

WEST BELTWAY CORRIDOR STUDY

Prepared For

K E R N C O G
C A L T R A N S
K E R N C O U N T Y
C I T Y O F B A K E R S F I E L D

Prepared By

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January 1990

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Executive Summary

This report discusses the rationale and alternatives for a future highway facility in Kern County, California. The highway, named the "West Beltway," arose from the Metropolitan *Bakersfield 2010 General Plan*, which was prepared by the City of Bakersfield in conjunction with Kern County. The Circulation Element of the *2010 General Plan* includes the West Beltway as a integral part of the circulation system. It was considered necessary to provide relief to State Route 99 and to serve travel demand within West Bakersfield.

The *2010 General Plan* showed an alignment following Allen Road for the West Beltway, but this alignment was meant to be conceptual only. This study looked at seven alternative alignments, and this report provides a detailed analysis of each.

Study Conclusions

This study reached three conclusions:

1. The West Beltway will not be needed by 2020 given current land use projections, but it will be needed during the 2020-to-2030 period or if growth in West Bakersfield proceeds faster than anticipated.
2. The best alignment for the West Beltway follows Rudd Road north of the Kern River and transitions to Jenkins Road south of the river. This alignment provides the

most transportation benefit possible, while minimizing adverse impacts on the environment and on land use plans.

3. The process of reserving right-of-way for the West Beltway should begin now.

Project Need

The need for the West Beltway is not based on current traffic problems in West Bakersfield. North/south travel is generally unconstrained; and even though substantial growth is expected in the area during the 20-year horizon of the *Metropolitan Bakersfield 2010 General Plan*, this will be coupled with substantial additions to the road network—both new streets and widenings of existing streets. The planned arterial network will thus accommodate the anticipated growth while maintaining good levels of service. The need for a higher-capacity facility is based on planned growth *beyond* the year 2010.

Projections indicate that land development will continue to occur after 2010 in West Bakersfield, particularly north of the Kern River. By 2020, urban development will reach Allen Road—six miles west of SR 99. Street network guidelines dictate that free ways should be located at five-mile intervals in cities like Bakersfield in order to maintain good levels of service at the anticipated development densities. Thus, the West Beltway begins to appear necessary at 2020 development levels. Beyond the 2020 time-frame, the *2010 General Plan* anticipates that development will continue to move westward, eventually reaching Nord Avenue (nine miles west of SR 99). At this point, a north/south freeway or expressway will definitely be needed to serve regional travel needs. Kern County and the City of Bakersfield should therefore establish an adopted alignment for the West Beltway now to ensure that right-of-way is available when and where it is needed.

West Beltway Objectives

The West Beltway needs to accomplish a number of important objectives:

- The facility must provide additional north/south traffic-carrying capacity over and above that provided by the arterial street system, to accommodate the long-term projected growth of the western portion of metropolitan Bakersfield.
- Facilities that are funded in whole or in part through local resources should serve local needs first and foremost.
- The West Beltway should carry through traffic around residential neighborhoods rather than through them.

- The West Beltway should connect with other freeways and expressways to enhance metropolitan mobility and accessibility.
- Facility construction and operation should seek to minimize negative impacts on the environment.
- The West Beltway should benefit the overall metropolitan area and be acceptable to the public, affected landowners, elected officials, and decision-making agencies.
- With regard to this last objective, residents of the study area strongly opposed a direct link between SR 99 and 1-5 through "urban" areas; and strongly preferred "parkway"-type facilities that emphasize landscaping.

Evaluation

Seven alternative alignments were evaluated with respect to 17 evaluation criteria, covering transportation benefits, costs, land use compatibility, and environmental impacts. Based on this evaluation, it was concluded that a parkway aligned along Rudd Road north of the Kern River, transitioning to Jenkins Road south of the river, would offer the best combination of transportation benefits and compatibility with existing and future land use plans. This facility would be close enough to the future metropolitan Bakersfield urban area to be useful to area residents, while also sparing existing neighborhoods from increased noise and pollution. It would also provide some relief to SR 99.

Recommended West Beltway Development Project

The following figure illustrates the overall alignment of the West Beltway facility and its linkages to Seventh Standard Road on the north and SR 119—Taft-Bakersfield Highway on the south. As indicated on the illustration, interchanges are recommended for all major cross streets.

As a parkway/expressway-type facility, these interchanges could be developed over time as cross street demand conditions warrant. The initial development stage would therefore include at-grade intersections controlled by traffic signals at many of these locations.

The construction of a six-lane parkway/expressway on Rudd and Jenkins Roads would affect very little already-built development. Most notable of the impacts would be the need to purchase or relocate two dwelling units along the 12-mile corridor. No schools,



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**RECOMMENDED
BELTWAY ALIGNMENT**

parks, or other sensitive (noise) receptors would be impacted, nor would any existing businesses other than agricultural.

Between intersections, a minimum of 210 feet of right-of-way will be required for landscaping, shoulders, through travel lanes, and the median. Additional land will be needed at interchanges and where embankments would be required.

Rudd Road and Jenkins Road are currently classified as collector streets in the *Metropolitan Bakersfield 2010 General Plan*. As such, their dedicated right-of-ways are 90 feet. One hundred twenty feet of additional right-of-way, 60 feet on each side of the centerline, will therefore need to be acquired for the facility.

Implementation

Implementation of the West Beltway will require public policy action and commitment by the sponsors of this study—i.e., Kern Council of Governments, Kern County, the City of Bakersfield, and Caltrans.

As an initial activity, the **Kern Council of Governments** will need to help forge a political consensus among city and county decision makers relative to the preferred alignment.

The **Bakersfield City Planning Commission** will need to review, approve, and recommend the preferred alignment as the specific plan for the West Beltway to be incorporated within the *Metropolitan Bakersfield 2010 General Plan*.

Once recommended, the West Beltway alignment and concept will need to be adopted by the resolution of the **County Board of Supervisors** and the **Bakersfield City Council**.

While the adoption process is underway, the **planning and public works staffs** of the county and city will need to insure that no development applications or zoning changes are approved that fall within the right-of-way limits outlined by this report; and that driveway access to Rudd and Jenkins Roads is controlled.

If so designated by the County Board of Supervisors, the West Beltway would be eligible for state funding assistance by virtue of the recently enacted Assembly Bill 829. This bill authorizes the board of supervisors to designate a system of expressways within the county and to construct and maintain expressways. It further permits Caltrans or the transportation planning agency to include expressway projects among the projects proposed for inclusion in the state transportation improvement program.

Other funding opportunities include local tax initiatives, developer impact fees, and general fund revenues.

1.

Introduction

This report discusses the rationale and alternatives for a future highway facility in Kern County, California. The study corridor for the highway, named the "West Beltway," is illustrated on Figure 1. The study was sponsored by the Kern Council of Governments (Kern COG), Caltrans, the City of Bakersfield, and Kern County, and was conducted by Barton-Aschman Associates, Inc.

The West Beltway study arose from the *Metropolitan Bakersfield 2010 General Plan*, which was prepared by the City of Bakersfield in conjunction with Kern COG and the Golden Empire Transit District (GET). The Circulation Element of the *2010 General Plan* includes the West Beltway as an integral part of the circulation system. The plan considered the Beltway to be necessary to provide relief to SR 99 and to serve travel demand within West Bakersfield.

The purpose of this study is to document the need for the West Beltway in the context of year 2020 land use growth and travel projections, and to study alternative alignments and recommend a preferred alignment. The *2010 General Plan* shows an alignment following Allen Road (see Figure 2), but this alignment was meant to be conceptual only. The West Beltway study looked at seven alternative alignments, and this report provides a detailed analysis of each.

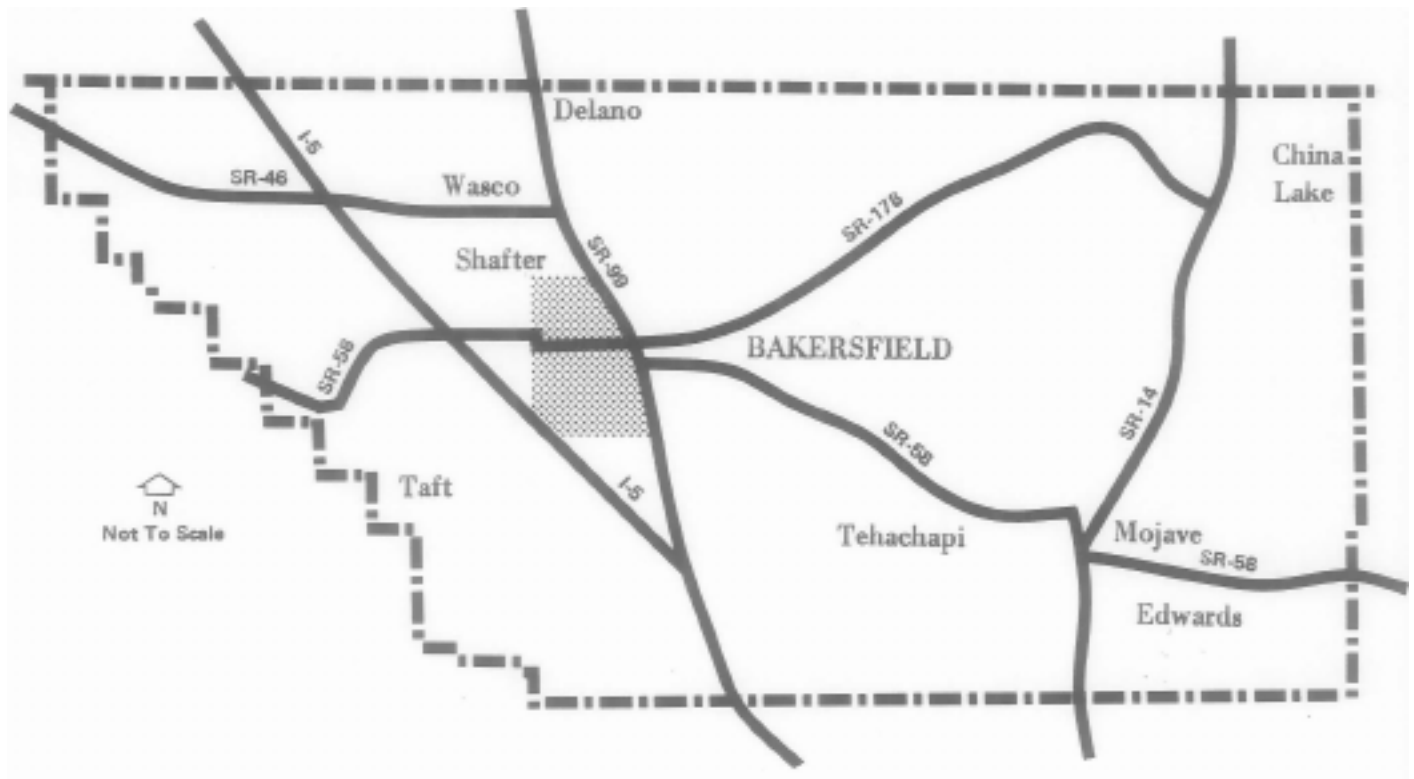


Figure-1

WEST BELTWAY CORRIDOR LOCATION

WEST BELTWAY
CORRIDOR STUDY

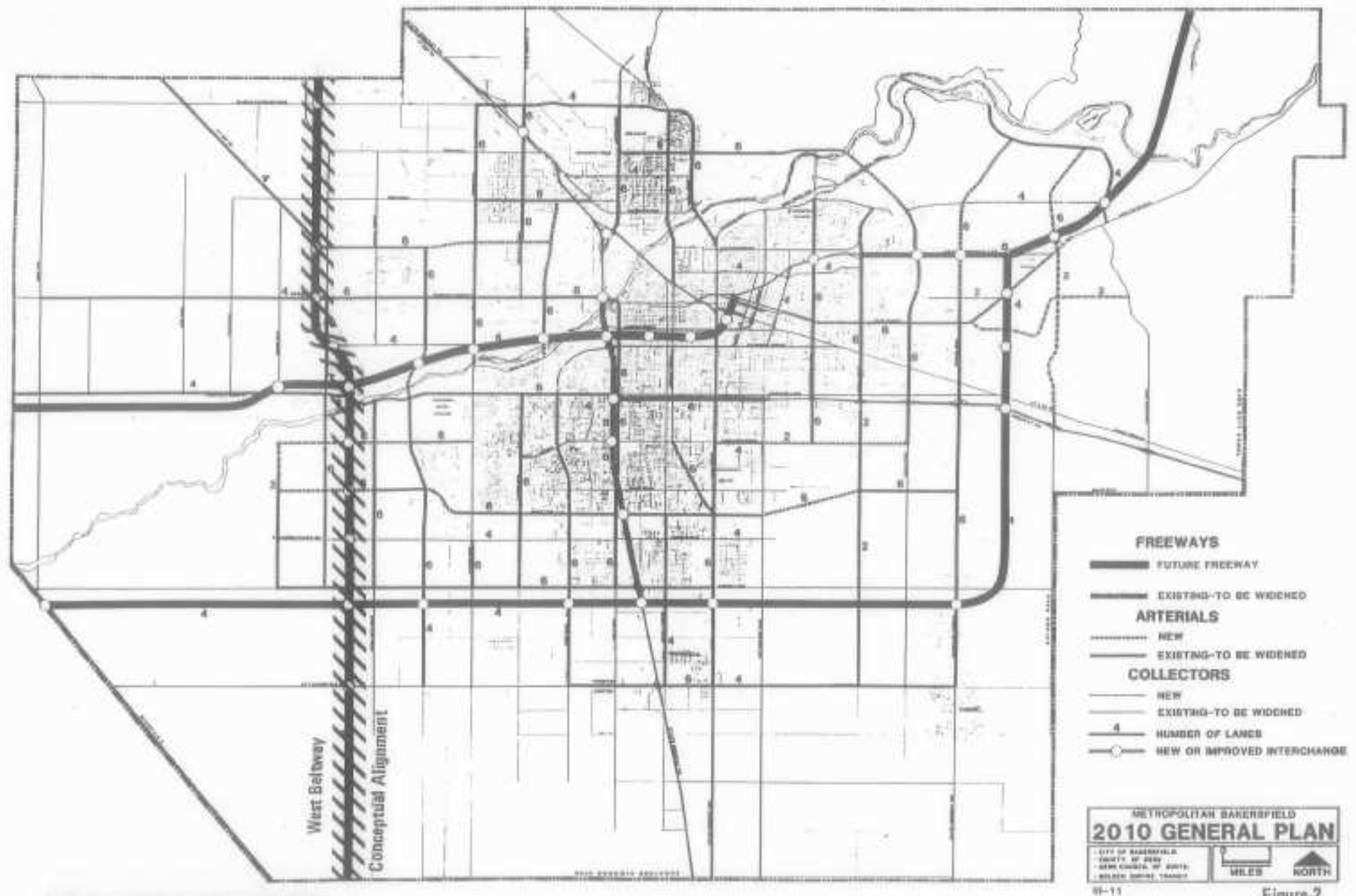


Figure-2

The study reached three conclusions:

1. The West Beltway will not be needed by 2020, given current land use projections; but it will be needed during the 2020-to-2030 period, or if growth in West Bakersfield proceeds faster than anticipated.
2. The best alignment follows Rudd Road (one and one-half miles west of Allen Road) north of the Kern River and transitions to Jenkins Road (one-half mile west of Allen Road) south of the river. This alignment provides the most transportation benefit possible, while minimizing adverse impacts on the environment and on land use plans.
3. The process of reserving right-of-way for the West Beltway should begin now.

Beyond these strictly planning functions, this corridor study provides the first definition of the conceptual design of the preferred alternative. These include potential interchange locations, alignments, and right-of-way requirements. Based on this definition, it provides the opportunity to preserve right-of-way for the eventual construction of the facility.

Since the availability of state funding for future transportation projects is always an uncertainty, it should be understood that this planning study is not a commitment on the part of Caltrans to provide funds or undertake project-level environmental studies for a future transportation project. The end product of this study identifies an improvement project that would serve the future traffic needs of the corridor. If mutually agreed to by Caltrans, Kern County, the City of Bakersfield, and the Kern Council of Governments, the preferred alignment will be adopted as an element of the *Metropolitan Bakersfield 2010 General Plan*. It will then be considered for programming as funds become available.

2. Existing Conditions

The West Beltway Corridor study area extends from SR 99 to SR 43 (Enos Lane), encompassing the western portion of metropolitan Bakersfield. The study area is bounded on the north by Lerdo Highway, and on the south by Bear Mountain Boulevard (SR 223). (See Figure 3.) This chapter describes the land uses served by the proposed highway, its natural environment, existing transportation facilities, and issues regarding the development of land and the corridor's future.

Land Use

The *Metropolitan Bakersfield 2010 General Plan* divides the study area into four distinct subareas:

Urban Northwest

This subarea is bounded by Snow and Hageman Roads on the north, Renfro Road on the west, the Kern River on the south, and SR 99 on the east. It includes: Rosedale, which consists of large-lot rural residences, local-serving commercial, and scattered oil refineries; Green Acres, which also has many large-lot residences; and the Fruitvale Oil Field.



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Figure-3

STUDY

There are approximately 7,400 homes in this planning area, and 10,500 employees.

Rural Northwest

This planning subarea, which lies north and west of the Urban Northwest subarea, encompasses the remainder of the West Beltway Corridor study area lying to the north of Kern River. It is predominantly agricultural with scattered rural residential land uses. The Rosedale Ranch, Greeley, Seventh Standard, Rosedale, Strand, and Canal Oil Fields underlie a large portion of the Rural Northwest.

There are approximately 2,600 homes and 1,200 jobs in the Rural Northwest.

Urban Southwest

The Urban Southwest is bordered on the north by the Kern River, on the south by Pacheco Road, on the east by SR 99, and on the west by Old River Road. Tenneco master-planned and developed the majority of this area with suburban-type single-family residences and neighborhood commercial areas. There are two major commercial nodes: an office/commercial node along California Avenue, and a retail node along Ming Avenue. Industrial uses are concentrated around the McKittrick Branch of the Southern Pacific Railroad tracks. California State University, Bakersfield, is also located in this subarea.

As of 1988, there were an estimated 24,000 homes and 23,500 jobs in the Urban Southwest.

