



Summary Report

Prepared for:

**Kern Council of Governments
City of Bakersfield
County of Kern
Caltrans**



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December 2002



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1. INTRODUCTION

BACKGROUND

STUDY PARTICIPANTS

STUDY OBJECTIVES AND GOALS

STUDY PROCESS

COMMUNITY INVOLVEMENT

1.1 BACKGROUND

The metropolitan Bakersfield area has experienced significant growth since the 1970's, with population more than doubling from under 200,000 in 1970 to over 400,000 in 2000. This sizeable growth, coupled with the region's increasing role as a central hub for goods movement and interregional travel, has generated considerable strain on the area's transportation system. Throughout the last three decades, relatively modest improvements to the existing roadway network and some increased bus service have helped to slow the growing community's impact on mobility. However, the majority of the area's primary highway network has seen little increase in capacity. As a result, the metropolitan Bakersfield area is faced today with severe transportation problems, which steadily worsen as the area continues to grow.

The need for major transportation improvements has been recognized by the public and jurisdictional planning agencies for decades. A number of studies have been conducted in an effort to address the growing transportation concerns. Several solutions have been considered and improvement projects recommended, but it had not been possible to reach consensus among governing agencies and

the public. Therefore, none of these major improvement projects have been moved forward. With the population projected to grow to 870,000 by 2030, metropolitan Bakersfield is at a critical point for determining transportation solutions.

Faced with unresolved and growing transportation problems, the Kern Council of Governments (Kern COG) and various local planning and transportation agencies conducted a study in 1997, called the Metropolitan Bakersfield Major Transportation Investment Strategy (MTIS) to identify overall transportation needs in metropolitan Bakersfield and develop a strategy for implementation of long-term transportation improvements. The MTIS provided a comprehensive review of transportation and transit needs, and considered many facets of transportation modes. Mass transit options including increased bus systems, transportation systems management, commuter/light rail transit, etc. were considered in the study. However, the MTIS concluded that in metropolitan Bakersfield, stand-alone mass transit solutions would not provide the same benefits that improvements to the roadway network would provide. It was determined that metropolitan Bakersfield's inefficient highway system was the primary

transportation element in need of significant improvement to address metropolitan Bakersfield's transportation issues.

In July 2000; Kern COG, the City of Bakersfield, the County of Kern and the California Department of Transportation (Caltrans) jointly commissioned the Bakersfield Systems Study to perform a comprehensive evaluation of the region's roadway network. The study was to focus on the transportation needs and issues stemming from inadequate highway infrastructure and develop an implementable solution to address the identified deficiencies in a systems approach. This Summary Report highlights the key elements and results of the Bakersfield Systems Study.



1.2 STUDY PARTICIPANTS

The Bakersfield Systems Study was funded through a demonstration grant from the federal government along with the Governor's Traffic Congestion Relief Program and matching funds from the City of Bakersfield and County of Kern.

The study participants consisted of local and regional transportation agencies including the City of Bakersfield, County of Kern, Kern COG and Caltrans. Key staff members from these agencies formed a Project Development

Team (PDT) to act as a steering group for policy decisions and study oversight. The PDT generally met monthly to review study progress, discuss and resolve technical issues and coordinate inter-agency efforts.

PROJECT DEVELOPMENT TEAM



Kern Council of Governments

Ron Brummett, Executive Director
Roger Taylor, Deputy Director Planning
Joe Stramaglia, Senior Planner
Rob Ball, Senior Planner



City of Bakersfield

Jacques LaRochelle, Assistant Public Works Director
Ted Wright, Senior Engineer
Arnold Ramming, Senior Engineer
Steve Walker, Traffic Engineer



Kern County Roads Departments

Craig Pope, Director
Pat Ebel, Transportation Development Engineer
Barry Nienke, Transportation Development Engineer



Caltrans District 6

Alan McCuen, Deputy District Director
Mehran Akhavan, Project Manager
Sharri Ehlert, Senior Planner



Jeff Chapman, Project Manager
Patti Tiberi, Project Engineer
Jeff Mills, Project Engineer
Doug Smith, Traffic Engineer

1.3 STUDY OBJECTIVES AND GOALS

Recognizing the constraints of the existing transportation system serving metropolitan Bakersfield, the PDT established a set of objectives and goals to guide the course of the Bakersfield Systems Study. “Study

Objectives” were broad considerations that should be met by the project, while “Study Goals” were more specific improvement conditions that the solution alternatives needed to include to be successful. The primary objectives of the project

are to improve existing connectivity and mobility in and around metropolitan Bakersfield and to accommodate future growth. The specific objectives and goals of the study are identified below.

GOALS AND OBJECTIVES

STUDY OBJECTIVES

- *Improve interregional connectivity*
- *Improve regional connectivity*
- *Relieve metropolitan Bakersfield traffic congestion*
- *Accommodate projected growth*

STUDY GOALS

- *Decrease future congestion and accommodate growth*
- *Reduce system discontinuity*
- *Minimize environmental impacts*
- *Develop cost-effective transportation systems*
- *Develop and implement an integrated and meaningful public involvement program*
- *Enhance economic vitality of the region*

1.4 STUDY PROCESS

Over the twelve-month study period, the URS consultant team worked together with key staff from the City of Bakersfield, County of Kern, Kern COG and Caltrans to define, develop and evaluate a wide array of potential transportation solutions for addressing mobility issues within metropolitan Bakersfield. The following describes the process that was undertaken:

1. Identification of Transportation Deficiencies

Through public input at a citywide public workshop and analysis of the existing transportation system including consideration of current and future traffic demands, specific transportation deficiencies were identified.

2. Development of Candidate Alternatives

Alternatives having potential to address metropolitan Bakersfield's transportation issues were identified and developed to a conceptual level. Each of the initial alternatives consisted of a system of improvements comprised of several projects; which, as a system, provided needed relief to the region's transportation network. These initial alternative concepts were defined as Candidate Alternatives.

3. Candidate Alternatives Screening

Each Candidate Alternative was modeled by Kern COG using the Kern County regional travel demand model to determine the effects on future traffic volumes that each alternative could be expected to have. Candidate Alternatives were evaluated and compared and subsequently narrowed down to a number of viable alternatives to be carried forward into more detailed study. Candidate Alternatives that were found to be infeasible, that did not appreciably meet the project's goals and objectives or that did not provide a substantially differentiating benefit over other similar alternatives; were screened out at this stage.

4. Select Project Alternatives

Candidate Alternatives that were deemed feasible and had the potential to most successfully meet the project's goals and objectives were carried forward as Project Alternatives.

5. Project Alternatives Analysis

Conceptual engineering for the Project Alternatives was refined and more detailed analyses and cost estimates were developed to help in the evaluation and comparison of these alternatives.

6. Selection of a Preferred Alternative

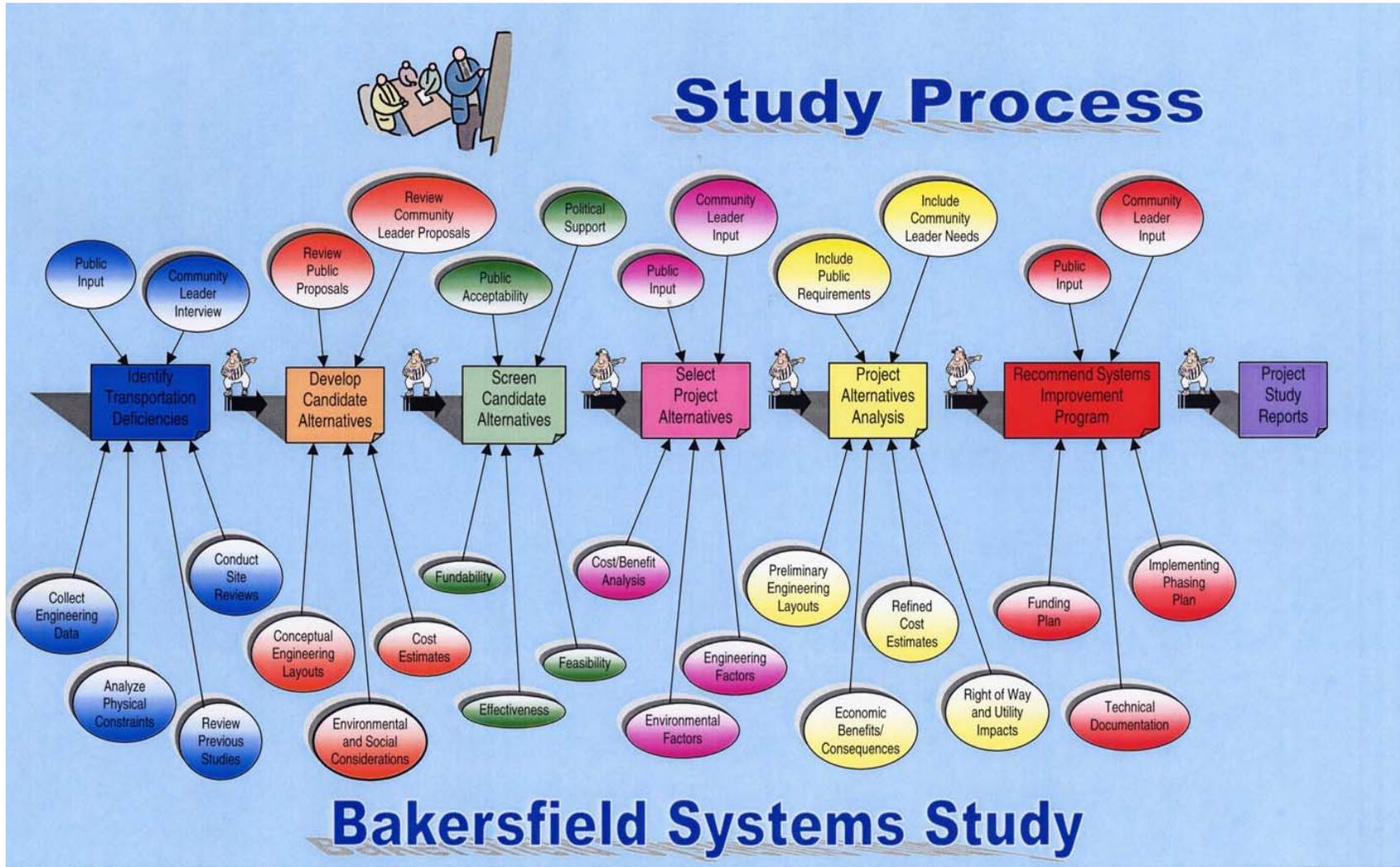
The Project Alternatives were compared resulting in the PDT recommendation of a preferred alternative that balanced benefits, costs and impacts. The Bakersfield City Council and the Kern County Board of Supervisors unanimously endorsed the PDT's recommendation. An Implementation Plan, which took into account estimated funding revenues and project improvement phasing, was developed to help prioritize proposed improvements.

