
8.0 LOCALLY PREFERRED ALTERNATIVE SELECTION

Chapter Summary

A Locally Preferred Alternative (LPA) is the selected candidate physical design concept and scope for a major corridor transit investment. In the Downtown/Natomas/Airport (DNA) Corridor, the LPA will consist of two features: the identification and description of a corridor alignment and the identification of a transit (bus, light rail) mode. The LPA will also generally describe the proposed location of stations, the operating concepts by which transit service will be provided, and a set of specific design options to be further evaluated during the draft environmental phase. Refinements to the LPA will continue during subsequent Preliminary Engineering (PE) and the Final Environmental Impact Statement (FEIS) phase.

The PE/FEIS phase will focus on developing more specific environmental and engineering information including detailed environmental testing and mitigation plans, geometric alignment design, bridges and structures, station location and design, landscaping features, access and operating strategies, drainage, right-of-way requirements, maintenance of traffic during construction, phasing of construction, and a detailed financial plan including funding commitments. Minor alignment and engineering adjustments to the LPA will likely occur during final design and construction phases of the transit improvement. Subsequent to the Preliminary Engineering (PE) phase of LPA development, minor alignment and engineering adjustments to the LPA will likely occur during PE, final design, and construction of the transit improvement.

8.1 Selection Process

Earlier chapters of this report provided a systematic comparison of 12 conceptual alternatives, including a No-Build, a Baseline/TSM, five light rail transit (LRT) alternatives and five bus rapid transit (BRT) alternatives. It was structured around criteria and indicators designed to reflect the study goals and objectives as endorsed by the Technical Review Panel (TRP), Citizens Review Panel (CRP), the Sacramento Regional Transit District (RT) Board of Directors, and from information provided by the City of Sacramento, Sacramento County, public agencies, and the general public.

On November 6, 2003 RT formally released for a 30-day period the Draft Alternatives Analysis (AA) Report for public review and comment. On November 10, the RT Board of Directors was presented with a summary of the Draft Report. RT then convened a community workshop on November 20 at the Sacramento Convention Center, enabling the public an opportunity to review the study findings and to pose questions regarding the alternatives to agency staff and the consultant team. RT also held a public hearing on December 8 in the chambers of the Sacramento County Board of Supervisors to provide the public more opportunity to provide comment on the AA Report.

Based on the technical analysis results and public comment received on the Draft AA report, agency staff has developed an LPA recommendation for the RT Board of Directors to consider on December 15, 2003. At this meeting, the Board of Directors will have the opportunity to accept, modify or reject the LPA recommendation. Figure 8.1-1 illustrates the decision-making process RT will have used to select an LPA for the DNA Corridor.

**FIGURE 8.1-1
DECISION TREE SUMMARY**



8.2 Recommendation on a Locally Preferred Alternative

Since the mid-1980's, there has been an increasing recognition by the public and its elected officials of the need for a major public transit investment in the DNA Corridor. Three primary factors have contributed to this vision, including:

1. Recognition that significant growth and development will continue to occur, particularly in North Natomas, in close proximity to the Airport, and in surrounding areas north and east of the corridor;
2. Concern over increasing traffic congestion along Interstate (I-5), and the need to provide people living and working in the corridor a transportation alternative to driving their own vehicle; and
3. A desire to improve transportation mobility between the Downtown, South and North Natomas Communities, and the Sacramento International Airport and to other parts of the Sacramento region.

In exploring this vision, several corridor alignments and transportation technologies have been studied extensively over time, including the I-5, Truxel Road, and I-5/Truxel alignments and the potential for expanding existing bus service and extending LRT service into the Corridor. More recently, as part of this study, BRT has also been considered as a viable transit technology. It is clear, however, that when considering future ridership, costs, and impacts to the local community and region, each study alternative has both advantages and disadvantages.

These trade-offs have been the topic of much regional and community discussion and debate, resulting in a decision by RT in 1991 to support construction of light rail on Truxel Road. The City of Sacramento and County of Sacramento have included the locally adopted alignment in their respective general plans and community plans. The Sacramento Area Council of Governments (SACOG) has consistently reaffirmed the local decision, as recently as July 2002, with the adoption of the Metropolitan Transportation Plan (MTP) for 2025. The results of this current AA Report support this conclusion.

