

CMAQ Cost-Effectiveness Threshold Documentation for the *Merced County Association of Governments* 2021 FTIP

The Congestion Mitigation and Air Quality (CMAQ) program provides funding for transportation projects or programs that contribute to attainment or maintenance of the national ambient air quality standards. All San Joaquin Valley Metropolitan Planning Organizations (MPOs) adopted policies in 2007 for distributing at least 20 percent of the CMAQ funds to projects that meet a cost-effectiveness threshold for emission reductions. For the 2021 Federal Transportation Improvement Program (FTIP), this applies to years 2020-2021 through 2023-2024. *The Merced County Association of Governments (MCAG)* makes every effort to expend the minimum 20 percent funding for cost-effective projects over the course of the FTIP and the attached documentation demonstrates that *MCAG* has worked towards the 20 percent funding goal.

Project eligibility continues to be based on federal CMAQ guidance. MPOs can fund projects within local jurisdictions or contribute funding to the San Joaquin Valley Air Pollution Control District (SJVAPCD) grant incentive programs to meet the cost-effectiveness threshold requirements. Funds contributed to the SJVAPCD grant incentive programs will be assumed to have met the threshold, as that threshold is more stringent than the one established by the CMAQ cost-effectiveness policy.

Emission benefits and cost-effectiveness calculations are based on the applicable pollutants for the region, including the components of ozone (nitrogen oxides (NO_x) and reactive organic gases (ROG) and particulate matter (PM₁₀ and PM_{2.5}). The “Methods to Find the Cost-Effectiveness of Funding Air Quality Projects” document developed by the Air Resources Board (ARB) is currently the appropriate methodology for calculating cost-effectiveness. In addition, FHWA has published “CMAQ Improvement Program Cost-Effectiveness Tables and Development Methodology” on December 3, 2015 and this methodology will be used to establish project eligibility for project types not addressed in the state guidance. Another appropriate cost-effectiveness calculation methodology may be used upon consultation with interagency partners. Cost-effectiveness is expressed as dollars spent per pound of pollutant reduced (ROG + NO_x + PM_{2.5} + PM₁₀). The cost-effectiveness threshold for the 2021 FTIP was recommended to be maintained at \$45 per pound (\$90,000/ton). The threshold is based on CMAQ dollars only, not total project cost.

MCAG has identified, through existing programmed projects in those years or other selection methods, projects that qualify for the cost-effectiveness policy

When unobligated and programmable CMAQ capacities exist, staff would present the recommendation to do a “call for projects.” This staff recommendation will be presented to *MCAG*’s Citizens Advisory Committee, Technical Review Board, and Governing Board. This presentation will contain information on present and future CMAQ capacities, eligibility, selection process and scoring, and schedule. Staff will also provide a reminder of the Board-approved CMAQ Programming Policy and Guidance. This guidance addresses the goal to program 20 percent of the 2021 FTIP’s total CMAQ capacity to highly cost-effective projects/programs. Following Board approval, staff will release the “call for projects.” The CMAQ committee, which is made up of technical staff of local agencies and Caltrans, will be convened to review and score the submitted applications and make a recommendation for programming.

During the evaluation process, the CMAQ committee will prioritize and recommend highly cost-effective projects/programs, which will help to achieve the region's 20 percent programming goal. This recommendation will be put before the committees before going to the Governing Board for official approval of FTIP programming.

The process and materials from the prior "Call for Projects," conducted in the Fall of 2020, are posted on the MCAG CMAQ webpage, <https://www.mcagov.org/218/Congestion-Mitigation-and-Air-Quality>.

As stated in the Cost-Effectiveness Policy, MCAG has agreed to post information related to the implementation of the cost-effectiveness CMAQ policy on its website. Attached is documentation that fulfills this requirement and demonstrates that MCAG has estimated the amount of funding in the 2021 FTIP necessary to meet the 20 percent cost-effectiveness goal and provided a summary of the CMAQ projects that aim to meet the minimum cost-effectiveness threshold.

MCAG will release the next "Call for Projects" in 2021 to identify and program new projects/programs for the latter three years of the 2021 FTIP. Cost-effectiveness will be a major factor in the project selection process.