7. Preparation of Project Study Reports

Caltrans Project Study Reports (Project Development Support) [PSR (PDS)] were prepared for several of the proposed projects that were included in the preferred plan. Preparation of the PSR (PDS) document is the first step in the State's project development process and is used to program funds for detailed studies of the proposed improvements known as the Project Approval/Environmental Document phase.

The following graphic depicts the Bakersfield Systems Study process from beginning to end. Numerous factors including public and agency input as well as social, environmental and engineering factors were integral parts of the study process.

BAKERSFIELD SYSTEMS STUDY WORKFLOW PROCESS AND POINTS OF PUBLIC INPUT



1.5 COMMUNITY INVOLVEMENT

Community involvement played a critical role in the Bakersfield Systems Study. The PDT recognized that successful resolution of metropolitan Bakersfield's transportation deficiencies could only be achieved through community consensus obtained through cooperation and active involvement of the community and their elected officials. Early in the study, the PDT committed to conduct an extensive community involvement program that enabled local residents, property owners, business representatives, transportation-related organizations and other special interest groups to actively participate in the Bakersfield Systems Study.

During the course of the study, this effort was proven effective in reaching the community through a series of successful public workshops and focus group meetings. In addition to the workshops and focus group meetings; bilingual newsletters and informational materials, newspaper articles and radio and television interviews disseminated project information throughout the community. The City of Bakersfield also maintained a web page posting the latest study information.

PUBLIC WORKSHOP FLYER

**You Are Invited To A
COMMUNITY WORKSHOP
For The Bakersfield Systems Study**

When:	Tuesday, June 19, 2001
Time:	6:00 p.m. to 8:00 p.m.
Where:	1001 Truxtun Avenue Bakersfield Convention Center Potato Room <i>Free parking is available behind the Holiday Inn</i>



The Bakersfield Systems Study Team, in conjunction with Caltrans, the Kern Council of Governments, the County of Kern, and the City of Bakersfield, is hosting a third community workshop to present the Project Alternatives that have been developed by the Study Team through the use of engineering analysis and public input.

Your involvement and feedback at this workshop are essential to helping the Study Team determine the potential project to be considered.

We invite you to join us on June 19th between the hours of 6:00 p.m. - 8:00 p.m. to provide your input regarding the Project Alternatives and help shape the future of the metropolitan Bakersfield area.

For information regarding the workshop, please contact:
David Goodman at (888) 625-5440 toll-free.

For information regarding the Bakersfield Systems Study, please contact:
Kern COG at (661) 861-2191.

Workshop notices were distributed throughout the community and printed in the Bakersfield Californian.

PUBLIC WORKSHOPS

Three public workshops were held as forums for the Bakersfield community to provide their input and voice their support or concerns. The workshops were conducted as open houses,

where the attendees viewed informational exhibits and provided input on the project through discussions with the various members of the PDT and participating agency staff or by writing their input on comment cards. After each public workshop, a Summary Report was

prepared summarizing public comments. The Summary Reports are available at Kern COG's offices in Bakersfield.

PROJECT NEWSLETTER

Bakersfield Systems Study
Summer 2001 • Volume II
Bakersfield Systems Study Update

On February 7, 2001, over 75 Bakersfield community members joined the Bakersfield Systems Study Team for the introduction of the 20 Candidate Alternatives. These Alternatives were developed by the Study Team as a result of engineering studies and an extensive community outreach effort that included:

- Comments, suggestions and issues received at the September 21, 2000 workshop
- Letters and emails received by the Kern COG, the project manager and their consultants
- Comments submitted on the City of Bakersfield website
- Community consultable discussions with business and community groups

Following the presentation of the 20 Candidate Alternatives at the February 7, 2001 community workshop, the Study Team, once again, analyzed community input at the workshop, examined details and letters sent to team members and website and met with previous groups as well as others interested in the Study. The information gathered through this process was further scrutinized with the ongoing technical studies performed by the Study Team and 5 Project Alternatives were, subsequently, chosen for further study.

On June 19, 2001 the community outreach process continued. The Study Team presented the 5 Project Alternatives at the Bakersfield Centennial Center and once again, asked Bakersfield elected officials, businesses, and community members to join them in examining the Alternatives and assessing their benefits and impacts on the metropolitan Bakersfield area.

Screening the Candidate Alternatives

The goal of the Candidate Alternatives screening process was to find Alternatives that best address the overall traffic needs of the Bakersfield community to move forward with more detailed studies. This process primarily evaluates alternatives on their ability to improve traffic operations and on overall suggestions for transportation enhancements received from the community.

The score that each Candidate Alternative received allowed the Study Team to rank the Alternatives and determine which would be the most effective and feasible.

As a result, the Project Alternatives selected for further study are 3, 6, 9, 13 and 15. The highway concept, which was originally shown as Candidate Alternative 20, is also being considered as additional enhancement to the system improvements that may be required beyond year 2035.

Project Alternative No. 3
Includes:
Kern River Alignment
Central Corridor
State Route 99 Parallel Corridor

Project Alternative No. 6
Includes:
Kern River Alignment
Central Corridor
State Route 99 Parallel Corridor

Project Alternative No. 9
Includes:
Kern River Alignment
State Route 58 East Extension
Central Corridor

Project Alternative No. 13
Includes:
Stockdale Highway Alignment
Kern River Alignment
Central Corridor
State Route 204 Corridor

Project Alternative No. 15
Includes:
Seventh Standard Road Alignment
State Route 204 Corridor
Central Corridor
Modified Kern River Alignment

In addition, each of the 5 Project Alternatives will also include improvements to SR179 (24th Street) in downtown, addition of the Trigueros Flyover, and an interchange at Oak Street and 24th Street.

Bakersfield Systems Study Project Alternatives

As mentioned previously, the Bakersfield Systems Study Alternatives evolved through an inclusive process of informing and involving Bakersfield elected officials, businesses and community members. In addition to the on-going community outreach, the Study Team performed technical studies throughout the process studying, investigating and projecting impacts caused by population growth and growing congestion as well as analyzing the needs and benefits of the various improvement alternatives. In addition, the Study Team also performed traffic modeling and analysis that included:

- Updating the regional traffic model
- Modeling each individual Alternative
- Forecasting 2030 traffic volumes on the existing Bakersfield street and highway network
- Comparing resulting traffic for each Alternative with forecasted traffic in "no build" scenario
- Analyzing nearly 100 segments of the Bakersfield highway system
- Calculating level of service (LOS) values for each segment - ranking vehicle congestion / delay from A, to F.

Next Steps in the Systems Study

The evaluation of the Project Alternatives will consider both technical analysis as well as community input. Following the June 19, 2001 community workshop, the Study Team will continue workshop, email and website comments. The evaluation of the Project Alternatives will include:

- Detailed geometric layout
- Order of magnitude cost estimates
- Preliminary environmental impacts and mitigation measures
- Preliminary right-of-way requirements
- Detailed traffic studies
- Economic benefits of the Alternatives
- Funding strategies
- Implementation and phasing plan

Completion of the Project Alternatives evaluation and selection of the Preferred Alternative are expected in July of 2001.

Timeline

Feb 2001	Mar 2001	Apr 2001	May 2001	Jun 2001	Jul 2001	Aug 2001
Team	Public	Public	Public	Public	Public	Public
Team	Public	Public	Public	Public	Public	Public

Stay Connected - Stay Involved

Your continued participation and input in the Bakersfield Systems Study is essential in ultimately selecting the most effective and feasible Project Alternatives. Your involvement, thus far, has provided invaluable information and guidance that has steered the project team in developing the Candidate Alternatives as well as screening them down into Project Alternatives. The Study Team encourages you to stay connected and stay involved by:

- Attending workshops and community meetings
- Expressing your views and suggestions through email, telephone or fax/mail
- Visiting the City of Bakersfield website at: www.bakersfield.ca.gov/studies.htm

Questions about the Bakersfield Systems Study, call Kern COG at (661) 861-2191 or fax at (661) 324-8215, or email rtaylor@kerncog.org

Newsletters were published to keep Bakersfield citizens and their community leaders informed of the Bakersfield Systems Study's progress.