Rural Southwest

This subarea includes the remainder of the study area, and is located south of the Kern River. Primarily agricultural, it includes Pumpkin Center, an area adjacent to SR 99 that provides traveler support commercial services. West of Buena Vista Road, a large area is targeted by the state for a groundwater recharge project, known as the Kern Water Bank. The Canfield Ranch, Ten Section, Lakeside, and Stockdale Oil Fields underlie much of the agricultural land west of Buena Vista Road.

It is estimated that there are 2,400 homes and 2,200 people employed in this subarea.

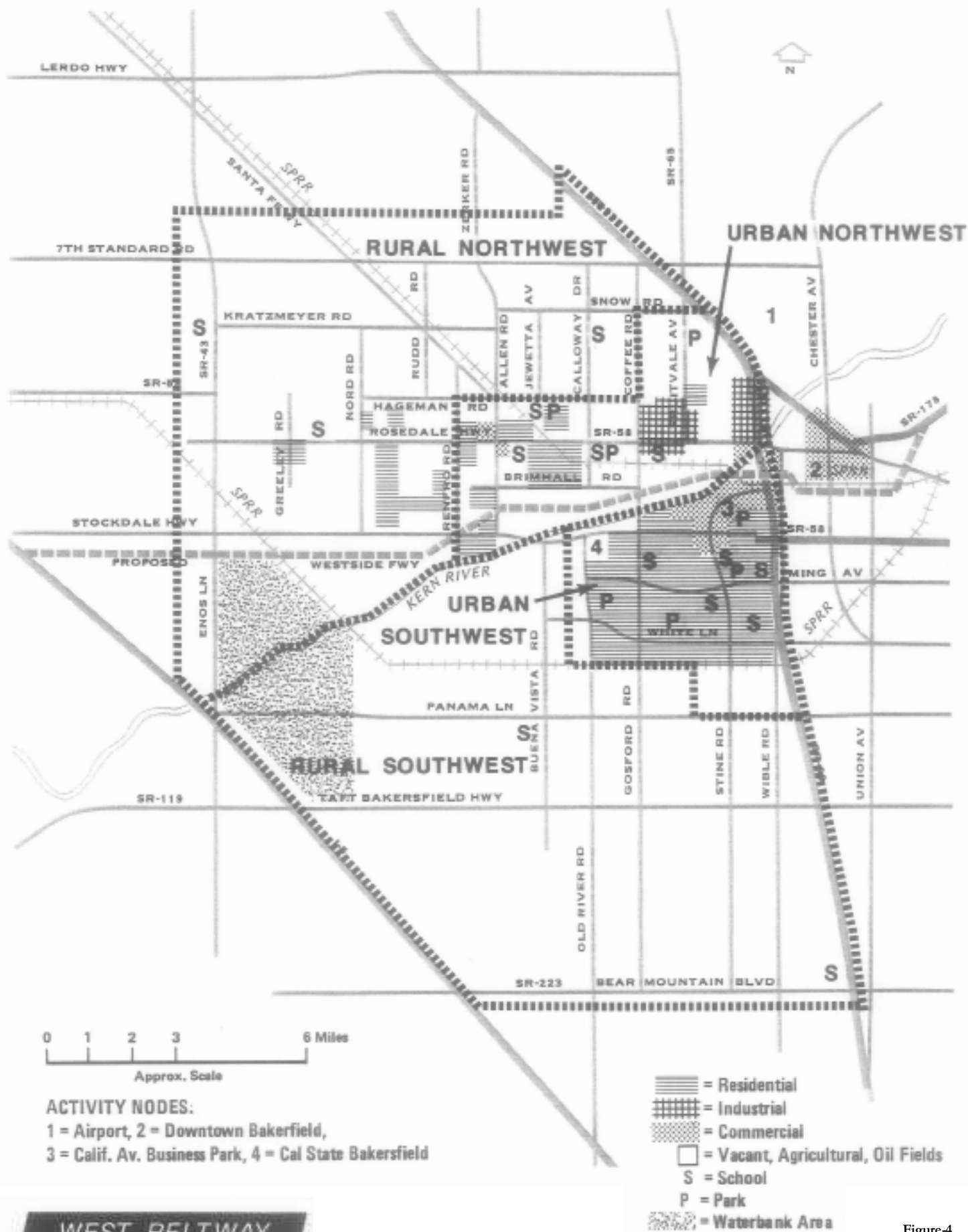


Figure-4

Figure 4 illustrates the distribution of land uses by type, together with such significant features as schools, parks, and activity nodes.

Environment

The West Beltway Corridor study area is approximately 210 square miles of nearly flat, uninterrupted terrain. Oil and natural gas fields, water features, and wetlands and vegetation could have significant influence on the location of upgraded or new highway facilities within the corridor.

Oil and Natural Gas

Six oil and natural gas fields underlie a significant portion of the corridor, as outlined on Figure 5. Crossing these fields with highway facilities may necessitate removing some wells from production and removing hazardous wastes (particularly near refinery sites) to comply with environmental regulations.

Water Features

The floodplain of the Kern River crosses the West Beltway Corridor at approximately its midpoint. Isabella Dam controls the westerly flow of the river, thereby reducing the potential for damaging floods and floodstage conditions. Within the corridor, the Cross Valley Canal acts as a level controlling flood breakout (to the north). However, at the Goose Lake Slough intake, a 100-year flood could inundate a considerable area to the west and north of Pioneer Canal. In addition, a groundwater recharge area, known as the Kern Water Bank, flanks the Kern River west of Renfro Road. These water features are shown on Figure 5.

Wetlands and Vegetation

Riparian vegetation associated with the Kern River is primarily floodplain savannah, consisting of cottonwoods with an under-story of grassland. Freshwater marsh vegetation is also found along the river and in other areas of slow-moving water, such as Goose Lake Slough. These wetlands and their diversity of vegetation support a variety of wildlife, including small mammals, reptiles, and avian species.



Figure-5

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ENVIRONMENTAL FEATURES

While additional environmental impacts could result from any highway facility improvement (surface hydrology, air and noise quality, growth inducement), and specific impacts may result from individual alignments (parklands, archaeological and historic structures), the above environmental conditions will be the most significant with respect to alignment selection.

Existing Transportation System

Transportation facilities that affect or may be affected by the proposed highway investment are discussed below. Figure 6 illustrates the volumes of 1988 average daily traffic (ADT) that these roadways carry.

State Route 99

SR 99, on the eastern edge of the study area, is a freeway through Kern County and most of the San Joaquin Valley. The major north/south transportation facility of the valley, it carries traffic between the Central Valley and southern California (designated Interstate 5 south of Wheeler Ridge). Prior to completion of Interstate 5, SR 99 was the major north/south highway through the state.

ADT volumes range from 22,000 vehicles at SR 223 to about 100,000 at Rosedale Highway. The Bakersfield intersections at Rosedale Highway and California Avenue have the highest ADT counts along the route, except in Sacramento at the junctions with Highway 50 and Interstate 80.

Highway 99 consists of six lanes from Interstate 5 to the Union Avenue interchange, four lanes to Panama Lane, six lanes to McFarland, and four lanes to the county line. As part of its year *2010 Route Concept* plan, Caltrans intends to widen SR 99 to six lanes from Union Avenue to Ming Avenue, and to eight lanes (four lanes in each direction) from Ming Avenue to the Tulare County line and beyond. Auxiliary lane improvements are planned between Ming Avenue and one-half mile south of the SR 204/99 interchange.



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EXISTING (1988) TRAFFIC VOLUMES

Highway 43 (Enos Lane)

At the western edge of the study area, 12 miles from SR 99, lies Enos Lane—SR 43. This state route, located along the "spine" of the Central Valley, connects several medium-sized cities along its route. The southerly terminus of SR 43 is at Highway 119, about 20 miles southwest of Bakersfield. This north/south route passes through Shafter, Wasco, Corcoran, and Hanford, and terminates at SR 99 in Selma, Fresno County.

Traffic flows range from 3,100 ADT at Highway 119 to 7,800 ADT in Shafter and 6,700 ADT in Wasco (at Highway 46). Traffic volumes are relatively low along SR 43, with little or no traffic congestion along most of the entire route, except for a short section near Lerdo Highway.

Highway 43 is not constructed to freeway status; the majority of the route is a two-lane road, except for portions through Shafter and Wasco, where it is a four-lane roadway. As part of its *2010 Route Concept* plan, Caltrans plans to add shoulders—and, possibly, passing lanes—along the one-mile section of SR 43 between Route 58 East and Route 58 West. Other than these small enhancements, the highway will remain a two-lane conventional facility.

Coffee/Gosford Road

Located three miles west of SR 99, this highway is designated an arterial street in the *Metropolitan Bakersfield 2010 General Plan*. As this roadway is one of only two facilities west of SR 99 that bridge the Kern River, one of its primary functions is to carry traffic across the river. North of the river, Coffee Road is two lanes wide; south of the river, Gosford Road is six lanes wide. The *2010 General Plan* calls for this facility to ultimately be six lanes over much of its entire length—from Seventh Standard Road to Taft-Bakersfield Highway.

1988 ADT volumes on Coffee Road range from 1,300 at Olive Drive to 9,200 at Rosedale Highway, 19,500 at Truxtun Avenue, and 26,600 at Stockdale Highway. ADT volumes on Gosford number 21,500 at Ming Avenue, 13,400 at Laurelglan Boulevard, 7,500 at White Lane, and 4,900 at Panama Lane. For reference, the capacity of a six-lane arterial street is considered to be 45,000 vehicles per day (vpd).

Calloway Drive/Old River Road

These roadways lie one mile west of Coffee and Gosford Roads, respectively. Calloway Drive extends from Seventh Standard Road to Brimhall Road as a two-lane facility for most of its length. It does not cross the river, but is aligned with Old River Road. ADT volumes number 4,000 vpd between Hageman and Brimhall Roads.

Old River Road begins at Stockdale Highway and extends to Thoreau Road, south of White Lane, as a six-lane-wide arterial with landscaped median. South of Panama Lane, the roadway resumes as a two-lane rural facility. ADT volumes on Old River Road range from 5,000 vpd at Stockdale Highway to 2,400 vpd at White Lane.

The *2010 General Plan* designates Calloway Drive/Old River Road as an arterial street—to ultimately be six lanes wide between Panama Lane and Hageman Road, with a bridge across the Kern River. The facility is planned to be a four-lane arterial street south of Panama Lane to Taft-Bakersfield Highway.

Buena Vista Road and Allen Road

These are the two most westerly arterial streets of current importance. One and two miles west of Calloway Drive/Old River Road, respectively, they functionally connect across the Kern River via Stockdale Highway.

North of Stockdale Highway, Allen Road is a two-lane road for its entire six-mile length to Seventh Standard Road. ADT volumes range from 5,000 to 1,000 vpd. Occasionally, one-half of the roadway is widened to its ultimate six-lane cross section where it is adjacent to a new subdivision.

South of Stockdale Highway, Buena Vista Road is a two-lane facility that extends south to Taft-Bakersfield Highway. ADT volumes are in the 1,000 to 2,000 range due to the sparse development currently served by the roadway. As with other roadways located on one-mile section lines, Buena Vista Road is designated an arterial street, with an ultimate cross section of six through-traffic lanes.

Lerdo Highway

This is the northernmost east/west facility of importance for this study. It is designed as a four-lane divided highway between

SR 99 and SR 43 (Enos Lane). Land uses along this facility are primarily agricultural, with the exception of the City of Shafter and Minter Field, a civil aviation facility. ADT volumes along this section of Lerdo Highway range from 3,400 vpd at SR 99 to 6,200 vpd near Shafter.

Seventh Standard Road

This two-lane road, four miles south of Lerdo Highway, defines the northernmost limits of metropolitan Bakersfield. East of SR 99, it directly serves Meadows Field and Oildale. West of Highway 99, many of the existing two-lane north/south arterial streets begin at Seventh Standard. The ADT volumes range from 2,000 vpd at Enos Lane to 3,900 vpd at Santa Fe Way and 7,300 at SR 99. The *2010 General Plan* does not currently identify a need to widen this facility west of Coffee Road (as shown on Figure 2).

State Route 58

Within the study area, SR 58 (Rosedale Highway) is a two-lane conventional highway west of Allen Road, and a four-lane conventional highway from Allen Road to SR 99. The road is classified as an arterial street in the *2010 General Plan*, which calls for the eventual widening of the facility to six lanes between Enos Lane and SR 99. Existing ADT volumes range from under 6,000 vpd at Enos Lane to 37,000 vpd just west of SR 99, reflective of the development intensification in the eastern portion of the study area.

Stockdale Highway

This arterial street parallels Rosedale Highway, two miles to the south. Stockdale Highway is a two-lane conventional highway from Interstate 5 to Old River Road, and a four-lane conventional highway from Old River Road to SR 99. The City of Bakersfield is currently widening a portion of the two-lane section to four lanes between Old River and Allen Roads. In the easterly portion of the study area, the highway serves as a major arterial street providing east/west accessibility to the major office/commercial activity center along California Avenue and to Cal State Bakersfield. In the westerly portion of the study area, Stockdale Highway provides an alternate link to Interstate 5.

Within the study area, ADT volumes currently range from 4,700 vpd to 27,000 vpd in the vicinity of California Avenue. The *2010 General Plan* specifies the eventual widening of this facility to six lanes.

3.

Project Rationale

The need for the West Beltway is not based on any current traffic problems in West Bakersfield. North of the city, significant urban growth is expected in the area during the 20-year horizon of the *Metropolitan Bakersfield 2010 General Plan*, this will be coupled with substantial additions to the road network—both new streets and widenings of existing streets. The planned arterial network (shown on Figure 7) will thus accommodate the anticipated growth while maintaining good levels of service.

The need for a higher-capacity facility, therefore, is based on planned growth *beyond* the year 2010. According to the buildout development plan, the West Bakersfield area will eventually be fully developed all the way out to Renfro Road, seven miles west of SR 99. Urban area street network-planning guidelines call for higher-capacity facilities to be located at five-mile intervals. Without a higher-capacity facility west of SR 99, Bakersfield would be left with only the one-mile grid of arterials and less capacity and mobility than needed.

Thus, although a facility need not be constructed within the current 20-year planning horizon, the city and county should define the future alignment now and begin reserving right-of-way. This will reduce the impact and cost of the facility when it is ultimately built.

This chapter describes urban area road system design, its application to West Bakersfield, year 2010 land use and traffic growth,

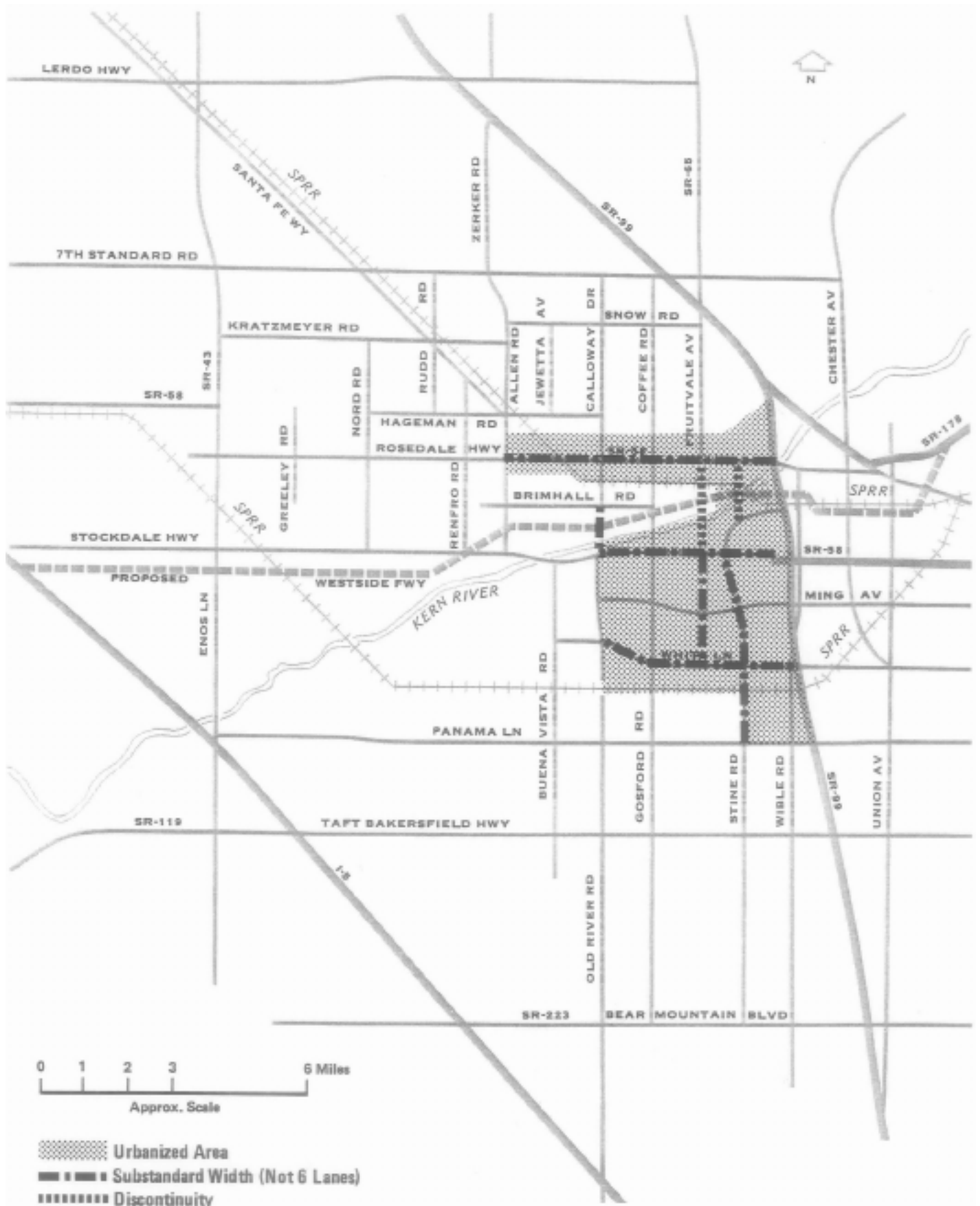


Figure-7

WEST BELTWAY
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EXISTING DEFICIENCIES OF ARTERIAL SYSTEM IN WEST BAKERSFIELD

the planned 2010 arterial system, and planned land use growth beyond year 2010.

