Appendix N Screening of Alternatives Memoranda

BonTerra CONSULTING

MEMORANDUM

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To: Centennial Corridor Project Development Team

From: Kathleen Brady and Julie Cho, BonTerra Consulting

Subject: Centennial Corridor Preliminary Screening of Alternatives Meeting Summary

A subcommittee of the Centennial Corridor Project Development Team (PDT) held a meeting on August 12, 2008, at the Thomas Roads Improvement Program (TRIP) office in Bakersfield to conduct a preliminary screening of alternatives for the Centennial Corridor Project. The subcommittee included representatives from the California Department of Transportation (Caltrans), the City of Bakersfield, the County of Kern, Parsons (the program management firm for the TRIP), HNTB, and BonTerra Consulting. The subcommittee's findings were presented to the full PDT for concurrence on the same day. A summary of the meeting and appropriate background materials is presented below.

Public Scoping/Identification of Alternatives

As part of the initial scoping process for the Centennial Corridor Project, Caltrans identified five initial alternatives. These five alternatives were introduced at a public information meeting on March 4, 2008, and at two neighborhood meetings held on May 22, 2008, and July 21, 2008. These alternatives, which were only shown at a conceptual level, were identified as Alternatives A through E. Caltrans and TRIP requested input from the public on these alternatives, and provided the opportunity for the public to recommend other alternatives to be considered for future study. The public recommended four new alternatives and indicated that Alternative 15 from the *Bakersfield Systems Study* (2002) be considered for future study.

Subsequent to these initial community meetings, Caltrans compiled an array of alternatives to be considered for the initial screening process. These alternatives include the initial five alternatives introduced at the public information meeting, the

four alternatives suggested by the public, and alternatives from previous studies (the *Bakersfield Systems Study* [2002] and the *Final Route 58 Route Adoption Project, A Tier 1 Environmental Impact Statement/ Environmental Impact Report* [Tier 1 EIS/EIR] [2002]). Even though the *Bakersfield Systems Study* and the Tier 1 EIS/EIR rejected some of these alternatives, Caltrans determined that they should be subject to the initial screening criteria as potential alternatives for the Centennial Corridor Project. Including the No Build Alternative and a transit and a transportation systems management alternative, a total of 18 alternatives were identified for the initial screening.

Screening Criteria

The Caltrans *Project Development Procedures Manual* (December 2007) discusses the need to identify reasonable alternatives. This manual cites the Council of Environmental Quality's "Questions and Answers about NEPA," which states that "Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of [FHWA/Caltrans]." The goal is to have a reasonable range of alternatives. The *Project Development Procedures Manual* identifies that when there is a large number of potentially reasonable "build" alternatives, it is only necessary to present a representative number of the most reasonable examples. This is consistent with the *CEQA Guidelines*, which state, "The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making." (*CEQA Guidelines*, Section 15126.6)

The screening process is an iterative process meaning there will be multiple opportunities through the project where the viability of alternatives will be evaluated. Alternatives can be both added and eliminated at any time during the environmental process. This initial screening process is intended to eliminate from further study those alternatives that are not considered reasonable and feasible. The intention is to identify only the most viable alternatives for further detailed evaluation. This initial screening considers if there are any components or characteristics of an alignment that would result in the inability to construct the alignment or limit its ability to function in an efficient manner. For an alternative to be screened out at this point in the process the problem must be readily apparent without the benefit of detailed analysis. As studies are conducted as part of the environmental and preliminary engineering process additional alignments may be dropped from consideration if the studies determine that an alignment is not reasonable and feasible.

In the interest of being all-inclusive, the 18 alternatives that have been identified to date were evaluated through a preliminary screening process. The criteria used in the screening process were developed through coordination with the PDT, which consists of representatives from Caltrans - District 6, the City of Bakersfield, the County of Kern, the Kern Council of Governments, Parsons (the City's TRIP program management consultant), and HNTB (the Preliminary Assessment/Environmental Document Consultant). The screening criteria were developed through an iterative process of the PDT members, through incorporation of criteria from the Caltrans *Project Development Procedures Manual* and review of the requirements of Section 1302 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Once a comprehensive list of potential screening criteria was developed, the PDT refined the list, and the outcome resulted in the eight criteria which are explained below and shown in Table 1.

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Section 1302?

In 2005, SAFETEA-LU was passed. Nationwide, SAFETEA-LU authorizes $286 billion in spending for the 6-year period between 2004 and 2009 for numerous surface transportation programs such as highways, transit, freight, safety, and research. Section 1302, the National Corridor Infrastructure Improvement Program, establishes a program to "make allocations to States for highway construction projects in corridors of national significance to promote economic growth and international and interregional trade…" The Centennial Corridor is one of six projects in California identified for funding as part of this program.

The PDT considered each alternative's ability to meet this mandate. A "yes" response indicates that an alternative meets the intent of the Legislative Mandate, while a "no" response indicates that the intent of the Legislative Mandate is not met.

Criterion 2: Does this alternative satisfy the purpose and need for the project?

A project's "Need" is an identified transportation deficiency or problem, and its "Purpose" is the set of objectives that will be met to address the transportation deficiency. The Purpose and Need for Centennial Corridor was developed through coordination with the PDT.

This project will address a variety of needs, including unacceptable current and future congestion levels; discontinuity of State Route 58 in metropolitan Bakersfield; lengthy commercial and other travel time through a major freight corridor; extensive existing and planned development which results in inadequate regional access to the Bakersfield central business district; and roadway deficiencies and safety concerns along the shared portion of State Routes 58 and 99.

The project Purpose is listed below.

- Provide interregional and regional connectivity for east-west traffic traveling within Metropolitan Bakersfield and Kern County.
- Provide continuity for State Route 58 in Kern County.
- Promote economic growth and international and interregional trade by improving linkages between existing segments of the Interstate system.
- Reduce commercial and regional commute time through a major freight corridor.
- Improve local east-west circulation and reduce congestion to accommodate existing and planned land uses in accordance with adopted growth projections.
- Improve operations and safety on the shared portion of State Route 58 and State Route 99.

It should be noted that an alternative does not need to fully meet every element of the Project's purpose at this point in the process. A "yes" response indicates that an alternative meets the intent of the purpose and need. A "no" response indicates that at the intent of the purpose and need is not met.

Criterion 3: Does this alternative avoid severe operational and safety problems?

The basis for development of this criterion is whether an alternative can be designed to meet the minimum Caltrans design standards for an access controlled facility. This would include geometric standards typical for highway design speeds. A "yes" response indicates that an alternative can be designed to meet the minimum Caltrans standards, while a "no" response indicates an alternative could not be designed to minimum Caltrans standards, resulting in severe operational and safety problems. This criterion does not require that an alternative be built to full Caltrans design standards, as outlined in the *Highway Design Manual,* but would be able to meet mandatory safety standards.

Criterion 4: Can this alternative be completed within funding reasonably available to the project?

For the Centennial Corridor Project, a maximum threshold of $800 million was identified as the maximum reasonable construction cost for the Project. This amount was derived by using the $650 million currently allocated for the Project plus a contingency of approximately 25 percent. In the early phases of project development, a 25 percent contingency is routinely used when estimating costs. A contingency above the allocated budget is provided in the event additional funding becomes available or as the alternative moves forward the alignment can be engineered in a more efficient manner, which would result in cost savings. A "yes" response indicates that an alternative can be constructed for $800 million or less; while a "no" response

indicates that construction of an alternative would require more than $800 million and would be cost prohibitive.

Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts, that would cause it to be rejected without further environmental evaluation?

This criterion examines the alternative for unacceptable adverse social, economic, or environmental impacts. Those impacts would be of such a magnitude that the viability of implementing the Project would be jeopardized. Examples of this would be if the Project would traverse an area which is severely contaminated by hazardous materials or the impacts on natural resources would be so severe that required permits from the resource agencies could not be obtained. To meet this criterion, the impact must be clearly evident without the need for further evaluation, and of such a magnitude that it could not reasonably be overcome.

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?

This criterion is two parts. The first part is just an inquiry as to whether the alternative has been considered in a screening process for a previous Project. A "yes" response to this part of the question indicates that this is the first time that the alternative has been considered in a screening process. If the response is "no," then the second part of the criterion applies. It is this second question which factors into this screening process. The second part of the criterion focuses on whether the alternative was subjected to a prior screening process and moved forward for further evaluation. A "no" response to the second part of the criterion indicates that the alternative was previously considered in a screening process; however, it failed to meet all of the screening criteria and therefore did not pass beyond the prior screening process. The fact that an alternative did not pass the screening criteria of the previous study does not mean it is not a viable alternative but the basis for elimination of the alternative must be considered.

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[2]?

This criterion only applies to alternatives which have one "no" response to the above criteria (Criteria 1 through 6[1]). This criterion focuses on whether further studies are still warranted despite a "no" response to any of the aforementioned criteria (Criteria 1 through 6). An N/A (not applicable) response indicates that this criterion is not

[2] Criterion 6 is a two part question. However, a "no" response to the second question is the determinant as to whether or not this criterion is met. Only a "no" response to the second question counts as a "no" for Criterion 6.

applicable because all previous responses were determined to be "yes" or there were more than two "no" responses, in which case Criterion 8 would apply. A "yes" response indicates that the alternative was determined to warrant further studies. A "no" response indicates that it was determined that further studies were not warranted and the alternative should be dropped from further study.

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?

This criterion only applies to alternatives which have two or more "no" responses to any of the above criteria (Criteria 1 through 6). The purpose of this criterion is to consider combined impacts. There may be cases where, when considered individually, not satisfying a single criterion would not be considered a sufficient enough impediment to drop the alternative from further consideration; however, two or more are considered together would make the alternative neither feasible or reasonable. An N/A (not applicable) response for this criterion indicates: (1) this criterion is not applicable because all previous responses were determined to be "yes," or, (2) only one "no" response was generated. A "yes" response indicates that the alternative was determined to warrant further studies. A "no" response indicates that it was determined that further studies were not warranted and the alternative should be dropped from further study.

Screening Criteria Summary

Table 1 is a summary matrix of the alternatives and whether they meet the screening criteria. The following provides a discussion (by alternative) of each "no" response given for any screening criteria. The alternatives are shown on the attached exhibit (Centennial Corridor Project Conceptual Alternatives).

No Build Alternative

An analysis of the No Build Alternative is required under the National Environmental Policy Act and California Environmental Quality Act. Therefore, the No Build Alternative is an alternative that will be carried forward for further study.

Alternative A – West of SR-99 (Alignment A)

Alternative A proposes to construct a new freeway west of the State Route 58/99 interchange. The alignment would travel in a westerly direction for approximately one mile on the south side of Stockdale Highway, at which point it would turn in a northwesterly direction and span the Carrier Canal, Truxtun Avenue, and the Kern River. The proposed route would then connect to the Westside Parkway alignment between Mohawk Street and Coffee Road. The total length of the project from the existing State Route 99/State Route 58 interchange to Interstate 5 utilizing Alternative A would be approximately 16.31 miles.

Alternative A passed all the criteria and will move forward for further evaluation.

Alternative B – West of SR-99 (Alignment B)

Alternative B proposes to construct a new freeway west of the State Route 58/99 interchange. The alignment would travel in a westerly direction for approximately one-half mile on the south side of Stockdale Highway, at which point it would turn to the northwest, span the Carrier Canal, Truxtun Avenue, and the Kern River. Alternative B would connect to the Westside Parkway alignment at the Mohawk Street interchange. The total length of the project from the existing State Route 99/State Route 58 interchange to Interstate 5 utilizing Alternative B is approximately 16.61 miles.

Criterion 6 focuses on whether the alternative has been subject to previous screening and whether it passed through the screening process and received a detailed evaluation. This alternative was previously identified in the Tier 1 EIS/EIR as a segment of the Brimhall Road and Kern River Alignments; however, it did not pass the screening and therefore did not receive full environmental evaluation. This alternative was screened out because it would not meet purpose and need (large relocation impact and incompatibility with land use plans.) However, this determination was made based on the assumption that this alternative not only included the connection shown as Alternative B, but also the impacts associated with the east-west connection to Interstate 5 and needed improvements along Brimhall Road. These impacts are not included with the current project. Because there is a "no" response to one of Criteria 1 through 6, Criterion 7 would apply. The reason why this alignment did not pass the previous screening criteria must be considered. Since the Brimhall Road alignment is not being considered as part of a component of Alternative B in this Centennial Corridor Project, the basis for the previous determination has changed. It was determined that when considered on its own, there is not sufficient information to find that Alternative B is not a reasonable and feasible alternative.

Alternative B will move forward for further evaluation.

Alternative C – Parallel to SR-99

Alternative C proposes to connect existing State Route 58 to the Westside Parkway by means of routing new lanes adjacent and parallel to existing State Route 99. These additional lanes would run parallel to and independent of State Route 99. Movements between State Route 58, State Route 99 and the Westside Parkway would likely be facilitated by braided ramps and freeway-to-freeway connector ramps. The total length of the project from State Route 99 to Interstate 5 utilizing Alternative C is approximately 18.51 miles.

This alternative was previously identified in the Tier 1 EIS/EIR as part of the Kern River Alignment and passed the initial screening evaluation. The Kern River

Alignment was carried forward for further environmental evaluation in the Tier 1 EIS/EIR. Since the "no" response shown under Criterion 6 was only for the qualifying question, the second "yes" answer would be the one that applies to this criterion.

Alternative C passed all the criteria and will move forward for further evaluation.

Alternative D – Union Avenue

Alternative D proposes to construct a new freeway in the vicinity of Union Avenue (State Route 204). The roadway would extend north from State Route 58 for approximately one mile, where it would turn to the west and run parallel to the Burlington Northern Santa Fe railroad tracks. Alternative D would connect to the Westside Parkway alignment at the new interchange at Mohawk Street. The total length of the project from State Route 58 at Union Avenue to Interstate 5 is approximately 18.98 miles.

Alternative D passed all the criteria and will move forward for further evaluation.

Alternative E – Washington Avenue

Alternative E proposes to construct a freeway in the vicinity of Washington Avenue. The roadway would extend north from State Route 58 for approximately one mile, at which point it would turn to the west and run parallel to the Burlington Northern Santa Fe railroad tracks. Alternative E would connect to the Westside Parkway alignment at the new interchange at Mohawk Street. The total length of the project from State Route 58 at Washington Avenue to Interstate 5 is approximately 20.50 miles.

Detailed cost estimates for Alternative E identified that the cost to construct this alternative would be approximately $1.08 billion which exceeds 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.

It should also be noted that from an operational perspective, this alternative is similar in nature to Alternative D.

Since there is one "no" response for Criterion 4, Criterion 7 would apply. The evaluation under Criterion 7 determined that because Alternative E exceeds the available funding, it is an unreasonable alternative.

Alternative E will not move forward for further evaluation.

Alternative F – South Beltway

Alternative F proposes to construct a freeway in the southern and eastern portion of Bakersfield. The roadway would begin at Interstate 5 approximately 3.5 miles south of State Route 119, and would generally extend in a northeastern direction for approximately 7.56 miles to a location approximately 1.2 miles southwest of the

State Route 119 and State Route 99 intersection. At this location, the roadway would run in a southeastern and eastern direction, crossing State Route 99, for approximately 4.25 miles. The roadway would turn to the northeast and cross State Route 119 in a northern direction until it crosses State Route 184, approximately 2.59 miles south of State Route 58. At this point, the roadway would continue for approximately 3.6 miles in a slight northeastern direction to a location approximately 1.0 mile south of State Route 58. The roadway would turn to the north and terminate at its intersection with State Route 58. The total length of the Project from State Route 58 to Interstate 5 is approximately 23.86 miles.

Alternative F does not meet the requirements of Criterion 2 because it would not meet the Project's purpose of providing interregional and regional connectivity for east-west traffic travelling within Metropolitan Bakersfield and Kern County. Alternative F is not located within Metropolitan Bakersfield.

Detailed cost estimates for Alternative F identified that the cost to construct this alternative would be approximately $1.29 billion which exceeds the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative F would be cost prohibitive and would not meet the requirements of Criterion 4.

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 previously identified in the *Bakersfield Systems Study* as a segment of one of the alternatives; however, as part of that study it did not pass the screening and did not receive further evaluation.

Since there are multiple "no" responses to previous criteria, Criterion 8 would apply. It was determined the combination of "no" responses cause Alternative F not to be a reasonable and feasible alternative.

Alternative F will not move forward for further evaluation.

Alternative G – Hageman Road

Alternative G proposes to construct a freeway in the vicinity of Hageman Road. The roadway would begin at Interstate 5 and would parallel Rosedale Highway approximately one mile to the south for about four miles. At this point, it would turn northeastward and follow Meacham Road between Rosedale Highway and Hageman Road, turning northeastward 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 southeastward, following the Friant-Kern Canal for about 0.5 mile, crossing the canal and extending about 1.0 mile before turning northeastward and terminating at Route 99 at the existing Route 99/Route 204

interchange. The total length of the project from Route 99 at Hageman Road to Interstate 5 is approximately 19.76 miles.

Detailed cost estimates for Alternative G have not been completed. More detailed estimates will need to be developed before it can be ascertained whether the alternative meets 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).

Criteria 7 and 8 cannot be answered until it is known whether this alternative meets Criteria 4 and 6.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether Criteria 4 and 6 have been met. Therefore, Alternative G requires further evaluation to determine whether it is a reasonable alternative.

Alternative G will move forward for further evaluation.

Alternative H – Rosedale Highway (Elevated Alignment)

Alternative H proposes to construct an elevated freeway in the vicinity of Rosedale Highway. This roadway would begin at a future connection with the Hageman Road Alternative (Alternative G), located approximately 0.75 mile east of Enos Lane (Route 43). The alignment would extend in a southeastern direction for approximately 0.30 mile and then would proceed east to Route 99. The total length of Alternative H from Route 99 to Interstate 5 is approximately 11.04 miles.

Detailed cost estimates for Alternative H have not been completed. More detailed estimates will need to be developed before it can be ascertained whether the alternative meets Criterion 4.

With the exception of Criterion 4, all other Criteria 1-5 were met by this alternative. Criteria 7 and 8 cannot be answered until it is known whether this alternative meets Criterion 4.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether Criterion 4 has been met. Therefore, Alternative H requires further evaluation to determine whether it is a reasonable alternative.

Alternative H will move forward for further evaluation.

***Alternative I – Widen SR-58* (Existing Rosedale Highway)**

Alternative I proposes to construct a freeway along the existing alignment of Route 58. This roadway would begin at its intersection with State Route 99 and proceed

west along existing Route 58 to its terminus at Interstate 5. The total length of the project is approximately 18.68 miles.

Detailed cost estimates for Alternative I have not been completed. More detailed estimates will need to be developed before it can be ascertained whether the alternative meets 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 7 and 8 cannot be answered until it is known whether this alternative meets Criterion 4.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether Criteria 4 and 6 have been met. Therefore, Alternative I requires further evaluation to determine whether it is a reasonable alternative.

Alternative I will move forward for further evaluation.

Alternative J – Southern Alignment (Connection between SR-99 and I-5, just north of SR-119)

Alternative J proposes to construct a freeway in the vicinity of State Route 119. The roadway would begin at Interstate 5 at the State Route 119 interchange. The alignment proceeds east terminating at State Route 99 and Hosking Road, located approximately 1 mile north of State Route 119. The total length of the project from State Route 99 at Hosking Avenue to Interstate 5 is approximately 11.03 miles.

Alternative J would 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 it is not located within Metropolitan Bakersfield.

This alternative has received initial review as part of 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[3] virtually no interregional traffic would use a freeway on the southern alignment and local traffic use would be low.

Since there are multiple "no" responses to previous criteria, Criterion 8 would apply. It was determined the combination of "no" responses cause Alternative J not to be a reasonable and feasible alternative.

Alternative J will not move forward for further evaluation.

[3] 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.

Alternative K – Brimhall Alignment

Alternative K proposes to construct a freeway in the vicinity of Brimhall Road. The roadway would begin at Interstate 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 southeastward and continues east to Coffee Road. The total length of the project from Coffee Road to Interstate 5 using the Brimhall Road Alignment is approximately 14.73 miles.

Alternative K did not pass Criterion 1 because it would not meet the intent of the legislative mandate. Since this alternative does not connect two existing segments of the State Freeway and Expressway System, it would not be able to effectively promote economic growth and international and interregional trade. This alternative would not serve interregional trips.

Similarly, it does not meet the Project's purpose as outlined in Criterion 2. It would not effectively meet any of the bullet items identified in the purpose and need statement.

Detailed cost estimates for Alternative K identified that the cost to construct this alternative would be approximately $821 million which exceeds the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative K would be cost prohibitive and would not meet the requirements of Criterion 4.

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

Since there are multiple "no" responses to previous criteria, Criterion 8 would apply. It was determined the combination of "no" responses cause Alternative K not to be a reasonable and feasible alternative.

Alternative K will not move forward for further evaluation.

Alternative L – Stockdale Alignment

Alternative L proposes to construct a freeway in the vicinity of Stockdale Highway. The roadway would begin at Interstate 5 and would proceed east along Stockdale Highway, terminating at Route 99. The total length of the Project from Route 99 to Interstate 5 is approximately 16.90 miles.

Detailed cost estimates for Alternative L have not been completed. More detailed estimates will need to be developed before it can be ascertained whether the alternative meets Criterion 4.

With the exception of Criterion 4, all other Criteria 1-5 were met by this alternative. Criteria 7 and 8 cannot be answered until it is known whether this alternative meets Criterion 4.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether Criterion 4 has been met. Therefore, Alternative L requires further evaluation to determine whether it is a reasonable alternative.

Alternative L will move forward for further evaluation.

Alternative M – Transit and TSM Alternative

Alternative M will evaluate Transit and Transportation Systems Management (TSM) improvements. TSM focuses on low capital, environmentally-responsive improvements that maximize efficiency of existing facilities. An example of TSM improvements would be providing signal interconnects to facilitate the flow of traffic or providing bus turn-out bays to minimize the interruption of buses along a specific route. Specific transit and TSM measures have not been developed at this point. Preliminary traffic data is required to determine the most effective transit and TSM measures. Once the traffic data is available it will be determined if transit and TSM improvements will be separate alternatives or if it is more effective to evaluate a single alternative that includes both transit and TSM improvements.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether this alternative is able to meet any of the criteria. Therefore, Alternative M requires further evaluation to determine whether it is a reasonable alternative.

Alternative M will move forward for further evaluation.

Alternative 15 – Alternative from the Bakersfield Systems Study

Alternative 15 proposes a four to eight lane freeway connecting State Route 58 at Union Avenue (State Route 204) to Interstate 5, passing through the downtown area via a parallel route to the State Route 204 corridor and continuing west via the Seventh Standard Road Corridor. The total length of the project from State Route 58 to Interstate 5 is approximately 28.31 miles.

Detailed cost estimates for Alternative 15 identified that the cost to construct this alternative would be approximately $2.23 billion which exceeds the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative 15 would be cost prohibitive and would 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).

Since this alternative received one “no” response, Criterion 7 would apply. 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 will not move forward for further study.

Alternative PA-1 – Alternative Submitted by the Public (between Alternative B and Alternative C)

Alternative PA-1 proposes to construct a new freeway west of the State Route 58/99 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 Westside Parkway alignment at the Mohawk Street interchange. The total length of the project from the existing State Route 99/ State Route 58 interchange to Interstate 5 utilizing Alternative PA-1 is approximately 18.92 miles.

As depicted, Alternative PA-1 would result in severe operational and safety problems because it cannot 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 would apply. 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 will not move forward for further evaluation.

Alternative PA-2 – Alternative Submitted by the Public (Southern limits of City of Bakersfield)

Alternative PA-2 proposes to construct a new freeway in southern Bakersfield. The alignment would begin just north of the Interstate 5/State Route 43 interchange. Traveling in an easterly direction for approximately 12.84 miles, the roadway would cross State Route 99 approximately 1 mile north of State Route 119, cross State Route 184 approximately 1.6 miles north of State Route 119, and connect to State Route 58, approximately 4.02 miles east of State Route 184. The total length of the project from the Interstate 5 to State Route 58 utilizing Alternative PA-2 is approximately 24.02 miles.

Alternative PA-2 would 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). Alternative PA-2 is not located within Metropolitan Bakersfield.

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

Since there are multiple “no” responses to previous criteria, Criterion 8 would apply. It was determined the combination of “no” responses cause Alternative PA-2 not to be a reasonable and feasible alternative.

Alternative PA-2 will not move forward for further evaluation.

Alternative PA-3 – Alternative Submitted by the Public (Just north of and parallel to SR-223)

Alternative PA-3 proposes to construct a new freeway along existing State Route 223. The roadway would begin at the intersection of Interstate 5 and State Route 223 and would proceed east along the same alignment as State Route 223 and would terminate at State Route 58. The total length of the project from Interstate 5 to State Route 58 utilizing Alternative PA-3 is approximately 34.58 miles.

Alternative PA-3 would 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 Alternative PA-3 is not located within Metropolitan Bakersfield.

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

Since there are multiple “no” responses to previous criteria, Criterion 8 would apply. It was determined the combination of “no” responses cause Alternative PA-3 not to be a reasonable and feasible alternative.

Alternative PA-3 will not move forward for further evaluation.

Conclusion

After conducting the screening process, it has been determined that Alternatives A through D, G, H, I and L, the No Build Alternative, and TSM and Transit Alternatives (Alternative M) warrant further study. Alternatives E, F, J, K, 15, and PA-1 through PA-3 have been rejected because they have been deemed not to be reasonable and/or feasible alternatives. The alternatives that have been identified for further study represent currently viable alternatives, and will be subject to future screening and/or evaluation through the environmental process.

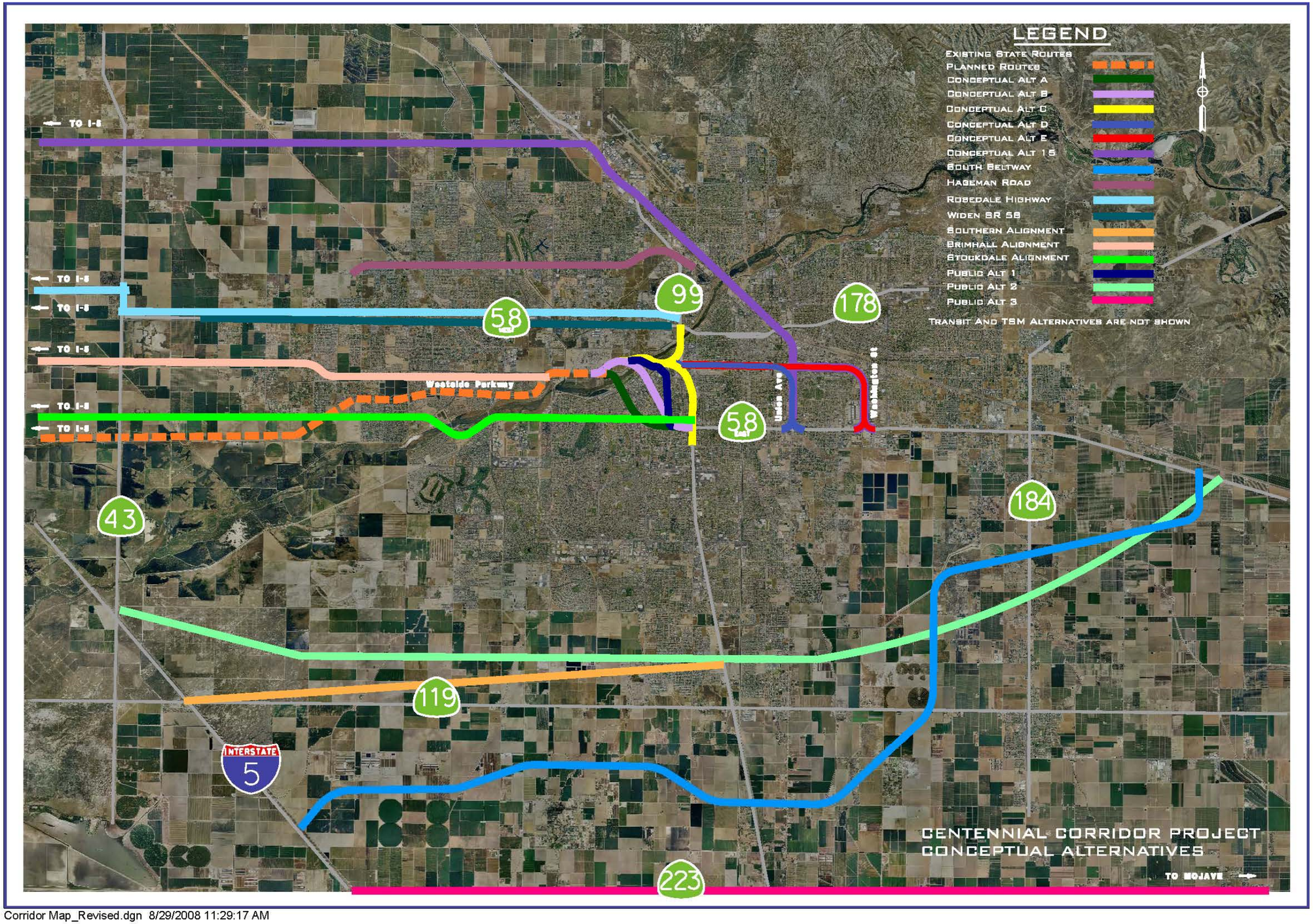

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TABLE 1
CENTENNIAL CORRIDOR PROJECT
PRELIMINARY SCREENING CRITERIA

Caltrans uses specific criteria to determine which alternatives are "reasonable" to carry forward for full environmental studies. Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint, rather than those simply desired by the Federal Highways Administration, Caltrans or local agencies.