**CMAQ Cost-Effectiveness Documentation
for the Merced County Association of Governments (MCAG) 2021 FTIP**

<u>Year</u>	<u>Estimated CMAQ Apportionments</u>	<u>20 Percent Minimum</u>
2021 FY 2020-2021	\$ 7,559,081.00	\$ 1,511,816.20
2022 FY 2021-2022	\$ 3,661,450.00	\$ 732,290.00
2023 FY 2022-2023	\$ 3,660,291.00	\$ 732,058.20
2024 FY 2023-2024	\$ 3,659,108.00	\$ 731,821.60
Totals	\$ 18,539,930.00	\$ 3,707,986.00

Year	FTIP ID	Agency	Project Description	CMAQ Funding Amount	Estimated Cost-Effectiveness⁽¹⁾
2021		City of Merced	Right-Turn Channelization on SB SR-59 Approaching 16th St	190340	16.57
2021		City of Merced	Traffic Signal @ SR 59 & 16th Street	397057	34.78
2022		YARTS	Public Outreach & Marketing	85000	21.55
2023		YARTS	Public Outreach & Marketing	85000	21.55
2024		YARTS	Public Outreach & Marketing	85000	21.55
2024		City of Merced	Purchase Two CNG Street Sweepers	605545	36.28
2024		City of Livingston	Purchase One CNG Street Sweeper	280000	44.28
2021		City of Los Banos	SR-152 Signals Synchronization	100000	40.49
2022		City of Los Banos	SR-152 Signals Synchronization	800000	40.49
Total CMAQ Funding Amount				\$ 2,627,942.00	
CMAQ Cost-Effectiveness Goal				\$ 3,707,986.00	
CMAQ Cost-Effectiveness Goal Met?				NO *	
Percent of CMAQ Funds Awarded to Cost-Effective Projects				14%	

* **Note:** The latter 3 years of the 2021 FTIP (FY's 2022, 2023 & 2024) have not been fully programmed. The next Call for Projects is expected in the Spring 2021. Cost-effectiveness of projects is a major consideration and scoring factor during the project selection process.

(1) Cost-effectiveness for each project identified as meeting the cost effectiveness threshold must be below \$45 per pound, or \$90,000 per ton.

2021 FTIP Programming

Congestion Mitigation Air Quality (CMAQ)

	FFY 20/21		FFY 21/22		FFY 22/23		FFY 23/24	
	Local	Federal	Local	Federal	Local	Federal	Local	Federal
CMAQ Annual Apportionments		7,537,032		3,661,450		3,660,291		3,659,108
TJPA Outreach & Marketing		100,000		100,000		100,000		100,000
YARTS Outreach & Marketing				85,000		85,000		85,000
MCAG Rideshare Program		150,000				150,000		
MCAG Vanpool Program		73,000		85,000		85,000		85,000
Atwater Phase 1 Pedestrian Improvements to Connect w Downtown	128,984	995,546						
Atwater Phase 2 Pedestrian Improvements to Connect w Downtown	20,773	160,337						
Atwater Phase 3 Pedestrian Improvements to Connect w Downtown	15,130	116,780						
Gustine Local Roundabout @ 5th Street & 4th Ave	63,212	487,888						
Gustine Pedestrian Improvements on North Ave	45,308	349,702						
Gustine Pedestrian Improvements on 3rd Ave, East Ave & South Ave	11,320	87,367						
Livingston CNG Street Sweeper							70,000	280,000
Livingston Phase 1 Max Foster Multiuse Path	66,605	514,078						
Los Banos SR-152 Signals Synchronization		100,000		800,000				
Merced R-T Channelization on SB SR-59	24,661	190,339						
Merced Signal at SR-59 & 16th Street	51,443	397,057						
Merced 2 CNG Street Sweepers							78,455	605,545
Merced John Muir Pedestrian Improvements	82,847	639,449						
Merced Motel Drive Sidewalk & Bike Lane			65,862	508,347				
Merced Sidewalk along 7th, 8th, and Linda Lane			52,274	403,472				
Merced Sidewalk along R, S, T, and Stuart Drive			89,003	686,958				
Merced Sidewalk along Olive, Parsons, and Alexander			52,213	402,998				
Merced North Transit Hub	87,652	676,534						
Merced Ped. Improv. on Nottingham, Tamworth, Buckingham & Alexander	67,079	517,733						
Merced County Beachwood Drive Pedestrian Infill	157,487	1,215,544						
Merced County Railroad Crossing in Planada	34,410	265,590						
Merced County Plainsburg Road ATP Complete Street	64,780	500,000						
Programmed		7,536,944		3,071,775		420,000		1,155,545
Remaining CMAQ Apportionment Capacity		88		589,675		3,240,291		2,503,563

The following sections come from the MCAG's adopted CMAQ Policies and Procedures.

