ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT

Centennial Corridor SB99 to WB58 Connector

Resolution TCEP-P-2526-07B
*(to be completed by CTC)*

## 1. FUNDING PROGRAM

- ☐ Active Transportation Program
- ☐ Local Partnership Program (Competitive)
- ☐ Solutions for Congested Corridors Program
- ☐ State Highway Operation and Protection Program
- ☑ Trade Corridor Enhancement Program

## 2. PARTIES AND DATE

2.1 This Project Baseline Agreement (Agreement) effective on 12/4/2025 (will be completed by CTC), is made by and between the California Transportation Commission (Commission), the California Department of Transportation (Caltrans), the Project Applicant, Kern Council of Governments, and the Implementing Agency, Caltrans, sometimes collectively referred to as the "Parties".

## 3. RECITAL

3.1 Whereas at its 12/7/2023 meeting the Commission approved the Trade Corridor Enhancement Program and included in this program of projects the Centennial Corridor SB99 to WB58 Connector, the parties are entering into this Project Baseline Agreement to document the project cost, schedule, scope and benefits, as detailed on the Project Programming Request Form attached hereto as ***Exhibit A***, the Project Report attached hereto as ***Exhibit B***, the Performance Metrics Form, if applicable, attached hereto as ***Exhibit C***, as the baseline for project monitoring by the Commission.

3.2 The undersigned Project Applicant certifies that the funding sources cited are committed and expected to be available; the estimated costs represent full project funding; and the scope and description of benefits is the best estimate possible.

## 4. GENERAL PROVISIONS

The Project Applicant, Implementing Agency, and Caltrans agree to abide by the following provisions:

4.1 To meet the requirements of the Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1, Chapter 5, Statutes of 2017) which provides the first significant, stable, and on-going increase in state transportation funding in more than two decades.

4.2 To adhere, as applicable, to the provisions of the Commission:

- ☐ Resolution _____, "Adoption of Program of Projects for the Active Transportation Program", dated _____
- ☐ Resolution _____, "Adoption of Program of Projects for the Local Partnership Program", dated _____
- ☐ Resolution _____, "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated _____
- ☐ Resolution _____, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated _____
- ■ Resolution G-22-46, "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated 6/29/2023

4.3 All signatories agree to adhere to the Commission's Guidelines. Any conflict between the programs will be resolved at the discretion of the Commission.

4.4 All signatories agree to adhere to the Commission's SB 1 Accountability and Transparency Guidelines and policies, and program and project amendment processes.

4.5 Kern Council of Governments agrees to secure funds for any additional costs of the project.

4.6 Kern Council of Governments agrees to report to Caltrans on a quarterly basis; on the progress made toward the implementation of the project, including scope, cost, schedule, and anticipated benefits/performance metric outcomes.

4.7 Caltrans agrees to prepare program progress reports on a on a semi-annual basis and include information appropriate to assess the current state of the overall program and the current status of each project identified in the program report.

4.8 Caltrans agrees to submit a timely Completion Report and Final Delivery Report as specified in the Commission's SB 1 Accountability and Transparency Guidelines.

4.9 Caltrans agrees to submit a timely Project Performance Analysis as specified in the Commission's SB 1 Accountability and Transparency Guidelines.

4.10 All signatories agree to maintain and make available to the Commission and/or its designated representative, all work related documents, including without limitation engineering, financial and other data, and methodologies and assumptions used in the determination of project benefits and performance metric outcomes during the course of the project, and retain those records for six years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.

4.11 The Inspector General of the Independent Office of Audits and Investigations has the right to audit the project records, including technical and financial data, of the Department of Transportation, the Project Applicant, the Implementing Agency, and any consultant or sub-consultants at any time during the course of the project and for six years from the date of the final closeout of the project, therefore all project records shall be maintained and made available at the time of request. Audits will be conducted in accordance with Generally Accepted Government Auditing Standards.

## 5. SPECIFIC PROVISIONS AND CONDITIONS

5.1 Project Schedule and Cost
See Project Programming Request Form, attached as Exhibit A.

5.2 Project Scope
See Project Report or equivalent, attached as Exhibit B. At a minimum, the attachment shall include the cover page, evidence of approval, executive summary, and a link to or electronic copy of the full document.

5.3 Performance Metrics
See Performance Metrics Form, if applicable, attached as Exhibit C.

5.4 Additional Provisions and Conditions *(Please attach an additional page if additional space is needed.)*

Section 4.5 of the baseline agreement may require a future amendment to include an additional entity once a funding source for the construction components is secured.

**Attachments:**

Exhibit A: Project Programming Request Form
Exhibit B: Project Report
Exhibit C: Performance Metrics Form *(if applicable)*

SIGNATURE PAGE
TO
PROJECT BASELINE AGREEMENT

Project Name: Centennial Corridor SB99 to WB58 Connector

Resolution: TCEP-P-2526-07B

*(to be completed by CTC)*

Ahron Hakimi — Digitally signed by Ahron Hakimi Date: 2023.10.17 16:22:14 -07'00' — 10/17/2023 Date

Kern Council of Governments

Ahron Hakimi

Project Applicant

Chris Gardner — Digitally signed by Chris Gardner Date: 2023.10.17 17:07:32 -07'00' — 10/17/2023 Date

Caltrans District 6

Chris Gardner

Implementing Agency

10/17/2023 Date

Diana Gomez

District Director

California Department of Transportation

11/27/2023 Date

Tony Tavares

Director

California Department of Transportation

12/16/2025 Date

Tanisha Taylor

Executive Director

California Transportation Commission

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

# PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6087-2023-0001 v9.1

Amendment (Existing Project) ☐ YES ☒ NO | Date 08/29/2025 16:55:17

Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☒ TCEP ☐ STIP ☐ Other

| District | EA | Project ID | PPNO | Nominating Agency | |
|---|---|---|---|---|---|
| 06 | 48468 | 0623000112 | 8030 | Caltrans District 6 | |
| **County** | **Route** | **PM Back** | **PM Ahead** | **Co-Nominating Agency** | |
| Kern County | 58 | T 52.265 R | 52.400 | Kern Council of Governments | |
| Kern County | 99 | 23.400 | 24.200 | **MPO** | **Element** |
| | | | | KCOG | Capital Outlay |
| **Project Manager/Contact** | | | **Phone** | **Email Address** | |
| Marlo Carlos | | | 559-383-5200 | marlo.carlos@dot.ca.gov | |

**Project Title**

Centennial Corridor SB99 to WB58 Connector

**Location (Project Limits), Description (Scope of Work)**

In Bakersfield at the Route 58 and 99 freeway interchange: the project constructs a freeway-to freeway connector at the SR 58 / 99 Interchange. The Project begins at the existing southbound SR 99 to eastbound SR 58 freeway connector, to form a direct connector on a curved alignment to westbound SR 58 on a new alignment.

| Component | Implementing Agency |
|---|---|
| PA&ED | Caltrans District 6 |
| PS&E | City of Bakersfield |
| Right of Way | City of Bakersfield |
| Construction | Caltrans District 6 |

**Legislative Districts**

| Assembly: | 34 | Senate: | 16 | Congressional: | 23 |
|---|---|---|---|---|---|

| Project Milestone | Existing | Proposed |
|---|---|---|
| Project Study Report Approved | | |
| Begin Environmental (PA&ED) Phase | 01/04/2023 | 01/04/2023 |
| Circulate Draft Environmental Document Document Type EIR/EIS | 07/03/2023 | 07/03/2023 |
| Draft Project Report | 11/30/2023 | 11/30/2023 |
| End Environmental Phase (PA&ED Milestone) | 10/17/2023 | 10/17/2023 |
| Begin Design (PS&E) Phase | 05/17/2024 | 12/04/2024 |
| End Design Phase (Ready to List for Advertisement Milestone) | 06/01/2026 | 10/01/2026 |
| Begin Right of Way Phase | 05/20/2024 | 01/15/2025 |
| End Right of Way Phase (Right of Way Certification Milestone) | 05/29/2026 | 09/16/2026 |
| Begin Construction Phase (Contract Award Milestone) | 11/26/2026 | 03/22/2027 |
| End Construction Phase (Construction Contract Acceptance Milestone) | 08/10/2028 | 07/03/2029 |
| Begin Closeout Phase | 08/11/2028 | 07/04/2029 |
| End Closeout Phase (Closeout Report) | 06/21/2032 | 05/16/2033 |

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# PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6087-2023-0001 v9.1

Date 08/29/2025 16:55:17

## Purpose and Need

This proposed connector will have independent utility and provide significant benefits to the community and to the nation's growing volume of travelers and truckers between these two Nationally Significant Corridors, moving freight and passengers through the community of Bakersfield and beyond. The Project will originate from southbound SR 99 traffic near Stockdale Highway and approaching the new SR 58 freeway connection in the northwest quadrant of the interchange. The new direct connector extends on a curved alignment through existing private commercial property to merge into existing westbound traffic on the newly constructed SR 58 gap-closure freeway. The no build scenario for the southbound SR 99 to westbound SR 99 requires transition movements onto the local street system sometimes up to 2 miles or more out of the way and going through more than 10 traffic signals. The proposed Connector will provide a final connector movement between the SR 99 and SR 58 freeway interchange that will allow for truck and auto traffic to avoid the local street system for the transition from one highway to another.

| NHS Improvements ☒ YES ☐ NO | Roadway Class 1 | Reversible Lane Analysis ☒ YES ☐ NO |
|---|---|---|

Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO  Reduce Greenhouse Gas Emissions ☒ YES ☐ NO

**Project Outputs**

| Category | Outputs | Unit | Total |
|---|---|---|---|
| Operational Improvement | Interchange modifications | EA | 1 |

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# PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID

ePPR-6087-2023-0001 v9.1

Date 08/29/2025 16:55:17

## Additional Information

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

# PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6087-2023-0001 v9.1

| Performance Indicators and Measures | | | | | | |
|---|---|---|---|---|---|---|
| **Measure** | **Required For** | **Indicator/Measure** | **Unit** | **Build** | **Future No Build** | **Change** |
| Congestion Reduction | TCEP | Change in Daily Vehicle Hours of Delay | Hours | 0 | 424 | -424 |
| | TCEP | Change in Daily Truck Hours of Delay | Hours | 0 | 42 | -42 |
| Throughput (Freight) | TCEP | Change in Truck Volume | # of Trucks | 140,991 | 140,991 | 0 |
| | TCEP | Change in Rail Volume | # of Trailers | 0 | 0 | 0 |
| | | | # of Containers | 0 | 0 | 0 |
| Velocity (Freight) | TCEP | Travel Time or Total Cargo Transport Time | Hours | 1,268,919 | 397,595 | 871,324 |
| Air Quality & GHG (only 'Change' required) | LPPC, SCCP, TCEP, LPPF | Particulate Matter | PM 2.5 Tons | 1 | 0 | 1 |
| | | | PM 10 Tons | 1 | 0 | 1 |
| | LPPC, SCCP, TCEP, LPPF | Carbon Dioxide (CO2) | Tons | 70,248 | 0 | 70,248 |
| | LPPC, SCCP, TCEP, LPPF | Volatile Organic Compounds (VOC) | Tons | 6 | 0 | 6 |
| | LPPC, SCCP, TCEP, LPPF | Sulphur Dioxides (SOx) | Tons | 1 | 0 | 1 |
| | LPPC, SCCP, TCEP, LPPF | Carbon Monoxide (CO) | Tons | 145 | 0 | 145 |
| | LPPC, SCCP, TCEP, LPPF | Nitrogen Oxides (NOx) | Tons | 27 | 0 | 27 |
| Safety | LPPC, SCCP, TCEP, LPPF | Number of Fatalities | Number | 0 | 0 | 0 |
| | LPPC, SCCP, TCEP, LPPF | Fatalities per 100 Million VMT | Number | 0 | 0 | 0 |
| | LPPC, SCCP, TCEP, LPPF | Number of Serious Injuries | Number | 5.653 | 6.667 | -1.014 |
| | LPPC, SCCP, TCEP, LPPF | Number of Serious Injuries per 100 Million VMT | Number | 158.626 | 187.06 | -28.434 |
| Economic Development | LPPC, SCCP, TCEP, LPPF | Jobs Created (Only 'Build' Required) | Number | 917 | 0 | 917 |
| Cost Effectiveness (only 'Change' required) | LPPC, SCCP, TCEP, LPPF | Cost Benefit Ratio | Ratio | 4.6 | 0 | 4.6 |

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# PROJECT PROGRAMMING REQUEST (PPR)

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PPR ID
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| District | County | Route | EA | Project ID | PPNO |
|---|---|---|---|---|---|
| 06 | Kern County, Kern County | 58, 99 | 48468 | 0623000112 | 8030 |

Project Title

Centennial Corridor SB99 to WB58 Connector

| Existing Total Project Cost ($1,000s) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Component | Prior | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30+ | Total | Implementing Agency |
| E&P (PA&ED) | 450 | | | | | | | 450 | Caltrans District 6 |
| PS&E | | 6,300 | | | | | | 6,300 | City of Bakersfield |
| R/W SUP (CT) | | 1,050 | | | | | | 1,050 | City of Bakersfield |
| CON SUP (CT) | | | | | 10,000 | | | 10,000 | Caltrans District 6 |
| R/W | | 4,970 | 2,130 | | | | | 7,100 | City of Bakersfield |
| CON | | | | | 54,900 | | | 54,900 | Caltrans District 6 |
| TOTAL | 450 | 12,320 | 2,130 | | 64,900 | | | 79,800 | |
| Proposed Total Project Cost ($1,000s) | | | | | | | | | Notes |
| E&P (PA&ED) | 450 | | | | | | | 450 | |
| PS&E | | 6,300 | | | | | | 6,300 | |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | 7,000 | 3,000 | | | 10,000 | |
| R/W | | 4,970 | 2,130 | | | | | 7,100 | |
| CON | | | | 32,900 | 22,000 | | | 54,900 | |
| TOTAL | 450 | 11,270 | 2,130 | 39,900 | 25,000 | | | 78,750 | |

| Fund #1: | Future Need - Future Funds (Uncommitted) | | | | | | | | Program Code |
|---|---|---|---|---|---|---|---|---|---|
| Existing Funding ($1,000s) | | | | | | | | | FUTURE |
| Component | Prior | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30+ | Total | Funding Agency |
| E&P (PA&ED) | | | | | | | | | |
| PS&E | | | | | | | | | Contingent on 2024 TCEP application (i.e. future TCEP/SB1 cycle funds) |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | 7,000 | | | 7,000 | |
| R/W | | | | | | | | | |
| CON | | | | | 32,900 | | | 32,900 | |
| TOTAL | | | | | 39,900 | | | 39,900 | |
| Proposed Funding ($1,000s) | | | | | | | | | Notes |
| E&P (PA&ED) | | | | | | | | | This fund zeroed out, see TCEP State and Regional Requests |
| PS&E | | | | | | | | | |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | | | | | |
| R/W | | | | | | | | | |
| CON | | | | | | | | | |
| TOTAL | | | | | | | | | |

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

# PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6087-2023-0001 v9.1

| Fund #2: | State SB1 TCEP - Trade Corridors Enhancement Account (Committed) | | | | | | | | Program Code |
|---|---|---|---|---|---|---|---|---|---|
| Existing Funding ($1,000s) | | | | | | | | | 20.XX.723.200 |
| Component | Prior | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30+ | Total | Funding Agency |
| E&P (PA&ED) | | | | | | | | | |
| PS&E | | 4,410 | | | | | | 4,410 | Contingent on 2022 TCEP Revision at allocation (vote box)$4970 RW voted 10/17/24 $4410 PSE voted 06/27/24 |
| R/W SUP (CT) | | 1,050 | | | | | | 1,050 | |
| CON SUP (CT) | | | | | | | | | |
| R/W | | 4,970 | | | | | | 4,970 | |
| CON | | | | | | | | | |
| TOTAL | | 10,430 | | | | | | 10,430 | |
| Proposed Funding ($1,000s) | | | | | | | | | Notes |
| E&P (PA&ED) | | | | | | | | | PS&E voted June 2024 CTC meeting RW voted October 2024 CTC meeting |
| PS&E | | 4,410 | | | | | | 4,410 | |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | | | | | |
| R/W | | 4,970 | | | | | | 4,970 | |
| CON | | | | | | | | | |
| TOTAL | | 9,380 | | | | | | 9,380 | |

| Fund #3: | RIP - National Hwy System (Committed) | | | | | | | | Program Code |
|---|---|---|---|---|---|---|---|---|---|
| Existing Funding ($1,000s) | | | | | | | | | 20.XX.075.600 |
| Component | Prior | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30+ | Total | Funding Agency |
| E&P (PA&ED) | | | | | | | | | Kern Council of Governments |
| PS&E | | 1,890 | | | | | | 1,890 | Financial Contribution Only 2024 RTIP includes new RIP Programming$1890 PSE voted 06/27/24 $2130 RW voted 10/17/24 |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | 3,000 | | | 3,000 | |
| R/W | | | 2,130 | | | | | 2,130 | |
| CON | | | | | 22,000 | | | 22,000 | |
| TOTAL | | 1,890 | 2,130 | | 25,000 | | | 29,020 | |
| Proposed Funding ($1,000s) | | | | | | | | | Notes |
| E&P (PA&ED) | | | | | | | | | Financial Contribution Only PS&E voted June 2024 CTC meeting RW voted October 2024 CTC meeting CON support and CON programmed in FY 27/28, expect to request advance allocation (similar to PS&E and RW) |
| PS&E | | 1,890 | | | | | | 1,890 | |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | 3,000 | | | 3,000 | |
| R/W | | | 2,130 | | | | | 2,130 | |
| CON | | | | | 22,000 | | | 22,000 | |
| TOTAL | | 1,890 | 2,130 | | 25,000 | | | 29,020 | |

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

# PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6087-2023-0001 v9.1

| Fund #4: | Local Funds - City Funds (Committed) | | | | | | | | Program Code |
|---|---|---|---|---|---|---|---|---|---|
| Existing Funding ($1,000s) | | | | | | | | | 20.10.400.100 |
| Component | Prior | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30+ | Total | Funding Agency |
| E&P (PA&ED) | 450 | | | | | | | 450 | City of Bakersfield |
| PS&E | | | | | | | | | $450 for EIR Addendum<br>EIR was completed with EA 48460 |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | | | | | |
| R/W | | | | | | | | | |
| CON | | | | | | | | | |
| TOTAL | 450 | | | | | | | 450 | |
| Proposed Funding ($1,000s) | | | | | | | | | Notes |
| E&P (PA&ED) | 450 | | | | | | | 450 | $450 for EIR Addendum<br>EIR was completed with EA 48460 |
| PS&E | | | | | | | | | |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | | | | | |
| R/W | | | | | | | | | |
| CON | | | | | | | | | |
| TOTAL | 450 | | | | | | | 450 | |
| Fund #5: | SB1 TCEP - State (Uncommitted) | | | | | | | | Program Code |
| Existing Funding ($1,000s) | | | | | | | | | |
| Component | Prior | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30+ | Total | Funding Agency |
| E&P (PA&ED) | | | | | | | | | |
| PS&E | | | | | | | | | |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | | | | | |
| R/W | | | | | | | | | |
| CON | | | | | | | | | |
| TOTAL | | | | | | | | | |
| Proposed Funding ($1,000s) | | | | | | | | | Notes |
| E&P (PA&ED) | | | | | | | | | Funding is now committed, but the ePPR system currently does not allow the fund to show as committed. |
| PS&E | | | | | | | | | |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | | | | | |
| R/W | | | | | | | | | |
| CON | | | | 15,960 | | | | 15,960 | |
| TOTAL | | | | 15,960 | | | | 15,960 | |

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

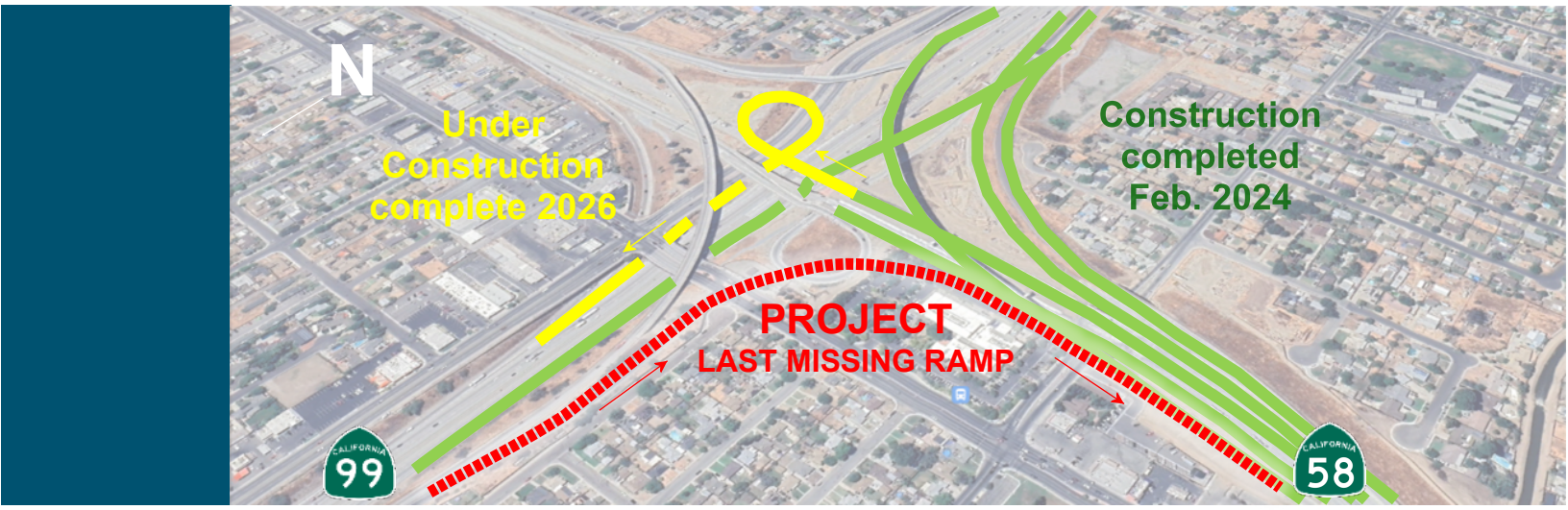
# PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID

ePPR-6087-2023-0001 v9.1

| Fund #6: | SB1 TCEP - Regional (Uncommitted) | | | | | | | | Program Code |
|---|---|---|---|---|---|---|---|---|---|
| Existing Funding ($1,000s) | | | | | | | | | |
| Component | Prior | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30+ | Total | Funding Agency |
| E&P (PA&ED) | | | | | | | | | |
| PS&E | | | | | | | | | |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | | | | | | |
| R/W | | | | | | | | | |
| CON | | | | | | | | | |
| TOTAL | | | | | | | | | |
| Proposed Funding ($1,000s) | | | | | | | | | Notes |
| E&P (PA&ED) | | | | | | | | | Funding is now committed, but the ePPR system currently does not allow the fund to show as committed. |
| PS&E | | | | | | | | | |
| R/W SUP (CT) | | | | | | | | | |
| CON SUP (CT) | | | | 7,000 | | | | 7,000 | |
| R/W | | | | | | | | | |
| CON | | | | 16,940 | | | | 16,940 | |
| TOTAL | | | | 23,940 | | | | 23,940 | |




# SR 99 Kern Centennial Corridor Freeway Connector Ramp: SB 99 to WB 58

**Project Scope of Work –** Caltrans, in partnership with Kern Council of Governments (COG) and City of Bakersfield, with support from Congress, California Transportation Commission (CTC), and Kern County, propose the last missing ramp movement for the interchange at State Route (SR) 99 and SR 58 (Project). Project connects SR 99 and SR 58 on a curved, partially elevated, alignment in the northwest quadrant of the interchange. Planned goods movement, complete streets, and transit enhnancements are enabled by this project.

**Project Need –** Project completes the interchange connecting the West Coast's busiest north-south and east-west truck routes (SR 99 & SR 58). SR 58 is the only year-round, all-weather trans-Sierra route connecting Interstate (I)-40 to I-5, handling 24% more trucks than I-80 Donner Pass. Project completes a resiliency route for these national freight corridors, enhancing access to three planned inland ports that could divert up to 5,000 trucks per day to rail from Southern California's highways headed to/from the Ports of Los Angeles/Long Beach. Project provides an important resileincy route for the Wondeful Industrial Park inland port in Shafter scheduled to begin service in 2025. Project improves ontime transit performance by providing a route around an at-grade railroad crossing. Stop-and-go traffic and emissions on local arterials will be reduced, making facilities friendlier to active transportation. Project benefits access to the new WattEV solar-electric truck stop.

**Connecting National Freight Routes & Inland Ports**


**Project Location –** Located at the central crossroads of California, in the State's 9th largest city, the Bakersfield interchange connects SR 99 and SR 58, at Post Mile (PM) 23.6 on SR 99, and PM 52.2 on SR 58.

**Innovative Partnership –** Project is the last piece of the long-planned Centennial Corridor, enabled by the congressionally directed spending (CDS) of the Thomas Roads Improvement Program (TRIP), a unique partnership between Caltrans, Bakersfield, Kern County, and Kern COG. The 7th movement from EB SR 58 to NB SR 99 was funded by $30M in Regional Improvement Progam (RIP) and local funds. This 8th movement is funded by an additional $29M in RIP and $9M in TCEP funds for design and right-of-way. As of October 2024, the 8th movement has $25.5M pending in CDS and federal competitive grant program funds and needs up to $39.9M in TCEP funding for construction.

## Project Benefits –

- Connects one of the SB 671 CTC Clean Freight Corridor Efficiency Assessment, Top Six Corridors (SR 99) with one of the Assessment's Key Connecting Routes (SR 58).
- Completes a nationally significant freeway interchange: improving freight, transit, and passenger travel time reliability.
- Serves multimodal freight transportation facilities (air/rail), and three planned inland ports.
- Creates safer roadways in local disadvantaged communities by shifting through traffic onto a direct freeway-to-freeway connector.
- Reduces greenhouse gas emissions over the project life with no projected increase in Vehicle Miles Travelled (VMT).
- Protects local disadvantaged neighborhoods from heavy truck traffic and harmful criteria air pollutants on local roadways.

**Supports the nation's first off-grid, solar-electric truck charging stop opened in 2024 by WattEV (40 stalls)**

## Project Cost, Schedule, & Outputs –

### COST

| PHASE | AMOUNT |
|---|---|
| Project Approval and Environmental Document (PA&ED) | $450,000 |
| Preliminary Specifications and Engineering (PS&E) | $6,300,000 |
| Right Of Way (R/W) | $4,970,000 |
| Construction | $64,900,000 |
| **TOTAL PROJECT COST** | $76,620,000 |

### SCHEDULE

| MILESTONE | DATE |
|---|---|
| PA&ED Certification | October 2023 |
| PS&E Completion | September 2026 |
| R/W Completion | September 2026 |
| Begin Construction | May 2027 |
| **OPEN TO TRAFFIC** | August 2029 |

### OUTPUTS

- ✓ Construct 0.55 miles of a direct, elevated freeway-to-freeway connector on SR 99 to SR 58.

## Aligning with the California Action Plan for Transportation Infrastructure (CAPTI)

### INFRASTRUCTURE, ECONOMY, AND SAFETY

Project ensures travel-time reliability and access between two freeways on the National Highway Freight Network, connecting the primary California north-south interstate (I-5) with a primary national east-west interstate (I-40). Project expands access to three planned SoCal inland port facilities and zero-emission truck infrastructure in Kern County.

Project improves safety by moving traffic from local roadways to a dedicated freeway connector, removing possibilities of collisions at local road intersections and at-grade railroad crossings. For active transportation users, Project reduces the number of vehicles on local roadways, creating a safer environment for multimodal transportation.

### TRANSPORTATION EQUITY AND ACCESSIBILITY

Project would remove heavy duty truck and vehicle traffic off local streets, protecting disadvantaged community neighbors from exposure to harmful air criteria pollutants.

By removing heavy-duty truck and vehicle traffic, Project provides for complete street improvements to be made on Rosedale Highway in Bakersfield, providing multimodal options for non-motorized travel. Project development is underway.

### ENVIRONMENT AND CLIMATE

Project does not generate additional Vehicle Miles Traveled (VMT) and is shown to reduce criteria air pollutant and greenhouse gas emissions over the 20-year project life compared to a no-build scenario.

### QUALITY OF LIFE AND PUBLIC HEALTH

Project will create better transit reliability, safer active transportation on local roadways, and reduce the exposure of residents to pollutants. Project leads to more efficient mobility which increases quality of life by better connecting people with places of interest and jobs.

### CONTACTS

CALTRANS PROJECT MANAGER
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(559)383-5200

KERN COG
ROB BALL
rball@kerncog.org
(661)635-2902

# Appendix A: Performance Metrics

**Project ID:** **EA: 06-48468**

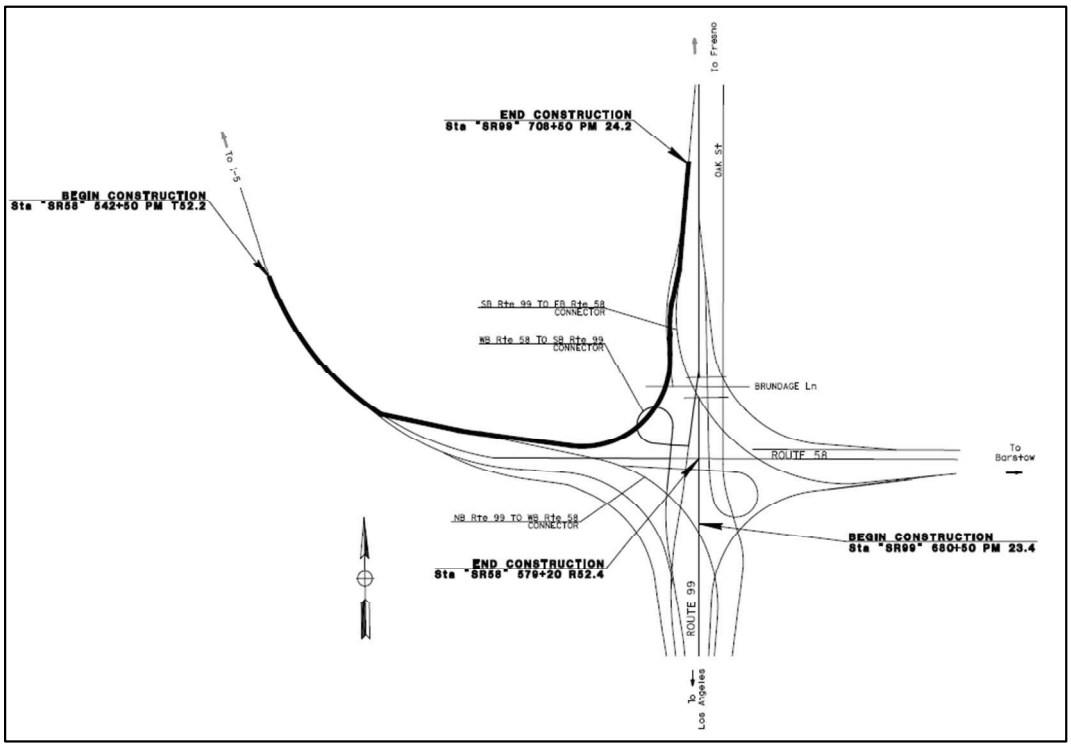
**Source Data: Cal B/C Sketch Model v8.1**

| | |
|---|---|
| Existing Average Annual Vehicle Volume | 1,412,046 |
| Existing Average Annual Truck Percent on Project Segement | 9% |
| Esimated Year 20 Average Annual Vehicle Volume on Project Segment with Project | 1,425,571 |
| Estimated Year 20 Average Annual Truck Percent on Project Segment | 9% |

| Performance Metric | Future No Build | Built | Change | Methodology |
|---|---|---|---|---|
| Change in Daily Vehicle Hours of Delay | 424 | 0 | -424 | Annual Avg. Vol. multiply by (Avg. Travel Time minus Free-Flow Travel Time) divide by 365<br>Avg. Travel Time = Impacted Length divided by Avg. Speed Limit<br>Free-Flow Travel Time = Impacted Length divided by Posted Speed Limit |
| Change in Daily Truck Hours of Delay | 42 | 0 | -42 | Avg. Truck Volume multiply by (Avg. Truck Travel Time minus Truck Free-Flow Travel Time) divide by 365 |
| Change in Truck Volume (# of Truck) | 140,991 | 140,991 | 0.00 | Truck Avg. Volume from BCA Travel Time Tab |
| Change in Rail Volume | N/A | N/A | N/A | N/A |
| Truck Travel Time Reliability Index | N/A | N/A | N/A | N/A |
| Velocity | 397,595 | 1,268,919 | 871,324 | Impacted Length multiply by Avg. Speed multiply by Avg. Volume |
| Number of Serious Injures | 6.667 | 5.653 | -1.013 | No Build - Avg. Number of Fatalities & Serious per year from TSAR 5 years. |
| Number of Fatalities | 0.000 | 0.000 | 0.000 | 'Build - 'No Build' Avg. Number of Fatalities & Serious multiply by [100% minus ('No Build' Rates minus 'Build' Rates)] from BCA Section 1C |
| Rate of Serious Injuries per 100 Million VMT | 187.060 | 158.626 | -28.433 | Avg. Number of Serious Injuries per year divided by VMT, then multiply by 100,000,000 |
| Rates of Fatalities per 100 Million VMT | 0.000 | 0.000 | 0.000 | Avg. Number of Fatalities per year divided by VMT, then multiply by 100,000,000 |
| Air Quality | | | | From BCA Results Tab |
| - Carbon Monoxide (CO) | 0 | 145 | 145 | |
| - Carbon Dioxide ($CO_2$) | 0 | 70,248 | 70,248 | |
| - Nitrogen Oxides ($NO_X$) | 0 | 27 | 27 | |
| - Particulate Matter PM 2.5 | 0 | 1 | 1 | |
| - Particulate Matter PM 10 | 0 | 1 | 1 | |
| - Sulphur Dioxides ($SO_X$) | 0 | 1 | 1 | |
| - Volatile Orangic Compounds (VOC) | 0 | 6 | 6 | |
| Cost Effectiveness (Benefit Cost Ratio) | 0 | 4.6 | 4.6 | From BCA Results Tab |
| Jobs Created | 0 | 917 | 917 | Project Cost multiply by 0.000013 jobs per dollar |

06-Ker-58 PM T52.2/R52.4
06-Ker-99 PM 23.4/24.2
EA 06-48468
EFIS Number 06-2300-0112
PPNO 8030

# SUPPLEMENTAL PROJECT REPORT




On Route 58 and 99 In Kern County and the City of Bakersfield

From On Route 58 0.1 Miles West of Ford Ave UC
To On Route 58 at Route 58/99 Separation
From On Route 99 0.1 Miles North of Brundage Lane OC
To On Route 99 at Route 58/99 Separation

APPROVAL RECOMMENDED:

Marlo Carlos

Marlo Carlos
*PROJECT MANAGER*

APPROVED:

Diana Gomez
*DISTRICT 6 DIRECTOR*

10/17/2023
*DATE*

06-Ker-58 PM T52.2/R52.4
06-Ker-99 PM 23.4/24.2
EA 06-48468
EFIS Number 06-2300-0112
PPNO 8030

This Supplemental Project Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Matthew Brash

*REGISTERED CIVIL ENGINEER*

10/13/2023
*DATE*

The purpose of this Supplemental Project Report is to document a revision to the Centennial Corridor Project (EA 06-48460). The Centennial Corridor Project original Project Report (PR) was signed on 12/4/2015. The improvements are on State Route 58 (SR 58) from 0.1 miles west of Mohawk St to Cottonwood Road and on State Route 99 (SR 99) from 0.8 miles south of SR 58 to 0.3 miles north of SR 58. The Project has been broken out into the following phased delivery projects in-order to avoid delay of critical improvements on SR 58 and SR 99:

- 06-48460 – Centennial Corridor
- 06-48461 – Beltway Operational Improvements
- 06-48462 – SR-99/Rosedale Hwy Auxiliary Lane
- 06-48463 – Kern River Bridge Improvements
- 06-48464 – Belle Terrace
- 06-48465 – Stockdale/Enos Roundabout
- 06-48466 – Bakersfield Freeway Connector
- 06-48467 – Eastbound (EB) to Northbound (NB) Loop Connector

There have also been several local advance packages that include the following projects:

- Westpark Sewer – Relocated sewer running along Corridor from California Ave to Stockdale Hwy
- Westpark Local Streets – Constructed cul-de-sacs and local street realignment from California Ave to Stockdale Hwy
- Westpark Sound Walls – Constructed sound walls from Montclair St to Joseph Drive

The original PR report did not include direct connectors for the following movements:

- EB SR 58 to NB SR 99
- Southbound (SB) SR 99 to Westbound (WB) SR 58

For these movements, the original PR stated that these direct connectors would primarily service regional traffic while interregional traffic passing through the triangle area formed by SR 99, I-5, and SR 58 would use shorter and more direct routes instead of the connectors. At the time of preparation of the PR, the volumes forecasted for utilization of these direct connectors for regional traffic was deemed to be too low to justify construction of direct connectors. In the interim, traffic would use Rosedale Highway and Mohawk Street for these movements. Since this time, the metropolitan Bakersfield area has continued to develop and updated traffic forecasts have shown the need for director connectors. This project will construct a SB SR 99 to WB SR 58 direct connector to complement the reciprocal EB SR 58 to SB SR 99 direct connector movement, which was built by the Bakersfield Freeway Connector Phase.

Proposed Improvements

The proposed SB SR 99 to WB SR 58 Connector Project is situated within Kern County, Bakersfield, California. This project entails the construction of a direct freeway to freeway connector for SB SR 99 to WB SR 58. The proposed connector will exit from the existing SB SR 99 to EB SR 58 branch connector utilizing a flyover bridge viaduct going over Stockdale Highway, the WB SR 58 to SB SR 99 loop connector and Real Road. The proposed viaduct bridge will connect into the existing NB SR 99 to WB SR 58 branch connector prior to merging with WB SR 58. In the existing condition, a lane is dropped at the merge point,

however a 470 ft auxiliary lane will be constructed to facilitate merging with WB SR 58. Appendix B includes the Project Plans and Appendix G includes the Structures Advanced Planning Studies. In addition to the proposed connector viaduct, 3 retaining walls are proposed.

Environmental
An Addendum to the original Environmental Impact Report and revalidation of the original Environmental Impact Statement was prepared on 9/28/23. A copy of the Addendum and revalidation is included in Appendix L.

Right-of-Way
The project will require acquisition for (5) parcels from (3) owners. Three parcels will require a temporary construction easement along with a partial acquisition to support the proposed viaduct structure. It is assumed that the area under the viaduct will be leased back to the parcel owner. The two parcels located to the west of Real Road will require a partial acquisitions, permanent easements for a retaining wall, and temporary construction easements. The retaining wall will result in an 18 foot pinch point along the driveway. The driveway will be changed to one way access and it is assumed that an access easement will be obtained from the adjacent property to provide access from Stockdale Highway. There is an existing City of Bakersfield sewer lateral located in the driveway of these parcels that will have to be relocated to avoid the proposed retaining wall footing. There is also (1) PG&E overhead pole that will need to be relocated along Real Road. The parcel owned by Cal Water will require that the generator under the proposed viaduct structure be relocated.

Cooperative Agreements
A cooperative agreement with the City of Bakersfield is needed and will be completed/signed prior to construction.

Nonstandard Features
Appendix C includes a list of the nonstandard features approved for this project and additional nonstandard features in which DSDDs will be prepared and approved concurrently with the preparation of the PS&E. A GAD Review and Interchange Review will be complete early in the design phase. Table 1 includes a summary of the nonstandard features:

| | | |
|---|---|---|
| **BOLD** | | |
| B01 | 202.2 (1) | Proposed SB-99 to WB-58 connector will tie into nonstandard superelevation rate for existing 2100' radius curve along SR-58. |
| B02 | 202.2 (1) | Proposed SB-99 to WB-58 connector bridge will have a emax of 10% |
| B03 | 203.1 | Nonstandard horizontal stopping sight distance along the proposed SB-99 to WB-58 connector. |
| B04 | 501.3 | Nonstandard interchange spacing on SR-58 between SR-99 and Truxtun Ave. |
| B05 | 501.3 | Nonstandard interchange spacing on SR-99 between SR-58 and California Ave. |
| B06 | 309.1(1) | Nonstandard horizontal stopping sight distance adjacent to objects, barriers, walls, or cut slopes |
| **UNDERLINED** | | |
| U01 | 504.3(5) | Proposed single-lane ramp exceeds the 1,000 ft max without providing an additional lane for passing maneuvers. |
| U02 | 201.7 & 504.2(4)(a) | Decision sight distance at freeway exit and along branch connections |
| U03 | 504.4(6) | Nonstandard length of auxiliary lane from the SB-99 to WB-58 connector to the lane drop along SR-58 . |
| U04 | 203.6 | Tangent length between reversing curves |
| U05 | 202.5(1) | Superelevation transition design |
| U06 | 202.5(2) | Superelevation runoff length (one-third/two-thirds) |

Table 1 – Nonstandard Features

Funding

This project is eligible for federal-aid funding. Additionally, it has been included in the 2023 FTIP. For additional funding sources see the following section.

Programming

The escalated Construction Capital and Right of Way estimate is $54.3M and $2.4M respectively. Programming documents will be updated accordingly before the end of the fiscal year. Appendix D includes the 11-page estimate.

| FUND SOURCE | FISCAL YEAR ESTIMATE | | | | | |
|---|---|---|---|---|---|---|
| 20.10.XXX.XX | 22/23 | 23/24 | 24/25 | 25/26 | Future | Total |
| **Component** | In thousands of dollars ($1,000) | | | | | |
| ***PA&ED Support*** | | *450*[1] | | | | *450* |
| ***PS&E Support*** | | | *2,500*[2] | | | *2,500* |
| ***Right-of-Way Support*** | | | *1,500*[2] | | | *1,500* |
| ***Construction Support*** | | | | *10,000*[3] | | *10,000* |
| ***Right-of-Way*** | | | *9,400*[2] | | | *9,400* |
| ***Construction*** | | | | *54,300*[3] | | *54,300* |
| ***Total*** | | *450* | *13,400* | *64,300* | | *78,150* |

Notes:

1) The PA&ED component is funded by the City of Bakersfield's local contribution.
2) The PS&E, Right of Way Support, and Right of Way components are funded by the State of CA Senate Bill 1 (SB1) 2022 Trade Corridor (TCEP) 20.30.210.310 along with matching state/regional funding, which was adopted in June 2023.
3) The construction components are anticipated to be funded from a combination of programming. This could include the regional and interregional portion of the State Transportation Improvement Program (STIP), Multimodal Project Discretionary Grant 3 (MPDG), and the 2024 TCEP cycle.

*The support to capital cost ratio is 22.5%. The escalation rate is 3.8% for construction capital costs in FY 25/26. An escalation rate of 3.5% for FY 24/25 and the subsequent years. Right of Way capital is escalated at 5%.

Traffic

The freeway operations analysis was performed for the diverge and merge influence areas and ramp roadways connecting SB SR 99 with WB SR 58 and is included as Appendix F. The connecting roadway segments include:

- SB SR 99 diverge influence area for ramps to SR 58
- SB to EB SR 58 ramp roadway
- SB to WB SR 58 ramp roadway
- NB to WB SR 58 ramp roadway
- Combined ramp roadway to WB SR 58
- WB SR 58 merge influence area for ramps from SR 99

The SB SR 99 diverge to SR 58 corresponding is analyzed under two conditions in the 2026 opening year.

- One Lane Exit - assumes the ramp maintains one lane as in the existing condition.
- Two Lane Exit - the exit ramp is widened to two lanes.

In the 2046 design year, the diverge from SB SR 99 is assumed to have been widened to two lanes. This improvement is not proposed as part of this project, but will be constructed as part of 06-0X370. The existing configuration consisting of a one lane exit is only considered for the opening year 2026 as 06-0X370 is not programmed to begin construction until early 2027.

Table 2 and Table 3 show the traffic volumes and capacities during peak hours for the analyzed mainline and ramp segments. These tables also include the opening year and horizon year data. Additionally, they present information on the Level of Service (LOS) and the Volume to Capacity (V/C) ratios. In cases where the LOS cannot be directly calculated for ramp segments, the V/C ratio is used as a performance measure to evaluate operational characteristics.

| Segment # | Location - Analysis - Condition | Year | Time | LOS | Flow (pc/h) | | Capacity (pc/h) | | Volume/Capacity (v/c) | Density (pc/mi/ln) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Freeway | Ramp | Freeway | Ramp | | |
| 1 | SB SR 99 to SR 58 off-ramp - diverge | | | | | | | | | |
| | 4 lanes mainline, 1 lane diverging off-ramp | 2026 | PM | F | 7,731 | 2,445 | 9,200 | 2,200 | 0.84 | 42.4 |
| | | 2026 | AM | B | 3,204 | 907 | 9,200 | 2,200 | 0.35 | 18.0 |
| | 4 lanes mainline, 2 lanes diverging off-ramp | 2026 | PM | C | 7,731 | 2,445 | 9,200 | 4,400 | 0.84 | 23.6 |
| | | 2026 | AM | A | 3,204 | 907 | 9,200 | 4,400 | 0.35 | 3.7 |
| | | 2046 | PM | F | 9,240 | 3,254 | 9,200 | 4,400 | 1.00 | - |
| | | 2046 | AM | A | 3,740 | 1,104 | 9,200 | 4,400 | 0.41 | 6.1 |
| | Critical Condition: | By 2026 during the PM peak hour, the forecasted volume exceeds the capacity for a single lane diverging off-ramp. Additionally, by 2046 the mainline forecasts exceed capacity of four lanes during the PM peak hour. | | | | | | | | |
| 6 | SR 99 ramp to WB SR 58 - merge | | | | | | | | | |
| | 3 lanes mainline, 2 lanes merging on-ramp | 2026 | PM | D | 4,410 | 2,452 | 6,900 | 4,400 | 0.99 | 33.8 |
| | | 2026 | AM | B | 2,077 | 1,130 | 6,900 | 4,400 | 0.46 | 13.7 |
| | | 2046 | PM | F | 5,497 | 2,708 | 6,900 | 4,400 | 1.19 | - |
| | | 2046 | AM | B | 2,622 | 1,285 | 6,900 | 4,400 | 0.57 | 17.3 |
| | Critical Condition: | By 2046 the mainline forecasts exceed capacity of three lanes during the PM peak hour. | | | | | | | | |

Table 2 – Mainline Diverge and Merge Operational Analysis Results

| Segment # | Location - Analysis - Condition | Year | Time | Flow (pc/h) | Capacity (pc/h) | Volume/Capacity (v/c) |
|---|---|---|---|---|---|---|
| 2 | SB ramp roadway to EB SR58 - capacity check | | | | | |
| | 1 lane ramp, ramp speed 55 mph (Segment 1 with 1 lane) | 2026 | PM | 1,831 | 2,200 | 0.83 |
| | | 2026 | AM | 706 | 2,200 | 0.32 |
| | 1 lane ramp, ramp speed 55 mph (Segment 1 with 2 lanes) | 2026 | PM | 1,831 | 2,200 | 0.83 |
| | | 2026 | AM | 706 | 2,200 | 0.32 |
| | | 2046 | PM | 2,469 | 2,200 | 1.12 |
| | | 2046 | AM | 893 | 2,200 | 0.41 |
| | Critical Condition: | By 2046 during the PM peak hour the forecasted volume exceeds the capacity for a single lane diverging off-ramp. | | | | |
| 3 | SB ramp roadway to WB SR58 - capacity check | | | | | |
| | 1 lane ramp, ramp speed 45 mph (Segment 1 with 1 lane) | 2026 | PM | 613 | 2,100 | 0.29 |
| | | 2026 | AM | 201 | 2,100 | 0.10 |
| | 1 lane ramp, ramp speed 45 mph (Segment 1 with 2 lanes) | 2026 | PM | 613 | 2,100 | 0.29 |
| | | 2026 | AM | 201 | 2,100 | 0.10 |
| | | 2046 | PM | 784 | 2,100 | 0.37 |
| | | 2046 | AM | 211 | 2,100 | 0.10 |
| | Critical Condition: | No critical condition. All forecasted volumes below capacity. | | | | |
| 4 | NB ramp roadway to WB SR58 - capacity check | | | | | |
| | 1 lane ramp, ramp speed 55 mph | 2026 | PM | 1,838 | 2,200 | 0.84 |
| | | 2026 | AM | 928 | 2,200 | 0.42 |
| | | 2046 | PM | 1,923 | 2,200 | 0.87 |
| | | 2046 | AM | 1,074 | 2,200 | 0.49 |
| | Critical Condition: | No critical condition. All forecasted volumes below capacity. | | | | |
| 5 | Ramp roadway to WB SR58 - capacity check | | | | | |
| | 2 lane ramp, ramp speed 55 mph | 2026 | PM | 2,452 | 4,400 | 0.56 |
| | | 2026 | AM | 1,130 | 4,400 | 0.26 |
| | | 2046 | PM | 2,708 | 4,400 | 0.62 |
| | | 2046 | AM | 1,285 | 4,400 | 0.29 |
| | Critical Condition: | No critical condition. All forecasted volumes below capacity. | | | | |

Table 3 – Ramp Connectors Operational Analysis Results

Risk

A Risk Management Plan (RMP) has been prepared to assess and respond to identified project risks for the duration of the project (See Attachment J).

Some of the most significant risks pertain to potentially missing the baseline agreement deadline and facing challenges in securing construction funding. To address these, mitigation strategies include collaborating closely with the PDT to meet the baseline agreement deadline and coordinating with stakeholders to submit grant applications for securing funding.

Schedule

Below is a table for the anticipated schedule of the project:

| Project Milestones | | Milestone Date (Month/Day/Year) | Milestone Designation (Target/Actual) |
|---|---|---|---|
| APPROVE FED | M160 | 09/28/2023 | Actual |
| PA&ED | M200 | 10/17/2023 | Target |
| BEGIN DESIGN | M210 | 05/17/2024 | Target |
| BRIDGE SITE DATA SUBMITTAL | M221 | 06/11/2024 | Target |
| RIGHT OF WAY REQUIREMENTS | M224 | 02/20/2024 | Target |
| REGULAR RIGHT OF WAY | M225 | 05/20/2024 | Target |
| PS&E TO DOE | M313 | 02/03/2025 | Target |
| 60% REVIEW COMPLETED | M325 | 08/04/2025 | Target |
| 95% REVIEW COMPLETED | M377 | 10/03/2025 | Target |
| RIGHT OF WAY CERTIFICATION | M410 | 05/29/2026 | Target |
| READY TO LIST | M460 | 06/01/2026 | Target |
| FUND ALLOCATION | M470 | 08/13/2026 | Target |
| HEADQUARTERS ADVERTISE | M480 | 09/07/2026 | Target |
| AWARD | M495 | 11/26/2026 | Target |
| APPROVE CONTRACT | M500 | 12/17/2026 | Target |
| CONTRACT ACCEPTANCE | M600 | 08/10/2028 | Target |
| END PROJECT EXPENDITURES | M800 | 09/30/2030 | Target |
| FINAL PROJECT CLOSEOUT | M900 | 06/21/32 | Target |

* Subject to approval of construction E-76 and/or CTC approval

Appendix

A. Vicinity Map
B. Project Plans
C. Nonstandard Feature List
D. 11-Page Cost Estimate
E. Right of Way Data Sheet
F. Traffic Forecasting and Traffic Operations Analysis Report
G. Structures Advanced Planning Study
H. Stormwater Data Report
I. Preliminary Drainage Report
J. Risk Registry
K. TMP Checklist
L. Centennial Corridor Connector Revalidation
M. Environmental Document (available upon request)
N. Centennial Corridor PR (available upon request)

Appendix A – Vicinity Map

APPROVED AS TO IMPACT ON STATE FACILITIES AND CONFORMANCE WITH APPLICABLE STATE STANDARDS AND PRACTICES AND THAT TECHNICAL OVERSIGHT WAS PERFORMED.

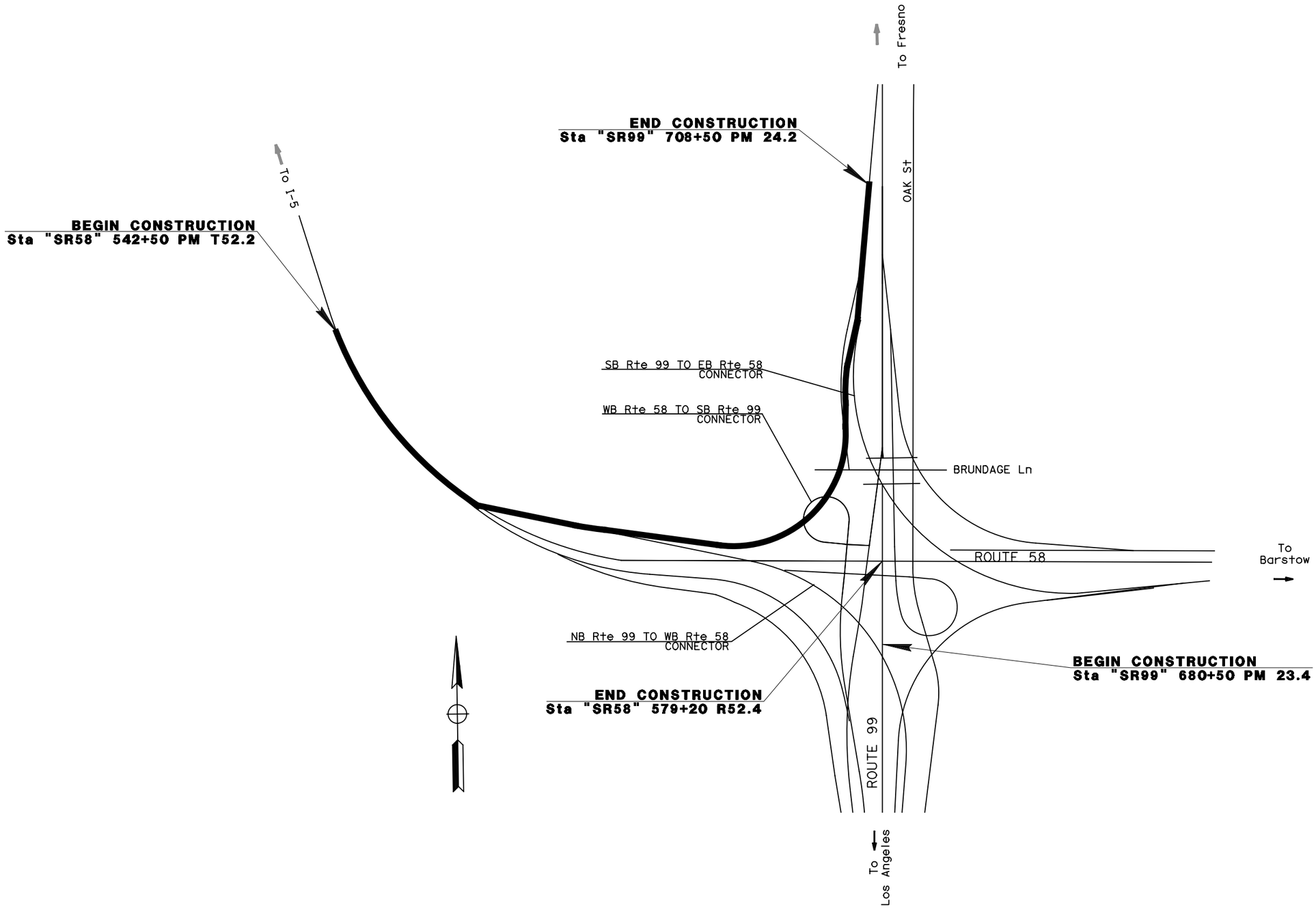
CONSULTANT DESIGN MANAGER
MATTHEW BRASH

CALTRANS DESIGN OVERSIGHT APPROVAL

REGISTRATION No.

LICENSE Exp DATE

DATE SIGNED




# PROJECT LOCATION MAP

# S99 TO W58 CONNECTOR

NO SCALE

LAST REVISION 00-00-00
DATE PLOTTED => 9/26/2023
TIME PLOTTED => 8:43:09 PM

BORDER LAST REVISED 8/1/2016 | CALTRANS WEB SITE IS: HTTP//WWW.DOT.CA.GOV/ | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => p001374A | DGN FILE => Project Location Map.dgn | UNIT 1477 | PROJECT NUMBER & PHASE 06230000831

Appendix B – Project Plans

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.