One test for reasonableness is: "Does the alternative meet the project's purpose and need?" Each alternative is compared to each specific objective in the "Purpose and Need" statement. Only those alternatives that fulfill the major objectives will be determined to have passed this test of reasonableness. Other tests for reasonableness include operational and safety concerns, cost, available funding, etc. The Project Development Team will determine the criteria to be used for the screening process.

It is important to recognize that this is only the preliminary review and elimination of alternatives. At this point, potential adverse impacts are evaluated only in general terms; impacts to specific resources are not considered. Later in the process, each individual resource and the potential impact the project could cause to it will be evaluated. This task occurs once alternatives that do not meet the criteria have been screened out and the environmental study process has moved forward.

Criteria	No-Build	A	B	C	D	E	F	G	H	I	J	K	L	M	15	PA-1	PA-2	PA-3
Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Section 1302?	No Build Alternative is required by NEPA/CEQA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Transit and TSM Alternative still under development	Yes	Yes	Yes	Yes
Criterion 2: Does this alternative satisfy the purpose and need for the project?		Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes		Yes	Yes	No	No
Criterion 3: Does this alternative avoid severe operational and safety problems?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	No	Yes	Yes
Criterion 4: Can this alternative be completed within funding reasonably available to the project?		Yes $518 M	Yes $449 M	Yes $753 M	Yes $750 M	No $1.08 B	No $1.29 B	unknown	unknown	unknown	Yes $693 M	No $821 M	unknown		No $2.23 B	Yes $450 M	No $1.24 B	No $1.72 B
Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts that would cause it to be rejected without further environmental evaluation?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
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?[1]		Yes N/A	No No	No Yes	Yes N/A	Yes N/A	No Yes	No No	Yes N/A	No No	No No	No No	Yes N/A		No Yes	Yes N/A	Yes N/A	Yes N/A
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?		N/A	Yes	N/A	N/A	No	N/A	unknown	unknown	unknown	N/A	N/A	unknown		No	No	N/A	N/A
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?		N/A	N/A	N/A	N/A	N/A	No	unknown	N/A	unknown	No	No	N/A		N/A	N/A	No	No
CARRY FORWARD FOR FURTHER STUDY	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Alternatives Description		
No-Build Alternative		No Build
Alternative A		West of SR 99 Alignment A
Alternative B		West of SR 99 Alignment B
Alternative C		Parallel to SR 99
Alternative D		Union Ave alignment
Alternative E		Washington Ave Alignment
Alternative F		South Beltway
Alternative G		Hageman Road
Alternative H		Rosedale Highway (Elevated Alignment)
Alternative I		Widen State Route 58
Alternative J		Southern Alignment (Connection between SR 99 and I-5, just north of SR 119)
Alternative K		Brimhall Alignment
Alternative L		Stockdale Alignment
Alternative M		Transit and TSM Alternatives (not shown on the map)
Alternative 15		Alternative from the Bakersfield System Study
Alternative PA-1		Alternative submitted by the public (Between Alt. B and Alt. C)
Alternative PA-2		Alternative submitted by the public (Southern Limits of City of Bakersfield)
Alternative PA-3		Alternative submitted by the public (Just North of and parallel to SR 223)

FOOTNOTE
[1] Criterion 6 is a two part question. However, a "no" response to the second question is the determinant as to whether or not this criterion is met. Only a "no" response to the second question counts as a "no" for Criterion 6

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BonTerra CONSULTING

MEMORANDUM

September 9, 2008

To: Centennial Corridor Project Development Team

From: Kathleen Brady
BonTerra Consulting

Subject: Centennial Corridor Preliminary Screening of Alternatives Meeting Summary

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A subcommittee of the Centennial Corridor Project Development Team (PDT) held a second meeting on September 9, 2008, at the Thomas Roads Improvement Program (TRIP) office in Bakersfield to conduct further screening of alternatives for the Centennial Corridor Project. This meeting was held as a follow-up to the initial August 12, 2008 screening meeting, which is documented in the memorandum dated September 2, 2008 (See attached). The subcommittee included representatives from the California Department of Transportation (Caltrans), the City of Bakersfield, the County of Kern, Parsons (the program management firm for the TRIP), HNTB, and BonTerra Consulting.

As part of these screening efforts, 18 alternatives were evaluated against the following criteria:

- *Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (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 (Nos) result in a fatal flaw to the project?*

At the August 12 screening meeting, it was been determined that Alternatives A through D, the No Build Alternative, and TSM and Transit Alternatives (Alternative M) warrant further study. Alternatives E, F, J, K, 15, and PA-1 through PA-3 were rejected because they were deemed not to be reasonable and/or feasible alternatives. Alternatives G, H, I, and L were identified as alternatives that would be subject to a second round of screening, due to the fact that at the time of the August 12, 2008 screening meeting, no construction cost estimates had been prepared for these alternatives.

The subcommittee reconvened for the second round of screening on September 9, 2008, to once again apply the above criteria to these four alternatives to see if they would meet the standard which would warrant further study. Additional information, including the updated cost estimates, made further screening practical at this time. The following are the findings of this evaluation. An updated matrix has been prepared to reflect the findings of the subcommittee.

Alternative Evaluation

Alternative G – Hageman Road

Alternative G proposes to construct a freeway in the vicinity of Hageman Road. The roadway would begin at Interstate 5 and would parallel Rosedale Highway approximately one mile to the south for about four miles. At this point, it would turn northeastward 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 northeastward and terminating at Route 99 at the existing Route 99/Route 204 interchange. The total length of the project from Route 99 at Hageman Road to Interstate 5 is approximately 19.76 miles.

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

Detailed cost estimates for Alternative G identified that the cost to construct this alternative would be approximately $1.05 billion which exceeds the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative G would be cost prohibitive and would 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 would apply because there are two “no” answers to the criteria. Since there would not be sufficient funds to implement this alternative (Criterion 4), it would not be considered a reasonable alternative. Therefore, Alternative G will not be carried forward for further environmental evaluation.

Alternative H – Rosedale Highway (Elevated Alignment)

Alternative H proposes to construct an elevated freeway in the vicinity of Rosedale Highway. This roadway would begin at a future connection with the Hageman Road Alternative (Alternative G), located approximately 0.75 mile east of Enos Lane (Route 43). The alignment would extend in a southeastern direction for approximately 0.30 mile and then would proceed east to Route 99. The total length of Alternative H from Route 99 to Interstate 5 is approximately 11.04 miles.

Detailed cost estimates for Alternative H identified that the cost to construct this alternative would be approximately $2.85 billion which exceeds the maximum This is in threshold established for the Centennial Corridor Project. Therefore, construction of Alternative H would be cost prohibitive and would 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 would apply. Since Alternative H does not meet Criterion 4, it is not a reasonable alternative because it cannot be implemented due to insufficient funds. Therefore, Alternative H will not move forward for further evaluation.

***Alternative I – Widen Route 58* (Existing Rosedale Highway)**

Alternative I proposes to construct a freeway along the existing alignment of Route 58. This roadway would begin at its intersection with Route 99 and proceed west along existing Route 58 to its terminus at Interstate 5. The total length of the project is approximately 18.68 miles.

Detailed cost estimates for Alternative I identified that the cost to construct this alternative would be approximately $1.09 billion which exceeds the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative I would be cost prohibitive and would 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 would apply because there are two “no” answers to the criterion. Since there would not be sufficient funds to implement this alternative (Criterion 4), it would not be considered a reasonable alternative. Therefore, Alternative I will not be carried forward for further environmental evaluation.

Alternative L – Stockdale Alignment

Alternative L proposes to construct a freeway in the vicinity of Stockdale Highway. The roadway would begin at Interstate 5 and would proceed east along Stockdale Highway, terminating at Route 99. The total length of the Project from Route 99 to Interstate 5 is approximately 16.90 miles.

Detailed cost estimates for Alternative L identified that the cost to construct this alternative would be approximately $1.20 billion which exceeds the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative K would be cost prohibitive and would 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 would apply. Since Alternative L does not meet Criterion 4, it is not a reasonable alternative because it cannot be implemented due to insufficient funds. Therefore, Alternative L will not move forward for further evaluation.

Conclusion

Based on the screening process conducted on August 12 and September 9, 2008, it has been determined that Alternatives A through D, the No Build Alternative, and TSM and Transit Alternatives (Alternative M) warrant further study. Alternatives E through L, 15, and PA-1 through PA-3 have been rejected because they have been deemed not to be reasonable and/or feasible alternatives. The alternatives that have been identified for further study represent currently viable alternatives, and will be subject to future screening and/or evaluation through the environmental process.

TABLE 1 (UPDATED SEPTEMBER 9, 2008)
CENTENNIAL CORRIDOR PROJECT
PRELIMINARY SCREENING CRITERIA

Caltrans uses specific criteria to determine which alternatives are "reasonable" to carry forward for full environmental studies. Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint, rather than those simply desired by the Federal Highways Administration, Caltrans or local agencies.

One test for reasonableness is: "Does the alternative meet the project's purpose and need?" Each alternative is compared to each specific objective in the "Purpose and Need" statement. Only those alternatives that fulfill the major objectives will be determined to have passed this test of reasonableness. Other tests for reasonableness include operational and safety concerns, cost, available funding, etc. The Project Development Team will determine the criteria to be used for the screening process.

It is important to recognize that this is only the preliminary review and elimination of alternatives. At this point, potential adverse impacts are evaluated only in general terms; impacts to specific resources are not considered. Later in the process, each individual resource and the potential impact the project could cause to it will be evaluated. This task occurs once alternatives that do not meet the criteria have been screened out and the environmental study process has moved forward.

Criteria	No-Build	A	B	C	D	E	F	G	H	I	J	K	L	M	15	PA-1	PA-2	PA-3
Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Section 1302?	No Build Alternative is required by NEPA/CEQA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Transit and TSM Alternative still under development	Yes	Yes	Yes	Yes
Criterion 2: Does this alternative satisfy the purpose and need for the project?		Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes		Yes	Yes	No	No
Criterion 3: Does this alternative avoid severe operational and safety problems?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	No	Yes	Yes
Criterion 4: Can this alternative be completed within funding reasonably available to the project?		Yes $518 M	Yes $449 M	Yes $753 M	Yes $750 M	No $1.08 B	No $1.29 B	No $1.05 B	No $2.85 B	No $1.09 B	Yes $693 M	No $821 M	No $1.20 B		No $2.23 B	Yes $450 M	No $1.24 B	No $1.72 B
Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts that would cause it to be rejected without further environmental evaluation?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
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?		Yes N/A	No No	No Yes	Yes N/A	Yes N/A	No Yes	No No	Yes N/A	No No	No No	No No	Yes N/A		No Yes	Yes N/A	Yes N/A	No No
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?		N/A	Yes	N/A	N/A	No	N/A	N/A	No	N/A	N/A	N/A	No		No	No	N/A	N/A
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?		N/A	N/A	N/A	N/A	N/A	No	No	N/A	No	No	No	N/A		N/A	N/A	No	No
CARRY FORWARD FOR FURTHER STUDY	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**	**No**

Alternatives Description		
No-Build Alternative		No Build
Alternative A		West of SR99 Alignment A
Alternative B		West of SR99 Alignment B
Alternative C		Parallel to SR99
Alternative D		Union Ave alignment
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Alternative F		South Beltway
Alternative G		Hageman Road
Alternative H		Rosedale Highway (Elevated Alignment)
Alternative I		Widen State Route 58
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Alternative K		Brundwill Alignment
Alternative L		Stockdale Alignment
Alternative M		Transit and TSM Alternatives (not shown on the map)
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Alternative PA-1		Alternative submitted by the public (Between Alt. B and Alt. C)
Alternative PA-2		Alternative submitted by the public (Southern Limits of City of Bakersfield)
Alternative PA-3		Alternative submitted by the public (Just North of and parallel to SR 223)

FOOTNOTE
[1] Criterion 6 is a two part question. However, a "no" response to the second question is the determinant as to whether or not this criterion is met. Only a "no" response to the second question counts as a "no" for Criterion 6

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BonTerra CONSULTING

MEMORANDUM

September 2, 2008

To: Centennial Corridor Project Development Team

From: Kathleen Brady and Julie Cho, BonTerra Consulting

Subject: Centennial Corridor Preliminary Screening of Alternatives Meeting Summary

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A subcommittee of the Centennial Corridor Project Development Team (PDT) held a meeting on August 12, 2008, at the Thomas Roads Improvement Program (TRIP) office in Bakersfield to conduct a preliminary screening of alternatives for the Centennial Corridor Project. The subcommittee included representatives from the California Department of Transportation (Caltrans), the City of Bakersfield, the County of Kern, Parsons (the program management firm for the TRIP), HNTB, and BonTerra Consulting. The subcommittee's findings were presented to the full PDT for concurrence on the same day. A summary of the meeting and appropriate background materials is presented below.

Public Scoping/Identification of Alternatives

As part of the initial scoping process for the Centennial Corridor Project, Caltrans identified five initial alternatives. These five alternatives were introduced at a public information meeting on March 4, 2008, and at two neighborhood meetings held on May 22, 2008, and July 21, 2008. These alternatives, which were only shown at a conceptual level, were identified as Alternatives A through E. Caltrans and TRIP requested input from the public on these alternatives, and provided the opportunity for the public to recommend other alternatives to be considered for future study. The public recommended four new alternatives and indicated that Alternative 15 from the *Bakersfield Systems Study* (2002) be considered for future study.

Subsequent to these initial community meetings, Caltrans compiled an array of alternatives to be considered for the initial screening process. These alternatives include the initial five alternatives introduced at the public information meeting, the four alternatives suggested by the public, and alternatives from previous studies (the *Bakersfield Systems Study* [2002] and the *Final Route 58 Route Adoption Project, A Tier 1 Environmental Impact Statement/ Environmental Impact Report* [Tier 1 EIS/EIR] [2002]). Even though the *Bakersfield Systems Study* and the Tier 1 EIS/EIR

rejected some of these alternatives, Caltrans determined that they should be subject to the initial screening criteria as potential alternatives for the Centennial Corridor Project. Including the No Build Alternative and a transit and a transportation systems management alternative, a total of 18 alternatives were identified for the initial screening.

Screening Criteria

The Caltrans *Project Development Procedures Manual* (December 2007) discusses the need to identify reasonable alternatives. This manual cites the Council of Environmental Quality's

"Questions and Answers about NEPA," which states that "Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of [FHWA/Caltrans]." The goal is to have a reasonable range of alternatives. The *Project Development Procedures Manual* identifies that when there is a large number of potentially reasonable "build" alternatives, it is only necessary to present a representative number of the most reasonable examples. This is consistent with the *CEQA Guidelines*, which state, "The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making." (*CEQA Guidelines*, Section 15126.6)

The screening process is an iterative process meaning there will be multiple opportunities through the project where the viability of alternatives will be evaluated. Alternatives can be both added and eliminated at any time during the environmental process. This initial screening process is intended to eliminate from further study those alternatives that are not considered reasonable and feasible. The intention is to identify only the most viable alternatives for further detailed evaluation. This initial screening considers if there are any components or characteristics of an alignment that would result in the inability to construct the alignment or limit its ability to function in an efficient manner. For an alternative to be screened out at this point in the process the problem must be readily apparent without the benefit of detailed analysis. As studies are conducted as part of the environmental and preliminary engineering process additional alignments may be dropped from consideration if the studies determine that an alignment is not reasonable and feasible.

In the interest of being all-inclusive, the 18 alternatives that have been identified to date were evaluated through a preliminary screening process. The criteria used in the screening process were developed through coordination with the PDT, which

consists of representatives from Caltrans - District 6, the City of Bakersfield, the County of Kern, the Kern Council of Governments, Parsons (the City's TRIP program management consultant), and HNTB (the Preliminary Assessment/Environmental Document Consultant). The screening criteria were developed through an iterative process of the PDT members, through incorporation of criteria from the Caltrans *Project Development Procedures Manual* and review of the requirements of Section 1302 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Once a comprehensive list of potential screening criteria was developed, the PDT refined the list, and the outcome resulted in the eight criteria which are explained below and shown in Table 1.

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Section 1302?

In 2005, SAFETEA-LU was passed. Nationwide, SAFETEA-LU authorizes $286 billion in spending for the 6-year period between 2004 and 2009 for numerous surface transportation programs such as highways, transit, freight, safety, and research. Section 1302, the National Corridor Infrastructure Improvement Program, establishes a program to "make allocations to States for highway construction projects in corridors of national significance to promote economic growth and international and interregional trade…" The Centennial Corridor is one of six projects in California identified for funding as part of this program.

The PDT considered each alternative's ability to meet this mandate. A "yes" response indicates that an alternative meets the intent of the Legislative Mandate, while a "no" response indicates that the intent of the Legislative Mandate is not met.

Criterion 2: Does this alternative satisfy the purpose and need for the project?

A project's "Need" is an identified transportation deficiency or problem, and its "Purpose" is the set of objectives that will be met to address the transportation deficiency. The Purpose and Need for Centennial Corridor was developed through coordination with the PDT.

This project will address a variety of needs, including unacceptable current and future congestion levels; discontinuity of State Route 58 in metropolitan Bakersfield; lengthy commercial and other travel time through a major freight corridor; extensive existing and planned development which results in inadequate regional access to the Bakersfield central business district; and roadway deficiencies and safety concerns along the shared portion of State Routes 58 and 99.

The project Purpose is listed below.

- Provide interregional and regional connectivity for east-west traffic traveling within Metropolitan Bakersfield and Kern County.

- Provide continuity for State Route 58 in Kern County.
- Promote economic growth and international and interregional trade by improving linkages between existing segments of the Interstate system.
- Reduce commercial and regional commute time through a major freight corridor.
- Improve local east-west circulation and reduce congestion to accommodate existing and planned land uses in accordance with adopted growth projections.
- Improve operations and safety on the shared portion of State Route 58 and State Route 99.

It should be noted that an alternative does not need to fully meet every element of the Project's purpose at this point in the process. A "yes" response indicates that an alternative meets the intent of the purpose and need. A "no" response indicates that at the intent of the purpose and need is not met.

Criterion 3: Does this alternative avoid severe operational and safety problems?

The basis for development of this criterion is whether an alternative can be designed to meet the minimum Caltrans design standards for an access controlled facility. This would include geometric standards typical for highway design speeds. A "yes" response indicates that an alternative can be designed to meet the minimum Caltrans standards, while a "no" response indicates an alternative could not be designed to minimum Caltrans standards, resulting in severe operational and safety problems. This criterion does not require that an alternative be built to full Caltrans design standards, as outlined in the *Highway Design Manual,* but would be able to meet mandatory safety standards.

Criterion 4: Can this alternative be completed within funding reasonably available to the project?

For the Centennial Corridor Project, a maximum threshold of $800 million was identified as the maximum reasonable construction cost for the Project. This amount was derived by using the $650 million currently allocated for the Project plus a contingency of approximately 25 percent. In the early phases of project development, a 25 percent contingency is routinely used when estimating costs. A contingency above the allocated budget is provided in the event additional funding becomes available or as the alternative moves forward the alignment can be engineered in a more efficient manner, which would result in cost savings. A "yes" response indicates that an alternative can be constructed for $800 million or less; while a "no" response indicates that construction of an alternative would require more than $800 million and would be cost prohibitive.

Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts, that would cause it to be rejected without further environmental evaluation?

This criterion examines the alternative for unacceptable adverse social, economic, or environmental impacts. Those impacts would be of such a magnitude that the viability of implementing the Project would be jeopardized. Examples of this would be if the Project would traverse an area which is severely contaminated by hazardous materials or the impacts on natural resources would be so severe that required permits from the resource agencies could not be obtained. To meet this criterion, the impact must be clearly evident without the need for further evaluation, and of such a magnitude that it could not reasonably be overcome.

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?

This criterion is two parts. The first part is just an inquiry as to whether the alternative has been considered in a screening process for a previous Project. A "yes" response to this part of the question indicates that this is the first time that the alternative has been considered in a screening process. If the response is "no," then the second part of the criterion applies. It is this second question which factors into this screening process. The second part of the criterion focuses on whether the alternative was subjected to a prior screening process and moved forward for further evaluation. A "no" response to the second part of the criterion indicates that the alternative was previously considered in a screening process; however, it failed to meet all of the screening criteria and therefore did not pass beyond the prior screening process. The fact that an alternative did not pass the screening criteria of the previous study does not mean it is not a viable alternative but the basis for elimination of the alternative must be considered.

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[4]?

This criterion only applies to alternatives which have one "no" response to the above criteria (Criteria 1 through 6[1]). This criterion focuses on whether further studies are still warranted despite a "no" response to any of the aforementioned criteria (Criteria 1 through 6). An N/A (not applicable) response indicates that this criterion is not applicable because all previous responses were determined to be "yes" or there were more than two "no" responses, in which case Criterion 8 would apply. A "yes" response indicates that the alternative was determined to warrant further studies. A

[4] Criterion 6 is a two part question. However, a "no" response to the second question is the determinant as to whether or not this criterion is met. Only a "no" response to the second question counts as a "no" for Criterion 6.

"no" response indicates that it was determined that further studies were not warranted and the alternative should be dropped from further study.

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?

This criterion only applies to alternatives which have two or more "no" responses to any of the above criteria (Criteria 1 through 6). The purpose of this criterion is to consider combined impacts. There may be cases where, when considered individually, not satisfying a single criterion would not be considered a sufficient enough impediment to drop the alternative from further consideration; however, two or more are considered together would make the alternative neither feasible or reasonable. An N/A (not applicable) response for this criterion indicates: (1) this criterion is not applicable because all previous responses were determined to be "yes," or, (2) only one "no" response was generated. A "yes" response indicates that the alternative was determined to warrant further studies. A "no" response indicates that it was determined that further studies were not warranted and the alternative should be dropped from further study.

Screening Criteria Summary

Table 1 is a summary matrix of the alternatives and whether they meet the screening criteria. The following provides a discussion (by alternative) of each "no" response given for any screening criteria. The alternatives are shown on the attached exhibit (Centennial Corridor Project Conceptual Alternatives).

No Build Alternative

An analysis of the No Build Alternative is required under the National Environmental Policy Act and California Environmental Quality Act. Therefore, the No Build Alternative is an alternative that will be carried forward for further study.

Alternative A – West of SR-99 (Alignment A)

Alternative A proposes to construct a new freeway west of the State Route 58/99 interchange. The alignment would travel in a westerly direction for approximately one mile on the south side of Stockdale Highway, at which point it would turn in a northwesterly direction and span the Carrier Canal, Truxtun Avenue, and the Kern River. The proposed route would then connect to the Westside Parkway alignment between Mohawk Street and Coffee Road. The total length of the project from the existing State Route 99/State Route 58 interchange to Interstate 5 utilizing Alternative A would be approximately 16.31 miles.

Alternative A passed all the criteria and will move forward for further evaluation.

Alternative B – West of SR-99 (Alignment B)

Alternative B proposes to construct a new freeway west of the State Route 58/99 interchange. The alignment would travel in a westerly direction for approximately one-half mile on the south side of Stockdale Highway, at which point it would turn to the northwest, span the Carrier Canal, Truxtun Avenue, and the Kern River. Alternative B would connect to the Westside Parkway alignment at the Mohawk Street interchange. The total length of the project from the existing State Route 99/State Route 58 interchange to Interstate 5 utilizing Alternative B is approximately 16.61 miles.

Criterion 6 focuses on whether the alternative has been subject to previous screening and whether it passed through the screening process and received a detailed evaluation. This alternative was previously identified in the Tier 1 EIS/EIR as a segment of the Brimhall Road and Kern River Alignments; however, it did not pass the screening and therefore did not receive full environmental evaluation. This alternative was screened out because it would not meet purpose and need (large relocation impact and incompatibility with land use plans.) However, this determination was made based on the assumption that this alternative not only included the connection shown as Alternative B, but also the impacts associated with the east-west connection to Interstate 5 and needed improvements along Brimhall Road. These impacts are not included with the current project. Because there is a "no" response to one of Criteria 1 through 6, Criterion 7 would apply. The reason why this alignment did not pass the previous screening criteria must be considered. Since the Brimhall Road alignment is not being considered as part of a component of Alternative B in this Centennial Corridor Project, the basis for the previous determination has changed. It was determined that when considered on its own, there is not sufficient information to find that Alternative B is not a reasonable and feasible alternative.

Alternative B will move forward for further evaluation.

Alternative C – Parallel to SR-99

Alternative C proposes to connect existing State Route 58 to the Westside Parkway by means of routing new lanes adjacent and parallel to existing State Route 99. These additional lanes would run parallel to and independent of State Route 99. Movements between State Route 58, State Route 99 and the Westside Parkway would likely be facilitated by braided ramps and freeway-to-freeway connector ramps. The total length of the project from State Route 99 to Interstate 5 utilizing Alternative C is approximately 18.51 miles.

This alternative was previously identified in the Tier 1 EIS/EIR as part of the Kern River Alignment and passed the initial screening evaluation. The Kern River Alignment was carried forward for further environmental evaluation in the Tier 1

EIS/EIR. Since the "no" response shown under Criterion 6 was only for the qualifying question, the second "yes" answer would be the one that applies to this criterion.

Alternative C passed all the criteria and will move forward for further evaluation.

Alternative D – Union Avenue

Alternative D proposes to construct a new freeway in the vicinity of Union Avenue (State Route 204). The roadway would extend north from State Route 58 for approximately one mile, where it would turn to the west and run parallel to the Burlington Northern Santa Fe railroad tracks. Alternative D would connect to the Westside Parkway alignment at the new interchange at Mohawk Street. The total length of the project from State Route 58 at Union Avenue to Interstate 5 is approximately 18.98 miles.

Alternative D passed all the criteria and will move forward for further evaluation.

Alternative E – Washington Avenue

Alternative E proposes to construct a freeway in the vicinity of Washington Avenue. The roadway would extend north from State Route 58 for approximately one mile, at which point it would turn to the west and run parallel to the Burlington Northern Santa Fe railroad tracks. Alternative E would connect to the Westside Parkway alignment at the new interchange at Mohawk Street. The total length of the project from State Route 58 at Washington Avenue to Interstate 5 is approximately 20.50 miles.

Detailed cost estimates for Alternative E identified that the cost to construct this alternative would be approximately $1.08 billion which exceeds 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.

