

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.](#)

PROJECT BACKGROUND AND JUSTIFICATION

Niles Street Complete Streets Improvements

The proposed project will involve streetscape and safety improvements along Niles Street between Virginia Street and Baker Street (±0.9 miles). This project was started in FY 2022-2023 as part of an ongoing effort by the City of Bakersfield to promote active transportation and create safer corridors for its most vulnerable users.

The Niles and Monterey Complete Streets (NiMo) Project is a community-led initiative aimed at improving safety and mobility along two vital corridors in East Bakersfield, California. This area is recognized as a disadvantaged community by the USDOT Equitable Transportation Community (ETC) Explorer. The corridors have been identified as local and regional priorities in the City's Bicycle & Pedestrian Safety Plan, aligned with the Kern Region Active Transportation Plan (ATP), Bicycle Master Plan, and Complete Streets Recommendations. Extensive public outreach conducted during the development of these plans revealed community concerns about excessive vehicle speeds, a lack of bicycle infrastructure, and unsafe pedestrian crossings. The City of Bakersfield has partnered with Kimley-Horn to reimagine the entire length of the corridor in a way that encourages multi-modal transportation and protects all users.

The project will improve safety conditions through a number of traffic calming measures: protected crossings through the use of curb extensions, increased pedestrian/cyclist visibility through high-visibility crosswalks, rectangular rapid flashing beacons (RRFB's), advanced stop markings, turn lane markings, and striping, raised medians, accessibility upgrades, and a combination of dedicated, Class II and Class IV bike lanes.

This project looks to leverage the proposed safety improvements, with proven track records all over the country, into a reduction in vehicle miles traveled by creating more opportunities for residents to engage in active modes of transportation.

PROJECT LIVABILITY BENEFITS

Livability Benefit #1

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

This project aims to reduce user mobility costs primarily through the addition of Class II and Class IV bike lanes along the project corridor. Currently there are no dedicated bike facilities along Niles Street. The addition of said bike lanes, in conjunction with other safety improvements, will incentivize non-motorized transportation as both a means of reaching a destination, or reaching a transit connection, such as the multiple Golden Empire Transit (GET) routes that run along Niles Street.

Livability Benefit #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.

With its wide travel lanes, lack of any dedicated bike facilities, and narrow sidewalks, Niles Street is not currently an appealing corridor for non-motorized transportation. To increase the number of modes accommodated along the corridor, a separated, Class IV cycle track will provide additional safety to road users looking to utilize bicycles and other non-motorized means of transportation. Protected intersections and additional mid-block crossings will help to remove existing safety barriers for pedestrians as well. Incentivizing active modes of transportation will look to replace vehicle trips and decrease congestion, especially during peak hours.

Livability Benefit #3

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

While the area directly adjacent to Niles Street is primarily commercial/mixed use, within a one (1) mile radius of the project limits are many commercial and community centers. These include schools, places of worship, grocery stores, various retail centers, and other community hubs like the Boys and Girls Club. By providing additional protected crossings, strategically placed near existing GET bus stops, and protected bike facilities, this project looks to provide additional, safe alternatives to vehicular travel, whether that be by replacing entire vehicle trips or encouraging users to utilize non-vehicular travel for the “last mile.” The City of Bakersfield, alongside our design consultant, has been in constant

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communication with GET in an effort to ensure that GET is not only onboard with the proposed design, but so that their input and experience can be incorporated for the benefit of the community.

Livability Benefit #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.

The area surrounding the project corridor is recognized as a disadvantaged community by the USDOT Equitable Transportation Community (ETC) Explorer. Community engagement has been a large part of the design process and improvement selection. Working with local community partners and holding community engagement meetings to interface directly with residents, it was made clear to the City that a lack of lighting, mid-block crosswalks, and dedicated bike-facilities contribute greatly to a lack of desire to utilize the existing non-vehicular facilities along the corridor. By providing those elements as a part of the design, along with rapid rectangular flashing beacons (RRFB's), raised medians, and intersection protection treatments, this project looks to cater to the needs of the most disadvantaged community members and provide them direct access, not only to facilities along the corridor, but the numerous community centers within a 1 mile radius with increased safety and confidence that the corridor is there to serve them, not just motorized travel.

Safety Benefit #1

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?

See Crash Data attachment for existing accident rates for the project corridor. The project improvements have been chosen, not only through community involvement, but for their effectiveness at reducing vehicle/pedestrian incidents, as well as reducing the severity of said incidents when they do occur. FHWA's Crash Modification Factor Clearinghouse was used to analyze the projects potential effect on accident/fatality rates.

Safety Benefit #2

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?