PARSONS
525 B STREET SUITE 1600
SAN DIEGO, CA 92101

CITY OF BAKERSFIELD
1600 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301

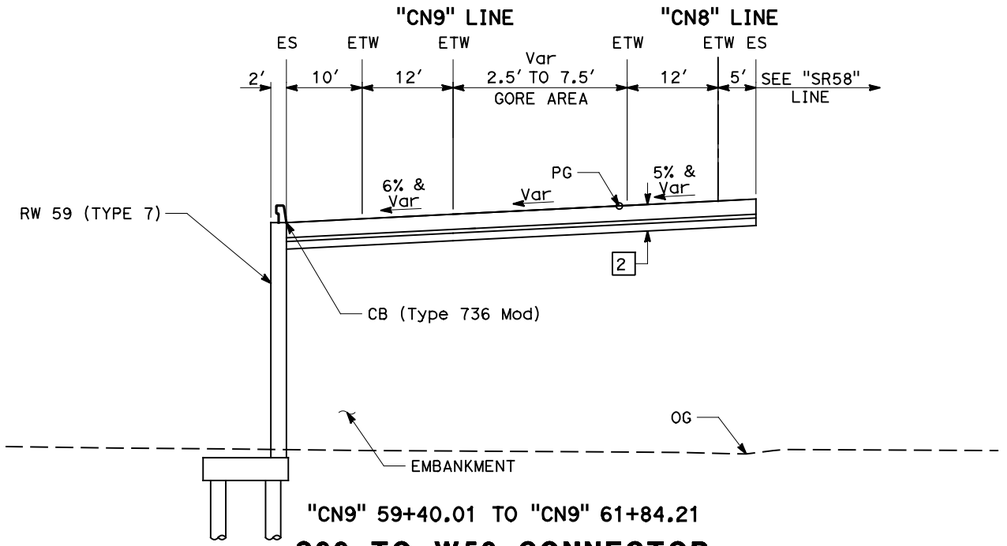

## NOTES:

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. EXACT LOCATIONS AND TYPES OF CURB, DIKE, GUARDRAIL, RETAINING WALLS, AND CONCRETE BARRIERS ARE SHOWN ON THE LAYOUT PLANS.
3. EXISTING PAVEMENT STRUCTURAL SECTIONS SHOWN ARE BASED ON AS-BUILT PLANS. ACTUAL MAY VARY.
4. SUPERELEVATIONS ARE SHOWN ON SUPERLEVATION DIAGRAMS.
5. IF STRUCTURAL SECTION IS NOT SHOWN UNDER CONCRETE BARRIER, 0.50' OF CI 2 AB MUST BE PLACED.

## TYPICAL PAVEMENT STRUCTURE SECTIONS

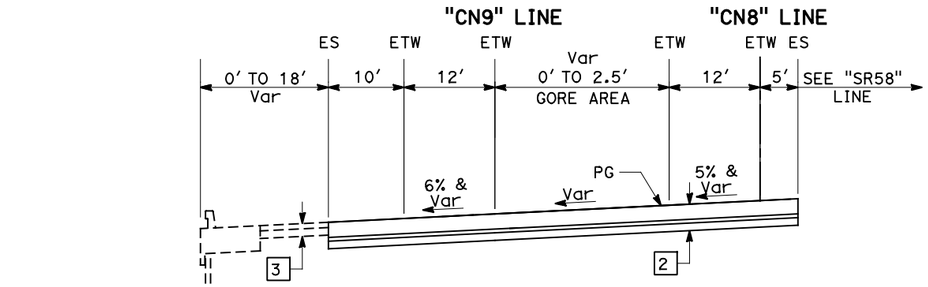
[2] 1.00' CRCP
0.25' HMA (TYPE A)
0.50' CI 2 AB

[3] 0.50' MINOR Conc (TEXTURED PAVING)
0.50' CI 2 AB



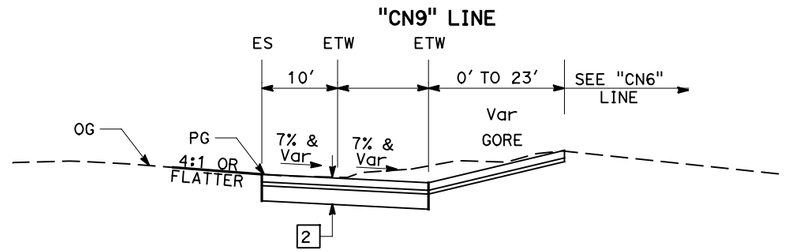

"CN9" 59+40.01 TO "CN9" 61+84.21

**S99 TO W58 CONNECTOR**



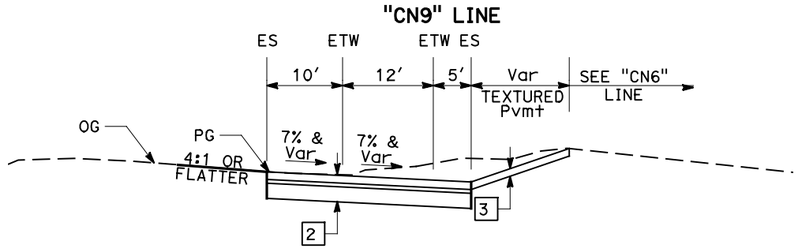

"CN9" 58+10.90 TO "CN9" 59+40.01

**S99 TO W58 CONNECTOR**



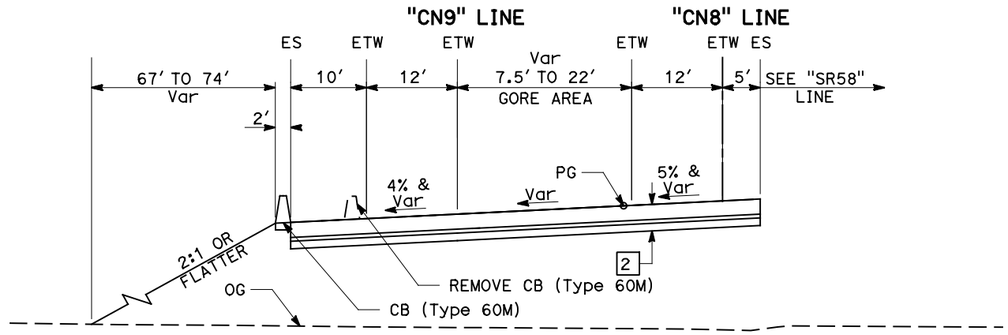

"CN9" 83+15.35 TO "CN9" 87+19.19

**S99 TO W58 CONNECTOR**




"CN9" 81+32.94 TO "CN9" 83+15.35

**S99 TO W58 CONNECTOR**




"CN9" 61+84.21 TO "CN9" 64+37.68

**S99 TO W58 CONNECTOR**

# TYPICAL CROSS SECTIONS

NO SCALE

**X-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR: MATTHEW BRASH
CALCULATED-DESIGNED BY: JEREMY SCOTT
CHECKED BY: JUSTIN TALAGO
REVISED BY | DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 9/19/2023
TIME PLOTTED => 3:58:26 PM

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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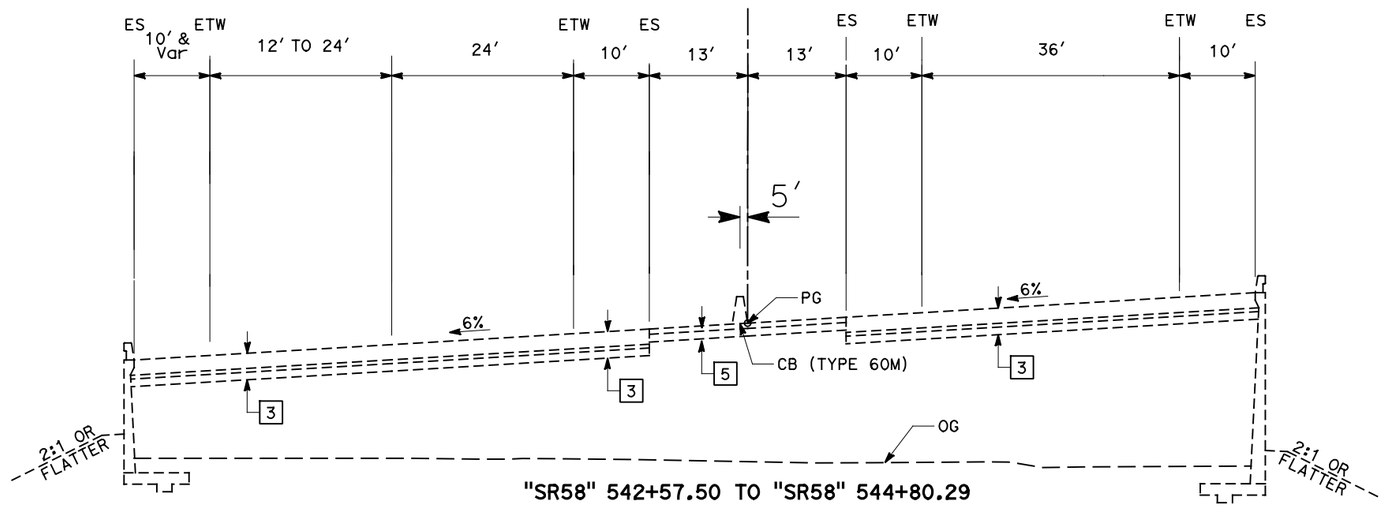
PARSONS
525 B STREET SUITE 1600
SAN DIEGO, CA 92101

CITY OF BAKERSFIELD
1600 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301


**NOTES:**

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. EXACT LOCATIONS AND TYPES OF CURB, DIKE, GUARDRAIL, RETAINING WALLS, AND CONCRETE BARRIERS ARE SHOWN ON THE LAYOUT PLANS.
3. EXISTING PAVEMENT STRUCTURAL SECTIONS SHOWN ARE BASED ON AS-BUILT PLANS. ACTUAL MAY VARY.
4. SUPERELEVATIONS ARE SHOWN ON SUPERLEVATION DIAGRAMS.
5. IF STRUCTURAL SECTION IS NOT SHOWN UNDER CONCRETE BARRIER, 0.50' OF CI 2 AB MUST BE PLACED.

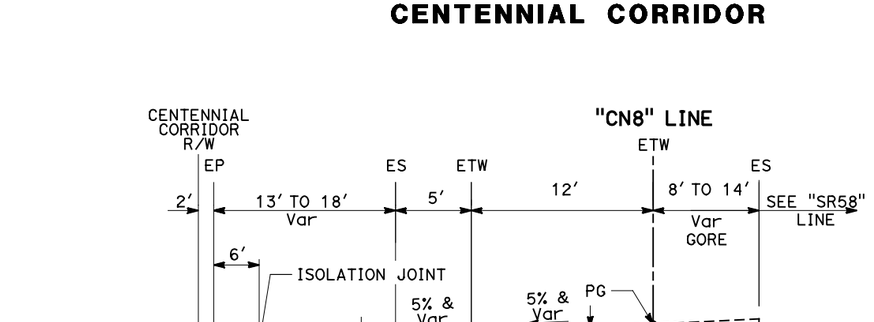
"SR58" LINE




"SR58" 542+57.50 TO "SR58" 544+80.29
"SR58" 547+22.82 TO "SR58" 548+82.09

**CENTENNIAL CORRIDOR**

"CN8" LINE




"CN8" 57+07 TO "CN8" 58+10.90

**N99 TO W58 CONNECTOR**

# TYPICAL CROSS SECTIONS

NO SCALE

**X-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

| REVISED BY | DATE REVISED |
|---|---|
| | |

JEREMY SCOTT — CALCULATED-DESIGNED BY
JUSTIN TALAGO — CHECKED BY
MATTHEW BRASH — CONSULTANT FUNCTIONAL SUPERVISOR

LAST REVISION 00-00-00
DATE PLOTTED => 9/19/2023
TIME PLOTTED => 3:56:09 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => p006886H | DGN FILE => XXXXXXXXXXca002.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 06230000831

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

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PLANS APPROVAL DATE

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CITY OF BAKERSFIELD
1600 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301

**NOTE:**

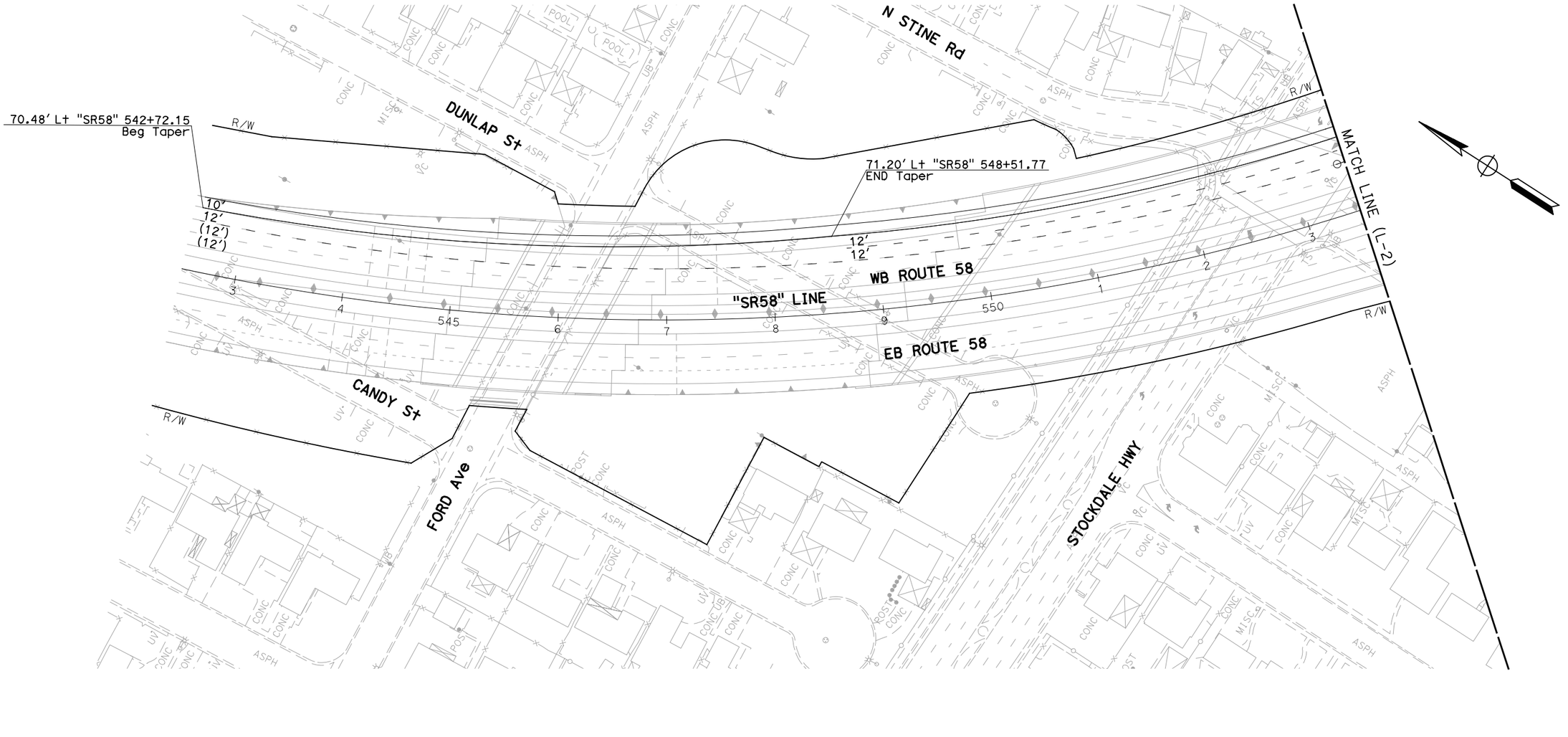
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

**LEGEND:**

(XX) CURVE NUMBER

XX STRUCTURAL PAVEMENT SECTION

MINOR CONCRETE (TEXTURED PAVING)




## LAYOUT

SCALE: 1" = 50'

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MATTHEW BRASH

CALCULATED-DESIGNED BY: JEREMY SCOTT

CHECKED BY: JUSTIN TALAGO

REVISED BY | DATE REVISED

LAST REVISION DATE PLOTTED => 9/19/2023
00-00-00 TIME PLOTTED => 3:33:18 PM

BORDER LAST REVISED 7/2/2010

USERNAME => p002346H
DGN FILE => XXXXXXXXXXea001.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

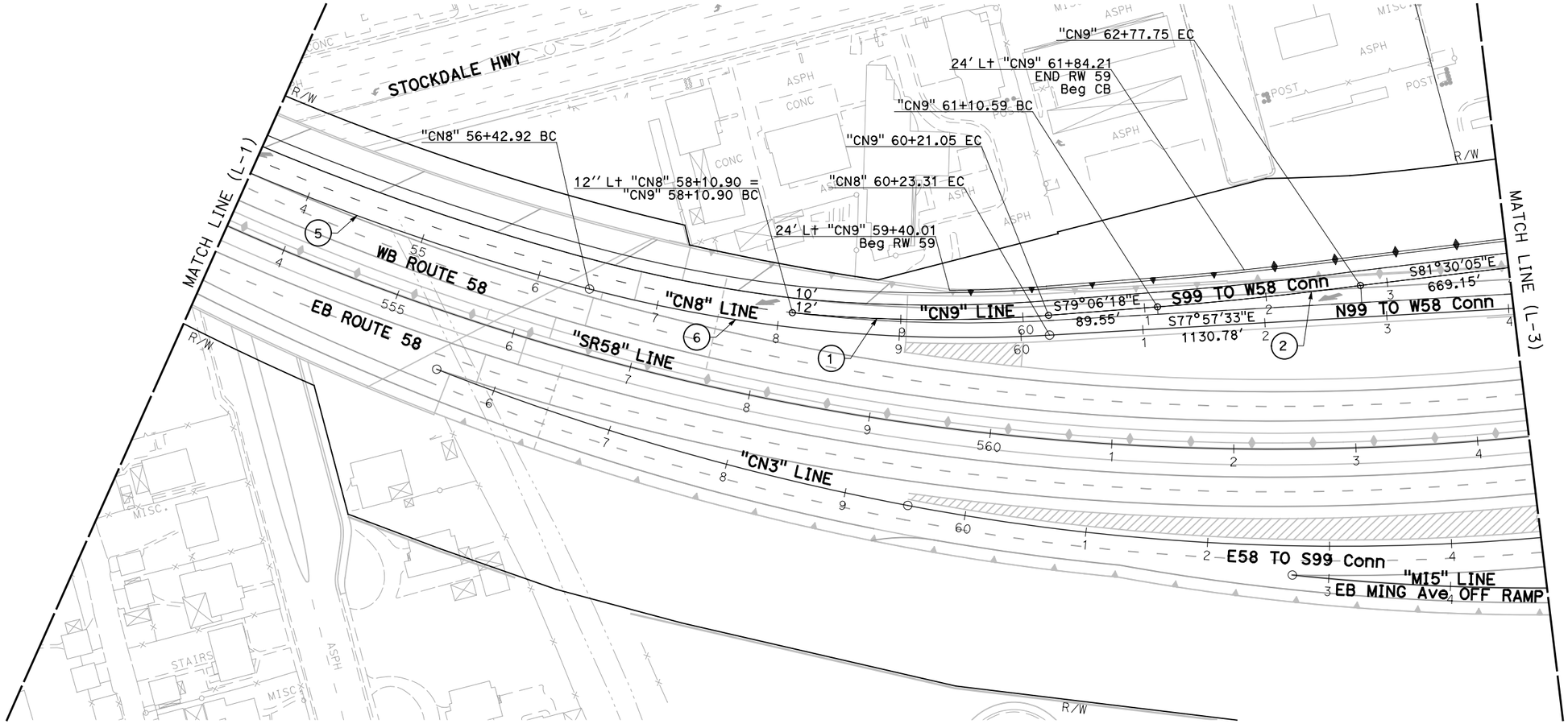
PROJECT NUMBER & PHASE 06230000831

**NOTE:**

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

## CURVE DATA

| No. ⓧ | R | Δ | T | L |
|---|---|---|---|---|
| 1 | 1995.00′ | 10°04′33" | 175.87′ | 210.15′ |
| 2 | 3000.00′ | 03°11′33" | 83.60′ | 167.16′ |
| 5 | 2053.00′ | 08°23′53" | 150.46′ | 300.92′ |
| 6 | 1207.00′ | 18°03′25" | 191.71′ | 380.39′ |




## LAYOUT

SCALE: 1" = 50′

L-2

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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CITY OF BAKERSFIELD
1600 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301


REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY: JEREMY SCOTT

CHECKED BY: JUSTIN TALAGO

CONSULTANT FUNCTIONAL SUPERVISOR: MATTHEW BRASH

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION DATE PLOTTED => 9/19/2023
00-00-00 TIME PLOTTED => 3:47:34 PM

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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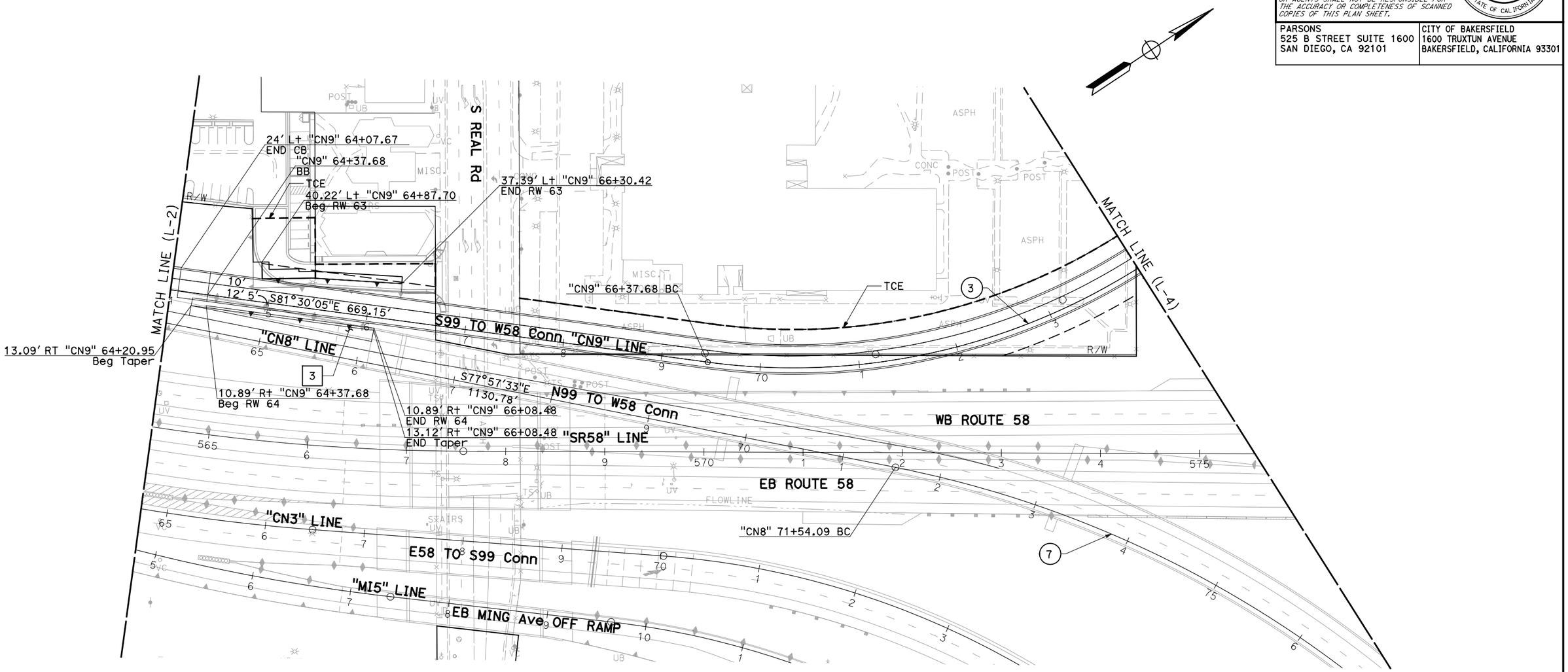
CITY OF BAKERSFIELD
1600 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301


## CURVE DATA

| No. ⓧ | R | Δ | T | L |
|---|---|---|---|---|
| 3 | 650.00′ | 101°27′34" | 794.99′ | 1151.02′ |
| 7 | 1100.00′ | 83°14′29" | 976.80′ | 1598.12′ |




# LAYOUT

SCALE: 1" = 50′

L-3

LAST REVISION DATE PLOTTED => 9/19/2023
00-00-00 TIME PLOTTED => 3:58:12 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: MATTHEW BRASH

CALCULATED-DESIGNED BY: JEREMY SCOTT
CHECKED BY: JUSTIN TALAGO

REVISED BY | DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => p002346H
DGN FILE => XXXXXXXXXXea003

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 06230000831

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

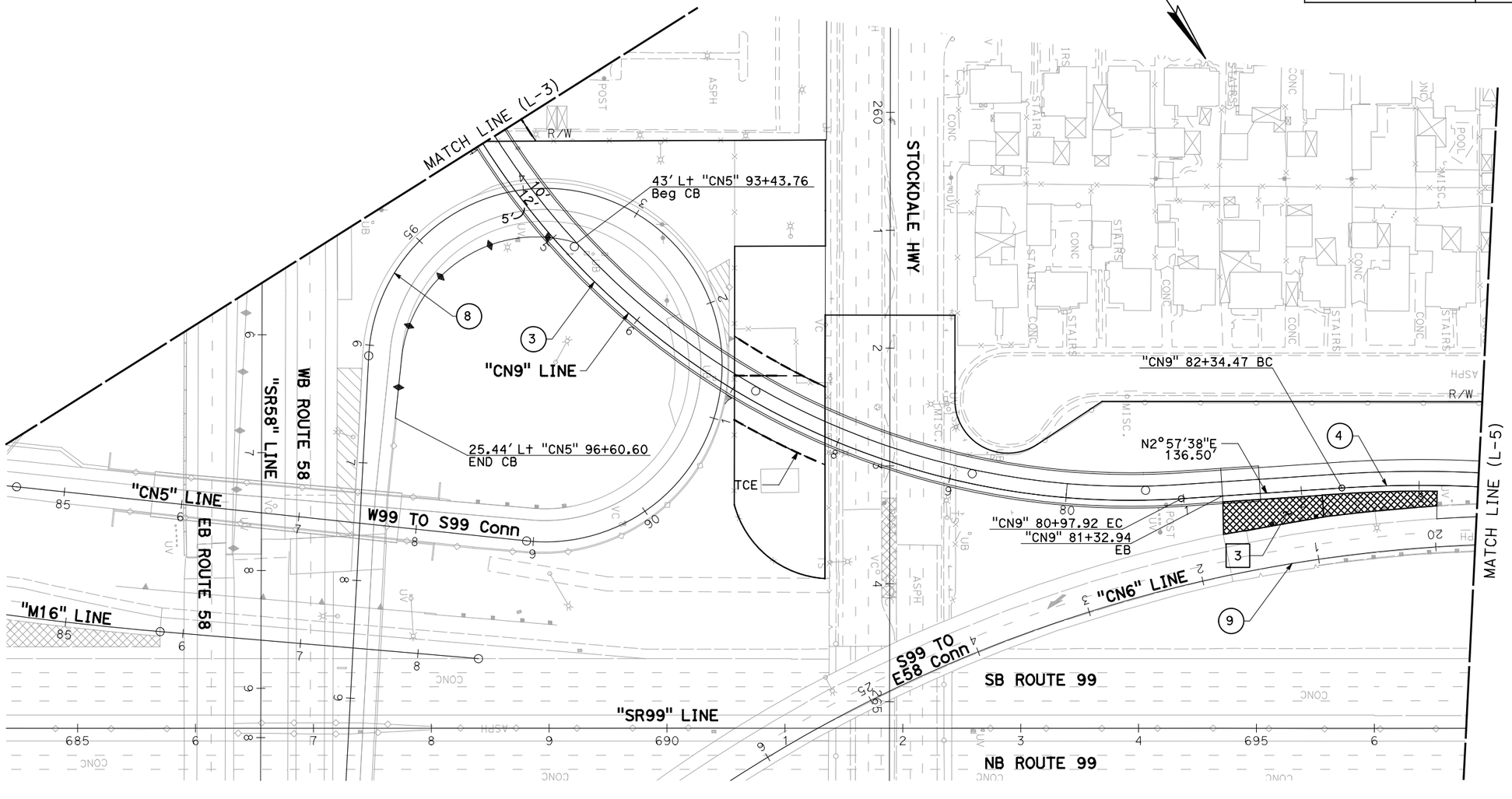


PARSONS
525 B STREET SUITE 1600
SAN DIEGO, CA 92101

CITY OF BAKERSFIELD
1600 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301

## CURVE DATA

| No. ⓧ | R | Δ | T | L |
|---|---|---|---|---|
| 3 | 650.00′ | 101°27′34" | 794.99′ | 1151.02′ |
| 4 | 1000.00′ | 12°14′48" | 107.28′ | 213.75′ |
| 8 | 150.00′ | 273°0′38" | 142.32′ | 714.74′ |
| 9 | 1250.93′ | 78°26′57" | 1020.76′ | 1712.77′ |




# LAYOUT

SCALE: 1" = 50′

L-4

| CALCULATED-DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED |
|---|---|---|---|
| JEREMY SCOTT | JUSTIN TALAGO | | |

CONSULTANT FUNCTIONAL SUPERVISOR: MATTHEW BRASH

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION 00-00-00 | DATE PLOTTED => 9/19/2023 | TIME PLOTTED => 4:11:56 PM

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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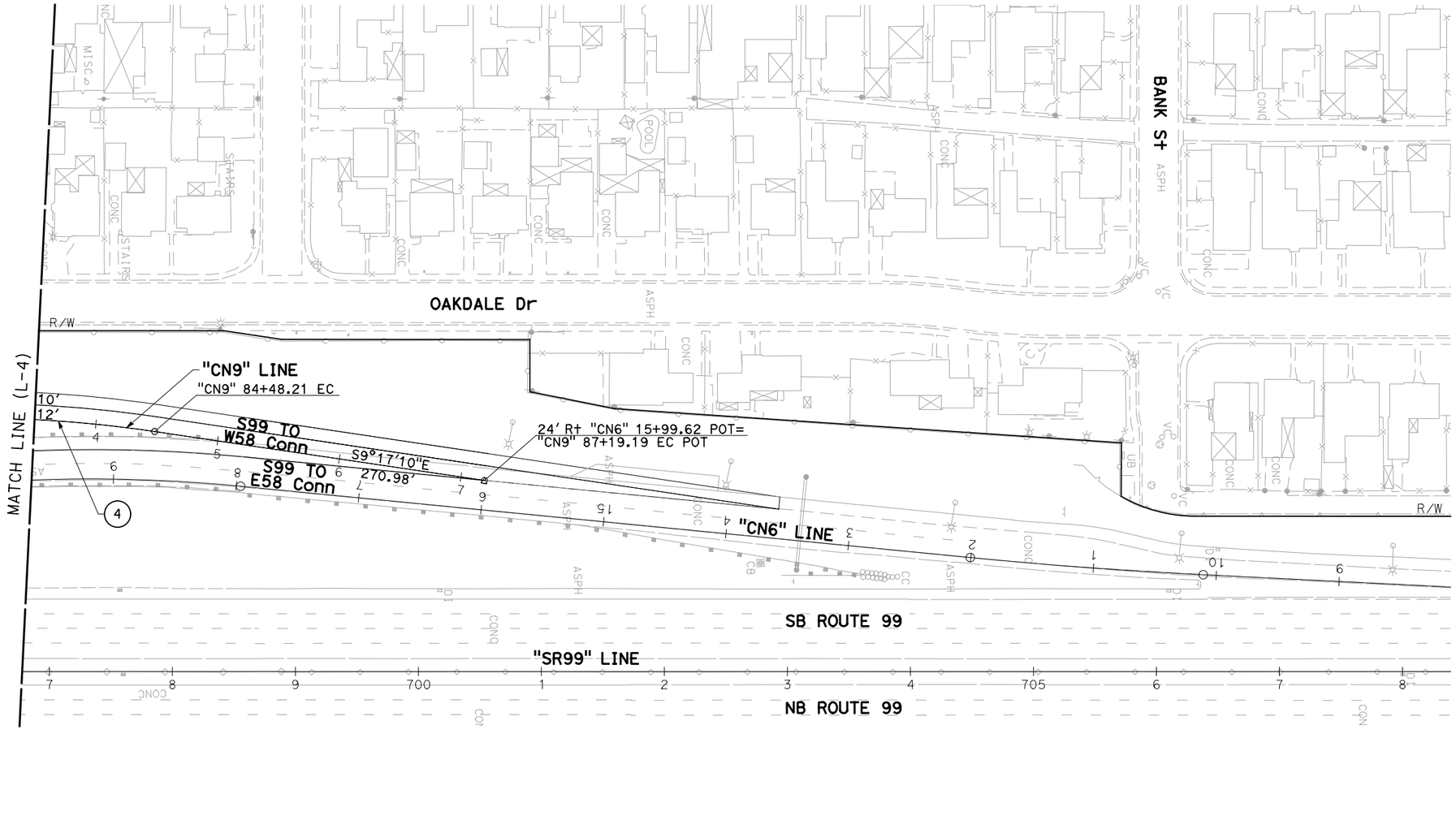
SAN DIEGO, CA 92101

CITY OF BAKERSFIELD
1600 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301


## CURVE DATA

| No. ⓧ | R | Δ | T | L |
|---|---|---|---|---|
| 4 | 1000.00′ | 12°14′48" | 107.28′ | 213.75′ |




# LAYOUT

SCALE: 1" = 50′

L-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: MATTHEW BRASH

CALCULATED-DESIGNED BY: JEREMY SCOTT

CHECKED BY: JUSTIN TALAGO

REVISED BY

DATE REVISED

LAST REVISION DATE PLOTTED => 9/19/2023
00-00-00 TIME PLOTTED => 11:03:19 AM

BORDER LAST REVISED 7/2/2010

USERNAME => p002346H
DGN FILE => XXXXXXXXXXea005

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 06230000831

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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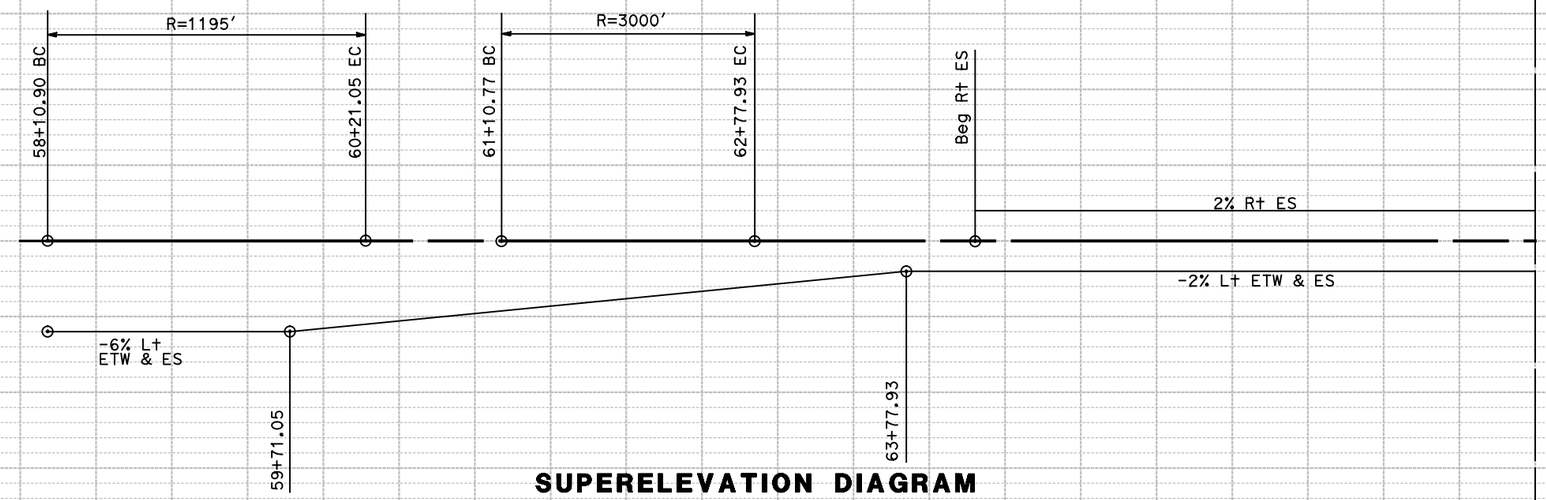
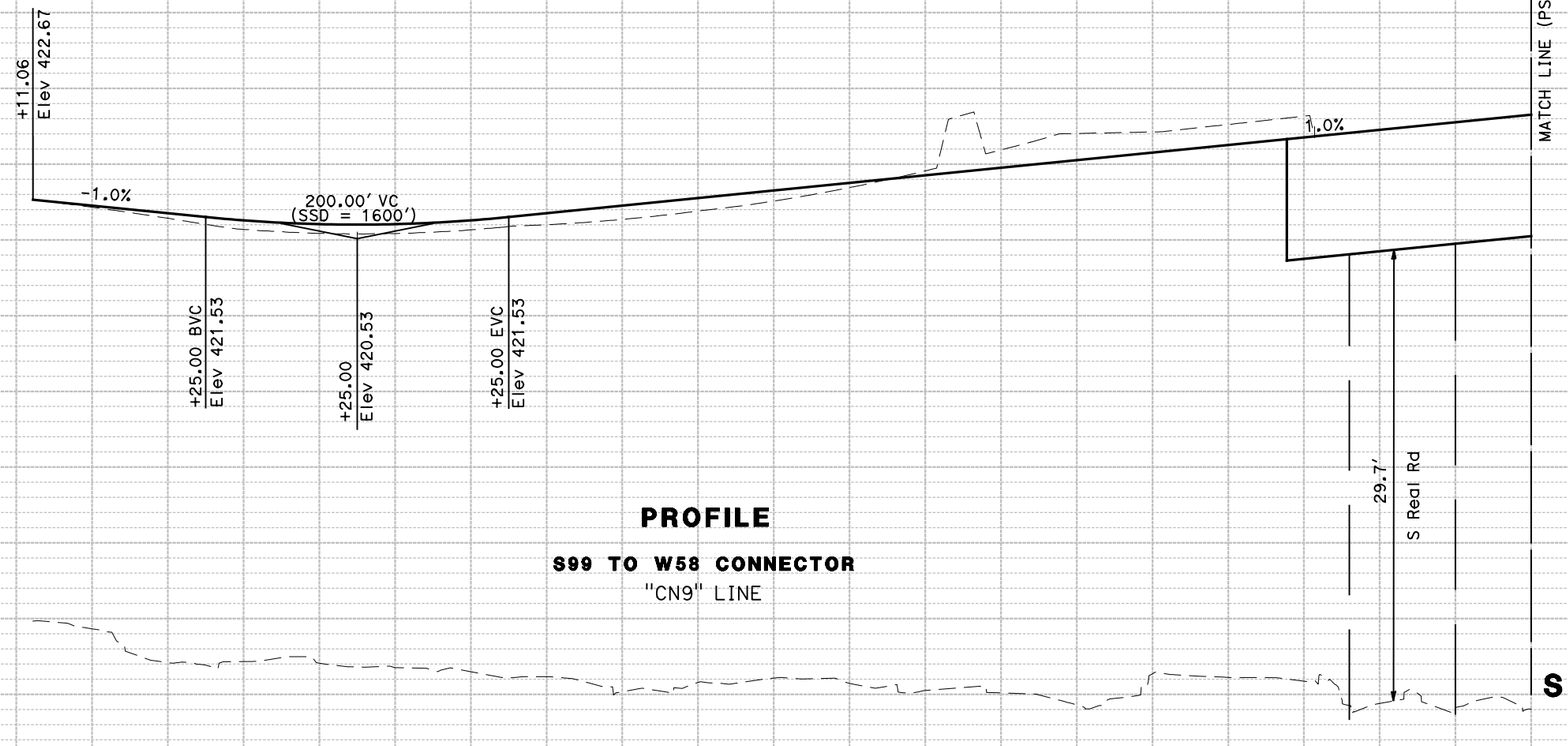
CITY OF BAKERSFIELD
1600 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301


**ABBREVIATIONS:**

SSD STOPPING SIGHT DISTANCE




**SUPERELEVATION DIAGRAM**




**PROFILE**

**S99 TO W58 CONNECTOR**

"CN9" LINE

**PROFILE AND SUPERELEVATION DIAGRAM**

SCALE: Horiz 1" = 50'
Vert 1" = 5'

**PS-1**

| STATION | 58+00 | 59+00 | 60+00 | 61+00 | 62+00 | 63+00 | 64+00 | 65+00 | 66+00 | 67+00 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CY Exc | | | | | | | | | | | |
| CY Emb | | | | | | | | | | | |

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY: JEROME SHORT

CHECKED BY: JUSTIN CRAIGO

CONSULTANT FUNCTIONAL SUPERVISOR: MATTHEW BRASH

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Gibbons

LAST REVISION 00-00-00

DATE PLOTTED => 10/10/2023
TIME PLOTTED => 5:03:05 PM

BORDER LAST REVISED 7/2/2010

USERNAME => p002346H
DGN FILE => 0623000083fb001.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 06230000831

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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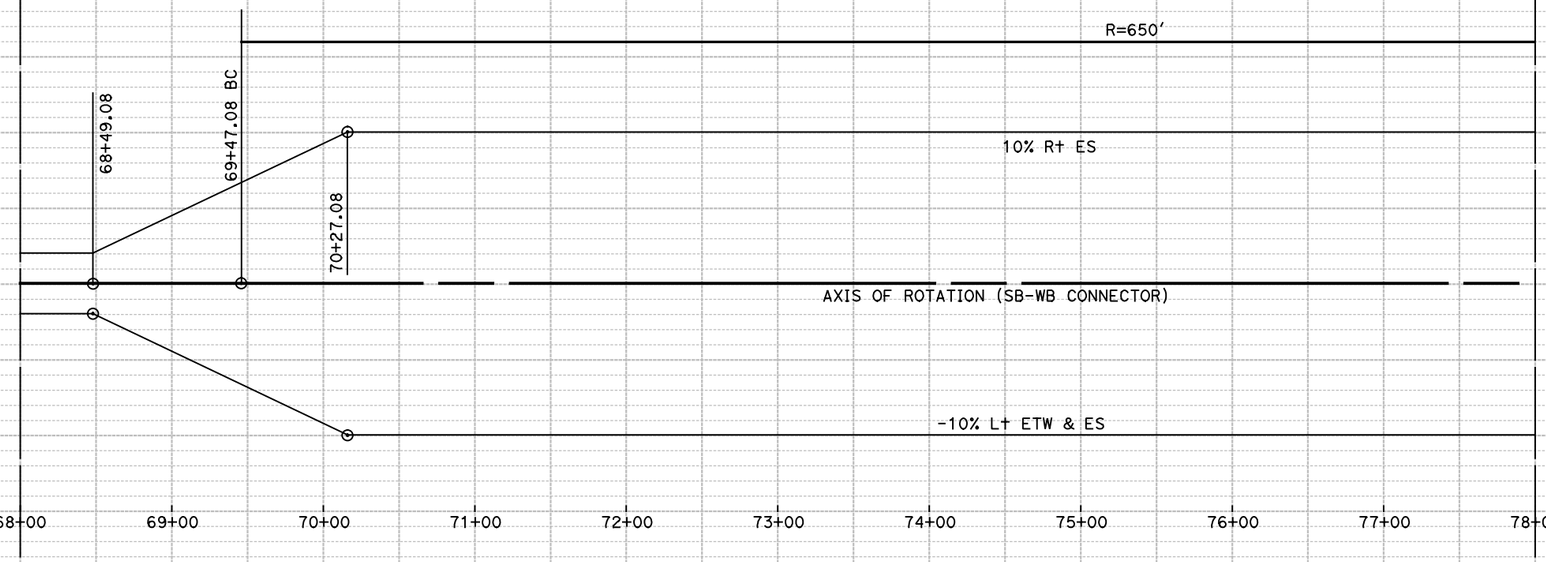
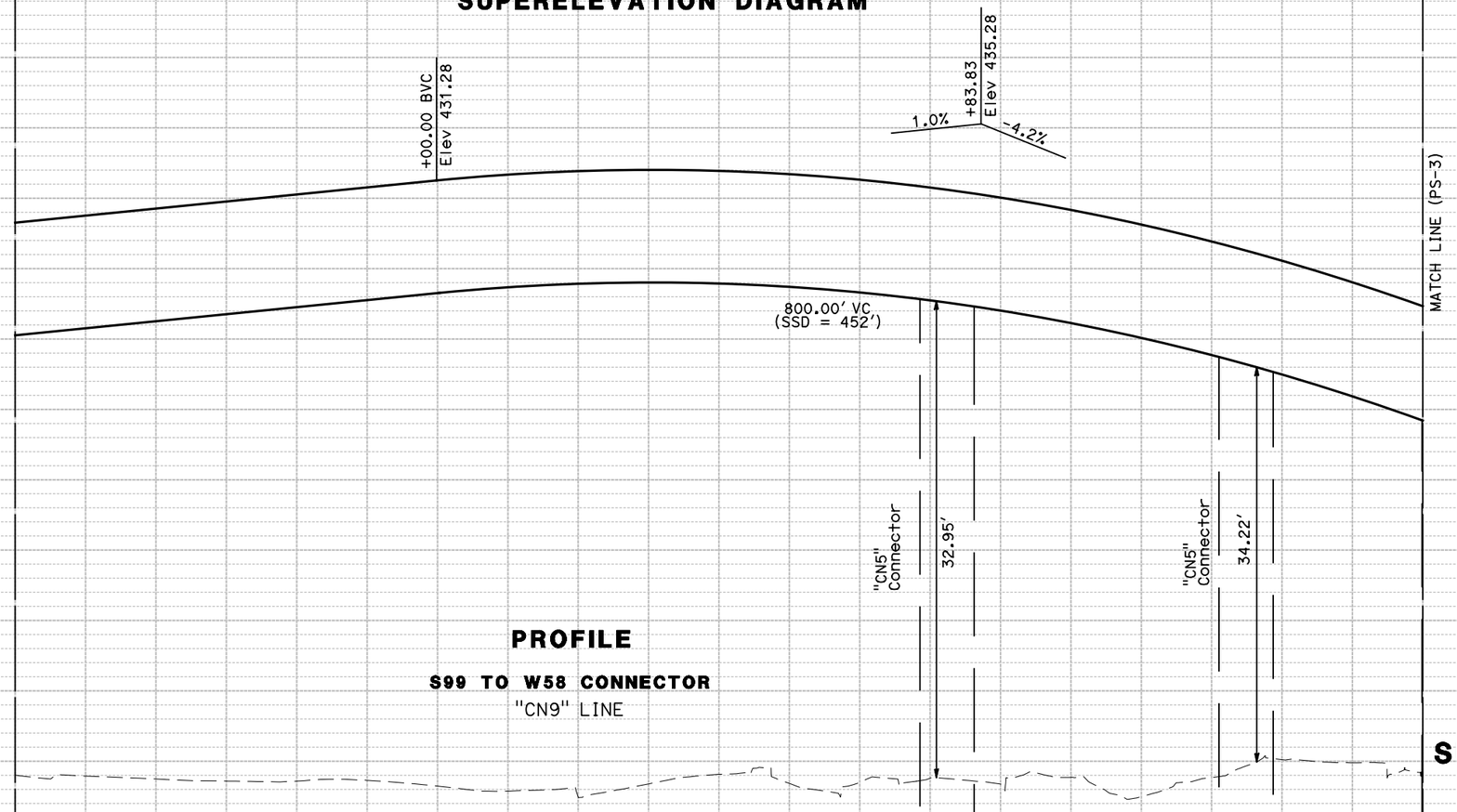
CITY OF BAKERSFIELD
1600 TRUXTUN AVENUE
BAKERSFIELD, CALIFORNIA 93301

**ABBREVIATIONS:**

SSD STOPPING SIGHT DISTANCE




## SUPERELEVATION DIAGRAM




## PROFILE

**S99 TO W58 CONNECTOR**

"CN9" LINE

| STATION | 68+00 | 69+00 | 70+00 | 71+00 | 72+00 | 73+00 | 74+00 | 75+00 | 76+00 | 77+00 | 78+00 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CY Exc | | | | | | | | | | | | |
| CY Emb | | | | | | | | | | | | |

## PROFILE AND SUPERELEVATION DIAGRAM

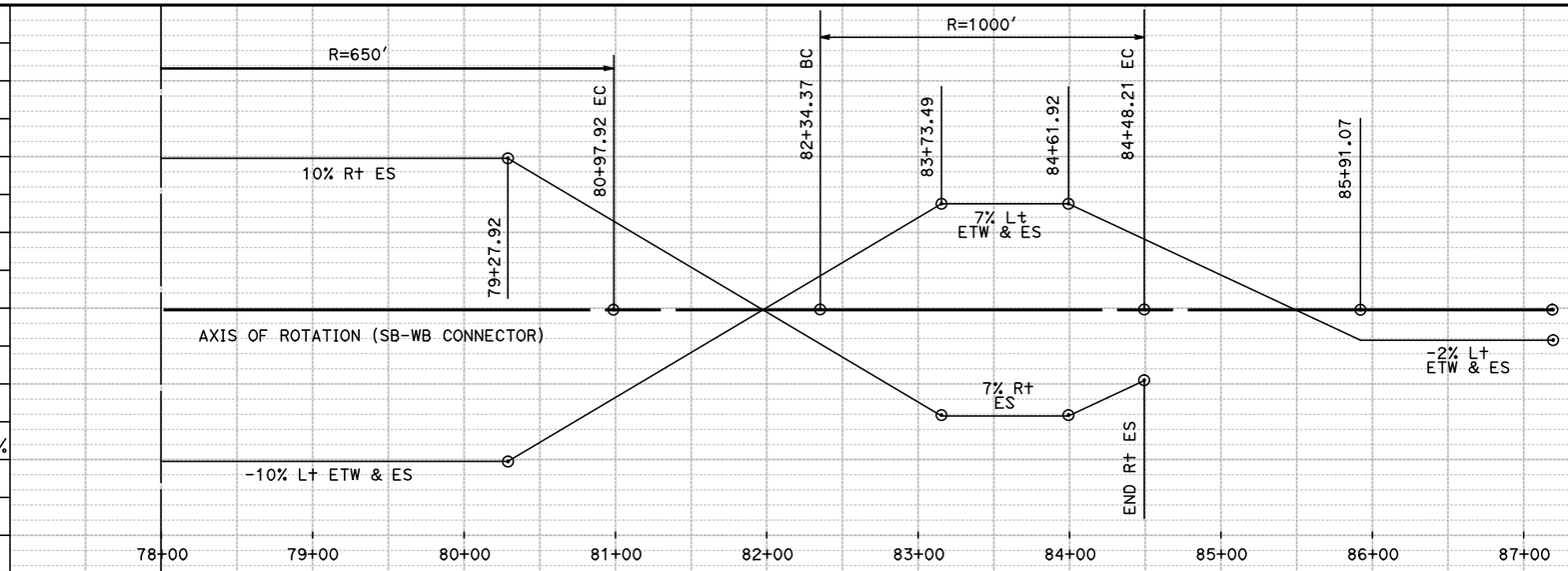
SCALE: Horiz 1" = 50'
Vert 1" = 5'

**PS-2**

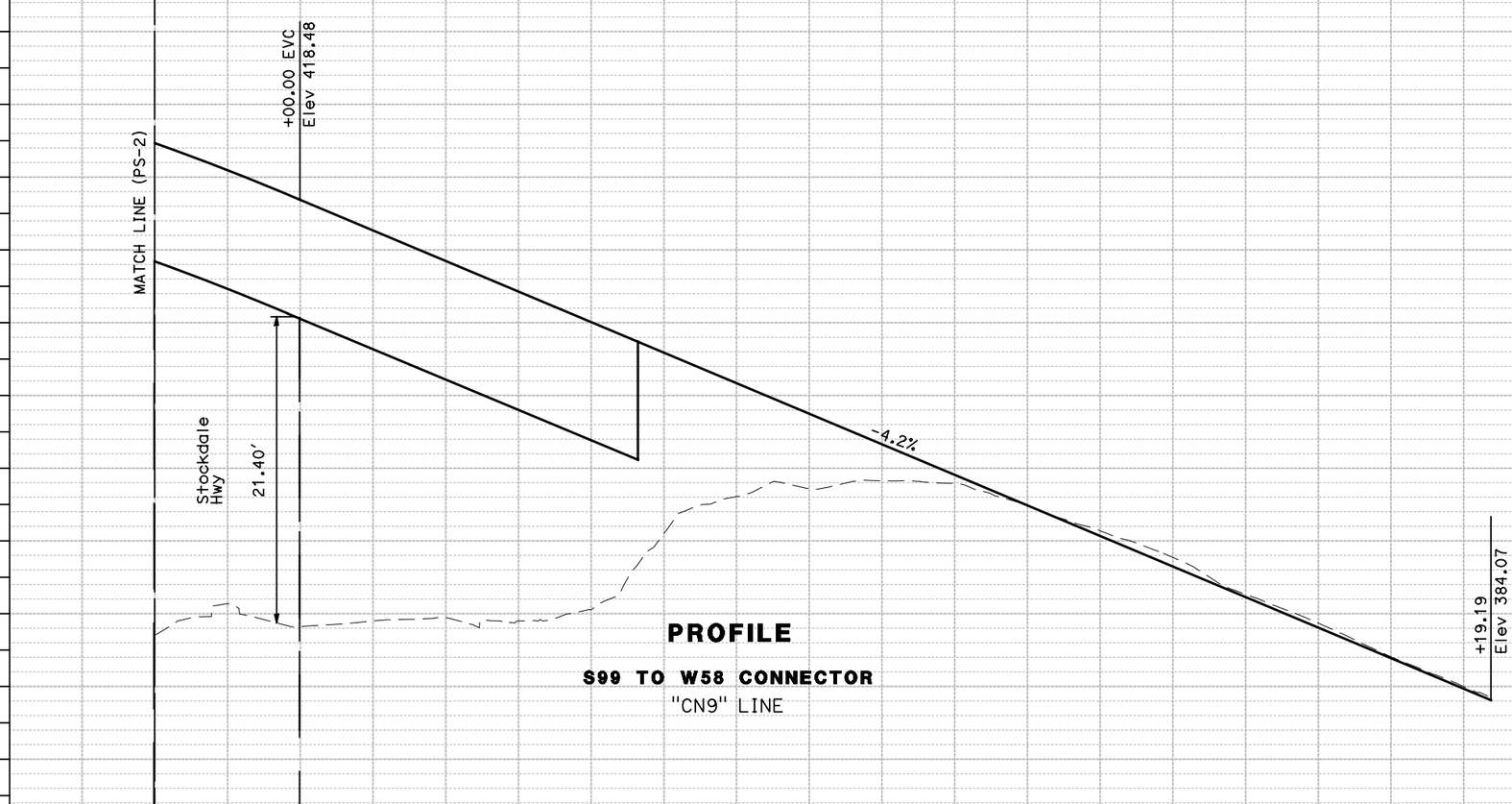
REVISED BY | DATE REVISED
JEROME SHORT | JUSTIN CRAIG
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT FUNCTIONAL SUPERVISOR: MATTHEW BRASH
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION DATE PLOTTED => 10/10/2023
TIME PLOTTED => 5:24:19 PM
00-00-00

BORDER LAST REVISED 7/2/2010 | USERNAME => p002346H | DGN FILE => 0623000083fb002.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 06230000831




## SUPERELEVATION DIAGRAM




## PROFILE

**S99 TO W58 CONNECTOR**

"CN9" LINE

| STATION | 78+00 | 79+00 | 80+00 | 81+00 | 82+00 | 83+00 | 84+00 | 85+00 | 86+00 | 87+00 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CY Exc | | | | | | | | | | | |
| CY Emb | | | | | | | | | | | |

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | Ker | 58<br>99 | R52.1/R52.4<br>24.5/24.6 | | |

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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CITY OF BAKERSFIELD
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BAKERSFIELD, CALIFORNIA 93301

**ABBREVIATIONS:**

SSD STOPPING SIGHT DISTANCE

## PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 5'

**PS-3**

REVISED BY | DATE REVISED
JEROME SHORT | 00-00-00

CALCULATED-DESIGNED BY
CHECKED BY
JUSTIN CRAIG

CONSULTANT FUNCTIONAL SUPERVISOR
MATTHEW BRASH

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 10/10/2023
TIME PLOTTED => 5:10:58 PM

BORDER LAST REVISED 7/2/2010
USERNAME => p002346H
DGN FILE => 0623000083fb003.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE 06230000831

Appendix C – Nonstandard Feature List

## NONSTANDARD FEATURES

| # | HDM INDEX | NONSTANDARD FEATURE AND LOCATION | STANDARD | EXISTING | PROPOSED | PREVIOUSLY APPROVED |
|---|---|---|---|---|---|---|
| **BOLD** | | | | | | |
| B01 | 202.2 (1) | Proposed SB-99 to WB-58 connector will tie into nonstandard superelevation rate for existing 2100' radius curve along SR-58. | 9% (R=1195', 50 mph) | N/A | 6% | No |
| B02 | 202.2 (1) | Proposed SB-99 to WB-58 connector bridge will have a emax of 10% | 12% (R=650', 50 mph) | N/A | 10% | No |
| B03 | 203.1 | Nonstandard horizontal stopping sight distance along the proposed SB-99 to WB-58 connector. | 430' (50 mph) | N/A | 285' (40 mph) | No |
| B04 | 501.3 | Nonstandard interchange spacing on SR-58 between SR-99 and Truxtun Ave. | 2 miles | 1.8 miles | 1.8 miles | Yes |
| B05 | 501.3 | Nonstandard interchange spacing on SR-99 between SR-58 and California Ave. | 2 miles | 1.1 miles | 1.1 miles | Yes |
| B06 | 309.1(1) | Nonstandard horizontal stopping sight distance adjacent to objects, barriers, walls, or cut slopes | 430' (50 mph) | N/A | 285' (40 mph) | No |
| **UNDERLINED** | | | | | | |
| U01 | 504.3(5) | Proposed single-lane ramp exceeds the 1,000 ft max without providing an additional lane for passing maneuvers. | Where the length of a single-lane ramp exceeds 1,000' an additional lane shall be provided for passing maneuvers | N/A | 2,908' single-lane ramp | No |
| U02 | 201.7 & 504.2(4)(a) | Decision sight distance at freeway exit and along branch connections | 750' (at exit nose)<br>750' (along connection) | N/A | 560' (at exit nose)<br>285' (along connection) | No |
| U03 | 504.4(6) | Nonstandard length of auxiliary lane from the SB-99 to WB-58 connector to the lane drop along SR-58 . | 1000' | N/A | 470' | No |
| U04 | 203.6 | Tangent length between reversing curves | 400' | N/A | 136' | No |
| U05 | 202.5(1) | Superelevation transition design | See Figure 202.5A | N/A | See Superelevation Diagram (Sta. 79+27.90 to 83+73.49) | No |
| U06 | 202.5(2) | Superelevation runoff length (one-third/two-thirds) | One-third/Two-third | N/A | See Superelevation Diagram (Sta. 79+27.90 to 83+73.49) | No |