It should also be noted that from an operational perspective, this alternative is similar in nature to Alternative D.

Since there is one "no" response for Criterion 4, Criterion 7 would apply. The evaluation under Criterion 7 determined that because Alternative E exceeds the available funding, it is an unreasonable alternative.

Alternative E will not move forward for further evaluation.

Alternative F – South Beltway

Alternative F proposes to construct a freeway in the southern and eastern portion of Bakersfield. The roadway would begin at Interstate 5 approximately 3.5 miles south of State Route 119, and would generally extend in a northeastern direction for approximately 7.56 miles to a location approximately 1.2 miles southwest of the State Route 119 and State Route 99 intersection. At this location, the roadway would

run in a southeastern and eastern direction, crossing State Route 99, for approximately 4.25 miles. The roadway would turn to the northeast and cross State Route 119 in a northern direction until it crosses State Route 184, approximately 2.59 miles south of State Route 58. At this point, the roadway would continue for approximately 3.6 miles in a slight northeastern direction to a location approximately 1.0 mile south of State Route 58. The roadway would turn to the north and terminate at its intersection with State Route 58. The total length of the Project from State Route 58 to Interstate 5 is approximately 23.86 miles.

Alternative F does not meet the requirements of Criterion 2 because it would not meet the Project's purpose of providing interregional and regional connectivity for east-west traffic travelling within Metropolitan Bakersfield and Kern County. Alternative F is not located within Metropolitan Bakersfield.

Detailed cost estimates for Alternative F identified that the cost to construct this alternative would be approximately $1.29 billion which exceeds the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative F would be cost prohibitive and would not meet the requirements of Criterion 4.

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 previously identified in the *Bakersfield Systems Study* as a segment of one of the alternatives; however, as part of that study it did not pass the screening and did not receive further evaluation.

Since there are multiple "no" responses to previous criteria, Criterion 8 would apply. It was determined the combination of "no" responses cause Alternative F not to be a reasonable and feasible alternative.

Alternative F will not move forward for further evaluation.

Alternative G – Hageman Road

Alternative G proposes to construct a freeway in the vicinity of Hageman Road. The roadway would begin at Interstate 5 and would parallel Rosedale Highway approximately one mile to the south for about four miles. At this point, it would turn northeastward and follow Meacham Road between Rosedale Highway and Hageman Road, turning northeastward 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 southeastward, following the Friant-Kern Canal for about 0.5 mile, crossing the canal and extending about 1.0 mile before turning northeastward and terminating at Route 99 at the existing Route 99/Route 204

interchange. The total length of the project from Route 99 at Hageman Road to Interstate 5 is approximately 19.76 miles.

Detailed cost estimates for Alternative G have not been completed. More detailed estimates will need to be developed before it can be ascertained whether the alternative meets 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).

Criteria 7 and 8 cannot be answered until it is known whether this alternative meets Criteria 4 and 6.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether Criteria 4 and 6 have been met. Therefore, Alternative G requires further evaluation to determine whether it is a reasonable alternative.

Alternative G will move forward for further evaluation.

Alternative H – Rosedale Highway (Elevated Alignment)

Alternative H proposes to construct an elevated freeway in the vicinity of Rosedale Highway. This roadway would begin at a future connection with the Hageman Road Alternative (Alternative G), located approximately 0.75 mile east of Enos Lane (Route 43). The alignment would extend in a southeastern direction for approximately 0.30 mile and then would proceed east to Route 99. The total length of Alternative H from Route 99 to Interstate 5 is approximately 11.04 miles.

Detailed cost estimates for Alternative H have not been completed. More detailed estimates will need to be developed before it can be ascertained whether the alternative meets Criterion 4.

With the exception of Criterion 4, all other Criteria 1-5 were met by this alternative. Criteria 7 and 8 cannot be answered until it is known whether this alternative meets Criterion 4.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether Criterion 4 has been met. Therefore, Alternative H requires further evaluation to determine whether it is a reasonable alternative.

Alternative H will move forward for further evaluation.

***Alternative I – Widen SR-58* (Existing Rosedale Highway)**

Alternative I proposes to construct a freeway along the existing alignment of Route 58. This roadway would begin at its intersection with State Route 99 and proceed

west along existing Route 58 to its terminus at Interstate 5. The total length of the project is approximately 18.68 miles.

Detailed cost estimates for Alternative I have not been completed. More detailed estimates will need to be developed before it can be ascertained whether the alternative meets 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 7 and 8 cannot be answered until it is known whether this alternative meets Criterion 4.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether Criteria 4 and 6 have been met. Therefore, Alternative I requires further evaluation to determine whether it is a reasonable alternative.

Alternative I will move forward for further evaluation.

Alternative J – Southern Alignment (Connection between SR-99 and I-5, just north of SR-119)

Alternative J proposes to construct a freeway in the vicinity of State Route 119. The roadway would begin at Interstate 5 at the State Route 119 interchange. The alignment proceeds east terminating at State Route 99 and Hosking Road, located approximately 1 mile north of State Route 119. The total length of the project from State Route 99 at Hosking Avenue to Interstate 5 is approximately 11.03 miles.

Alternative J would 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 it is not located within Metropolitan Bakersfield.

This alternative has received initial review as part of 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[5] virtually no interregional traffic would use a freeway on the southern alignment and local traffic use would be low.

Since there are multiple "no" responses to previous criteria, Criterion 8 would apply. It was determined the combination of "no" responses cause Alternative J not to be a reasonable and feasible alternative.

Alternative J will not move forward for further evaluation.

[5] 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.

Alternative K – Brimhall Alignment

Alternative K proposes to construct a freeway in the vicinity of Brimhall Road. The roadway would begin at Interstate 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 southeastward and continues east to Coffee Road. The total length of the project from Coffee Road to Interstate 5 using the Brimhall Road Alignment is approximately 14.73 miles.

Alternative K did not pass Criterion 1 because it would not meet the intent of the legislative mandate. Since this alternative does not connect two existing segments of the State Freeway and Expressway System, it would not be able to effectively promote economic growth and international and interregional trade. This alternative would not serve interregional trips.

Similarly, it does not meet the Project's purpose as outlined in Criterion 2. It would not effectively meet any of the bullet items identified in the purpose and need statement.

Detailed cost estimates for Alternative K identified that the cost to construct this alternative would be approximately $821 million which exceeds the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative K would be cost prohibitive and would not meet the requirements of Criterion 4.

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

Since there are multiple "no" responses to previous criteria, Criterion 8 would apply. It was determined the combination of "no" responses cause Alternative K not to be a reasonable and feasible alternative.

Alternative K will not move forward for further evaluation.

Alternative L – Stockdale Alignment

Alternative L proposes to construct a freeway in the vicinity of Stockdale Highway. The roadway would begin at Interstate 5 and would proceed east along Stockdale Highway, terminating at Route 99. The total length of the Project from Route 99 to Interstate 5 is approximately 16.90 miles.

Detailed cost estimates for Alternative L have not been completed. More detailed estimates will need to be developed before it can be ascertained whether the alternative meets Criterion 4.

With the exception of Criterion 4, all other Criteria 1-5 were met by this alternative. Criteria 7 and 8 cannot be answered until it is known whether this alternative meets Criterion 4.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether Criterion 4 has been met. Therefore, Alternative L requires further evaluation to determine whether it is a reasonable alternative.

Alternative L will move forward for further evaluation.

Alternative M – Transit and TSM Alternative

Alternative M will evaluate Transit and Transportation Systems Management (TSM) improvements. TSM focuses on low capital, environmentally-responsive improvements that maximize efficiency of existing facilities. An example of TSM improvements would be providing signal interconnects to facilitate the flow of traffic or providing bus turn-out bays to minimize the interruption of buses along a specific route. Specific transit and TSM measures have not been developed at this point. Preliminary traffic data is required to determine the most effective transit and TSM measures. Once the traffic data is available it will be determined if transit and TSM improvements will be separate alternatives or if it is more effective to evaluate a single alternative that includes both transit and TSM improvements.

The intent of this screening process is to only eliminate alternatives that are clearly not reasonable and feasible. Further work is necessary to determine whether this alternative is able to meet any of the criteria. Therefore, Alternative M requires further evaluation to determine whether it is a reasonable alternative.

Alternative M will move forward for further evaluation.

Alternative 15 – Alternative from the Bakersfield Systems Study

Alternative 15 proposes a four to eight lane freeway connecting State Route 58 at Union Avenue (State Route 204) to Interstate 5, passing through the downtown area via a parallel route to the State Route 204 corridor and continuing west via the Seventh Standard Road Corridor. The total length of the project from State Route 58 to Interstate 5 is approximately 28.31 miles.

Detailed cost estimates for Alternative 15 identified that the cost to construct this alternative would be approximately $2.23 billion which exceeds the maximum threshold established for the Centennial Corridor Project. Therefore, construction of Alternative 15 would be cost prohibitive and would 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).

Since this alternative received one “no” response, Criterion 7 would apply. 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 will not move forward for further study.

Alternative PA-1 – Alternative Submitted by the Public (between Alternative B and Alternative C)

Alternative PA-1 proposes to construct a new freeway west of the State Route 58/99 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 Westside Parkway alignment at the Mohawk Street interchange. The total length of the project from the existing State Route 99/ State Route 58 interchange to Interstate 5 utilizing Alternative PA-1 is approximately 18.92 miles.

As depicted, Alternative PA-1 would result in severe operational and safety problems because it cannot 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 would apply. 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 will not move forward for further evaluation.

Alternative PA-2 – Alternative Submitted by the Public (Southern limits of City of Bakersfield)

Alternative PA-2 proposes to construct a new freeway in southern Bakersfield. The alignment would begin just north of the Interstate 5/State Route 43 interchange. Traveling in an easterly direction for approximately 12.84 miles, the roadway would cross State Route 99 approximately 1 mile north of State Route 119, cross State Route 184 approximately 1.6 miles north of State Route 119, and connect to State Route 58, approximately 4.02 miles east of State Route 184. The total length of the project from the Interstate 5 to State Route 58 utilizing Alternative PA-2 is approximately 24.02 miles.

Alternative PA-2 would 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). Alternative PA-2 is not located within Metropolitan Bakersfield.

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

Since there are multiple “no” responses to previous criteria, Criterion 8 would apply. It was determined the combination of “no” responses cause Alternative PA-2 not to be a reasonable and feasible alternative.

Alternative PA-2 will not move forward for further evaluation.

Alternative PA-3 – Alternative Submitted by the Public (Just north of and parallel to SR-223)

Alternative PA-3 proposes to construct a new freeway along existing State Route 223. The roadway would begin at the intersection of Interstate 5 and State Route 223 and would proceed east along the same alignment as State Route 223 and would terminate at State Route 58. The total length of the project from Interstate 5 to State Route 58 utilizing Alternative PA-3 is approximately 34.58 miles.

Alternative PA-3 would 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 Alternative PA-3 is not located within Metropolitan Bakersfield.

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

Since there are multiple “no” responses to previous criteria, Criterion 8 would apply. It was determined the combination of “no” responses cause Alternative PA-3 not to be a reasonable and feasible alternative.

Alternative PA-3 will not move forward for further evaluation.

Conclusion

After conducting the screening process, it has been determined that Alternatives A through D, G, H, I and L, the No Build Alternative, and TSM and Transit Alternatives (Alternative M) warrant further study. Alternatives E, F, J, K, 15, and PA-1 through PA-3 have been rejected because they have been deemed not to be reasonable and/or feasible alternatives. The alternatives that have been identified for further study represent currently viable alternatives, and will be subject to future screening and/or evaluation through the environmental process.

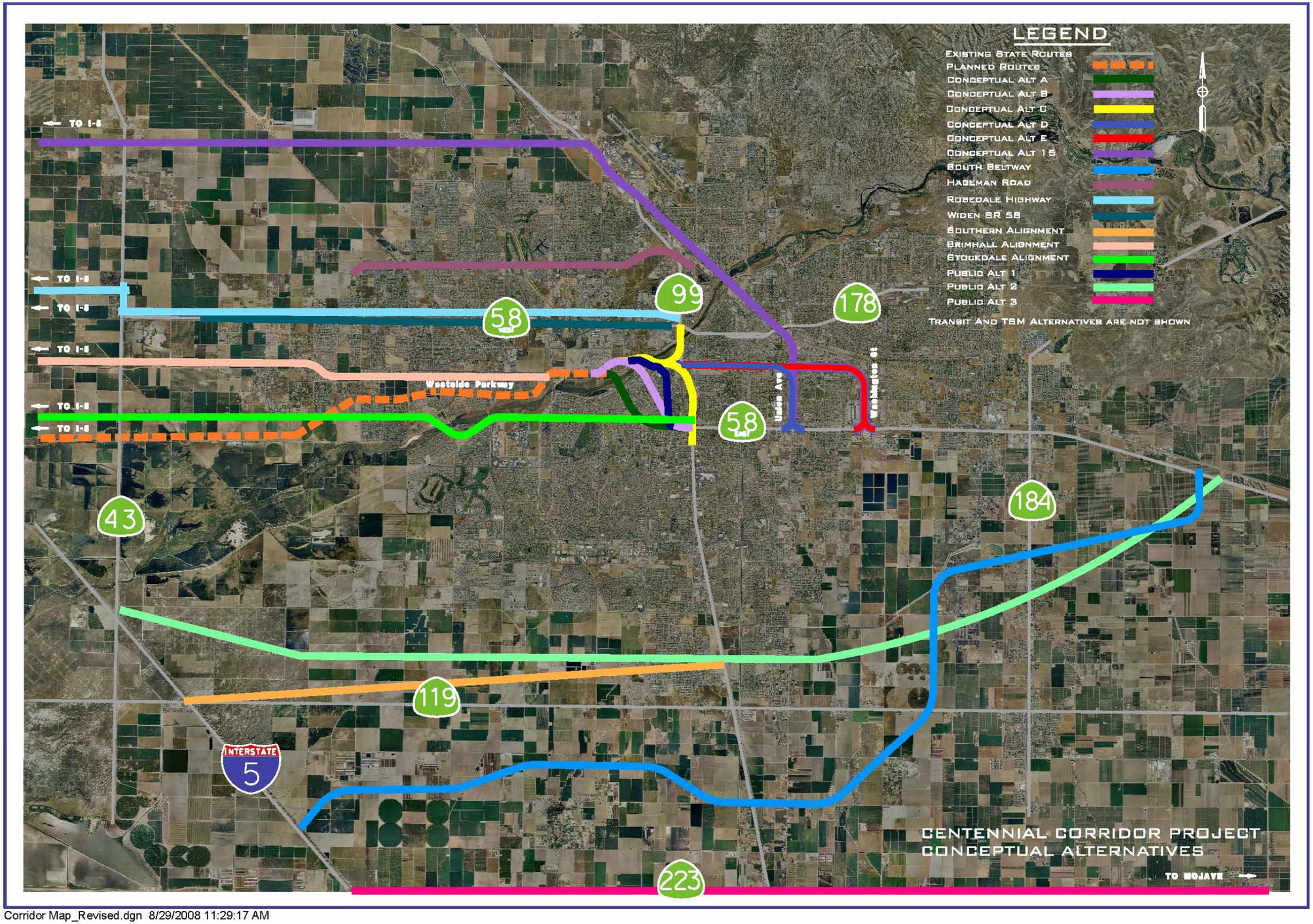

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TABLE 1
CENTENNIAL CORRIDOR PROJECT
PRELIMINARY SCREENING CRITERIA

Caltrans uses specific criteria to determine which alternatives are "reasonable" to carry forward for full environmental studies. Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint, rather than those simply desired by the Federal Highways Administration, Caltrans or local agencies.

One test for reasonableness is: "Does the alternative meet the project's purpose and need?" Each alternative is compared to each specific objective in the "Purpose and Need" statement. Only those alternatives that fulfill the major objectives will be determined to have passed this test of reasonableness. Other tests for reasonableness include operational and safety concerns, cost, available funding, etc. The Project Development Team will determine the criteria to be used for the screening process.

It is important to recognize that this is only the preliminary review and elimination of alternatives. At this point, potential adverse impacts are evaluated only in general terms; impacts to specific resources are not considered. Later in the process, each individual resource and the potential impact the project could cause to it will be evaluated. This task occurs once alternatives that do not meet the criteria have been screened out and the environmental study process has moved forward.

Criteria	No-Build	A	B	C	D	E	F	G	H	I	J	K	L	M	15	PA-1	PA-2	PA-3
Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Section 1302?	No Build Alternative is required by NEPA/CEQA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Transit and TSM Alternative still under development	Yes	Yes	Yes	Yes
Criterion 2: Does this alternative satisfy the purpose and need for the project?		Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes		Yes	Yes	No	No
Criterion 3: Does this alternative avoid severe operational and safety problems?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	No	Yes	Yes
Criterion 4: Can this alternative be completed within funding reasonably available to the project?		Yes $518 M	Yes $449 M	Yes $753 M	Yes $750 M	No $1.08 B	No $1.29 B	unknown	unknown	unknown	Yes $693 M	No $821 M	unknown		No $2.23 B	Yes $450 M	No $1.24 B	No $1.72 B
Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts that would cause it to be rejected without further environmental evaluation?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
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?[1]		Yes N/A	No No	No Yes	Yes N/A	Yes N/A	No Yes	No No	Yes N/A	No No	No No	No No	Yes N/A		No Yes	Yes N/A	Yes N/A	Yes N/A
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?		N/A	Yes	N/A	N/A	No	N/A	unknown	unknown	unknown	N/A	N/A	unknown		No	No	N/A	N/A
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?		N/A	N/A	N/A	N/A	N/A	No	unknown	N/A	unknown	No	No	N/A		N/A	N/A	No	No
CARRY FORWARD FOR FURTHER STUDY	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**	**Yes**	**Yes**	**No**	**No**	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Alternatives Description		
No-Build Alternative		No Build
Alternative A		West of SR 99 Alignment A
Alternative B		West of SR 99 Alignment B
Alternative C		Parallel to SR 99
Alternative D		Union Ave alignment
Alternative E		Washington Ave Alignment
Alternative F		South Beltway
Alternative G		Hageman Road
Alternative H		Rosedale Highway (Elevated Alignment)
Alternative I		Widen State Route 58
Alternative J		Southern Alignment (Connection between SR 99 and I-5, just north of SR 119)
Alternative K		Brimhall Alignment
Alternative L		Stockdale Alignment
Alternative M		Transit and TSM Alternatives (not shown on the map)
Alternative 15		Alternative from the Bakersfield System Study
Alternative PA-1		Alternative submitted by the public (Between Alt. B and Alt. C)
Alternative PA-2		Alternative submitted by the public (Southern Limits of City of Bakersfield)
Alternative PA-3		Alternative submitted by the public (Just North of and parallel to SR 223)

FOOTNOTE
[1] Criterion 6 is a two part question. However, a "no" response to the second question is the determinant as to whether or not this criterion is met. Only a "no" response to the second question counts as a "no" for Criterion 6

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BonTerra CONSULTING

MEMORANDUM

April 27, 2011

To: Centennial Corridor Project Development Team (PDT)

From: Kathleen Brady, BonTerra Consulting

Subject: Centennial Corridor – Re-Screening Analysis of Alternative D

As part of the Centennial Corridor project development process, representatives from the California Department of Transportation (Caltrans), the City of Bakersfield, the County of Kern, Parsons Transportation Group (PTG) (the program management firm for the Thomas Roads Improvement Program), HNTB, and BonTerra Consulting conducted a screening analysis of alternatives to identify reasonable and feasible alternatives to be carried forward into the Project Study Report (PSR). An initial alternative screening process was conducted in August 2008, which evaluated alternatives developed from multiple sources including (1) a compilation of alternatives developed by Caltrans; (2) concepts evaluated as part of previous studies; and (3) alternatives suggested by the public at scoping meetings.

The screening criteria were based on guidance in the Caltrans *Project Development Procedures Manual* (December 2007), which also cites the Council on Environmental Quality's (CEQ) "Questions and Answers about NEPA". The CEQ guidance states that "Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of [Federal Highway Administration/Caltrans]". The following eight criteria were used in 2008:

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (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 (Nos) result in a fatal flaw to the project?

As a result of the 2008 screening process, six alternatives were recommended for evaluation in the PSR: the No Build Alternative, four build alternatives, and the Transportation Systems Management/Transit (TSM/Transit) alternative. The four build alternatives were named Alternative A through Alternative D.

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. This information allows the PDT to ensure that the alternatives being carried forward and evaluated in the PSR are reasonable.

The more detailed engineering design and evaluation of Alternative D has identified issues that would indicate this alternative should be withdrawn from further evaluation in the PSR. The current details and evaluation of Alternative D are presented below.

Alternative D Description

Alternative D proposes to construct a new freeway that would connect the Westside Parkway to State Route (SR) 58 near the Union Avenue interchange by means of a six-lane freeway (See Figure 1). Starting at the Mohawk Street interchange on the Westside Parkway, this alternative would extend east and parallel the Burlington Northern Santa Fe (BNSF) railroad tracks, for approximately three miles. It would then turn south and run parallel to Union Avenue for approximately one 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.

The following are 26 new structures proposed for Alternative D:

- Kern River Bridge
- Mohawk Street off-ramp from Westbound SR-58
- Truxtun Avenue Undercrossing
- BNSF Railroad/Carrier Canal Viaduct
- SR-58/SR-99 Grade Separation
- Stine Canal Bridge
- 4th Street Undercrossing
- Union Avenue Undercrossing
- E. Brundage Lane Undercrossing
- Existing SR-58/Proposed SR-58 Grade Separation
- Eastbound SR-58 Connector to Existing Westbound SR-58 (2 structures)

- Oak Street Viaduct (Replacement)
- SR-58/Chester Avenue/BNSF Railroad Viaduct
- Chester Avenue/BNSF Grade Separation
- Chester Avenue on-ramp to Westbound SR-58
- N Street Undercrossing
- Q Street Undercrossing
- California Avenue Undercrossing
- E. 8th Street Undercrossing
- Chester Avenue on-ramp to Existing Eastbound SR-58
- South P Street Undercrossing (Widening)
- Madison Street Undercrossing (Widening)
- BNSF Railroad Undercrossing (Widening)
- Cottonwood Road Undercrossing (Widening)
- Cottonwood off-ramp from Eastbound SR-58

To provide connectivity to downtown Bakersfield, a modified tight diamond interchange is 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 include 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 is 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 undercrossings 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 proposes 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.

Alternative Evaluation

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the SAFETEA-LU, Section 1302?

Yes. Centennial Corridor is one of six projects in California identified for funding as part of the SAFETEA-LU program. The screening in 2008 determined that Alternative D was consistent with the legislative mandate. There have been no changes to the mandate; therefore, the determination of consistency remains unchanged.

Criterion 2: Does this alternative satisfy the purpose and need for the project?

Yes. This alternative meets most of the purpose and need criteria but with limited effectiveness. The following purpose bullets were developed as part of a collaborative effort of the PDT.

Purpose and Need	Does Alternative D meet the Purpose and Need?
Provide interregional and regional connectivity for east-west traffic traveling within Metropolitan Bakersfield and Kern County.	Yes
Provide continuity for SR-58 in Kern County.	Yes
Promote economic growth and international and interregional trade by improving linkages between existing segments of the Interstate system.	Yes
Reduce commercial and regional commute time through a major freight corridor.	Yes
Improve local east-west circulation and facilitate congestion management while accommodating existing and planned land uses in accordance with adopted growth projections.	Partially Yes[a]
Improve operations and facilitate congestion management on the shared portion of SR-58 and SR-99.	No[b]

Notes:
[a] As mentioned above, due to the orientation of the alignment along with the lack of new direct connections between SR-99 and SR-58, vehicles will utilize local streets such as Rosedale Highway or California Avenue to avoid substantial amount of out of direction travel.
[b] See discussion for Criterion 3.

Criterion 3: Does this alternative avoid severe operational and safety problems?

No. Although severe safety problems could be avoided, existing operational deficiencies at the SR-58/SR-99 interchange are not prevented with this alternative.

Under existing conditions, the H Street/Chester Avenue interchange is located approximately one mile east of the existing SR-99/SR-58 freeway-to-freeway interchange, the Union Avenue interchange is located one mile east of the H Street/Chester Avenue interchange, and the Cottonwood Road interchange is located approximately 1 mile east of the Union Avenue interchange. The standard

distance between a freeway-to-freeway interchange and a local street interchange is two miles, and the standard distance between two successive local street interchanges is one mile.

The proposed geometric design of Alternative D would require a new freeway-to-freeway connection in the vicinity of 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 located 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 non-standard interchange spacing (one 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.

In order to provide standard interchange spacing, both the H Street/Chester Avenue and Cottonwood Road interchanges would need to be closed. However, closure of any one 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 would provide 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 are not proposed under this alternative. 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.

From a regional perspective, the projected Design Year 2037 traffic volumes from the regional Kern Council of Governments (Kern COG) Travel Demand Forecasting Model indicate that the freeway mainline for Alternative D would be underutilized. The primary reason for the reduced utility of Alternative D is that regional SR-99 traffic would be required to take a circuitous travel route to access the Centennial Corridor Project and to connect to the Westside Parkway, and ultimately to Interstate 5 (I-5). The circuitous travel route is 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 (which is comprised of 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.

Criterion 4: Can this alternative be completed within funding reasonably available to the project?

No. 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 breakdown 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 is $658 million. In comparison to the capital outlay costs for Alternative D, the benefit is only 60 percent of the capital costs. The primary reason for the low benefit ratio is 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.

Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts that would cause it to be rejected without further environmental evaluation?

Yes. This criterion examines the alternative for unacceptable adverse social, economic, or environmental impacts. Those impacts would need to be of such a magnitude that the viability of implementing the project would be jeopardized. In 2008, the impact had to be clearly evident without the need for further evaluation, and of such a magnitude that it could not reasonably be overcome.

Subsequent to 2008, technical analyses have been conducted that allow additional data to be considered when applying this criterion. Based on studies completed to date, constraints have been identified. Impacts to historic resources [1] and hazardous materials[2] would potentially extend the environmental process and make the design and construction of Alternative D more complex; however, it is unlikely that it would result in environmental impacts that could not be overcome.

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1 Alternative D has the potential to directly or indirectly affect a total of nine properties that appear to be eligible for the National Register of Historic Places (NRHP), California Register of Historic Resources (CRHR), or for local listing.

2 Alternative D has a high potential for encountering hazardous materials due to its location along the BNSF railroad and because it extends through mostly industrial/light commercial areas.

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?

No. 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.

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?

This criterion is not applicable since there are more than one "no"

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?

There are multiple "no" responses to the screening criteria. Alternative D would result in operational constraints (Criterion 3) and would substantially exceed the available funding (Criterion 4). This alternative was also previously screened (Criterion 6), but based on the preliminary information available in 2008, it was recommended for further consideration. However, based on current information, this alternative does not warrant further studies

Conclusion

Based on the re-screening process conducted for Alternative D, it has been determined that the alternative is deemed not to be reasonable and/or feasible for further evaluation. As more detailed evaluation of Alternative D was conducted, more engineering constraints have been identified and few constraints have been eliminated or reduced. Alternative D would have traffic circulation issues that cannot be avoided. The cost to construct this alternative exceeds the funding by more than 150 percent. Additionally, Alternative D has a low benefit ratio.

Though not applicable to the specific criteria evaluated above, it should be noted that if Alternative D were selected, the existing SR-58 from Union Avenue to SR-99 would lose its designation as SR-58 and a new route number would be required on this segment. A legislative action would need to be initiated on this existing segment of SR-58 from Union Avenue to SR-99 to accomplish this change. This would be an additional processing constraint.

It is recommended that this alternative be dropped from further consideration. If the PDT is in agreement with this finding, this alternative would not be developed further and would be documented in the "Alternatives Considered but Eliminated from Further Discussion" section of the PSR.

