Transit Master Plan for

FOLSOM PLAN AREA SPECIFIC PLAN

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1.0 INTRODUCTION

1.1 STUDY PURPOSE

The primary impetus to prepare a Transit Master Plan for the Folsom Plan Area Specific Plan (Plan Area) is LAFCO Resolution 1195 dated 6 June 2001 adopting Findings of Fact and a Statement of Overriding Considerations for the City of Folsom Sphere of Influence Amendment (4-97). Among the mitigation measures included in the Statement of Overriding Considerations is Mitigation Measure 4.4-3 that requires *"Prior to annexing any property within the SOIA area, the City of Folsom shall complete a transit master plan for the project area consistent with policies of the City's General Plan. This plan will identify the roadways to be used by bus transit routes, locations for bus turnouts and pedestrian shelters, locations for bus transfer stations, alignments for fixed route rail service, and the location of rail service stations. Future development within the project area and the City of Folsom shall be responsible for implementing the master plan recommendations as development occurs within the project area."*

Secondarily, and more importantly, the preparation of a Transit Master Plan will provide guidance for the implementation of the Specific Plan Land Use and Circulation objectives and policies including improved mobility, a reduction in vehicle miles traveled, and improved air quality as required by AB 32 and SB 375. The Transit Master Plan also demonstrates consistency with the Policies, Goals and Objectives of several regional and local Land Use and Transportation Planning documents including the following:

- The City of Folsom General Plan
- The Folsom Plan Area Specific Plan
- Sacramento Council of Government (SCACOG) Blueprint Principals
- The Sacramento Regional Transit Master Plan
- The Folsom Stage Line Short-Range Transit Plan Update
- The Folsom El Dorado Corridor Transit Strategy Final Report
- Statewide Transit-Oriented Development Guidelines

1.2 PROJECT LOCATION AND SETTING

The Plan Area consists of approximately 3,510 acres of gently rolling grassland terrain and oak woodlands bounded on the north by Highway 50, White Rock Road to the south, Prairie City Road to the west, and the Sacramento/El Dorado County line to the east. Prior to annexation to the City of Folsom, the Plan Area was property was used primarily for cattle grazing. Immediately north of the Plan Area is an existing balanced community of homes, businesses and shopping centers. The unincorporated community of El Dorado Hills is located adjacent to the eastern boundary of the Plan Area, and to the south, the Plan Area is bordered by open grassy rangeland. Immediately to the west of the Plan Area is the Aerojet General Corporation facility (see Figure 1.1).

1.3 PROJECT HISTORY

1.3.1 City of Folsom Sphere of Influence (SOI)

The Folsom Plan Area Specific Plan (FPASP) is a comprehensively planned expansion of the City of Folsom and is the culmination of a planning process that started in 2001 when the Sacramento Local Agency Formation Commission (LAFCO) approved including the Folsom Plan Area (Plan Area) property in the City of Folsom's Sphere of Influence (SOI). As part of that process, a Memorandum of Understanding (MOU) between the City of Folsom and Sacramento County and several LAFCO Resolutions were approved. Among the conditions specified in these documents was the requirement to complete a "Transit Master Plan" for the SOI property prior to the submittal of an application to LAFCO by the City of Folsom to annex any or all of the SOI property.

1.3.2 Measure W and the Folsom City Charter

In November 2004, Measure W was approved by the City of Folsom voters which requires, among other conditions, that prior to the approval by LAFCO of any annexation of SOI property to the City of Folsom, that an "Infrastructure Funding and Phasing Plan" for roadways and transportation improvements by prepared and adopted by the City Council. The City Charter was subsequently amended to include the voter approved provisions of Measure W.

1.3.3 The Folsom Plan Area Specific Plan (FPASP)

The FPASP is a City of Folsom approved planning document that sets forth the objectives, policies and standards for development within the Plan Area. The FPASP calls for a comprehensively planned community based on the principals of "Smart Growth" and "Transit Oriented Development." Consistent with these principals, the FPASP encompasses a mix of residential, commercial, employment, and public uses complemented by recreation amenities including a significant system of parks and open space, all within close proximity to one another and served by a proposed transit system and an interconnected grid of "complete streets," bicycle paths and pedestrian trails (see FPASP Figure 4.1).

The FPASP proposes the construction of 10,210 residential housing units, approximately 5 million square feet of commercial retail and office use including a regional shopping center, a town center, public facilities including schools, a municipal center as well as system of local, neighborhood and community parks and open spaces.

Located within the Plan Area is a proposed roadway network that provides north-south connectivity into the City of Folsom as well as parallel capacity for Highway 50. The Plan Area also includes an interconnected system of sidewalks, trails and pathways. This network of sidewalks and trails, coupled with a varied mix of land uses throughout the Plan Area, aids in the formation of a walkable community.

A significant major transportation feature of the FPASP is the proposed transit corridor that links the town and neighborhood centers, the regional commercial center, and proposed higher density residential and mixed-use areas. The proposed corridor will run in the Easton Valley Parkway from Prairie City Road to the collector

street west of Placerville Road, then jog south to Street 'B' , then continue east to the Sacramento Placerville Transportation Corridor (SPTC), then run southeast in a right-of-way shared with the SPTC, to the southern edge of the Plan Area.

Two additional transit corridors not included in the FPASP but located nearby include:

- The Capital Southeast Connector (CSEC): Located directly adjacent to the Plan Area's southern boundary, the Capital Southeast Connector (White Rock Road) is a multi-modal transportation corridor proposed by the Elk Grove – Rancho Cordova – El Dorado Connector Authority to ease Highway 50 congestion and to provide a direct link between the communities of El Dorado Hills, Folsom, Rancho Cordova and Elk Grove.
- The Iron Point Road Corridor: The Folsom El Dorado Corridor Transit Strategy Final Report describes the corridor as running along Iron Point Road from Folsom Blvd. to the Sacramento Placerville Transportation Corridor, then southeast in a right-of-way shared with the SPTC.

1.4 INTERAGENCY COORDINATION

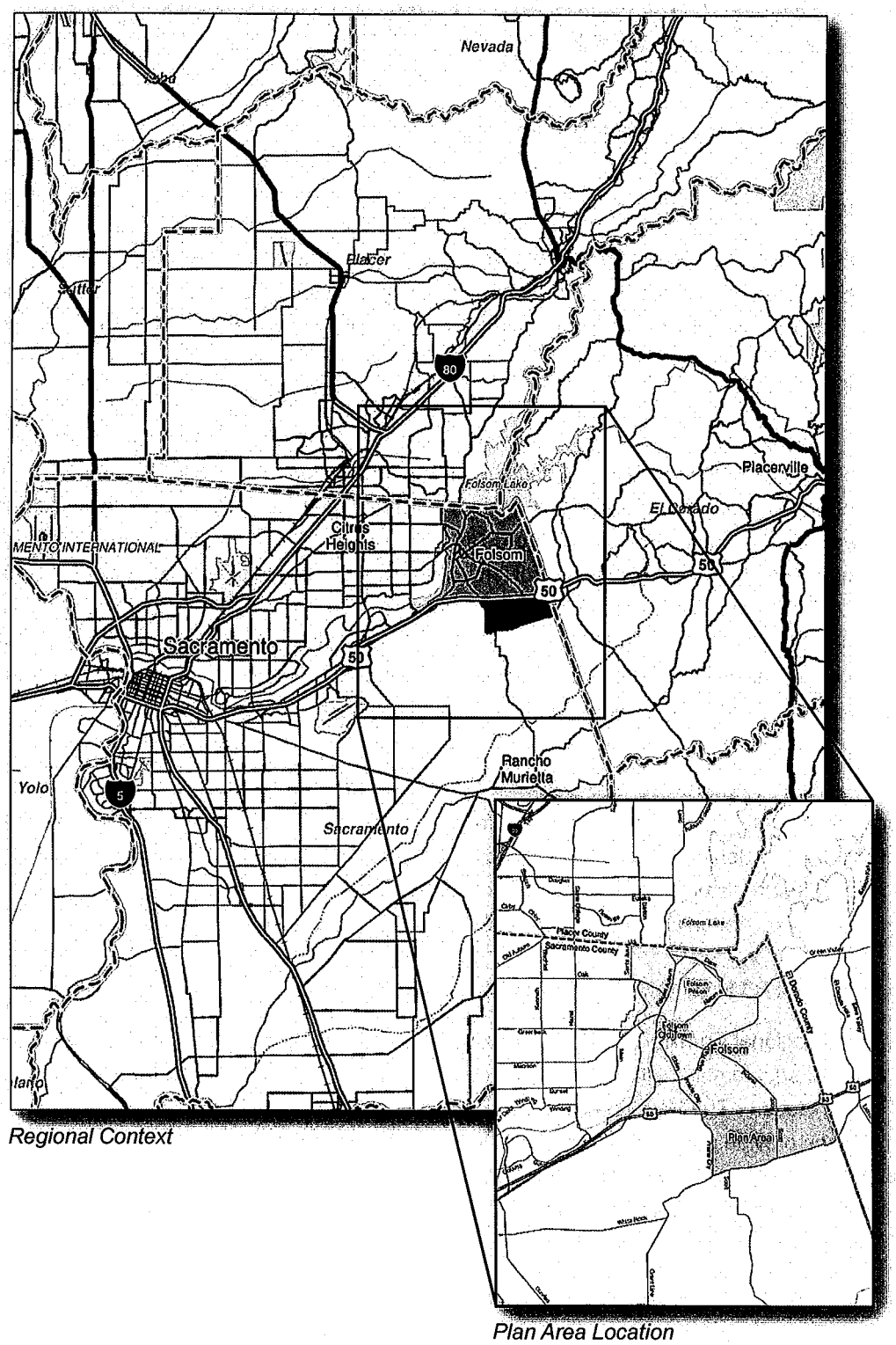
The Sacramento Regional Transit (RT) Master Plan was adopted in August 2009. The Master Plan provides a long range transit vision for the Sacramento region. The Master Plan shows a future Bus Rapid Transit (BRT) line along Easton Valley Parkway. The future BRT line would run from Sunrise Boulevard east through the FPASP. The BRT line is not designed to access Highway 50 and use the carpool lanes to connect to downtown Sacramento. Instead, it is intended to provide high capacity service that links the future communities along the corridor and connects to light rail at the existing Hazel station. RT planning staff indicated that they understand that Easton Valley Parkway will be designed as an urban, walkable street with planned moderate to high land use density nodes. The BRT line would be integrated into the urban street and stops would be urban in nature without park-and-ride lots.