Appendix D – 11-Page Cost Estimate

# PROJECT

## PLANNING COST ESTIMATE ©

**EA: 06-48468** *EA: 06-48468 PID:*

**PID:**

**District-County-Route:** 06-Ker-99

**PM:**

**Type of Estimate :** Project Scope Summary Report

**Program Code :** STIP

**Project Limits :** On SR-99 at SB SR-99 to EB SR-58 Branch Connector to WB SR-58 at Ford Ave

**Project Description:** Construct SB SR-99 to WB SR-58 connector.

**Scope :** Freeway to freeway connector

**Alternative :** Alternative # 1

### SUMMARY OF PROJECT COST ESTIMATE

| | Current Year Cost | Escalated Cost |
|---|---|---|
| **TOTAL ROADWAY COST** | $ 20,632,900 | $ 23,343,363 |
| **TOTAL STRUCTURES COST** | $ 27,351,000 | $ 30,943,994 |
| **SUBTOTAL CONSTRUCTION COST** | $ 47,983,900 | $ 54,287,357 |
| **TOTAL RIGHT OF WAY COST** | $ 2,298,077 | $ 2,390,000 |
| **TOTAL CAPITAL OUTLAY COSTS** | $ 50,282,000 | $ 56,678,000 |
| **PA/ED SUPPORT** | $ - | $ - |
| **PS&E SUPPORT** | $ - | $ - |
| **RIGHT OF WAY SUPPORT** | $ - | $ - |
| **CONSTRUCTION SUPPORT** | $ - | $ - |
| **TOTAL SUPPORT COST** | $ - | $ - |
| **TOTAL PROJECT COST** | $ 50,300,000 | $ 56,700,000 * |

Programmed Amount

| | Month | Year |
|---|---|---|
| Date of Estimate (Month/Year) | 9 | 2023 |
| Estimated Construction Start (Month/Year) | 12 | 2026 |
| Number of Working Days = | | 400 |
| Estimated Mid-Point of Construction (Month/Year) | 10 | 2027 |
| Estimated Construction End (Month/Year) | 8 | 2028 |

Number of Plant Establishment Days

***Estimated Project Schedule***

| | |
|---|---|
| *PID Approval* | |
| *PA/ED Approval* | 10/17/2023 |
| *PS&E* | 12/3/2025 |
| *RTL* | 6/1/2026 |
| *Begin Construction* | 12/17/2026 |

Reviewed by District O.E. or Cost Estimate Certifier

| Office Engineer / Cost Estimate Certifier | Date | Phone |
|---|---|---|
| | xx/xx/xxxx | (xxx) xxx-xxxx |

Approved by Project Manager

| Project Manager | Date | Phone |
|---|---|---|
| | xx/xx/xxxx | (xxx) xxx-xxxx |

# I. ROADWAY ITEMS SUMMARY

| | Section | | Cost |
|---|---|---|---|
| 1 | **Earthwork** | $ | 377,500 |
| 2 | **Pavement Structural Section** | $ | 3,306,000 |
| 3 | **Drainage** | $ | 700,000 |
| 4 | **Specialty Items** | $ | 6,298,000 |
| 5 | **Environmental** | $ | 444,300 |
| 6 | **Traffic Items** | $ | 1,032,300 |
| 7 | **Detours** | $ | 250,000 |
| 8 | **Minor Items** | $ | 1,240,900 |
| 9 | **Roadway Mobilization** | $ | 1,364,900 |
| 10 | **Supplemental Work** | $ | 651,000 |
| 11 | **State Furnished** | $ | 841,400 |
| 12 | **Time-Related Overhead** | $ | - |
| 13 | **Total Roadway Contingency** | $ | 4,126,600 |
| | **TOTAL ROADWAY ITEMS** | **$** | **20,632,900** |

**Estimate Prepared By :**

Name and Title | Date | Phone

**Estimate Reviewed By :**

Name and Title | Date | Phone

**By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.**

EA: 06-48468 PID:

## SECTION 1: EARTHWORK

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 190101 | Roadway Excavation | CY | | x | | = | $ | - |
| 152320 | Lead Compliance Plan | LS | 1 | x | 7,500.00 | = | $ | 7,500 |
| 194001 | Ditch Excavation | CY | | x | | = | $ | - |
| 19801X | Imported Borrow | CY | 6,000 | x | 60.00 | = | $ | 360,000 |
| 192037 | Structure Excavation (Retaining Wall) | CY | | x | | = | $ | - |
| 193013 | Structure Backfill (Retaining Wall) | CY | | x | | = | $ | - |
| 193031 | Pervious Backfill Material (Retaining Wall) | CY | | x | | = | $ | - |
| 16010X | Clearing & Grubbing | LS | 1 | x | 10,000.00 | = | $ | 10,000 |
| 170101 | Develop Water Supply | LS | | x | | = | $ | - |
| 19801X | Imported Borrow | CY/TON | | x | | = | $ | - |
| 210130 | Duff | ACRE | | x | | = | $ | - |
| XXXXXX | Some Item | Unit | | x | | = | $ | - |

| | | |
|---|---|---|
| **TOTAL EARTHWORK SECTION ITEMS** | **$** | **377,500** |

## SECTION 2: PAVEMENT STRUCTURAL SECTION

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 401050 | Jointed Plain Concrete Pavement | CY | | x | | = | $ | - |
| 400050 | Continuously Reinforced Concrete Pavement | CY | 5,100 | x | 500.00 | = | $ | 2,550,000 |
| 404092 | Seal Pavement Joint | LF | | x | | = | $ | - |
| 404093 | Seal Isolation Joint | LF | | x | | = | $ | - |
| 413117 | Seal Concrete Pavement Joint (Silicone) | LF | | x | | = | $ | - |
| 413118 | Seal Pavement Joint (Asphalt Rubber) | LF | | x | | = | $ | - |
| 280010 | Rapid Strength Concrete Base | CY | | x | | = | $ | - |
| 410095 | Dowel Bar (Drill and Bond) | EA | | x | | = | $ | - |
| 390132 | Hot Mix Asphalt (Type A) | TON | 2,500 | x | 200.00 | = | $ | 500,000 |
| 390137 | Rubberized Hot Mix Asphalt (Gap Graded) | TON | | x | | = | $ | - |
| 39300X | Geosynthetic Pavement Interlayer (Type X) | SQYD | | x | | = | $ | - |
| 26020X | Class 2 Aggregate Base | CY | 2,500 | x | 80.00 | = | $ | 200,000 |
| 290201 | Asphalt Treated Permeable Base | CY | | x | | = | $ | - |
| 250401 | Class 4 Aggregate Subbase | CY | | x | | = | $ | - |
| 374002 | Asphaltic Emulsion (Fog Seal Coat) | TON | | x | | = | $ | - |
| 397005 | Tack Coat | TON | | x | | = | $ | - |
| 377501 | Slurry Seal | TON | | x | | = | $ | - |
| 3750XX | Screenings (Type XX) | TON | | x | | = | $ | - |
| 374492 | Asphaltic Emulsion (Polymer Modified) | TON | | x | | = | $ | - |
| 370001 | Sand Cover (Seal) | TON | | x | | = | $ | - |
| 731530 | Minor Concrete (Textured Paving) | CY | 80 | x | 700.00 | = | $ | 56,000 |
| 731502 | Minor Concrete (Miscellaneous Construction) | CY | | x | | = | $ | - |
| 39407X | Place Hot Mix Asphalt Dike (Type X) | LF | | x | | = | $ | - |
| 150771 | Remove Asphalt Concrete Dike | LF | | x | | = | $ | - |
| 420201 | Grind Existing Concrete Pavement | SQYD | | x | | = | $ | - |
| 150860 | Remove Base and Surfacing | CY | | x | | = | $ | - |
| 390095 | Replace Asphalt Concrete Surfacing | CY | | x | | = | $ | - |
| 15312X | Remove Concrete | LF/CY/LS | | x | | = | $ | - |
| 394090 | Place Hot Mix Asphalt (Miscellaneous Area) | SQYD | | x | | = | $ | - |
| 153103 | Cold Plane Asphalt Concrete Pavement | SQYD | | x | | = | $ | - |
| 39405X | Shoulder Rumble Strip (HMA, X-In Indentations) | STA | | x | | = | $ | - |
| 413113 | Repair Spalled Joints, Polyester Grout | SQYD | | x | | = | $ | - |
| 420102 | Groove Existing Concrete Pavement | SQYD | | x | | = | $ | - |
| 390136 | Minor Hot Mix Asphalt | TON | | x | | = | $ | - |
| 394095 | Roadside Paving (Miscellaneous Areas) | SQYD | | x | | = | $ | - |
| XXXXXX | Some Item | Unit | | x | | = | $ | - |

| | | |
|---|---|---|
| **TOTAL PAVEMENT STRUCTURAL SECTION ITEMS** | **$** | **3,306,000** |

## SECTION 3: DRAINAGE

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 15080X | Remove Culvert | EA/LF | | x | | = | $ | - |
| 150820 | Modify Inlet | EA | | x | | = | $ | - |
| 155232 | Sand Backfill | CY | | x | | = | $ | - |
| 15020X | Abandon Culvert | EA/LF | | x | | = | $ | - |
| 152430 | Adjust Inlet | LF | | x | | = | $ | - |
| 155003 | Cap Inlet | EA | | x | | = | $ | - |
| 510501 | Minor Concrete | CY | | x | | = | $ | - |
| 510502 | Minor Concrete (Minor Structure) | CY | | x | | = | $ | - |
| 5105XX | Minor Concrete (Type XX) | CY | | x | | = | $ | - |
| 620XXX | XX" Alternative Pipe Culvert (Type X) | LF | | x | | = | $ | - |
| 6411XX | XX" Plastic Pipe | LF | | x | | = | $ | - |
| 65XXXX | XX" Reinforced Concrete Pipe (Type X) | LF | | x | | = | $ | - |
| 6650XX | XX" Corrugated Steel Pipe (0.XXX" Thick) | LF | | x | | = | $ | - |
| 68XXXX | XX" Plastic Pipe (Edge Drain) | LF | | x | | = | $ | - |
| 69011X | XX" Corrugated Steel Pipe Downdrain (0.XXX" Th | LF | | x | | = | $ | - |
| 70321X | XX" Corrugated Steel Pipe Inlet (0.XXX" Thick) | LF | | x | | = | $ | - |
| 70XXXX | XX" Corrugated Steel Pipe Riser (0.XXX" Thick) | LF | | x | | = | $ | - |
| 7050XX | XX" Steel Flared End Section | EA | | x | | = | $ | - |
| 703233 | Grated Line Drain | LF | | x | | = | $ | - |
| 72XXXX | Rock Slope Protection (Type and Method) | CY/TON | | x | | = | $ | - |
| 72901X | Rock Slope Protection Fabric (Class X) | SQYD | | x | | = | $ | - |
| 721420 | Concrete (Ditch Lining) | CY | | x | | = | $ | - |
| 721430 | Concrete (Channel Lining) | CY | | x | | = | $ | - |
| 750001 | Miscellaneous Iron and Steel | LB | | x | | = | $ | - |
| XXXXXX | Additional Drainage | LS | 1 | x | 700,000.00 | = | $ | 700,000 |

**TOTAL DRAINAGE ITEMS $ 700,000**

## SECTION 4: SPECIALTY ITEMS

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 080050 | Progress Schedule (Critical Path Method) | LS | 1 | x | 5,000.00 | = | $ | 5,000 |
| 582001 | Sound Wall (Masonry Block) | SQFT | | x | | = | $ | - |
| 510530 | Minor Concrete (Wall) | CY | | x | | = | $ | - |
| 15325X | Remove Sound Wall | LF/LS | | x | | = | $ | - |
| 070030 | Lead Compliance Plan | LS | | x | | = | $ | - |
| 141120 | Treated Wood Waste | LB | | x | | = | $ | - |
| 153221 | Remove Concrete Barrier | LF | 430 | x | 15.00 | = | $ | 6,450 |
| 150662 | Remove Metal Beam Guard Railing | LF | 350 | x | 10.00 | = | $ | 3,500 |
| 150668 | Remove Flared End Section | EA | | x | | = | $ | - |
| 8000XX | Chain Link Fence (Type XX) | LF | | x | | = | $ | - |
| 80XXXX | XX" Chain Link Gate (Type CL-6) | EA | | x | | = | $ | - |
| 832001 | Metal Beam Guard Railing | LF | | x | | = | $ | - |
| 839301 | Single Thrie Beam Barrier | LF | | x | | = | $ | - |
| 839310 | Double Thrie Beam Barrier | LF | | x | | = | $ | - |
| 839521 | Cable Railing | LF | | x | | = | $ | - |
| 8395XX | Terminal System (Type CAT) | EA | | x | | = | $ | - |
| 839585 | Alternative Flared Terminal System | EA | | x | | = | $ | - |
| 839584 | Alternative In-line Terminal System | EA | | x | | = | $ | - |
| 4906XX | CIDH Concrete Piling (Insert Diameter) | LF | | x | | = | $ | - |
| 839XXX | Crash Cushion (Insert Type) | EA | | x | | = | $ | - |
| 83XXXX | Concrete Barrier (Insert Type) | LF | 360 | x | 300.00 | = | $ | 108,000 |
| 520103 | Bar Reinforced Steel (Retaining Wall) | LB | | x | | = | $ | - |
| 510060 | Structural Concrete, Retaining Wall | CY | | x | | = | $ | - |
| 513553 | Retaining Wall (Special Design) | SQFT | 19,000 | x | 325.00 | = | $ | 6,175,000 |
| 511035 | Architectural Treatment | SQFT | | x | | = | $ | - |
| 598001 | Anti-Graffiti Coating | SQFT | | x | | = | $ | - |
| 203070 | Rock Stain | SQFT | | x | | = | $ | - |
| 5136XX | Reinforced Concrete Crib Wall (Type X) | SQFT | | x | | = | $ | - |
| 83954X | Transition Railing (Type X) | EA | | x | | = | $ | - |
| 597601 | Prepare and Stain Concrete | SQFT | | x | | = | $ | - |
| 839561 | Rail Tensioning Assembly | EA | | x | | = | $ | - |
| 83958X | End Anchor Assembly (Type X) | EA | | x | | = | $ | - |
| XXXXXX | Some Item | Unit | | x | | = | $ | - |

**TOTAL SPECIALTY ITEMS $ 6,298,000**

EA: 06-48468 PID:

## SECTION 5: ENVIRONMENTAL

### 5A - ENVIRONMENTAL MITIGATION

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Biological Mitigation | LS | | x | | = | $ | - | | |
| 130670 | Temporary Reinforced Silt Fence | LF | | x | | = | $ | - | | |
| 141000 | Temporary Fence (Type ESA) | LF | | x | | = | $ | - | | |
| | | | | | | | | *Subtotal Environmental Mitigation* | $ | - |

### 5B - LANDSCAPE AND IRRIGATION

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 20XXXX | Highway Planting | LS | 1 | x | 350,000.00 | = | $ | 350,000 | | |
| 20XXXX | Irrigation System | LS | | x | | = | $ | - | | |
| 204099 | Plant Establishment Work | LS | | x | | = | $ | - | | |
| 204101 | Extend Plant Establishment Work | LS | | x | | = | $ | - | | |
| 20XXXX | Follow-up Landscape Project | LS | | x | | = | $ | - | | |
| 150685 | Remove Irrigation Facility | LS | | x | | = | $ | - | | |
| 20XXXX | Maintain Existing (Irrigation or Planted Areas) | LS | | x | | = | $ | - | | |
| 206400 | Check and Test Existing Irrigation Facilities | LS | | x | | = | $ | - | | |
| 21011X | Imported Topsoil (X) | CY/TON | | x | | = | $ | - | | |
| 20XXXX | Rock Blanket, Rock Mulch, DG, Gravel Mulch | SQFT/SQYD | | x | | = | $ | - | | |
| 200122 | Weed Germination | SQYD | | x | | = | $ | - | | |
| 208304 | Water Meter | EA | | x | | = | $ | - | | |
| 2087XX | XX" Conduit (Use for Irrigation x-overs) | LF | | x | | = | $ | - | | |
| 20890X | Extend X" Conduit (Use for Extension of Irrigation x-overs) | LF | | x | | = | $ | - | | |
| | | | | | | | | *Subtotal Landscape and Irrigation* | $ | 350,000 |

### 5C - EROSION CONTROL

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 210010 | Move In/Move Out (Erosion Control) | EA | | x | | = | $ | - | | |
| 210350 | Fiber Rolls | LF | | x | | = | $ | - | | |
| 210360 | Compost Sock | LF | | x | | = | $ | - | | |
| 2102XX | Rolled Erosion Control Product (X) | SQFT | | x | | = | $ | - | | |
| 21025X | Bonded Fiber Matrix | SQFT/ACRE | | x | | = | $ | - | | |
| 210300 | Hydromulch | SQFT | 25,000 | x | 0.15 | = | $ | 3,750 | | |
| 210420 | Straw | SQFT | 25,000 | x | 0.1 | = | $ | 2,500 | | |
| 210430 | Hydroseed | SQFT | 25,000 | x | 0.2 | = | $ | 5,000 | | |
| 210600 | Compost | SQFT | | x | | = | $ | - | | |
| 210630 | Incorporate Materials | SQFT | | x | | = | $ | - | | |
| | | | | | | | | *Subtotal Erosion Control* | $ | 11,250 |

### 5D - NPDES

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 130300 | Prepare SWPPP | LS | 1 | x | 10,000.00 | = | $ | 10,000 | | |
| 130200 | Prepare WPCP | LS | | x | | = | $ | - | | |
| 130100 | Job Site Management | LS | 1 | x | 30,000.00 | = | $ | 30,000 | | |
| 130330 | Storm Water Annual Report | EA | 2 | x | 2,000.00 | = | $ | 4,000 | | |
| 130310 | Rain Event Action Plan (REAP) | EA | | x | | = | $ | - | | |
| 130320 | Storm Water Sampling and Analysis Day | EA | 1 | x | 3,000.00 | = | $ | 3,000 | | |
| 130520 | Temporary Hydraulic Mulch | SQYD | 10,000 | x | 0.75 | = | $ | 7,500 | | |
| 130550 | Temporary Hydroseed | SQYD | | x | | = | $ | - | | |
| 130505 | Move-In/Move-Out (Temporary Erosion Control) | EA | | x | | = | $ | - | | |
| 130640 | Temporary Fiber Roll | LF | | x | | = | $ | - | | |
| 130900 | Temporary Concrete Washout | LS | | x | | = | $ | - | | |
| 130710 | Temporary Construction Entrance | EA | 2 | x | 4,000.00 | = | $ | 8,000 | | |
| 130610 | Temporary Check Dam | LF | | x | | = | $ | - | | |
| 130620 | Temporary Drainage Inlet Protection | EA | 2 | x | 250.00 | = | $ | 500 | | |
| 130730 | Street Sweeping | LS | 1 | x | 20,000.00 | = | $ | 20,000 | | |
| | | | | | | | | *Subtotal NPDES* | $ | 83,000 |
| | | | | | | | | **TOTAL ENVIRONMENTAL** | **$** | **444,300** |

### Supplemental Work for NPDES

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 066595 | Water Pollution Control Maintenance Sharing* | LS | 1 | x | 20,000.00 | = | $ | 20,000 | | |
| 066596 | Additional Water Pollution Control** | LS | 1 | x | 10,000.00 | = | $ | 10,000 | | |
| 066597 | Storm Water Sampling and Analysis*** | LS | | x | | = | $ | - | | |
| XXXXXX | Some Item | LS | | x | | = | $ | - | | |
| | | | | | | | | *Subtotal Supplemental Work for NDPS* | $ | 30,000 |

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

## SECTION 6: TRAFFIC ITEMS

### 6A - Traffic Electrical

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 860460 | Lighting and Sign Illumination | LS | 1 | x | 400,000.00 | = | $ | 400,000 |
| 860201 | Signal and Lighting | LS | | x | | = | $ | - |
| 860990 | Closed Circuit Television System | LS | | x | | = | $ | - |
| 86110X | Ramp Metering System (Location X) | LS | | x | | = | $ | - |
| 86070X | Interconnection Conduit and Cable | LF/LS | | x | | = | $ | - |
| 5602XX | Furnish Sign Structure (Type X) | LB | | x | | = | $ | - |
| 5602XX | Install Sign Structure (Type X) | LB | | x | | = | $ | - |
| 498040 | XX" CIDHC Pile (Sign Foundation) | LF | | x | | = | $ | - |
| 86080X | Inductive Loop Detectors | EA/LS | | x | | = | $ | - |
| 8609XX | Traffic Monitoring Station (Type X) | LS | | x | | = | $ | - |
| 15075X | Remove Sign Structure | EA/LS | | x | | = | $ | - |
| 151581 | Reconstruct Sign Structure | EA | | x | | = | $ | - |
| 152641 | Modify Sign Structure | EA | | x | | = | $ | - |
| 860090 | Maintain Existing Traffic Management System Ele | LS | | x | | = | $ | - |
| 86XXXX | Fiber Optic Conduit System | LS | | x | | = | $ | - |
| 872131 | Modifying Lighting Systems | LS | 1 | x | 100,000.00 | = | $ | 100,000 |

*Subtotal Traffic Electrical* $ *500,000*

### 6B - Traffic Signing and Striping

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 566011 | Roadside Sign - One Post | EA | 10 | x | 550.00 | = | $ | 5,500 |
| 566012 | Roadside Sign - Two Post | EA | 5 | x | 1,050.00 | = | $ | 5,250 |
| 5602XX | Furnish Sign | SQFT | | x | | = | $ | - |
| 568016 | Install Sign Panel on Existing Frame | SQFT | | x | | = | $ | - |
| 150711 | Remove Painted Traffic Stripe | LF | | x | | = | $ | - |
| 141101 | Remove Yellow Painted Traffic Stripe (Hazardous Waste) | LF | | x | | = | $ | - |
| 150712 | Remove Painted Pavement Marking | SQFT | | x | | = | $ | - |
| 150742 | Remove Roadside Sign | EA | | x | | = | $ | - |
| 152320 | Reset Roadside Sign | EA | | x | | = | $ | - |
| 152390 | Relocate Roadside Sign | EA | | x | | = | $ | - |
| 82010X | Delineator (Class X) | EA | | x | | = | $ | - |
| 840502 | Thermoplastic Traffic Stripe (Enhanced Wet Night | LF | 11,500 | x | 1.00 | = | $ | 11,500 |
| 846012 | Thermoplastic Crosswalk and Pavement Marking ( | SQFT | | x | | = | $ | - |
| 120090 | Construction Area Signs | LS | 1 | x | 250,000.00 | = | $ | 250,000 |
| 84XXXX | Permanent Pavement Delineation | LS | | x | | = | $ | - |

*Subtotal Traffic Signing and Striping* $ *272,250*

### 6C - Traffic Management Plan

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 066578 | Portable Changeable Message Signs | LS | 1 | x | $ 10,000 | = | $ | 10,000 |

*Subtotal Traffic Management Plan* $ *10,000*

### 6C - Stage Construction and Traffic Handling

| Item code | | Unit | Quantity | | Unit Price ($) | | | Cost |
|---|---|---|---|---|---|---|---|---|
| 120199 | Traffic Plastic Drum | EA | | x | | = | $ | - |
| 12016X | Channelizer (Type X) | EA | | x | | = | $ | - |
| 120120 | Type III Barricade | EA | | x | | = | $ | - |
| 129100 | Temporary Crash Cushion Module | EA | | x | | = | $ | - |
| 120100 | Traffic Control System | LS | 1 | x | 250,000.00 | = | $ | 250,000 |
| 129110 | Temporary Crash Cushion | EA | | x | | = | $ | - |
| 129000 | Temporary Railing (Type K) | LF | | x | | = | $ | - |
| 120149 | Temporary Pavement Marking (Paint) | SQFT | | x | | = | $ | - |
| 82010X | Delineator (Class X) | EA | | x | | = | $ | - |
| XXXXXX | Some Item | Unit | | x | | = | $ | - |

*Subtotal Stage Construction and Traffic Handling* $ *250,000*

**TOTAL TRAFFIC ITEMS** **$ 1,032,300**

## SECTION 7: DETOURS

Includes constructing, maintaining, and removal

| Item code | | Unit | Quantity | | Unit Price ($) | | Cost |
|---|---|---|---|---|---|---|---|
| 190101 | Roadway Excavation | CY | | x | | = $ | - |
| 19801X | Imported Borrow | CY/TON | | x | | = $ | - |
| 390132 | Hot Mix Asphalt (Type A) | TON | | x | | = $ | - |
| 26020X | Class 2 Aggregate Base | TON/CY | | x | | = $ | - |
| 250401 | Class 4 Aggregate Subbase | CY | | x | | = $ | - |
| 130620 | Temporary Drainage Inlet Protection | EA | | x | | = $ | - |
| 129000 | Temporary Railing (Type K) | LF | | x | | = $ | - |
| 128601 | Temporary Signal System | LS | | x | | = $ | - |
| 120149 | Temporary Pavement Marking (Paint) | SQFT | | x | | = $ | - |
| 80010X | Temporary Fence (Type X) | LF | | x | | = $ | - |
| XXXXXX | Staging Detours | LS | 1 | x | 250,000 | = $ | 250,000 |

* Includes constructing, maintaining, and removal

**TOTAL DETOURS** **$ 250,000**

SUBTOTAL SECTIONS 1 through 7 $ 12,408,100

## SECTION 8: MINOR ITEMS

| | | | | | | |
|---|---|---|---|---|---|---|
| **8A - Americans with Disabilities Act Items** | | | | | | |
| | ADA Items | | | 0.0% | $ | - |
| **8B - Bike Path Items** | | | | | | |
| | Bike Path Items | | | 0.0% | $ | - |
| **8C - Other Minor Items** | | | | | | |
| | Other Minor Items | | | 10.0% | $ | 1,240,810 |
| | Total of Section 1-7 | $ | 12,408,100 | x 10.0% | = $ | 1,240,810 |

**TOTAL MINOR ITEMS** **$ 1,240,900**

## SECTIONS 9: ROADWAY MOBILIZATION

| Item code | | | | | | | |
|---|---|---|---|---|---|---|---|
| 999990 | Total Section 1-8 | $ | 13,649,000 | x | 10% | = $ | 1,364,900 |

**TOTAL ROADWAY MOBILIZATION** **$ 1,364,900**

## SECTION 10: SUPPLEMENTAL WORK

| Item code | | Unit | Quantity | | Unit Price ($) | | Cost |
|---|---|---|---|---|---|---|---|
| 066670 | Payment Adjustments For Price Index Fluctuations | LS | | x | | = $ | - |
| 066094 | Value Analysis | LS | 1 | x | 10,000.00 | = $ | 10,000 |
| 066070 | Maintain Traffic | LS | | x | | = $ | - |
| 066919 | Dispute Resolution Board | LS | 1 | x | 15,000.00 | = $ | 15,000 |
| 066921 | Dispute Resolution Advisor | LS | | x | | = $ | - |
| 066015 | Federal Trainee Program | LS | | x | | = $ | - |
| 066610 | Partnering | LS | 1 | x | 50,000.00 | = $ | 50,000 |
| 066204 | Remove Rock and Debris | LS | | x | | = $ | - |
| 066222 | Locate Existing Crossover | LS | | x | | = $ | - |
| XXXXXX | Some Item | Unit | | x | | = $ | - |
| | *Cost of **NPDES** Supplemental Work specified in Section 5D* | | | | | = $ | 30,000 |
| | Total Section 1-8 | $ | 13,649,000 | | 4% | = $ | 545,960 |

**TOTAL SUPPLEMENTAL WORK** **$ 651,000**

## SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

| Item code | | Unit | Quantity | | Unit Price ($) | | Cost |
|---|---|---|---|---|---|---|---|
| 066105 | Resident Engineers Office | LS | 1 | x | 150,000.00 | = | $150,000 |
| 066063 | Traffic Management Plan - Public Information | LS | 1 | x | 7,500.00 | = | $7,500 |
| 066901 | Water Expenses | LS | | x | | = | $0 |
| 8609XX | Traffic Monitoring Station (X) | LS | | x | | = | $0 |
| 066841 | Traffic Controller Assembly | LS | | x | | = | $0 |
| 066840 | Traffic Signal Controller Assembly | LS | 1 | x | 7,000.00 | = | $7,000 |
| 066062 | COZEEP Contract | LS | 1 | x | 403,900.00 | = | $403,900 |
| 066838 | Reflective Numbers and Edge Sealer | LS | | x | | = | $0 |
| 066065 | Tow Truck Service Patrol | LS | | x | | = | $0 |
| 066916 | Annual Construction General Permit Fee | LS | | x | | = | $0 |
| XXXXXX | Some Item | Unit | | x | | = | $0 |
| | Total Section 1-8 | $ | 13,649,000 | | 2% | = $ | 272,980 |

| TOTAL STATE FURNISHED | $841,400 |
|---|---|

## SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization #VALUE! (used to calculate TRO)

Total Construction Cost (excluding TRO and Contingency) $43,857,300 (used to check if project is greater than $5 million excluding contingency)

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) = **10%**

| Item code | | Unit | Quantity | | Unit Price ($) | | Cost |
|---|---|---|---|---|---|---|---|
| 090100 | Time-Related Overhead | WD | 400 | X | $0 | = | $0 |

| TOTAL TIME-RELATED OVERHEAD | $0 |
|---|---|

## SECTION 13: ROADWAY CONTINGENCY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Total Section 1-12 | $ | 16,506,300 | x | **25%** | = | $4,126,575 | |

| TOTAL CONTINGENCY* | $4,126,600 |
|---|---|

EA: 06-48468 PID:

## II. STRUCTURE ITEMS

| | Bridge 1 | Bridge 2 | |
|---|---|---|---|
| DATE OF ESTIMATE | 08/09/23 | 00/00/00 | 00/00/00 |
| Bridge Name | SB-WB Connector | xxxxxxxxxxxxxxxxxx | xxxxxxxxxxxxxxxxxx |
| Bridge Number | 57-XXX | 57-XXX | 57-XXX |
| Structure Type | Box Girder | xxxxxxxxxxxxxxxxxx | xxxxxxxxxxxxxxxxxx |
| Width (Feet) [out to out] | 30.5 LF | 200 LF | 0 LF |
| Total Bridge Length (Feet) | 1566 LF | 350 LF | 0 LF |
| Total Area (Square Feet) | 52242 SQFT | 70000 SQFT | 0 SQFT |
| Structure Depth (Feet) | 8 LF | 0 LF | 0 LF |
| Footing Type (pile or spread) | CIDH Pile | xxxxxxxxxxxxxxxxxx | xxxxxxxxxxxxxxxxxx |
| Cost Per Square Foot | $524 | $0 | $0 |
| **COST OF EACH** | **$27,351,299** | **$0** | **$0** |

| | Building 1 | | |
|---|---|---|---|
| DATE OF ESTIMATE | 00/00/00 | 00/00/00 | 00/00/00 |
| Building Name | xxxxxxxxxxxxxxxxxx | xxxxxxxxxxxxxxxxxx | xxxxxxxxxxxxxxxxxx |
| Bridge Number | 57-XXX | 57-XXX | 57-XXX |
| Structure Type | xxxxxxxxxxxxxxxxxx | xxxxxxxxxxxxxxxxxx | xxxxxxxxxxxxxxxxxx |
| Width (Feet) [out to out] | 100 LF | 0 LF | 0 LF |
| Total Building Length (Feet) | 150 LF | 0 LF | 0 LF |
| Total Area (Square Feet) | 15000 SQFT | 0 SQFT | 0 SQFT |
| Structure Depth (Feet) | 0 LF | 0 LF | 0 LF |
| Footing Type (pile or spread) | xxxxxxxxxxxxxxxxxx | xxxxxxxxxxxxxxxxxx | xxxxxxxxxxxxxxxxxx |
| Cost Per Square Foot | $0 | $0 | $0 |
| **COST OF EACH** | **$0** | **$0** | **$0** |

| | | |
|---|---|---|
| **TOTAL COST OF BRIDGES** | | **$27,351,299** |
| **TOTAL COST OF BUILDINGS** | | **$0** |
| **STRUCTURES MOBILIZATION** | 10% | **Included** |
| **STRUCTURES CONTINGENCY*** | 25% | **Included** |
| **TOTAL COST OF STRUCTURES** | | **$27,351,000** |

Estimate Prepared By: _____ _____

XXXXXXXXXXXXXXXX ------ Division of Structures Date

EA: 06-48468 PID:

# III. RIGHT OF WAY

Fill in all of the available information from the Right of Way Data Sheet.

| | | | | | |
|---|---|---|---|---|---|
| A) | A1) | Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees | | $ | 1,785,577 |
| | A2) | SB-1210 | | $ | 0 |
| B) | | Acquisition of Offsite Mitigation | | $ | 0 |
| C) | C1) | Utility Relocation (State Share) | | $ | 512,500 |
| | C2) | Potholing (Design Phase) | | $ | 0 |
| D) | | Railroad Acquisition | | $ | 0 |
| E) | | Clearance / Demolition | | $ | 0 |
| F) | | Relocation Assistance (RAP and/or Last Resort Housing Costs) | | $ | 0 |
| G) | | Title and Escrow | | $ | 0 |
| H) | | Environmental Review | | $ | 0 |
| I) | | Condemnation Settlements | 0% | $ | 0 |
| J) | | Design Appreciation Factor | 0% | $ | 0 |
| K) | | Utility Relocation (Construction Cost) | | $ | 0 |

| | | |
|---|---|---|
| L) | **TOTAL RIGHT OF WAY ESTIMATE** | **$2,298,077** |
| M) | **TOTAL R/W ESTIMATE: Escalated** | **$2,390,000** |
| N) | **RIGHT OF WAY SUPPORT** | **$150,000** |

Support Cost Estimate Prepared By _____ Project Coordinator[1] Phone

Utility Estimate Prepared By _____ Utility Coordinator[2] Phone

R/W Acquisition Estimate Prepared By _____ Right of Way Estimator[3] Phone

Note: Items G & H applied to items A + B

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

DO NOT PRINT THIS SHEET AS PART OF COST ESTIMATE ATTACHMENT TO PROJECT INITIATION OR APPROVAL DOCUMENTS.

EA: 06-48468 PID:

## IV. SUPPORT COST ESTIMATE SUMMARY

Run a Support Cost Estimate Summary report (D11 Project Management Support onramp) for component data.

| | | Unescalated-Risk Loaded | | | | | Escalated (4.2% per year for ETC, effective 1/2/2018 ) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total by FY | | PA&ED | PS&E | RW | CON | Total $ | PA&ED | PS&E | RW | CON | Total $ |
| <2016 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2017 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2018 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2019 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2020 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2021 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2022 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2023 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2024 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2025 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2026 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2027 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2028 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| 2029 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| >2030 | Expended | | | | | | | | | | |
| | ETC | | | | | | | | | | |
| EAC (Expended + ETC) | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Risk Amount from Risk Register | | $0 | $0 | $0 | $0 | Escalated Risk Amoun | $0 | $0 | $0 | $0 | $0 |
| Support Escalation Rate | | 4.2% | 4.2% | 4.2% | 4.2% | | | | | | |
| Duration to mid-point component | | 1.00 | 2.00 | 2.50 | 4.50 | | | | | | |
| Total including Risk Amount | | $0 | $0 | $0 | $0 | Total Esc. Support Cos | $0 | $0 | $0 | $0 | $0 |
| Approved Budget (PRSM) | | | | | | | | | | | |
| Difference (Budget - EAC) | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Support Ratio (EAC / Cap Cost) | | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

Note: If you have al

| | |
|---|---|
| Total Capital Cost: | $50,282,000 |
| Total Capital Outlay Support Cost: | $0 |
| Overall Percent Support Cost: | 0.00% |

PRSM workplan hours/costs verified against approved MWA:

Office Chief - Date

Approved by:

Project Control - Date

Appendix E – Right of Way Data Sheet

To: District Division Chief
Division of Right of Way and Land Surveys

Date: 10/10/23

Co. Ker Rte. SR-58 & SR-99
Expense Authorization EA-48468

Attention: District Branch Chief
R/W Local Programs

Subject: **RIGHT OF WAY DATA SHEET - LOCAL PUBLIC AGENCIES**

Project Description: Construct SB SR-99 to WB SR-58 connector

Right of way necessary for the subject project will be the responsibility of the City of Bakersfield.

The information in this data sheet was developed by BJ Swanner of Monument ROW in collaboration with Matthew Brash, PE of Parsons.

I. ***Right of Way Engineering***

Will Right of Way Engineering be required for this project?

- No ____
- Yes _X_ (Submit a copy of the *Right of Way Engineering Surveys and Mapping Services checklist for Locally Funded Projects*. This checklist includes, but is not limited to, the following items.)

  - Hard copy (base map) X
  - Appraisal map X
  - Acquisition Documents X
  - Property Transfer Documents X
  - R/W Record Map X
  - Record of Survey X

**The final Right of Way Requirements have not been established at this time.**

II. ***Engineering Surveys***

1. Is any surveying or photogrammetric mapping required?

   No ____ Yes _X_ (Complete the following.)

**Photogrammetric mapping was completed in conjunction with the PSR. Engineering surveying will be performed in the PA/ED and PS&E phases of the project**

2. Datum Requirements

   Yes _X_ Project will adhere to the following criteria:
   - Horizontal - **NAD 83, CCS83 Zone 6**
   - Vertical - **NAVD 88.**
   - Units – **US Survey Feet**

   No ____ Provide an explanation on additional page.

3. Will land survey monument perpetuation be scoped into the project, if required?

   Yes _X_

   No ____ Provide explanation on additional page.

III. ***Parcel Information (Land and Improvements)***

Are there any property rights required within the proposed project limits?

No ____ Yes __X__ (Complete the following.)

| | Part Take | Full Take | Estimate $ |
|---|---|---|---|
| A. Number of Vacant Land Parcels | 0 | 0 | $ |
| B. Number of Single Family Residential Units | 0 | 0 | $ |
| C. Number of Multifamily Residential Units | 0 | 0 | $ |
| D. Number of Commercial/Industrial Parcels | 2 | 0 | $ 1,710,000* |
| E. Number of Farm/Agricultural Parcels | 0 | 0 | $ |
| F. Permanent and/or Temporary Easements | 0 | 0 | $ |
| G. Other Parcels (define in "Remarks" section) | 1 | 0 | $ 147,000 |
| Totals | 3 | 0 | $ 1,857,000** |

*Cost includes partial fee acquisition, permanent and temporary easements.
** All costs include 4% escalation for 1 year and a 25% contingency.

The proposed project will require partial fee acquisitions and/or permanent easements from three properties, including a City of Bakersfield-owned lot, a medical office complex, and a neighborhood commercial center.

A partial fee acquisition for the proposed flyover will be required from a regional medical office (Kaiser Permanente). The acquisition will result in the loss of 85 on-site parking spaces from the medical office for a year and a half during construction. However, some replacement parking could be provided on an adjacent Caltrans-owned parcel.

A partial acquisition will be required from a commercial property (comprised of two parcels) west of S. Real Road for the connector structure and for a new retaining wall. A permanent easement would also be required for future inspection and maintenance of the wall. The existing driveway access to the property would be reduced to one-way traffic to accommodate the new retaining wall. New access would be required from Williamson Way, or through an adjacent property from Stockdale Highway. A temporary loss of an estimated 4 parking spaces would also occur during construction.

The project will require a partial acquisition from a property (comprised of two parcels) currently owned by Cal Water. The property is improved with a Pump Station supported by a pad-mounted transformer and a diesel backup generator. The generator will conflict with the proposed connector and would need to be relocated elsewhere on the property.

IV. ***Dedications***

Are there any property rights which have been acquired, or anticipate will be acquired, through the "dedication" process for the Project?

No __X__ Yes ____ (Complete the following.)

Number of dedicated parcels _____

Have the dedication parcel(s) been accepted by the municipality involved?

V. ***Excess Lands / Relinquishments***

Are there Caltrans property rights which may become excess lands or potential relinquishment areas?

No __X__ Yes _____ (Provide an explanation on additional page.)

VI. ***Relocation Information***

Are relocation displacements anticipated?

No __X__ Yes _____ (Complete the following.)

| | | | |
|---|---|---|---|
| A. Number of Single Family Residential Units | | | |
| Estimated RAP Payments | | $ | |
| B. Number of Multifamily Residential Units | | | |
| Estimated RAP Payments | | $ | |
| C. Number of Business/Nonprofit | | | |
| Estimated RAP Payments | | $ | |
| D. Number of Farms | | | |
| Estimated RAP Payments | | $ | |
| E. Other (define in the "Remarks" section) | | | |
| Estimated RAP Payments | | $ | |
| Totals | 0 | $ | 0 |

VII. ***Utility Relocation Information***

Do you anticipate any utility facilities or utility rights of way to be affected?

No _____ Yes __X__ (Complete the following.)

| | | Estimated Relocation Expense | | |
|---|---|---|---|---|
| Facility | Owner | State Obligation | Local Obligation | Utility Owner Obligation |
| A. Sewer | City of Bakersfield | $400,000 | $0 | $0 |
| B. Overhead Electric | PG&E | $100,000 | $0 | $0 |
| C. Diesel Generator | Cal Water | $33,000 | $0 | $0 |
| Totals | | $533,000 | $0 | $0 |

Number of facilities 3

*This amount reflects the estimated total financial obligation by the State.

VIII. ***Rail Information***

Are railroad facilities or railroad rights of way affected?

No __X__ Yes _____ (Complete the following.)

Describe railroad facilities or railroad rights of way affected.

| Owner's Name | Transverse Crossing | Longitudinal Encroachment |
|---|---|---|
| A. | | |
| B. | | |

Discuss types of agreements and rights required from the railroads. Are grade crossings that require services contracts, or grade separations that require construction and maintenance agreements involved?

IX. ***Clearance Information***

Are there improvements that require clearance?

No __X__ Yes _____ (Complete the following.)

A. Number of Structures to be Demolished _____
Estimated Cost of Demolition $ _____

X. ***Hazardous Materials/Waste***

Are there any site(s) and/or improvements(s) in the Project Limits that are known to contain

*hazardous materials*? None __X__ Yes _____ (Explain in the "Remarks" section.)

Are there any site(s) and/or improvement(s) in the Project Limits that are suspected to contain

*hazardous waste*? None __X__ Yes _____ (Explain in the "Remarks" section.)

XI. ***Project Scheduling***

| | Proposed lead time | Completion date |
|---|---|---|
| * Preliminary Engineering, Surveys | 3 (months) | |
| * R/W Engineering Submittals | 6 (months) | |
| * R/W Appraisals/Acquisition | 18 (months) | |
| Proposed Environmental Clearance | | |
| Proposed R/W Certification | | |

XII. ***Proposed Funding***

| | Local | State | Federal | Other |
|---|---|---|---|---|
| Acquisition | | $1,857,000 | | |
| Utilities | | $533,000 | | |
| Relocation Assistance Program | | | | |
| R/W Support | | | | |
| Cost (Eng. Appraisals, etc.) | | $150,000 | | |

XIII. ***Remarks***

Section III, Line G: The project will require a partial acquisition from a parcel currently owned by Cal Water. This right of way data sheet is preliminary and will be updated as design and coordination with parcel owners progresses.

Project Sponsor Consultant
Prepared by:

Brian J Swanner

BJ Swanner – Monument

10/10/2023
Date

Project Sponsor
Reviewed and Approved by:

10-13-23
Date

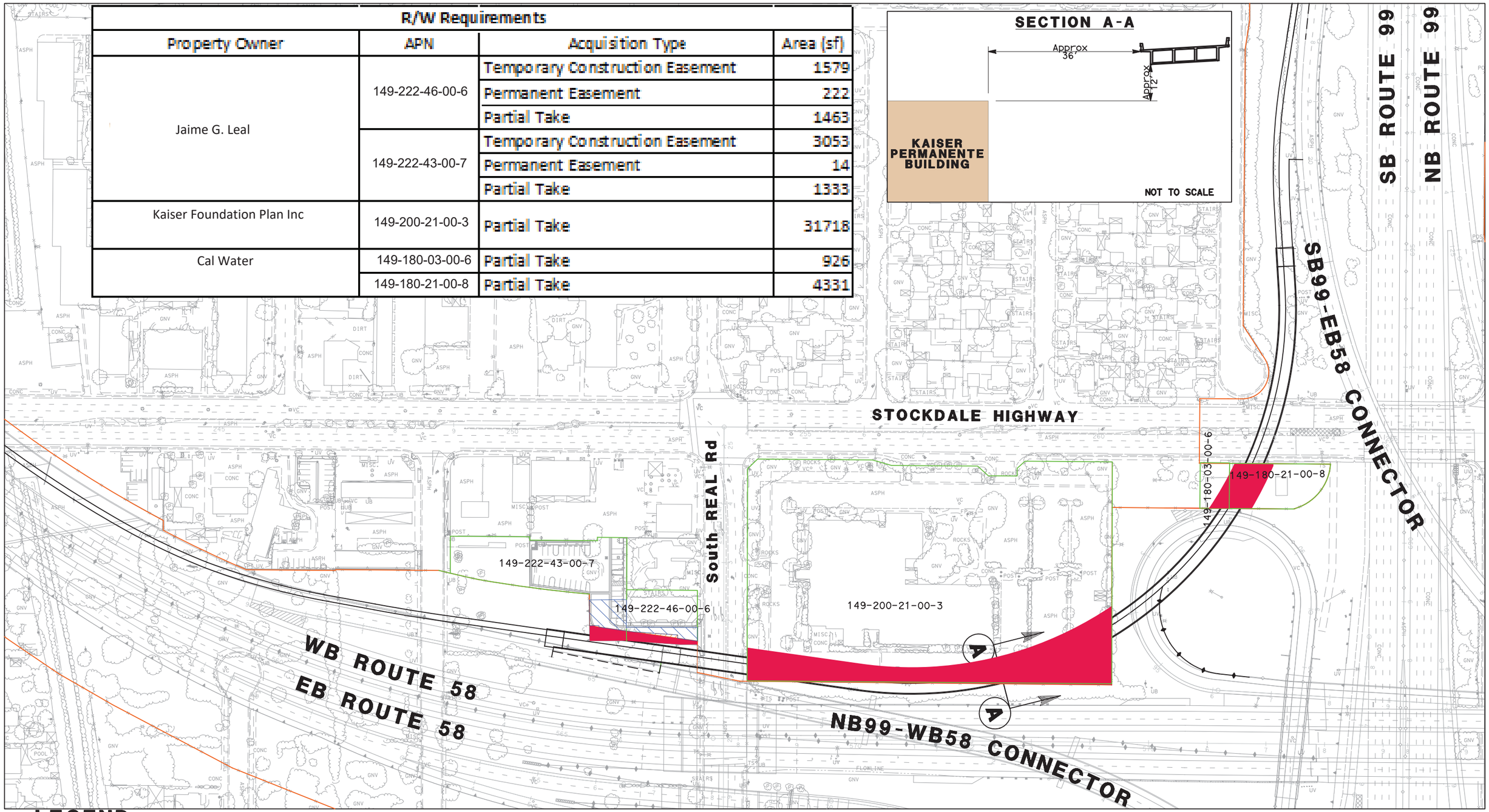
Caltrans
Reviewed and approved based on information provided to date:

Caltrans District Branch Chief
Local Programs
Division of Right of Way

10/13/2023
Date

| R/W Requirements | | | |
|---|---|---|---|
| Property Owner | APN | Acquisition Type | Area (sf) |
| Jaime G. Leal | 149-222-46-00-6 | Temporary Construction Easement | 1579 |
| | | Permanent Easement | 222 |
| | | Partial Take | 1463 |
| | 149-222-43-00-7 | Temporary Construction Easement | 3053 |
| | | Permanent Easement | 14 |
| | | Partial Take | 1333 |
| Kaiser Foundation Plan Inc | 149-200-21-00-3 | Partial Take | 31718 |
| Cal Water | 149-180-03-00-6 | Partial Take | 926 |
| | 149-180-21-00-8 | Partial Take | 4331 |




## LEGEND

- TEMPORARY CONSTRUCTION EASEMENT
- PERMANENT EASEMENT
- PARTIAL TAKE
- CALTRANS ROW
- PARCELS

PARSONS

# SB99 TO WB58 CONNECTOR

10/12/2023

SCALE: 1" = 75'

Appendix F – Traffic Forecasting and Traffic Operations Analysis Report

**MEMORANDUM**

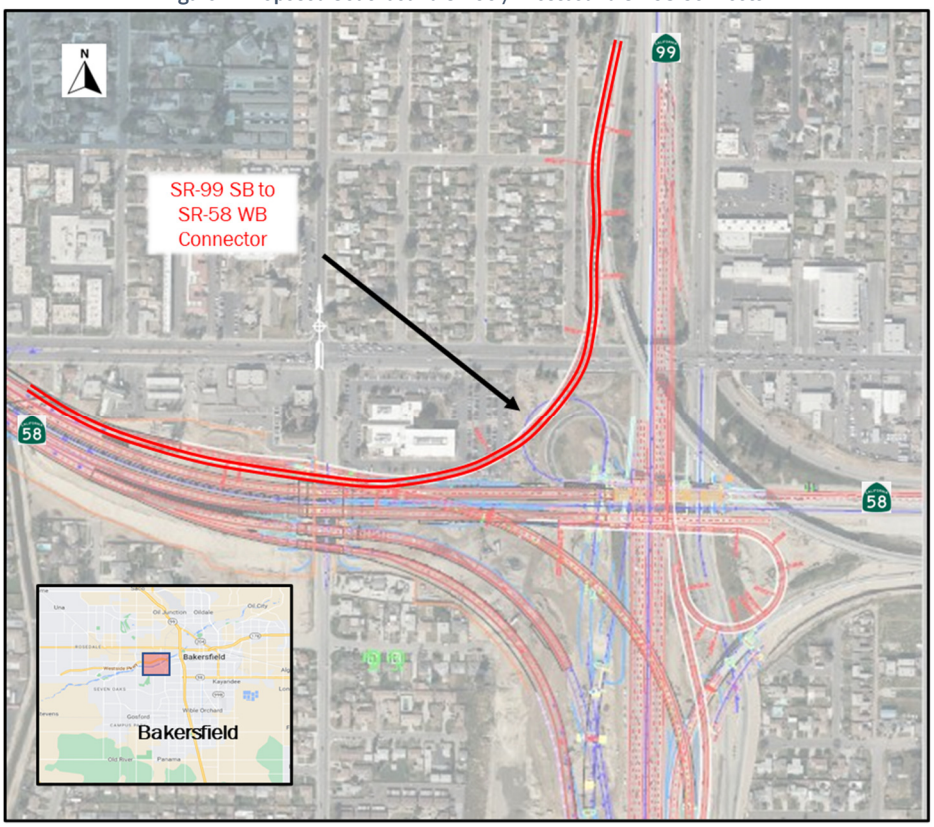
**TO:** Caltrans District 6
**FROM:** Parsons
**DATE:** 8/14/2023
**SUBJECT:** Traffic Forecasting and Traffic Operations Analysis Report, August 20th, 2023 Update
**PROJECT:** EA 06-48468, Southbound 99 to Westbound 58 Connector Project

## PROJECT DESCRIPTION

The proposed Southbound State Route (SR) 99 to Westbound SR 58 Connector Project is situated within Kern County, Bakersfield, California. This project entails the construction of a connector ramp, which will establish a direct link between the southbound SR 99 freeway and the westbound SR 58. Its primary objective is to mitigate traffic congestion experienced at the 24th Street, and California Avenue ramps on SR 99. Additionally, it will facilitate the efficient flow of traffic from southbound SR 99 to westbound SR 58 (Centennial/Westside Parkway), a newly constructed freeway that serves the rapidly developing western region of Bakersfield.

The proposed project will significantly enhance the overall transportation network by complementing the westbound ramp movement, which is currently absent in the Centennial Corridor Project. Moreover, this development will have a positive impact on other critical roadways, such as Oak Street, Mohawk Road, and Rosedale Highway, as it will effectively alleviate congestion. The present utilization of these roads is substantial due to the lack of the proposed project. The project improvement is shown in Figure 1.

Figure 1: Proposed Southbound SR 99 / Westbound SR 58 Connector



## TRAFFIC FORECASTS

The traffic volumes were developed using the Kern County Council of Governments (KernMIP II 2018RTP) travel demand model that is currently available. The opening year (2026) highway network assumes all roadway improvements, including the Transportation Research and Innovation Program (TRIP) projects scheduled to be completed by the opening year. Traffic forecasts are produced for the opening year without the Connector Project (no-build) and with the Connector Project (build). The horizon year (2042) highway network assumes all roadway improvements are scheduled to be completed by 2042, and all TRIP projects are deemed to be completed based on the 2018RTP assumptions.

Traffic forecasts are produced for the 2046 design year without the Connector Project (no-build) and with the Connector Project (build) by extrapolating the horizon year forecasts using growth factors. The growth factors were developed based on land use changes between the forecast years 2020 and 2042. The growth factor of 1.04 was used to establish the 2046 design year volumes and is shown in Table 1

Table 1: Design Year - Growth Factor

| KernMIP 2018RTP Model - Socioeconomic Data | | | |
|---|---|---|---|
| Year | Population | Households | Employment |
| 2020 | 943,977 | 292,000 | 349,600 |
| 2023 | 1,005,485 | 311,280 | 366,900 |
| 2026 | 1,066,992 | 330,560 | 384,200 |
| 2042 | 1,396,246 | 444,466 | 483,500 |
| 2046 | 1,454,350 | 464,567 | 501,024 |
| **Factor** | **1.04** | **1.05** | **1.04** |

### Existing Year (2020) Volumes

The traffic forecasts developed from the KernMIP 2018RTP travel demand model for the existing year (2020) are shown in Table 2 for various segments in the project area along SR 99 & SR 58. The KernMIP 2018RTP travel demand model produces traffic volumes by periods, which include AM peak (3 hours), mid-day (7 hours), PM peak (3 hours), and off-peak (11 hours). All periods are added together to produce the daily volumes.

Table 2: 2020 Existing Year – Volumes

| Number | Direction | Segment Name | 2020 Existing | | | | |
|---|---|---|---|---|---|---|---|
| | | | AM - 3Hr | MD- 7Hr | PM - 3Hr | OP - 11Hr | Day - 24Hr |
| 1 | SB | SR 99 Mainline - S. of Buck Owens | 6,744 | 11,837 | 15,926 | 31,028 | 65,535 |
| 2 | SB | SR 99 Ramp - Rosedale Off | 464 | 900 | 830 | 1,953 | 4,146 |
| 3 | SB | SR 99 Mainline - Between WB Off & Loop On | 6,280 | 10,937 | 15,096 | 29,076 | 61,388 |
| 4 | SB | SR 99 Ramp - WB 24th Street Loop On | 1,095 | 2,147 | 2,272 | 6,113 | 11,628 |
| 5 | SB | SR 99 Mainline - between Loop On and EB On Ramp | 7,375 | 13,084 | 17,369 | 35,189 | 73,016 |
| 6 | SB | SR 99 Ramp - Rosedale On | 548 | 1,431 | 1,619 | 2,816 | 6,415 |
| 7 | SB | SR 99 Mainline - South of Rosedale | 7,923 | 14,516 | 18,988 | 38,005 | 79,431 |
| 10 | SB | SR 99 Ramp - California Off | 1,287 | 2,396 | 2,876 | 5,242 | 11,801 |
| 11 | SB | SR 99 Mainline - between On & Off Ramps | 6,636 | 12,119 | 16,112 | 32,763 | 67,630 |
| 12 | SB | SR 99 Ramp - California On | 582 | 1,292 | 1,473 | 3,128 | 6,475 |
| 13 | SB | SR 99 Mainline - South of California | 7,218 | 13,412 | 17,585 | 35,891 | 74,106 |
| 14 | SB | SR 99 Ramp – SR 58 off ( EB & WB) | 1,670 | 3,162 | 4,491 | 8,421 | 17,744 |
| 15 | SB | SR 99 Ramp – SR 58 EB | 1,670 | 3,162 | 4,491 | 8,421 | 17,744 |
| 16 | SB | SR 99 Mainline - South of SR 58 Ramp | 5,547 | 10,250 | 13,094 | 27,470 | 56,361 |
| 20 | SB | SR 99 Ramp – SR 58 WB | - | - | - | - | - |
| 21 | EB | SR 58 Mainline - E. of SR 99 | 4,052 | 7,155 | 8,674 | 19,274 | 39,155 |
| 22 | WB | SR 58 Ramp - WB SR 58 off to SB SR 99 | 1,801 | 3,333 | 3,994 | 8,817 | 17,945 |
| 23 | WB | SR 58 Ramp - NB SR 99 to WB SR 58 | 2,306 | 3,996 | 4,598 | 10,939 | 21,840 |

| Number | Direction | Segment Name | 2020 Existing | | | | |
|---|---|---|---|---|---|---|---|
| | | | AM - 3Hr | MD- 7Hr | PM - 3Hr | OP - 11Hr | Day - 24Hr |
| 24 | WB | SR 58 Ramp - SB SR 99 to WB SR 58 | - | - | - | - | - |
| 25 | WB | SR 58 Ramp - WB On from SR 99 | 2,306 | 3,996 | 4,598 | 10,939 | 21,840 |
| 26 | WB | SR 58 Mainline - SR 58 W. of SR 99 | 4,557 | 7,818 | 9,278 | 21,397 | 43,050 |

### Opening Year (2026) Volumes

In Table 3, the traffic forecasts for different segments in the project area along SR 99 and SR 58 are presented. These forecasts are based on the KernMIP 2018RTP travel demand model and specifically represent the traffic expectations for the opening year 2026. The travel demand model in KernMIP provides estimates of traffic volumes for various periods, including the AM peak (3 hours), mid-day (7 hours), PM peak (3 hours), and off-peak (11 hours). The traffic volumes for each specific period are aggregated to obtain the daily volumes.

