$49,591,000	\$49,591,000
Northwest			Norco	Hidden Valley	I-15	Norco Hills	\$0	\$0
Northwest			Norco	Hidden Valley	Hamner	I-15	\$0	\$0
Northwest			Norco	Norco	Corydon	Hamner	\$0	\$0
Northwest			Norco	Norco	California	Crestview	\$0	\$0
Northwest			Norco	River	Archibald	Corydon	\$1,743,000	\$1,109,000

Table 4.4 - TUMF Network Cost Estimates (continued)

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	TOTAL COST	MAXIMUM TUMF SHARE
Northwest	Riverside			14th	Market	Martin Luther King	\$0	\$0
Northwest	Riverside			1st	Market	Main	\$0	\$0
Northwest	Riverside			3rd	SR-91	I-215	\$1,941,000	\$1,941,000
Northwest	Riverside			3rd	BNSF	railroad crossing	\$105,560,000	\$30,560,000
Northwest	Riverside			Adams	Arlington	SR-91	\$0	\$0
Northwest	Riverside			Adams	SR-91	Lincoln	\$0	\$0
Northwest	Riverside			Adams	SR-91	interchange	\$32,698,000	\$3,262,000
Northwest	Riverside			Arlington	Fairhaven	La Sierra	\$0	\$0
Northwest	Riverside			Buena Vista	Santa Ana River	Redwood	\$0	\$0
Northwest	Riverside			Canyon Crest	Martin Luther King	Central	\$0	\$0
Northwest	Riverside			Canyon Crest	Central	Country Club	\$0	\$0
Northwest	Riverside			Canyon Crest	Country Club	Via Vista	\$4,996,000	\$1,593,000
Northwest	Riverside			Canyon Crest	Via Vista	Alessandro	\$0	\$0
Northwest	Riverside			Central	Chicago	I-215/SR-60	\$0	\$0
Northwest	Riverside			Central	SR-91	Magnolia	\$0	\$0
Northwest	Riverside			Central	Alessandro	SR-91	\$0	\$0
Northwest	Riverside			Central	Van Buren	Magnolia	\$0	\$0
Northwest	Riverside			Chicago	Alessandro	Spruce	\$0	\$0
Northwest	Riverside			Chicago	Spruce	Columbia	\$0	\$0
Northwest	Riverside			Columbia	Main	Iowa	\$0	\$0
Northwest	Riverside			Columbia	I-215	interchange	\$32,698,000	\$9,050,000
Northwest	Riverside			Iowa	Center	3rd	\$30,272,000	\$30,272,000
Northwest	Riverside			Iowa	3rd	University	\$0	\$0
Northwest	Riverside			Iowa	University	Martin Luther King	\$0	\$0
Northwest	Riverside			JFK	Trautwein	Wood	\$1,880,000	\$1,880,000
Northwest	Riverside			La Sierra	Arlington	SR-91	\$0	\$0
Northwest	Riverside			La Sierra	SR-91	Indiana	\$192,000	\$192,000
Northwest	Riverside			La Sierra	Indiana	Victoria	\$778,000	\$778,000
Northwest	Riverside			Lemon (NB One way)	Mission Inn	University	\$0	\$0
Northwest	Riverside			Lincoln	Van Buren	Jefferson	\$0	\$0
Northwest	Riverside			Lincoln	Jefferson	Washington	\$0	\$0
Northwest	Riverside			Lincoln	Washington	Victoria	\$0	\$0
Northwest	Riverside			Madison	SR-91	Victoria	\$853,000	\$853,000
Northwest	Riverside			Madison	BNSF	railroad crossing	\$20,010,000	\$20,010,000
Northwest	Riverside			Magnolia	BNSF Railroad	Tyler	\$0	\$0
Northwest	Riverside			Magnolia	BNSF	railroad crossing	\$0	\$0
Northwest	Riverside			Magnolia	Tyler	Harrison	\$0	\$0
Northwest	Riverside			Magnolia	Harrison	14th	\$0	\$0
Northwest	Riverside			Main	1st	San Bernardino County	\$0	\$0
Northwest	Riverside			Market	14th	Santa Ana River	\$9,491,000	\$9,491,000
Northwest	Riverside			Martin Luther King	14th	I-215/SR-60	\$24,031,000	\$24,031,000
Northwest	Riverside			Mission Inn	Redwood	Lemon	\$0	\$0
Northwest	Riverside			Redwood (S3 One way)	Mission Inn	University	\$0	\$0
Northwest	Riverside			Trautwein	Alessandro	Van Buren	\$0	\$0
Northwest	Riverside			Tyler	SR-91	Magnolia	\$0	\$0
Northwest	Riverside			Tyler	SR-91	interchange	\$63,061,000	\$21,814,000
Northwest	Riverside			Tyler	Magnolia	Hole	\$0	\$0
Northwest	Riverside			Tyler	Hole	Wells	\$0	\$0
Northwest	Riverside			Tyler	Wells	Arlington	\$0	\$0
Northwest	Riverside			University	Redwood	SR-91	\$859,000	\$859,000
Northwest	Riverside			University	SR-91	I-215/SR-60	\$2,067,000	\$2,067,000
Northwest	Riverside			Victoria	Lincoln	Arlington	\$0	\$0
Northwest	Riverside			Victoria	Madison	Washington	\$0	\$0
Northwest	Riverside			Washington	Victoria	Hermosa	\$27,018,000	\$27,018,000
Northwest	Riverside			Wood	JFK	Van Buren	\$3,053,000	\$3,053,000
Northwest	Riverside			Wood	Van Buren	Bergamont	\$0	\$0
Northwest	Riverside			Wood	Bergamont	Krameria	\$0	\$0
Northwest	Unincorporated			Cantu-Galleano Ranch	Hamner	Wineville	\$0	\$0
Northwest	Unincorporated			Dos Lagos (Weirick)	Temescal Canyon	I-15	\$0	\$0
Northwest	Unincorporated			El Cerrito	I-15	Ontario	\$0	\$0
Northwest	Unincorporated			El Sobrante	Mockingbird Canyon	Cajalco	\$0	\$0
Northwest	Unincorporated			Harley John	Washington	Scottsdale	\$0	\$0
Northwest	Unincorporated			Harley John	Scottsdale	Cajalco	\$0	\$0
Northwest	Unincorporated			La Sierra	Victoria	El Sobrante	\$0	\$0
Northwest	Unincorporated			La Sierra	El Sobrante	Cajalco	\$0	\$0
Northwest	Unincorporated			Mockingbird Canyon	Van Buren	El Sobrante	\$20,871,000	\$20,871,000
Northwest	Unincorporated			Temescal Canyon	El Cerrito	Tuscany	\$3,168,000	\$0
Northwest	Unincorporated			Temescal Canyon	Tuscany	Dos Lagos	\$0	\$0
Northwest	Unincorporated			Temescal Canyon	Dos Lagos	Leroy	\$0	\$0
Northwest	Unincorporated			Temescal Canyon	Leroy	Dawson Canyon	\$0	\$0
Northwest	Unincorporated			Temescal Canyon	Dawson Canyon	I-15	\$0	\$0
Northwest	Unincorporated			Temescal Canyon	I-15	interchange	\$32,698,000	\$32,698,000
Northwest	Unincorporated			Temescal Canyon	I-15	Park Canyon	\$14,329,000	\$14,329,000
Northwest	Unincorporated			Temescal Canyon	Park Canyon	Indian Truck Trail	\$0	\$0
Northwest	Unincorporated			Washington	Hermosa	Harley John	\$12,787,000	\$12,787,000
Northwest	Unincorporated			Wood	Krameria	Cajalco	\$12,537,000	\$12,537,000

