Centennial Corridor Project

Final Project Report

Centennial Corridor from State Route 99 to Interstate 5

City of Bakersfield and Kern County, CA

District 06 - KERN – 58 - PM T31.70 to PM 55.6

District 06 - KERN – 99 - PM 21.2 to PM 26.2

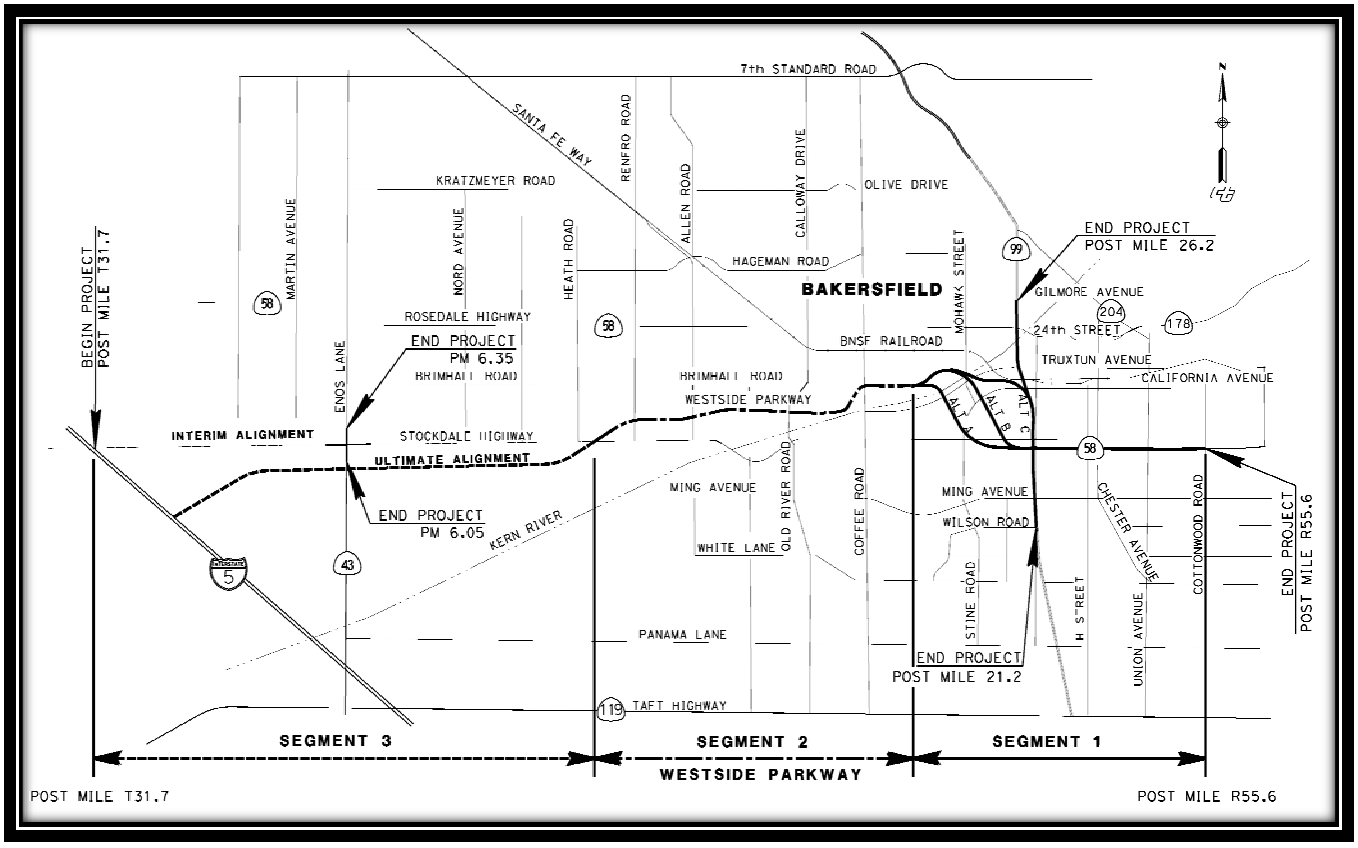
Project ID# 06-0000-0484

November 2015

Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

06-Ker-58, PM T31.7/R55.6
06-Ker-99, PM 21.2/26.2
Program Codes 20.XX.075.600, 20.30.010.680, 20.10.400.100
EA 06-48460
Project ID 0600000484
November 2015

PROJECT REPORT



Request for Project Approval

On Route	58 in the City of Bakersfield
Between	Interstate 5
And	Cottonwood Road
On Route	99 in the City of Bakersfield
Between	Wilson Road
And	Gilmore Avenue

FOR PORTIONS OF THE PROJECT ON THE STATE HIGHWAY SYSTEM

I have reviewed the right of way information contained in this Project Report and the R/W Data Sheet attached hereto, and find the data to be complete, current, and accurate:

Jamie Lupo *- Central Region Division Chief – Right of Way*

APPROVAL RECOMMENDED:

Minerva Rodriguez, P.E. *– Project Manager*

APPROVED:

Sharri Bender Ehlert – *District 6 Director* *Date* 12/4/2015

FOR PORTIONS OF THE PROJECT OFF THE STATE HIGHWAY SYSTEM

I have reviewed the right of way information contained in this Project Report and the R/W Data Sheet attached hereto, and find the data to be complete, current, and accurate:

Don Anderson – Real Property Manager – *City of Bakersfield*

APPROVED:

Nicolas Fidler – *Public Work Director- City of Bakersfield* 11/23/15 *Date*

Craig Pope – *Director- Kern County Roads Department* Nov 20 2015 *Date*

This 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.

Daniel B Wagner

REGISTERED CIVIL ENGINEER
DANIEL WAGNER, P.E.

11-20-2015

Date

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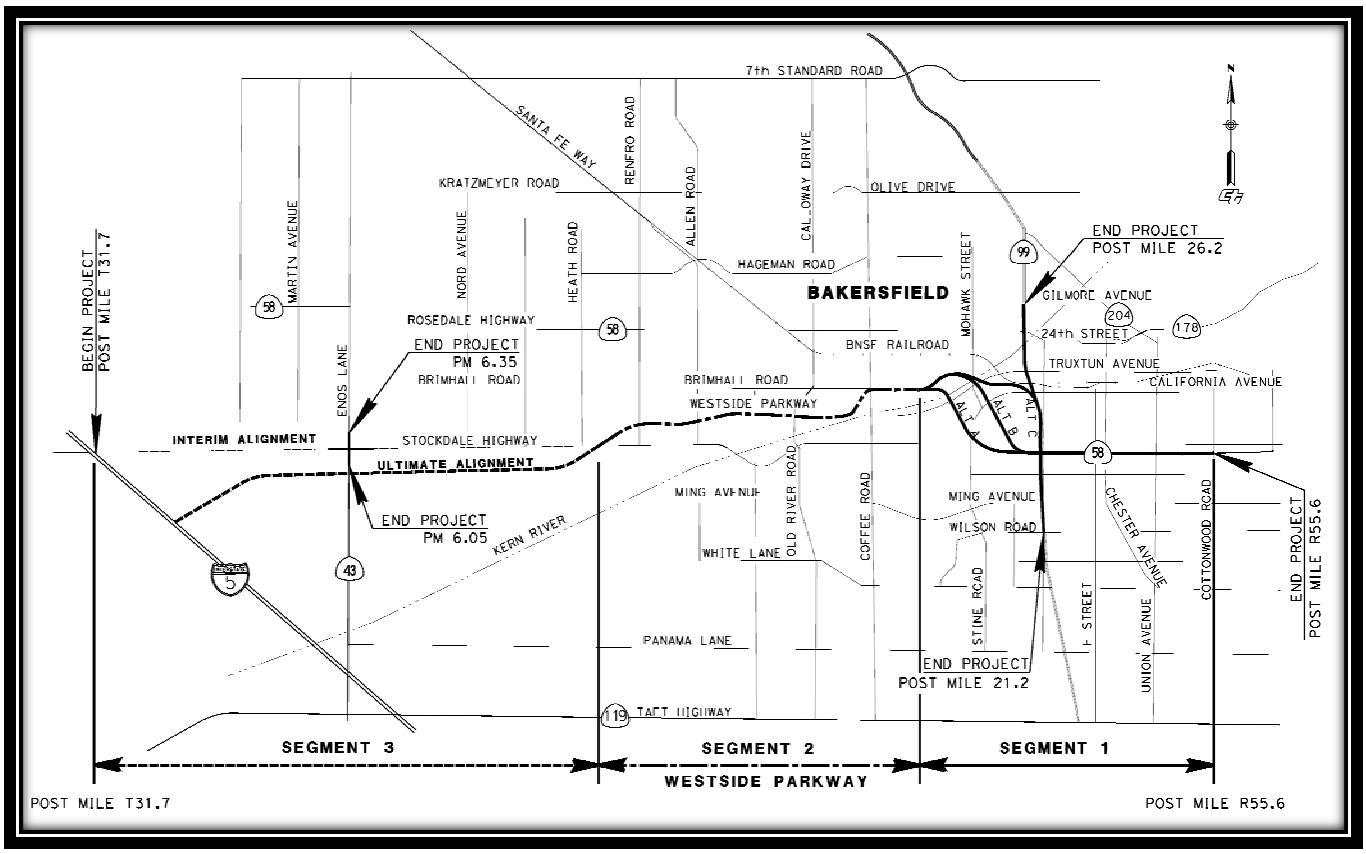
1. INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the city of Bakersfield, proposes to construct a new alignment for the Centennial Corridor (Proposed State Route (SR) 58) to provide a continuous freeway route from Interstate 5 (I-5) (post mile T31.7) via the Westside Parkway (WSP) to Cottonwood Road (post mile 55.6) on existing SR 58, east of State Route (SR) 99. Improvements to SR 99 (post miles 21.2 to 26.2) would also be made to accommodate the connection with SR 58. For the purposes of this report, the Centennial Corridor (Proposed SR 58) west of SR 99, shall be referred to as SR 58.

Figure 1 – Segments of the Centennial Corridor



The project sits at the southern end of the San Joaquin Valley in the city of Bakersfield in Kern County, California. The project area is bound on the east by Cottonwood Road, on the west by I-5, on the north by Gilmore Avenue, and on the south by Wilson Road. Caltrans is the lead agency for the project pursuant to the California Environmental Quality Act and the National Environmental Policy Act.

The proposed Centennial Corridor has been divided into three segments, as shown in Figure 1; see Location Maps in Attachment A for a more detailed map.

The Table 1 provides key information about the proposed project:

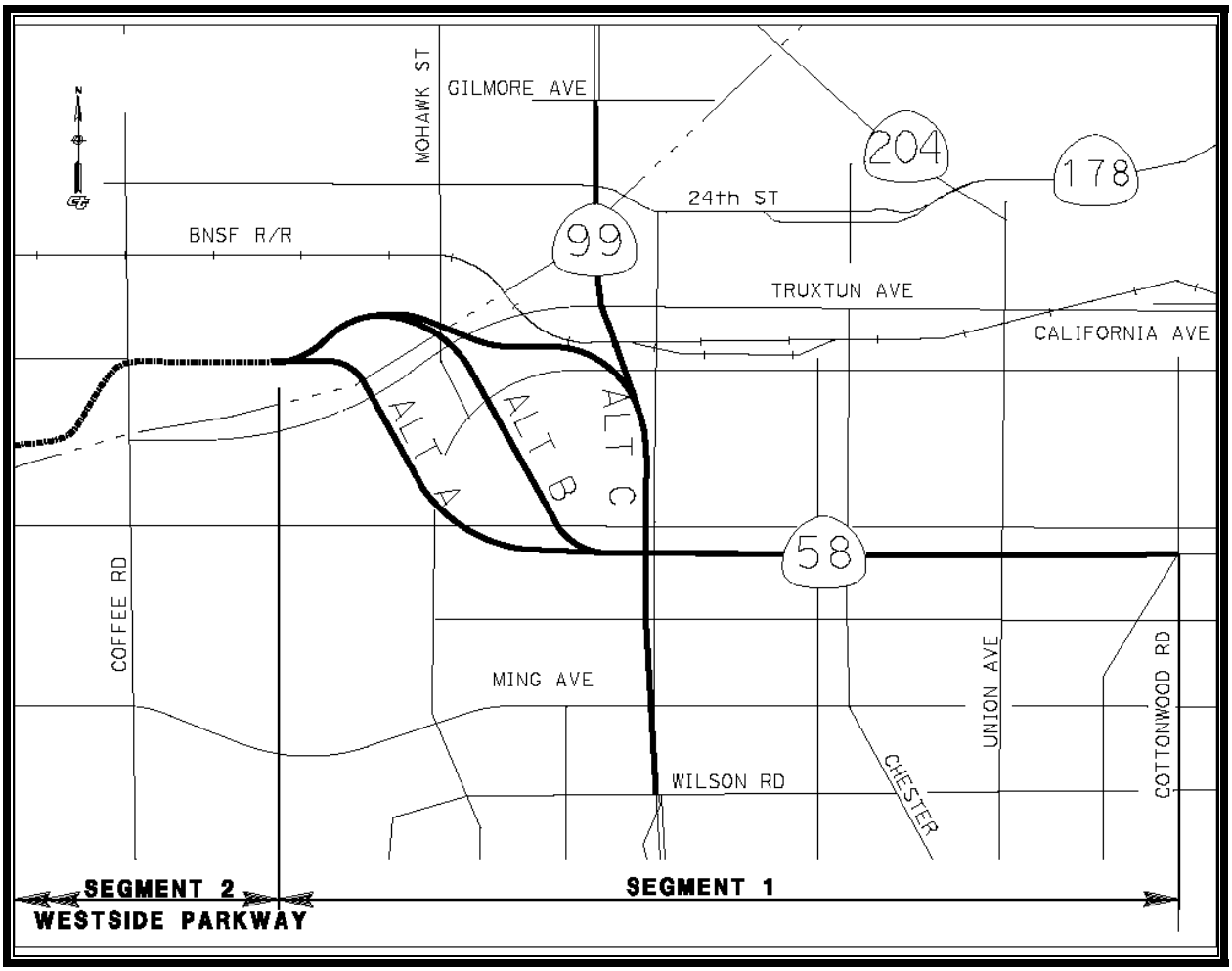
TABLE 1 – PROJECT INFORMATION	
Project category	1
Project limits	06-Ker-58, PM T31.7/R55.6 06-Ker-99, PM 21.2/26.2
Applicant	City of Bakersfield
Funding Source	Federal, State and Local Funds
Range of proposed capital construction cost for all alternatives (includes right of way)	$570 million to $691 million
Number of build alternatives	Three: Alternatives A, B, C
Type of facility	Freeway
Environmental determination/document	EIS / EIR
Legal description	I-5 to existing SR 58 east of SR 58/Cottonwood Road– Construct new freeway and operational improvements.

SEGMENT 1 (EASTERN CONNECTION)

Segment 1 is the easternmost segment that would connect a local roadway known as the Westside Parkway (WSP) to the existing SR 58 (East) freeway. This segment would construct a new section of freeway and multiple alignment alternatives are being evaluated. As shown in Figure 2, the multiple alignments extend from WSP (Segment 2), west of Coffee Road or Mohawk Street to the existing SR 58 (East) freeway near Cottonwood Road. Three build alternatives and the No Build Alternative were developed for Segment 1. SR 58 East Operational Improvements from SR 99 to Cottonwood Road are being constructed under two separate projects, Route 58 Gap Closure (EA 06-0G850), and Beltway Operational Improvements (EA 06-48461). These improvements were required to meet the future traffic demands for the new connection. Segment 1 is proposed to be developed as a local freeway project, built to state standards, under the assumption that Segment 1, along with WSP and a portion of Stockdale Highway (I-5 to Heath Road) will be successfully adopted as SR 58 and transferred into the State Highway System following the procedures for *Transfer of Highway Location* described in Chapter 23 of the Caltrans *Project Development Procedures Manual* (PDPM).

- *Alternative A* is the westernmost alignment and would connect to Segment 2 (approximately 0.8 miles east of Coffee Road) to the existing SR 58 (East) freeway.
- *Alternative B* is aligned to the west of SR 99 and would connect to Segment 2 (Mohawk Street) to the existing SR 58 (East) freeway.
- *Alternative C* is aligned parallel to SR 99 and would connect to Segment 2 (Mohawk Street) to the existing SR 58 (East) freeway.

Figure 2 – Segment 1 of Centennial Corridor

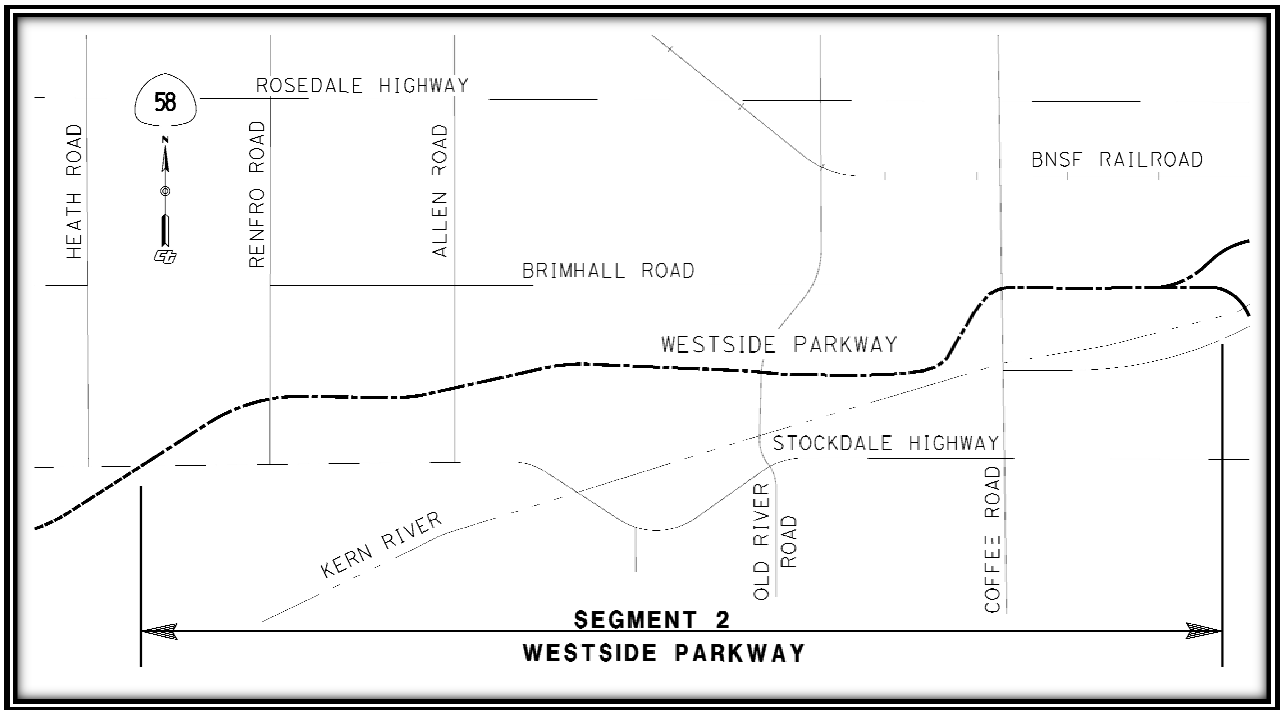


SEGMENT 2 (WESTSIDE PARKWAY)

Segment 2, known as WSP, is a local 7.3 mile long access controlled freeway (See Figure 3), the last phase opened to traffic April 15, 2015. WSP begins at the intersection of Heath Road and Stockdale Highway and extends east crossing under Renfro Road, Allen Road, Jewetta Avenue, and Calloway Drive. East of Calloway Drive, WSP crosses over Coffee Road, the Cross Valley Canal, and the Friant-Kern Canal and then under Mohawk Street. It then spans the Kern River and ties into Truxtun Avenue. Full-service interchanges are provided at Allen Road, Calloway Drive, Coffee Road, and Mohawk Street. A partial interchange is provided at Truxtun Avenue.

A right of way width of 210 feet has been acquired for the WSP to accommodate an ultimate eight-lane facility. From Mohawk Street to the intersection of Heath Road/Stockdale Highway (approximately 6.4 miles) this freeway currently consists of two to four 12-foot lanes in each direction with 10-foot left and right shoulders, and a median width varying from 36 feet to 72 feet, separated by a median barrier.

Figure 3 – Segment 2 of Centennial Corridor



A Tier 1 environmental document, completed and approved in May 2001, studied the adoption of a transportation corridor alignment and purchase of right of way for SR 58 from I-5 to SR 99. This allowed the city of Bakersfield to acquire right of way for the WSP and provided a base from which a construction-level environmental document was developed. The City of Bakersfield, Caltrans and the FHWA have approved a Tier 2 environmental document, *Westside Parkway Environmental Assessment / Final Environmental Impact Report* (January 2007), pursuant to NEPA and CEQA for the WSP project. It is anticipated that this segment will be successfully adopted as SR 58 and transferred into the State Highway System following the procedures for *Transfer of Highway Location* described in Chapter 23 of the Caltrans *Project Development Procedures Manual* (PDPM).

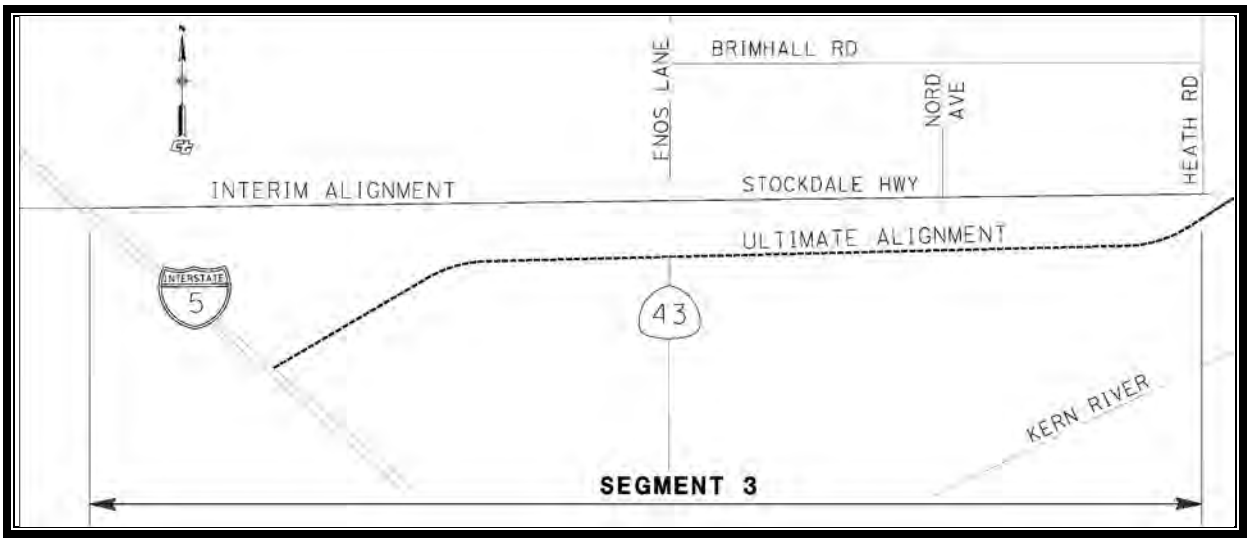
Each of the build alternatives would require improvements within the existing WSP right of way. The improvements are modifications to several of the interchange ramps and median improvements to allow for the provision of auxiliary lanes.

Any necessary improvements needed to transfer the WSP into the state system will be identified and incorporated into the Route Adoption Report.

SEGMENT 3 (I-5 TO WESTSIDE PARKWAY)

Tier 1 environmental compliance documents were previously prepared for Segment 3, (See Figure 4). A Tier 1 final EIS/EIR was prepared pursuant to the CEQA and the NEPA as part of a previous route adoption study conducted by Caltrans and the FHWA for the SR 58 route adoption. This Tier 1 study considered alternative corridors and identified a preferred corridor alignment that could be used for right of way acquisition and corridor protection. The report addressed a 16.9-mile section of highway from I-5 to SR 99 (milepost 35.4 to milepost 52.3). The intent of the study was to adopt an alignment and allow the purchase of right of way.

Figure 4 – Segment 3 of Centennial Corridor



The preliminary alternatives evaluation conducted as part of the final EIS/EIR considered diverse options, including:

- Expansion of capacity on existing SR 58
- Adoption of a multimodal transportation corridor on one of the two different alignments
- Mass transit
- TSM
- No Action Alternative

All alternatives except the adoption of a transportation corridor on either the Kern River or Cross Valley Canal alignments and the No Action Alternative were withdrawn from further consideration because they either did not meet the purpose and need or because the magnitude of the environmental impacts were determined to be unacceptable. The Kern River and Cross Valley Canal alignments proposed different connections to I-5. East of SR 43, these two alternatives assumed the same alignment, which is consistent with the WSP alignment.

The Cross Valley Canal Alternative was identified in the Tier 1 final EIS/EIR as the least damaging practicable alternative. This alignment alternative, which is reflected as Segment 3, assumes an east-west alignment parallel to the Cross Valley Canal, approximately 2 miles south of Stockdale Highway, from Heath Road to approximately 1.2 miles west of SR 43. The alignment continues to follow the canal, but at this point it assumes a southwest direction and connects to I-5 north of the Cross Valley Canal. The Kern River alignment would have the same alignment west of SR 43, but rather than following the canal in a southwest direction, it would assume a northwest direction and connect with I-5 approximately 1.3 miles north of the Stockdale Highway Interchange.

The Cross Valley Canal alignment was found to have less impact on jurisdictional waters of the United States, providing greater protection of threatened and endangered species and their habitat. This alternative would also have less impact on agricultural land. However, this alternative would have an impact on recharge ponds operated by the Kern Water Bank Authority. The Cross Valley Canal alignment was also approximately 3 miles shorter than the Kern River alignment. Both alignments intersect I-5 less than 3 miles from the Stockdale Highway interchange. FHWA requires 3 miles between interchanges on interstates so the Stockdale Highway interchange may need to be closed as a condition of approval for new access.

Consultation with local, regional, state, and federal agencies, as well as coordination with the public, was conducted with the preparation of the environmental document. Three public open houses and numerous public presentations were held to gain input from the public. As a result of the consultation/coordination process, the following major areas of concern were identified; however, many of these topical areas apply to the portion of the study area east of SR 43:

- Community character and quality of life
- Impacts to residential and community properties
- Property values
- Land use and growth
- Noise
- Air quality
- Hazardous waste
- Circulation and access
- Water quality and supply
- Safety
- Recreation and open space
- Biological resources
- Mass transit

Permits from United States Army Corps of Engineers (Section 404), the California Department of Fish and Wildlife (Section 1600), and the Regional Water Quality Control Board (Section 401 certification) would be required.

FHWA coordination would be required for this segment, once funding is located and an EIR/EIS is prepared to cover the construction of the ultimate alignment for Segment 3. In addition, FHWA operation and engineering acceptability would be sought for the new connection of Segment 3 with I-5.

The timing for construction of Segment 3 is unknown, but would not occur until there is sufficient funding and greater traffic demand. The traffic analysis indicates that the ultimate improvements would not be required until after 2038.

Until Segment 3 improvements are made, traffic would use Stockdale Highway as the interim connection to Interstate 5. Improvements would be required at the Stockdale Highway and SR 43 (Enos Lane) intersection for each build alternative. Stockdale Highway would temporarily be designated as SR 58 until the ultimate improvements are made. The existing portion of SR 58 (West) from Allen Road to Mohawk Street was relinquished (becoming a local road, no longer a state highway) in June 2012 to the local jurisdictions (City of Bakersfield and the County of Kern). The remaining portion of existing SR 58 from Interstate 5 to Allen Road would also be relinquished.

2. RECOMMENDATION

After comparing and weighing the benefits and impacts of all of the feasible alternatives (Alternatives A, B and C), Caltrans has identified Alternative B as the Preferred Alternative. The Preferred Alternative B would attain the purpose and need of the project by providing route continuity and traffic congestion relief. The Preferred Alternative B alignment is a feasible and prudent alternative that avoids impacts to Section 4(f) properties, such as parkland and historic properties. The Preferred Alternative B alignment also avoids impacts to environmental justice communities.

It is recommended that the project be approved using Preferred Alternative B and proceed to the design phase.

Affected local agencies have been consulted with respect to the recommended plan; their views have been considered, and they are in general accord with Preferred Alternative B as presented.

3. BACKGROUND

PROJECT HISTORY

The metropolitan Bakersfield area has experienced significant growth in the last few decades. Along with population growth, the region's role in the movement of goods and interregional travel has resulted in increased demand on the regional road network. Greater congestion of the area's transportation system is expected if no improvements are made.

The need for an east-west transportation corridor through Bakersfield has been recognized and studied by local agencies, Caltrans, and the FHWA. Early planning efforts were at the local and regional levels. In 1973, the Kern Council of Governments (Kern COG) prepared the *1990 Transportation Plan and Program*, and later Kern County in the *Rosedale General Plan* identified the "Westside Freeway" as a major circulation element.

In the 1980s, planning efforts continued for this transportation corridor, including the following studies and plans:

- *Analysis of the Westside Highway / State Highway 99 Interchange* (Kern COG, 1982).
- *Kern COG 1984 Regional Transportation Plan*, in which Caltrans was requested to conduct a special study of SR 58.
- *Preliminary Route Adoption Analysis for Route 58 from Interstate 5 to Route 99*, as requested by the California Transportation Commission (CTC), was completed in 1985. This study did not identify a preferred alternative or recommend a route adoption.
- *Final Environmental Impact Report for Proposed General Plan Amendment to the Circulation Element of the Kern County and Rosedale General Plans (Westside Thoroughfare)* (Kern County, 1986).
- *Metropolitan Bakersfield 2010 General Plan* (Kern County, 1987).
- *Westside Corridor Study* (Caltrans and Kern COG, 1988).