Urban Road System Design

Bakersfield's road system is a grid of arterials at one-mile intervals, with collectors generally located at the half-mile point, providing good and uniform access to all parts of the city. This is a sound basic street system design, one that is used in many urban areas. The city standard for arterials—six through lanes plus turn lanes at intersections—provides a high level of capacity for cities having populations under 50,000.

Transportation planners have discovered that once a city grows beyond a population of 50,000 or so, the arterial grid alone is not enough to provide acceptable travel times. At that point, facilities with higher capacities and faster travel speeds (e.g., freeways) become desirable. As an indicator of the number of freeways needed, Table 1 (reproduced from the *Transportation and Traffic Engineering Handbook*, 1976) relates desirable freeway spacing to average population density. Bakersfield has a population density of roughly 5,000 to 6,000 persons per square mile, which equates to a need for six-lane freeways or expressways at five-mile intervals.

TABLE 1
FREEWAY SPACING VS. POPULATION DENSITY

Population Density	Grid Spacing in Miles		
	4-lane	6-lane	8-lane
4,000 psns/sq. mi.	5.0	7.5	10.0
8,000 psns/sq. mi.	2.5	3.8	5.0
12,000 psns/sq. mi.	1.7	2.5	3.3

Source: *System Considerations for Urban Freeways* (Washington, D.C.: Institute of Traffic Engineers, 1969), p.4.

The *2010 General Plan* specifies a circulation system that generally conforms to these guidelines. The system, depicted on Figure 2, includes the existing freeways 99, 178, and 58, plus four new freeways: east/west, paralleling Truxtun Avenue (the Cross-town/Westside Freeway) and Panama Lane; and north/south, paralleling Allen Road (the West Beltway) and paralleling Vine-land (the East Beltway). The freeway corridors are four to eight miles apart and are arranged in a grid pattern. This pattern provides good access to all parts of the city and supports the "centers" concept of the *2010 Land Use Plan*. The plan provides for outlying development concentrations ("centers") in addition to the downtown core, all linked together by the freeway network.

Of the four planned 2010 freeway corridors, only one—the Cross-town/Westside Freeway—has had its alignment fixed by subsequent studies. The West Beltway, which is the subject of this study, was shown conceptually along Allen Road in the *2010 General Plan* but could be located along other alignments in the vicinity. The locations of the Panama Lane and East Beltway freeways have not been fixed and will be the subject of future corridor studies.

The Road System in West Bakersfield

West of SR 99, the street system reflects development patterns well-developed south of the Kern River to Old River Road, but relatively sparse north of the river, where the area is not yet urbanized.

Several network deficiencies exist with respect to the planning standard of six-lane arterials on a one-mile grid within the developed area (see Figure 7). These deficiencies are a result of the difficulty in crossing the Kern River, previous development patterns that created discontinuities, and streets that were built before the standards were enacted. The one major street made discontinuous by development patterns is Ashe. Streets that are discontinuous due to the Kern River are Mohawk and Old River Road. Since most of the streets in Bakersfield were built prior to the city's six-lane arterial standard, most of the arterials in West Bakersfield are only four lanes, with the exceptions of Ming Avenue and Old River Road. (Ashe, White, and Stine have adequate right-of-way for six lanes but are currently paved for four lanes.) It is important to recognize these deficiencies because they must be corrected if the street system in West Bakersfield is going to be able to support the anticipated levels of development.

With respect to freeway deficiencies, the West Bakersfield area is only now becoming large enough to warrant a higher-volume fa-

cility as suggested by the five-mile freeway spacing guideline. The developed area currently covers about four miles north to south, from the Kern River to Pacheco Road, and extends four miles west of SR 99 to Old River Road. The following section discusses the extent of future development and the resulting need for higher-capacity facilities.

Future Development

Future development includes year 2010 development and road network, year 2020 traffic projections and levels of service, and buildout (beyond 2020) development.

Year 2010 Development and Road Network

Substantial new development is forecast by the year 2010. Figure 8 shows the area of West Bakersfield that will be urbanized by that time. The Rosedale area will become urbanized from SR 99 west to Allen Road and as far north as Snow Road. South of the Kern River, the developed area will extend west to Renfro Road and south to about the existing urbanized area boundary of Pacheco Lane.

To support this level of land use growth, the circulation system will be upgraded and extended (see Figure 2). All arterials within the urbanized area will be widened or restriped to six lanes (four lanes outside city boundaries), and new bridges will be built across the Kern River at Mohawk, Calloway/Old River Road, and Allen Road. The one-mile arterial grid will be built up to standard with the exception of the existing discontinuity on Ashe and a bridge over the river on Buena Vista.

Regarding the issue of freeway needs, the Crosstown/Westside Freeway would be needed to serve east/west travel in the West Bakersfield area. Urban development would cover eight miles from north (Snow Road) to south (Pacheco Lane), which would create the need for an east/west freeway according to the five-mile spacing standard discussed above. In recognition of this need within the 20-year planning horizon, the City of Bakersfield and Kern County have established a preferred alignment for the Crosstown/Westside Freeway, and Kern COG is working to secure funding for its construction.

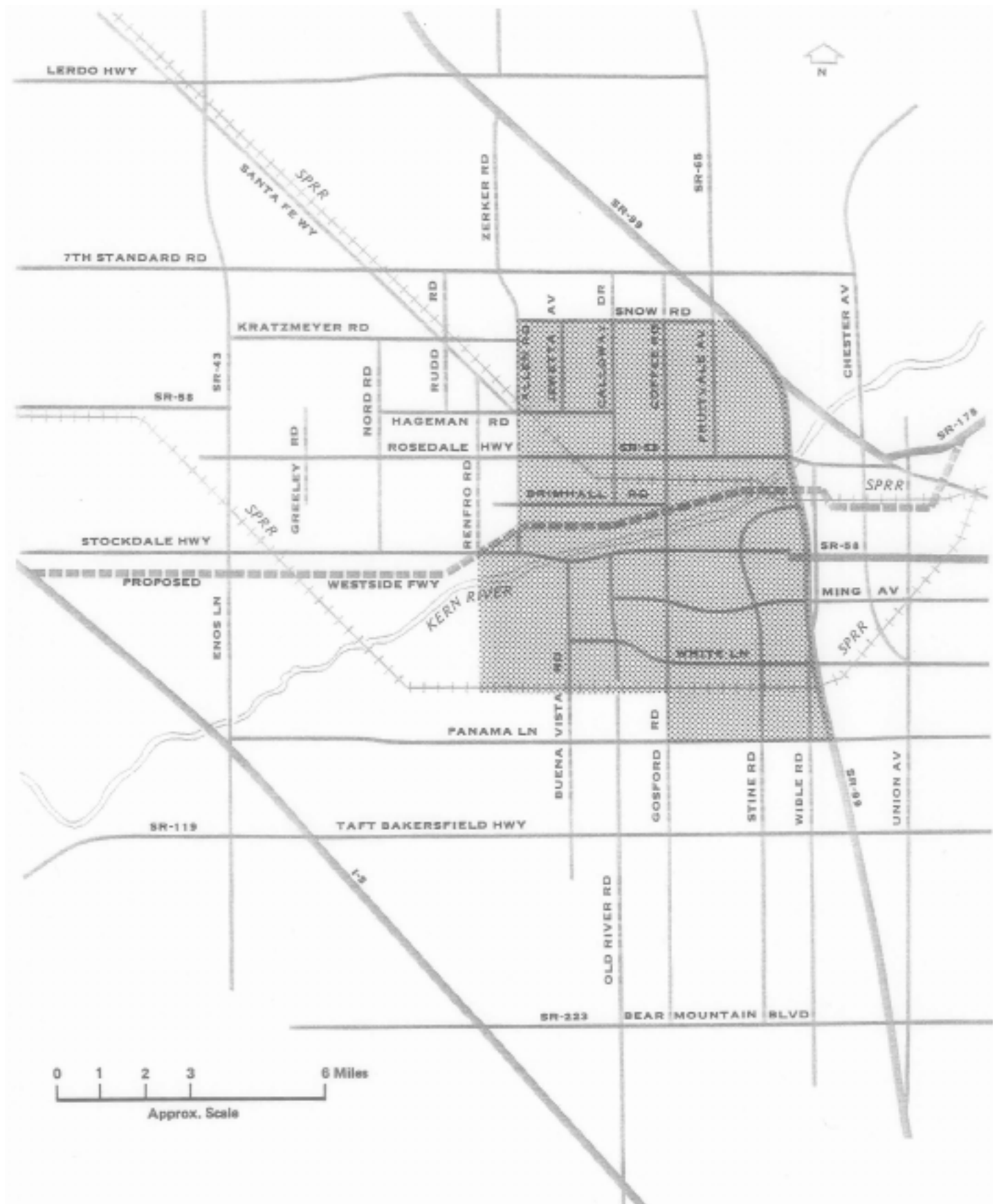


Figure-8

WEST BELTWAY
CORRIDOR STUDY

**ANTICIPATED URBAN AREA
IN WEST BAKERSFIELD IN 2010**

The need for the West Beltway is less acute within the 2010 planning horizon. Urban development will extend six miles west of SR 99. The five-mile spacing standard, therefore, begins to suggest the need for another facility. However, as shown in the following section of this chapter, year 2010 development can be accommodated on the expanded arterial network in conjunction with the planned improvements to SR 99. SR 99 is scheduled to be widened to eight lanes between the SR 204/99 interchange and 15 miles south of Ming Avenue.

While the need for the West Beltway will not be acute by the year 2010, the right-of-way for its ultimate construction needs to be reserved within the next 20 years. Otherwise, the planned land use development in West Bakersfield, predicted to extend to Renfro Road, will cover much of the potential alignment that is vacant today.

Year 2020 Traffic Projections and Levels of Service

The year 2020 travel demand model estimates traffic volumes on the baseline network. These volumes can be translated into levels of service as defined in Table 2 and depicted on Figure 9. Assuming construction of all the planned new roadway facilities described earlier for the baseline network, levels of service generally will be good in West Bakersfield. Isolated points of congestion (LOS E) are predicted for the three river crossings at Mohawk, Gosford, and Old River Road/Calloway. Also, Level of Service D or E is projected for SR 99 through Bakersfield between Olive Drive and Panama Lane.

These volumes begin to suggest the need for a West Beltway project, although the need is not shown to be acute. As the following section shows, however, Bakersfield's growth will not stop in 2020. Buildout of the existing *General Plan* will continue for several years. Thus, while the West Beltway might not be needed in 2020, the presence of some Levels of Service D and E in the 2020 baseline network indicate that either the West Beltway or a further widening of SR 99 will be required sometime in the 2020-to-2030 timeframe.

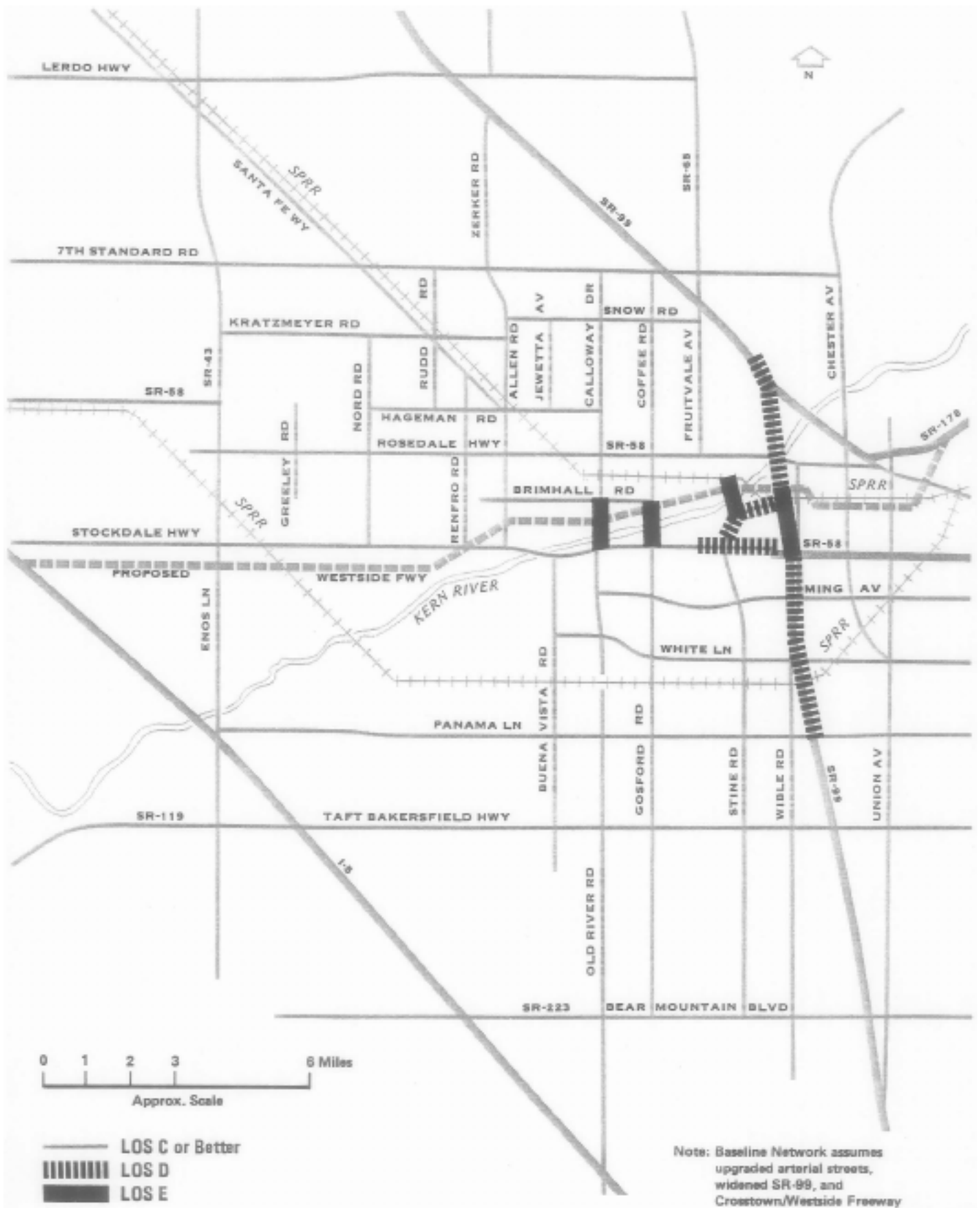


Figure-9

**WEST BELTWAY
CORRIDOR STUDY**

**YEAR 2020 BASELINE
LEVELS OF SERVICE**

TABLE 2
LEVEL OF SERVICE DEFINITIONS

Level of Service	Description
A	A condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desire, speed limits, and physical road conditions.
B	A condition of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation.
C	A condition of stable flow, but speed and maneuverability are more adversely affected by higher traffic volumes. Most drivers are restricted in their freedom to select their own speed, change lanes, or pass.
D	Conditions approach unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuation in volume and temporary restrictions may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.
E	Represents operation at operating speeds lower than in Level D, with volumes at or near the capacity of the highway.
F	Represents forced-flow operations at low speeds, where volumes are below capacity. Speeds are reduced substantially, and stoppages may occur for short or long periods of time because of the downstream congestion. In the extreme, both speed and volume can drop to zero.

Buildout Development

The *Metropolitan Bakersfield 2010 General Plan* designates an urban area larger than what is expected to be developed by the year 2010. Buildout of the plan will occur beyond the year 2020. Figure 10 shows that the general area covered by buildout of the plan will extend from Snow Road in the north to Panama Lane in the south. Development will extend as far west as Nord Avenue north of the river and to Renfro Road south of the river.

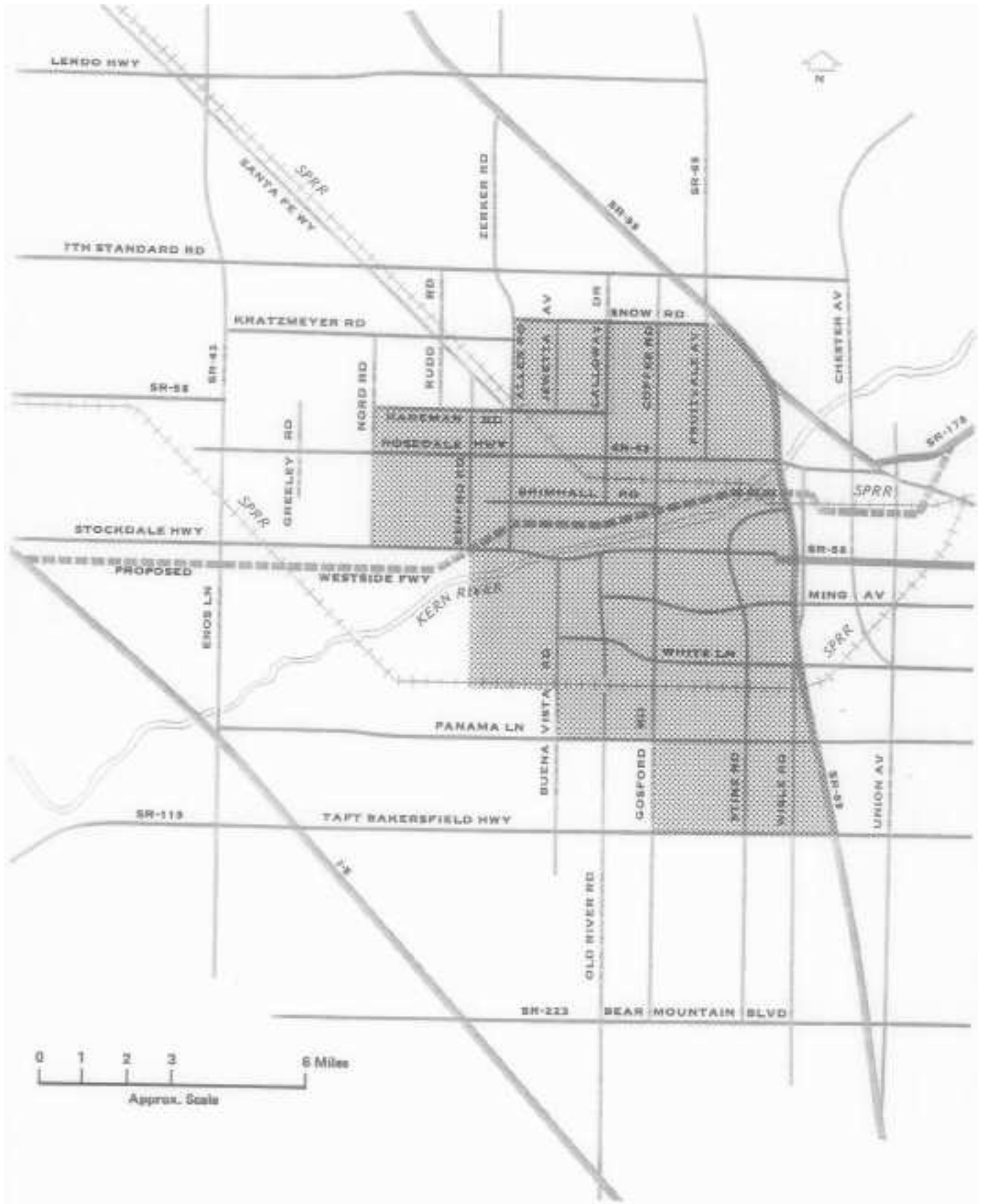


Figure-10

**WEST BELTWAY
CORRIDOR STUDY**

**URBAN AREA IN WEST
BAKERSFIELD WITH GENERAL PLAN**

BUILDOUT

The distance between SR 99 and the western urban boundary will be seven to nine miles—definitely farther than the recommended spacing of freeways at five-mile intervals. This suggests that by the time buildout of the *2010 General Plan* occurs, the West Beltway will need to be in place.

