



**CMAQ Application:
Enos Lane
(State Route 43) and
7th Standard
Roundabout Project**



KERN COUNCIL OF GOVERNMENTS
Congestion Mitigation and Air Quality (CMAQ) Program
PROJECT APPLICATION – Due Thursday, July 17, 2025

*Please note this is a PDF fillable form so responses may be typed. Items 1, 2, 7, and 22 are drop downs. Totals in item 6 will automatically calculate.

- (1) Is the project included in a local agency-adopted resolution supporting the project? YES NO
- (2) Does the proposed project meet basic eligibility requirements? YES NO
- (3) Project background and justification: Explain the project in terms of the existing infrastructure, its impact for service, safety or any other issue that is relevant to the project (attach to application). If the project scope relates to fueling infrastructure please provide a 3-year fleet conversion plan.
- (4) Lead Agency: _____
- (5) Project description [(Location:) + (Limits) + (;) + (Improvement/Activity)]

(6)	Funding Type	PE	R/W	Const.	Total
	Local	\$ _____	\$ _____	\$ _____	\$ _____
	Local	\$ _____	\$ _____	\$ _____	\$ _____
	State	\$ _____	\$ _____	\$ _____	\$ _____
	Federal	\$ _____	\$ _____	\$ _____	\$ _____
	Total	\$ _____	\$ _____	\$ _____	\$ _____

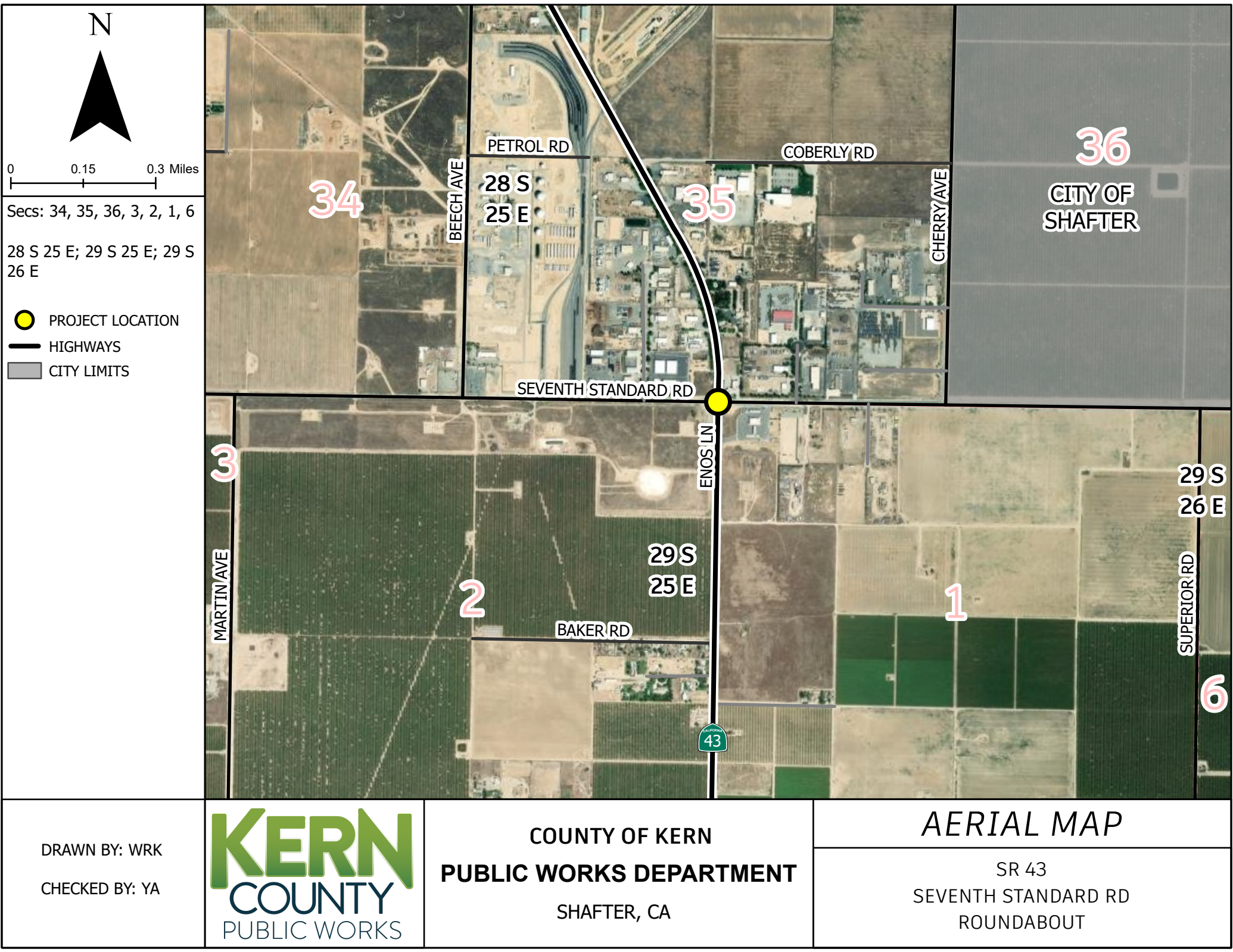
- (7) Programming Year by Phase: PE: _____ R/W: _____ Const: _____
- (8) VMT Reduction (annual miles): _____
- (9) VOC Reduction (kg/day): _____ Additional documentation required. See instructions.
- (10) NOx Reduction (kg/day): _____ Additional documentation required. See instructions.
- (11) PM₁₀ Reduction (kg/day): _____ Additional documentation required. See instructions.
- (12) PM_{2.5} Reduction (Kg/day): _____ Additional documentation required. See instructions.
- (13) CO Reduction (kg/day): _____ Additional documentation required. See instructions.
- (14) Cost-Effectiveness (\$/lb): _____ Additional documentation required. See instructions.
- (15) Livability and Safety: Describe how project provides the six benefits; limit to half page per benefit.
- (16) Hwy Peak Period LOS Before Project (AM/PM average): _____
- (17) Hwy Peak period LOS After Project (AM/PM average): _____
- (18) Bikeway Peak Period LOS Before Project (AM/PM average): _____
- (19) Bikeway Peak period LOS After Project (AM/PM average): _____
- (20) Pedestrian Peak period LOS Before Project (AM/PM average): _____
- (21) Pedestrian Peak period LOS After Project (AM/PM average): _____
- (22) Is the project identified as a RACM/BACM? YES NO

