

# KERN COUNTY PUBLIC WORKS

## **CMAQ APPLICATION: SURFACE UNPAVED SHOULDER PROJECT**

**Heath Road  
Stockdale Highway to Johnson Road**



**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) PM<sub>10</sub> Reduction (kg/day): \_\_\_\_\_ Additional documentation required. See instructions.
- (12) PM<sub>2.5</sub> 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

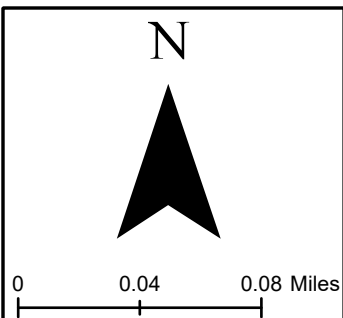
Application completed by: _____	Date Completed: _____
E-mail: _____	Phone Number: _____
Agency: _____	
Address: _____	

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.](#)

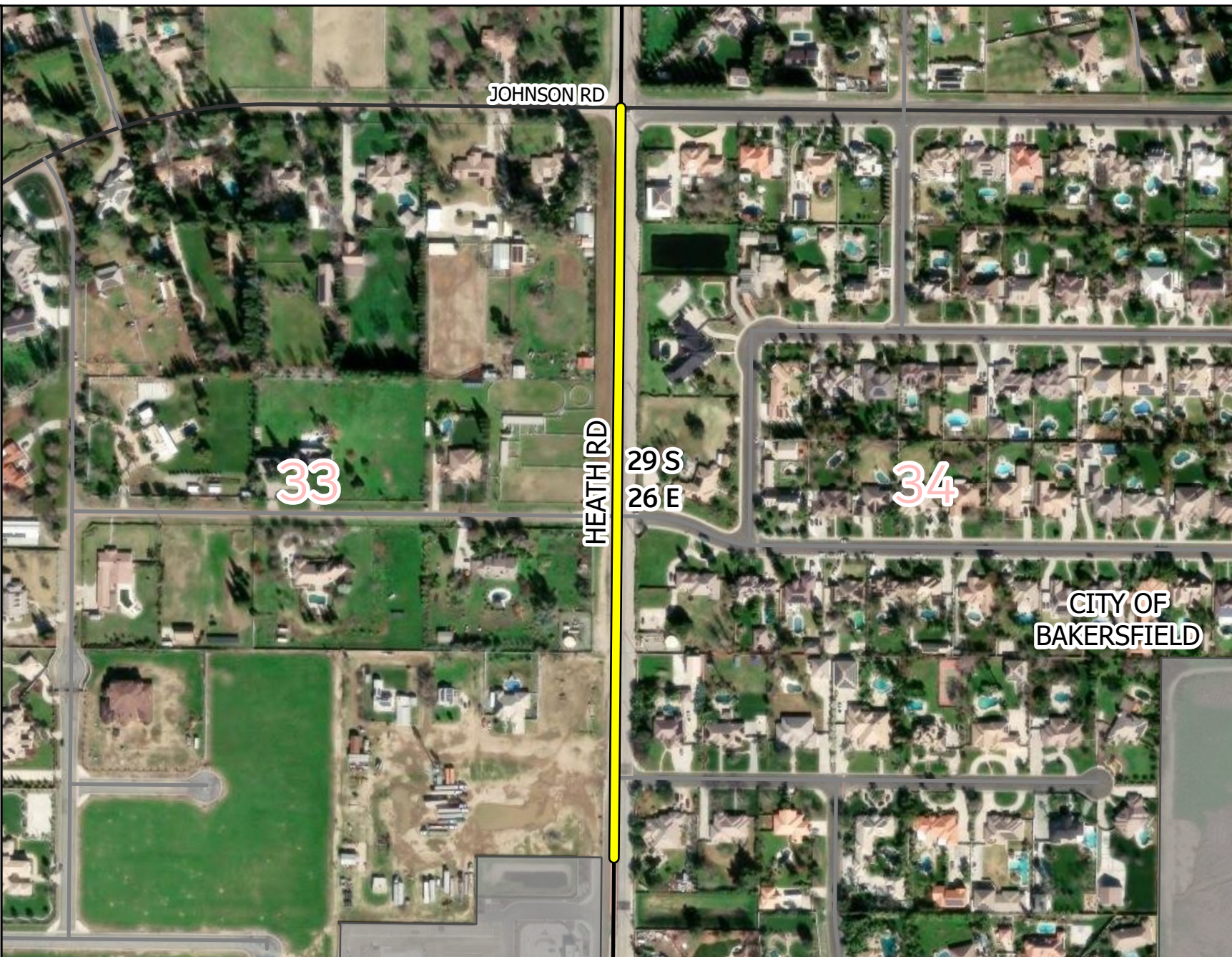




Secs: 33, 34

29 S 26 E

 PROJECT LOCATION  
 CITY LIMITS

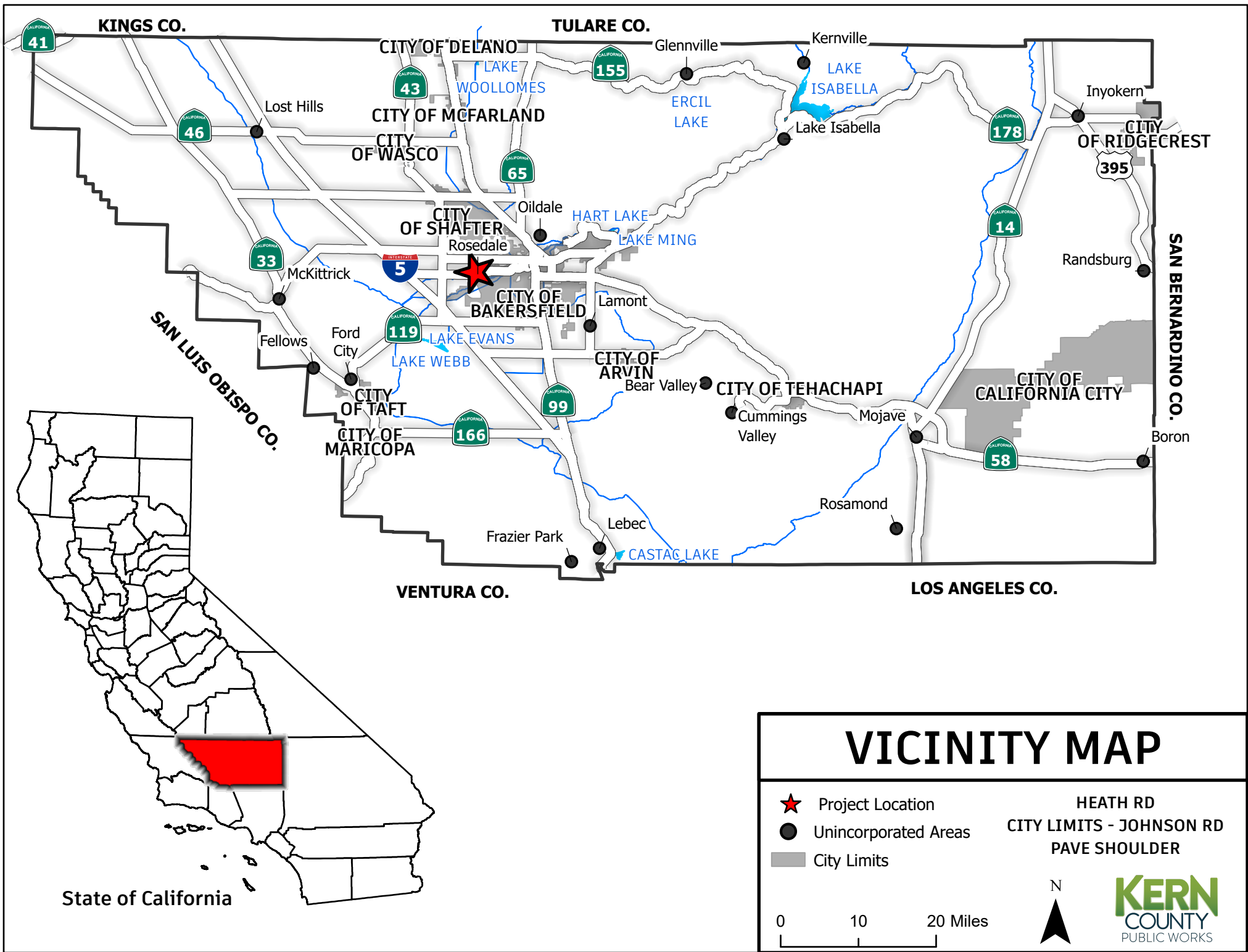


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COUNTY OF KERN  
**PUBLIC WORKS DEPARTMENT**  
METRO BAKERSFIELD, CA