8.3 Preference for Alignment

Use of the Truxel Road alignment will provide the largest transportation benefit to transit users in the Corridor and in the region. In summary, these benefits include the following:

- **Improved Corridor Mobility.** While all three alignments would provide improved transit service between Downtown and the Airport, the Truxel alignment provides the shortest travel time for North and South Natomas residents. While the Truxel alignment does not have the best travel time from Downtown to the Airport, the 28 to 30 minute travel time is comparable to the I-5 alignment alternatives.
- **Greater Transit Accessibility.** Based on the 2000 Census and year 2025 SACOG projections, the Truxel alignment would provide the greatest transit access to corridor residents and households than either the I-5 or I-5/Truxel alignments.

There are 21,500 residents living within ½-mile of the Truxel Road alignment, including a greater concentration of low income and transit dependent households. Likewise, there are 32,100 jobs located within ½-mile of the alignment; nearly equivalent to the number of jobs located along I-5 or the I-5/Truxel alignment alternatives. In addition, the Truxel alignment provides the best pedestrian access opportunities.

Due to limited north-south traffic capacity in the DNA Corridor, with only two bridges across the American River within a three-mile wide reach, a new bridge crossing along the Truxel Road

alignment is needed to provide improved and direct transit accessibility into Downtown Sacramento.

- **Connectivity.** Generally, the Truxel Road alignment provides better connectivity to the existing regional transit system and to the major concentration of existing and planned activity centers and destinations within the DNA Corridor.

These activity centers and destinations include: (1) the Sacramento International Airport; (2) Metro Air Park, an improved mixed use commercial/office development; (3) the soon to be built North Natomas Town Center, with a 200-acre Regional Park, high school and community college campus and library; (4) ARCO Arena; (5) the Natomas Marketplace commercial center; (6) Natomas High School; (7) the South Natomas Community Center; (8) the redeveloping Richards Boulevard area; and (9) the Sacramento Valley Station, which is part of a 240-acre proposed master plan redevelopment project for the Union Pacific Railyards.

Moreover, the DNA Corridor connection with the Sacramento Valley Station provides intermodal connections to existing and new bus services, existing Capitol Corridor intercity rail service, long distance Amtrak service, soon to be constructed Folsom Corridor LRT service, and future regional commuter rail service.

- **Potential for Transit-Oriented Development.** The Truxel Road alignment generally offers the greater opportunity to foster transit-oriented development, particularly in the North Natomas community and the Railyards/Richards Boulevard area. Land use plans in these two areas propose the highest density employment and housing clustered in a mix around planned stations. The North Natomas Community Plan, in particular, was designed as a transit-oriented community, with dedicated right-of-way along Truxel Road set aside for a light rail alignment as a central element. Opportunities also exist for further increases in density and intensity in station areas once the LRT is constructed.

The Truxel alignment provides a further opportunity to shape future land use decisions within the unincorporated area, west of State Route 99/70 and north of Elkhorn Boulevard, in the same planned vision that created the North Natomas Community Plan, if the region desires to grow in that direction.

The total land available for development at future stations along the Truxel alignment is greater than that along the I-5 alignment. Opportunities for smart growth are curtailed by I-5, which limits pedestrian access to either side of the freeway, and hence reduces the potential for transit-oriented development opportunities.

- **Plan Consistency.** The Truxel alignment, with light rail, also offers the highest level of consistency with existing adopted community plans, the City and County general plans, current planning efforts within the Corridor, and over 15 years of prior development and infrastructure commitment in North Natomas.

In particular, the North Natomas Community Plan set aside land use by the future light rail guideway. In addition, the Truxel Road Interchange was designed and built to structurally support a future light rail alignment. And the North Natomas infrastructure-financing plan includes a development fee structure to finance light rail station improvements.

Perhaps most importantly, the Truxel Road alignment, with light rail, offers the lowest potential for physically dividing the community.

- **Higher Ridership.** Across all the alternatives studied, the opportunities for the highest daily ridership occur along the Truxel Road alignment.