Application completed by: _____	Date Completed: _____
E-mail: _____	Phone Number: _____
Agency: _____	
Address: _____	

Send completed application electronically on a flash drive with transmittal letter on agency letterhead to:

Attn: Ceasar Valle ❖ Kern Council of Governments, 1401 19th Street, Suite 300, Bakersfield, CA 93301

OR send Digitally via [Dropbox, click here.](#)

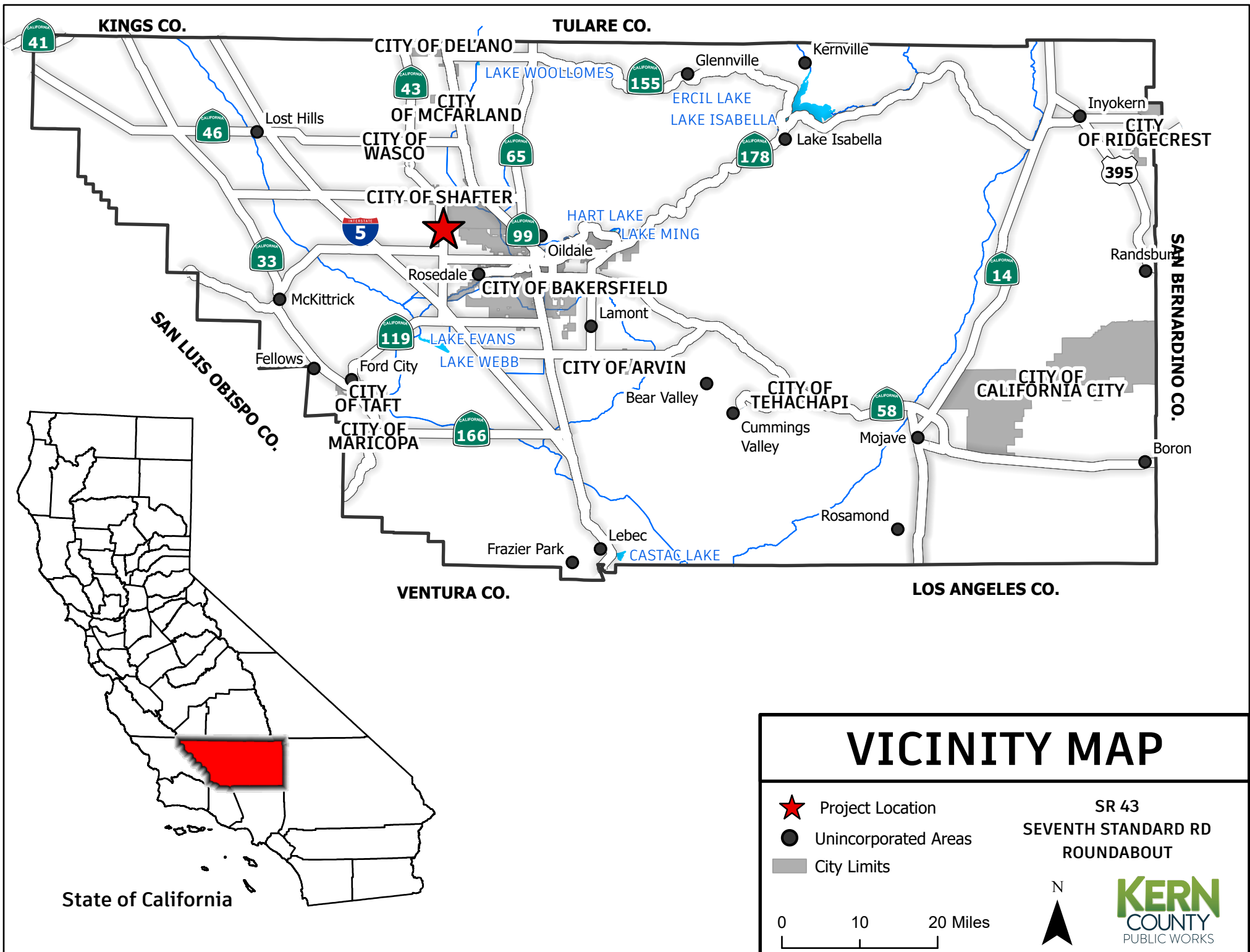


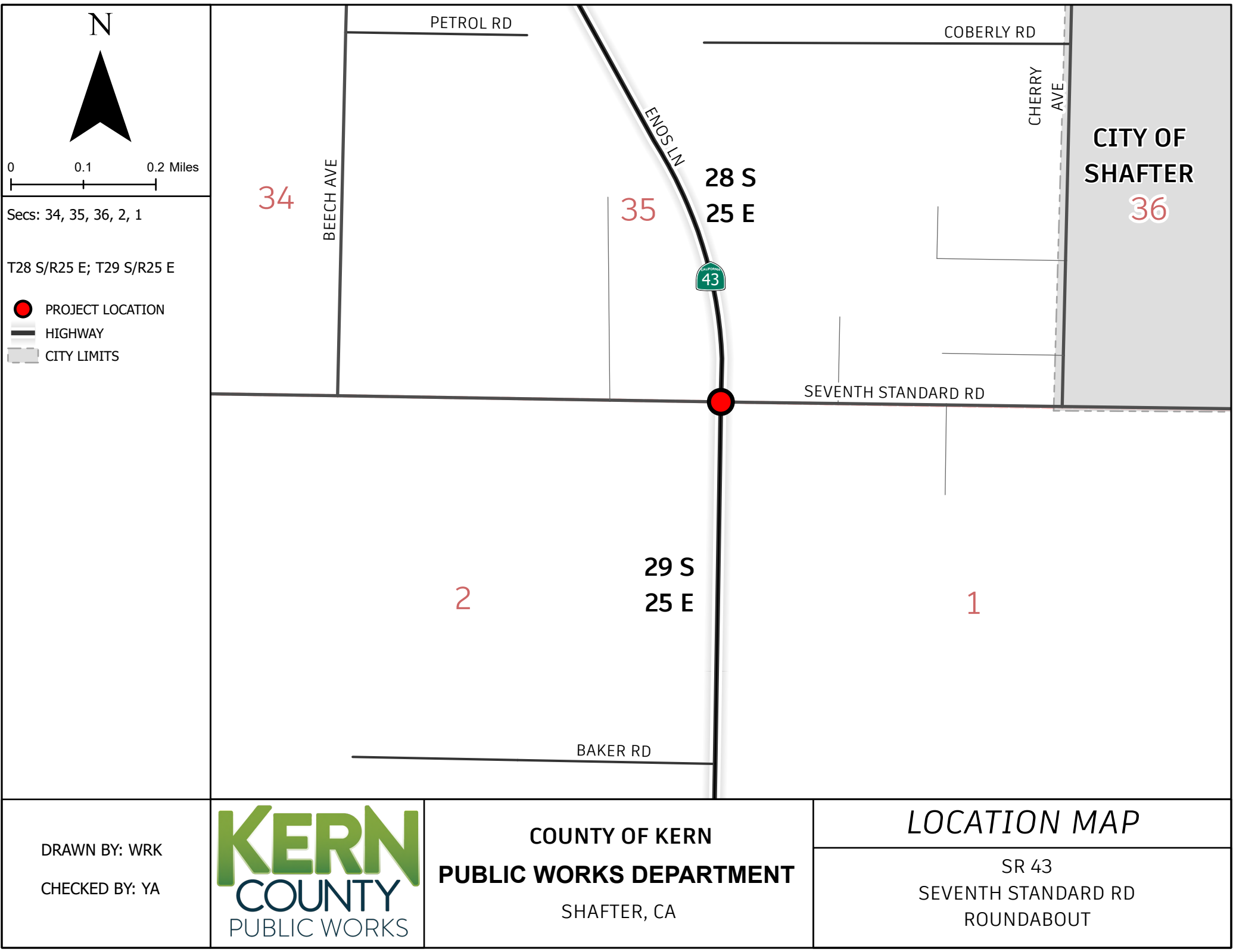
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COUNTY OF KERN
PUBLIC WORKS DEPARTMENT
SHAFTER, CA