**AERIAL MAP**  
HEATH RD  
CITY LIMITS - JOHNSON RD  
PAVE SHOULDER/SIDEWALKS





N



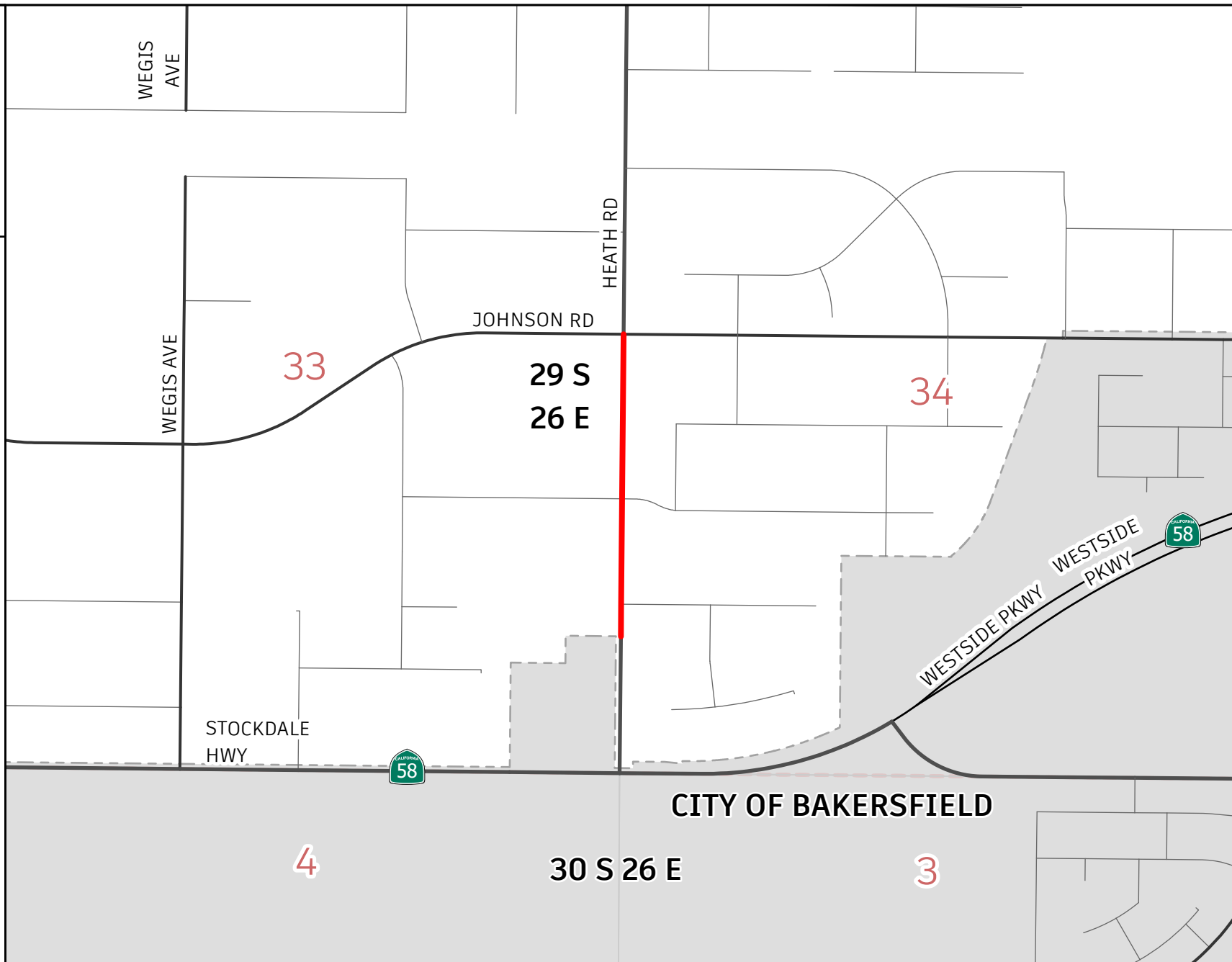
0 0.1 0.2 Miles

Secs: 33, 34, 4, 3

T29 S/R26 E; T30 S/R26 E

— PROJECT LOCATION

■ CITY LIMITS



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**KERN**  
COUNTY  
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COUNTY OF KERN  
**PUBLIC WORKS DEPARTMENT**  
METRO BAKERSFIELD, CA

*LOCATION MAP*

HEATH RD  
CITY LIMITS - JOHNSON RD  
PAVE SHOULDER/SIDEWALKS



## **PROJECT BACKGROUND**

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

# Project Description & Justification

## Project Description

The proposed project is located on Heath Road (City Limits) between Stockdale Highway and Johnson Road in the unincorporated west Metropolitan Bakersfield area of Kern County. The project will surface unpaved shoulders, curb, gutter, and sidewalks along Heath Road from (City Limits) between Stockdale Highway and Johnson Road, totaling approximately 0.34-miles in length. In addition to these improvements, the proposed project will install additional ancillary facilities as necessary and required for the proper construction and operation of the roadway, in accordance with Kern County, California Department of Transportation (Caltrans), and Americans with Disabilities Act (ADA) design standards.

## Project Justification

The project is located in the unincorporated western area of Metropolitan Bakersfield, just west of the terminus of the Westside Parkway. The purpose of this project is to decrease Particulate Matter (PM) emissions in compliance with the Kern Council of Government's Sustainable Community Strategy. Travel on roads with dirt shoulders result in greater particulate matter (PM<sub>10</sub>) emissions than complete paved neighborhood streets. PM<sub>10</sub> has been linked to premature death, respiratory and cardiovascular diseases, lost workdays, school absences and reduced activity, all of which translates into increased health costs. The San Joaquin