Table 4.4 - TUMF Network Cost Estimates (continued)

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	TOTAL COST	MAXIMUM TUMF SHARE
Pass	Banning			8th	Wilson	I-10	\$0	\$0
Pass	Banning			Lincoln	Sunset	SR-243	\$0	\$0
Pass	Banning			Ramsey	I-10	8th	\$0	\$0
Pass	Banning			Ramsey	8th	Highland Springs	\$0	\$0
Pass	Banning			SR-243	I-10	Wesley	\$0	\$0
Pass	Banning			Sun Lakes	Highland Home	Sunset	\$30,502,000	\$30,502,000
Pass	Banning			Sun Lakes	Smith Creek	bridge	\$8,352,000	\$8,352,000
Pass	Banning			Sun Lakes	Montgomery Creek	bridge	\$5,568,000	\$5,568,000
Pass	Banning			Sun Lakes	Highland Springs	Highland Home	\$0	\$0
Pass	Banning			Sunset	Ramsey	Lincoln	\$0	\$0
Pass	Banning			Sunset	I-10	interchange	\$32,698,000	\$32,698,000
Pass	Banning			Wilson	Highland Home	8th	\$0	\$0
Pass	Banning			Wilson	Highland Springs	Highland Home	\$0	\$0
Pass	Beaumont			1st	Viele	Pennsylvania	\$0	\$0
Pass	Beaumont			1st	Pennsylvania	Highland Springs	\$0	\$0
Pass	Beaumont			6th	I-10	Highland Springs	\$0	\$0
Pass	Beaumont			Desert Lawn	Champions	Oak Valley (STC)	\$0	\$0
Pass	Beaumont			Oak Valley (14th)	Highland Springs	Pennsylvania	\$0	\$0
Pass	Beaumont			Oak Valley (14th)	Pennsylvania	Oak View	\$0	\$0
Pass	Beaumont			Oak Valley (14th)	Oak View	I-10	\$0	\$0
Pass	Beaumont			Oak Valley (14th)	I-10	interchange	\$63,061,000	\$62,401,000
Pass	Beaumont			Oak Valley (STC)	UP Railroad	Tukwet Canyon	\$0	\$0
Pass	Beaumont			Oak Valley (STC)	Tukwet Canyon	I-10	\$0	\$0
Pass	Beaumont			Pennsylvania	6th	1st	\$6,588,000	\$6,588,000
Pass	Beaumont			Pennsylvania	I-10	interchange	\$0	\$0
Pass	Calimesa			Bryant	County Line	Avenue L	\$0	\$0
Pass	Calimesa			Calimesa	County Line	I-10	\$0	\$0
Pass	Calimesa			Calimesa	I-10	interchange	\$63,061,000	\$63,061,000
Pass	Calimesa			County Line	7th	Bryant	\$0	\$0
Pass	Calimesa			County Line	I-10	interchange	\$32,698,000	\$32,698,000
Pass	Calimesa			Desert Lawn	Palmer	Champions	\$0	\$0
Pass	Calimesa			Singleton	Avenue L	Condit	\$0	\$0
Pass	Calimesa			Singleton	Condit	Roberts	\$12,972,000	\$12,972,000
Pass	Calimesa			Singleton	I-10	interchange	\$63,061,000	\$0
Pass	Calimesa			Tukwet Canyon	Roberts Rd	Palmer	\$0	\$0
Pass	Unincorporated			Live Oak Canyon	Oak Valley (STC)	San Bernardino County	\$0	\$0
Pass	Unincorporated			San Timoteo Canyon	San Bernardino County	UP Railroad	\$0	\$0
Pass	Unincorporated			San Timoteo Canyon	UP Railroad	railroad crossing	\$52,780,000	\$52,780,000
San Jacinto	Hemet			Sanderson	Acacia	Menlo	\$0	\$0
San Jacinto	Hemet			Sanderson	Domenigoni	Stetson	\$0	\$0
San Jacinto	Hemet			Sanderson	RR Crossing	Acacia	\$0	\$0
San Jacinto	Hemet			Sanderson	Stetson	RR Crossing	\$0	\$0
San Jacinto	Hemet			Sanderson	Menlo	Esplanade	\$0	\$0
San Jacinto	Hemet			SR-74 (Florida)	Warren	Cawston	\$0	\$0
San Jacinto	Hemet			SR-74 (Florida)	Columbia	Ramona	\$0	\$0
San Jacinto	Hemet			SR-74/SR-79 (Florida)	Cawston	Columbia	\$0	\$0
San Jacinto	Hemet			State	Domenigoni	Chambers	\$0	\$0
San Jacinto	Hemet			State	Chambers	Stetson	\$0	\$0
San Jacinto	Hemet			State	Florida	Esplanade	\$0	\$0
San Jacinto	Hemet			State	Stetson	Florida	\$0	\$0
San Jacinto	Hemet			Stetson	Cawston	State	\$0	\$0
San Jacinto	Hemet			Stetson	Warren	Cawston	\$4,357,000	\$4,357,000
San Jacinto	Hemet			Warren	Esplanade	Domenigoni	\$19,926,000	\$19,926,000
San Jacinto	Hemet			Warren	Salt Creek	bridge	\$4,176,000	\$4,176,000
San Jacinto	San Jacinto			Esplanade	Mountain	State	\$0	\$0
San Jacinto	San Jacinto			Esplanade	State	Warren	\$0	\$0
San Jacinto	San Jacinto			Sanderson	Ramona	Esplanade	\$0	\$0
San Jacinto	San Jacinto			SR-79 (North Ramona)	State	San Jacinto	\$0	\$0
San Jacinto	San Jacinto			SR-79 (San Jacinto)	North Ramona Blvd	7th	\$0	\$0
San Jacinto	San Jacinto			SR-79 (San Jacinto)	7th	SR-74	\$0	\$0
San Jacinto	San Jacinto			State	Ramona	Esplanade	\$0	\$0
San Jacinto	San Jacinto			State	Gilman Springs	Quandt Ranch	\$3,317,000	\$3,317,000
San Jacinto	San Jacinto			State	San Jacinto River	bridge	\$0	\$0
San Jacinto	San Jacinto			State	Quandt Ranch	Ramona	\$0	\$0
San Jacinto	San Jacinto			Warren	Ramona	Esplanade	\$13,469,000	\$13,469,000
San Jacinto	Unincorporated			Gilman Springs	Sanderson	State	\$11,097,000	\$11,097,000
San Jacinto	Unincorporated			Gilman Springs	Massacre Canyon Wash	bridge	\$1,392,000	\$1,392,000
San Jacinto	Unincorporated			SR-79 (Winchester)	SR-74 (Florida)	Domenigoni	\$0	\$0