The Transit Master Plan has been coordinated with the Glenborough and Easton projects. This includes plans for future high capacity transit service along Easton Valley Parkway.

The potential transit routes and stations shown in Figure 5.2 reflect recent discussions with El Dorado County DOT staff regarding potential new connections to the El Dorado Business Park, as well as the joint planning efforts of El Dorado County and the City of Folsom for the Folsom-El Dorado Corridor Transit Strategy (December, 2005).

1.5 STUDY ORGANIZATION

The remainder of this report is organized into five sections and one appendix: Section 2 describes existing transit service and facilities in the City of Folsom, the surrounding unincorporated Sacramento County, and adjacent El Dorado County. Section 3 describes the goals, objectives and policies of the Transit Master Plan. Section 4 summarizes the potential transit market in the Plan Area. Section 5 identifies the recommended primary transit routes for the Plan Area. Potential transit station locations are identified in Section 6. Appendix A describes the basic concepts of transit service.



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LOCATION MAP
FIGURE 1.1

2.0 EXISTING TRANSIT SERVICE

2.1 FOLSOM STAGE LINE

The City of Folsom Transit Division currently operates the Folsom Stage Line bus service that provides Fixed Route and Dial-A-Ride bus service within the Folsom city limits Monday through Friday. All Folsom Stage Line buses are equipped with hydraulic lifts for wheelchairs and front-mounted bike racks for bicycles.

Fixed Route Service

Currently, there are two fixed routes within the City of Folsom: The first, Route 10, connects to the Sacramento Regional Transit District (RT) light rail stations at Iron Point Road and the historic Old Town Folsom, as well as to the RT bus line 24 at Main and Madison Avenue. Route 10 serves historic Folsom, East Bidwell, the Broadstone Market Place, Broadstone Plaza, the Folsom Aquatics Center, Folsom Lake College, Intel, Kaiser Permanente, Folsom Premium Outlets and the Century theaters and operates from 6:00 AM to 9:00 PM. Route 20, the second fixed route bus service, starts at Empire Ranch Road and services East Natoma, Vista Del Lago High School, Folsom Lake College, and the Broadstone Center and operates from 7:00 AM to 4:15 PM. The two routes intersect and allow no charge transfers at Folsom Lake College (see Figure 2.1)

Dial-a-Ride

Curb-to-curb commuting service is provided for city residents who have a physical, developmental or mental disability. Senior citizens who are 55 years of age or older also qualify for this program. Passengers must register and be given verification that they qualify for ridership before they can ride. Current hours of operation are from 7:30 AM to 5:30 PM, Monday through Friday.

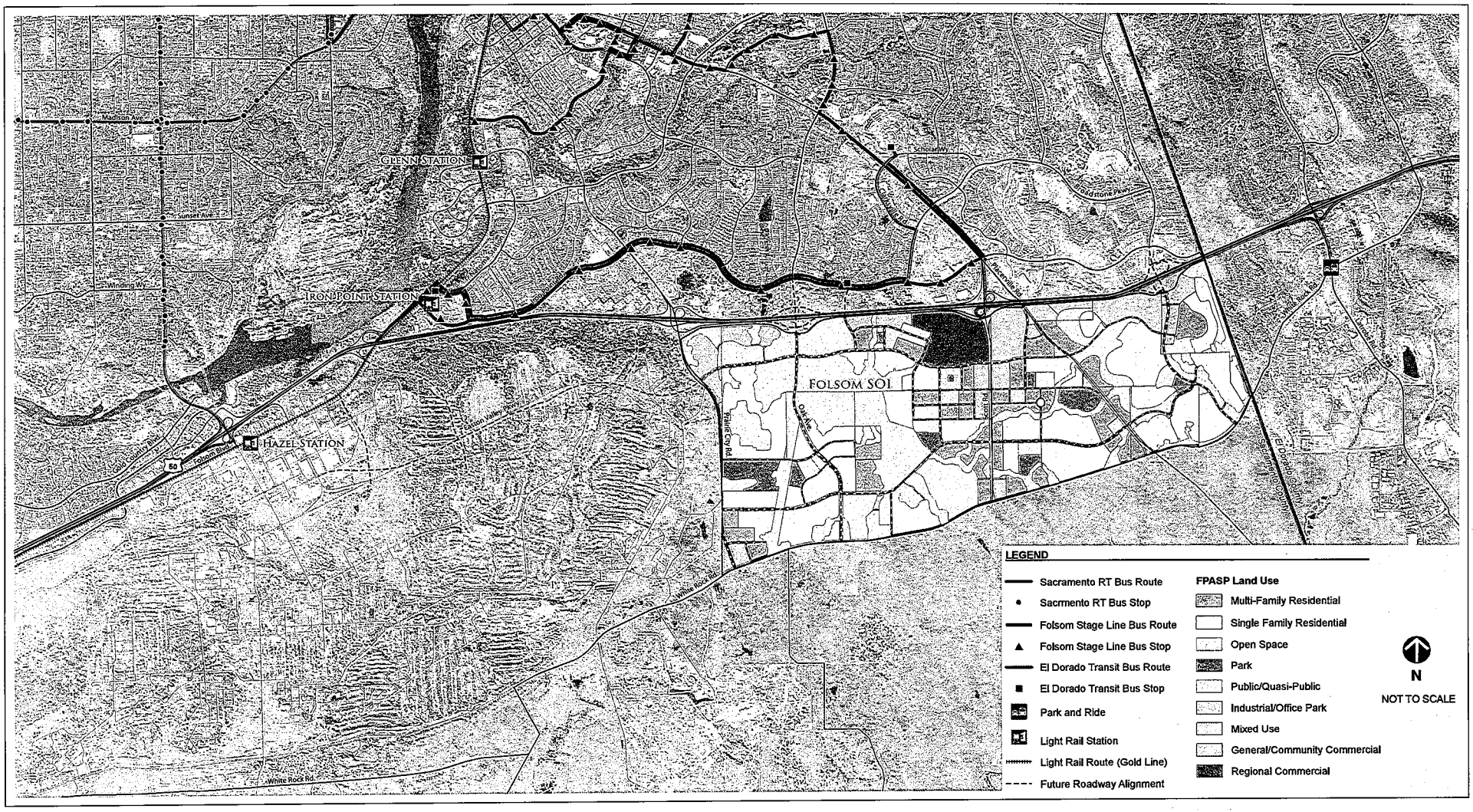
2.2 SACRAMENTO REGIONAL TRANSIT DISTRICT

The Sacramento Regional Transit District (RT) operates 97 bus routes and two light rail lines and covers a service area of 418 square miles. In 2005, RT opened the Gold Line extension that terminates at the historic Old Town Folsom station. The Hazel and Iron Point stations are the closest LRT stations to the Folsom Plan Area. Both stations provide park-and-ride facilities, with 432 space at the Hazel station and 216 spaces at the Iron Point station. Weekday LRT service is currently provided from approximately 5:00 AM until 7:00 PM, with weekend service beginning later in the morning (7:30 AM on Saturday, 10:00 AM on Sundays) and ending at 7:00 PM.

Figure 2.1 illustrates the existing transit facilities in the City of Folsom and adjacent areas in eastern Sacramento County and western El Dorado County. As shown, Sacramento Regional Transit (RT) provides light rail service along the Folsom Boulevard corridor with transit stations at Hazel Avenue, Iron Point Road, Glenn Drive and Historic Folsom. RT also provides fixed bus route service in eastern Sacramento County north of Highway 50 and provides transfers from the line 24 bus service at Main and Madison to the Folsom Stage Line route 10.