Valley Air Pollution Control District (SJVAPCD) is currently in **non-attainment** for PM<sub>10</sub> under state and federal clean air guidelines. The anticipated reduction in emissions will help the San Joaquin Valley Air Pollution Control District (SJVAPCD) meet its air quality goals of reducing 120,000 pounds per year of pollutants valley wide. The anticipated reduction in emissions from this project total over 1,454.9 pounds of PM<sub>10</sub> per year locally in Kern County.

Surfacing unpaved shoulders and surfaced will reduce the amount of dust particulate matter created when vehicles park along the dirt shoulders and installing curb, gutter, and sidewalk will increase and enhance the number of modes accommodated on this facility by creating an even and accessible road for pedestrians, seniors, students, persons with disabilities, and cyclists. In addition to the proposed sidewalks providing a safe mode of travel for pedestrians and students to walk safely, the placement of gutters will provide a place for rainwater to drain where it will not conflict with pedestrians or other motor vehicle traffic.



Heath Road



# Livability and Safety

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

Yes, the project will reduce the average cost of user mobility by reducing vehicle maintenance and fuel costs and creating a new, more convenient route residents in this area to travel within their community. Surfacing unpaved shoulders and constructing sidewalks will allow an easier connection for pedestrians and cyclists from their homes to schools, local markets, stores, and public amenities and facilities in the area. Surfacing unpaved shoulders and constructing curb and gutter will mitigate mud during the rain/wet seasons within Kern County, which creates difficulty for residents who do not own a vehicle to traverse and travel safely. These street improvements will create improved driving, walking, biking surfaces, and conditions that will enable more users to travel easily, safely, and for lower costs.