Scoping for the route adoption of this corridor began when a Tier 1 environmental impact statement (EIS) / environmental impact report (EIR) began in 1992.[1] Caltrans, as the California Environmental Quality Act (CEQA) lead agency, and the FHWA, as the National Environmental Policy Act (NEPA) lead agency, approved the environmental document in 2001, known as *Final Route 58 Route Adoption Project: A Tier 1*

[1] A Tier 1 environmental document is prepared for route adoption. The project analysis is at a broader level of detail and based on limited engineering concepts. This level of documentation allows preservation and acquisition of right-of-way. A Tier 1 document is appropriate when construction of the project is not anticipated in the near future. A Tier 2 document evaluates the potential impacts at a level of detail that would allow construction of the project and is prepared with the development of preliminary engineering plans. When a Tier 1 document is prepared, subsequent Tier 2 analysis is required before moving forward with project construction.

Environmental Impact Statement / Environmental Impact Report. This document evaluated two corridor alignments and a no build alternative. The build alternatives extended from I-5 to SR 99. One alternative was aligned along the Kern River, and the other was aligned along the Cross Valley Canal. The environmental document selected the Cross Valley Canal alignment as the preferred alternative.

A multijurisdictional planning effort was undertaken in 1995 to identify a total transportation system. The study involved the Golden Empire Transit District, City of Bakersfield, Kern County, Kern COG, and the San Joaquin Valley Unified Air Pollution Control District. The study, titled the *Metropolitan Bakersfield Transportation Investment Strategy*, served as a major investment study, pursuant to the Intermodal Surface Transportation Efficiency Act (ISTEA). The major investment study, completed in 1999, evaluated provisions for highway and transit projects for the metropolitan Bakersfield area. The strategy identified a freeway on the Kern River alignment from SR 99 to Renfro Road as a fundable project. However, due to financial constraints, the CTC was forced to withdraw some of the funding for right of way acquisition as part of the 1996 State Transportation Improvement Program (STIP).

In July 2000, the Bakersfield System Study was jointly commissioned by the Kern COG, the city of Bakersfield, the County of Kern, and Caltrans to evaluate the regional roadway network. This study was a planning-level document that theorized a wide array of potential transportation solutions to address the mobility issues in metropolitan Bakersfield. More than 20 different combinations of improvements were studied, and "Alternative 15" was selected as the preferred alternative in July 2001.

Due to the high cost of acquiring right of way and the impacts to developed areas in the city of Bakersfield, no agreeable alternative for connection to SR 99 was established. On April 4, 2002, the California Transportation Commission authorized replacing the project with the WSP project, a local route between Mohawk Street and Heath Road. The WSP is a portion of the Tier 1 alignment, meeting the Tier 1 purpose and need of improving east-west circulation in west Bakersfield. Construction of the local roadway project started in April 2009 and finished in mid 2015.

In 2007, the city of Bakersfield revised the project description of projects earmarked for federal funds in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) under Section 1302 – National Corridor Infrastructure Improvement Program to include a modified Centennial Corridor project. Section 1301 funds previously considered for the West and South Beltways are also planned to be applied to the Centennial Corridor project. Additionally, the Centennial Corridor project has secured funding from the city of Bakersfield, the County of Kern, and other state and federal sources.

The Centennial Corridor, North Beltway, West Beltway, and South Beltway are planned freeways and expressways that make up the Bakersfield Beltway System. The North Beltway will provide another east-west freeway in the northern region of Bakersfield. The West Beltway is a currently deferred project that will provide a north-south freeway on the western portion of Bakersfield. The South Beltway is planned to extend from SR 178, south across SR 58, around the southeastern portion of Bakersfield, and west to I-5, south of Taft Highway (SR 119). The Centennial Corridor serves, at a lower cost,

the same purpose and need as the South Beltway project; therefore, it replaces the need for the South Beltway project.

In 2008, a Project Study Report was initiated to gather data, perform preliminary studies, and evaluate project alternatives against criteria developed specific to this Project. During PSR development, 18 alternatives were studied and evaluated which resulted in 13 being dismissed as either not reasonable and/or not feasible. The remaining 3 Build Alternatives (A, B, and C), Transportation System Management (TSM)/Transit (M) Alternative, and No Build Alternative were given conceptual approval as viable alternatives for Segment 1 of the Centennial Corridor with approval of the PSR (December, 2011).

The above background led to the preparation of the *Draft Project Report* (DPR), which scoped project approval and environmental documentation for Segment 1 of the Centennial Corridor.

COMMUNITY INTERACTION

A public involvement plan has been implemented that proactively seeks input from the public, resource agencies, local agencies, and environmental services during the process of identifying and evaluating alternatives. Several public meetings have been held to introduce the public to the alternatives that were initially identified, seek public input on those alternatives, and seek public suggestions on additional alternatives to consider. Multiple agencies were involved in developing the purpose and need, alternatives, and methods for environmental analyses. Other open houses have been held to keep citizens informed about the progress of the Project. In addition to open houses, focused meetings have been held to identify specific concerns of citizen groups. Additionally, the Citizens' Advisory Group, composed of members from each of the communities that could be impacted by those alternatives that will be studied, interacts with Caltrans, the city of Bakersfield, and the County of Kern staffs to give input, represent their community interests, and act as liaisons to their neighborhoods.

A Public Information Meeting/Open House was held December 6, 2012 at the Kern County Administrative Offices Building Rotunda where the alignments of the three build alternatives were presented.

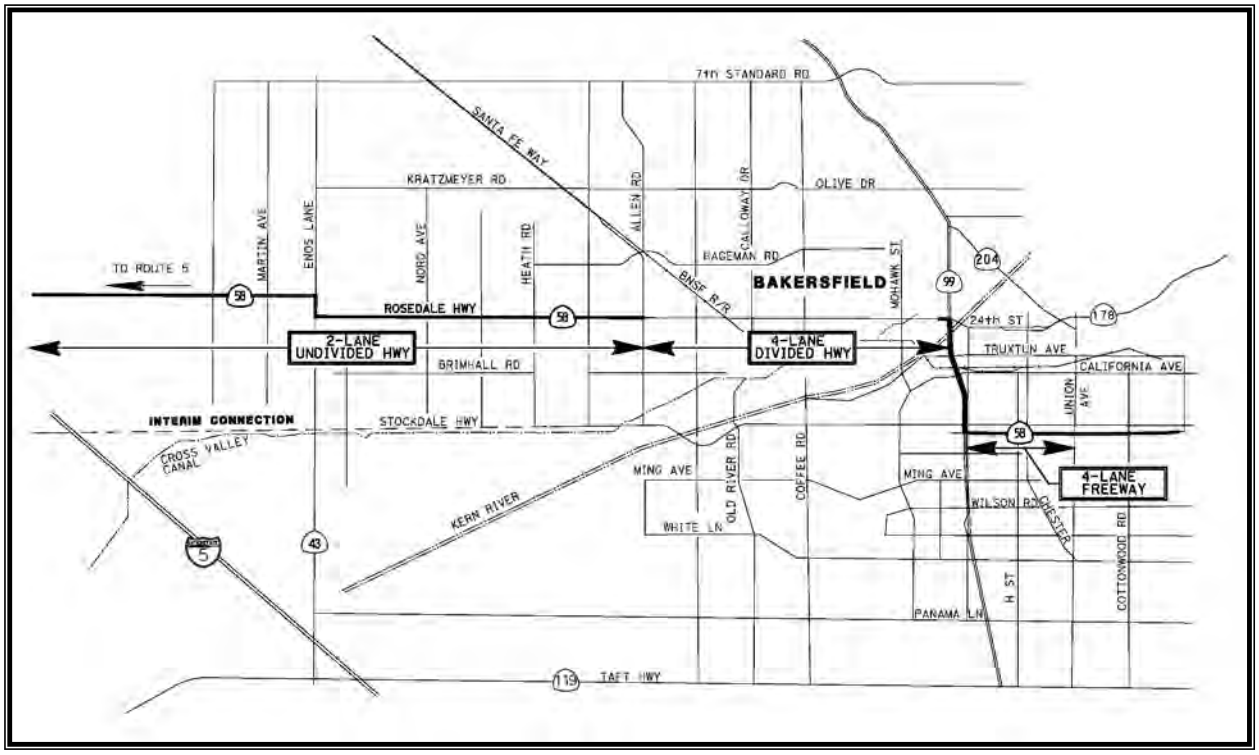
The Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) was prepared and circulated for a 61-day review by agencies and members of the public between May 9 and July 8, 2014. Notices of Availability for the draft environmental document and notice of public hearings were sent to property owners, residents, businesses, resource agencies, public officials and other interested parties. Caltrans, in cooperation with the City, held a public hearing for the project at the Kern County Administrative Center-Rotunda, 1115 Truxtun Avenue, Bakersfield, California, on June 11, 2014, from 4:00 to 7:00 p.m. All comments from the public hearing and those received during the public review period were considered and addressed in the final environmental document through additional clarification of text and minor design modifications.

EXISTING FACILITY

SR 99 is a north-south state freeway that is heavily used by trucks because it is a major route for goods movement. Within Bakersfield, it is an eight-lane, access controlled freeway that connects the north and south parts of Bakersfield and facilitates goods movement in and out of the Central Valley.

SR 58 is an east-west facility that begins at its junction with SR 101 near Santa Margarita in San Luis Obispo County, traverses Kern County, and terminates at I-15 near Barstow, in San Bernardino County. SR 58 is the most significant east-west interregional route between I-5 and eastern Bakersfield. It is heavily traveled by commercial trucks, local delivery trucks, and commuters because of its direct access to many commercial and industrial communities.

Figure 5 – Existing State Route 58



Starting at I-5, SR 58 is currently a conventional highway, locally identified as Rosedale Highway. Between I-5 and Allen Road, the corridor is a two-lane facility surrounded by agricultural land with some recently developed residential areas. The existing portion of SR 58 (West) from Allen Road to Mohawk Street was relinquished, becoming a local road. From Mohawk Street to the northern SR 99 / SR 58 (West) interchange, SR 58 is a four-lane, divided conventional highway, with commercial and industrial development. SR 58 continues south as a shared route with SR 99 for about 2 miles until it reaches the southern SR 99 / SR 58 (East) Interchange. Between the two SR 58 interchanges, SR 99 is an eight-lane, access-controlled freeway. East of SR 99, SR 58 is a four-lane, access-controlled freeway prior to transitioning to a six-lane facility at Cottonwood Road and continuing through the metropolitan Bakersfield area (see Figure 5).

4. PURPOSE AND NEED

PROBLEM, DEFICIENCIES, JUSTIFICATION

The purpose of the Centennial Corridor project is to provide route continuity along and associated traffic congestion relief along SR 58 within metropolitan Bakersfield and Kern County from the existing SR 58/SR 99 freeway interchange to Interstate 5.

SR 58 is a critical link in the state transportation network that is used by interstate travelers, local commuters, and a great number of regional and inter-regional trucks. However, the efficient movement of traffic, goods, and materials through metropolitan Bakersfield and incorporated areas is limited by the existing transportation network. SR 58 lacks continuity in central Bakersfield, which results in severe traffic congestion and reduced levels of service on adjoining highways and local streets. This route is offset by about 1 mile at SR 43 (known locally as Enos Lane) and by about 2 miles at SR 99. The merging of two major state routes (58 and 99) into one alignment between the eastern and western legs of SR 58 degrades the traffic level of service on this segment of freeway. In addition, SR 99's close spacing for its two interchanges with SR 58 (East and West), in addition to an interchange at California Avenue, results in vehicles aggressively changing lanes, which adds to the congestion.

SR 58 is a high-volume, east-west, interregional route in Bakersfield and is critical to the economic vitality of the region and the state. It provides significant goods and freight movement connections between I-5 and SR 99 in the Central Valley. SR 58 also links to other important goods movement corridors nationwide such as SR 14, Interstate 15 (I-15), Interstate 40 (I-40) and United States 395 (US 395).

SR 99 is a major state highway connecting the larger population centers along the eastern side of the Central Valley and is the only north-south freeway in Bakersfield. To this effect, SR 99 carries a large percentage and volume of interregional and regional traffic in addition to its service within Bakersfield as a local freeway and nationally as an I-5 alternate route. Shared use with the interregional, regional, and local traffic on SR 58 contributes to localized congestion and deterioration of movement along both routes.

SR 178 is a Terminal Access (state STAA network) route with its western terminus at the northern junction of Routes 99 and 58 (West) and serves as the regional east-west link for the northern areas of Kern County east of SR 99. West of SR 99, SR 178 traffic is connected to additional north-south STAA network routes (I-5, SR 33 and US-101) via Route 58 on a two-lane or four-lane conventional highway. The presence of high truck volume (11% to 16% between SR 43 and SR 99) with stop- or signal-controlled intersections contributes to the deterioration of commercial and regional travel times on SR 58 between I-5 and SR 99.

The Metropolitan Bakersfield forecast annual growth rate (2010-2035) is 1.8 percent. In the area east of SR 99, three highways (SR 204, SR 178, and SR 58) provide a well-developed road system to handle the large volume of local traffic movement. There are no continuous access controlled thoroughfares in the metropolitan area west of SR 99 to support growth. The stop- and signal-controlled local road network west of SR 99 adds to commute times and provides lower levels of service (LOS).

The metropolitan Bakersfield area is also bifurcated by the Kern River. This natural waterway restricts local traffic circulation due to the limited number of routes (such as Stockdale Highway, and 24th Street) that span the river and carry east-west traffic. This results in additional traffic congestion and delays on river crossing routes. SR 99 also attracts local north-south circulation movements as it provides a convenient river crossing.

The preceding factors relating to interregional and regional route significance; lack of connectivity; shared facility use; high truck volumes; limited capacity of local road network and river crossings; and associated deterioration of traffic operations lends to justification for additional movement capacity between I-5 and SR 99 with creation of a central, high-speed, access-controlled corridor through the Bakersfield metropolitan area. Delay in securing an adequate transportation corridor may hamper future development in the metropolitan Bakersfield area and could result in additional right of way acquisition costs, unnecessary environmental impacts, and unnecessary relocations of residents and businesses.

REGIONAL AND SYSTEM PLANNING

Identify Systems

Route 58 is part of the Strategic Highway Corridor Network (STRAHNET) between Route 99 and I-15. It has been designated for oversized trucks under the Surface Transportation Assistance Act of 1982 (STAA) from I-5 in Kern County to I-15 near the City of Barstow. It is also included as a High Emphasis, Focus and Gateway route under the Interregional Road System (IRRS) and part of the National Highway System from I-5/Route 58 Separation in Kern County to the I-15 junction in Barstow. Table 2 associates the project corridor freeway segments to the various freeway systems. The gap between SR 58 Segments 8 and 9 is covered by SR 99 Segments 5 and 6.

TABLE 2: CORRIDOR FREEWAY SYSTEMS

System	ROUTE 58 SEGMENTS[1]				ROUTE 99 SEGMENTS[2]		
	7	8	9	10	5	6	7
National Highway System	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Freeway / Expressway System	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regionally Significant	Yes	Yes	Yes	Yes	Yes	Yes	Yes
STRAHNET	No	No	Yes	Yes	Yes	Yes	Yes
Lifeline	No	No	No	No	Yes	Yes	Yes
Interregional Road System (IRRS)[3]	HE, F, G	HE, F, G	HE, F, G	HE, F, G	HE, F, G	HE, F, G	HE, F, G
Truck Network (STAA)[4]	TA	TA	NN	NN	NN	NN	NN
Scenic	No	No	No	No	No	No	No

TABLE 2: CORRIDOR FREEWAY SYSTEMS

System	ROUTE 58 SEGMENTS[1]				ROUTE 99 SEGMENTS[2]		
	7	8	9	10	5	6	7
International Corridor of Economic Significance (ICES)	No	No	Yes	Yes	Yes	Yes	Yes

Notes:

1. Source: California Department of Transportation (Caltrans), District 6, *SR 58 Corridor System Management Plan (CSMP),* September 2011
   Segment 7 – I-5 to 0.3 mi West of Allen Road (PM 31.6 to 45.8)
   Segment 8 – 0.3 mi West of Allen Road to N Jct Rte 58/99/178 SEP (PM 45.8 to 51.8)
   Segment 9 – S Jct Rte 58/99 SEP to Union Avenue OC (PM R52.4 to R54.4)
   Segment 10 – Union Avenue OC to Cottonwood Road UC (PM R54.4 to R55.4)
2. Source: Caltrans, District 6, *SR 99 Transportation Concept Report (TCR),* November 2003
   Segment 5 – Wible Road to California Avenue UC (PM 22.0 to 24.6)
   Segment 6 – California Avenue UC to West JCT SR 99/58 SEP-SR 178 (PM 24.6 to 25.7)
   Segment 7 – West JCT SR 99/58 SEP-SR 178 to SR 204/99 SEP (PM 25.7 to 27.0)
3. HE = High Emphasis, F = Focus, G = Gateway
4. CL = California Legal, TA = Terminal Access, NN = National Network

State Planning

The proposed Centennial Corridor project is consistent with and integrated into the District 6 *SR 58 Corridor System Management Plan (CSMP)* approved in September 2011. The three segments of the Centennial Corridor equate to SR 58 CSMP Segments 7 through 10 in the following manner:

- Centennial Corridor Segment 1 = CSMP Segments 8 (East of Mohawk Street), 9, and 10
- Centennial Corridor Segment 2 = CSMP Segments 7 (East of Heath Road) and 8 (West of Mohawk Street)
- Centennial Corridor Segment 3 = CSMP Segment 7 (West of Heath Road)

The SR 58 CSMP forecast that by year 2035, SR 58 would operate at LOS F through these segments due to regional and interregional travel growth if no improvements are made. This route would require more capacity and operational improvements to accommodate projected growth. The ultimate transportation corridor for SR 58, within the project limits, would be an eight-lane freeway with auxiliary lanes at select locations.

The Transportation Concept Report (TCR) for Route 99 and Route 178 each mention the discontinuous segment of SR 58 as being an issue for local regional traffic in Bakersfield.

The Interregional Transportation Strategic Plan (ITSP) was developed by Caltrans to consolidate and communicate key elements of its ongoing long- and short-range planning for the state highway, interregional road system (IRRS), and intercity rail system. It serves as a counterpart to the Regional Transportation Plan (RTP). The ITSP identifies the interregional mobility goal for SR 58 as a high-capacity, high level of service, east-west facility that provides significant goods and freight movement connections between I-5 and SR 99 in the Central Valley. It connects to other regions in Central and Northern California via SR 99 and I-5, to the Eastern Sierra region and the

US 395 Gateway via SR 14 and US 395, to urban Southern California via SR 14 and I-15, and with Nevada, Arizona, and the southern United States via I-15 and I-40.

The segments of Route 58 (and shared portion of SR 99) through the project limits are identified as High Emphasis, Focus, and Gateway elements of the IRRS. Selection as a High Emphasis route is to signify priority for programming and construction to minimum facility standards and highlight their critical importance to interregional travel and the state as a whole. Focus routes are represented as a subset to the High Emphasis routes and given the highest priority for completion to minimum facility standards. Focus routes serve as a system of high volume primary arteries to which lower volume and facility standard state highway routes can connect for purposes of longer interregional trips and access into the statewide Gateways. Gateways, in relation to the road network, are identified as key passage ways into or out of the state, into critical geographic areas of the state (i.e. Central Valley), or into a major metropolitan center that has international, national, and statewide significance.

The Centennial Corridor is consistent with the vision, strategies, performance measurement, principles, objectives, criteria, and concept for Route 58 included in the ITSP.

The Goods Movement Action Plan (GMAP) is intended to improve and expand California's goods movement industry and infrastructure in a manner that will:

- Generate jobs;
- Increase mobility and relieve traffic congestion;
- Improve air quality and protect public health;
- Enhance public and port safety; and
- Improve California's quality of life.

The Centennial Corridor proposed improvements are consistent with the implementation principles, selection criteria, and evaluation metrics and benchmarks of the GMAP relating to infrastructure projects and operations for the Central Valley "port-to-border" corridor.

The Centennial Corridor proposed improvements are consistent with the *Updated Route 99 Corridor Business Plan* (September 2009) relating to capacity-increasing projects (widening from 6 to 8 lanes) on Route 99 to the south and incorporation of major operational improvements (auxiliary lane additions) within project limits.

The Centennial Corridor proposed improvements are consistent with the *Ramp Metering Development Plan* (December 2011) relating to the proposed locations of planned ramp metering locations.

Regional Planning

The Kern COG is a federally-designated Metropolitan Planning Organization (MPO) and a State-designated Regional Transportation Planning Agency (RTPA). These designations formally establish Kern COG's role in transportation planning. As a regional transportation planning agency, Kern COG is mandated by California Government Code Section 65080 to prepare and periodically update the RTP. This mandates that the actions of participating members must be consistent with the RTP

and in turn the RTP should support land use decisions and be incorporated into city and county General Plans. Local transportation projects must be consistent with the RTP in order to obtain state or federal funding.

Segment 1 of the Centennial Corridor Project is included in the 2011 RTP, and the 2013 Regional/Federal Transportation Improvement Plan (RTIP/FTIP) developed by the Kern COG. The Centennial Corridor Project has been programmed in the 2014 STIP.

The Kern COG, FHWA, the city of Bakersfield, the County of Kern, and Caltrans are collectively addressing the congestion and transportation deficiencies through several transportation improvement projects in and around Bakersfield. Interim improvements to SR 58 include the widening of Rosedale Highway between Mohawk Street and SR 99 from four to six lanes. A portion of SR 58 that was relinquished, between Allen Road and Mohawk Street, will also be widened from four to six lanes. The ultimate solution includes connectivity of SR 99 with WSP; adopting WSP as the new SR 58; and providing connectivity to I-5. The Centennial Corridor will require route adoption, temporary route adoption, route transfer, and both modified and new freeway agreements for the new alignment on SR 58, and a temporary connection to I-5. It would be proposed that the CTC relinquish to the city of Bakersfield and the County of Kern the redundant portions of SR 58 within the respective agency limits upon the execution of the agreement.

Coordination with FHWA would be required for the development of the ultimate connection of the Centennial Corridor to I-5. FHWA approval would be sought on the proposed interchange location for the ultimate connection at I-5.

The Congestion Management Program (CMP) is designed to ensure that a balanced transportation system is developed, relating population and traffic growth, land use decisions, performance standards and air quality improvements. The CMP required of the Kern COG is incorporated as an element of the 2013 RTP. Discussion regarding the significance of the Centennial Corridor is included in the RTP where it is listed as a constrained project for the near term (2013-2016). Constrained projects are included in the regional transportation network model and have undergone air quality conformity analyses to ensure compliance with state and federal air quality rules.

The Centennial Corridor is listed in Kern COG FY 2015 FTIP and 2014 RTP which is required by the Environmental Protection Agency's (EPA) Transportation Conformity Rule, 40 CFR Parts 51 and 93, and the FHWA/FTA Metropolitan Planning Regulations, 23 CFR Part 450. Per letter dated December 15, 2014, FHWA and FTA issued joint approval of California's 2015 FSTIP as proposed. The 2014 RTP was also issued a joint approval from FHWA and FTA on the conformity determination on December 12, 2014.

The Kern COG subsequently approved Amendment 4 to the FY 2015 FTIP on March 20, 2015. Approval of amendments that included this project in the FTIP and RTP was coordinated with FHWA/FTA in accordance with the procedures outlined in the *Memorandum of Understanding between the Federal Highway Administration, California Division, and the Federal Transit Administration; Region IX* dated July 15, 2004. The FHWA/FTA latest finding (January 30, 2014) and joint conformity determination was coordinated with EPA Region 9 in accordance with the procedures outlined in the *National Memorandum of Understanding between the U.S. Department of Transportation (DOT) and EPA on Transportation Conformity*, dated April 25, 2000.

Therefore, Kern COG's 2015 FTIP through Amendment No. 5 and 2014 RTP conform to the applicable State Implementation Plan (SIP) for air quality improvements.

Local Planning

Roadway Network: To address concerns of increasing traffic congestion and future population growth, the city of Bakersfield and the County of Kern have identified additional regional roadway improvement projects needed to keep pace with current and future planned growth. The following major roadway improvements would directly affect travel patterns on SR 58 in the project study area:

- **Westside Parkway**: The project consists of a new east-west six- to eight-lane freeway from Truxtun Avenue to Heath Road. Interchanges are proposed at Mohawk Street, Coffee Road, Calloway Drive, and Allen Road. WSP is a part of this project and is referenced within this report as "Segment 2". WSP, from Truxtun Avenue to Allen Road, opened to traffic August 2013. Allen Road to Heath Road was opened to traffic April 2015.
- **North Beltway / Seventh Standard Road Widening**: The project consists of widening Seventh Standard Road to four lanes from Santa Fe Way to Coffee Road, constructing a grade separation at the BNSF Railroad, and new bridges over three canals. The project was completed in 2011.
- **SR 58 / Rosedale Highway Widening (EA 06-0F360)**: The project consists of widening a 5.5-mile segment of SR 58 from Allen Road to SR 99 by constructing two additional lanes (one in each direction) and a grade separation at the San Joaquin Valley Railroad crossing. The project has completed the final design phase, and construction of the SR 58 widening of the first phase (SR-99 to Calloway) is currently underway with expected completion in mid 2016. The projected construction start date for the grade separation is in 2025.
- **24th Street Improvement Projects (EA 06-49390 and 06-48470)**: The project consists of improvements to the SR 99 SB on-ramp and NB off-ramp, the Oak Street / 24th Street intersection and widening of 24th and 23rd Street from SR 99 to east of M Street. Currently, the project is in the final design and property acquisition phase. The projected construction start is anticipated mid to late 2016.
- **SR-58 Gap Closure Project (EA 06-0G850)**: The project consists of median widening of SR 58 from 4 to 6 lanes from approximately Hughes Lane to Cottonwood Road. The project was completed March 2015.
- **SR 99 - Olive Drive Southbound Auxiliary Lane (EA 06-0N490):** The project consists of adding an auxiliary lane on southbound 99 and widening Olive Drive on-ramp. The project was completed in 2014.
- **SR 99 - Kern 99 North Widening (EA-0G840):** This project consists of widening from 4 to 6 lanes in the median from SR 99/204 overhead to Beardsley Canal. The project was completed in 2014.

- **SR 99 / SB California Avenue On-Ramp Improvements (EA 06-0L390):** This project consists of relocating the right turn lane of the California Avenue on-ramp to SB SR 99. The project was completed in May 2015.
- **SR 99 / South Bakersfield 8-Lane (EA 06-0G830).** This project consists of widening SR-99 from 6 to 8 lanes from Route 119 to Wilson Avenue. The project was completed in 2014.
- **Beltway Operational Improvements (EA 06-48461):** This project proposes to construct operational improvements along SR 58 from east of SR 99 to Cottonwood Road including improvements to the ramps at H Street, Chester Avenue, Union Avenue, and Cottonwood in the eastbound direction and Chester Avenue off ramp in the westbound direction. Sound walls are proposed throughout the corridor. The project also proposes operational improvements on the SR 99 / Ming Avenue interchange ramps. The improvements proposed with this project are currently included in the scope of the Centennial Corridor Project. The project is currently in construction with expected completion in Mid-2017.
- **SR 99 Auxiliary Lane/ Rosedale Highway Off-Ramp Improvements (EA 06-48462):** This project proposes to construct operational and safety improvements along southbound SR99 at the Rosedale Highway off-ramp. This project has completed the final design phase and construction is anticipated to begin early 2016.

The Preferred Alternative B alignment is compatible with local and regional transportation projects within the project area. The above mentioned projects have been designed to be compatible with the Centennial Corridor Project.

Transit Operator Planning

Common transit carriers in Kern County include Golden Empire Transit (GET), Orange Belt Stages, and Kern Regional Transit. Kern Regional Transit operates fixed route and dial-a-ride service through rural Kern County and along Routes 58 and 99 through the project limits. The Centennial Corridor lies within GET's boundary area. GET currently operates 10 transit lines (2, 5, 6, 7, 8, 9, 11, 14, 15, and 17) either on or across project roadways. There are no routes included in GET's *Short Range Transit Plan FY 10/11-14/15* relating to expansion of service on or across the Centennial Corridor project limits.

In a 2004 study, "*High Occupancy Vehicle Lane Viability for the San Joaquin Valley*", a portion of Route 58 was found to meet the criteria for freeways with 6 or more lanes in and around urban areas, recurrent congestion, and facilities falling below LOS "D". It was determined that an HOV alternative for Route 58 would not be viable in the near term. Delay was low and/or at isolated locations. The relatively low level of delay on the freeway mainline would not warrant an HOV lane.

TRAFFIC

Current and Forecasted Traffic

Table 3 shows the existing daily volumes on SR 99 and SR 58 within the study area. The existing volume data comes from the 2007 traffic volumes on the California State Highway System. The volumes were converted from vehicles to equivalent passenger cars based on the daily truck percentages reported in the 2007 annual average daily truck traffic on the California State Highway System, which are 15 percent for SR 58 and vary from 21 percent to 30 percent for SR 99.

Based on segment analysis, all freeway study segments have LOS D or better on SR 99 and SR 58. Field observations of the peak hour are consistent with the conditions reported in Table 3. However, during field observations, lane utilizations of some segments were operating below LOS D. The ramp-diverge areas at the SB and NB SR 99 connectors to eastbound (EB) SR 58 have lower-than-free-flowing speeds during the morning and afternoon peak hours. During the morning peak period, traffic queues back up onto the mainline at the NB SR 99 off-ramps to California Avenue and Rosedale Highway, but the mainline through-traffic in the left three lanes is not affected. For the afternoon peak hour, traffic on the SB SR 99 off-ramp to White Lane queues into the auxiliary lane, and average speed is less than free flowing at the diverge area for the SB SR 99 connector to EB SR 58 and for the EB SR 58 mainline from SR 99 to H Street.