2.3 EL DORADO COUNTY TRANSIT AUTHORITY

The El Dorado County Transit Authority (El Dorado Transit) provides an existing Park and Ride lot near the White Rock Road/Latrobe Road intersection with AM and PM commuter routes along Highway 50 to downtown Sacramento. An Iron Point Connector is also provided by El Dorado Transit which serves a loop from Highway 50 Park-and Ride stations, to Folsom Boulevard and the Iron Point Road LRT station, Intel, Kaiser Permanente, Folsom Lake College the Broadstone Shopping Center and back to Highway 50 via the East Bidwell interchange (see Figure 2.1).



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EXISTING TRANSIT SERVICE
FIGURE 2.1

3.0 VISION, OBJECTIVES AND POLICIES

The FPASP Transit Master Plan recognizes that the Sacramento region will experience significant growth over the next twenty-five years, that traffic congestion will increase as a result of this growth and that air quality will continue to deteriorate unless new development patterns are created that reduce vehicle miles traveled and encourage walking and alternative modes of travel.

To assist in reducing traffic congestion and improving air quality, the Sacramento Area Council of Governments developed a regional Blueprint development plan that recommends a set of principals and policies for new patterns of building including increased housing choices, compact development, more mixed use developments and increased transportation choices. The Preferred Blueprint Scenario for 2050 envisions more people living in pedestrian friendly neighborhoods with a balanced mix of land uses, transit trips increasing from the present 1.1 percent of all trips to 3.3 percent, a reduction in vehicle miles traveled, and a corresponding per capita reduction in carbon dioxide emissions.

The Folsom Plan Area Specific Plan is a comprehensively planned expansion of the City of Folsom based in part on the Blueprint principals as well as the newly emerging concepts of "Smart Growth," "Complete Streets," and transportation choice; the idea that a sustainable community should provide its residents with mobility alternatives such as walking, cycling, carpooling and viable forms of public transit as well as auto use.

To accomplish its planning principals, the FPASP establishes several transportation and transit planning objectives and policies that are incorporated into the Transit Master Plan including:

Objective 7.1 Create a safe and efficient circulation system for all modes of travel.

Objective 7.9 Promote the use of public transit in the Plan Area by providing frequent and convenient transit service to local and regional destinations in the community.

Objective 7.10 Plan transit-oriented development projects that include a mix of commercial, mixed use, office and residential development along the regional transit corridors.

Policy 7.9 Public transportation opportunities to, from, and within the Plan Area shall be coordinated with the Folsom Public Transit Division, the Sacramento Regional Transit Authority and the El Dorado County Transit Authority. Public transit routes through the Plan Area shall be provided as an integral part of the overall circulation system.

Policy 7.10 A transit corridor shall be provided through the Plan Area for future transit uses (refer to Figure 7.2, "Public Transportation Corridor Plan." Sufficient right-of-way shall be dedicated for the transit corridor as described in Section 7.3, "Transit Corridor." Adequate right-of-way for dedicated transit lanes shall be reserved for future transit uses as direct by the Transit Master Plan.

Policy 7.11 Future transit stops shall be placed according to City standards and should include amenities as warranted and directed by the Transit Master Plan. Transit stops planned along the regional transit corridor shall be spaced no further than a one-half mile apart depending on the mode of transit.

Policy 7.12 Provide park and ride facilities for public transit use as shown in the Transit Master Plan.

4.0 POTENTIAL PLAN AREA TRANSIT MARKET

This section of the Transit Master Plan describes the potential transit market for the Plan Area. The market assessment includes a description of the land use thresholds needed to support transit, a review of the FPASP land use program and its ability to support transit, a discussion of previously completed transit studies for the Folsom/El Dorado Hills planning area, potential Plan Area transit ridership and station levels, and conclusions.

4.1 LAND USE THRESHOLDS TO SUPPORT TRANSIT

Transportation planning literature suggests that there are four main land use factors affecting transit use: residential density, employment intensity, land use diversity, and the presence of educational facilities.

4.1.1 Residential Density

The principal land use factors that can promote transit ridership have been summarized planning literature as the three Ds: Density, Diversity (land use mixture) and Design (provision of convenient sidewalks and other pedestrian amenities that encourage walking). A fourth D, accessibility to concentrated regional Destinations (such as downtown Sacramento) is also a key factor in transit use. Of these four D-factors, density in the transit corridor, and the intensity of the concentration at the destination end of the corridor, are viewed as the most significant quantifiable land use variables. Demographics are a non-land use fifth "D" factor that is useful in evaluating transit use; however, a detailed discussion of this factor is beyond the scope of this Plan.

The effectiveness of increased densities near transit in promoting transit ridership is borne out by an abundance of studies over time. Most of the transportation planning debate is not over the efficacy of density in promoting transit use, but over the degree of effectiveness and the means, specific mechanisms and cofactors that induce ridership in higher density settings. A positive correlation between density and transit is not inevitable – high density in an area without transit service, or with transit service that does not meet resident's needs, may have negligible effects on transit use. However, density near transit usually increases transit patronage by reducing the time and cost of accessing transit, and for those within walking distance, eliminating the need for a vehicle to access transit (see Table 4.1).

Nationwide Data

A 1995 Nationwide Personal Transportation Study (NPTS) found that the public transit share for all trips was as follows.

- 2.9 percent for all densities of between 250 and 1,000 persons per square mile
- 3.1 percent for all densities of between 1,000 and 4,000 persons per square mile
- 3.0 percent for all densities of between 4,000 and 10,000 persons per square mile
- 11 percent for densities above 10,000 per square mile

TABLE 4.1. TRANSIT MODES RELATED TO RESIDENTIAL DENSITY CRITERIA

Mode	Service	Minimum Necessary Residential Density (dwelling units per acre)	Remarks
Dial-a-bus	Many origins to many destinations	6	Only if labor costs are not more than twice those of taxis
	Fixed destinations or subscription service	3.5 to 5	Lower figure if labor costs twice those of taxis; higher if thrice those of taxis
Local bus	"Minimum," ½ mile route spacing, 20 buses per day	4	Average, varies as a function of downtown size and distance from residential area to downtown
	"Intermediate," ½ mile route spacing, 40 buses per day	7	
	"Frequent," ½ mile route spacing, 120 buses per day	15	
Express bus – reached on foot	Five buses during two hour peak period	15 Average density over two square mile tributary area	From 10 to 15 miles away to largest downtowns only
Express bus – reached by auto (Park & Ride)	Five to ten buses during two hour peak period	3 Average density over 20 square mile tributary area	From 10 to 20 miles away to downtowns larger than 20 million square feet of non-residential floor space
Light rail	Five minute headways or better during peak hour	9 Average density for a corridor of 25 to 100 square miles	To downtowns of 20 to 50 million square feet of non-residential floor space
Rapid transit	Five minute headways or better during peak hour	12 Average density for a corridor of 100 to 150 square miles	To downtowns larger than 50 million square feet of nonresidential floor space
Commuter rail	Twenty trains a day	1 to 2	Only to largest downtowns, if rail line exists

Source: Pushkarev and Zupan, 1977.

The significant increase in transit mode share that occurs when densities are greater than 10,000 persons per square mile is related to average residential dwelling unit densities greater than six units per acre. This analysis also showed that cycling and walking had a larger share than transit at all density levels.

Holtzclaw et al's recent (2002) study confirms numerous studies by Holtzclaw and others that a doubling in density results in a 25 percent reduction in vehicle miles traveled (vmt). Only a fraction of this reduction is due to more transit use and Holtzclaw's principle data source (e.g., Department of Motor Vehicles odometer checks) makes transit's specific contribution difficult to ascertain.

California Specific Data

Professor Robert Cervero, UC Berkeley, studied the effect of proximity to LRT on mode choice in Sacramento. He surveyed residents of four apartment complexes near (generally less than ½ mile walking distance) Sacramento's LRT and found that 12 percent of residents "main trips" (as defined by respondents) were by rail; another 3.2 percent were by bus transit (Cervero, 1993, p. 43). Looking at employment sites in suburban Sacramento that were also within easy walking distance of LRT stations, he found that 6.3 percent of workers arrived by rail and another 5.4 percent by bus (ibid, p. 80). It should be noted that while both the apartments and the worksites studied by Cervero were outside downtown, they were larger and more intensely developed than most suburban developments in the region.

A study using year 2000 Bay Area Travel Survey (BATS) (Cervero and Duncan 2002, p. 12) found that 19.6 percent of residents living within 1/2 mile of BART commuted via transit in that year. This is slightly higher than the 1990 Census BART mode split for workers within the 1/2-mile radius (17.8 percent). This suggests that the proximity effects of rail are not too different from when Cervero conducted his earlier study.

4.1.2 Employment Intensity

A complementary issue that is often overlooked in studies of the land use and transit connection is that of the commercial densities required to support transit use. Non-residential densities are often referred to as "intensities" and can be expressed in terms of total square footage, total employment, employment density, or floor area ratio (FAR).