See Crash Data attachment for existing accident rates for the project corridor. The project improvements have been chosen, not only through community involvement, but for their effectiveness at reducing vehicle/pedestrian incidents, as well as reducing the severity of

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said incidents when they do occur. FHWA's Crash Modification Factor Clearinghouse was used to analyze the projects potential effect on accident/fatality rates.

BICYCLE FACILITIES

County: Kern

Federal Number:

Approval Date:

Caltrans DIST-EA: 6

Short Description: Niles Street Complete Street Improvements

Project Scope: Construction of Class I Bike Lanes along Niles Street

Project Sponsor:

Private Agency: No

CMAQ Funding: \$6,203,032 **Annual Auto Trips Reduced:** 20,202

Local Match: \$803,669 **Annual Auto VMT Reduced:** 36,363

Capital Recovery Factor: 0.07

Project Analysis Period: 20 years

Days (D): 365 days of use/year

Average Daily Traffic (ADT): 12,579 trips per day

Adjustment (A) on ADT: 0.0014

Credit (C) for

Activity Centers near project: 0.0030

***EMISSION
FACTORS:***

Auto Trip End Factor

Auto VMT Factor

ROG : 0.418 *grams per trip* 0.047 *grams per mile*

NO_x : 0.256 0.049

PM_{2.5} : 0.002 0.034

***EMISSION
REDUCTIONS:***

Pounds per Year

Kilograms per Day

ROG: 22 0.03

NO_x: 15 0.02

PM_{2.5}: 3 0.003

Total: 40 0.05

COST-EFFECTIVENESS OF:

CMAQ Funds: \$10,296.69 per pound \$20,593,378 per ton

All Funding Sources: \$11,630.74 per pound \$23,261,470 per ton

Table 3A. Average Auto Emission Factors - Gasoline

(Fleet of Light-Duty Passenger Vehicles, Light-Duty Trucks, and Motorcycles)

Analysis Period or Project Life	1-5 Years (2021-2025)	6-10 Years (2021-2030)	11-15 Years (2021-2035)	16-20 Years (2021-2040)
ROG				
VMT (g/mile)	0.061	0.055	0.051	0.047
commute trip ends (g/trip end)	0.652	0.564	0.499	0.449
average trip ends (g/trip end)	0.590	0.517	0.461	0.418
NOx				
VMT (g/mile)	0.083	0.066	0.056	0.049
commute trip ends (g/trip end)	0.313	0.272	0.247	0.229
average trip ends (g/trip end)	0.345	0.303	0.275	0.256
PM_{2.5}				
VMT (g/mile)	0.034	0.034	0.034	0.034
running exhaust only (g/mile)	0.001	0.001	0.001	0.001
tire and brake wear (g/mile)	0.005	0.005	0.005	0.005
road dust (g/mile)	0.028	0.028	0.028	0.028
commute trip ends (g/trip end)	0.003	0.003	0.003	0.002
average trip ends (g/trip end)	0.002	0.002	0.002	0.002
CO				
VMT (g/mile)	1.066	0.929	0.844	0.787
commute trip ends (g/trip end)	4.621	4.003	3.570	3.250
average trip ends (g/trip end)	3.954	3.477	3.138	2.887

Source: EMFAC2021 V1.0.2, average annual emissions, statewide vehicle fleet, 50% humidity, temperature 75 °F.

PM_{2.5}, road dust: statewide average annual PM_{2.5} emission factor is based on [US EPA's Compilation of Air Pollutant Emission Factors, Vol. 5 \(AP-42, Chapter 13.2.1, Jan. 2011\)](#), and [CARB's Miscellaneous Process Methodology 7.9, Entrained Paved Road Travel, Paved Road Dust](#) (updated Nov. 2016).

[PM_{2.5} = 0.15*PM₁₀]

Project Title:	Niles and Monterey Complete Streets Project	Sheet No.	
W.O. Number:	T3K326	Date Prepared:	6/4/2025
Description:	CMAQ Estimate - Niles Street from Virginia to Baker	Prepared By:	AC & VVW
		Checked By:	ND
		Approved By:	ND