Table 4.4 - TUMF Network Cost Estimates (continued)

AREA	PLAN	DIST	CITY	STREETNAME	SEGMENTFROM	SEGMENTTO	TOTAL COST	MAXIMUM TUMF SHARE
Southwest			Lake Elsinore	Carydon	Mission	Grand	\$3,336,000	\$3,336,000
Southwest			Lake Elsinore	Diamond	Mission	I-15	\$0	\$0
Southwest			Lake Elsinore	Franklin (Integral to Railroad C	I-15	interchange	\$0	\$0
Southwest			Lake Elsinore	Grand	Lincoln	Toft	\$0	\$0
Southwest			Lake Elsinore	Grand	Toft	SR-74 (Riverside)	\$3,512,000	\$3,512,000
Southwest			Lake Elsinore	Lake	I-15	Lincoln	\$39,817,000	\$32,726,000
Southwest			Lake Elsinore	Lake	I-15	interchange	\$32,698,000	\$15,771,000
Southwest			Lake Elsinore	Lake	Temescal Wash	bridge	\$2,506,000	\$1,150,000
Southwest			Lake Elsinore	Mission	Railroad Canyon	Bundy Canyon	\$0	\$0
Southwest			Lake Elsinore	Nichols	I-15	Lake	\$7,850,000	\$7,850,000
Southwest			Lake Elsinore	Nichols	Temescal Wash	bridge	\$0	\$0
Southwest			Lake Elsinore	Nichols	I-15	interchange	\$63,061,000	\$63,061,000
Southwest			Lake Elsinore	SR-74 (Collier/Riverside)	I-15	Lakeshore	\$24,303,000	\$24,303,000
Southwest			Lake Elsinore	SR-74 (Grand)	Riverside	SR-74 (Ortega)	\$9,733,000	\$3,691,000
Southwest			Lake Elsinore	SR-74 (Riverside)	Lakeshore	Grand	\$20,175,000	\$20,175,000
Southwest			Lake Elsinore	Temescal Canyon	I-15	Lake	\$7,411,000	\$7,411,000
Southwest			Lake Elsinore	Temescal Canyon	Temescal Wash	bridge	\$3,480,000	\$3,480,000
Southwest			Murrieta	California Oaks	Jefferson	I-15	\$0	\$0
Southwest			Murrieta	California Oaks	I-15	Jackson	\$0	\$0
Southwest			Murrieta	California Oaks	Jackson	Clinton Keith	\$0	\$0
Southwest			Murrieta	Jackson	Whitewood	Ynez	\$0	\$0
Southwest			Murrieta	Jefferson	Palomar	Nutmeg	\$1,562,000	\$1,562,000
Southwest			Murrieta	Jefferson	Nutmeg	Murrieta Hot Springs	\$0	\$0
Southwest			Murrieta	Jefferson	Murrieta Hot Springs	Cherry	\$30,634,000	\$30,634,000
Southwest			Murrieta	Keller	I-215	Whitewood	\$0	\$0
Southwest			Murrieta	Keller	I-215	interchange	\$0	\$0
Southwest			Murrieta	Los Alamos	Jefferson	I-215	\$0	\$0
Southwest			Murrieta	Murrieta Hot Springs	Jefferson	I-215	\$0	\$0
Southwest			Murrieta	Murrieta Hot Springs	I-215	Margarita	\$0	\$0
Southwest			Murrieta	Murrieta Hot Springs	Margarita	SR-79 (Winchester)	\$4,057,000	\$3,899,000
Southwest			Murrieta	Nutmeg	Jefferson	Clinton Keith	\$0	\$0
Southwest			Murrieta	Whitewood	Clinton Keith	Los Alamos	\$2,708,000	\$2,708,000
Southwest			Murrieta	Whitewood	Los Alamos	Murrieta Hot Springs	\$0	\$0
Southwest			Murrieta	Whitewood	Murrieta Hot Springs	Jackson	\$4,629,000	\$4,629,000
Southwest			Murrieta	Ynez	Jackson	SR-79 (Winchester)	\$0	\$0
Southwest			Temecula	Butterfield Stage	Murrieta Hot Springs	Calle Chapos	\$816,000	\$816,000
Southwest			Temecula	Butterfield Stage	Calle Chapos	La Serena	\$696,000	\$696,000
Southwest			Temecula	Butterfield Stage	La Serena	Rancho California	\$904,000	\$904,000
Southwest			Temecula	Butterfield Stage	Rancho California	Pauba	\$846,000	\$846,000
Southwest			Temecula	Butterfield Stage	Pauba	SR-79 (Temecula Pkwy)	\$725,000	\$725,000
Southwest			Temecula	Jefferson	Cherry	Rancho California	\$2,285,000	\$2,285,000
Southwest			Temecula	Margarita	Murrieta Hot Springs	SR-79 (Temecula Pkwy)	\$7,644,000	\$7,644,000
Southwest			Temecula	Old Town Front	Rancho California	I-15/SR-79 (Temecula Pkwy)	\$0	\$0
Southwest			Temecula	Pechanga Pkwy	SR-79 (Temecula Pkwy)	Via Gilberto	\$0	\$0
Southwest			Temecula	Pechanga Pkwy	Via Gilberto	Pechanga Pkwy	\$0	\$0
Southwest			Temecula	Rancho California	Jefferson	Margarita	\$18,254,000	\$18,181,000
Southwest			Temecula	Rancho California	I-15	interchange	\$32,698,000	\$0
Southwest			Temecula	Rancho California	Margarita	Butterfield Stage	\$0	\$0
Southwest			Temecula	SR-79 (Temecula Pkwy)	I-15	Pechanga Pkwy	\$0	\$0
Southwest			Temecula	SR-79 (Temecula Pkwy)	Pechanga Pkwy	Butterfield Stage	\$3,065,000	\$3,065,000
Southwest			Unincorporated	Briggs	Scott	SR-79 (Winchester)	\$6,509,000	\$6,509,000
Southwest			Unincorporated	Butterfield Stage	Tucalota Creek	bridge	\$0	\$0
Southwest			Unincorporated	Butterfield Stage (Pourroy)	Auld	Murrieta Hot Springs	\$23,076,000	\$23,076,000
Southwest			Unincorporated	Grand	Ortega	Carydon	\$68,025,000	\$68,025,000
Southwest			Unincorporated	Horsethief Canyon	Temescal Canyon	I-15	\$0	\$0
Southwest			Unincorporated	Indian Truck Trail	Temescal Canyon	I-15	\$0	\$0
Southwest			Unincorporated	Murrieta Hot Springs	SR-79 (Winchester)	Pourroy	\$0	\$0
Southwest			Unincorporated	Pala	Pechanga	San Diego County	\$0	\$0
Southwest			Unincorporated	Pourroy	SR-79 (Winchester)	Auld	\$2,236,000	\$2,236,000
Southwest			Unincorporated	Rancho California	Butterfield Stage	Glen Oaks	\$87,369,000	\$87,369,000
Southwest			Unincorporated	Temescal Canyon	Horsethief Canyon Wash	bridge	\$3,340,000	\$3,340,000
Southwest			Unincorporated	Temescal Canyon	Indian Truck Trail	I-15	\$15,739,000	\$15,739,000
Southwest			Unincorporated	Temescal Canyon	Indian Wash	bridge	\$1,462,000	\$1,462,000
Southwest			Wildomar	Bundy Canyon	Mission	I-15	\$9,704,000	\$9,704,000
Southwest			Wildomar	Grand	Corydon	Wildomar Trail	\$0	\$0
Southwest			Wildomar	Mission	Bundy Canyon	Palomar	\$0	\$0
Southwest			Wildomar	Palomar	Clinton Keith	Washington	\$3,227,000	\$3,227,000
Southwest			Wildomar	Palomar	Mission	Clinton Keith	\$13,493,000	\$13,493,000
Southwest			Wildomar	Wildomar Trail	I-15	Baxter	\$1,281,000	\$1,281,000
Southwest			Wildomar	Wildomar Trail	I-15	interchange	\$32,698,000	\$27,858,000
Southwest			Wildomar	Wildomar Trail	Baxter	Palomar	\$11,316,000	\$11,316,000
Southwest			Wildomar	Wildomar Trail	Palomar	Grand	\$0	\$0
Subtotal							\$2,451,368,000	\$1,957,217,000
Totals								
Network							\$ 4,784,308,000	\$ 3,922,355,000
Transit							\$ 217,870,000	\$ 154,831,000
Administration							\$ 163,087,440	\$ 163,087,440
MSHCP							\$ 64,329,000	\$ 57,217,000
TOTAL							\$ 5,231,594,440	\$ 4,297,490,440