BonTerra CONSULTING

MEMORANDUM

November 29, 2011

To: Centennial Corridor Project Development Team (PDT)

From: Kathleen Brady, BonTerra Consulting

Subject: Centennial Corridor – Screening Analysis of Alternative M

As part of the Centennial Corridor project development process, representatives from the California Department of Transportation (Caltrans), the City of Bakersfield, the County of Kern, Parsons Transportation Group (PTG) (the program management firm for the Thomas Roads Improvement Program), and the consultant team conducted a screening analysis of alternatives to identify reasonable and feasible alternatives to be carried forward into the Project Study Report (PSR). An initial alternative screening process was conducted in August 2008, which evaluated alternatives developed from multiple sources including (1) a compilation of alternatives developed by Caltrans; (2) concepts evaluated as part of previous studies; and (3) alternatives suggested by the public at scoping meetings.

The screening criteria were based on guidance in the Caltrans *Project Development Procedures Manual* (December 2007), which also cites the Council on Environmental Quality's (CEQ's) "Questions and Answers about NEPA". The CEQ guidance states that "Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of [Federal Highway Administration/Caltrans]". The following eight criteria were used in 2008:

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (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 (Nos) result in a fatal flaw to the project?

As a result of the 2008 screening process, six alternatives were recommended for evaluation in the PSR: the No Build Alternative, four build alternatives, and the Transportation Systems Management/Transit (TSM/Transit) Alternative. In spring 2011, a rescreening process was conducted for one of the Build Alternatives (Alternative D). Based on more detailed evaluation, Alternative D was withdrawn from further consideration.

In 2008 the TSM/Transit Alternative, also known as Alternative M, was recommended for further consideration even though specific transit and TSM measures had not been developed at the time of the initial screening effort because the Caltrans Standard Environmental Reference (SER) recommends consideration of a TSM/Transit Alternative for proposed major highway projects in urban areas with a population over 200,000. Between 2009 and 2010 the TSM/Transit Alternative was developed for inclusion in the PSR. In 2011, detailed traffic analysis was prepared for the TSM/Transit Alternative.

The more detailed evaluation of Alternative M has identified issues that would indicate this alternative should be withdrawn from further evaluation in the Project Report and Environmental Document. The current details and evaluation of Alternative M are presented below. Data for this memorandum has been derived from the *Traffic Study Report to Evaluate Alternative M* (May 2011).

Alternative M Description

Alternative M, as the transit/transportation system management alternative, proposes local arterial improvements along the existing travel corridors and increased transit service to reduce delay and to increase person-carrying capacity. Though the regional traffic modeling assumes some low-cost intersection and transit service improvements in the Bakersfield area, Alternative M assumes more improvements to further increase capacity, including higher cost improvements for State Route 58 west, known locally as Rosedale Highway. Generally, TSM alternatives focus on low capital, environmentally-responsive improvements that maximize efficiency of existing facilities. However, since there is the need to carry the capacity of a 6-lane freeway the improvements assumed as part of Alternative M are substantially greater than those traditionally proposed for a TSM alternative. Alternative M attempts to expand a local arterial highway to meet this demand.

West of State Route 99, State Route 58 is designed as a local arterial highway. Improvements proposed as part of the State Route 58 Widening Project, will widen the roadway from four lanes to six lanes from Allen Road to State Route99. In

addition, in 2025, the State Route 58 Widening Project assumes a grade separation at the San Joaquin Valley Railroad (between Mohawk Street and Landco Drive). The *2011 Regional Transportation Plan* (RTP) assumes State Route43 (known locally as Enos Lane) to Allen Road, will be widened from two lanes (one lane per direction) to a four-lane facility.

Alternative M expands upon these planned regional improvements by adding grade separations along State Route 58 at high volume intersections from Allen Road to the interchange with State Route 99. This is the portion of State Route 58 that traverses the heaviest concentrations of commercial and employment uses. Use of frontage roads would allow access to the adjacent land uses. Grade separations would be constructed at the following intersections:

- State Route 58/Allen Road
- State Route 58/Coffee Road
- State Route 58/Calloway Drive
- State Route 58/Mohawk Street

This alternative assumes there is no new direct connection between the Westside Parkway (currently under construction) and the existing State Route 58/State Route 99 interchange. Roadway operational improvements would include deploying intelligent transportation systems strategies to improve mobility and to reduce fuel consumption and greenhouse gas emissions.

Alternative M would increase the capacity of State Route 58 and would reduce delays at signalized intersections by constructing grade separations at the high volume north-south arterial streets and by removing intermediate signalized intersections. By eliminating cross-traffic interruptions, State Route 58 would function as a higher speed, expressway-type facility. As a result, motorists and commercial vehicles would be more likely to select State Route 58 as their route choice, thereby relieving traffic volumes and congestion on parallel routes.

Alternative Evaluation

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the SAFETEA-LU, Section 1302?

Yes. Centennial Corridor is one of six projects in California identified for funding as part of the SAFETEA-LU program. The screening in 2008 determined that Alternative M was consistent with the legislative mandate. There have been no changes to the mandate; therefore, the determination of consistency remains unchanged.

Criterion 2: Does this alternative satisfy the purpose and need for the project?

No. Though Alternative M partially meets several components of the purpose and need, it does not effectively meet most of the purpose and need criteria. The following purpose bullets were developed as part of a collaborative effort of the PDT.

1. *Provide interregional and regional connectivity for east-west traffic traveling within Metropolitan Bakersfield and Kern County.*

   Alternative M partially meets this criterion. Upgrading State Route 58 to a super-arterial would allow the facility to attract and accommodate an additional 11,000 to 34,000 vehicles per day between Allen Road and State Route 99, with 24,000 additional vehicles using the upgraded route immediately west of State Route 99. Just east of State Route 43, this alternative increases the use of State Route 58 West by 1,500 vehicles per day compared to the No Build Alternative.

2. *Provide continuity for State Route 58 in Kern County.*

   Alternative M does not meet or address this criterion. East of State Route 99, State Route 58 is built as a freeway. The freeway portion of State Route 58 terminates just west of State Route 99. Approximately two miles north of the State Route 99/State Route 58 interchange, the route resumes as an east-west facility and functions as an arterial highway. This segment of State Route 58 extends for approximately 12 miles from State Route 99 to State Route 43 (known locally as Enos Lane) and is known as Rosedale Highway. At State Route 43, State Route 58 is again offset to the north for approximately one mile. This segment of State Route 58, designed as a rural local roadway, extends for approximately eight miles and then has an interchange with Interstate 5. The Alternative M improvements do not address the route continuity objective.

3. *Promote economic growth and international and interregional trade by improving linkages between existing segments of the Interstate system.*

   Alternative M does not meet or address this criterion. This alternative would improve the existing State Route 58 West by upgrading approximately six miles of the alignment to a super-arterial facility from Allen Road to State Route 99. This improvement does not address or further the objective of connecting Interstate 5 to Interstate 15 and Interstate 40 (in Barstow) via a continuous State Route 58 freeway facility.

4. *Reduce commercial and regional commute time through a major freight corridor.*

   Alternative M partially meets this criterion. This alternative reduces travel time along State Route 58 by reducing traffic signal delays at major cross streets and reducing the number of signalized intersections between Allen Road and State Route 99. The attractiveness of State Route 58 West as a major freight corridor is relatively unchanged from the no build condition, as more attractive alternative routes, such as State Route 46, offer less delay to commercial vehicles traveling through, but not destined to, metropolitan Bakersfield. This alternative reduces travel time but does not address interstate trucking needs.

5. *Improve local east-west circulation and facilitate congestion management while accommodating existing and planned land uses in accordance with adopted growth projections.*

   Alternative M meets this criterion. Compared to the No Build Alternative, Alternative M attracts an additional 11,000 to 34,000 vehicles per day to State Route 58, thereby reducing traffic volumes on parallel streets, such as Hageman Road, Westside Parkway, Stockdale Highway, and Ming Avenue. However, it should be noted, that Westside Parkway has been designed as a limited access facility with the intent of carrying high traffic volumes. Therefore, reducing the carrying capacity of Westside Parkway would not be consistent with the intent of that project.

6. *Improve operations and facilitate congestion management on the shared portion of SR-58 and SR-99.*

   Alternative M does not meet or address this criterion. Compared to the No Build Alternative, Alternative M adds more than 20,000 vehicles per day to State Route 99 over the shared section with State Route 58. No improvements to State Route 99 are included with this alternative. The overall level of service would degrade slightly along the shared portion of State Route 58 and State Route 99 than would the No Build Alternative.

Criterion 3: Does this alternative avoid severe operational and safety problems?

Yes. Alternative M would not result in any severe safety problems. However, it would exacerbate operational problems on the shared portion of State Route 99. Alternative M is forecasted to increase the average daily traffic on State Route 58 by 20,000 vehicles per day over and above the No Build Alternative in Year 2038. The traffic analysis indicates that the level of service would decline by one letter grade in the northbound direction of State Route 99 during one of the two peak periods, resulting in level of service (LOS) F conditions during both AM and PM peak hours under Alternative M. In the southbound direction, congestion would remain at LOS F conditions during the PM peak period, but would worsen from LOS D to LOS E during the AM peak period in the segment of State Route 99 from State Route 58 West (Rosedale Highway) to California Avenue.

Criterion 4: Can this alternative be completed within funding reasonably available to the project?

Yes. The estimated capital cost for Alternative M is $294 million, which is within the funding assumptions of the Regional Transportation Plan listing of Constrained Program of Projects. The cost estimate breakdown is as follows:

Roadway	$ 99,000,000
Structures	$ 53,000,000
Right-of-way	$ 100,000,000
Subtotal Project Capital Cost	$ 252,000,000
Engineering and Project Admin.	$ 42,000,000
Total Capital Cost	*$ 294,000,000*

However, based on the Surface Transportation Efficiency Analysis Model (STEAM), the approximate life cycle benefit in Year 2038 is $ 21.1 million, while the benefits accrued during the first full year of operation, 2017 to 2018, would total a higher amount of $30.6 million. The reduction in benefit in the later years is because traffic will be slower in later years as the facility becomes more congested.

Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts that would cause it to be rejected without further environmental evaluation?

Yes. This criterion examines the alternative for unacceptable adverse social, economic, or environmental impacts. Those impacts would need to be of such a magnitude that the viability of implementing the project would be jeopardized. In 2008, the impact had to be clearly evident without the need for further evaluation, and of such a magnitude that it could not reasonably be overcome. While there would be impacts associated with construction of Alternative M, the preliminary analyses indicate that it is unlikely that Alternative M would result in environmental impacts that could not be overcome.

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?

No. Alternative M was submitted for initial screening in 2008. However, the intent of the 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.

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?

This criterion is not applicable since there are more than one "no" responses on the above criteria.

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 (Nos) result in a fatal flaw to the project?

There are multiple "no" responses to the screening criteria. Alternative M would not fully meet the purpose and need (Criterion 2) and was also previously screened (Criterion 6). While this alternative would not result in severe operational or safety problems (Criterion 3), this alternative would result in the LOS on the shared segment of State Route 99 worsening compared to the No Build Alternative. Based on current information, this alternative does not warrant further studies.

Conclusion

Based on the screening process conducted for Alternative M, it has been determined that the alternative is deemed not to be a feasible alternative and does not warrant further evaluation. This alternative is unable to effectively meet the purpose and need of the project. Ability to meet the purpose and need is paramount when assessing the feasibility of an alternative. An alternative does not need to meet all aspects of the project's purpose and need to be a worthwhile pursuit. However, it must meet those elements that are critical to the function of the proposed transportation improvement. Alternative M only partially meets some of the project objectives and does not address the route connectivity objective. Additionally, rather than improve the operations on the shared portion of State Route 58 and State Route 99, Alternative M would add to the congestion and would result in the level of service being degraded compared to the No Build Alternative.

It is recommended that this alternative be dropped from further consideration. If the PDT is in agreement with this finding, this alternative would not be developed further and would be documented in the "Alternatives Considered but Eliminated from Further Discussion" section of the Project Report and Environmental Document.

PARSONS

110 West "A" Street, Suite 1050 • San Diego, California 92101 • (619) 687-0400 • Fax: (619) 687-0401 • www.parsons.com

MEMORANDUM

February 28, 2012

To: Centennial Corridor Project Development Team (PDT)

From: Dan Conaty Parsons

Subject: Centennial Corridor – Screening Analysis of Transportation Demand Management (TDM) Alternative

The purpose of this memorandum is to present the results of a screening analysis for a proposed Transportation Demand Management (TDM) Alternative to the highway build alternatives for the Centennial Corridor Project in the City of Bakersfield. Data for the below analysis have been derived from various sources, including the *Traffic Study Report for the Centennial Corridor Project on Route 58 in Bakersfield* (Parsons, 2012).

For the purpose of this memorandum, TDM is defined as "activities that will reduce the demand for the fossil-fueled, single-occupancy vehicles as a mode of travel." Examples include ridesharing / vanpooling, increased parking fees, decreased parking supply, park and ride lots, and bicycle and pedestrian facilities. (Kern COG, 2010) Transit, which can also be considered a component of TDM, is addressed in as a stand-alone alternative in a separate screening analysis memorandum dated February 28, 2012.

As part of the Centennial Corridor project development process, representatives from the California Department of Transportation (Caltrans), City of Bakersfield, County of Kern, Parsons Transportation Group (PTG), the program management firm for the Thomas Roads Improvement Program, and the consultant team conducted a screening analysis of alternatives to identify reasonable and feasible alternatives to be carried forward into the Project Study Report (PSR). An initial alternative screening process was conducted in August 2008, which evaluated alternatives developed from multiple sources including (1) compilation of alternatives developed by Caltrans; (2) concepts evaluated as part of previous studies; and (3) alternatives suggested by the public at scoping meetings.

The screening criteria were based on guidance in the Caltrans *Project Development Procedures Manual*, which also cites the Council on Environmental Quality's (CEQ's) "Questions and Answers about NEPA". The CEQ guidance states that "Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the

standpoint of [Federal Highway Administration/Caltrans]". (Caltrans, 2010, p. 10-17) The following eight criteria were used in this regard:

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (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 (Nos) result in a fatal flaw to the project?

As a result of the 2008 screening process, the following six alternatives were recommended for evaluation in the PSR: No-Build Alternative, four build alternatives (A, B, C and D), and a Transportation Systems Management (TSM) / Transit Alternative (also known as Alternative M). In spring 2011, a rescreening process was conducted for one of the Build Alternatives (Alternative D). Based on more detailed evaluation, Alternative D was withdrawn from further consideration.

In 2008 Alternative M was recommended for further consideration even though specific transit and TSM measures had not been developed at the time of the initial screening effort because the Caltrans Standard Environmental Reference (SER) recommends consideration of a TSM/Transit Alternative for proposed major highway projects in urban areas with a population over 200,000. Between 2009 and 2010, Alternative M was developed for inclusion in the PSR. In 2011, it was decided to separately screen TSM and Transit Alternatives.

At the January 2012 Project Development Team (PDT) Meeting, Caltrans decided to also conduct a screening analysis for a newly-proposed TSM Alternative. Hence, this memorandum has been prepared for the purpose of reporting results of this assessment.

Local Setting for TDM

According to a 2005 Urban Mobility Report prepared by the Texas Transportation Institute (TTI, 2005), the Bakersfield Metropolitan Area ranked 80th out of 85 urban areas with the worst congestion (Brummett,2005). The Kern COG Destination 2030

Plan states that congestion is projected to increase by 166 percent by 2030. Increased congestion in Bakersfield will hinder the city's economic development potential (Brummett,2006).

The Metropolitan Bakersfield General Plan (Bakersfield, 2002) encourages some TDMs such as, pedestrian pathways and bike routes; and providing adequate right-of-way to accommodate turning lanes. However, the Vision 2020 plan encourages provision of free or inexpensive and plentiful parking downtown, which is a disincentive for people to take alternative modes of transportation to work and other central-city destinations.

The Destination 2030 Regional Transportation Plan (RTP) discusses the air quality requirements faced by the Kern region (see Chapter 8 – Findings of Air Quality Conformity), as well as demand management strategies, including bus and rail services (Chapter 4 - Transit Action Element), bicycle facilities (Chapter 4 - Bicycle and Pedestrian Action Element), and grade separation (Chapter 4 - Freight Movement Action Element). TDMs being implemented by the Destination 2030 RTP and 2006 Federal Transportation Improvement Program include the following strategies for reducing vehicle related emissions: ridesharing and volunteer employer-based incentives; park-and-ride lots; and bicycle and pedestrian travel.

TDM Alternative Assumptions

Generally, TDM alternatives focus on low capital intensive, environmentally-responsive improvements and policies that are intended to influence travel demand behavior in such a way as to reduce the use of existing facilities by single-occupancy, internal-combustion engine motor vehicles, and/or increase use by higher occupancy vehicles, such as car pools and public transit, in this case on Bakersfield highways. TDMs provide mobility and congestion relief benefits by reducing demand and maintaining system efficiency, while potentially delaying the need for capacity-increasing highway projects. These improvements would primarily occur along, but not be limited to, existing State Routes 58 and 99 and local roadways in the metropolitan Bakersfield area.

Transportation Control Measures (TCMs), which include TDMs, are being considered for all Thomas Road Improvement Program (TRIP) projects, on a case-by-case basis. The main TRIP facility thus far to be analyzed in an environmental document for TCMs is Westside Parkway (Segment 2 of the proposed project). Specific TDMs that were considered are 1) increased parking costs for central business district locations; 2) carpool program; and 3) flextime program. These measures were previously assessed and determined to not be viable for Westside Parkway, because they would "not remove a sufficient amount of traffic to meet the project purpose and need." (Kern COG, 2010)

Examples of trip reduction programs and approaches that could be considered for purposes of the Centennial Corridor project and applied within the study area include, but are not limited to:

- Parking pricing. Cost-based parking pricing (i.e., parking fees set to recover parking facility costs) reduces automobile trips and can increase transit ridership between 10 and 30 percent. This would be implemented by public

agencies and private businesses and is not within the purview of Caltrans to implement.

- Commute trip reduction (CTR). These programs provide commuters with resources and incentives to leave their car at home, and usually include one or more of the following: financial incentives; rideshare matching; parking management; alternative scheduling; telework; guaranteed ride home; or walking and cycling encouragement. Worksites with CTR programs that lack financial incentives can experience modest commute trip reductions between 5 and 15 percent. Programs with financial incentives can achieve even greater reductions. It is Caltrans policy to support efforts such as this, but implementation would again be within the control of local government and private businesses.

- Campus transport management. These programs, which are coordinated efforts to improve transportation options and reduce trips at colleges and other campus facilities, can reduce automobile trips between 10 and 30 percent. This can include free or substantially discounted transit passes to students and sometimes staff. (Litman, 2012)

- Park-and-Ride lots. Park-and-ride lots, if properly placed, can be conducive to ad-hoc carpool formation and organized van pools. There is currently only one park-and-ride lot within the Centennial Corridor study area, a 49-space lot located on the south side of Stockdale Highway between State Route 99 and Real Road. This lot will be removed as part of the proposed project; relocation options are currently being assessed. There are no current plans to incorporate a park-and-ride lot into the Centennial Corridor project design. Park-and-ride lots not deemed effective for the Centennial Corridor at the current time will be reconsidered for implementation when the population and density of the metropolitan area is adequate to support a lot.

- High Occupancy Vehicle (HOV) Lanes. While HOV Lanes are not currently being implemented through the 2011 Regional Transportation Plan, adequate right-of-way is being reserved to accommodate future HOV Lanes for the Centennial Corridor. In October 2005, Caltrans analyzed the congested portions of State Routes 58 and 99. The findings indicated that, for the most part, HOV lanes would not provide much additional congestion relief over mixed flow lanes. This is primarily due to the relatively short commutes in metropolitan Bakersfield, making the time savings differential less significant. (Kern COG, 2010)

The above measures are all regarded as approaches to travel demand management that could be used in conjunction with the primary highway facilities proposed as part of the Centennial Corridor project.

The following improvements proposed over the next 20-plus years under the No-Build Alternative, as identified in the *2011 Regional Transportation Plan, Amendment 1* (Kern COG, 2010), are assumed to be a part of the future urban transportation mix for this alternative:

- Construct local Westside Parkway Freeway between State Route 99 / Oak

Street and Heath Road (2009-2014);

- Widen State Route 99 to eight lanes from Wilson Road to State Route 119 (2012);
- Widen State Route 99 to eight lanes from Route 204 to 7th Standard Road – Phase 1 (2012);
- Construct improvements on State Route 178 (24th Street) and Oak Street (2012);
- Widen Rosedale Highway (State Route 58) from Calloway Drive to State Route 99 (2013);
- Widen Rosedale Highway (State Route 58) from Allen Road to Calloway Drive (2013);
- Hageman Flyover Project – Knudsen Drive to State Route 204 (2013);
- Widen State Route 58 from State Route 99 to Cottonwood Road (2015);
- Widen Rosedale Highway (State Route 58) from State Route 43 to Allen Road (2025);
- Construct new West Beltway facility from Rosedale Highway to Westside Parkway (2025);
- Widen State Route 204 from Airport Drive to Route 178 (2030);
- Construct State Route 204 interchange at F Street (2030);
- Construct State Route 58 ramp improvements at various locations (2033);
- Widen State Route 99 to eight lanes from Route 204 to 7th Standard Road – Phase 2 (2033);
- Construct State Route 99 ramp improvements at various locations (2033);
- Construct new West Beltway facility from Pacheco Road to Westside Parkway (2033);
- Construct new West Beltway facility from Rosedale Highway to 7th Standard Road (2033);
- Construct new West Beltway facility from Taft Highway to Pacheco Road (2033).

Alternative Evaluation

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the SAFETEA-LU, Section 1302?

Yes-partially. Centennial Corridor is one of six projects in California identified for funding as part of the SAFETEA-LU program. The legislative mandate, as stated in Section 1302, is to provide funding for projects that reduce commercial or other vehicle travel times through the corridor and facilitate major multistate or regional mobility and economic growth. Of the above referenced TDM measures, all would make a partial contribution to reduced travel times to the extent that they result in reduced usage of single occupant motor vehicles. Of those TDM measures listed

above, only two are within the purview of Caltrans to address, namely Park-Ride lots and HOV lanes. As noted above, both are being considered as part of existing and future use of the Corridor. Therefore, TDM is judged to partially satisfy the legislative mandate.

Criterion 2: Does this alternative satisfy the purpose and need for the project?

No. Though a TDM Alternative partially meets some components of the purpose and need, it does not effectively meet most of the purpose and need criteria. The following purpose bullets were developed as part of a collaborative effort of the PDT.

7. *Provide interregional and regional connectivity for east-west traffic traveling within Metropolitan Bakersfield and Kern County.*

   TDM Alternative does not meet or address this criterion. The Interregional Transportation Strategic Plan identifies State Route 58 is as a high-capacity, high level of service, east-west facility that provides significant goods and freight movement connections between Interstate 5 and State Route 99 in the San Joaquin Valley. State Route 58 provides an important link to several other important goods movement corridors, including Interstate 15 and Interstate 40. The Strategic Plan identifies this route as a "Transportation Gateway of Major Statewide Significance." The project corridor is also identified as part of a "High Emphasis Focus Route" in the Interregional Road System and a "Priority Global Gateway" east of Interstate 5 for goods movement in the Global Gateways Development Program (Caltrans, 2004).

   Located at the southern end of the San Joaquin Valley, Kern County is strategically placed to provide convenient access to both the Los Angeles Basin and the San Francisco Bay area. As a result, Kern County is emerging as an important regional center for distribution of goods and materials through the state and the country. In addition, the manufacturing and employment base of the Valley is increasing. These factors contribute to increasing demand for freight transportation in the greater Bakersfield region.

   Given these considerations, there is a real need for circulation improvements that would facilitate the efficient movement of goods within the corridor. The TDM Alternative does not include these needed highway improvements, which have been in the planning stage for over 15 years. Neither would this alternative fulfill the strategic priorities for interregional transportation or goods movement identified by Caltrans, as discussed above.

   Provide continuity for State Route 58 in Kern County.

   TDM Alternative does not meet or address this criterion. The TDM Alternative does not address existing fundamental route continuity flaws within the corridor. Unlike the build alternatives, the TDM Alternative does not achieve the route continuity objective for the project. These State Route 58 flaws are described below.

   State Route 58 has been built to varying standards in the City of Bakersfield and adjoining unincorporated areas. From just west of State Route 99 extending east, State Route 58 (East) is built as a freeway. Moving west from

State Route 99, State Route 58 resumes as an east-west local highway. Farther east, an 8-mile segment of State Route 58 extending between State Route 43 (Enos Lane) and the Interstate 5 interchange is designed as a rural local roadway. As a consequence, motorists cumulatively lose a substantial amount of time shifting between freeways and congested surface streets.

There are two major disjointed sections along the route. From the interchange with State Route 99 to the north, State Route 58 is offset where it shares the same north-south alignment with State Route 99. At State Route 43, State Route 58 is again offset, in this case one mile to the north. Current conditions requiring motorists to transition on and off congested State Route 99, and again at Enos Lane, are very inefficient.

The Kern River creates a barrier for traffic circulation. The Metropolitan Bakersfield area is bisected by the Kern River, creating a limitation for east-west traffic movement as there are only few routes, such as Olive Drive, Stockdale Highway, and Rosedale Highway / 24th Street that span the river. State Route 99 also attracts some local north-south movements because it crosses the river. As a consequence, the river crossings on these roads and highways carry more traffic than they otherwise would without the river barrier.

8. *Promote economic growth and international and interregional trade by improving linkages between existing segments of the Interstate system.*

   TDM Alternative does not meet or address this criterion. The TDM Alternative neither addresses nor furthers the economic growth objective to connect Interstate 5 to Interstate 15 and Interstate 40 (in Barstow) via a continuous State Route 58 freeway facility. The importance of these linkages for economic growth are described in both the Interregional Transportation Specific Plan (Caltrans, 1998) and the Global Gateways Development Program. According to the latter, "The California goods movement challenge is both substantial and immediate…development of the State's gateway facilities has not kept pace with economic and trade growth. This transportation deficiency, if not remedied, threatens to grow much worse as the shift to justify in-time production and inventory, the growth in research, manufacturing and retailing industries, and the expanded role of e-commerce increases goods movement demand. Failure to address the growing demand could have dire impacts on the State's ability to remain competitive economically and could drastically hamper California's ability to create new jobs and retain existing businesses." (Caltrans, 2002, p. 2)

9. *Reduce commercial and regional commute time through a major freight corridor.*

   TDM Alternative partially meets this criterion. By encouraging people to leave their cars at home and make alternative modal choices, this alternative increases vehicle occupancy rates along State Route 58. Unlike the proposed build alternatives, implementation of TDM measures would not substantially reduce congestion to the benefit of commuter travel and goods movement through metropolitan Bakersfield. Given these considerations, the attractiveness of State Route 58 West as a major freight corridor would be

relatively unchanged from the No-Build condition, as more attractive alternative routes, such as State Route 46 to the north, offer less delay to commercial vehicles traveling through, but not destined to, metropolitan Bakersfield.

10. *Improve local east-west circulation and facilitate congestion management while accommodating existing and planned land uses in accordance with adopted growth projections.*

    TDM Alternative does not meet this criterion. Under existing conditions, State Route 58 does not meet the capacity needs of the area. As discussed, with projected population and growth trends indicating substantially increased transportation volumes, State Route 58 can be expected to experience worsening operational deficiencies. When compared with the other alternatives, including the No-Build Alternative, it can be expected that the TDM Alternative would not attract a substantial number of vehicles per day to Rosedale Highway. Consequently, this alternative would not facilitate congestion management on any of the parallel streets through the study area, such as Hageman Road, Westside Parkway (future), Stockdale Highway, and Ming Avenue.