Research by Frank and Pivo (1995) found employment densities to be as or more important than residential densities. Using Seattle-area data, they found that bus transit ridership to employment centers rises to about 10 percent of all work trips when there are about 100 employees/acre (equivalent to an FAR of approximately 1.0 based on one employee per 400 square feet), and exceeds 33 percent when employment densities exceed 200/acre (equivalent to an FAR of approximately 2.0 based on one employee per 400 square feet).

A 2003 study by Dill investigated the land use effect on rail ridership in the Bay Area at the work-end using large-scale employer-based surveys conducted in the early 1990s. In his study, Dill obtained data for BART station area employers as well as Caltrain and Santa Clara light rail (Valley Transit Authority) station area employers. Employers not near rail served as a comparison group. The results of the study indicated that a worksite's proximity to a rail station (particularly within one-quarter mile) greatly increased the chances of employees using rail (Proximity to a BART station had a much greater effect than proximity to a Caltrain or VTA station). Outside of San Francisco, Oakland and Berkeley, Dill found that about 5 to 6 percent of all work trips to worksites within one-half mile of rail stations were by rail.

Employment Intensity research findings related to the Folsom Plan Area Specific Plan are outlined below.

- *A 1987 Seattle Metro study recommended a minimum concentration of 10,000 employees to support cost-effective bus transit.*
- *In 2000, the City of Portland, adopted a minimum FAR of 1.0 for development within identified light rail station areas.*
- *Pushkarev and Zupan identified intensities for employment or the destination end of the service (CBD) for light rail transit (LRT) as 20 to 50 million square feet of non-residential floor space. This figure corresponds to approximately 50,000 to 125,000 employees, assuming one employee per 400 square feet.*
- *The U.S. DOT/Snohomish County Transit Oriented Development (TOD) Guidelines state that Floor Area Ratios above 2.0 are required to effectively support bus transit. Lower density employment areas may generate enough traffic to clog roads but insufficient riders to sustain effective bus service. By comparison, Cervero points out that a typical suburban office complex has an FAR of 0.5 or less.*

Over what area do these densities and intensities need to occur? A 2002 study by Cervero and Duncan suggests that a one-mile radius of the destination transit station is relevant. The preponderance of evidence from other studies suggest that between one-quarter and on-half mile is the upper limit that most Americans are willing to walk for transit access purposes.

4.1.3 Land Use Diversity

With respect to land use mixture (or Diversity) as a stimulus to transit ridership, the research record is decidedly mixed. A study of the 1985 American Housing Survey, which includes questions about household travel (Cervero 1996 Transportation Research-A), illustrates these mixed results.

- If retail shops are within 300 ft. of the transit station, transit ridership is encouraged.
- If retail is 300 feet to 1 mile away from the station, residents are likely to drive and link a short shop trip onto their journey to work.

This study further finds that mixed land use does seem to encourage non-motorized trips, and is in fact a better predictor of non-motorized trips than is residential density.

On the other hand, the conditions at the employment end may be different. Cervero concluded in another study (1989) that suburban employment centers (SECs) with significant retail exhibited a 3 percent increase in transit/ridesharing use with every 10 percent increase in retail uses in the SEC. The ability to accomplish midday errands and convenience shopping without a car influences some commuters to take transit. (See above for a discussion of employment density and bus/rail ridership).

4.1.4 University Uses

Certain types of land use are "special generators" with respect to producing transit ridership: college, university and large high school campuses are excellent examples of a special transit generator. Most university communities have higher transit ridership compared to other land uses and good transit station access by vehicles, bicycles, and pedestrians. A 2003 comparison by Balsas found that the average level of transit use at eight university campuses was more than five times as high as transit ridership in the general population as revealed by the 1995 NPTS.

While high levels of transit use at university campuses has been documented extensively (Toor and Havlick, 2004), and programs to promote transit at universities have also been closely tracked (Brown, Hess and Shoup, 2001), few studies have attempted to directly model the effect of a nearby college campus on light rail or bus rapid transit ridership. Fehr & Peers' ongoing research on LRT ridership in Sacramento, Salt Lake City, and elsewhere may provide additional data and tools for estimating the university effect in the near future, but information to date is limited to analogue comparisons.

4.2 FOLSOM PLAN AREA LAND USE THRESHOLDS

4.2.1 Folsom Plan Area Specific Plan Land Use Program

The proposed Plan Area land use program includes 10,210 residential units, 5.2 million square feet of commercial and office uses, 301-acres of parks and schools, and approximately 1,053 acres of open space. At build-out, the Plan Area will generate a residential population of approximately 24,335, 10,300 employees, and 4,999 students. The combined resident population and employment will be approximately 34,636.

4.2.2 Residential Density

In Pusharkev & Zupan's *Public Transportation and Land Use Policy, the authors* suggest residential densities of at least 4 dwelling units per acre for minimal bus transit service to be viable. The Plan Area achieves a net residential density (excludes open space, parks, schools and commercial uses) of nearly 7.0 units per acre with 20 percent of the units in the multi-family category and 27 percent of the single family detached homes located on small compact lots as recommended in the SACOG Blueprint Principles. The majority of the multi-family land uses are within close proximity (one-quarter mile to one-half mile) of the proposed transit corridor.

4.2.3 Employment Intensity

The various commercial and office land uses proposed for the Plan Area will generate approximately 10,000 jobs or 1 job for every Plan Area residential unit. Additionally, a significant numbers of jobs are located within close proximity of the Plan Area including:

- Intel
- The Broadstone and Palladio shopping centers
- The Folsom Premium Outlets

- The existing and planned Kaiser Medical Center
- Folsom Lake College
- The California Independent System Operator (ISO) headquarter presently under construction on Iron Point Road
- The El Dorado Hills Business Park

4.2.4 Land Use Diversity

The FPASP provides a comprehensively planned new community with a variety of land uses including single family and multi-family residential, mixed use, commercial and office, public use including municipal offices, schools and parks as well as an extensive open space system.

4.2.5 Education Facilities

Folsom Lake College, while not in the Plan Area, is located within two miles of its northern Boundary and will therefore, be a major destination for Plan Area residents. The College projects an enrollment of 15,000 students by the year 2015 that will create a high demand for transit trips. Additionally, Folsom and Vista del Lago high schools are in close proximity to the Plan Area and will also generate demand for transit trips.

4.3 TRANSIT STATION LAND USE EVALUATION

To evaluate the Plan Area demand for transit stations, proposed land use density and intensity; future residential population, number of employees and student population were measure on one-half mile grids throughout the project. Based on this evaluation, plus appropriate station spacing and connectivity design criteria, potential transit station sites were identified and analyzed as-shown in Figure 4.1. Potential transit stations are suggested in areas with sufficient residential density, employment intensity and land use diversity to support transit.

A key finding of the transit station evaluation is that the Plan Area contains higher residential density and employment intensity than existing development in the surrounding City of Folsom. For example, as discussed in Section 4.2.1, the net residential density is approximately 7.0 units per acre, a density consistent with the recommendations of the SACOG Blueprint principals that emphasize compact development, diversity in housing choices, and residential development patterns and densities that promote walking and cycling as alternative travel modes. The analysis confirms that the Plan Area is capable of supporting fixed route bus service. More detailed discussion of the specific transit mode is provided below.

4.4 POTENTIAL TRANSIT RIDERSHIP AND POSSIBLE FUTURE TRANSIT STATIONS

As described in section 4.3, a number of potential transit station sites were analyzed for ridership potential; the analysis reduced the number of potential stations to the six possible sites shown in Figure 4.2 (the ones that have the highest potential ridership).

The range of potential ridership for each possible station site was determined on the basis of ridership levels at analogous rail stations in the RT service area. The station ridership used for this analysis refers to boarding and alighting counts at each analogous station. Fehr & Peers has developed a database on over 80 rail station sites in northern California. This data base includes station ridership as well as station area data on population and employment, transit service levels and other characteristics. Specifically, this database covers 40 BART stations, 33 Caltrain stations, and 11 non-downtown Sacramento LRT stations. Feeder bus service frequency information was not available at all Sacramento LRT stations, but otherwise the Sacramento data is complete and equivalent. All information in the database is for the year 2000.

The potential Plan Area transit stations are concentrated along Easton Valley Parkway and Scott Road. Specifically, three transit stations are proposed along the Scott Road corridor serving the proposed high density commercial and mixed-use areas near Easton Valley Parkway (Level 5 ridership), and the medium/low density residential/school areas between Easton Valley Parkway and White Rock Road (Level 3 ridership). Three total transit stations are proposed within the project along Easton Valley Parkway at the proposed Entertainment District, at Scott Road, and at Empire Ranch Road. Figure 4 also shows the proposed transit stations and ridership levels from the previously completed Folsom El Dorado Corridor Transit Strategy Final Report.

In general, the station ridership levels throughout the Plan Area are sufficiently high to support intensive fixed route bus service or possibly BRT. Whether these modes are appropriate for the study area also depends on other factors such as the peak hour traffic operations of the surrounding roadway network. Choice of mode is an important consideration if the investment in the transit system is expected to provide a reasonable return by attracting enough riders to generate high levels of peak period transit utilization.