Table 4.5 – TUMF Transit Cost Estimates

AREA PLAN DIST	LEAD AGENCY	PROJECT NAME	LOCATION	TOTAL	MAXIMUM TUMF SHARE
Central	RTA	Menifee Mobility Hub	Menifee	\$7,465,000	\$5,305,000
Northwest	RTA	Riverside Mobility Hub at Vine Street	Riverside	\$11,195,000	\$7,956,000
Central	RTA	Moreno Valley Mobility Hub(s)	Moreno Valley	\$11,195,000	\$7,956,000
Northwest	RTA	Jurupa Valley Mobility Hub(s)	Jurupa Valley	\$11,195,000	\$7,956,000
Pass	RTA	Pass Area Mobility Hub(s)	Banning	\$11,195,000	\$7,956,000
Southwest	RTA	Lake Elsinore / Canyon Lake Mobility Hub(s)	Lake Elsinore	\$11,195,000	\$7,956,000
San Jacinto	RTA	Hemet Mobility Hub	Hemet	\$11,195,000	\$7,956,000
San Jacinto	RTA	San Jacinto Mobility Hub	San Jacinto	\$11,195,000	\$7,956,000
San Jacinto	RTA	MSJC Mobility Hub	San Jacinto	\$1,245,000	\$885,000
Regional	RTA	ZEB Technology Enhancements	Various locations region wide	\$1,000,000	\$711,000
Northwest	RTA	Regional Operations and Maintenance Facility	Riverside	\$62,186,000	\$44,192,000
Regional	RTA	Annual Transit Enhancements Program	Various locations region wide	\$14,500,000	\$10,304,000
Northwest	RTA	HQTC Improvements	UCR, Riverside to Perris	\$3,150,000	\$2,239,000
Regional	RTA	Vehicle Fleet Small Buses/Vans	Various locations region wide	\$4,800,000	\$3,411,000
Regional	RTA	Vehicle Fleet Medium Buses	Various locations region wide	\$6,000,000	\$4,264,000
Regional	RTA	Vehicle Fleet Large Buses	Various locations region wide	\$36,859,000	\$26,194,000
Regional	RTA	COA Study	Various locations region wide	\$2,300,000	\$1,634,000
TOTAL				\$217,870,000	\$154,831,000

4.8 TUMF Network Evaluation

To assess the effectiveness of the proposed TUMF Network improvements to mitigate the cumulative regional impact of new development in Western Riverside County, the proposed network improvements were added to the 2021 existing network in RivCoM and the model was run with 2045 socioeconomic data to determine the relative impacts on horizon year traffic conditions. To quantify the impacts of the TUMF Network improvements, the various traffic measures of effectiveness described in **Section 3.1** for the 2018 Existing and 2045 No-Build scenarios were again calculated for the 2045 TUMF Build scenario. The results for VMT, VHT, VHD, and total VMT experiencing unacceptable level of service (LOS E) were then compared to the results presented in **Table 3.1** for the no-build conditions. The 2045 TUMF Build comparison results are provided in **Table 4.6**. Plots of the Network Extents are attached in **Appendix H**.