TABLE 3 – FREEWAY SEGMENT EVALUATION FOR EXISTING CONDITIONS

Freeway	Segment		Lanes	ADT	DHV	LOS AM / PM
SR 58	SR 99 to H Street / Chester Avenue	EB	3	68,000	3,808	D
		WB	2		3,291	D
	H Street / Chester Avenue to Union Avenue	EB	2	70,000	3,873	D
		WB	2		3,296	C
	Union Avenue to Cottonwood Road	EB	2	67,000	3,750	D
		WB	2		3,168	D
SR 99	White Lane to Ming Avenue	SB	3	127,000	4,928	C / D
		NB	3		5,608	D / C
	Ming Avenue to SR 58	SB	4	149,000	6,027	B / C
		NB	4		6,595	C / B
	SR 58 to California Avenue	SB	4	161,000	6,518	C / D
		NB	4		6,414	D / C
	California Avenue to Rosedale Highway	SB	4	175,000	6,700	C / D
		NB	4		5,967	D / C
	Rosedale Highway	SB	4	140,000	4,895	C

TABLE 3 – FREEWAY SEGMENT EVALUATION FOR EXISTING CONDITIONS						
Freeway	**Segment**		**Lanes**	**ADT**	**DHV**	**LOS AM / PM**
	to Airport Drive	NB	4		3,721	B

Average daily traffic (ADT) volume is reported in vehicles per day (vpd). Design hourly volume (DHV) is reported for the highest peak hour volume in the peak direction in equivalent passenger cars per hour per lane (pcphpl).
Source: Parsons, 2012

Collision Analysis

The California Department of Transportation maintains a traffic safety database called the Traffic Accident Surveillance and Analysis System. Data collected between 2010 and 2013 indicates that fatal accidents for SR 58 and State Route 99 in the project area are below the average for similar facilities in California, while 'fatal plus injury' and 'total accident' rates are higher than average.

Tables 4A and 4B summarize the traffic accident data (from October 2010 to September 2013) compiled by the Caltrans Traffic Accident Surveillance and Analysis System (TASAS) for SR 58 and SR 99, respectively.

TABLE 4A – ACCIDENT HISTORY FOR SR 58								
Location (study area)	**Total Accidents**	**Total Fatalities**	**Actual Accident Rate[1]**			**Average Accident Rate[1]**		
			Fatal	**F+I**	**Total**	**Fatal**	**F+I**	**Total**
SR 58 (PM T52.13 to PM R55.40)	369	1	0.004	**0.37**	**1.42**	0.007	0.23	0.69

Notes: Bold and underline font indicates actual accident rates that are greater than the statewide average for similar facilities.
1. The accident rate is accidents per million vehicle-miles. The fatal, fatal plus injury, and total accident rates are listed.

Source: Caltrans District 6; October 8, 2015

On SR 58 between Real Road and Cottonwood Road, there were 369 accidents (one involving fatality). This segment of the freeway has higher than average total accident rates compared to similar California freeways. Approximately 58% of the accidents were in the WB direction, with approximately 90% of the accidents occurring on dry pavement. The majority of the accidents occurred between 7 a.m. to 9 a.m. and 3 p.m. to 5 p.m. The three highest collision types were rear end (62%), sideswipe (18%), and hit object (15%). Speeding (61%) was the highest primary collision factor, followed by improper turn (17%) and other violations (16%).

TABLE 4B – ACCIDENT HISTORY FOR SR 99

Location (Study Area)	Total Accidents	Total Fatalities	Actual Accident Rate[1]			Average Accident Rate[1]		
			Fatal	F+I	Total	Fatal	F+I	Total
SR 99 (PM 22.10 to PM 24.60)	492	0	0.00	**0.40**	**1.35**	0.006	0.30	0.94

Notes: Bold and underline font indicates actual accident rates that are greater than the statewide average for similar facilities.

1. The accident rate is accidents per million vehicle-miles. The fatal, fatal plus injury, and total accident rates are listed.

Source: Caltrans District 6, October 8, 2015

On SR 99 between Wilson Road and California Avenue, there were 492 accidents (zero involving fatalities). This segment of SR 99 has higher than average total accident rates when compared to similar California freeways. There were more SB collisions (58%), than NB (42%), with approximately 89% of accidents on dry pavement. The majority of accidents occurred between 3 p.m. and 5 p.m. The day of the week that had the most accidents was Friday, with 22%. The three highest collision types were rear end (61%), sideswipe (20%), and hit object (12%). Speeding (62%) was the highest primary collision factor, followed by other violations (16%) and improper turn (14%).

5. BUILD ALTERNATIVES

Three build alternatives—Alternatives A, B and C—and a No-Build Alternative were considered for Segment 1 of the project as shown in Figure 1. After comparing and weighing the benefits and impacts of all alternatives analyzed, Alternative B was identified as the preferred alternative. The Centennial Corridor Project Development Team (PDT) has identified Alternative B as the Preferred Alternative. The Preferred Alternative B would meet the purpose and need of the project by providing route continuity and traffic congestion relief. The Preferred Alternative B alignment is a feasible and prudent alternative that avoids impacts to Section 4(f) properties, such as parkland and historic properties. The Preferred Alternative B alignment also avoids impacts to environmental justice communities.

5A. VIABLE ALTERNATIVES

Design Modifications

Design modifications have been incorporated into the Preferred Alternative B based on comments received on the draft environmental document. The Preferred Alternative B alignment was shifted to avoid any direct impacts to the Kaiser Health Care Center, a pedestrian/bicycle path from Joseph Drive to La Mirada Drive was added to provide improved access to the Centennial Park, and a pedestrian/bicycle path from California Avenue to Commerce Drive was added to provide improved access to the Kern River Parkway Bike Trail; details are included in the final environmental document.

COMMON DESIGN FEATURES OF THE BUILD ALTERNATIVES

Segment 1 alternatives are bound on the east by Cottonwood Road, on the west along Westside Parkway station number 408+00, on the north by Gilmore Avenue, and on the south by Wilson Road. Construction of Segment 1 is proposed to begin in 2016 and be completed in 2018.

The build alternatives propose to connect SR 58 (East) to the east end of the WSP by means of a six-lane freeway. Typical sections, Profiles, and Plan sheets for Alternatives A, B, and C are included in Attachment C. Descriptions of the proposed alternatives are provided in the following discussion.

The cut slopes would be a standard 2 (horizontal) to 1 (vertical), and fill slopes would be a standard 4 (horizontal) to 1 (vertical), where possible. Retaining walls would be proposed in areas requiring steeper slopes, where right of way acquisition would be an issue at locations identified through the environmental process. Sound walls would be proposed in residential areas at locations identified through the environmental process to reduce the noise from the freeway. Retention basins and storm water pump stations would be designed and proposed to accommodate the required stormwater requirements for Alternatives A, B and C.

Though the alignment and design characteristics vary by alternative, there are common design features to each of the three build alternatives, as discussed below.

Segment 1 (Eastern Connection)

Common features

- An auxiliary lane would be provided on SR 99 from south of Gilmore Avenue to the SR 58 (West) (Rosedale Highway) off-ramp. To access the Centennial Corridor from the SR 58 (West) (Rosedale Highway) off-ramp, traffic would turn right (westbound on Rosedale Highway), travel west for about 1 mile, and then turn left (southbound) on Mohawk Street, and proceed to the WSP on-ramp, a distance of 0.75 mile.
- Changes to existing roadways common to all three build alternatives include the widening of the South P Street undercrossing and the westbound SR 58 (East) grade separation over SR 99. In addition, the Stockdale Highway off-ramp from southbound SR 99 and the Wible Road on-and off-ramps on SR 99, located just south of the existing SR 58 (East)/SR 99 interchange would be removed.
- Aesthetic treatments for retaining walls and soundwalls would be consistent with the design used for the WSP (discussed in more detail in Section 3.1.7, Visual/Aesthetics).
- Lighting would be consistent with Caltrans standards and would be installed at interchanges and bridges.

Improvements to Westside Parkway

Each of the build alternatives would require improvements within the existing WSP right of way. The improvements are modifications to several of the interchange ramps and median improvements to allow for the provision of auxiliary lanes. Modifications to the westbound diamond off-ramp to Calloway Drive and the eastbound loop on-ramp from

Coffee Drive would be required. The limits of the added lane in the eastbound direction would differ between each alternative as described in the unique design features of the build alternative section. Though technically these improvements are within Segment 2, they are required to accommodate Segment 1. Rather than spilt the impact analysis, all of the construction impacts are discussed as part of Segment 1. The only other additional work anticipated on this segment is from possible mitigation for environmental purposes.

Stockdale Highway and State Route 43 (Enos Lane) Intersection

The timing for construction of Segment 3 is unknown, but would not occur until there is sufficient funding and greater traffic demand. The traffic analysis indicates that the ultimate improvements would not be required until after 2038. The interim route is proposed along Stockdale Highway from Heath Road to I-5 and is discussed in further detail in the Interim Features Section, of this report.

Until Segment 3 improvements are made, traffic would use Stockdale Highway as the interim connection to Interstate 5. Improvements would be required at the Stockdale Highway and SR 43 (Enos Lane) intersection for each build alternative. Proposed improvements there would widen the intersection and add traffic signals to control traffic movement. SR 43 would be widened to add a dedicated left-turn lane in both directions (southbound SR 43 to westbound Stockdale Highway and northbound SR 43 to eastbound Stockdale Highway) and add traffic signals. Stockdale Highway would be widened to add a dedicated left-turn lane and a shared through/right-turn lane in both directions and add traffic signals. The limits of improvements would extend from Kern County SR 43 Post Mile 6.05 to 6.35 and about 1,600 feet east and west of the intersection. These improvements would be built at the same time as the Segment 1 improvements to ensure adequate traffic operations at this intersection. Stockdale Highway would temporarily be designated as SR 58 until the ultimate improvements were made. The current portion of SR 58 (West) from Allen Road to Interstate 5 would be relinquished (becoming a local road, no longer a state highway) to the local jurisdictions (City of Bakersfield and the County of Kern

Interim Features

Stockdale Highway, as shown in Figure 4, will function as the interim SR 58 connection to I-5. Funding and construction of the Segment 3 ultimate alignment currently exceeds the 20 year planning horizon. Per Caltrans direction, the section along Stockdale Highway between Heath Road and Interstate 5 will be considered a Conventional Highway. Based on the Caltrans Highway Design Manual, a two lane, two way conventional highways with an ADT over 400 should have a shoulder width of 8 feet. The existing Stockdale Highway has a shoulder width of 6 feet. Additionally, per the Caltrans Highway Design Manual, this type of facility should have a 20 foot clear recovery zone (CRZ). In general, the terrain between Heath Road and Interstate 5 is fairly flat. However, conflicts within the CRZ exist and include overhead and underground utilities, property fences, railroad warning signs, and billboard signs.

There are no improvements proposed along Stockdale Highway, beyond the signalized intersection improvements at Stockdale Highway and SR 43 (Enos Lane), with this proposed project.

Nonstandard Mandatory and Advisory Design Features

With the assumption of state highway status for the Centennial Corridor, *Caltrans Highway Design Manual* (HDM), May 2012, standards have been used as a guideline to develop these alternatives. Attempts have been made to keep nonstandard features to a minimum on this project. However, to avoid replacement of existing highway structures and significant right of way acquisitions, some design exceptions are needed. A design review of each alternative was completed and a listing of proposed design exceptions is included in Table 5 and 6. Fact sheets addressing the exceptions to Mandatory and Advisory design standards have been prepared under separate cover. The Mandatory Design Exception Fact Sheets were approved and signed November 16, 2012. The Advisory Design Exception Fact Sheets were approved January 28, 2014. Fact sheets were prepared under the assumption WSP would be ready for adoption and Segment 1 would be delivered as a state highway project. Since that is no longer the delivery strategy, approved fact sheets contain features proposed outside of highway right of way. Caltrans does not have approval authority for off-system design decisions therefore those decisions are no longer applicable. However the reasoning contained in the fact sheets would be relevant when Caltrans and the CTC eventually consider the decision to accept Centennial Corridor by route transfer. References to off-system locations as SR-58 in Table 5 reflect the previous delivery strategy from the Draft Project Report.

TABLE 5 - Mandatory Design Exceptions

Alternative			HDM Index	Nonstandard Feature
A	B	C		
		X	201.1	Stopping sight distance on a crest vertical curve on SR-99 (Sta 750+99.72)
		X	201.1	Stopping sight distance on a crest vertical curve on WB SR-58 to NB SR-99 connector
		X	201.1	Vertical stopping sight distance on a sag vertical curve on WB SR-58 to NB SR-99 connector
		X	201.1	Stopping sight distance on a crest vertical curve on SR-99 (Sta 797+99.51)
		X	201.1	Vertical stopping sight distance on a sag vertical curve on SR-99 (Sta 769+24.64)
		X	201.1	Horizontal stopping sight distance on WB SR-58 to NB SR-99 connector
		X	201.1	Stopping sight distance on a crest vertical curve on NB SR-99 to EB SR-58 connector
X		X	201.1	Stopping sight distance on a crest vertical curve on SR-58
X	X	X	201.1	Stopping sight distance on a crest vertical curve on SR-99 (Sta 819+24.42)
	X		201.1	Exist stopping sight distance at WB SR-58 to NB SR-99 connector
		X	202.2	Superelevation rate on EB SR-58/Truxtun loop off-ramp
		X	202.2	Superelevation rate on EB WSP
		X	202.2	Superelevation rate on WB SR-58 CD to SR-99 and Real Road
		X	202.2	Superelevation rate on NB SR-99 to WB SR-58 connector
X	X	X	202.2	Superelevation rate on the EB WSP/Coffee Road loop on-ramp

TABLE 5 - Mandatory Design Exceptions

Alternative			HDM Index	Nonstandard Feature
A	B	C		
		X	204.3	Maximum profile grade on SR-58
X	X		208.1	EB SR-58 at SR-99/SR-58Grade Separation structure width should equal the width of approach roadway
X	X	X	302.1	SR-99 Mainline Left and Right shoulder widths at Ming Avenue overcrossing
X	X		302.1	EB SR-58 shoulders on existing SR-99/SR-58 Grade Separation structure
X	X		302.1	NB and SB SR-99 shoulder widths at Belle Terrace overcrossing, SR-58 grade separation, and NB SR-99 to WB SR-58 connector
		X	302.1	SR-99 shoulder widths at Belle Terrace overcrossing, Real Road off-ramp and on-ramp overcrossing, SR-58 overcrossing, SR-58 overcrossing, Brundage Lane overcrossing, and NB SR-99 collector
X	X	X	305.1(3)(a)	SR-99 median width at Ming Avenue overcrossing
X	X		309.1(3)(a)	Horizontal Clearance Between ETW and Bent at SB SR-99 Inside Shoulder at Ming OC
X	X		309.1(3)(b)	Horizontal clearance from edge of travel way to retaining wall on NB SR-99/Ming Avenue off-ramp
X	X		309.1(3)(b)	Horizontal clearance from edge of travel way to tunnel wall on NB SR-99/Ming Avenue on-ramp
X	X	X	309.2(1)	SR-99/Ming Avenue OC and SR-99/Brundage OC vertical clearance (existing structure)
		X	309.2(1)(c)	SR-99/California UC vertical clearance
		X	309.2	WB SR-58 to NB SR-99 connector tunnel vertical clearance (existing structure)
		X	501.3	Interchange spacing on SR-99 between SR-58 and California Avenue
	X	X	501.3	Interchange spacing on SR-58 between Truxtun Avenue and SR-99
	X	X	501.3	Interchange spacing on SR-58 between Truxtun Avenue and Mohawk Street
X	X	X	501.3	Interchange spacing on SR-99 between SR-58 and Ming Avenue
X	X	X	501.3	Interchange spacing on SR-58 between SR-99 and H Street
X	X	X	501.3	Interchange spacing on SR-58 between Chester Avenue and Union Avenue
	X	X	502.2	Partial Interchange at SR-58/Truxtun Avenue IC
X			502.2	Partial Interchange at existing WSP and proposed SR-58 junction
X	X	X	504.7	Weaving Distance Between SR-99/SR-58 and SR-58/H St/Chester Avenue Interchanges
X	X	X	504.7	Weaving Distance Between SR-99/SR-58 and SR-99/Ming Avenue Interchanges
X	X		504.2(2)	NB SR-99/Ming Avenue off-ramp deceleration length

TABLE 5 - Mandatory Design Exceptions

Alternative			HDM Index	Nonstandard Feature
A	B	C		
X	X	X	504.3(3)	Intersection spacing between EB SR-58 on-ramp/Chester Avenue and Chester Avenue/Brink Drive intersections
		X	504.7	Weaving distance between SR-99/SR-58 IC and existing SR-58/Truxtun Avenue IC
		X	504.7	Weaving distance between SR-99/SR-58 IC and SR-99/California Avenue IC
		X	504.7	Weaving distance between SR-99/California IC and SR-99/Rosedale Highway IC

TABLE 6 - Advisory Design Exceptions

Alternative			HDM Index	Nonstandard Feature
A	B	C		
X	X	X	105.2	Belle Terrace Sidewalk Width
		X	105.2	Palm Drive Sidewalk Width
X		X	105.2	Wible Road Sidewalk Width
	X	X	105.2	Stockdale Highway Sidewalk Width
	X		105.2	Alamo Street Sidewalk Width
		X	201.7	Decision sight distance on EB SR-58/ H Street off-ramp
		X	201.7	Decision sight distance at lane drop on NB SR-99 to EB SR-58 connector
X	X	X	201.7	Decision sight distance at SB SR-99/Ming Avenue off-ramp
X	X		201.7	Decision sight distance on EB SR-58 to SB SR-99 connector at Ming Avenue off-ramp
X	X	X	201.7	Decision sight distance at lane drop on SB SR-99 to EB SR-58 connector
X			201.7	Decision sight distance at lane drop on EB SR-58/Ming Avenue CD off-ramp
X		X	201.7	Decision sight distance on SB SR-99/Rosedale Highway Off-ramp
	X	X	203.5	Compound curve on EB SR-58/Truxtun Avenue off-ramp
		X	204.3	Minimum profile grade on EB SR-58 to SB SR-99 connector (Sta 65+70 to 67+50)
		X	204.3	Minimum profile grade on SR-58 (Sta 612+50 to 631+65)
		X	204.3	Minimum profile grade on SR-58 (Sta 635+65 to 643+04)
X	X		204.3	Minimum profile grade on SB SR-99 to EB SR-58 (Sta 109+85 to 117+74)
		X	204.3	Minimum profile grade on SR-99 (717+00 to 720+00)
		X	204.3	Minimum profile grade on SB SR-99 to EB SR-58 connector (Sta 63+22 to 66+77)
		X	204.3	Minimum profile grade on SB SR-99 to EB SR-58 connector (Sta 112+50 to 118+55)

TABLE 6 - Advisory Design Exceptions

Alternative			HDM	
A	B	C	Index	Nonstandard Feature
		X	204.3	Minimum profile grade on WB SR-58/Real Road off-ramp (Sta 111+50 to 136+00)
X			204.3	Minimum profile grade on WB SR-58 to SB SR-99 loop connector (Sta 662+01 to 667+14)
X	X	X	204.3	Minimum profile grade on SB SR-99/Rosedale Highway off-ramp (Sta 108+24 to 113+49)
X	X	X	204.3	Minimum profile grade on SR-99 (Sta 617+30 to 630+40)
X	X	X	204.3	Minimum profile grade on SR-99 (Sta 657+03 to 670+00)
X	X	X	204.3	Minimum profile grade on SR-99 (Sta 674+50 to 695+50)
X	X	X	204.3	Minimum profile grade on SR-99 (Sta 802+00 to 819+25)
X	X		204.3	Minimum profile grade on SR-58 (Sta 52+75 to 73+91)
X	X		204.3	Minimum profile grade on SR-58 (Sta 73+91 to 86+30)
		X	204.4	Vertical curve length on SR-58 (Sta 645+29)
		X	204.4	Vertical curve length on SR-99 (Sta 723+00)
		X	204.4	Vertical curve length on SB SR-99 to EB SR-58 connector
		X	204.4	Vertical curve length on EB SR-58/Real Road on-ramp (Sta 92+65)
		X	204.4	Vertical curve length on SR-99 (Sta 772+25)
		X	204.4	Vertical curve length on SB and NB SR-99 to H Street slip off-ramp (Sta 37+88.50)
X	X	X	204.4	Vertical curve length of SR-58 (Sta 88+55)
		X	305.1(3)(a)	SR-58 Median Width
X	X	X	305.1(3)(a)	SR-99 Median Width
X	X	X	309.1	SR/99 Brundage OC clearance from ETW to abutment
X	X		310.2	Outer separation between Wible Road and NB SR-99 to WB SR-58 connector
X	X		403.3	Intersection skew at Coffee Road/EB WSP on-ramp
	X		502.2	Partial Interchange at SR-58/Truxtun Avenue IC
X	X		504.2(2)	NB SR-99/Ming Avenue off-ramp departure angle
X			504.2(2)	EB SR-58/WSP off-ramp departure angle
X	X		504.2(2)	EB SR-58/H Street CD slip ramp radius
		X	504.2(2)	WB SR-58/H Street on-ramp design
X	X		504.2(4)(a)	Design speed at exit nose of NB SR-99/Ming Avenue off-ramp
		X	502.2(4)(a)	Design speed at exit nose of WB SR-58 to NB SR-99 connector
		X	504.2(4)(a)	Design speed at exit nose of WB SR-58 to SB SR-99 connector
X	X	X	504.2(4)(a)	Design speed at exit nose of SB SR-99/Ming Avenue off-ramp
		X	504.2(4)(b)	Design speed at entrance nose of SB SR-99/California Avenue loop on-ramp

TABLE 6 - Advisory Design Exceptions

Alternative			HDM	
A	B	C	Index	Nonstandard Feature
		X	504.2(4)(b)	Design speed at entrance nose of NB SR-99/California Avenue loop on-ramp
	X	X	504.2(4)(b)	Design speed at entrance nose of EB WSP/Mohawk Street loop on-ramp
X	X		504.2(4)(b)	Design speed at entrance nose of NB SR-99/Ming Avenue on-ramp
		X	504.3(1)(d)	NB SR-99/Ming Avenue hook on-ramp lane drop location
	X		504.3(1)(d)	NB SR-99 on-ramp from NB SR-99 CD lane drop taper
X			504.3(1)(d)	NB SR-99 on-ramp from NB SR-99 CD lane drop taper
		X	504.3(1)(d)	NB SR-99/California Avenue loop on-ramp lane drop location
		X	504.3(1)(d)	NB SR-99/California Avenue diamond on-ramp lane drop location
		X	504.3(5)	SB SR-99/Ming Avenue CD off-ramp length
X	X	X	504.3(5)	SB SR-99/Ming Avenue off-ramp length (to EB)
X	X	X	504.3(5)	SB SR-99/Ming Avenue off-ramp length (to WB)
X	X		504.3(5)	EB WSP/Coffee Road on-ramp length
X	X		504.3(5)	EB WSP/Coffee Road loop on-ramp length
X	X	X	504.3(5)	EB SR-58/H Street off-ramp length
		X	504.3(5)	WB SR-58 bypass to NB SR-99 ramp length
		X	504.3(5)	NB SR-99/California Avenue loop on-ramp length
X	X		504.3(5)	NB SR-99 on-ramp from Ming Avenue CD length
X	X	X	504.3(6)	Auxiliary lane length at SB SR-99/Rosedale Highway off-ramp
X	X	X	504.4(2)(a)	Design speed at exit nose of WB SR-58 to SB SR-99 connector
X	X	X	504.4(5)	WB SR-58 to SB SR-99 connector length
X	X	X	504.4(5)	SB SR-99 to EB SR-58 connector radius
X			504.4(5)	NB SR-99 CD/NB SR-99 connector exit nose location
	X	X	504.4(6)	Length of auxiliary lane for NB SR-99 to EB SR-58 connector
X	X		504.4(6)	NB SR-99 to EB SR-58 Connector design (Figure 504.4)
X			504.4(6)	NB and SB SR-99 to EB SR-58 connectors tangent taper and radius
X	X		504.4(6)	Length of auxiliary lanes for SR-58 connectors with SB SR-99 convergence
X	X	X	504.4(6)	EB SR-58 to SB SR-99 Connector design (Figure 504.4)
X		X	504.4(6)	WB SR-58 to SB SR-99 Connector design (Figure 504.4)
	X		504.4(6)	Exit nose location of NB SR-99 to WB SR-58 connector
		X	504.6	Mainline SB SR-99 dropped at Ming Avenue IC
		X	504.6	Mainline lane of NB SR-99 dropped at California Interchange
		X	504.6	Mainline lane of SB SR-99 dropped at SR-58 Interchange

TABLE 6 - Advisory Design Exceptions				
Alternative			HDM	
A	B	C	Index	Nonstandard Feature
	X	X	504.6	Mainline WB WSP dropped at Mohawk off-ramp
X			504.6	Mainline EB WSP dropped at Mohawk off-ramp
X			504.6	Mainline WB WSP dropped at Coffee off-ramp
X		X	504.6	Mainline WB WSP dropped at Calloway off-ramp

Direct Connectors

All three build alternatives would provide the following connections between existing SR 58 (East) and SR 99 using high-speed connection ramps and one loop ramp:

- Northbound SR 99 to westbound Centennial Corridor
- Northbound SR 99 to eastbound SR 58 (East)
- Southbound SR 99 to eastbound SR 58 (East)
- Eastbound Centennial Corridor to southbound SR 99
- Westbound SR 58 (East) to northbound SR 99
- Westbound SR 58 (East) to southbound SR 99 via a loop ramp

The build alternatives A, B and C will not include direct connectors from southbound SR 99 to westbound SR 58 and from eastbound SR 58 to northbound SR 99. It is forecasted that the 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. For example, the traffic from the south would directly access SR 99 at the SR 99/I-5 Interchange located 24 miles south of SR 58 East. Also, traffic going between I-5 and SR 99, north of Bakersfield, would continue to use SR 46 (approximately 17 miles north of Stockdale Highway) due to more efficient travel times. Even upon completion of the ultimate alignment in Segment 3, the backward freeway to freeway connectivity between SR 99 and I-5 would primarily service the regional traffic. It is also anticipated that in Alternatives A and B, traffic traveling on SB SR 99 to WB SR 58 and EB SR 58 to NB SR 99 could potentially opt for the shorter 2 mile alternate route on Rosedale Highway and Mohawk Street versus traveling 4.5 miles on SR 58 and SR 99.

The project would not preclude the construction of the connectors in the future when it is demonstrated that the traffic service will justify the cost. Under Alternatives A and B, the future direct connectors would be located within the vicinity of the existing SR 58/SR 99 interchange. Under Alternative C, the future direct connectors would be located east of the Mohawk Street interchange, skewing across the BNSF rail yard, and tying into SR 99 near the Rosedale Highway Interchange. The connectors would require right of way, structures, C-D systems, and braided ramps to maintain acceptable operational service for mainline SR 99 and the existing interchanges at California Avenue and Rosedale Highway. The cost for the Alternative A and B future connectors is estimated at $183 million, which include $40 million for roadway, $25 million for right of way and $118

million for structures. The cost for the Alternative C future connectors is estimated at $240 million, which includes $45 million for roadway, $30 million for right of way, and $165 million for structures.

An alternate route would be provided for the connector movements using Mohawk Street and Rosedale Highway. Traffic on SR 99 would exit at Rosedale Highway, travel west to Mohawk Street and then south on Mohawk Street to join the WSP (Segment 2 of the Centennial Corridor). Traffic traveling east on WSP would use the same route in the reverse direction. The 2038 AM peak hour volume at the SB SR 99/Rosedale Highway off-ramp is 1350 VPH (Vehicles Per Hour), which includes vehicles making local trips as well as vehicle that will take the alternate route mentioned above to get on to WB SR 58. The project proposes to reconstruct the off-ramp from the existing one lane off-ramp with 2-lanes at the ramp terminus to a 2-lane off-ramp with an auxiliary lane and 4-lanes at the terminus. Per HDM Index 504.3(6), off-ramps with peak hour volumes between 900 and 1,500 VPH must only be 1-lane; however ramps with 1,500 VPH must be 2-lanes. The volumes warrant a 1-lane ramp at this location, however a 2-lane off-ramp is being provided to prevent vehicles from queuing on the mainline SB SR 99 lanes. In addition, a separate project is planning to widen Rosedale Highway from 4 to 6 lanes, provide 2 left turn lanes from Rosedale Highway to Mohawk Street, and 2 right turn lanes from Mohawk Street to Rosedale Highway. The project is scheduled to be open to traffic in mid 2016. Advance signing would be provided, along with improvements to the SB SR-99/Rosedale Highway off-ramp, Rosedale Highway, and the Rosedale Highway/Mohawk Street intersection to facilitate the forecasted volume of turning movements.

High Occupancy Vehicle (HOV) (Bus and Carpool) Lanes / Ramp Metering / Enforcement Areas

The implementation of HOV lanes is not proposed with this project. However, each build alternative will accommodate ramp metering and enforcement areas at new on-ramp locations and where existing on-ramps are modified by construction (widening or realignment). Ramp metering is proposed at the following on-ramp locations, following the *Centennial Ramp Metering Requirements* (March 2013), see Table 7.