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- **Cost-Effectiveness.** Generally, all of the Truxel Road alignment modal alternatives fair better in terms of providing the most cost-effective transit solution, using Federal Transit Administration ratings, because they directly serve more residents and have lower construction costs.
 - **Fundability.** Using long-range revenue estimates prepared by RT and SACOG, it was determined that any alternative costing \$450 million or below could be funded with a combination of federal, state and local revenue as they become available. The majority of the alternatives that fall within this funding threshold occur on the Truxel Road alignment.

8.4 Preference for Mode

Use of light rail also will provide greater transportation benefits to transit users. In summary, these benefits include the following:

- **Ridership.** In the DNA Corridor, light rail generally generates ten percent higher ridership than BRT, with most of the difference resulting from airport passengers (as service continuity is a key factor for airport transit service).
- **Capacity.** Over the next 20 years and beyond, the Natomas Basin is seen as a major new growth area for the Sacramento region. The travel corridor warrants a high capacity mode. LRT has a superior ability to respond to growth pressures by increasing capacity compared to other modes, such as BRT. Light rail can add another car to a train to carry more riders and not affect labor costs. This is a primary reason LRT is more efficient with higher ridership demand.
- **Speed.** Light rail systems generally have increased speed over bus systems (as well as the perception of being faster).
- **Technology.** LRT has higher vehicle performance technology and passenger comfort features. Light rail vehicles are more spacious and provide for a more stable ride. The guideway feature makes possible use of larger vehicles and trains of up to four cars, as well as partial signal control. The vehicles are clean, non-polluting electric-propulsion powered. Clean-fueled buses still produce particulates and nitrogen oxides emissions, which is objectionable, particularly in areas with high concentrations of people. Noise produced by buses also remains a problem.

Buses are also considerably less expensive than LRT vehicles, although the difference in their life costs is not as great as the difference in their purchase prices because light rail vehicles have 2.5 to 3.0 times longer life spans. Buses last 12 years, while light rail vehicles last between 25 and 40 years. Therefore, a current comparison must be based on life cycle costs per unit of vehicle capacity. Such a comparison would tend to favor LRT.

- **Economic Development.** LRT is attractive as a tool for transit-oriented development, a characteristic not convincingly displayed in the United States by bus service of any type. Light rail has a permanent infrastructure that becomes part of the urban structure. Because BRT is less capital intensive, it is more likely to be abandoned if the market were not supporting the service. It is the permanence of light rail that tells private investors and transit users that this form of transportation is here to stay.
- **Reduction in Auto Travel.** The highest level of traffic growth over the next 20 years will occur on I-5, between the Arena Boulevard Interchange and the I-80 junction with I-5, where a growth in traffic volumes of 100 percent is forecasted. This will result in prolonged Level of Service (LOS) "F" (failure) conditions for several hours during morning and evening peak commute periods. Even with future programmed roadway improvements in the adopted

MTP, traffic under No Build conditions will deteriorate on I-5, leading to higher traffic volumes on I-80 and parallel roadways.

Of the alignment alternatives studied, the Truxel Road alignment offers the greatest reduction in weekday peak period auto travel to Downtown Sacramento, with the highest reduction coming from light rail, eliminating 4,700 daily person trips. Likewise, the greatest reductions in weekday parking demand in Downtown Sacramento occur with the Truxel Road alignment, with LRT eliminating the need for 2,200 parking spaces.

- **A Balanced Transportation System.** Further, in a region, such as Sacramento, a single transit mode cannot provide as efficient service as several coordination modes. A “family” of modes operating as an integrated transport system, with buses feeding light rail lines rather than competing with each other, is defined as a balanced transportation system.
- **Service Continuity.** Light rail provides greater service continuity than BRT, with seamless service through Downtown and beyond, connecting other major activity centers. LRT can provide a “one-seat-ride” for anyone within walk access of the service, or within easy “drop off” access.

This “one-seat-ride” service is especially critical within the DNA Corridor because air passengers respond negatively to off-airport transfers. In some situations, LRT may involve more transfers from other trains coming from the Watt/I-80 and the South Line light rail corridors. These transfers are, however, simple—they are made at the same platform and require little or no walking.

LRT may also involve transfers with buses. In this situation, the transfers are organized in a timed manner so that transferring is made conveniently.