Construction Phase

Item	Description	Quantity	Unit	Unit Cost	Total Cost
Demolition/Removals					
1	Clearing and Grubbing	8,400	SF	\$ 5.00	\$ 42,000.00
2	Remove Asphalt Concrete Pavement and Base	10,400	SY	\$ 12.00	\$ 124,800.00
3	Grind Asphalt Concrete (2" Depth)	137,100	SF	\$ 1.00	\$ 137,100.00
4	Remove Concrete Sidewalk	49,800	SF	\$ 3.00	\$ 149,400.00
5	Remove Concrete Curb Ramp	29	EA	\$ 1,200.00	\$ 34,800.00
6	Remove Concrete Curb and Gutter	5,250	LF	\$ 20.00	\$ 105,000.00
Demolition/Removals Subtotal					\$ 593,100.00
Civil					
7	Hot Mix Asphalt	850	TON	\$ 150.00	\$ 127,500.00
8	Rubberized Hot Mix Asphalt	1,660	TON	\$ 150.00	\$ 249,000.00
9	Aggregate Base	2,390	CY	\$ 100.00	\$ 239,000.00
10	Minor Concrete (Curb and Gutter)	6,100	LF	\$ 50.00	\$ 305,000.00
11	Minor Concrete (Sidewalk)	58,080	SF	\$ 10.00	\$ 580,800.00
12	Minor Concrete (Driveway)	80	CY	\$ 15.00	\$ 1,200.00
13	Minor Concrete (Colored Concrete Cycle Track)	42,040	SF	\$ 14.00	\$ 588,560.00
14	Minor Concrete (Curb Ramp)	44	EA	\$ 3,500.00	\$ 154,000.00
15	Detectable Warning Surface	16	EA	\$ 90.00	\$ 1,440.00
16	Minor Concrete (Bus Pad)	60	CY	\$ 400.00	\$ 24,000.00
17	Bike Ramp	14	EA	\$ 2,400.00	\$ 33,600.00
Civil Subtotal					\$ 2,304,100.00
Utilities					
25	Adjust Manhole to Grade	6	EA	\$ 2,000.00	\$ 12,000.00
Utilities Subtotal					\$ 12,000.00
Transit Facilities					
27	Relocate Bus Stop and Appurtenances	4	EA	\$ 10,000	\$ 40,000.00
Transit Facilities Subtotal					\$ 40,000.00
Drainage					
28	Construct Grated Line Drain	1,000	LF	\$ 360.00	\$ 360,000.00
29	Construct Parkway Drain	12	EA	\$ 4,500.00	\$ 54,000.00
30	Cap Existing Inlet and Install Cleanout	14	EA	\$ 10,000.00	\$ 140,000.00
31	Install 18" RCP	450	LF	\$ 320.00	\$ 144,000.00
32	Construct New Curb Inlet	12	EA	\$ 12,000.00	\$ 144,000.00
33	Construct New Grate Inlet with 1' Concrete Apron	1	EA	\$ 14,000.00	\$ 14,000.00
34	Construct Rock Swale	1,100	LF	\$ 60.00	\$ 66,000.00
35	Construct V-Ditch with Pervious Pavement	300	LF	\$ 40.00	\$ 12,000.00
Drainage Subtotal					\$ 934,000.00
Signing and Striping					
36	Continental Crosswalk - White	3,900	SF	\$ 10.00	\$ 39,000.00
37	Bicycle Ramp Chevrons	30	EA	\$ 50.00	\$ 1,500.00
38	Bike Pavement Marking Symbol with Arrow	26	EA	\$ 110.00	\$ 2,860.00
39	12" White (Limit Line)	390	LF	\$ 5.00	\$ 1,950.00
40	STOP	11	EA	\$ 220.00	\$ 2,420.00
41	Type VII Arrow (Left and Right)	18	EA	\$ 270.00	\$ 4,860.00
42	Yield Arrows	21	SF	\$ 30.00	\$ 630.00
43	Bicycle Yield Arrows	36	SF	\$ 16.00	\$ 576.00
44	Green Bike Hatch	2,000	SF	\$ 20.00	\$ 40,000.00
45	Two-Stage Turn Box	2	EA	\$ 80.00	\$ 160.00
46	6" White Line	685	LF	\$ 2.00	\$ 1,370.00
47	6" White Diagonals	1,260	LF	\$ 2.00	\$ 2,520.00
48	6" Yellow Diagonals	40	LF	\$ 2.00	\$ 80.00
49	White Lane Line, Detail 9	2,760	LF	\$ 2.00	\$ 5,520.00
50	Double Yellow, Detail 21	120	LF	\$ 4.00	\$ 480.00
51	White Edge Line, Detail 27B	2,200	LF	\$ 2.00	\$ 4,400.00
52	Channelizing Lane Line, Detail 38A	80	LF	\$ 2.00	\$ 160.00
53	Bike Lane Line, Detail 39	215	LF	\$ 2.00	\$ 430.00
54	White Dashed Bike Lane, Detail 39A	45	LF	\$ 2.00	\$ 90.00
55	Yellow Dashed Bike Lane, Detail 39A	2,940	LF	\$ 2.00	\$ 5,880.00
56	Remove and Relocate Existing Sign	36	EA	\$ 900.00	\$ 32,400.00
57	Furnish and Install New Sign and Post	17	EA	\$ 1,500.00	\$ 25,500.00
58	Install New Sign	9	EA	\$ 800.00	\$ 7,200.00
59	Remove Existing Sign and Post	20	EA	\$ 200.00	\$ 4,000.00
Signing and Striping Subtotal					\$ 183,986.00
Traffic Signal and RRFB					
60	RRFB Pole and Foundation	1	EA	\$ 15,000	\$ 15,000.00
61	Rectangular Rapid Flashing Beacon	4	EA	\$ 5,000	\$ 20,000.00
62	NEMA 3R Enclosure and Solar Panel	1	EA	\$ 8,000	\$ 8,000.00
63	Type 1-A Pole	15	EA	\$ 1,000	\$ 15,000.00
64	Type 15 Pole	2	EA	\$ 6,000	\$ 12,000.00
65	Type 19-2-100 Pole	7	EA	\$ 20,000	\$ 140,000.00
66	Type 19-4-100 Pole	1	EA	\$ 20,000	\$ 20,000.00
67	APS	26	EA	\$ 2,000	\$ 52,000.00
68	Countdown	24	EA	\$ 1,000	\$ 24,000.00
69	Signal Mast Arm (15')	7	EA	\$ 4,000.00	\$ 28,000.00
70	Signal Mast Arm (35')	1	EA	\$ 8,000.00	\$ 8,000.00
71	Luminaire Mast Arm (6')	12	EA	\$ 2,000.00	\$ 24,000.00
72	Luminaire Mast Arm (12')	1	EA	\$ 3,000.00	\$ 3,000.00
73	Type 1-A Pole Foundation	16	EA	\$ 2,000.00	\$ 32,000.00
74	Large Pole Foundation	8	EA	\$ 8,500.00	\$ 68,000.00
75	12" Vehicle Indication	27	EA	\$ 2,000.00	\$ 54,000.00