Conclusions

Projections indicate that land development will continue to occur in West Bakersfield, particularly north of the Kern River. By 2020, urban development will reach Allen Road—six miles west of SR 99. Street network guidelines dictate that freeways should be located at five-mile intervals in cities like Bakersfield in order to maintain good levels of service at the anticipated development densities. With anticipated development, the West Beltway begins to appear necessary in 2020. The 2020 traffic projections also support this conclusion, as Levels of Service D and E begin to appear on the improved SR 99 and the north/south arterials.

Beyond the 2020 timeframe, the *2010 General Plan* dictates that development will continue to move westward, eventually reaching Nord Avenue (nine miles west of SR 99). At this point, a north/south freeway or expressway will definitely be needed to serve regional travel needs. Thus, Kern County and the City of Bakersfield should establish an adopted alignment for the West Beltway now to ensure that right-of-way is available when it is needed.

4. Alternatives Analysis

New highways and upgrades of existing facilities require major investments and careful design to avoid construction waste and other impacts. The *Metropolitan Bakersfield 2010 General Plan* identified a conceptual alignment for the West Beltway facility, it is prudent to systematically consider and evaluate the relative merits of possible alternatives, prior to committing scarce financial resources for implementation activities. This chapter summarizes the objectives of the West Beltway, presents the alternatives that have been studied, and evaluates the performances of the candidate projects.

West Beltway Objectives

The previous chapter of this report and the *2010 General Plan* have indicated that the West Beltway needs to accomplish a number of important objectives:

- The facility must provide additional north/south traffic-carrying capacity—over and above that provided by the arterial street system—to accommodate the long-term projected growth of the western portion of metropolitan Bakersfield.
- A facility to be funded in whole or in part through local resources should serve local needs first and foremost.

- The West Beltway should carry through traffic around residential neighborhoods rather than through them.
- The West Beltway should connect with other freeways and expressways to enhance metropolitan mobility and accessibility.
- Facility construction and operation should seek to minimize negative impacts on the environment.
- The West Beltway should benefit the overall metropolitan area and be acceptable to the public, affected landowners, elected officials, and decision-making agencies.

As these objectives could lead to a wide variety of alternatives, a relatively large number of options were developed for test purposes. These alternatives are discussed below.

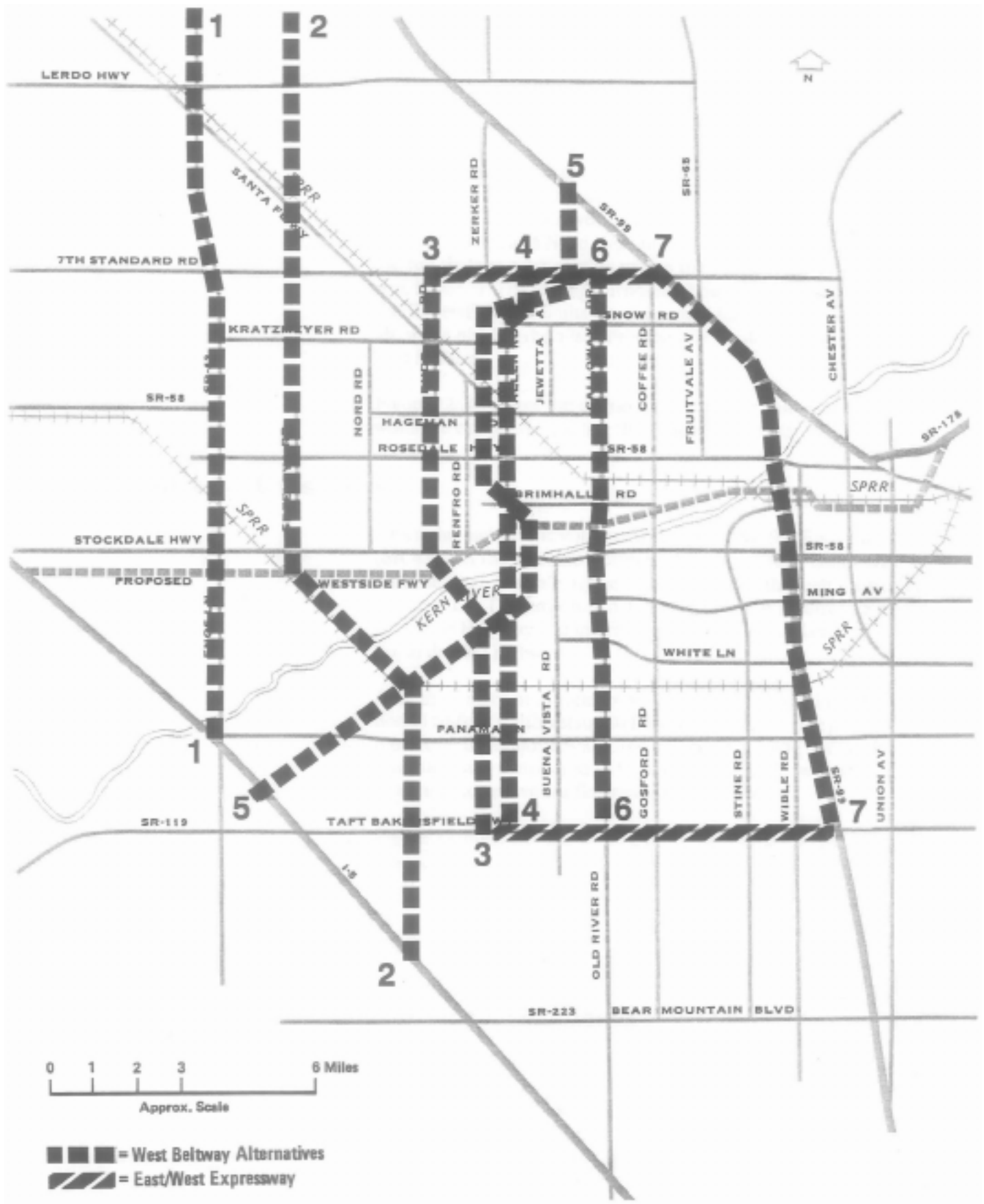
Alternative Alignments and Facilities

Figure 11 illustrates the range of alignments studied for the West Beltway facility. These alignments and definitions of facility types matured during the course of the corridor study in response to suggestions from the public and the technical staff involved with the project. Each alternative attempts to respond to the study objectives—but to different degrees and with differing emphases. The evaluation discussion that follows this section highlights the performances of each alternative.

0-Baseline Alternative

This alternative serves as the base case against which other alternatives were rated and ranked. It includes those state highway projects identified by Caltrans in its *2010 Route Concept* plan, and the construction or widening of city and county streets as specified in the *2010 General Plan*.

Most relevant to this study is the state's proposed widening of SR 99 to eight lanes with auxiliary lanes from one-half mile south of Ming Avenue to the SR 204/99 interchange, and to eight lanes from Golden State Highway (SR 204) to the Tulare County line. Between Ming Avenue and SR 204, this work would involve replacing two overcrossings and widening four others, constructing retaining walls over the entire length, and paving the median and shoulder areas to provide the additional traffic lanes.



WEST BELTWAY
CORRIDOR STUDY

Figure-11
ALTERNATIVE ALIGNMENTS

I-5, midway between SR 119 and SR 223. Approximately 35 percent of the needed right-of-way is currently in public ownership. A four-lane freeway in an eight-lane right-of-way was assumed with interchanges at all major cross arterials and highways (a total of 17 interchanges). High-speed directional ramps were assumed to be required at all freeway-to-freeway interchanges; i.e., with SR 99, the Westside Freeway, and with I-5.

Figure 14 illustrates the volumes of daily trips attracted to the Greeley Road freeway and the distribution of future trips on SR 99 and the westside arterial streets.

Alternative 3—Rudd Road

This option was designed to function as the westernmost alignment for a beltway serving metropolitan Bakersfield area trips. By aligning the beltway along Rudd Road north of the river and Jenkins Road south of the river, this alignment would be on the edge of existing or proposed development. Impacts to residential neighborhoods would thereby be minimal. Also, by aligning the facility along collector streets (Rudd and Jenkins Roads), all existing or planned arterial streets would be preserved—adding a significant increment of capacity to the north/south street system.

A six-lane expressway was tested, running from Seventh Standard Road on the north to SR 119 (Taft-Bakersfield Highway) on the south. To divert traffic from parallel arterials, grade separations and/or interchanges were assumed at all cross-arterial streets to allow for higher average speeds.

For costing purposes, 11 interchanges in total were assumed over the expressway's 12-mile length. A 210-foot right-of-way was assumed as specified by the *2010 General Plan* for expressways. This would allow space for a considerable amount of landscaping—thus allowing for a parkway design concept.

Figure 15 illustrates the average daily traffic forecast to utilize this beltway alternative.

Alternative 4—Allen Road

This option was designed to test the same six-lane expressway as described for Rudd Road along an arterial street alignment. Allen Road was selected for this test as it represented the easternmost arterial street that provided an opportunity to acquire sufficient right-of-way for the facility.

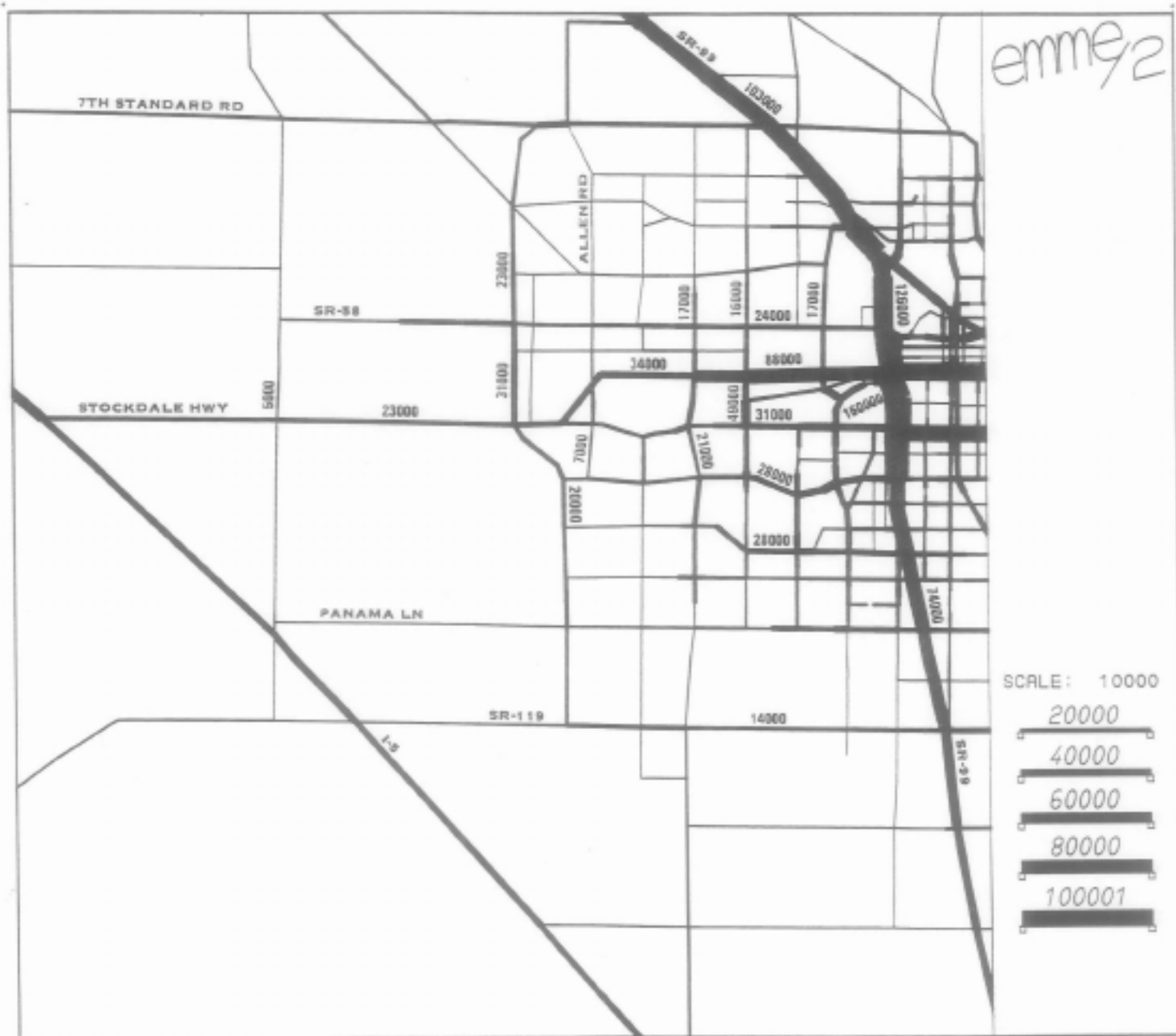


Figure-15

RUDD ROAD AUTO VOLUMES YEAR 2020 ALTERNATIVE-3

WEST BELTWAY
CORRIDOR STUDY

While this alignment would pass a greater number of existing developed land parcels, the potential impacts were judged to be technically within an acceptable range of feasibility.

Eleven interchanges and a 210-foot right-of-way over the expressway's 12-mile length were assumed for cost-estimation purposes.

As Allen Road lies one and one-half miles to the east of Rudd Road and one-half mile east of Jenkins Road, it was speculated that it would attract more usage: (1) due to its proximity to the population; and (2) due to its one-mile spacing from parallel arterial streets.

The traffic forecast to use this and parallel facilities is depicted on Figure 16. The computer model simulation generally supports the above speculation.

Alternative 5—Diagonal

This alternative was proposed as a means to attract both local traffic and through SR 99-to-Interstate 5 traffic away from the segment of SR 99 serving central Bakersfield. To do so, a four-lane freeway in an eight-lane right-of-way following a diagonal, northeast-to-southwest alignment was conceptualized.

Approximately 18 miles in length, such a facility could interchange with SR 99 to the north of Seventh Standard Road, traverse a diagonal to Allen Road, follow a north/south alignment threaded through existing development to Ming Avenue, and resume the diagonal to interchange with I-5 south of Panama Lane.

For cost-estimation purposes, 10 interchanges were assumed for this facility, including high-speed directional ramps to SR 99, the Westside Freeway, and I-5.

Figure 17 illustrates the traffic volume attracted to this facility and the residual traffic using SR 99.

Alternative 6—Old River Road

This alternative was designed to test the feasibility of constructing an upgraded arterial street, one with grade separations at high-volume cross streets, along an alignment central to the future distribution of population west of SR 99. Located four miles west of SR 99, Old River Road linked to Calloway Drive met this objective.