As shown in **Table 4.6**, the 2045 peak period VMT on all arterial facilities experiencing LOS of E or worse will decrease with the addition of the TUMF Network improvements while the share of VMT on the TUMF arterial network experiencing LOS E or worse during the peak periods will be reduced to 32% (which is still above the level experienced in 2018). It should be noted that the total VMT on the arterial system **increases** as a result of freeway trips being diverted to the arterial system to benefit from the proposed TUMF improvements.

Despite a greater share of the total peak period VMT in 2045, the arterial system can more efficiently accommodate the increased demand with the proposed TUMF improvements. Although peak period VMT on the TUMF improved arterial system increases by approximately 6% in 2045 compared to the No Build condition, VHT on the arterial system remains almost constant. Additionally, a benefit is observed on the freeway system with VMT and VHT being reduced following TUMF Network improvements. By completing TUMF improvements, the total VHD experienced by all area motorists would be reduced during the peak period by over 7% from the levels that would be experienced under the 2045 No-Build scenario. These results highlight the

effectiveness of the TUMF Program to mitigate the cumulative regional transportation impacts of new development commensurate with the level of impact being created.

**Table 4.6 – Regional Highway System Measures of Performance
(2018 Existing and 2045 No-Build Scenarios to 2045 TUMF Build Scenario)**

Measure of Performance*	Peak Periods (Total)		
	2018 Existing	2045 No-Build	2045 Build
VMT - Total ALL FACILITIES	23,284,724	29,897,254	30,160,328
VMT - FREEWAYS	13,514,522	15,490,284	15,418,548
VMT - ALL ARTERIALS	9,770,202	14,406,970	14,741,781
TOTAL - TUMF ARTERIAL VMT	6,216,985	8,597,200	9,096,417
VHT - TOTAL ALL FACILITIES	541,350	915,439	895,725
VHT - FREEWAYS	263,792	399,128	388,847
VHT - ALL ARTERIALS	277,558	516,311	506,878
TOTAL TUMF ARTERIAL VHT	174,455	320,869	321,062
VHD - TOTAL ALL FACILITIES	108,900	338,056	313,288
VHD - FREEWAYS	66,156	170,649	161,528
VHD - ALL ARTERIALS	42,745	167,407	151,760
TOTAL TUMF ARTERIAL VHD	33,249	124,863	114,451
VMT LOS E - TOTAL ALL FACILITIES	5,605,070	13,369,483	12,788,016
VMT LOS E - FREEWAYS	4,725,471	9,316,891	9,115,937
VMT LOS E & F - ALL ARTERIALS	879,599	4,052,592	3,672,079
TOTAL TUMF ARTERIAL VMT w/ LOS E or worse	765,782	3,184,133	2,929,288
% of TUMF ARTERIAL VMT w/ LOS E or worse	12%	37%	32%

* Source: RivCoM 2018 base network and SCAG 2020 RTP/SCS SED with updated 2021 arterial network as existing in December 2021 and RivCoM 2018 base network and SCAG 2020 RTP/SCS SED with updated 2021 arterial network plus future TUMF network projects.

NOTES:

Volume is adjusted by PCE factor

VMT = vehicle miles of travel (the total combined distance that all vehicles travel on the system)

VHT = vehicle hours of travel (the total combined time that all vehicles are traveling on the system)

VHD = vehicle hours of delay (the total combined time that all vehicles have been delayed on the system based on the difference between forecast travel time and free-flow (ideal) travel time)

LOS = level of service (based on forecast volume to capacity ratios).

LOS E or Worse was determined by V/C ratio that exceeds 0.9 thresholds as indicated in the Riverside County General Plan.

5.0 TUMF NEXUS ANALYSIS

The objective of this section is to evaluate and document the rational nexus (or reasonable relationship) between the proposed fee and the transportation system improvements it will be used to help fund. The analysis starts by documenting the correlation between future development and the need for transportation system improvements on the TUMF network to mitigate the cumulative regional impacts of this new development, followed by analysis of the nexus evaluation of the key components of the TUMF concept.

5.1 Future Development and the Need for Improvements

Previous sections of this report documented the projected population, household and employment growth in Western Riverside County, the expected increases in traffic congestion and travel delay, and the identification of the transportation system improvements that will serve these future inter-community travel demands. The following points coalesce this information in a synopsis of how the future growth relates to the need for improvements to the TUMF system.

- Western Riverside County is expected to continue growing.
Development in Western Riverside County is expected to continue at a robust rate of growth into the foreseeable future. Current projections estimate the population is projected to grow from a level of approximately 1.91 million in 2018 to a future level of about 2.53 million in 2045, while employment is projected to grow from a level of about 570,000 in 2018 to approximately 846,000 in 2045 (as shown in **Table 2.3**).
- Continuing growth will result in increasing congestion on arterial roadways.
Traffic congestion and delay on arterial roadways are projected to increase dramatically in the future (as shown in **Table 3.1**). Without improvements to the transportation system, congestion levels will grow rapidly and travelers will experience unacceptable travel conditions with slow travel speeds and lengthy delays.
- The future arterial roadway congestion is directly attributable to future development in Western Riverside County.
Traffic using arterial roadways within Western Riverside County is virtually all generated within or attracted to Western Riverside County, since longer-distance trips passing through the region typically use the freeway system, not arterial roadways. Therefore, the future recurring congestion problems on these roadways will be attributable to new trips that originate in, terminate in, or travel within Western Riverside County.
- Capacity improvements to the transportation system will be needed to alleviate the future congestion caused by new development.
To maintain transportation service closer to current levels of efficiency, capacity enhancements will need to be made to the arterial roadway system. These enhancements could include new or realigned roads, additional lanes on existing

roads, new or expanded bridges, new or upgraded freeway interchanges, grade separation of at-grade rail crossings, or the installation of new ITS to improve traffic flows. The completion of improvements to the arterial roadway system would enhance regional mobility and reduce the total peak period vehicles hours of travel (VHT) by over 2%, reduce peak period vehicle hours of delay (VHD) by over 7%, and reduce the share of traffic experiencing congestion in the peak periods by over 4% (as shown in **Table 4.6**). The specific needs and timing of implementation will depend on the location and rate of future development, so the specific improvements to be funded by the TUMF and their priority of implementation will be determined during future project programming activities as improvement needs unfold and as TUMF funds become available.