AERIAL MAP
SR 43
SEVENTH STANDARD RD
ROUNDBOUT





Secs: 34, 35, 36, 2, 1

T28 S/R25 E; T29 S/R25 E

- PROJECT LOCATION
- HIGHWAY
- CITY LIMITS

DRAWN BY: WRK

CHECKED BY: YA



COUNTY OF KERN

PUBLIC WORKS DEPARTMENT

SHAFTER, CA

LOCATION MAP

SR 43

SEVENTH STANDARD RD

ROUNDBOUT



PROJECT BACKGROUND

1. Justitification
2. Livability
3. Safety
 - A. Collision Maps
 - B. Collision Rates

Project Description & Justification

Project Description

The California Department of Transportation (Caltrans) District 6, in partnership with the County of Kern, City of Bakersfield, and City of Shafter, is proposing and seeking CMAQ funding to construct a roundabout at the intersection of State Route (SR) 43 and 7th Standard Road in Kern County. The intersection suffers from heavy delays and congestion resulting in a failing level of service (LOS), increased air pollutants emitted, and increased greenhouse gases.

In 2022, Caltrans District 6 Office of Traffic Operations completed its Intersection Control Evaluation (ICE) Step Two – Project Level Engineering, Economic & Comparative Analysis for the intersection. A Step Two analysis was performed to evaluate three viable alternatives for safe and efficient operations; an all-way stop control (No Build), a signal control, and a roundabout. The evaluation results demonstrated a roundabout alternative providing an operational performance superior to that of a signal or all-way stop control alternative. A roundabout intersection alternative would provide the least amount of delay per vehicle and highest Benefit to Cost Ratio. The roundabout would initially be constructed as a single-lane roundabout on a multi-lane footprint, with the intention to convert it at a future date. The table below compares the performance measures of a roundabout in peak PM traffic hours compared to the existing all-way stop.

Performance Measure	2025 PM Peak	2025 PM Peak	2045 PM Peak	2045 PM Peak
	No Build, Existing 4-Way Stop	Construct Single Lane Roundabout	No Build, Existing 4-Way Stop	Converted Multi Lane Roundabout
Average delay	70.3 sec/veh	9.5 sec/veh	196.3 sec/veh	7.7 sec/veh
Intersection LOS	F	A	F	A
Average Travel Speed	16.5 mph	34.9 mph	8.5 mph	35.6 mph
Average Idling Time	45.2 sec	0.7 sec	146.7 sec	0.1 sec
95% Back of Queue: Vehicles (<i>Worst Lane</i>)	16.4 veh	5.2 veh	47.3 veh	2.2 veh
95% Back of Queue: Distance (<i>Worst Lane</i>)	430.9 ft	140.5 ft	1,246.8 ft	60 ft

Project Justification

As shown in the table above, the construction of a roundabout provides a substantial increase in efficiency and LOS of the intersection. In addition, a roundabout intersection would provide safety attributes which have been documented to be superior to signalized intersections (*see Livability and Safety Question #5*). The current design of the roundabout calls for pedestrian crosswalks on all four-legs, along with ADA compliant footpaths and ramps surrounding the roundabout. This would create new active transportation infrastructure in the area, as crosswalks do not current exist at the intersection today.

In the June 2023 *Google Maps Streetview* photo below, vehicles can be seen queuing at the intersection. The photo is looking west. Based on shadow conditions, this photo was captured during non-peak hours around late morning to midday.



Project Justification Continued and Livability and Safety

The photo below, sourced from a satellite view on *Microsoft Bing Maps*, shows the existing configuration of the intersection.



1. Will enhance or reduce the average cost of user mobility through the creation of more convenient transportation options for travelers?

Yes. This project will reduce the average cost of user mobility since the proposed roundabout is expected to reduce traffic congestion and delay, which would save motorist's time, lower their cost of fuel, and reduce air pollution/tailpipe emissions.

2. Will improve existing transportation choices by enhancing points of modal connectivity, increasing the number of modes accommodated on existing assets, or reducing congestion on existing modal assets?

Yes. This project will reduce congestion on the existing modal asset (highway/roadway) while also increasing the number of modes accommodated through the installation of high-visibility pedestrian crosswalks, refuge islands, and lighting at the intersection. In addition to vehicles, the intersection would then be able to accommodate active modes of transportation such as walking or cycling. Current intersection LOS is an F with no accommodation for active transportation, with a roundabout constructed, intersection LOS would be in A with accommodation for active transportation.