**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, the project will increase the number of modes accommodated on the roadway and will enhance modal connectivity by improving roadway access. Heath Road currently has curb, gutter, and sidewalk along the east side of the roadway, however, the western side of the road lacks such amenities and thus pedestrians are forced to travel along the eastern portion of Heath Road to avoid mud and dirt patches. Excessive curb, gutter, and sidewalk gaps exist along the west side of Heath Road and as such, deters travelers from traversing along Heath Road. The paving of the road will be designed to be compliant with Americans with Disabilities Act (ADA) standards and will increase active forms of transportation, walk-ability, and bike access on existing modal assets.

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

Yes, the project will allow residents to conveniently walk, bike, or roll to local amenities in the surrounding area, resulting in safer, cleaner, faster, and more accessible trips. This project will improve user mobility between Stockdale Highway and Johnson Road residences, commercial centers, jobs, and multi-modal transportation access in the unincorporated western portion of Metropolitan Bakersfield.

**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, the project will directly improve and increase accessibility to non-drivers, students, senior citizens, and persons with disabilities by installing that meet the most recent Americans with Disabilities Act (ADA) construction standards. The construction and installation of curb, gutter, and side walk including the paving of dirt shoulders on the west side of Heath Road between Stockdale Highway and Johnson Road will increase accessibility and access for non-drivers, students, senior citizens, and persons with disabilities. Improved road access will make goods and services more readily available to these groups.

**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.

Yes, the after Accident/Collision Rate will be equal to the state average rate. (See attached Traffic Collision Map).

**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 existing Fatality Rate is higher than the existing statewide average rate.

Yes, the After-Project Fatality Rate will be equal to the statewide average rate. (See Traffic Collision map).