11. *Improve operations and facilitate congestion management on the shared portion of SR-58 and SR-99.*

    TDM Alternative does not meet or address this criterion. State Route 99, the major Central Valley north-south connector in California, provides a connection between the two legs of State Route 58 (Rosedale Highway and State Route 58 East) for commuters traveling in the east-west direction. The merging of two major State Routes (58 and 99) into one alignment between the eastern and western legs of State Route 58 degrades the traffic level of service on this segment of freeway. This condition is projected to become much worse in the coming years (PTG, 2012) given the growth projections in the Kern COG Destination 2030 Plan. In addition, State Route 99's close spacing for its two interchanges with State Route 58 (East and West), as well as an interchange at California Avenue, results in conflicting weaving conditions that adds to congestion. No improvements to State Route 99 are included with this alternative; hence, congestion would increase and future freeway operations would be degraded. While TDM measures could be implemented to achieve limited congestion reduction within the corridor, this approach alone would not be expected to have a substantial effect on future freeway level of service.

Criterion 3: Does this alternative avoid severe operational and safety problems?

Yes. The TDM Alternative itself would not result in any severe safety problems. However, it would do very little to alleviate expected future (2038) No-Build Alternative operational problems on the shared portion of State Route 99. The traffic analysis indicates that the peak period level of service of State Route 99 within the study area would decline in both the northbound and southbound directions (PTG, 2012).

Criterion 4: Can this alternative be completed within funding reasonably available to the project?

Yes. The estimated capital cost for a TDM Alternative has yet to be developed, as this alternative was only recently (January 2012) proposed. Considering that this alternative would mainly entail implementation of programs for: 1) increased parking costs for central business district locations; 2) carpooling; and 3) flextime, then it can be reasonably assumed that adequate funding for this alternative could be made available.

Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts that would cause it to be rejected without further environmental evaluation?

Yes. Preliminary analysis indicates that it is unlikely that adverse social, economic or environmental impacts would occur. Any adverse effects due to the TDM Alternative could be minimized with implementation of avoidance and mitigation measures. In general, TDM improvements are considered a beneficial impact for the purposes of the economic and social components of the analysis. TDM programs also result in improved local and regional air quality.

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?

Yes. A TDM Alternative has not been subject to prior screening.

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?

This criterion is not applicable since there are more than one "no" responses on the above criteria.

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 (Nos) result in a fatal flaw to the project?

There are multiple "no" responses to the screening criteria. The TDM Alternative does not satisfy the Section 1302 legislative mandate (Criterion 1) and does not fully meet the purpose and need (Criterion 2). While the TDM Alternative is not expected to result in severe operational or safety problems (Criterion 3), it would degrade the level of service on the shared segment of State Route 99 when compared to the future (2038) No-Build Alternative. Based on current information, this alternative does not warrant further study.

Conclusion

Based on the screening process conducted above, it can be concluded that the TDM Alternative would not be a feasible alternative, in and of itself, and does not warrant further evaluation as a stand-alone alternative. This alternative would not fully meet the purpose and need of the project. Ability to meet the purpose and need is paramount when assessing the feasibility of an alternative. An alternative does not

need to meet all aspects of the project's purpose and need to be a worthwhile pursuit; however, it must meet those elements that are critical to the function of the proposed transportation improvement. The TDM Alternative only partially meets some of the project objectives and does not address the route connectivity, continuity or congestion management objectives, among others. Additionally, rather than improve the operations on the shared portion of State Route 58 and State Route 99, congestion would get worse with this alternative, much like the No-Build Alternative.

It is therefore recommended that the TDM Alternative be dropped from further consideration, as a stand-alone alternative but that those features that can be incorporated within the overall project description (e.g., Park-Ride lots and allowance for future HOV lanes) be incorporated. If the PDT is in agreement with this recommended finding, then this alternative would not be developed further. In accordance with CEQA, Section 15126.6(c), rejection of this alternative would be documented in the "Alternatives Considered but Eliminated from Further Consideration" section of the Project Report and Environmental Document.

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MEMORANDUM

February 28, 2012

To: Centennial Corridor Project Development Team (PDT)

From: Dan Conaty
Parsons

Subject: Centennial Corridor – Screening Analysis of Transit Alternative

The purpose of this memorandum is to present the results of a screening analysis for a proposed Transit Alternative to the highway build alternatives for the Centennial Corridor Project in the City of Bakersfield. Data for the below analysis have been derived from various sources, including the *Traffic Study Report for the Centennial Corridor Project on Route 58 in Bakersfield* (Parsons, 2012).

As part of the Centennial Corridor project development process, representatives from the California Department of Transportation (Caltrans), City of Bakersfield, County of Kern, Parsons Transportation Group (PTG), the program management firm for the Thomas Roads Improvement Program, and the consultant team conducted a screening analysis of alternatives to identify reasonable and feasible alternatives to be carried forward into the Project Study Report (PSR). An initial alternative screening process was conducted in August 2008, which evaluated alternatives developed from multiple sources including (1) compilation of alternatives developed by Caltrans; (2) concepts evaluated as part of previous studies; and (3) alternatives suggested by the public at scoping meetings.

The screening criteria were based on guidance in the Caltrans *Project Development Procedures Manual*, which also cites the Council on Environmental Quality's (CEQ's) "Questions and Answers about NEPA". The CEQ guidance states that "Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of [Federal Highway Administration/Caltrans]". (Caltrans, 2010, p. 10-17) The following eight criteria were used in this regard:

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (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 (Nos) result in a fatal flaw to the project?

As a result of the 2008 screening process, the following six alternatives were recommended for evaluation in the PSR: No-Build Alternative, four build alternatives (A, B, C and D), and a Transportation Systems Management (TSM) / Transit Alternative. In spring 2011, a rescreening process was conducted for one of the Build Alternatives (Alternative D). Based on more detailed evaluation, Alternative D was withdrawn from further consideration.

In 2008 a combined TSM/Transit Alternative, also known as Alternative M, was recommended for further consideration even though specific transit and TSM measures had not been developed at the time of the initial screening effort because the Caltrans Standard Environmental Reference recommends consideration of a TSM/Transit Alternative for proposed major highway projects in urban areas with a population over 200,000. Between 2009 and 2010 the TSM/Transit Alternative was developed for inclusion in the PSR.

In 2011, a more detailed traffic analysis was prepared for Alternative M. This evaluation identified issues that indicate this alternative should be withdrawn from further evaluation in the Project Report and Environmental Document. On November 29, 2011, BonTerra Consulting submitted for Caltrans review a technical memorandum to support removal of Alternative M from further consideration. After review, the Caltrans legal team determined that this memorandum did not contain enough information to adequately address the transit component. Hence, this follow-up memorandum has been prepared to address transit.

At the January 2012 Project Development Team (PDT) Meeting, it was decided that it would be appropriate to uncouple TSM and Transit to address as two separate alternatives. Hence, this memorandum has been prepared to screen a newly-created Transit Alternative.

Local Public Transit Setting

Local Considerations Affecting Transit. Transit tends to be most effective in urban areas where automobile problems are greatest (Litman, 2011). According to a 2005 Urban Mobility Report prepared by the Texas Transportation Institute, the Bakersfield Metropolitan Area ranked 80th out of 85 urban areas with the worst congestion (Brummett,2005). The Kern COG Destination 2030 Plan states that congestion is

projected to increase by 166 percent by 2030. Increased congestion in Bakersfield will hinder the city's economic development potential (Brummett,2006).

Public transit and automobile transport tend to have opposite profiles as urban density increases: transit costs decrease and automobile costs increase. Each 1 percent increase in density increases transit ridership by 0.22 percent (Litman, 2011).

The estimated downtown Bakersfield population density per square mile in 2009, as averaged over 3 zip codes, is approximately 7,332. This compares favorably to 2009 downtown population density in the cities of Sacramento (6,084), San Jose (8,648), and San Diego (8,089) that currently have a light rail transit system. However, estimated density in the study area is low, at only 423 per square mile. This is due in large part to the sizable land areas within this part of the city that are either currently undeveloped or are developed for non-residential purposes (www.city-data.com, 2012).

The Metropolitan Bakersfield General Plan (Bakersfield, 2002) encourages mixed-use developments, infill projects and residential development in proximity to commercial services, employment centers, public services, transportation routes, and recreational and cultural resources. Implementation supportive land use policies and incentives such as these are needed in support of reductions of per-capita vehicle travel (Litman, 2011).

Existing Transit Services. Public transit service in the Bakersfield Metropolitan area is provided by the Golden Empire Transit District (GET), Consolidated Transportation Service Agency, Kern Regional Transit Division, Amtrak and Greyhound. Four transit centers are located within the study area: Downtown Transit Center, Southwest Transit Center, Bakersfield Greyhound Station and Bakersfield Amtrak Station.

GET provides bus service to approximately 24,000 citizens in Bakersfield each week. There are more than 7 million annual boardings on the GET system. GET serves an area of 60 square miles with a fleet of 81 buses and 19 GET-A-Lift buses. All buses run on compressed natural gas and are equipped with bike racks and wheelchair lifts (GET, 2012). Fares are generally quite low, with discounts available for seniors, people with disabilities, and youth.

GET ridership is dispersed throughout their service area, but a higher proportion of riders are located in northeast and southeast Bakersfield. Many areas of Bakersfield are of such low residential density that it is difficult for people to make use of fixed-route transit. Key destinations for GET riders include medical facilities, shopping centers, schools, adult schools, employment training centers, community centers, government offices and social service agencies [Kern Council of Governments (COG), 2007].

In the project area, GET Routes 11 and 14 provide east-west service. Route 11 travels along Stockdale Highway, extending between Stockdale Village (located at California Avenue and Stockdale Highway) and California State University (CSU) Bakersfield. The route then extends south to Ming Avenue, providing east-west service to State Route 204 (Union Avenue), and then traverses across the city via Union Avenue and various streets to an eastern terminus at Bakersfield College.

Route 14 provides service between downtown and CSU Bakersfield via Rosedale Highway (GET, 2012).

In addition, Kern Regional Transit Division provides transit services to unincorporated cities within Kern County. Some of the routes offer service between Bakersfield and the surrounding rural communities (PTG, 2012).

A recent survey conducted by GET revealed that 56 percent of its passengers have no other mode of transportation, relying almost entirely on the bus service (PTG, 2012). Overall, 10 percent of households in Kern County do not have access to a vehicle. There is also a significantly greater percentage of households where the head of the household is over 65 years old and does not have access to a vehicle (Kern COG, 2007).

Bus and Rail Transit Studies. Traditional public transit revenue sources do not provide sufficient support for public mass transportation to help mitigate population increases, achieve clean air mandates, and comply with trip reduction programs. The expansion of public transportation services in Kern County is predicated on an aggressive financial plan. Although GET's budget has increased annually as the system responds to increasing consumer demand, there is no current local dedicated funding source available for public transit (Kern COG, 2010).

A study completed in the late 1990s concluded that Bakersfield did not have sufficient density to justify the expense of light rail transit. The study did indicate that the city was large enough to justify a cross-town express bus system, envisioned to be between Bakersfield College and California State University Bakersfield. This study suggested that light rail could be phased in, first constructing stations for the bus system, and later adding tracks when the demand increases to a critical mass (Kern COG, 2012).

The Kern COG completed a Kern County Rail Study in 2011. For years, Kern COG planners have envisioned a potential bus rapid transit (BRT) route running east-west between the aforementioned colleges. According to this study, "this route in time could become a light rail route connecting with other rail transit services on the San Joaquin Valley Railroad (SJVR) subdivisions at the Bakersfield Amtrak Station. Given the urban setting and short shopping patterns envisioned for the future, the likely mode would be either electric or diesel light rail. Light rail transit (LRT) and freight services can share a rail ROW, but either temporal or spatial separation would be required. Both approaches should be explored for LRT deployment on SJVR lines in Bakersfield" (Kern COG, 2011).

Transit Alternative Assumptions

For the proposed project, a transit alternative would focus on enhanced service, transit incentives, and environmentally-responsive improvements that maximize efficiency of existing transit facilities. These improvements would occur along existing State Route 58 and local roadways. The major component of this alternative would be the provision of enhanced transit service to reduce delay and to increase the person-carrying capacity of local major arterials. Specifically, this alternative would entail increased transit service along Rosedale Highway and Stockdale Highway to reduce the overall east-west vehicular demand. The transit

improvements would primarily focus on an increase in frequency of service that would result in reduced auto demand.

As noted, Kern Council of Governments planners have envisioned a potential BRT or LRT route running east-west across Bakersfield, and presumably extending along Stockdale Highway through the project study area (Kern COG, 2011). Kern COG is continuing to evaluate future options for improved cross-town transit, most recently (October 2011) approving consultant contracts to: 1) further analyze the feasibility of commuter rail; and 2) prepare a High Occupancy Vehicle Lane/BRT Study. Within the planning horizon for the proposed build alternative projects (2030-2035), Kern COG has concluded that "the western Bakersfield metropolitan area would not have a demographic profile to support light rail service." (Kern COG, 2010, p. 4-71) Given that potential future enhanced bus and/or rail modes of travel are still under study within the corridor, and the current lack of funding for such a project, these options are considered speculative for the purposes of this screening analysis.

Highway and bridge widening projects associated with the build alternatives are not included in the Transit Alternative. Unlike the build alternatives, with the Transit Alternative there would be no new direct connection between the Westside Parkway (currently under construction) and the existing State Route 58/State Route 99 interchange.

However, the following improvements proposed over the next 20-plus years under the No-Build Alternative, as identified in the *2011 Regional Transportation Plan, Amendment 1* (Kern COG, 2010), are assumed to be a part of the future urban transportation mix for this alternative:

- Construct local Westside Parkway Freeway between State Route 99 / Oak Street and Heath Road (2009-2014);
- Widen State Route 99 to eight lanes from Wilson Road to State Route 119 (2012);
- Widen State Route 99 to eight lanes from Route 204 to 7th Standard Road – Phase 1 (2012);
- Construct improvements on State Route 178 (24th Street) and Oak Street (2012);
- Widen Rosedale Highway (State Route 58) from Calloway Drive to State Route 99 (2013);
- Widen Rosedale Highway (State Route 58) from Allen Road to Calloway Drive (2013);
- Hageman Flyover Project – Knudsen Drive to State Route 204 (2013);
- Widen State Route 58 from State Route 99 to Cottonwood Road (2015);
- Widen Rosedale Highway (State Route 58) from State Route 43 to Allen Road (2025);
- Construct new West Beltway facility from Rosedale Highway to Westside Parkway (2025);
- Widen State Route 204 from Airport Drive to Route 178 (2030);

- Construct State Route 204 interchange at F Street (2030);
- Construct State Route 58 ramp improvements at various locations (2033);
- Widen State Route 99 to eight lanes from Route 204 to 7th Standard Road – Phase 2 (2033);
- Construct State Route 99 ramp improvements at various locations (2033);
- Construct new West Beltway facility from Pacheco Road to Westside Parkway (2033);
- Construct new West Beltway facility from Rosedale Highway to 7th Standard Road (2033); and
- Construct new West Beltway facility from Taft Highway to Pacheco Road (2033).

Alternative Evaluation

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the SAFETEA-LU, Section 1302?

Yes. Centennial Corridor is one of six projects in California identified for funding as part of the SAFETEA-LU program. The screening conducted in 2008 determined that transit, as a component of Alternative M, was consistent with the legislative mandate. There have been no changes to the mandate; therefore, the determination of consistency remains unchanged.

Criterion 2: Does this alternative satisfy the purpose and need for the project?

No. Though a Transit Alternative partially meets some components of the purpose and need, it does not effectively meet most of the purpose and need criteria. The following purpose bullets were developed as part of a collaborative effort of the PDT.

12. *Provide interregional and regional connectivity for east-west traffic traveling within Metropolitan Bakersfield and Kern County.*

    Transit Alternative does not meet or address this criterion. The Interregional Transportation Strategic Plan identifies State Route 58 is as a high-capacity, high level of service, east-west facility that provides significant goods and freight movement connections between Interstate 5 and State Route 99 in the San Joaquin Valley. State Route 58 provides an important link to several other important goods movement corridors, including Interstate 15 and Interstate 40. The Strategic Plan identifies this route as a "Transportation Gateway of Major Statewide Significance." The project corridor is also identified as part of a "High Emphasis Focus Route" in the Interregional Road System and a "Priority Global Gateway" east of Interstate 5 for goods movement in the Global Gateways Development Program (Caltrans, 2004).

    Located at the southern end of the San Joaquin Valley, Kern County is strategically placed to provide convenient access to both the Los Angeles Basin and the San Francisco Bay area. As a result, Kern County is emerging as an important regional center for distribution of goods and materials through the state and the country. In addition, the manufacturing and

employment base of the Valley is increasing. These factors contribute to increasing demand for freight transportation in the greater Bakersfield region.

Given these considerations, there is a real need for circulation improvements that would facilitate the efficient movement of goods within the corridor. The transit improvements that could be implemented with the current funding levels would not be sufficient to provide adequate infrastructure for an alternative mode (e.g., rail) of goods movement. The Transit Alternative does not include these needed highway improvements, which have been in the planning stage for over 15 years. Neither would this alternative fulfill the strategic priorities for interregional transportation or goods movement identified by Caltrans, as discussed above.

Provide continuity for State Route 58 in Kern County.

Transit Alternative does not meet or address this criterion. The Transit Alternative does not address existing fundamental route continuity flaws within the corridor. Unlike the build alternatives, the Transit Alternative does not achieve the route continuity objective for the project. These State Route 58 flaws are described below.

State Route 58 has been built to varying standards in the City of Bakersfield and adjoining unincorporated areas. From just west of State Route 99 extending east, State Route 58 (East) is built as a freeway. Moving west from State Route 99, State Route 58 resumes as an east-west local highway. Farther east, an 8-mile segment of State Route 58 extending between State Route 43 and the Interstate 5 interchange is designed as a rural local roadway. As a consequence, motorists cumulatively lose a substantial amount of time shifting between freeways and congested surface streets.

There are two major disjointed sections along the route. From the interchange with State Route 99 to the north, State Route 58 is offset where it shares the same north-south alignment with State Route 99. At State Route 43, State Route 58 is again offset, in this case one mile to the north. Current conditions requiring motorists to transition on and off congested State Route 99, and again at Enos Lane, are very inefficient.

The Kern River creates a barrier for traffic circulation. The Metropolitan Bakersfield area is bisected by the Kern River, creating a limitation for east-west traffic movement as there are only few routes, such as Olive Drive, Stockdale Highway, and Rosedale Highway / 24th Street that span the river. State Route 99 also attracts some local north-south movements because it crosses the river. As a consequence, the river crossings on these roads and highways carry more traffic than they otherwise would without the river barrier.

13. *Promote economic growth and international and interregional trade by improving linkages between existing segments of the Interstate system.*

    Transit Alternative does not meet or address this criterion. The Transit Alternative neither addresses nor furthers the economic growth objective to

connect Interstate 5 to Interstate 15 and Interstate 40 (in Barstow) via a continuous State Route 58 freeway facility. The importance of these linkages for economic growth are described in both the Interregional Transportation Specific Plan (Caltrans, 1998) and the Global Gateways Development Program. According to the latter, "The California goods movement challenge is both substantial and immediate…development of the State's gateway facilities has not kept pace with economic and trade growth. This transportation deficiency, if not remedied, threatens to grow much worse as the shift to justify in-time production and inventory, the growth in research, manufacturing and retailing industries, and the expanded role of e-commerce increases goods movement demand. Failure to address the growing demand could have dire impacts on the State's ability to remain competitive economically and could drastically hamper California's ability to create new jobs and retain existing businesses." (Caltrans, 2002, p. 2)

14. *Reduce commercial and regional commute time through a major freight corridor.*

    Transit Alternative partially meets this criterion. By encouraging people to select transit as a mode choice, this alternative increases vehicle occupancy rates along State Route 58. Unlike the proposed build alternatives, improved transit within the corridor would not substantially reduce congestion to the benefit of commuter travel and goods movement through metropolitan Bakersfield. Also, ridership trends and patterns do not indicate that either BRT or LRT "would attract sufficient riders away from automobiles to meet the objective of reducing traffic congestion on the local transportation network" (Kern COG, 2010, p. 4-71). Given these considerations, the attractiveness of State Route 58 West as a major freight corridor would be relatively unchanged from the No-Build condition, as more attractive alternative routes, such as State Route 46 to the north, offer less delay to commercial vehicles traveling through, but not destined to, metropolitan Bakersfield.

15. *Improve local east-west circulation and facilitate congestion management while accommodating existing and planned land uses in accordance with adopted growth projections.*

    Transit Alternative does not meet this criterion. Under existing conditions, State Route 58 does not meet the capacity needs of the area. As discussed, with projected population and growth trends indicating substantially increased transportation volumes, State Route 58 can be expected to experience worsening operational deficiencies. When compared with the other alternatives, including the No-Build Alternative, it can be expected that the Transit Alternative would not attract a substantial number of vehicles per day to Rosedale Highway. Consequently, this alternative would not facilitate congestion management on any of the parallel streets through the study area, such as Hageman Road, Westside Parkway (future), Stockdale Highway, and Ming Avenue.

16. *Improve operations and facilitate congestion management on the shared portion of SR-58 and SR-99.*

    Transit Alternative does not meet or address this criterion. State Route 99, the major Central Valley north-south connector in California, provides a connection between the two legs of State Route 58 (Rosedale Highway and State Route 58 East) for commuters traveling in the east-west direction. The merging of two major State Routes (58 and 99) into one alignment between the eastern and western legs of State Route 58 degrades the traffic level of service on this segment of freeway. This condition is projected to get much worse in the coming years (PTG, 2012) given the growth projections in the Kern COG Destination 2030 Plan. In addition, State Route 99's close spacing for its two interchanges with State Route 58 (East and West), as well as an interchange at California Avenue, results in conflicting weaving conditions that adds to congestion. No improvements to State Route 99 are included with this alternative; hence, congestion would increase and future freeway operations would be degraded. Improved transit within the corridor would have little to no impact on future freeway level of service.

Criterion 3: Does this alternative avoid severe operational and safety problems?

Yes. The Transit Alternative itself would not result in any severe safety problems. However, it would do very little to alleviate expected future (2038) No-Build Alternative operational problems on the shared portion of State Route 99. The traffic analysis indicates that the peak period level of service of State Route 99 within the study area would decline in both the northbound and southbound directions (PTG, 2012).

Criterion 4: Can this alternative be completed within funding reasonably available to the project?

Yes. The estimated capital cost for a Transit Alternative has yet to be developed, as this alternative was only recently (January 2012) uncoupled from Alternative M. Considering that this alternative would primarily entail increased transit service along Rosedale Highway and Stockdale Highway to reduce the overall east-west vehicular demand, and that a cross-town BRT or LRT project is considered speculative for this analysis, then it can be reasonably assumed that adequate funding for this alternative could be made available.

However, based on studies of transit alternatives for similar projects it can be assumed that life cycle benefits accrued during the first year of operation (2017 to 2018) would be higher than the Year 2038 life cycle benefit. The reduction in benefit during the later years of operation is anticipated because peak hour traffic flow would decline in later years as facility congestion increases.

Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts that would cause it to be rejected without further environmental evaluation?

Yes. Preliminary analysis indicates that it is unlikely that these adverse social, economic or environmental impacts would occur. Any adverse effects due to the Transit Alternative could be minimized with implementation of avoidance and mitigation measures. In general, transit improvements are considered a beneficial

impact for the purposes of the economic and social components of the analysis. Transit projects also result in improved local and regional air quality.

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?

No. Transit, as a component of Alternative M, was submitted for initial screening in 2008. However, the intent of the screening process was to eliminate alternatives that were clearly not reasonable and feasible. Because preliminary traffic data were 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. As mentioned above, the PDT has recently decided to uncouple the TSM and Transit components of Alternative M.

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?

This criterion is not applicable since there are more than one "no" responses on the above criteria.

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 (Nos) result in a fatal flaw to the project?

There are multiple "no" responses to the screening criteria. The Transit Alternative does not fully meet the purpose and need (Criterion 2) and was also previously screened (Criterion 6). While the Transit Alternative is not expected to result in severe operational or safety problems (Criterion 3), it would degrade the level of service on the shared segment of State Route 99 when compared to the future (2038) No-Build Alternative. Based on current information, this alternative does not warrant further study.

Conclusion

Based on the screening process conducted above, it can be concluded that the Transit Alternative would not be a feasible alternative and does not warrant further evaluation. This alternative would not meet the purpose and need of the project. Ability to meet the purpose and need is paramount when assessing the feasibility of an alternative. An alternative does not need to meet all aspects of the project's purpose and need to be a worthwhile pursuit. However, it must meet those elements that are critical to the function of the proposed transportation improvement. The Transit Alternative only partially meets some of the project objectives and does not address the route connectivity, continuity or congestion management objectives, among others. Additionally, rather than improve the operations on the shared portion of State Route 58 and State Route 99, congestion would get worse with this alternative, much like the No-Build Alternative.

It is therefore recommended that the Transit Alternative be dropped from further consideration. If the PDT is in agreement with this recommended finding, then this alternative would not be developed further. In accordance with CEQA, Section

15126.6(c), rejection of this alternative would be documented in the "Alternatives Considered but Eliminated from Further Consideration" section of the Project Report and Environmental Document.

References

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RECORD OF MEETING

Centennial Corridor

HNTB: 44000 | *Caltrans District 6 / City of Bakersfield Thomas Roads Improvement Program* | *Contract No. 08-018 EA 06-48460*

SUBJECT:	**PDT Meeting No. 19**	DATE:	September 9, 2009
LOCATION:	Thomas Roads Improvement Program Office 900 Truxtun Avenue, Bakersfield	TIME:	10:00 am to 12:00pm

ATTENDEES

Kris Budak	City of Bakersfield	661-326-3483	kbudak@bakersfieldfreeways.us
Lynn Brooks	County of Kern	661-326-3429	brooksl@co.kern.ca.us
Ahron Hakimi	Caltrans – District 6	661-332-2041	Ahron.hakimi@dot.ca.gov
Curt Hatton	Caltrans – Project Management	559-243-3451	Curt.Hatton@dot.ca.gov
Jeannie Stevens	Caltrans-Project Management	559-243-8051	Jeannie.Stevens@dot.ca.gov
Terry Ogle	Caltrans – Design	559-230-3101	Terry.Ogle@dot.ca.gov
Rick Helgeson	Caltrans – Design	559-230-3110	Richard.Helgeson@dot.ca.gov
Kevin Keister	Caltrans – Design	559-230-3111	Kevin.Keister@dot.ca.gov
Randy Bowles	Caltrans – Design	661-326-3498	Randy.Bowles@dot.ca.gov
Pat Scrivner	Caltrans – Design	559-230-3109	Patricia_Scrivner@dot.ca.gov
Kirsten Helton	Caltrans – Environmental	559-287-9275	Kirsten.Helton@dot.ca.gov
Richard Putler	Caltrans – Environmental	559-243-8300	Richard.Putler@dot.ca.gov
Chanin Selway (via phone)	Caltrans – R/W	559-445-6237	Chanin.Selway@dot.ca.gov
Steve McDonald	Caltrans – Trans. Planning	559-488-4334	Steven.J.McDonald@dot.ca.gov
Koko Widyatmoko (via phone)	Caltrans – traffic	559-445-5588	Koko.Whidyatmoko@dot.ca.gov
Girair Kotchian	Parsons	661-326-3472	Girar.Kotchian@parsons.com
Dave Clark	Parsons	661-326-3496	david.d.clark@parsons.com
Bob Scales	Parsons	408-572-1371	Bob.Scales@parsons.com
Rabindra Puttagunta	Parsons	916-220-4516	Rabindra.Puttagunta@parsons.com
Gilbert Vega	Parsons	661-326-3481	Gilbert.Vega@parsons.com
Heather Ellison	Parsons	661-326-3489	Heather.Ellison@parsons.com
Janet Wheeler	Lee Andrews Group	661-326-3491	jwheeler@bakersfieldfreeways.us
Mike Kraman	HNTB	714-460-1604	mkraman@hntb.com
David Woo	HNTB	714-460-1654	dwoo@hntb.com
Luis Porrello	HNTB	714-460-1619	lporrello@hntb.com

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ATTENDEES

Traci Gleason	HNTB	714-460-1646	tgleason@hntb.com
Kandice Nguyen	HNTB	714-460-1617	knguyen@hntb.com
Kathleen Brady	BonTerra	714-444-9199	kbrady@bonterraconsulting.com
Judith Carlson (via phone)	Caltrans-Legal	916-654-2630	Judith.Carlson@dot.ca.gov

I. INTRODUCTIONS

Introduction of PDT members present and distribution of sign-in sheet.