3. Will improve travel between residential areas and commercial centers and jobs?

Yes. This intersection is a critical crossroads between the cities of Shafter and Bakersfield, both of which have a large economic presence in Kern County. In addition, the intersection is surrounded by agriculture land and commercial job centers, which drives large volumes of heavier duty vehicles through the intersection. Therefore, residents and workers will enjoy reduced travel time and congestion along the routes.



Project Justification Continued and Livability and Safety

4. **Will improve accessibility and transportation services for economically disadvantaged populations, non-drivers, senior citizens, and persons with disabilities, or make goods, commodities, and services more readily available to these groups.**

Yes for both. State Route 43 and 7th Standard Road primarily serves the needs of agriculture and goods movement as it is in the heart of Kern County/San Joaquin Valley. It is also a vital link between the metropolitan area of Bakersfield and the City of Shafter. Both cities have significant populations that are considered disadvantaged, and the project is in census tracts that are as high as the 96th percentile of the most environmentally burdened and economically disadvantaged communities in California, per CalEnviroScreen 4.0. This project will make it easier to get goods and services to these groups of people through decreased travel time which translates to lower costs. In addition, new active transportation infrastructure will directly benefit residents/workers who live close to the intersection, making mobility easier for them.

5. **Is the existing Accident Rate higher than the average rate for a similar facility, and does the project reduce the Accident Rate to the average rate or lower? Yes or No and if yes, provide rates and supporting documentation.**

No, the existing Accident/Collision Rate is lower than the statewide average rate. The accident rates for this intersection for the most recent 3-year study period (7/01/2018 to 6/30/2021) indicate the *Actual Total collision rates* are similar to the *Statewide Average Total collision rates* with similar traffic volume. According to NCHRP RESEARCH REPORT 1043 Guide for Roundabouts (2023):

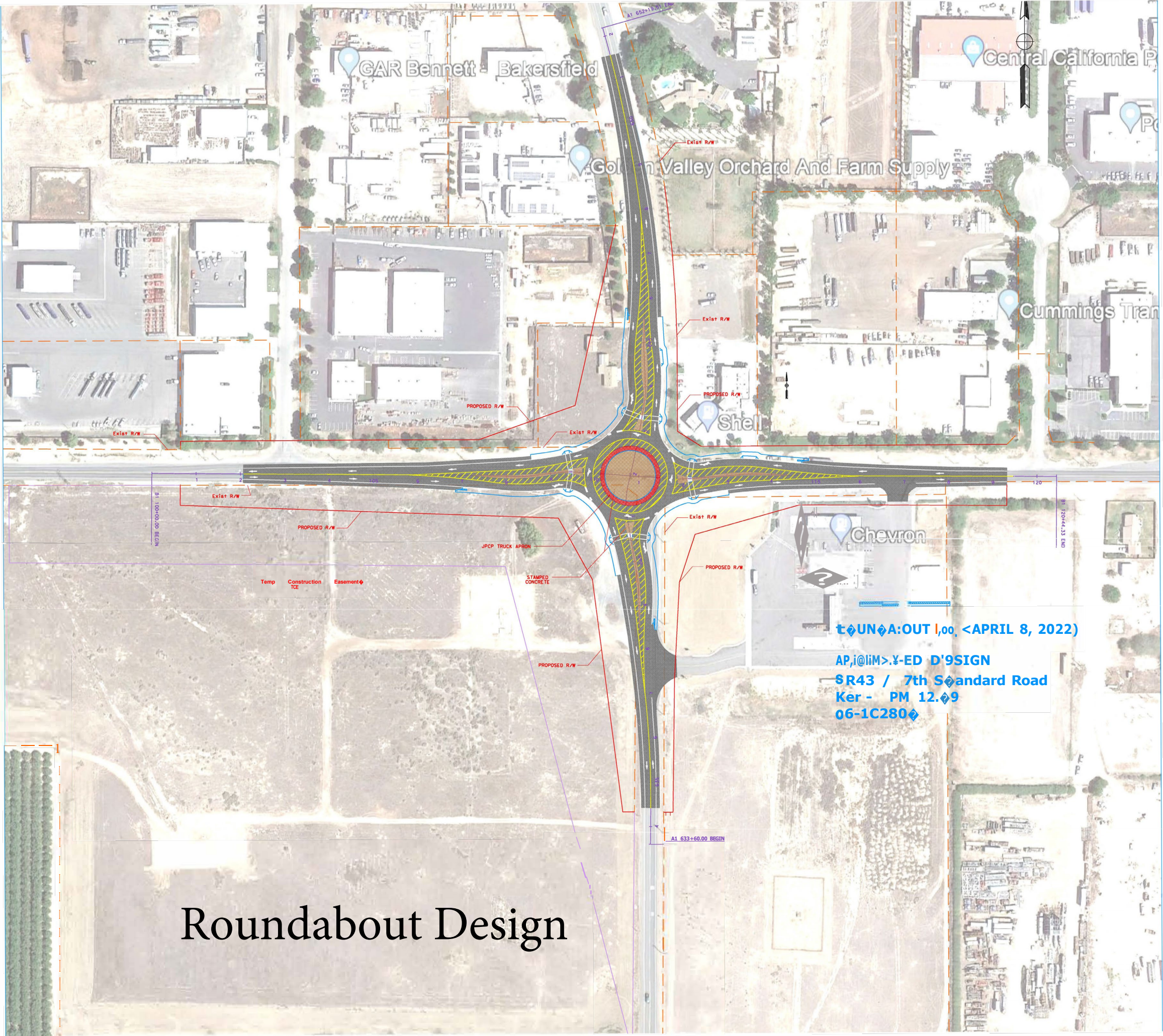
“Because roundabouts have been shown to significantly reduce fatal and serious injuries, they are an engineering solution that can be incorporated into a Vision Zero approach. Roundabouts are included among the FHWA Proven Safety Countermeasures (19). Single-lane roundabouts have been shown to reduce severe crashes by as much as 82 percent compared with two-way stop-controlled intersections and by as much as 78 percent compared with signalized intersections (9, 20).”

Therefore, it reasonable to suggest that a roundabout at this intersection will lower the *Actual Total collision rates* below or equal to the statewide average.