TABLE 7 - Proposed Ramp Metering Locations

Alternative			On-Ramp Description
A	B	C	
		X	Northbound SR 99/ California Avenue On-Ramp
		X	Southbound SR 99/ California Avenue Loop On-Ramp
X	X	X	Northbound SR 99/ Ming Avenue On-Ramp
X	X	X	Southbound SR 99/ Ming Avenue On-Ramp
X	X		Eastbound SR 58/ Chester Avenue On-Ramp
X	X	X	Westbound SR 58/ Union Avenue Loop On-Ramp
X	X	X	Westbound SR 58/ Union Avenue On-Ramp

TABLE 7 - Proposed Ramp Metering Locations			
X	X	X	Eastbound SR 58/ Union Avenue Loop On-Ramp
X	X	X	Eastbound SR 58/ Union Avenue On-Ramp
X	X	X	Westbound SR 58/ Cottonwood Avenue Loop On-Ramp
X	X	X	Eastbound SR 58/ Cottonwood Avenue On-Ramp
X	X	X	Eastbound WSP/ Calloway Drive Loop On-Ramp
X	X	X	Eastbound WSP/ Calloway Drive On-Ramp
X	X	X	Eastbound WSP/ Coffee Road Loop On-Ramp
X	X	X	Eastbound WSP/ Coffee Road On-Ramp
	X	X	Westbound WSP/ Mohawk Street On-Ramp
	X	X	Westbound WSP/ Mohawk Street Loop On-Ramp
	X	X	Eastbound WSP/ Mohawk Street Loop On-Ramp

Utility and Other Owner Involvement

There are numerous utilities (cable, telephone, electrical, natural gas, water, oil, and sewer) located within the Centennial Corridor project limits and several utility conflicts have been identified. ALON, City of Bakersfield (CoB), Big West, Bright House Networks, CalWater, MCI, Mobile Oil, Pacific Gas & Electric (PG&E), San Joaquin Facilities Management (SJFM), Sprint, SoCal Gas, Verizon Business and Time Warner own these facilities and relocations or protection measures will be coordinated with these utility owners during the design phase. An itemized listing for each utility conflict has been prepared (see Attachment D).

High voltage PG&E electrical lines are located above the Centennial Corridor across the Kern River Bridges for Alternatives B and C. The Preferred Alternative B originally proposed to relocate 6 Pacific Gas and Electric towers; however, after the circulation of the draft environmental document, the Westside Parkway Project will relocate these Pacific Gas and Electric transmission towers, as a local project by the city of Bakersfield. The relocation of the Pacific Gas and Electric transmission towers was identified as a project activity in the previously approved *Final Westside Parkway Environmental Assessment/ Environmental Impact Report* (2007) to accommodate the construction of the Westside Project. However, the relocation of the transmission towers was not relocated to its ultimate location per the city of Bakersfield's General Plan. Table 8 contains a preliminary list of the utility relocations or coordination required during the design and construction phases. It was determined that utility relocations will be done through standard engineering practices and will ensure service is not interrupted.

TABLE 8: UTILITY RELOCATIONS AND COORDINATIONS

Utility		Description of Utility Requiring Relocation or Coordination (# Facilities)		
		A	**B**	**C**
Electrical	12 KV UG	**PG&E (14)**	**PG&E (15)**	**PG&E (12)**
	12 KV OH	PG&E (19)	PG&E (22)	PG&E (29)
	UG	PG&E (3)	-	-
	OH	PG&E (3)	PG&E (3)	PG&E (1)
Gas	≤ 6 inches	SoCal (21)	SoCal (15)	SoCal (1) Unknown (1) Abnd SoCal (1)
	> 6 inches		**10" Unknown (1)**	**10" Unknown (1)**
	Unknown	SoCal (4)	SoCal (4)	SoCal (5) Unknown (1) Abnd Unknown (6)
Water		CoB (16) CalWater (16) CoB/CalWater (3)	CoB (4) CalWater (23) CoB/CalWater (3) Big West (1)	CoB (2) CalWater (15) CoB/CalWater (3) Big West (1)
Sewer		CoB (11)	CoB (15)	CoB (6) Abnd CoB (5)
Communication	Telephone	AT&T (5)	-	-
	Telecomm	AT&T (22) Unknown (2)	AT&T (39) Time Warner (1)	AT&T (39) Verizon (1) Time Warner (1)
	OH Telecomm	AT&T (10) Unknown (3)	AT&T (5)	Alliance Tower (1)[1] AT&T Tower (2)[1] Spring Tower (1)[1] AT&T Hut (1)[1]
	Cable T.V.	Bright House (42) AT&T (4) Unknown (1)	Bright House (37) AT&T (1)	Bright House (36)
	F.O.	MCI (3)	AT&T (1)	Time Warner (1) MCI (2) Unknown (1)
	Unknown	AT&T (3) Verizon (1)	AT&T (3) MCI (1)	AT&T (3) MCI (1) Time Warner (1)
Flood Control	Drainage	CoB (1)	CoB (1)	CoB (1)
	Storage Box	-	-	CoB (1)
	Pump House / Storage Box	-	-	CoB (1)

TABLE 8: UTILITY RELOCATIONS AND COORDINATIONS

Utility		Description of Utility Requiring Relocation or Coordination (# Facilities)		
		A	**B**	**C**
Highway	Interconnect	CoB (4)	CoB (4)	CoB (4)
	Street Light	CoB (5)	CoB (16)	-
	Traffic Signal	CoB (3)	CoB (6)	CoB (4)
Other		**10" Mobile Oil (1)** **Oil Well (1)**	2" SoCal pam (1) **Oil Well line (6)** SJFM (5) SJFM Nickel Fee (1) **10" Mobile Oil (1)** **Oil Tank (1)**	2" SoCal pam (1) **Oil Well line (5)** **10" Mobile Oil (1)**

Notes: Facilities shown as **Bold** are identified as being high risk under chapter 2 of Caltrans PDPM Appendix LL
1) Not considered to be high risk but considered to be major relocations with long lead times.
Abnd: facility identified as being abandoned; Unknown: Facility size, content, and/or ownership not verified

Railroad Involvement

There are two transverse grade separated crossings (Truxtun Avenue and SR 99) which will require modifications to existing agreements with BNSF. A small portion of the southern part of the Bakersfield rail yard will need to be acquired in fee to accommodate the R/W to build Alternative C. Any major work will have to be planned so as to not severely impact or shut down BNSF operations as this is their only route between Northern and Southern California.

The San Joaquin Valley Railroad operates two railroad lines that cross the project alternative alignments.

A short haul route (Bakersfield – Gosford – Buttonwillow) that crosses Stockdale Highway at roughly a 45 degree angle approximately 0.9 miles east of SR 43. Active warning devices (flashing lights and gates) are present at this location for both east and westbound traffic. Relocation or alteration of this crossing is not proposed for SR 58 interim condition. The ultimate alignment for SR 58 is expected to cross this rail line at a separate location south of Stockdale Highway.

A grade separated crossing (Bakersfield Corral Overhead) that bridges SR-58 above the main and spur railroad lines that cross at roughly a 45 degree angle approximately 0.2 miles west of Cottonwood Road. The westbound structure is proposed to be widened to accommodate a soundwall along the outside edge of shoulder.

The new crossing location will necessitate coordination with and approval from the Public Utilities Commission. A Construction and Maintenance Agreement between Caltrans and the railroad companies and a Railroad Right-of-Entry Agreement would be required. Discussions with railroad will commence upon selection of a preferred alternative.

Highway Planting

Highway planting is proposed to be consistent with the minimization and mitigation measures for visual quality described under Section 6E of this report. The highway planting will follow the highway construction and will be considered a separate contract.

The landscape and ground plane treatments for the Centennial Corridor will be designed with a consideration to Caltrans' District 6 and/or the city of Bakersfield's policies and maintenance requirements (depending on the location and jurisdiction of the landscape area). Plant materials selected will be drought tolerant, native and/or adapted species that have a proven track record of success in the region. All plant placements within the Caltrans R/W will be based on Caltrans' Plant Setback and Spacing Guide. Native seeding will be used as appropriate for re-vegetation of non-visual areas or in conjunction with stormwater facilities requiring grasses and non-woody vegetation. Areas within the City right of way will be landscaped per the city of Bakersfield standards.

A pressurized Remote Irrigation Control (RIC) underground irrigation system will be provided for all existing and proposed landscape areas within the Project limits. The irrigation system will be designed and installed to meet Caltrans' and/or the city of Bakersfield's requirements, depending on location and jurisdiction.

The design of the irrigation system will be simple, efficient, straightforward, and conform to local water conservation goals, including the local Water Efficient Landscape Ordinance (WELO) requirements. The design will minimize maintenance and the exposure of maintenance workers to traffic. Irrigation equipment will be designed to be placed adjacent to the right of way, near access gates or adjacent to Maintenance Vehicle Pullouts (MVP's) or access roads. Standard commercially available irrigation components will comprise the majority of the design.

At each interchange, two irrigation crossovers will be placed under all ramps where there is landscaping (including native seeding) on either side of the roadway. In addition and at a minimum, the design will include two crossovers under the corridor mainline. Crossovers will comply with the requirements of Caltrans' *Standard Specifications and Standard Plans*.

Existing and Proposed Drainage

The proposed drainage system for each alternative will maintain the current drainage patterns. The drainage design will route onsite runoff via inlets, drainage pipes, and pump stations to proposed and modified existing retention basins. The design will not impact the existing offsite flow drainage patterns. The proposed drainage system will have roadway runoff as sheet flow to the edge of the roadway and discharge into existing and proposed catch basins. A series of drainage inlets, dikes, curbs, and pipes will be modified, added, and placed based on the roadway geometric features to collect the runoff. The inlets will convey runoff to the system outfalls that eventually discharge to proposed and existing retention basins, existing irrigation canals or the Kern River. Refer to the Unique Features of the Build Alternatives section for additional information on the drainage improvements of each build alternative.

NPDES Requirements

On July 15, 1999, State Water Resources Control Board adopted Order 99-06 DWQ, National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Discharges from the State of California Department of Transportation (CALTRANS) properties, facilities and activities. The city of Bakersfield will have to provide the NPDES permit for portions within their right of way. This project will be designed in conformance with the NPDES requirements. Caltrans guidance documents will be used to assess any potential storm water issues. Best Management Practices (BMPs) that will reduce or eliminate run-off of sediment or other contaminants from the proposed work area during construction will be given priority consideration on this project. Post construction BMPs will be implemented as a standard practice whenever feasible. A Storm Water Data Report (SWDR) was prepared for this project (see Attachment E). The general guidelines for erosion control on this project are as follows:

- Balance cut/fill quantities to the maximum extent possible;
- Proposed fill slopes will generally be 4:1 (H:V) or flatter
- Proposed cut slopes will generally be 2:1 (H:V) or flatter
- Use of hard surfaces for slope protection are not anticipated, but may require revalidation during final design;
- Phased construction to minimize soil-disturbing work during the rainy season (typically November to April);
- Concentrated flows will be collected by dikes and discharged to stabilized drains or channels;
- Disturbed soil areas will be covered with temporary erosion control before being planted with vegetation or repaved;
- Sediment controls will be placed around the perimeter of the construction area;
- Incorporate (as required) soil stabilizers, velocity dissipation devices, and flared end sections at ends of pipes and culverts

There are no existing Treatment BMPs as defined by Caltrans within the project limits. However, several retention storage basins located within the project area may be reevaluated and utilized to the maximum extent possible for treatment purposes.

This project has identified numerous proposed Treatment BMP locations for each build alternative. Due to suitable soil characteristics, infiltration basins are proposed for all Treatment BMP locations proposed within the project limits.

All the alternatives will increase the impervious surface area. Alternative A will add 66 acres of impervious area, Alternative B 34 acres, and Alternative C 99 acres. The additional impervious surface area will increase the volume, velocity, and potential for sediment load of storm water runoff. The proposed design will use existing retention basins and new retention basins for treatment purposes. The treatment BMPs aim to treat 88% of the total onsite runoff Water Quality Volume/ Water Quality Flow for Alternative A, 60% for Alternative B, and 42% for Alternative C. The retention basins for all three alternatives will treat 100% of the expected new runoff from the additional impervious area.

Noise Barriers

Noise abatement is considered for locations where traffic noise levels would approach or exceed the noise abatement criterion or there is a noise level increase of 12 dB. A barrier must meet both the feasible and reasonable criteria to be built. Feasibility of noise abatement is an engineering concern. A minimum 5-decibel reduction in the future noise level must be achieved for an abatement measure to be considered feasible. The preliminary reasonableness determination is made first by achieving the noise reduction design goal. The design goal is that a barrier must be predicted to provide at least 7 dB of noise reduction at one or more benefited receptors for the barrier to be considered reasonable. Second, for a barrier to be considered reasonable, construction cost must be within the established allowance per benefited receptor. Finally, the viewpoints of benefitted receptors (including property owners and residents of the benefitted receptors) must be taken into account for a barrier to be considered reasonable.

Based on the *Noise Study Report, Centennial Corridor Project (January 2013)* (NSR), 23 soundwalls were identified under Alternative A that would provide feasible abatement for 496 frequent outdoor use areas. Under Alternative B, 25 soundwalls would provide feasible abatement for 445 frequent outdoor use areas. Under Alternative C, 22 soundwalls would provide feasible abatement for 330 frequent outdoor use areas.

The *Noise Abatement Decision Report* (May 2013) (NADR) determined the reasonableness of the feasible soundwalls presented in the *Noise Study Report*. When cost allows during the reasonableness determination, the minimum heights shown in the *Noise Study Report* may be raised. Raising the heights of soundwalls may increase the number of benefited receivers. All benefited areas, even non-impacted areas, with feasible abatement contribute to the calculation of the reasonableness allowance of a feasible soundwall. Soundwalls that are reasonable are recommended for the project. Table 9 presents the results of soundwalls recommended by the NSR and NADR.

Based on the studies completed to date, the project includes noise abatement in the form of soundwalls ranging in height from 8 to 16 feet at 25 locations for Preferred Alternative B for a total length of 30,696 feet. Calculations based on preliminary design data indicate that the proposed soundwalls would reduce noise levels by at least 5 decibel and would meet design goal of 7 decibel reduction at least at one receiver per soundwall. The estimated cost of soundwalls for Alternative B is $13,123,500. If conditions have substantially changed during final design, noise abatement may not be necessary. The final decision concerning noise abatement will be made upon completion of the project design and the public involvement processes.

TABLE 9: NSR / NADR RECOMMENDATIONS

Alternative	Impacted Land Uses[1]	Feasible			Reasonable		
		Abatement		Benefited Areas	Abatement		Benefited Areas
		Walls	Systems[2]		Walls	Systems[2]	
A	532	23	21	496	19	17	461
B	484	28	22	445	25	19	408
C	401	22	19	330	17	14	325

Notes:
1. Source: NSR Centennial Corridor Project, Land use includes single-family residence, multi-family residence, outdoor recreation area, restaurant, motel/hotel, and health center.
2. Abatement configurations consisting of more than one wall are included as a single system.

During the circulation of the draft environmental document, soundwall surveys were conducted with all property owners and residents of benefited receptors located within the footprint of Alternative B (Preferred Alternative). If more than 50 percent of the responding benefitted receptors oppose the soundwall, then the soundwall would not be constructed. Less than 50 percent of responding property owners and residents opposed the construction of any of the soundwalls. Therefore, all 25 soundwalls will be constructed as part of Preferred Alternative B.

Non-Motorized and Pedestrian Features

Bicycle travel is allowed on SR 58 within Kern County with exception of two freeway segments. The prohibited segments are from northerly junction with SR 99 to the junction with SR 223 and around the city of Mojave outside of the project limits. With construction of the Centennial Corridor, the City intends to close their portion of Segment 1 and all of Segment 2 to non-motorized and pedestrian use following the authority granted in CVC 21960.

The Kern River Parkway Bike Path is a 21 mile Class 1 facility located primarily along the southern bank of the Kern River from the trail head at SR 43 to Alfred Harrell Highway. Additionally, Class 2 Bike Lanes existing and proposed are located on the following streets within two miles of the project area, see Table 10.

TABLE 10: EXISTING AND PLANNED CLASS 2 BIKE LANES

Facility	Status	Approximate Limits	
Planz Road	Existing	Wilson Road	Chester Avenue
Wilson Road	Planned	Westholme Blvd	Madison Street
Ming Avenue	Existing	Allen Road	New Stine Road
Belle Terrace	Existing	Fiorito Street	Stine Road
Belle Terrace	Planned	New Stine Road Stine Road	Fiorito Street Madison Street
Stockdale Highway	Existing	Claudia Autumn Dr	Oak Street
Brundage Lane	Planned	Oak Street	Edison Highway
Palm / 4th / Virginia	Planned	Real Road	Fairfax Road
Brimhall Road	Existing	Jenkins Road	Coffee Road
Heath Road	Planned	Stockdale Highway	Hageman Road
Renfro Road	Existing	Stockdale Highway	Via Naranja
Renfro Road	Planned	Via Naranja	7th Standard
Allen Road	Existing	White Lane	Palm Avenue

TABLE 10: EXISTING AND PLANNED CLASS 2 BIKE LANES			
Allen Road	Planned	Palm Avenue	Hageman Road
Jewetta Avenue	Existing	Stockdale Highway	Pecos River Dr
Jewetta Avenue	Planned	Pecos River Dr	Palm Avenue
Old River Road / Calloway Dr	Existing	Metropolitan Way	Brimhall Road
Gosford Road / Coffee Road	Existing	Harris Road	Norris Road
Ashe Road	Existing	Berkshire Road	Stockdale Highway
Mohawk Street	Existing	California Avenue	Rosedale Highway
New Stine Road / California Avenue	Existing	Taft Highway	Marella Way
Wible Road / Oak Street	Existing	Planz Road	Kern River Parkway
Hughes Lane	Planned	Fairview Road	Ming Avenue
Chester Avenue	Existing	Planz Road	Columbus Street
P Street / Q Street	Existing	Brundage Lane	SR 204
Madison Street / King Street	Planned	Wilson Road	California Avenue
Cottonwood Road	Existing	Ming Avenue / Casa Loma Drive	SR 58

Alternative A would result in the removal of a portion of the Kern River Parkway Park (Par Course) (west side of the park) in the immediate vicinity of Mohawk Street and Truxtun Avenue. Three non-motorized trails exist within the Kern River Parkway, including multi-use trail, the Hoey Jogging Trail, and the equestrian trail. With Alternative A, a 1000-foot segment of the multi-use trail and the Hoey Jogging Trail on the south side of the river that borders the parkway would be moved about 200 feet northwest of its current location. On the north side of the river, a 1,500-foot segment of the existing equestrian trail would be moved about 200 feet south of its current location. Prior to building the bridge over the Kern River, the new locations for the multi-use trail, the Hoey Trail, and the equestrian trail would be constructed. As a result, neither trail would be closed during construction.

Alternatives B and C would cross over the Kern River on an elevated bridge structure (see Figures 5 and 6) in the vicinity of Truxtun Avenue between the BNSF Railroad Bridge and Commercial Way. These alignments would not affect the multi-use trail, Hoey Trail or equestrian trail because they would span this area. The multi-use trail, Hoey Trail and equestrian trail would be open during both construction and operation of the Centennial Corridor project.

Needed Roadway Rehabilitation and Upgrading

No rehabilitation or upgrading is planned for the existing pavement of SR 58, SR 99, or Stockdale Highway, with this proposed project.

Needed Structure Rehabilitation and Upgrading

A qualitative assessment was made of each structure proposed to be widened. Work associated with the perceived retrofit measures and any repair recommendations included in the Caltrans Bridge Maintenance Record are incorporated into the structure estimate.

Right of Way Data

The proposed project impacts a heavily developed area of the city of Bakersfield. Because the project proposes to add new highway facilities connecting SR 58 to WSP, each of the proposed build alternatives inevitably affect many fully improved and developed parcels, resulting in both full and partial acquisitions. Generally speaking, the project impacts single and multi-family residential properties, commercial properties including, but not limited to, office, retail, restaurant, auto repair, motel, grocery store and shopping center facilities, light industrial properties, public lands, open space facilities, flood channels, vacant land and railroad properties.

Due to long lead times, it will be critical early on to address any acquisitions that need to be made for utility relocations, railroad parcels, and parcels that are known to contain hazardous materials. Estimated costs for these Right of Way acquisitions are shown on the Right of Way Data sheets (see Attachment G). All acquired right of way will belong to the City, until the project right of way is relinquished to the state upon completion of the project.

Construction Phasing

Construction of the Centennial Corridor is expected to take about 30 months, beginning in mid-2016 and ending in late 2018. Construction would be phased to minimize disruption of existing traffic flow, access, and business activity in the Bakersfield area. See Table 11, which shows the key construction tasks and expected timing and duration of the proposed construction tasks. Some tasks will overlap.

Table 11 - CONCEPTUAL CONSTRUCTION SCHEDULE

Task	Estimated Timing	Estimated Duration
Right of way certification (all property acquired)	Completion in early 2016	About 2 years
Mobilization and staging (set up of equipment)	Starting late 2016	3 months
Site clearing and demolition	Starting late 2016	4 months
Utility relocation	Starting late 2016	14 months
Roadway construction	Starting end of 2016	24 months
Landscaping and finish work	Starting mid-2018	5 months
Source: Developed from the *Air Quality Technical Study* 2013		

UNIQUE FEATURES OF THE BUILD ALTERNATIVES (SEGMENT 1)

Alternative A

Alternative A was not selected as the preferred alternative because it has greatest number of displacements of the three alternatives and is the most expensive. It would have the greatest impact on jurisdictional waters. It affects a park and the Rancho Vista Historic District, both Section 4(f) properties.

Alternative A proposes outside widening of SR 58, between Cottonwood Road and SR 99, to accommodate auxiliary lanes and ramp realignments. SR 58 would run parallel to Stockdale Highway for approximately 0.5 miles west of the SR 58/SR 99 interchange at which point it would turn in a northwesterly direction and span above Montclair Street, Stockdale Highway, California Avenue/Lennox Avenue, Truxtun Avenue, and the Kern River before joining the east end of WSP in the vicinity of the Mohawk Street interchange. The preliminary engineering plans for Alternative A, which show the alignment and location of all engineered features, are provided in Attachment C.

Under this alternative, SR 58 would not intersect with Real Road, and an undercrossing would be provided. Alternative A would also require changes to SR 99 to accommodate the traffic volumes. The following changes would be made to SR 99:

- Southbound SR 99 would be widened to accommodate additional traffic from the eastbound SR 58 (Centennial Corridor) to southbound SR 99 connector. The limits of widening on SR 99 would extend from SR 58 (West) to north of the Wilson Road Overcrossing on the southbound side of SR 99.
- Northbound SR 99 would add two auxiliary lanes just north of Wilson Road to Ming Avenue. One of these lanes would end at the Ming Avenue off-ramp. The other lane would continue north and allow traffic from northbound SR 99 to connect to westbound SR 58 (Centennial Corridor).
- The northbound SR 99 Ming Avenue on-ramp would be reconfigured to allow traffic to access westbound SR 58 (Centennial Corridor) or northbound SR 99. Access to eastbound SR 58 would be eliminated from the Ming Ave Interchange. Vehicles would instead use the H Street/ Chester Avenue interchange to access eastbound SR 58.
- The Belle Terrace Avenue overcrossing would be replaced to accommodate the wider freeway.

Structures

The following are locations where new structures would be required for this alternative:

- FRIANT KERN CANAL BRIDGE ON-RAMP CONNECTOR (50C-0347)
- CROSS VALLEY CANAL BOX CULVERT (50-0XXX)
- SR-58/WSP CONNECTOR SEPARATION (50-0XXX)
- WSP ON-RAMP CONNECTOR OC (50-0XXX)
- KERN RIVER BRIDGE (50-0XXX R/L)

- TRUXTUN AVENUE UC (50-0XXX R/L)
- CARRIER CANAL BOX CULVERT – STANDARD (50-0XXX) or CARRIER CANAL BRIDGE (50-0XXXX)
- LENNOX & CALIFORNIA UC (50-0XXX R/L)
- BUSINESS CENTER DRIVE UC (50-0XXX R/L)
- STOCKDALE HIGHWAY UC (50-0XXX R/L)
- MONTCLAIR STREET UC (50-0XXX R/L)
- STINE ROAD UC (50-0XXX R/L)
- STINE CANAL BOX CULVERT – STANDARD (50-0XXX)
- S REAL ROAD UC (50-0XXX R/L)
- WB SR-58 OFF-RAMP GRADE SEPARATION (50-0XXX)
- NB SR-99 TO WB SR-58 CONNECTOR (50-0XXX)
- SR-99 TO EB SR-58 CONNECTOR SEPARATION (50-0XXX)
- NB SR-99 TO EB SR-58 (WIBLE ROAD) UC (50-0XXX)
- MING OFF-RAMP CONNECTOR SEPARATION (50-0XXX)

In addition, Alternative A proposes to replace the Belle Terrace Avenue OC (50-0263), and widen the following structures:

- COFFEE ROAD UC (WIDEN) (50C-0349)
- WB SR-58 OVER SR-99 (WIDEN) (50-0426L)
- SOUTH P STREET UC (WIDEN) (50-0405R/L)
- MADISON STREET UC (WIDEN) (50-0407R/L)
- BAKERSFIELD CORRAL OH (WIDEN) (50-0383R/L)

Auxiliary Lanes

Alternative A would require auxiliary lanes at the following locations:

- Westbound SR 58 (East) between Union Avenue and Chester Avenue
- Westbound SR 58 (East) between the South H Street on-ramp and the westbound SR 58/northbound SR 99 direct connector
- Westbound SR 58 (Centennial Corridor/WSP) between the northbound SR 99 direct connector and the Coffee Road off-ramp
- Eastbound WSP/SR 58 between the Coffee Road on-ramp and the westbound SR 58 and the southbound SR 99 direct connector
- Westbound WSP/SR 58 between the Mohawk Street on-ramp and the Calloway Drive loop off-ramp
- Northbound SR 99 between Wilson Road and the Ming Avenue off-ramp

- Southbound SR 99 between Gilmore Avenue and Rosedale Highway

Permanent Street Closures

Alternative A would permanently close the following local streets:

- Frazier Avenue, from Charles Place to Curran Street
- Westwood Way, from Frazier Avenue to Charles Place
- McDonald Way, from Frazier Avenue to Peckham Avenue
- Curran Street, from Frazier Avenue to Peckham Avenue
- Griffith Street, from south of Stockdale Highway to Peckham Avenue
- Jones Street, from south of Stockdale Highway to north of Peckham Avenue
- Williamson Way, from south of Stockdale Highway to north of Elcia Drive

The closure of these streets would modify existing local traffic circulation. Pedestrian and bicycle crossing would be limited to the proposed UCs, increasing neighborhood travel distances. No Golden Empire Transit District (GET) routes use the roads that would be closed. Therefore, Alternative A would not directly affect transit service.

In addtion, Alamo Street between Belle Terrace and Mona Way (on the west side of SR 99) would also be realigned farther to the west to accommodate the connector ramps to southbound SR 99. South Garnsey Avenue, an existing cul-de-sac, would be terminated farther to the south in order to accommodate the proposed roadway right of way, but neither circulation nor access would be effected by these modifications.

Park and Ride Facilities

The Park and Ride facility west of SR 99 and south of Stockdale Highway would be displaced by the proposed changes to the southbound connector to SR 99 from westbound SR 58. A replacement Park and Ride facility with 49 parking spaces would be provided off Mohawk Street, between California Avenue and Truxtun Avenue using residual property acquired for the project. This location would provide easy access to both eastbound and westbound SR 58 via Mohawk Street and to SR 99 via California Avenue.

Traffic Operations

Table 14, shows the design year (2038) planning-level evaluation of freeway segments under Alternative A. Based on the *Highway Capacity Manual 2000*, LOS criteria for basic freeway segments (Exhibit 23-2), all of the WSP and SR 58 segments would operate at LOS D or better. Two segments on SR 99 within the project study area would operate at LOS E or worse. The improvements on SR 99 are beyond the purpose and need of the Centennial Project.

Table 14 – 2038 Freeway Segment Evaluation for Alternative A

Freeway	Segment	Direction	Lanes	ADT	DHV	LOS
WSP	Allen Road to Calloway Drive	EB	3	124,044	4,920	C
		WB	3		5,755	D
	Calloway Drive to Coffee Road	EB	3	159,014	6,050	D
		WB	3+1		7,220	D
	Coffee Road to SR 58	EB	2+2	138,864	5,055	C
		WB	4		6,430	C
	SR 58 to Mohawk Street	EB	2	78,445	3.090	C
		WB	2		3,780	C
	Mohawk Street to Truxtun Avenue	EB	2	26,116	1,193	A
		WB	2		1,284	A
SR 58	WSP to SR 99	EB	3	113,689	4,525	C
		WB	3		4,225	C
	SR 99 to H Street	EB	2+3	134,495	5,152	B
		WB	3+1		4,940	C
	H Street to Union Avenue	EB	3+1	145,664	5,935	C
		WB	3+1		5,395	C
	Union Avenue to Cottonwood Road	EB	3	139,190	6,150	D
		WB	3		5,350	D
SR 99	White Lane to Ming Avenue	SB	4	210,370	8,435	F
		NB	4+1		8,285	D
	Ming Avenue to SR 58	SB	4+2	188,355	7,590	D
		NB	4+1		7,370	C
	SR 58 to California Avenue	SB	4	183,710	7,495	D
		NB	4		7,175	D
	California Avenue to Rosedale Highway	SB	4	213,485	8,210	F
		NB	4		7,805	D

Notes: Average daily traffic (ADT) volume is reported in vehicles per day (vpd). Design hourly volume (DHV) is reported for the highest peak hour volume in the peak direction in equivalent passenger cars per hour per lane (pcphpl).