4.5 TRANSIT MARKET REVIEW CONCLUSIONS

Evaluation of the Plan Area land use program and circulation system confirms the following facts:

1) The Plan Area contains higher levels of residential density and employment intensity than existing development in the surrounding City of Folsom. Based on this conclusion, the Plan Area could support fixed-route bus service, or possibly bus rapid transit (BRT).

2) The planned Regional Commercial Center area is an ideal possible transit station site with high ridership potential.

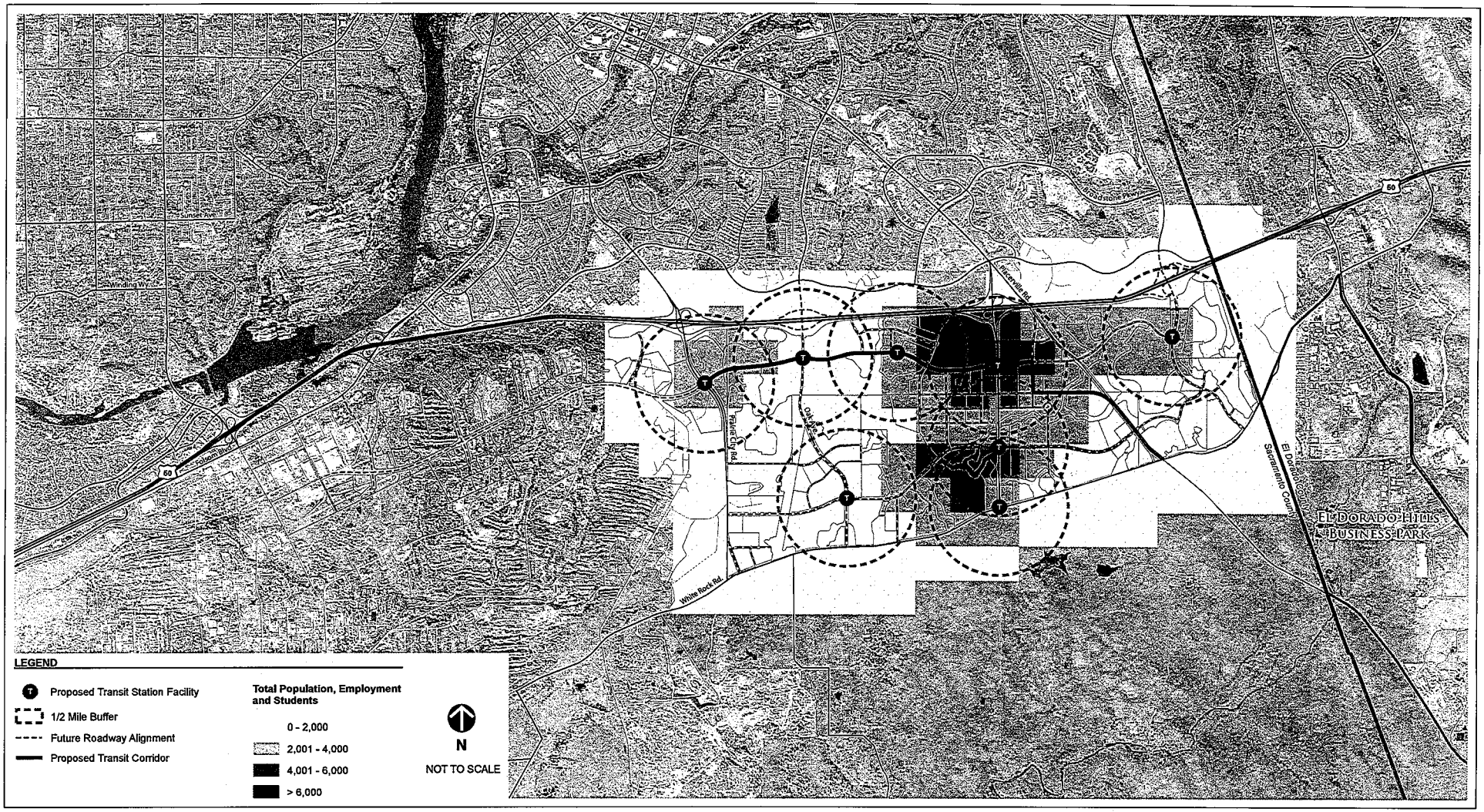
3) The high density residential sites located at Scott Road and Street 'A' and Scott Road and Street 'B' are ideal possible transit station sites with high ridership potential.

4) The uses planned for the following locations make them potential transit station sites.

    a) The Industrial/Office Park located along Easton Valley Parkway at Prairie City Road.
    b) The Town Center and Entertainment District located along Easton Valley Parkway west and south of the Regional Commercial Center,
    c) The Community Commercial Center located along Easton Valley Parkway at Empire Ranch Road.

Conclusions

Build-out of the Plan Area will create market demand for transit services. Market demand will exist for three types of service: the local community market of the Plan Area, Folsom, and El Dorado Hills; the Rancho Cordova employment market; and the Folsom to downtown Sacramento Commuter market.



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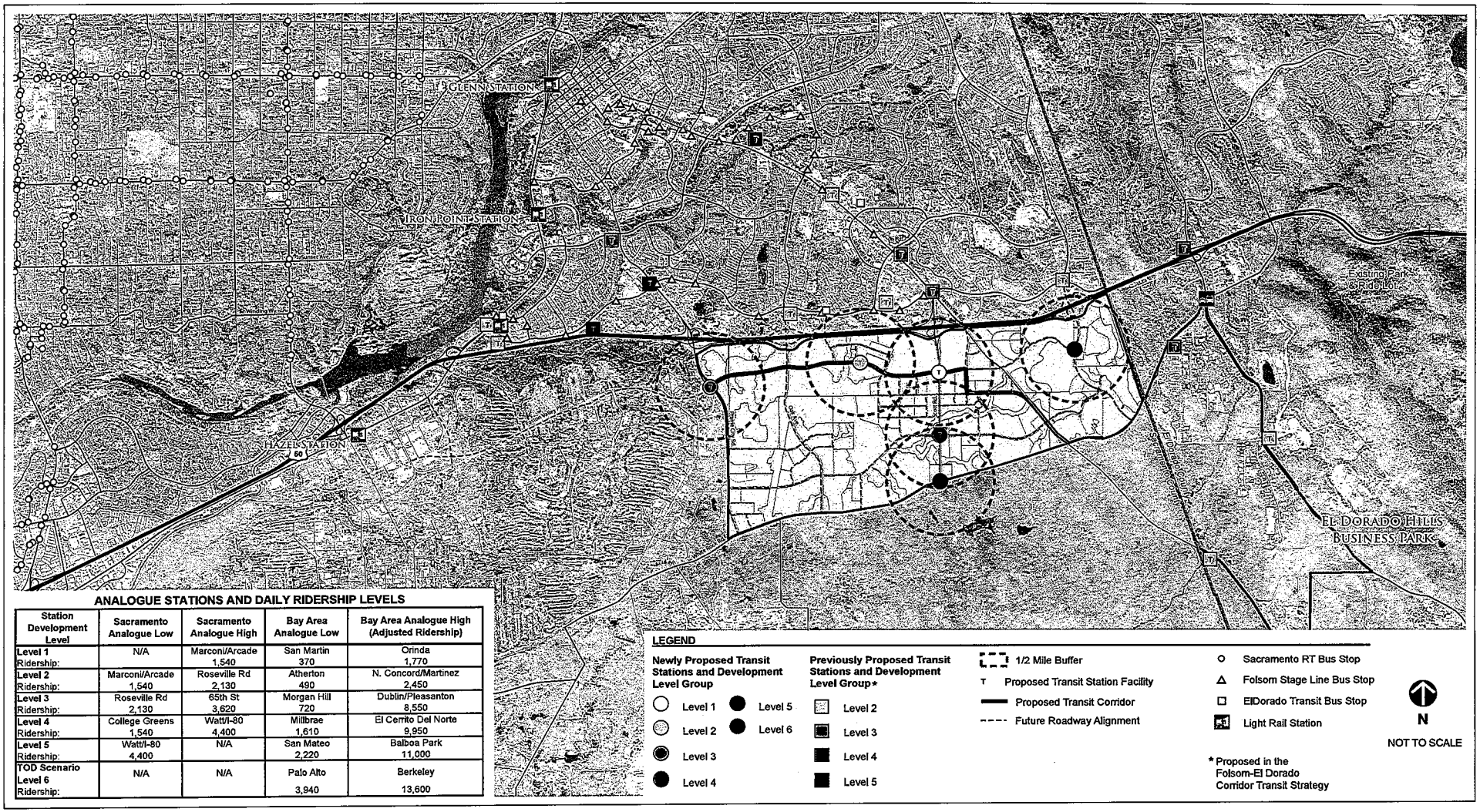
ASSESMENT OF CANDIDATE TRANSIT STATION LOCATIONS
FIGURE 4.1



ANALOGUE STATIONS AND DAILY RIDERSHIP LEVELS

Station Development Level	Sacramento Analogue Low	Sacramento Analogue High	Bay Area Analogue Low	Bay Area Analogue High (Adjusted Ridership)
Level 1 Ridership:	N/A	Marconi/Arcade 1,540	San Martin 370	Orinda 1,770
Level 2 Ridership:	Marconi/Arcade 1,540	Roseville Rd 2,130	Atherton 490	N. Concord/Martinez 2,450
Level 3 Ridership:	Roseville Rd 2,130	65th St 3,620	Morgan Hill 720	Dublin/Pleasanton 8,550
Level 4 Ridership:	College Greens 1,540	Watt/I-80 4,400	Millbrae 1,610	El Cerrito Del Norte 9,950
Level 5 Ridership:	Watt/I-80 4,400	N/A	San Mateo 2,220	Balboa Park 11,000
TOD Scenario Level 6 Ridership:	N/A	N/A	Palo Alto 3,940	Berkeley 13,600

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PROPOSED TRANSIT STATION LOCATIONS
FIGURE 4.2

5.0 PLAN AREA TRANSIT CORRIDOR AND FIXED ROUTE BUS SERVICE

This section of the Transit Master Plan describes the Plan Area transit corridor and proposed fixed route bus service including phasing considerations.