- Roads on the TUMF network are the facilities that merit improvement through this fee program.

The criteria used to identify roads for the TUMF network (future number of lanes, future traffic volume, future congestion level, and roadway function linking communities and activity centers and serving public transportation) were selected to ensure that these are the roadways that will serve inter-community travel and will require future improvement to alleviate congestion.

- Improvements to the public transportation system will be needed to provide adequate mobility for transit-dependent travelers and to provide an alternative to automobile travel.

Since a portion of the population does not own an automobile and depends on public transportation for mobility, public transportation infrastructure and service will need to be enhanced and expanded to ensure continued mobility for this segment of the population. In addition, improvements to the public transportation system will be required to ensure that transit service can function as a viable option for future new Western Riverside County residents and employees who choose to avoid congestion by using public transportation.

For the reasons cited above, it can be readily concluded that there is a rational nexus between the future need for transportation improvements on the TUMF system and the future development upon which the proposed TUMF would be levied. The following sections evaluate the rational nexus in relation to the system components and the types of uses upon which the fee is assessed.

5.2 Application of Fee to System Components

As noted in **Section 3.2**, the TUMF concept includes splitting the fee revenues between the backbone system of arterials, the secondary system of arterials, and the public transportation system. This section evaluates the travel demands to determine the rational nexus between the future travel demands and the use of the fee to fund improvements to the future system components.

The split of fee revenues between the backbone and secondary highway networks is related to the proportion of highway vehicle trips that are relatively local (between

adjacent communities) and longer distance (between more distant communities but still within Western Riverside County). To estimate a rational fee split between the respective networks, the future combined AM and PM peak period travel forecast estimates were aggregated to a matrix of trips between zones to show the percentage of trips that remain within each zone in relation to the volume that travels to the other zones. This analysis was completed using the Year 2045 No-Build scenario trip tables from RivCoM.

The first step in the analysis was to create a correspondence table between the TAZs in the model and the five WRCOG TUMF zones (i.e. Northwest, Southwest, Central, Hemet/San Jacinto and Pass). The TAZs were then compressed into six districts (the five WRCOG zones and one for the rest of the SCAG region).

Table 5.1 shows the estimated peak period vehicle trips within and between each of the zones. **Table 5.2** shows the percentage of peak period vehicle trips within and between the respective zones. **Appendix I** includes the detailed RivCoM outputs used to develop the regional trip distribution profile shown in **Table 5.1** and **5.2**.

Table 5.1 - 2045 No-Build Peak Period Vehicle Trips by WRCOG Zone

From \ To	Central	Hemet/San Jacinto	Northwest	Pass	Southwest	Outside WRCOG	TOTAL
Central	417,608	23,474	89,780	6,301	55,101	57,558	649,822
Hemet/San Jacinto	29,401	209,005	8,647	8,432	16,081	18,078	289,645
Northwest	58,578	2,684	743,234	2,687	11,032	196,041	1,014,257
Pass	8,068	7,585	6,114	110,385	908	32,334	165,395
Southwest	55,812	16,232	32,852	1,976	667,255	62,713	836,839
Outside WRCOG	33,907	7,574	192,712	24,490	33,867		292,550
TOTAL	603,375	266,554	1,073,340	154,271	784,244	366,724	3,248,507

Based on RivCoM Year 2045 No-Build scenario

Table 5.2 – 2045 No-Build Percent Peak Period Vehicle Trips By WRCOG Zone

From \ To	Central	Hemet/San Jacinto	Northwest	Pass	Southwest	Outside WRCOG	TOTAL
Central	64.3%	3.6%	13.8%	1.0%	8.5%	8.9%	100%
Hemet/San Jacinto	10.2%	72.2%	3.0%	2.9%	5.6%	6.2%	100%
Northwest	5.8%	0.3%	73.3%	0.3%	1.1%	19.3%	100%
Pass	4.9%	4.6%	3.7%	66.7%	0.5%	19.5%	100%
Southwest	6.7%	1.9%	3.9%	0.2%	79.7%	7.5%	100%

Based on RivCoM Year 2045 No-Build scenario

Table 5.3 summarizes the calculation of the split between the backbone and secondary highway networks as derived from the peak period trip values provided in **Table 5.1**. Peak period vehicle trips to and from areas outside Western Riverside County were subtracted from the calculation, on the presumption that most of their inter-regional travel would occur on the freeway system. Peak period trips between zones (regional) were assigned to the backbone network, since these trips are primarily served by the arterial roadways that provide connections between the zones. Peak period trips within zones (local) were split between the backbone network and the secondary network in proportion to their lane-miles, since roadways on both networks serve intra-zonal trips. The backbone network includes approximately 41.1% of the lane-miles on the future TUMF system, and the secondary network includes approximately 58.9% of the lane-miles.

The backbone network is therefore assigned all the inter-zonal peak period trips plus 41.1% of the intra-zonal peak period trips. The secondary network is assigned 58.9% of the intra-zonal peak period trips and none of the inter-zonal peak period trips. The overall result is that 51.1% of the regional travel is assigned to the backbone network and 48.9% is assigned to the secondary network.