When sufficient CMAQ capacity warrants, staff will seek the Board's approval to release a competitive "Call for Projects." Staff will review and assess project applications for their completeness and CMAQ eligibility. The CMAQ committee, will be convened to evaluate and score project applications, and make a recommendation for programming.

Category Funding Goals:

The following category funding goals are established:

- Cost-effective projects: at least 20%;
- Transit: as needed;
- Pedestrian/bicycle: at least 40%.

Project Application Scoring:

The following scoring factors (totaling a maximum of 50 points) will be used to rank the project applications.

- Cost-effectiveness: 20 points;
 - Priority is given to Highly Cost-Effective projects (\leq \$45/lb.);
- Vehicle Miles Traveled Reduction: 10 points;
 - Reduction of Vehicle Miles Traveled (VMT) results in reduction of GHG emissions;
- Benefits Disadvantaged Community: 5 points;
 - See <http://www.calepa.ca.gov/EnvJustice/GHGInvest/>
 - Partial points could be awarded if:
 - project location is partially in a disadvantaged community,
 - if not in a disadvantaged community, but benefits to one which could be explained.
- Subjective Evaluation: 15 points
 - Such considerations may include, but are not limited to: safety, functionality, connectivity, accessibility, improving quality of life, supportive of economic activity such as goods movement.

Merced County Association of Governments (MCAG) CMAQ Cost-Effectiveness Policy –2021 FTIP Update

All San Joaquin Valley Metropolitan Planning Organizations (MPOs) adopted policies in 2007 for distributing at least 20 percent of the CMAQ funds to projects that meet a cost-effectiveness threshold for emission reductions beginning in Fiscal Year (FY) 2011. Due to changes in technology and costs over time, the MPOs agreed to revisit the minimum cost-effectiveness standard, as well as policy feasibility, at least once every four years. The following is a summary of the current status and next steps to complete this task for the 2021 Federal Transportation Improvement Program (FTIP). Attachment 1 presents a sample schedule, which was taken from the 2021 FTIP Timeline, for the steps discussed below.

(1) Review of CMAQ Policy and Thresholds.

The MPOs have agreed to revisit the minimum cost-effectiveness threshold with every FTIP update, as well as policy feasibility, at least once every four years prior to development of the RTP.

Prior to allocation of CMAQ funds for the local cost-effectiveness policy with each FTIP, the SJV MPOs in consultation with the interagency consultation (IAC) partners will develop the minimum cost-effectiveness threshold. Based on a review of the emission factors, Carl Moyer and other data in 2007, it was recommended that the cost-effectiveness threshold be set at \$30 per pound (\$60,000 per ton) for the 2009 FTIP. If updates were made to the CMAQ emission factors, Carl Moyer limits, REMOVE II or other state/local programs, the MPOs agreed to revisit the recommended threshold.

In April 2016, the San Joaquin Valley MPOs recommended to increase the cost-effectiveness threshold from \$30/lb to \$45/lb for the 2017 FTIP. In November 2017, the cost-effectiveness threshold was reevaluated, and a threshold change was not recommended for the 2019 FTIP. In November 2020, the cost-effectiveness threshold was again reviewed to see if an increase was warranted granted the release of EMFAC2017-based emission factors by CARB in November 2020. It was noted that ROG and NOx emission factors have decreased by 30-35% and PM2.5 and PM10 emission by 11%. The combination of these adjustments, the interruption of the statewide 2021 FTIP schedule, and calls for projects occurring prior to 2021 FTIP development, *the SJV MPOs recommend maintaining the cost-effectiveness threshold at \$45/lb (\$90,000/ton) for the 2021 FTIP.*

Further review of CMAQ Policy and threshold will occur with the next FTIP and RTP updates.