On 26 September 2000, the first public workshop for the Bakersfield Systems Study was held at the Beale Memorial Library. The intent of the first workshop was to introduce the Bakersfield Systems Study to the public and to allow an opportunity for the public to express their perceptions of the transportation issues in metropolitan Bakersfield. Approximately 75 members of the Bakersfield community attended the workshop. A broad range of transportation issues were noted by the workshop attendees. The public generally supported the concept of an integrated transportation systems solution approach. There were concerns about potential impacts to the environment; particularly with respect to the Kern River, groundwater recharge basins and residential neighborhoods. The following is a more specific list of transportation, mobility and circulation issues voiced by the public at the workshop:

- Congestion on east-west highways; particularly Rosedale Highway, Stockdale Highway, Brimhall Road and 24th Street
- 24th Street/Oak Street intersection congestion
- Lack of a regional freeway between I-5 and SR99
- Discontinuity of SR58
- Discontinuity of SR178
- Discontinuity of local streets

- Poor connectivity between northeast and southwest Bakersfield
- Poor north-south circulation in west Bakersfield
- SR99/SR58 East interchange merge safety
- High volume of truck traffic on Rosedale Highway and 24th Street
- Poor coordination of traffic signals

The second public workshop was held on 7 February 2001 at the Bakersfield Centennial Garden and Convention Center. At this workshop, the 20 Candidate Alternatives were presented to the public. Approximately 75 people attended the workshop and provided comments on the systems alternatives. Highlights of the public comments were:

- Combine internal and external transportation solutions
- Mitigate impacts of the Kern River Freeway (if included)
- Retain alternatives that improve east-west circulation
- Preserve the downtown Bakersfield core
- Protect neighborhoods and communities
- Incorporate solutions on 24th Street
- Include the Hageman Road flyover in all alternatives

PROJECT ALTERNATIVES WORKSHOP



Approximately 300 members of the Bakersfield community attended the public workshop on 19 June 2001 to review the proposed Project Alternatives.



The third public workshop was held on 19 June 2001 at the Bakersfield Centennial Garden and Convention Center. Exhibits of the five Project Alternatives, which had been refined since the Candidate Alternatives screening phase, were presented along with information on costs, benefits and impacts. Approximately 300 local residents, elected officials, public agency staff and other interested parties attended the workshop and more than 400 community members provided comments at, or subsequent to, the workshop. There was general support for Project Alternative No. 15, which was considered by many of the attendees to be the least intrusive to residential communities.

FOCUS GROUP MEETINGS

As an additional way to keep the community active in the study process, a number of smaller presentations and discussions were made to particular special interest groups in the community including homeowners, business and economic-interest groups, environmental groups and transportation related organizations. Each of the community groups was asked to help identify transportation issues and needs as well as to provide ideas for the transportation improvements. Although feedback from the community groups varied, the general consensus

was that there existed a crucial need for major transportation improvements. Between October 2000 and April 2001, the project team met with representatives from the following community groups:

- ▶ Westchester Homeowners Association
- ▶ 24th Street Homeowners Association
- ▶ Rio Bravo Property Owners
- ▶ Oleander – Sunset Park Homeowners Association
- ▶ Westpark Homeowners Association
- ▶ Southeast Political Action Committee
- ▶ Del Rio Area Concerned Citizens
- ▶ Citizens Lobby for Esthetic Areas and Neighborhoods
- ▶ Hispanic Chamber of Commerce
- ▶ Building Industry Association
- ▶ Kern Transportation Foundation
- ▶ Bakersfield Association of Realtors
- ▶ Bakersfield Chamber of Commerce
- ▶ Smart Growth Coalition
- ▶ California Trucking Association

ELECTED OFFICIAL CONSULTATION

Consultation with the City of Bakersfield, County of Kern and Kern COG elected officials, along with Caltrans senior management staff, was conducted throughout the course of the study to ensure complete partnership of all involved agencies. Periodic presentations were made before these governing

bodies and Caltrans staff at key milestones in the study process.

After the Project Alternatives were refined and relevant engineering data developed, these systems alternatives were again presented to the governing bodies and Caltrans for final evaluation and selection of the preferred systems alternative.

ELECTED OFFICIAL CONSULTATION

Consultation at the Beginning of the Study

- 11 December 2000** Bakersfield City Council
- 11 December 2000** Kern County Board of Supervisors

Consultation During Development of Candidate Alternatives

- 16 January 2001** Caltrans Management
- 30 January 2001** Kern County Board of Supervisors
- 31 January 2001** Bakersfield City Council
- 15 February 2001** Kern COG Board of Directors

Consultation During Development of Project Alternatives

- 19 April 2001** Kern COG Board of Directors
- 25 April 2001** Bakersfield City Council
- 1 May 2001** Kern County Board of Supervisors

Selection of Preferred Systems Alternative

- 23 July 2001** Bakersfield City Council
- 23 July 2001** Kern County Board of Supervisors
- 27 July 2001** Caltrans Management
- 18 October 2001** Kern COG Board of Directors

2. ISSUES AND NEED

EXISTING NETWORK DEFICIENCIES

EXISTING TRAFFIC PATTERNS AND CONGESTION

PROJECTED GROWTH

2.1 EXISTING NETWORK DEFICIENCIES

Three State highways; State Route 58 (SR58), State Route 99 (SR99) and State Route 178 (SR178) form the backbone of the metropolitan Bakersfield highway system. SR58 is the primary east-west route out of the metropolitan area. Its connection to Interstate 5 (I-5) west of Bakersfield and to Interstate 15 near Barstow in San Bernardino County make it a major interregional corridor and a heavily used truck route. SR99, the primary north-south route through metropolitan Bakersfield, is an important commuter route linking north and south Bakersfield. Regionally, SR99 is a main shipping corridor for agricultural products in the Central Valley. SR178 begins at SR99 and extends east through Bakersfield to Lake Isabella, and continues east beyond Kern County. SR178 is an important route that serves the downtown area of Bakersfield and provides connection to east Bakersfield communities.

Evaluation of metropolitan Bakersfield's primary highways revealed a number of deficiencies in existing conditions. Several problems emanated from discontinuity of SR58 and SR178, inadequate east-west corridors and poor circulation in west Bakersfield. Some of these deficiencies are discussed in more detail in the following sections.

DISCONTINUITY OF SR58

The discontinuity of SR58 in metropolitan Bakersfield has been a difficult transportation problem for the City, County and Caltrans for many years. East of SR99 in Bakersfield, SR58 is a four and six-lane freeway that was originally planned to continue west from SR99 and eventually connect with I-5. However, due to development west of SR99, extension of SR58 west faced organized public and political opposition and as a result, the freeway was terminated just west of SR99 at Real Road. An interchange at SR99 provides continued routing for SR58, concurrent with the SR99 freeway alignment, north approximately two miles to Rosedale Highway. To continue west toward I-5, travelers must exit SR99 at the SR99/Rosedale Highway local access interchange and use Rosedale Highway, which is a four-lane divided highway that becomes a two-lane undivided highway west of the metropolitan area.

Discontinuity of SR58 in Bakersfield results in several problems. First, the combination of two heavily traveled freeways (SR99 and SR58) onto one single alignment compounds congestion within the combined segment. This segment of the SR99 freeway carries the highest volume of traffic in Kern County, a significant number of which are trucks.

Second, the existing SR99/California Avenue interchange is located halfway between the points where the east leg of SR58 and the west leg of SR58 connect with SR99. California Avenue is one of the few convenient east-west routes in the City and is an important point on SR99 for access to Bakersfield's Central Business District (CBD). Within this two-mile segment of SR99, interchanges at two locations for SR58 plus the California Avenue interchange in the middle, creates weaving maneuvers on SR99 that contribute to congestion.

REGIONAL CONNECTION BETWEEN I-5 AND SR99

Despite the fact that SR58 is a significant east-west interregional route between I-5 and SR99, this segment of SR58 (Rosedale Highway) is primarily a four-lane arterial with signalized and stop-controlled intersections and driveway accesses in mid-block locations. Several stretches of Rosedale Highway are fronted by industrial and commercial properties that access directly onto the arterial contributing to operational problems. Rosedale Highway is heavily traveled by commercial trucks, local delivery trucks and commuters because of its direct access to many commercial, industrial and residential communities in northwest Bakersfield.

DISCONTINUITY OF SR178

Mobility between the northeast and southwest quadrants of the City has been another of Bakersfield's transportation issues. Connection between these two areas is primarily served by SR178. SR178 begins at SR99 as a local arterial, extends east as a four-lane facility through residential neighborhoods then splits into a six-lane, one-way couplet in the CBD. These one-way arterials are designated locally as 23rd and 24th Streets, eastbound and westbound, respectively. Leaving the CBD, the couplet recombines onto a single alignment and continues east as a six-lane divided freeway that extends through the remainder of the metropolitan area.

SR178 provides relatively direct access from the northeast to the CBD; however, the residential segment between SR99 and the CBD and the arterial segments of 23rd and 24th Streets operate poorly. These streets form the northern "backbone" of access into downtown, distributing traffic among existing north-south cross streets.

West of downtown, 24th Street (SR178) is affected primarily by inadequate capacity within the four-lane residential segment. This

stretch is fronted by residential land use (Westchester neighborhood) along both sides of 24th Street. Some of these properties have access directly onto 24th Street, which adds to operational conflicts.

Multiple access points and intersections in the commercial segment downtown affect the one-way couplet arterials of 23rd and 24th Streets.

Traffic volumes on both arterial segments of SR178 (24th Street) are relatively high because traffic from Rosedale Highway, west of SR99, feeds directly into 24th Street, which is combined with traffic exiting SR99 at 24th Street. Oak Street, a major north-south arterial, also contributes significant traffic volumes to 24th Street.