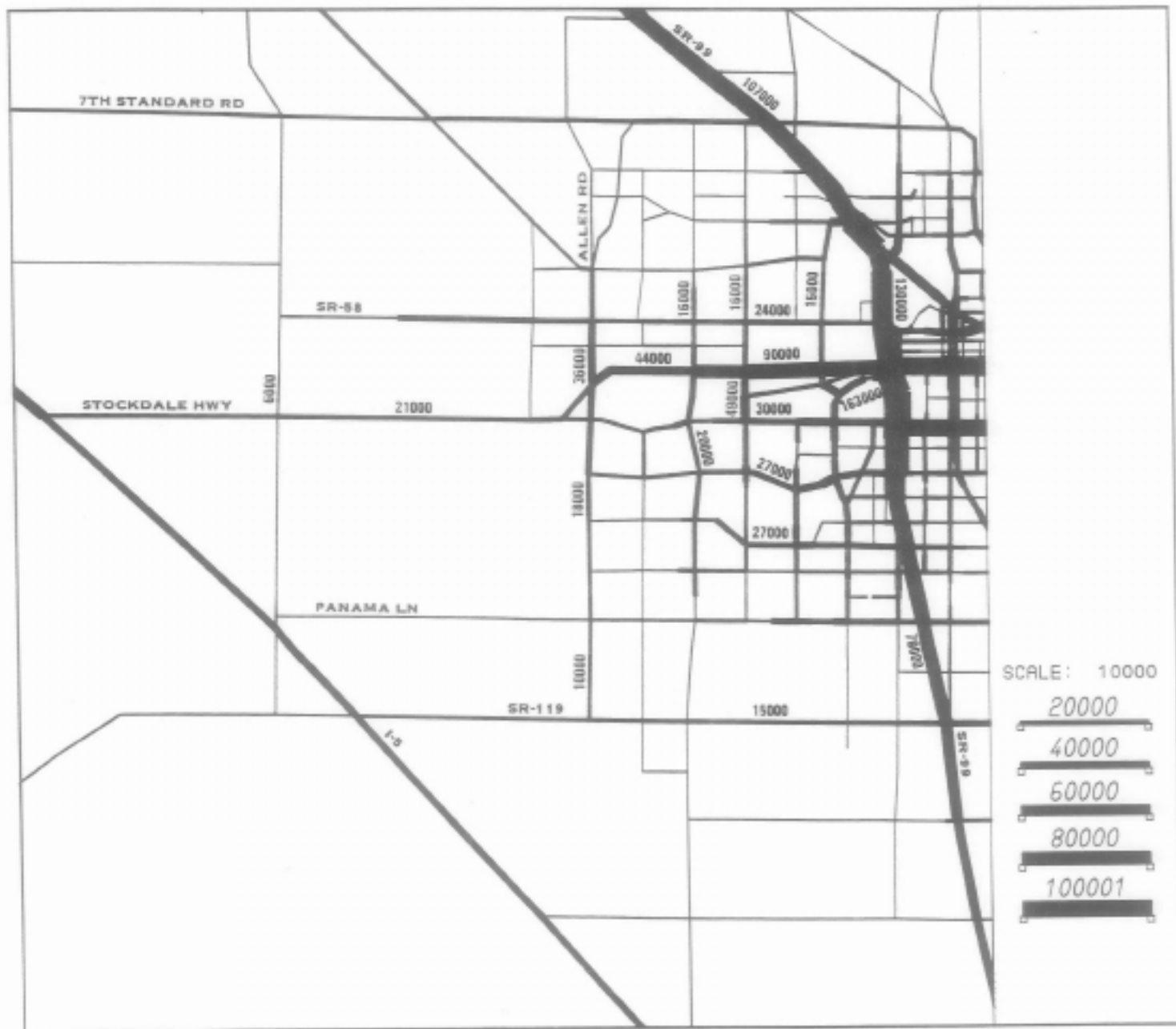


Figure-16

ALLEN ROAD AUTO VOLUMES YEAR 2020 ALTERNATIVE-4

WEST BELTWAY
CORRIDOR STUDY

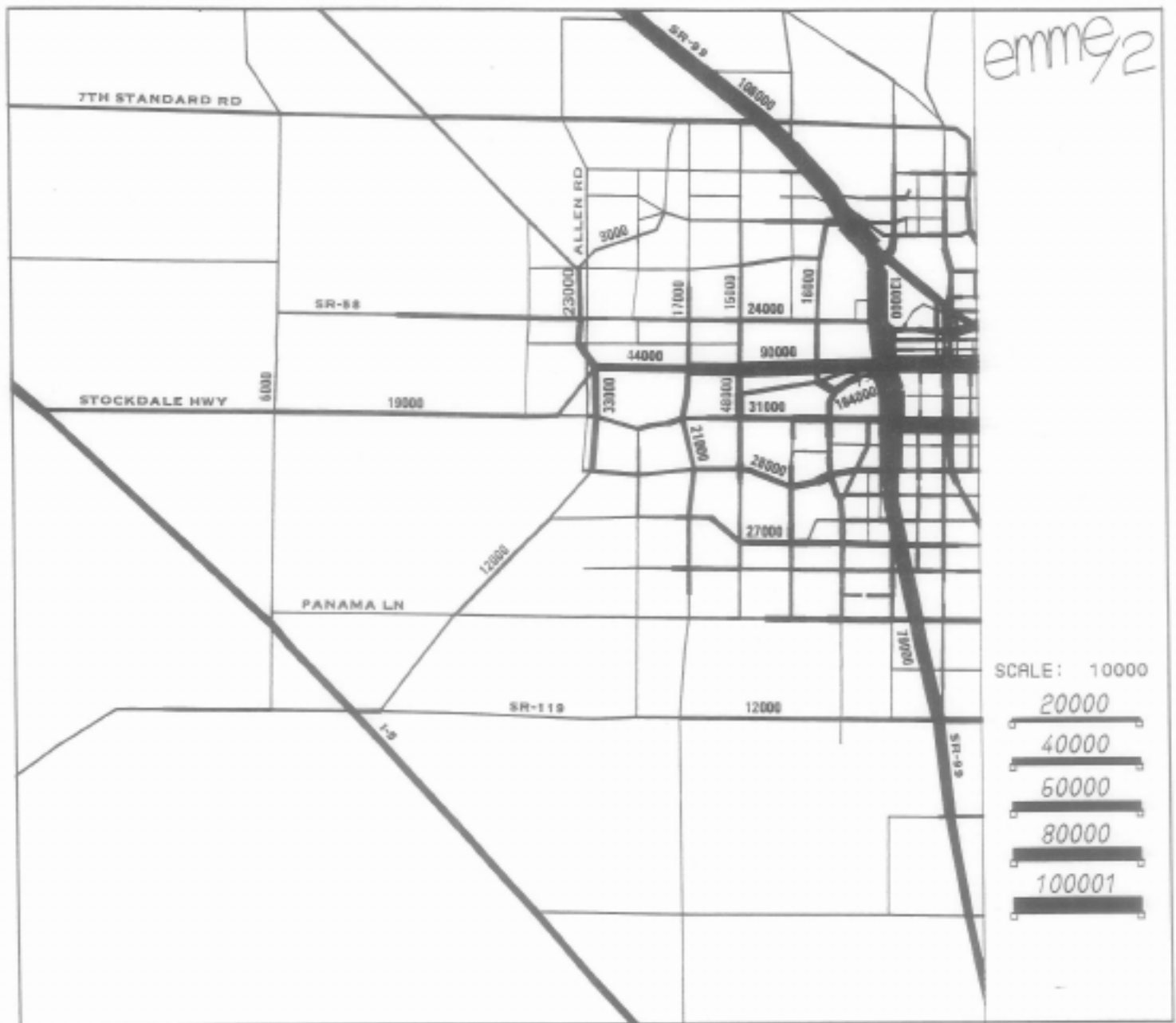


Figure-17

DIAGONAL AUTO VOLUMES YEAR 2020 ALTERNATIVE-5

WEST BELTWAY
CORRIDOR STUDY

A six-lane parkway concept was tested in this alternative, a design similar to the existing section of Old River Road between Stockdale Highway and White Lane. Additional right-of-way would be required for enhanced landscaping and noise walls, however.

Four interchanges were assumed for costing purposes: i.e., at Rosedale Highway, Westside Freeway, Stockdale Highway, and Ming Avenue. These would grade-separate conflicting east/west and north/south traffic movements, thereby reducing delay for westside residents.

Figure 18 illustrates the volume and distribution of traffic forecast to use this parkway and arterial streets west of SR 99.

Alternative 7—Wider SR 99

This final alternative was proposed as a means to relieve longterm traffic congestion on SR 99 through central Bakersfield. Although not verified with respect to engineering feasibility, the concept was to widen SR 99 beyond the eight-lane-plus auxiliary lanes planned for in the baseline alternatives.

To accomplish the proposed widening to 10 through traffic lanes plus auxiliaries (12 in total), additional right-of-way would need to be acquired through this densely developed corridor. All overcrossings would need to be widened or replaced. Ramps would also need to be modified or rebuilt at all existing interchanges between Ming Avenue and SR 204.

Although this alternative might not be feasible from a construction standpoint, it was included in the alternatives analysis for comparison purposes. Traffic assigned to this alternative is illustrated on Figure 19. The performance of this and the other alternatives is evaluated in the following sections of this chapter.

Evaluation Criteria

Each alternative alignment was evaluated relative to a number of criteria. The criteria comprise transportation benefits, land use compatibility, cost, and environmental impacts. The following discussion lists and describes each evaluation criterion.

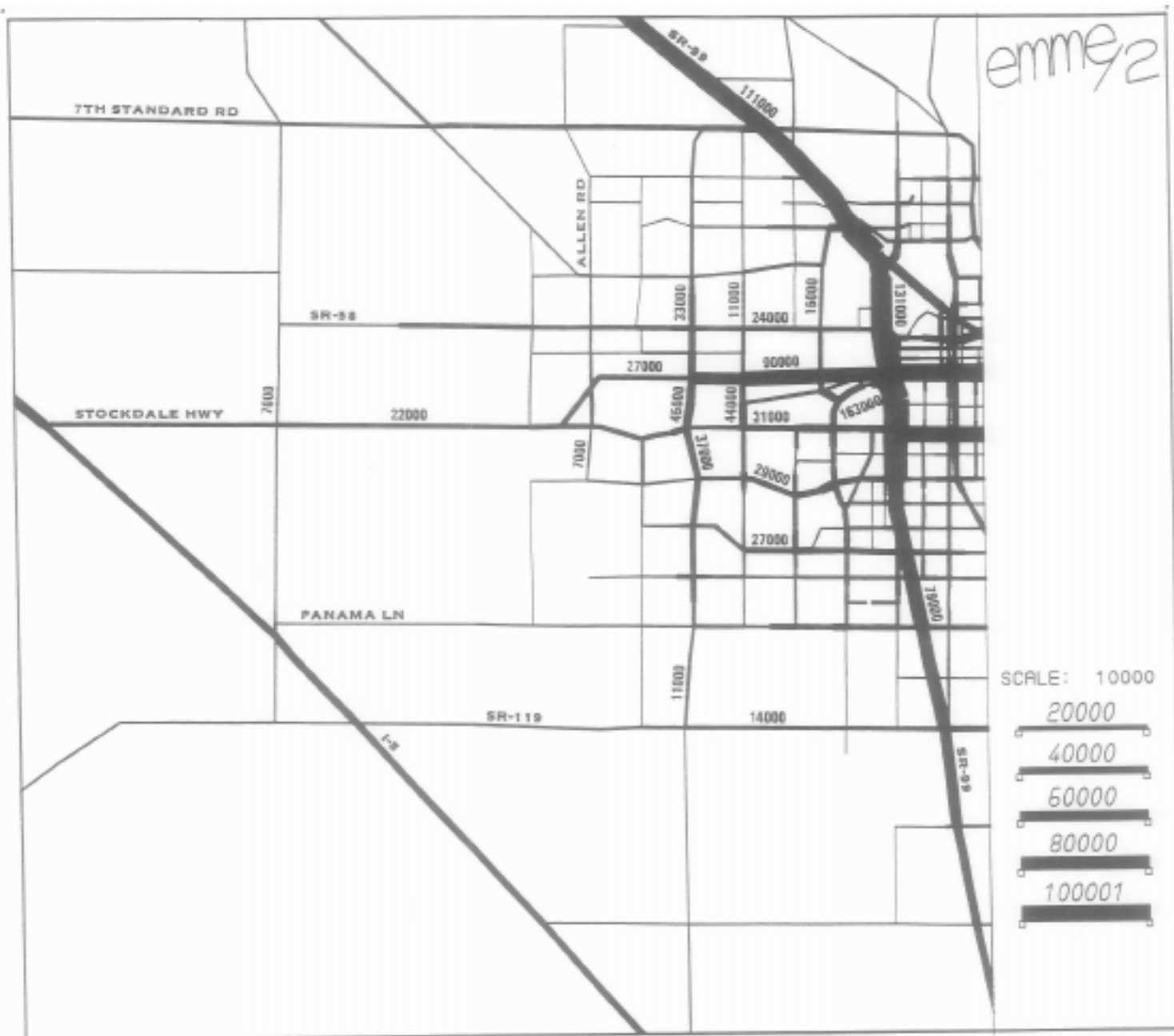


Figure-18

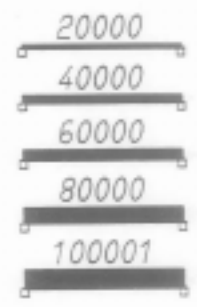
OLD RIVER ROAD AUTO VOLUMES YEAR 2020 ALTERNATIVE-6

WEST BELTWAY
CORRIDOR STUDY

emme/2



SCALE: 10000



WIDER ROUTE 99 AUTO VOLUMES YEAR 2020 ALTERNATIVE-7



1 Network Relationships

This describes the degree to which a facility complements the arterial network specified in the *2010 General Plan*. Removal of an arterial street from the circulation system is viewed to be negative. Upgrading (adding capacity) while maintaining circulation is positive. If a new facility creates irregular or inconsistently spaced intersections, it is viewed to be negative. If the facility has no impact on circulation, it is judged to be neutral.

2. Facility Impacts

This represents a measure of the amount of traffic attracted to the new facility and removed from SR 99 and parallel arterials. The more traffic attracted to the new facility, the better for SR 99 and parallel streets.

3. Accessibility Opportunities

This is a measure of the number of employment, retail, educational, and medical centers near the facility. The higher the number of centers nearby, the better the facility serves travel demand in metropolitan Bakersfield.

4. User Benefits

By more directly serving Bakersfield travel patterns and by providing more system capacity, some alternatives would result in lower vehicle miles traveled (VMT) and higher average speeds. This reflects less delay and congestion for motorists. Two measures are reported: VMT and average speed. For VMT, the lower the better; and for average speed, the higher the better.

5. External Trip Use

This measure is essentially the opposite of Criterion #3. It reflects the facility's ability to divert through traffic from SR 99. The reported value is the percentage of through trips that would shift from SR 99 to the new facility.

6. Future Development

This measure complements Criterion #3 in that it represents the total number of dwelling units and jobs that will be within one mile of the facility following buildout of the *2010 General Plan*.

The higher the number, the more directly the facility serves metropolitan Bakersfield travel needs.

7. Development Opportunities

This measure reflects whether a facility would complement the planned urban area or would bring unwanted urban development pressures to agricultural areas. Alignments wholly within the urban area receive a plus, those on the edge of urban development receive a zero (neutral), and alignments beyond the urban limit receive a minus.

8. Agency Costs

This measure is an approximate cost estimate for right-of-way acquisition and construction of each alternative facility.

9. User Costs

This measure represents the benefit of each facility to the users translated into a monetary figure. The numbers are calculated dollar values for delay and accident reductions relative to the baseline alternative. The savings due to delay reduction is measured at \$9 per hour for vehicle hours traveled on congested facilities relative to the baseline alternative. Accident reduction potentials are based on facility type and volume. Values are calculated based on Caltrans' data for accident cost per million vehicle miles on each facility type relative to the base line alternative.

10. Displacement Costs

This is a relative measure of whether or not the facility would require the relocation of any homes or businesses that are now built on the potential right-of-way.

11. Community Boundaries

This measure indicates whether or not the alignment alternative divides existing neighborhoods by the physical presence of a freeway. A minus indicates that existing neighborhoods could be split.

12. Community Acceptance

This is a measurement of community attitudes as expressed during the public meetings held for this study. A minus indicates the

facility passes through a residential neighborhood that has expressed strong disapproval of the alignment.

13. Air Pollution

This measure indicates the change in vehicle emissions resulting from each alternative relative to the baseline. The numbers expressed are in terms of kilograms of carbon monoxide emissions per day.

14. Noise

This is a relative measure of the increased noise level that might be experienced by residential areas and sensitive receptors (e.g., schools and hospitals) due to the facility. A minus means that noise levels will increase in existing developed areas. A zero means that noise levels will not increase, or that the increases will be in areas beyond the urban boundary.

15. Natural Resources

This measure indicates whether the facility would affect wildlife, open spaces, or agricultural land. Alternatives that potentially disrupt wildlife migration or habitat, or disrupt parklands, recreational facilities, or open spaces are viewed to be negative. Alternatives that remove agricultural land from planned long-term cultivation are also viewed to be negative.

16. Aesthetics

If the roadway as proposed would upgrade the appearance of the baseline facility, the impact was judged to be positive. If there would be no change from existing or planned, the impact was judged to be neutral. If the roadway would not be perceived to be compatible with adjacent land uses, it was judged to have a negative impact.

17. Seismicity

This measure indicates whether active faults are present at interchange locations where elevated structures would be present. A minus indicates that faults are present.

Evaluation Results

Each alternative was evaluated with respect to the 17 evaluation criteria. Table 3 shows the summary results for the four major evaluation categories: transportation benefits, costs, land use compatibility, and environmental impacts. Table 4 provides the detailed evaluation.

TABLE 3
SUMMARY OF IMPACTS

Alternative	Transportation Benefits	Costs	Land Use Impacts	Environmental Impacts	Overall Score
1	0				3
2	++			0	-2
3					2
4			0	0	0
5			0	0	-1
6					-2
7				0	-2

Legend

- ++ = Major benefits, no impacts, very low cost.
- + = Minor benefits, minor impacts, low cost.
- 0 = No benefits, moderate impacts, moderate cost. =
- Major impacts, expensive.
- = Severe Impacts, very expensive.

Alternative 1 (Enos Lane) appears to score the highest, but this is due to its low cost and minor environmental impact. Its problem is that it would not contribute any transportation benefits. Alternative 1, therefore, was eliminated from further consideration.