6. **Is the existing fatality Rate higher than the average rate for a similar facility, and does the project reduce the fatality rate to the average rate or lower? Yes or No and if yes, provide rates and supporting documentation.**

No, the accident rates for this intersection for the most recent 3-year study period (7/01/2018 to 6/30/2021) indicate! that the *Actual Fatal and Actual Fatal plus Injury collision rates* are lower than the *Statewide Average collision rates!* for similar intersections with comparable traffic volumes.

No, using similar reasoning as total accident rates as in Question 5 above, this project will keep the *Actual Fatal and Actual Fatal plus Injury collision rate* lower than or equal to the average rate.



Roundabout Design

N



TRAFFIC COLLISION MAP

SR 43 (SEVENTH STANDARD RD)

JANUARY 2022 - DECEMBER 2024

LOCATION: SHAFTER

CITY OF
SHAFTER

SEVENTH STANDARD RD



- Fatal (0)
- Severe Injury (0)
- Other Visible Injury (0)
- Complaint of Pain (0)
- Property Damage Only (3)



PROJECT LOCATION



CITY LIMITS

Total Collisions: 3
Fatalities: 0
Injuries: 0

Collision Rate (c/mve)

Statewide Average: 0.59
Before Rate: 0.32
After Rate: 0.59

Fatality Rate (c/mve)

Statewide Average: 0.006
Before Rate: 0.0
After Rate: 0.006

$$\text{Collision Rate} = \frac{(\text{Number of Collisions} \times 1 \text{ Million})}{(\text{ADT} \times 365 \text{ Days Per Year} \times \text{Segment Length} \times \text{Number of Years})}$$

C/MVE: Collisions per mile vehicles
entering intersection

ADT: Average Daily Traffic Volume

0 0.1 0.2
Miles

Collision Data Source:

California Highway Patrol (CHP), 2024

California State Transportation Agency (CalSTA) Department of Transportation, 2020
Collision Data on California State Highways (road miles, travel, collisions, collision rates). 2022

Federal Highway Administration (FHWA) U.S. Department of Transportation, (2010)
Roadway Safety Information Analysis: A Manual for Local Rural Road Owners. 2023





EMISSIONS BENEFIT & COST EFFECTIVENESS

Project Description

The California Department of Transportation (Caltrans) District 6, in partnership with the County of Kern, City of Bakersfield, and City of Shafter, is proposing and seeking CMAQ funding to construct a roundabout at the intersection of State Route (SR) 43 and 7th Standard Road in Kern County. The intersection suffers from heavy delays and congestion resulting in a failing level of service (LOS), increased air pollutants emitted, and increased greenhouse gases.

Inputs to Calculate Cost-Effectiveness:

Total Project Cost	8,917,600	
CMAQ Dollars	8,000,000	
Effectiveness Period (Life):	20 yrs	
Days of Use/year (D):	365 days	
Length (L) of Curb and Gutter:	1 mile	Centerline miles
Annual Average Daily Traffic (ADT):	10300 vpd	

Emissions Factors (g/vehicle mile from the SJV Amended 2003 PM-10 Plan & SJV Air District):

	Before Emission Factor	After Emission Factor	
PM10 Factor	907.18	4.54	← 1.58 for paved local roads 4.54 for rural local roads

Annual Emission Reductions (PM10 in pounds/year)

Daily PM10 Reductions (kg/day)	=	21.28
Annual Emission Reductions (lbs/yr)	=	17085.2

Capital Recovery Factor (CRF)

$$= \frac{(1+i)^n \times i}{(1+i)^n - 1} \quad \text{where } i = \text{Discount Rate (3\%)} \text{ and } n = \text{Project Life (20 years)}$$

So, the capital recovery factor = 0.07

Cost - Effectiveness of Funding Dollars

$$= (\text{CRF} \times \text{Funding}) / (\text{Annual PM10 Reductions})$$

$$= 32.777$$

Thus,

$$\text{Calculated Cost - Effectiveness} = 32.78$$





LEVEL OF SERVICE



Vehicles Miles Travelled (VMT) Reductions

For pedestrian facilities constructed at SR 43 and 7th Standard Road

The formula for annual automobile VMT reduced per the California Air Resources Board methods is $(D) * (ADT) * (A+C) * (L)$.

Where,

D = days of use per year (default is 200 days)

ADT = annual average two-way daily vehicular traffic on parallel road (with a maximum of 30,000)

A = adjustment factor (table lookup value)

C = activity center credit (table lookup value)

L = walking trip length (assumed at 1.0 miles/trip in one direction)

Therefore,

Annual VMT Reduction:

$$(200) * (10,300) * (0.0019 + 0.0) * (1.0) =$$

3,914 vehicle miles travelled reduced per year

Source: Page 6 of the California Air Resources Board *Quantifying Reductions in Vehicle Miles Traveled from New Pedestrian Facilities* Technical Documentation

Link: https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/pedestrian_facilities_technical_041519.pdf

Emission Reduction Calculations

Per SIDRA Intersection Analysis (See attached), the NOx and CO emissions before and after project are listed in the following table:

Emissions	4-Way Stop Control			Roundabout		
	2025	2045	Average	2025	2045	Average
NOx (kg/hour)	1.07	1.93	1.50	1.07	1.56	1.32
CO (kg/hour)	0.45	0.90	0.68	0.44	0.64	0.54

(10) Reduction in Nox = $(1.50 - 1.32) \times 24 \text{ hours} =$ 4.44 kg/day

(13) Reduction in CO = $(0.68 - 0.54) \times 24 \text{ hours} =$ 3.24 kg/day

(14) Cost Effectiveness

Daily Emission Reduction (Nox & CO) = 21.28 kg/day

Annual Emission Reduction (Nox & CO) =
kg/day x 365 days/yr x 2.2 lb/kg = 6167 lb/yr

Capital Recovery Factor (CRF)

$$= \frac{(1+i)^n \times i}{(1+i)^n - 1} \text{ where } i = \text{Discount Rate (3\%)} \text{ and } n = \text{Project Life (20 years)}$$

Capital Recovery Factor (CRF) = 0.07

Proposed CMAQ funding = \$8,000,000

Cost - Effectiveness of Funding Dollars

$(\text{CRF} \times \text{Funding}) / (\text{Annual Emission Reduction}) =$ \$32.777