The 24th Street/Oak Street intersection has historically been one of Bakersfield's most congested intersections. Caltrans has widened and improved the intersection, which increased the level of service (LOS) from LOS E to D. The intersection's capacity is essentially maximized at this point and traffic volumes are continuing to grow. It will not be long before the intersection is gridlocked again.

NORTH-SOUTH CIRCULATION WEST OF SR99

North-south circulation throughout both the southwest and northwest quadrants of Bakersfield is limited and incomplete. This is in large part due to the Kern River and the limited number of crossings that bridge the river. North-south arterials are important in the western portion of the City to help collect traffic and distribute it to the available east-west routes that access downtown Bakersfield.

ISSUES SUMMARY

Deficiencies

- *Discontinuity of SR58*
- *Inadequate regional connection between I-5 and SR99*
- *Discontinuity of SR178*
- *Inadequate north-south circulation west of SR99*

Impacts

- *Inadequate regional mobility*
- *Incomplete interregional connectivity*
- *Poor downtown access*
- *Local congestion*

2.2 EXISTING TRAFFIC PATTERNS AND CONGESTION

Limited east-west corridors, the discontinuity of SR58 and SR178 and poor north-south circulation in west of SR99 have already led to congestion on some local roads and highways. In addition, a high percentage of truck traffic is prevalent on the highways in and around Bakersfield. This is particularly true on SR58, which is the key east-west corridor for the region.

During the past thirty years, the southwest quadrant of the City grew primarily as a residential area. Located roughly between Buena Vista Road and SR99 and between Panama Lane and the Kern River, this concentrated area of residential land use typically commutes from the southwest sector to the CBD in the morning and flows the reverse path in the evening.

The CBD is generally located between SR99 and Union Avenue and between 24th Street and California Avenue with a core of civic center buildings clustered along Truxtun Avenue. Much of Bakersfield's employment base is within

the CBD; therefore it has always been a commuter destination for outlying residential areas. Morning commuter traffic coming from residential communities in the northwest and southwest, traveling to the CBD puts a major strain on existing east-west streets, such as Rosedale Highway, Truxtun Avenue and Stockdale Highway. In the evening, these same east-west routes are congested in the opposite direction when commuters return home.

This general traffic pattern places great emphasis on east-west arterials that access SR99 and adds a significant amount of traffic to SR99 between White Lane and Rosedale Highway/24th Street.

Since the mid-1980's, the northwest quadrant of Bakersfield has seen an explosion of development, which is again largely residential. Due to changing land uses in the area, continued development is expected, particularly in the area of the old North of the River Sewer Treatment Plant. Again, a large amount of traffic from

residential areas in the northwest quadrant commutes to the CBD region of the City. Existing east-west arterials to the CBD from the northwest region include Olive Drive, Rosedale Highway, Truxtun Avenue and to a lesser extent SR204 via a relatively circuitous route. Traffic on Olive Drive is currently extremely congested during morning and evening peak hours. The other major east-west corridors in this region are also heavily congested and will provide declining levels of service over the next 5 to 10 years.

As the southwest and northwest quadrants of Bakersfield continue to grow, an emerging area of congestion is the north-south arterials in Bakersfield west of SR99. North-south arterial streets in this area are constrained in large part due to the limited number of Kern River crossings. The mainline of the Burlington Northern Santa Fe railroad also divides the northwest from the southwest and limits crossing locations.

2.3 PROJECTED GROWTH

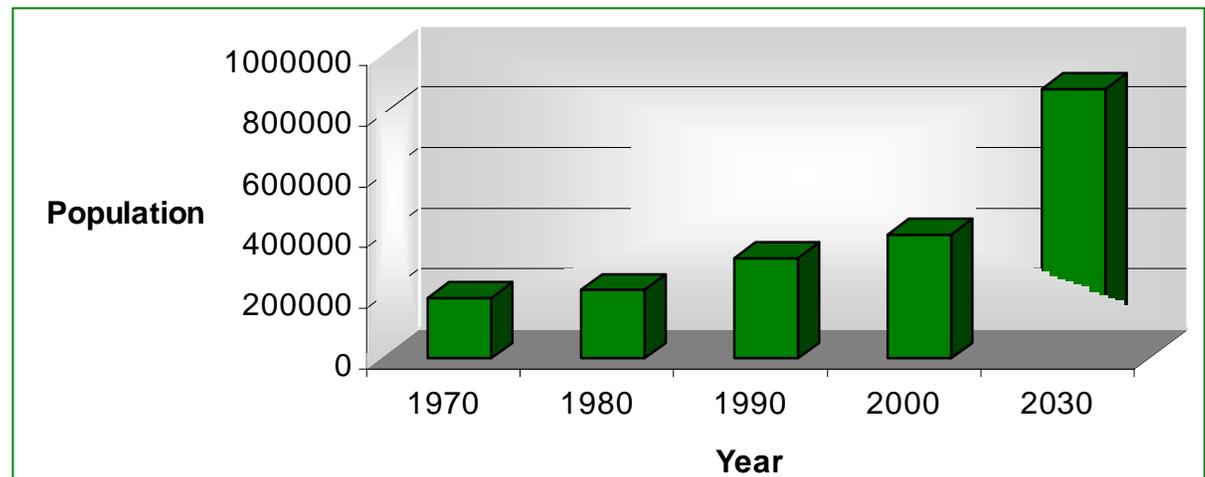
LEVEL OF SERVICE DEFINITIONS

Service	Traffic Condition
	<i>Free-flow traffic conditions, with minimal delay to stopped vehicles.</i>
	<i>Reasonably unimpeded operations at average travel speeds, usually about 70 percent of free-flow speed.</i>
	<i>Stable operations, with average travel speed of about 50 percent of free-flow speed.</i>
	<i>Some delays, with average travel speed of about 40 percent of free-flow speed.</i>
	<i>Significant delays, with average travel speed of 33 percent or less of free-flow speed.</i>
	<i>Jammed conditions. Intersection congestion is likely at critical signalized locations, with high delays, high volumes and extensive queuing.</i>

The population of metropolitan Bakersfield has more than doubled over the past 30 years. There is no indication that this growth rate is going to diminish in the near future. Using California Department of Finance projections, metropolitan Bakersfield's population is anticipated to grow from 404,000 in 2000 to 876,500 by 2030. The chart at right shows that the population of metropolitan Bakersfield will again more than double over the next 30 years. The high level of growth projected affirmed that a comprehensive transportation plan must be adopted to plan adequate transportation facilities. Along with accelerated population growth, traffic volume projections by Kern COG indicated that traffic in metropolitan Bakersfield is expected to increase by two and a half times over

the next 30 years. With these projected traffic volumes, traffic operations are expected to degrade to very poor levels of service throughout the metropolitan area. A review of 88 sample roadway segments showed that 83% of these segments would operate below LOS D in the year 2030 under the no-build scenario. Roadway LOS is measured on a scale of A through F based on average daily traffic volume capacities of each roadway segment studied. The table at left defines the general characteristics of the various levels of service.

METROPOLITAN BAKERSFIELD POPULATION



Source: Department of Finance Census Population of California Cities.

3. ALTERNATIVE ANALYSIS

- BASELINE ALTERNATIVE**
- CANDIDATE ALTERNATIVES**
- PROJECT ALTERNATIVES**
- PREFERRED ALTERNATIVE**

3.1 BASELINE ALTERNATIVE

A no-build scenario was formulated to portray a baseline condition in 2030 for comparison with the alternatives. The baseline condition was defined as the highway system that primarily exists today, augmented by those

additional projects for which a funding commitment has been made or which are reasonably expected to be in place in the planning horizon year of 2030. This is the Baseline Alternative. The Baseline Alternative

requires no capital expenditure at this time. However, it is anticipated that the cost for operating and maintaining the existing transportation system would increase as traffic operations continue to degrade.

3.2 CANDIDATE ALTERNATIVES

The Bakersfield Systems Study involved performing a comprehensive review of potential solutions to reduce traffic congestion and improve mobility and circulation. The study combined improvement ideas from previous studies with new ideas to create new systems alternatives in an integrated systems approach. These wide-ranging improvement alternative concepts were defined as Candidate Alternatives. In utilization of an integrated systems approach, each of the Candidate Alternatives was developed, consisting, not of

one or two related improvement elements, but of several individual improvement components that together provide overall benefits in regional and interregional mobility and connectivity.

Twenty potential transportation solutions (Candidate Alternatives) were developed, each attempting to respond to the objectives and goals that were established for the study. In this initial development of alternatives, the focus was on engineering factors such as facility location, traffic operations and primary environmental effects.

*See Appendix A for Exhibits
of the 20 Candidate
Alternatives*

CANDIDATE ALTERNATIVE SCREENING

The Candidate Alternatives were screened to eliminate those with fatal flaws and to narrow down the number of alternatives to be carried forward for further analysis. Ongoing public involvement helped to identify issues and assess the viability of alternatives under consideration. The emphasis of the screening process was to broadly assess benefits and impacts of these candidate transportation improvement alternatives.