N








0 0.05 0.1 Miles

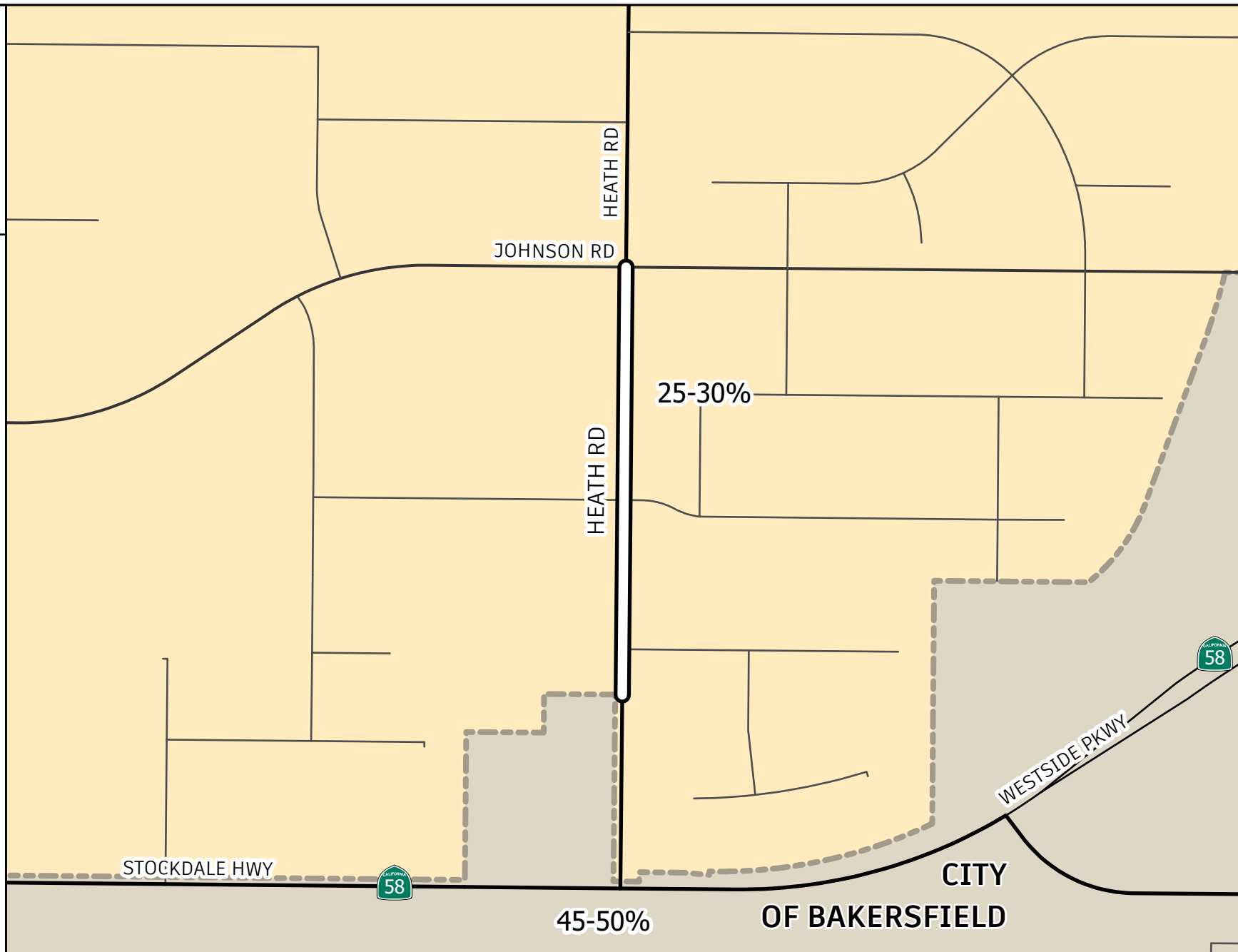
 PROJECT LOCATION

 CITY LIMITS

### CalEnviroScreen4

Percentile

-  <60%
-  61-70%
-  71-80%
-  81-90%
-  91-100% (highest scores)



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COUNTY OF KERN  
**PUBLIC WORKS DEPARTMENT**  
METRO BAKERSFIELD, CA

