

CHAPTER

two

Infrastructure

Designers need to work together with engineers to understand the multiple uses for streets and to place an emphasis on residents rather than vehicles, while acknowledging traffic patterns and street engineering.

Michael Southworth and Eran Ben Joseph
Streets and the Shaping of Towns and Cities (Island Press, 2003), 140

CHAPTER TWO

infrastructure

in this chapter

WATER SUPPLY
STORM DRAINAGE
SANITARY SEWER
ELECTRICAL
NATURAL GAS

THE STREETScape GUIDELINES ARE INTRINSICALLY LINKED to infrastructure practices and policies. In order to create a comprehensive and effective urban design plan, it is essential to provide cost efficient infrastructure systems without compromising the character of the area.

The proposed alignment of new underground utilities has been developed to avoid conflict with existing underground utilities and surface features, such as railroad tracks. The existing utility information utilized to compile these recommendations is based upon field observations and a review of existing infrastructure studies. Utility conflicts may arise during the detailed design process and alternative utility alignments may be required.

For a complete analysis of the project area's infrastructure and estimates of construction costs, please refer to the Appendix in Volume III of this document.

For the purposes of the infrastructure analysis, development intensity of potential opportunity sites was calculated and is reflected in the various maps in this chapter. The following summarizes the assumptions used in the analysis:

- **Development Intensity ‘A’** envisions residential density of 60 du/ac and 0.4 F.A.R for non-residential commercial use.
- **Development Intensity ‘B’** envisions residential density of 60 du/ac and no non-residential commercial use.
- **Development Intensity ‘C’** envisions residential density of 40 du/ac and no non-residential commercial use.
- **Development Intensity ‘D’** envisions residential density of 25 du/ac and 0.6 F.A.R for non-residential commercial use.
- **Development Intensity ‘E’** envisions residential density of 40 du/ac and 0.4 F.A.R for non-residential commercial use.