5.1 TRANSIT CORRIDOR

A transit corridor is a planning tool for ensuring future options for high capacity transit lines whatever the mode may be including bus, bus rapid transit or light rail. The inclusion of transit corridors in land use plans insures that land will be available for future transit investments.

As a planning centerpiece, the FPASP proposes a transit corridor through the Plan Area that will allow for short and long-term transit improvements that can provide links to all of the various land uses within the Plan Area and to regional destinations beyond. The planned corridor will extend from Prairie City Road on the west to the southeast corner of the Plan Area at the juncture of White Rock Road and Placerville Road (see Figure 5.1).

Additional transit corridors not included in the FPASP but either directly adjacent to it or located nearby include the proposed Capital Southeast Connector (White Rock Road), a multi-modal transportation corridor proposed by the Elk Grove – Rancho Cordova – El Dorado Connector Authority to ease Highway 50 congestion and to provide a direct link between the communities of El Dorado Hills, Folsom, Rancho Cordova and Elk Grove. Additionally, a third proposed transit corridor is the Iron Point Road corridor identified in the previously completed and adopted Folsom El Dorado Corridor Transit Strategy Final Report.

5.2 FIXED ROUTE BUS SERVICE

Three types of fixed route bus service are recommended for the Plan Area. Express or limited bus service, utilizing the Plan Area transit corridor, will provide direct regional service to downtown Sacramento and other regional locations (see Figure 5.2). Circulator bus routes, utilizing the transit corridor and other Plan Area streets, can provide links between Plan Area neighborhoods and commercial centers as well as employment centers and public facilities beyond the Plan Area boundaries including:

- Major employment/activity centers in the City of Folsom including Intel, the Folsom Premium Outlets, the Broadstone and Palladio Shopping Centers, and the Folsom Lake Community College campus.
- Major employment centers in El Dorado County including the El Dorado Hills Business Park and the El Dorado Hills Town Center.
- The existing RT Gold Line light-rail service at either the Hazel Avenue or Iron Point stations.

Shuttle bus service may also be effective in providing Plan Area residents direct high-frequency service to major employers such as Intel or the El Dorado Hills Business Park.

The proposed circulator transit routes shown in Figure 5.2 are conceptual and intended to show the necessary connections needed to serve the major destinations in the Plan Area and beyond. The circulator routes are consistent with the proposed transit corridor. Specific circulator routes may ultimately be shortened to serve more localized land use needs and to supplement the express bus service as it is implemented.

Connections from the Plan Area to the existing Gold Line light rail service will be made either along Easton Valley Parkway to the Hazel Avenue station or by a connection north on either Oak Avenue or Prairie City Road to Iron Point Road and then west to the Iron Point Road light rail station. Connectivity from the Plan Area to El Dorado Hills is proposed to be provided along the Sacramento Placerville Transportation corridor and White Rock Road. This route may ultimately be expanded to provide a circulator loop that connects Saratoga Road, Iron Point Road, Scott Road, and Easton Valley Parkway. An additional leg of this route could also serve the El Dorado Hills Business Park.

5.3 TRANSIT PHASING

Implementation of high capacity express transit service along the Easton Valley Parkway transit corridor cannot occur until significant portions of Plan Area are developed. Sufficient construction in the Plan Area is necessary both to provide funds for the construction of the Parkway and transit corridor and to provide the resident population and employment base along the corridor that is necessary to justify high capacity transit service.

It is anticipated that the early development phases in the Plan Area will rely on Scott Road and Prairie City Road to provide access to the light rail stations and the Folsom Stage Line bus service. A commuter shuttle bus service to the Iron Point light rail station may be appropriate for the early phases of development along either of these roadways. Shuttle bus service could also provide transit service to the Broadstone and Palladio shopping centers, the Folsom Aquatics Center, Folsom Lake College, Intel, Folsom High School, Mercy Hospital, and the Kaiser Permanente Medical Center and to the El Dorado Hills Business Park. A shuttle bus service could initially involve one shuttle bus operated continuously during the morning and evening commute periods.

The construction of potential transit stations on Prairie City Road or Scott Road may be constructed as development and market demand in the vicinity of the station areas dictates.

Completion of significant levels of development in the eastern Plan Area, as well as the extension of Empire Ranch Road south to White Rock Road, may provide the scale of development and infrastructure sufficient to initiate transit service to the eastern Plan Area.

Implementation of high frequency express bus service along the Easton Valley Parkway transit corridor will require at a minimum the completion of the roadway from Placerville Road in the east to Prairie City Road in the west. Ultimately, the transit service along the corridor could be express bus, or bus rapid transit linking either to the Hazel or Iron Point light rail stations or continuing on to the proposed Highway 50 HOV lanes to

downtown Sacramento or other regional locations. Interim transit service from the Plan Area to both Gold Line light rail stations could be provided by commuter shuttle service.

Early implementation of a circulator bus route is recommended along Easton Valley Parkway, Scott Road, Prairie City Road, and Street A. This bus route would link all Plan Area residential areas with the proposed high school, the Regional Commercial Center, the Town Center, and the Prairie City Road Office Park as well as destinations north of Highway 50.

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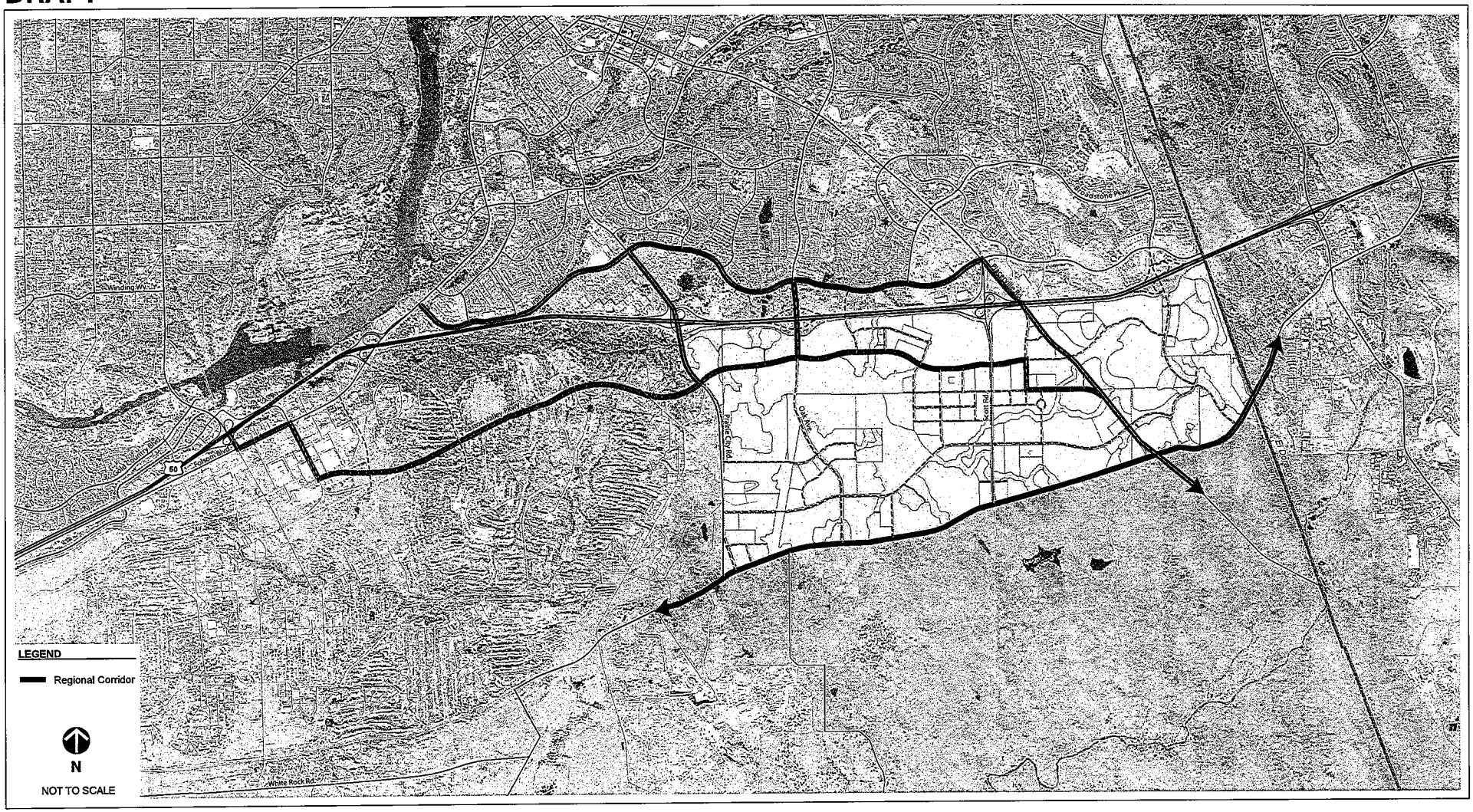