*DISADVANTAGED COMMUNITY MAP*

HEATH RD  
CITY LIMITS - JOHNSON RD  
PAVE SHOULDER/SIDEWALKS

N

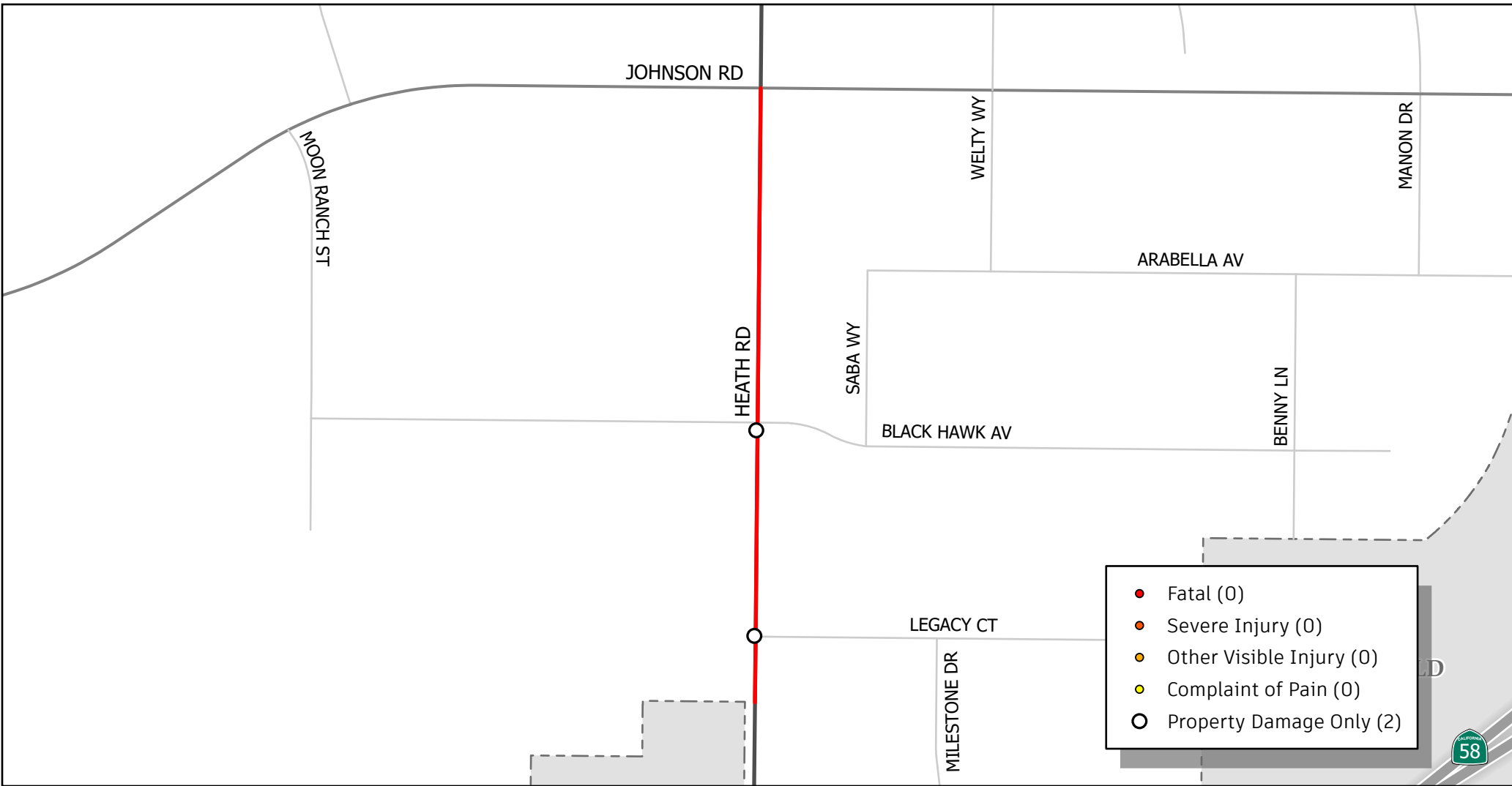


# TRAFFIC COLLISION MAP

HEATH RD (CITY LIMITS - JOHNSON RD)

JANUARY 2022 - DECEMBER 2024

LOCATION: METRO BAKERSFIELD



**PROJECT LOCATION**

**CITY LIMITS**

**Total Collisions: 2**  
**Fatalities: 0**  
**Injuries: 0**

## Collision Rate (c/mve)

Statewide Average: 1.61  
 Before Rate: 0.73  
 After Rate: n/a

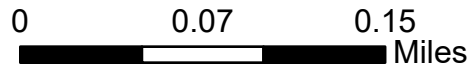
## Fatality Rate (c/mve)

Statewide Average: 0.029  
 Before Rate: 0.0  
 After Rate: n/a

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

C/MVE: Collisions per mile vehicles  
 entering intersection

ADT: Average Daily Traffic Volume



### 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 proposed project is located on Heath Road (City Limits) between Stockdale Highway and Johnson Road in the unincorporated west Metropolitan Bakersfield area of Kern County. The project will construct paved shoulders, curb, gutter, and sidewalks along Heath Road from (City Limits) between Stockdale Highway and Johnson Road, totaling approximately .34-miles in length. In addition to these improvements, the proposed project will install additional ancillary facilities as necessary and required for the proper construction and operation of the roadway, in accordance with Kern County, California Department of Transportation (Caltrans), and Americans with Disabilities Act (ADA) design standards.

**Inputs to Calculate Cost-Effectiveness:**

Total Project Cost	1,774,200	
CMAQ Dollars	1,527,636	
Effectiveness Period (Life):	20 yrs	
Days of Use/year (D):	365 days	
Length (L) of Curb and Gutter:	0.343 mile	Centerline miles
Annual Average Daily Traffic (ADT):	7348 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	1.58	← 1.58 for paved local roads 4.54 for rural local roads

**Annual Emission Reductions (PM10 in pounds/year)**

Daily PM10 Reductions (kg/day)	=	1.81
Annual Emission Reductions (lbs/yr)	=	1454.9

**Capital Recovery Factor (CRF)**

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

1.81

So, the capital recovery factor = 0.07

**Cost - Effectiveness of Funding Dollars**

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

$$= 73.497$$

Thus,

$$\text{Calculated Cost - Effectiveness} = 73.50$$



## **LEVEL OF SERVICE**



Heath Road from Stockdale Highway to Johnson Road  
Before Level of Service

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	12 ft
Paved shoulder/bike lane/marked parking width:	0 ft
Bidirectional ADT traffic volume:	7348 (veh/day)
Posted speed limit:	55 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	50%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	10 ft