Alternative 3 (Rudd Road) offers the best combination of transportation benefits and compatibility with existing and future land use plans. This facility would be close enough to the future metropolitan Bakersfield urban area to be useful to area residents, while also sparing existing neighborhoods from increased noise and pollution. Alternative 2 (Greeley Road) would attract a great deal of through traffic, providing relief to SR 99, but it is too far

TABLE 4
EVALUATION OF ALTERNATIVES

Criteria	Measurement	Alignment						
		1	2	3	4	5	6	7
		1	43	31	19	40	18	21
1. Network Relationships	Degree to which facility complements General Plan distribution/spacing of arterial streets.							
2. Facility Impacts	Attraction of traffic from parallel and intersecting streets (Vehicles per day in thousands).							
3. Accessibility Opportunities	Major employment, medical, retail, and/or educational centers served by facility.	0	0	1	2	2	3	5
4. User Benefits	Travel time and trip length savings resulting from facility investment (Average travel speed in mph).	32.3	32.9	32.6	32.3	32.3	32.4	32.5
5. External Trip Use	Through traffic movements attracted from SR 99.	0	69%	25%	8%	9%	3%	0
6. Future Development	General Plan dwelling units plus jobs within 1 mile of facility (000's).	3	5	21	28	27	55	102
7. Development Opportunities	Potential for increased development activity resulting from facility construction.			0	+	+	+	0
8. Agency Costs	Approximate cost of ROW and construction (in millions).	\$35	\$205	\$100	\$105	\$170	\$90	\$140
9. User Costs Calculated	dollar value of delay and accidents saved relative to baseline (savings/[additional cost] in millions per year).	(13)	46	6	(5)	(17)	(15)	28
		0	0	0		0		
11. Displacement Costs	Impact on existing homes and businesses in study area.							
12. Community Boundaries	Division of existing neighborhoods by higher capacity/physical presence of highway.	0	0	0	0	0		0

TABLE 4
EVALUATION OF ALTERNATIVES (Continued)

Criteria	Measurement	Alignment						
		1	2	3	4	5	6	7
12. Community Acceptance	Subjective assessment of facility impact on neighborhood cohesion, identity, and attitudes.	0	0	0	-			0
13. Air Pollution	Reduction/(increase) in region carbon monoxide resulting from utilization of facility (in Kg per day).	(115)	6,260	2,026	975	1,176	1,030	2,270
14. Noise	Increased noise levels for existing sensitive receptors and residences adjacent to facility.	0	0	0				0
15. Natural Resources	Displacement of wildlife habitat, open space, reduction of cultivated areas.	0		0	0		0	0
16. Aesthetics	Resident perception of facility as barrier or contribution to image of corridor.	0	0					
17. Seismicity	Presence of active earthquake faults near interchange locations.	0					0	0

away to be useful to most metropolitan area residents. Nevertheless, its bypass function would free up capacity on SR 99 for intra-Bakersfield travel. Its primary drawback is that it would act as a magnet to pull urban development into an area that the *2010 General Plan* reserves for agriculture. This would result in a sprawling development pattern that would be detrimental to the area as a whole.

Alternative 7 (Widen SR 99) also scores fairly well with regard to transportation benefits and minimizing environmental impacts. The major problem with this alternative is that it does not provide for the West Beltway that is specified in the *2010 General Plan* and that will ultimately be needed beyond the 2020 planning horizon. It would also be difficult to acquire the necessary right-of-way for the additional widening. Continued reliance on SR 99 as the only north/south freeway in Bakersfield does not support the "centers" concept developed in the *2010 General Plan*, and it will not allow right-of-way to be reserved now for the West Beltway facility that is needed ultimately.

The following paragraphs describe in more detail the evaluation results for each alternative.

Alternative 1—Enos Lane

This alternative would widen an existing two-lane road to four lanes. Since the 2020 projections indicate that travel demand would not even tax a two-lane road, this alternative offers no transportation benefit. Its impacts and cost would be minor because of the modest nature of the required widening. This area is essentially undeveloped, consisting of agricultural fields, and is expected to remain undeveloped in 2020.

Alternative 2—Greeley Road

This alternative is the only option that would provide a freeway bypass between SR 99 and I-5. As such, it would attract a significant amount of traffic (43,000 vpd), much of it through-trips diverted from SR 99. A facility this far away from Bakersfield, however, would be of little benefit to local circulation except to the extent that it frees up capacity on SR 99. This alternative would be the most expensive because its length—24 miles—is more than double that of most of the others. In addition, it would require three freeway-to-freeway interchanges versus just one for the other alternatives. The primary drawback of the Greeley Road alignment is that it is contrary to the *Metropolitan Bakers-*

field 2010 General Plan. It would draw development pressure far beyond the planned urban boundary and would create a sprawling urban form. Sprawling development patterns are difficult to serve efficiently—with respect to police, fire, schools, etc.—and create long average trip lengths with concomitant increases in air pollution and energy consumption. These drawbacks outweigh the positive features of this alternative—i.e., public ownership of one-third of its right-of-way and the diversion of trips from SR 99.

Since the Greeley Road area is undeveloped, the major environmental impact of this alignment would be that a freeway would disrupt agriculture.

Alternative 3—Rudd Road

This alignment—a heavily landscaped expressway following Rudd Road north of the Kern River and transitioning to Jenkins Road south of the river—is the recommended alternative. It would provide some relief to SR 99 while at the same time serving local circulation needs in West Bakersfield. Its costs are directly in line with those of the other alternatives. The Rudd Road alignment would be just slightly beyond the urban area boundary in the *2010 General Plan*. As such, it would encourage some sprawling to the west, but not nearly to the extent as would the Greeley Road alignment.

The main benefit of the Rudd Road alignment is that it is as close to SR 99 as a facility can be located without creating impacts in existing developed areas. At present, the alignment is almost entirely in agricultural use.

Alternative 4—Allen Road

This alignment—a heavily landscaped expressway following Allen Road—would cost about the same as the Rudd Road alignment and would provide almost as much transportation benefit. The only transportation difference is that this alignment would eliminate the existing Allen Road, thus creating a void in the arterial network.

The main drawback to the Allen Road alignment is that it would create land use and environmental impacts to some existing neighborhoods. These impacts would take the form of split neighborhoods, increased noise, and air pollution.

Alternative 5—Diagonal

This alignment is similar to the Allen Road alignment in many respects. It follows along the Allen Road Corridor for much of its length, but does not actually replace Allen Road. The main differences are that it allows Allen Road to remain as an arterial, and it extends as a freeway all the way to 1-5. The diagonal alternative attracts more traffic than the Allen Road alternative, but that transportation benefit is offset by the greater cost of the diagonal alignment. It shares the same land use and environmental impacts of the Allen Road alignment in that it will disrupt some existing neighborhoods and agricultural lands.

Alternative 6—Old River Road

This alternative would be a parkway following Old River Road and Calloway Drive. By virtue of its location in what will be a highly developed area, this alignment would service local circulation very well. As an expressway replacing an existing arterial, it would not have the degree of added capacity offered by Alternatives 2, 3, or 5. Thus, its potential to serve circulation needs would be reduced. Its costs would be relatively high for a non-freeway because of the required right-of-way take.

The required right-of-way take is also the reason this alternative would have a negative impact on land use and the environment. The expressway width standard requires 210 feet of right-of-way, which is 100 feet more than exists today. Many homes would need to be removed for the widening. Also, the increased traffic levels would have noise and air pollution impacts on existing neighborhoods.

Alternative 7—Wider SR 99

This alternative deals directly with the potential problem of congestion on SR 99 by increasing capacity with two more lanes over the baseline widening. This direct approach would result in more capacity, but for a relatively high cost. The major drawback of this alternative is that widening SR 99, by itself, would not achieve the goal of the *2010 General Plan* to create a West Beltway. This facility is considered very important to circulation in West Bakersfield. As development spreads to the west, the need for a West Beltway will become more acute, beyond the 2020 planning horizon, and right-of-way should be reserved now.

In addition to this drawback, widening SR 99 would require the acquisition and clearing of additional right-of-way. Many existing

businesses and homes would need to be removed. Noise and air pollution, however, would not increase significantly because SR 99 already exists as a busy freeway.

5.

Recommended West Beltway Development Project

The evaluation of the alternative highway alignments indicated that the Rutledge Road option was the best option, primarily while providing opportunity to serve the land development anticipated to occur by 2020. This chapter discusses this recommended alignment and the actions needed to ultimately develop it as a six-lane expressway/parkway in a six-lane right-of-way.

Alignment

Figure 20 illustrates the overall alignment of the West Beltway facility and its linkages to Seventh Standard Road on the north and SR 119—Taft-Bakersfield Highway on the south. As indicated on the illustration, interchanges are proposed for the following cross streets:

- Seventh Standard Road
- Santa Fe Way/Kratzmeyer Road
- Hageman Road
- Rosedale Highway
- Brimhall Road



WEST BELTWAY
CORRIDOR STUDY

RECOMMENDED BELTWAY ALIGNMENT

- Westside Freeway
- Ming Avenue/Renfro Road
- White Lane
- Pacheco Road
- Panama Lane
- Taft-Bakersfield Highway.

Detailed project design could affect the actual location of these interchanges.

As an expressway-type facility, these interchanges could be developed over time as cross street demand conditions warrant. The initial development stage would therefore include at-grade intersections controlled by traffic signals at many of these interchange locations. As discussed later, the implementation strategy would be to acquire right-of-way as appropriate for the eventual construction of interchanges at each location identified.

Figures 21 through 25 illustrate the section-by-section conceptual alignment of the proposed facility, the location of proposed interchanges, and the juxtaposition of key land features, existing development, and intersecting/parallel street alignments.

Detailed review of these illustrations (aerial photographs flown in February 1988) indicates that very little already-built development would be affected by the construction of a six-lane expressway/parkway on the proposed alignment. All development indicated on Figures 20 through 24 has been verified through a field inspection conducted during November 1989. Most notable of the impacts would be the need to purchase or relocate two dwelling units (or driveways) along the 12-mile corridor. No schools, parks, or other sensitive (noise) receptors would be impacted, nor would any existing businesses other than agricultural.

Since the alignment would cross the Kern River (as would all West Beltway alternatives), it could affect wildlife habitat. The alignment also passes through the Rosedale Ranch and Canfield Ranch Oil Fields, and passes nearby the Rosedale and Bellevue Oil Fields. Ground contamination within sections of the recommended alignment is therefore possible.

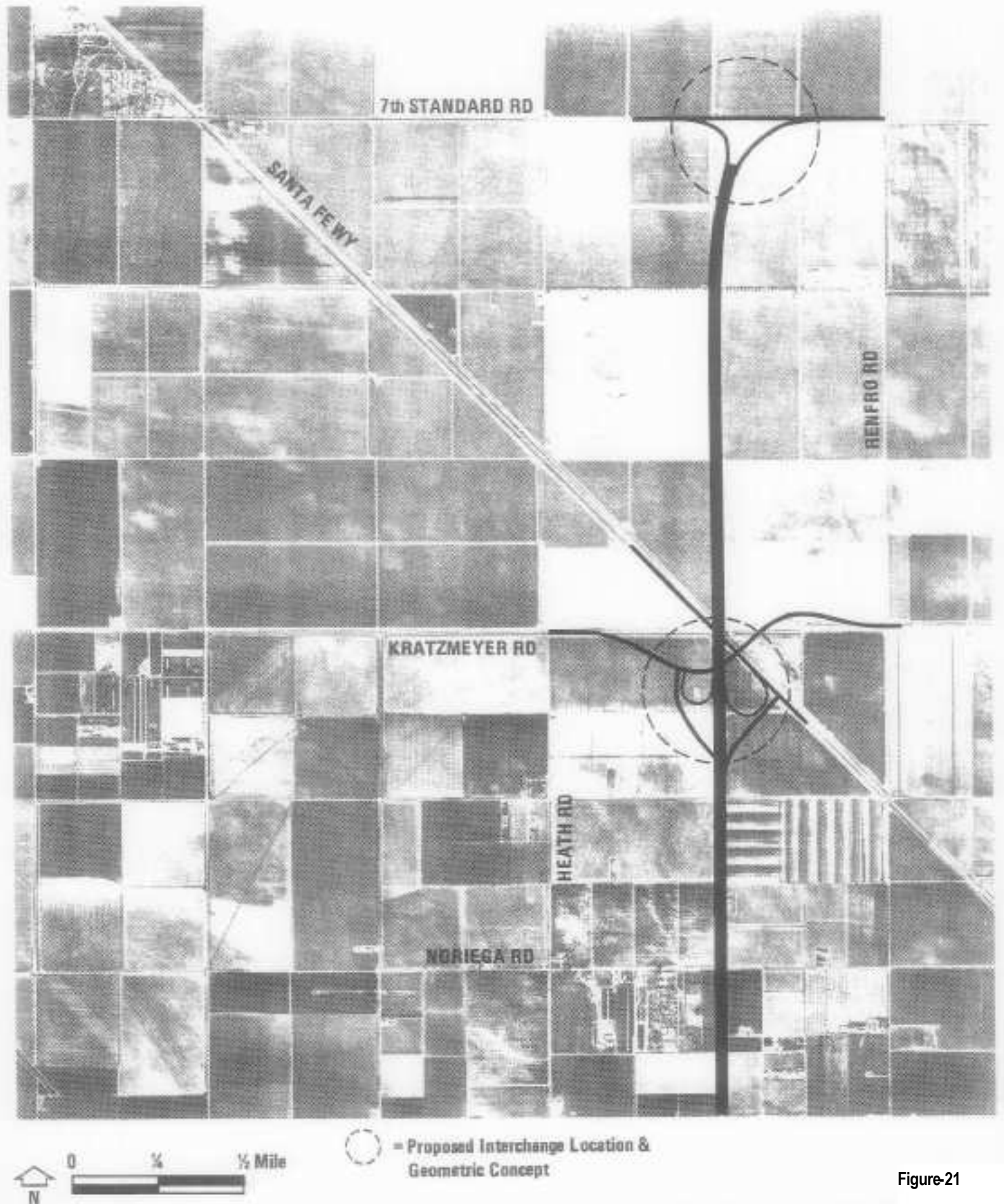
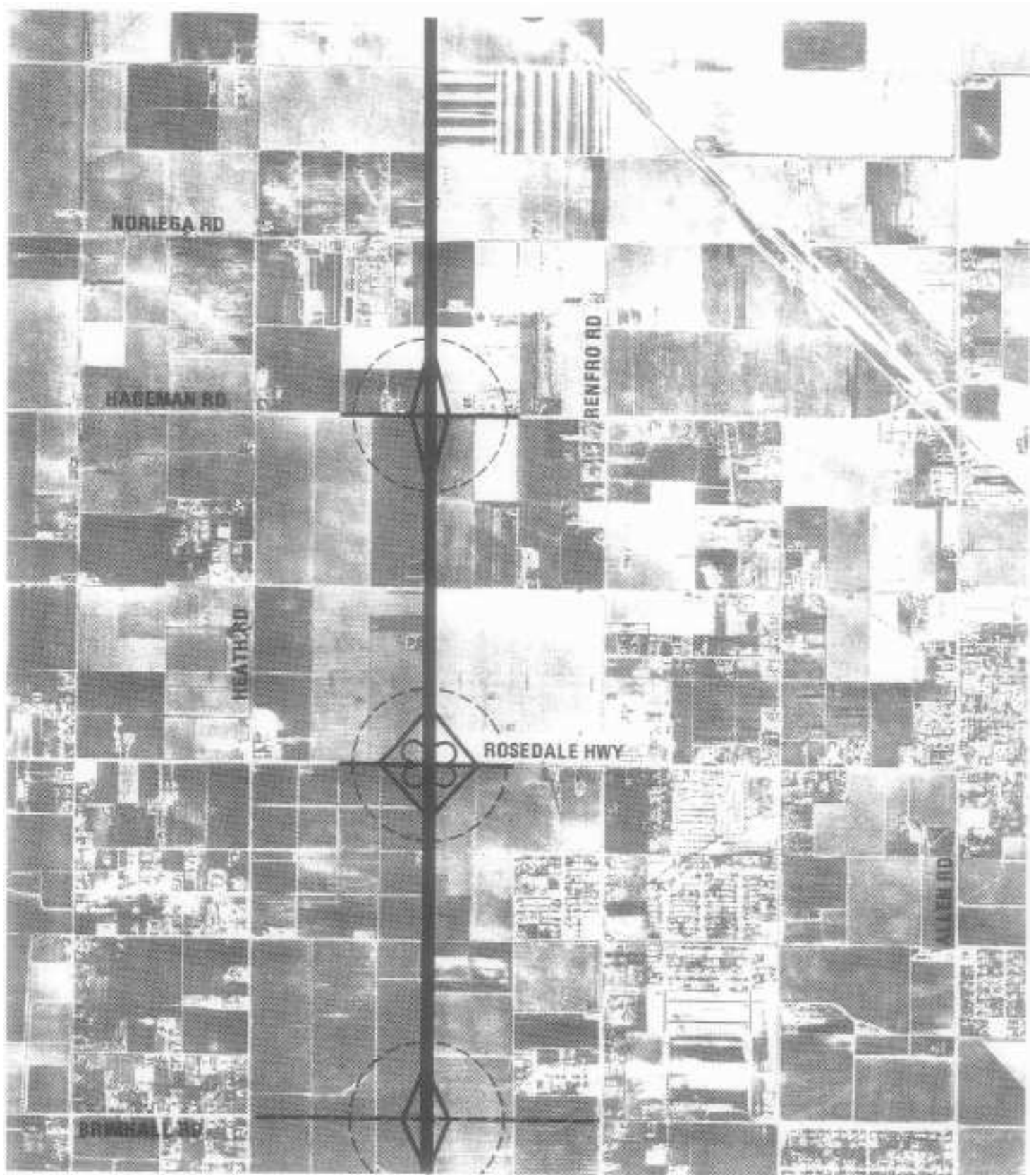