II. REVIEW OF PREVIOUS MONTH PROGRESS (7/25/09– 8/21/09)

- **Project Management**
  - a) Prepared for, attended and provided minutes for PDT Meeting No. 18 held on August 11, 2009.
  - b) Coordinated and attend meeting with BNSF on July 29, 2009.
  - c) Participated in Centennial Corridor weekly teleconference with project team.
  - d) Attended Traffic Focus Meeting on August 3 and 17, 2009. Meeting were held bi-weekly, every first and third Monday of each month.
  - e) Maintain Schedule.

- **Preliminary Engineering**
  - a) Continue to refine plan and Alternatives A, B, C, and D.
  - b) Prepared memorandum regarding the basis for unit costs used in the PSR.
  - c) Continue coordination with traffic forecast modeling and traffic operational analysis.
  - d) Continue utility investigation. Prepared utility letters for signature and submittal.
  - e) Continue assessment of right-of-way requirements as alternative development progresses.
  - f) Continue railroad involvement determination.
  - g) Continue hydraulic review and development.
  - h) Prepared Public Alternative geometry based on Mr. Fairman's sketch and prepared preliminary construction cost estimate for the alternative.

- **Traffic**
  - a) Prepared and submitted updated Top 16 Intersections Existing Conditions Analysis Over-the-shoulder Review Draft 8/7.
  - b) Prepared and submitted Top 16 Intersections Forecast Methodology and 2037 Forecasts Memorandum 8/10.
  - c) Prepared and submitted Top 16 Intersections 2037 Conditions Analysis Over-the-shoulder Review Draft 8/10.

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  - d) Attended Centennial PDT Meeting 8/11.
  - e) Prepare existing conditions analysis for remaining off-project intersections
  - f) Conducted Traffic Focus Meeting 8/17.
    - Discussed comments on 8/7 and 8/10 Tech Memos (Existing Conditions and 2037 Top 16 Intersection Analysis). Major comment was to develop truck volumes and percentages at intersections by turning movement to be consistent with other projects (Rosedale, 24th Street, etc.).
    - Discussed comments on 2037 volumes for Top 16 off-project study intersections for Build and No Build Alternatives (on-project intersection volumes have previously been approved by Caltrans).
  - g) Prepare preliminary draft memo on truck percentages for off-project intersections for Existing and 2037 No Build Conditions.
  - h) Assisted Design Team in preparation of Fact Sheet for Interchange Spacing.

- **Environmental**
  - a) *Screencheck Community Impact Assessment*—An electronic version of the Screencheck CIA was submitted to TRIP August 21st and hardcopies were provided on August 28th
  - b) *Draft Draft Relocation Impact Report*—Draft DRIR was forwarded to TRIP and Caltrans for review on September 1, 2009.
  - c) *Draft Initial Site Assessment*—The Draft ISA was transmitted to TRIP on August 28th.
  - d) *Final Paleontological Study Plan*—The Final Study Plan was submitted on August 28th.
  - e) *Screencheck Water Quality Technical Study* —Work has been ongoing on the Screencheck Water Quality Technical Study. It is anticipated that the document will be ready for submittal week of September 7th.
  - f) *Screencheck Floodplain Study*— Work has been ongoing on the Floodplain Study. It is anticipated that the document will be ready for submittal week of September 7th.

III. REVIEW OF PLANNED PROGRESS FOR NEXT PERIOD (8/22/09– 9/25/09)

- **Project Management**
  - a) Prepare, attend and provide minutes for PDT Meeting No. 19 to be held on September 8, 2009.
  - b) Participate in Centennial Corridor weekly teleconference with project team.
  - c) Attend Traffic Focus Meeting on September 1, 8 and 21, 2009. Meetings are held bi-weekly, typically every first and third Monday of each month.
  - d) Participate in the coordination meeting for developing Kit Fox strategies and mitigation. (September 8, 2009)
  - e) Participate in CAG meeting on September 10, 2009.
  - f) Update Schedule.

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- **Preliminary Engineering**
  a) Update and address/incorporate comments into the Final PSR. After reviewing the comments, it will be determined if a JRT meeting needs to be held.
  b) Work with Caltrans towards approval of the Design Exceptions.
  c) Continue coordination with traffic forecast modeling and traffic operational analysis.
  d) Continue utility coordination.
  e) Continue assessment of right-of-way requirements as alternative development progresses.
  f) Continue hydraulic review and development.

- **Traffic**
  a) Resolve truck assumptions at Top 16 intersections.
  b) Update Top 16 Intersection Analysis for AQ with updated truck assumptions.
  c) Discuss priorities and schedule of other traffic analyses.
  d) Conduct Traffic Focus Meeting in the afternoon (September 8, 2009)
  e) Attend 9/8 PDT meeting
  f) Continue working on other traffic analyses based on identified schedule and priorities.

- **Environmental**
  a) *Screencheck Air Quality Technical Study*—Work on the air quality analysis will move forward if the traffic data is available.
  b) *Screencheck Community Impact Assessment*—Work will continue on the CIA. The economic analysis is projected to be available to be incorporated on the Preliminary version of the report. K. Brady will set up a conference call to discuss the Screencheck CIA.
  c) *Screencheck Cultural Resources*—Based on modifications to the APE, additional survey work and research is required. This will require another visit to the assessor's office for data. In addition, staff will work with Caltrans staff to develop a "Plan B" for to address those parcels where access permits are not available.
  d) *Screencheck Natural Environment Study*—Work will continue on the NES. It is assumed that the Screencheck NES will be submitted in late September.
  e) *Screencheck Noise Study Report*— Consultant staff will work with Caltrans technical staff to develop an approach for evaluating the noise impacts for the 13 priority parcels where access permits have not been received. Baseline noise readings will be done in the month of September now that school is back in session.
  f) *Screencheck Paleontological Identification Report*—Work on the PIR will be initiated as soon as authorization is received.

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IV. **DELIVERABLES**

Deliverables	Submittal Date	Comments Due Date
Deliverables Made This Period – August (7/25-8/21)		
Draft ISA	08/25/09	9/23/09
Screencheck CIA ▪ Electronic ▪ Hardcopies	 08/21/09 08/28/09	 9/18/09
Final Paleontology Study Plan	08/28/09	-
Scheduled Deliverables for Next Period – September (8/22-9/25)		
Draft DRIR	9/1/09	9/29/09
Screencheck Water Quality Report (re-submittal)	9/11/09	9/25/09
Screencheck Floodplain Study	9/11/09	9/25/09

V. **MISCELLANEOUS DISCUSSION ITEMS**

a) T. Gleason provided a summary of the screening of the public alternative. HNTB developed a preliminary drawing based on Mr. Fairman's sketch. The alternative was evaluated like the other alternatives based on the eight criteria. The results are as follows:

Criterion 1: Does this alternative satisfy the legislative mandate for this project, as outlined in the SAFETEA-LU, Section 1302?

Yes. It connects SR 58 to I-5 via Westside Parkway.

Criterion 2: Does this alternative satisfy the purpose and need for the project?

No. It does not improve operations and reduce congestion on the shared portion of SR 58 and SR 99. It moves the congestion on SR 99 up north in the vicinity of the Airport Dr interchange. It does not reduce commercial and regional commute time through a major freight corridor. Starting at the Mohawk Street Interchange the alignment travels north, spans the SR 99 and then travels in a southeasterly fashion to join SR 58. This would be an undesirable and longer route (out of direction) for east west commuters. Commuters are be more likely to choose to take SR 99 to the existing SR 58 (east) over the proposed alignment.

Criterion 3: Does this alternative avoid severe operational and safety problems?

No. Operations will be compromised in the vicinity of the Airport Dr Interchange on SR 99 and future SR 58 due to the close proximity of the interchanges in that region.

Criterion 4: Can this alternative be completed within funding reasonably available to the project?

No. Preliminary detailed cost estimates for this alternative identified that the cost to construct this alternative would be approximately $2.6 billion, exceeding the maximum threshold established for the Centennial Corridor Project. Therefore, construction of this

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alternative would be cost prohibitive and would not meet the requirements of Criterion 4.

Criterion 5: Does this alternative avoid unacceptable adverse social, economic or environmental impacts that would cause it to be rejected without further environmental evaluation?

Yes.

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?

Yes.

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?

No.

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?
No.

b) G. Kotchian informed that hardcopies of the Uniform Filing System will need to be provided for auditing when requested from FHWA.

c) C. Selway stated she received two phone calls about the right-of-entry permission letters being confusing. The information has been forwarded to E. Olague to address. A question was raised if anyone has gone to the doorsteps to people who have not responded to the letter. Charles Webb's help may be requested. If no progress is shown, an alternative plan will need to be developed to conduct the studies.

d) HNTB will need to develop a method to obtain confirmation that field staff are being informed how to handle questions from the public and media.

VI. ACTION ITEMS

	Action Item	Responsible Party	Status
1.	Right of way requirements and parcel identification	HNTB	On-going – based on alternatives refinement
2.	Base mapping for environmental technical studies	HNTB/Caltrans	On-going
3.	Rights-of Entry permissions in development. Need to begin process on any additional areas including Westside/Allen to determine new right-of-entry requirements for environmental studies, surveys and preliminary geotechnical	HNTB/Caltrans	On-going – approximately 73% of necessary entry permits are completed.

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	Action Item	Responsible Party	Status
4.	TRIP would like an evaluation of recent bid tabs to determine impact to project cost.	HNTB/Caltrans/ B. Tafoya	Completed. Need to confirm with B. Tafoya if any there are any comments.
5.	Public outreach record. Review every meeting summary to date.	HNTB	On-going
6.	Traffic - A series of meeting have occurred to further develop traffic elements of each alternative. During these meetings, forecasting issues, comments from Caltrans, and varying connections to each alternative have been discussed.	F&P/Caltrans/ TRIP/HNTB	On-going
7.	Amendment No. 2 is being developed.	HNTB/TRIP	On-going
8.	Discuss improvements to the Stockdale Highway.	HNTB/Caltrans	On-going. No new improvements proposed at this time until traffic analysis is completed. Stockdale Hwy will be used as an interim connection. There will not be a detailed environ. evaluation west of Heath. The evaluation of the corridor is for the purpose of Route Adoption.
9.	Follow up with the TSM/Transit Option	F&P	On-going
10.	Develop technical memorandums for the traffic studies for the Top 16 and Truck Assumptions	HNTB	On-going
11.	Provide an updated communication plan to C. Hatton	HNTB	On-going
12.	Prepare a draft of the revised project description.	BonTerra/HNTB	On-going
13.	Prepare a technical memorandum summarizing whether World Oil Development traffic volumes/study should be incorporated into the study for the Centennial Corridor project.	HNTB/BonTerra	On-going
14.	Contact Eugene Olague to confirm if any more PTE's have been received	BonTerra	On-going.
15.	Provide noise memorandum prepared for WSP to K. Brady	TRIP – D. Clark	On-going.

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	Action Item	Responsible Party	Status
16.	Prepare letter for distribution to all sub-consultants regarding the status of the project and who should respond to questions by the public or the media.	HNTB	Letters sent to all subs. Need confirmation of receipt and notice that all field staff will be briefed about respond-ing to public and media.
17.	Provide a copy of the EIR for World Oil.	TRIP – B. Scales	On-going.
18.	Set up conference call between HNTB, BonTerra, TRIP, & Caltrans to discuss CIA	BonTerra	On-going.
19.	Update Deliverables Table to show when comments are due	HNTB	Complete

VII. **SCHEDULE**

The schedule is anticipated to be updated by the next PDT Meeting (October 13, 2009) to reflect the changes in schedule due to traffic.

VIII. **NEXT MEETING**

The PDT Meetings for Centennial Corridor will be held monthly on the second Tuesday of each month from 10:00am to 12:00pm. Next meeting:

DATE: October 13, 2009
TIME: 10:00am to 12:00pm
LOCATION: TRIP Office, Large Conference Room
900 Truxtun, 2nd Floor
Bakersfield, CA 93301

FUTURE PDT DATES:

- November 10, 2009
- December 8, 2009
- January 12, 2010

Originally Prepared: September 9, 2009

The preceding Record of Meeting was prepared by HNTB and represents our interpretation of items discussed and decisions reached at the above referenced meeting. Any persons desiring to add, amend or otherwise change this record shall provide their comments to Traci Gleason of HNTB tgleason@hntb.com or Fax (714) 460-1610 no later than the next held monthly PDT Meeting; otherwise the record will stand as written.

DRAFT

Appendix O Air Quality Interagency Consultation

From: Joseph.Vaughn@dot.gov [mailto:Joseph.Vaughn@dot.gov]
Sent: Tuesday, September 24, 2013 12:55 PM
To: Goewert, Terry@DOT <terry.goewert@dot.ca.gov>
Cc: oconnor.karina@epa.gov; Romero, Ken J@DOT <ken.j.romero@dot.ca.gov>; Taylor, Jennifer H@DOT <jennifer.taylor@dot.ca.gov>; BRADY,MICHAEL J4ab9c696-5257-4e10-966b-89dd49dcba69b36; ahakimi@kerncog.org; Rob Ball <RBall@kerncog.org>; jermaine.hannon@dot.gov; jack.lord@dot.gov; Taylor@sjcog.org
Subject: RE: KER-99 & KER-58 Centennial Corridor Segment 1 Project of Air Quality Concern Analysis_FHWA & EPA response needed

FHWA concurs that this project is a "Project of Air Quality Concern" (POAQC). In addition, FHWA concurs that the submitted analysis demonstrates that the project will not result in new or worsened violations of Federal PM 2.5 and PM 10 air quality standards or delay timely attainment of PM reductions or milestones.

Joseph Vaughn
Air Quality Specialist/MPO Coordinator
FHWA, CA Division
(916) 498-5346

From: Goewert, Terry@DOT [mailto:terry.goewert@dot.ca.gov]
Sent: Thursday, September 19, 2013 1:45 PM
To: Cari Anderson; Aaron Hoyt; Bagde, Abhijit J@DOT; Alexandra Marcucci; Mahaney, Ann@DOT; Arthur Chen; Ben Giuliani; Bruce Abanathie; Crenshaw, Cecilia (FHWA); Chelsea Gonzales; Christina Lehn; David Cortez; Derek Winning; Dylan Stone; Eddie Wendt; Elizabeth Wright; Errol Villegas; Frances Wicher; Reese, Gwyn E@DOT; Janette Fabela; Crow, Jason@ARB; Jaylen French; Jeff Findley; Jessica Fierro; Perrault, James R@DOT; Taylor, Jonathan@ARB; jstramaglia@kerncog.org; Vaughn, Joseph (FHWA); Kai Han; Kara Bounds; Karina O'Connor; Romero, Ken J@DOT; Kim Kloeb; Kristine Cai; ldawson@fresnocog.org; Lezlie Kimura; Green, Lilibeth I@DOT; Huy, Lima A@DOT; Evans, Marcus B@DOT; Mark Hays; Matt Fell; Melissa Garza; Michael Costa; Mike Aronson; Mike Bitner; Brady, Mike J@DOT; Robledo, Pat@DOT; Marquez, Paul Albert@DOT; Raquel Pacheco; Rob Ball; Roberto Brady; Rosa De Leon Park; Carson, Scott (FHWA); Tracey, Stephen R@DOT; Vanderspek, Sylvia@ARB; Matley, Ted (FTA); Goewert, Terry@DOT; Dumas, Thomas A@DOT; Troy Hightower; Ty Phimmasone; Vincent Liu; Ridder, Wil@SJCOG
Cc: ahakimi@kerncog.org; chesley@sjcog.org; Barbara Steck; cyamzon@stancog.org; Diane Nguyen; Marjie.Kirn@mcagov.org; Michael Sigala; patricia@maderactc.org; Robert Phipps; Ted Smalley; terri.king@co.kings.ca.us; tboren@fresnocog.org
Subject: KER-99 & KER-58 Centennial Corridor Segment 1 Project of Air Quality Concern Analysis_FHWA & EPA response needed

Hello Interagency Consultation Partners,

Caltrans is submitting the attached PM10 & 2.5 Hot Spot Qualitative Analysis for KER-99 & KER-58 Centennial Corridor, a Project of Air Quality Concern for Interagency Consultation.

As part of the environmental review, it is requested that the Interagency Consultation Partners concur that although this is a "Project of Air Quality Concern" (POAQC), it will not result in new or worsened violations of Federal PM 2.5 and PM 10 air quality standards. Please reply to all with concurrence and/or comments by 5:00 p.m. on Thursday, October 3, 2013. An interagency conference call will be held upon request.

This project is being processed under NEPA as an Environmental Impact Statement. EPA and FHWA concurrence is requested. If you have any questions regarding this e-mail or the attached memo, please feel free to contact me directly. Thank you.

Terry Goewert
Air Quality Specialist-Associate Environmental Planner
Central Region Environmental Engineering
559.445.6426 phone-----fax: 559.445.6236
Address: 855 M Street, Suite 200, Fresno, CA 93721

Centennial Corridor Project
(Segment 1)

Qualitative PM_{10} and $PM_{2.5}$ Hot-Spot Analysis

City of Bakersfield from Westside Parkway to Cottonwood Road
06-KER-58-PM T31.7/PM R55.6
06-KER-99-PM 21.2/ 26.2
Project ID#: 06-0000-0484
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Caltrans

I. EXECUTIVE SUMMARY

Western Kern County, including the city of Bakersfield, has been designated as nonattainment of the national ambient air quality standard (NAAQS) for annual and 24-hour fine particulate matter ($PM_{2.5}$) standards. In addition, the project area is designated as maintenance for the PM_{10} NAAQS standard. The Centennial Corridor Project is located in the city of Bakersfield and will establish a new alignment of SR 58.

The Clean Air Act (CAA) requires that federally supported transportation projects are consistent with air quality goals. Transportation conformity is required in areas designated nonattainment and maintenance by the U.S. Environmental Protection Agency (EPA). The General Conformity Rule, found in section 176(c)(4) of the CAA, plays an important role in helping states improve air quality in those areas that do not meet the NAAQS. The intent of General Conformity Rule is to ensure that: 1) federal activities do not cause or contribute to new violation of the NAAQS; 2) actions do not cause additional or worsen existing violations of or contribute to new violations of the NAAQS; and 3) attainment of the NAAQS is not delayed. A state implementation plan (SIP) is developed in order to improve air quality in designated nonattainment and maintenance areas. Through the SIP, States propose their strategy for reducing criteria air pollutant emissions. The process to ensure consistency with the SIP is called Transportation Conformity.

On December 20, 2010, EPA announced the availability of a new guidance document for completing quantitative particulate matter ($PM_{2.5}$ and PM_{10}) hot spot analysis using the Motor Vehicle Emissions Simulator model (MOVES), California's Emission Factor model (EMFAC 2011) and other models.The requirement to conduct quantitative PM hot-spot analysis as required by 40 CFR 93.123(b)(4) was in effect, subject to a two year conformity grace period for using the new emissions models for such analyses. EPA determined that a conformity determination for a transportation project could be based on a previous model if the analysis was begun before or during the grace period. For projects that required a PM2.5 and/or PM10 hot-spot analysis, project sponsors can continue to conduct qualitative PM2.5 and /or PM10 hot spot analyses for analyses that are started during the grace period.

In May 2012, the San Joaquin Valley Interagency Consultation Group met to discuss the Centennial Corridor project, a project of air quality concern. Through the interagency consultation process it was determined that a qualitative hot spot analysis was the appropriate level of analysis.

Based on the qualitative analysis, the proposed Centennial Corridor project meets the $PM_{2.5}$ and PM_{10} project-level conformity requirements and will not cause or contribute to any new violations of PM standards in any area; increase the frequency or severity of the existing any existing violation, delay timely attainment of PM reductions or milestones.

II. Purpose of this Analysis

The purpose of this analysis is to qualitatively evaluate if the project will cause or increase the frequency and/or severity of $PM_{2.5}$ and PM_{10} violations , or delay the attainment of the $PM_{2.5}$ and PM_{10} NAAQS or any required interim emission reductions or other milestones. The evaluation is required to demonstrate project-level conformity for federally supported transportation projects in areas that have been designated

by the EPA as not meeting the NAAQS. $PM_{2.5}$ and PM_{10} project-level conformity requires an assessment of localized emission impact. The localized emission impact is called a *hot-spot analysis*. A hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area, including for example, congested roadway intersection and highways. Such an analysis is a means of demonstrating that a transportation project meets CAA conformity requirements to support state and local air quality goals. Under Federal Guidelines, the Centennial Corridor project is located within the San Joaquin Valley Air Basin, which is considered nonattainment for $PM_{2.5}$ and maintenance for PM_{10}.

The Centennial Corridor project is located in the southern end of the San Joaquin Valley in the City of Bakersfield in Kern County, California. The purpose of the project is to establish a new alignment for SR 58 to provide a continuous route along SR 58 from I-5 via Westside Parkway to Cottonwood Road. Improvements to SR 99 and Westside Parkway would also be made to accommodate the connection with SR 58. The study site is bounded 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. The Centennial Corridor project area (Kern county California) is within the San Joaquin Valley Air Basin (SJVAB) $PM_{2.5}$ nonattainment area; and therefore the project is required to meet Transportation Conformity requirements found in 40 CFR Part 93 as amended. This document addresses the project level transportation conformity requirements for Segment 1 only of the Centennial Corridor project, including a hotspot analysis that is described in greater detail in the Methodology Section.

EPA amended the Transportation Conformity rule on March 10, 2006, requiring a hot-spot analysis to determine project-level conformity in $PM_{2.5}$ nonattainment areas for certain projects. The analysis is required for "projects of air quality concern." According to 40 CFR 93.123(b)(1)(i), "new highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles" are considered projects of air quality concern. Due to these factors, the Centennial Corridor project meets the definition of a project of air quality concern, requiring a hot-spot analysis.

This Analysis has been prepared according to the procedures and methodology provided in the "Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas" jointly published by EPA and FHWA in March 2006 (March 2006 Guidance).

III. Centennial Corridor Project Description

General

The purpose of the Centennial Corridor Project is to provide route continuity and associated traffic congestion relief along State Route (SR) 58 within Metropolitan Bakersfield and Kern County from the SR 58 east (at Cottonwood Road) to Interstate 5 (I-5).

SR 58 is a critical link in the state transportation network that is used by interstate travelers, commuters, and a large number of trucks. Under existing conditions, SR 58 does not meet the capacity needs of the area. This congestion is projected to get worse as the population grows. SR 58 lacks continuity in central Bakersfield, which results in traffic congestion and reduced levels of service on adjoining highways and local streets. This route is offset by about 1 mile at SR 43 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. The SR 99's close spacing of these two interchanges with SR 58 (East and West) and the interchange at California Avenue, results in vehicles aggressively changing lanes adding to the congestion.

The Centennial Corridor is divided into three segments as shown on Figure 1.

Segment 1 is the easternmost segment, which would connect the existing State Route 58 (East) freeway to the Westside Parkway. Multiple alignment alternatives are being evaluated for this segment and are discussed below.

Segment 2 is composed of the Westside Parkway, which extends westerly from Truxtun Avenue to Heath Road. This roadway is a local facility most of which opened August 2, 2013 with Allen road to Heath Road still under construction. It would be transferred into the State Highway System. The analysis evaluates potential impacts associated with incorporating the Westside Parkway as part of the State Highway System, as well as improvements to the Westside Parkway from Truxtun Avenue to the Calloway Drive interchange which would be made to facilitate traffic operations between the Westside Parkway and the Centennial Corridor. The Environmental Impact Report includes the relevant results of the *Westside Parkway Environmental Assessment/Final Environmental Impact Report* and provides updates, as necessary.

Segment 3 would extend from Heath Road to I-5. This segment will need route adoptions for the use of Stockdale Highway between Heath Road and I-5 as the connection for State Route 58. Improvements to the Stockdale Highway/State Route 43 (known locally as Enos Lane) intersection would be made to accommodate the additional traffic.

Project Alternatives

The Project alternatives vary only in Segment 1. There are four future alternatives: the No-Build alternative and three build alternatives. Figure 2 provides a visual representation of all three Project alternatives and the PM Hot-Spot Modeling Study Area. A complete description of these alternatives, including common features of all the build alternatives, can be found in the main volume of the Air Quality Study Report. A brief summary of these alternatives is presented below.

No-Build Alternative

No construction of Segment 1 would occur under the No-Build Alternative. In addition no improvements to the Westside Parkway from Truxtun Avenue to the Calloway Drive interchange would be required. There would also be no improvements made to the Stockdale Highway/SR 43 intersection. The No-Build Alternative would involve the following actions: (1) the Westside Parkway would be route adopted into the State Highway System; (2) the portion of Mohawk Street from the Westside Parkway to Rosedale Highway would be designated as part of SR 58, which would provide a connection to SR 99; (3) Stockdale Highway between Heath Road and Interstate 5 would serve as an interim alignment for SR 58 until ultimate improvements are constructed; and (4) the portion of SR 58 (West) from Allen Road to Interstate 5 would be relinquished) to the local jurisdictions as a local facility.

Alternative A

Alternative A would travel westerly from the existing SR 58/SR 99 interchange for about 1 mile south of Stockdale Highway, where it would turn northwesterly and go over Stockdale Highway/Montclair Street,

California Avenue/Lennox Avenue, Truxtun Avenue, and the Kern River before joining the eastern end of the Westside Parkway near the Mohawk Street interchange.

A link would be provided from northbound SR 99 to westbound SR 58 and from eastbound SR 58 to southbound SR 99 via high-speed connectors. No direct connector ramps would be built from southbound SR 99 to westbound SR 58 or from eastbound SR 58 to northbound SR 99. Southbound SR 99 would be widened to accommodate the additional traffic from eastbound SR 58 to the southbound SR 99 connector. The existing westbound SR 58 to southbound SR 99 loop-ramp connector would be realigned and would connect to the proposed eastbound SR 58 to southbound SR 99 connector before merging onto southbound SR 99. The existing southbound SR 99 to eastbound SR 58 connector and northbound SR 99 to eastbound SR 58 would be preserved with some changes.

The limits of widening on SR 99 would extend to the Wilson Road overcrossing. On northbound SR 99, a three-lane exit would be provided just north of Wilson Road to carry the northbound SR 99 to westbound SR 58 traffic on two lanes and the Ming Avenue on- and off-ramp traffic on the third lane. All ramps in this area would have to be realigned to provide for the additional lanes. The Wible Road on- and off-ramps just south of the existing SR 58/SR 99 interchange, which is in conflict with the Caltrans standards of interchange spacing, would have to be removed to accommodate this design. The Stockdale Highway off-ramp on the southbound SR 99 to eastbound SR 58 connector would be removed as well. Under this concept, SR 58 would also lose its link with Real Road. Also, Alternative A would provide an auxiliary lane on southbound SR 99 from south of Gilmore Avenue to the Rosedale Highway off-ramp.

The median widening to provide an auxiliary lane along the Westside Parkway would extend westerly from the connection point with Centennial Corridor between Coffee Road and Mohawk Street to the Coffee Road off-ramp.

Alternative B

Alternative B would run westerly from the existing SR 58/SR 99 interchange to about 1,000 feet south of Stockdale Highway, where it would turn northwesterly and span Stockdale Highway/Stine Road, California Avenue, Commerce Drive, Truxtun Avenue, and the Kern River before joining the east end of Westside Parkway between the Mohawk Street and Coffee Road interchanges. This alignment would depress SR 58 between California Avenue and Ford Avenue. Alternative B proposes the same connections to SR 99 that Alternative A does and would require similar improvements on SR 99 and existing SR 58.