Table 3: 2026 Opening Year – Volumes

| Number | Direction | Segment Name | 2026 No Build (Opening Year) | | | | | 2026 - Build (Opening Year) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM - 3Hr | MD- 7Hr | PM - 3Hr | OP- 11Hr | Day - 24Hr | AM - 3Hr | MD- 7Hr | PM - 3Hr | OP - 11Hr | Day - 24Hr |
| 1 | SB | SR 99 Mainline - S. of Buck Owens | 7,455 | 13,132 | 17,531 | 34,449 | 72,568 | 7,757 | 13,665 | 18,135 | 36,272 | 75,828 |
| 2 | SB | SR 99 Ramp - Rosedale Off | 514 | 975 | 930 | 2,055 | 4,474 | 482 | 925 | 908 | 2,036 | 4,351 |
| 3 | SB | SR 99 Mainline - Between WB Off & Loop On | 6,941 | 12,158 | 16,601 | 32,394 | 68,094 | 7,275 | 12,740 | 17,227 | 34,236 | 71,478 |
| 4 | SB | SR 99 Ramp - WB 24th Street Loop On | 1,073 | 2,209 | 2,125 | 6,521 | 11,927 | 1,136 | 2,300 | 2,310 | 6,736 | 12,483 |
| 5 | SB | SR 99 Mainline - between Loop On and EB On Ramp | 8,014 | 14,367 | 18,726 | 38,914 | 80,021 | 8,411 | 15,040 | 19,537 | 40,972 | 83,961 |
| 6 | SB | SR 99 Ramp - Rosedale On | 556 | 1,455 | 1,728 | 2,883 | 6,623 | 554 | 1,447 | 1,623 | 2,883 | 6,508 |
| 7 | SB | SR 99 Mainline - South of Rosedale | 8,570 | 15,822 | 20,453 | 41,798 | 86,644 | 8,966 | 16,487 | 21,160 | 43,856 | 90,469 |
| 10 | SB | SR 99 Ramp - California Off | 1,390 | 2,530 | 3,245 | 5,808 | 12,973 | 1,351 | 2,469 | 2,839 | 5,607 | 12,266 |
| 11 | SB | SR 99 Mainline - between On & Off Ramps | 7,181 | 13,292 | 17,208 | 35,989 | 73,671 | 7,615 | 14,018 | 18,321 | 38,249 | 78,202 |
| 12 | SB | SR 99 Ramp - California On | 574 | 1,229 | 1,402 | 3,143 | 6,347 | 576 | 1,274 | 1,445 | 3,207 | 6,503 |
| 13 | SB | SR 99 Mainline - South of California | 7,754 | 14,521 | 18,610 | 39,132 | 80,018 | 8,190 | 15,292 | 19,766 | 41,456 | 84,705 |
| 14 | SB | SR 99 Ramp - SR 58 off ( EB & WB) | 1,814 | 3,485 | 4,735 | 9,093 | 19,128 | 2,321 | 4,376 | 6,250 | 11,692 | 24,639 |
| 15 | SB | SR 99 Ramp - SR 58 EB | 1,814 | 3,485 | 4,735 | 9,093 | 19,128 | 1,806 | 3,453 | 4,682 | 9,064 | 19,006 |
| 16 | SB | SR 99 Mainline - South of SR 58 Ramp | 5,940 | 11,036 | 13,875 | 30,039 | 60,890 | 5,869 | 10,917 | 13,516 | 29,764 | 60,067 |
| 20 | SB | SR 99 Ramp - SR 58 WB | - | - | - | - | - | 515 | 923 | 1,568 | 2,627 | 5,633 |
| 21 | EB | SR 58 Mainline - E. of SR 99 | 4,367 | 7,534 | 9,311 | 20,765 | 41,977 | 4,387 | 7,533 | 9,360 | 20,937 | 42,218 |
| 22 | WB | SR 58 Ramp - WB SR 58 off to SB SR 99 | 1,955 | 3,474 | 4,212 | 9,471 | 19,112 | 1,965 | 3,532 | 4,354 | 9,520 | 19,371 |
| 23 | WB | SR 58 Ramp - NB SR 99 to WB SR 58 | 2,391 | 4,113 | 4,797 | 11,275 | 22,576 | 2,374 | 4,121 | 4,700 | 11,256 | 22,450 |
| 24 | WB | SR 58 Ramp - SB SR 99 to WB SR 58 | - | - | - | - | - | 515 | 923 | 1,568 | 2,627 | 5,633 |
| 25 | WB | SR 58 Ramp - WB On from SR 99 | 2,391 | 4,113 | 4,797 | 11,275 | 22,576 | 2,889 | 5,043 | 6,268 | 13,883 | 28,083 |
| 26 | WB | SR 58 Mainline - SR 58 W. of SR 99 | 4,803 | 8,173 | 9,896 | 22,569 | 45,440 | 5,311 | 9,045 | 11,275 | 25,300 | 50,930 |

## Horizon Year (2042) Volumes

Table 4 presents the traffic forecasts for various segments in the project area along SR 99 and SR 58, as developed from the KernMIP 2018RTP travel demand model. These forecasts specifically pertain to the horizon year of 2042. The travel demand model used in KernMIP provides traffic volume estimates for different periods, including the AM peak (3 hours), mid-day (7 hours), PM peak (3 hours), and off-peak (11 hours). The traffic volumes for each period are aggregated to derive the daily volumes for the respective segments.

Table 4: 2042 Horizon Year – Volumes

| Number | Direction | Segment_Name | 2042 No Build (Horizon Year) | | | | | 2042 - Build (Horizon Year) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM - 3Hr | MD- 7Hr | PM - 3Hr | OP - 11Hr | Day - 24Hr | AM - 3Hr | MD- 7Hr | PM - 3Hr | OP - 11Hr | Day - 24Hr |
| 1 | SB | SR 99 Mainline - S. of Buck Owens | 8,528 | 15,244 | 19,659 | 39,390 | 82,822 | 8,779 | 15,731 | 20,106 | 41,019 | 85,634 |
| 2 | SB | SR 99 Ramp - Rosedale Off | 477 | 937 | 876 | 2,014 | 4,304 | 453 | 910 | 860 | 2,002 | 4,226 |
| 3 | SB | SR 99 Mainline - Between WB Off & Loop On | 8,051 | 14,307 | 18,783 | 37,377 | 78,518 | 8,325 | 14,820 | 19,246 | 39,017 | 81,409 |
| 4 | SB | SR 99 Ramp - WB 24th Street Loop On | 1,037 | 2,200 | 1,891 | 6,415 | 11,542 | 1,072 | 2,295 | 2,297 | 6,900 | 12,564 |
| 5 | SB | SR 99 Mainline - between Loop On and EB On Ramp | 9,088 | 16,507 | 20,674 | 43,791 | 90,060 | 9,397 | 17,115 | 21,543 | 45,917 | 93,973 |
| 6 | SB | SR 99 Ramp - Rosedale On | 581 | 1,463 | 1,770 | 3,013 | 6,827 | 593 | 1,599 | 1,763 | 2,994 | 6,949 |
| 7 | SB | SR 99 Mainline - South of Rosedale | 9,669 | 17,971 | 22,444 | 46,804 | 96,887 | 9,990 | 18,715 | 23,306 | 48,911 | 100,921 |
| 10 | SB | SR 99 Ramp - California Off | 1,630 | 2,866 | 3,190 | 6,561 | 14,247 | 1,544 | 2,845 | 2,816 | 6,501 | 13,707 |
| 11 | SB | SR 99 Mainline - between On & Off Ramps | 8,039 | 15,105 | 19,254 | 40,243 | 82,640 | 8,446 | 15,869 | 20,490 | 42,410 | 87,215 |
| 12 | SB | SR 99 Ramp - California On | 732 | 1,507 | 1,970 | 3,879 | 8,088 | 749 | 1,554 | 2,227 | 3,914 | 8,445 |
| 13 | SB | SR 99 Mainline - South of California | 8,771 | 16,612 | 21,223 | 44,122 | 90,729 | 9,195 | 17,424 | 22,716 | 46,324 | 95,659 |
| 14 | SB | SR 99 Ramp - SR 58 off ( EB & WB) | 2,213 | 4,352 | 6,172 | 11,048 | 23,785 | 2,714 | 5,372 | 7,999 | 13,401 | 29,486 |
| 15 | SB | SR 99 Ramp - SR 58 EB | 2,213 | 4,352 | 6,172 | 11,048 | 23,785 | 2,195 | 4,305 | 6,071 | 11,007 | 23,578 |
| 16 | SB | SR 99 Mainline - South of SR 58 Ramp | 6,559 | 12,260 | 15,051 | 33,073 | 66,944 | 6,480 | 12,052 | 14,717 | 32,924 | 66,173 |
| 20 | SB | SR 99 Ramp - SR 58 WB | - | - | - | - | - | 519 | 1,067 | 1,929 | 2,393 | 5,908 |
| 21 | EB | SR 58 Mainline - E. of SR 99 | 5,618 | 9,472 | 11,879 | 26,541 | 53,510 | 5,594 | 9,559 | 11,693 | 26,685 | 53,531 |
| 22 | WB | SR 58 Ramp - WB SR 58 off to SB SR 99 | 2,301 | 4,050 | 4,767 | 11,514 | 22,631 | 2,310 | 4,131 | 4,836 | 11,490 | 22,766 |
| 23 | WB | SR 58 Ramp - NB SR 99 to WB SR 58 | 2,666 | 4,483 | 4,783 | 13,175 | 25,106 | 2,640 | 4,424 | 4,728 | 13,163 | 24,955 |
| 24 | WB | SR 58 Ramp - SB SR 99 to WB SR 58 | - | - | - | - | - | 519 | 1,067 | 1,929 | 2,393 | 5,908 |
| 25 | WB | SR 58 Ramp - WB On from SR 99 | 2,666 | 4,483 | 4,783 | 13,175 | 25,106 | 3,160 | 5,491 | 6,656 | 15,556 | 30,863 |
| 26 | WB | SR 58 Mainline - SR 58 W. of SR 99 | 5,984 | 9,905 | 11,895 | 28,202 | 55,985 | 6,444 | 10,919 | 13,514 | 30,751 | 61,628 |

### Design Year (2046) Volumes

The traffic forecasts developed from the KernMIP 2018RTP travel demand model for the design year (2046) are shown in Table 5 for various segments in the project area along SR 99 & SR 58. The KernMIP 2018RTP travel demand model produces traffic volumes by periods, which include AM peak (3 hours), mid-day (7 hours), PM peak (3 hours), and off-peak (11 hours). All the periods are added together to produce the daily volumes.

Table 5: 2046 Design Year - Volumes

| Number | Direction | Segment Name | 2046 No Build (Design Year) | | | | | 2046 - Build (Design Year) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM - 3Hr | MD- 7Hr | PM - 3Hr | OP - 11Hr | Day - 24Hr | AM - 3Hr | MD- 7Hr | PM - 3Hr | OP - 11Hr | Day - 24Hr |
| 1 | SB | SR 99 Mainline - S. of Buck Owens | 8,869 | 15,854 | 20,446 | 40,966 | 86,135 | 9,130 | 16,360 | 20,910 | 42,660 | 89,060 |
| 2 | SB | SR 99 Ramp - Rosedale Off | 496 | 974 | 911 | 2,094 | 4,476 | 471 | 947 | 895 | 2,082 | 4,395 |
| 3 | SB | SR 99 Mainline - Between WB Off & Loop On | 8,374 | 14,880 | 19,534 | 38,872 | 81,659 | 8,659 | 15,413 | 20,016 | 40,578 | 84,665 |
| 4 | SB | SR 99 Ramp - WB 24th Street Loop On | 1,078 | 2,288 | 1,966 | 6,671 | 12,004 | 1,115 | 2,387 | 2,389 | 7,176 | 13,067 |
| 5 | SB | SR 99 Mainline - between Loop On and EB On Ramp | 9,452 | 17,168 | 21,500 | 45,543 | 93,663 | 9,773 | 17,800 | 22,405 | 47,754 | 97,732 |
| 6 | SB | SR 99 Ramp - Rosedale On | 604 | 1,522 | 1,841 | 3,133 | 7,100 | 617 | 1,663 | 1,833 | 3,113 | 7,227 |
| 7 | SB | SR 99 Mainline - South of Rosedale | 10,056 | 18,689 | 23,342 | 48,676 | 100,763 | 10,390 | 19,463 | 24,238 | 50,867 | 104,958 |
| 10 | SB | SR 99 Ramp - California Off | 1,695 | 2,980 | 3,318 | 6,824 | 14,817 | 1,606 | 2,959 | 2,929 | 6,761 | 14,255 |
| 11 | SB | SR 99 Mainline - between On & Off Ramps | 8,361 | 15,709 | 20,024 | 41,852 | 85,946 | 8,783 | 16,504 | 21,309 | 44,106 | 90,703 |
| 12 | SB | SR 99 Ramp - California On | 761 | 1,568 | 2,048 | 4,034 | 8,412 | 779 | 1,616 | 2,316 | 4,071 | 8,783 |
| 13 | SB | SR 99 Mainline - South of California | 9,122 | 17,277 | 22,072 | 45,887 | 94,358 | 9,563 | 18,121 | 23,625 | 48,177 | 99,486 |
| 14 | SB | SR 99 Ramp - SR 58 off ( EB & WB) | 2,301 | 4,526 | 6,419 | 11,490 | 24,736 | 2,823 | 5,587 | 8,319 | 13,937 | 30,666 |
| 15 | SB | SR 99 Ramp - SR 58 EB | 2,301 | 4,526 | 6,419 | 11,490 | 24,736 | 2,283 | 4,477 | 6,313 | 11,448 | 24,521 |
| 16 | SB | SR 99 Mainline - South of SR 58 Ramp | 6,821 | 12,751 | 15,653 | 34,396 | 69,621 | 6,740 | 12,534 | 15,306 | 34,241 | 68,820 |
| 20 | SB | SR 99 Ramp - SR 58 WB | - | - | - | - | - | 540 | 1,109 | 2,006 | 2,489 | 6,144 |
| 21 | EB | SR 58 Mainline - E. of SR 99 | 5,843 | 9,851 | 12,354 | 27,602 | 55,651 | 5,818 | 9,942 | 12,161 | 27,752 | 55,672 |
| 22 | WB | SR 58 Ramp - WB SR 58 off to SB SR 99 | 2,393 | 4,212 | 4,958 | 11,974 | 23,537 | 2,402 | 4,296 | 5,029 | 11,949 | 23,676 |
| 23 | WB | SR 58 Ramp - NB SR 99 to WB SR 58 | 2,773 | 4,662 | 4,974 | 13,702 | 26,110 | 2,746 | 4,601 | 4,917 | 13,689 | 25,953 |
| 24 | WB | SR 58 Ramp - SB SR 99 to WB SR 58 | - | - | - | - | - | 540 | 1,109 | 2,006 | 2,489 | 6,144 |
| 25 | WB | SR 58 Ramp - WB On from SR 99 | 2,773 | 4,662 | 4,974 | 13,702 | 26,110 | 3,286 | 5,710 | 6,923 | 16,179 | 32,098 |
| 26 | WB | SR 58 Mainline - SR 58 W. of SR 99 | 6,223 | 10,301 | 12,370 | 29,330 | 58,225 | 6,702 | 11,356 | 14,054 | 31,981 | 64,093 |

### Peak Hour Volumes

The Peak Hour volumes from the AM and PM were developed by applying a peak hour factor of 0.35 to the peak period volumes. The peak hour factor was developed based on PeMS count data on SR 99 southbound at Mainline VDS 601271 - Hoskings Avenue 99 SB for 3 months from 01/02/2022 to 03/31/2022 for Tuesdays, Wednesdays & Thursdays. The detector data quality was found to be at 91.7% Observed, which was good, and the exact location of the detector is shown in Figure 2. See Table 6 for peak hour volumes for different scenarios.

Figure 2: PeMS Detector Location

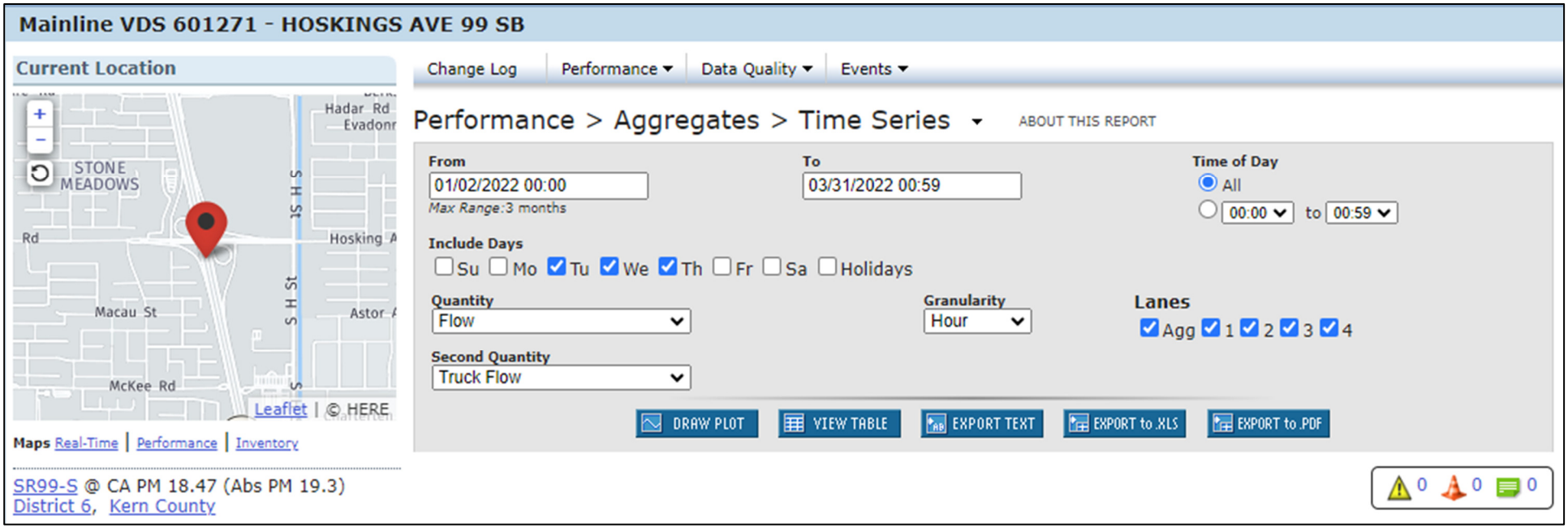


Table 6: Peak Hour – Volumes

| Number | Direction | Segment Name | 2020 Existing | | 2026 No Build | | 2026 Build | | 2046 – No Build | | 2046 Build | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM - 1Hr | PM - 1Hr | AM - 1Hr | PM - 1Hr | AM - 1Hr | PM - 1Hr | AM - 1Hr | PM - 1Hr | AM - 1Hr | PM - 1Hr |
| 1 | SB | SR 99 Mainline - S. of Buck Owens | 2,360 | 5,574 | 2,609 | 6,136 | 2,715 | 6,347 | 3,104 | 7,156 | 3,195 | 7,319 |
| 2 | SB | SR 99 Ramp - Rosedale Off | 162 | 290 | 180 | 326 | 169 | 318 | 174 | 319 | 165 | 313 |
| 3 | SB | SR 99 Mainline - Between WB Off & Loop On | 2,198 | 5,284 | 2,429 | 5,810 | 2,546 | 6,029 | 2,931 | 6,837 | 3,030 | 7,006 |
| 4 | SB | SR 99 Ramp - WB 24th Street Loop On | 383 | 795 | 376 | 744 | 398 | 809 | 377 | 688 | 390 | 836 |
| 5 | SB | SR 99 Mainline - between Loop On and EB On Ramp | 2,581 | 6,079 | 2,805 | 6,554 | 2,944 | 6,838 | 3,308 | 7,525 | 3,421 | 7,842 |
| 6 | SB | SR 99 Ramp - Rosedale On | 192 | 567 | 195 | 605 | 194 | 568 | 211 | 644 | 216 | 642 |
| 7 | SB | SR 99 Mainline - South of Rosedale | 2,773 | 6,646 | 3,000 | 7,159 | 3,138 | 7,406 | 3,520 | 8,170 | 3,636 | 8,483 |
| 10 | SB | SR 99 Ramp - California Off | 450 | 1,007 | 486 | 1,136 | 473 | 994 | 593 | 1,161 | 562 | 1,025 |
| 11 | SB | SR 99 Mainline - between On & Off Ramps | 2,323 | 5,639 | 2,513 | 6,023 | 2,665 | 6,412 | 2,926 | 7,008 | 3,074 | 7,458 |
| 12 | SB | SR 99 Ramp - California On | 204 | 516 | 201 | 491 | 201 | 506 | 266 | 717 | 273 | 811 |
| 13 | SB | SR 99 Mainline - South of California | 2,526 | 6,155 | 2,714 | 6,514 | 2,867 | 6,918 | 3,193 | 7,725 | 3,347 | 8,269 |
| 14 | SB | SR 99 Ramp - SR 58 off ( EB & WB) | 585 | 1,572 | 635 | 1,657 | 812 | 2,188 | 805 | 2,247 | 988 | 2,912 |
| 15 | SB | SR 99 Ramp - SR 58 EB | 585 | 1,572 | 635 | 1,657 | 632 | 1,639 | 805 | 2,247 | 799 | 2,210 |
| 16 | SB | SR 99 Mainline - South of SR 58 Ramp | 1,942 | 4,583 | 2,079 | 4,856 | 2,054 | 4,731 | 2,387 | 5,479 | 2,359 | 5,357 |
| 20 | SB | SR 99 Ramp - SR 58 WB | - | - | - | - | 180 | 549 | 0 | 0 | 189 | 702 |
| 21 | EB | SR 58 Mainline - E. of SR 99 | 1,418 | 3,036 | 1,528 | 3,259 | 1,536 | 3,276 | 2,045 | 4,324 | 2,036 | 4,256 |
| 22 | WB | SR 58 Ramp - WB SR 58 off to SB SR 99 | 630 | 1,398 | 684 | 1,474 | 688 | 1,524 | 838 | 1,735 | 841 | 1,760 |
| 23 | WB | SR 58 Ramp - NB SR 99 to WB SR 58 | 807 | 1,609 | 837 | 1,679 | 831 | 1,645 | 970 | 1,741 | 961 | 1,721 |
| 24 | WB | SR 58 Ramp - SB SR 99 to WB SR 58 | - | - | - | - | 180 | 549 | 0 | 0 | 189 | 702 |
| 25 | WB | SR 58 Ramp - WB On from SR 99 | 807 | 1,609 | 837 | 1,679 | 1,011 | 2,194 | 970 | 1,741 | 1,150 | 2,423 |
| 26 | WB | SR 58 Mainline - SR 58 W. of SR 99 | 1,595 | 3,247 | 1,681 | 3,464 | 1,859 | 3,946 | 2,178 | 4,330 | 2,346 | 4,919 |

## MEASURES OF EFFECTIVENESS

Calculating measures of effectiveness (MOE) is essential to assess and compare the performance of different alternatives within specific geographic areas. These MOE statistics are typically derived from a travel demand model, including vehicle miles traveled (VMT), vehicle hours traveled (VHT), and average speeds. These statistics serve as valuable inputs for determining greenhouse gas emissions and other particulate emissions associated with transportation activities.

### Coverage Area

The MOE statistics were calculated for different geographies, including the regional limits of the KernMIP 2018RTP travel demand model. Additionally, two other geographic areas, namely the subarea and the corridor, were used to compute the link-level statistics from the travel demand model. Figure 3 represents the limits of the Connector project within the Subarea limits, while Figure 4 shows the Corridor limits.

### Measures of Effectiveness Summaries - Regional Statistics

Figure 3 displays the regional boundaries used to calculate the Measures of Effectiveness (MOEs) for transportation analysis. These MOEs encompass essential metrics such as Vehicle Miles of Travel (VMT), Vehicle Hours of Travel (VHT), and average speeds. To provide a more detailed analysis, the results are further classified based on different types of road facilities, including Freeways, Expressways, Arterials, and Collectors. Moreover, mode-specific statistics are included, differentiating between Autos and Trucks. Table 7 presents the MOE statistics for the 2020 Base Year, Opening Year 2026, and Horizon Year 2046 for a comprehensive overview.

Figure 3: SB SR 99 to WB SR 58 Connector Project Regional Limits

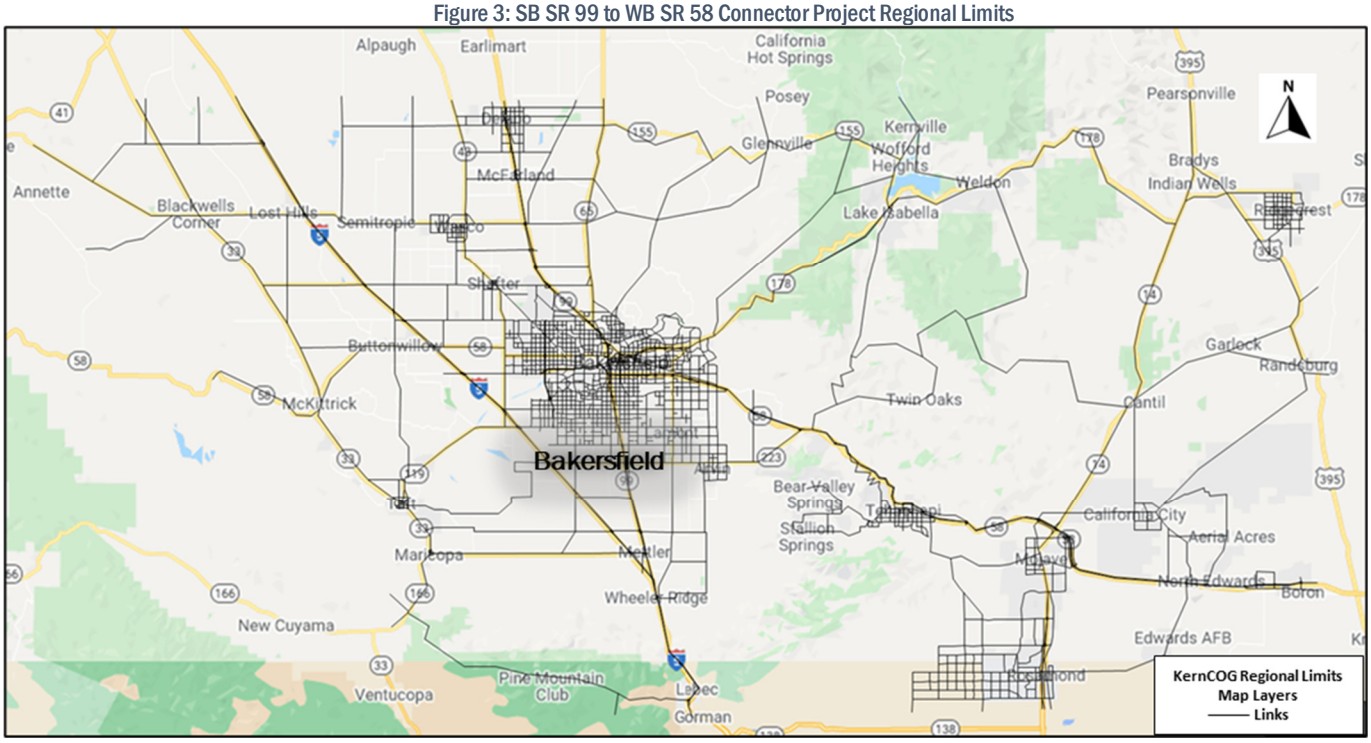


Table 7 MOE Statistics - Region

| Existing 2020 | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
|---|---|---|---|---|---|---|---|
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 10,529,012 | 177,307 | 2,393,075 | 38,369 | 12,922,086 | 215,672 | 59.9 |
| Expressways | 579,110 | 12,303 | 103,392 | 2,101 | 682,503 | 14,403 | 47.4 |
| Arterials | 10,731,999 | 262,453 | 1,197,024 | 27,675 | 11,929,024 | 290,130 | 41.1 |
| Collectors | 5,785,153 | 366,119 | 1,221,257 | 101,315 | 7,006,411 | 467,431 | 15.0 |
| **Total** | **27,625,274** | **818,182** | **4,914,748** | **169,460** | **32,540,024** | **987,636** | **32.9** |
| 2026 No Build | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 11,819,033 | 201,083 | 2,593,969 | 41,984 | 14,413,003 | 243,066 | 59.3 |
| Expressways | 633,783 | 13,744 | 112,186 | 2,301 | 745,969 | 16,045 | 46.5 |
| Arterials | 12,117,410 | 299,125 | 1,323,749 | 30,945 | 13,441,158 | 330,070 | 40.7 |
| Collectors | 6,486,626 | 406,904 | 1,300,427 | 108,398 | 7,787,054 | 515,300 | 15.1 |
| **Total** | **31,056,852** | **920,856** | **5,330,331** | **183,628** | **36,387,184** | **1,104,481** | **32.9** |
| 2026 Build | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 11,833,103 | 201,464 | 2,593,140 | 41,975 | 14,426,244 | 243,439 | 59 |
| Expressways | 634,057 | 13,751 | 112,134 | 2,299 | 746,191 | 16,049 | 46 |
| Arterials | 12,106,361 | 298,768 | 1,324,360 | 30,954 | 13,430,720 | 329,721 | 41 |
| Collectors | 6,486,321 | 406,890 | 1,300,488 | 108,401 | 7,786,812 | 515,290 | 15 |
| **Total** | **31,059,842** | **920,873** | **5,330,122** | **183,629** | **36,389,967** | **1,104,499** | **33** |
| 2042 No Build | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 15,723,880 | 273,477 | 3,093,967 | 51,383 | 18,817,846 | 324,862 | 57.9 |
| Expressways | 867,380 | 18,576 | 128,062 | 2,674 | 995,443 | 21,249 | 46.8 |
| Arterials | 15,468,499 | 383,959 | 1,614,775 | 38,220 | 17,083,275 | 422,179 | 40.5 |
| Collectors | 8,194,818 | 504,209 | 1,500,639 | 125,763 | 9,695,457 | 629,972 | 15.4 |
| **Total** | **40,254,577** | **1,180,221** | **6,337,443** | **218,040** | **46,592,021** | **1,398,262** | **33.3** |
| 2042 Build | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 15,731,377 | 273,700 | 3,092,697 | 51,368 | 18,824,076 | 325,063 | 58 |
| Expressways | 867,180 | 18,576 | 128,134 | 2,676 | 995,313 | 21,251 | 47 |
| Arterials | 15,461,536 | 383,708 | 1,615,759 | 38,239 | 17,077,295 | 421,946 | 40 |
| Collectors | 8,193,610 | 504,205 | 1,500,603 | 125,762 | 9,694,212 | 629,967 | 15 |
| **Total** | **40,253,703** | **1,180,189** | **6,337,193** | **218,045** | **46,590,896** | **1,398,227** | **33** |

Table 8 compares regional variations between the Build and No Build scenarios for the Opening Year 2026 and Horizon Year 2042. In the Horizon Year 2042, it is observed that there is an increase in Vehicle Miles Traveled (VMT) by 594 for the region. However, there is a decrease in Vehicle Hours Traveled (VHT) by 73 for the same year. This suggests that travel speeds are slightly higher in the Build scenario compared to the No Build scenario. Notably, there is a significant decrease in VMT, specifically on the arterials, amounting to a reduction of 15,507. This reduction in VMT on arterials signifies lower emissions due to reduced speeds in the Build scenario.

Table 8: MOE Differences - Region

| 2026 Difference | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
|---|---|---|---|---|---|---|---|
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 14,070 | 381 | -829 | -9 | 13,241 | 373 | 0 |
| Expressways | 274 | 7 | -52 | -2 | 222 | 4 | 0 |
| Arterials | -11,049 | -357 | 611 | 9 | -10,438 | -349 | 0 |
| Collectors | -305 | -14 | 61 | 3 | -242 | -10 | 0 |
| **Total** | **2,990** | **17** | **-209** | **1** | **2,783** | **18** | **0** |
| **2042 Difference** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| **Daily** | **VMT** | **VHT** | **VMT** | **VHT** | **VMT** | **VHT** | **Avg.Speed** |
| Freeways | 7,497 | 223 | -1,270 | -15 | 6,230 | 201 | 0 |
| Expressways | -200 | 0 | 72 | 2 | -130 | 2 | 0 |
| Arterials | -6,963 | -251 | 984 | 19 | -5,980 | -233 | 0 |
| Collectors | -1,208 | -4 | -36 | -1 | -1,245 | -5 | 0 |
| **Total** | **-874** | **-32** | **-250** | **5** | **-1,125** | **-35** | **0** |

## Measures of Effectiveness Summaries – Subarea Statistics

Figure 4 visually presents the boundaries that define the coverage area used to calculate the Measures of Effectiveness (MOEs). These MOEs encompass essential transportation metrics, such as Vehicle Miles of Travel (VMT), Vehicle Hours of Travel (VHT), and average speeds. To provide a more detailed analysis, the results are further classified based on different types of road facilities, including Freeways, Expressways, Arterials, and Collectors. Additionally, mode-specific statistics are included, distinguishing between Autos and Trucks. For a comprehensive overview, Table 9 showcases the MOE statistics for the 2020 Base Year, Opening Year 2026, and Horizon Year 2026.

Figure 4: SB SR 99 to WB SR 58 Connector Project Corridor Subarea Limits

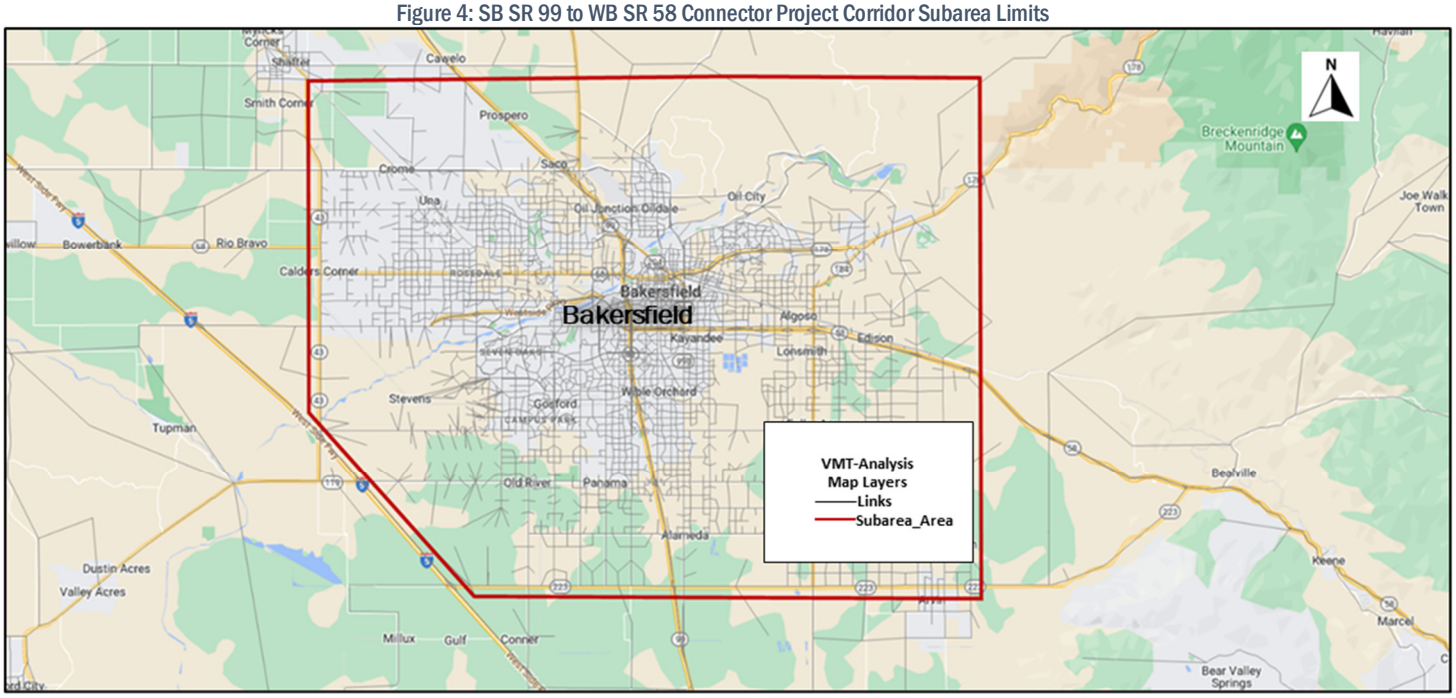


Table 9: MOE Statistics - Subarea

| Existing 2020 | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
|---|---|---|---|---|---|---|---|
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 4,188,093 | 76,746 | 520,439 | 9,022 | 4,708,534 | 85,769 | 54.9 |
| Expressways | 158,177 | 4,226 | 20,146 | 480 | 178,324 | 4,705 | 37.9 |
| Arterials | 6,030,359 | 159,825 | 553,243 | 14,113 | 6,583,603 | 173,939 | 37.9 |
| Collectors | 966,981 | 43,456 | 75,573 | 3,408 | 1,042,554 | 46,862 | 22.2 |
| **Total** | **11,343,610** | **284,253** | **1,169,401** | **27,023** | **12,513,015** | **311,275** | **40.2** |
| **2026 No Build** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 4,699,738 | 87,127 | 564,093 | 9,917 | 5,263,832 | 97,043 | 54.2 |
| Expressways | 177,907 | 4,963 | 21,579 | 529 | 199,486 | 5,492 | 36.3 |
| Arterials | 6,898,307 | 185,216 | 625,290 | 16,196 | 7,523,597 | 201,413 | 37.4 |
| Collectors | 1,088,353 | 49,167 | 84,497 | 3,828 | 1,172,849 | 52,996 | 22.1 |
| **Total** | **12,864,305** | **326,473** | **1,295,459** | **30,470** | **14,159,764** | **356,944** | **39.7** |
| **2026 Build** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 4,713,586 | 87,505 | 563,310 | 9,909 | 5,276,898 | 97,413 | 54 |
| Expressways | 178,228 | 4,971 | 21,526 | 527 | 199,753 | 5,498 | 36 |
| Arterials | 6,887,507 | 184,868 | 625,898 | 16,207 | 7,513,405 | 201,073 | 37 |
| Collectors | 1,088,106 | 49,155 | 84,562 | 3,830 | 1,172,668 | 52,987 | 22 |
| **Total** | **12,867,427** | **326,499** | **1,295,296** | **30,473** | **14,162,724** | **356,971** | **40** |
| **2042 No Build** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 6,553,841 | 121,873 | 724,934 | 12,945 | 7,278,772 | 134,819 | 54.0 |
| Expressways | 174,097 | 4,998 | 21,775 | 538 | 195,872 | 5,536 | 35.4 |
| Arterials | 8,433,816 | 230,004 | 772,167 | 20,276 | 9,205,982 | 250,280 | 36.8 |
| Collectors | 1,440,683 | 63,932 | 114,478 | 5,076 | 1,555,162 | 69,009 | 22.5 |
| **Total** | **16,602,437** | **420,807** | **1,633,354** | **38,835** | **18,235,788** | **459,644** | **39.7** |
| **2042 Build** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 6,562,363 | 122,115 | 723,788 | 12,930 | 7,286,150 | 135,043 | 54 |
| Expressways | 174,058 | 5,003 | 21,820 | 541 | 195,880 | 5,543 | 35 |
| Arterials | 8,427,096 | 229,752 | 773,138 | 20,293 | 9,200,236 | 250,043 | 37 |
| Collectors | 1,439,150 | 63,925 | 114,449 | 5,075 | 1,553,602 | 69,000 | 23 |
| **Total** | **16,602,667** | **420,795** | **1,633,195** | **38,839** | **18,235,868** | **459,629** | **40** |

The sub-area differences between the Build & No build scenarios for the opening year 2026 and horizon years 2042 are shown in Table 10

Table 10: MOE Differences - Subarea

| 2026 Difference | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
|---|---|---|---|---|---|---|---|
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 13,848 | 378 | -783 | -8 | 13,066 | 370 | 0 |
| Expressways | 321 | 8 | -53 | -2 | 267 | 6 | 0 |
| Arterials | -10,800 | -348 | 608 | 11 | -10,192 | -340 | 0 |
| Collectors | -247 | -12 | 65 | 2 | -181 | -9 | 0 |
| **Total** | **3,122** | **26** | **-163** | **3** | **2,960** | **27** | **0** |
| **2042 Difference** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| **Daily** | **VMT** | **VHT** | **VMT** | **VHT** | **VMT** | **VHT** | **Avg.Speed** |
| Freeways | 8,522 | 242 | -1,146 | -15 | 7,378 | 224 | 0 |
| Expressways | -39 | 5 | 45 | 3 | 8 | 7 | 0 |
| Arterials | -6,720 | -252 | 971 | 17 | -5,746 | -237 | 0 |
| Collectors | -1,533 | -7 | -29 | -1 | -1,560 | -9 | 0 |
| **Total** | **230** | **-12** | **-159** | **4** | **80** | **-15** | **0** |

## Measures of Effectiveness Summaries - Corridor Statistics

Figure 5 displays the boundaries that define the coverage area used to calculate the Measures of Effectiveness (MOEs). These MOEs encompass important transportation metrics such as Vehicle Miles of Travel (VMT), Vehicle Hours of Travel (VHT), and average speeds. We have categorized the results based on different types of road facilities, including Freeways, Expressways, Arterials, and Collectors. Furthermore, the results also provide mode-specific statistics, differentiating between Autos and Trucks. Table 11 presents the MOE statistics for the 2020 Base Year, Opening Year 2026, and Horizon Year 2026.

Figure 5: SB SR 99 to WB SR 58 Connector Project Corridor Area Limits

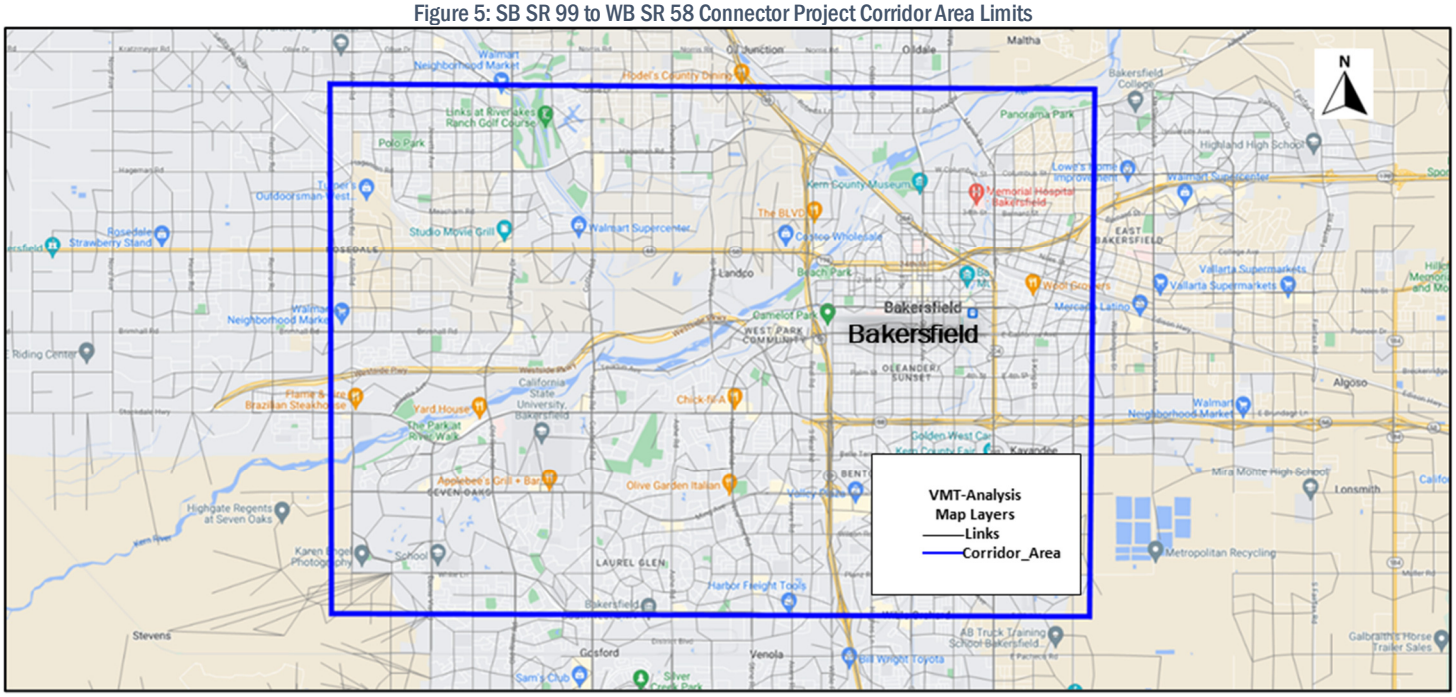


Table 11: MOE Statistics - Corridor

| Existing 2020 | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
|---|---|---|---|---|---|---|---|
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 2,088,317 | 40,143 | 210,275 | 3,865 | 2,298,593 | 44,009 | 52.2 |
| Expressways | 109,115 | 3,205 | 8,241 | 237 | 117,355 | 3,440 | 34.1 |
| Arterials | 2,865,306 | 81,757 | 214,614 | 6,098 | 3,079,919 | 87,855 | 35.1 |
| Collectors | 406,217 | 18,680 | 28,059 | 1,284 | 434,278 | 19,963 | 21.8 |
| **Total** | **5,468,955** | **143,785** | **461,189** | **11,484** | **5,930,145** | **155,267** | **38.2** |
| **2026 No Build** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| **Daily** | **VMT** | **VHT** | **VMT** | **VHT** | **VMT** | **VHT** | **Avg.Speed** |
| Freeways | 2,291,283 | 44,447 | 228,577 | 4,244 | 2,519,858 | 48,691 | 51.8 |
| Expressways | 122,473 | 3,832 | 8,925 | 275 | 131,399 | 4,108 | 32.0 |
| Arterials | 3,142,357 | 90,741 | 237,714 | 6,837 | 3,380,071 | 97,577 | 34.6 |
| Collectors | 432,139 | 19,874 | 30,455 | 1,394 | 462,593 | 21,267 | 21.8 |
| **Total** | **5,988,252** | **158,894** | **505,671** | **12,750** | **6,493,921** | **171,643** | **37.8** |
| **2026 Build** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| **Daily** | **VMT** | **VHT** | **VMT** | **VHT** | **VMT** | **VHT** | **Avg.Speed** |
| Freeways | 2,303,804 | 44,804 | 227,884 | 4,239 | 2,531,691 | 49,042 | 52 |
| Expressways | 122,735 | 3,838 | 8,889 | 274 | 131,624 | 4,114 | 32 |
| Arterials | 3,133,516 | 90,452 | 238,283 | 6,847 | 3,371,799 | 97,298 | 35 |
| Collectors | 431,736 | 19,856 | 30,502 | 1,396 | 462,240 | 21,250 | 22 |
| **Total** | **5,991,791** | **158,950** | **505,558** | **12,756** | **6,497,354** | **171,704** | **38** |
| **2042 No Build** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| **Daily** | **VMT** | **VHT** | **VMT** | **VHT** | **VMT** | **VHT** | **Avg.Speed** |
| Freeways | 2,912,893 | 56,799 | 284,001 | 5,363 | 3,196,894 | 62,163 | 51.4 |
| Expressways | 95,190 | 3,365 | 6,507 | 226 | 101,697 | 3,591 | 28.3 |
| Arterials | 3,662,457 | 108,760 | 290,416 | 8,595 | 3,952,874 | 117,354 | 33.7 |
| Collectors | 531,526 | 23,679 | 39,782 | 1,750 | 571,306 | 25,431 | 22.5 |
| **Total** | **7,202,066** | **192,603** | **620,706** | **15,934** | **7,822,771** | **208,539** | **37.5** |
| **2042 Build** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| **Daily** | **VMT** | **VHT** | **VMT** | **VHT** | **VMT** | **VHT** | **Avg.Speed** |
| Freeways | 2,923,354 | 57,098 | 283,224 | 5,358 | 3,206,581 | 62,453 | 51 |
| Expressways | 95,190 | 3,369 | 6,563 | 228 | 101,752 | 3,598 | 28 |
| Arterials | 3,655,313 | 108,489 | 291,022 | 8,605 | 3,946,334 | 117,092 | 34 |
| Collectors | 530,665 | 23,686 | 39,818 | 1,751 | 570,481 | 25,437 | 22 |
| **Total** | **7,204,522** | **192,642** | **620,627** | **15,942** | **7,825,148** | **208,580** | **38** |

The Corridor differences between the Build & No build scenarios for the opening year 2026 and horizon year 2042 are shown in Table 12.

Table 12: MOE Differences - Corridor

| 2026 Difference | Total (Autos) | | Total (Trucks) | | Total (Autos + Trucks) | | |
|---|---|---|---|---|---|---|---|
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 12,521 | 357 | -693 | -5 | 11,833 | 351 | 0 |
| Expressways | 262 | 6 | -36 | -1 | 225 | 6 | 0 |
| Arterials | -8,841 | -289 | 569 | 10 | -8,272 | -279 | 0 |
| Collectors | -403 | -18 | 47 | 2 | -353 | -17 | 0 |
| **Total** | **3,539** | **56** | **-113** | **6** | **3,433** | **61** | **0** |
| **2042 Difference** | **Total (Autos)** | | **Total (Trucks)** | | **Total (Autos + Trucks)** | | |
| Daily | VMT | VHT | VMT | VHT | VMT | VHT | Avg.Speed |
| Freeways | 10,461 | 299 | -777 | -5 | 9,687 | 290 | 0 |
| Expressways | 0 | 4 | 56 | 2 | 55 | 7 | 0 |
| Arterials | -7,144 | -271 | 606 | 10 | -6,540 | -262 | 0 |
| Collectors | -861 | 7 | 36 | 1 | -825 | 6 | 0 |
| **Total** | **2,456** | **39** | **-79** | **8** | **2,377** | **41** | **0** |

## TRAFFIC OPERATIONS

The traffic operations peak hour traffic volumes were developed using the Kern County Council of Governments (KernMIP 2018RTP) travel demand model. The base year is 2020, the opening year is 2026, and the Design year is 2046. The No-build scenarios do not include the SR 99 SB to SR 58 WB connector, whereas the Build scenarios include this connector.

The traffic analysis was conducted using the Highway Capacity Manual (HCM) via the use of the Highway Capacity Software (HCS) for the roadway segments connecting southbound SR 99 with SR 58, specifically focusing on the connection with westbound SR 58.

### Highway Capacity Analysis Measures of Effectiveness (MOE)

The freeway operations analysis was performed for the diverge and merge influence areas and ramp roadways connecting southbound SR 99 with westbound SR 58. The connecting roadway segments include:

1. Southbound SR 99 diverge influence area for ramps to SR 58
2. Southbound to eastbound SR 58 ramp roadway
3. Southbound to westbound SR 58 ramp roadway
4. Northbound to westbound SR 58 ramp roadway
5. Combined ramp roadway to westbound SR 58
6. Westbound SR 58 merge influence area for ramps from SR 99

The southbound SR 99 diverge to SR 58 corresponding is analyzed under two conditions in the 2026 opening year.

- One Lane Exit - assumes the ramp maintains one lane as in the existing condition.
- Two Lane Exit - the exit ramp is widened to two lanes.

In the 2046 design year, the diverge is assumed to have been widened to two lanes by this time. The existing configuration consisting of a one lane exit is only considered for the opening year 2026 and would likely be a temporary interim condition as this improvement will be necessary to relieve congestion.

The westbound SR 58 merge from SR 99, corresponding to segment six, is considered a two-lane entry for 2026 and 2046 years.

Table 14 presents opening year (2026) and design year (2046) AM and PM peak hour measures of effectiveness for the roadway segments analyzed in HCS. Segments operating at level of service (LOS) F are highlighted. On freeway merge and diverge segments, LOS is defined in terms of density (pc/mi/ln). LOS is not defined for ramp roadways. LOS F exists for merge/diverge segments and ramp roadways when demand exceeds capacity measured by the volume-to-capacity ratio (v/c). For the analysis, the demand volume (veh/h) has been converted to a flow rate (pc/h) based on a peak hour factor (PHF) of 0.94 and a heavy vehicle percentage of 5%. The LOS criteria are summarized in Table 13.

Table 13: LOS Criteria for Freeway Merge and Diverge Segments (Source HCM Exhibit 14-3)

| LOS | Density (pc/mi/ln) |
|---|---|
| A | ≤10 |
| B | >10–20 |
| C | >20–28 |
| D | >28–35 |
| E | >35 |
| F | Demand exceeds capacity |

Table 14 and Table 15 show the traffic volumes and capacities during peak hours for the analyzed mainline and ramp segments. These tables also include the opening year and horizon year data. Additionally, they present information on the Level of Service (LOS) and the Volume to Capacity (V/C) ratios. In cases where the LOS cannot be directly calculated for ramp segments, the V/C ratio is used as a performance measure to evaluate operational characteristics. The HCS models and their corresponding results can be found in Appendix A.

Table 14: Mainline Diverge& Merge Operational Analysis Results

| Segment # | Location - Analysis - Condition | Year | Time | LOS | Flow (pc/h) | | Capacity (pc/h) | | Volume/Capacity (v/c) | Density (pc/mi/ln) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Freeway | Ramp | Freeway | Ramp | | |
| 1 | **SB SR 99 to SR 58 off-ramp - diverge** | | | | | | | | | |
| | 4 lanes mainline, 1 lane diverging off-ramp | 2026 | PM | F | 7,731 | 2,445 | 9,200 | 2,200 | 0.84 | 42.4 |
| | | 2026 | AM | B | 3,204 | 907 | 9,200 | 2,200 | 0.35 | 18.0 |
| | 4 lanes mainline, 2 lanes diverging off-ramp | 2026 | PM | C | 7,731 | 2,445 | 9,200 | 4,400 | 0.84 | 23.6 |
| | | 2026 | AM | A | 3,204 | 907 | 9,200 | 4,400 | 0.35 | 3.7 |
| | | 2046 | PM | F | 9,240 | 3,254 | 9,200 | 4,400 | 1.00 | - |
| | | 2046 | AM | A | 3,740 | 1,104 | 9,200 | 4,400 | 0.41 | 6.1 |
| | Critical Condition: | By 2026 during the PM peak hour, the forecasted volume exceeds the capacity for a single lane diverging off-ramp. Additionally, by 2046 the mainline forecasts exceed capacity of four lanes during the PM peak hour. | | | | | | | | |
| 6 | **SR 99 ramp to WB SR 58 - merge** | | | | | | | | | |
| | 3 lanes mainline, 2 lanes merging on-ramp | 2026 | PM | D | 4,410 | 2,452 | 6,900 | 4,400 | 0.99 | 33.8 |
| | | 2026 | AM | B | 2,077 | 1,130 | 6,900 | 4,400 | 0.46 | 13.7 |
| | | 2046 | PM | F | 5,497 | 2,708 | 6,900 | 4,400 | 1.19 | - |
| | | 2046 | AM | B | 2,622 | 1,285 | 6,900 | 4,400 | 0.57 | 17.3 |
| | Critical Condition: | By 2046 the mainline forecasts exceed capacity of three lanes during the PM peak hour. | | | | | | | | |

Table 15: Ramp Connectors Operational Analysis Results

| Segment # | Location - Analysis - Condition | Year | Time | Flow (pc/h) | Capacity (pc/h) | Volume/Capacity (v/c) |
|---|---|---|---|---|---|---|
| 2 | **SB ramp roadway to EB SR58 - capacity check** | | | | | |
| | 1 lane ramp, ramp speed 55 mph (Segment 1 with 1 lane) | 2026 | PM | 1,831 | 2,200 | 0.83 |
| | | 2026 | AM | 706 | 2,200 | 0.32 |
| | 1 lane ramp, ramp speed 55 mph (Segment 1 with 2 lanes) | 2026 | PM | 1,831 | 2,200 | 0.83 |
| | | 2026 | AM | 706 | 2,200 | 0.32 |
| | | 2046 | PM | 2,469 | 2,200 | 1.12 |
| | | 2046 | AM | 893 | 2,200 | 0.41 |
| | Critical Condition: | By 2046 during the PM peak hour the forecasted volume exceeds the capacity for a single lane diverging off-ramp. | | | | |
| 3 | **SB ramp roadway to WB SR58 - capacity check** | | | | | |
| | 1 lane ramp, ramp speed 45 mph (Segment 1 with 1 lane) | 2026 | PM | 613 | 2,100 | 0.29 |
| | | 2026 | AM | 201 | 2,100 | 0.10 |
| | 1 lane ramp, ramp speed 45 mph (Segment 1 with 2 lanes) | 2026 | PM | 613 | 2,100 | 0.29 |
| | | 2026 | AM | 201 | 2,100 | 0.10 |
| | | 2046 | PM | 784 | 2,100 | 0.37 |
| | | 2046 | AM | 211 | 2,100 | 0.10 |
| | Critical Condition: | No critical condition. All forecasted volumes below capacity. | | | | |
| 4 | **NB ramp roadway to WB SR58 - capacity check** | | | | | |
| | 1 lane ramp, ramp speed 55 mph | 2026 | PM | 1,838 | 2,200 | 0.84 |
| | | 2026 | AM | 928 | 2,200 | 0.42 |
| | | 2046 | PM | 1,923 | 2,200 | 0.87 |
| | | 2046 | AM | 1,074 | 2,200 | 0.49 |
| | Critical Condition: | No critical condition. All forecasted volumes below capacity. | | | | |
| 5 | **Ramp roadway to WB SR58 - capacity check** | | | | | |
| | 2 lane ramp, ramp speed 55 mph | 2026 | PM | 2,452 | 4,400 | 0.56 |
| | | 2026 | AM | 1,130 | 4,400 | 0.26 |
| | | 2046 | PM | 2,708 | 4,400 | 0.62 |
| | | 2046 | AM | 1,285 | 4,400 | 0.29 |
| | Critical Condition: | No critical condition. All forecasted volumes below capacity. | | | | |

## Capacity Analysis Conclusions

Southbound Ramp Roadway to Eastbound SR 58

During the 2046 PM peak hour, the southbound ramp roadway from SR 99 to eastbound SR 58, the forecasted volume of 2,469, exceeds a single lane of the capacity of 2,200. Currently, this ramp originates as a single lane diverging from southbound SR 99, then widens to two lanes before merging back into a single and combining with a single lane of traffic from northbound SR 99 to eastbound SR 58. Based on the future forecast demand, this ramp must maintain two lanes through the merge carrying the northbound to eastbound traffic.