- **Service Reliability.** LRT generally has enhanced service reliability over bus-based systems due to the use of a guideway and preferential treatments, such as traffic signal prioritization. LRT service would operate at 15-minute headways throughout the DNA Corridor. BRT service would operate at varying headways within the Corridor, culminating in a combined 3.3-minute peak and 3.8-minute off-peak headway in downtown Sacramento. Without the benefit of traffic signal prioritization that is afforded to the LRT, large segments of the BRT route in downtown Sacramento would suffer reduced service reliability, due to the unavailability of sufficient “green” time to allocate a priority to BRT and still accommodate all other vehicular traffic and movements. The practical result will be substantial delays to the BRT service, long queues of buses waiting at intersections, and insufficient bus stop capacity to accommodate lines of buses.
- **Other Characteristics.** Other important characteristics that favor LRT include: frequency, durability, efficiency, simplicity, directness, and comfort. These are very desirable features for transit services. Transit services need to be aimed at attracting incidental users. The general public needs to have fixed routes, fixed (memorable) schedules, and known fares, in order to use the service.

For these reasons, LRT on Truxel Road provides the most cost-effective, superior, long-term major transit investment for the DNA Corridor. At the same time, however, it is recognized that residents and commercial property owners along Truxel Road, especially in the segment between Garden Highway and San Juan Road, have significant concerns with the use of Truxel Road. These concerns include station location, traffic circulation, pedestrian safety, noise, vibration, and visual impacts, property values, and resident and transit user safety. For RT to build and operate LRT service along Truxel Road, a concerted effort will be required for the District to work closely with residents, businesses, property owners, and

neighborhood groups to address these various specific and important quality of life concerns.

8.5 A Long-Term Transit Vision for the Corridor

In implementing a long-term transit vision for the DNA Corridor, it may be necessary to phase construction of light rail between downtown Sacramento and the Airport. This is consistent with the progression of growth and evolving development patterns within the Corridor by 2025 and beyond, the funding strategy set forth in SACOG's adopted MTP, and follows the pattern established by RT in building Phase 1 of the recently opened South Line LRT extension from Downtown to Meadowview Road as well as the construction of the Folsom LRT extension to Sunrise and ultimately to the City of Folsom.

Using this approach, Alternative 3: Truxel Road Light Rail Transit could initially be built in two phases, with full implementation by 2025 or beyond. This phased approach would ultimately, be determined during the PE phase of the project development process.

- Phase 1 (by 2012) – implementation of Truxel LRT MOS (Alternative 3B), with light rail service between Downtown and the Natomas Town Center, with a feeder bus service connection to the Airport.
- Phase 2 (by 2015) – implementation of Truxel LRT Starter (Alternative 3A), with the extension of light rail service beyond Natomas Town Center to the Airport.

As part of this long-term transit vision for the DNA Corridor, during the environmental phase and subsequently in PE and final design, RT will evaluate in greater detail design options that are also retained as part of the LPA. A listing of these design options is shown in Table 8.8-1. These design options will influence transit station and park-and-ride lot location, transit user accessibility, traffic flow and circulation, and pedestrian safety.

While Alternative 3 falls above the FTA user benefit threshold of \$25.00, it is anticipated that additional design and engineering refinements could be achieved, thereby enhancing the eligibility of Alternatives 3 and 3A for federal funding. This could occur, for example by treating the LRT maintenance facility and bike/pedestrian path on the new American River bridge, as separate capital projects and thus paid for through other sources of funding. Under this scenario, the resulting FTA user benefits would be \$24.41 and \$20.36, respectively. Other types of cost savings, value engineering, and/or funding strategies will be considered in the PE phase of project development to improve this ratio. This type of separate capital project approach occurred during South Line Phase 1, with the separate funding of the Wayne Hultgren LRT station and the Florin Road grade separation project. Alternative 3B already falls well below FTA's user benefit threshold of \$19.99 per hour allowing it to compete for a medium project rating in FTA's New Starts process.