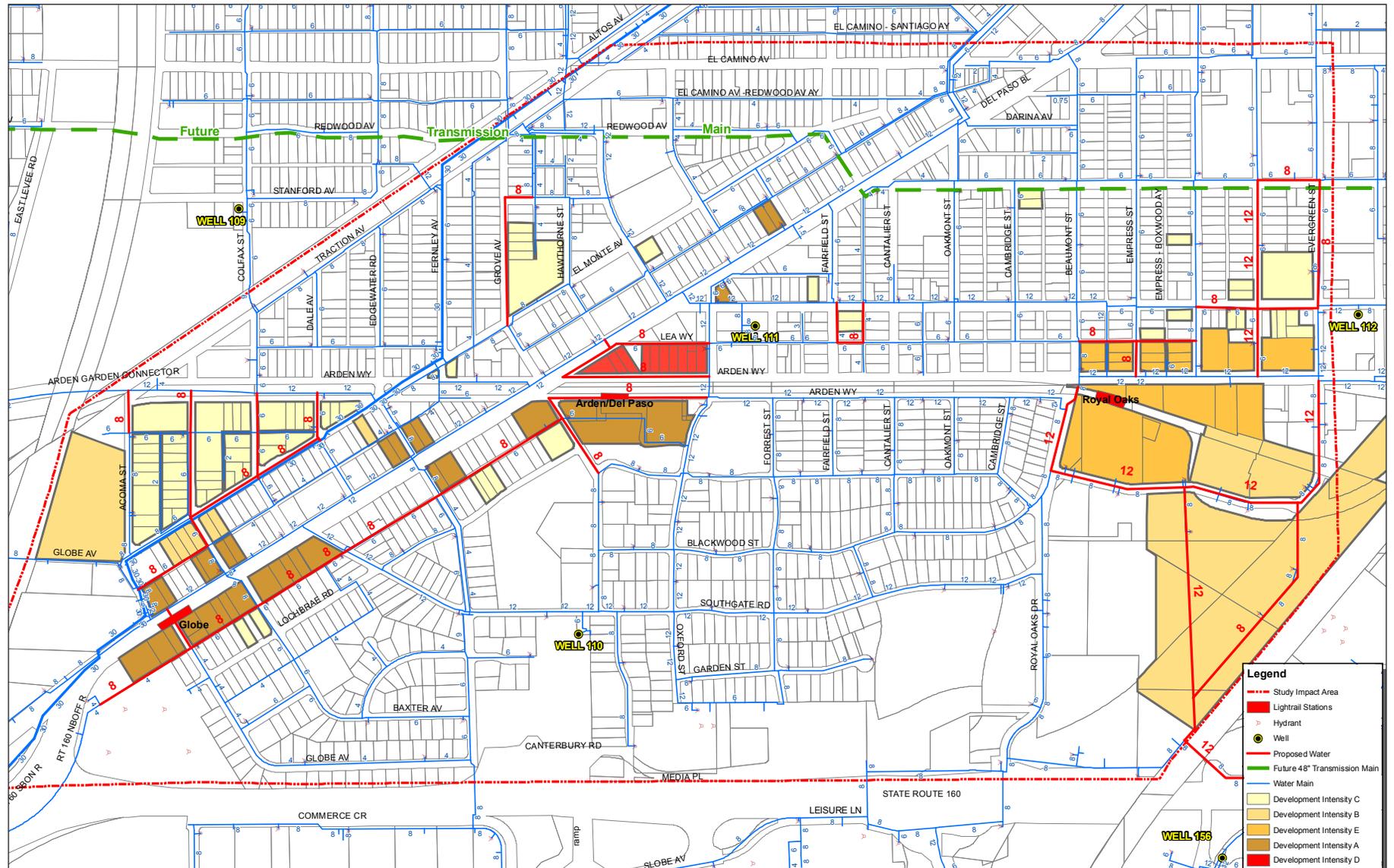
WATER SUPPLY

The Northeast Line Light Rail Stations Plan project area is served by an extensive system of service mains ranging in size from four to eight inches in diameter, which was constructed between the 1920s to 1960s. A 30-inch transmission main serving North Sacramento enters the area at the west end of Del Paso Boulevard and continues through the area northeasterly along Acoma Street, El Monte Avenue, and Fernley Avenue where it leaves the project area following the alignment of the Sacramento Northern Parkway.

The Del Paso Boulevard and Arden Way corridors are both well served by twelve-inch distribution mains, and the Woodlake Neighborhood is also well served by eight- and twelve-inch water mains. However, in the Globe Station area and the Dixianne Neighborhood, the existing distribution system consisting of small four- and six-inch mains is considered undersized to meet the current design fire flow criteria. Extensive modifications of upsizing the existing mains to a system of eight, ten and twelve inch mains are envisioned for both of these areas.

The area south of Royal Oaks consists of a sparse system of eight-inch mains due to the low-intensity parking/storage facility uses that currently exist. This area is expected to need a revised system of larger eight, ten and twelve inch mains if redevelopment of this area occurs. The City Utilities Department has also identified a need for a future 48-inch transmission main within the project area.

FIGURE 2.1 PROPOSED WATER UTILITIES



STORM DRAINAGE

The North Sacramento area has drainage issues ranging from street and property flooding to possible future flood hazard and public safety hazards. Existing systems are inadequate to convey runoff from the area to the creeks and canals. Facility improvements that have been suggested to improve these problems include flood proofing, upgraded and new pipelines, pump stations, and new detention basins.