The median widening to provide an auxiliary lane along the Westside Parkway would extend westerly from the connection point with Centennial Corridor between Coffee Road and Mohawk Street to the Coffee Road off-ramp. Modifications would be required to the eastbound Mohawk Street off-ramp, westbound Truxtun Avenue on-ramp and reconstruction of the eastbound Mohawk Street loop on-ramp. In addition, construction of the proposed westbound Mohawk Street off-ramp and realignment of the Cross Valley Canal maintenance access road from Mohawk Street would be required.

Alternative C

Near the existing SR 58/SR 99 interchange, Alternative C would turn north and run parallel to the west of SR 99 for about 1 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 from northbound SR 99 to 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 before merging onto southbound SR 99. The southbound SR 99 Ming Avenue off-ramp would be relocated north of the eastbound SR 58 to southbound SR 99 connector to facilitate weaving between the Ming Avenue off-ramp and the eastbound SR 58 to southbound SR 99 connector traffic. A connector would be provided east of northbound SR 99 from Brundage Lane to south of California Avenue to facilitate weaving between westbound SR 58 to northbound SR 99 traffic with northbound SR 99 to westbound SR 58 traffic.

Improvements on SR 99 would extend from the 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. The Wible Road on- and off-ramps just south of the existing SR 58/SR 99 interchange would have to be removed to accommodate the northbound SR 99 auxiliary lane. The Stockdale Highway off-ramp on the southbound SR 99 to eastbound SR 58 connector would be removed as well. Under this concept, southbound SR 99 would also lose its link with Real Road.

The median widening to provide an auxiliary lane along Westside Parkway would extend westerly from the connection point with Centennial Corridor between Coffee Road and Mohawk Street to the Coffee Road off-ramp. Modifications would be required to the eastbound Mohawk Street off-ramp, westbound Truxtun Avenue on-ramp and reconstruction of the eastbound Mohawk Street loop on-ramp. In addition, construction of the proposed westbound Mohawk Street off-ramp and realignment of the Cross Valley Canal maintenance access road from Mohawk Street would be required.

Preferred Alternative

Alternative B has been identified as the preferred alternative. The Section 4(f) analysis performed as part of the environmental impact analysis of the proposed project indicated that implementation of Alternatives A and C would result in an unavoidable impact to Section 4(f) resources while Alternative B does not. Unavoidable impacts to Section 4(f) resources would be the primary reason for Alternatives A and C to be eliminated, leaving Alternative B to be selected as a preferred alternative. Alternative B would affect fewer businesses and residences than Alternative A and would also avoid the Rancho Vista Historic District that would be affected by Alternative A. Alternative B would avoid Saunders Park and the environmental justice residential neighborhood south of Saunders Park, both of which would be affected by Alternative C. In addition, Alternative B would affect the smallest wetland acreage. Alternative B would also cost about $100 million less than the other build alternatives.

It should be noted that conformity will only apply to Alternative ~~B-~~B, if the alternative moves forward as the preferred alternative in the Final Environmental Document.

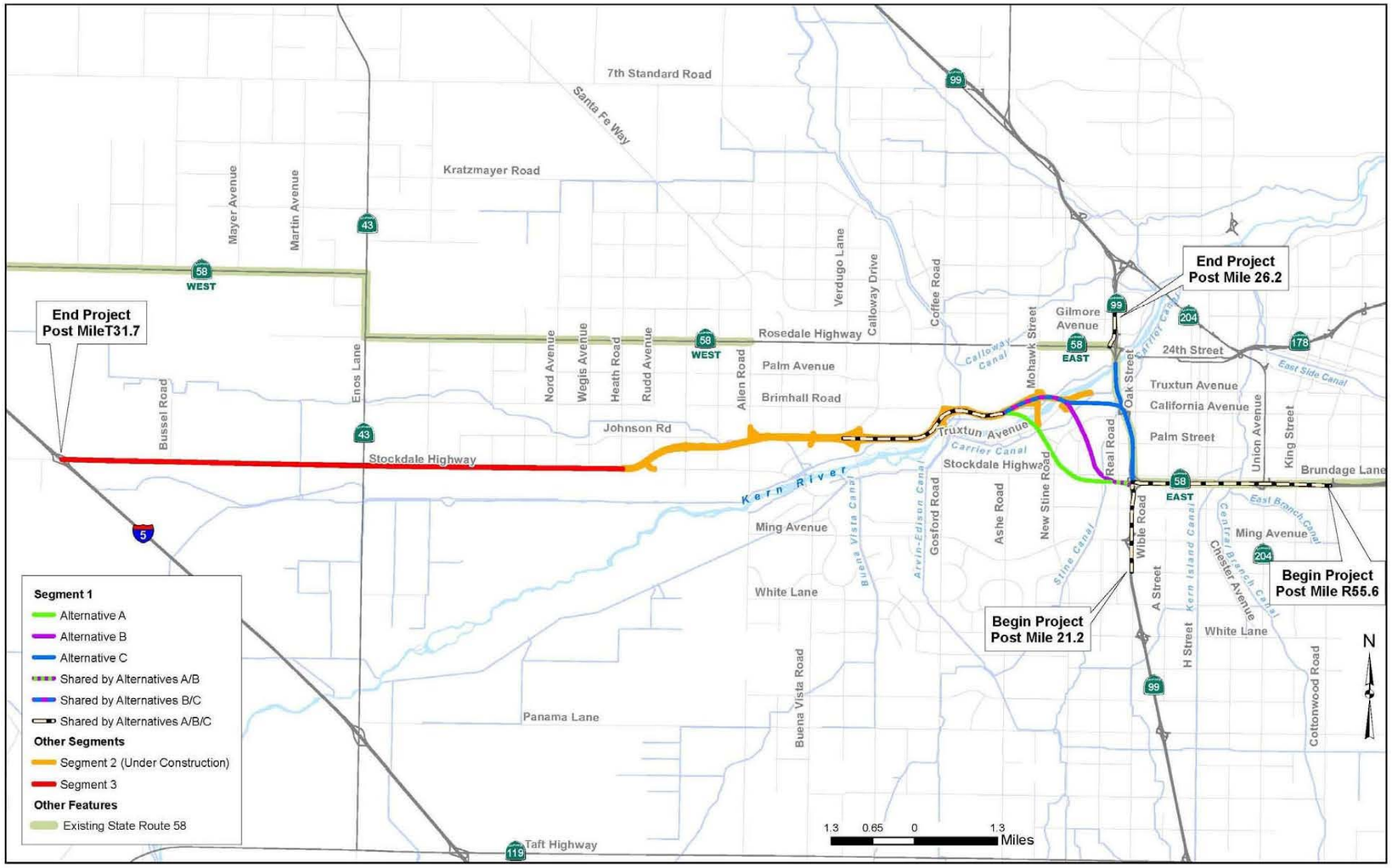


Figure 1 Segments of the Centennial Corridor

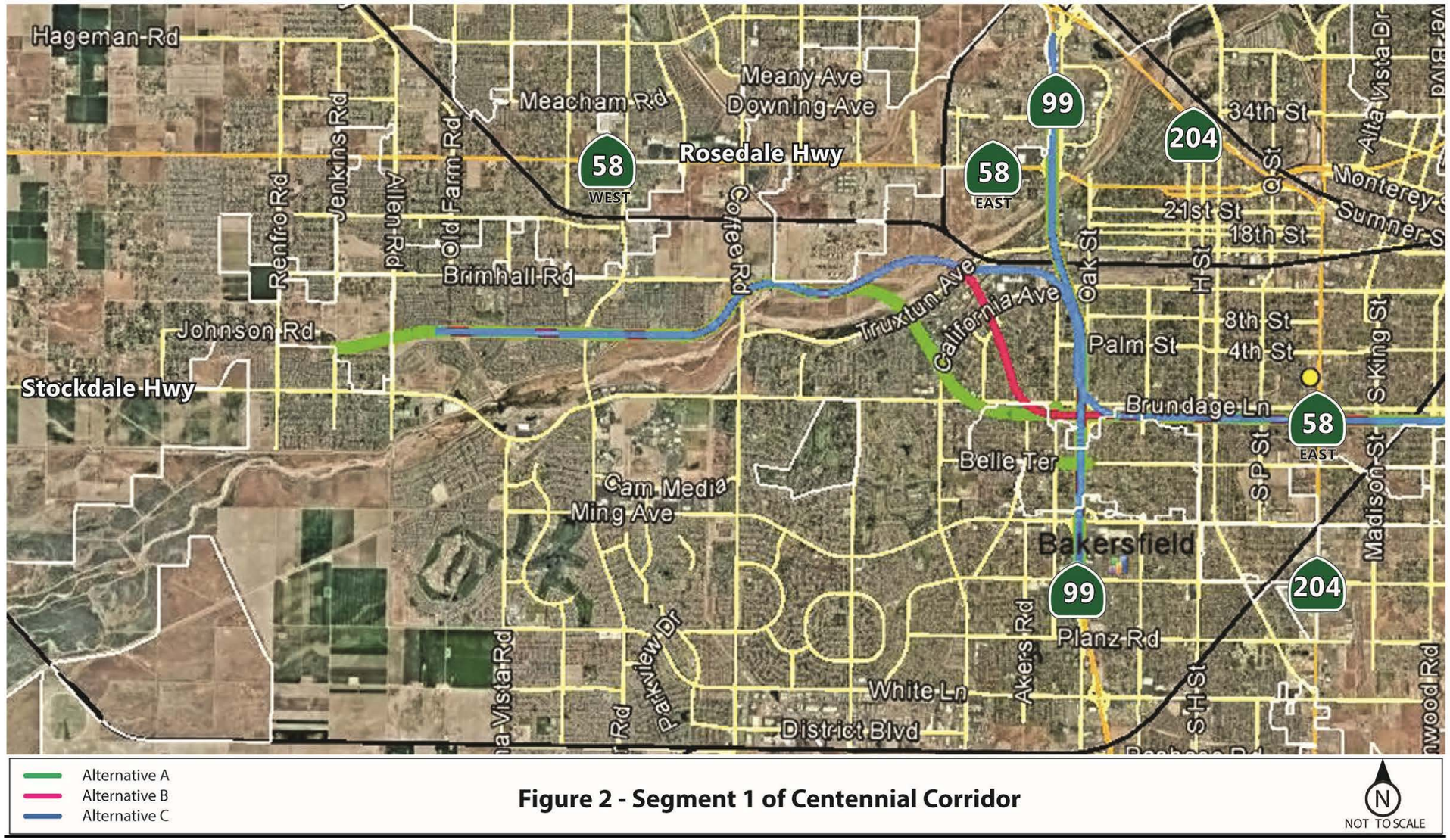


Figure 2 - Segment 1 of Centennial Corridor

$PM_{2.5}$ /PM_{10}: Background, Existing Conditions, and Future Conditions

What is Fine Particulate Matter ($PM_{2.5}$ and PM_{10})?

Particulate matter (PM) is the term for particles and liquid droplets suspended in the air. Motor vehicles (i.e., cars, trucks, and buses) emit direct PM from their tailpipes, as well as from normal brake and tire wear. In addition, vehicles cause dust from paved and unpaved roads to be re-entrained, or re-suspended, in the atmosphere. Also, highway and transit project construction may cause dust. Finally, gases in vehicle exhaust may react in the atmosphere to form PM.

Particles come in a wide variety of sizes and have been historically assessed based on size, typically measured by the diameter of the particle in micrometers. PM_{10} refers to particles that are 10 micrometers in diameter or less. $PM_{2.5}$, or fine particulate matter, refers to particles that are 2.5 micrometers in diameter or less. (Note: A human hair is about 70 micrometers in diameter and a grain of sand is about 90 micrometers in diameter). The National Ambient Air Quality Standards for $PM_{2.5}$ fine particulate matter include an annual standard (15.0 micrograms per cubic meter (ug/m3)) and a 24-hour standard (35 ug/m3). The annual standard is based on a 3-year average of annual mean $PM_{2.5}$ concentrations; the 24-hour standard is based on a 3-year average of the 98th percentile of 24hour concentrations. The NAAQS for PM 10 is based on a 24-hour average and is 150 ug/m3. There is no state or federal standard for PM_{10} annual concentrations.

Statutory Requirements for PM Hotspot Analyses

On March 10, 2006, EPA issued amendments to the Transportation Conformity Rule to address localized impacts of particulate matter: "$PM_{2.5}$ and PM_{10} Hot-Spot Analyses in Project-level Transportation Conformity Determinations for the New $PM_{2.5}$ and Existing PM_{10} National Ambient Air Quality Standards" (71 FR 12468). These rule amendments require the assessment of localized air quality impacts of Federally-funded or approved transportation projects in PM_{10} and $PM_{2.5}$ nonattainment and maintenance areas deemed to be *projects of air quality concern*. This assessment of localized impacts (i.e., "hotspot analysis") examines potential air quality impacts on a scale smaller than an entire nonattainment or maintenance area. Such an analysis is a means of demonstrating that a transportation project meets Clean Air Act conformity requirements to support State and local air quality goals.

EPA requires hotspot findings to be based on directly emitted $PM_{2.5}$, since secondary particles take several hours to form in the atmosphere giving emissions time to disperse beyond the immediate area of concern. The Conformity Rule requires $PM_{2.5}$ hot-spot analyses to include road dust emissions only if such emissions have been found significant by EPA or the state air agency prior to the $PM_{2.5}$ SIP or as part of an adequate $PM_{2.5}$ SIP motor vehicle emissions budget (40 CFR §93.102(b)(3)). Emissions resulting from construction of the project are not required to be considered in the hotspot analysis if such emissions are considered temporary according to 40 CFR §93.123(c)(5).

$PM_{2.5}$ and PM_{10} Regional Conformity Determination

Section 176(c) of the CAA and the federal conformity rule require that transportation plans and programs conform to the intent of the state air quality implementation plan (SIP) through a regional emissions analysis in $PM_{2.5}$ and PM_{10} nonattainment areas. The Kern County 2011 Regional Transportation Plan (RTP) and the 2013 Federal Transportation Improvement Program (FTIP) have been determined to conform to the intent of the SIP. The US Department of Transportation made a $PM_{2.5}$ conformity determination on the RTP and the FTIP on July 8, 2013 (Amendment #4) and thus there is a currently

conforming transportation plan and TIP in accordance with 40 CFR 93.114. The current conformity determination is consistent with the final conformity rule found in 40 CFR Parts 51 and 93. The Centennial Corridor project was included in the regional emissions analysis and there have been no significant changes in the project's design concept or scope, as used in the conformity analysis. Therefore the project comes from a conforming plan and program in accordance with 40 CFR 93.115.

$PM_{2.5}$ and PM_{10} Hot-Spot Analysis Requirements

As noted previously, EPA's final rule on $PM_{2.5}$ and PM_{10} hotspot analyses requires localized assessment for projects of air quality concern. The Centennial Corridor project meets the criteria set forth in 40 CFR 93. 123(b)(1) as amended for projects of air quality concern primarily because it is a new highway facility with a significant level of diesel vehicles; thereby requiring a hotspot analysis. The range of truck percentage for all trucks on the proposed Centennial Corridor project alignment is between 5 and 16 percent (see Table 9), which is over EPA's examples of projects of air quality concern of eight percent diesel trucks requiring analysis as stated in the preamble of the rule. Construction-related emissions for the project were considered to be temporary. EPA has not approved a $PM_{2.5}$ SIP for the San Joaquin Valley.

According to 40 CFR 93.123(b)(2) and (4), a quantitative analysis for applicable projects is not required since the project began the environmental process prior to the EPA release of the modeling guidance in the Federal Register. However, a qualitative hot spot analysis is still required. For the Centennial Corridor project, a qualitative project-level hotspot assessment was conducted in order to assess whether the project will cause or contribute to any new localized $PM_{2.5}$ and PM_{10} violations, or increase the frequency or severity of any existing violations, or delay timely attainment of the $PM_{2.5}$ /PM_{10} NAAQS. The qualitative hot spot analysis included a substantial quantitative element, which is described in the Methodology Section below.

The methodology used for this analysis did not use the examples given in the EPA guidance, however as stated in the EPA guidance," This guidance highlights two methods for completing qualitative PM_{10} and $PM_{2.5}$ hot-spot analyses. These methods are provided as examples only, and there may be other methods. …. The method chosen will be affected by the characteristics of a particular project, the project location, and available information." As such, a methodology was chosen that would best capture the emission differerences between the alternatives and characterizes the project area emissions with the traffic data and air data gathered for this project.

IV. Project Level Hot-Spot Analysis

Existing Conditions

The affected area for the purposes of this analysis is the Centennial Corridor project study area, as discussed above in Project Alternative Section of this report and further elaborated in the DEIS and associated documentation. This section includes a discussion of currently available information on existing conditions related to air quality and traffic conditions in the project area.

Air Quality – Monitors

There are currently three monitors located near the project in the Bakersfield. EPA guidance states that the monitoring station located closest and upwind of the site should be used for determining the background concentrations. The Bakersfield-5558 California Avenue (AIRS site ID # 06290014) was determined to best fit the guidance protocol. The station is operated by the Air Resources Board and air samples are taken every day. The annual average $PM_{2.5}$ ambient air concentrations (Table 1), 98th percentile 24-hr $PM_{2.5}$ (Table 2), and High National 24-hour PM_{10} (Table 3) for 2007 thru 2012 are presented in the tables below.

Table 1

$PM_{2.5}$						
	National Annual Average					
Monitoring Sites	2007	2008	2009	2010	2011	2012
	Kern County					
Bakersfield-5558 California Avenue	21.9	21.9	19.0	14.1	16.2	13.0

Note: * There was insufficient (or no) data available to determine the value.

Table 2

$PM_{2.5}$						
	National 98th Percentile					
Monitoring Sites	2007	2008	2009	2010	2011	2012
	Kern County					
Bakersfield-5558 California Avenue	73.0	64.5	66.7	53.3	65.5	56.4

Note: * There was insufficient (or no) data available to determine the value.

Table 3

PM_{10}						
	High National 24-Hour Average					
Monitoring Sites	2007	2008	2009	2010	2011	2012
	Kern County					
Bakersfield-5558 California Avenue	115.0	262.3	94.5	86.0	97.4	99.6

Notes: PM_{10} statistics may include data that are related to an exceptional event.
* There was insufficient (or no) data available to determine the value.

The monitored data show the following trends:

- Respirable Particulate Matter (PM_{10}) – During the recorded period of 2007 to 2012, the maximum 24-hour monitored data were below the NAAQS, with the exception of 2008. In 2008, the highest 24-hour concentration recorded was 262 µg/m3. The exceedance recorded only once; the second high measured concentration in 2008 was 128 µg/m3, which is below the standard level.
- Fine Particulate Matter ($PM_{2.5}$) – During the recorded period of 2007 to 2012, the 3-year average of 98th percentile of 24-hour concentrations, exceeded the 2006 standard (35 ug/m3) NAAQS every year, and exceeded the 1997 standards of 65 µg/m3 (which was in effect until 2006) in four of the six years. The annual mean $PM_{2.5}$ concentration exceeded the national ambient air quality standard (NAAQS) every year except in 2010. Although the recorded data do not show a consistent trend, the data indicate an overall declining trend for the ambient $PM_{2.5}$ concentrations in the project area.

Transportation and Traffic Conditions

Currently, State Route 58 lacks route continuity from the State Route 58/State Route 99 interchange west to Interstate 5. From the State Route 58/99 interchange, State Route 58 is offset by about 2 miles where State Routes 58 and 99 merge and share a common north-south alignment. Traffic continuing west from the shared portion of State Route 58/State Route 99 must exit at the State Route 178/24th Street off-ramp to access State Route 58 (West) where the road resumes as an east-west local road known as Rosedale Highway/24th Street.

State Route 58 runs west of State Route 99 as an arterial highway (Rosedale Highway) for about 12 miles. But, between Allen Road and Mohawk Street, the road is under local control (the city and county, not the state, own the roadway). At State Route 43, State Route 58 is again offset to the north for about 1 mile and shares alignment with State Route 43. From this point, State Route 58 again assumes an east-west alignment as a two-lane, rural local roadway for about 8 miles before an interchange with Interstate 5.

The lack of route continuity contributes to traffic congestion and reduced levels of service on adjoining highways and local streets. 16 local signalized intersections along State Route 58 currently operate at level of service E or F during at least one of the peak hours. Under existing conditions, State Route 58 does not meet the capacity needs of the area and, with a projected total of 22 intersections at level of service E or F in 2038, this is expected to worsen as the population grows.

Please refer to Chapter 1 of the FEIS for a complete presentation of the traffic data.

Built and Natural Environment

Segment 1 of the Centennial Corridor sits in the City of Bakersfield between the Kern River and downtown Bakersfield. The study area of Segment 1 generally extends to Rosedale Highway on the north, Cottonwood Avenue on the east, Ming Avenue to the south, and Coffee Road to the west. Existing land uses along this segment include residential, commercial, industrial, recreational, resource/utility, agricultural, undeveloped/vacant, and government uses.

The study area contains several well-established residential neighborhoods, with commercial lands situated mostly along Stockdale Highway and California Avenue, and next to State Route 99. Stockdale Highway hosts many of the local-serving retail shops and commercial enterprises, plus small offices providing various community services. Health-related offices, houses of worship, educational facilities, and many neighborhood-serving businesses and services also sit within or next to residential areas. Utilities and transportation land uses are located throughout the study area and include existing roads and utility rights-of-way. Industrial land uses are located mostly on the north side of the Kern River. Recreational land uses are spread throughout the study area. There is little remaining open space/vacant land in the project areas of Segment 1; most open space/vacant land is north of the Kern River. Public service land uses, mainly Kern County government facilities, are largely concentrated within the downtown Bakersfield area.

Residential neighborhoods consist mostly of detached single-family units built from the 1950s through the 1970s. Newer single-family residences are farther west, closer to California State University, Bakersfield and south of Ming Avenue.

For a more detailed discussion of the study area land use, please refer to Chapter 3 of the DEIS.

Future Scenario

This project was included in the 2013 FTIP and 2011 RTP amendment #3 for which a conformity analysis was conducted. Due to the size of this project, not only will the local traffic circulation see better LOS, the project will have a positive affect on the regional traffic emissions. The regional emissions analysis was used to determine that conformity requirements were met and that the region demonstrated conformity with respect to the State Implementation Plan (SIP). The major conclusions of the Kern Council of Governments Conformity Analysis are:

- For PM_{10}, the total regional vehicle-related emissions (PM_{10} and NOx) associated with implementation of the 2013 FTIP and the 2011 RTP Amendment #3 for all years tested are either (1) projected to be less than the approved emissions budgets, or (2) less than the emission budgets using the approved PM_{10} and NOx trading mechanism for transportation conformity purposes from the *2007 PM_{10} Maintenance Plan*. The conformity tests for PM-10 are therefore satisfied.

- For $PM_{2.5}$, the total regional on-road vehicle-related emissions associated with implementation of the 2013 FTIP and the 2011 RTP Amendment #3 for the analysis years are either (1) projected to be less than the approved emission budgets, or (2) less than the emission budgets using the approved $PM_{2.5}$ and NOx trading mechanism for transportation conformity purposes from the *2008 $PM_{2.5}$ Plan (as revised in 2011)*. The conformity tests for $PM_{2.5}$ for both the 1997 and 2006 standards are therefore satisfied.

In addition, committed control measures in the EPA approved 2007 PM_{10} Maintenance Plan and 2008 $PM_{2.5}$ Plan (as revised in 2011) that reduce mobile source emissions and are included in the conformity demonstration are shown in Table 4 and 5, respectively.

Table 4 2007 PM_{10} Maintenance Plan Measures Assumed in the Conformity Analysis

Measure	Description Pollutants
ARB existing Reflash, Idling, and Moyer	PM_{10} annual exhaust NOx annual exhaust
District Rule 8061	PM_{10} paved road dust PM_{10} unpaved road dust
District Rule 8021 Controls	PM_{10} road construction dust

Table 5 2008 $PM_{2.5}$ Plan Measures Assumed in the Conformity Analysis

Measure Description	Pollutants
Existing Local Reductions: Rule 9310 (School Buses)	Annual $PM_{2.5}$ Annual NOx
Existing State Reductions: Carl Moyer Program & AB 1493 GHG Standards	Annual $PM_{2.5}$ Annual NOx
New/Proposed State Reductions: Smog Check & Truck Model	Annual $PM_{2.5}$ Annual NOx

NOTE: Table 5 is consistent with the 2008 $PM_{2.5}$ Plan (as revised in 2011) as approved by EPA on November 9, 2011 (effective January 9, 2012).

Based on consultation with CARB and the Air District, Kern Council of Governments considered priority funding allocations in the 2011 RTPs for PM_{10} and NOx emission reduction projects in the post-attainment year timeframe that go beyond the emission reduction commitments made for the attainment year 2010 for the following four measures:

1. Paving or Stabilizing Unpaved Roads and Alleys
2. Curbing, Paving, or Stabilizing Shoulders on Paved Roads
3. Frequent Routine Sweeping or Cleaning of Paved Roads (i.e., funding allocation for the purchase of PM_{10} efficient street sweepers for member jurisdictions); and
4. Repave or Overlay Paved Roads with Rubberized Asphalt

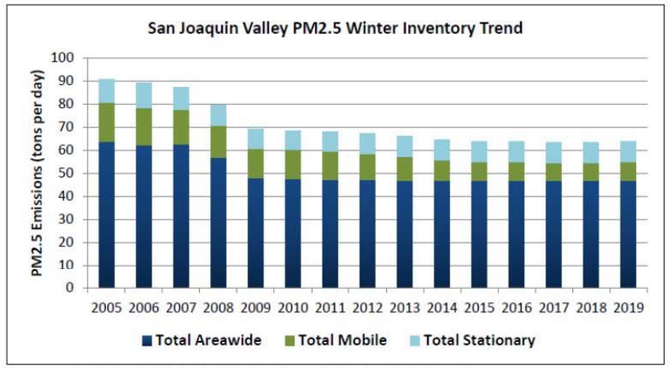
According to EPA, the 2007 heavy diesel engine standards will result in the introduction of new, more effective control technologies for reducing emissions from heavy-duty diesel engines. Particulate matter emission levels are expected to be 90 percent lower, on a per vehicle basis, than standard levels for year 2000, due to the diesel fuel and engine improvement program starting in 2007. There is some uncertainty, however, as to how quickly the 2007 standards would actually reduce the diesel emissions. Fleet turnover of heavy-duty diesel vehicles is typically slow and will probably be affected by the funds available for potential engine replacement/retrofit incentives.

Furthermore, the SJVAPCD's 2007 Particulate Matter Attainment Plan, and Request for Designation dated September 20, 2007 indicated additional stringent measures to reach attainment for the particulate matter standard while making progress towards more stringent standards established by EPA and CARB.

As stated in the San Joaquin Valley Unified Air Pollution Control District 2012 $PM_{2.5}$ Plan, while presented with unique geographical and meteorological challenges, the San Joaquin Valley (Valley) has made significant progress in reducing total $PM_{2.5}$ emissions and $PM_{2.5}$ precursor emissions and in improving air quality for Valley residents. Through progressively more stringent regulations and improved control technologies, the overall amount of directly emitted $PM_{2.5}$ emissions has decreased by 17.9% over the last five years and will continue to decrease through 2019. Similarly, the overall amount of NOx (a significant precursor to $PM_{2.5}$ in the Valley) emissions has decreased by 35% over the last five years and will also continue to decrease through 2019.

$PM_{2.5}$ concentrations have also decreased over this time period, although achieving these reductions has been quite challenging given frequent meteorological conditions conducive to $PM_{2.5}$ formation that are characteristic of the Valley, and which are outside human (and regulatory) control. Annual fluctuations in weather patterns affect the Valley's carrying capacity (the ability to disperse pollutants), which is reflected in long- and short-term ambient air quality trends. Despite the impacts of these uncontrollable meteorological conditions, the Valley is progressing toward attainment of the 2006 $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS).

Figure 3 shows the $PM_{2.5}$ emissions inventory trend for the mobile, stationary, and area source categories.