The primary criterion used to evaluate the Candidate Alternatives was traffic congestion relief. The impact of each Candidate Alternative on existing roadway segment LOS was compared to the future Baseline Alternative. Eighty-eight sample roadway segments representing various areas of metropolitan Bakersfield were selected for LOS comparison. A scoring system was developed which assigned each alternative one point for every LOS improvement that occurred on each of the eighty-eight roadway segments. Conversely, one point was deducted for each roadway segment on which the LOS worsened. For example, if a roadway segment improved from LOS E to LOS D, one point was assigned. If a segment worsened from LOS C to LOS E, two points were deducted. This scoring system indicated that Alternative 15 ranked best at improving LOS on existing roadway segments when compared to

the Baseline Alternative. The scoring and ranking of the Candidate Alternatives using this analysis is tabulated below:

CANDIDATE ALTERNATIVE RANKINGS

Rank	Alternative No.	Score
1	15	38
2	9	33
3	1	31
4	5	27
5	6	27
6	11	27
7	3	26
8	18	25
9	13	23
10	10	22
11	7	20
12	16	20
13	19	20
14	4	19
15	12	19
16	20	16
17	14	15
18	17	15
19	2	13
20	8	5

The top ten Candidate Alternatives that ranked best at improving LOS on existing roadway segments were carried forward, the bottom ten alternatives were eliminated from further study. Following this evaluation, the PDT continued the screening process using initial socioeconomic information and public comments as a basis. This resulted in the withdrawal of five

more Candidate Alternatives for the following reasons:

- ▶ Candidate Alternative No. 1 was withdrawn because it precluded the Hageman Road flyover project and that project had strong community support.
- ▶ Candidate Alternative No. 5 and Candidate Alternative No. 6 were nearly identical, both impacting commercial and residential land uses along Wible Road east of SR99. Candidate Alternative No. 6 was carried forward because it had fewer land use impacts along the Wible Road corridor than Candidate Alternative No. 5.
- ▶ Candidate Alternative No. 11 was withdrawn because it required substantial residential and commercial acquisitions in comparison to most of the other Candidate Alternatives, particularly in the Westchester and Westpark neighborhoods. There was nearly unanimous community opposition to this option.
- ▶ Candidate Alternative No. 18 was withdrawn because it proposed a very circuitous route outside the metropolitan Bakersfield area and provided minimal improvement with respect to access to downtown Bakersfield. There was very little community support for this alternative.
- ▶ Candidate Alternative No. 3 and Candidate Alternative No. 10 were similar. Candidate Alternative No. 3 had the added improvement of connecting to SR99 via the SR204 corridor, which was considered a desirable feature; therefore Candidate Alternative No. 10 was eliminated from further study.

3.3 PROJECT ALTERNATIVES

Through the screening process, the twenty Candidate Alternatives were narrowed down to five alternatives that were considered to be suitable for refinement and further study. These remaining Candidate Alternatives were defined as Project Alternatives. Candidate Alternative Nos. 3, 6, 9, 13 and 15 were carried forward for further study including refinement of

the geometrics, additional traffic analysis, cost estimating and a cursory review of associated right of way and environmental impacts. Based on information collected in the initial studies, input from the public and further engineering evaluation; some adjustments were made to the geometrics of the alternatives. However, none of the adjustments changed the

primary concept or components of the alternatives. Engineering data including the number of residential and commercial acquisitions, the amount of open space/agricultural land conversion and construction costs in 2001 dollars were developed for each of the Project Alternatives. A summary of these estimates for each of the Project Alternatives is tabulated below:

PROJECT ALTERNATIVES IMPACTS AND COSTS

Project Alternative No.	Estimated Number of Residential Property Acquisitions	Estimated Number of Commercial Property Acquisitions	Estimated Open Space/Agricultural Land Conversion (in acres)	Estimated Costs (in billions)
3	330	420	400	\$1.3
6	230	410	400	\$1.3
9	400	180	400	\$1.0
13	580	460	400	\$1.6
15	350	520	690	\$1.5

EVALUATION OF PROJECT ALTERNATIVES

Various factors were compared to evaluate the Project Alternatives including traffic operational benefits; construction and right of way costs; estimated right of way impacts on residential properties, commercial properties and agricultural land and economic benefits. Economic considerations were related to mobility. Transportation and mobility were identified as critical elements affecting socioeconomics within the project area;

therefore, a comprehensive review of metropolitan Bakersfield's socioeconomic characteristics and the effects of transportation development on the socioeconomic setting was performed. This review was documented in a technical memorandum entitled, *Economic Development and Transportation in the Bakersfield Metropolitan Area*.

The table below summarizes all of these evaluation factors and compares the advantages and disadvantages associated with each of the Project Alternatives.

The PDT considered these various comparison factors and concluded that Project Alternative No. 13 was the least desirable of the five alternatives considered and Project Alternative No. 3 was relatively neutral with respect to the other alternatives. While Project Alternative Nos. 6 and 9 each had some desirable advantages, the PDT agreed that Project Alternative No. 15 provided the greatest number of advantages versus disadvantages. Therefore, the PDT recommended Project Alternative No. 15 as the preferred systems alternative.

PROJECT ALTERNATIVE COMPARISONS

Area of Comparison	Project Alternative No.				
	3	6	9	13	15
Traffic Improvement				○	●
Economic Opportunity				○	●
Costs (Right of Way and Construction)			●	○	
Public Acceptability			○		●
Residential Acquisitions		●		○	
Commercial Acquisitions			●		○
Agricultural Land Conversion		●			○
Downtown Access Enhancement		○		●	

○ Least Advantageous Alternative ● Most Advantageous Alternative

3.4 PREFERRED ALTERNATIVE

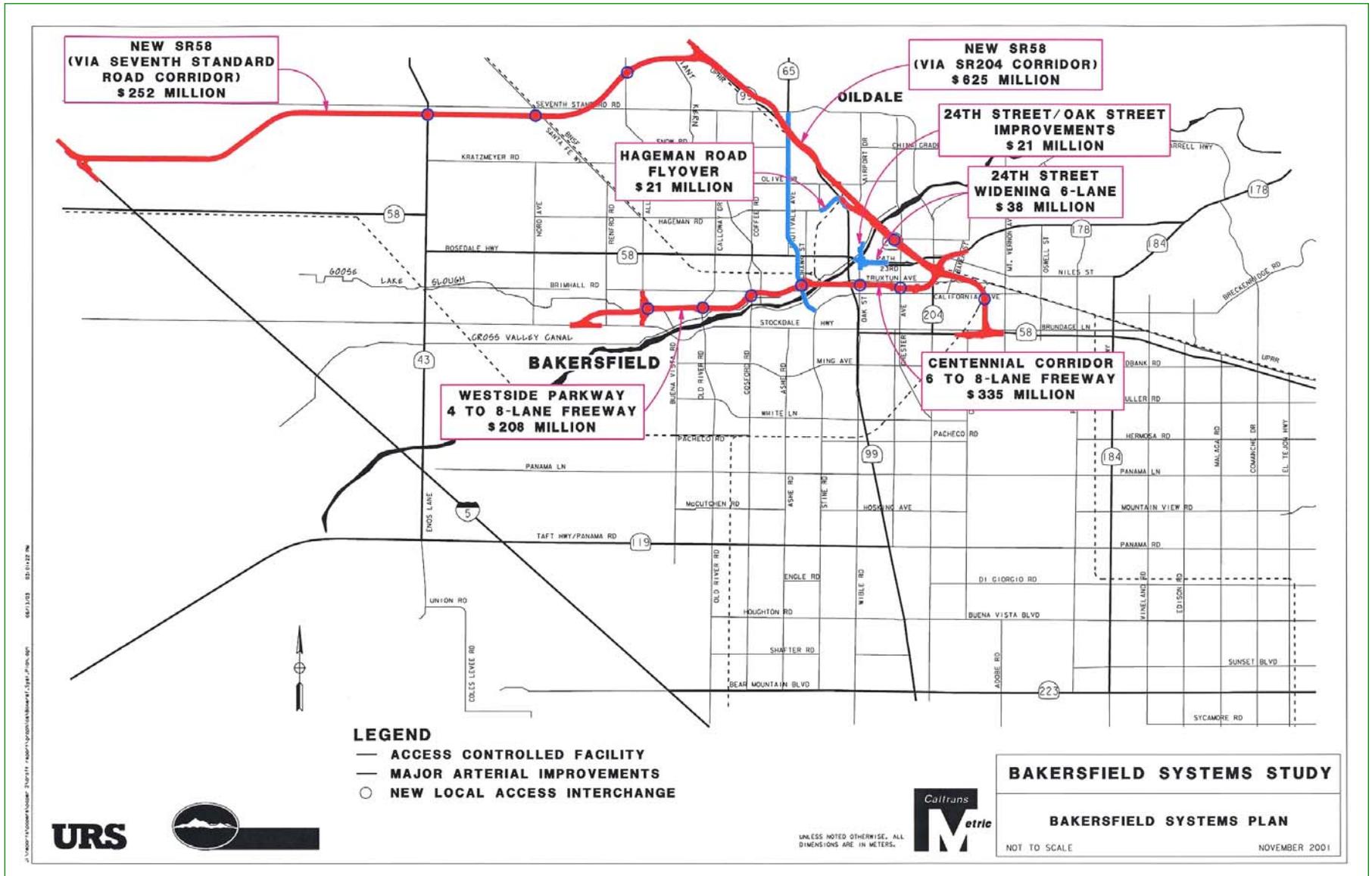
On 23 July 2001, the Bakersfield City Council and the Kern County Board of Supervisors met in an open public forum to review and discuss the five Project Alternatives and select a locally preferred systems alternative to be carried forward into subsequent project development activities. After listening to over two hours of public input and considering each Project Alternative's benefits, costs and impacts; both governing bodies voted unanimously to adopt Project Alternative No. 15 as the locally preferred systems alternative to be implemented. On 18 October 2001, Project Alternative No. 15 was presented to the Kern

COG Board of Directors, which includes one member from each of the 11 cities in Kern County, two members from the County of Kern and one ex-officio member each from Caltrans District 6 and Golden Empire Transit. Project Alternative No. 15 was received without significant comment by the Board.