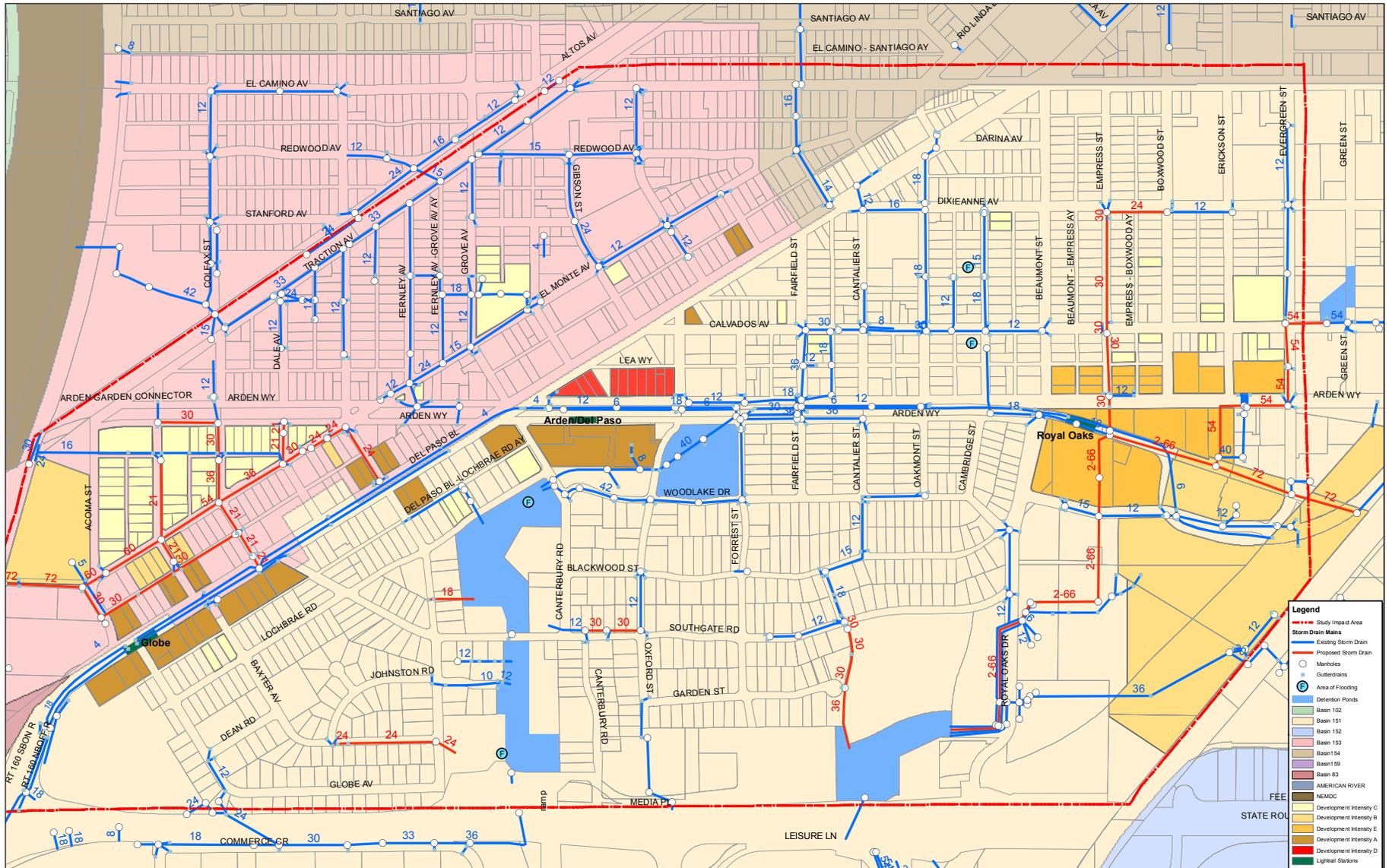
The Northeast Line Light Rail Stations Plan project area is located primarily within two separate drainage basin areas, basins 151 and 153. These two Basins are generally divided along the Del Paso Boulevard corridor. The Plan area northwesterly of Del Paso Boulevard drains to sump 153 located near the western end of Stanford Avenue which pumps into the Natomas East Main Drainage Canal. The Plan area southeasterly of Del Paso Boulevard drains to Sump 151 located east of Lathrop Way which pumps into the American River. The project area also cuts across small portions of basins 83 and 154.

The City has identified Basin 151 as one of the critical areas needing infrastructure improvements to reduce the flooding in the Basin area. Although some improvements have been made, Basin 151 still requires upgrades in its

water quality/flood control basins, flood proofing existing structures, and further collection system upgrades to reduce the level of flooding in the area by providing an improved drainage system. The City has not defined basins 83, 153, and 154 as critical areas needing infrastructure improvements at this time.

The proposed improvements within the Northeast Line Light Rail Stations plan area are not expected to increase the drainage runoff from the area since most of the proposed development areas already contain a high percentage of impervious surfacing from existing buildings and paved parking lots.

FIGURE 2.2 STORM DRAIN PLAN



SANITARY SEWER

The Northeast Line Light Rail Stations Plan project area is primarily served by two separate Sewerage Collection Basins, Basins G304 & G305. A small portion of the northeast corner of the project area is located in Basin G303.

The existing collection systems within the project area range in size from six inches to eighteen inches in diameter. These mains are generally located within the streets or alleys. Exceptions to this include portions of the Globe Station and Woodlake areas where some sections of the service mains are located at the rear property line between two adjacent residential homes.

A 72-inch County interceptor main crosses the project area in a north-south direction entering from the north at the El Camino Avenue/Del Paso Boulevard/Beaumont St. intersection, following Beaumont St. south and then along Royal Oaks Drive south until it crosses Highway 160 and leaves the project area.