	Score	Level-of-service	Compatibility Level
BLOS:	4.18	D (3.51-4.50)	Moderately Low
PLOS:	4.25	D (3.51-4.50)	Moderately Low

Heath Road from Stockdale Highway to Johnson Road  
After Level of Service

BLOS and PLOS for the following road segment

Lanes per direction:	1
Outside lane width:	12 ft
Paved shoulder/bike lane/marked parking width:	6 ft
Bidirectional ADT traffic volume:	7348 (veh/day)
Posted speed limit:	55 mph
Heavy vehicle percentage:	2%
FHWA's pavement condition rating:	4
% of segment with occupied parking:	0%
% of segment with sidewalks:	100%
Sidewalk width:	5 ft
Sidewalk buffer/parkway width:	10 ft

	Score	Level-of-service	Compatibility Level
BLOS:	2.02	B (1.51-2.50)	Very High
PLOS:	3.29	C (2.51-3.50)	Moderately High



## Heath Road

**Annual Automobile VMT Reduced =**

$$(D) * (ADT) * (A+C) * (L)$$

Where,

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

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

**A** = adjustment factor (table lookup value)

**C** = activity center credit (table lookup value)

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

***Heath Avenue Annual VMT Reduction:***

$$(365) * (7,348) * (0.0019 + 0.005) * (.343) =$$

**6347.53**

## Automobile VMT Reduction Calculations

CARB's current method estimates the annual VMT reductions from new pedestrian facilities using Equation 1 (CARB, 2016 [B-1], 2018 [26], 2019 [16]):

### Equation 1: Auto VMT Reductions (current method)

$$\text{Auto VMT Reduced} = (D) * (ADT) * (A + C) * (L)$$

Where,

		Units
D	= days of use per year (default is 200 days)	Days
ADT	= annual average two-way daily vehicular traffic on parallel road (project-specific data, with a maximum of 30,000)	Trips/day
A	= adjustment factor (table lookup value)	-
C	= activity center credit (table lookup value)	-
L	= walking trip length (1.0 miles/trip in one direction)	Miles/trip

The adjustment factor and activity center credit tables from CARB's 2016 report are replicated below in Tables 1 and 2. The multi-component adjustment factor uses mode share and facility-level bicycle ridership change data<sup>1</sup> and assumptions to estimate how much of the measured ADT would be converted to walking trips after pedestrian facility

**Table 1. Adjustment Factor (A) Lookup Table**

Average Daily Traffic (ADT)	Pedestrian Project Length (one-direction)	A (for cities with population >250,000 and non-university towns <250,000)	A (for university towns with population <250,000)
ADT ≤12,000 vehicles per day	≤1 mile	.0019	.0104
	>1 mile & ≤2 miles	.0029	.0155
	>2 miles	.0038	.0207
12,000<ADT ≤24,000 vehicles per day	≤1 mile	.0014	.0073
	>1 mile & ≤2 miles	.0020	.0109
	>2 miles	.0027	.0145
24,000<ADT≤30,000 vehicles per day (max is 30,000)	≤1 mile	.0010	.0052
	>1 mile & ≤2 miles	.0014	.0078
	>2 miles	.0019	.0104

**Table 2. Activity Center Credit (C) Lookup Table**

Count Your Activity Centers if There Are...	Within ½ Mile of the Project Area	Within ¼ Mile of the project Area
3	.0005	.001
>3 & <7	.0010	.002
≥7	.0015	.003

The adjustment factors in Table 1 "were derived from a limited set of bicycle commute mode split data for cities and university towns in the southern and western United States,"<sup>2</sup> then multiplied by 0.7<sup>3</sup> to "estimate potential auto travel diverted to bikes" (same factor assumed for auto-walking substitution) and again by a 0.65 "growth factor" to "estimate the growth in bicycle trips from construction of the bike facility"<sup>4</sup> (same