Thus, Calculated Cost Effectiveness = \$32.78 per lb of Nox and CO

INTERSECTION SUMMARY

Site: SR43/7th [Route 43/7th Standard PM Peak 2025 - AWSC]

New Site
Site Category: (None)
Stop (All-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	16.5 mph	16.5 mph
Travel Distance (Total)	707.4 veh-mi/h	848.9 pers-mi/h
Travel Time (Total)	43.0 veh-h/h	51.5 pers-h/h
Demand Flows (Total)	1150 veh/h	1380 pers/h
Percent Heavy Vehicles (Demand)	7.0 %	
Degree of Saturation	1.096	
Practical Spare Capacity	-27.0 %	
Effective Intersection Capacity	1050 veh/h	
Control Delay (Total)	22.46 veh-h/h	26.95 pers-h/h
Control Delay (Average)	70.3 sec	70.3 sec
Control Delay (Worst Lane)	109.6 sec	
Control Delay (Worst Movement)	109.6 sec	109.6 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	70.3 sec	
Idling Time (Average)	45.2 sec	
Intersection Level of Service (LOS)	LOS F	
95% Back of Queue - Vehicles (Worst Lane)	16.4 veh	
95% Back of Queue - Distance (Worst Lane)	430.9 ft	
Queue Storage Ratio (Worst Lane)	0.16	
Total Effective Stops	2506 veh/h	3008 pers/h
Effective Stop Rate	2.18	2.18
Proportion Queued	0.99	0.99
Performance Index	162.3	162.3
Cost (Total)	669.18 \$/h	669.18 \$/h
Fuel Consumption (Total)	45.0 gal/h	
Carbon Dioxide (Total)	406.2 kg/h	
Hydrocarbons (Total)	0.041 kg/h	
Carbon Monoxide (Total)	0.454 kg/h	
NOx (Total)	1.069 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Site Model Variability Index (Iterations 3 to N): 0.0 %

Number of Iterations: 2 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 0.0% 97.2% 0.6%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	552,000 veh/y	662,400 pers/y
Delay	10,780 veh-h/y	12,935 pers-h/y
Effective Stops	1,203,117 veh/y	1,443,740 pers/y
Travel Distance	339,552 veh-mi/y	407,463 pers-mi/y
Travel Time	20,617 veh-h/y	24,740 pers-h/y
Cost	321,206 \$/y	321,206 \$/y
Fuel Consumption	21,601 gal/y	
Carbon Dioxide	194,979 kg/y	

INTERSECTION SUMMARY

Site: 101 [Route 43/7th Standard PM Peak 2025 - Single Lane]

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	34.9 mph	34.9 mph
Travel Distance (Total)	886.3 veh-mi/h	1063.6 pers-mi/h
Travel Time (Total)	25.4 veh-h/h	30.5 pers-h/h
Demand Flows (Total)	1393 veh/h	1672 pers/h
Percent Heavy Vehicles (Demand)	6.9 %	
Degree of Saturation	0.588	
Practical Spare Capacity	44.5 %	
Effective Intersection Capacity	2369 veh/h	
Control Delay (Total)	3.67 veh-h/h	4.40 pers-h/h
Control Delay (Average)	9.5 sec	9.5 sec
Control Delay (Worst Lane)	12.5 sec	
Control Delay (Worst Movement)	18.6 sec	18.6 sec
Geometric Delay (Average)	4.6 sec	
Stop-Line Delay (Average)	4.9 sec	
Idling Time (Average)	0.7 sec	
Intersection Level of Service (LOS)	LOS A	
95% Back of Queue - Vehicles (Worst Lane)	5.2 veh	
95% Back of Queue - Distance (Worst Lane)	140.5 ft	
Queue Storage Ratio (Worst Lane)	0.04	
Total Effective Stops	1107 veh/h	1329 pers/h
Effective Stop Rate	0.79	0.79
Proportion Queued	0.73	0.73
Performance Index	67.3	67.3
Cost (Total)	409.53 \$/h	409.53 \$/h
Fuel Consumption (Total)	43.0 gal/h	
Carbon Dioxide (Total)	388.6 kg/h	
Hydrocarbons (Total)	0.032 kg/h	
Carbon Monoxide (Total)	0.438 kg/h	
NOx (Total)	1.072 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Site Model Variability Index (Iterations 3 to N): 2.4 %

Number of Iterations: 6 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.8% 1.5% 0.7%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	668,686 veh/y	802,423 pers/y
Delay	1,761 veh-h/y	2,113 pers-h/y
Effective Stops	531,581 veh/y	637,897 pers/y
Travel Distance	425,447 veh-mi/y	510,536 pers-mi/y
Travel Time	12,203 veh-h/y	14,644 pers-h/y
Cost	196,572 \$/y	196,572 \$/y

INTERSECTION SUMMARY

Site: SR43/7th [Route 43/7th Standard PM Peak 2045 - AWSC]

New Site
Site Category: (None)
Stop (All-Way)

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	8.5 mph	8.5 mph
Travel Distance (Total)	1051.7 veh-mi/h	1262.1 pers-mi/h
Travel Time (Total)	123.7 veh-h/h	148.4 pers-h/h
Demand Flows (Total)	1710 veh/h	2052 pers/h
Percent Heavy Vehicles (Demand)	7.0 %	
Degree of Saturation	1.628	
Practical Spare Capacity	-50.9 %	
Effective Intersection Capacity	1050 veh/h	
Control Delay (Total)	93.24 veh-h/h	111.88 pers-h/h
Control Delay (Average)	196.3 sec	196.3 sec
Control Delay (Worst Lane)	319.3 sec	
Control Delay (Worst Movement)	319.3 sec	319.3 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	196.3 sec	
Idling Time (Average)	146.7 sec	
Intersection Level of Service (LOS)	LOS F	
95% Back of Queue - Vehicles (Worst Lane)	47.3 veh	
95% Back of Queue - Distance (Worst Lane)	1246.8 ft	
Queue Storage Ratio (Worst Lane)	0.47	
Total Effective Stops	5882 veh/h	7058 pers/h
Effective Stop Rate	3.44	3.44
Proportion Queued	1.00	1.00
Performance Index	460.7	460.7
Cost (Total)	1891.71 \$/h	1891.71 \$/h
Fuel Consumption (Total)	89.7 gal/h	
Carbon Dioxide (Total)	808.8 kg/h	
Hydrocarbons (Total)	0.096 kg/h	
Carbon Monoxide (Total)	0.897 kg/h	
NOx (Total)	1.926 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Site Model Variability Index (Iterations 3 to N): 0.0 %