76	Bicycle Vehicle Head	3	EA	\$ 2,000.00	\$ 6,000.00
77	LED Luminaire	13	EA	\$ 800.00	\$ 10,400.00
78	Retroreflective Street Name Sign, Mast-Arm Mounted	9	EA	\$ 3,000.00	\$ 27,000.00
79	Sign, Pole Mounted	8	EA	\$ 800.00	\$ 6,400.00
80	#6 Pull Box	27	EA	\$ 3,000.00	\$ 81,000.00
81	3" PVC Conduit	360	LF	\$ 120.00	\$ 43,200.00
82	4" PVC Conduit	360	LF	\$ 130.00	\$ 46,800.00
83	2" PVC Conduit	240	LF	\$ 100.00	\$ 24,000.00
84	Loops	57	EA	\$ 1,000.00	\$ 57,000.00
85	Traffic Signal Cables	3	LS	\$ 15,000.00	\$ 45,000.00
86	12PR#19 Signal Interconnect Cable	1	LS	\$ 40,000.00	\$ 40,000.00
87	Video Detection System	3	EA	\$ 25,000.00	\$ 75,000.00
88	Traffic Signal Controller Cabinet Complete with Controller Assembly and Foundation	4	EA	\$ 15,000.00	\$ 60,000.00
89	120/240 V Type III-BF Electrical Service Enclosure Complete with Foundation	4	EA	\$ 10,000.00	\$ 40,000.00
Traffic Signal and RRFB Subtotal					\$ 1,084,800.00
Construction Item Subtotal					\$ 5,151,986.00
Mobilization			5%	\$	257,599.30
Traffic Control			5%	\$	257,599.30
Construction Support			10%	\$	515,198.60
Contingency			10%	\$	515,198.60
Escalation (6% per year until the mid-point of construction, assumed to be April 2027)			6%	\$	309,119.16
Total Construction Phase Cost					\$ 7,006,700.96

Safety Problem

Bakersfield ranks 7th for pedestrian fatalities per capita out of U.S. metropolitan areas.¹ The City's street network prioritizes vehicles at the expense of pedestrians and bicyclists. The residents in this Project area have a higher rate of non-vehicle means of transport to work compared to the City rates. Public transportation commuting to work rates range from 1.2-4.5%, while walking and bicycling to work average 4.87%. In contrast, citywide non-vehicle means of transport fell below 2%.

An analysis of crash data acquired from the Transportation Injury Mapping System (TIMS) between 2017 and 2021 showed there were 73 collisions resulting in injuries along the Niles Street corridor, an average of 14.6 per year. The same analysis reveals that 100 collisions resulting in injuries occurred along Monterey Street during the same period, for an average of 20 collisions per year. Within the five-year period, collisions that occurred at Niles Street resulted in 3 fatal/severe injuries and at Monterey Street 8 fatal/severe injuries. Table 2 provides the collisions categorized by mode and injury type.