The development of the project area is expected to increase the sanitary sewer flows due to the increase in the residential, office, and commercial uses. The addition of nearly 4,000 new residences and over 450,000 square feet

of non-residential uses will overwhelm the existing sewer system.

Significant improvements together with the rerouting of the existing system will be needed to insure adequate capacity for the proposed development.

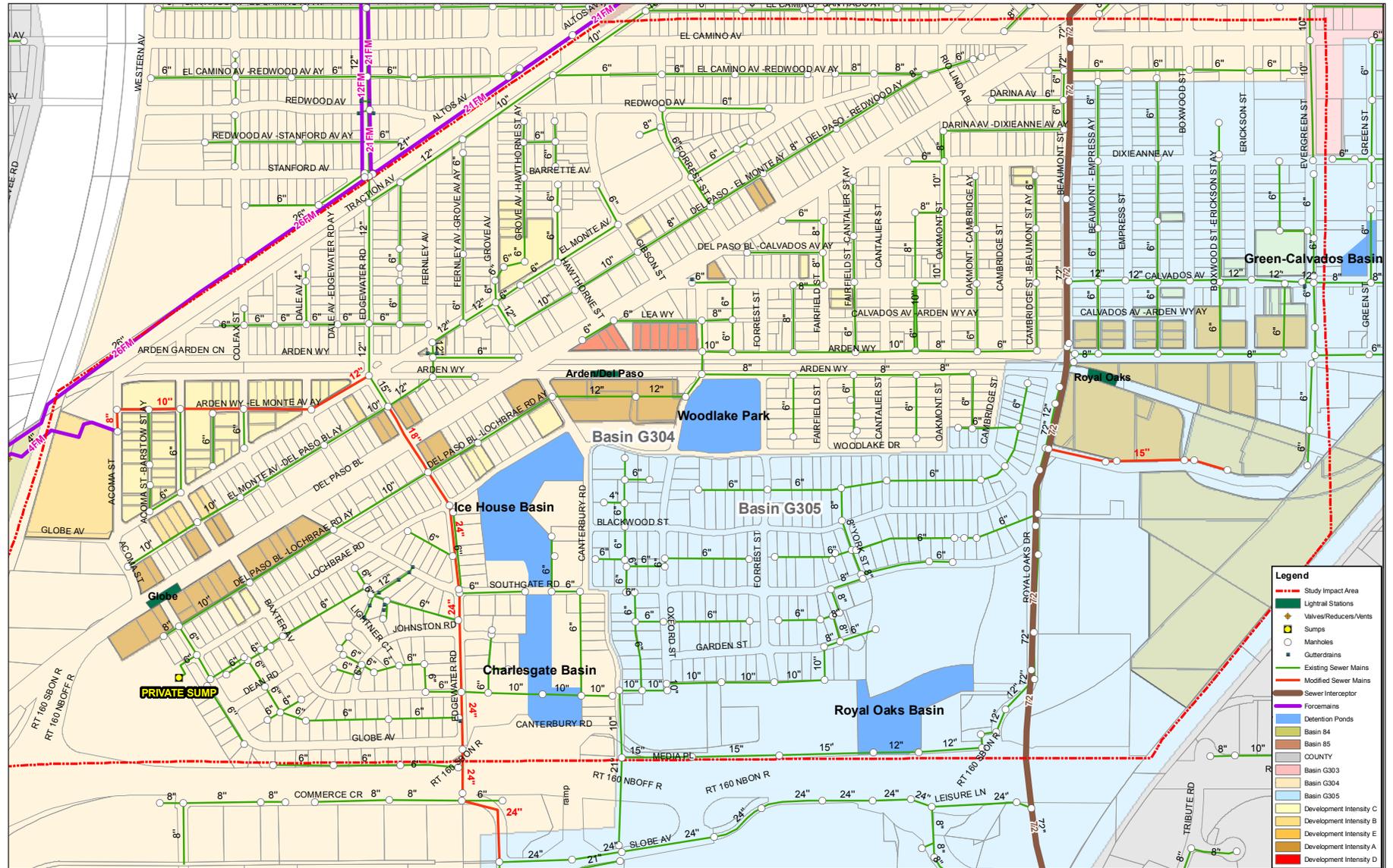
G304

With the proposed development in the Globe and the Arden/Del Paso stations areas, the main collection pipeline located in Edgewater Road will need to be upsized from the current 15- to 18-inch pipeline to a proposed 18- to 24-inch pipeline. The Del Paso Boulevard corridor is well served by an existing ten-inch main located in the Del Paso Blvd./Lochbrae Rd. Alley.