8.6 Funding Strategy

A long-term commitment of local, state and federal funding will be required to build the DNA LRT extension. SACOG's MTP identifies approximately \$400 million in funding available to build light rail from Downtown to the Airport. This figure could potentially increase to \$450 million assuming the availability of Airport funding for airport-related transit improvements and local developer fees that are reasonable to expect based on redevelopment of the Railyards/Richards Boulevard areas. It is further assumed that:

- Project construction will be funded based on a 50 percent federal New Starts match, coupled with local and state funds, and

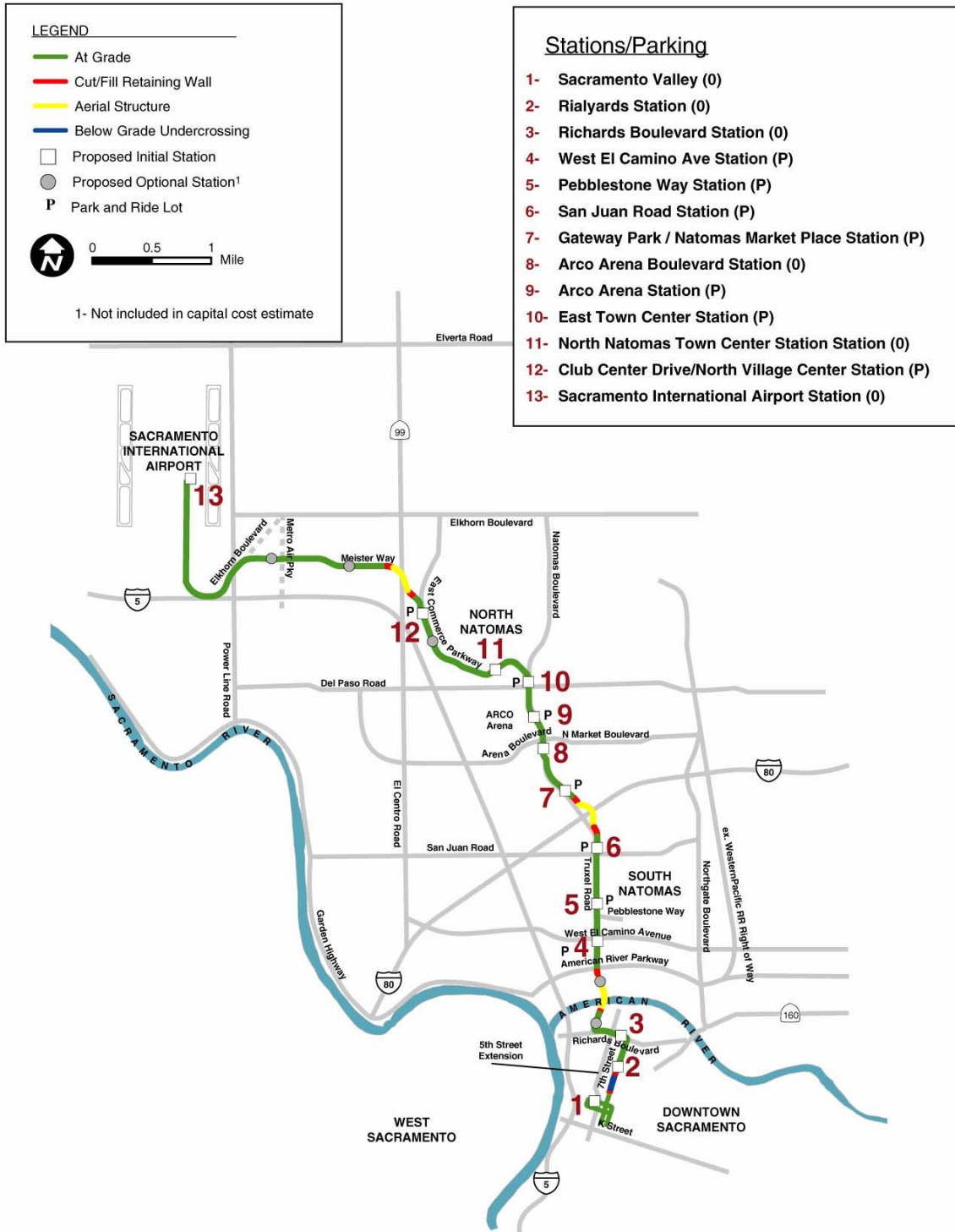
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- Project operation assumes local funding, primarily through farebox revenues and renewal and expansion of Sacramento County's Measure A sales tax program. Critical to the construction and operation of DNA improvements will be an increase in RT's share of a renewed sales tax program, from an existing 1/6 of a cent to at least 1/3 of a cent as identified in the adopted MTP.