With consensus support from the Bakersfield community, local agencies and elected officials, Project Alternative No. 15 became designated the Bakersfield Systems Plan, the blueprint for transportation improvements in Bakersfield for the next 30 years.

The final, recommended plan (Bakersfield Systems Plan) presented in this report was a result of engineering analyses of the highway infrastructure issues and cost evaluations, in conjunction with an active community outreach program and extensive agency consultation.

BAKERSFIELD SYSTEMS PLAN



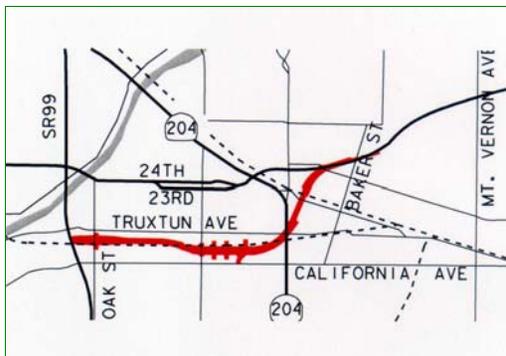
Cost data based upon Funding and Phasing Plan in Section 4.2. Costs are estimated in year 2001 dollars.

The Bakersfield Systems Plan includes six major improvement elements as described below.

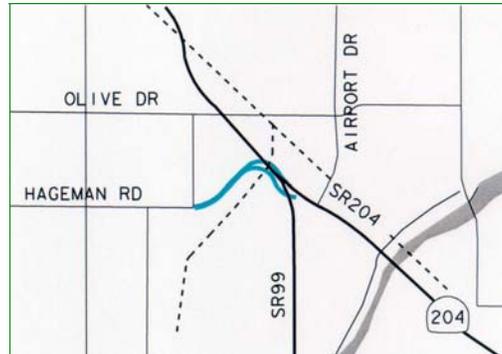
- ▶ **1. WESTSIDE PARKWAY** - Four to eight-lane local parkway from Heath Road to SR99, estimated at \$208 million.



- ▶ **2. CENTENNIAL CORRIDOR** - Six to eight-lane freeway from SR99 to SR178 joining SR178 near Beale Avenue, estimated at \$335 million.



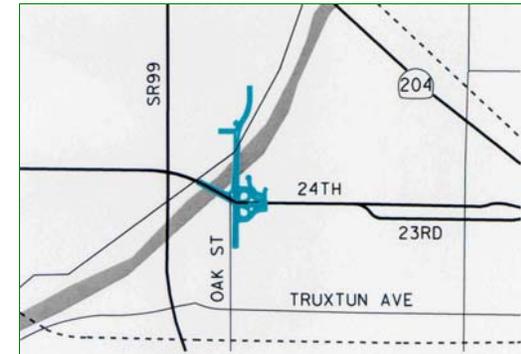
- ▶ **3. HAGEMAN ROAD FLYOVER** - Four to six-lane extension of Hageman Road from its current terminus near Knudsen Drive to SR204, via flyover structures passing over SR99, estimated at \$21 million.



- ▶ **4. 24TH STREET WIDENING** - Six-lane arterial from Oak Street to D Street, estimated at \$38 million.



- ▶ **5. 24TH STREET/OAK STREET INTERSECTION IMPROVEMENTS** - A new grade-separated interchange, estimated at \$21 million.



- ▶ **6. SR58 REALIGNMENT** - Four to eight-lane freeway connecting existing SR58 near Washington Street to I-5, passing through the downtown area via a parallel route to the SR204 corridor and continuing west via the Seventh Standard Road corridor, estimated at \$877 million.



Although realignment of SR58 is included in the Bakersfield Systems Plan, was subsequently agreed that Caltrans would conduct additional studies to select a specific route for the realignment potentially north or south of the metropolitan Bakersfield core.

4. IMPLEMENTATION

FUNDING SOURCES
PROGRAMMING STRATEGIES

4.1 FUNDING SOURCES

The Bakersfield Systems Plan is estimated to cost approximately \$1.5 billion (in 2001 dollars). The majority of funding for the Bakersfield Systems Plan is expected to come from the regional choice portions of state and federal transportation funding programs (primarily the Regional Surface Transportation Program and the State Transportation Improvement Program). Kern County currently receives approximately \$90 million from these funds through the Regional Improvement Program every two years. Using the 2002 fund estimate by the California Transportation Commission, Kern County is projected to receive approximately \$2.2 billion through 2031.

Of the \$2.2 billion projected revenue, approximately \$1.5 billion is expected to be available to fund the Bakersfield Systems Plan. Funding for transportation improvements in Kern County is under an agreement that was established in 1998 by the Kern COG Board of Directors, allocating 60 percent of the County's funds to transportation infrastructure improvements within the Kern COG-defined metropolitan Bakersfield area with the remaining 40 percent available to projects outside of the defined metropolitan Bakersfield area. This agreement is in effect until fiscal year 2014/2015. For purposes of this study, it was assumed that

the same agreement would be extended through fiscal year 2030/2031. The table below shows a breakdown of funds between metropolitan and non-metropolitan areas.

The Interregional Improvement Program (IIP) portion of the state and federal transportation programs may also be a potential

funding source for certain elements of the Bakersfield Systems Plan. The Bakersfield Systems Plan includes realignment of SR58, which provides an interregional connection between Bakersfield and I-5. Because realignment of SR58 has value to interregional mobility, it may be eligible for some IIP monies.

KERN COG REVENUE PROJECTIONS

Revenue Sources (Regional State/Federal Funds)	Projected Revenue (in million dollars)	
	Through 2014/15	Through 2030/31
Total Revenue	\$824	\$2,202
Metro Bakersfield Share	\$639	\$1,466
Non-Metro Area Share	\$330	\$881

Source:

Kern County Regional Transportation Revenue Projections by Kern COG

Assumptions:

- Metropolitan Bakersfield share of funds is 60% through year 2030/31 STIP cycle
- Estimated 2.5% annual increase in gasoline usage
- Includes \$145 million programmed prior to 1998

4.2 PROGRAMMING STRATEGIES

A programming strategy was developed by the PDT for phased implementation of the Bakersfield Systems Plan. Projects within the Bakersfield Systems Plan were arranged in various usable and fundable project elements.

Those individual project elements were prioritized generally in the order of greatest immediate need and maximization of projected benefits. The chart below provides a timeline for implementing the various

Bakersfield Systems Plan elements based on cash flow estimates. Caltrans will develop an implementation plan, which includes realignment of SR58, in conjunction with upcoming route realignment studies.

ALTERNATIVE NO. 15 FUNDING AND PHASING PLAN

New Revenue	\$50.0	\$50.0	\$58.0	\$59.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0	\$50.0					
Revenue Balance	\$177.6	\$227.6	\$207.6	\$148.6	\$108.6	\$36.0	\$36.0	\$35.0	\$35.0	\$85.0	\$85.0	\$0.0	\$0.0	\$50.0	\$50.0	\$10.0	\$10.0						
Year of Construction		04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20		Totals				
Westside Parkway																							
			\$20.0	Mohawk Street from Truxtun Avenue to Rosedale Highway															\$20.0				
			\$88.0	Westside Parkway from Calloway Drive to Mohawk Street															\$88.0				
				\$40.0	Westside Parkway from Mohawk Street to SR99															\$40.0			
					\$59.6	Westside Parkway from Heath Road to Calloway Drive															\$59.6		
																			\$207.6				
Centennial Corridor																							
						\$50.0	Centennial Corridor from SR99 to F Street															\$50.0	
							\$60.0	Centennial Corridor from F Street to Chester Avenue															\$60.0
																			\$135.0				
																			\$90.0				
																			\$335.0				
Hageman Flyover																							
			\$21.0																\$21.0				
24th @ Oak																							
						\$21.0																\$21.0	
																			\$584.6				

Funding and Phasing Plan developed by ad-hoc Kern COG committee based upon information during development of the Bakersfield Systems Study.

5. REFERENCES

BAKERSFIELD SYSTEMS STUDY TECHNICAL MEMORANDA AND REPORTS

The following reports and technical memoranda have been prepared as part of the Bakersfield Systems Study and contain the analyses which are summarized in this Summary Report. The itemized reports and technical memoranda are available at Kern COG's offices, 1401 19th Street, Suite 300, Bakersfield, California 93301.

- ▶ Traffic Analysis Report, February 2001
- ▶ Issues Analysis Report No. 1, September 2000
- ▶ Issues Analysis Report No. 2, February 2001
- ▶ Issues Analysis Report No. 3, June 2001
- ▶ Economic Development and Transportation in the Bakersfield Metropolitan Area, July 2001

RELEVANT STUDIES AND REPORTS

The following documents contain information that is relevant to the Bakersfield Systems Study or is referred to in this Summary Report. These reports are available at Kern COG's offices in Bakersfield.

- ▶ Project Study Report for the Route 58 Route Adoption Project, January 1992
- ▶ Route 58 Route Adoption - Tier I EIS/EIR, May 2000
- ▶ Metropolitan Bakersfield Major Transportation Investment Strategy, December 1997
- ▶ 1998 Regional Transportation Plan, September 1998

APPENDIX A

EXHIBITS OF 20 CANDIDATE ALTERNATIVES



- LEGEND**
- ACCESS CONTROLLED FACILITY
 - MAJOR ARTERIAL
 - NEW LOCAL ACCESS INTERCHANGE
 - ⊗ DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

CANDIDATE ALTERNATIVE NO. 1
KERN_204_CENTENNIAL

NOT TO SCALE

JANUARY 2001

URS



PLEASE READ CROWNELL'S CHANGES PAGE IF NEEDED.



LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- × DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 2
KERN_24TH**

NOT TO SCALE

JANUARY 2001



UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN METERS.



LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- X DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 3
KERN_CENTENNIAL**

NOT TO SCALE JANUARY 2001



UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN METERS.





LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- * DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 4
KERN_SOUTHCENTENNIAL_091C**

NOT TO SCALE

JANUARY 2001



ALL DISTANCES SHOWN ARE IN METERS

BAKERSFIELD SYSTEMS STUDY - CANDIDATE ALTERNATIVE NO. 4 - KERN_SOUTHCENTENNIAL_091C - JANUARY 2001 - URS



LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- × DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

CANDIDATE ALTERNATIVE NO. 6
KERN_PARALLEL_EASTSIDE

NOT TO SCALE

JANUARY 2001

URS



UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN METERS.



LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- × DELETE EXISTING LOCAL ACCESS INTERCHANGE

URS



SCALE: 1:50,000 (1" = 1/2 MILE)
 DRAWING: 01/01/01
 DATE: 01/01/01



BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 6
 KERN_PARALLEL_BOTH SIDES**

NOT TO SCALE

JANUARY 2001



LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- ⊗ DELETE EXISTING LOCAL ACCESS INTERCHANGE

URS



SALES AND CONTRACTING, INC.
CORPORATE OFFICE: 1000 N. G ST., SUITE 100, BAKERSFIELD, CA 93304
TELEPHONE: (805) 833-1111
FAX: (805) 833-1112
WWW.SACSCONTRACTING.COM



BAKERSFIELD SYSTEMS STUDY

CANDIDATE ALTERNATIVE NO. 7
KERN_WESTPARK_204

NOT TO SCALE

JANUARY 2001



LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- × DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 8
KERN_WESTPARK_24TH**

NOT TO SCALE JANUARY 2001



SCALE: 1" = 1/4" (VERTICAL) 1" = 1/2" (HORIZONTAL)





LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- ⊗ DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

CANDIDATE ALTERNATIVE NO. 9
KERN_WESTPARK_CENTENNIAL

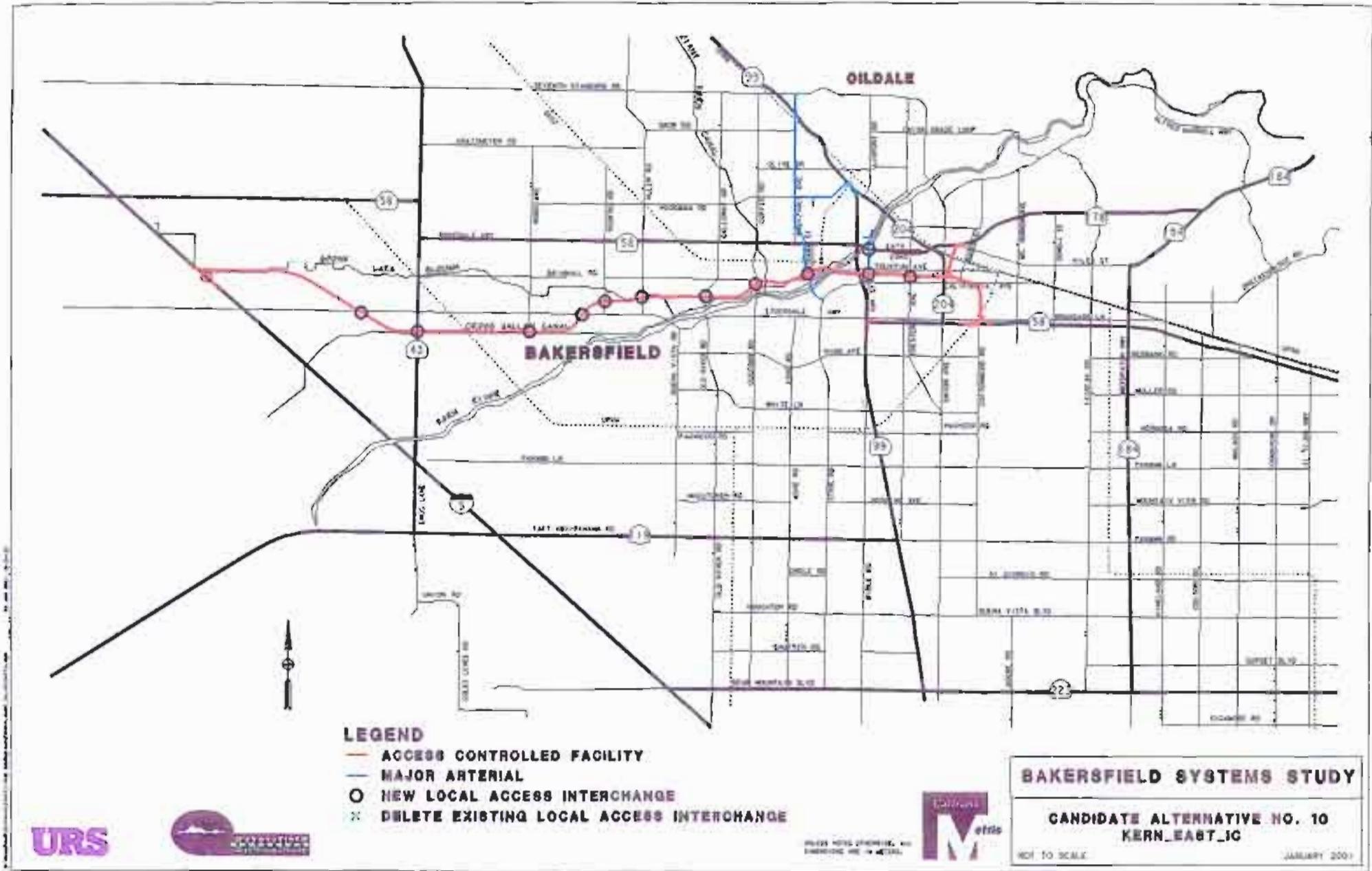
NOT TO SCALE

JANUARY 2001



INTEGRATED TRANSPORTATION
 CONSULTING AND DESIGN





LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- ✕ DELETE EXISTING LOCAL ACCESS INTERCHANGE



PLEASE NOTE: DIMENSIONS AND ELEVATIONS ARE IN METERS.



BAKERSFIELD SYSTEMS STUDY

CANDIDATE ALTERNATIVE NO. 10
KERN_EAST_IC

NOT TO SCALE

JANUARY 2001



LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- ⊗ DELETE EXISTING LOCAL ACCESS INTERCHANGE

URS



WALTER AND ASSOCIATES, INC.
TRANSPORTATION AND TRAFFIC ENGINEERS



BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 11
CENTRAL_FWY_MINNER**

NOT TO SCALE

JANUARY 2001



- LEGEND**
- ACCESS CONTROLLED FACILITY
 - MAJOR ARTERIAL
 - NEW LOCAL ACCESS INTERCHANGE
 - × DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

CANDIDATE ALTERNATIVE NO. 12
STOCKDALE_241B

NOT TO SCALE

JANUARY 2001



SHAPIRO & ASSOCIATES, INC.
 ENGINEERS AND ARCHITECTS





- LEGEND**
- ACCESS CONTROLLED FACILITY
 - MAJOR ARTERIAL
 - NEW LOCAL ACCESS INTERCHANGE
 - ✕ DELETE EXISTING LOCAL ACCESS INTERCHANGE

URS



ALLIED NORTH AMERICAN, #4
DIMENSIONS ARE IN METERS.



BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 13
STOCKDALE_CENTENNIAL**

NOT TO SCALE

JANUARY 2001



- LEGEND**
- ACCESS CONTROLLED FACILITY
 - MAJOR ARTERIAL
 - NEW LOCAL ACCESS INTERCHANGE
 - ✕ DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 14
ROSEDALE_24th**

NOT TO SCALE

JANUARY 2001



ALVIN HENDRICKSON, 44
STOCKHOLM BLVD, WILSON, CA 95690





LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- ✕ DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 18
SEVENTHSTANDARD_204_CENTENNIAL**

NOT TO SCALE

JANUARY 2007



UNIVERSITY MICROFILMS INTERNATIONAL, INC.
SERIALS ACQUISITION
300 NORTH ZEEB ROAD
ANN ARBOR, MI 48106-1500





- LEGEND**
- ACCESS CONTROLLED FACILITY
 - MAJOR ARTERIAL
 - NEW LOCAL ACCESS INTERCHANGE
 - ✕ DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 10
SEVENTH STANDARD NEBELTWAY**