G305

The main collection pipeline located in Royal Oaks Drive does not have sufficient capacity for the increased flows from the proposed development around the Royal Oaks Station. Rather than upsize the entire length of the main pipeline, it is instead recommended to create a new direct connection to the 72-inch interceptor at the Royal Oaks Drive/Evergreen Street intersection.

FIGURE 2.3 SEWER PLAN



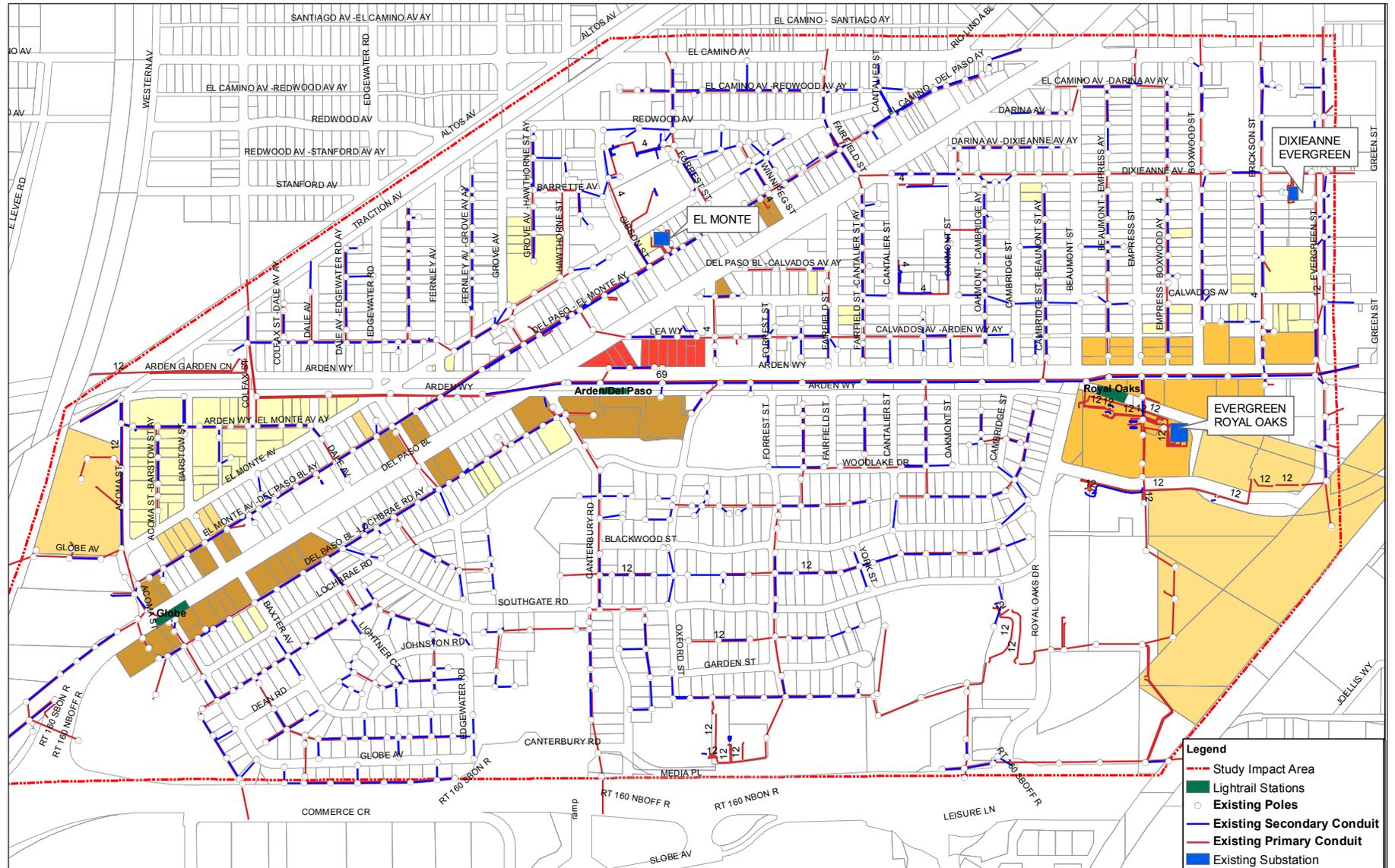
ELECTRICAL

There are three existing substations located within the plan area. The El Monte Substation is located on the southerly side of El Monte Avenue between Gibson Street and Forrest Street. This substation is a 69-4kV substation. The Dixianne – Evergreen Substation is located on the southerly side of Dixianne Avenue between Erickson Street and Evergreen Street. This substation is also a 69-4kV substation. The Evergreen – Royal Oaks Substation is located south of Arden Way between Evergreen Street and Royal Oaks Drive. This substation is a 69-12kV substation and feeds the majority of the project area via an existing overhead/underground distribution system. The portion of the Plan area north of Arden Way is generally served by a 4kV overhead distribution system.

Based on proposed land use projections for the Northeast Line Light Rail Stations Plan, Sacramento Municipal Utility District (SMUD) estimates that the additional electrical load from development may be approximately 15 to 23 megawatts at final build out. With typical system improvements, SMUD's distribution system should be able to handle this new load growth.

The Evergreen - Royal Oaks Substation is located on a 0.2-acre parcel just south of the Light Rail Tracks within the middle of proposed development for the area. The development of the area around the substation will need to include proper building setbacks, screening, etc. to the station as well as the transmission lines leading to the station