Table 2 - Niles St Collisions and Injuries 2017-2021

By Mode	Fatal/Severe		Injuries		Property Damage Only		Total	
	Niles	Monterey	Niles	Monterey	Niles	Monterey	Niles	Monterey
Vehicles	2	4	67	88	51	27	120	119
Pedestrian	1	2	1	1	-	-	2	3
Bicyclist	0	2	2	3	-	-	2	5

According to the High-Injury Network analysis of the citywide roadways, the highest occurring collision type involved vehicle/pedestrian collisions (36%)² while the highest occurring primary collision factors were automobile right-of-way (23%) and unsafe speed (17%). Within the project area the highest recorded primary causes of collisions during this study period were Traffic Signal and Signs at 45% and Automobile Right-of-Way at 24%. Traffic Signal and Sign violations indicate drivers are not stopping or following traffic signals. Automobile Right of way indicates a driver failed to yield the right of way.

Safety Impact Assessment

The Project proposes traffic calming measures that are low-cost, high-impact strategies and prioritize pedestrian and bicycle mobility such as curb extensions (bulbouts), a reduction in vehicle travel lanes and addition of dedicated bicycle facilities.

The travel lane widths will be reduced to 11' wide and on-street parking will be maintained providing an additional buffer between bicyclists and vehicles. A two-way cycle track, separated bikeway, will allow bike travel in both directions on one side of the road, as shown in **Figure 2** and **Figure 3**. Bus bulbouts, which are curb extensions aligned with the parking lane, will be installed to enhance travel reliability.

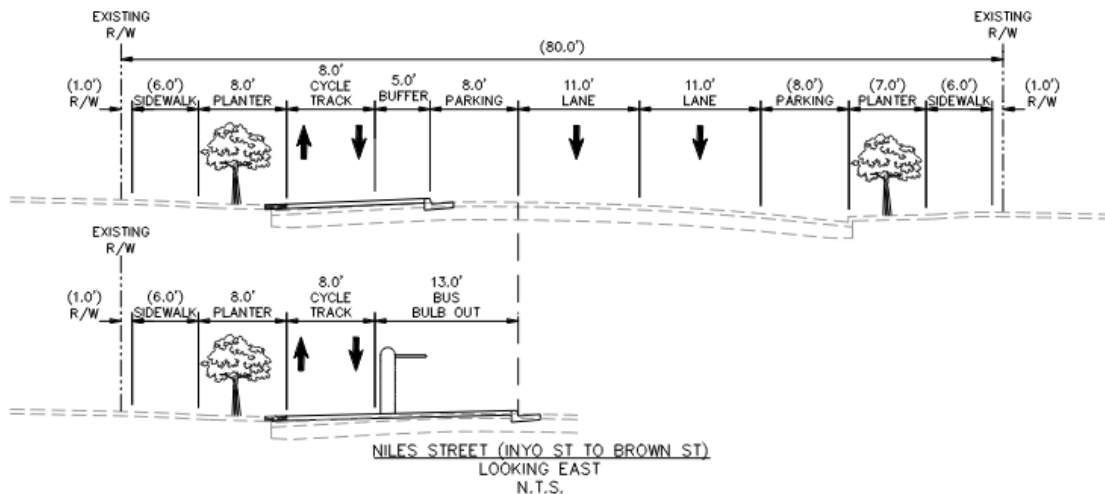


Figure 2 - Proposed Cross Section - Niles Street (Inyo St to Brown St)