Source: Parsons Transportation Group, 2012

Drainage Improvements

A summary of the proposed drainage improvements for Alternative A is provided below:

- 2 existing retention basins to be modified
- 7 proposed new retention basins
- 7 existing pump stations
- 3 existing pump station to be modified
- 2 proposed new pump stations

Seven new infiltration basins would be built along the Alternative A alignment to retain storm water runoff and improve water quality. In addition, two existing infiltration basins sitting along the alignment of SR 58 and along SR 99 would be modified. Alternative A, with respect to pump stations, proposes to maintain 4 existing locations, modify 3, and construct 2 new stations, resulting in a total of 9 pump stations. The majority of the proposed infiltration/retention basins would be within the proposed right of way. For basins outside existing right of way, additional right of way would be acquired.

Tables 15 and 16 list the location of the modified and proposed retention basins. Tables 17 and 18 list the location of the modified and proposed pump stations.

Table 15 – Modified Retention Basins for Alternative A

Retention Basin ID	Location	Size (acres)	Depth (feet)
MA7 (E7)	Relocated existing basin E7 located 1,000 feet east of the Friant Kern Canal and south of future WSP to 1,000 feet east of the Friant-Kern Canal and north of future WSP	3.15	10
MA18 (E18)	West of SR 99 and north of Mona Way	8.5	16
Source: Storm Water Data Report, 2012			

Table 16 – Proposed Retention Basins for Alternative A

Retention Basin ID	Location	Size (acres)	Depth (feet)
A1	Southwest of Mohawk Street and south of the Carrier Canal	2.46	7
A2	North of Stockdale Highway and south of Dunsmuir Road	1.89	4
A3	East of McDonald Way up to alley east of Morrison Street	3.08	7
A4	West of Real Road and north of Elcia Drive	1.52	7
A5	South of SR 58 and east of SR 99 (in between connectors)	1.53	6
A6	West of Chester Avenue, east of Haybert Court and south of Frontage Road	1.09	6
A7	North of Wood Lane, west of SR 99	1.84	7
Source: Storm Water Data Report, 2012			

Table 17 – Modified Pump Stations for Alternative A

Pump Station ID	Location
MAP3(EP3)	West of SR 99, North of Belle Terrace, and south SR 58.
MAP4	East of SR 99, south of Ming Avenue, and north of Service Road.
MAP5	Southeast of Wible Road/ Brundage Lane intersection
Source: Storm Water Data Report, 2012	

Table 18 – Proposed Pump Stations for Alternative A	
Pump Station ID	**Location**
AP6	East of Houchin Road, south of H Street eastbound exit ramp.
AP7	West of SR 99, south of Belle Terrace, and north of Wood Lane.
Source: Storm Water Data Report, 2012	

Right of Way Acquisition

To provide right of way for the new freeway, Alternative A would fully acquire 295 properties and partially acquire 109 properties. These property acquisitions would result in 356 residential displacements. In addition, temporary construction easements would be needed from many properties sitting at the edge of the new right of way where retaining walls and soundwalls would be built. Also, minor amounts of right of way would be required for the intersection improvements at Stockdale Highway and SR 43. The Alternative A, Right of Way Data Sheet is included in Attachment G.

Excavation

Excavation and grading would be required as part of the project construction. The maximum depth of excavation for Alternative A would be between 25 and 40 feet. This would occour in the vicinity of SR 58 between Stephens Drive and H Street to accommodate the widened ramps. On SR 99 the maximum excavation would be located between Belle Terrace and Ming Avenue. These excavations along with the associated placement of the embankment fill will necessitate adaptation of the drainage system network. Alternative A would disturb about 1,125 acres of soil from grading activities. A total of about 944,000 cubic yards of existing soils would be excavated and about 1,700,000 cubic yards of soil would be imported as fill for the roadway.

Cost Estimate

The cost of Alternative A is estimated at about $691 million, with $437.1 million for construction costs and $253.9 million for right of way costs.

Alternative B (Preferred Alternative)

Alternative B proposes outside widening of SR 58, between Cottonwood Road and SR 99, to accommodate auxiliary lanes and ramp realignments. SR 58 will run parallel to Stockdale Highway for approximately 1,200 feet west of the SR 58 (East) /SR 99 interchange at which point it would turn in a northwesterly direction and span Stockdale Highway/Stine Road, Ford Avenue, California Avenue, Commerce Drive, Truxtun Avenue, and the Kern River before joining the east end of WSP in the vicinity of the Mohawk Street Interchange. Alternative B proposes SR 58 to be depressed between California Avenue and Ford Avenue, minimizing visual and sound impacts to the neighborhood and reducing the quantity and cost of import fill needed for this alternative. Overcrossings are proposed on Marella Way and La Mirada Drive to facilitate traffic circulation. The preliminary engineering plans for Alternative B, which show the alignment and location of all engineered features, are provided in Attachment C.

Under this alternative, SR 58 would cross over Real Road without connections, and an undercrossing would be provided. Alternative B would also require changes to SR 99 to accommodate the traffic volumes. The following changes would be made to SR 99:

- Southbound SR 99 would be widened to accommodate additional traffic from the eastbound SR 58 to southbound SR 99 connector. The limits of widening on SR 99 would extend from SR 58 (West) to north of the Wilson Road Overcrossing on the southbound side of SR 99.
- On northbound SR 99, two auxiliary lanes would be provided just north of Wilson Road to Ming Avenue. One of these lanes would end at the Ming Avenue off-ramp. The other lane would continue north and allow traffic from northbound SR 99 to connect to westbound SR 58.
- The northbound SR 99 Ming Avenue on-ramp would be reconfigured to allow traffic to access westbound SR 58 or northbound SR 99. Access to eastbound SR 58 would be eliminated from the Ming Ave Interchange. Vehicles would instead use the H Street/ Chester Avenue interchange to access eastbound SR 58.
- The Belle Terrace Avenue overcrossing would be replaced to accommodate the wider freeway.

Structures

The following are locations where new structures would be required for this alternative:

- WB SR 58 OFF-RAMP (MOHAWK STREET) BR (50-0XXX)
- WB SR 58 OFF-RAMP (TRUXTUN AVENUE) UC (50-0XXX)
- COMMERCE DRIVE UC (50-0XXX)
- CARRIER CANAL BRIDGE (50-0XXXX)
- CALIFORNIA AVENUE UC (50-0XXX R/L)
- MARELLA WAY OC(50-0XXX)
- LA MIRADA DRIVE OC (50-0XXX)
- FORD AVE UC (50-0XXX)
- STOCKDALE HIGHWAY UC (50-0XXX R/L)
- SOUTH REAL ROAD UC (50-0XXX R/L)
- EB SR 58 TO SB SR-99 (S REAL ROAD) UC (50-0XXX)
- WB SR-58 OFF-RAMP GRADE SEPARATION (50-0XXX)
- NB SR-99 TO EB SR-58 (WIBLE ROAD) UC (50-0XXX)
- NB SR-99 TO WB SR 58 CONNECTOR (50-0XXX)
- MING AVENUE OFF-RAMP CONNECTOR SEPARATION (50-0XXX)
- SR-99 TO EB SR-58 CONNECTOR SEPARATION (50-0XXX)
- HUGHES LANE OC EB SR-58 - WALL No. 112Rt (50-0XXX)

In addition, Alternative B proposes to replace the Belle Terrace Avenue OC (50-0263), and widen the following structures:

- KERN RIVER BRIDGE (WIDEN) (50-XXXX)
- TRUXTUN AVENUE UC (WIDEN) (50C-0358)
- WB SR-58 OVER SR-99 (WIDEN) (50-0426L)
- SOUTH P STREET UC (WIDEN) (50-0405R/L)
- MADISON STREET UC (WIDEN) (50-0407R/L)
- BAKERSFIELD CORRAL OH (WIDEN) (50-0383R/L)

Auxiliary Lanes

Alternative B would require auxiliary lanes at the following locations:

- Eastbound SR 58 (East) between northbound SR 99/eastbound SR 58 direct connector and Union Avenue off-ramp
- Westbound SR 58 (East) between Union Avenue and Chester Avenue
- Westbound SR 58 (East) between the South H Street on-ramp and the westbound SR 58/northbound SR 99 direct connector
- Westbound SR 58 between the northbound SR 99/westbound SR 58 direct connector and the Mohawk Street off-ramp Eastbound SR 58 between Mohawk Street and Truxtun Avenue
- Eastbound WSP between the Coffee Road loop on-ramp and the Mohawk Street off-ramp
- Westbound WSP SR 58 between the Truxtun Avenue on-ramp and the Calloway Drive loop off-ramp
- Northbound SR 99 between Wilson Road and Ming Avenue off ramp
- Northbound SR 99 between Wilson Road and northbound SR 99/westbound SR 58 connector
- Northbound SR 99 between the northbound SR 99/westbound SR 58 connector and the northbound SR 99/eastbound SR 58 connector
- Southbound SR 99 between Gilmore Avenue and Rosedale Highway

Permanent Street Closures

Alternative B would permanently close the following local streets:

- Charter Oaks Avenue, between Easton Drive and Del Rey Court
- Montclair Street, from west of Easton Drive to east of Kensington Avenue
- Woodlake Drive, east of Kensington Avenue and west of Easton Drive alignment

- Kensington Avenue, from Woodlake Drive to Malibu Court
- Hillsborough Drive, east of Fallbrook Street
- Kentfield Drive, east of Fallbrook Street
- Joseph Drive, from Candy Street to Dunlap Street
- Dunlap Street, from Joseph Drive to Ford Avenue
- Morrison Street, south of Ford Avenue
- Garnsey Avenue, north of Elcia Drive
- Williamson Way, north of Elcia Drive

In addition, access to the cul-de-sac portion of Charter Oaks Avenue would be accommodated through a realignment of Del Rey Court at a new direct access to California Avenue.

Since all properties fronting Alamo Street would be acquired, the road connecting Mona Way to Belle Terrace would be renamed as Mona Way.

The closure of these streets would modify existing local traffic circulation. Pedestrian crossings and Class 2 Bike Lanes would be limited to the proposed UCs at Truxtun Avenue, Commerce Drive, California Avenue, Ford Avenue, Stockdale Highway, Real Road or OCs at Marella Way and La Mirada Drive increasing neighborhood travel distances. No GET routes use the roads that would be closed. Therefore, Alternative B would not directly affect the transit service.

Traffic Operations

Table 19, shows the design year (2038) planning-level evaluation of freeway segments under Alternative B. All of the WSP and SR 58 segments would operate at LOS D or better. Two segments on SR 99 within the project study area would operate at LOS E or worse. The improvements on SR 99 are beyond the purpose and need of the Centennial Project.

TABLE 19 – 2038 FREEWAY SEGMENT EVALUATION FOR ALTERNATIVE B

Freeway	Segment	Direction	Lanes	ADT	DHV	LOS
WSP	Allen Road to Calloway Drive	EB	3	121,785	4,910	D
		WB	3		5,390	D
	Calloway Drive to Coffee Road	EB	3	149,115	6,055	D
		WB	4		6,545	C
	Coffee Road to Mohawk Street	EB	3+1	188,800	7,075	D
		WB	4		7,720	D
SR 58	Mohawk Street to SR 99	EB	3	121,375	5,115	D
		WB	2+1		4,355	C

TABLE 19 – 2038 FREEWAY SEGMENT EVALUATION FOR ALTERNATIVE B

Freeway	Segment	Direction	Lanes	ADT	DHV	LOS
SR 58	SR 99 to H Street	EB	2+3	139,862	5,463	C
		WB	3+1		4,925	C
	H Street to Union Avenue	EB	3+1	149,100	6,260	D
		WB	3+1		5,310	C
	Union Avenue to Cottonwood Road	EB	3	142,355	6,410	D
		WB	3		5,340	D
SR 99	White Lane to Ming Avenue	SB	4	210,120	8,465	F
		NB	4+2		8,200	D
	Ming Avenue to SR 58	SB	4+2	188,300	7,610	C
		NB	4+1		7,325	C
	SR 58 to California Avenue	SB	4	179,045	7,290	D
		NB	4		6,855	D
	California Avenue to Rosedale Highway	SB	4	208,595	8,000	F
		NB	4		7,650	D

Notes: Average daily traffic (ADT) volume is reported in vehicles per day (vpd). Design hourly volume (DHV) is reported for the highest peak hour volume in the peak direction in equivalent passenger cars per hour per lane (pcphpl).

Source: Parsons Transportation Group, 2012

Park and Ride Facilities

The Park and Ride facility west of SR 99 and south of Stockdale Highway would be displaced by the proposed changes to the southbound connector to SR 99 from westbound SR 58. A new Park and Ride facility with 49 parking spaces would be provided north of California Avenue, next to the Centennial Corridor, using residual property acquired for the project. This location would provide easy access to eastbound and westbound SR 58 at the Mohawk Street/Truxtun Avenue interchange and to SR 99 via the California Avenue interchange.

Drainage Improvements

A summary of the proposed drainage improvements for Alternative B is provided below:

- 6 existing retention basins to be modified
- 8 proposed new retention basins
- 7 existing pump stations
- 3 existing pump station to be modified
- 4 proposed new pump stations

Eight new infiltration basins would be built along the Alternative B alignment to accommodate storm water flow from the roadway and improve water quality. Six

existing infiltration basins along the alignment of SR 58 and SR 99 would be modified. Alternative B, with respect to pump stations, proposes to maintain 4 existing locations, modify 3, and construct 4 new stations, resulting in a total of 11 pump stations. The majority of the proposed infiltration/retention basins would be within the proposed right of way. For basins outside existing right of way, additional right of way would be acquired.

Tables 20, 21, 22 and 23 list the locations of the modified and proposed retention basins and pump stations.

Table 20 – Modified Retention Basins for Alternative B

Retention Basin ID	Location	Size (acres)	Depth (feet)
MB8	West of Mohawk Street and South of WSP connector (north of cross valley canal)	1.41	8
MB9	East side Mohawk Street Inside Loop On-Ramp to WSP westbound connector	0.78	7
MB10	East of Mohawk Street and south of WSP connector (north of cross valley canal)	0.73	7
MB12	East of Truxtun Avenue and north of loop connector	1.34	10
MB13	West of Commerce Drive and east of Truxtun Avenue	0.53	10
MB18	West of SR 99 and north of Mona Way	8.5	18
Source: Storm Water Data Report, 2012			

Table 21 – Proposed Retention Basins for Alternative B

Retention Basin ID	Location	Size (acres)	Depth (feet)
B1	West of Mohawk Street and north of WSP connector	1.8	10
B2	South of Truxtun Avenue and west of loop connector	1.32	10
B3	North of California Avenue and west of Alternative B alignment	0.92	7
B4	South of Marella Way and west of La Mirada	2.4	7
B5	East of Williamson Way, west of Real Road and north of Elcia Drive	2.12	10
B6	South of SR 58 and east of SR 99 (in between connectors)	1.48	6
B7	West of Chester Avenue, east of Haybert Court and south of Frontage Road	1.09	6
B8	North of Wood Lane, west of SR 99	1.84	7
Source: Storm Water Data Report, 2012			

Table 22 – Modified Pump Stations for Alternative B	
Pump Station ID	**Location**
MBP3 (EP3)	West of SR 99, North of Belle Terrace, and south SR 58
MBP4 (EP4)	East of SR 99, south of Ming Avenue, and north of Service Road.
MBP5 (EP5)	Southeast of Wible Road/ Brundage Lane Intersection
Source: Storm Water Data Report, 2012	

Table 23 – Proposed Pump Stations for Alternative B	
Pump Station ID	**Location**
BP1	West of Mohawk Street and north of WSP connector
BP4	North of Kentfield Drive, south of Marella Way, and East of Alternative B alignment
BP7	East of Houchin Road, south of H Street Eastbound Exit Ramp.
BP8	West of SR 99 and north of Mona Way
Source: Storm Water Data Report, 2012	

Right of Way Acquisition

To provide right of way for the new freeway, Alternative B would fully acquire 293 properties and partially acquire 130 properties. These property acquisitions would result in 310 residential displacements. In addition, temporary construction easements would be needed from many properties sitting at the edge of the new right of way where retaining walls and soundwalls would be built. Right of way would also be required for intersection improvements at Stockdale Highway and SR 43. The Alternative B, Right of Way Data Sheet is included in Attachment G.

Excavation

Excavation and grading would be required as part of the project construction. The maximum depth of excavation for Alternative B would be between 25 and 40 feet. This would occur in the vicinity of SR 58 between Stephens Drive and H Street to accommodate the widened ramps and California Avenue and Ford Avenue where the freeway would be built below the existing grade. On SR 99 the maximum excavation would be located between Belle Terrace and Ming Avenue. These excavations along with the associated placement of the embankment fill will necessitate adaptation of the drainage system network. Alternative B would disturb about 1,020 acres of soil from grading activities. A total of about 942,000 cubic yards of existing soils would be excavated and about 1,078,000 cubic yards of soil would be imported to fill in the roadway.

Cost Estimate

The cost of Alternative B is estimated at about $570 million, with $390 million for construction costs and $180 million for right of way costs. A Cost Estimate Review (CER) with FHWA was conducted mid-2015.

Alternative C

Alternative C was not selected as the preferred alternative because it displaces more businesses compared to Alternative B. Alternative C would also produce greater impacts to jurisdictional waters. Alternative C would concentrate most of its residential displacements in two environmental justice communities, with the largest concentration of single-family home displacements in the environmental justice community south of Saunders Park. Alternative C would be above ground level in the Saunders Park neighborhood and have direct impacts on Saunders Park, a Section 4(f) property in an environmental justice community. Alternative C would cost over $100 million more than Alternative B.

Alternative C proposes outside widening of SR 58, between Cottonwood Road and SR 99, to accommodate auxiliary lanes and ramp realignments. In the vicinity of the existing SR 58/SR 99 interchange, Alternative C would turn north and run parallel to the west of SR 99 for approximately one mile. The freeway would turn west and span the BNSF Railway rail yard, Truxtun Avenue, and the Kern River. This alternative proposes undercrossings at Brundage Lane, Oak Street, SR 99, Palm Avenue, and California Avenue. Connections would be provided from eastbound SR 58 to southbound SR 99 and northbound SR 99 to westbound SR 58. A collector road is provided between H Street and SR 99 to combine the two diverging branch connections (northbound and southbound SR 99) as a single access point on westbound SR 58. The existing westbound SR 58 to southbound SR 99 loop ramp connector would connect to the proposed eastbound SR 58 to southbound SR 99 connector prior to merging onto southbound SR 99. The southbound SR 99 Ming Avenue off ramp is relocated north of the eastbound SR 58 to southbound SR 99 connector to facilitate weaving between the Ming Avenue off ramp and eastbound SR 58 to southbound SR 99 connector traffic. An auxiliary lane on northbound SR 99 would be provided south of California Avenue extending up to the SR 58/SR 99 interchange to facilitate weaving between the westbound SR 58 to the northbound SR 99 and the northbound SR 99 to the westbound SR 58 traffic.

Improvements on SR 99 would extend from Wilson Road overcrossing (south of the SR 58/SR 99 interchange) to the Gilmore Avenue overcrossing (north of the SR 58/SR 99 Interchange). A collector-distributor (C-D) road system would provide access from westbound SR 58 to northbound SR 99 as well as from northbound SR 99 to westbound SR 58. Under this concept the southbound SR 99 on-ramp from Real Road would also be removed. The preliminary engineering plans for Alternative C, which show the alignment and location of all engineered features, are provided in Attachment C.

Alternative C would make the following changes to existing SR 58 (East):

- The existing westbound SR 58 (East) to southbound SR 99 connector ramp would connect to the proposed eastbound SR 58 to southbound SR 99 connector before merging onto southbound SR 99.

- On westbound SR 58 (East), an auxiliary lane would be added just east of Chester Avenue. This would provide an additional lane to facilitate connection with SR 99 northbound, as well as allow vehicles to continue on SR 58 westbound and connect to the WSP. West of H Street, the freeway would split with two lanes connecting to northbound SR 99 and two lanes continuing on SR 58 westbound.

Alternative C would make the following changes to SR 99 to accommodate the traffic volumes:

- The southbound SR 99 Ming Avenue off-ramp would be relocated north of the eastbound SR 58 to southbound SR 99 connector to reduce conflict from traffic changing lanes between the Ming Avenue off-ramp and eastbound SR 58 to southbound SR 99 connector traffic.
- A connector ramp would be provided from northbound SR 99 to westbound SR 58.
- A collector-distributor road system (lanes within the freeway right of way but separated from the mainline lanes) extending from Brundage Lane to California Avenue would provide access from westbound SR 58 to northbound SR 99, as well as from northbound SR 99 to westbound SR 58.
- Undercrossings at Truxtun Avenue and California Avenue would be widened.
- Overcrossings at Palm Street and Belle Terrace would be replaced.
- The northbound on-ramp to SR 99 from California Avenue would be rebuilt to two lanes.

Structures

The following are locations where new structures would be required for this alternative:

- KERN RIVER BRIDGE (50-0XXX R/L)
- TRUXTUN AVENUE UC (50-0XXX R/L)
- WB SR-58 MOHAWK STREET OFF-RAMP BRIDGE (50-0XXX)
- CARRIER CANAL BOX CULVERT – STANDARD (50-0XXX) or CARRIER CANAL BRIDGE (50-0XXXX)
- BAKERSFIELD YARD OH (50-0XXX)
- STINE CANAL CULVERT (50-0XXX)
- CALIFORNIA AVENUE UC (50-0XXX)
- NB SR-99 TO WB SR-58 CONNECTOR (50-0XXX)
- NB SR-99 BYPASS (50-0XXX)
- PALM STREET UC (50-0XXX)
- SR-58/SR-99 CONNECTOR SEPARATION (50-0XXX)
- E BRUNDAGE LANE UC (50-0XXX)
- STOCKDALE HIGHWAY UC (50-0XXX)
- WB SR-58/SB SR-99 CONNECTOR (50-0XXX)
- EB SR-58 ON-RAMP CONNECTOR SEPARATION (50-0XXX)
- ROUTE 58/99 SEPARATION TIEBACK WALL NO. 685 (50-0XXX)

- EB SR-58/REAL ROAD ON-RAMP (50-0XXX)
- SR-58 SEPARATION (50-0XXX)
- H STREET OFF-RAMP CONNECTOR SEPARATION (50-0XXX)
- MING AVENUE OFF-RAMP SEPARATION (50-0XXX)

In addition, Alternative C proposes to replace the Belle Terrace Avenue OC (50-0263) and Palm Street OC (50-0261), and proposes to widen the following structures:

- TRUXTUN AVENUE UC (WIDEN) (50-0268) on SR-58
- TRUXTUN AVENUE UC (WIDEN) (50-0266) on SR-99
- CALIFORNIA AVENUE UC (WIDEN) (50-0260)
- WIBLE ROAD UNDERCROSSING (CONNECTOR) (WIDEN) (50-0427)
- ROUTE 58/99 SEPARATION (WIDEN) (50-0XXX)
- SOUTH P STREET UC (WIDEN) (50-0405R/L)
- MADISON STREET UC (WIDEN) (50-0407R/L)
- BAKERSFIELD CORRAL OH (WIDEN) (50-0383R/L)

Auxiliary Lanes

Alternative C would require auxiliary lanes at the following locations:

- Eastbound SR 58 (East) between Chester Avenue and Union Avenue
- Westbound SR 58 (East) between the South H Street off-ramp and the westbound SR 58/northbound SR 99 direct connector
- Southbound SR 99 between Gilmore Avenue and Rosedale Highway
- Northbound SR 99 between Belle Terrace and the northbound SR 99/westbound SR 58 direct connector
- Northbound SR 99 between Ming Avenue on-ramp and the northbound SR 99/eastbound SR 58 direct connector
- Eastbound SR 58 between Mohawk Street and Truxtun Avenue
- Westbound SR 58 between the northbound SR 99/westbound SR 58 direct connector and the Mohawk Street off-ramp
- Eastbound WSP between the Coffee Road loop on-ramp and the Mohawk Street off-ramp
- Westbound WSP/SR 58 between Mohawk Street loop on-ramp and the Coffee Road off-ramp
- Westbound WSP/SR 58 between Mohawk Street loop on-ramp and the Calloway Drive loop off-ramp
- The SR 99 collector-distributor between the westbound SR 58/northbound SR 99 direct connector and the northbound SR 99 bypass on-ramp

Permanent Street Closures

Alternative C would permanently close the following local streets:

- Oakdale Drive, from Palm Street to Verde Street
- Bank Street, east of Wetherley Drive

The Commerce Drive cul-de-sac would be relocated about 100 feet south. Easton Drive would be realigned, east of Chester Lane, as it curves south to California Avenue. In addition, Chester Avenue, an existing cul-de-sac on the west side of SR 99 and a dead-end on the east side of SR 99 would be shortened on both sides of the new facility.

The closure of Oakdale Drive would modify existing circulation. The closure of Alamo Street and the extension of Mona Way southerly to Belle Terrace Avenue would not modify existing circulation. No GET routes use the roads that would be closed. Therefore, Alternative C would not directly affect the transit service.

The proposed Alternative C alignment is close to the proposed high-speed train (HST) alignment through downtown Bakersfield. The Merced-to-Bakersfield HST project EIR /EIS is currently underway. This would provide opportunities for integrating the design of Alternative C and the HST project alternatives. Refinements of Alternative C have been made in coordination with the California High Speed Rail Authority.

Traffic Operations

Table 24 shows the design year (2038) evaluation of freeway segments under Alternative C. All of the WSP and SR 58 segments would operate at LOS D or better. On SR 58, the two segments east of H Street also would operate worse than LOS D. Two segments on SR 99 within the project study area would operate at LOS E or worse. The improvements on SR 99 are beyond the purpose and need of the Centennial Project.

TABLE 24 – 2038 FREEWAY SEGMENT EVALUATION FOR ALTERNATIVE C

Freeway	Segment	Direction	Lanes	ADT	DHV	LOS
WSP	Allen Road to Calloway Drive	EB	3	121,180	4,915	D
		WB	3		5,330	D
	Calloway Drive to Coffee Road	EB	3	149,040	5,960	D
		WB	4		6,490	C
	Coffee Road to Mohawk Street	EB	3+1	188,105	6,995	D
		WB	4		7,705	D
SR 58	Mohawk Street to SR 99	EB	3	118,405	4,950	D
		WB	3		4,440	C
	SR 99 S to H Street	EB	2+2	158,655	6,410	C
		WB	2		5,900	C
	H Street to Union Avenue	EB	3+1	162,036	6,580	D
		WB	3		5,900	D
	Union Avenue to	EB	3	147,356	6,375	D

TABLE 24 – 2038 FREEWAY SEGMENT EVALUATION FOR ALTERNATIVE C						
Freeway	**Segment**	**Direction**	**Lanes**	**ADT**	**DHV**	**LOS**
	Cottonwood Road	WB	3		5,455	D
SR 99	White Lane to Ming Avenue	SB	4	209,455	8,375	F
		NB	4		8,350	E
	Ming Avenue to SR 58	SB	4	205,070	7,535	C
		NB	4+1		9,030	D
	SR 58 to California Avenue	SB	4+1	175,250	7,300	C
		NB	4+1		6,055	C
	California Avenue to Rosedale Highway	SB	4	208,790	7,980	F
		NB	4+1		7,840	C

Notes: Average daily traffic (ADT) volume is reported in vehicles per day (vpd). Design hourly volume (DHV) is reported for the highest peak hour volume in the peak direction in equivalent passenger cars per hour per lane (pcphpl).

Source: Parsons Transportation Group, 2012

Park and Ride Facilities

The Park and Ride facility west of SR 99 and south of Stockdale Highway would be displaced by the proposed changes to the southbound connector to SR 99 from westbound SR 58. A replacement Park and Ride facility with 49 parking spaces would be provided at Real Road and Chester Lane using residual property acquired for the project. This location would provide easy access to SR 99 at the California Avenue interchange and to the westbound SR 58 via the Mohawk/Truxtun Avenue interchange.

Drainage Improvements

A summary of the proposed drainage improvements for Alternative C is provided below:

- 5 existing retention basins to modify
- 11 proposed new retention basins
- 8 existing pump stations
- 4 existing pump station to modify
- 4 proposed new pump stations

Eleven new infiltration basins would be built along the Alternative C alignment to accommodate storm water flows from the roadway and improve water quality. In addition, five existing infiltration basins—located along the alignment of SR 58 and along SR 99—would be modified. Alternative C, with respect to pump stations, proposes to maintain 4 existing locations, modify 4, and construct 4 new stations, resulting in a total of 12 pump stations. The majority of the proposed infiltration/retention basins would be within the proposed right of way. For basins outside existing right of way, additional right of way would be acquired.

Tables 25, 26, 27 and 28 list the location of the modified and proposed retention basins and pump stations.