Table 5.3 - Backbone-Secondary Network Share Calculation

Calculation Value Description	Input Values	Backbone Value	Backbone Share	Secondary Value	Secondary Share
Total Western Riverside County Peak Period Vehicle Trips	3,248,507				
Less Internal/External Peak Period Vehicle Trips	-659,273				
Total Peak Period Vehicle Trips Internal to Western Riverside County	2,589,234				
Peak Period Vehicle Trips Between TUMF Zones	441,747				
Peak Period Vehicle Trips Within TUMF Zones	2,147,487				
TUMF Future Network Lane-Miles	3,027.5	1,243.9	41.1%	1,783.6	58.9%
Peak Period Vehicle Trips Between TUMF Zones	441,747	441,747	100.0%	0	0.0%
Peak Period Vehicle Trips Within TUMF Zones (as share of intra-zonal trips)	2,147,487	882,332	41.1%	1,265,155	58.9%
Total Peak Period Vehicle Trips Assigned	2,589,234	1,324,079	51.1%	1,265,155	48.9%

Based on RivCoM Year 2045 No-Build scenario; TUMF Nexus Study Exhibit H-1

5.3 Application of Fee to Residential and Non-Residential Developments

In order to establish the approximate proportionality of the future traffic impacts associated with new residential development and new non-residential development, the growth in daily VMT between the 2018 Existing and 2045 No-Build Scenarios from RivCoM were aggregated by trip purpose. RivCoM produces person trips (irrespective of mode choice) on the basis of five trip purposes: home-based-work (HBW), home-based-other (HBO), home-based-school (HBSC), non-home-based (NHB), and home-based-university (HBU).

NCHRP Report #187 Quick Response Urban Travel Estimation Techniques and Transferable Parameters User's Guide (Transportation Research Board, 1978) details operational travel estimation techniques that are universally used for the travel demand modeling. Chapter 2 of this report, which details trip generation estimation, states that "HBW (Home Based Work) and HBNW (Home Based Non-Work) trips are generated at the households, whereas the NHB (Non-Home Based) trips are generated elsewhere." In accordance with NCHRP Report #187, growth in daily VMT was aggregated into home-based growth in daily VMT (combining the four home-based purposes: HBW, HBO, HBSC and HBU) and non-home-based growth in daily VMT. The home-based growth in daily VMT represents 77.7% of the total future growth in daily VMT and the non-home-based growth in daily VMT represent 22.3% of the total future growth in daily VMT, as shown in **Table 5.4**. **Appendix J** includes the RivCoM outputs used to develop the trip purpose summary in **Table 5.4**.

Table 5.4 - Daily VMT Growth by Trip Purpose for Western Riverside County (2018 - 2045)

VEHICLE TRIP PURPOSE	2018 EXISTING DAILY VMT	2045 NO-BUILD DAILY VMT	DAILY VMT GROWTH	DAILY VMT GROWTH SHARE
Home-Based-Work	81,121,525	98,818,811	17,697,286	31.8%
Home-Based-Other	114,840,696	138,710,519	23,869,822	42.9%
Home-Based-School (K-12)	8,592,941	9,230,272	637,331	1.1%
Non-Home-Based	61,534,566	73,907,099	12,372,533	22.3%
Home-Based-University	5,377,197	6,400,662	1,023,465	1.8%
TOTAL	271,466,925	327,067,363	55,600,437	100.00%
Home-Based Trips (Residential Uses)			43,227,904	77.7%
Non-Home-Based Trips (Non-Residential Uses)			12,372,533	22.3%

Based on RivCoM Year 2018 Existing Scenario, November 2023 and RivCoM Year 2045 No Build Scenario, November 2023

6.0 FAIR-SHARE FEE CALCULATION

The fee amounts, by type of development, that are justified to mitigate the cumulative regional impacts of new development on transportation facilities in Western Riverside County are quantified in this section. The total cost of improving the TUMF system is \$5.2 billion. Existing funding obligated for improvements to the TUMF system totals \$277.3 million while unfunded improvement needs generated by existing development represent \$650.9 million of the total cost. The balance of the unfunded TUMF system improvement needs is \$4.3 billion which is the maximum value attributable to the mitigation of the cumulative regional transportation impacts of future new development in the WRCOG region, and will be captured through the TUMF Program. By levying the uniform fee directly on future new developments (and indirectly on new residents and new employees to Western Riverside County), these transportation system users are assigned their “fair share” of the costs to address the cumulative impacts of additional traffic they will generate on the regional transportation system.

Of the \$4.3 billion in unfunded future improvement needs, 77.7% (\$3.3 billion) will be assigned to future new residential development and 22.3% (\$958.3 million) will be assigned to future new non-residential development.

6.1 Residential Fees

The portion of the unfunded future improvement cost allocable to new residential development through the TUMF is \$3.3 billion. Since this future transportation system improvement need is generated by new residential development anticipated through the Year 2045, the fee will be spread between the residential developments projected to be constructed between 2018 and 2045. The projected residential growth from year 2018 to 2045 is 257,826 households (or dwelling units) as is indicated in **Table 2.3**.

Different household types generate different numbers of trips. To reflect the difference in trip generation between lower density “single-family” dwelling units and higher density “multi-family” dwelling units, the TUMF was weighted based on the respective trip generation rates of these different dwelling unit types. For the purposes of the TUMF Program, single family dwelling units are those housing units with a density of less than 8 units per acre while multi-family units are those with a density of 8 or more units per acre. According to the SCAG 2020 RTP/SCS forecasts included in **Table 2.3** and **Appendix B**, single family dwelling units (including mobile homes) are forecast to constitute 65.0% of the growth in residential dwelling units in the region between 2018 and 2045.

Data provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition (2021) show that, on average, single-family dwelling units generate 0.99 vehicle trips per dwelling unit per hour in the PM peak hour, whereas apartments, condominiums and townhouses (considered to be representative of higher density multi-family dwelling units) generate a median of 0.50 vehicle trips per unit per hour in the PM peak hour. The growth in dwelling units for single-family and multi-family, respectively, were multiplied by the corresponding trip generation rates to determine

the weighted proportion of the change in trips attributable to each use type as the basis for determining the per unit fee required to levy the necessary \$3.3 billion to mitigate the cumulative regional transportation impacts of future new residential development. **Table 6.1** summarizes the calculation of the fee for single-family and multi-family dwelling units. **Appendix K** includes worksheets detailing the calculation of the residential (and non-residential) TUMF for Western Riverside County.

Table 6.1 - Fee Calculation for Residential Share

Residential Sector	2018 Dwelling Units	2045 Dwelling Units	Dwelling Unit Change	Trip Generation Rate	Trip Change	Percentage of Trip Change	Fee/DU
Single-Family	397,407	564,898	167,491	0.99	165,816	78.6%	\$15,668
Multi-Family	157,166	247,501	90,335	0.50	45,168	21.4%	\$7,913
Total	554,573	812,399	257,826		210,984	100.0%	

Household data based on SCAG 2020 RTP/SCS;
Trip Generation based on ITE Trip Generation (2021).