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REGIONAL CORRIDORS
FIGURE 5.1

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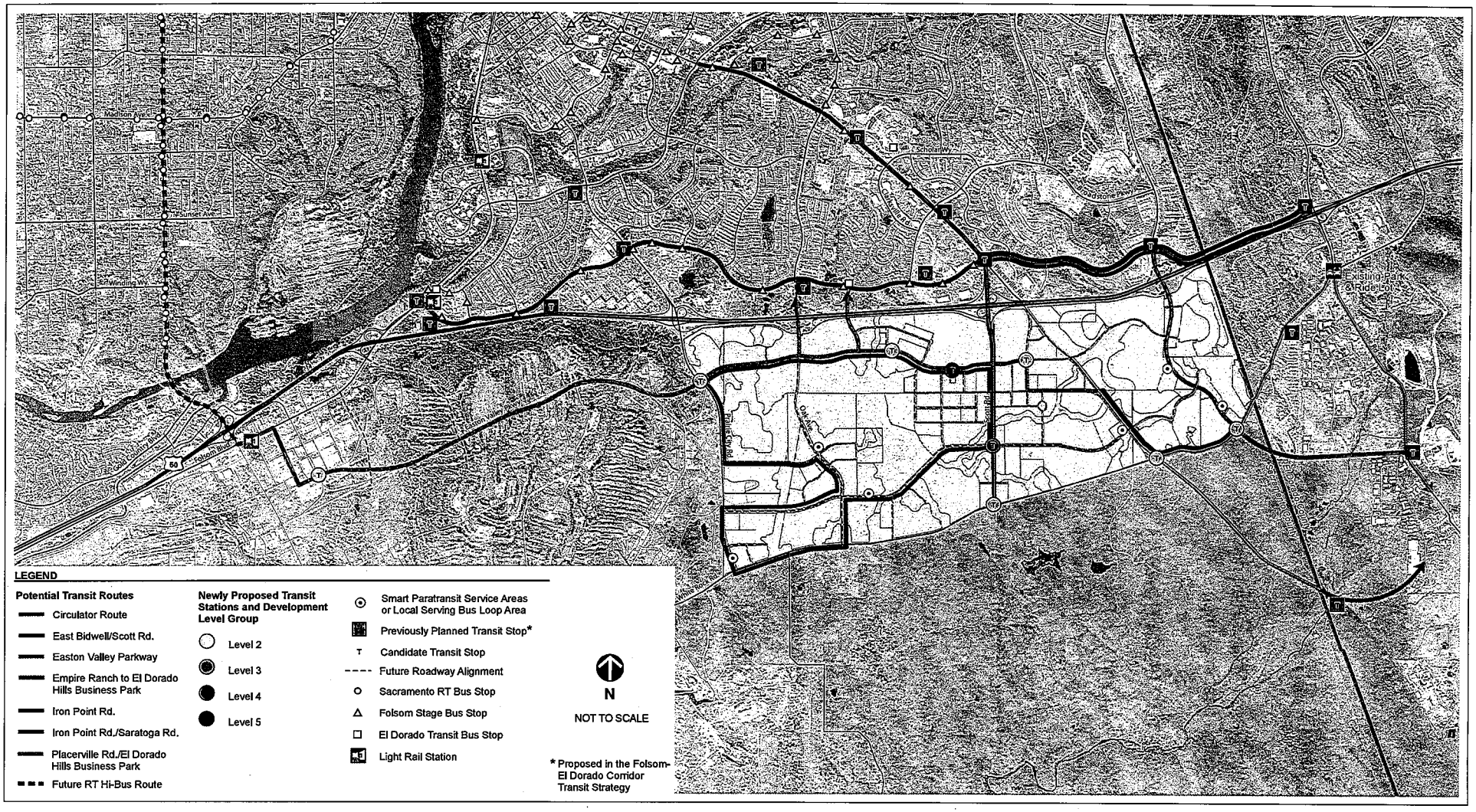

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POTENTIAL TRANSIT ROUTES
FIGURE 5.2

6.0 TRANSIT STATION PLAN

This section of the Transit Master Plan discusses the need and phasing for transit stops, their recommended locations and possible design elements.

6.1 TRANSIT STOP LOCATIONS

Based on the Plan Area Land Use Plan and the transit routes recommended in this Master Plan, the following locations have been identified as potential sites for transit stops (see Figure 4.2).

1) Regional Center/Town Center (Easton Valley Parkway @ Town Center)
2) Entertainment District (Easton Valley Parkway @ Entertainment District Entry
3) Prairie City Office Park (Easton Valley Parkway/Prairie City Road)
4) Scott Road Central (Scott Road/Street A)
5) Scott Road South (Scott Road/White Rock Road)
6) Easton Parkway EAST (Easton Valley Parkway/Placeville Road)
7) White Rock Road Central (White Rock Road at SPTC-JPA rail crossing)
8) White Rock Road East (White Rock Road/Empire Ranch Road)

6.2 TRANSIT STOP DESIGN

The eight potential bus stops identified above are located adjacent to parcels where transit-supportive land uses and a walkable transportation network are planned. These areas are planned to be very urban in character. As such, walking will be the primary mode of travel to these bus stops. Key components of these future bus stops may include platforms, shelters, walkways, fare machines, and passenger signage/communication systems. Local bus routes will share the transit stops with high capacity bus service.

Potential transit stations 1, 2 and 3 are located along the Easton Valley Parkway Transit Corridor. The transit corridor includes a continuous 38-foot wide planted median that eventually, as transit demand increases, will be reduced to 16 feet to allow for the construction of 2 additional lanes for either dedicated or mixed flow regional "Hi Bus" or BRT transit service. The bus stops along this corridor will be enhanced to provide additional design treatments and pedestrian dwell areas.

Potential transit stations 3, 4, 5, 6, and 7 are recommended to be on-street bus stops with shelter facilities to serve the higher volumes of transit passengers anticipated at these locations. Shelters, seating, lighting, and signage may be provided.

Additional on-street bus stops will be provided throughout the Plan Area to serve both shuttle and circulator bus routes. These bus stops may include small shelters, benches, lighting and signing.

APPENDIX A:
BASIC CONCEPTS OF TRANSIT SERVICE

Appendix A provides a description of bus and rail transit modes that are potentially applicable to the Folsom Plan Area. A description of typical transit station types is also provided.

A.1 BUS TRANSIT – FIXED ROUTES

Fixed route bus service follows a predetermined alignment and schedule, and is among the most common transit service provided in suburban communities. Fixed routes may provide service during peak hours or all day. They tend to operate most effectively in areas with higher densities and diversities of land use. Fixed bus routes serve one of the following functions.

- Trunk routes
- Express routes
- Limited Service routes
- Circulator routes
- Shuttle routes
- Trunk Routes

Trunk routes serve as the backbone of the transit system, providing higher frequency service along designated corridors for the full service period. In most cases, trunk routes are located along major arterials. Passengers often access trunk routes from collector bus routes.

Trunk routes provide mobility within individual communities and often provide connections to adjacent jurisdictions. These routes tend to serve stations only at major origins and destinations to minimize travel times and provide a higher level of service. Coordinated transfers between collector routes and the trunk route are provided at the stations.

Express Routes

Express routes provide for long-distance regional trips, with the objective of achieving travel times that are competitive with private automobiles. The primary function is to serve commute trips between two suburbs, or between suburbs and a central city or job centers. Commute services may operate to major employment destinations or to a transit station where passengers access a rail system.

Express routes typically run on a combination of highways and arterials. They can improve operating speeds by taking advantage of high occupancy vehicle (HOV) lanes and other priority treatments for transit.

Express commuter service is provided only during peak periods when the majority of work trips are made. Mid-day travel options are needed for employees using the express routes to increase their willingness to commute on transit. The mid-day options are typically provided by guaranteed ride home programs offered

by Transportation Management Associations (TMAs) and/or other fixed route bus service including trunk and shuttle routes.

Limited Service Routes

Limited service routes typically combine many of the features of trunk routes and express routes, in that they provide high frequency service along congested corridors and only serve a fraction of the stops to allow for increased operating speeds and reduced travel times. Bus Rapid Transit (BRT) is a newer, sophisticated application of limited routes. BRT combines limited routes with innovative bus designs and technologies.