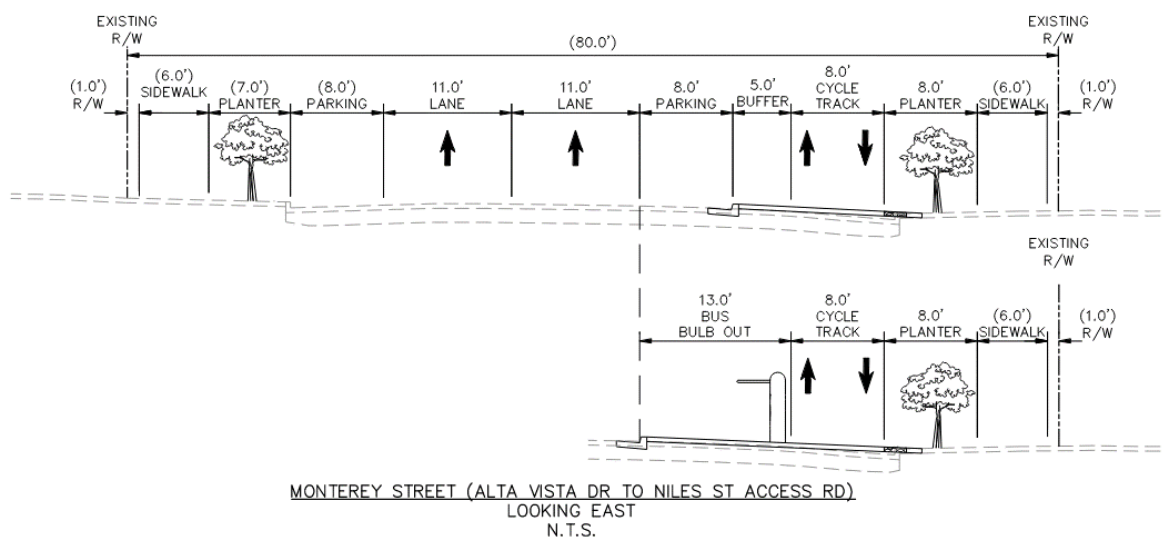


Figure 3 - Proposed Cross Section - Monterey Street (Alta Vista Dr to Niles St Access Rd)

Improvements such as enhanced pedestrian crossings, curb bulbouts, high visibility crosswalks, and green bike lane pavement markings promote a multimodal corridor that increases the visibility of pedestrians and cyclists by raising the awareness of drivers of potential conflicts. **Figure 4** illustrates the proposed improvements at an unsignalized intersection.

LEGEND

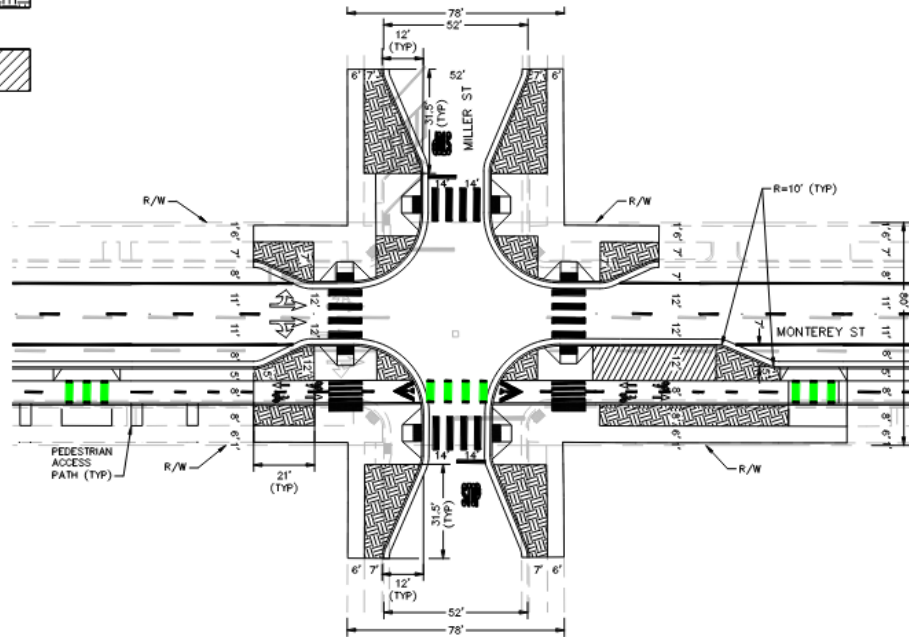


Figure 3 – Diagram of Improvements at Monterey St and Miller St

The proposed Project improvements’ impact on roadway safety conditions was measured using the proven safety countermeasures listed in **Table 3**. These Crash Modification Factors (CMF) were selected from the California Department of Transportation’s (Caltrans) 2022 Local Safety Roadway Manual² (LSRM) and The Crash Modification Factors Clearinghouse³.

Table 3 – Proven Safety Countermeasures

ID	Countermeasure Name	Crash Modification Factor (CMF)	Crash Reduction Factor (CRF)	Expected Life Span
R33PB	Install Separated Bike lanes	0.55	45%	20
R01	Add Segment lighting	0.65	35%	20
R34PB	Install Sidewalk/Pathway (to avoid walking along roadway)	0.20	80%	20
R28	Install Edge-lines and Centerlines	0.75	25%	10
258	Installation of Colored Bicycle Lanes	0.61	39%	5
S21PB	Modifying signal phasing to implement a Leading Pedestrian Interval (LPI)	0.75	25%	20
NS22PB	Install Rectangular Rapid Flashing Beacon (RRFB)	0.65	45% ⁴	20

² [Local Roadway Safety: A Manual for California’s Local Road Owners, Version 1.6, April 2022](#)

³ <https://www.cmfclearinghouse.org/>

⁴ Percentage reflects average crash reduction between the LRSRM and the [CMF Clearinghouse](#)