Figure-21

WEST BELTWAY
CORRIDOR STUDY

WEST BELTWAY ALIGNMENT 7th Standard Road To Noriega Road



 = Proposed Interchange Location & Geometric Concept

Figure-22

WEST BELTWAY ALIGNMENT Noriega Road To Brimhall Road

WEST BELTWAY
CORRIDOR STUDY

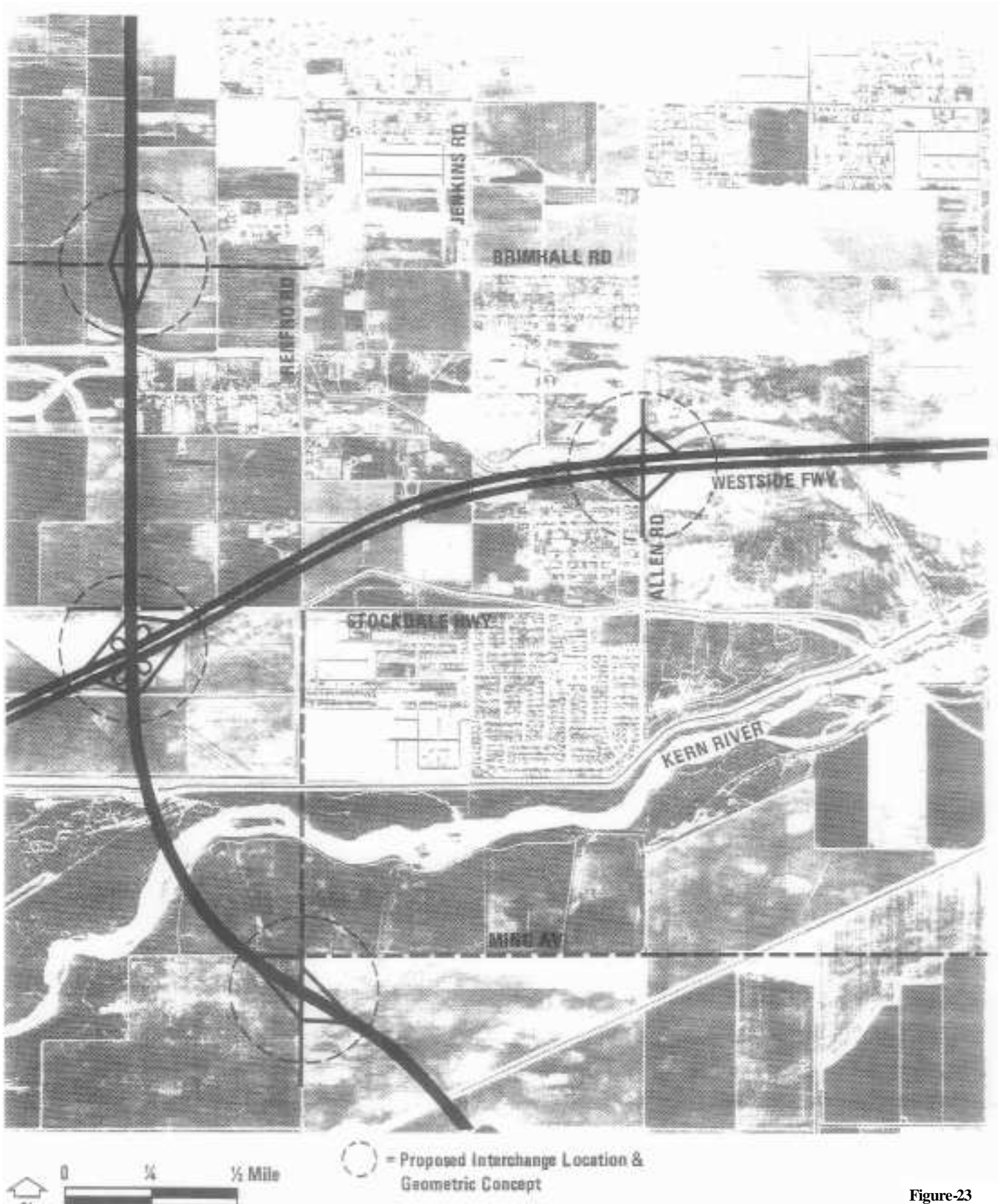


Figure-23

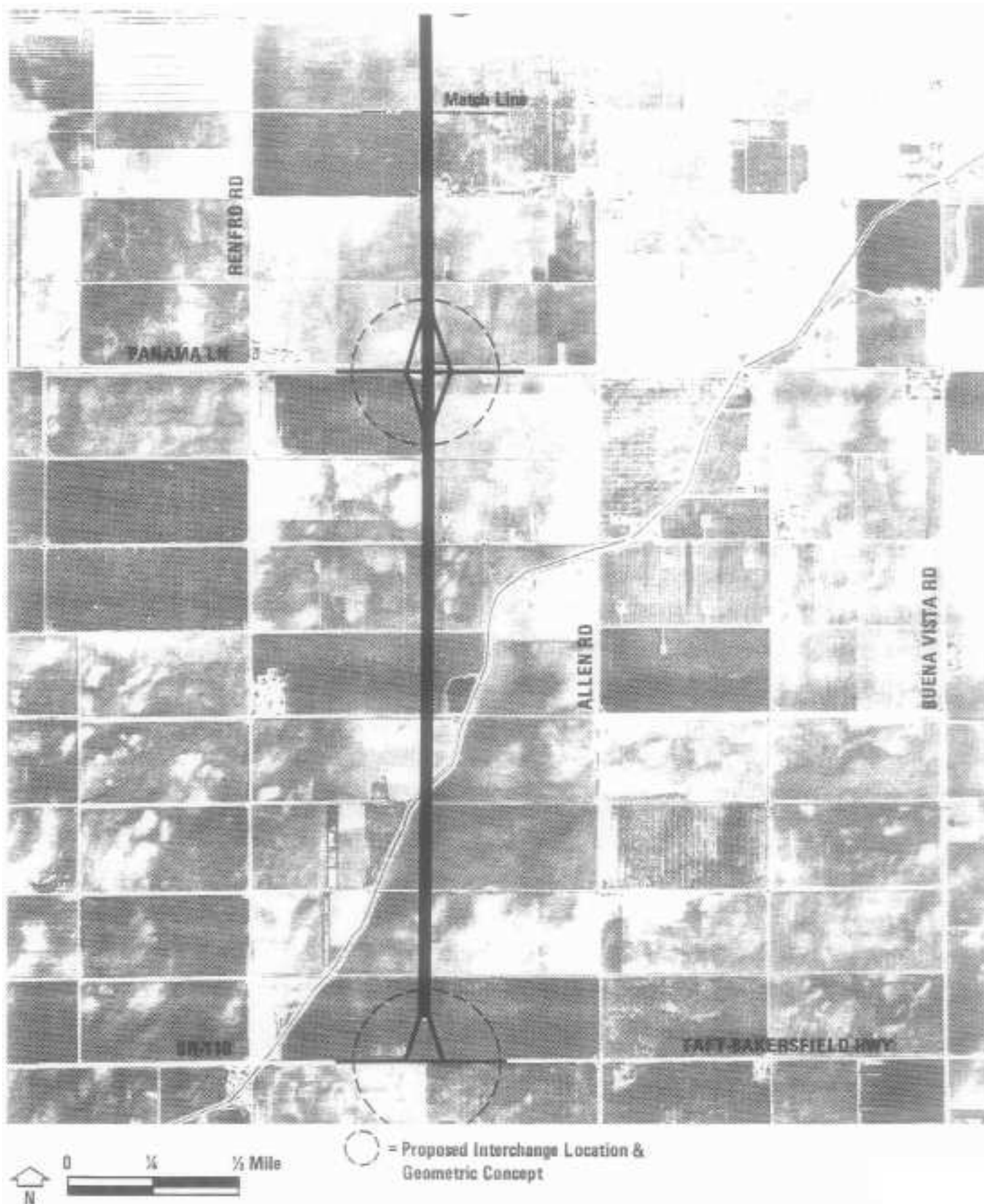
WEST BELTWAY
CORRIDOR STUDY

WEST BELTWAY ALIGNMENT Brimhall Road To Ming Avenue



Figure-24

WEST BELTWAY ALIGNMENT Ming Avenue To Pacheco Road



WEST BELTWAY ALIGNMENT

Panama Lane To State Route 119

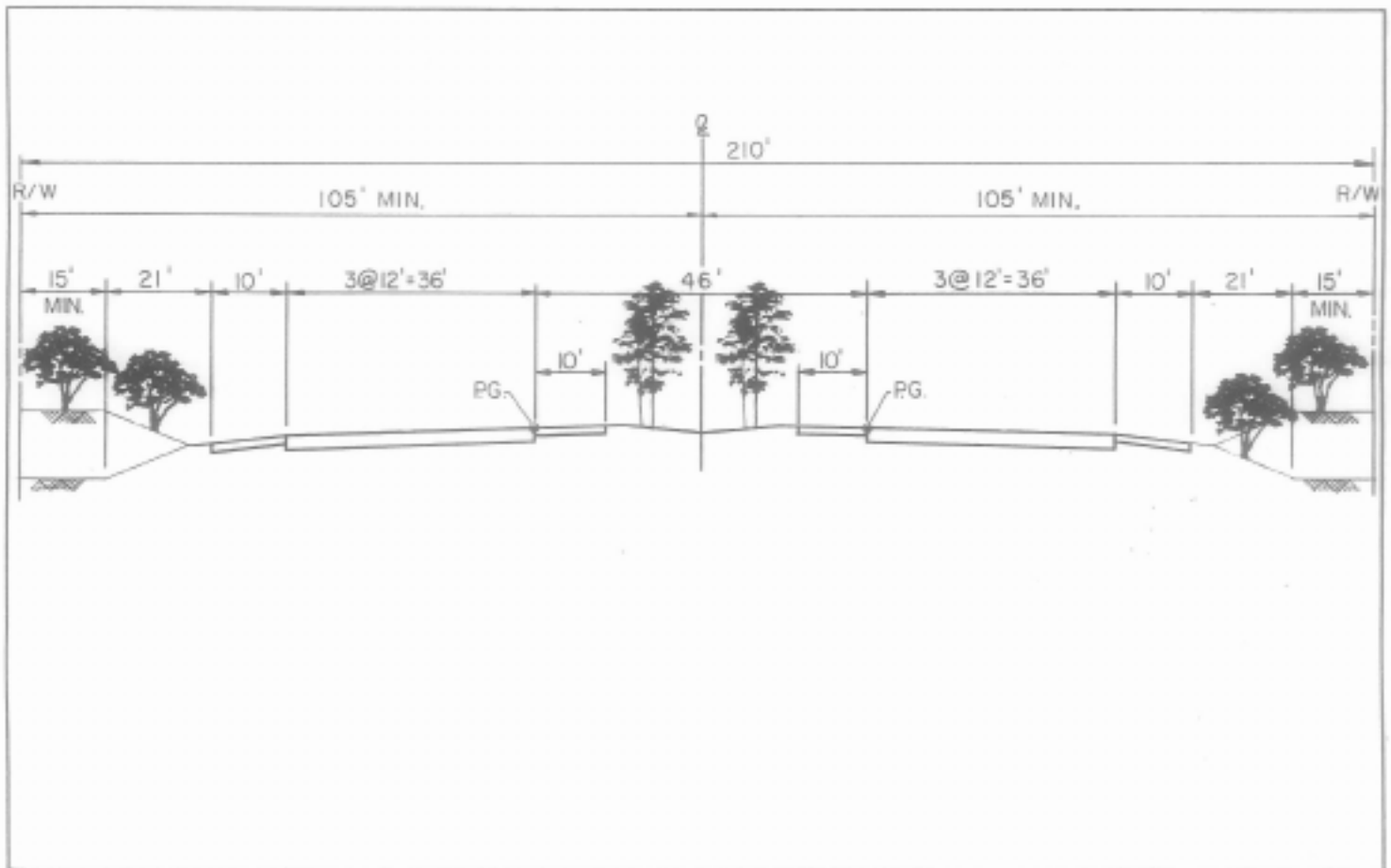
Right-of-Way

Figure 26 illustrates a typical cross section for the West Beltway expressway/parkway. As illustrated, between intersections, a minimum of 210 feet of right-of-way (ROW) will be required for landscaping, shoulders, through travel lanes, and the median.¹ Additional ROW will be needed at interchanges and where embankments would be required. Rudd Road and Jenkins Road are currently classified as collector streets in the *Metropolitan Bakersfield 2010 General Plan*, and as such, their dedicated rights-of-way are 90 feet.

One hundred twenty feet of additional right-of-way, 60 feet on each side of the centerline, will therefore need to be acquired for the facility. The horizontal curve required to transition from the Rudd Road alignment to Jenkins Road presumes 3,000-foot radii as minimums. Further engineering study would be required to establish the precise alignment of this transition.

The recommended alignment includes proposals for full-cloverleaf interchanges at Rosedale Highway and the Westside Freeway; partial cloverleafs at Santa Fe Way and Pacheco Road; and diamond interchanges at the remaining arterial cross streets. These interchanges need to be studied in more detail, however, to determine what the actual designs should be. Interchanges with high projected traffic volumes would need to be built as full cloverleafs; interchanges with lower volumes could be built as diamonds. The diamond interchanges could be either tight or spread, depending on the turning volumes and required stacking-lane lengths. Figure 27 shows the right-of-way requirements for a full-cloverleaf interchange, which needs up to 41 acres of land for construction. Figure 28 shows diamond interchange rights-of-way, which require only 19 to 22 acres.

¹*Metropolitan Bakersfield 2010 General Plan*, Circulation Element, October 1989. The Caltrans standard for parkways/expressways with access control is 194 feet. Frontage roads, if provided, would require 50 feet of additional ROW.



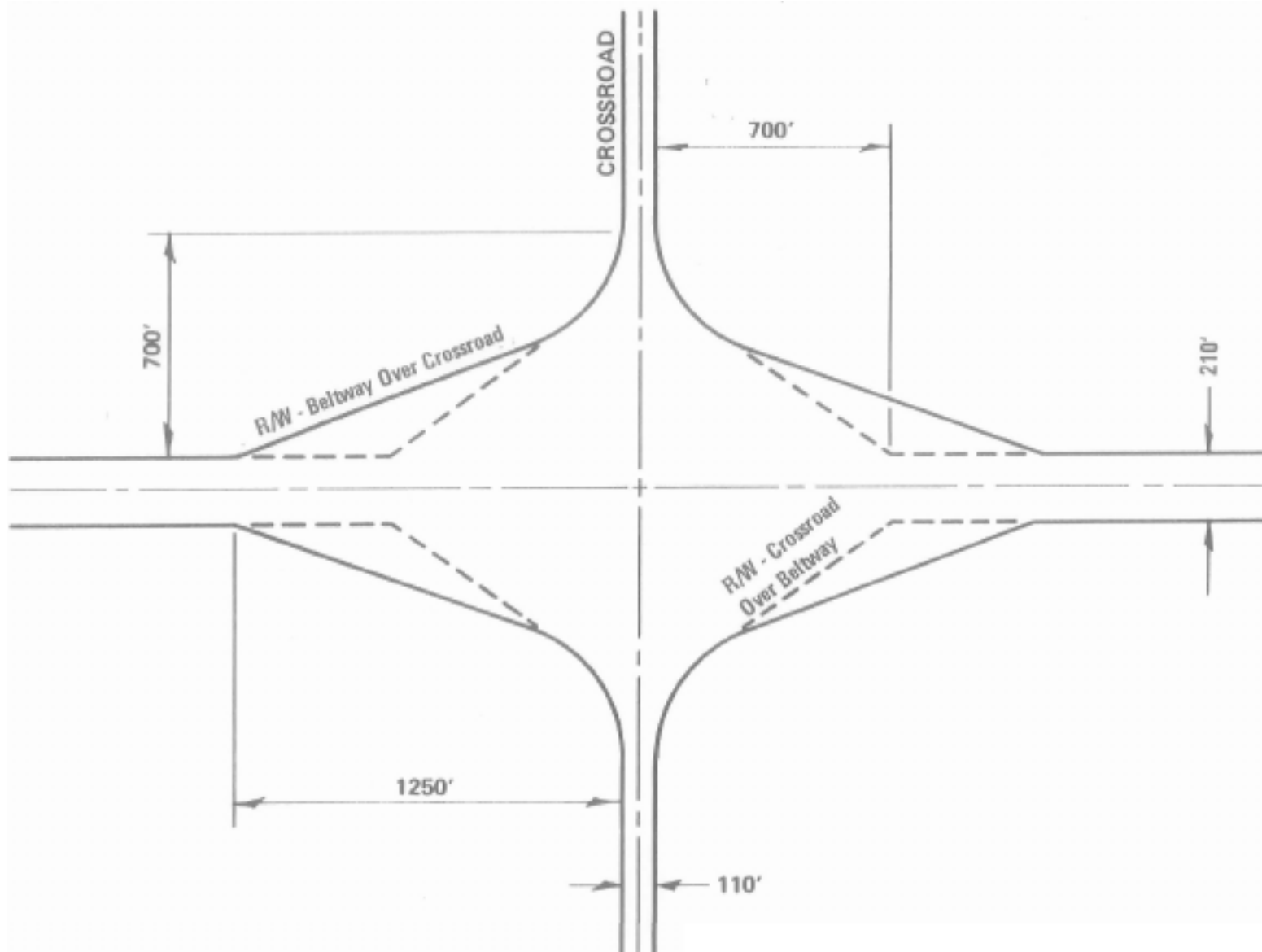
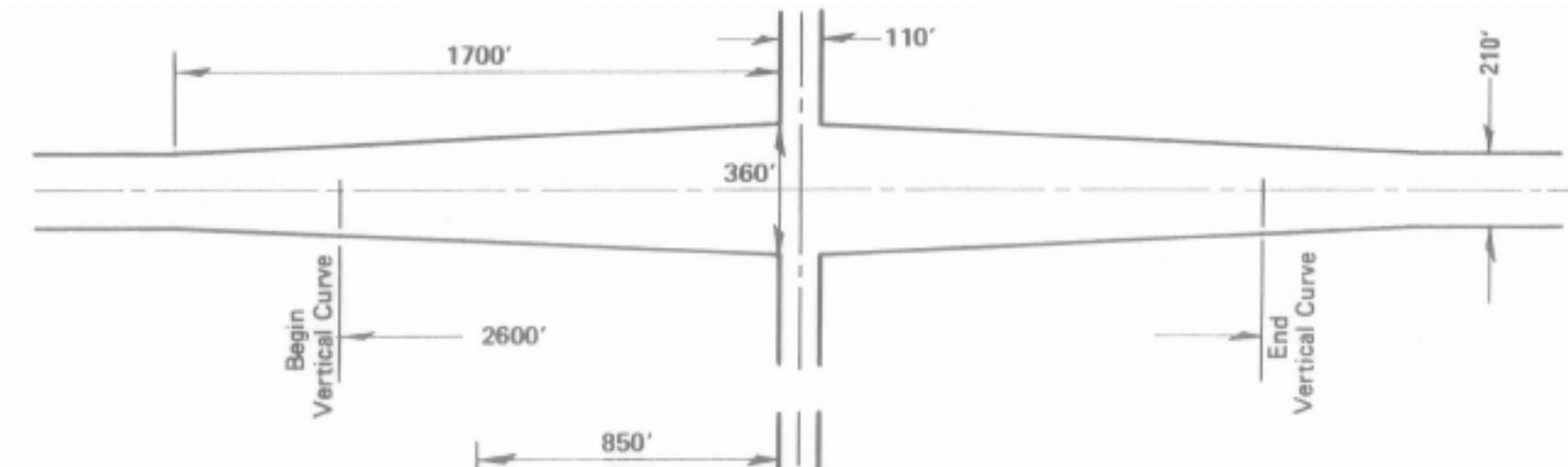