Table 25 – Modified Retention Basins for Alternative C			
Retention Basin ID	**Location**	**Size (acres)**	**Depth (feet)**
MC8	Configured as 2 basins. One located West of Mohawk Street and south of WSP connector (north of cross valley canal). The other basin is located West of Mohawk Street inside the Loop On Ramp to WSP East Bound Connector. The 2 Basin will be connected with an equalizer pipe	1.41	8
MB9	East side Mohawk Street Inside Loop On-Ramp to WSP West Bound Connector	0.78	7
MC13	West of Commerce Drive and east of Truxtun Avenue to replace and combine runoff from existing basins E12 and E13.	2.56	10
MC17	West of SR 99, south of California Avenue, and north of Palm Avenue.	4.03	25
MC18	West of SR 99 and north of Mona Way	8.5	15
Source: Storm Water Data Report, 2012			

Table 26 – Proposed Retention Basins for Alternative C			
Retention Basin ID	**Location**	**Size (acres)**	**Depth (feet)**
C1	West of Mohawk Street and north of WSP connector	1.8	10
C2	West of Commerce Drive and east of Truxtun Avenue	1.32	6
C3	East of the Carrier Canal and south of Alternative C alignment	1.08	7
C4	South of railroad tracks, west of SR 99 and north of Alternative C alignment	2.83	6
C5	South of Sunset Avenue and west of Oak Street	0.9	10
C6	South of Palm Street and east of Wetherley Drive, west of SR 99	2.31	7
C7	East of SR 99 and north of Brundage Lane	0.61	6
C8	North of SR 58 and south of Brundage Lane	0.78	6
C9	South of SR 58 and east of SR 99 (in between connectors)	1.53	6
C10	South of SR 58, east of Haybert Court, and west of Chester Avenue	1.61	7
C11	North of Wood Lane, west of SR 99	1.84	6
Source: Storm Water Data Report, 2012			

Table 27 – Modified Pump Stations for Alternative C	
Pump Station ID	**Location**
MCP2 (EP2)	SR 99 at Palm Avenue
MCP3 (EP3)	West of SR 99, North of Belle Terrace, and south SR 58.
MCP5 (EP5)	Southeast of Wible Road/ Brundage Lane Intersection
MCP6 (EP6)	SR 58 at H Street
Source: Storm Water Data Report, 2012	

Table 28 – Proposed Pump Stations for Alternative C	
Pump Station ID	**Location**
CP1	West of Mohawk Street and north of WSP connector.
CP6	South of Palm Street and east of Wetherley Drive, west of SR 99
CP10	North of Wood Lane, west of SR 99
CP11	West of SR 99, south of Belle Terrace Avenue, and north of Wood Lane.
Source: Storm Water Data Report, 2012	

Right of Way Acquisition

To provide right of way for the new freeway, Alternative C would fully acquire 254 properties and partially acquire 86 properties. These property acquisitions would result in 133 residential displacements. In addition, temporary construction easements would be needed from many properties sitting at the edge of the new right of way where retaining walls and soundwalls would be built. Right of way would also be required for intersection improvements at Stockdale Highway and SR 43. The Alternative C, Right of Way Data Sheet is included in Attachment G.

Excavation

The maximum depth of excavation for Alternative C is between 25 and 40 feet. This would occur in the vicinity of SR 58 / SR 99 interchange to accommodate passage of the westbound SR 58 off ramp to South Real Road beneath the SR 58 Separation. On SR 99 the maximum excavation would be located between Belle Terrace and Brundage Lane. These excavations along with the associated placement of embankment fill will necessitate adaptation of the drainage system network. Alternative C would disturb about 1,124 acres of soil from grading activities. A total of about 1,150,000 cubic yards of existing soils would be graded. In addition, about 750,000 cubic yards of soil would be imported to fill in the roadway.

Cost Estimate

The cost to build Alternative C is estimated at about $665.5 million, with $452.2 million for construction costs and $213.3 million for right of way costs.

No Build Alternative

The No Build Alternative proposes no improvements to the project area. The WSP would be a local freeway facility but would not connect to SR 58 or SR 99. SR 58 (West) / Rosedale Highway would continue to end at SR 99, where the freeway is shared with SR 99 for about 2 miles south to tie into the SR 58 (East) freeway. Under this alternative, both existing and future traffic levels would exceed freeway capacity during peak hours. Commuters would have to use stop-controlled and signalized local streets to get to their destinations, resulting in greater congestion and increased travel time. Due to inadequate east-west corridors, west Bakersfield would continue to have poor circulation. There would be inadequate regional mobility, insufficient interregional connectivity, and poor downtown access.

The No-Build Alternative was evaluated according to the proposed number of mainline lanes and forecasted year 2038 traffic volumes. A planning-level approach was used for this traffic analysis. The volumes are converted to passenger cars per hour using the daily heavy vehicle (truck) percentages.

Table 29 shows the design year (2038) evaluation of freeway segments under the No Build Alternative. All segments on SR 99 and one segment on SR 58 would operate at LOS E or worse. Without a direct connection to the other freeways, the WSP segments would have lower demand volumes, all of which would be lower than the design volume.

TABLE 29 – 2038 FREEWAY SEGMENT EVALUATION FOR THE NO-BUILD ALTERNATIVE

Freeway	Segment	Direction	Lanes	ADT	DHV	LOS
WSP	Allen Road to Calloway Drive	EB	3	100,610	4,739	C
		WB	3		4,835	C
	Calloway Drive to Coffee Road	EB	3	108,380	5,029	D
		WB	3+1		5,375	C
	Coffee Road to Mohawk Street	EB	3+1	94,975	3,778	B
		WB	2+2		4,585	B
SR 58	SR 99 to H Street / Chester Avenue	EB	3	122,583	4,850	C
		WB	3		4,555	E
	H Street / Chester Avenue to Union Avenue	EB	3	126,523	4,950	C
		WB	3		4,605	C

TABLE 29 – 2038 FREEWAY SEGMENT EVALUATION FOR THE NO-BUILD ALTERNATIVE

Freeway	Segment	Direction	Lanes	ADT	DHV	LOS
	Union Avenue to Cottonwood Road	EB	3	129,693	5,710	D
		WB	3		4,855	D
SR 99	White Lane to Ming Avenue	SB	4	204,410	7,885	D
		NB	4		8,260	F
	Ming Avenue to SR 58	SB	4	224,250	8,795	F
		NB	4		9,055	F
	SR 58 to California Avenue	SB	4	220,475	8,480	E
		NB	4		8,655	D
	California Avenue to Rosedale Highway	SB	4	226,220	8,620	E
		NB	4		8,430	D
	Rosedale Highway to Airport Drive	SB	4	177,035	6,710	E
		NB	4		6,540	C

5B. REJECTED ALTERNATIVES

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

A subcommittee of the Centennial Corridor Project Development Team (PDT) held a meeting on August 12, 2008, to conduct a preliminary screening of alternatives for the Centennial Corridor. The subcommittee included representatives from Caltrans, the city of Bakersfield, the County of Kern, Parsons Transportation Group (the program management consultant), HNTB Corporation (the project initiation document and project approval / environmental document consultant), and BonTerra Consulting (environmental sub consultant to HNTB). The initial screening, conducted early in the PSR process, identified those alternatives that are reasonable and feasible to be carried forward into the PSR.

The screening criteria were developed through an iterative process by the PDT members through incorporation of criteria from Caltrans' PDPM and review of the requirements of Section 1302 of the SAFETEA-LU. Once a comprehensive list of potential screening criteria was developed, the PDT refined the list, and the outcome resulted in the following eight criteria:

- *Criterion 1*: Does this alternative satisfy the legislative mandate for the Project, as outlined in the SAFETEA-LU, Section 1302?
- *Criterion 2*: Does this alternative satisfy the purpose and need for the Project?
- *Criterion 3*: Does this alternative avoid severe operational and safety problems?

- *Criterion 4*: Can this alternative be completed within funding reasonably available to the Project?
- *Criterion 5*: Does this alternative avoid unacceptable adverse social, economic, or environmental impacts that would cause it to be rejected without further environmental evaluation?
- *Criterion 6*: Is this the first time this alternative has been considered in a screening process? If no, did it successfully pass through the prior screening process?
- *Criterion 7*: If any one of the above criteria were answered with a "no," Does this alternative warrant further studies to determine whether the criteria failure ("no") results in a fatal flaw to the Project?
- *Criterion 8*: If two or more criteria were answered with a "no," does this alternative warrant further studies to determine whether the combination of criteria failures ("no's") result in a fatal flaw to the Project?

In the interest of all-inclusiveness, 19 alternatives were evaluated through a preliminary screening process. The 19 alternatives included Alternatives A through L, TSM/Transit Alternative (Alternative M), Alternative 15, Alternatives PA-1 through PA-4, and the No Build Alternative.

The initial screening process determined that Alternatives A, B, C, and D; the No Build Alternative; and the TSM/Transit Alternative (Alternative M) warrant further study. Alternatives E, F, G, H, I, J, K, L, 15, and PA-1 through PA-4 were rejected because they were deemed not to be reasonable and/or feasible alternatives. Appendix H provides the preliminary screening memorandas prepared by the PDT to document the rejection of alternatives that were not carried forward for further evaluation.

Since 2008, more-detailed engineering design and preliminary technical studies have been conducted that provide more-detailed information for evaluating the merits of each alternative carried forward after the initial screening. The more-detailed engineering design and evaluation of Alternatives D and M identified issues that indicate that these alternatives should be withdrawn from further evaluation. Therefore, a re-screening process was conducted for Alternatives D and M, using the same criteria as above. Alternative D was removed from further consideration during the development of the PSR. Alternative M was included in the PSR and subsequently removed from further consideration in February 2012 (see Attachment H).

The following sections discuss (by alternative) each "no" response given for any screening criteria:

- *Alternative D*: Alternative D proposed to construct a new freeway that would connect the WSP to SR 58 near the Union Avenue interchange by means of a six-lane freeway. Starting at the Mohawk Street interchange on the WSP, this alternative would extend east and parallel the BNSF railroad tracks for approximately 3 miles. It would then turn south and run parallel to Union Avenue for approximately 1 mile before joining SR 58 via freeway-to-freeway connectors near the existing Union Avenue / SR 58 interchange. Alternative D would be a parallel, duplicate facility of the existing designated SR 58 facility for approximately 1.25 miles.

Alternative D did not meet Criterion 3. Although safety problems could be avoided, existing operational deficiencies at the SR 58 / SR 99 interchange could not be prevented with this alternative.

To provide connectivity to downtown Bakersfield, a modified tight diamond interchange was proposed along the new segment of SR 58 at Chester Avenue. Major roadway improvements on Chester Avenue between Truxtun Avenue and California Avenue would be required to accommodate the projected heavy volumes to and from the SR 58 on- and off-ramps. In order to meet acceptable level of service conditions, Chester Avenue would need to be widened to include the following improvements, in each direction: dual left turn lanes, two through lanes and a right turn lane. The improvements also included replacing the existing structure at the BNSF Grade Separation in order to accommodate the widening of Chester Avenue.

Under this alternative, the SR 58 mainline proposed to cross under SR 99. New direct connections to SR 99 were considered for this alternative. However, due to the proximity of adjacent interchanges, major local streets (such as California Avenue and Oak Street), the BNSF rail yard, the Carrier Canal, and the Kern River, new freeway-to-freeway connections to SR 99 were determined to be infeasible to construct. Connectivity to and from SR 99 would continue to be achieved via the existing segment of SR 58 between Union Avenue and SR 99. No improvements would be made to SR 99 under this alternative.

The mainline geometrics of Alternative D would result in displacement of parking lots for Mercy Hospital, Bakersfield City Hall, and for public use in downtown Bakersfield. Although parking displacements would not be considered a fatal flaw for Alternative D, new parking structures would be required to replace the eliminated parking spaces, for an estimated cost of $54 million.

Additionally, Alternative D would require the relocation of Bakersfield Fire Department Fire Station #6, located at the northwestern corner of SR 58 and Union Avenue. The fire station would need to be relocated prior to construction of the roadway to ensure that emergency response times are not impacted by Centennial Corridor.

Construction of Alternative D would require the closure of 11th Street, Pershing Street, 10th Street, and 9th Street. The elimination of these through facilities would modify circulation. Access would be limited to the proposed UCs at California Avenue and 8th Street.

The more detailed engineering design of Alternative D has further identified that the geometry required to make the alternative function from a design perspective is extremely complex. Alternative D proposed only one new local service interchange at Chester Avenue in downtown Bakersfield, and no new connections to SR 99. Due to its limited connectivity to other local/State facilities, there are no elements of this alternative that can be phased without affecting its function.

Under existing conditions, the H Street / Chester Avenue interchange is approximately 1 mile east of the existing SR 58 / SR 99 freeway-to-freeway interchange, the Union Avenue interchange is 1 mile east of the H Street / Chester

Avenue interchange, and the Cottonwood Road interchange is approximately 1 mile east of the Union Avenue interchange. The standard distance between a freeway-to-freeway interchange and a local street interchange is 2 miles, and the standard distance between successive local street interchanges is 1 mile.

The proposed geometric design of Alternative D would require a new freeway-to-freeway connection near the Union Avenue / SR 58 interchange, referred to herein as the Existing SR 58 / future SR 58 interchange. The Union Avenue / SR 58 interchange would be maintained and would be within the Existing SR 58 / future SR 58 interchange footprint. As a result, the proposed location of the Existing SR 58 / future SR 58 interchange would result in nonstandard interchange spacing (1 mile) in both directions between this new freeway-to-freeway interchange and the H Street / Chester Avenue and Cottonwood Road interchanges, resulting in safety consideration due to deficient weaving distances between successive on- and off-ramps.

To provide standard interchange spacing, both the H Street / Chester Avenue and Cottonwood Road interchanges would need to be closed. However, closure of any of the local street interchanges along SR 58 is not considered an option because it would significantly impact current local traffic circulation patterns. Closure of these interchanges would result in considerable out-of-direction travel for commuters accessing adjacent shopping centers, industrial facilities, neighborhoods, the Kern County Fairground, and the Bakersfield Municipal Airport. The out-of-direction travel and lack of direct access would also result in longer commute times and longer travel distances to reach these destinations. Additionally, as a result of any one interchange being closed, extensive improvements to adjacent interchanges and surrounding roadways would be required to accommodate the additional traffic volumes that would be redirected to the surrounding facilities.

To avoid potential safety issues with maintaining the interchanges at their current spacing, the connector ramps to and from the new segment of SR 58 would be braided with the ramps from the H Street / Chester Avenue interchange as well as the ramps from the Cottonwood Road interchange. At the Union Avenue interchange, standard spacing of 1,000 feet is proposed between successive on- and off-ramps, with no potential for weaving movements.

Alternative D proposed the connection of the new segment of SR 58 to the existing facility near the existing Union Avenue / SR 58 interchange. Therefore, improvements to the existing SR 58 / SR 99 interchange were not proposed under this alternative. Therefore, future deficiencies at the SR 58 / SR 99 interchange would not be corrected with this alternative and would need to be addressed as a separate project in the future.

Regionally, the projected Design Year 2038 traffic volumes from the regional Kern COG travel demand forecasting model indicate the freeway mainline for Alternative D would be underused, primarily because regional SR 99 traffic would need take a circuitous travel route to access the Centennial Corridor Project and to connect to the WSP and, ultimately, to I-5. The circuitous travel route results because no new freeway-to-freeway connection at SR 99 can be accommodated (see previous discussion provided in the Alternative D description). In this alternative, the

interregional traffic coming from/to I-5 would use Mohawk Street and Rosedale Highway to access SR 99. The local traffic would continue to use the existing local transportation system (Rosedale Highway and Stockdale Highway), which would serve as the primary east-west connections between SR 99 and I-5. Therefore, the Rosedale Highway / SR 99 interchange, Stockdale Highway / SR 99 interchange, Real Road / SR 58 interchange, and the level of service on these local transportation facilities would deteriorate without additional improvements to these facilities.

Alternative D did not meet Criterion 4. The original estimated capital cost for Alternative D was $797 million. Based on further refinement of the engineering, Alternative D's estimated capital cost is $1.1 billion. This exceeds the available funding by more than 150 percent, and no other sources of funding have been identified that could bridge the funding gap. The cost estimate is as follows:

Roadway	$ 387,000,000
Structures	$ 417,000,000
Environmental Mitigation	$ 23,000,000
Right of way and Utility Relocation	$ 273,000,000
Total Capital Cost	$1,100,000,000

Furthermore, based on the Surface Transportation Efficiency Analysis Model (STEAM), the approximate life cycle benefit was calculated to be $658 million. In comparison to the capital outlay costs for Alternative D, the benefit would only be 60 percent of the capital costs, primarily because of the high cost associated with Alternative D, which is tied to the construction of a parallel facility that results in a circuitous travel route to and from SR 99.

Upon re-evaluation of Alternative D, Criterion 6 also received a "no" response (Alternative D was evaluated and passed the initial 2008 screening process). As part of the initial screening, this alternative was recommended for further evaluation. Based on more detailed engineering, subsequent screening of Alternative D was recommended.

Because there were multiple "no" responses to the other criteria, Criterion 8 was applicable. It was determined that the combination of "no" responses shows Alternative D is not a reasonable and feasible alternative.

Alternative D was not carried forward for further evaluation.

- *Alternative E – Washington Avenue*: Alternative E proposed to construct a freeway near Washington Avenue extending north from SR 58 for approximately 1 mile, at which point it would turn to the west and run parallel to the BNSF railroad tracks. Alternative E would connect to the WSP alignment at the new interchange at Mohawk Street. The total length of the project from SR 58 at Washington Avenue to I-5 would be approximately 20.5 miles.

  Preliminary detailed cost estimates for Alternative E identified the cost to construct this alternative as approximately $1.08 billion, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative E would be cost prohibitive and would not meet the requirements of Criterion 4.

Because there was one “no” response for Criterion 4, Criterion 7 was applicable. The evaluation under Criterion 7 determined that because Alternative E exceeds the available funding, it is an unreasonable alternative.

Alternative E was not carried forward for further evaluation.

- *Alternative F – South Beltway*: Alternative F proposed to construct a freeway in the southern and eastern portion of Bakersfield. The freeway would begin at I-5 approximately 3.5 miles south of SR 119 and would extend in a northeasterly direction for approximately 7.6 miles to a location approximately 1.2 miles southwest of the SR 119 and SR 99 intersection. At this location, the freeway would run in a southeasterly and easterly direction, crossing SR 99, for approximately 4.2 miles. The freeway would turn to the northeast and cross SR 119 in a northerly direction until crossing SR 184, approximately 2.6 miles south of SR 58. At this point, the freeway would continue for approximately 3.6 miles in a northeasterly direction to a location approximately 1.0 mile south of SR 58. The freeway would turn to the north and terminate at its intersection with SR 58. The total length of the project from SR 58 to I-5 would be approximately 23.9 miles.

  Alternative F did not meet the requirements of Criterion 2 because the alternative failed to meet the project’s purpose of providing regional connectivity for east-west traffic traveling within metropolitan Bakersfield and Kern County. Alternative F’s route is not within metropolitan Bakersfield.

  Preliminary detailed cost estimates for Alternative F identified the cost to construct this alternative as approximately $1.29 billion, exceeding the maximum threshold established for the Centennial Corridor Project. The requirements of Criterion 4 were not met because construction of Alternative F would be cost prohibitive.

  The South Beltway is a part of the Bakersfield Beltway System, as is the Centennial Corridor. The Centennial Corridor, however, also satisfies the purpose and need of the South Beltway at a considerably lower cost.

  This alternative was previously identified in two previous studies (Criterion 6). In the *Final Tier 1 Environmental Impact Report Amendment No. 1 for the South Beltway Transportation Corridor,* it was included as a segment of one of the alternatives. It passed the screening and moved forward for further evaluation. Alternative F was also identified in the *Bakersfield Systems Study* as a segment of one of the alternatives; however, it did not pass the screening and did not receive further evaluation.

  Because there were multiple “no” responses to the screening criteria, Criterion 8 was applicable. It was determined that the combination of “no” responses showed Alternative F is not a reasonable and feasible alternative.

  Alternative F was not carried forward for further evaluation.

- *Alternative G – Hageman Road*: Alternative G proposed to construct a freeway near Hageman Road. The roadway would begin at I-5 and would parallel Rosedale Highway, approximately 1 mile to the south, for about 4 miles. At this point, it would turn northeast and follow Meacham Road between Rosedale Highway and Hageman Road, turning northeast again before crossing Renfro Road. It would then

parallel Hageman Road about 500 feet to the north to Calloway Drive. After crossing Calloway, it would turn southeast, following the Friant-Kern Canal for about 0.5 mile, crossing the canal and extending about 1.0 mile before turning northeast and terminating at SR 99 at the existing SR 99 / SR 204 interchange. The total length of the project from SR 99 at Hageman Road to I-5 would be approximately 19.8 miles.

Alternative G would result in severe operational and safety problems associated with the proximity of the connection to SR 99 and Olive Drive, which is approximately 0.5 mile north of the proposed freeway-to-freeway interchange. Therefore, this alternative did not meet Criterion 3.

Preliminary detailed cost estimates for Alternative G identified the cost to construct this alternative as approximately $1.05 billion, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative G would be cost prohibitive and did not meet the requirements of Criterion 4.

This alternative was previously identified in the Tier 1 EIS/EIR; however, it did not pass the screening and did not receive further evaluation (Criterion 6).

Criterion 8 was applicable because there were two "no" answers to the criteria. Because there would not be sufficient funds to implement this alternative (Criterion 4), it would not be considered a reasonable alternative.

Alternative G was not carried forward for further evaluation.

- *Alternative H – Rosedale Highway (elevated alignment)*: Alternative H proposed to construct an elevated freeway near Rosedale Highway. This freeway would begin at a future connection with the Hageman Road alternative (Alternative G), approximately 0.7 mile east of Enos Lane (SR 43). The alignment would extend in a southeast direction for approximately 0.3 mile and then would proceed east to SR 99. The total length of Alternative H from SR 99 to I-5 would be approximately 11.0 miles.

  Preliminary detailed cost estimates for Alternative H identified the cost to construct this alternative as approximately $2.85 billion, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative H would be cost prohibitive and did not meet the requirements of Criterion 4.

  With the exception of Criterion 4, all other criteria (i.e., Criteria 1–5) were met by this alternative. Therefore, Criterion 7 was applicable. The evaluation under Criterion 7 determined that because Alternative H exceeds the available funding, it is an unreasonable alternative.

  Alternative H was not carried forward for further evaluation.

- *Alternative I – Widen SR 58 (existing Rosedale Highway)*: Alternative I proposed to construct a freeway along the existing alignment of SR 58. This freeway would begin at its intersection with SR 99 and proceed west along existing SR 58 to its terminus at I-5. The total length of the project would be approximately 18.7 miles.

  Preliminary detailed cost estimates for Alternative I identified the cost to construct this alternative as approximately $1.09 billion, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative I would be cost prohibitive and did not meet the requirements of Criterion 4.

This alternative was previously identified in the Tier 1 EIS/EIR; however, it did not pass the screening and did not receive further evaluation (Criterion 6).

Criterion 8 was applicable because there are two "no" answers to the criterion. Because there would not be sufficient funds to implement this alternative (Criterion 4), it would not be considered a reasonable alternative.

Alternative I was not carried forward for further evaluation.

- *Alternative J – Southern Alignment (connection between SR 99 and I-5, just north of SR 119)*: Alternative J proposed to construct a freeway near SR 119. The freeway would begin at I-5 at the SR 119 interchange. The alignment proceeds east, terminating at SR 99 and Hosking Road, approximately 1.0 mile north of SR 119. The total length of the project from SR 99 at Hosking Avenue to I-5 would be approximately 11.0 miles.

  Alternative J failed to meet the project's purpose of providing interregional and regional connectivity for east-west traffic traveling within metropolitan Bakersfield and Kern County (Criterion 2) because its route is not within metropolitan Bakersfield.

  This alternative received initial review as part of a previous screening process; however, it was not moved forward for further evaluation (Criterion 6). The traffic studies done as part of the initial screening for the Tier 1 EIS/EIR showed that in the year 2020[2], virtually no interregional traffic would use a freeway on the southern alignment, and local traffic use would be low.

  Because there were multiple "no" responses to previous criteria, Criterion 8 was applicable. It was determined that the combination of "no" responses showed Alternative J is not a reasonable and feasible alternative.

  Alternative J was not moved forward for further evaluation.

- *Alternative K – Brimhall Alignment*: Alternative K proposed to construct a freeway near Brimhall Road. The freeway would begin at I-5 approximately 0.5 mile north of the Brimhall Road alignment and would parallel the alignment of that road east to Heath Road. At this point, the alignment turns southeasterly and continues east to Coffee Road. The total length of the project from Coffee Road to I-5 using the Brimhall Road alignment would be approximately 14.7 miles.

  Alternative K did not pass Criterion 1 because it did not meet the intent of the legislative mandate. Alternative K could not effectively promote economic growth and international and interregional trade because the alternative did not connect to two existing segments of the state freeway and expressway system. This alternative would not serve interregional trips.

  Similarly, it did not meet the project's purpose as outlined in Criterion 2: it did not effectively meet any of the bullet items identified in the purpose and need statement.

2 As part of the EIS/EIR long-range traffic conditions are evaluated. Typically, a horizon year 20 years in the future is used. For the Tier 1 EIS/EIR, a year 2020 horizon year was used.

Preliminary detailed cost estimates for Alternative K identified the cost to construct this alternative as approximately $821 million, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative K would be cost prohibitive and did not meet the requirements of Criterion 4.

This alternative has received initial review as part of a previous screening process (Tier 1 EIS/EIR); however, it was not moved forward for further evaluation (Criterion 6).

Because there were multiple "no" responses to previous criteria, Criterion 8 was applicable. It was determined that the combination of "no" responses showed Alternative K is not a reasonable and feasible alternative.

Alternative K was not carried forward for further evaluation.

- *Alternative L – Stockdale Alignment*: Alternative L proposed to construct a freeway near Stockdale Highway. The roadway would begin at I-5 and would proceed east along Stockdale Highway, terminating at SR 99. The total length of the project from SR 99 to I-5 would be approximately 16.9 miles.

  Preliminary detailed cost estimates for Alternative L identified the cost to construct this alternative as approximately $1.20 billion, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative K would be cost prohibitive and did not meet the requirements of Criterion 4.

  With the exception of Criterion 4, all other criteria (i.e., Criteria 1–5) were met by this alternative. Therefore, Criterion 7 was applicable. The evaluation under Criterion 7 determined that because Alternative L exceeds the available funding, it is an unreasonable alternative.

  Alternative L was not carried forward for further evaluation.

- Alternative M

  The TSM/Transit Alternative (Alternative M) proposed grade separation improvements along Rosedale Highway, auxiliary lanes on SR 99, several traffic operational improvements, intersection improvements, and increased transit service.

  Alternative M proposed to use TSM/transit strategies to improve capacity and potentially reduce demand on the east-west arterial links and selected north-south connections to facilitate regional and local east-west traffic circulation.

  Low-cost operational improvements included traffic signal optimization (ensuring maximum green-light times for the heaviest traffic flows and adjusting signal cycle time based on changing demands during peak times), intersection improvements, and bus turnouts to reduce delay and increase the capacity along the following corridors:

  - Hageman Road from Calloway Drive to SR 99
  - Rosedale Highway from Enos Lane (SR 43) to SR 99
  - Truxtun Avenue from the WSP to Oak Street
  - Stockdale Highway from Old River Road to Oak Street / Wible Road
  - Ming Avenue from Old River Road to SR 99

- Coffee Road from Stockdale Highway to WSP
- California Avenue from Stockdale Highway to Mohawk Street
- Mohawk Street from California Avenue to the WSP

The operational improvements were paired with travel demand management (TDM) techniques aimed to increase transit service along Rosedale and Stockdale Highways. The transit improvements were primarily focused on increasing the frequency of service to reduce auto usage. Additionally, area wide TDM strategies were considered to reduce travel demand by establishing parking fees while encouraging carpool formation and flextime for employees.

The low-cost improvements, TDM approach, as well as construction of Rosedale Highway Overhead (San Joaquin Valley Railroad) between Mohawk Street and Landco Drive are included in the regional transportation plan and were therefore not specifically studied as a new component of the transportation system for Alternative M.

To further increase capacity, higher-cost improvements were proposed under Alternative M for Rosedale Highway. These include widening Rosedale Highway from Enos Lane (SR 43) to SR 99 and constructing grade separations at the following intersections:

- Rosedale Highway / Allen Road
- Rosedale Highway / Coffee Road
- Rosedale Highway / Calloway Drive
- Rosedale Highway / Mohawk Street

Additionally, improvements were considered on SR 99 to add auxiliary lanes between SR 58 and California Avenue or provide an additional (fifth) mainline lane to accommodate increased north-south traffic demand.

With no direct connection with the WSP, Alternative M included roadway operation improvements to deploy Intelligent Transportation Systems to improve mobility and reduce fuel consumption and greenhouse gas emissions.

For the design year (2038) planning-level evaluation of freeway segments, daily volumes for Alternative M were anticipated to be similar to the No Build Alternative. The combination of TDM and TSM improvements would reduce the demand and increase the capacity of the roadway segments. As a result, an analysis of the daily volumes would not be consistent with the other alternatives. A separate traffic study was conducted (May 2011) for the express purpose of evaluating this alternative.

Alternative M did not meet the requirements of Criterion 2. Though Alternative M partially meets several components of the purpose and need as outlined in section 4A of this report, it does not effectively meet most of the criteria. The alternative meets the project criteria to improve east-west circulation, facilitate congestion management, and accommodate planned land uses; but this success is gained from reducing the carrying capacity of the WSP which is counter to the intent of that project. The alternative only partially meets the two project criteria relating to improving east-west connectivity within metropolitan Bakersfield and Kern County and reducing travel time on a major freight corridor. Through elimination of traffic

signals and associated delay the carrying capacity of Rosedale Highway from SR 43 to SR 99 is increased by 1500 vehicles per day relative to the no-build alternative and travel times are improved; however, the attractiveness of Rosedale Highway as a major freight corridor is relatively unchanged from the no-build alternative. The alternative did not meet or failed to address the remaining three project criteria in providing route continuity in Kern County, promoting growth and trade between existing segments of the interstate system, and adding operational benefits to the shared portion of SR 58 and SR99. The overall level of service would degrade slightly along the shared portion of SR 99 relative to the no-build alternative.