Number of Iterations: 2 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 0.0% 97.2% 0.6%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	820,696 veh/y	984,835 pers/y
Delay	44,754 veh-h/y	53,705 pers-h/y
Effective Stops	2,823,132 veh/y	3,387,759 pers/y
Travel Distance	504,835 veh-mi/y	605,802 pers-mi/y
Travel Time	59,377 veh-h/y	71,253 pers-h/y
Cost	908,019 \$/y	908,019 \$/y
Fuel Consumption	43,064 gal/y	
Carbon Dioxide	388,206 kg/y	

INTERSECTION SUMMARY

Site: 101 [Route 43/7th Standard PM Peak 2045 - Multilane]

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	35.6 mph	35.6 mph
Travel Distance (Total)	1323.9 veh-mi/h	1588.7 pers-mi/h
Travel Time (Total)	37.2 veh-h/h	44.6 pers-h/h
Demand Flows (Total)	2071 veh/h	2486 pers/h
Percent Heavy Vehicles (Demand)	6.9 %	
Degree of Saturation	0.424	
Practical Spare Capacity	100.5 %	
Effective Intersection Capacity	4886 veh/h	
Control Delay (Total)	4.46 veh-h/h	5.35 pers-h/h
Control Delay (Average)	7.7 sec	7.7 sec
Control Delay (Worst Lane)	10.5 sec	
Control Delay (Worst Movement)	14.4 sec	14.4 sec
Geometric Delay (Average)	4.8 sec	
Stop-Line Delay (Average)	2.9 sec	
Idling Time (Average)	0.1 sec	
Intersection Level of Service (LOS)	LOS A	
95% Back of Queue - Vehicles (Worst Lane)	2.2 veh	
95% Back of Queue - Distance (Worst Lane)	60.0 ft	
Queue Storage Ratio (Worst Lane)	0.02	
Total Effective Stops	1421 veh/h	1706 pers/h
Effective Stop Rate	0.69	0.69
Proportion Queued	0.60	0.60
Performance Index	61.4	61.4
Cost (Total)	597.16 \$/h	597.16 \$/h
Fuel Consumption (Total)	63.2 gal/h	
Carbon Dioxide (Total)	571.3 kg/h	
Hydrocarbons (Total)	0.047 kg/h	
Carbon Monoxide (Total)	0.644 kg/h	
NOx (Total)	1.562 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Intersection LOS value for Vehicles is based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Site Model Variability Index (Iterations 3 to N): 2.6 %

Number of Iterations: 7 (Maximum: 10)

Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.2% 1.3% 0.8%

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	994,201 veh/y	1,193,041 pers/y
Delay	2,140 veh-h/y	2,568 pers-h/y
Effective Stops	682,224 veh/y	818,669 pers/y
Travel Distance	635,489 veh-mi/y	762,587 pers-mi/y
Travel Time	17,841 veh-h/y	21,409 pers-h/y
Cost	286,636 \$/y	286,636 \$/y

California Department of Transportation

DISTRICT 6 OFFICE
1352 WEST OLIVE AVENUE | P.O. BOX 12616 | FRESNO, CA 93778-2616
(559) 488-4057 | FAX (559) 488-4195 | TTY 711
www.dot.ca.gov



July 17, 2025

Jay Schlosser
Executive Director, Kern Council of Governments
1401 19th Street, Suite 300
Bakersfield, CA 93301

Dear Mr. Schlosser:

County of Kern is an APPLICANT to the Congestion Mitigation and Air Quality Improvement (CMAQ) Program for funding of the proposed intersection improvement at State Route (SR) 43 and 7th Standard Road (PROJECT). The California Department of Transportation (Caltrans), as a FUNDING PARTNER, is committed to the following:

1. FUNDING PARTNER will provide \$1,250,000 in State matching funds; and
2. FUNDING PARTNER understands that the CMAQ program funding for the PROJECT is fixed at the approved programmed amount, and that any cost increases must be funded by the APPLICANT from other funds, and that APPLICANT does not expect any cost increases to be funded with additional CMAQ program funding; and
3. FUNDING PARTNER understands the funding deadlines associated with these funds and will comply with the program implementation procedures described in Chapter 2 of the Kern COG Project Delivery Policies and Procedures Manual; and
4. PROJECT will be implemented as described in the complete application and in this letter and, if approved, for the amount programmed in the Federal Transportation Improvement Program (FTIP); and
5. FUNDING PARTNER, APPLICANT, and PROJECT will comply with the requirements as set forth in the program; and APPLICANT authorizes its staff, or designees to execute and file an application with Kern Council of Governments for the CMAQ program funding for the PROJECT as referenced above.

If you have any further questions, please contact Acting Deputy District Director Shane Gunn at shane.gunn@dot.ca.gov or 559-832-0051.

Mr. Jay Schlosser, Executive Director
July 17, 2025
Page 2

Sincerely,

A handwritten signature in blue ink, appearing to read 'M. Navarro', with a stylized, flowing script.

MICHAEL NAVARRO
District 6 Director

c: John Liu, Deputy District Director, Maintenance and Operations
Nabeelah Abi-Rached, Deputy District Director, Program and Project Management,
Asset Management



336 Pacific Avenue, Shafter, California, 93263

June 26, 2023

Ahron Hakimi
Executive Director, Kern Council of Governments
1401 19th Street, Suite 300
Bakersfield, CA 93301

Dear Mr. Hakimi:

The City of Shafter is writing in strong support of the California Department of Transportation's (Caltrans) Congestion Mitigation and Air Quality Improvement (CMAQ) Program funding application for the proposed intersection improvement at State Route (SR) 43 and Seventh Standard Road.

This intersection suffers from long queue times for both single-passenger vehicles and heavy-duty trucks in peak hours of the day. The proposed intersection improvement calls for the construction of a roundabout to replace a current all-way controlled-stop intersection. This roundabout will have regional benefits as the intersection is a critical link for both Shafter and Bakersfield and provides direct access to Interstate 5 to the west.

This intersection is located outside Shafter city limits but is partially within its sphere of influence. Therefore, the Shafter community will directly benefit from the improvements. A roundabout at this intersection will increase traffic safety, lessen congestion, decrease travel time, reduce harmful air pollutants and associated greenhouse gas emissions in our community, and provide a safer experience for active transportation users around the area, leading to reduced vehicle miles traveled (VMT).