Southbound SR 99 to SR 58 Off-ramp Diverge

A single lane diverging off-ramp from southbound SR 99 to SR 58 is projected to fail during the PM peak hour in both the opening year (2026). In 2026 the PM peak hour forecast volume of 2,445 exceeds a single-lane ramp capacity of 2,200. In 2046 the project traffic demand of 9,240 is expected to exceed the mainline capacity of 9,200 during the PM peak hour. Given the forecast traffic demand, a two-lane off-ramp would be required as soon as 2026.

Southbound SR 99 to Westbound SR 58 On-ramp Merge

From Table 14, with a double lane merging on-ramp from SR 99 to westbound SR 58, the operational analysis results in LOS F in the worst case for the 2046 PM condition. The ramp's maximum demand is forecasted to be 2,708 in 2046.

Given the forecasted traffic demand and the accompanying traffic analysis, it appears a single-lane off-ramp from southbound SR 99 to SR 58 would be insufficient to provide proper traffic operations during PM peak hours. Likewise, a two-lane on-ramp from SR 99 to westbound SR 58, analyzed with the forecast demand, would suffice. In both cases, a two-lane off-ramp southbound would be required to provide adequate levels of service.

# HCS7 Freeway Diverge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2026 |
| Jurisdiction | D6 | Time Period Analyzed | AM |
| Project Description | SB SR99 to WB SR58 - build one lane off-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 4 | 1 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Deceleration Length (LA),ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided One-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 2867 | 812 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 3204 | 907 |
| Capacity (c), pc/h | 9200 | 2200 |
| Volume-to-Capacity Ratio (v/c) | 0.35 | 0.41 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | - | Number of Outer Lanes on Freeway (NO) | 2 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (DS) | 0.250 |
| Downstream Equilibrium Distance (LEQ), ft | - | Flow Outer Lanes (vOA), pc/h/ln | 648 |
| Distance to Downstream Ramp (LDOWN), ft | - | Off-Ramp Influence Area Speed (SR), mi/h | 55.5 |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFD) | 0.436 | Outer Lanes Freeway Speed (SO), mi/h | 65.8 |
| Flow in Lanes 1 and 2 (v12), pc/h | 1908 | Ramp Junction Speed (S), mi/h | 59.3 |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | - | Average Density (D), pc/mi/ln | 13.5 |
| Level of Service (LOS) | B | Density in Ramp Influence Area (DR), pc/mi/ln | 18.0 |

# HCS7 Freeway Diverge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2026 |
| Jurisdiction | D6 | Time Period Analyzed | AM |
| Project Description | SB SR99 to WB SR58 - build two lane off-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 4 | 2 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Deceleration Length (LA),ft | 1500 | 1500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided Two-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 2867 | 812 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 3204 | 907 |
| Capacity (c), pc/h | 9200 | 4400 |
| Volume-to-Capacity Ratio (v/c) | 0.35 | 0.21 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | - | Number of Outer Lanes on Freeway (NO) | 2 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (DS) | 0.250 |
| Downstream Equilibrium Distance (LEQ), ft | - | Flow Outer Lanes (vOA), pc/h/ln | 850 |
| Distance to Downstream Ramp (LDOWN), ft | - | Off-Ramp Influence Area Speed (SR), mi/h | 55.5 |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFD) | 0.260 | Outer Lanes Freeway Speed (SO), mi/h | 65.8 |
| Flow in Lanes 1 and 2 (v12), pc/h | 1504 | Ramp Junction Speed (S), mi/h | 60.5 |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | - | Average Density (D), pc/mi/ln | 13.2 |
| Level of Service (LOS) | A | Density in Ramp Influence Area (DR), pc/mi/ln | 3.7 |

# HCS7 Freeway Diverge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2026 |
| Jurisdiction | D6 | Time Period Analyzed | PM |
| Project Description | SB SR99 to WB SR58 - build one lane off-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 4 | 1 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Deceleration Length (LA),ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided One-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 6918 | 2188 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 7731 | 2445 |
| Capacity (c), pc/h | 9200 | 2200 |
| Volume-to-Capacity Ratio (v/c) | 0.84 | 1.11 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | 0.0 | Number of Outer Lanes on Freeway (NO) | 2 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (DS) | 0.388 |
| Downstream Equilibrium Distance (LEQ), ft | 0.0 | Flow Outer Lanes (vOA), pc/h/ln | 1491 |
| Distance to Downstream Ramp (LDOWN), ft | - | Off-Ramp Influence Area Speed (SR), mi/h | 53.0 |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFD) | 0.436 | Outer Lanes Freeway Speed (SO), mi/h | 63.9 |
| Flow in Lanes 1 and 2 (v12), pc/h | 4750 | Ramp Junction Speed (S), mi/h | 51.1 |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | 4750 | Average Density (D), pc/mi/ln | 45.0 |
| Level of Service (LOS) | F | Density in Ramp Influence Area (DR), pc/mi/ln | 42.4 |

# HCS7 Freeway Diverge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2026 |
| Jurisdiction | D6 | Time Period Analyzed | PM |
| Project Description | SB SR99 to WB SR58 - build two lane off-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 4 | 2 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Deceleration Length (LA),ft | 1500 | 1500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided Two-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 6918 | 2188 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 7731 | 2445 |
| Capacity (c), pc/h | 9200 | 4400 |
| Volume-to-Capacity Ratio (v/c) | 0.84 | 0.56 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | - | Number of Outer Lanes on Freeway (NO) | 2 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (DS) | 0.388 |
| Downstream Equilibrium Distance (LEQ), ft | - | Flow Outer Lanes (vOA), pc/h/ln | 1956 |
| Distance to Downstream Ramp (LDOWN), ft | - | Off-Ramp Influence Area Speed (SR), mi/h | 53.0 |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFD) | 0.260 | Outer Lanes Freeway Speed (SO), mi/h | 62.1 |
| Flow in Lanes 1 and 2 (v12), pc/h | 3819 | Ramp Junction Speed (S), mi/h | 57.2 |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | - | Average Density (D), pc/mi/ln | 33.8 |
| Level of Service (LOS) | C | Density in Ramp Influence Area (DR), pc/mi/ln | 23.6 |

# HCS7 Freeway Diverge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2046 |
| Jurisdiction | D6 | Time Period Analyzed | AM |
| Project Description | SB SR99 to WB SR58 - build one lane off-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 4 | 1 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Deceleration Length (LA),ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided One-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 3347 | 988 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 3740 | 1104 |
| Capacity (c), pc/h | 9200 | 2200 |
| Volume-to-Capacity Ratio (v/c) | 0.41 | 0.50 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | - | Number of Outer Lanes on Freeway (NO) | 2 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (DS) | 0.267 |
| Downstream Equilibrium Distance (LEQ), ft | - | Flow Outer Lanes (vOA), pc/h/ln | 744 |
| Distance to Downstream Ramp (LDOWN), ft | - | Off-Ramp Influence Area Speed (SR), mi/h | 55.2 |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFD) | 0.436 | Outer Lanes Freeway Speed (SO), mi/h | 65.8 |
| Flow in Lanes 1 and 2 (v12), pc/h | 2253 | Ramp Junction Speed (S), mi/h | 59.0 |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | - | Average Density (D), pc/mi/ln | 15.8 |
| Level of Service (LOS) | C | Density in Ramp Influence Area (DR), pc/mi/ln | 20.9 |

# HCS7 Freeway Diverge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2046 |
| Jurisdiction | D6 | Time Period Analyzed | AM |
| Project Description | SB SR99 to WB SR58 - build two lane off-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 4 | 2 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Deceleration Length (LA),ft | 1500 | 1500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided Two-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 3347 | 988 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 3740 | 1104 |
| Capacity (c), pc/h | 9200 | 4400 |
| Volume-to-Capacity Ratio (v/c) | 0.41 | 0.25 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | - | Number of Outer Lanes on Freeway (NO) | 2 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (DS) | 0.267 |
| Downstream Equilibrium Distance (LEQ), ft | - | Flow Outer Lanes (vOA), pc/h/ln | 976 |
| Distance to Downstream Ramp (LDOWN), ft | - | Off-Ramp Influence Area Speed (SR), mi/h | 55.2 |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFD) | 0.260 | Outer Lanes Freeway Speed (SO), mi/h | 65.8 |
| Flow in Lanes 1 and 2 (v12), pc/h | 1789 | Ramp Junction Speed (S), mi/h | 60.3 |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | - | Average Density (D), pc/mi/ln | 15.5 |
| Level of Service (LOS) | A | Density in Ramp Influence Area (DR), pc/mi/ln | 6.1 |

# HCS7 Freeway Diverge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2046 |
| Jurisdiction | D6 | Time Period Analyzed | PM |
| Project Description | SB SR99 to WB SR58 - build one lane off-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 4 | 1 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Deceleration Length (LA),ft | 1500 | 300 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided One-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 8269 | 2912 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 9240 | 3254 |
| Capacity (c), pc/h | 9200 | 2200 |
| Volume-to-Capacity Ratio (v/c) | 1.00 | 1.48 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | 0.0 | Number of Outer Lanes on Freeway (NO) | 2 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (DS) | - |
| Downstream Equilibrium Distance (LEQ), ft | 0.0 | Flow Outer Lanes (vOA), pc/h/ln | 1688 |
| Distance to Downstream Ramp (LDOWN), ft | - | Off-Ramp Influence Area Speed (SR), mi/h | - |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFD) | 0.436 | Outer Lanes Freeway Speed (SO), mi/h | - |
| Flow in Lanes 1 and 2 (v12), pc/h | 5864 | Ramp Junction Speed (S), mi/h | - |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | 5864 | Average Density (D), pc/mi/ln | - |
| Level of Service (LOS) | F | Density in Ramp Influence Area (DR), pc/mi/ln | - |

# HCS7 Freeway Diverge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2046 |
| Jurisdiction | D6 | Time Period Analyzed | PM |
| Project Description | SB SR99 to WB SR58 - build two lane off-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 4 | 2 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Deceleration Length (LA),ft | 1500 | 1500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided Two-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 8269 | 2912 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 9240 | 3254 |
| Capacity (c), pc/h | 9200 | 4400 |
| Volume-to-Capacity Ratio (v/c) | 1.00 | 0.74 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | 0.0 | Number of Outer Lanes on Freeway (NO) | 2 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (DS) | - |
| Downstream Equilibrium Distance (LEQ), ft | 0.0 | Flow Outer Lanes (vOA), pc/h/ln | 2215 |
| Distance to Downstream Ramp (LDOWN), ft | - | Off-Ramp Influence Area Speed (SR), mi/h | - |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFD) | 0.260 | Outer Lanes Freeway Speed (SO), mi/h | - |
| Flow in Lanes 1 and 2 (v12), pc/h | 4810 | Ramp Junction Speed (S), mi/h | - |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | 4810 | Average Density (D), pc/mi/ln | - |
| Level of Service (LOS) | F | Density in Ramp Influence Area (DR), pc/mi/ln | - |

# HCS7 Freeway Merge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2026 |
| Jurisdiction | D6 | Time Period Analyzed | AM |
| Project Description | SB SR99 to WB SR58 - build two lane on-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 3 | 2 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Acceleration Length (LA),ft | 1500 | 1500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided Two-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 1859 | 1011 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 2077 | 1130 |
| Capacity (c), pc/h | 6900 | 4400 |
| Volume-to-Capacity Ratio (v/c) | 0.46 | 0.26 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | - | Number of Outer Lanes on Freeway (NO) | 1 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (MS) | 0.196 |
| Downstream Equilibrium Distance (LEQ), ft | - | Flow Outer Lanes (vOA), pc/h/ln | 890 |
| Distance to Downstream Ramp (LDOWN), ft | - | On-Ramp Influence Area Speed (SR), mi/h | 56.5 |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFM) | 0.555 | Outer Lanes Freeway Speed (SO), mi/h | 58.6 |
| Flow in Lanes 1 and 2 (v12), pc/h | 1187 | Ramp Junction Speed (S), mi/h | 57.1 |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | 2317 | Average Density (D), pc/mi/ln | 18.7 |
| Level of Service (LOS) | B | Density in Ramp Influence Area (DR), pc/mi/ln | 13.7 |

# HCS7 Freeway Merge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2026 |
| Jurisdiction | D6 | Time Period Analyzed | PM |
| Project Description | SB SR99 to WB SR58 - build two lane on-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 3 | 2 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Acceleration Length (LA),ft | 1500 | 1500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided Two-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 3946 | 2194 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 4410 | 2452 |
| Capacity (c), pc/h | 6900 | 4400 |
| Volume-to-Capacity Ratio (v/c) | 0.99 | 0.56 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | - | Number of Outer Lanes on Freeway (NO) | 1 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (MS) | 0.719 |
| Downstream Equilibrium Distance (LEQ), ft | - | Flow Outer Lanes (vOA), pc/h/ln | 1890 |
| Distance to Downstream Ramp (LDOWN), ft | - | On-Ramp Influence Area Speed (SR), mi/h | 47.1 |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFM) | 0.555 | Outer Lanes Freeway Speed (SO), mi/h | 55.0 |
| Flow in Lanes 1 and 2 (v12), pc/h | 2520 | Ramp Junction Speed (S), mi/h | 49.0 |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | 4972 | Average Density (D), pc/mi/ln | 46.7 |
| Level of Service (LOS) | D | Density in Ramp Influence Area (DR), pc/mi/ln | 33.8 |

# HCS7 Freeway Merge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2046 |
| Jurisdiction | D6 | Time Period Analyzed | AM |
| Project Description | SB SR99 to WB SR58 - build two lane on-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 3 | 2 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Acceleration Length (LA),ft | 1500 | 1500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided Two-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 2346 | 1150 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 2622 | 1285 |
| Capacity (c), pc/h | 6900 | 4400 |
| Volume-to-Capacity Ratio (v/c) | 0.57 | 0.29 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | - | Number of Outer Lanes on Freeway (NO) | 1 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (MS) | 0.219 |
| Downstream Equilibrium Distance (LEQ), ft | - | Flow Outer Lanes (vOA), pc/h/ln | 1124 |
| Distance to Downstream Ramp (LDOWN), ft | - | On-Ramp Influence Area Speed (SR), mi/h | 56.1 |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFM) | 0.555 | Outer Lanes Freeway Speed (SO), mi/h | 57.8 |
| Flow in Lanes 1 and 2 (v12), pc/h | 1498 | Ramp Junction Speed (S), mi/h | 56.6 |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | 2783 | Average Density (D), pc/mi/ln | 23.0 |
| Level of Service (LOS) | B | Density in Ramp Influence Area (DR), pc/mi/ln | 17.3 |

# HCS7 Freeway Merge Report

| Project Information | | | |
|---|---|---|---|
| Analyst | Parsons | Date | 8/15/2023 |
| Agency | Caltrans | Analysis Year | 2046 |
| Jurisdiction | D6 | Time Period Analyzed | PM |
| Project Description | SB SR99 to WB SR58 - build two lane on-ramp | Unit | United States Customary |

| Geometric Data | | |
|---|---|---|
| | Freeway | Ramp |
| Number of Lanes (N), ln | 3 | 2 |
| Free-Flow Speed (FFS), mi/h | 60.0 | 55.0 |
| Segment Length (L) / Acceleration Length (LA),ft | 1500 | 1500 |
| Terrain Type | Level | Level |
| Percent Grade, % | - | - |
| Segment Type / Ramp Type | Freeway | Right-Sided Two-Lane |

| Adjustment Factors | | |
|---|---|---|
| Driver Population | All Familiar | All Familiar |
| Weather Type | Non-Severe Weather | Non-Severe Weather |
| Incident Type | No Incident | - |
| Final Speed Adjustment Factor (SAF) | 1.000 | 1.000 |
| Final Capacity Adjustment Factor (CAF) | 1.000 | 1.000 |
| Demand Adjustment Factor (DAF) | 1.000 | 1.000 |

| Demand and Capacity | | |
|---|---|---|
| Demand Volume (Vi) | 4919 | 2423 |
| Peak Hour Factor (PHF) | 0.94 | 0.94 |
| Total Trucks, % | 5.00 | 5.00 |
| Single-Unit Trucks (SUT), % | - | - |
| Tractor-Trailers (TT), % | - | - |
| Heavy Vehicle Adjustment Factor (fHV) | 0.952 | 0.952 |
| Flow Rate (vi),pc/h | 5497 | 2708 |
| Capacity (c), pc/h | 6900 | 4400 |
| Volume-to-Capacity Ratio (v/c) | 1.19 | 0.62 |

| Speed and Density | | | |
|---|---|---|---|
| Upstream Equilibrium Distance (LEQ), ft | - | Number of Outer Lanes on Freeway (NO) | 1 |
| Distance to Upstream Ramp (LUP), ft | - | Speed Index (MS) | - |
| Downstream Equilibrium Distance (LEQ), ft | - | Flow Outer Lanes (vOA), pc/h/ln | 2356 |
| Distance to Downstream Ramp (LDOWN), ft | - | On-Ramp Influence Area Speed (SR), mi/h | - |
| Prop. Freeway Vehicles in Lane 1 and 2 (PFM) | 0.555 | Outer Lanes Freeway Speed (SO), mi/h | - |
| Flow in Lanes 1 and 2 (v12), pc/h | 3141 | Ramp Junction Speed (S), mi/h | - |
| Flow Entering Ramp-Infl. Area (vR12), pc/h | 5849 | Average Density (D), pc/mi/ln | - |
| Level of Service (LOS) | F | Density in Ramp Influence Area (DR), pc/mi/ln | - |

Appendix G – Structures Advanced Planning Study

# SOUTH TO WEST CONNECTOR PROJECT

**06-Ker-58, 99**
**EA 06-48468**

# ADVANCE PLANNING STUDY REPORT

## S99-W58 Connector OC

**(Bridge No. 50-xxxx)**

Prepared for:
**Thomas Roads Improvement Program**
1600 Truxtun Avenue, Third Floor
Bakersfield, CA 93301

Prepared by:
**PARSONS**
2201 Dupont Drive, Suite 200
Irvine, California 92612

Contact: Jon Hermstad, P.E.
Tel: (949) 333-4489

September 2023

# Table of Contents

# Section 1

# Advance Planning Study Design Memo

## Project Description

The proposed Southbound State Route (SR) 99 to Westbound SR 58 Connector Project is situated within Kern County, Bakersfield, California. This project entails the construction of a connector ramp, which will establish a direct link between the southbound SR 99 freeway and the westbound SR 58. Its primary objective is to mitigate traffic congestion experienced at the 24th Street, and California Avenue ramps on SR 99. Additionally, it will facilitate the efficient flow of traffic from southbound SR 99 to westbound SR 58 (Centennial/Westside Parkway), a newly constructed freeway that serves the rapidly developing western region of Bakersfield.

The proposed project will significantly enhance the overall transportation network by complementing the westbound ramp movement, which is currently absent from the Centennial Corridor Project. Moreover, this development will have a positive impact on other critical roadways, such as Oak Street, Mohawk Road, and Rosedale Highway. The project will effectively alleviate congestion, which is needed as the present utilization of these local arterials is substantial.

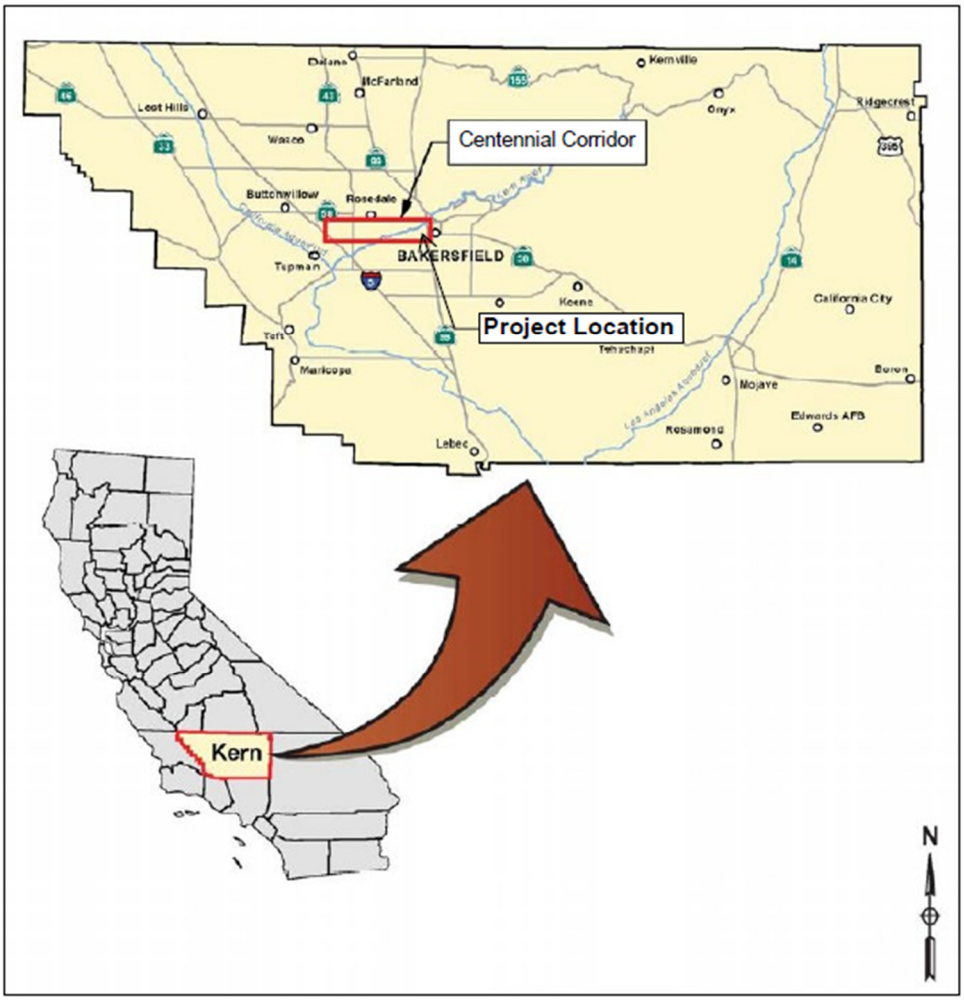



**Figure 1: Project Vicinity Map**

## Structure Description

The proposed bridge is a ten span, three frame, cast-in-place prestressed concrete box girder structure, with a depth of 8'-0". The bridge deck is 30'-6" wide, which will accommodate one 12' traffic lane, a 10' inside shoulder, a 5' outside shoulder, and 2 barriers. The bridge will span over South Real Rd, the W58-S99 loop connector, and Stockdale Highway. Additionally, the bridge spans over a Kaiser Permanente parking lot and the Bent 6 column will be placed within the parking lot median. A site distance constraint occurs along the inside shoulder of the W58-S99 loop connector; and consequentially the Bent 7 column is placed away from the inside edge of shoulder.

The abutments and bents are configured with no skew. Bents will consist of a single 7'-0" diameter octagonal column, while abutments will be seat type abutments. Abutment 1 is placed well beyond South Real Rd, so as to avoid impacts to the adjacent parking lot, and avoid the need for very tall approach retaining walls. A new retaining wall will be required to minimize impacts to the adjacent parking lot. Further information regarding the proposed retaining wall can be found in the Retaining Wall No. 63 Advance Planning Study Report.

## Geotechnical Information

Pile foundations are recommended at all support locations. Small diameter CIDH piles are recommended at the abutments, while large diameter CIDH shafts are recommended at the bents. A preliminary liquefaction analysis indicates liquefaction potential is low. Therefore, liquefactions is not expected to be a design issue. Additional geotechnical information can be found in the *Structure Preliminary Geotechnical Report*.

## Utilities

No utilities are expected to be carried within the superstructure. In general, existing utilities that are not in conflict with the planned improvements will be protected in place, while utilities that are in conflict with the planned improvements will require relocation.

## Construction

The superstructure will be constructed on falsework and traffic openings will be required over South Real Rd, the W58-S99 loop connector, and Stockdale Highway. A minimum 15'-0" vertical clearance to the lowest clearance point on the falsework will be maintained.

## Aesthetics

The proposed structure aesthetics are expected to match that of the nearby existing structures. A superstructure overhang will be provided and the exterior girders will be vertical. Octagonal columns will be used at all bents and the columns will have one-way architectural flares in the direction of the bent axis. Discussions related to concrete surface texture at the abutments are ongoing, but for estimating purposes, concrete surface texture is assumed at the abutments.

## Cost Estimate

For cost information see the Advance Planning Study Cost Estimate in Section 3. Unit prices are based on currently available Caltrans cost data. Total costs include 10% mobilization, 10% TRO and 25% contingency.

# Section 2

# Consultant Prepared Advance Planning Study (APS) Checklist

# Consultant Prepared Advance Planning Study (APS) Checklist



| Date: | Consultant Firm (for structures): | | Phone No: |
|---|---|---|---|
| 8/31/23 | Parsons | | 949-333-4489 |
| Designed by: | | | Phone No: |
| J. Hermstad | | | 949-333-4489 |
| EA: | County: | Rte: | KP(PM) |
| 06-48468 | Kern | 58, 99 | T52.2/R52.4, 23.4/24.2 |
| Project Description: | | | |
| Construct new Southbound SR 99 to Westbound SR 58 Connector | | | |
| Bridge No(s): | Bridge Name(s): | | |
| 50-XXXX | S99-W58 Connector OC | | |
| Total number of bridges in project: 1 | | APS Alternative Letter or Number (if more than one): N/A | |
| Purpose of this APS: | Initial APS Cost & Feasibility ☒ | Revised scope ☐ | Update cost ☐ |

## Part A Items to collect and considerations prior to beginning the APS

All items listed in Part A are to be made available and submitted if requested by the Liaison Engineer.
(Mark **N/A** if not applicable)

- ☒ Preliminary profile grade of proposed structure.
- ☒ Typical section of the proposed structure. (Including barrier type, sidewalks, cross slope %, etc.)
- ☒ Grades or spot elevations of roadway below the structure.
- ☒ Typical section of roadway below the structure. (Including shoulders, gutters, embankment slope.)
- ☒ Site map: including horizontal alignment of new structure and the roadway below, topo, contours, etc.
- ☐ Stage construction or detour plan for traffic <u>on the structure.</u>
  (number of lanes to remain open, Temp Railing, etc.) N/A
- ☐ Stage construction or detour plan for the roadway <u>below the structure</u>.
  (falsework openings for each stage and any restrictions.) N/A
- ☐ "As Built" plans for existing structures. N/A
- ☐ Future widening plans of upper and lower roadway (verify with Route Concept Report). N/A
- ☐ Site aerial photograph (at the proposed structure).
- ☒ Environmental and/or permit requirements (areas of potential impact, construction windows, etc.)
- ☒ Overhead and underground utility plans
- ☒ Any other information that you feel is necessary to complete the study. (Other concerns that may affect the APS: local agency requirements such as aesthetics, improvements in vicinity of structure, airspace usage, other obstructions, etc.)

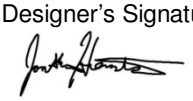
# Consultant Prepared Advance Planning Study (APS) Checklist



## Part B Considerations during the APS design and cost estimate preparation

| | | | |
|---|---|---|---|
| 1. | Has this project been discussed with: | the OSFP Liaison Engineer? | Yes ☐ No ☒ |
| | | the Caltrans District Project Manager? | Yes ☒ No ☐ |
| | | the roadway consultant? | Yes ☒ No ☐ |
| 2. | Have the Caltrans Structures Maintenance records been reviewed? N/A | | Yes ☐ No ☒ |
| | If the records recommend any work for the structure, is it included in the APS? N/A | | Yes ☐ No ☒ |
| 3. | Are there special aesthetic considerations? | | Yes ☒ No ☐ |
| 4. | (Widenings and Modifications) N/A | | |
| | Has this project been reviewed for seismic retrofit requirements? | | Yes ☐ No ☒ |
| | Are seismic retrofit requirements included in the APS? | | Yes ☐ No ☒ |
| 5. | Any special Railroad requirements? N/A | | Yes ☐ No ☒ |
| | Shoofly required? N/A | | ☐ No ☒ |
| | Cost of shoofly included as a separate item in the project cost estimate? N/A | | Yes ☐ No ☒ |
| 6. | Any special foundation requirements, including scour critical work, special excavation such as Type A, Type D, and/or hazardous or contaminated material? | | Yes ☐ No ☒ |
| 7. | Any special construction requirements, including limited site accessibility or seasonal work? | | Yes ☐ No ☒ |
| 8. | Other items to be included in the cost such as slope paving, approach slabs, and/or adjacent retaining walls? (See description below) | | Yes ☒ No ☐ |
| 9. | Remove existing bridge? N/A<br>Total Deck Area: | | Yes ☐ No ☒ |
| 10. | Any other unusual or special requirements? | | Yes ☐ No ☒ |
| 11. | Provide and attach a consultant prepared Design Memo to summarize and document any important assumptions, discussions, decisions, unusual items, local agency requirements such as aesthetics, improvements in vicinity of the structure, airspace usage, other obstructions, or any items noted above. | Summary attached? | Yes ☒ No ☐ |

Item 8: Approach slabs are considered in the cost.

| Designer: (Printed Name) | Designer's Signature: | Date: |
|---|---|---|
| Jon Hermstad |  | 8-31-23 |

# Section 3

# Advance Planning Study Cost Estimate

| | GENERAL PLAN ESTIMATE | X | ADVANCE PLANNING ESTIMATE |
|---|---|---|---|

Revised - December 3, 2007

**RCVD BY:**

**IN EST:**

**OUT EST:**

| | | | | | |
|---|---|---|---|---|---|
| **BRIDGE:** | S99-W58 Connector | **BR. No.:** | 50-XXXX | **DISTRICT:** | 06 |
| **TYPE:** | CIP/PS Concrete Box Girder | | | **RTE:** | 58,99 |
| **CU:** | | | | **CO:** | Ker |
| **EA:** | 06-48468 | | | **PM:** | T52.2R52.4 |
| | | | | | 23.424.2 |

**LENGTH (ALONG CL):** 1,712.86 **WIDTH:** 30.50 **AREA (SF)=** 52,242

**DESIGN SECTION:**

| | | | |
|---|---|---|---|
| **# OF STRUCTURES IN PROJECT :** | 2 | **EST. NO.** | 1 |
| **PRICES BY :** | MP | **COST INDEX:** | 2023 |
| **PRICES CHECKED BY :** | JH | **DATE:** | 8/31/2023 |
| **QUANTITIES BY:** | MP | **DATE:** | 8/31/2023 |

| | CONTRACT ITEMS | TYPE | UNIT | QUANTITY | PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 1 | STRUCTURE EXCAVATION (BRIDGE) | | CY | 600 | $105 | $63,000 |
| 2 | STRUCTURE BACKFILL (BRIDGE) | | CY | 340 | $150 | $51,000 |
| 3 | 144" PERMANENT STEEL CASING | | LF | 180 | $1,500 | $270,000 |
| 4 | 24" CAST-IN-DRILLED-HOLE PILING | | LF | 1,216 | $175 | $212,800 |
| 5 | 132" CAST-IN-DRILLED-HOLE PILING | | LF | 702 | $4,300 | $3,018,600 |
| 6 | PRESTRESSING CAST-IN-PLACE CONCRETE | | LS | 1 | $1,040,000 | $1,040,000 |
| 7 | STRUCTURAL CONCRETE, BRIDGE FOOTING | | CY | 110 | $900 | $99,000 |
| 8 | STRUCTURAL CONCRETE, BRIDGE | | CY | 3,380 | $1,550 | $5,239,000 |
| 9 | STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER) | | CY | 1,530 | $1,450 | $2,218,500 |
| 10 | STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N) | | CY | 90 | $1,300 | $117,000 |
| 11 | CONCRETE SURFACE TEXTURE (DRY STACK FIELDSTONE TEXTURE) | | SQFT | 1,060 | $15 | $15,900 |
| 12 | PTFE SPHERICAL BEARING | | EA | 12 | $14,000 | $168,000 |
| 13 | JOINT SEAL ASSEMBLY (MR = 5") | | LF | 61 | $1,850 | $112,850 |
| 14 | JOINT SEAL ASSEMBLY (MR = 8") | | LF | 61 | $2,100 | $128,100 |
| 15 | BAR REINFORCING STEEL (BRIDGE) | | LB | 2,071,000 | $2.00 | $4,142,000 |
| 16 | ISOLATION CASING | | LB | 17,190 | $11 | $189,090 |
| 17 | CONCRETE BARRIER (TYPE 836) | | LF | 1,747 | $190 | $331,930 |
| 18 | CONCRETE BARRIER (TYPE 842) | | LF | 1,800 | $270 | $486,000 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | |
|---|---|
| SUBTOTAL | $17,902,770 |
| TIME RELATED OVERHEAD | $1,790,277 |
| MOBILIZATION ( @ 10 % ) | $2,188,116 |
| SUBTOTAL BRIDGE ITEMS | $21,881,163 |
| CONTINGENCIES (@ 25%) | $5,470,291 |
| BRIDGE TOTAL COST | $27,351,454 |
| COST PER SQ. FOOT | $523.55 |
| BRIDGE REMOVAL (CONTINGENCIES INCL.) | $0 |
| WORK BY RAILROAD OR UTILITY FORCES | $0 |
| GRAND TOTAL | $27,351,454 |
| BUDGET ESTIMATE AS OF 8/31/23 | **$27,351,000** |

**ROUTING**

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

**COMMENTS:**

## Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year 2.0%

| Years Beyond Midpoint | Escalated Budget Est. |
|---|---|
| 1 | $27,898,000 |
| 2 | $28,456,000 |
| 3 | $29,025,000 |

| Years Beyond Midpoint | Escalated Budget Est. |
|---|---|
| 4 | $29,606,000 |
| 5 | $30,198,000 |

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

# Section 4

# Advance Planning Study Plans

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

| Dist | COUNTY | ROUTE | POST MILE |
|---|---|---|---|
| 06 | KER | 58,99 | R52.1/R52.4<br>24.5/24.6 |


**CITY OF BAKERSFIELD**
1600 TRUXTUN AVENUE
BAKERSFIELD, CA 93301

**PARSONS**
2201 DUPONT DRIVE, SUITE 200
IRVINE, CA 92612

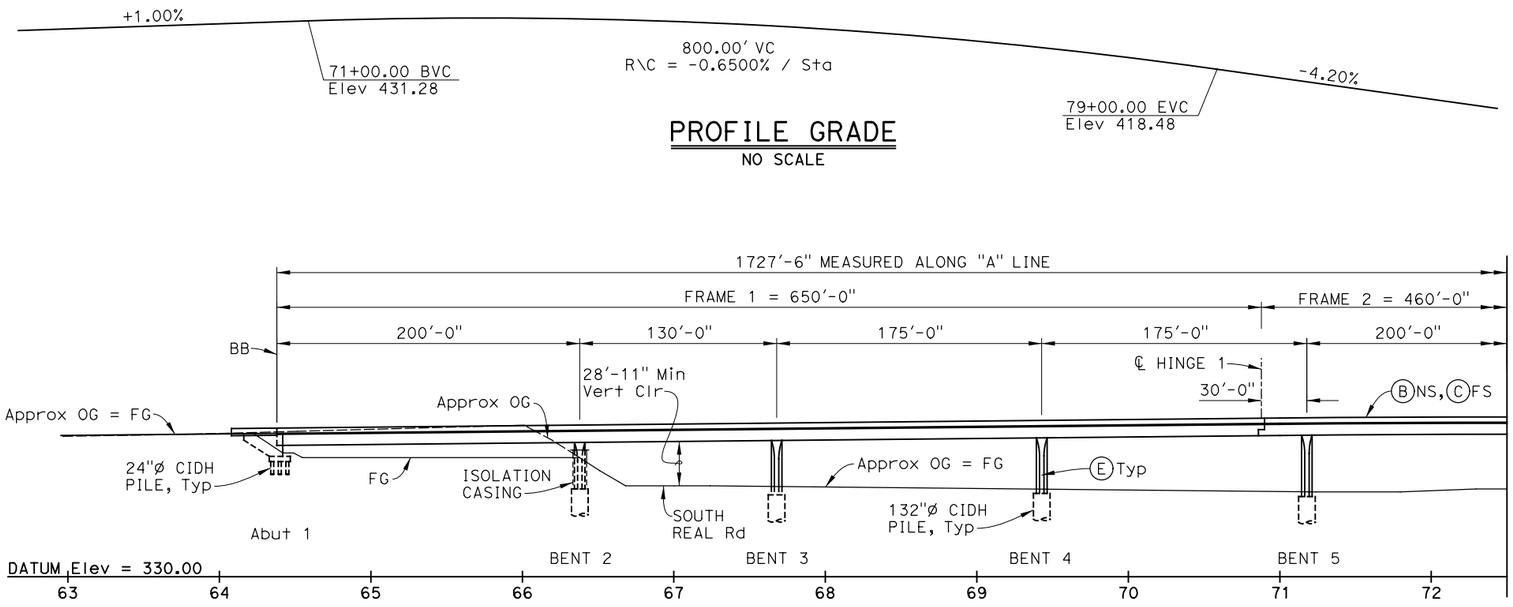

NOTES:

(B) Concrete Barrier (Type 842)
(C) Concrete Barrier (Type 836)
(D) Structure Approach Type N(30)
(E) Paint Bent Number

1. Traffic will pass thru construction site. Falsework openings are required.

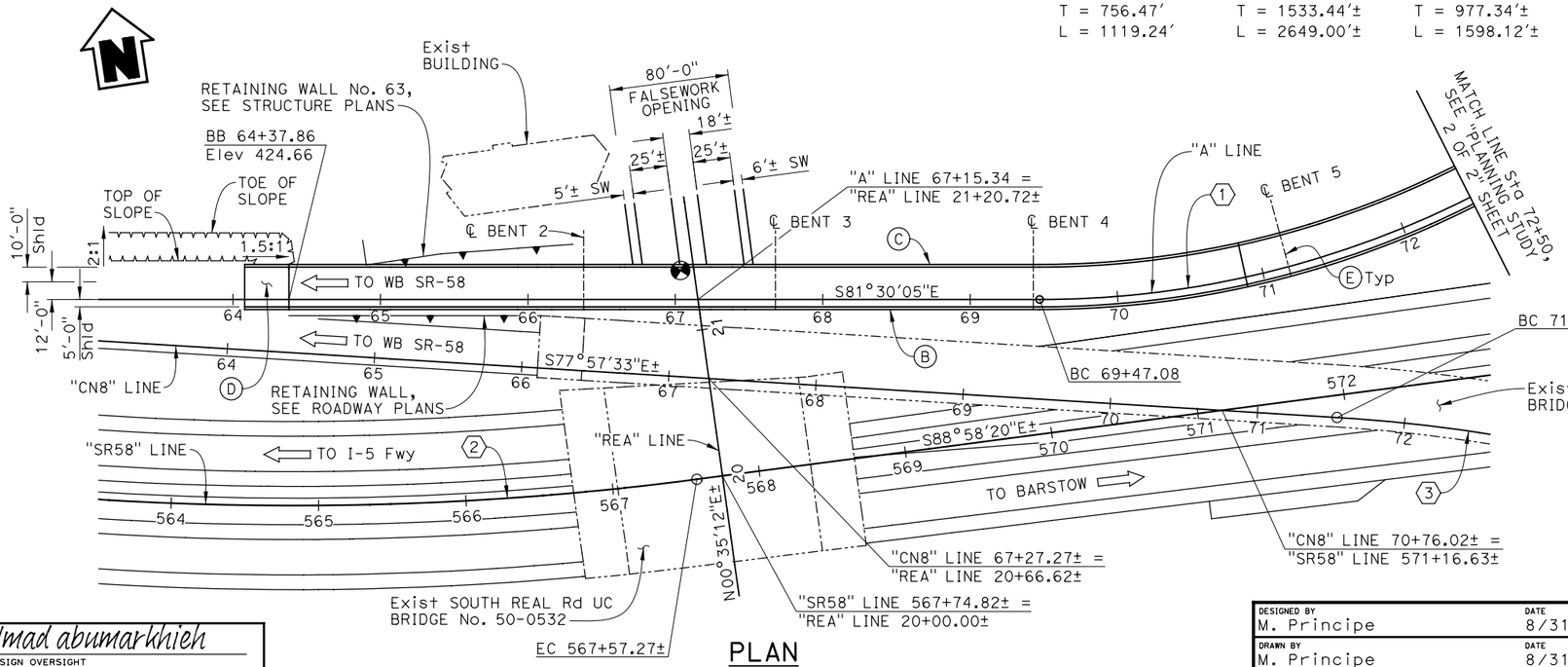
LEGEND:

Existing Structure
Point of Min Vert Clr

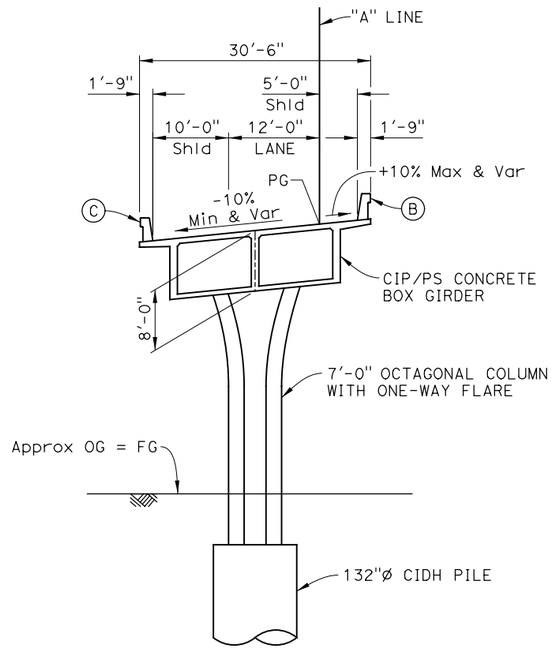



## DEVELOPED ELEVATION
1" = 50'

| CURVE DATA (1) | CURVE DATA (2) | CURVE DATA (3) |
|---|---|---|
| R = 650.00' | R = 2100.00'± | R = 1100.00'± |
| Δ = 98°39'28" | Δ = 72°16'28"± | Δ = 83°14'29"± |
| T = 756.47' | T = 1533.44'± | T = 977.34'± |
| L = 1119.24' | L = 2649.00'± | L = 1598.12'± |




## PLAN
1" = 50'




## TYPICAL SECTION
1" = 10'

| | |
|---|---|
| DATE OF ESTIMATE | = 8/31/23 |
| STRUCTURE DEPTH | = 8'-0" |
| LENGTH | = 1712'-10¼" |
| WIDTH | = 30'-6" |
| AREA | = 52,242 SF |
| COST/SF INCLUDING 10% MOBILIZATION & 25% CONTINGENCY | = $ 524 |
| TOTAL COST | = $ 27,351,000 |

Imad abumarkhieh
DESIGN OVERSIGHT
9/18/2023
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 8/16/2021)

DATE PLOTTED => 30-AUG-2023 TIME PLOTTED => 6:11:17 PM
FILE => 50-xxxxx-aps01.dgn USERNAME => p002118f

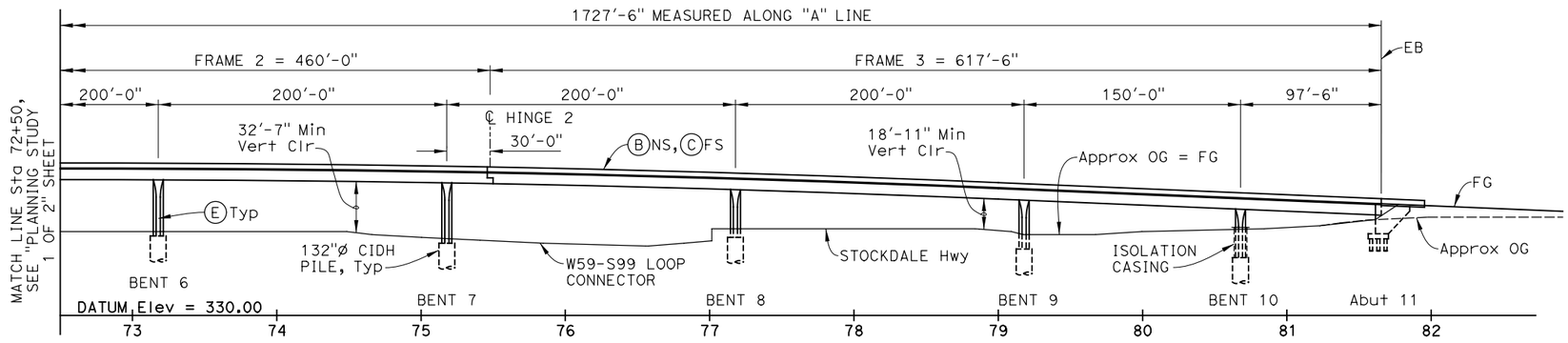
| | | | |
|---|---|---|---|
| DESIGNED BY M. Principe | DATE 8/31/23 | J. Hermstad<br>PROJECT ENGINEER | **PLANNING STUDY 1 OF 2** |
| DRAWN BY M. Principe | DATE 8/31/23 | | **S99-W58 CONNECTOR OC** |
| CHECKED BY G. Douglass | DATE 8/31/23 | | BRIDGE No.: 50-XXXX |
| APPROVED J. Hermstad | DATE 8/31/23 | PROJECT EA: 06-48468 | PROJECT No. & PHASE: XXXXXXXXXXO |

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

| Dist | COUNTY | ROUTE | POST MILE |
|---|---|---|---|
| 06 | KER | 58,99 | R52.1/R52.4 24.5/24.6 |

**CITY OF BAKERSFIELD**
1600 TRUXTUN AVENUE
BAKERSFIELD, CA 93301

**PARSONS**
2201 DUPONT DRIVE, SUITE 200
IRVINE, CA 92612




## DEVELOPED ELEVATION
1" = 50'

NOTES:

(A) Paint "S99-W58 CONNECTOR"
"Br No. 50-XXXXX"
Year Constructed

(B) Concrete Barrier (Type 842)

(C) Concrete Barrier (Type 836)

(D) Structure Approach Type N(30)

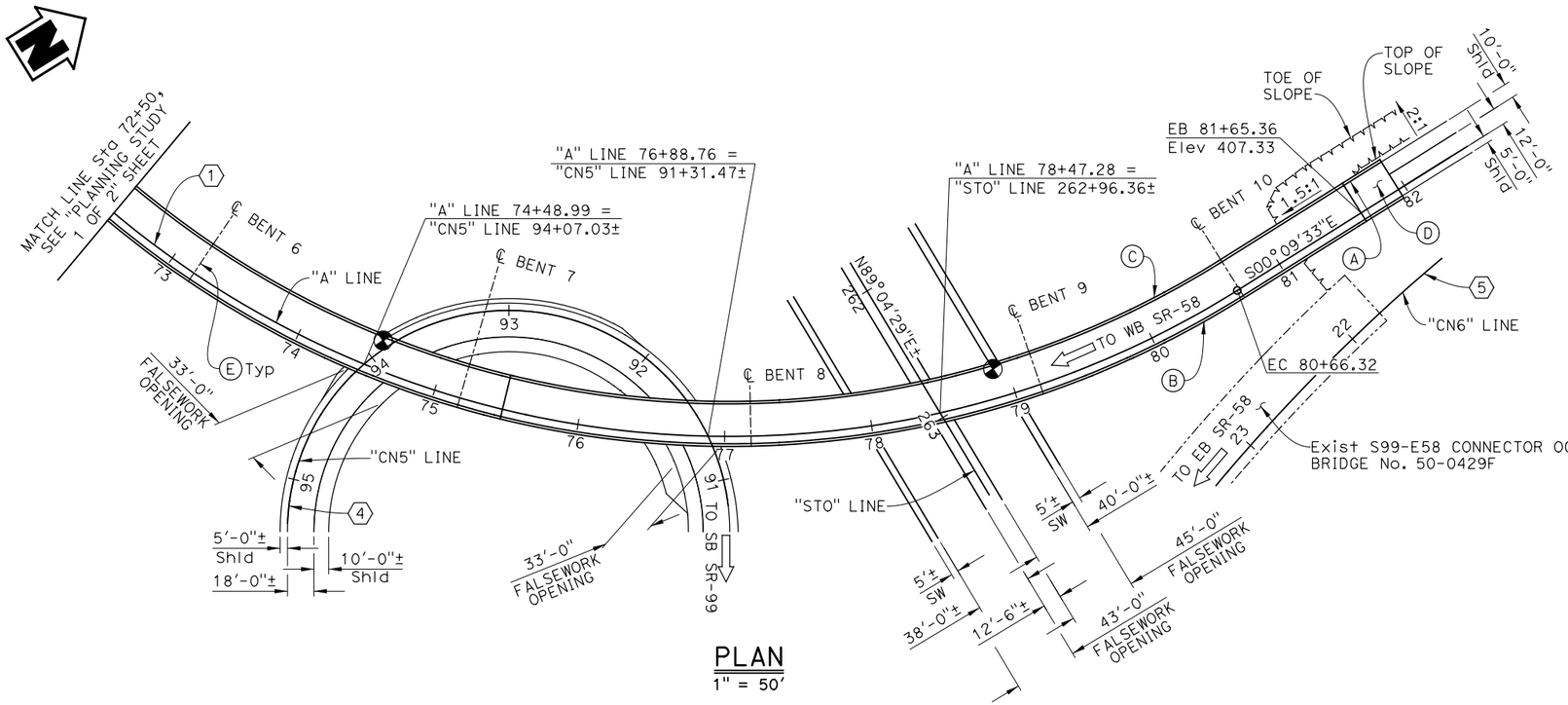
(E) Paint Bent Number

1. Traffic will pass thru construction site. Falsework openings are required.

LEGEND:

Existing Structure

Point of Min Vert Clr




## PLAN
1" = 50'

| CURVE DATA (1) | CURVE DATA (4) | CURVE DATA (5) |
|---|---|---|
| R = 650.00' | R = 150.00'± | R = 1250.93'± |
| Δ = 98°39'28" | Δ = 273°00'39"± | Δ = 78°26'57"± |
| T = 756.47' | T = - | T = 1021.13'± |
| L = 1119.24' | L = 714.74'± | L = 1712.77'± |

*Imad abumarkhieh*
DESIGN OVERSIGHT
9/18/2023
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 8/16/2021)

DATE PLOTTED => 8/30/2023 TIME PLOTTED => 6:13:01 PM
FILE => 50-xxxxx-aps02.dgn USERNAME => p002118f

| | | |
|---|---|---|
| DESIGNED BY M. Principe | DATE 8/31/23 | |
| DRAWN BY M. Principe | DATE 8/31/23 | J. Hermstad PROJECT ENGINEER |
| CHECKED BY G. Douglass | DATE 8/31/23 | |
| APPROVED J. Hermstad | DATE 8/31/23 | |

**PLANNING STUDY 2 OF 2**

**S99-W58 CONNECTOR OC**

BRIDGE No.: 50-XXXX

PROJECT EA: 06-48468

PROJECT No. & PHASE: XXXXXXXXXX0

# SOUTH TO WEST CONNECTOR PROJECT

**06-Ker-58, 99**
**EA 06-48468**

# ADVANCE PLANNING STUDY REPORT

## Retaining Wall No. 63

**(Bridge No. 50EXXXX)**


Prepared for:
**Thomas Roads Improvement Program**
1600 Truxtun Avenue, Third Floor
Bakersfield, CA 93301

Prepared by:
**PARSONS**
2201 Dupont Drive, Suite 200
Irvine, California 92612

Contact: Jon Hermstad, P.E.
Tel: (949) 333-4489



September 2023

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# Section 1

# Advance Planning Study Design Memo

## Project Description

The proposed Southbound State Route (SR) 99 to Westbound SR 58 Connector Project is situated within Kern County, Bakersfield, California. This project entails the construction of a connector ramp, which will establish a direct link between the southbound SR 99 freeway and the westbound SR 58. Its primary objective is to mitigate traffic congestion experienced at the 24th Street, and California Avenue ramps on SR 99. Additionally, it will facilitate the efficient flow of traffic from southbound SR 99 to westbound SR 58 (Centennial/Westside Parkway), a newly constructed freeway that serves the rapidly developing western region of Bakersfield.

The proposed project will significantly enhance the overall transportation network by complementing the westbound ramp movement, which is currently absent from the Centennial Corridor Project. Moreover, this development will have a positive impact on other critical roadways, such as Oak Street, Mohawk Road, and Rosedale Highway. The project will effectively alleviate congestion, which is needed as the present utilization of these local arterials is substantial.

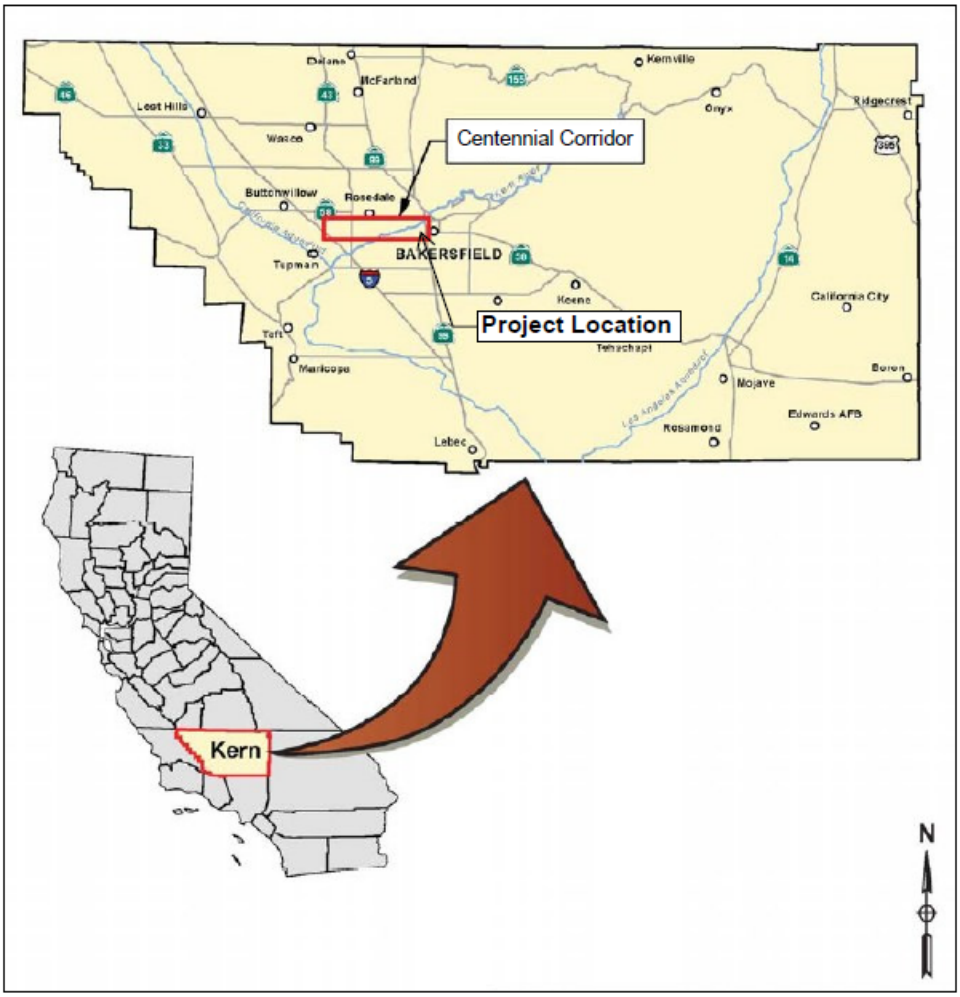



**Figure 1: Project Vicinity Map**

## Structure Description

Retaining Wall No. 63 will be required near the toe of a proposed cut slope in order to accommodate an existing parking lot. This retaining wall occurs immediately north of the S99-W58 Connector OC, which spans over a small portion of Retaining Wall No. 63 and the adjacent slope. Further information can be found in the S99-W58 Connector OC Advance Planning Study Report.