Upon re-evaluation of Alternative M, Criterion 6 also received a "no" response (Alternative M was evaluated and passed the initial 2008 screening process). The intent of the initial screening process was to eliminate alternatives that were clearly not reasonable and feasible. Because preliminary traffic data was not available at that time, it could not be determined if Alternative M was reasonable and feasible. Therefore, Alternative M was moved forward and was recommended for further evaluation in the PSR.

Because there were multiple "no" responses to the other criteria, Criterion 8 was applicable. It was determined that Alternative M would not fully meet the project criteria and would exacerbate operational problems on the shared portion of SR 99. There can be worthwhile projects that do not meet all project criteria; however, it was found the criteria that Alternative M does not meet are critical to the function of the proposed transportation improvement and serve as cause for this alternative to be considered not feasible.

Alternative M is not being carried forward for further evaluation.

- *Alternative 15 – Alternative from the Bakersfield Systems Study*: Alternative 15 proposed a four- to eight-lane freeway connecting SR 58 at Union Avenue (SR 204) to I-5, passing through the downtown area via a parallel route to the SR 204 corridor and continuing west via the Seventh Standard Road Corridor. The total length of the project from SR 58 to I-5 would be approximately 28.3 miles.

  Preliminary detailed cost estimates for Alternative 15 identified the cost to construct this alternative as approximately $2.23 billion, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative 15 would be cost prohibitive and did not meet the requirements of Criterion 4.

  This alternative has been considered as part of a previous screening process for the Bakersfield Systems Study and was successfully moved forward (Criterion 6).

  Because this alternative received one "no" response, Criterion 7 was applicable. Criterion 7 evaluates whether not meeting Criterion 4 would warrant eliminating Alternative 15 from further consideration. It was determined that the cost would be prohibitive and that this alternative could not be built.

  Alternative 15 was not carried forward for further evaluation.

- *Alternative PA-1 – Alternative Submitted by the Public (between Alternative B and Alternative C)*: Alternative PA-1 proposed to construct a new freeway west of the SR 58 / SR 99 interchange. The alignment would extend west on the south side of

Stockdale Highway and immediately turn north for approximately 1.5 mile, then turn to the northwest spanning the Carrier Canal, Truxtun Avenue, and the Kern River. Alternative PA-1 would connect to the WSP alignment at the Mohawk Street interchange. The total length of the project from the existing SR 99 / SR 58 interchange to I-5 using Alternative PA-1 would be approximately 18.9 miles.

Alternative PA-1 would result in severe operational and safety problems because it could not meet Caltrans geometric standards and would not meet design speed standards for a freeway. Preliminary engineering conducted for Alternative PA-1 demonstrated that, with application of Caltrans standards and proper geometrics, this alternative would result in an alignment similar to Alternative B.

Since there was one "no" response, Criterion 7 was applicable. This evaluation determined that Alternative PA-1 was not viable because Caltrans would not construct a facility that would pose severe operational and safety problems.

Alternative PA-1 was not carried forward for further evaluation.

- *Alternative PA-2 – Alternative Submitted by the Public (Southern limits of city of Bakersfield)*: Alternative PA-2 proposed to construct a new freeway in southern Bakersfield. The alignment would begin just north of the I-5 / SR 43 interchange. Traveling in an easterly direction for approximately 12.8 miles, the freeway would cross SR 99 approximately 1.0 mile north of SR 119, cross SR 184 approximately 1.6 miles north of SR 119, and connect to SR 58 approximately 4.0 miles east of SR 184. The total length of the project from I-5 to SR 58 using Alternative PA-2 would be approximately 24.0 miles.

  Alternative PA-2 did not meet the project's purpose of providing interregional and regional connectivity for east-west traffic traveling within metropolitan Bakersfield and Kern County (Criterion 2). The route for Alternative PA-2 is not within metropolitan Bakersfield.

  Preliminary detailed cost estimates for Alternative PA-2 identified the cost to construct this alternative as approximately $1.24 billion, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative PA-2 would be cost prohibitive and did not meet the requirements of Criterion 4.

  Since there were multiple "no" responses to previous criteria, Criterion 8 was applicable. It was determined that the combination of "no" responses showed Alternative PA-2 is not a reasonable and feasible alternative.

  Alternative PA-2 was not carried forward for further evaluation.

- *Alternative PA-3 – Alternative Submitted by the Public (just north of and parallel to SR 223)*: Alternative PA-3 proposed to construct a new freeway along existing SR 223. The roadway would begin at the intersection of I-5 and SR 223, proceed east along the same alignment as SR 223, and terminate at SR 58. The total length of the project from I-5 to SR 58 using Alternative PA-3 would be approximately 34.6 miles.

  Alternative PA-3 did not meet the project's purpose of providing interregional and regional connectivity for east-west traffic traveling within metropolitan Bakersfield

and Kern County (Criterion 2) since the route for Alternative PA-3 is not within metropolitan Bakersfield.

Preliminary detailed cost estimates for Alternative PA-3 identified the cost to construct this alternative as approximately $1.72 billion, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative PA-3 would be cost prohibitive and did not meet the requirements of Criterion 4.

Because there were multiple "no" responses to previous criteria, Criterion 8 was applicable. It was determined that the combination of "no" responses showed Alternative PA-3 is not a reasonable and feasible alternative.

Alternative PA-3 was not carried forward for further evaluation.

- *Alternative PA-4 – Alternative Submitted by the Public (Northern limits of city of Bakersfield)*: Alternative PA-4 proposed to construct a new freeway from the existing SR 58 east of SR 184. This alternative would parallel the Union Pacific Railroad line, and then go northwest parallel to SR 204 on the north side of the existing roadway. The alignment would cross Golden State Drive and SR 99 south of Airport Drive, turn southwest, and connect with the WSP.

  Alternative PA-4 would not meet the purpose and need of the project because it does not provide route continuity and associated traffic congestion relief. It would not improve operations on the shared portion of SR 58 and SR 99. Instead, it would move the congestion on SR 99 to the north in the vicinity of the Airport Drive interchange. The cost to build this alternative exceeds the available funding.

6. CONSIDERATIONS REQUIRING DISCUSSION

HAZARDOUS WASTE

An Initial Site Assessment (ISA) was conducted of the three build alternatives (A, B, and C) for Segment 1 and the portion of Segment 3 where construction is proposed (the intersection of Stockdale Highway and SR 43), in general accordance with the scope and limitations of American Society for Testing and Materials (ASTM) Standard E 1527-00, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. Segment 2 of the Centennial Corridor Project is comprised of WSP which was previously evaluated in the WSP Environmental Assessment/Final Environmental Impact Report. The ISA evaluated the potential for environmental impacts from hazardous materials and wastes on the study area as a result of past or current activities on the properties located within the study area or surrounding properties. This evaluation included on-site inspection of the study area; review of aerial photographs and historical mapping; observation of adjacent properties and the local vicinity for potential adverse environmental impacts; and review of regulatory database records. The Initial Site Assessment did not include screening of testing for aerially deposited lead, asbestos, radon, lead paint, lead in drinking water, or urea formaldehyde.

Following the completion of the initial site assessment and the identification of the Preferred Alternative B, a focused initial site assessment was conducted to further

evaluate the need to do testing of potential hazardous materials at any parcel or structure to be affected by Alternative B. The focused initial site assessment was developed based on the results of the following activities: review of Initial Site Assessment recommendations; communication with project engineer on current design and proposed right-of-way acquisition; coordination with the City Right-of-Way staff and the previous Hazardous Material Specialist on the Westside Parkway project; and field visits of the ranked parcels identified for Alternative B in the initial site assessment.

At the end of the public review period of the draft environmental document, additional soil investigations were conducted for ranked parcels for the Preferred Alternative B to determine the presence of potential hazardous materials. In addition, investigations for aerially-deposited lead, asbestos-containing materials, and lead-based paint were also conducted for the Preferred Alternative B.

Very few hazardous materials/wastes were found as a result of the investigation, however, site clean up will be conducted between the right-of-way acquisition and the project construction periods. Early coordination with relevant regulatory agencies such as, but not limited to, the California Environmental Protection Agency Department of Toxic Substances Control, Kern County Department of Environmental Health Services, the city of Bakersfield Fire Department, and the Department of Conservation Division of Oil, Gas, and Geothermal Resources would be undertaken to identify and obtain any necessary permits and approvals needed.

Based on the evaluation in the *Initial Site Assessment for the Centennial Corridor Project* (November 2012), a preliminary assessment of cost for remediation (clean-up) of hazardous materials is estimated at $9 million, $8 million, and $10 million for Alternatives A, B, and C, respectively. The cost to clean up hazardous materials is generally the property owner's responsibility. Any remedial activity would occur before property acquisition.

VALUE ANALYSIS

A value analysis (VA) was completed for this project in June 2011 which focused on the three build alternatives (A, B, and C) within Segment 1. Alternative M was removed from the VA study due to a lack of information regarding its scope of work and functions when compared to the purpose and need.

A Final Value Analysis Study Report was issued December 8, 2011 providing an overview of the project, key findings, and accepted/rejected alternatives developed by the VA team. The study yielded a total of 15 alternatives to the three build alternatives for consideration and further development. These VA alternatives were presented to the PDT both individually and as three strategic bundles based on each build scenario. An implementation meeting was held with the PDT ultimately incorporating an alternative for each build option (A-1.0, B-1.0, and C-3.0) into the project.

RESOURCE CONSERVATION

Recycled material will be used wherever possible. Caltrans Standard Specifications and Standard Special Provisions encourage use of salvaged or recycled materials such as Class 2 Aggregate Base (AB) and Asphalt Concrete (AC). Recycled material such as

ground rubber can be used for some retaining wall backfills and in exposed graded areas as long as they do not impact waterways. Rubberized asphalt concrete could be included wherever those applications are warranted.

RIGHT OF WAY ISSUES

Right of Way Required

The build alternatives of this project propose to add new highway facilities connecting SR 58 to the WSP through a heavily developed area of Bakersfield. Accordingly, project right of way requirements will include both full and partial acquisitions of residential (single and multi-family), commercial (office, retail, restaurant, auto repair, motel, grocery, shopping, and light industrial), open space, flood channels, religious, railroad and vacant properties. Table 30, quantifies the number of right of way impacts.

TABLE 30: RIGHT OF WAY IMPACTS

Alternative	Partial Take	Full Take		Relocation Assistance Payments	Utility Relocations
		Parcels	Structures		
A	109	295	235	888	221
B	130	293	264	836	236
C	86	254	170	332	205

Relocation Impact Studies

The following is a summary of the maximum number of residential, business, and other displacements included in the completed Final Relocation Impact Report and discussed in the final environmental document. The classification of “other” relates to properties such as storage units and cellular towers.

TABLE 31: RELOCATION IMPACTS

Alternative	Residential	Non-Residential	Other
A	356	127	405
B	310	121	405
C	133	198	1

Despite the size and scope of the Centennial Corridor Project, the relocation process is not anticipated to present extraordinary difficulties. There are several factors that will require careful agency planning such as a large Hispanic presence, lower income residents, a significant elderly and disabled population impacted by the project, the financing constraints in securing both replacement housing and business sites, and adequately attending to the challenges of assisting individuals and businesses in financial hardships instigated by the current economic climate. As the agency moves

forward in the relocation phase of this project, these matters will require proactive relocation agent training, strategic partnerships with the appropriate local organizations, and flexibility in its policies and procedures, to assure the integrity of individuals and local businesses as they transition to new locations.

Title to the railroad corridor has not yet been performed; it is assumed that most of the rail corridor is owned in fee while other portions are owned simply as easement. There are four known locations of railway involvement with the project:

Transverse Crossing

Location 1 – Truxtun Avenue (Segment 1, Alternatives B and C)

Location 3 – SR 99 (Segment 1, Alternative C)

Location 4 – 0.9 mile East of SR 43 (Segment 3)

Longitudinal Encroachment

Location 2 – Bakersfield Rail Yard (Segment 1, Alternative C): This alternative requires acquisition of a portion of the rail yard on the south side of the tracks. The acquisition is located in a dead end corner away from the rail road tracks and would not significantly impact Rail Yard or Railway operations.

Airspace Lease Areas

Airspace leases are not anticipated with any of the build alternatives. The Right of Way data sheets are included in Attachment G.

ENVIRONMENTAL ISSUES

Wetlands and Flood Plains

A portion of the Kern River and a small detention basin at Stockdale Highway and SR 43 contain evidence of wetland waters. A total of 0.195 acre of wetlands is found within the Biological Study Area (BSA). Most of the jurisdictional waters found within the BSA are considered non-wetland waters. The Preferred Alternative B alignment is anticipated to permanently impact approximately 0.009 acre (non-wetland) of Waters of the U.S. and 0.189-acre Waters of the State. The project was designed to avoid and minimize effects on jurisdictional areas to the extent practicable. The number of columns in the river was minimized in order to minimize the area of jurisdictional waters that would be affected. Additionally, the Kern River bridge crossing was placed in the same location where the Westside Parkway bridge crosses the river so that the footprint of development along the river was minimized; thereby minimizing indirect effects (e.g., traffic noise, night lighting, and human activity) on animals using the river. In addition to the minimization measure listed below, other minimization measures would reduce impacts to wetlands and other waters during construction.

The project would obtain a 1602 Streambed Alteration Agreement from California Department of Fish and Wildlife and a 401 Water Quality Certification from the Central Valley Regional Water Quality Control Board, Region 5. Based on changes to existing conditions of jurisdictional waters and revised preliminary design plans after the

circulation of the draft environmental document, permanent impacts to Waters of the U.S. have been reduced to less than 0.10 acre. If final design plans do not exceed permanent impacts greater than 0.10 acre, the project is not required to submit a Section 404 Nationwide Permit #14 Pre-Construction Notification form to the U.S. Army Corps of Engineers; however, if impacts are greater than 0.10 acre, a Section 404 Nationwide Permit #14 will be obtained prior to construction and a pre-construction notification form will be completed and submitted to U.S. Army Corps of Engineers. The project would comply with all general conditions required under Nationwide Permit authorization, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer.

Cultural Resources

Four historic properties were identified within the Area of Potential Effects (APE) in the Historical Resources Evaluation Report prepared for this project, including Friant-Kern Canal, Lester H. Houchin Residence, Rancho Vista Historic District, and the property at 3904 Marsha Street. As defined by the Advisory Council on Historic Preservation, 36 CFR Part 800 Section 800.16, the Area of Potential Effects is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The Area of Potential Effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. These four properties were determined eligible for the National Register of Historic Places. On February 15, 2013, Caltrans initiated consultation with the State Historic Preservation Officer (SHPO) on these determinations and received concurrence on April 15, 2013. The Section 106 process concluded with execution of a Memorandum of Agreement (MOA) that includes measures to mitigate the adverse effects of Alternative B (Preferred Alternative) on the Rancho Vista Historic District. The correspondence with the State Historic Preservation Officer and the Memorandum of Agreement is included in the final environmental document. A description of the four historic properties is provided below.

- Friant-Kern Canal: The Friant-Kern Canal has been determined eligible for the National Register of Historic Places and is listed in the California Register of Historic Resources. Completed in 1951, the canal is the key component of the Central Valley Project and is significant at the state level under Criterion A, within the context of development, construction, and operation of the Central Valley Project. The canal's period of significance is 1945 to 1951, its period of construction. The Friant-Kern Canal crosses the project study area within Segment 2 approximately 0.3 miles east of Coffee Road. The State Water Project constructed two bridges (SR 58 mainline and WB Coffee Road Off-ramp) to span the canal. Alternative A would add a new third bridge to accommodate the traffic from the eastbound on ramp from Coffee Road. Alternatives B and C would utilize the two existing bridges.
- Lester H. Houchin Residence: The Lester H. Houchin residence and its associated detached garage located at 307 South Oleander Avenue (Oleander property) is eligible for the National Register of Historic Places (and the California Register of Historic Resources) at the local level under Criterion C for its Colonial Revival architectural style. The period of significance for this historic property is

1939. The property is located on the south side of SR 58 midway between the Hughes Lane and South H Street Overcrossings. Brite Street provides separation between the property boundary and existing state right of way. Within the property limits, the improvements for each of the proposed build alternatives are conceptually similar. The project proposes construction of a retaining wall along existing state right of way to accommodate realignment of the existing EB SR 58 / SR 99 off ramp to H Street and construction of a collector-distributor ramp for proposed EB SR 58 to H Street. Construction of these improvements may necessitate imposing temporary traffic restrictions on Brite Street during active construction.

- Rancho Vista Historic District: A post-World War II housing development, Tract 1522 (also known as Rancho Vista) is eligible for the National Register of Historic Places at the local level under Criterion A for its incorporation of innovative mass-production techniques during the postwar period, and under Criterion C for embodying characteristics of a housing type, period, and method of construction. The period of significance extends from 1950 to 1957, when the residences were constructed. Of the three proposed build alternatives, only Alternative A would affect the property as the alignment would traverse through a large segment of the housing tract.
- 3904 Marsha Street Property: The property at 3904 Marsha Street, in addition to being a contributor to the Rancho Vista Historic District, was determined to be individually eligible for the National Register of Historic Places under Criterion A and is historical resource under California Register Criterion 1. The 3904 Marsha Street residence is significant at the local level for its association with the Cold War and civil defense measures to survive in the event of a nuclear war. Caltrans identified the period of significance between 1956, when the residence was constructed, to 1962, the end of the period of fallout shelter construction in the United States. The property is located outside of the limits of improvements for all the alternatives and would not be adversely affected.

Archaeological Resources

Four archaeological sites were identified within one-half mile of the study area during the archival research and field survey conducted during the development of the Archaeological Survey Report (ASR, January 2013). None of these sites are located within the study area itself. Due to the highly urbanized nature of the study area and associated limitations on excavation for determination of buried cultural resources, an Extended Phase I study (XPI) was recommended in the ASR.

The XPI study stage I was conducted prior to the circulation of the draft environmental document. The results indicate a high potential for intact buried cultural resources within Quaternary surfaces 1 and 2 (Qa1 and Qa2) and moderate potential within Qa3. Areas of special interest were identified within Qa2 adjacent to abandoned channels (circa 1952 aerial photos) as the nearby water source would have made these sites attractive for prehistoric settlement. All three build alternatives cross an area of high potential, but metric analysis indicates that Alternative A impacts the greatest acreage and Alternative B the least. Additionally, the areas of special interest are most abundant with Alternative C.

An Extended Phase I, Stage II investigation of Alternative B was conducted on December 2014. The results of the study did not identify any prehistoric or historic cultural deposits in the Area of Potential Effects. The fieldwork involved exploratory backhoe trenching and coring in areas of proposed subsurface impacts (depressed freeway segments and retention basins) within accessible parcels, especially those that were located in the areas of high or very high sensitivity, as mapped by the Extended Phase I, Stage I study.

Water Quality

A Water Quality Assessment Report was generated for this project to describe existing water resources, determine potential adverse impacts on those resources, and identify feasible mitigation measures for those impacts.

The project area is within the jurisdiction of the Central Valley Regional Water Quality Control Board and is located within the South Valley Floor Hydrologic Unit, the Kern Delta Hydrologic Area, and Hydrologic Sub-area (HSA) 557.10, as identified by Caltrans' Water Quality Planning Tool (Caltrans 2006a). This hydrologic sub-area covers approximately 341,000 acres or 532 square miles. Receiving water bodies within the project limits have been identified as the Kern River, Carrier Canal, Stine Canal, and Kern-Island Canal (Caltrans 2006a). None of the receiving water bodies within the project limits are listed as impaired on the California 2010 Integrated Report list (303(d)); therefore, no Targeted Design Constituents are associated with these water bodies (SWRCB 2011).

The project area is within the South Valley Floor hydrologic unit, which is a sub-basin within the Tulare Lake Hydrologic Region. In general, groundwater quality throughout the Tulare Lake Hydrologic Region is suitable for most urban and agricultural uses with only local impairments. The primary constituents of concern are high total dissolved solids, nitrate, arsenic, and organic compounds (California Department of Water Resources 2003).

A hydrological and/or water quality construction impact would occur if construction activities related to the preferred alternative substantially affected surface water or groundwater quality or altered surface runoff rates, thereby contributing to flooding or erosion hazards.

Construction of the proposed corridor has the potential to contribute pollutants to the receiving water bodies; the Kern River, Cross Valley Canal, Carrier Canal, Stine Canal and Kern-Island Canal. These pollutants include sediment and silt, associated with soil disturbance because of construction of the proposed corridor, and chemical pollutants associated with construction materials that are brought onto the project site.

Soil disturbance activities include earth-moving activities such as excavation and trenching, soil compaction and moving, cut and fill activities, and grading. Disturbed soils are susceptible to high rates of erosion from wind and rain, resulting in sediment transport via storm water runoff from the project area. Chemical contaminants, such as oils, fuels, paints, solvents, nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported to downstream drainages and ultimately into collecting waterways, contributing to the chemical degradation of water quality.

Excavation activities may occur that would require removal of groundwater from excavations during construction. Dewatering activities for excavations below the water table could result in the discharge of unsuitable and untreated water if discharged directly to the environment. If temporary excavations require dewatering, there is the potential of discharging pollutants (primarily by entraining silt and clay, but also from encountering chemicals and other contaminants) through release of construction water directly to the environment, which could possibly violate Central Valley Regional Water Quality Control Board Water Quality Objectives.

Operation of the proposed corridor would result in a 24 acre increase to the existing 168 acres of impervious surface, for a post project impervious surface area of 192 acres, which could potentially increase storm water runoff. Furthermore, potential pollutant sources associated with operation of the proposed project include motor vehicles, highway maintenance, illegal dumping, spills, and landscaping care.

Construction of retention basins throughout the study area of Alternatives A (7), B (7), and C (11) are proposed to provide water quality retention and treatment. All runoff (from both low and high storm events) generated from the roadway surfaces will be routed to the retention basins which will control runoff flow rates and runoff quality.

Paleontology

A Paleontology Evaluation Report (PER) was prepared for this project (November 2012). The project area is underlain by Pleistocene Non-marine Sedimentary Deposits. Construction-related earth-moving activities would have the potential to adversely affect unrecorded sensitive paleontological resources. The disturbance or loss of these resources would be an adverse environmental impact. Consequently, a Paleontological Mitigation Plan (PMP) would be prepared to address potential impacts during the design phase of the project. As appropriate, specific measures in the Paleontological Mitigation Plan would be implemented before, during, or after project construction. Such measures could include: (1) monitoring of earth-moving activities by a paleontological monitor in areas underlain by a highly important rock unit, thereby allowing for the discovery and recovery of potentially present larger fossil remains; (2) the collection and processing of sediment or sedimentary rock samples to allow for the recovery of smaller fossil remains; (3) comprehensive treatment (preparation to point allowing identification, identification by knowledgeable paleontologists, curation, cataloging) of recovered fossil remains; and (4) the transfer of the entire fossil collection to a Caltrans-designated museum repository for permanent storage and maintenance. With implementation of appropriate mitigation measures identified, providing for the recovery and treatment of scientifically significant fossil remains exposed by such activities, adverse impacts resulting from the project would be minimized.

Visual

A Visual Impact Assessment (VIA) was performed for this project to evaluate the project's potential visual and aesthetic impacts and propose mitigation measures to address those impacts associated with Segment 1. A visual frame of reference was established for the project footprint by subdividing the area into four distinct landscape units (SR 58 east of SR 99, SR 99 corridor, mixed-land use west of SR 99 and south of Kern River, and sparsely developed / Kern River). Each landscape unit is generally

bounded by a marked change in the visual character or spatial experience of the landscape type and form contained within that unit. Units are generally comprised of several homogeneous image types which are evaluated collectively among various exposure levels to express the overall visual quality, potential impact, and effective mitigation measures. The image types selected for this project included various forms of development: sparse, residential, recreational, and commercial. The following viewer groups: motorists, residents, commercial employees and recreational users were used to evaluate these based on length of exposure and degree of sensitivity to change.

The VIA used 13 key locations to describe each of the three build alternatives with respect to open space, commercial and residential viewpoints. All build alternatives were found to create vertical visual changes: sound walls, retaining walls, elevated and at-grade transportation facilities that would change the general visual environment of the study area. Alternatives A and B elevate the changes to the visual environment to "adverse" through the acquisition of right of way and division of residential and commercial areas.

The Preferred Alternative B alignment would result in long-term visual impacts on key viewpoints ranging from moderately low to moderately high. The presence of the elevated structure and soundwalls would, for some, result in obstructed views that would adversely affect the visual character of the suburban neighborhoods. The freeway that runs through the neighborhood would change the visual character of the area. Detailed information on visual impacts and mitigation measures can be found in the final environmental document in Appendix B.

Biology

A Natural Environment Study (NES) was prepared as part of the environmental document preparation. The Biological Study Area (BSA) focuses on a 500-foot buffer on either side of the project right of way for each of the three build alternatives in Segment 1 and improvements to the Stockdale Highway / SR 43 Intersection in Segment 3. The Project Region was defined by the area within a 10-mile radius of the BSA.

There are 32 special status plant and 40 special status wildlife species known to occur within the project region. Of these known special status species, 25 plant and 17 wildlife have the potential to occur in the BSA. The project is anticipated to impact the vegetation type/habitat area of two observed special-status species, Ferris' goldfields and the San Joaquin kit fox; and potentially two unobserved special-status species, nesting burrowing owls and Swainson's hawks. Direct impact to the habitat is expected from the permanent loss or temporary use during construction activities. Additionally, either indirect or cumulative effects of the project could expand habitat impacts beyond the work limits due to changes in noise, light, vibration, water runoff, and traffic levels.

Formal project-specific Section 7 consultation for the San Joaquin kit fox began with the U.S. Fish and Wildlife Service on April 16, 2013. Based on coordination between Caltrans and U.S. Fish and Wildlife Service, the Biological Assessment evaluated Alternatives A, B and C. The Biological Assessment, submitted as part of the consultation package, was approved as complete by U.S. Fish and Wildlife Service on

July 22, 2013. The Biological Opinion (Service file number 08ESMF00-2013-0373) from the Service on the effects on the San Joaquin kit fox was issued on December 20, 2013.

After the circulation of the Draft Environmental Impact Report/Environmental Impact Statement, Caltrans contacted the U.S. Fish and Wildlife Service to reinitiate the Biological Opinion (Service file number 08ESMF00-2013-0373) regarding minor changes to the project description. The reinitiated Biological Opinion (Service file number 08ESMF00-2013-F-0373-R001) was approved by U.S. Fish and Wildlife Service on February 24, 2015. Additionally, Biological Opinion 08ESMF00-2013-F-0373-R002 was issued by the Fish & Wildlife Service in August, 2015. Biological Opinion 08ESMF00-2013-F-0373-R002 removes the requirement to install modified k-rail barrier on SR 58 from post mile R52.3 to post mile R55.4 and on SR 99 from post mile 22.1 to post mile 22.7. Biological Opinions issued by U.S. Fish and Wildlife Service are provided in Appendix I, Volume 2.

Waters

Table 32, indicates the various engineered and natural water channels present within the corridor and the potential impacts.

The general topography of the surrounding area consists primarily of flat land with sparse ridges and manmade berms. The rainfall drains generally from north-east to south-west, parallel to the Kern River via sheet flow, and is intercepted by existing drainage ditches or inlets connected to a storm drain system that conveys the flow to existing vegetated swales and/or existing infiltration and retention basins.

The Kern River 100-year and 500-year floodplains occur within the project area for all segments of the Centennial Corridor project. Flood control measures currently in place along the Kern River in the project vicinity include flood control levees on both sides of the river, the Coffee Road Bridge, a diversion structure upstream of Coffee Road, and the Carrier Canal and adjacent levees. All these improvements are designed to provide flood protection in the city of Bakersfield.

TABLE 32: WATER CONVEYANCE IMPACTS

Water Conveyance	Segment 1			Segment 2	Segment 3
	A	B	C		
Rio Bravo Canal	-	-	-	T, L, NC	-
Cross Valley Canal	T, Em	T, NB	T, NB	T, L, NC	L, unk
Arvin Edison Canal	L, ROW	-	-	-	-
Friant-Kern Canal	T, NB	T, EB	T, EB	NB (2)	-
Kern River	T, NB	T, NB	T, NB	NB	-
Carrier Canal	T, NC	T, NB	T, NC	-	-
Stine Canal	T, NC	T, NB	T, Em	-	-
Kern Island Canal	T, EC	T, EC	T, EC	-	-

TABLE 32: WATER CONVEYANCE IMPACTS

Water Conveyance	Segment 1			Segment 2	Segment 3
Central Branch Kern Is Canal	T, EC	T, EC	T, EC	-	-

Legend:
T: Transverse crossing; L: Longitudinal encroachment; NB: New Bridge; EB: Existing Bridge; NC: New Culvert; EC: Existing Culvert; Em: Embankment Fill, ROW: Right of Way Encroachment; Unk: Unknown

The Segment 3 ultimate alignment may produce a lateral encroachment upon the Cross Valley Canal and potentially impact recharge basins east of Interstate 5 and north of the Cross Valley Canal.

AIR QUALITY CONFORMITY

Each alternative proposed for the Centennial Corridor is fully compatible and would conform to regional conformity requirements of the Clean Air Act's Transportation Conformity Rule.

- The project is located in the San Joaquin Valley Air Basin (SJVAB), which is currently designated as State and federal nonattainment area for ozone (O_3) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The SJVAB is designated as a State nonattainment and a federal maintenance area for particulate matter less than 10 microns in diameter (PM_{10}), and a maintenance area for carbon monoxide (CO). The SJVAB is designated as attainment and/or unclassified for all other pollutants.