(2) Identify funding subject to CMAQ cost-effectiveness policy

MPO staff will identify funding subject to CMAQ cost-effectiveness policy. MPO staff should review initial CMAQ percentage commitments and estimates of CMAQ apportionments for all relevant fiscal years in the 2021 FTIP. The approved percentage of funds (e.g., a minimum of 20%) should be multiplied by CMAQ funds available in years 2020-2021 through 2023-2024. This is the amount subject to the cost-effectiveness policy.

(3) Issue Call for Projects

MPOs will identify, through existing programmed projects in those years or other methods, projects that qualify for the cost-effectiveness policy. MPOs can use existing application processes or calls for projects that quantify, rank, and select eligible projects. Projects should be identified and selected for inclusion in the 2021 FTIP prior to approval of the document. MPO staff should release the calls for projects in 2021, including allowing for necessary steps, such as time for internal approval of the documents. The process should demonstrate that the cost-effectiveness threshold will be achieved. Funds contributed to the Air District grant incentive programs will be assumed to meet the threshold, as that is more stringent than the CMAQ cost-effectiveness policy.

(4) Quantify/Rank/Select CMAQ Projects

The quantification and selection of CMAQ projects should be completed by 2021. A standardized process and methodology should be used by all San Joaquin Valley MPOs. Where applicable, calculations are based on ARB methodology (available at <http://www.arb.ca.gov/planning/tsaq/eval/eval.html>). The Emission Factor Tables were formally updated by ARB in May 2016 (see Attachment 2) and should be used with the appropriate calculation methodology from the “Methods to Find the Cost-Effectiveness of Funding Air Quality Projects” dated May 2005. In addition, in September 2019, ARB revised emission factors developed with EMFAC2017 for light-duty vehicles, buses, and off-road equipment (Attachment 5). For projects not covered by ARB methodology (e.g. roundabouts), the FHWA’s “CMAQ Improvement Program Cost-Effectiveness Tables and Development Methodology” released December 3, 2015 will be used (Attachment 6). Another appropriate methodology may be used for projects not included in both guidance documents upon agreement by interagency partners. Cost-effectiveness analysis should be based on CMAQ dollars only, not total project cost. Formula includes combined annual emission reductions of ROG, NO_x, PM₁₀, and PM_{2.5}. Note that PM_{2.5} emission factors reported in the November 2020 Emission Factor Tables can be converted to PM₁₀ using a conversion table released by ARB (available at <http://www.arb.ca.gov/planning/tsaq/eval/pmtables.pdf>).

(5) Document Compliance with Policy

The MPOs will document the funding and project selection process to demonstrate compliance with the cost-effectiveness policy. Attachment 3 contains draft text and Attachment 4 contains a draft spreadsheet that can be used to document compliance. All corresponding documentation, including the original cost-effectiveness policy, will be posted on each MPO's respective website.

A checklist for completing the process is provided below.

CMAQ Cost-Effectiveness Policy – Checklist for 2021 FTIP Development

Identify funding subject to CMAQ cost-effectiveness policy

- Review initial CMAQ percentage commitments (i.e., did you commit to 20% or greater when approving the cost-effectiveness policy?).
- Review estimates of CMAQ apportionments provided by Caltrans (or projected by financial planning staff) for all relevant fiscal years in the 2021 FTIP.
- Multiply the approved percentage of funds (e.g., a minimum of 20%) by CMAQ funds available in years 2020-2021 through 2023-2024. This is the amount subject to the cost-effectiveness policy.

Issue Call for Projects

- Develop and publish “Call for Projects” documents.
 - Include information about CMAQ cost-effectiveness goals and how they will be achieved by the MPO selection process
 - Include information about CMAQ cost-effectiveness methodology (methodology available at <http://www.arb.ca.gov/planning/tsaq/eval/eval.html>).

Quantify/Rank/Select CMAQ Projects

- Review all applications/requests for funding for completeness of information.
- Use appropriate selection procedures for your County, including staff ranking and/or review by selection committees.
- Quantification and selection of CMAQ project completed and approved by Winter 2020. Remaining quantification and selection to be completed and approved by Winter 2021.
- Incorporate CMAQ projects into Draft 2021 FTIP available for public review by Winter 2020. Remaining quantification and selection to be completed and approved by Winter 2021.

Document Compliance with Policy and Post on Website

- Original cost-effectiveness policy
- Text documentation (see Attachment 3)
- Spreadsheet documentation (see Attachment 4)
- Other, as applicable (e.g., committee memos)