The City of Shafter appreciates the opportunity to express our strong support. If you have any further questions, please contact Public Works Director Michael James via email at mjames@shafter.com or phone (661)746-5004, ext. 5018.

Sincerely,
CITY OF SHAFTER



Gabriel A. Gonzalez, City Manager

City Manager
(661) 746-5000
Fax (661) 746-0607

Finance
(661) 746-5001
Fax (661) 746-1002

Human Resources
(661) 746-5003
Fax (661) 746-2645

Planning/Building/Engineering
(661) 746-5002
Fax (661) 746-9125

July 6, 2023

Ahron Hakimi
Executive Director, Kern Council of Governments
1401 19th Street, Suite 300
Bakersfield, CA 93301

Dear Mr. Hakimi:

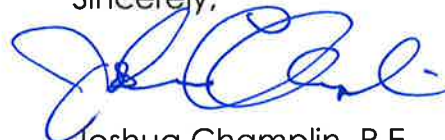
The County of Kern is writing in partnership and support of the California Department of Transportation's (Caltrans) Congestion Mitigation and Air Quality Improvement (CMAQ) Program funding application for the proposed intersection improvement at State Route (SR) 43 and 7th Standard Road as a roundabout.

This current all-way controlled-stop intersection suffers from long queue times for both single-passenger vehicles and heavy-duty trucks in peak hours of the day. The proposed project calls for construction of a roundabout at this intersection to increase traffic safety, lessen congestion, decrease travel time, reduce harmful air pollutants and associated greenhouse gas emissions in our County to provide a safer experience for active transportation users around the area, leading to reduced vehicle miles travelled. The intersection is a critical link for Shafter and Bakersfield that provides direct access to Interstate 5, realizing regional benefits.

Kern County has maintenance responsibility for the 7th Standard portion of this proposal. We are dedicated to improving safety and public health throughout our region. If funded, we are happy to work with Caltrans through our encroachment permit process for this mutually beneficial project.

The County of Kern appreciates consideration of this funding request. If you have any further questions, please contact Yolanda Alcantar, Public Works Manager at (661)862-5292.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Champlin".

Joshua Champlin, P.E.
Interim Director



336 Pacific Avenue, Shafter, California, 93263

RECEIVED
JUN 29 2023

KERN COUNCIL
OF GOVERNMENTS

June 26, 2023

Ahron Hakimi
Executive Director, Kern Council of Governments
1401 19th Street, Suite 300
Bakersfield, CA 93301

Dear Mr. Hakimi:

The City of Shafter is writing in strong support of the California Department of Transportation's (Caltrans) Congestion Mitigation and Air Quality Improvement (CMAQ) Program funding application for the proposed intersection improvement at State Route (SR) 43 and Seventh Standard Road.

This intersection suffers from long queue times for both single-passenger vehicles and heavy-duty trucks in peak hours of the day. The proposed intersection improvement calls for the construction of a roundabout to replace a current all-way controlled-stop intersection. This roundabout will have regional benefits as the intersection is a critical link for both Shafter and Bakersfield and provides direct access to Interstate 5 to the west.

This intersection is located outside Shafter city limits but is partially within its sphere of influence. Therefore, the Shafter community will directly benefit from the improvements. A roundabout at this intersection will increase traffic safety, lessen congestion, decrease travel time, reduce harmful air pollutants and associated greenhouse gas emissions in our community, and provide a safer experience for active transportation users around the area, leading to reduced vehicle miles traveled (VMT).

The City of Shafter appreciates the opportunity to express our strong support. If you have any further questions, please contact Public Works Director Michael James via email at mjames@shafter.com or phone (661)746-5004, ext. 5018.

Sincerely,
CITY OF SHAFTER



Gabriel A. Gonzalez, City Manager

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Human Resources
(661) 746-5003
Fax (661) 746-2645

Planning/Building/Engineering
(661) 746-5002
Fax (661) 746-9125

OTM22130

Table B - Selective Accident Rate Calculation

Policy controlling the use of Traffic Accident Surveillance and Analysis System (TASAS) - Transportation Systems Network (TSN) Reports

1. TASAS - TSN has officially replaced the TASAS - "Legacy" database.
2. Reports from TSN are to be used and interpreted by the California Department of Transportation (Caltrans) officials or authorized representative.
3. Electronic versions of these reports may be emailed between Caltrans' employees only using the State computer system.
4. The contents of these reports shall be considered confidential and may be privileged pursuant to 23 U.S.C. Section 409, and are for the sole use of the intended recipient(s). Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message. Do not print, copy or forward.

OTM22130

Table B - Selective Accident Rate Calculation

Report Parameters-

Event ID: 4391139

Request Name: 1C280 Ker 43 12.19 7th Stndrd

Ref Date: 03/23/2022

Request- & Line	L D L O I S C R C			Route/Location	Begin Date	End Date	Rate Type	Out Seq	Override Rates			Override ADT		Req. Type	Com- bine?	Excl Ramp?
									Rate	Inj%	Fat%	Main	Cross			
1 1	I	T	I	06 KER 043 012.180 - 06 KER 043 012.200	01-JUL-18	30-JUN-21	N	L						N	N	N

Event Log:

Job id is : 264332 Accidents Table B Request 1C280 Ker 43 12.19 7th Stndrd Submitted by T6ACORRE
06 KER 043 12.18 - 06 KER 043 12.2 07/01/2018 TO 06/30/2021

Location Description					Rate Group (RUS)	No. of Accidents / Significance					Pers Kld Inj	ADT Main X-St	Total MV+ or MVM	Accident Rates							
						Tot	Fat	Inj	F+I	Multi Veh				Wet	Dark	Actual		Average		Tot	Fat
06 KER 043 012.190 7TH STANDARD RD					I 07	4	0	1	1	4	0	1	0	5.1	17.03 +	0.000	.06	.24	0.004	.10	.24
0001-0001	2018-07-01	2021-06-30	36 mo.	S									4	10.4							

Accident Rates expressed as: # of accidents / Million vehicle miles

+ denotes that Million Vehicles (MV) used in accident rates instead (for intersections and ramps).

For Ramps RUS only considers R(Rural) U(Urban)