The horizontal alignment of the proposed wall will follow the alignment of the existing Retaining Wall No. 65 (Bridge No. 50E0051), and the face of the proposed wall will be 9 feet in front of the existing wall layout line. The proposed wall type for Retaining Wall No. 63 is a Caltrans Type 7 cantilever wall. This wall type will help minimize the retaining wall removal work. Additionally, it will minimize the need for shoring and extensive excavation work.

## Geotechnical Information

Pile foundations are recommended for design heights greater than 10 feet. Additional geotechnical information can be found in the *Structure Preliminary Geotechnical Report*.

## Utilities

Various utilities exist in the area. In general, existing utilities that are not in conflict with the planned improvements will be protected in place, while utilities that are in conflict with the planned improvements will require relocation.

## Construction

The proposed retaining wall will be constructed in front of the existing Retaining Wall No. 65. An entrance to the existing parking lot will be impacted during construction, but other entrances and exits will be maintained.

## Aesthetics

The proposed structure aesthetics are expected to match that of the nearby existing structures. Concrete surface texture will be provided on the exposed face of the wall. Dry Stack Fieldstone Texture was assumed for cost estimating purposes.

## Cost Estimate

For cost information see the Advance Planning Study Cost Estimate in Section 3. Unit prices are based on currently available Caltrans cost data. Total costs include 10% mobilization, 10% TRO and 25% contingency.

# Section 2

# Consultant Prepared Advance Planning Study (APS) Checklist

# Consultant Prepared Advance Planning Study (APS) Checklist



| Date: | Consultant Firm (for structures): | | Phone No: |
|---|---|---|---|
| 8/31/23 | Parsons | | 949-333-4489 |
| Designed by: J. Hermstad | | | Phone No: 949-333-4489 |
| EA: 06-48468 | County: Kern | Rte: 58, 99 | KP(PM) T52.2/R52.4, 23.4/24.2 |
| Project Description: Construct new Southbound SR 99 to Westbound SR 58 Connector | | | |
| Bridge No(s): 50EXXXX | Bridge Name(s): Retaining Wall No. 63 | | |
| Total number of bridges in project: 1 | | APS Alternative Letter or Number (if more than one): N/A | |
| Purpose of this APS: | Initial APS Cost & Feasibility ☒ | Revised scope ☐ | Update cost ☐ |

## Part A Items to collect and considerations prior to beginning the APS

All items listed in Part A are to be made available and submitted if requested by the Liaison Engineer.
(Mark **N/A** if not applicable)

- ☒ Preliminary profile grade of proposed structure.
- ☒ Typical section of the proposed structure. (Including barrier type, sidewalks, cross slope %, etc.)
- ☐ Grades or spot elevations of roadway below the structure.
- ☐ Typical section of roadway below the structure. (Including shoulders, gutters, embankment slope.)
- ☒ Site map: including horizontal alignment of new structure and the roadway below, topo, contours, etc.
- ☐ Stage construction or detour plan for traffic <u>on the structure.</u>
  (number of lanes to remain open, Temp Railing, etc.) N/A
- ☐ Stage construction or detour plan for the roadway <u>below the structure</u>.
  (falsework openings for each stage and any restrictions.) N/A
- ☒ "As Built" plans for existing structures.
- ☐ Future widening plans of upper and lower roadway (verify with Route Concept Report). N/A
- ☐ Site aerial photograph (at the proposed structure).
- ☒ Environmental and/or permit requirements (areas of potential impact, construction windows, etc.)
- ☒ Overhead and underground utility plans
- ☒ Any other information that you feel is necessary to complete the study. (Other concerns that may affect the APS: local agency requirements such as aesthetics, improvements in vicinity of structure, airspace usage, other obstructions, etc.)

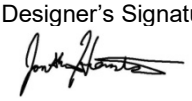
# Consultant Prepared Advance Planning Study (APS) Checklist



## Part B Considerations during the APS design and cost estimate preparation

| | | | |
|---|---|---|---|
| 1. | Has this project been discussed with: | the OSFP Liaison Engineer? | Yes ☐ No ☒ |
| | | the Caltrans District Project Manager? | Yes ☒ No ☐ |
| | | the roadway consultant? | Yes ☒ No ☐ |
| 2. | Have the Caltrans Structures Maintenance records been reviewed? N/A | | Yes ☐ No ☒ |
| | If the records recommend any work for the structure, is it included in the APS? N/A | | Yes ☐ No ☒ |
| 3. | Are there special aesthetic considerations? (See description below) | | Yes ☒ No ☐ |
| 4. | (Widenings and Modifications) N/A | | |
| | Has this project been reviewed for seismic retrofit requirements? | | Yes ☐ No ☒ |
| | Are seismic retrofit requirements included in the APS? | | Yes ☐ No ☒ |
| 5. | Any special Railroad requirements? N/A | | Yes ☐ No ☒ |
| | Shoofly required? N/A | | ☐ No ☒ |
| | Cost of shoofly included as a separate item in the project cost estimate? N/A | | Yes ☐ No ☒ |
| 6. | Any special foundation requirements, including scour critical work, special excavation such as Type A, Type D, and/or hazardous or contaminated material? | | Yes ☐ No ☒ |
| 7. | Any special construction requirements, including limited site accessibility or seasonal work? | | Yes ☐ No ☒ |
| 8. | Other items to be included in the cost such as slope paving, approach slabs, and/or adjacent retaining walls? | | Yes ☐ No ☒ |
| 9. | Remove existing bridge? N/A<br>Total Deck Area: | | Yes ☐ No ☒ |
| 10. | Any other unusual or special requirements? | | Yes ☒ No ☐ |
| 11. | Provide and attach a consultant prepared Design Memo to summarize and document any important assumptions, discussions, decisions, unusual items, local agency requirements such as aesthetics, improvements in vicinity of the structure, airspace usage, other obstructions, or any items noted above. | Summary attached? | Yes ☒ No ☐ |

Item 3: Concrete surface texture will be provided on the face of the wall.
Item 10: Partial removal of the existing Retaining Wall No. 65 (Bridge No. 50E0051) will be required.

| Designer: (Printed Name) | Designer's Signature: | Date: |
|---|---|---|
| Jon Hermstad |  | 8-31-23 |

# Section 3

# Advance Planning Study Cost Estimate

| | GENERAL PLAN ESTIMATE | X | ADVANCE PLANNING ESTIMATE |
|---|---|---|---|

Revised - December 3, 2007

**RCVD BY:**

**IN EST:**

**OUT EST:**

| | | | | | |
|---|---|---|---|---|---|
| **BRIDGE:** | Retaining Wall No. 63 | **BR. No.:** | 50EXXXX | **DISTRICT:** | 06 |
| **TYPE:** | Type 7 Wall | | | **RTE:** | 58,99 |
| **CU:** | | | | **CO:** | Ker |
| **EA:** | 06-48468 | | | **PM:** | T52.2/R52.4 |
| | | | | | 23.4/24.2 |

**LENGTH:** 158.00 **HEIGHT:** 9'-5" (Avg) **AREA (SF)=** 1,490

**DESIGN SECTION:**

| | | | |
|---|---|---|---|
| **# OF STRUCTURES IN PROJECT :** | 2 | **EST. NO.** | 1 |
| **PRICES BY :** | MP | **COST INDEX:** | 2023 |
| **PRICES CHECKED BY :** | JH | **DATE:** | 8/31/2023 |
| **QUANTITIES BY:** | BL | **DATE:** | 8/31/2023 |

| | CONTRACT ITEMS | TYPE | UNIT | QUANTITY | PRICE | AMOUNT |
|---|---|---|---|---|---|---|
| 1 | STRUCTURE EXCAVATION (RETAINING WALL) | | CY | 327 | $70 | $22,890 |
| 2 | STRUCTURE BACKFILL (RETAINING WALL) | | CY | 231 | $70 | $16,170 |
| 3 | 24" CAST-IN-DRILLED-HOLE CONCRETE PILING | | LF | 420 | $175 | $73,500 |
| 4 | STRUCTURAL CONCRETE, RETAINING WALL | | CY | 182 | $800 | $145,600 |
| 5 | CONCRETE SURFACE TEXTURE (DRY STACK FIELDSTONE TEXTURE) | | SQFT | 1,329 | $15 | $19,935 |
| 6 | BAR REINFORCING STEEL (RETAINING WALL) | | LB | 25,700 | $2 | $51,400 |
| 7 | MINOR CONCRETE (GUTTER) (LF) | | LF | 158 | $55 | $8,690 |
| 8 | CABLE RAILING | | LF | 158 | $120 | $18,960 |
| 9 | RETAINING WALL REMOVAL (PORTION)(LS) | | LS | 1 | $16,000 | $16,000 |

| | |
|---|---|
| SUBTOTAL | $373,145 |
| TIME RELATED OVERHEAD | $37,315 |
| MOBILIZATION ( @ 10 % ) | $45,607 |
| SUBTOTAL BRIDGE ITEMS | $456,066 |
| CONTINGENCIES (@ 25%) | $114,017 |
| BRIDGE TOTAL COST | $570,083 |
| COST PER SQ. FOOT | $382.61 |
| BRIDGE REMOVAL (CONTINGENCIES INCL.) | $0 |
| WORK BY RAILROAD OR UTILITY FORCES | $0 |
| GRAND TOTAL | $570,083 |
| BUDGET ESTIMATE AS OF 8/31/23 | **$570,000** |

**ROUTING**

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

**COMMENTS:**

## Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year 2.0%

| Years Beyond Midpoint | Escalated Budget Est. |
|---|---|
| 1 | $581,000 |
| 2 | $593,000 |
| 3 | $605,000 |

| Years Beyond Midpoint | Escalated Budget Est. |
|---|---|
| 4 | $617,000 |
| 5 | $629,000 |

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

# Section 4

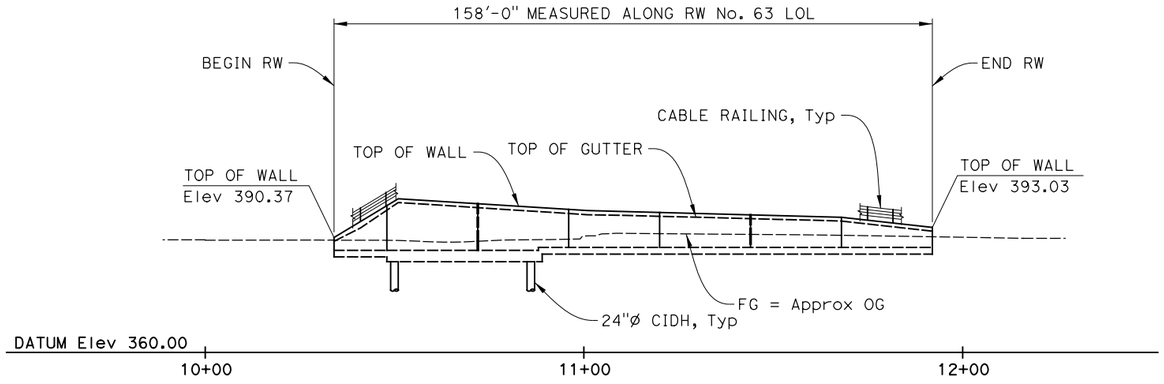
# Advance Planning Study Plans

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

| Dist | COUNTY | ROUTE | POST MILE |
|---|---|---|---|
| 06 | KER | 58,99 | R52.1/R52.4, 24.5/24.6 |

**CITY OF BAKERSFIELD**
1600 TRUXTUN AVENUE
BAKERSFIELD, CA 93301

**PARSONS**
2201 DUPONT DRIVE, SUITE 200
IRVINE, CA 92612




| | | |
|---|---|---|
| DATE OF ESTIMATE | | 8-31-23 |
| HEIGHT | = | 9'-5" Avg |
| LENGTH | = | 158'-0" |
| AREA | = | 1490 SF |
| COST/SF INCLUDING 10% MOBILIZATION & 25% CONTINGENCY | = | $383 |
| TOTAL COST | = | $570,000 |

LEGEND:

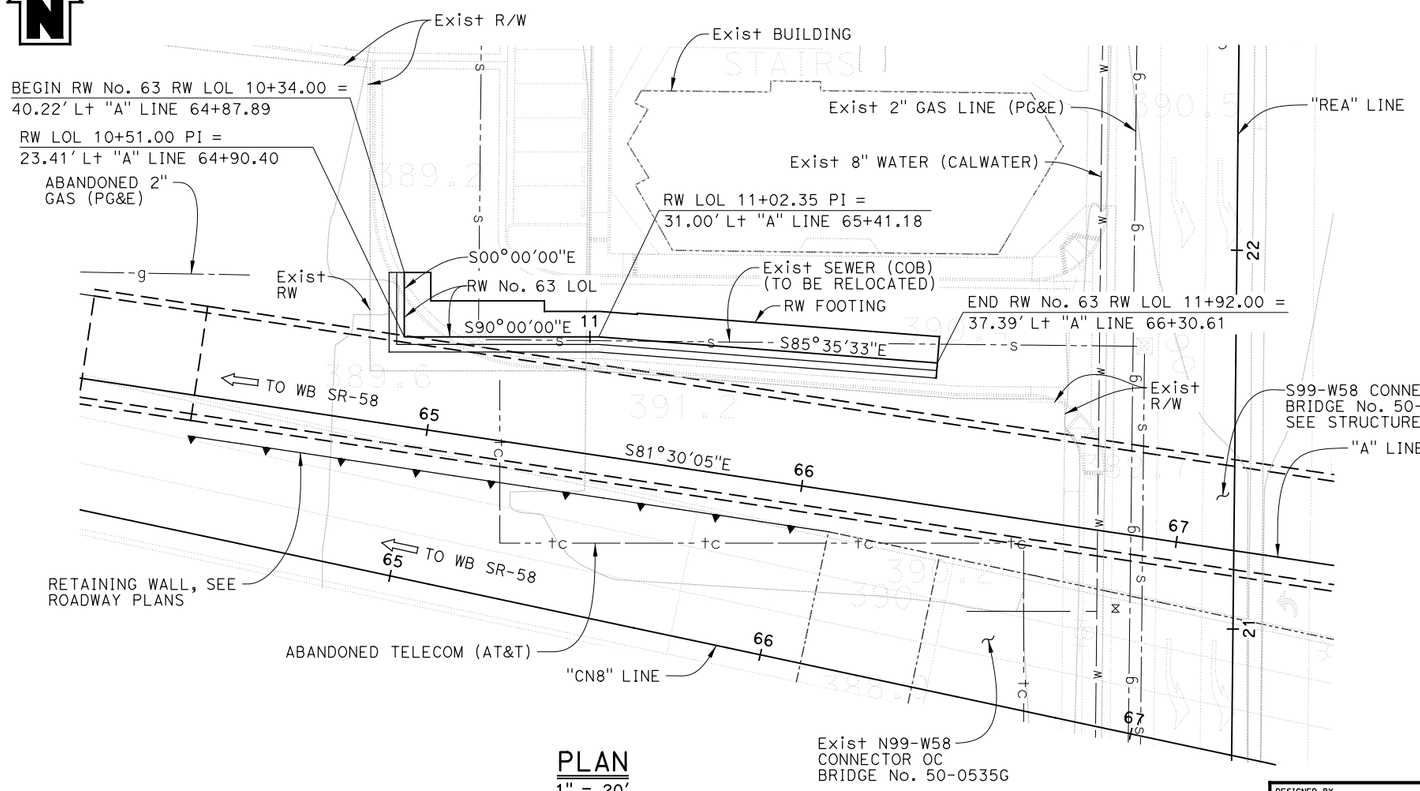
Existing Structure

Retaining Wall Removal (Portion)

## DEVELOPED MIRROR ELEVATION

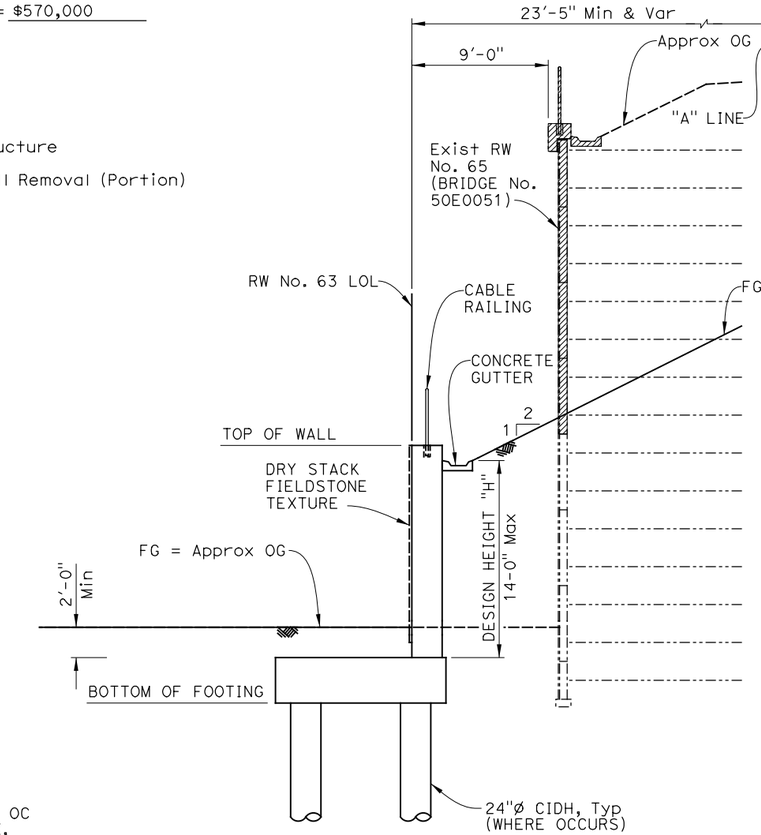
1" = 20'

NOTE: All piles not shown for clarity.




## PLAN

1" = 20'




## TYPICAL SECTION

1" = 5'

NOTE: S99-W58 Connector OC not shown.

*Imad abumarkhieh*
DESIGN OVERSIGHT
9/18/2023
SIGN OFF DATE

| | | | |
|---|---|---|---|
| DESIGNED BY B. Lux | DATE 8/31/23 | J. Hermstad PROJECT ENGINEER | **PLANNING STUDY** |
| DRAWN BY B. Lux | DATE 8/31/23 | | **RETAINING WALL NO. 63** |
| CHECKED BY A. Douglass | DATE 8/31/23 | | BRIDGE No.:50EXXXX |
| APPROVED J. Hermstad | DATE 8/31/23 | | PROJECT EA:06-48468 / PROJECT No. & PHASE:XXXXXXXXXX0 |

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 8/16/2021)
DATE PLOTTED => 30-AUG-2023 TIME PLOTTED => 3:52:55 PM
FILE => 50Exxxxx-qps01 USERNAME => p004336A

# Section 5

# Retaining Wall No. 65 Bid Plans (General Plan Sheet)

| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No | TOTAL SHEETS |
|---|---|---|---|---|---|
| 06 | KER | 58<br>99 | R50.5/R55.5<br>22.7/23.8 | 847 | 1464 |

REGISTERED CIVIL ENGINEER — 9/17/18 DATE

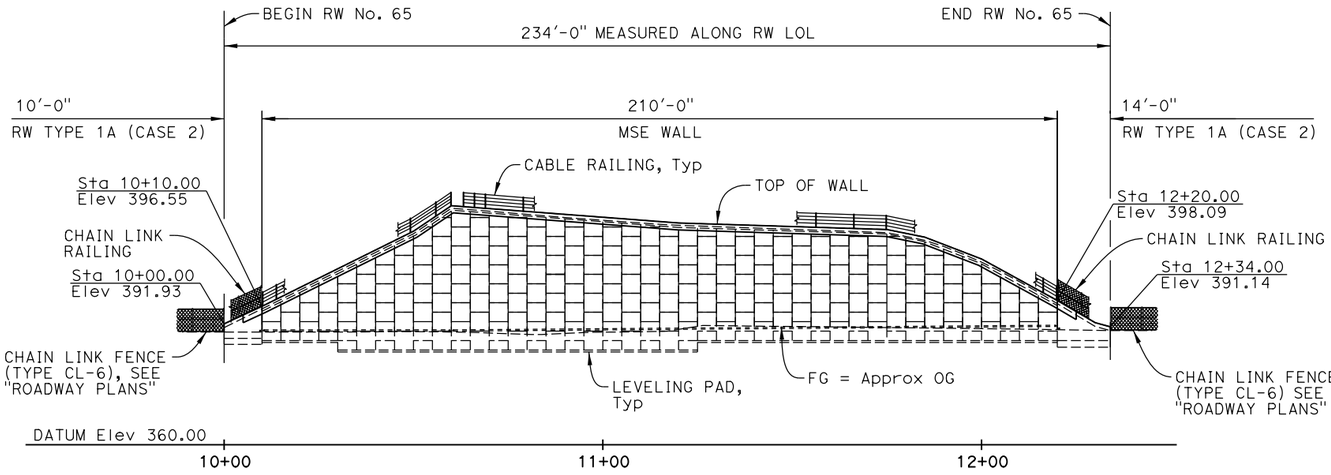
10/10/18
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — CASEY T. WEBER — No. 70388 — Exp. 9/30/2018 — CIVIL — STATE OF CALIFORNIA

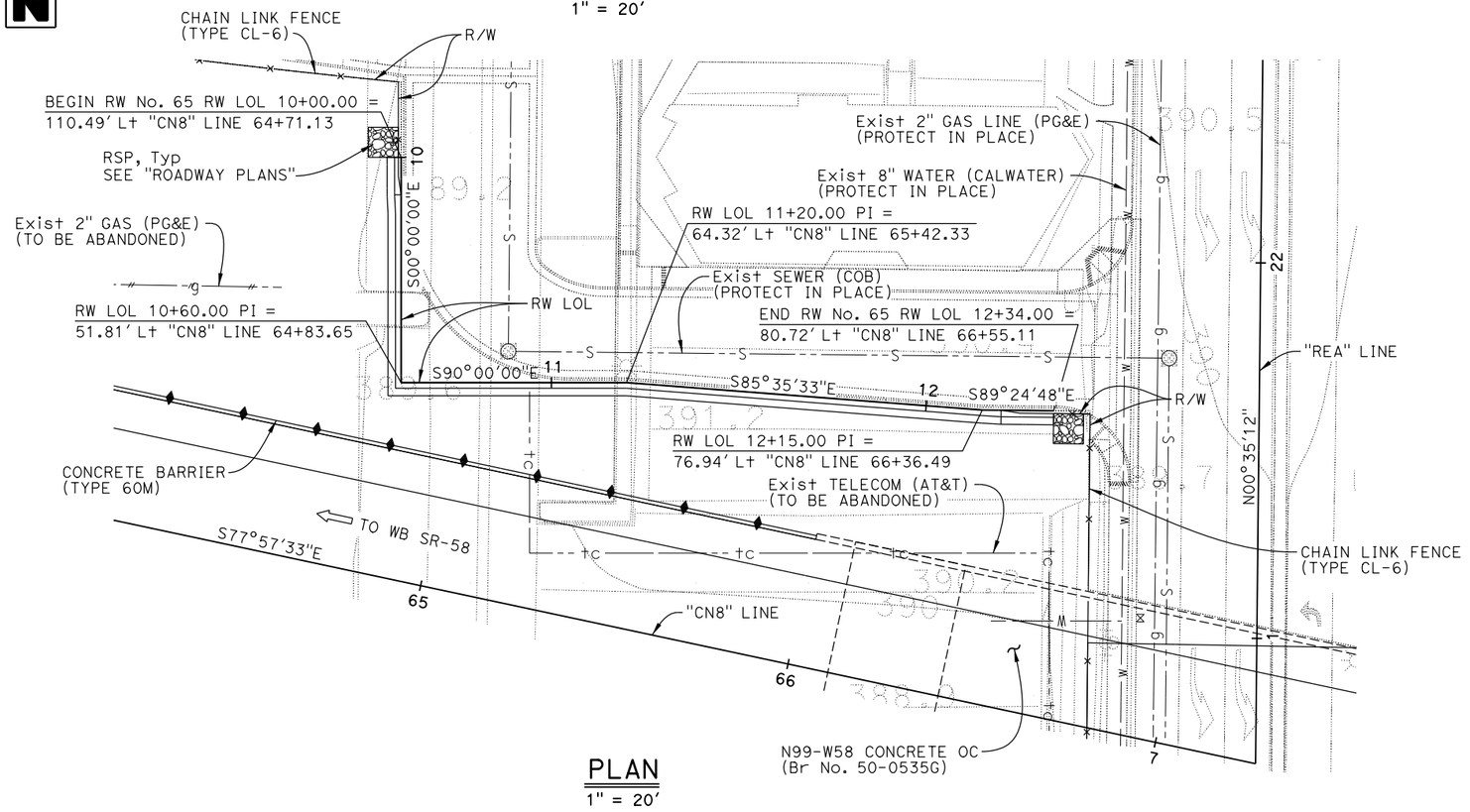
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.*

**CITY OF BAKERSFIELD**
1600 TRUXTUN AVENUE
BAKERSFIELD, CA 93301

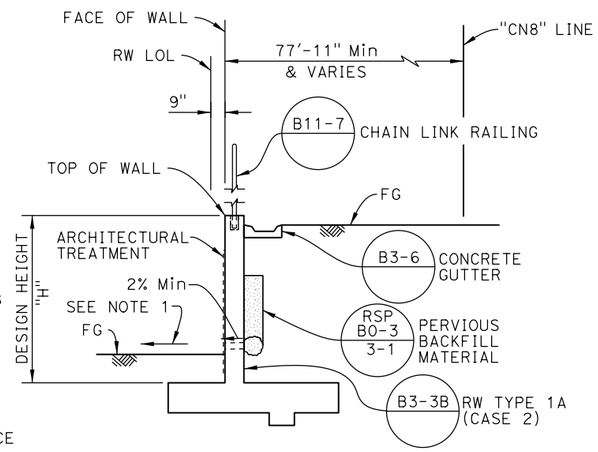
**PARSONS**
2201 DUPONT DRIVE, SUITE 200
IRVINE, CA 92612




## DEVELOPED MIRROR ELEVATION
1" = 20'




## PLAN
1" = 20'




## TYPICAL SECTION
¼" = 1'-0"
RW LOL 10+00.00 TO 10+10.00
RW LOL 12+20.00 TO 12+34.00

NOTES:
1. Finished grade surface must slope to drain away from retaining wall or towards gutter.
2. Contours shown represent approximate existing ground.
3. The types and locations of all utilities are provided for information only. The Contractor must verify all existing utilities and notify Utility Agencies prior to any removal, relocation or new construction. See "ROADWAY PLANS" for utility details not shown.

LEGEND:
⇦ Indicates Direction of Traffic




## TYPICAL SECTION
¼" = 1'-0"
RW LOL 10+10.00 TO 12+20.00

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Imad Abu-Markhieh<br>DESIGN OVERSIGHT<br>9/17/18<br>SIGN OFF DATE | DESIGN | BY C. Weber | CHECKED B. Lux | LOAD & RESISTANCE FACTOR DESIGN | LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE | | |
| | DETAILS | BY K. Gevorkyan | CHECKED B. Lux | LAYOUT | BY M. Brash | CHECKED B. Lux | |
| | QUANTITIES | BY K. Bowes | CHECKED B. Lux | SPECIFICATIONS | BY A. Priley | PLANS AND SPECS COMPARED C. Weber | |

**PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**

Casey Weber
PROJECT ENGINEER

BRIDGE NO. 50E0051
POST MILES R52.07

# RETAINING WALL NO. 65
## GENERAL PLAN

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 03/14/12)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 1477
PROJECT NUMBER & PHASE: 06000004841 CONTRACT NO.: 06-484604

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

| REVISION DATES | | | | SHEET | OF |
|---|---|---|---|---|---|
| 08/15/16 | 08/04/17 | 12/13/17 | 09/17/18 | 1 | 12 |

FILE => Wall 65-a-gp01.dgn

USERNAME => P0011638 DATE PLOTTED => 19-NOV-2018 TIME PLOTTED => 08:56

Appendix H – Stormwater Data Report

Dist-County-Route: *06-KER-99, 06-KER-58*
Post Mile Limits: *23.6/23.8, R52.1/R52.4*
Type of Work: *SB SR-99 to WB SR-58 Connector*
Project ID (EA): EFIS 06-2300-0112 (06-48468)

Phase: ☐ PID ☒ PA/ED ☐ PS&E

Applicable Caltrans Post Construction Treatment Requirement: 2012 ☐ 2022 ☒
Regional Water Quality Control Board(s): Central Valley, Region 5, Fresno Office
Total Disturbed Soil Area: 5.67 acres PCTA: 1.22 acres
Alternative Compliance (acres): N/A ATA 2 (50% Rule)? Yes ☐ No ☒
Estimated Const. Start Date: 8/1/2025 Estimated Const. Completion Date: 8/1/2026
Risk Level: RL 1 ☒ RL 2 ☐ RL 3 ☐ WPCP ☐ Other: _____
Is (M)WELO applicable? Yes ☐ No ☒
Is the Project within a TMDL watershed? Yes ☐ No ☒
Does the project require trash treatment? Yes ☐ No ☒
Notification of ADL reuse (if yes, provide date): Yes ☐ Date: _____ No ☒

***This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E only.***

Brian Patschull, Registered Project Engineer — 9-29-23 Date

***I concur with the Construction water pollution control strategy and selected temporary BMPs in this report:***

Jamal Alzutami FOR — 10/09/2023
**Sarbjit Deol**, *District Construction SW Coordinator* — *Date*

***I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:***

Marlo Carlos — 10/13/23
**Marlo Carlos**, *Project Manager* — *Date*

Rene — 10/13/23
Rene Sanchez, *Designated Maintenance Representative* — *Date*

b zsnj Cok — 10/16/23
**Brad Cole**, *Designated Landscape Architect Representative* — *Date*

*[Stamp Required at PS&E only]*

Mazin Al Ali — 10/16/2023
**Mazin Al Ali**, *Regional Design SW Coordinator* — *Date*

## 1. Project Description

- The proposed Southbound State Route (SR) 99 to Westbound SR 58 Connector Project is located in Kern County, in the city of Bakersfield, California. The project entails the construction of a connector ramp, which will establish a direct link between the southbound SR 99 freeway and the westbound SR 58. Its primary objective is to mitigate traffic congestion experienced at the 24th Street, and California Avenue ramps on SR 99. Additionally, it will facilitate the efficient flow of traffic from southbound SR 99 to westbound SR 58 (Centennial/Westside Parkway), a newly constructed freeway that serves the rapidly developing western region of Bakersfield. The proposed project will significantly enhance the overall transportation network by complementing the westbound ramp movement, which is currently absent from the Centennial Corridor Project. Moreover, this development will have a positive impact on other critical roadways, such as Oak Street, Mohawk Road, and Rosedale Highway. The project will effectively alleviate congestion, which is needed as the present utilization of these local arterials is substantial.
- The Disturbed Soil Area (DSA) is 5.67 acres. The DSA was calculated by CADD and includes 0.25 acres for contractor staging.
- There is 1.22 acres of New Impervious Surface area (NIS) for this project, comprised of 1.22 acres of Net New Impervious (NNI) surface area and zero Replaced Impervious Surface (RIS) area. There is 0.22 acre of pre-project impervious area which would be removed and replaced for the post-project condition; however this area is excluded from NIS consideration (per PPDG Table 4-1) as the replaced area continues to drain to the existing nearby Elcia Retention Basin for treatment, which will be protected and perpetuated.
- The Post Construction Treatment Area (PCTA) is defined as the sum of NIS and Additional Treated Area (ATA) Condition 1 or ATA Condition 2. There are no existing Treatment BMPs within the project limits which will be removed, therefore ATA Condition 1 is not applicable. The NNI is less than 50% of the total post-project impervious area, and as such ATA Condition 2 is not applicable to this project as well. As a result, the PCTA is equal to NIS, which is 1.22 acres.

| Summary of Project Areas | Area (acres) |
|---|---|
| **Disturbed Soil Area (DSA)** | 5.67 |
| **Pre-project Impervious Area** | 5.10 |
| **Post project Impervious Area** | 6.32 |
| **Increase in Net New Impervious (NNI) Surface** | 1.22 |
| **Amount of Replaced Impervious Surface (RIS)** | 0.00 |
| **Total New Impervious Surface (NIS= NNI + RIS)** | 1.22 |

- Temporary Staging and Disturbed Soil Areas

  The contractor could be authorized by Caltrans Resident Engineer (RE) to use areas within the 'Right-of-way' for Contractor Support Facilities, pursuant to Standard Specifications 5-1.32, "If no state-owned area is designated for the Contractor's use, you may arrange for temporary storage with the Department." In conformance with Standard Specifications 5-1.36, if the vegetation is not designated for removal, then it is to be preserved and protected. If any vegetation/property is disturbed/damaged by the contractor, then the contractor is responsible for restoration/repair. In the event that the contractor requests and is authorized to utilize 'right-

of-way' for Contractor Support Facilities, 0.25 acre of soil disturbance associated with these facilities has been accounted for in the DSA total for planning.

- There are no known existing treatment BMPs within the project limits. The project limits drain to the existing nearby Elcia Retention Basin which will be protected in place and can accept the additional flow.
- The Construction General Permit fee was determined to be $1,620 total.
- There are no Treatment BMPs being incorporated within this project to address TMDLs.

## 2. Site Data and Stormwater Quality Design Issues

- The project falls within the following hydrologic area:

| Hydrologic Unit | Hydrologic Area | Sub-Area |
|---|---|---|
| South Valley Floor | Kern Delta | 557.10 |

- Receiving water body within the project limits has been identified as Stine Canal. The project limits drain to the existing Elcia Retention Basin. None of the receiving water bodies within the project limits are identified on the 303(d) list. This project has no impact on potential receiving waters.
- Runoff generated by the new pavement will be collected by existing and proposed drainage systems and conveyed to the existing Elcia Retention Basin for treatment.
- This project does not require 401 Water Quality Certification, 404 US Army Corps of Engineers, or 1602 California Fish and Wildlife permits.
- No Drinking Water Reservoirs and/or Recharge Facilities have been identified within the project limits.
- There are no known RWQCB special requirements or concerns with this project. No TMDLs have been identified with any water bodies in the area.
- There are no known local agency requirements/concerns with this project.
- The average annual rainfall for this area is about 5.96 inches.
- According to the WQPT, the existing topography within the proposed project area is flat and generally slopes from north to south. The ground surface varies from approximately 385 feet above mean sea level (AMSL) to 400 feet AMSL. To minimize erosion from slopes, existing slopes will only be disturbed when necessary; cut and fill areas will be minimized to reduce slope lengths. Slopes will be rounded and shaped to reduce concentrated flow. The project will create new slopes and modify existing slopes.
- According to the National Resources Conservation Service (NRCS) Web Soil Survey and USDA NRCS, soils within the proposed project area are classified as Hydrologic Soil Group (HSG) Type A. A HSG Exhibit is provided as a supplemental attachment.
- This project will involve reuse of soils containing Aerially Deposited Lead (ADL).
- The project soil erosion risk level was determined using the Individual Method – EPA Rainfall Erosion Calculator and Individual Data per Caltrans Project Risk Level Determination Guidance, December 2016. The project risk level has been determined to be Risk Level 1. The sediment risk level was determined to be low based on an EPA erosivity index R factor of 24.04 and a

watershed erosion estimate of 1.23 tons/acre utilizing a K and LS factor of 0.32 and 0.16, respectively. The project receiving water risk was determined to be Low.

- There are no existing Treatment BMPs within or adjacent to the project limits. The project limits drain to the existing nearby Elcia Retention Basin which will be protected in place and can accept the additional flow.
- This project is not within a significant trash generating area.
- This project is located within the City of Bakersfield urban MS4 area.

## 3. Construction Site BMPs to be used on Project

- This project will require the preparation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP will be developed by the contractor and submitted to the Caltrans resident engineer for review and acceptance prior to the start of construction. The SWPPP incorporates the applicable temporary construction site BMPs for the project intended to reduce or eliminate pollutants in construction site storm water runoff.
- A Soil Erosion Risk Assessment was completed for this project and has been determined to have a Risk Level of 1.
- The following Construction Site Water Pollution Control BMPs are identified:

  Job Site Management
  Prepare SWPPP
  Storm Water Annual Report
  Street Sweeping
  Temporary Concrete Washout
  WPC Maintenance Sharing
  Additional Water Pollution Control
  Storm Water Sampling and Analysis

- The following temporary construction site BMPs will be incorporated into the project:

  Temporary Hydraulic Mulch
  Temporary Drainage Inlet Protection
  Temporary Fiber Roll
  Temporary Silt Fence
  Temporary Construction Entrance

- Non-Storm Water Management BMPs (such as equipment storage, staging areas, and paving and grinding operations) and Waste Management and Materials Pollution Control BMPs (such as material handling and stockpiles) will be addressed through Job Site Management.
- DSAs occurring during construction activities requiring sediment control or soil stabilization can be addressed through Additional Water Pollution Control.
- There are no active treatment systems (ATS) proposed to be used for the site, or portions thereof.
- There is no dewatering required for this project.

- Project specific BMP measures will be specified and quantified during the design phase. Temporary construction BMPs have been estimated at $686,250 which is 1.25% of the total project cost ($54,900,000) in accordance with the Project Initiation Cost Estimate Method, Appendix F.3.1.

## 4. Maintenance BMPs

- There are no drain inlet markers, maintenance vehicle pullouts or maintenance worker safety features required for this project.

- Treatment BMP (TBMP) Markers are not required for this project.

## 5. Other Water Quality Requirements and Agreements

- There are no negotiated understandings or agreements with the RWQCB pertaining to this project, and none are anticipated. A 401 certification is not required.
- This project will require notification to the State Water Resources Control Board (SWRCB) via the Stormwater Multi-Application Report Tracking System (SMARTS). Project registration documents will need to be filed, and a WDID number will be assigned to this project.

## 6. Permanent BMPs

### Rapid Stability Assessment

- Caltrans' Statewide MS4 Permit states that Caltrans "...shall ensure that all new development and redevelopment projects do not cause a decrease in lateral (bank) and vertical (channel bed) stability in receiving stream channels." Per the Caltrans Hydromodification Requirements Guidance (2015), this project is not required to perform a Rapid Stability Assessment as the project does not include any Water of the U.S. stream crossings.

### Design Pollution Prevention (DPP) BMP Strategy

- The proposed project would add impervious surface area of 1.22 acres. Based on the amount of existing impervious surface area within the project limits the volume and velocity of the downstream flow is not expected to increase significantly.

### Treatment BMP Strategy

- The project results in a NIS of 1.22 acres within Caltrans ROW. There are no ATAs within the proposed project limits. As such, the PCTA is equal to NIS, which is 1.22 acres.
- Per the Evaluation Documentation Form (EDF), this project is required to consider permanent treatment BMPs as this project does result in an increase of 10,000 square feet or more of NIS.
- Discharge from the state right of way is treated in the existing Bakersfield Urban MS4 Elcia Retention basin where an agreement with the State, County and City of Bakersfield is documented. The existing Elcia Retention Basin will be protected in place and can accept the additional flow.
- The existing Elcia Retention Basin treats 100% of the WQV generated from the PCTA for the proposed project.

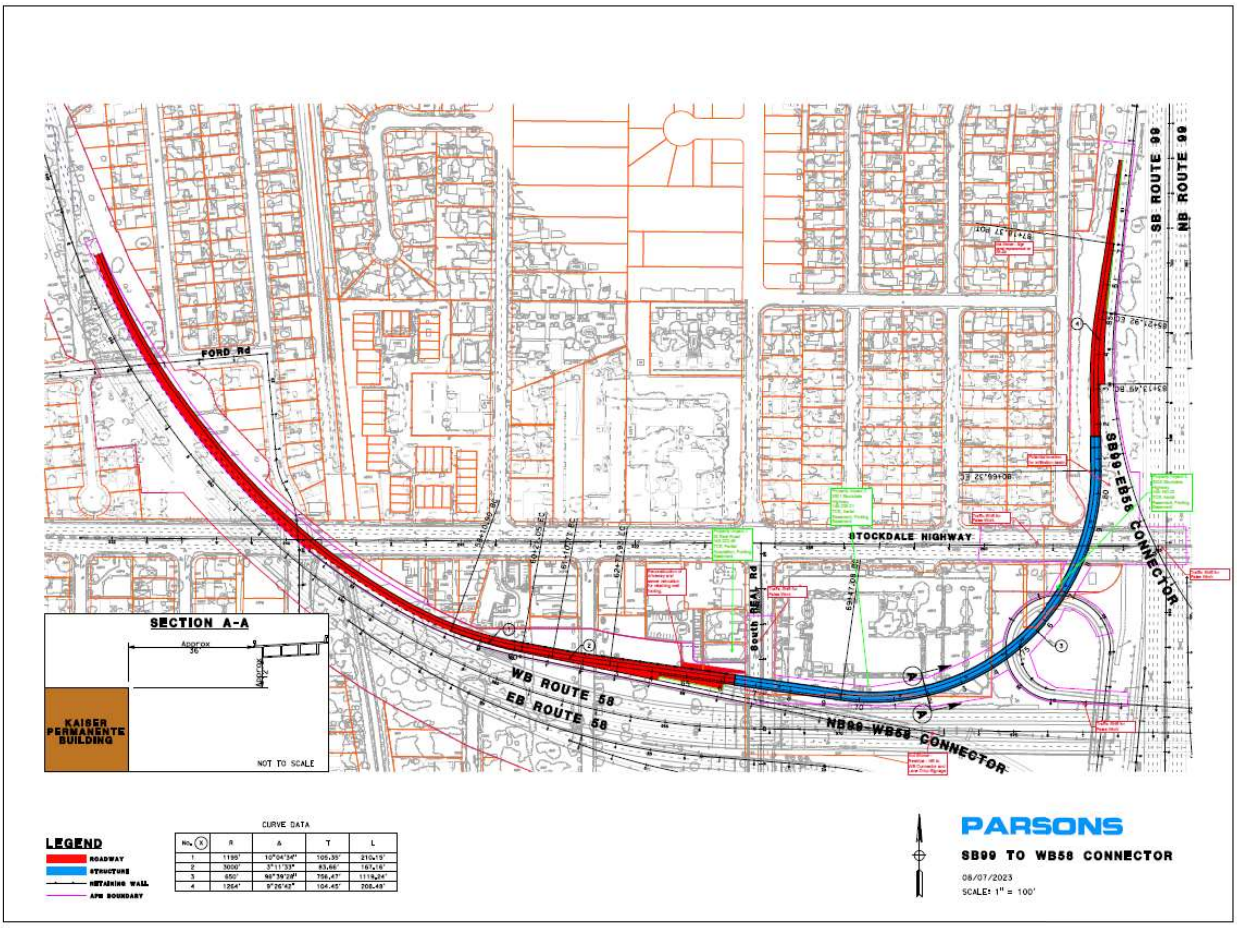
| Table E-1. Overall Project Treatment Summary Table[1] | | | |
|---|---|---|---|
| | PCTA (ac) | A | 1.22 |
| Total Area to be Treated | Treated Impervious Area (CT RW) (ac) | B | 1.22 |
| | Treated Impervious Area (Outside CT RW) (ac) | C | 0.00 |
| | Treated Pervious Area (CT RW) (CUs) (ac) | D | 0.00 |
| | Treated Pervious Area (Outside CT RW) (CUs) (ac) | E | 0.00 |
| | PCTA Balance (ac) | F = (B+C) – A = | 0.00 |

## Required Attachments

- Vicinity Map
- Evaluation Documentation Form (EDF)
- Risk Level Determination Documentation

## Supplemental Attachments

- Checklist SW-1, Site Data Sources
- Checklist SW-2, Stormwater Quality Issues Summary
- Checklist SW-3, Measures for Avoiding or Reducing Potential Stormwater Impacts
- Checklist DPP-1, Parts 1–5 (Design Pollution Prevention BMPs)
- HSG Exhibits
- DSA Exhibit
- NNI/RIS/NIS Exhibit
- Elcia Retention Basin Exhibit and Calculations
- Layout Sheets (To be provided at PS&E)
- Temporary Water Pollution Control Sheets (To be provided at PS&E)
- Drainage Sheets (To be provided at PS&E)


FORD Rd
SB ROUTE 99
NB ROUTE 99
SB99-EB58 CONNECTOR
STOCKDALE HIGHWAY
South REAL Rd
WB ROUTE 58
EB ROUTE 58
NB99-WB58 CONNECTOR
SECTION A-A
Approx 35'
Approx 21'
KAISER PERMANENTE BUILDING
NOT TO SCALE
LEGEND
ROADWAY
STRUCTURE
RETAINING WALL
APE BOUNDARY
CURVE DATA
No. R Δ T L
1 1190' 10°04'34" 105.35' 210.15'
2 3000' 3°11'33" 83.66' 167.18'
3 850' 90°39'28" 756.47' 1118.24'
4 1264' 9°26'42" 104.45' 208.48'
PARSONS
SB99 TO WB58 CONNECTOR
08/07/2023
SCALE: 1" = 100'

Date: 9/29/2023

Project ID (EA): 0623000112 (06-48486)

| No. | Criteria | Yes ✓ | No ✓ | Supplemental Information for Evaluation |
|---|---|---|---|---|
| 1. | Begin Project evaluation regarding requirement for implementation of Treatment BMPs | ✓ | | Continue to 2. |
| 2. | Is the scope of the Project to install Treatment BMPs (e.g., Alternative Compliance or TMDL requirement)? | | ✓ | If **Yes**, go to 8.<br>If **No**, continue to 3. |
| 3. | Is there a direct or indirect discharge to surface waters? | ✓ | | If **Yes**, continue to 4.<br>If **No**, go to 9. |
| 4. | As defined in the WQAR or ED, does the project:<br>a. discharge to Areas of Special Biological Significance (ASBS), or<br>b. discharge to a TMDL watershed where Caltrans is named stakeholder, or<br>c. have other pollution control requirements for surface waters within the project limits (e.g. STGA)? | | ✓<br>✓<br>✓ | If **Yes to any**, contact the District/Regional Design Stormwater Coordinator or District/Regional NPDES Coordinator to discuss the Department's obligations, go to 8 or 5.<br>_____*(Dist./Reg. Coordinator initials)*<br>If **No** to all, continue to 5. |
| 5. | Are any existing Treatment BMPs partially or completely removed?<br>(ATA Condition 1, Section 4.3.1) | | ✓ | If **Yes**, go to 8 **AND** continue to 6.<br>If **No**, continue to 6. |
| 6. | Is this a Routine Maintenance Project? | | ✓ | If **Yes**, go to 9.<br>If **No**, continue to 7. |
| 7. | Does the project result in an increase of 10,000 ft² or more of new impervious surface (NIS)? | ✓ | | If **Yes**, go to 8.<br>If **No**, go to 9. |
| 8. | Project is required to implement Treatment BMPs. | Complete Checklist T-1, Part 1. See Note below. | | |
| 9. | Project is not required to implement Treatment BMPs.<br>__RJD___ *(Dist./Reg. Design SW Coord. Initials)*<br>_BP___ *(Project Engineer Initials)*<br>__*9/29/2023*_____ *(Date)* | Document for Project Files by completing this form and attaching it to the SWDR. | | |

Note: The existing Elcia Retention Basin treats 100% of the WQV generated from the PCTA for the proposed project. Elcia Basin is located in the Bakersfield MS4 area. The City of Bakersfield is in agreement with Caltrans and responsible for the treatment of water collected in their basins. Therefore, Caltrans is not required to provide treatment for this project.

| **Sediment Risk Factor Worksheet EA: 06-48468** | **Entry** |
|---|---|
| **A) R Factor** | |
| Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.<br><br>https://lew.epa.gov/ | |
| **R Factor Value** | 18.12 |
| **B) K Factor (weighted average, by area, for all site soils)** | |
| The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.<br><br>Site-specific K factor guidance | |
| **K Factor Value** | 0.32 |
| **C) LS Factor (weighted average, by area, for all slopes)** | |
| The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.<br><br>LS Table | |
| **LS Factor Value** | 0.16 |
| | |
| **Watershed Erosion Estimate (=RxKxLS) in tons/acre** | 0.9277 |
| **Site Sediment Risk Factor**<br>Low Sediment Risk: < 15 tons/acre<br>Medium Sediment Risk: >=15 and <75 tons/acre<br>High Sediment Risk: >= 75 tons/acre | **Low** |
| | |

| **Receiving Water (RW) Risk Factor Worksheet** | **Entry** | **Score** |
|---|---|---|
| **A. Watershed Characteristics** | **yes/no** | |
| A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment**? For help with impaired waterbodies please check the attached worksheet or visit the link below:<br>2006 Approved Sediment-impaired WBs Worksheet<br>http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_epa.shtml<br>**OR**<br>A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY?<br>http://www.ice.ucdavis.edu/geowbs/asp/wbguse.asp | **No** | **Low** |

## Combined Risk Level Matrix

| Receiving Water Risk \ Sediment Risk | Low | Medium | High |
|---|---|---|---|
| Low | Level 1 | Level 2 | |
| High | Level 2 | | Level 3 |

**Project Sediment Risk:** Low
**Project RW Risk:** Low
**Project Combined Risk:** Level 1

## Facility Information

| | |
|---|---|
| **Start Date:** 08/01/2025 | **Latitude:** 35.3525 |
| **End Date:**07/31/2026 | **Longitude:** -119.0393 |

### Calculation Results

Rainfall erosivity factor (R Factor) = **18.12**

### Total Rainfall erosivity factor (R Factor) = 18.12

Arainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

**You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage.** If you are located in an area where EPA is the permitting authority, you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT). Otherwise, you must seek coverage under your state's CGP.

# Checklist SW-1, Site Data Sources

Prepared by: Brian Patschull Date: 09/15/2023 District-Co-Route: 06-KER-99-58

PM: 23.4/24.2, T52.2/R52.4 Project ID/EA: 06-2300-0112 (06-48468) RWQCB:Central Valley Region 5

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project planning phase. Collect available project reports and any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 6.4.3.2. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

| DATA CATEGORY/SOURCES | Date |
|---|---|
| **Water Quality** | |
| 1. Water Quality Planning Tool- http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx | September 2023 |
| 2. Clean Water Act Section 303(d) List/ SWRCB, Website | September 2023 |
| 3. Caltrans Stormwater Quality Manuals and Handbooks<br>4. http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm | September 2023 |
| **Geotechnical** | |
| *1. NRCS Soil Survey http://websoilsurvey.nrcs.usda.gov* | September 2023 |
| **Topographic** | |
| 1. Water Quality Planning Tool | September 2023 |
| **Hydraulic** | |
| *1.* Caltrans Highway Design Manual | September 2023 |
| 2. | |
| **Climatic** | |
| 1. Water Quality Planning Tool | September 2023 |
| **Other Data Categories** | |
| 1. Project Planning and Design Guide | June 2023 |
| 2. Construction Site BMP Manual | May 2017 |
| 3. SWPPP/WPCP Preparation Manual | October 2016 |
| 4. USEPA Rainfall Erosivity Factor Calculator for Small Construction Sites, https://lew.epa.gov/ | September 2023 |
| | |

# Checklist SW-2,
# Stormwater Quality Issues Summary

Prepared by: Brian Patschull Date: 09/15/2023 District-Co-Route: 06-KER-99-58

PM: 23.4/24.2, T52.2/R52.4 Project ID/EA: 06-2300-0112 (06-48468) RWQCB: Central Valley Region 5

The following questions provide a guide to collecting critical information relevant to project stormwater quality issues. Consult other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional Design Stormwater Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR; do not discuss items identified as not applicable.

| | | |
|---|---|---|
| 1. | Determine the receiving waters for the project **None** | ☒ Complete ☐ NA |
| 2. | For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern. **None** | ☒ Complete ☐ NA |
| 3. | Determine if there are any municipal or domestic water supply reservoirs or groundwater percolation facilities within the project limits, as shown by DWP. | ☒ Complete ☐ NA |
| 4. | Determine the RWQCB special requirements, including TMDLs, effluent limits, etc. **None** | ☒ Complete ☐ NA |
| 5. | Determine if the project area has a trash TMDL or is in an STGA. | ☒ Complete ☐ NA |
| 6. | Determine regulatory agencies seasonal construction and construction exclusion dates or restrictions required by federal, state, or local agencies. | ☒ Complete ☐ NA |
| 7. | Determine if a 401 Certification will be required. **Not required.** | ☒ Complete ☐ NA |
| 8. | Identify rainy season. **From October 15 through April 15.** | ☒ Complete ☐ NA |
| 9. | If applicable, determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves. **Annual Precipitation is 5.96 inces.** | ☒ Complete ☐ NA |
| 10. | If considering Treatment BMPs, determine the soil classification, permeability, erodibility and depth to groundwater. | ☒ Complete ☐ NA |
| 11. | Determine contaminated soils within the project area. | ☒ Complete ☐ NA |
| 12. | Determine the total disturbed soil area of the project. **5.67 Acres** | ☒ Complete ☐ NA |
| 13. | Describe the topography of the project site. **Flat.** | ☒ Complete ☐ NA |
| 14. | List any areas outside of the Caltrans right-of-way that will be included in the project (e.g., contractor's staging yard, work from barges, easements for staging). | ☒ Complete ☐ NA |
| 15. | Determine if additional right-of-way acquisition or easements and right-of-entry will be required for design, construction, and maintenance of BMPs. If so, how much? | ☒ Complete ☐ NA |
| 16. | Determine the estimated unit costs for right-of-way should it be needed for Treatment BMPs, stabilized conveyance systems, lay-back slopes, or interception ditches. | ☒ Complete ☐ NA |
| 17. | Determine if project area has any slope stabilization concerns. | ☒ Complete ☐ NA |
| 18. | Describe the local land use within the project area and adjacent areas. | ☒ Complete ☐ NA |
| 19. | Evaluate the presence of dry weather flow. **None** | ☒ Complete ☐ NA |

# Checklist SW-3,
# Measures for Avoiding or Reducing Potential Stormwater Impacts

Prepared by: Brian Patschull Date: 09/15/2023 District-Co-Route: 06-KER-99-58

PM: 23.4/24.2, T52.2/R52.4 Project ID/EA 06-2300-0112 (06-48468)RWQCB: Central Valley Region 5

The PE should confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR; do not discuss items identified as not applicable.

Options for avoiding or reducing potential impacts during project planning include the following:

| | | | | |
|---|---|---|---|---|
| 1. | Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions? | ☐ Yes | ☒ No | ☐ NA |
| 2. | Can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts? | ☐ Yes | ☐ No | ☒ NA |
| 3. | Can any of the following methods be utilized to minimize erosion from slopes: | | | |
| | a. Disturbing existing slopes only when necessary? | ☒ Yes | ☐ No | ☐ NA |
| | b. Minimizing cut and fill areas to reduce slope lengths? | ☒ Yes | ☐ No | ☐ NA |
| | c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes? | ☒ Yes | ☐ No | ☐ NA |
| | d. Acquiring right-of-way easements (such as grading easements) to reduce steepness of slopes? | ☐ Yes | ☐ No | ☒ NA |
| | e. Avoiding soils or formations that will be particularly difficult to re-stabilize? | ☐ Yes | ☐ No | ☒ NA |
| | f. Providing cut and fill slopes flat enough to allow re-vegetation and limit erosion to pre-construction rates? | ☒ Yes | ☐ No | ☐ NA |
| | g. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows? | ☐ Yes | ☐ No | ☒ NA |
| | h. Rounding and shaping slopes to reduce concentrated flow? | ☒ Yes | ☐ No | ☐ NA |
| | i. Collecting concentrated flows in stabilized drains and channels? | ☒ Yes | ☐ No | ☐ NA |
| 4. | Does the project design allow for the ease of maintaining all BMPs? | ☒ Yes | ☐ No | |
| 5. | Can the project be scheduled or phased to minimize soil-disturbing work during the rainy season? | ☒ Yes | ☐ No | |
| 6. | Can permanent stormwater pollution controls such as paved slopes, vegetated slopes, basins, and conveyance systems be installed early in the construction process to provide additional protection and to possibly utilize them in addressing construction stormwater impacts? | ☐ Yes | ☐ No | ☒ NA |

# Design Pollution Prevention BMPs
# Checklist DPP-1, Part 1

Prepared by: Brian Patschull Date: 09/15/2023 District-Co-Route: 06-KER-99-58

PM: 23.4/24.2, T52.2/R52.4 Project ID/EA: 06-2300-0112 (06-48468) RWQCB: Central Valley Region 5

## Consideration of Design Pollution Prevention BMPs

### Consideration of Downstream Effects Related to Potentially Increased Flow [to streams or channels]

Will the project increase velocity or volume of downstream flow? ☐ Yes ☒ No ☐ NA

Will the project discharge to unlined channels? ☐ Yes ☒ No ☐ NA

Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability? ☐ Yes ☒ No ☐ NA

If Yes was answered to any of the above questions, consider ***Downstream Effects Related to Potentially Increased Flow***, complete the Checklist DPP-1, Part 2.