ID	Countermeasure Name	Crash Modification Factor (CMF)	Crash Reduction Factor (CRF)	Expected Life Span
S20PB	Install advance stop bar before crosswalk (Bicycle Box)	0.85	15%	10

The Crash Reduction Factor (CRF) was used to determine the project improvement's effectiveness at reducing collisions at specific locations along the Project corridors. The corridor-wide improvements include the installation of the two-way bicycle track, the installation of green conflict bike lane pavement markings, corridor lighting, separate pedestrian pathway, and retroreflective pavement markings. This resulted in an average 45% reduction in accidents along both corridors, shown in **Table 4**. A full list of Countermeasure reductions per corridor is found in **Table 5**.

Table 4 - Summary of Corridor-wide Countermeasures

Corridor	Collisions	Average Crash Reduction Factor (CRF)	Annual Average Collisions	Annual Reduced Collisions
Niles Street	73	45%	14.6	6.5
Monterey Street	100	45%	20	9.0

The safety impact at the project intersections resulted in an average 25% reduction in accidents. These countermeasures focus on prioritizing pedestrian mobility and minimizing the potential of vehicle conflict. The CRF reductions were applied to the following collisions that had collision types that matched a corresponding countermeasure. The collisions used in this analysis were within 250' of the intersection.

Table 5 - Summary of Intersection Countermeasures

ID	Countermeasure	Collisions	Crash Reduction Factor (CRF)	Annual Average Collisions	Annual Reduced Collisions	Crash Type
Niles Street & Haley Street						
R28	Install Edge-lines and Centerlines	11	25%	2.20	0.55	ALL
Niles Street & Robinson Street						
R35PB	Install Pedestrian Crossings (with curb extensions)	1	35%	0.20	0.07	Pedestrian & Bicycle
Niles Street & Beale Avenue						
SB18PB	Install Pedestrian Crossings	3	25%	0.60	0.15	Pedestrian & Bicycle
Monterey Street & Baker Street						
SB18PB	Install Pedestrian Crossings	3	25%	0.60	0.15	Pedestrian & Bicycle

ID	Countermeasure	Collisions	Crash Reduction Factor (CRF)	Annual Average Collisions	Annual Reduced Collisions	Crash Type
Monterey Street & Robinson Street						
SB18PB	Install Pedestrian Crossings	1	25%	0.20	0.05	Pedestrian & Bicycle
Monterey Street & Beale Avenue						
SB18PB	Install Pedestrian Crossings	1	25%	0.20	0.05	Pedestrian & Bicycle
S20PB	Install Bicycle Box	1	15%	0.2	0.03	
Monterey Street & Alta Vista Drive						
SB18PB	Install Pedestrian Crossings	2	25%	0.40	0.10	Pedestrian & Bicycle
Niles Street & Baker Street						
S21PB	Modifying signal phasing to implement a Leading Pedestrian Interval (LPI)	1	25%	0.20	0.05	Pedestrian & Bicycle
Niles Street & Beale Avenue						
SB18PB	Install Pedestrian Crossings	1	25%	0.20	0.05	Pedestrian & Bicycle

In addition to the above, the ADA-compliant curb ramps to be installed at each intersection do not have a corresponding CMF/CRT but will nonetheless improve pedestrian access at these locations.