The phasing of project construction will be dictated, in large part, by the availability of construction and operating funds. RT will need to work closely with FTA, SACOG, and other local and state agencies to ensure that necessary funding is available when needed to maintain project momentum so that initial LRT service between Downtown and the Natomas Town Center begins by 2012 and that service is extended to the Airport no later than by 2015.

8.7 Recommendation

Thus it is recommended that the LPA consist of building and operating high capacity LRT service on the Truxel Road alignment from Downtown, through South and North Natomas to the Sacramento International Airport. Figure 8-8.1 shows the location of the alignment, while Table 8.8-2 identifies design options that are recommended to be dropped from further study.

**FIGURE 8.7-1
LOCALLY PREFERRED ALTERNATIVE**



**TABLE 8.7-1
DESIGN OPTIONS TO BE CARRIED FORWARD AS PART OF THE LOCALLY PREFERRED
ALTERNATIVE**

Design Option		Description
Downtown to Richards Boulevard		
1	North 5th Street, Mixed Flow Grade-separation	Double-track mixed flow guideway through grade-separation of relocated Union Pacific Railroad (UPRR) tracks; Double-track in exclusive median of new 5 th /6 th Street north of UPRR
2	North 5th Street, Exclusive Grade-Separation	Double-track exclusive guideway in median of proposed 5 th /6 th Street grade-separation of relocated UPRR tracks; Double-track exclusive guideway in median of new 5 th /6 th Street north of UPRR
3	North 6th Street, Exclusive Grade-Separation	Double-track exclusive guideway in median of proposed 6 th Street grade-separation of relocated UPRR tracks; Double-track exclusive guideway along 6 th Street alignment north of UPRR
4	7th Street, Exclusive Single Track (Starter Line and Minimum Operable Segment [MOS])	Single-track exclusive guideway in 2-lane 7 th Street extension undercrossing, Single track exclusive guideway along 7 th Street north of UPRR
5	7th Street, Exclusive Double Track	Single track exclusive guideway in 7 th Street extension undercrossing; Double-track exclusive guideway along 7 th Street north of UPRR
6	7th Street, Mixed Flow Double Track/Exclusive Guideway	Double-track mixed flow guideway in 2-lane 7 th Street extension undercrossing; Double-track exclusive guideway along 7 th Street north of UPRR
7	7th Street, Two-Phased Undercrossing Construction	Phase One: Single-track exclusive guideway in existing 2-lane 7th Street extension undercrossing, Phase Two: Double-track exclusive guideway in new 4-lane 7 th Street undercrossing Phase One and Two: Double-track exclusive guideway along 7 th Street north of UPRR
8	7th Street, east-side running (North B Street to Richards Boulevard)	Double- or single-track exclusive guideway using city-owned land on the east side of 7th Street between North B Street and Richards Blvd.
9	Sequoia Pacific Boulevard Station	Light Rail Transit (LRT) station on abandoned railroad spur west of Sequoia Pacific Boulevard

Text in **Bold** type indicates the primary design option in a particular geographic segment