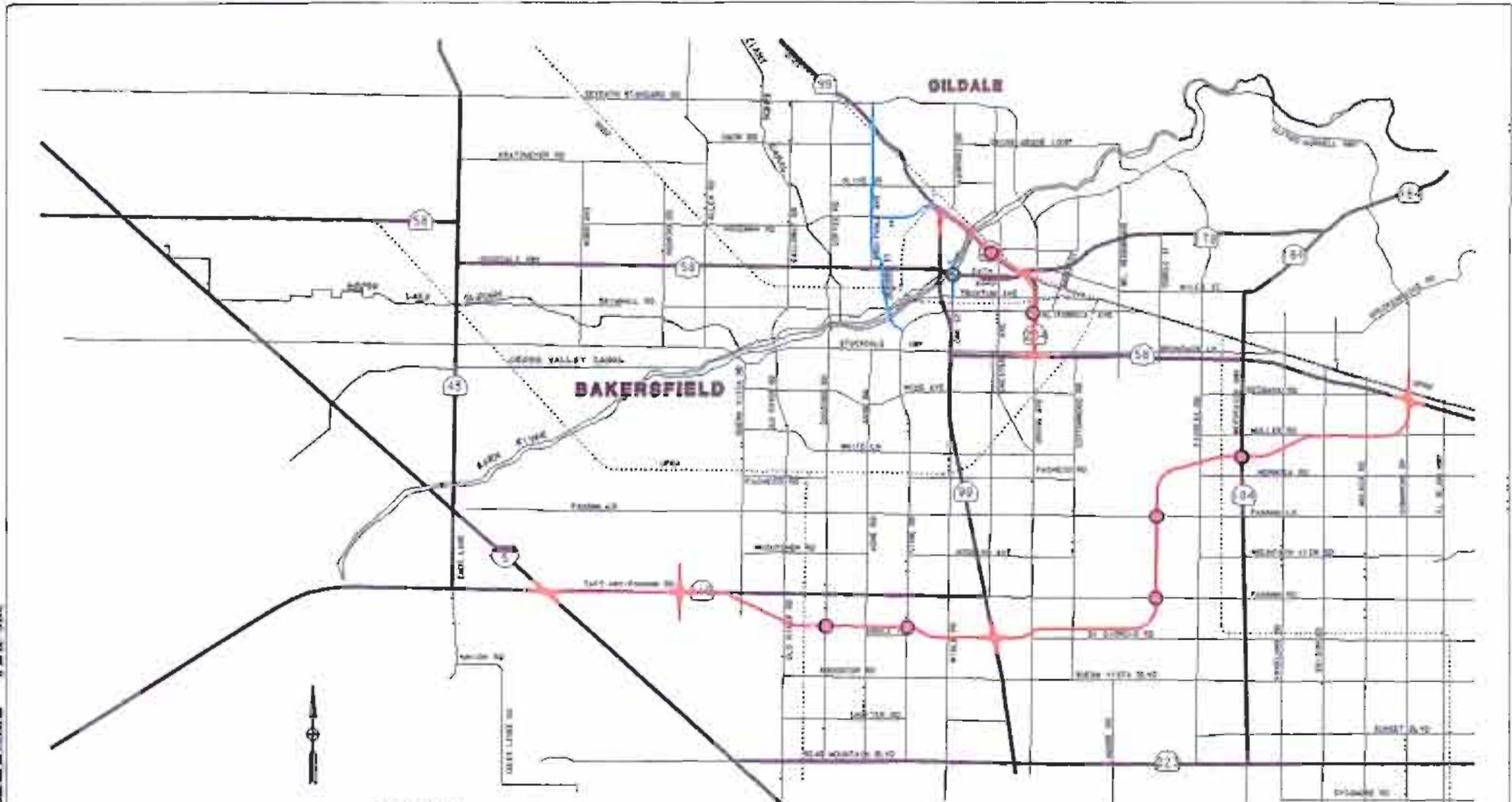
NOT TO SCALE

JANUARY 2001



ALL RIGHTS RESERVED. ALL
DIMENSIONS ARE IN METERS.





- LEGEND**
- ACCESS CONTROLLED FACILITY
 - MAJOR ARTERIAL
 - NEW LOCAL ACCESS INTERCHANGE
 - × DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 17
SOUTHBELTWAY_204**

NOT TO SCALE JANUARY 2001



PLEASE HOLD SHOWN. ALL
DIMENSIONS ARE IN METERS.





LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- ⊗ DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

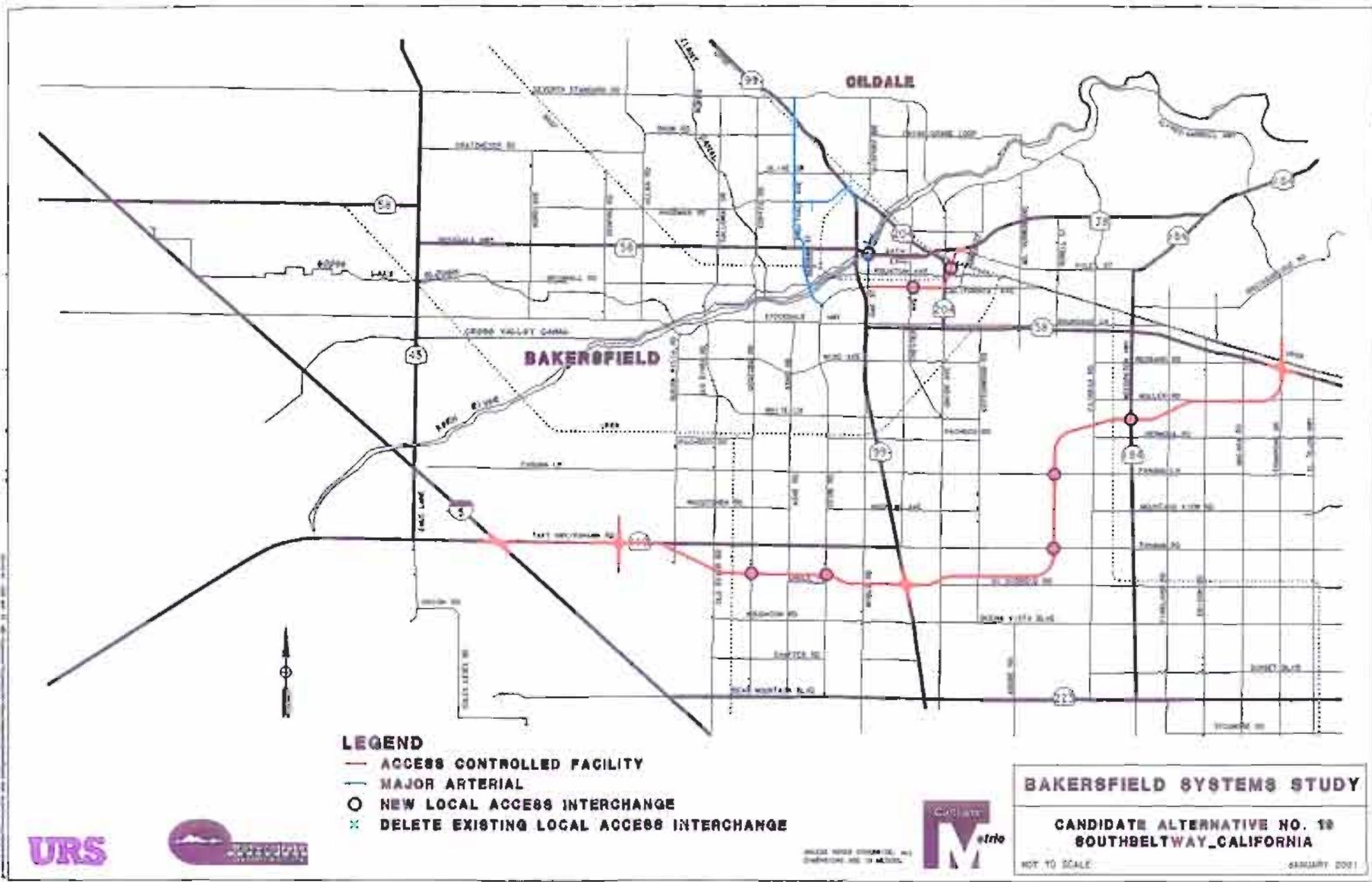
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SOUTHBELTWAY_24TH

NOT TO SCALE

JANUARY 2001



SCALE: 1" = 1/4" (VERTICAL), 1" = 1/2" (HORIZONTAL)



- LEGEND**
- ACCESS CONTROLLED FACILITY
 - MAJOR ARTERIAL
 - NEW LOCAL ACCESS INTERCHANGE
 - ✕ DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

CANDIDATE ALTERNATIVE NO. 19
SOUTHBELTWAY_CALIFORNIA

NOT TO SCALE

JANUARY 2001

URS



PLEASE REFER TO THE ORIGINAL MAP FOR DIMENSIONS AND TO METERS.



LEGEND

- ACCESS CONTROLLED FACILITY
- MAJOR ARTERIAL
- NEW LOCAL ACCESS INTERCHANGE
- × DELETE EXISTING LOCAL ACCESS INTERCHANGE

BAKERSFIELD SYSTEMS STUDY

**CANDIDATE ALTERNATIVE NO. 20
ALL BELTWAYS**



PLEASE REFER TO DRAWING NO. 20 FOR DETAILS AND SEE DRAWING NO. 20 FOR DETAILS

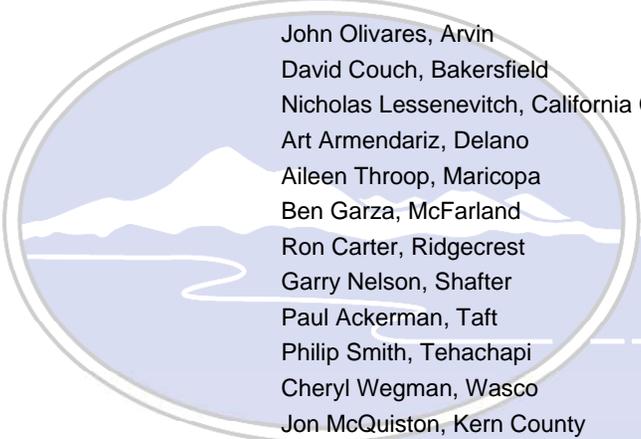


NOT TO SCALE

JANUARY 2001

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OF THE BAKERSFIELD SYSTEMS STUDY

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Systems Study