  The Kern Council of Governments is the Metropolitan Planning Organization (MPO) responsible for the project. The proposed project is fully funded and is included in the 2011 Final Regional Transportation Plan (RTP) and the Kern Council of Governments' financially constrained 2013 Federal Transportation Improvement Program (FTIP). The design concept and scope of the proposed project is consistent with the project description in the 2011 Final RTP, the 2013 FTIP and the assumptions in the Kern Council of Governments regional emissions analysis. As such, the project demonstrates regional conformity.
- The project operational emissions would not exceed the federal or state ambient air quality standards for carbon monoxide and would not generate CO hot spots.
- Assessment of the traffic operational condition along the studied roadways within the project corridor limits indicates that compared with the No-Build Alternative:
    - Daily traffic volumes and associated vehicular emissions would decrease along the studied portions of Rosedale Highway, Stockdale Highway, California Avenue, and SR 99. Consequently, concentrations of particulate matter along these roadways would be lower with the project compared to without project condition;

  EPA's Transportation Conformity Rule (40CFR 51.390 and Part 93, March 2012) addresses local air quality impacts in PM_{10} and $PM_{2.5}$ nonattainment and

maintenance areas. The rule provides criteria and procedures to ensure that any such project will not cause or contribute to new violations, increase the frequency or severity of any existing violations, or delay the timely attainment of the relevant National Ambient Air Quality Standard (NAAQS) as described in 40 CFR 93.101. The qualitative analysis was based on the EPA's "Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas." Each build alternative (A, B and C) is anticipated to meet the 24-hour average PM_{10} and annual average $PM_{2.5}$ conformity tests without further analysis or mitigation. Each build alternative (A, B, and C) is expected to meet the 24-hour average fine particulate matter ($PM_{2.5}$) conformity.

- A quantitative analysis of local emissions of mobile source air toxics (MSATs) was conducted for comparison of the project alternatives. The data indicate the following:
    - Based on the results of the mobile source air toxics emissions within the studied roadway, a significant decrease (on the order of 50 percent) in mobile source air toxics emissions can be expected for the project alternatives from the base year (2008) levels through future year levels. The decrease is expected to occur for all priority mobile source air toxics. This is directly due to the improved pollution emission performance of a modernizing fleet, including diesel-fueled vehicles, which is a trend that is anticipated to continue throughout the planning horizon year.
    - The mobile source air toxics emissions from each build alternative would be less than the No-Build Alternative along several studied roadways. For most of the study area roadways, the three build alternatives are comparable in level of emissions, while Alternative A exhibits lower mobile source air toxics emissions than Alternatives B and C in the opening year and slightly lower emissions than Alternatives B and C in the horizon year. The mobile source air toxics emissions level of Alternatives B and C are in the same order of magnitude.
- A quantitative analysis of the greenhouse gas (GHG) emissions from operation of the project is also included, per the Governor's Office of Planning and Research guidelines.

On August 7, 2014, the Federal Highway Administration issued the required air quality conformity determination for the Centennial Corridor Project (see final environmental document, Appendix H). The Federal Highway Administration provided a determination that the Centennial Corridor Project conforms to the State Implementation Plan in accordance with 40 CFR Part 93.

To further reduce emissions along the project area, Caltrans has entered into a Voluntary Emission Reduction Agreement with the San Joaquin Valley Air Pollution Control District to provide betterments to local air quality within the project area. This agreement would provide additional localized particulate matter reductions. See Appendix L of the final environmental document (provided in Appendix B of the Project Report) for more details on the Voluntary Emission Reduction Agreement. As part of

this agreement between San Joaquin Valley Air Pollution Control District and Caltrans, $1.5 million would be provided by Caltrans to execute emission reduction projects along the Preferred Alternative B alignment.

TITLE VI CONSIDERATIONS

Title VI of the Civil Right Act provides that no person be excluded from, denied the benefits of, or discriminated by any federal aid activity because of race, color, religion, national origin, gender, age or handicap. Caltrans and FHWA policies demonstrate commitment to this requirement and compliance with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," which is an extension of Title VI. It further requires prevention of "disproportionately high and adverse" health or environmental impacts to minority and/or low-income populations to the fullest extent possible.

The project would be designed in accordance with the Americans with Disabilities Act (ADA) standards and the State Building Code for accessibility for persons with disabilities. In addition, design guidelines to encourage the development of transit and pedestrian-friendly communities will be included in the project.

PUBLIC HEARING PROCESS

The Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) was circulated for a 61-day review by agencies and members of the public between May 9 and July 8, 2014. Notices of Availability for the draft environmental document and notice of public hearings were sent to property owners, residents, businesses, resource agencies, public officials and other interested parties. Caltrans, in cooperation with the City, held a public hearing for the project at the Kern County Administrative Center-Rotunda, 1115 Truxtun Avenue, Bakersfield, California, on June 11, 2014, from 4:00 to 7:00 p.m. The hearing was held to provide information to those in attendance and solicit comments from the public. After the public circulation period, all comments from the public hearing and those received during the public review period were considered and addressed. Detailed comments from the public are included in the final environmental document. Comments received at this meeting covered various topics including, but not limited to: consideration of other alternatives, design refinements, community impacts, property acquisitions, air quality, traffic concerns, noise concerns and health concerns. All issues raised were addressed through additional clarification of text and minor design modifications as discussed in Section 5A.

ROUTE MATTERS

Route adoption

As shown in Figure 1, this project proposes to construct a new alignment for the Centennial Corridor (Proposed SR 58) in three segments.
Segment 1 is the eastern most segment that would connect the Westside Parkway (WSP) to the existing SR 58 freeway just east of SR 99. Segment 2 is the already constructed WSP, from Heath Road to west of Mohawk Street. Segment 3 temporary alignment would be along the existing Stockdale Highway from I-5 to Heath Road. The

ultimate alignment of the Proposed SR 58 Segment 3 will be constructed just south of Stockdale Highway.

Segments 1 and 2 will be adopted as SR 58 and transferred into the State Highway System following the procedures for transfer of highway location described in Chapter 23 – Route Adoptions of the Caltrans *Project Development Procedures Manual* (PDPM). Segment 3 will be adopted as SR 58 along Stockdale as a Temporary location of this State route. *A Tier 1 Final Environmental Impact Statement / Environmental Impact Report* (EIS/EIR) document approved in 2002 will be re-evaluated to add the Ultimate Alignment for a separate Route Adoption action item by the CTC.

Freeway Agreements & New Connections

A superseding SR-99 freeway agreement will be needed to show the new connectors at the SR 58 (East) interchange. After approval of the route adoption item actions by the CTC, a new freeway agreement for SR 58 will be required to document the closure of surface streets and traffic circulation along this route. These new agreements (both with the city of Bakersfield and County of Kern) will be prepared following the procedures described in Chapter 24 of the Caltrans' *Project Development Procedures Manual* (PDPM) during the design phase.

Relinquishment

Once the new alignment of Route 58 has been constructed and adopted as the new SR 58, the existing route 58 (Rosedale Highway) will be relinquished to the city of Bakersfield and County of Kern within their jurisdictions. Once relinquished, these sections will become a local arterial. As with the construction of the new alignment, the relinquishment will be phased. The current phasing plan is:

- Phase 1 from Allen to Mohawk: recorded June 2012
- Phase 2 from Route 43 to Allen: Upon completion of Segment 2
- Phase 3 from Mohawk to Route 99: Upon completion of Segment 1

PERMITS

A number of permits and approvals will be required for project construction. Table 34, provides a listing of the permits and approvals required.

TABLE 34: PROJECT PERMITS AND APPROVALS

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service	Section 7 Consultation, as required by the Endangered Species Act for the San Joaquin kit fox	The Biological Assessment was submitted to the U.S. Fish and Wildlife Service (Service) on April 16, 2013 and formal consultation was initiated on July 22, 2013. A Biological Opinion (Service file number 08ESMF00-2013-F-0373) on the effects to the San Joaquin kit fox was issued on December 20, 2013. Consultation was reinitiated and a Biological Opinion (Service file number 08ESMF00-2013-F-0373-R001) was

TABLE 34: PROJECT PERMITS AND APPROVALS

Agency	Permit/Approval	Status
		received on February 24, 2105 to address the impacts on San Joaquin kit fox from construction activities associated with soundwalls and the use of temporary k-rail barriers. Additionally, Biological Opinion 08ESMF00-2013-F-0373-R001 was issued by the Fish & Wildlife Service on July 30, 2015, which removes the requirement to install modified k-rail barrier on SR 58 from post mile R52.3 to post mile R55.4 and on SR 99 from post mile 22.1 to post mile 22.7. Biological Opinion and subsequent amendments are provided in Attachment B Final Environmental Document, Volume 2, Appendix I.
Federal Emergency Management Agency	Conditional Letter of Map Revision and Letter of Map Revision	During the design phase of the project, coordination with the Federal Emergency Management Agency would be required to ensure there are no improvements that are incompatible with the floodplain.
U.S. Army Corps of Engineers	Section 404 Permit pursuant to the Clean Water Act for filling or dredging "Waters of the United States"	Based on changes to existing conditions of jurisdictional waters and revised preliminary design plans, permanent impacts to Waters of the U.S. have been reduced to less than 0.10 acre. Currently, permanent impacts to Waters of the U.S. for Preferred Alternative B are 0.009-acre. If final design plans do not exceed permanent impacts greater than 0.10 acre, the project is not required to submit a Section 404 Nationwide Permit #14 Pre-Construction Notification form to the U.S. Army Corps of Engineers; however, if impacts are greater than 0.10 acre, a Section 404 Nationwide Permit #14 will be obtained prior to construction and a pre-construction notification form will be completed and submitted to U.S. Army Corps of Engineers. The project would comply with all general conditions required under Nationwide Permit authorization, in addition to any regional or case-specific conditions imposed by the U.S. Army Corps of Engineers.
Federal Highway Administration	Air Quality Conformity Determination	The Federal Highway Administration made a finding that the project is consistent with the requirements of the Clean Air Act on August 7, 2014.
Federal Highway Administration and California Department of Transportation	Project Management Plan and Initial Financial Plan	This is required by FHWA on Mega Projects over $500 million. These plans will be completed during the PS&E phase.
	Oversight Agreement	This agreement identified oversight duties between FHWA and Caltrans. The Oversight agreement will be completed during the PS&E phase.
California Department of Transportation	Encroachment Permits	Caltrans would need to issue an encroachment permit to allow the contractor to construct portions of the project within State right of way.
California Department of Fish and Wildlife	Section 1602 Agreement for Streambed Alteration pursuant to	Caltrans will need to finalize a 1602 Agreement before construction begins.

TABLE 34: PROJECT PERMITS AND APPROVALS

Agency	Permit/Approval	Status
	Section 1600 of the *California Fish and Game Code*	
California Transportation Commission	Route Adoption/Route Transfer/Temporary Route Adoption	The route adoption/route transfer/temporary route adoption for SR 58 would require the California Transportation Commission's approval. Coordination with the commission would occur once the project has been approved. Caltrans and the city of Bakersfield will enter into an agreement to document improvements on the Westside Parkway that will need to be completed prior to Caltrans approving a route adoption/route transfer/temporary route adoption for SR 58 from Interstate 5 to SR 99.
State Historic Preservation Officer	Memorandum of Agreement	On January 6, 2015, the State Historic Preservation Officer signed the Memorandum of Agreement, which includes measures to minimize potential effects to historic properties. This is included in Attachment B Final Environmental Document, Volume 2, Appendix J, Key Correspondence.
California Transportation Commission, Caltrans and the city of Bakersfield	Relinquishment Agreement	The city of Bakersfield and Caltrans would enter into an agreement to relinquish the current alignment from Allen Road to Interstate 5 to the local jurisdictions.
	Facility Improvement Agreement	Caltrans and the city of Bakersfield will enter into an agreement to document improvements on the Westside Parkway that will need to be completed prior to Caltrans approving a route adoption/route transfer/temporary route adoption for SR 58 from Interstate 5 to SR 99.
	Freeway Agreements	Superseding State Route 99 and State Route 58 freeway agreements for changes at the State Route 58 (East) interchange, closure of surface streets and record changes to existing agreements would occur after the final design phase.
Caltrans and the city of Bakersfield	Cooperative Agreement (construction phase)	A cooperative agreement between Caltrans and the city of Bakersfield outlining their respective responsibilities for project implementation would be executed before construction begins.
	Agreement for Park Use and Modification	Caltrans and the City have coordinated on improvements required to the local park facilities to offset any effects from the project. An agreement would be drafted once the project has been approved.
	Maintenance Agreement	An agreement between Caltrans and the city of Bakersfield would identify responsibility for maintenance of enhanced aesthetic features, including graffiti removal.

TABLE 34: PROJECT PERMITS AND APPROVALS

Agency	Permit/Approval	Status
Caltrans and the County of Kern	Maintenance Agreement	An agreement between Caltrans and the County of Kern would identify responsibility for maintenance of the intersection improvements at Stockdale Highway and SR 43.
City of Bakersfield	Route adoption/route transfer of street right-of-way Update General Plan	For those roadways that are being realigned, closed, or made into cul-de-sacs, the city would need to route adopt/route transfer the roadway right-of-way. Once the State Highway System is changed, the updated plan should be reflected in the local General Plan and, a change to the Master Plan of Bikeways would be required for Alternative B.
County of Kern	Encroachment Permit Update General Plan	The County of Kern would need to issue encroachment permits to allow the contractor to change local streets within the County of Kern jurisdiction. Once the State Highway System is changed, the updated plan should be reflected in the local General Plan.
State Water Resources Control Board and the Central Valley Regional Water Quality Control Board, Region 5	Storm Water Discharge Permit National Pollutant Discharge Elimination System Coordination	Compliance with (1) the Statewide National Pollutant Discharge Elimination System Permit for Storm Water Discharge from the State of California, Department of Transportation Properties, Facilities, and Activities (Order Number 2012-0011-DWQ, NPDES No. CAS000003) and (2) the National Pollutant Discharge Elimination System General Permit for Storm Water Discharge Requirements for Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by 2010-0014-DWQ and 2012-0006-DWQ).
	Section 401 Certification pursuant to the Clean Water Act	Certification of compliance would be obtained before construction.
	Discharge of Construction Water (Dewatering)	If dewatering is expected for the preferred alternative, the contractor must fully conform to the requirements specified in Order No. R5-00-175, General Waste Discharge Requirements for Discharges to Surface Water which Pose an Insignificant (*De Minimus*) Threat to Water Quality, from the Central Valley Regional Water Quality Control Board. Discharges of unpolluted water of less than 250,000 gal/24 hours day (less than 4 months) are regulated by Caltrans Statewide NPDES Permit.
	Municipal Separate Storm Sewer System Permit	The Central Valley Regional Water Quality Control Board has issued waste discharge requirements for the County of Kern and the city of Bakersfield for urban storm water discharges (Order No. 5-01-130, National Pollutant

TABLE 34: PROJECT PERMITS AND APPROVALS

Agency	Permit/Approval	Status
		Discharge Elimination System No. CA00883399). During subsequent design phases, the latest version of the Storm Water Management Plan/Standard Urban Storm Water Mitigation Plan developed and implemented by the County of Kern and the city of Bakersfield must be evaluated to determine which requirements apply to a road and highway project such as the Centennial Corridor.
San Joaquin Valley Air Pollution Control District	Dust Control Permit and Approved Air Impact Assessment per Rule 9510, Indirect Source Review Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities), limits to fugitive particulate matter emissions during construction activities	Coordination at a staff level has occurred as part of preparation of the Air Quality Study Report. The permit would be acquired after project approval and before construction.
	National Emission Standards for Hazardous Air Pollutants Notification	Notification to the San Joaquin Valley Air Pollution Control District will be made 10 days prior to construction activities (changes or demolitions).
	Voluntary Emission Reduction Agreement	A Voluntary Emission Reduction Agreement was executed on November 13, 2014 between Caltrans and the San Joaquin Valley Air Pollution Control District to provide improvements to local air quality within the project area. This is included in Attachment B Final Environmental Document, Volume 2, Appendix L, Voluntary Emission Reduction Agreement.
Public Utilities Commission	Approval for the construction of new or modification of existing, highway-rail crossings (General Order 88B and 26D) (Alternative C)	Coordination has not begun with the Public Utilities Commission. This coordination would occur if Alternative C was selected as the preferred alternative. (Alternative B has been selected as the Preferred Alternative).
California Department of Conservation, Department of Oil, Gas, and Geothermal Resources	Abandonment of oil wells would need to be done in compliance with Department of Conservation requirements	Coordination has not begun. Before construction, a Notice of Intent would be filed with the Department of Conservation, Division of Oil, Gas and Geothermal Resources, and an abandonment plan would be prepared for all oil wells that would be abandoned.
BNSF Railway, Union Pacific Railroad, and San Joaquin Valley Railroad	Acquisition of right-of-way or easement and changes to existing agreements for work in the rail corridor	Coordination with the railroad would occur prior to construction.
Central Valley Flood Protection Board	Approval of flood control improvements and floodway encroachment	Coordination would begin during the design phase of the project.

OTHER AGREEMENTS

Railroad

The project anticipates entering into a Service Agreement with the BNSF Railroad for flaggers and inspection during periods of work on the operating corridor. It is also anticipated that a C+M Agreement and OE clearance, Section 13 Clauses, will be inserted into the Specifications. A CPUC Application, General Order 88B, will be required where existing bridge structures will be widened and a Formal 26D application will be necessary where new connectors or bridges will be constructed.

Utility

Due to master utility agreements currently in place, individual utility agreements are expected with the associated owners of gas, electrical, water, and communication facilities with each of the build alternatives. Additional agreements may be required depending upon selection of the preferred alternative. For each build alternative agreements will be needed for the oil companies.

Maintenance

The city of Bakersfield requested that the WSP aesthetics theme be used throughout the Centennial Corridor project from Mohawk Street to Cottonwood Road. Caltrans has agreed to this in a memorandum to the city of Bakersfield, dated May 6, 2013. The memorandum defines the requirements for the City to provide tan paint for graffiti removal, because by law, Caltrans can only use recycled gray paint for graffiti removal. The maintenance of the enhanced aesthetic features will be determined through a maintenance agreement between Caltrans and the city of Bakersfield.

INVOLVEMENT WITH A NAVIGABLE WATERWAY

The Sacramento District of the Army Corps of Engineers has determined that the Kern River, as defined by the “Headwaters of the North Fork Kern River in Sequoia National Park and the headwaters of the South Fork Kern River in Inyo National Forest through their convergence at Lake Isabella and down to its historic terminus into Buena Vista Lake”, to be “navigable-in-fact” traditional navigable waters under United States Code of Federal Regulations 33 CFR 328.3(a)(1).

As a navigable-in-fact waterway, the Kern River is subject to the public right of navigation and incidents of navigation (i.e., boating, fishing, swimming, hunting and other recreational uses) up to the high water mark. This right does not allow for access across private property to access navigable waters. However, where a public road or bridge easement across private property intersects a waterway, lawful access to the waterway may be provided.

Direct access from the new bridge is not feasible as pedestrian use of the structure and approach roadway is prohibited for public safety. However, each of the build alternatives contains provisions to provide new or maintain adjacent access pathways to the navigable water over public lands.

TRANSPORTATION MANAGEMENT PLAN FOR USE DURING CONSTRUCTION

A preliminary TMP has been prepared for the Project (see Attachment I). The objective of the TMP is to minimize project-related traffic impacts and delays associated with the construction of the Project. The plan outlines the implementation of traffic control strategies and timely distribution of traffic-related information to emergency services, local citizens, and businesses. The following strategies are recommended:

- *Public awareness campaign* (PAC) before and during construction to provide information on various measures the traveling public may use to avoid anticipated traffic delays caused by construction. PAC elements include brochures and mailers, press releases/media alerts, public information meetings, planned lane closure website, government relations and community outreach, and telephone hotline.
- *Motorist information strategies* provide advance notice regarding potential delays and/or available alternate routes during construction. These strategies include changeable message signs (portable and fixed), ground mounted signs, highway advisory radio, and Caltrans Highway Information Network.
- *Incident management* such as construction zone enhanced enforcement program (COZEEP) enables Caltrans to hire California Highway Patrol (CHP) officers and vehicles to patrol project construction zones. A transportation management team would help expedite the removal of minor and major incidents and manage traffic by providing traffic information to the media.
- *Construction strategies* such as a lane requirements chart in the special provisions to be enforced in order to minimize traffic impact.
- *Demand management strategies* such as temporary ramp metering and rideshare incentives that are aimed to reduce vehicular traffic demand on facilities.
- *Alternative route strategies* such as signed detour, adjusting signals along detour routes, parking restrictions, and traffic control officers to reduce traffic through the construction zone by diverting traffic to feasible alternative routes.

STAGE CONSTRUCTION

All mainline lanes on SR 99 and the WSP are anticipated to be operational during peak hours. Temporary ramp closures are anticipated on SR 99. Various ramp closures would be required for reconstruction of bridge abutments, grading work, and ramp realignment construction. For prolonged ramp closures, detours would be available. A final transportation management plan (TMP) would be developed along with a comprehensive stage construction plan.

The anticipated construction staging sequence is as follows:

1. Mobilization
2. Clearing and grubbing, existing features removal and salvage
3. Implement TMP
4. Re-delineate the WSP and SR 99 within project limits

5. Slope excavation and embankment establishment
6. Grading and paving of new alignment
7. Structures construction
8. Shift traffic onto the new construction

A detailed stage construction plan would be developed during the plans, specifications, and estimates (PS&E) stage.

ACCOMMODATION OF OVERSIZE LOADS

State freeways must be designed to provide passage for vehicles of unrestricted height while moving in and out of the area; to or from airports, harbors, and testing sites; and to or from the ultimate destination for use or assembly. The California Vehicle Code (35250) states that "no vehicle load shall exceed a height of 14 feet measured from the surface upon which the vehicle stands, except that a double-deck bus may not exceed a height of 14 feet, 3 inches." The FHWA has made a commitment to the Department of Defense (DOD) to maintain a 16 foot vertical clearance in this Network where it exists and to upgrade clearance less than 16 feet as rapidly as practical.

There are three overcrossing structures on SR 99 within the project limits which do not meet FHWA commitment heights: Ming Avenue and Belle Terrace at 15 feet, 2 inches and Brundage Lane at 15 feet, 1 inch. Non-standard vertical clearance is perpetuated when it can be shown that the structure is not a constraint in the movement of oversized loads or does not have a history of being hit by oversized loads. Bridges are rarely replaced for non-standard vertical clearance alone as this type of improvement is usually cost prohibitive. Belle Terrace is proposed for reconstruction due to horizontal conflicts with support columns and ramp geometrics. The new overcrossing will satisfy current vertical clearance standards. Design exceptions are proposed for the other two overcrossings. There are approximately 16 other overcrossing structures along SR 99 from I-5 to 7th Standard Road with vertical clearances ranging from 15 feet to 15 feet, 6 inches. Accommodation of unrestricted loads requires traffic diversion to other SRs and city/county streets.

GRAFFITI CONTROL

Adequate access restrictions shall be established to limit the potential for graffiti. In addition, the following measures will be implemented during design, where feasible, to discourage graffiti:

- Avoidance of smooth surfaces, where feasible.
- Use of planting, where appropriate, to cover surfaces.
- Use of anti-graffiti coatings on retaining walls and sound walls, as appropriate.

OTHER APPROPRIATE TOPICS

Modification of Interstate Access Control

FHWA has access modification authority for interstate facilities that use federal funds for construction. A detailed study would be carried out to analyze the effect of this modified access on the operations and safety of I-5 whenever Segment 3 is funded.

7. PROGRAMMING

Milestones	Delivery Date
Approval of Draft Project Report	April 2014
Circulate Draft Environmental Document	May 2014
PA&ED	November 2015
Project PS&E	January 2016
Right of Way Certification	February 2016
Ready to List	March 2016
Begin Construction	July 2016
End Construction	December 2018

The current funding plan for the Centennial / SR 58 connector based on Alternative B is as follows:

- SAFETEA-LU Section 1301 PNRS = $90.44 million
- SAFETEA-LU Section 1302 NCIPP = $289.2 million
- Other federal (TEA 21) = $12.97 million
- State = $53 million
- City of Bakersfield = $206.89 million
- County of Kern = $57.5 million

TABLE 35 – CAPITAL COST SUMMARY (Year 2016)[1, 2]

Category	Alternative A	Alternative B	Alternative C
Roadway items	$281,352,000	$243,755,000	$256,323,000
Structures	$140,564,000	$133,958,000	$176,242,000
Environmental Mitigation	$ 15,150,000	$ 12,240,000	$ 19,680,000
Subtotal	$437,066,000	$389,953,000	$452,245,000
Right of Way [3]	$253,894,000	$180,000,000	$213,288,000
Total	**$690,960,000**	**$569,953,000**	**$665,533,000**

Notes:
1. Construction Begins.
2. 3% escalation rate used compounded per year.
3. Additional Condemnation Settlement Costs added to Right of Way Data Sheet Costs.

Preliminary capital construction costs were estimated for Alternatives A, B, and C. These cost estimates include the roadway construction cost, structures cost, environmental mitigation costs and right of way costs for all proposed improvements. Itemized cost details are presented in Attachment F. All costs associated with the

acquisition of fee, easement and temporary interests in the railroad right of way have been included in the R/W estimate.

The Beltway Operational Improvement Project (see *Local Planning* section of this report) has an estimated cost of $113 million and its funding is included in the capital cost summary chart above. It may be determined to remove the funding prior to completion of the Project Report.

Tables 35, 36 & 37 provide the Project capital cost, Project support cost, and Project support Person Year (PY) tables for all alternatives.

An independent quality assurance (IQA) Cooperative Agreement 08-055 (District Agreement 06-1386), for PA&ED phase, and an IQA Cooperative Agreement 13-006 (District Agreement 06-1539), for PS&E and ROW phases, has been entered into between the city of Bakersfield and the State of California to construct a new freeway between SR 58 and I-5. (See Attachment J).

TABLE 36 – PROJECT SUPPORT COST (Year 2009-2018)

Category	Alternative A	Alternative B	Alternative C
PA&ED	$39,000,000	$39,000,000	$39,000,000
Plans, specifications, and estimates (PS&E)	$46,000,000	$41,000,000	$47,000,000
Right of way	$15,000,000	$15,000,000	$16,000,000
Construction management	$50,000,000	$45,000,000	$52,000,000
Total	**$150,000,000**	**$140,000,000**	**$154,000,000**

TABLE 37 - CAPITAL SUPPORT ESTIMATE FOR CALTRANS RESOURCES

	PA&ED	PS&E	Right of Way	Construction	Total
Estimated PY's	**52.0**	**39.1**	**2.3**	**25.9**	**119.3**
Total	**52.0**	**39.1**	**2.3**	**25.9**	**119.3**

8. REVIEWS

FHWA COORDINATION

Effective July 1, 2007, under the NEPA Delegation Pilot Program Memorandum of Understanding (MOU), Caltrans has assumed the FHWA's responsibilities under NEPA as well as the FHWA's consultation and coordination responsibilities under other federal environmental laws for most highway projects in California. Caltrans, in essence, is now the lead federal agency for the Centennial Corridor Project where it has assumed the FHWA's responsibilities.

The PA/ED cooperative agreement was approved on 4/8/2008.

Conceptual approval from FHWA for the connection at I-5, as it relates to the ultimate alignment of Segment 3, will be sought in the future since the ultimate alignment is greater than 20 years out for construction. FHWA conceptual approval is valid for only eight years.

This project is eligible for federal-aid funding and is considered to be a FULL OVERSIGHT project under current FHWA stewardship agreements.

Under the FHWA joint stewardship agreement entered into with the State of California, the Project is deemed a "high-profile" project because it meets the criteria for a "major project" (greater than $500 million in cost). A major project agreement with FHWA will be required. A financial plan has been prepared and submitted to FHWA and is updated annually.

Review of *Draft Project Report* and the project quality review were completed in the district as follows:

Field Review:	Chris Hitch, Patricia Scrivner, Joel Haven, Girair Kotchian, Daniel Wagner	Date	10/09/12
Traffic Operations:	Albert Lee, Steve Milton, Rick Helgeson, Kevin Keister, Kirsten Helton, Koko Widyatmoko, Girair Kotchian, Bob Scales, Glen Parker, Joe Harake	Date	09/20/11
Right of Way:	Rick Helgeson, Kevin Keister, Chanin Selway, Don Anderson, Charles Webb, Girair Kotchian, Glen Parker, John Cutler, Chris LaBonte	Date	09/21/11
District Maintenance:	Marco Sanchez, Steve McDonald Rick Helgeson, Steven Milton, Kevin Keister, Daniel Wagner, Glen Parker, Girair Kotchian	Date	03/07/12
HQ Design Coordinator:	Christine Inouye	Date	11/16/12

The Mandatory Design Exception Fact Sheets were approved and signed November 16, 2012. The Advisory Design Exception Fact Sheets were approved and signed January 28, 2014.

9. PROJECT PERSONNEL

Principal contacts for the Project are as follows:

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10. LIST OF ATTACHMENTS

ATTACHMENT A:	Location Map
ATTACHMENT B:	Final Environmental Document
ATTACHMENT C:	Design Alternatives
ATTACHMENT D:	Utility Information Sheet and Conflict Matrix
ATTACHMENT E:	Storm Water Data Report
ATTACHMENT F:	PR Cost Estimate
ATTACHMENT G:	Right of Way Data Sheet
ATTACHMENT H:	Screening Analysis of Alternatives Considered
ATTACHMENT I:	Traffic Management Plan
ATTACHMENT J:	Cooperative Agreements
ATTACHMENT K:	Advance Planning Studies