6.2 Non-Residential Fees

The portion of the unfunded future improvement cost allocable to new non-residential development through the TUMF is \$958.3 million. Estimates of employment by sector were obtained from the SCAG 2020 RTP/SCS socioeconomic data included in **Table 2.3** and **Appendix B**. From the 2045 employment forecast, the amount of employee growth in each sector was calculated. The employment figures were then translated into square footage of new development using typical ratios of square feet per employee derived from four sources including: Cordoba Corporation/Parsons Brinckerhoff Quade and Douglas (PBQD), Land Use Density Conversion Factors For Long Range Corridor Study San Bernardino and Riverside Counties, August 20, 1990; Orange County Transportation Authority (OCTA), Orange County Subarea Model Guidelines Manual, June 2001; SCAG, Employment Density Study, October 31, 2001; and the County of Riverside, General Plan, as amended December 15, 2015. Worksheets showing the development of the TUMF employee conversion factors and the application of the conversion factors to calculate the square footage of future new non-residential development in Western Riverside County are included in **Appendix L**.

To account for the differences in trip generation between various types of non-residential uses, the new non-residential development was weighted by trip generation rate for each sector. Typical trip generation rates per employee were obtained from the Institute of Transportation Engineers (ITE) Trip Generation – 11th Edition (2021), and were weighted based on a calculated value of trips per employee as derived from the employee conversion factors and ITE typical trip generation rates per square foot of development, before being assigned to the non-residential categories as follows: Industrial – 0.6 PM peak hour trips per employee, Retail – 1.8 PM peak hour trips per employee, Service – 1.2 PM peak hour trips per employee, and Government/Public –

2.1 PM peak hour trips per employee¹². These rates were applied to the employment growth in each sector to determine the relative contribution of each sector to new trip-making, and the \$958.3 million was then allocated among the non-residential categories on the basis of the percentage of new trips added. This proportionate non-residential fee share by sector was then divided by the estimated square footage of future new development to obtain the rate per square foot for each type of use. The calculation of the non-residential fee by sector is shown in **Table 6.2**.

Table 6.2 - Fee Calculation for Non-Residential Share

Non-Residential Sector	Employment Change	Trip Generation Rate per Employee	Trip Change	Percentage of Trip Change	Change in Square Feet of Gross Floor Area	Fee/SF
Industrial	76,581	0.6	45,949	15.1%	61,489,565	\$2.36
Retail	13,115	1.8	23,607	7.8%	6,557,500	\$11.35
Service	174,255	1.2	209,106	68.8%	66,735,957	\$9.88
Government/Public	12,071	2.1	25,349	8.3%	3,420,665	\$23.36
Total	276,022		304,011	100.0%	138,203,688	

Employment Change data based on SCAG 2020 RTP/SCS; Trip Generation based on ITE (2021); Change in Square Feet conversion factor based on Cordoba (1990), OCTA (2001), SCAG (2001) and County of Riverside (2015).

¹² The median trip generation rate for 'Retail' and 'Service' was reduced to reflect the influence of pass-by trips using the weekday PM peak median pass-by trip rate for select uses as derived from the ITE Trip Generation Manual (11th Edition) (September 2021).

7.0 CONCLUSIONS

Based on the results of the Nexus Study evaluation, there is reasonable relationship between the cumulative regional transportation impacts of new land development projects in Western Riverside County and the need to mitigate these transportation impacts using funds levied through the ongoing TUMF Program. Factors that reflect this reasonable relationship include:

- Western Riverside County is expected to continue growing because of future new development.
- Continuing new growth will result in increasing congestion on arterial roadways.
- The future arterial roadway congestion is directly attributable to the cumulative regional transportation impacts of future development in Western Riverside County.
- Capacity improvements to the transportation system will be needed to mitigate the cumulative regional impacts of new development.
- Roads on the TUMF network are the facilities that merit improvement through this fee program.
- Improvements to the public transportation system will be needed to provide adequate mobility for transit-dependent travelers and to provide an alternative to automobile travel.

The Nexus Study evaluation has established a proportional “fair share” of the improvement cost attributable to new development based on the impacts of existing development and the availability of obligated funding through traditional sources. Furthermore, the Nexus Study evaluation has divided the fair share of the cost to mitigate the cumulative regional impacts of future new development in Western Riverside County in rough proportionality to the cumulative impacts of future residential and non-residential development in the region. The respective fee allocable to future new residential and non-residential development in Western Riverside County is summarized for differing use types in **Table 7.1**.

Table 7.1 - Transportation Uniform Mitigation Fee for Western Riverside County

Land Use Type	Units	Development Change	Fee Per Unit	Total Revenue (\$ million)
Single Family Residential	DU	167,491	\$15,668	\$2,624.3
Multi Family Residential	DU	90,335	\$7,913	\$714.8
Industrial	SF GFA	61,489,565	\$2.36	\$144.8
Retail	SF GFA	6,557,500	\$11.35	\$74.4
Service	SF GFA	66,735,957	\$9.88	\$659.2
Government/Public	SF GFA	3,420,665	\$23.36	\$79.9
MAXIMUM TUMF VALUE				\$4,297.5

8.0 APPENDICES

The following Appendices incorporate the extent of materials used to support the development of the WRCOG TUMF Nexus Study and, where appropriate, specifically the 2024 Update. The respective Appendices also incorporate an explanation of the methodology and assumptions used to develop the various elements of the Nexus Study.

These Appendices represent a compilation of materials derived from a variety of technical resources. Each of the following Appendices relate to the development of a specific element of the Nexus Study. These Appendices are as follows:

Appendix A - List of TUMF Committees

Appendix B - Western Riverside County Population and Employment Growth 2018 – 2045

Appendix C - Western Riverside County Traffic Growth 2018 – 2045

Appendix D - Western Riverside County Transit System Ridership 2018 – 2045

Appendix E - Western Riverside County Regional System of Highways and Arterials Performance Measures

Appendix F - TUMF Network Cost Assumptions

Appendix G - TUMF 2024 Program Update Disposition of Network Change Requests

Appendix H - TUMF Network Cost Estimate and Evaluation

Appendix I - Western Riverside County Regional Trip Distribution

Appendix J - Western Riverside County Regional Trip Purpose

Appendix K - Residential Fee Calculation

Appendix L - Non-Residential Fee Calculation