FIGURE 2.4 ELECTRICAL PLAN

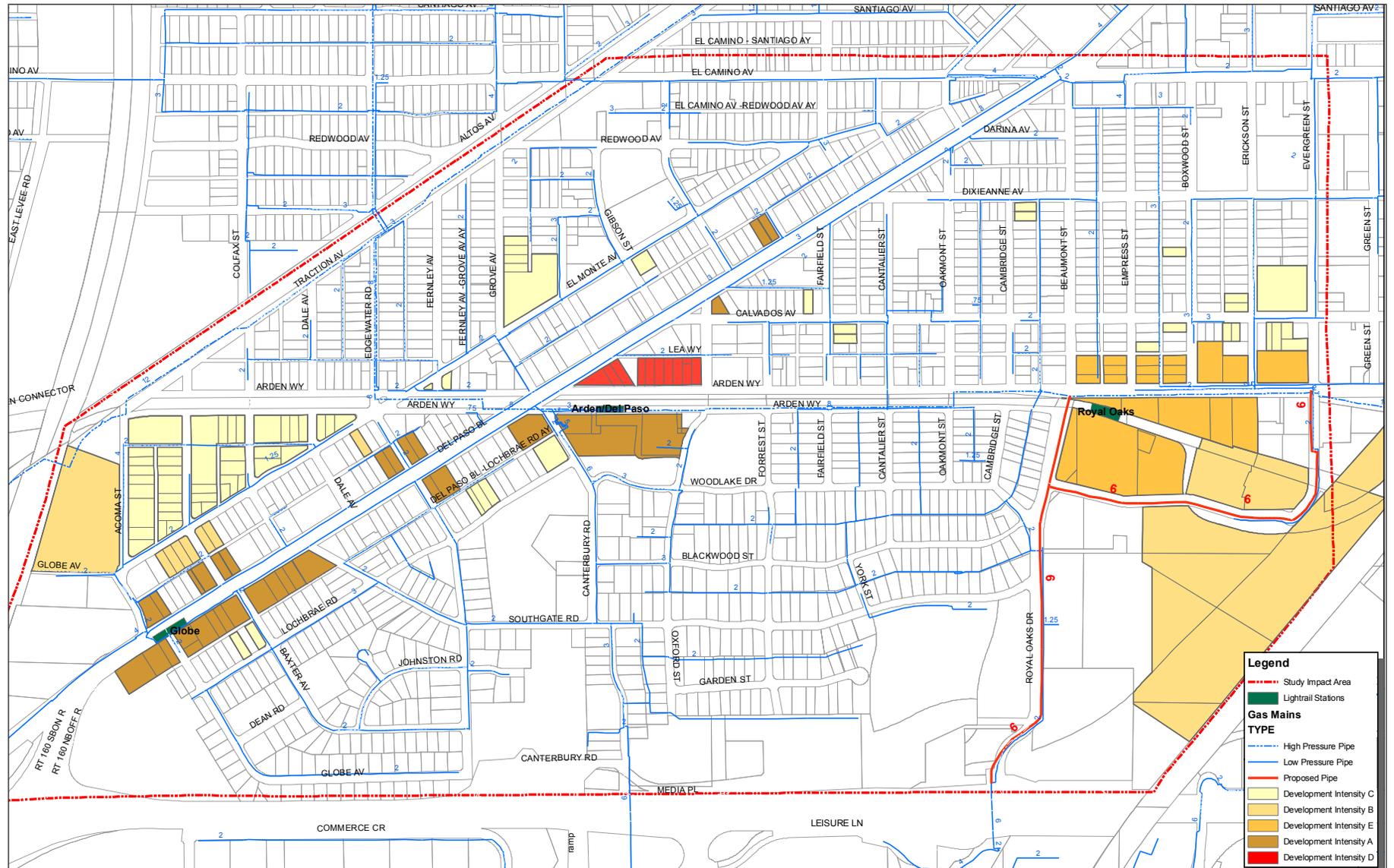


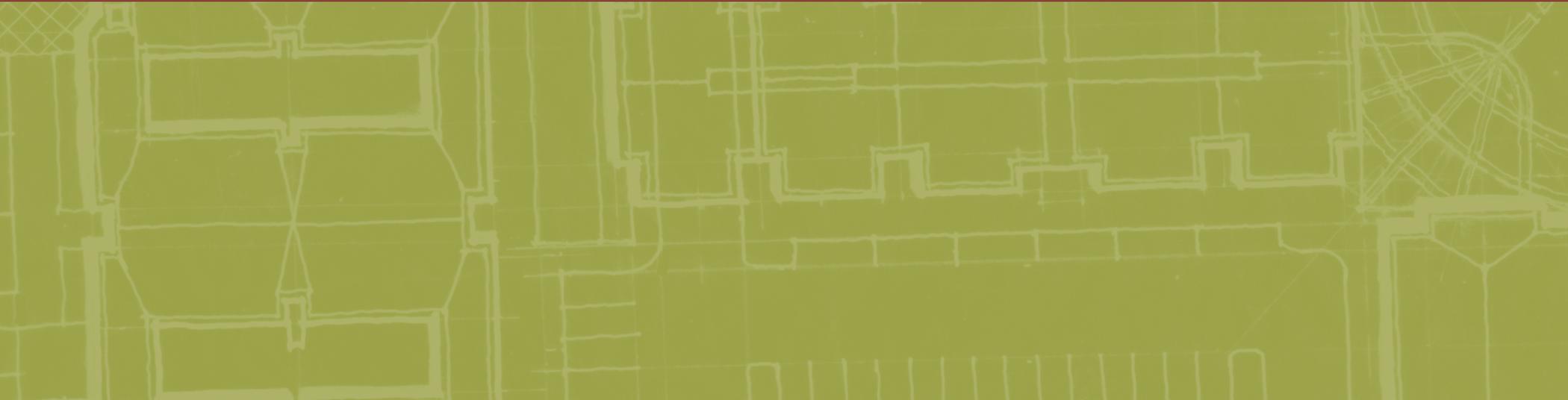
NATURAL GAS

The gas system in the Northeast Line Light Rail Stations Plan project area is generally served by a grid system throughout the project area. A 12-inch transmission main is located on the west side of the project area running along the old railroad/Traction Avenue corridor. An 8-inch high pressure main crosses the project area connecting to the 12-inch main at Edgewater Road, where it turns and follows the Arden Way corridor eastward and leaves the project area at the eastern boundary. Several small diameter (2-4 inch) connections exist in the surrounding residential neighborhoods.

Pacific Gas & Electric, the natural gas supplier in the area, has stated that the existing gas infrastructure in the Line Light Rail Stations Plan area should be adequate to serve the level of development proposed in the majority of the Globe Station and Arden/Del Paso Station areas with relatively minor additions, unless an unusually large gas user locates in the area. In that case, facilities will be upgraded as necessary in order to accommodate the user. However, with the development of the Royal Oaks Station area, it is anticipated that a new transmission main loop will be needed to serve the development south of the light rail tracks

FIGURE 2.5 NATURAL GAS PLAN





Moore Iacofano Goltsman, Inc.

800 Hearst Avenue

Berkeley, California 94710

510 845 7549

www.migcom.com