Figure-27

**TYPICAL RIGHT-OF-WAY REQUIREMENTS
FOR FULL CLOVER LEAF INTERCHANGE**

BELTWAY OVER CROSSROAD



CROSSROAD OVER BELTWAY

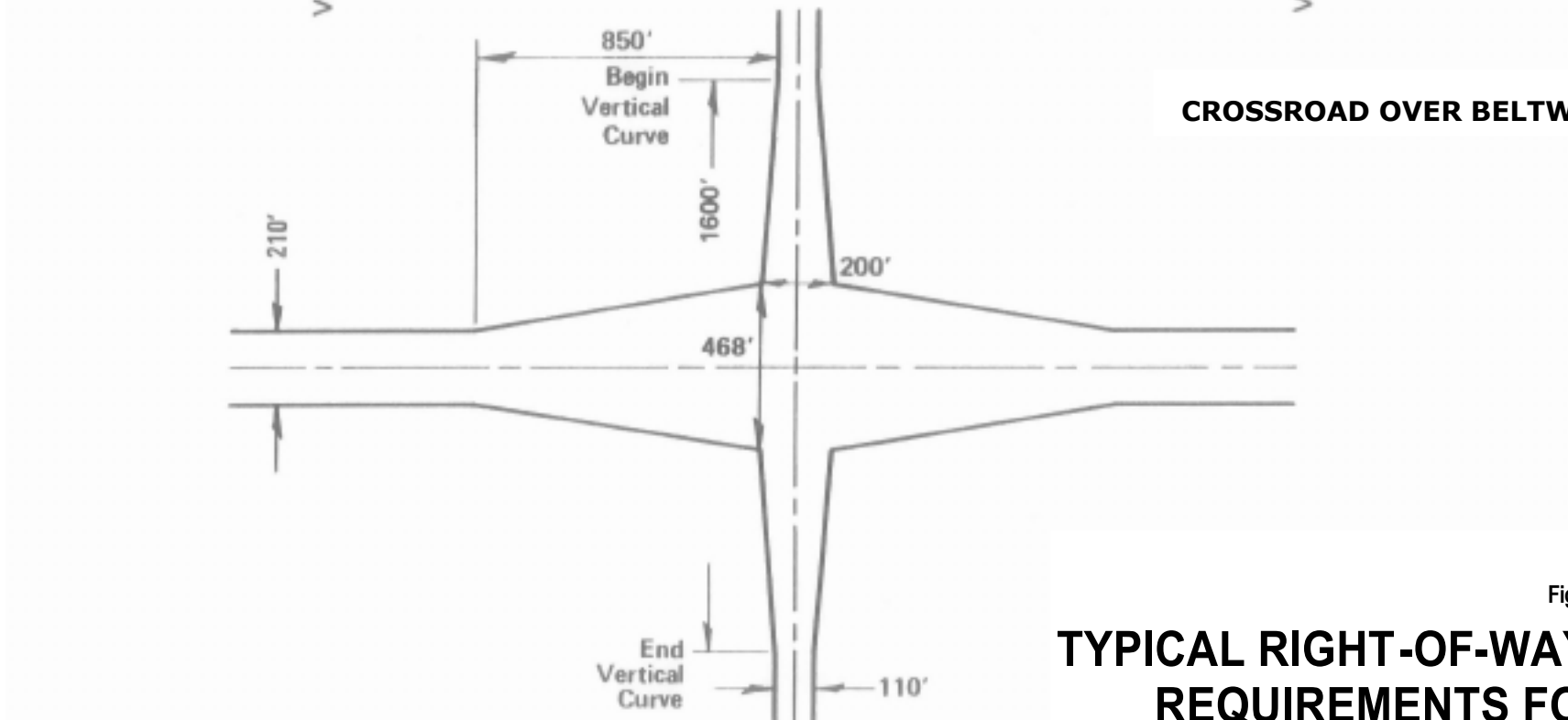


Figure-2B

**TYPICAL RIGHT-OF-WAY
REQUIREMENTS FOR
DIAMOND INTERCHANGES**

Access Controls

The West Beltway is recommended to be functionally classified as an expressway. As defined in the *Metropolitan Bakersfield 2010 General Plan*, an expressway is an arterial highway with at least partial control of access. It may or may not be divided or have grade separations, and it may be an interim facility for an ultimate freeway. It is used primarily by through traffic but may have a minimal function of providing access to abutting property.

The West Beltway is specifically intended to reduce through traffic on parallel arterial streets and to connect locally generated traffic with significant travel generators, connecting freeways, and expressways (i.e., Westside Freeway, Seventh Standard Road, and SR 119). To accomplish this intended purpose, vehicles must be able to maintain adequate travel speeds.

The access plan illustrated on Figure 29 is designed to provide for adequate travel speeds in and around the metropolitan area. It consists of grade separations and interchanges with arterial streets, generally on one-mile spacings, and collector streets that end at the West Beltway.

As the Beltway is aligned along designated collector streets (Rudd and Jenkins Roads), no change in access to the arterial street system is proposed. Figure 29 illustrates that property developed for residential use can be subdivided to provide driveways onto local and collector streets, rather than onto arterial streets. This development pattern is currently followed in southwest Bakersfield.

Implementation

Implementation of the West Beltway will require public policy action and commitment by the sponsors of this study—i.e., Kern Council of Governments, Kern County, the City of Bakersfield, and Caltrans.

As an initial activity, the **Kern Council of Governments** will need to help forge a political consensus among city and county decision-makers relative to the preferred alignment.



Figure-29

WEST BELTWAY
CORRIDOR STUDY

WEST BELTWAY ACCESS PLAN

The **Bakersfield City Planning Commission** will need to review, approve, and recommend the preferred alignment as the specific plan for the West Beltway to be incorporated within the *Metropolitan Bakersfield 2010 General Plan*.

Once recommended, the West Beltway alignment and concept will need to be adopted by the resolution of the **County Board of Supervisors** and the **Bakersfield City Council**. This adoption process should be facilitated through prior agreements and understandings reached during the *2010 General Plan* adoption proceedings.

While the adoption process is underway, the **planning and public works staffs** of the county and city will need to insure that no development applications or zoning changes are approved that fall within the right-of-way limits outlined by this report; and that driveway access to Rudd and Jenkins Roads is controlled as outlined above. Setback requirements to accommodate the West Beltway facility can be established by staff action in advance of full alignment adoption, based on policies enumerated in the *Metropolitan Bakersfield 2010 General Plan*.

This preservation of right-of-way should be accomplished with a minimum of conflict through land use management and zoning. Table 5 indicates that over 85 percent of the right-of-way is currently zoned for "R-1A Intensive Agriculture minimum 20-acre parcel size." Another nine percent of the right-of-way is zoned for R-MP Mineral Petroleum and minimum 5-acre parcel size, or Kern River floodplain. The remaining six percent is zoned for residential land use, the vast majority of which has not yet been subdivided.

TABLE 5
WEST BELTWAY RIGHT-OF-WAY ZONING

Type		Parcel Size	Percent
R-1A	Intensive Agriculture	20 Acre +	85.0
R-MP	Mineral Petroleum	5 Acre +	4.4
OS	Open space		4.4
SR	Suburban Residential	4 d.u./acre	4.2
ER	Estate Residential	1 Acre +	1.0
RR	Rural Residential	2.5 Acre +	1.0
Total			100.0

Source: *Metropolitan Bakersfield 2010 General Plan*, October 1989.

Although not directly involved with the above implementation activities, **Caltrans** will have the lead responsibility of reconstructing SR99 to the *2010 Route Concept* plan, thus accommodating a significant portion of north/south traffic growth until such time that city, county, and state funding can be secured for the West Beltway expressway.

If so designated by the County Board of Supervisors, the West Beltway would be eligible for state funding assistance by virtue of the recently enacted Assembly Bill 829. The legislative counsel's digest of this state law is as follows.

AB 829, as amended, Eastin. County expressway systems: designation and construction.

Under existing law, the Department of Transportation, subject to the direction of the California Transportation Commission, has jurisdiction and control over the construction and maintenance of the state highway system. County boards of supervisors may construct and maintain county highways within their jurisdiction, and may construct any highway within their jurisdiction as a freeway.

This bill would authorize a board of supervisors, or the boards of supervisors of 2 or more adjacent counties, as specified, with the concurrence of affected cities, to designate a system of expressways within the county and to construct and maintain expressways, the purpose of which is to provide a level of service greater than city streets and county roads, but less than freeways.

The bill would, if the board of supervisors designates an expressway system pursuant to the bill, permit the department or the transportation planning agency or county transportation commission to include expressway projects among the projects proposed for inclusion in the state transportation improvement program. The bill would permit the commission to include expressway projects in the state transportation program only after it determines that funds are available for all projects included in the state transportation improvement program adopted in 1989. The bill would require the commission to include funding for an expressway system in proportion to the benefits the expressway system provides to the state highway system, as specified, and to determine that the county has adopted a local fee or assessment program for its share of the funding. The bill would define "county expressway project" for these purposes.

Given the timeframe for the West Beltway expressway, AB 829 offers a real opportunity for state funding assistance to implement the recommended facility. Other funding opportunities include local tax initiatives, developer impact fees, and general fund revenues.

Appendix A

Summary of Public Input

Three public meetings were held throughout the study period to solicit public input. The first meeting was held on May 11, 1989; the second on August 23; and the third on December 13.

At the first meeting, residents expressed strong opposition to any freeway being constructed in the vicinity of their neighborhoods; most wanted to live at least 10 miles from any freeway. Many felt that all of the various proposed alignments were to the disbenefit of the residents, and that their best interest would be served by not disrupting them.

At the second meeting, the focus had shifted from a freeway to a landscaped parkway. Residents were amenable to a parkway while objecting to a plain expressway. They were concerned that the quality of life they had sought when they purchased property in Rosedale would be negatively impacted by congestion, noise, and other environmental factors. They were concerned that trucks would use the new route. They wanted an east/west route more than a north/south one.

At the third meeting, residents agreed that the preferred alignment offered the best compromise. They also recommended that a timely implementation of the proposed alignment be made so that the proposal could be integrated into the *2010 General Plan*. They appreciated that their voice had been heard.

SUMMARY OF CITIZEN CONCERNS EXPRESSED AT OPEN MEETINGS

Discussion of West Beltway in Bakersfield

Meeting	Direction of Alignment	Alternatives	ROW	Freeway vs. Expressway	Environment	Citizen Action	Planning	Land Use
#1 5/11/89	N/S route won't help residents here Continue E/W project Use route that impacts residents the least N/S route would be a bypass for traffic between Sacramento and Los Angeles Need something attractive, forward looking; a circular system that doesn't cut a community to ribbons	Enos Lane is a good choice Enos Lane avoids being in the center of an expanded Bakersfield Enos Lane would disrupt fewer families Use Enos Lane to bypass traffic Widen SR 58 and SR 99 Leave freeway where it is now Make Union a freeway The further out, the better	Widening 99 would require a lot of ROW Previously purchased ROW has not been used Preserving ROW w/o the money to buy it is a problem; it's just a line on the map	Don't want any kind of higher-speed roads near our homes Most want to live 10 miles away from a freeway Too many freeways near my house now Don't see any benefits Freeways are not acceptable	Noise is a concern Elevated freeways would be worse than depressed Trucks would use the new route; may be good to establish a truck route to bypass this area	People should get involved in 2010 General Plan. Rosedale will be central Bakersfield by then.	Previous planning has been poor; SR 58 dead-ends at a shopping center Could public transit solve our traffic problems?	Will industrial development follow the freeway? The Old River Road alignment may have parkland and habitat impacts The Calloway and diagonal alignments would impact schools Traffic needs of southwest residents are in downtown or retail districts
#2 8/23/89	Residents need E/W route more than N/S	Consider a SR 65 extension Don't connect SR 99 with 1-5	Will the city or county actually purchase the ROW if the recommended alignment is adopted?	Problem is with a freeway; people wouldn't object to a parkway (land-scaped expressway)	A N/S route could open up air and water quality problems and create problems with the EPA Could a N/S route create more congestion?		When would construction start? How long would this route be effective? Seems the longer you wait to decide, the further west it will be	We bought property here because of country-like atmosphere
#3 12/13/89	We need an E/W freeway now. not a N/S facility	Enos Lane looks good Widening 99 looks good Rudd Road alignment is probably the best that can be accomplished		Prefer a parkway rather than a freeway		Public concerns should be reflected in future plans	Will project be completed in time to be part of 2010 General Plan? Route started as a bypass; what is its purpose now? What's to prevent it being extended further south?	What happens to proposed Rudd Road developments?

Appendix B

ENVIRONMENTAL SIGNIFICANCE CHECKLIST

This checklist was used to identify physical, biological, social and economic factors which might be impacted by the proposed project. In many cases, the background studies performed in connection with this project clearly indicate the project will not affect a particular item. A "NO" answer in the first column documents this determination. Where there is a need for clarifying discussion, an asterisk is shown next to the answer. The discussion is in the section following the checklist.

PHYSICAL. Will the proposal either directly or indirectly:	YES OR NO	IF YES, IS IT SIGNIFICANT? YES OR NO
1. Appreciably change the topography or ground surface relief features?	NO	
2. Destroy, cover, or modify any unique geologic or physical features?	NO	
3. Result in unstable earth surfaces or increase the exposure of people or property to geologic or seismic hazards?	NO	
4. Result in or be affected by soil erosion or siltation (whether by water or wind)?	NO	
5. Result in the increased use of fuel or energy in large amounts or in a wasteful manner?	NO	
6. Result in an increase in the rate of use of any natural resource?	NO	
7. Result in the substantial depletion of any nonrenewable resource?	NO	
8. Violate any published Federal, State, or local standards pertaining to hazardous waste, solid waste or litter control?	NO	
9. Modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	NO	
10. Encroach upon a floodplain or result in or be affected by floodwaters or tidal waves?	YES	NO
11. Adversely affect the quantity or quality of surface water, groundwater, or public water supply?	NO	
12. Result in the use of water in large amounts or in a wasteful manner?	NO	
13. Affect wetlands or riparian vegetation?	YES	NO
14. Violate or be inconsistent with Federal, State, or local water quality standards?	NO	
15. Result in changes in air movement, moisture, or temperature, or any climatic conditions?	NO	
16. Result in an increase in air pollutant emissions, adverse effects on or deterioration of ambient air quality?	NO	
17. Result in the creation of objectionable odors?	NO	
18. Violate or be inconsistent with Federal, State, or local air standards or control plans?	NO	
19. Result in an increase in noise levels or vibration for adjoining areas?	YES	MAYBE
20. Result in any Federal, State, or local noise criteria being equal or exceeded?	NO	
21. Produce new light, glare, or shadows?	YES	NO

ENVIRONMENTAL SIGNIFICANCE CHECKLIST (Cont.)

BIOLOGICAL. Will the proposal result in (either directly or indirectly):	YES OR NO	IF YES, IS IT SIGNIFICANT? YES OR NO
22. Change in the diversity of species or number of any species of plants (including trees, shrubs, grass, microflora, and aquatic plants)?	NO	
23. Reduction of the numbers of or encroachment upon the critical habitat of any unique, threatened or endangered species of plants?	MAYBE	NO
24. Introduction of new species of plants into an area, or result in a barrier to the normal replenishment of existing species?	NO	
25. Reduction in acreage of any agricultural crop or commercial timber stand, or affect prime, unique, or other farmland of State or local importance?	YES	NO
26. Removal or deterioration of existing fish or wildlife habitat?	YES	NO
27. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or microfauna)?	NO	
28. Reduction of the numbers of or encroachment upon the critical habitat of any unique, threatened or endangered species of animals?	MAYBE	NO
29. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	MAYBE	NO
SOCIAL AND ECONOMIC. Will the proposal directly or indirectly:		
30. Cause disruption of orderly planned development?	NO	
31. Be inconsistent with any elements of adopted community plans, policies or goals, or the California Urban Strategy?	NO	
32. Be inconsistent with a Coastal Zone Management Plan?	NO	
33. Affect the location, distribution, density, or growth rate of the human population of an area?	YES	NO
34. Affect life-styles, or neighborhood character or stability?	NO	
35. Affect minority, elderly, handicapped, transit-dependent, or other specific interest groups?	NO	
36. Divide or disrupt an established community?	NO	
37. Affect existing housing, require the acquisition of residential improvements or the displacement of people or create a demand for additional housing?	YES	NO
38. Affect employment, industry or commerce, or require the displacement of businesses or farms?	NO	
39. Affect property values or the local tax base?	YES	NO
40. Affect any community facilities (including medical, educational, scientific, recreational, or religious institutions, ceremonial sites or sacred shrines)?	NO	
41. Affect public utilities, or police, fire, emergency or other public services?	NO	
42. Have substantial impact on existing transportation systems or alter present patterns of circulation or movement of people and/or goods?	YES	NO

ENVIRONMENTAL SIGNIFICANCE CHECKLIST (Cont.)

	YES OR NO	IF YES, IS IT SIGNIFICANT? YES OR NO
43. Generate additional traffic?	NO	
44. Affect or be affected by existing parking facilities or result in demand for new parking?	NO	
45. Involve a substantial risk of an explosion or the release of hazardous substances in the event of an accident or otherwise adversely affect overall public safety?	NO	
46. Result in alterations to waterborne, rail or air traffic?	NO	
47. Support large commercial or residential development?	YES	NO
48. Affect a significant archaeological or historic site, structure, object, or building?	NO	
49. Affect wild or scenic rivers or natural landmarks?	YES	NO
50. Affect any scenic resources or result in the obstruction of any scenic vista or view open to the public, or creation of an aesthetically offensive site open to public view?	NO	
51. Result in substantial impacts associated with construction activities (e.g., noise, dust, temporary drainage, traffic detours and temporary access, etc.)?	YES	NO
52. Result in the use of any publicly-owned land from a park, recreation area, or wildlife and waterfowl refuge?	MAYBE	

MANDATORY FINDINGS OF SIGNIFICANCE.YES OR NO

53. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	NO
54. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	NO
55. Does the project have environmental effects which are individually limited, but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. It includes the effects of other projects which interact with this project and, together, are considerable.	NO
56. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	NO