### Slope/Surface Protection Systems

Will the project create new slopes or modify existing slopes? ☒ Yes ☐ No ☐ NA

If Yes was answered to the above question, consider ***Slope/Surface Protection Systems***, complete the Checklist DPP-1, Part 3.

### Concentrated Flow Conveyance Systems

Will the project create or modify ditches, dikes, berms, or swales? ☒ Yes ☐ No ☐ NA

Will project create new slopes or modify existing slopes? ☒ Yes ☐ No ☐ NA

Will it be necessary to direct or intercept surface runoff? ☒ Yes ☐ No ☐ NA

Will cross drains be modified? ☐ Yes ☒ No ☐ NA

If Yes was answered to any of the above questions, consider ***Concentrated Flow Conveyance Systems***, complete the Checklist DPP-1, Part 4.

### Preservation of Existing Vegetation, Soils, and Surface Water Buffer Areas

It is the goal of the Stormwater Program to maximize the protection of desirable existing vegetation, soils, and surface water buffer areas to provide erosion and sediment control benefits on all projects. ☒ Complete

Consider ***Preservation of Existing Vegetation, soils, and surface water buffer areas***, complete the Checklist DPP-1, Part 5.

## Design Pollution Prevention BMPs
## Checklist DPP-1, Part 2

Prepared by: Brian Patschull Date: 09/15/2023 District-Co-Route: 06-KER-99-58

PM: 23.4/24.2, T52.2/R52.4 Project ID/EA: 06-2300-0112 (06-48468) RWQCB: Central Valley Region 5

**Downstream Effects Related to Potentially Increased Flow**

1. Review total paved area and reduce to the maximum extent practicable. ☒ Complete

2. Review channel lining materials and design for stream bank erosion control. ☐ Complete

   a. See Chapters 860 and 870 of the HDM. ☐ Complete

   b. Consider channel erosion control measures within the construction limits as well as downstream. Consider scour velocity. If erosion control measures are required downstream of construction limits obtain the appropriate permits and right-of-way documents to include work within the construction limits. ☐ Complete

3. Include, where appropriate, energy dissipation devices at culvert outlets. ☐ Complete

4. Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour. ☐ Complete

5. Include, if appropriate, peak flow attenuation basins or devices to reduce peak discharges. ☐ Complete

6. Calculate the water quality volume infiltrated within the project limits. These calculations will be used in the Checklist T-1, Part 1. **Treatment BMPs are required for this project.** ☒ Complete

## Design Pollution Prevention BMPs
## Checklist DPP-1, Part 3

Prepared by: Brian Patschull Date: 09/15/2023 District-Co-Route: 06-KER-99-58

PM: 23.4/24.2, T52.2/R52.4 Project ID/EA: 06-2300-0112 (06-48468)RWQCB:Central Valley Region 5

### Slope / Surface Protection Systems

1. What are the proposed areas of cut and fill? (attach plan or map) **Will be completed during PS&E** ☐ Complete
2. Were benches or terraces provided on high cut and fill slopes to shorten slope length? ☐ Yes ☐ No
3. Were concentrated flows collected in stabilized drains or channels? ☐ Yes ☐ No
4. Are new or disturbed slopes > 4:1 horizontal:vertical (h:v)? ☐ Yes ☐ No

   If Yes, District Landscape Architect is responsible for an erosion control strategy and may prepare an erosion control plan.
5. Are new or disturbed slopes > 2:1 (h:v)? ☐ Yes ☐ No

   If Yes, DES Geotechnical Design unit must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Stormwater Coordinator for slopes steeper than 2:1 (h:v).

### Vegetated Surfaces

1. Identify existing vegetation. ☐ Complete
2. Evaluate site to determine soil types, appropriate vegetation and planting strategies. ☐ Complete
3. How long will it take for permanent vegetation to establish? ☐ Complete
4. Plan transition BMPs from construction to permanent establishment. ☐ Complete
5. Have vegetated areas and supporting permanent irrigation systems been designed to comply with the Model Water Efficient Landscape Ordinance (MWELO) or local WELO? ☐ Yes ☐ No
6. Minimize overland and concentrated flow depths and velocities ☐ Complete

### Hard Surfaces

1. Are hard surfaces minimized? ☐ Yes ☐ No

   Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems. ☐ Complete

## Design Pollution Prevention BMPs
## Checklist DPP-1, Part 4

Prepared by: Brian Patschull Date: 09/15/2023 District-Co-Route: 06-KER-99-58

PM: 23.4/24.2, T52.2/R52.4 Project ID/EA: 06-2300-0112 (06-48468)RWQCB:Central Valley Region 5

### Concentrated Flow Conveyance Systems

#### Ditches, Berms, Dikes and Swales

1. Consider Ditches, Berms, Dikes, and Swales as per Topics 813, 834.3, 835, and Chapter 860 of the HDM. **Will be completed during PS&E** ☐ Complete
2. Review existing and proposed conditions to remove any dike not required for slope stability, erosion control, and water conveyance. ☐ Complete
3. Evaluate risks due to erosion, overtopping, flow backups or washout. ☐ Complete
4. Consider outlet protection where localized scour is anticipated. ☐ Complete
5. Examine the site for run-on from off-site sources. ☐ Complete
6. Consider permissible shear and velocity when selecting lining material (See Table 865.2 in the HDM). ☐ Complete

#### Overside Drains

1. Consider downdrains, as per Index 834.4 of the HDM. ☐ Complete
2. Consider paved spillways for side slopes flatter than 4:1 h:v. ☐ Complete

#### Flared Culvert End Sections

1. Consider flared end sections on culvert inlets and outlets as per Chapter 827 of the HDM. ☐ Complete

#### Outlet Protection/Velocity Dissipation Devices

1. Consider outlet protection/velocity dissipation devices at outlets, including cross drains, as per Chapters 827 and 870 of the HDM. ☐ Complete

Review appropriate SSPs for Concentrated Flow Conveyance Systems. ☐ Complete

# Design Pollution Prevention BMPs
# Checklist DPP-1, Part 5

Prepared by: Brian Patschull Date: 09/15/2023 District-Co-Route: 06-KER-99-58

PM: 23.4/24.2, T52.2/R52.4 Project ID/EA: 0623000112 (06-48468)RWQCB: Central Valley Region 5

**Preservation of Existing Vegetation, Soils, and Surface Water Buffer Areas**

1. Review Preservation of Property, (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation, soils, and surface water buffer areas. **Will be completed during PS&E** ☐ Complete

2. Has all vegetation, soils, and surface water buffer areas to be retained been coordinated with Environmental, and identified and defined in the contract plans ☐ Yes ☐ No

3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cut and fill? ☐ Complete

4. Have impacts to preserved vegetation, soils, and surface water buffer areas been considered while work is occurring in disturbed areas? ☐ Yes ☐ No

5. Are all areas to be preserved delineated on the plans? ☐ Yes ☐ No

**Signature:** Rene Sanchez (Oct 13, 2023 16:45 PDT)
**Email:** s113435@dot.ca.gov

**Signature:**
**Email:** brad.cole@dot.ca.gov

Appendix I - Preliminary Drainage Report

# CENTENNIAL CORRIDOR CONNECTOR
# SB SR-99 TO WB SR-58 CONNECTOR PA/ED PROJECT

City of Bakersfield and Kern County, CA

06-KER-58-T52.2/R52.4
06-KER-99-23.4/24.2
Project EA# 06-48468 ID XXXXXXXXXX

## Preliminary Drainage Report

Prepared for:

Caltrans

Prepared by:

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3200 E. Guasti Road, Suite 200
Ontario, CA 91761

This Drainage Report has been prepared by Parsons under the direction of the following Registered Civil Engineer. The undersigned attest to the technical information contained herein and the qualifications of any technical specialist providing engineering data upon which engineering recommendations, conclusions, and decisions are based.

Brian Patschull, PE
Registered Civil Engineer

9/26/23
Date

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# List of Figures and Tables

# Acronyms and Abbreviations

| | |
|---|---|
| BMP | Best Management Practice |
| Caltrans | California Department of Transportation |
| cfs | Cubic feet per second |
| CPS | Connector Pipe Screen |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rating Map |
| PPDG | Project Planning Design Guide |
| PS&E | Plans, Specifications, and Estimates |
| ROW | Right-of-Way |
| RWQCB | Regional Water Quality Control Board |

# 1 Project Description

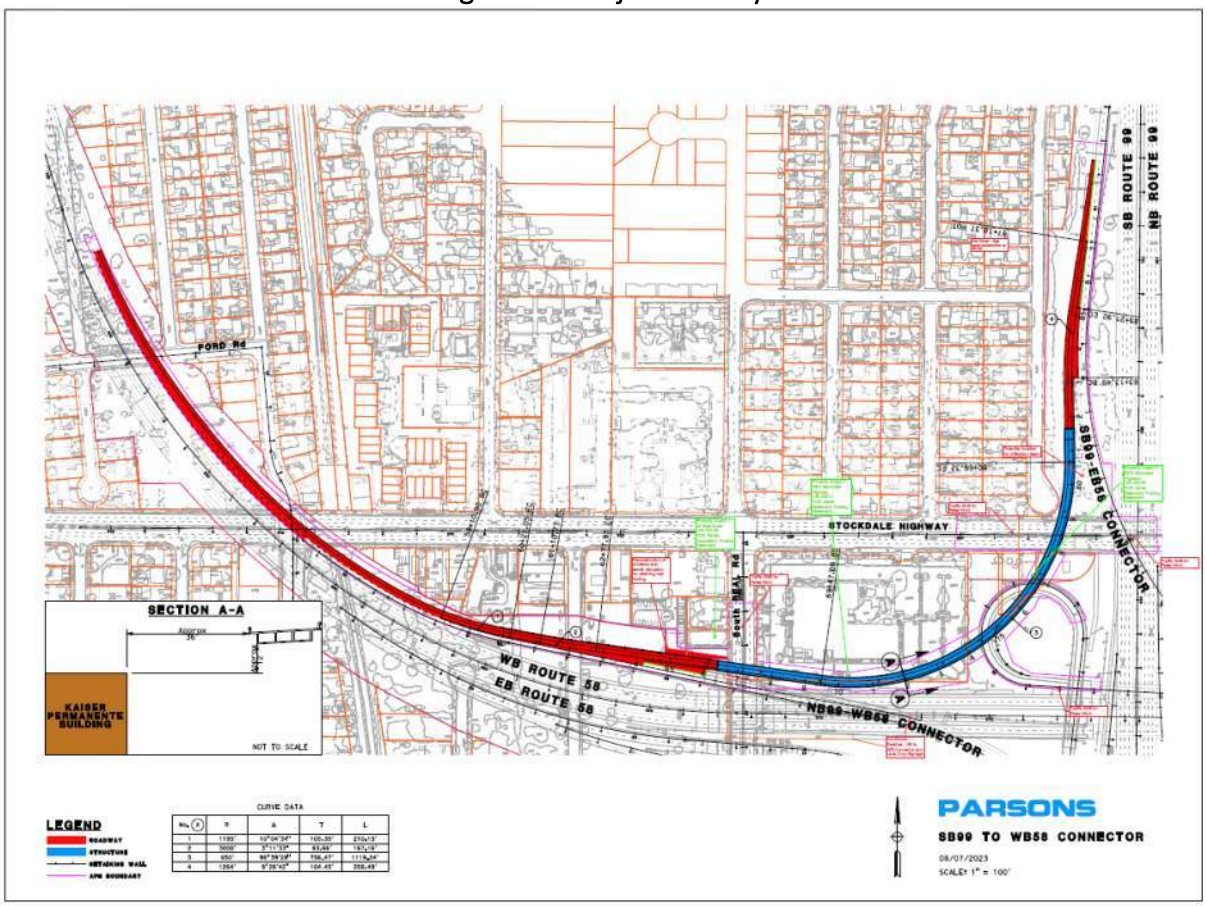
## 1.1 Introduction

The proposed Southbound State Route (SR) 99 to Westbound SR 58 Connector Project is situated within Kern County, Bakersfield, California. This project entails the construction of a connector ramp, which will establish a direct link between the southbound SR 99 freeway and the westbound SR 58. Its primary objective is to mitigate traffic congestion experienced at the 24th Street, and California Avenue ramps on SR 99. Additionally, it will facilitate the efficient flow of traffic from southbound SR 99 to westbound SR 58 (Centennial/Westside Parkway), a newly constructed freeway that serves the rapidly developing western region of Bakersfield.

The proposed project will significantly enhance the overall transportation network by complementing the westbound ramp movement, which is currently absent from the Centennial Corridor Project. Moreover, this development will have a positive impact on other critical roadways, such as Oak Street, Mohawk Road, and Rosedale Highway. The project will effectively alleviate congestion, which is needed as the present utilization of these local arterials is substantial.

The project location is shown in Figure 1.1.

Figure 1.1 Project Vicinity




## 1.2 Objective

The purpose of this study is to provide an overview and assessment of the onsite storm water impacting the SR-58/SR-99 interchange and surrounding areas within the project limits. The design follows the design criteria set forth in Caltrans Highway Design Manual (HDM) and Central Region Hydraulics Design Criteria.

# 2 Existing Conditions

## 2.1 Existing Drainage

Offsite tributary storm water within the project limits is collected by various storm drain systems that eventually drain south to an existing 36-inch RCP storm drain that discharges the tributary flows to the existing Elcia Retention Basin. The proposed project will not impact the existing offsite drainage pattern.

Existing onsite drainage systems within the project limits consist of drainage inlets and underground storm drain systems that collect surface flow. Tributary storm water within the project limits is collected and conveyed to the existing Elcia Retention Basin located west of

SR-99 and north of Mona Way. Tributary flow along a portion of the existing SB 99 to EB 58 Connector Ramp within the project limits is collected by existing inlets and storm drain and conveyed to the existing Belle Terrace pump station, located west of SR-99 and north of Belle Terrace, before being discharged to Elcia Retention Basin.

## 2.2 Land Use

Residential land use within the project area is predominantly single-family homes; however, multi-family residences are also located throughout the project area, commercial development is generally concentrated adjacent to State Route 99.

## 2.3 Rainfall

Rainfall intensity was obtained from the NOAA Atlas 14 Precipitation Frequency Data Server. The 25-yr/5-min time of concentration rainfall intensity is 2.29 in/hr. NOAA Atlas 14 Point Precipitation information is included in **Appendix A.**

## 2.4 Topography

The natural terrain of the project slopes from northeast to southwest by sheet flow and is intercepted by inlets connected to a storm drain system that generally conveys flow to detention and retention basins.

## 2.5 Soil Data

Soils have been classified into four hydrologic soil groups (HSGs), “A” through "D", by the U.S. Department of Agriculture Soil Conservation Service; with Soil Type A having the highest infiltration rate. Per the National Resource Conservation Service’s Web Soil Survey, soils within the project limits are Type A. Soil survey maps are included in **Appendix C**.

## 2.6 Groundwater

According to the California Department of Water Resources' Water Data Library Station Map, the groundwater depth within the project is 19 feet below the surface (4902 well, Site Code 353544N1190424W001, located northwest of the project).

## 2.7 Watersheds

According to the Caltrans Water Quality Planning Tool, the project limits are under the jurisdiction of the Central Valley Regional Water Quality Control Board. The project is located in the Pleitito Creek-Kern Lake Bed Watershed and the Kern Island Canal-Frontal Kern Lake Bed Subwatershed. Table 1 below lists the projects hydrologic information.

Table 1 - Hydrologic Information

| SR-99 SB to SR-58 WB Hydrologic Information | | | | | |
|---|---|---|---|---|---|
| Regional Water Quality Control Boards | Hydrologic Unit (HU) | Hydrologic Area (HA) | Planning Watershed | Hydrologic Sub Area (HAS) | HAS Area (Acres) |
| Central Valley RWQCB | South Valley Floor | Kern Delta | 7557100002 | 557.10 | 340,787 |

## 2.8 Floodplain Designations

The project location can be found in Flood Insurance Rate Map (FIRM) No. 06029C2281F, Panel 2281of 4125. The project is located in Zone X or Area of Minimal Flood Hazard. The floodplain zones exhibit can be found in **Appendix B.**

# 3 Hydrologic Analysis

All onsite hydrologic calculations will be developed using ONDRAIN English Version 7.5c spreadsheet (Excel format) developed and approved by Caltrans. This program generates the design storm runoff, roadway spread width, interception, and bypass flow rates for inlets. The proposed conditions onsite hydrology maps and calculations will be provided in a later submittal.

## 3.1 Design Criteria

According to Table 831.3 of the HDM, hydrologic calculations for roadway drainage are based upon a 25-year return frequency for areas within the freeway traveled way and 10-year return frequency for minor ramps and frontage roads. In instances where roadway depressions require pumping, a 50-year return frequency is used within the freeway traveled way and 25-year frequency within local streets and under crossings. The existing Belle Terrace pump station located west of SR-99 and north of Belle Terrace collects tributary flows from within the project limits. The increase in impervious area tributary to the existing Belle Terrace pump station is minimal. Shoulder spread width, inlet interception and pipe capacity evaluation for the project limits will be done for a 25-year storm frequency following HDM guidelines. All onsite hydrologic calculations will be based on the Rational Method equation as follows:

$$Q = C \times I \times A$$

Where Q = Peak flow rate (cfs)

C = Runoff Coefficient (Dimensionless)

I = Rainfall Intensity (in/hr)

A = Tributary Area (acres)

## 3.2 Runoff Coefficient

Per the HDM, runoff coefficient values are determined by soil type and the percentage of imperviousness of the drainage area. The following runoff coefficients applicable for onsite hydrological calculations are derived from recommended values from Table 819.2B (developed areas) and Figure 819.2A (undeveloped areas) of the HDM:

- 0.91 for paved areas
- 0.55 for unpaved areas

As the recommended values apply to design storms up to the 10-year frequency, a frequency factor ($C_{(f)}$) of 1.1 shall be applied to obtain runoff coefficient values for the 25-year storm frequency, while limiting a maximum value to 1.0. Runoff coefficients of 1.00 and 0.60 shall be applied for the 25-year onsite hydrological calculations for paved and unpaved areas respectively.

## 3.3 Basin Calculation

The proposed project drains to the existing Elcia Retention Basin that is located outside of Caltrans RW and is maintained by Kern County. The existing retention basin was designed in accordance with Kern County Development Standards. The retention basin capacity is designed to provide a minimum of 1-foot of freeboard for the 10-year, 5-day storm. The existing retention basin meets the drawdown time of 7-days for the design volume per Kern County design requirements. Proposed project improvements replace 0.70 acres of City of Bakersfield Commercial Land Use and 0.11 acres of Kern County Commercial Land Use with a runoff coefficient of 0.90 with Caltrans impervious area with a runoff coefficient of 1.00. Within Caltrans ROW a total of 0.62 acres of pervious area is replaced with 0.62 acres of impervious area and an additional 0.32 acres of area is added to the tributary watershed of Elcia Retention Basin. With the increase in tributary area and impervious area the basin still meets freeboard and drawdown requirements. Calculations show the increase in depth is only 0.01-feet. Existing and proposed condition design calculations are included in **Appendix D**.

# 4 Hydraulic Analysis

## 4.1 Design Standards and Criteria

All design criteria are per Caltrans HDM criteria (unless otherwise noted):

- Design Spread Maximum: Shoulder Width
- Ditch Minimum Slope: 0.25% earthen, 0.12% paved
- Inlet Freeboard: 0.75-foot (Between grate flowline elevation and pipe crown)
- Inlet Clogging Factor: 33% on grade
- Minimum Pipe Size: 18 inches (connector) 24 inches (main line)
- Storm Drain HGL: Not exceed 0.75 foot freeboard of inlet
- Min/Max Velocities: 3 ft/s min. (flowing half-full) 20 ft/s max.
- Manning's Coefficient ("n"): 0.012 (RCP, concrete gutter) 0.016 (asphalt) 0.024 (CMP)

## 4.2 Hydraulic Analysis of Storm Drain Facilities

Hydraulic analysis for proposed storm drain facilities was completed to determine if the storm drain systems meet the hydraulic standards set forth by the HDM.

Inlets

Proposed inlets and overside drains were evaluated utilizing the ONDRAIN English Version 7.5c spreadsheet (Excel format) developed and approved by Caltrans. This program generates the design storm runoff, roadway spread width, interception, and bypass flow rates for inlets. Results will be provided in a later submittal. Calculations will show that spread widths stay within shoulder limits and do not encroach into the traveled way.

Storm Drain Conduits

Proposed storm drain facilities were evaluated utilizing the Water Surface and Pressure Gradient Hydraulic Analysis software (WSPG), developed by Los Angeles County Department of Public Works. Hydraulic Grade Lines (HGL) and velocities were determined to ensure

hydraulic requirements are met. Onsite drainage systems were designed to convey the 25-year storm event. Results will be provided in a later submittal.

# 5 Proposed Conditions

## 5.1 Proposed Drainage

The proposed roadway improvements will increase storm water runoff within the project limits. Existing drainage systems will be modified or removed to accommodate the proposed roadway improvements where applicable. Existing drainage patterns will be maintained, and proposed drainage systems will be implemented where necessary to maintain pavement drainage criteria as outlined in the Caltrans Highway Design Manual (HDM). Storm water runoff will be collected by drainage inlets and pipe systems and conveyed to the existing Elcia Retention Basin, located west of SR-99 and north of Mona Way, following existing drainage patterns. Deck drains will be proposed to intercept the collected water from the bridge structure, and drainage inlets will be proposed at low points along the connector and at locations of super-elevation reversal to reduce bypass according to Caltrans HDM criteria. Storm drains will be proposed to convey intercepted water to the adjacent existing drainage systems. The existing Belle Terrace pump station located west of SR-99 and north of Belle Terrace collects tributary flows from within the project limits. The increase in impervious area tributary to the existing Belle Terrace pump station is minimal. The project will increase the tributary area and impervious area that drains to the existing Elcia Retention Basin. With the increase in tributary area and impervious area the basin still meets freeboard and drawdown requirements.

# 6 Summary of Results

The proposed roadway improvements will increase storm water runoff within the project limits. The hydrologic and hydraulic analysis for the proposed project will meet the design criteria set forth in the Highway Design Manual and Central Region Hydraulics Design Criteria. With the incorporation of the proposed drainage systems to perpetuate existing drainage patterns, the project will not result in adverse hydrological and hydraulic impacts.

# 7 References


- Caltrans. 2019. *Highway Design Manual* (HDM) Seventh Edition.
- Central Region Hydraulics Design Criteria.

# Appendix A
# NOAA Atlas 14 Precipitation Values

**NOAA Atlas 14, Volume 6, Version 2**
**Location name: Bakersfield, California, USA***
**Latitude: 35.3559°, Longitude: -119.0394°**
**Elevation: 390.68 ft****
* source: ESRI Maps
** source: USGS

**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

## PF tabular

**PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]**

| Duration | Average recurrence interval (years) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 5 | 10 | 25 | 50 | 100 | 200 | 500 | 1000 |
| 5-min | **0.888** (0.720-1.10) | **1.13** (0.924-1.40) | **1.49** (1.21-1.85) | **1.80** (1.45-2.27) | **2.29** (1.79-2.96) | **2.70** (2.06-3.56) | **3.16** (2.36-4.26) | **3.67** (2.68-5.09) | **4.61** (3.23-6.65) | **6.23** (4.22-9.28) |
| 10-min | **0.636** (0.522-0.792) | **0.810** (0.660-1.01) | **1.07** (0.864-1.33) | **1.30** (1.04-1.63) | **1.64** (1.28-2.12) | **1.93** (1.48-2.55) | **2.26** (1.69-3.05) | **2.63** (1.92-3.65) | **3.30** (2.32-4.76) | **4.46** (3.02-6.65) |
| 15-min | **0.516** (0.420-0.636) | **0.656** (0.532-0.812) | **0.860** (0.696-1.07) | **1.04** (0.840-1.31) | **1.32** (1.03-1.71) | **1.56** (1.19-2.06) | **1.82** (1.36-2.46) | **2.12** (1.54-2.94) | **2.66** (1.86-3.84) | **3.60** (2.44-5.36) |
| 30-min | **0.352** (0.288-0.438) | **0.448** (0.366-0.558) | **0.590** (0.478-0.734) | **0.716** (0.576-0.898) | **0.906** (0.708-1.17) | **1.07** (0.818-1.41) | **1.25** (0.934-1.69) | **1.45** (1.06-2.02) | **1.83** (1.28-2.63) | **2.47** (1.67-3.68) |
| 60-min | **0.248** (0.202-0.307) | **0.316** (0.257-0.392) | **0.415** (0.336-0.516) | **0.503** (0.405-0.631) | **0.637** (0.497-0.824) | **0.751** (0.575-0.992) | **0.879** (0.657-1.19) | **1.02** (0.745-1.42) | **1.28** (0.899-1.85) | **1.74** (1.18-2.58) |
| 2-hr | **0.173** (0.141-0.214) | **0.218** (0.177-0.270) | **0.281** (0.228-0.350) | **0.336** (0.270-0.421) | **0.416** (0.324-0.538) | **0.482** (0.369-0.636) | **0.554** (0.414-0.748) | **0.632** (0.460-0.876) | **0.746** (0.523-1.08) | **0.876** (0.594-1.31) |
| 3-hr | **0.136** (0.111-0.169) | **0.171** (0.140-0.213) | **0.220** (0.179-0.274) | **0.263** (0.211-0.329) | **0.324** (0.253-0.419) | **0.374** (0.286-0.493) | **0.427** (0.320-0.577) | **0.485** (0.354-0.673) | **0.569** (0.398-0.820) | **0.637** (0.432-0.949) |
| 6-hr | **0.086** (0.070-0.107) | **0.109** (0.088-0.135) | **0.140** (0.114-0.175) | **0.167** (0.135-0.210) | **0.206** (0.161-0.266) | **0.237** (0.182-0.313) | **0.270** (0.202-0.365) | **0.306** (0.223-0.424) | **0.357** (0.250-0.515) | **0.398** (0.270-0.593) |
| 12-hr | **0.050** (0.041-0.062) | **0.065** (0.053-0.080) | **0.085** (0.069-0.106) | **0.102** (0.083-0.128) | **0.128** (0.100-0.166) | **0.149** (0.114-0.196) | **0.171** (0.128-0.231) | **0.196** (0.143-0.271) | **0.231** (0.162-0.333) | **0.260** (0.176-0.387) |
| 24-hr | **0.031** (0.028-0.035) | **0.040** (0.037-0.045) | **0.054** (0.049-0.061) | **0.066** (0.059-0.075) | **0.084** (0.073-0.099) | **0.099** (0.084-0.119) | **0.115** (0.095-0.143) | **0.134** (0.107-0.171) | **0.161** (0.123-0.215) | **0.184** (0.135-0.254) |
| 2-day | **0.018** (0.016-0.020) | **0.023** (0.021-0.026) | **0.031** (0.029-0.035) | **0.039** (0.035-0.044) | **0.049** (0.043-0.058) | **0.059** (0.050-0.071) | **0.069** (0.057-0.085) | **0.080** (0.064-0.103) | **0.098** (0.075-0.130) | **0.113** (0.083-0.156) |
| 3-day | **0.013** (0.012-0.014) | **0.017** (0.015-0.019) | **0.023** (0.020-0.025) | **0.028** (0.025-0.032) | **0.035** (0.031-0.042) | **0.042** (0.036-0.051) | **0.049** (0.041-0.061) | **0.058** (0.046-0.074) | **0.070** (0.054-0.094) | **0.081** (0.060-0.112) |
| 4-day | **0.010** (0.009-0.011) | **0.013** (0.012-0.015) | **0.018** (0.016-0.020) | **0.022** (0.020-0.025) | **0.028** (0.024-0.033) | **0.033** (0.028-0.040) | **0.039** (0.032-0.048) | **0.045** (0.036-0.058) | **0.055** (0.042-0.073) | **0.063** (0.046-0.088) |
| 7-day | **0.007** (0.006-0.007) | **0.009** (0.008-0.010) | **0.012** (0.011-0.013) | **0.014** (0.013-0.016) | **0.018** (0.016-0.021) | **0.021** (0.018-0.025) | **0.024** (0.020-0.030) | **0.028** (0.022-0.036) | **0.033** (0.025-0.044) | **0.037** (0.028-0.052) |
| 10-day | **0.005** (0.005-0.006) | **0.007** (0.006-0.007) | **0.009** (0.008-0.010) | **0.011** (0.010-0.012) | **0.014** (0.012-0.016) | **0.016** (0.013-0.019) | **0.018** (0.015-0.023) | **0.021** (0.017-0.026) | **0.024** (0.019-0.032) | **0.027** (0.020-0.038) |
| 20-day | **0.003** (0.003-0.003) | **0.004** (0.004-0.005) | **0.006** (0.005-0.006) | **0.007** (0.006-0.008) | **0.009** (0.007-0.010) | **0.010** (0.008-0.012) | **0.011** (0.009-0.014) | **0.013** (0.010-0.016) | **0.015** (0.011-0.020) | **0.016** (0.012-0.023) |
| 30-day | **0.002** (0.002-0.003) | **0.003** (0.003-0.004) | **0.004** (0.004-0.005) | **0.005** (0.005-0.006) | **0.007** (0.006-0.008) | **0.008** (0.007-0.009) | **0.009** (0.007-0.011) | **0.010** (0.008-0.013) | **0.012** (0.009-0.016) | **0.013** (0.009-0.018) |
| 45-day | **0.002** (0.002-0.002) | **0.003** (0.002-0.003) | **0.004** (0.003-0.004) | **0.004** (0.004-0.005) | **0.005** (0.005-0.006) | **0.006** (0.005-0.008) | **0.007** (0.006-0.009) | **0.008** (0.007-0.010) | **0.010** (0.007-0.013) | **0.011** (0.008-0.015) |
| 60-day | **0.002** (0.002-0.002) | **0.002** (0.002-0.003) | **0.003** (0.003-0.003) | **0.004** (0.003-0.004) | **0.005** (0.004-0.006) | **0.005** (0.005-0.007) | **0.006** (0.005-0.008) | **0.007** (0.006-0.009) | **0.008** (0.006-0.011) | **0.009** (0.007-0.012) |

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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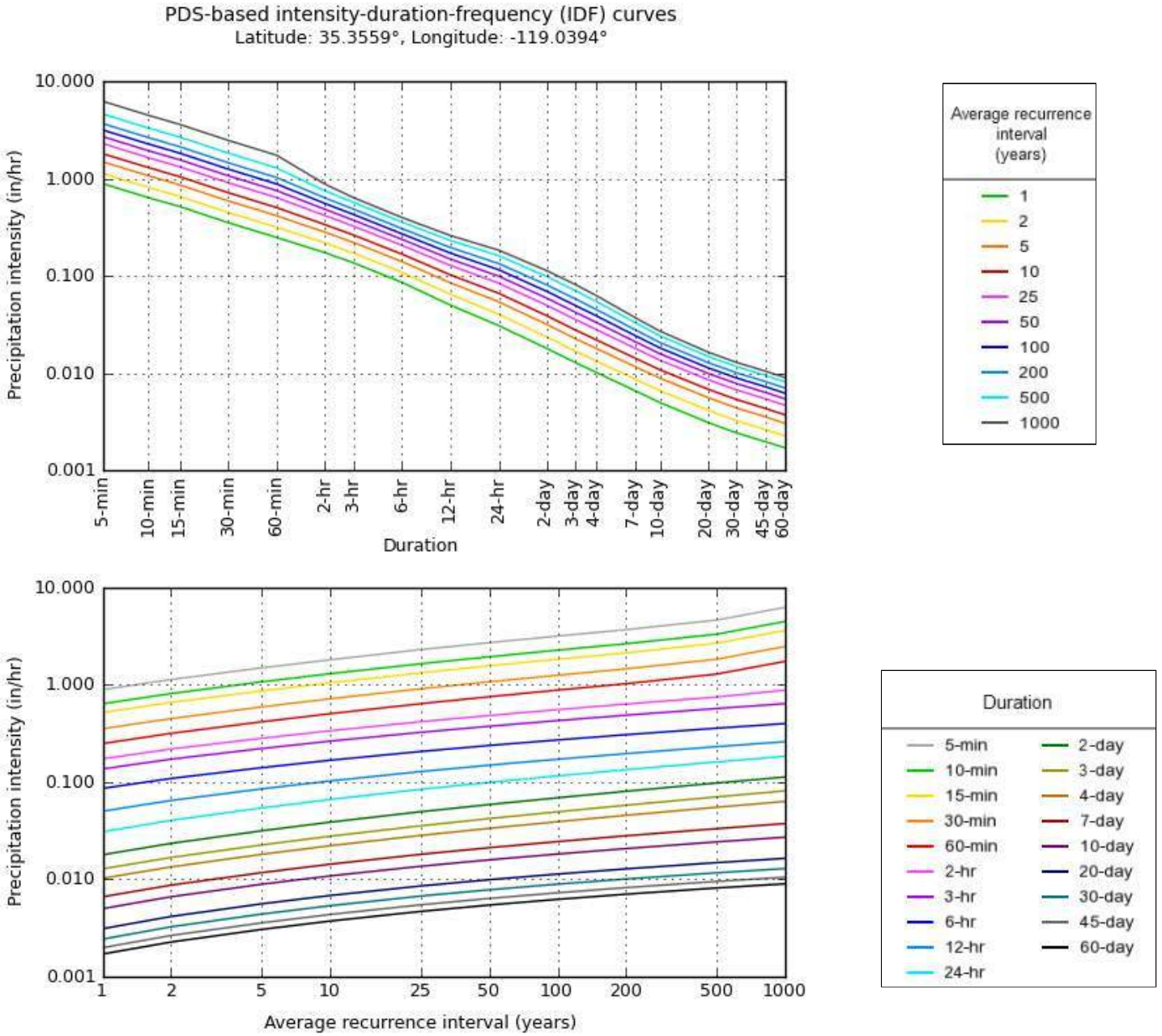
## PF graphical




NOAA Atlas 14, Volume 6, Version 2

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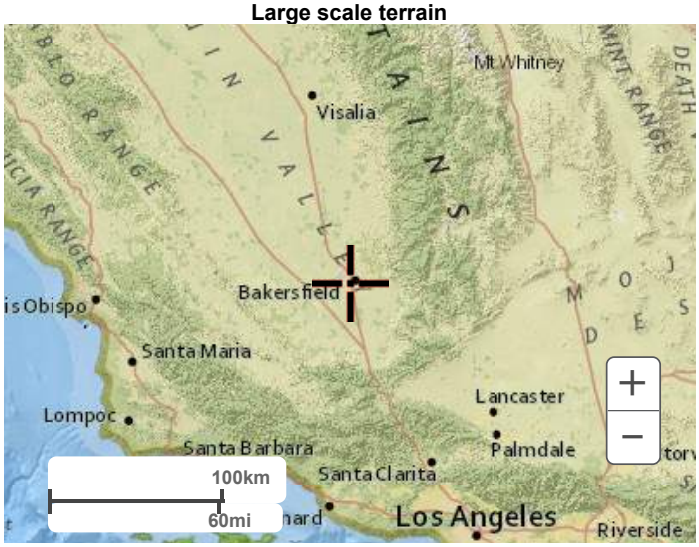
## Maps & aerials

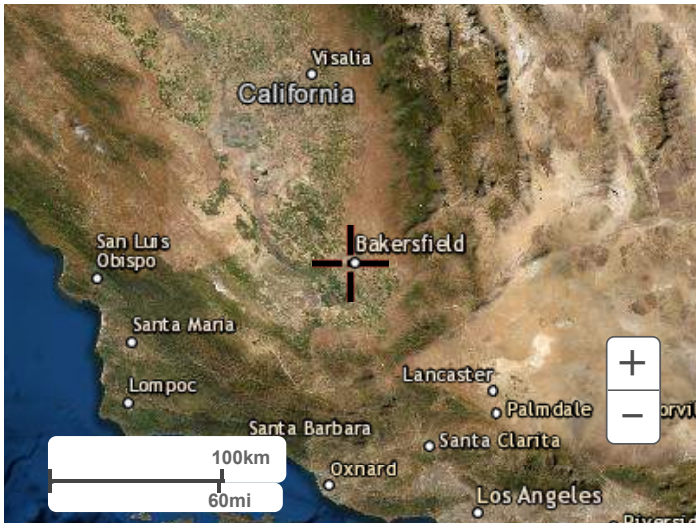
**Small scale terrain**


**Large scale terrain**




**Large scale map**


**Large scale aerial**

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

# Appendix B
# FEMA Map

# 1DWLRQDO )ORRG'DWD ,QTXLU\6\VWHP

FEMA


)HHW

%DVHPDS,PDJHU\6RXUFH1DWLRQDO DS

## /HJHQG

6)+$=$5'$5($6(67$%/,6+('%<)(0$

/:KROXW %DVH)ORRG(OHYDWLRQ %)(
=RQH$ 9 $
/:K%RUHSWK =RQH$ $( $+ $2 9 9( $3
5LYHUDWRU\)ORRGZD\

$QQXDO &KDQFH)ORRG+D]DUG $UHDV
R DQQXDO FKDQFH IORRG ZDWHUV HG BWKHVH WKUHH RU ZKDUL QJ
DUHDV RI OHVV WKDQ RQH VTXDUH PLOH=RQH;
)WXUH&RQGLWLRQV $QQXDO
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(IIHFWLYH/LQH
$UHDRI8QGHWHUPLQHG)ORRGHD]DUG =RQH'

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/HYHH RU )ORRGZDOO

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&RDVWDO 7UDQVHFW
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&RDVWDO 7UDQVHFW %DVHOLQH
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L'LWDO DWD$YDLODEOH
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SRQW VHOHFWHGEWKHXVHU DQGGRHV QRW UHSUHV
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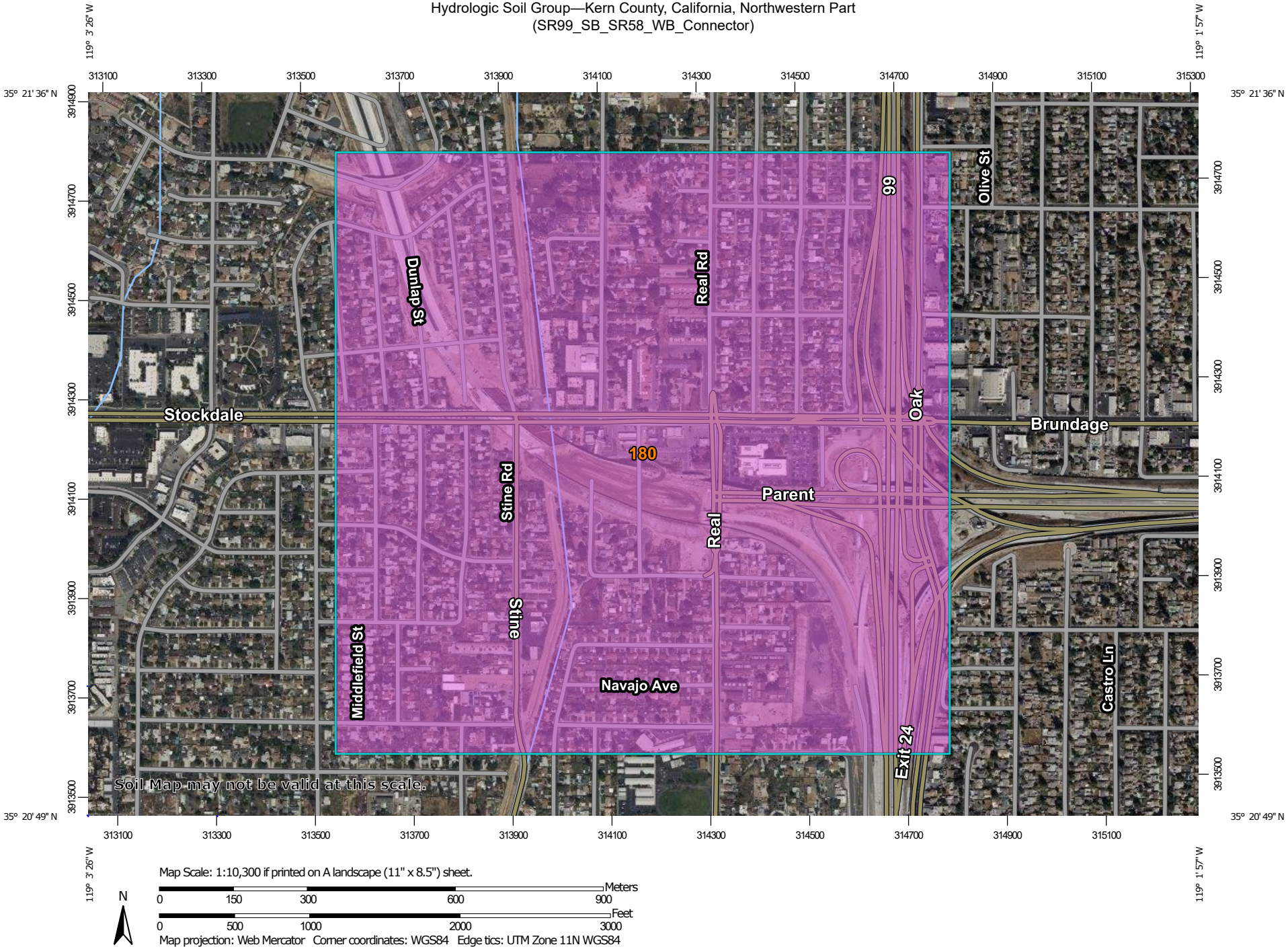
HOHQWVV GRQW DSSHDU, EDVHPSLPH\ IORRGJRQHODEHOV
OHHQG VFDOHEU PSFUHDWLRQGDWH FRRQLW\LGHQWLILHUV
)5$DQG QHU DQG)5$IHFWLYHDWH DSLPHVIRU
XQPSSHGDQGXQRGHUQL}GUHVFDQQRW EHXVHGIRU
UHDOWRU\SUSRVHV

# Appendix C
# NRCS Soil Survey Report

Hydrologic Soil Group—Kern County, California, Northwestern Part
(SR99_SB_SR58_WB_Connector)




Map Scale: 1:10,300 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

## MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

**Soil Rating Polygons**

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Soil Rating Lines**

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Soil Rating Points**

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

**Water Features**

- Streams and Canals

**Transportation**

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**

- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kern County, California, Northwestern Part
Survey Area Data: Version 15, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 12, 2022—Oct 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Hydrologic Soil Group

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|---|---|---|---|---|
| 180 | Kimberlina-Urban land-Cajon complex, 0 to 2 percent slopes | A | 373.2 | 100.0% |
| **Totals for Area of Interest** | | | **373.2** | **100.0%** |

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

*Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

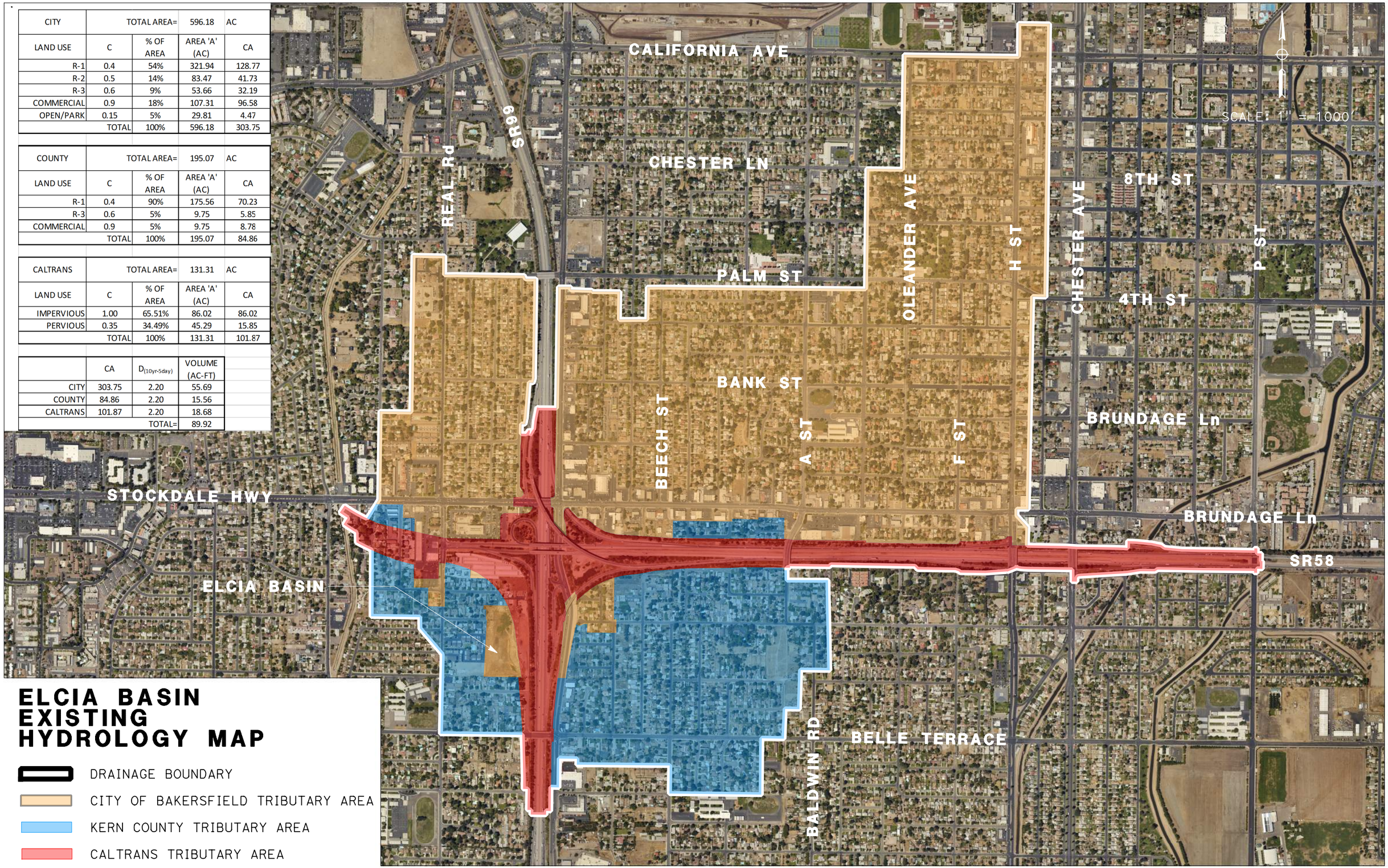
# Appendix D
# Elcia Retention Basin Calculations

| CITY | | TOTAL AREA= | 596.18 | AC |
|---|---|---|---|---|
| LAND USE | C | % OF AREA | AREA 'A' (AC) | CA |
| R-1 | 0.4 | 54% | 321.94 | 128.77 |
| R-2 | 0.5 | 14% | 83.47 | 41.73 |
| R-3 | 0.6 | 9% | 53.66 | 32.19 |
| COMMERCIAL | 0.9 | 18% | 107.31 | 96.58 |
| OPEN/PARK | 0.15 | 5% | 29.81 | 4.47 |
| | | TOTAL | 596.18 | 303.75 |

| COUNTY | | TOTAL AREA= | 195.07 | AC |
|---|---|---|---|---|
| LAND USE | C | % OF AREA | AREA 'A' (AC) | CA |
| R-1 | 0.4 | 90% | 175.56 | 70.23 |
| R-3 | 0.6 | 5% | 9.75 | 5.85 |
| COMMERCIAL | 0.9 | 5% | 9.75 | 8.78 |
| | | TOTAL | 195.07 | 84.86 |

| CALTRANS | | TOTAL AREA= | 131.31 | AC |
|---|---|---|---|---|
| LAND USE | C | % OF AREA | AREA 'A' (AC) | CA |
| IMPERVIOUS | 1.00 | 65.51% | 86.02 | 86.02 |
| PERVIOUS | 0.35 | 34.49% | 45.29 | 15.85 |
| | | TOTAL | 131.31 | 101.87 |

| | CA | $D_{(10yr\text{-}5day)}$ | VOLUME (AC-FT) |
|---|---|---|---|
| CITY | 303.75 | 2.20 | 55.69 |
| COUNTY | 84.86 | 2.20 | 15.56 |
| CALTRANS | 101.87 | 2.20 | 18.68 |
| | | TOTAL= | 89.92 |




# ELCIA BASIN EXISTING HYDROLOGY MAP

- DRAINAGE BOUNDARY
- CITY OF BAKERSFIELD TRIBUTARY AREA
- KERN COUNTY TRIBUTARY AREA
- CALTRANS TRIBUTARY AREA

**PARSONS**
3200 E. Guasti Road, Suite 200
ONTARIO, CA 91761

JOB: Centennial
BASIN: MB18-Elcia
CALC BY: BP
DATE: 8/31/2022

## BASIN MB18 - KERN COUNTY BASIN - EXISTING

| | CA[1] | $D_{(10yr-5day)}$ | VOLUME (AC-FT) | **BASIN REQUIRED STORAGE (AC-FT)** |
|---|---|---|---|---|
| CITY | 303.75 | 2.20 | 55.69 | **89.92** |
| COUNTY | 84.86 | 2.20 | 15.56 | |
| CALTRANS | 101.87 | 2.20 | 18.68 | |

Notes:

1. See Hydrology Map for information

**STORAGE PROVIDED**

| ELEVATION (ft) | AREA ($ft^2$) | AVG AREA ($ft^2$) | DEPTH (ft) | TOTAL DEPTH (ft) | VOLUME ($ft^3$) | TOTAL VOLUME ($ft^3$) | TOTAL VOLUME (ac-ft) | Description |
|---|---|---|---|---|---|---|---|---|
| 352.00 | 116,504.73 | 116,504.73 | 0.00 | 0.00 | 0.00 | 0.00 | **0.00** | Bottom |
| 354.00 | 123,454.67 | 119,979.70 | 2.00 | 2.00 | 239,959.40 | 239,959.40 | **5.51** | |
| 356.00 | 130,528.12 | 126,991.40 | 2.00 | 4.00 | 253,982.79 | 493,942.19 | **11.34** | |
| 358.00 | 137,725.08 | 134,126.60 | 2.00 | 6.00 | 268,253.20 | 762,195.39 | **17.50** | |
| 360.00 | 145,045.55 | 141,385.32 | 2.00 | 8.00 | 282,770.63 | 1,044,966.02 | **23.99** | |
| 362.00 | 152,489.53 | 148,767.54 | 2.00 | 10.00 | 297,535.08 | 1,342,501.10 | **30.82** | |
| 364.00 | 160,057.01 | 156,273.27 | 2.00 | 12.00 | 312,546.54 | 1,655,047.64 | **37.99** | |
| 366.00 | 167,748.00 | 163,902.51 | 2.00 | 14.00 | 327,805.01 | 1,982,852.65 | **45.52** | |
| 368.00 | 175,562.50 | 171,655.25 | 2.00 | 16.00 | 343,310.50 | 2,326,163.15 | **53.40** | |
| 370.00 | 183,500.50 | 179,531.50 | 2.00 | 18.00 | 359,063.00 | 2,685,226.15 | **61.64** | |
| 372.00 | 191,562.01 | 187,531.26 | 2.00 | 20.00 | 375,062.51 | 3,060,288.66 | **70.25** | |
| 374.00 | 199,747.04 | 195,654.53 | 2.00 | 22.00 | 391,309.05 | 3,451,597.71 | **79.24** | |
| 376.00 | 208,055.57 | 203,901.31 | 2.00 | 24.00 | 407,802.61 | 3,859,400.32 | **88.60** | |
| 376.28 | 209,217.71 | 208,636.64 | 0.28 | 24.28 | 57,510.25 | 3,916,910.57 | **89.92** | WSE |
| 378.00 | 216,487.61 | 212,852.66 | 1.72 | 26.00 | 367,032.93 | 4,283,943.50 | **98.35** | |
| 380.00 | 225,043.15 | 220,765.38 | 2.00 | 28.00 | 441,530.76 | 4,725,474.26 | **108.48** | |
| 382.00 | 233,722.20 | 229,382.68 | 2.00 | 30.00 | 458,765.35 | 5,184,239.61 | **119.01** | |
| 384.00 | 242,526.48 | 238,124.34 | 2.00 | 32.00 | 476,248.68 | 5,660,488.29 | **129.95** | Top |
| | | | | | | Freeboard (ft)= | | 7.72 |

| **DRAWDOWN TIME CALCULATIONS** | |
|---|---|
| Design Volume Depth (ft)= | 24.28 |
| Infiltration Rate (in/hr)= | 2.00 |
| Drawdown Time (hrs)= | 145.65 |
| Drawdown Time (days)= | 6.07 |

Kern County Design Criteria

$V\ (ft^3) = [(D_{10yr-5day})/12](a_i)(Area)$

$D_{10yr-5day}$ = 10yr 5 day depth of rainfall (in.) obtained from NOAA Atlas 14, Vol 6, Ver. 2.0

$a_i$ = average percentage of impervious area

Area = Drainage area of total development ($ft^2$)

Freeboard = 1 FT

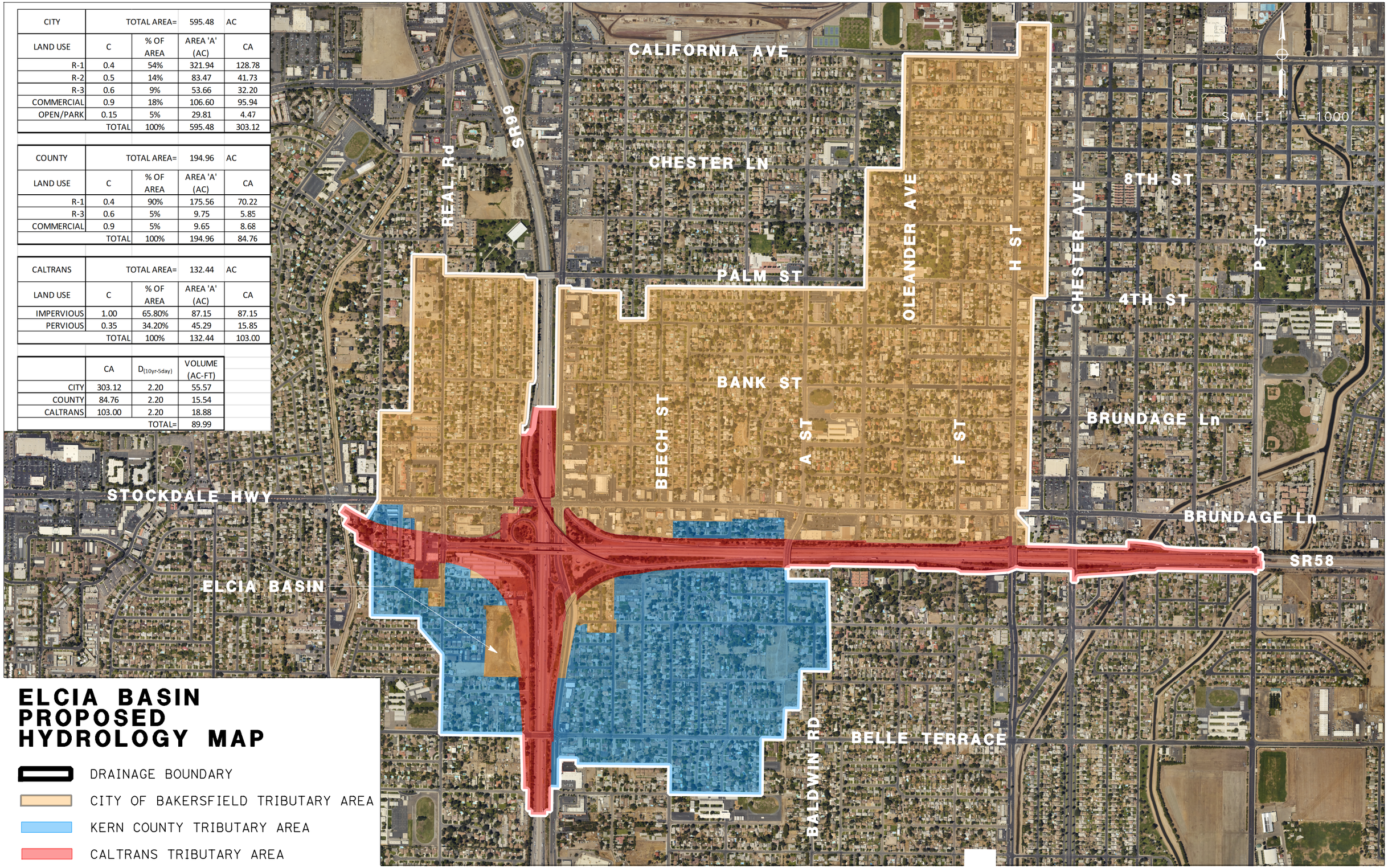
7-Day Drawdown Time for Design Volume

| CITY | | TOTAL AREA= | 595.48 | AC |
|---|---|---|---|---|
| LAND USE | C | % OF AREA | AREA 'A' (AC) | CA |
| R-1 | 0.4 | 54% | 321.94 | 128.78 |
| R-2 | 0.5 | 14% | 83.47 | 41.73 |
| R-3 | 0.6 | 9% | 53.66 | 32.20 |
| COMMERCIAL | 0.9 | 18% | 106.60 | 95.94 |
| OPEN/PARK | 0.15 | 5% | 29.81 | 4.47 |
| | | TOTAL | 595.48 | 303.12 |

| COUNTY | | TOTAL AREA= | 194.96 | AC |
|---|---|---|---|---|
| LAND USE | C | % OF AREA | AREA 'A' (AC) | CA |
| R-1 | 0.4 | 90% | 175.56 | 70.22 |
| R-3 | 0.6 | 5% | 9.75 | 5.85 |
| COMMERCIAL | 0.9 | 5% | 9.65 | 8.68 |
| | | TOTAL | 194.96 | 84.76 |

| CALTRANS | | TOTAL AREA= | 132.44 | AC |
|---|---|---|---|---|
| LAND USE | C | % OF AREA | AREA 'A' (AC) | CA |
| IMPERVIOUS | 1.00 | 65.80% | 87.15 | 87.15 |
| PERVIOUS | 0.35 | 34.20% | 45.29 | 15.85 |
| | | TOTAL | 132.44 | 103.00 |

| | CA | $D_{(10yr\text{-}5day)}$ | VOLUME (AC-FT) |
|---|---|---|---|
| CITY | 303.12 | 2.20 | 55.57 |
| COUNTY | 84.76 | 2.20 | 15.54 |
| CALTRANS | 103.00 | 2.20 | 18.88 |
| | | TOTAL= | 89.99 |