BRT is an elaboration of the express bus concept that incorporates many light-rail transit principles. The Federal Transit Administration (FTA) defines BRT as "a rapid mode of transportation that can provide the quality of rail transit and the flexibility of buses." The Transit Cooperative Research Program (TCRP) has expanded this basic definition to describe BRT as "a flexible, rubber-tired form of rapid transit that combines stations, vehicles, services, running ways, and ITS elements into an integrated system with strong identity."

In many respects, BRT is rubber-tired light rail transit (LRT), but with greater operating flexibility and potentially lower costs. The main features of BRT include dedicated running ways, attractive stations, distinctive and easy-to-board vehicles, off-street fare collections, use of ITS technologies, and frequent all-day service (typically between 5 AM and midnight).

Circulator Routes

Circulators typically link lower density residential neighborhoods with local trip generators (i.e., retail centers, job centers, schools, health services, community centers, etc.) and trunk or regional transit service (i.e., rail lines or trunk, express or limited bus routes). Circulator routes vary significantly (e.g., in their route length, service frequency, and vehicle types) depending on the route context and desired level of service. The buses typically operate on a combination of local, collector, and arterial streets.

Circulator routes are often in a non-linear, loop configuration. Alternatives include a hub-and-spoke route design where several linear routes are linked to transit hubs and/or major activity centers.

Shuttle Routes

Shuttles are similar to circulator routes in that they often serve the same geographic areas with comparable service frequencies and vehicle types. The primary difference is that shuttles typically link a limited number of origins/destinations and don't provide stops at interim locations. Shuttle routes are short, quick routes because they represent only a portion of the passengers overall trip. Shuttles to employment locations are more likely to be privately subsidized or operated, while shuttles serving residential neighborhoods are primarily publicly funded and operated. Shuttles typically operate on a combination of local, collector, and arterial streets.

A.2 BUS TRANSIT – DEMAND RESPONSIVE

Demand responsive service, also called "dial-a-ride," provides curb-to-curb service for the general public and persons with disabilities. The buses are typically scheduled to pick-up and drop-off passengers at designated times in a specific service area. As such, all trips require a call-in request with varying advance notice requirements. Smaller vehicles (i.e., small buses or large vans) that can travel into residential areas and parking lots are used.

Folsom Stage Lines currently operates a Dial-a-Ride service in the City of Folsom. This service is provided for residents who have a physical, developmental or mental disability. It provides a means of commuting with the Folsom City limits. Senior citizens who are 55 years of age or older also qualify for this program. Passengers must register and be given verification that they qualify for ridership before they can ride. Current hours of operation are from 7:30 AM to 5:30 PM, on Monday through Friday.

A.3 RAIL TRANSIT – LIGHT RAIL TRANSIT

Light rail transit (LRT) began as a development of the streetcar to allow higher speeds and increased capacity. LRT can operate in separate right-of-way (i.e., in a roadway median or along the side of a roadway, or in a separate transit right-of-way) or in mixed flow conditions with motor vehicles in a standard roadway travel lane. Service can be provided with a single car or multiple-car (i.e., up to four car) trains. Electric power is provided from an overhead wire.

In 2005, the Sacramento Regional Transit District (RT) opened the Gold Line extension with a terminus station in the Folsom Historic District. The Hazel and Iron Point stations are the closed LRT stations to the Folsom Plan Area. Both stations provide park-and-ride facilities, with 432 spaces at the Hazel station and 216 spaces at the Iron Point station. LRT service is currently provided to the stations on this portion of the Gold Line at 30 minute headways. Weekday service is provided from approximately 5:00 AM until 7:00 PM, with weekend service beginning later in the morning (i.e., 7:30 AM on Saturdays, 10:00 AM on Sundays) and ending at 7:00 PM.

A.4 TRANSIT STATIONS

Transit stations vary greatly and are designed to provide service tailored to the specific needs of the surrounding area and the transit routes serving that area. Station features have common features and elements, but may appear to have unique characteristics. The basic types of transit stations are summarized below.

Bus Stops

The most basic of transit stations, most bus stops are located along streets and consist of a waiting area integrated with the public sidewalk, signage that typically identifies the routes that serve the stop, and a small shelter or bench in some cases. On-street bus stops are located at the near side or far side of intersections, or at mid-block locations. Numerous factors affect the placement of bus stops including whether the bus is operating in mixed traffic or in an exclusive lane, whether signal priority or preemption is provided for the

buses, and the turning movement patterns at the intersection. These factors are not significant factors in determining bus stop locations when buses operate in an exclusive lane. The two bus routes for the Folsom Stage Lines are served by bus stops.

Transit Centers

Are typically facilities where multiple bus routes converge and provide the opportunity for transfers between routes. Intermodal stations that combine light rail with local bus service are also transfer centers. These facilities are normally located wholly or partially off-street and often include a more elaborate and extensive shelter, passenger amenities, and park-and-ride facilities. The Iron Point and Historic Folsom light rail stations are transit centers that combine a light rail stop, bus stops, and park-and-ride lots.

Light Rail Stations

May be on-street, off-street, along a railroad right-of-way, or on a transit mall. The platforms are typically up to 400 feet in length and have either a low or high profile depending on the light rail vehicle type. The stations usually include a shelter over the platform. Most suburban light rail stations have park-and-ride facilities.

The following text provides a more detailed description of BRT stations, BRT station types, BRT station location and spacing, and BRT park-and-ride facilities.

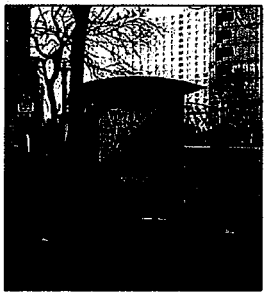
<u>BRT Stations</u>

BRT stations build the critical link between the BRT system, passengers, and other public transit services provided in the region. Different from a typical local bus station, BRT stations have their special role to support a strong and consistent identity for BRT in the community while respecting and enhancing the surrounding urban context. Generally, BRT stations present the following key features.

- Provide high-quality design with passenger amenities (such as shelters, seating, and lighting) to support a positive public perception of BRT service.
- Respect the unique character of neighborhoods and districts and provide the appropriate balance between system continuity and contextual design.
- Integrate with the current and future land use to generate greater patronage and develop design concepts cooperatively with the surrounding community.
- Support an integrated system identity by keeping the transit service visible and recognizable to the community.
- Provide an opportunity to improve streetscapes by incorporating new amenities such as landscaping and recreational trails.

BRT Station Type

According to the *Characteristics of Bus Rapid Transit for Decision-Making* (FTA, 2004), current BRT systems have the following four station types with certain characteristics and range of costs.



Simple Stops consist of a transit stop with simple shelter to protect waiting passengers from the weather. In general, this type has the lowest capital cost that ranges from $15,000 to $20,000 per shelter (does not include cost of platform or soft-costs).

Enhanced Stops provide additional BRT station features such as weather protection and lighting. It also incorporates additional design treatments including walls, high-quality material finishes, and passenger amenities such as benches, pay phones, or trash cans. In general, the cost of an enhanced stop ranges from $25,000 to $35,000 per shelter (does not include cost of platform or soft-costs).

Designated Stations provide more complex BRT station features such as level passenger boarding and alighting, separate connection between platforms or between platform and passenger amenities. In general, the cost of a designated station ranges from $150,000 to $2.5 million per station (does not include cost of parking facilities or soft-costs).

Intermodal Terminals or Transit Centers are the most complex and costly type among the current BRT stations. They usually consist of level passenger boarding, a host of amenities, and transfer facilities between BRT service and other public transit modes (e.g., local bus and rail transit). In general, the cost of this type ranges from $5 to $20 million (or higher) per facility (does not include soft-costs).

BRT Station Location and Spacing

BRT station location and spacing are critical factors to affect patronage and operating speeds. The following principles should be considered to determine BRT station location and spacing.

- BRT station should be located at major passenger concentrations (e.g., high-density residential areas, high-density employment areas, universities and high schools, and recreational centers).
- BRT station should be located near major bus routes and major arterial roadways.
- BRT station should be placed as far apart as possible and the recommended guidelines for BRT station spacing by arrival mode are show below.

- 0.25 – 0.33 miles for pedestrians
- 0.5 – 1.0 miles for bus
- 2.0 miles for automobile

BRT Park-and-Ride Facilities

Park-and-ride facilities should be provided at BRT stations if a large number of potential riders are located beyond the appropriate walking distance or connecting bus service area. Generally, park-and-ride facilities are located in suburban areas mainly serving commuters. The planning and design of park-and-ride facilities should consider the following issues.

- Park-and-ride facilities should be located at a place with good road accessibility, potential expansion ability, and minimized backtracking for patrons.
- Park-and-ride facilities should be provided for every 1.2 to 5.0 boarding BRT passengers per parking space, depending on the level of feeder bus service.
- Park-and-ride facilities should have direct and convenient pedestrian access to BRT station.