San Joaquin Valley Unified Air Pollution Control District 2012 $PM_{2.5}$ Plan

Figure 3 San Joaquin Valley $PM_{2.5}$ Winter Emissions Inventory Trend

Because NOx is a significant $PM_{2.5}$ precursor, the San Joaquin Valley Air District relies heavily on NOx emissions to also reduce $PM_{2.5}$ emissions. Figure 4 summarizes the NOx emissions inventory trends for the mobile, stationary, and area source categories. District and ARB control strategies for NOx play a significant role in reducing both ozone and $PM_{2.5}$ emissions.

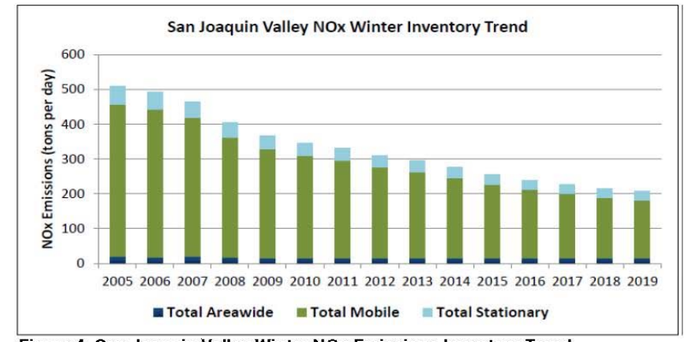
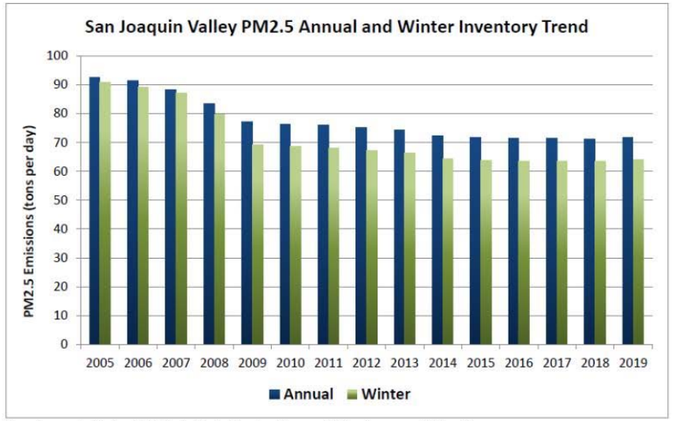


Figure 4 San Joaquin Valley Winter NOx Emissions Inventory Trend

San Joaquin Valley Unified Air Pollution Control District 2012 $PM_{2.5}$ Plan

Through an exhaustive evaluation of this inventory, which includes directly emitted $PM_{2.5}$ and relevant $PM_{2.5}$ precursors (NOx, SOx), the District has developed a control strategy that will be effective in reducing overall concentrations of $PM_{2.5}$.

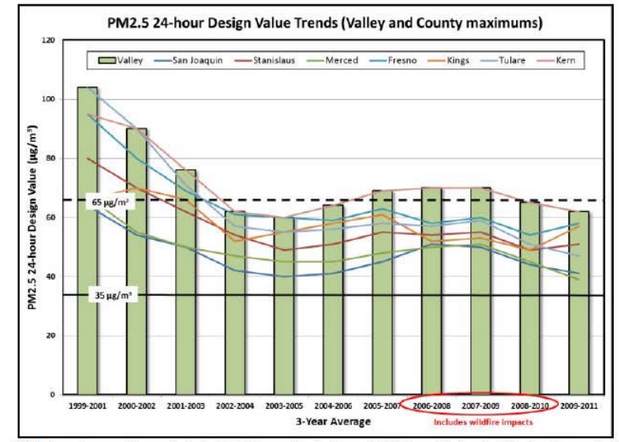
Emissions inventory trends show the progress made through progressive regulatory and non-regulatory activities, e.g. as rules are amended with tighter emission limits, or as reduction technologies improve, overall emissions decrease. Figure 5 shows how the overall tons of $PM_{2.5}$ emissions per day have decreased in the past and are anticipated to continue decreasing in the future based on anticipated growth and controls. Figure 5 also shows the comparative emission inventory reduction of winter $PM_{2.5}$. Winter $PM_{2.5}$ emissions have decreased significantly, in large part due to the effectiveness of Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters). Continued emissions reductions are based on current control strategies that will continue to take effect into the future. In light of the Valley's projected increase in population, the projected emissions reductions highlight the success of the control measures adopted and enforced by the District, ARB, and other regulatory agencies.



San Joaquin Valley Unified Air Pollution Control District 2012 $PM_{2.5}$ Plan

Figure 5 San Joaquin Valley $PM_{2.5}$ Annual and Winter Inventory Trends

As seen in Figure 6, the Valley and county maximum 24-hour average $PM_{2.5}$ design value trends show that although there is some year-to-year variation significant progress has been made in reducing long-term $PM_{2.5}$ concentrations. Valley design value maximums have decreased by 40% over the 1999–2011 time period. This trend is also represented in the county maximum design values over the same time period. Note that some of the county design values calculated for the 2009–2011 data point have increased, partly due to the abnormal stagnation and poor air quality in late 2011.

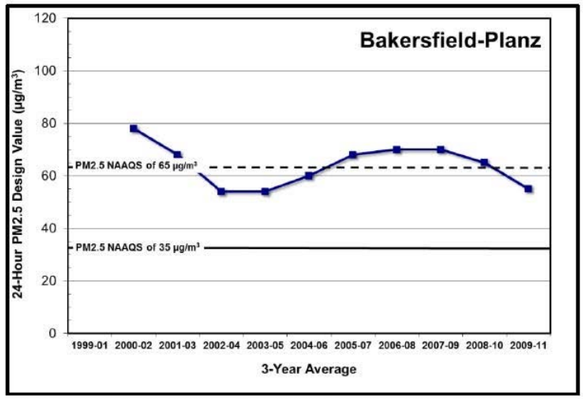


* Madera has not been included in this analysis since PM2.5 monitoring in Madera began in 2011.

San Joaquin Valley Unified Air Pollution Control District 2012 $PM_{2.5}$ Plan

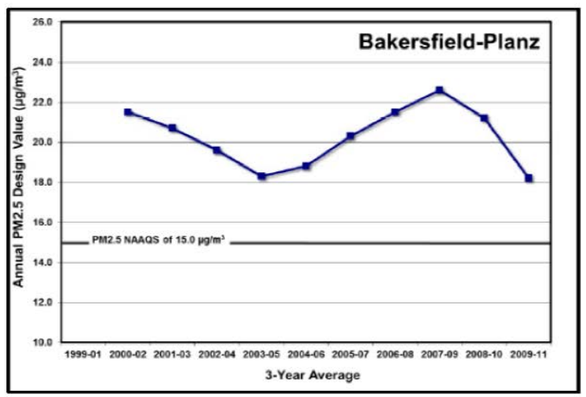
Figure 6 Historical $PM_{2.5}$ 24-Hour Design Value Trends*

Since monitoring began, the Bakersfield-Planz air monitoring site in Kern County has consistently been among the highest $PM_{2.5}$ design values in the Valley. Figures 7 and 8 show the trend of the 24-hour and annual average design values at Bakersfield-Planz through 2011, as demonstrated with the 2009–2011 design value (3-year average).



San Joaquin Valley Unified Air Pollution Control District 2012 $PM_{2.5}$ Plan

Figure 7 Trend of 24-Hour Average $PM_{2.5}$ Design Values at Bakersfield-Planz



San Joaquin Valley Unified Air Pollution Control District 2012 $PM_{2.5}$ Plan

Figure 8 Trend of Annual Average $PM_{2.5}$ Design Values at Bakersfield-Planz

Overall decreasing $PM_{2.5}$ concentrations at the Bakersfield-Planz air monitoring site are shown in the design value trend for that site. Figure 7 shows that the site now has a 24-hour design value below the 1997 24-hour $PM_{2.5}$ standard of 65 µg/m3. Figure 8 shows that the annual average design value for the 2009–2011 time period was at an all-time low for the site at 18.2 µg/m3. This downward trend will need to continue at all sites within the Valley as the Valley strives for attainment of the 2006 $PM_{2.5}$ NAAQS.

Emission trend data for the SJVAB published in the 2009 edition of *The California Almanac of Emissions and Air Quality* published by the ARB was used to provide an estimate of potential $PM_{2.5}$ and PM_{10} trends in the vicinity of the project area (California Air Resources Board 2009). While the ARB's Almanac does not provide emission trend data on the county level, the regional trend data can be used to provide insight on the general trends of air quality in the project area, as implementation of emission standards and control requirements that have an effect on regional pollutant concentrations are likely to result in similar trends at the local level. Tables 6 and 7, below, present PM_{10} and $PM_{2.5}$ emission trends in the SJVAB for the years 1975-2020 based on ARB Almanac data (California Air Resources Board 2009).

Table 6 San Joaquin Valley Air Basin

Directly Emitted PM_{10} Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	**290**	**287**	**289**	**357**	**347**	**349**	**304**	**302**	**303**	**310**
Stationary Sources	57	41	34	27	26	27	25	25	26	28
Area-wide Sources	208	215	224	292	293	296	255	254	259	266
On-Road Mobile	12	14	18	23	17	15	15	14	11	10
Gasoline Vehicles	2	2	2	2	3	3	4	5	5	6
Diesel Vehicles	10	12	16	21	14	12	11	9	6	4
Other Mobile	13	16	14	15	11	11	10	9	7	6
Gasoline Fuel	0	1	1	1	1	1	1	1	2	2
Diesel Fuel	12	14	12	13	10	9	8	6	4	3
Other Fuel	1	1	1	1	1	1	1	2	2	2

California Air Resources Board 2009 Almanac (web)

Table 7 San Joaquin Valley Air Basin

Directly Emitted $PM_{2.5}$ Emission Trends (tons/day, annual average)										
Emission Source	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**	**2020**
All Sources	**126**	**118**	**114**	**125**	**116**	**115**	**107**	**104**	**101**	**102**
Stationary Sources	46	31	23	17	17	17	17	18	18	19
Area-wide Sources	58	60	62	74	74	75	69	68	68	70
On-Road Mobile	10	12	16	20	14	13	12	11	9	7
Gasoline Vehicles	1	1	1	1	2	2	2	3	3	3
Diesel Vehicles	9	11	15	19	13	11	10	8	5	4
Other Mobile	12	15	13	14	10	10	9	8	7	6
Gasoline Fuel	0	0	1	1	1	1	1	1	1	1
Diesel Fuel	11	13	11	12	9	8	7	5	4	2
Other Fuel	1	1	1	1	1	1	1	2	2	2

California Air Resources Board 2009 Almanac (web)

The emissions trends presented above in Table 6 (PM_{10}) and Table 7 ($PM_{2.5}$) indicate that total on-road emissions (see highlighted in yellow) are expected to maintain a decreasing trend through 2020, with increases in emissions from on-road gasoline vehicles offset by substantial decreases in emissions from on-road diesel vehicles. Emissions of directly emitted $PM_{2.5}$ and PM_{10} from diesel motor vehicles have been decreasing since their peak levels in 1990 even though population and vehicles miles traveled (VMT) are increasing due to adoption of more stringent emission standards.

As shown in Figure 9 below, on-road motor vehicle emissions make up only a small part of the total emissions within the Kern County Area.

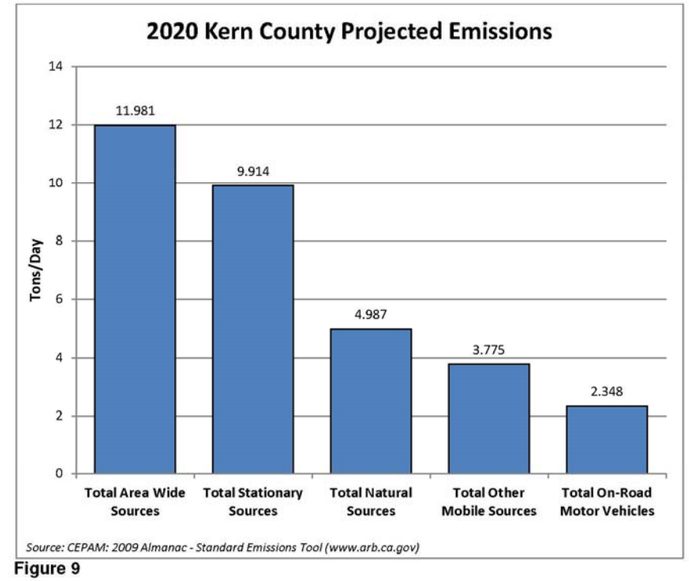


Figure 9

V. $PM_{2.5}$ and PM_{10} Hot Spot Analysis

Methodology

The Hot Spot Analysis was conducted following the joint EPA/FHWA Transportation Conformity Guidance for Qualitative Hot Spot Analysis in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas dated March of 2006. As per the guidance, the project was analyzed for total emission burden of direct $PM_{2.5}$ and PM_{10} emissions which can be attributed to the implementation of the project (including re-entrained road dust). Roadway construction emissions were not included since the construction is anticipated to last less than the 5 year requirement (anticipated construction will last 3 years). The analysis encompassed all roadways (including local surface streets) that would be impacted by the project. As mentioned previously the project is included in the current approved RTP and FTIP as required for a project-level conformity determination.

The EPA and FHWA established in the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas* (Federal Highway Administration and U.S. Environmental Protection Agency 2006) highlighted two of the following methods for completing a PM2.5 and PM10 hot-spot analysis:

1. Comparison to another location with similar characteristics – (pollutant trend within the air basin)
2. Air quality studies for the proposed project location – (ambient PM trend analysis in the project area)

As mentioned earlier, this project level analysis uses a hybrid approach to demonstrate that the proposed project would not result in a new or worsened PM2.5 or PM10 violation. Air data gathered from the local air district was used to establish the ambient PM trend in proposed project area and will not delay attainment of the NAAQS. Documentation from the San Joaquin Air District Sate Implementation Plan was referenced as shown in previous sections of this analysis to establish the regional emissions trends for the project area.

In addition, to meeting regional conformity requirements as demonstrated in the Regional Transportation Plan, the project is required to demonstrate that the project will not cause or contribute to any localized violations of PM thresholds, or add to existing violations of the standard, or delay timely attainment of the relevant standard. As such, the project needed to be analyzed at the project level and broken down into more detailed emissions calculations. As the qualitative analysis evolved it became apparent that the example methodologies listed in the EPA guidance would not adequately address the project level impacts with respect to this project. A methodology was derived using a quasi quantitative element that would use the EPA approved EMFAC emissions model to compare the project alternatives to the no build condition.

The analysis included the proposed Segment 1 alignments and also all major local surface streets that would be impacted by the project. It should be noted that the peripheral roadways to the project limits may have some impact due to the project, but were not analyzed due to the more focused intent of this hot spot analysis. The following 20 roadway segments were included in the analysis:

- SR 58
- SR 99
- SR 204
- Segment 1 - Alternative A
- Segment 1 - Alternative B
- Segment 1 - Alternative C
- Rosedale Highway
- Stockdale Highway
- Truxtun Avenue
- Hageman Avenue

- Union Avenue
- Ming Avenue
- Real Road
- California Avenue
- Brundage Lane
- Mohawk Street
- Westside Parkway
- Allen Road
- Calloway Drive
- Coffee Road
- Wible Road/Oak Street

Each roadway listed above was broken up into segments that were characterized by volume, speed, length, truck and car percentages. There were a total of 330 roadway segments that were calculated for emissions. Emissions were calculated for the build and no-build conditions. This approach was utilized as a way to capture the entire project emissions along mainline as well as local road emissions. Once the emissions were calculated they were totaled and are shown on Tables 11 and 12 below.

The analysis compared the No-Build future emissions to the 3 Build Alternative future emissions (year 2035). The emissions were calculated using the latest EPA approved emissions model - EMFAC 2011. There is a older version of EMFAC (EMFAC 2007), however it was decided that to be more accurate with the project emissions the latest and recently updated EMFAC 2011 should be used. The year 2035 was chosen as the year that would produce the peak emissions and would be the most likely year a new violation or worsening of an existing condition would occur. The project level emissions analysis was limited to the future year 2035, since EMFAC 2011 is only able to calculate emissions up to the year 2035.

Traffic Changes Due to the Proposed Projects

The project proposes to connect the existing State Route 58 (East) freeway to the Westside Parkway. The build alternatives allow more vehicles to use State Route 58 compared with the no-build alternative; meaning that vehicles travel fewer miles on parallel arterial streets and more miles on the State Route 58/Westside Parkway Freeway under alternatives A, B and C. Under the no-build alternative, traffic cascades across the highway network seeking available capacity; hence, traffic volume impacts are regional in addition to the study area.

As shown on Table 8 below, local arterials will see less traffic with the build alternatives when compared to the no build alternative. As expected Westside Parkway will increase in traffic with the build alternative as will SR 58 , Allen Road and Calloway Drive.

Table 8 Future ADT comparison of studied roadways for Year 2038

Roadway Segment	No Build	Alternative A	Alternative B	Alternative C
Rosedale Highway	26,823	21,879	21,743	21,351
Stockdale Highway	18,742	11,220	10,860	11,070
Brundage Lane	6,038	6,138	5,067	2,765
California Avenue	20,160	17,962	16,820	16,151
Truxton Avenue	19,208	14,799	13,267	13,064
Mohawk Street	21,753	16,630	19,941	19,844
Real Road	7,569	4,600	4,646	7,152
Westside Parkway	34,300	50,435	64,688	65,884
SR 58	53,338	57,175	59,540	53,488
SR 99	91,088	85,112	88,170	71,235
Hagemon Avenue	17,217	14,723	14,892	14,707
SR 204	40,644	37,147	37,154	37,516
Union Avenue	27,316	23,764	23,133	24,569
Ming Avenue	15,426	12,583	12,642	12,742
Allen Road	15,379	17,041	16,790	16,967
Calloway Drive	21,684	23,086	22,112	22,107
Coffee Road	27,598	25,207	26,057	25,752
Wible Road/Oak Street	13,097	12,722	12,179	11,646

Table 9 Percent Truck comparison of studied roadways for Year 2038

Roadway Segment	No Build % Trucks	Alternative A % Trucks	Alternative B % Trucks	Alternative C % Trucks
Rosedale Highway	12	10	10	10
Stockdale Highway	6	5	5	5
Brundage Lane	6	5	5	5
California Avenue	6	5	5	5
Truxton Avenue	6	5	5	5
Mohawk Street	6	5	5	5
Real Road	6	5	5	5
Westside Parkway	11	9	9	9
SR 58	15	14	15	15
SR 99	16	16	13	14
Hagemon Avenue	6	5	5	5
SR 204	6	5	5	5
Union Avenue	6	5	5	5
Ming Avenue	6	5	5	5
Allen Road	6	6	6	6
Calloway Drive	6	6	6	6

Coffee Road	6	6	6	6
Wible Road/Oak Street	6	6	6	6

The Hot Spot Analysis is required to analyze the entire transportation project, after the identification of major design features which will significantly impact local concentrations. Due to the size and magnitude of the Centennial Corridor project, local roads surrounding the new proposed alignments were included in the analysis to capture all the major impacts to the local traffic. It should be noted that smaller impacts throughout the City of Bakersfield were not included since this would transform the analysis into a more regional analysis. Local surface streets that were analyzed included Rosedale Highway, Stockdale Highway, Truxtun Avenue , Hageman Avenue, Union Avenue, Ming Avenue, Real Road, California Avenue, Brundage Lane, Mohawk Street, Westside Parkway, Allen Road, Calloway Drive, Coffee Road, and Wible Road/Oak Street.

Tables 10 and 11 below summarize emission reductions that are achieved along the Centennial Freeway and all roadways influenced by the project within the project limits. Traffic projections were conducted for over 330 individual segments within the project limits. According to Table 8, the Build Alternative B is anticipated to result in reduced emissions along the Centennial Corridor as well as in the surrounding areas due to the anticipated increase in capacity and improvement in operations.

Traffic and speed data along the Centennial Corridor and the surrounding areas were considered for this Analysis and in calculating $PM_{2.5}$ and PM_{10} emissions, including $PM_{2.5}$ and PM_{10} re-entrained road dust. Vehicle miles traveled (VMTs) on arterials, secondary streets, and portions of neighboring freeways were considered to encompass a portion of SR 99. The summary in Table 11 indicates that the implementation of the proposed project helps reduce emissions mainly on surrounding freeways and arterials/secondary streets while an increase is anticipated in total emissions along the Centennial corridor.

Table 10 Total Road Miles with Emission Reductions

Alternative	Total Road Miles Analyzed	Total Miles with Emission Reduction	% Road Miles with Emission Reduction when compared to No Build
Alternative A	126.8	87.9	69%
Alternative B	135.5	91.4	65%
Alternative C	136	111	81%

Table 11 Roadway Segment summary

Roadway	Roadway Segments	Roadway segments with emission reductions when

	analyzed	compared to No Build		
		Alt A	Alt B	Alt C
SR 99	25	16	19	16
SR 58	15	3	3	7
SR 204	18	18	18	17
Rosedale Highway	26	26	26	26
Stockdale Highway	20	20	19	19
Truxtun Avenue	6	6	6	6
Hageman Avenue	22	22	22	22
Union Avenue	12	12	12	11
Ming Avenue	24	19	19	21
Real Road	4	2	2	2
California Avenue	6	4	4	5
Brundage Lane	10	5	5	10
Mohawk Street	8	6	4	4
Segment 1/Westside Parkway	25	3	2	0
Allen Road	10	0	0	0
Calloway Drive	10	2	5	3
Coffee Road	10	6	5	5
Wible Road/Oak Street	14	7	8	8
Westside Parkway Ramps	25	6	8	9
SR 58 Ramps	15	11	11	11
SR 99 Ramps	25	11	14	13

$PM_{2.5}$ and PM_{10} Emissions

ARB's latest emission model, EMFAC2011, was utilized in estimating existing and future project-level $PM_{2.5}$ and PM_{10} emissions for the project alternatives. Tables 12 and 13 summarize tailpipe, brake wear, and tire wear $PM_{2.5}$ emissions while Table 14 below summarizes re-entrained $PM_{2.5}$ and PM_{10} road dust.

Table 12 Future $PM_{2.5}$ Emissions by Project Alternatives (lb/day)

Alternative	Existing	Horizon, 2035
No- Build	480.3	250.4
Alternative A		217.4
Alternative B		246.1
Alternative C		233.7

Table 13 Future PM_{10} Emissions by Project Alternatives (lb/day)

Alternative	Existing	Horizon, 2035
No- Build	782.4	534.5
Alternative A		467.1
Alternative B		534.3
Alternative C		503.0

Table 14 Future $PM_{2.5}$ Emission Reductions

Alternative	No Build Year 2035 (Lb/day)	Build Year 2035 (Lb/day)	% Emission Reduction when compared to No Build
Alternative A	250.4	217.4	-15.2%
Alternative B	250.4	246.1	-1.7%
Alternative C	250.4	233.7	-7.1%

Table 15 Future PM_{10} Emission Reductions

Alternative	No Build Year 2035 (Lb/day)	Build Year 2035 (Lb/day)	% Emission Reduction when compared to No Build
Alternative A	534.5	467.1	-14.4%
Alternative B	534.5	534.3	-0.04%
Alternative C	534.5	503.0	-6.3%

Summaries of $PM_{2.5}$ and PM_{10} emissions in Tables 12 thru 15 indicate that the implementation of the project would result in reduction of $PM_{2.5}$ and PM_{10} emissions when compared to the No-Build scenario. It should be noted that this reduction in the Build emissions has resulted despite its overall increase in the truck and total volumes along the Centennial Corridor within the project limits. Additionally, traffic data did not include increased idling times on the local streets that would incur without the project being built. Idling times would dramatically raise the PM quantities for the No Build with most concentrations added along Rosedale and Stockdale Highway.

Re-entrained PM_{10} road dust was estimated based on the existing and projected traffic data; and was computed using the emission factor equations provided in the Fifth Edition, Volume I of EPA's AP-42 document dated November 1, 2006. As indicated below, re-entrained PM_{10} road dust has been considered in this Analysis.

Table 16 PM_{10} Re-entrained Road Dust by Project Alternatives (lb/day)

Year 2038

Alternative	Re-entrained Dust (lb/day)
No-Build	0.57
Alternative A	0.51
Alternative B	0.59
Alternative C	0.55

As indicated in Table 16, implementation of the proposed project is anticipated to result in reduction of re-entrained PM_{10} road dust for Alternatives A and C, with a slight increase in Alternative B. Although Alternative B is slightly higher than the No Build Alternative, the overall PM_{10} emissions will be lower for Alternative B.

According to Table 11, the proposed project is anticipated to affect traffic emissions in the immediate area along the Centennial Corridor within the project limits; and to reduce traffic emissions along the majority of arterials and secondary streets on to the freeway.

According to the EPA's AP-42, surface secondary streets have higher silt loading factors than the freeways; and therefore, a decrease in VMTs on the secondary streets is anticipated to result in projected reduction of re-entrained PM_{10} road dust by 2018 and 2038 when compared to the No-Build scenario.

VI. CONCLUSIONS

Transportation conformity is required under CAA Section 176(c) to ensure that federally supported highway and transit project activities are consistent with the purpose of the SIP. Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant AAQS.

Monitoring of $PM_{2.5}$ emissions has only recently been initiated and does not have a long trail of monitored data available; however, based on the recent data at the Bakersfield-Planz monitoring station, there is a declining trend of background $PM_{2.5}$ concentrations within the project area. As discussed earlier, emissions of directly emitted $PM_{2.5}$ and PM_{10} from diesel motor vehicles have been decreasing since their peak levels in 1990 due to adoption of more stringent emission standards even though population and vehicles miles traveled (VMT) are increasing.

Federal regulations and the State's Diesel Risk Reduction Plan require future diesel vehicles to have substantially cleaner engines and to use fuels with lower sulfur contents. These federal and state requirements would help further reduce $PM_{2.5}$ emissions in the future by essentially lowering per-vehicle emissions for each of the diesel vehicles.

As mentioned earlier, the project is contained in the approved Regional Transportation Plan and included in the Regional Emissions analysis that was used to meet regional conformity for the Kern County Area. This project will not delay timely attainment of the PM_{10} or $PM_{2.5}$ NAAQS for the Kern County Area.

Tables 12 thru 15 show that the proposed project would result in lower $PM_{2.5}$ and PM_{10} emissions when compared to the No-Build scenario. This decrease in the PM emissions is the result of increase in vehicle speeds and reduction of congestion anticipated with implementation of the project. As such the project will not cause any new PM violations or worsen existing PM violations in the project area. As required by the March 10, 2006 final rule, this analysis demonstrates that this project meets the CAA conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts. Activities of this project should, therefore, be considered consistent with the purpose of the SIP and it should be determined that this project conforms to the requirements of the CAA.

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List of Technical Studies that are Bound Separately

Final Relocation Impact Report ..... February 2015
Air Quality Study Report ..... February 2014
Noise Study Report ..... March 2014
Noise Abatement Decision Report ..... March 2014
Water Quality Assessment Report ..... March 2014
Natural Environment Study ..... April 2015
Biological Assessment ..... March 2014
Location Hydraulic Study ..... March 2014
Historical Property Survey Report ..... March 2014

- Historic Resources Evaluation Report ..... March 2014
- Caltrans Historic Bridge Inventory Sheet ..... October 2011
- Archaeological Survey Report ..... March 2014
- Extended Phase I, Stage II Geoarchaeological Investigations for Alternative B of the Centennial Corridor Project ..... February 2015

Finding of Effect ..... April 2014
Initial Site Assessment ..... March 2014
Focused Initial Site Assessment ..... October 2013
Visual Impact Assessment ..... March 2014
Paleontological Evaluation Report ..... February 2014
Community Impact Assessment ..... May 2015
Traffic Study Report for the Centennial Corridor Project ..... November 2012
Preliminary Geotechnical Report ..... Revised May 2012
Asbestos and Lead-Based Paint Survey ..... January 2015
Preliminary Site Investigation at Private Parcels ..... February 2015
Aerially Deposited Lead Investigation Centennial/Beltway Operational Improvement Project ..... July 2014