# ELCIA BASIN PROPOSED HYDROLOGY MAP

- DRAINAGE BOUNDARY
- CITY OF BAKERSFIELD TRIBUTARY AREA
- KERN COUNTY TRIBUTARY AREA
- CALTRANS TRIBUTARY AREA

**PARSONS**
3200 E. Guasti Road, Suite 200
ONTARIO, CA 91761

JOB: Centennial
BASIN: MB18-Elcia
CALC BY: BP
DATE: 5/2/2023

## BASIN MB18 - KERN COUNTY BASIN - PROPOSED

| | CA[1] | $D_{(10yr\text{-}5day)}$ | VOLUME (AC-FT) | **BASIN REQUIRED STORAGE (AC-FT)** |
|---|---|---|---|---|
| CITY | 303.12 | 2.20 | 55.57 | **89.99** |
| COUNTY | 84.76 | 2.20 | 15.54 | |
| CALTRANS | 103.00 | 2.20 | 18.88 | |

Notes:
1. See Hydrology Map for information

**STORAGE PROVIDED**

| **ELEVATION (ft)** | **AREA ($ft^2$)** | **AVG AREA ($ft^2$)** | **DEPTH (ft)** | **TOTAL DEPTH (ft)** | **VOLUME ($ft^3$)** | **TOTAL VOLUME ($ft^3$)** | **TOTAL VOLUME (ac-ft)** | **Description** |
|---|---|---|---|---|---|---|---|---|
| 352.00 | 116,504.73 | 116,504.73 | 0.00 | 0.00 | 0.00 | 0.00 | **0.00** | Bottom |
| 354.00 | 123,454.67 | 119,979.70 | 2.00 | 2.00 | 239,959.40 | 239,959.40 | **5.51** | |
| 356.00 | 130,528.12 | 126,991.40 | 2.00 | 4.00 | 253,982.79 | 493,942.19 | **11.34** | |
| 358.00 | 137,725.08 | 134,126.60 | 2.00 | 6.00 | 268,253.20 | 762,195.39 | **17.50** | |
| 360.00 | 145,045.55 | 141,385.32 | 2.00 | 8.00 | 282,770.63 | 1,044,966.02 | **23.99** | |
| 362.00 | 152,489.53 | 148,767.54 | 2.00 | 10.00 | 297,535.08 | 1,342,501.10 | **30.82** | |
| 364.00 | 160,057.01 | 156,273.27 | 2.00 | 12.00 | 312,546.54 | 1,655,047.64 | **37.99** | |
| 366.00 | 167,748.00 | 163,902.51 | 2.00 | 14.00 | 327,805.01 | 1,982,852.65 | **45.52** | |
| 368.00 | 175,562.50 | 171,655.25 | 2.00 | 16.00 | 343,310.50 | 2,326,163.15 | **53.40** | |
| 370.00 | 183,500.50 | 179,531.50 | 2.00 | 18.00 | 359,063.00 | 2,685,226.15 | **61.64** | |
| 372.00 | 191,562.01 | 187,531.26 | 2.00 | 20.00 | 375,062.51 | 3,060,288.66 | **70.25** | |
| 374.00 | 199,747.04 | 195,654.53 | 2.00 | 22.00 | 391,309.05 | 3,451,597.71 | **79.24** | |
| 376.00 | 208,055.57 | 203,901.31 | 2.00 | 24.00 | 407,802.61 | 3,859,400.32 | **88.60** | |
| 376.29 | 209,279.15 | 208,667.36 | 0.29 | 24.29 | 60,560.00 | 3,919,960.32 | **89.99** | WSE |
| 378.00 | 216,487.61 | 212,883.38 | 1.71 | 26.00 | 363,983.18 | 4,283,943.50 | **98.35** | |
| 380.00 | 225,043.15 | 220,765.38 | 2.00 | 28.00 | 441,530.76 | 4,725,474.26 | **108.48** | |
| 382.00 | 233,722.20 | 229,382.68 | 2.00 | 30.00 | 458,765.35 | 5,184,239.61 | **119.01** | |
| 384.00 | 242,526.48 | 238,124.34 | 2.00 | 32.00 | 476,248.68 | 5,660,488.29 | **129.95** | Top |
| | | | | | | Freeboard (ft)= | | 7.71 |

| **DRAWDOWN TIME CALCULATIONS** | |
|---|---|
| Design Volume Depth (ft)= | 24.29 |
| Infiltration Rate (in/hr)= | 2.00 |
| Drawdown Time (hrs)= | 145.74 |
| Drawdown Time (days)= | 6.07 |

Kern County Design Criteria

$V\ (ft^3) = [(D_{10yr\text{-}5day})/12](a_i)(\text{Area})$

$D_{10yr\text{-}5day}$ = 10yr 5 day depth of rainfall (in.) obtained from NOAA Atlas 14, Vol 6, Ver. 2.0

$a_i$ = average percentage of impervious area

Area = Drainage area of total development ($ft^2$)

Freeboard = 1 FT

7-Day Drawdown Time for Design Volume

Appendix J – Risk Registry

# Risk Register for 06-48468, CENTENNIAL CORRIDOR SB99 to WB58 CONNECTOR RAMP

Form v3.4 last modified 1/31/2019 CB

| | |
|---|---|
| Risk Checkpoint: | PA&ED |
| Date: | 9/18/2023 |
| Project Nickname: | CENTENNIAL CORRIDOR SB99 to WB58 CONNECTOR RAM |
| EA: | 06-48468 |
| Co-Rt, Post Miles: | KER-58-T52.26/R52.4 99-23.4/24.2 |
| Project Manager: | CARLOS, MARLO |
| FY & Program (SHOPP or STIP): | TCEP |
| Capital Costs: | $64,300k |
| Support Costs: | $14,450k |
| Total Costs: | $78,750k |
| RTL Target: | 6/1/2026 |

| Phase | Cost Contingency Range $k | | | Schedule Contingency Range ( Wkg Days) | | |
|---|---|---|---|---|---|---|
| | Optimistic | PERT | Pessimistic | Optimistic | PERT | Pessimistic |
| 0-PA&ED | $43 | **$70** | $96 | 8 | 12 | 18 |
| 1-PS&E | $8 | **$12** | $18 | 13 | 24 | 40 |
| 2-RW Sup | $1 | **$4** | $8 | 9 | 21 | 44 |
| 3-Con Sup | $3 | **$5** | $7 | 4 | 25 | 48 |
| Support Contingency | $55 | **$91** | $128 | 34 | 82 | 150 |
| 9-RW Cap | $6 | **$18** | $36 | 9 | 21 | 44 |
| 4-Con Cap | $40 | **$127** | $320 | 0 | 0 | 0 |
| Capital Contingency | $46 | **$145** | $356 | 9 | 21 | 44 |
| Total Contingency | $101 | **$236** | $484 | 42 | 103 | 194 |

| Risk Identification | | | | | | | | Risk Assessment | | | Risk Response | | | | Quantifying "Red" (High P & I) Level Risks | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Status | ID # | Type | Category | Title | Risk Statement | Current status / assumptions | Risk Trigger | Probability (P) | Cost Impact Schedule Impact (I) | Cost Score Schedule Score (PxI) | Strategy | Response Actions | Risk Owner | Updated | Impacted Phase | Support (Hrs) Capital Cost ($k) | Schedule (Days) | Calculated Contingency |
| Active | 1 | Threat | Design | Baseline TCEP Agreement Deadline | As a result of not meeting the TCEP deadline(completing the FED and PAED by Oct 16th), this will lead to a loss of TCEP (R/W and Design) funding, impacting project costs. | It is assumed the baseline agreements will be completed on time. | Delays in FED, PAED delivery, and baseline agreement signatures. | 1-Very Low (1-10%) | 16 - Very High (>$15,750k) | 16 | Avoid | Ensure frequent coordination with the PDT and consultant to guarantee the timely preparation of the baseline agreement package in order to meet the October 16th deadline. | Caltrans PM | 9/18/2023 | 1-PS&E Sup | O 460 hours<br>ML 685 hours<br>P 1,090 hours<br>PERT 715 hours | O 20<br>ML 26<br>P 44<br>28 days | $18k<br>6 |
| | | | | | | | | 20% | 4 - Moderate (1-3 months) | 4 | | | | | 1-PS&E Sup | O 150 hours<br>ML 210 hours<br>P 350 hours<br>PERT 224 hours | O 32<br>ML 53<br>P 100<br>58 days | $6k<br>12 |
| Active | 2 | Threat | Design | Nondstandard design exception | As a result of a design exception not being approved for nonstandard features proposed / required which would lead to an increase in right of way capital / construction capital and support cost. | Design exceptions are expected to be approved. | Design exception is rejected. | 2-Low (11-30%) | 1 - Very Low (Insignificant) | 2 | Mitigate | Design to start on DSDD, identify all nonstandard features early. Keep open communication with Paul Gennaro and DSDD liaison to ensure on time concurrence. | Caltrans Design | 9/18/2023 | 4-Con Cap | O 500 hours<br>ML 1,500 hours<br>P 2,000 hours<br>PERT 1,417 hours | | $284k |
| | | | | | | | | 20% | 1 - Very Low (Insignificant) | 2 | | | | | 1-PS&E Sup | O 100 hours<br>ML 200 hours<br>P 400 hours<br>PERT 217 hours | O 10<br>ML 60<br>P 90<br>57 days | $6k<br>12 |
| Active | 3 | Threat | Environmental | Addditonal Environmental Impacts | As a result of identifying additional environmental issues that can't be mitigated may delay environmental approval, resulting in an increase to project cost and schedule. | No additional mitigation required. | Environmental issues discovered during PS&E phase. | 2-Low (11-30%) | 2 - Low (<$3,938k) | 4 | Avoid | Identify impacts early and meet with environmental specialist to ensure impacts are correctly identified. | Caltrans Environmental | 9/18/2023 | 0-PA&ED Sup | O $30k<br>ML $60k<br>P $120k<br>PERT $65k | 20 days<br>40 days<br>60 days<br>40 days | $2k<br>8 |
| | | | | | | | | 20% | 2 - Low (<1 month) | 4 | | | | | | O $15k<br>ML $40k<br>P $90k<br>PERT $45k | O 0<br>ML 0<br>P 0 | |
| Active | 4 | Threat | Right of Way | Right of Way Acquisition | Due to the requirement of acquiring necessary parcels for the project, there might be a need for condemnation, which could lead to a delay in ROW Certification. This could lead to an escalation in ROW capital and potential delays in the schedule. | Parcel acquisition/ Condemnation will be completed on schedule. | Prolonged negotioation with property owners and legal disputes. | 5-Very High (>70%) | 2 - Low (<$3,938k) | 10 | Mitigate | Meet with property owners early to explain the project. | Caltrans ROW | 9/18/2023 | 9-RW Cap | | | |
| | | | | | | | | 85% | 16 - Very High (>6 months) | 80 | | | | | 2-RW Sup | O 500 hours<br>ML 1,000 hours<br>P 4,000 hours<br>PERT 1,417 hours | O 100<br>ML 200<br>P 300<br>200 days | $127k<br>170 |
| Active | 5 | Threat | Right of Way | Utility Relocations | As a result of preliminary design and utility verification, utility relocation may be needed which would result in an increase in ROW support and ROW capital costs as well as additional time needed for Right of Way cert. | It is assumed that utility relocations will not be needed. | Utilities in conflict are identified in PS&E. | 2-Low (11-30%) | 2 - Low (<$3,938k) | 4 | Mitigate | Complete verification and potholing early and modify the design to try to avoid<br>utility relocation, if necessary. Meet with utility agencies to go over impacts. | Caltrans Design | 9/18/2023 | 1-PS&E Sup | O 100 hours<br>ML 200 hours<br>P 400 hours<br>PERT 217 hours | O 50<br>ML 70<br>P 90<br>70 days | $6k<br>14 |
| | | | | | | | | 20% | 4 - Moderate (1-3 months) | 8 | | | | | 9-RW Cap | O $300k<br>ML $200k<br>P $500k<br>PERT $267k | O 60<br>ML 90<br>P 120<br>90 days | $54k<br>18 |
| Active | 6 | Threat | Design | Project Cost Estimate | Due to changes in unit prices used for contract cost estimates driven by economic conditions, there is an associated increase in costs. | Unit price based on recently awarded project bid price. | Change project cost | 2-Low (11-30%) | 2 - Low (<$3,938k) | 4 | Accept | Monitor bid item unit price for future projects and update estimate as needed. | Caltrans Design | 9/18/2023 | 1-PS&E Sup | O<br>ML<br>P | O<br>ML<br>P | |
| | | | | | | | | 20% | | | | | | | | | | |
| Active | 7 | Threat | Design | Standards Changes | Due to changes in Highway Design Manual (HDM), Standard Plans and Specifications during the design phase before reaching RTL will require updating the PSE package, which will lead to increased costs and potential schedule delays. | Deliver PS&E package using latest standards, assuming no updates will occur. | Change in HDM and Standards. | 2-Low (11-30%) | 2 - Low (<$3,938k) | 4 | Accept | Track updates to incorporate into design to avoid impact. | Caltrans Design | 9/18/2023 | | | | |
| | | | | | | | | 20% | 2 - Low (<1 month) | 4 | | | | | | | | |
| Active | 8 | Threat | Construction | Funding | In the event that construction component funds cannot be secured may necessitate the need to secure fudning from alternative sources, potentially affecting the cost and schedule of the project. | Funding for construction components will be in place. | Grant applications are denied. | 5-Very High (>70%) | 16 - Very High (>$15,750k) | 80 | Mitigate | Explore funding opportunities and submit grant applications to secure the necessary funding. | Caltrans/KCOG/ City of Bakersfield | 9/18/2023 | 4-Con Cap | O $500k<br>ML $1,100k<br>P $4,000k<br>PERT $1,484k | O 100<br>ML 200<br>P 400<br>217 days | $1,262k<br>185 |
| | | | | | | | | 85% | 4 - Moderate (1-3 months) | 20 | | | | | | | | |
| Active | 9 | Opportunity | Construction | Merge project with 06-0X370 | As a result of merging projects, would lead to cost savings and increased efficiency. It reduces impact to users, reduce disruptions for communities and | Projects are currently completing PA&ED and are scheduled to begin PS&E in | Unexpected coordination difficulties. | 2-Low (11-30%) | 4 - Moderate ($3,939k - $7,875k | 8 | Accept | Assess potential challenges before merging projects and have backup plan in place. Maintain open communication to keep all stakeholders informed and | Caltrans/ KCOG | 9/18/2023 | | | | |

| Risk Identification | | | | | | | | Risk Assessment | | | Risk Response | | | | Quantifying "Red" (High P & I) Level Risks | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Status | ID # | Type | Category | Title | Risk Statement | Current status / assumptions | Risk Trigger | Probability (P) | Cost Impact Schedule Impact (I) | Cost Score Schedule Score (PxI) | Strategy | Response Actions | Risk Owner | Updated | Impacted Phase | Support (Hrs) Capital Cost ($k) | Schedule (Days) | Calculated Contingency |
| | | | | | allows for better quality control. | FY 23/24. | | 20% | 4 - Moderate (1-3 months) | 8 | | on the same page. | | | | | | |

Appendix K – TMP Checklist

Sens

# TRANSPORTATION MANAGEMENT PLAN (TMP) DATA SHEET # 4 for PR or PSE including DTM requirements for PSE and Construction Ph

TMP is valid for **two years** from date of preparation, unless the project o changes.

**TEMPLATE: 0 TMP Data Sheet revised 090109.**xls. **CT & CONSULTANTS, PLEASE REQUEST THE LATEST TEMPLA HAVE THE CURRENT RATES, etc. CAUTION - ck for formulas in cells - amounts flow from Tab 3 to 2 to 1.**

**EA** **48468** **DATE**

06-KERN-58 & 99 - PM T52.2 to R52.4 & PM 23.4 to 24.2

Location: SB SR-99 to WB SR-58 Centennial Corridor Connector, City of Bakersfield
Work: Construct a new connector bridge and associated retaining walls from southbound Westbound Route 58, SR-99 and SR-58

Date of TMP/Review Request memo:
Documents available:

TMP request letter, Title sheet, Plans.

***SAMPLE TMP DATA SHEET - Instructions see Tab 6***

| Construction period per PI |
|---|
| EST START DATE |
| EST END DATE |

| Construction period per W |
|---|
| EST START DATE |
| EST END DATE |

**BACKGROUND INFORMATION:**

| | | | | |
|---|---|---|---|---|
| DURATION: | 260 | WORKING DAYS | | |
| PROJECT COST: | $54,900,000 | | | |
| TMP ESTIMATE: | **$516,400** | or | 0.94% | OF THE PROJECT COST |

| **IMPACT** | High | Medium | Low | NA |
|---|---|---|---|---|
| STATE HWY | | X | | |
| LOCAL RD | | | X | |
| Ramps/connectors | | X | | |

Details: Lane reduction and temporary paving along the N along with lane closures along SR-58. Closure of the SB Stockdale Highway.

This Transportation Management Plan (TMP) has been prepared under the direction of the following Regis The Registered Civil Engineer attests to the technical information contained therein and the engineering da recommendations, conclusions, and decisions are based.

Prepared by Signature ORIGINAL SIGNED BY _____ Date


Name Justin Talago
Title Project Engineer
Organization Parsons
Telephone/FAX 619-515-5142
email Justin.Talago@Parsons.com


*At 100% PS&E these signature blocks need to be filled in:*

LC recommends approval Signature ORIGINAL SIGNED BY Date

LC approval does not apply for encroachment permits (EP) because DTM handles EP closure requests.

Assist. TMP recommends approval Signature ORIGINAL SIGNED BY Date

Assist. DTM recommends approval Signature ORIGINAL SIGNED BY Date

Approved by Signature ORIGINAL SIGNED BY Date

TMP/DTM Traffic Manager
Department of Transportation
District 6/Operations
1352 W. Olive Avenue
P.O. Box 12616
Fresno, CA 93778-2616

| TMP ESTIMATE | EA | 48468 | DATE | 9/18/2023 |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **1. Public Information** | NO | [YES] | MAYBE | $7,500 |
| **2. Motorist Information Strategies** | NO | [YES] | MAYBE | $50,000 |
| **3. Incident Management** | NO | [YES] | MAYBE | $403,900 |
| **4. Construction Strategies** | NO | [YES] | MAYBE | $20,000 |
| **5. Demand Management (DM)** | [NO] | YES | MAYBE | $0 |
| **6. Alternate Route Strategies** | NO | [YES] | MAYBE | $35,000 |
| **7. Other Strategies** | [NO] | YES | MAYBE | $0 |
| | | **TMP TOTAL** | **$** | **516,400** |

**TMP TABLE** **EA** **48468** **DATE** **9/18/2023**

## 2 Traveler Information Strategies

**Project team needs to coordinate with Traffic Design!**

2.1 [X] Existing Electronic Message Signs (Stationary) - list locations. See Note 5

[ ] New Installation (Stationary) - BEES 860530 CHANGEABLE MESSAGE SIGN SYSTEM - list locations. See Note 5

2.2 [X] Portable Changeable Message Signs (PCMS).

**Construction prefers Rental Lumpsum BEES 066578 in Supplemental Funds**

**And include SSP 12-370**

These PCMS advise motorists to divert at remote advance decision points - outside the usual work limits. Unlike stationary CMS, you are allowed to use them for advance motorist information - e.g. a week ahead. Their placement may need to be cleared **environmentally** so that they can be included in plans and SSP later. They may be **in addition** to Traffic Design's PCMS for regular traffic handling in and next to a work area. $10,000

Placement Details:

2.3 [ ] BEES 860503 Extinguishable Signs (only shown because they are on the TMP Guidelines list. Usually found at Weigh Stations - Weigh Station "open/closed".)

2.4 Ground Mounted Signs / Fabric signs Note 2

- [X] C40/40A Double Fine Sign - black and white $10,000
- [X] BEES 860926 Regulatory speed signs
- [X] SC6-4 (per MUTCD) (Ramp will be closed…)
- [X] CS-SPECIAL w/ SC6-2 PANEL ("Dates/Days/Hours/Expect delay") Use when conventional highways or local roads will be affected for longer periods. To encourage traffic to detour so delay in your work area is less, use at advance location and add the work location. **Use fabric signs if short duration or fast moving operation.**

- [x] CS-INFO/1-800-COMMUTE Panel Sign. **Also see 1.9.**
- [x] Blue and white Rideshare guide signs, including website (1-800-COMMUTE/www.commutesmart.info). **Need to be installed at the same time as the funding signs.**

2.5 [ ] BEES 860520 Commercial Traffic Radio (usually only applicable in the Upper desert)

[ ] Highway Advisory Radio (HAR) - Fixed. List locations here. They can be obtained from TMC Manager. See Note 5.

[X] Highway Advisory Radio - mobile (signs alerting motorists to the HAR will also be needed) $10,000
Contact TMC manager for assistance with specifications to include portable HARs as bid item in the contract. To avoid FCC fines, CT Portable HAR cannot be used except for emergencies. Seldom used. See Note 5

List proposed locations here:

2.6 [X] Lane Closure Web Site

2.7 [X] Caltrans Highway Information Network (CHIN)

2.8 [X] Radar Speed Message Sign (Specter sign) BEES 066064 (approx. EA @ $30,000) $20,000

2.9 [ ] Bicycle and pedestrian information, e.g. Detour maps

2.10 [ ] Others

**SUBTOTAL** $ 50,000.00

Sensitive

**TMP TABLE** **EA** **48468** **DATE** **9/18/2023**

## 3 Incident Management

3.1 CHP's Construction or Maintenance Zone Enhanced Enforcement Program – COZEEP or MAZEEP. BEES 066062 - show under "State or Agency furnished" in the Cost Estimate. **SSP 12-225 has been deleted per HQ OE**. See note 1.

**Consider the LC hours and add CHP driving time to/from their office**

Hourly Cozeep overtime loaded rate: $ 130

**COZEEP** - to protect active closures

| # of days | hours | # of officers (1 per car ) | **nights** | **hours** | # of officers (Remember - nights require 2 per car ) | |
|---|---|---|---|---|---|---|
| 260 | 8 | 1 | 25 | 8 | 1 | $296,400 |

**ECOZEEP** - to mitigate continuos restrictions. Add weekends days if needed.

| # of days | hours | # of officers | **nights** | **hours** | see above | |
|---|---|---|---|---|---|---|
| | 8 | 2 | | 8 | 4 | $0 |

(add weekends days as needed)

**CHP TRAFFIC HANDLING** - reduce delay by keeping traffic flowing and/or to enforce closures - total facility/structure/major traffic shifts/ramps/connectors/local road/extended closures. Freeway closures with local road detours may require **2 officers per intersection** to direct traffic.

| days | hours | # of officers | **nights** | **hours** | see above | |
|---|---|---|---|---|---|---|
| 20 | 0 | 0 | 10 | 8 | 4 | $41,600 |

CHP Officer in TMC during major construction closures

| days | hours | # of officers | |
|---|---|---|---|
| 0 | 0 | 0 | $0 |

CHP Officer for Command Post during regional impact construction closures

| days | hours | # of officers | |
|---|---|---|---|
| 0 | 0 | 0 | $0 |

**3.1 Total** $338,000

3.2 BLANK

3.3 **Freeway Service Patrol (FSP) for Construction (CFSP)** $/hr/truck $75

BEES 066065 - show under "State or Agency furnished" in the Cost Estimate

Short duration or remote area CFSP usually is bid w much higher hourly rates. If enhancement of program FSP feasible, CFSP could tie into the lower long-term FSP rates.

FOR SERVICE **WITHIN** REGULAR FSP HOURS:

| | | | | | | |
|---|---|---|---|---|---|---|
| **A** | days & hrs: | 30 | 8 | # of trucks: | 1 | $18,000 |

FOR SERVICE **OUTSIDE** REGULAR FSP HOURS:

Extend Peak hour coverage

| | | | | | | |
|---|---|---|---|---|---|---|
| **B** | days & hrs: | 0 | 0 | # of trucks: | 0 | $0 |

Night support during structure freeway closures and major traffic shifts

| | | | | | | |
|---|---|---|---|---|---|---|
| **C** | days & hrs: | 10 | 8 | # of trucks: | 1 | $6,000 |

Sensitive

| TMP TABLE | EA | 48468 | DATE | 9/18/2023 |
|---|---|---|---|---|

Weekend support

**D** days & hrs: 10 | 8 # of trucks: 1 $6,000

Local agency (SAFE) support 8% of truck cost $2,400

CFSP CHP support 25% of truck cost $4,500

THIS % ONLY IF **WITHIN** REGULAR FSP HOURS AND AREA!

Equipment/Supplies 10% $3,000

% of truck cost unless more detail available

**CONSULT W INLAND DIVISION CHP OR BORDER IN SOUTHERN RIVERSIDE CO. which method is acceptable FOR B,C,D WHICH ARE OUTSIDE REGULAR FSP HOURS OR AREA!**

**Method 1**

CFSP CHP support - including time for meetings 50% of truck cost $6,000

**or**

**Method 2**

CFSP Dispatcher @ **$55**

| days/nights | hours | Dispatcher(s) | | $ - |
|---|---|---|---|---|
| | | 0 | | |

CFSP CHP Officers (See Cozeep rate)

| days | hours | # of officers | **nights** | **hours** | | $ - |
|---|---|---|---|---|---|---|
| | | 0 | 0 | 8 | 1 | |

Include time for meetings:

| days | hours | # of officers | **nights** | **hours** | | $ - |
|---|---|---|---|---|---|---|
| | | 0 | | | 0 | |

[X] Cooperative Agreement or Task Order with SAFE for $32,400

[X] Task Order with CHP (Statewide Master Agreement for FSP support). for $10,500

Contact District FSP Coordinator for task orders.

[ ] Service Contract

[X] Local Agency will arrange CFSP with SAFE

[X] Local Agency will arrange CFSP administration with CHP

**3.3 Total** $45,900

3.4 [ ] CHP Helicopter/Airplane

3.5 [ ] Traffic Surveillance Stations for construction impact mitigation (loop detectors and CCTV)

**Keep existing operational during construction**

[ ] New CCTV

[ ] New loops

3.6 **Call Boxes - also see NOTE 4 in the Revisions & Notes tab**

**TEMPORARY INSTALLATION to mitigate impact** ($5000/box/move from project funds to SAFE). Project Report/Design PE: Please discuss with the D8 Call box coordinator if it is feasible to keep this motorist aid available during construction. If it is not, please notify TMP, then other mitigation needs to be considered. For location in SBd County see Q:\Ops\Call Boxes\SBD\Excel List. Apparently no list available for Riv County.

[ ] callboxes x [ ] moves x $5,000.00 = $ -

[ ] *Add 15% to callbox cost since contractor will need to pay SAFE through CCO.*

| TMP TABLE | EA | 48468 | DATE | 9/18/2023 |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 3.7 | ☐ | 911 Cellular Calls | | |
| 3.8 | ☒ | Project needs to provide resources to Transportation Management Center Unit 370 for additional staff during high impact closures | $ | 10,000.00 |
| 3.9 | ☒ | Traffic Management Teams (TMT) needed to assist w system diversion/impact reduction. Project needs to provide resources. | $ | 10,000.00 |
| | | See 7/3/05 in Tab 6 - Revisions | | |
| 3.10 | ☐ | On-site Traffic Advisor | | |
| 3.11 | ☐ | Others | | |
| | | **SUBTOTAL** | $ | 403,900.00 |

## 4 Construction Strategies

4.1 ☒ Coordinate with adjacent construction and planned projects - also on detour routes.

Use SSP 07-850

4.2 This TMP presumes work is planned as below. If different, TMP needs to be revised. The Lead Project Engineer is responsible to include all appropriate closure charts.

- ☒ Off peak
- ☐ Night
- ☐ Weekend

4.3

- ☒ Flagging
- ☒ Shoulder
- ☒ Lane
- ☒ Street
- ☒ Ramp
- ☐ **Connector***
- ☐ **Extended Weekend Closures***
- ☒ **Total Facility Closures***

***Consult w TMP and DTM re Cozeep & other cost. Show your detour and traffic diversion plans.**

4.4 ☐ Contra Flow (put traffic into opposing roadbed)

4.5 ☐ Reversible Lanes

4.6 ☒ Project Phasing

4.7 ☐ BEES 152372 - If K-Rail is placed, consider including cost item for lateral shifting to open a minimum of 2.4 m (8') shoulder space as soon as possible. Please include supplemental work funds in the estimate to pay for the extra work. See Standard Specifications 12-4, Measurement and Payment. **PE must discuss this and traffic screen w Traffic Design!**

4.8 ☐ BEES 129150 Temporary Traffic Screens (Gawk Screen - see 5/10/06 entry in Revisions tab)

4.9 ☐ Movable Barrier

4.10 ☐ Truck Traffic Restrictions

4.11 ☐ BEES 066008 Incentives/Disincentives

4.12 ☒ BEES 070010 Strictly enforce Constr. Progress Schedule (CPM)

**CAUTION: If the Lane Closure Chart (LCC) for full mainline closures (one or both directions on a highway or freeway) does not show a maximum number of allowable days, the PSE cannot be certified by DTM/TMP.**

**Please contact Saleh Yadegari, 4232, to get Delay Calculations, lane closure charts, Table Z and Special events list. Inform him of any concerns/committments re special LC days, times, season, events; environmental restrictions; if work may be affected by snow and low or high temperatures.** E.g. desert heat may delay AC digout curing which may increase traffic impact when vehicles overheat in the queue; etc. IF traffic volumes vary significantly between seasons, consider 2 sets of closure charts to avoid CCOs later.

Use SSP 12-130 and following

| TMP TABLE | EA | 48468 | DATE | 9/18/2023 |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 4.13 | [X] | Include Specification 12-220 | | |
| 4.15 | [X] | **Delay Damages (DD)** | **Delay Calculations needed for updated Cost** | $ 20,000.00 |
| 4.16 | [ ] | Others | | |

**SUBTOTAL** $ 20,000.00

## 5 Demand Management (DM)

**Project team needs to coordinate with City/County**

**Traffic diversion may increase available work hours.**

5.1
- [ ] A coop will be executed - mentioned in PSR or PR.
- [ ] Instead of a coop, 15% is added to the cost of DM elements since the payment to the local agency will be routed through the contractor.
- [ ] Instead of a coop, the local agency will make their own arrangements with RCTC/SANBAG.
- [ ] PA/CL or local agency need to inform commuters through RCTC/SANBAG. Funds part of PA/CL.

5.2 [ ] HOV Lanes/Ramps (New or Convert)

5.3 [ ] Park-and-Ride Lots

[ ] LEASED SPACES (Sponsored spaces may be feasible in exchange for signs and print coverage)

5.4 [ ] Parking Management/Pricing (Coordination with local agency required)

5.5 [ ] BEES 066069 Rideshare Promotion

5.6 Rideshare Incentives -

As far as D8 DTM.TMP knows, incentives to individuals cannot be paid by the State, however, State can pay for Local Transportation agency staff time, postage, cost of extra busses, etc.

- [ ] Carpool/vanpool
- [ ] Transit
- [ ] Train
- [ ] Light-Rail

5.7 BEES 066066
- [ ] Public Transit Support/Improvements/Shuttle Service
- [ ] School Shuttle Service

5.8 [ ] Variable Work Hours

5.9 [ ] Telecommute

5.10 [ ] Ramp Metering (Modify or new)

5.11 [ ] Blue and white Rideshare signs needed - unless already signed. See 2.4

5.12 [ ] Others

**SUBTOTAL** $ -

Sensitive

| TMP TABLE | EA | 48468 | DATE | 9/18/2023 |
|---|---|---|---|---|

## 6 Alternate Route Strategies

## Caution - signed detours may require environmental clearance

**Traffic diversion may increase available work hours. Please work with Traffic Design.**

| | | | | |
|---|---|---|---|---|
| 6.1 | | Add Capacity to Freeway connector | | |
| 6.2.1 | | Upstream Ramp Closures needed to avoid conflicts with closure tapers, etc., during construction | | |
| 6.2.2 | | Upstream Connector Closures needed to avoid conflicts with closure tapers, etc., during construction | | |
| 6.3 | X | Temporary Highway Lanes or Shoulder Use | $ | 10,000 |
| 6.4 | | Parking Restrictions | | |
| 6.5 | | Street Improvements | | |
| | | State R/W - Signals, Widen, etc. | | |
| | | Local R/W - Signals, Widen, etc. Coop or Permit may be needed | | |
| 6.6 | X | Local Street USE - Coop or Permit may be needed | | |
| 6.7 | X | Traffic Control Officers (see 3.1 Cozeep) | | |
| 6.8 | | Signed detour - using State routes | | |
| 6.9 | X | Signed detour - using local streets and roads | $ | 25,000 |
| 6.10 | | Adjust signals ( time signals to allow detour traffic to flow, temporary traffic signals) | | |
| 6.11 | | Temporary bicycle or pedestrian facilities | | |
| 6.12 | | Others | | |

**SUBTOTAL** $ 35,000.00

## 7 Other Strategies

| | | | | |
|---|---|---|---|---|
| 7.1 | | Application of new technology | | |
| 7.2 | | Innovative products | | |
| 7.3 | | Others | | |

**SUBTOTAL** $ -

**TOTAL** $ 516,400

Appendix L – Revalidation

# NEPA/CEQA RE-VALIDATION FORM

| |
|---|
| **DIST-CO-RTE:** 06-KER-58. 06-KER-99 |
| **PM/PM:** SR 58 PM T31.7 to 55.6; SR 99 PM 21.2 to PM 26.2 |
| **EA or Fed-Aid Project No.:** 06-48460 |
| **Other Project No. (specify):** Project ID #0600000484 |
| **Project Title:** Centennial Corridor Project |
| **Environmental Approval Type:** Environmental Impact Report/Environmental Impact Statement |
| **Date Approved:** December 2015 |
| **Reason for Consultation (23 CFR 771.129)**, check one:<br>☐ Project proceeding to next major federal approval<br>☒ Change in scope, setting, effects, mitigation measures, requirements<br>☐ 3-year timeline (EIS only)<br>☐ **N/A** (Re-Validation for CEQA only) |
| **Description of Changed Conditions:**<br>*See continuation sheets.* |

## NEPA CONCLUSION - VALIDITY

Based on an examination of the changed conditions and supporting information: (*Check ONE of the three statements below, regarding the validity of the original document/determination (23 CFR 771.129). If document is no longer valid, indicate whether additional public review is warranted and whether the type of environmental document will be elevated.*)

☐ **The original environmental document or CE remains valid. No further documentation will be prepared.**

☒ **The original environmental document or CE is in need of updating; further documentation has been prepared and ☒ is included on the continuation sheet(s) or ☐ is attached. With this additional documentation, the original ED or CE remains valid.**
**Additional public review is warranted (23 CFR 771.111(h)(3)) ☐ Yes ☐ No**

☐ **The original document or CE is no longer valid.**
**Additional public review is warranted (23 CFR 771.111(h)(3)) ☐ Yes ☐ No**
**Supplemental environmental document is needed. ☐ Yes ☐ No**
**New environmental document is needed. ☐ Yes ☐ No (If "Yes," specify type: )**

## CONCURRENCE WITH NEPA CONCLUSION

I concur with the NEPA conclusion above.

| | |
|---|---|
| Shane Green | 9/29/2023 |
| Signature: Environmental Branch Chief | Date |
| Marlo Carlos | 9/29/2023 |
| Signature: Project Manager/DLAE | Date |

## NEPA/CEQA RE-VALIDATION FORM

**CEQA CONCLUSION** (Only mandated for projects on the State Highway System.)

Based on an examination of the changed conditions and supporting information, the following conclusion has been reached regarding appropriate CEQA documentation: (*Check ONE of the five statements below, indicating whether any additional documentation will be prepared, and if so, what kind. If additional documentation is prepared, attach a copy of this signed form and any continuation sheets.*)

☐ **Original document remains valid. No further documentation is necessary.**

☒ **Only minor technical changes or additions to the previous document are necessary.**

☒ **An addendum has been or will be prepared and is ☐ included on the continuation sheets or ☒ will be attached. It need not be circulated for public review (CEQA Guidelines, §15164). The addendum must include a brief explanation of why the decision was made to not prepare a subsequent or supplemental environmental document as well as a summary statement explaining the changes to the project.**

☐ **Changes are substantial, but only minor additions or changes are necessary to make the previous document adequate. A Supplemental environmental document will be prepared, and it will be circulated for public review (CEQA Guidelines, §15163).**

☐ **Changes are substantial, and major revisions to the current document are necessary. A Subsequent environmental document will be prepared, and it will be circulated for public review (CEQA Guidelines, §15162).**
(Specify type of subsequent document, e.g., Subsequent FEIR):

☐ **The CE is no longer valid. New CE is needed. ☐ Yes ☐ No**

**CONCURRENCE WITH CEQA CONCLUSION**

I concur with the CEQA conclusion above.

| | |
|---|---|
| Shane Green | 9/29/2023 |
| Signature: Environmental Branch Chief | Date |
| Marlo Carlos | 9/29/2023 |
| Signature: Project Manager/DLAE | Date |

## CONTINUATION SHEET(S)

Address only changes or new information since approval of the original document and only those areas that are applicable. Use the list below as section headings as they apply to the project change(s). Use as much or as little space as needed to adequately address the project change(s) and the associated impacts, minimization, avoidance and/or mitigation measures, if any.

**Changes in project design, e.g., scope change; a new alternative; change in project alignment.**

The project would now include the construction of a southbound State Route 99 to westbound State Route 58 connector ramp. This ramp would be constructed at the current location of the southbound State Route 99 to Stockdale off-ramp. The existing Stockdale off-ramp would be permanently closed. The connector ramp would be a fly-over structure, which would cross over Stockdale Highway, the existing westbound State Route 58 to southbound State Route 99 loop connector, and Real Road before merging to the westbound State Route 58. West of Real Road, an existing retaining wall would be reconstructed to accommodate the new connector ramp. An additional 470-foot auxiliary lane would be constructed on westbound State Route 58 to accommodate merging.

**Changes in environmental setting, e.g., new development affecting traffic or air quality.**

None

**Changes in environmental circumstances, e.g., a new law or regulation; change in the status of a listed species.**

None

**Changes to environmental impacts of the project, e.g., a new type of impact, or a change in the magnitude of an existing impact.**

None

**Changes to avoidance, minimization, and/or mitigation measures since the environmental document was approved.**

None

**Changes to environmental commitments since the environmental document was approved, e.g., the addition of new conditions in permits or approvals. When this applies, append a revised Environmental Commitments Record (ECR) as one of the Continuation Sheets.**

None

# Centennial Corridor Project

City of Bakersfield in Kern County, California
District 6 - KER - 58 - PM T31.7 to PM R55.6
District 6 - KER - 99 - PM 21.2 to PM 26.2
Project ID #0600000484
State Clearinghouse No. 2008091102

# Environmental Impact Report Addendum

Prepared by the
State of California Department of Transportation

**October 2023**

Caltrans

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# Chapter 1 Purpose, Scope and Format

## 1.1 Introduction

An Environmental Impact Report (EIR) for the Centennial Corridor project was prepared to disclose, analyze, and provide mitigation measures for potentially significant environmental effects associated with the development of the proposed new alignment of State Route 58. Preparation of an EIR is a requirement of the California Environmental Quality Act (CEQA) for all discretionary projects in California that have a potential to result in significant environmental impacts. Following the release of the Draft EIR, a public review and comment period was held from May 9, 2014, to July 8, 2014.

Following the certification of the Project EIR, Caltrans determined the need to include a connecting ramp from southbound State Route 99 to westbound State Route 58. The Project EIR indicated that this connection would go forward as a separate project. However, since the approval of the Project EIR, it was determined that there is a more immediate need for the connector ramp and going forward with a separate project is not warranted. CEQA requires that a Final EIR be prepared, certified, and considered by public decision makers prior to taking action on the project described in the Draft EIR (the "project"). The Final EIR provided Caltrans, as Lead Agency, an opportunity to respond to comments received on the Draft EIR during the public review period, as well as to incorporate any additions or revisions to the Draft EIR necessary for clarification or to supplement information contained in the Draft EIR. On December 4, 2015, Caltrans certified the Final EIR and approved the proposed project. Caltrans acted as the final decision-making body for the project. Together, the Draft EIR (DEIR) and Final EIR (FEIR) are referred to in this Addendum as the "Project EIR."

Sections 15162 to 15164 of the CEQA Guidelines outline the document type and circumstances for the preparation of either a subsequent EIR or an addendum to the EIR. The circumstances required for the preparation of a subsequent EIR (Section 15162) are as follows:

(a) When an EIR has been certified or a Negative Declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

> (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or Negative Declaration.

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR.

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

(b) If changes to a project or its circumstances occur or new information becomes available after adoption of a Negative Declaration, the lead agency shall prepare a subsequent EIR if required under subdivision (a). Otherwise, the lead agency shall determine whether to prepare a subsequent Negative Declaration, an Addendum, or no further documentation.

(c) Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. If after the project is approved, any of the conditions described in subdivision (a) occurs, a subsequent EIR or Negative Declaration shall only be prepared by the public agency which grants the next discretionary approval for the project, if any. In this situation no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified or subsequent Negative Declaration adopted.

(d) A subsequent EIR or subsequent Negative Declaration shall be given the same notice and public review as required under Section 15087 or Section

15072. A subsequent EIR or Negative Declaration shall state where the previous document is available and can be reviewed.

## 1.2 Addendum Determination and Purpose

Based on careful analysis of the new connector ramp and the possible associated impacts of the ramp being added to the project, Caltrans' determination to prepare an EIR Addendum supports a conclusion by decision making bodies that the proposed changes meet the conditions as described in Section15164 of the CEQA Guidelines as set forth below:

(a) The lead agency or responsible agency shall prepare an Addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.

(b) An Addendum to an adopted Negative Declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or Negative Declaration have occurred.

(c) An Addendum need not be circulated for public review but can be included in or attached to the final EIR or adopted Negative Declaration.

(d) The decision-making body shall consider the Addendum with the final EIR or adopted Negative Declaration prior to making a decision on the project.

(e) A brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 should be included in an Addendum to an EIR, the lead agency's findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

The purpose of the EIR Addendum is to fulfill these regulatory requirements, as stated in (a) through (e) above.

## 1.3 Scope and Format

Section 1.3 outlines the scope and format of the EIR Addendum. Section 1.4 presents project background information, which describes the original project and the addition of the connector ramp from southbound State Route 99 to westbound State Route 58. Section 1.5 covers each of the issue areas from the Project EIR and describes how the new proposed project changes would affect various resources. Section 1.6 lists the environmental issues that were determined not to be significant in the Project EIR and discusses whether the addition of the new connector ramp would change those determinations. Section 1.7 discusses whether the addition of the new connector ramp would result in changes to the

size or intensity of the impacts identified in the Project EIR and makes a determination and conclusion on whether an Addendum to the EIR is appropriate.

## 1.4 Project Background Information

### 1.4.1 Project Background

The approved Centennial Corridor project, which was analyzed in both the April 2014 DEIR and the December 2015 FEIR (together, the Project EIR), includes the construction of a new alignment for State Route 58. The project was proposed as follows:

The project was split into three segments:

***Segment 1***

Segment 1 is the easternmost segment. It starts at the existing intersection of State Route 99 and eastbound State Route 58 and connects to the Centennial Parkway. This segment would construct a new section of freeway (State Route 58) to provide direct connection to segment 2 (see below). The project would include changes to existing State Route 58 and State Route 99 to accommodate connection ramps.

This segment would include the following:

- Construction of a new freeway alignment for State Route 58 that would run parallel for 1,200 feet west of the State Route 58 (East)/State Route 99 interchange. It would then go northeasterly and proceed in an above-grade alignment, crossing over Stockdale Highway/Stine Road. Between Ford Avenue and California Avenue, the alignment would be depressed, with overcrossings at Marella Way and La Mirada Drive. The roadway would be elevated and have above-grade crossings at California Avenue, Commerce Drive, Truxton Avenue, and the Kern River. The alignment would then connect to the east end of the Westside Parkway,
- Marella Road would be designated a bikeway, replacing the bikeway on Montclair Street.
- An undercrossing of the proposed State Route 58 would be constructed at Ford Avenue.
- Upgrades to the State Route 58 (East)/State Route 99 interchange would include the following locations:
    - Northbound State Route 99 to westbound Centennial Corridor
    - Northbound State Route 99 to eastbound State Route 58 (East)
    - Southbound State Route 99 to eastbound State Route 58 (East)

- Eastbound Centennial Corridor to southbound State Route 99
- Westbound State Route 99 to southbound and northbound State Route 99

A direct connection from southbound State Route 99 to westbound State Route 58 and from eastbound State Route 58 to northbound State Route 99 was not included in the original project description.

An eastbound State Route 58 to northbound State Route 99 connector ramp has since been added to the project description in a separate environmental reevaluation.

***Segment 2***

Segment 2 is composed of the Westside Parkway and extends from approximately Truxtun Avenue to Stockdale Highway near Heath Road. The Westside Parkway would be incorporated into State Route 58. The original portion of State Route 58 (Rosedale Highway) would be relinquished to local jurisdictions.

***Segment 3***

Segment 3 would use Stockdale Highway, a two-lane roadway, to link to Interstate 5. A new signal and turn lanes at the Stockdale Highway/State Route 43 interchange would be constructed.

## 1.5 Changes in Project Design and Impacts

The project would now include the construction of a southbound State Route 99 to westbound State Route 58 connector ramp. This ramp would be constructed at the current location of the southbound State Route 99 to Stockdale off-ramp. The existing Stockdale off-ramp would be permanently closed. The connector ramp would be a fly-over structure, which would cross over Stockdale Highway, the existing westbound State Route 58 to southbound State Route 99 loop connector, and Real Road before merging to the westbound State Route 58. West of Real Road, an existing retaining wall would be reconstructed to accommodate the new connector ramp. An additional 470-foot auxiliary lane would be constructed on westbound State Route 58 to accommodate merging.

Figure 1-1 shows the proposed southbound State Route 99 to westbound State Route 58 connector ramp in red and the previously approved eastbound State Route 58 to northbound State Route 99 connector ramp in yellow.

**Figure 1-1 Southbound 99 to Westbound 58 Direct Connection**

### 1.5.1 Aesthetics

The Project EIR determined that the project would have Significant Impacts to Visual Resources. Findings and a Statement of Overriding Considerations were issued.

*New Connector Ramp*

A visual assessment was done in September 2023. The new connector ramp would add more roadway structure to the area on the northwest corner of the State Route 99/Route 58 interchange. However, the ramp would not be a significant change in the visual environment because it is in the vicinity of the larger and more prominent State Route 99 and State Route 58 interchange structure. It would be a minimal additional impact to the Visual Resources in that area.

The project would still have a Significant Impact on Visual Resources as described in the Project EIR, but the new connector ramp is not a prominent element of that impact. No additional mitigation is required.

### 1.5.2 Agriculture and Forestry

The Project EIR determined that the Centennial Corridor project would have a Less Than Significant Impact on Agriculture and Forestry.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

The new connector ramp would be in the urban area of the City of Bakersfield and would cause no additional farmland or forestry impacts. The determination remains a Less than Significant Impact on Agriculture and Forestry.

### 1.5.3 Air Quality

The Project EIR stated the project would have a Less Than Significant impact on Air Quality.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

Traffic studies show no change in Vehicle Miles Traveled (VMT), there would be no change in overall traffic numbers compared to the original project description. Therefore, no additional Air Quality impacts are anticipated. The determination remains a Less Than Significant Impact to Air Quality.  No new mitigation is required.

### 1.5.4 Biological Resources

The Project EIR determined there would be a Less Than Significant Impact on Natural Communities, Corridor Movement, and Wetlands and Other Waters and no impact to non-native plant species. It also determined that was less than significant impact with mitigation to Threatened and Endangered Species for potential impacts to San Joaquin kit fox.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

A biological assessment was done in September 2023 the new connector ramp sits within the well-developed sections of the City of Bakersfield, at the State Route 99 and Stockdale Highway connection. It would have no additional impact to special-status species or habitats. The impact determinations from the Project EIR have not changed. Because there are no additional impacts due to the project changes, no additional mitigation is required.

### 1.5.5 Cultural Resources

The Project EIR determined that the project would have a Less Than Significant Impact with Mitigation to Cultural Resources.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

A cultural screening memo was done in September 2023. The new connector ramp is not located in and is not visible from any of the identified historic districts, so no additional impacts to those resources are anticipated. There are no other historical archaeological or architectural resources within the footprint of the new connector ramp. The determination remains as Less than Significant Impact with Mitigation. No additional mitigation is required.

### 1.5.6 Geology and Soils

The Project EIR determined that the project would have a Less Than Significant Impact to Geology and Soils.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

The new connector ramp would not change the impacts identified in the Project EIR because it would not add any new impacts to Geology or Soils. The new ramp would be constructed to Caltrans' standards, including those related to soil stability and erosion control. The new connector ramp would not cause or expose people to seismic hazards; it would be constructed to current seismic standards. The determination remains a Less Than Significant Impact to Geology and Soils.

### 1.5.7 Greenhouse Emissions

The Project EIR determined that the project would cause an increase in carbon dioxide emissions over the current existing levels; the future build emissions are higher than the future no-build alternative. Caltrans determined that without further regulatory or scientific information, it was too speculative to make a significance determination.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

The addition of the new connector ramp is anticipated to have no change in Vehicle Miles Traveled (VMT). It would also reduce emissions on Rosedale Road, by reducing the amount of stop-and-go traffic. Since the City of Bakersfield's original certification of the EIR and approval of the project, the existing setting has not changed and would not result in a significant increase in greenhouse gas emissions.

### 1.5.8 Hazards and Hazardous Materials

The Project EIR determined the project would have a Less Than Significant Impact to Hazards and Hazardous Materials.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

An Initial Site Assessment was done in August 2023. The addition of the new connector ramp would create no additional impacts. The determination remains a Less Than Significant Impact to Hazards and Hazardous Materials.

### 1.5.9 Hydrology and Water Quality

The Project EIR did not identify significant impacts and determined that the project would have a Less Than Significant Impact to Hydrology and Water Quality.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

The addition of the connector ramp would not result in any further impacts not previously evaluated in the Project EIR. The determination remains a Less Than Significant Impact to Hydrology and Water Quality.

### 1.5.10 Land Use and Planning

***Community***

The Project EIR determined that the project would have a Significant Impact to the Community due to State Route 58 dividing an existing community.

*New Connector Ramp*

The new connector ramp is situated within and near the northwest corner of the State Route 99/State Route 58 interchange. It would not affect any community that was not already affected by the State Route 58 project. The southbound 99 off-ramp to Stockdale Highway will be closed as part of the Project EIR. There are no permanent closures proposed by the project changes. The new connector ramp would not change the original impact determination.

***Land Use Plans***

The Centennial Corridor project would not be able to fully meet all the goals outlined in the Metropolitan Bakersfield 2010 General Plan (2002, update 2007). The construction of a continuous route along State Route 58 would channelize truck traffic to a new route. This would increase noise. The Centennial Corridor project does not meet the goal to minimize the impact of truck traffic on circulation and on noise-sensitive land uses. The project would also require new right-of-way and bisect the Westpark neighborhood. This would mean the project would not meet the goals of retaining existing neighborhoods and allowing for infill. The Project EIR determined that there would a Significant Impact to Land Use and Planning, due to the nature of the project.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

The new connector ramp would not substantially increase truck traffic or require any relocations. It would also not bisect or divide any neighborhoods. The determination remains a Significant Impact to Planning, but the connector ramp is not a significant contributor to that impact.

### 1.5.11 Noise

The Project EIR evaluated long-term noise impacts, concluding that the front row of homes located on Oakdale Drive between Bank Street and Stockdale Highway would benefit from providing an in-kind replacement for the existing 14-foot soundwall. Additional mitigation would not be required. The project would cause an increase of 12 decibels or more within the project area. Therefore, the Project EIR determined the project would have a Significant Impact to Noise.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

An amended noise memo was completed in July 2023. Three properties on Oakdale Drive saw a change in their noise level due to the new connector ramp. The noise level increased from 1 to 2 decibels from what was identified in the Project EIR. The change is smaller than 3 decibels, which is the minimum necessary increase that the human ear can perceive. The original determination within the Project EIR of a Significant Impact to Noise remains, however, the new connector ramp would not be a contributing factor to the impact.

### 1.5.12 Population and Housing

The Project EIR determined there would be residential and commercial displacements along with partial acquisitions within the project area. The Final EIR indicated that there was sufficient replacement housing available, and the project would have a Less Then Significant Impact to Population and Housing.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

The new connector ramp would not result in any residential or commercial relocations. The determination remains a Less Than Significant Impact to Population and Housing.

### 1.5.13 Public Services

***Emergency Services***

The Project EIR identified that there would be no permanent impacts to Emergency Services. It did identify short-term impacts that could occur during construction due to occasional delays due to traffic detours, shoulder closures, lane shifts and off-peak lane closures. Emergency vehicle access for police, fire protection and emergency services would always be

maintained throughout construction. Out-of-direction travel would never be more than 1 mile. With the implementation of Standard Conditions, adverse impacts would be avoided. The Project EIR indicated a Less Than Significant impact to Emergency Services.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

The new connector ramp would have no permanent impacts to emergency services. Also, with the implementation of Standard Conditions, temporary adverse impacts would also be avoided. The determination remains a Less Than Significant Impact to Emergency Services.

### 1.5.14 Recreation

The impacts to Recreation are the same as those identified and discussed in the Public Services section 1.5.13.

***Parks***

The Project EIR identified a Less Than Significant Impact with Mitigation to Parks.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

There are no parks within the State Route 99/State Route 58 interchange area. The new connector ramp would have no impacts on parks. The Project EIR determination remains a Less Than Significant Impact with Mitigation to Parks remains unchanged.

### 1.5.15 Utilities and System Services

***Utilities***

The Project EIR showed there would be minimal impacts to utility services during construction and no long-term impacts. A Less Than Significant Impact to Utilities was determined.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

The new connector ramp would relocate a section of sewer line and would not add any long-term impacts to utility services. The original impact determination of a Less Than Significant Impact to Utilities remains.

### 1.5.16 Traffic and Transportation

The Project EIR determined that the project would have no impact on Traffic and Transportation.

*New Connector Ramp*

Additional impacts, other than those identified in the approved environmental document are not anticipated.

Caltrans no longer uses the Level of Service metric to determine traffic impacts under the California Environmental Quality Act (CEQA). Caltrans currently uses Vehicle Miles Traveled (VMT), which is a measure of traffic volumes multiplied by distance traveled. A traffic analysis was done to determine how the new connector ramp would change the Vehicle Miles Traveled for this project. The outcome was that the project would have no change in Vehicle Miles Traveled. The project determination remains as No Impact to Traffic and Transportation.

## 1.6 Environmental Issues Determined Not Significant in the Project EIR

As part of the scoping and environmental analyses done for the project, the following environmental issues were considered in the Project EIR, but no adverse impacts were identified. Consequently, there is no further discussion of these issues in this document.

- ***Timberlands (Forest Resources).*** The project is in an urban area. There is no timberland in the project area (field visit on March 26, 2008).
- ***Coastal Zone.*** The project is not within a coastal zone and is not within the jurisdiction of the California Coastal Commission. Kern County is an inland county and is not along the coast.
- ***Wild and Scenic Rivers.*** No designated wild and scenic rivers are in the project area (National Wild and Scenic Rivers System map, last updated on August 18, 2011).
- ***Mineral Resources.*** The project site is not within an area designated as a mineral resource zone by the California Mineral Land Classification/Designation Program, the California Geological Survey, or the State Mining and Geology Board.

*New Connector Ramp*

The addition of the new connector ramp would not change the determinations or require any further discussions on any of the above environmental issues.

## 1.7 Conclusion Regarding the Preparation of an Addendum for the Project Changes

After review of the potential impacts of construction and operation of the new connector ramp improvements compared to the impacts identified in the Project EIR, the determination is that there are no substantial changes proposed in the new connector ramp that would require major revisions of the previous EIR due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Therefore, the proposed change to the project meets the conditions as described in Section 15164 of the CEQA Guidelines for the preparation of an Addendum to the FEIR.