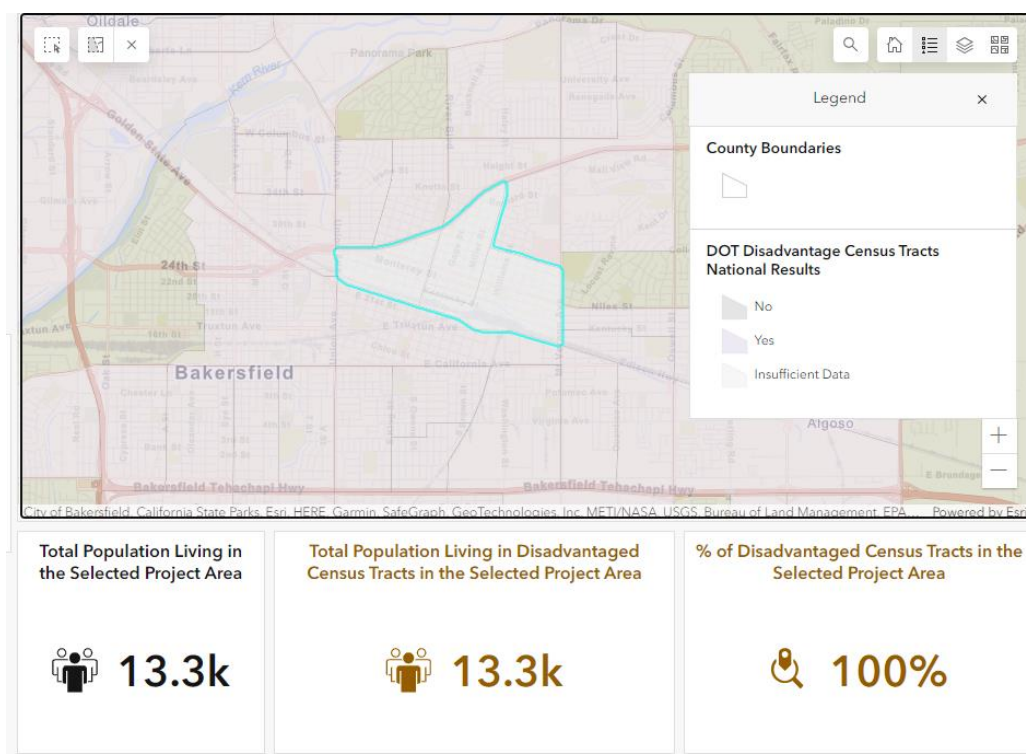


Figure 4 - USDOT Equitable Transportation Community (ETC) Map

Search Criteria

On Road = Niles Street

County = KERN

From 1/1/1900 To 12/31/2049 12:00:00 AM



Loc ID	County	Community	On	From	To	Approach	At	Dir	Directions	Category	LRS ID	LRS Loc Pt	Latitude	Longitude	Latest	Latest Date
126	KERN	Bakersfield	Niles Street			WEST OF	Virginia Street	2-WAY	EB/WB	Class			35.37847	-118.97624	12579	1/1/2024
636	KERN	Bakersfield	Niles Street			WEST OF	Tulare Street	1-WAY	WB	Class			35.383	-118.99514	4573	1/1/2024
637	KERN	Bakersfield	Niles Street			EAST OF	Baker Street	1-WAY	WB				35.38179	-118.99009	4351	1/1/2024
638	KERN	Bakersfield	Niles Street			EAST OF	Beale Avenue	1-WAY	WB				35.38112	-118.98728	6851	1/1/2024

Niles St, Complete Streets Project: LOS Analysis (HCM 2016 Methodology)

Complete Streets Project: Virginia St to Baker St

Before Proposed Improvements

Base Free Flow Speed	f_{LW}	f_{TLC}	f_M	f_A
40	0	0.9	0	2.5
Free Flow Speed (FFS) = 36.6				
<i>Note: FFS calculation is based on HCM 2016 Eq. 12-3. Adjustment factors f_{LW}, f_{TLC}, f_M, and f_A are referenced from HCM 2016 Exhibits 12-21, 12-22, 12-23, and 12-24, respectively. See HCM 2016 material in "References" tab.</i>				
Heavy Vehicle Factor	E_T	P_T		
	1.5	4		
$f_{HV} = 0.980$				
<i>Note: f_{HV} calculation is based on HCM 2016 Eq. 12-19. Factors P_T and E_T are referenced from Exhibits 12-25 in HCM 2016. See HCM 2016 References on following page.</i>				
Service Flow Rate	V (veh/hr)	N (lanes)	PHF	
	685	3	0.92	
$v_p = 253$				
<i>Note: Demand Volume, V, is based on 10% of half of the two-way AADT</i>				
Density (D) = V(p)/FFS = 7				
Level Of Service (LOS) = A				
<i>from HCM 2016 Exhibit 12-15</i>				

After Proposed Improvements

Base Free Flow Speed	f_{LW}	f_{TLC}	f_M	f_A
40	0	0.9	0	2.5
Free Flow Speed (FFS) = 36.6				
<i>Note: FFS calculation is based on HCM 2016 Eq. 12-3. Adjustment factors f_{LW}, f_{TLC}, f_M, and f_A are referenced from HCM 2016 Exhibits 12-21, 12-22, 12-23, and 12-24, respectively. See HCM 2016 References on following page.</i>				
Heavy Vehicle Factor	E_T	P_T		
	1.5	4		
$f_{HV} = 0.980$				
<i>Note: f_{HV} calculation is based on HCM 2016 Eq. 12-19. Factors P_T and E_T are referenced from Exhibits 12-25 in HCM 2016. See HCM 2016 References on following page.</i>				
Service Flow Rate	V (veh/hr)	N (lanes)	PHF	
	685	2	0.92	
$v_p = 380$				
<i>Note: Demand Volume, V, is based on 10% of half of the two-way AADT</i>				
Density (D) = V(p)/FFS = 10				
Level Of Service (LOS) = A				
from HCM 2016 Exhibit 12-15				