**TABLE 8.7-1
DESIGN OPTIONS TO BE CARRIED FORWARD AS PART OF THE LOCALLY PREFERRED
ALTERNATIVE (CONTINUED)**

Design Option		Description
Crossing of the American River		
10	Truxel Bridge Crossing (All Alternatives)	Transit only crossing along an abandoned railroad spur west of Sequoia Pacific Boulevard, with a direct connection to Garden Highway at Truxel Road
11	North 5 th Street Bridge Crossing	Transit only crossing from the end of North 5 th Street with a direct connection to Garden Highway at Truxel Road
Through South Natomas		
12	Mixed Flow, Double-Track in Traffic Lanes (Truxel LRT)	Double-track exclusive guideway in mixed flow travel lanes on Truxel Road;
13	Exclusive Median Single-Track (Truxel LRT Starter Line/MOS)	Single track exclusive guideway would operate in the median of Truxel Road, with double track sections at selected locations
14	Exclusive Median Single-Track with Single-Track Mixed Flow	Single track exclusive guideway would operate in the median of Truxel Road, with a second track located in an adjacent mixed flow lane
15	West El Camino Avenue Station South Site	LRT Station located on Truxel Road south of West El Camino Avenue
16	San Juan Road Station North Site	LRT Station located north of San Juan Road in the median of Truxel Road with parking west of Truxel Road adjacent to the Truxel/I-80 interchange
Crossing of Interstate 80		
17	New East Side Double Track Aerial Structure (Truxel LRT)	New aerial structure over I-80 located on the east side of the Truxel Road overcrossing
18	Mixed Flow Double Track Aerial Structure (Truxel LRT Starter Line/MOS)	Double-track mixed flow guideway on the existing I-80 overcrossing
19	New I-80 Double Track Aerial Structure to the West Side of Truxel Road	New aerial structure over I-80 with an elevated transition to the west side of Truxel Road just north of the Natomas Marketplace

Text in **Bold** type indicates the primary design option in a particular geographic segment

**TABLE 8.7-1
DESIGN OPTIONS TO BE CARRIED FORWARD AS PART OF THE LOCALLY PREFERRED
ALTERNATIVE (CONTINUED)**

Design Option		Description
Through North Natomas		
20	Arco Arena Spur	Operation of LRT along a spur to Arco Arena for special events; Light rail vehicle storage for MOS alternative
21	Gateway Park Boulevard and Truxel Road – West Side	Station located along the west side of Truxel Road adjacent to the Natomas Marketplace
22	Gateway Park Boulevard and Truxel Road – Center (Truxel LRT Starter Line/MOS)	LRT Station in the median of Truxel Road north of Gateway Park Boulevard.
23	Gateway Park Boulevard and Truxel Road – East Side (Truxel LRT)	LRT Station along the east side of Truxel Road north of Gateway Park Boulevard
24	Commerce Parkway Station	LRT Station along the east side of East Commerce Parkway at North Park Drive
25	Greenbriar Farms Station	LRT Station along future extension of Meister Way
26	Metro Air Park Station	LRT Station along Meister Way just west of Metro Air Parkway
Access into the Airport		
27	Single Station	Locate an LRT station between existing Terminals A and B.
28	Rental Car Station	Locate an LRT station at the Rental Car Facility south of the terminals.
29	Rental Car/Terminals A & B	Locate LRT stations at the Rental Car Facility and between existing Terminals A and B
30	Two Stations	Locate LRT stations at Terminals A and B
31	Terminal A, East Side (All Alternatives)	Locate an LRT station along the east side of Terminal A with an alignment along the eastern side of Airport Boulevard
32	Station Immediately North of I-5	Locate a station immediately north of I-5 (near former oxidation ponds) that would serve future airport development between I-5 and Crossfield Drive
Maintenance Facility Options		
33	Maintenance Facility at Metro Air Park (Truxel LRT/LRT Starter Line)	Locate a light rail vehicle maintenance facility near Meister Way at Metro Air Park

Text in **Bold** type indicates the primary design option in a particular geographic segment

**TABLE 8.7-2
DESIGN OPTIONS TO BE DROPPED FROM THE LOCALLY PREFERRED ALTERNATIVE**

Design Option		Description
Crossing of the American River		
1	Urrutia Bridge Crossing	Continue north on 7 th Street to a crossing of the American River just east of Discovery Park
2	I-5 East Bridge	A new bridge crossing immediately adjacent to the existing I-5 Bridge
Through South Natomas		
3	Exclusive Median Double-Lane/Double-Track BRT/LRT Guideways	Double-lane or double-track guideway in the median of Truxel Road (See Figure 5.4-11)
4	Exclusive East Side BRT/LRT Guideways	Double-lane or double-track guideway on the east side of Truxel Road
Through North Natomas		
4	Sports Parkway Alignment	Operation of either LRT along Sports Parkway past Arco Arena to Town Center Drive
Maintenance Facility Options		
5	Maintenance Facility at the Airport	Locate a light rail vehicle maintenance facility on airport property south of I-5