

SIERRA VISTA SPECIFIC PLAN TECHNICAL DRY UTILITIES STUDY

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INTRODUCTION

The Sierra Vista Specific Plan encompasses roughly 2064 acres in West Roseville. It's bordered on the north by the Westpark project, east by Fiddyment Road and the south by Baseline Road. At buildout, the project will have roughly 6655 low, medium and high density residential units, 215 acres of commercial, retail and business professional, and 70 acres of public facilities.

Natural gas, telephone, electric and cable television services will be extended in joint trenches along all the major roads, making these services available to all parcels in the project. The joint trenches will be placed in public utility easements (PUE's) parallel and directly adjacent to the road rights of way. All new distribution facilities will be underground, with the exception of facilities such as transformers, switches and other pedestals and pad-mounted equipment. Roseville Electric (RE), Pacific Gas & Electric Company (PG&E), SureWest Telephone, AT&T and Comcast Communications will serve the site and have been provided with Preliminary Land Use Plans and other pertinent information for their long range planning purposes.

EXISTING FACILITIES

An electric transmission corridor extends roughly east-west through the development. It contains two 230 thousand volt (kV) Western Area Power Administration (WAPA) transmission lines, two Sacramento Municipal Utility District (SMUD) 230 kV transmission lines and a RE 60 kV transmission line. There are no planned changes to this current arrangement.

A PG&E 12 kV overhead electric line (three phase mainline) extends north-south along the west side of Fiddyment Road. It will be relocated and converted to underground per PG&E's filed tariffs (Electric Rule 20) as development in Sierra Vista takes place. The overhead pole line also contains a Sprint fiber line (trunk and toll), which will be relocated and converted to underground concurrent with the PG&E conversion. We anticipate Roseville Electric (RE) will also plan an underground electric 12 kV mainline circuit along this same stretch, though it will be placed in a separate but parallel trench.

A PG&E ten inch steel high pressure natural gas distribution feeder main (DFM) was recently extended north up Fiddyment Road adjacent to the site, west on Pleasant Grove Blvd and then north up West Side Drive to serve the new Roseville Energy Center. It currently operates at a maximum allowable operating pressure (MAOP) of 500 pounds per square inch gauge (psig).

PG&E has existing overhead electric distribution circuits (12kV) running to pumps and a few farmhouses within the project site, though most of these will be removed as idle once service is terminated.

Both SureWest and AT&T have existing overhead wood pole distribution facilities onsite, most serving farmhouses. Most will be removed as idle lines once service is terminated. Phone lines not removed will either relocated or converted to underground per AT&T's filed tariffs (Rule 32).

PROJECT PHASING

The Sierra Vista Specific Plan Area is designed to allow the backbone infrastructure to be phased. Phases may be developed in any sequence provided public safety, health and welfare issues are addressed, subject to the approval of the City of Roseville. Parcel specific improvements will be determined with small lot tentative maps or subsequent entitlements.

ELECTRIC SERVICE

Roseville Electric (RE) will supply electric service to the Plan Area. Peak electric demand at buildout is estimated at approximately 52.1 megavolt amperes (MVA).

Public TOTAL Commercial **Business Schools** LAND USE Residential **DEMAND Facilities** Mixed Use **Professional** (MVA) 6655 Units 187.9 Acres 27.3 Acres 57.6 Acres 0.7 0.3 1.7 24.0 5.8 Average Demand 15.5 52.1 13.4 1.9 4.1 31.4 Peak Demand

Table 1 -- Estimated Electric Demand at Buildout (MVA)

An electric substation is planned on a .8 acre site (Parcel PQP-3) on the east side of West Side Drive between Roads "A" & "B", north of and adjacent to the existing transmission corridor. The substation will have a provision for 2-46 MVA banks (92 MVA) and 14 underground 12 kV mainline circuits. No water or sewer services are required, though the substation will require a telephone service which will be available once final improvements have been installed in West Side Drive.

The 60 kV overhead transmission line that extends south into the Plan Area along the east side of Westside Drive will loop in and out of the new substation, then continue south and east in its current alignment where it completes its loop with the Fiddyment Substation on Fiddyment Road north of Baseline Road.

RE's neighborhood substations are typically looped with 60 kV. Additionally, mainline circuits from one substation typically interconnect with mainline circuits from neighboring substations. So the distribution systems emanating from one substation to some degree support or back up the distribution systems emanating from neighboring substations.

RE indicates that some excess capacity currently exists in its electric distribution system in the vicinity of Sierra Vista. However, how long that excess capacity remains available will depend upon the pace of construction of the West Roseville Specific Plan (WRSP) to the north and the phasing of Sierra Vista. RE will continually monitor its circuit loading and will start construction on the new substation so that's its completion and energization will occur in advance of its being required. To assure the substation site is available for RE's use at its convenience, the grant deed for substation parcel PQP-3 will be dedicated and transferred to the City of Roseville upon recordation of the large lot final map.

Each 12 kV mainline circuit has a design capacity of roughly 8 megawatts (mW) (depending on conductor size, amperage capacity and other factors), though is designed to carry only 5

to 6 mW. This type of design allows for future load growth and provides RE with a high degree of reliability. Should a circuit be lost, the load from the damaged circuit can be shed to other nearby circuits, thereby maintaining the integrity of the overall distribution system and keeping as many customers in service as possible. Once repairs are made, the load is shifted back to the original circuits so the additional capacity is again available should an emergency arise.

12 kV light wire circuits will be looped off the mainline circuits via pad mounted switches, and will distribute electric service within the various commercial and residential parcels in the development. Transformers will be placed within the residential neighborhoods and at commercial sites, and will provide service to the individual users.

Street lighting will be provided along all public streets as part of the roadway frontage improvements. All electric and street light facilities will be designed and constructed to the City's current standards.

RE recently instigated a new "backbone fee" that is meant to be collected at the permit stage for new projects. The backbone fee will be in addition to the developer's costs for the electrical distribution system that serves the specific project in question. Its purpose is to offset the proportional costs of transmission lines and substations necessary to serve the area.

NATURAL GAS SERVICE

Pacific Gas & Electric Company (PG&E) will provide natural gas service to the Plan Area upon request and in accordance with the rules and tariffs of the California Public Utilities Commission (CPUC). Peak gas demand at buildout is estimated at approximately 472 thousand cubic feet per hour (MCFH).

Table 2 -- Estimated Natural Gas Peak Demand at Buildout (MCFH)

LAND USE	Residential 6655 Units	Commercial Mixed Use 187.9 Acres	Business Professional 27.3 Acres	Schools 57.6 Acres	Public Facilities	TOTAL DEMAND (MCFH)
Peak Demand	332.8	107.6	15.6	10.3	5.8	472.0

The Plan Area is assured of a plentiful supply of natural gas: A natural gas transmission main (30" steel) is planned for the north side of Baseline Road parallel to and adjacent to the project. Construction is scheduled to begin in 2009. The new line will operate at an MAOP of 975 psig.

Service will be extended to the various parcels within the Plan Area from existing plastic gas mains (50 to 60 psig) on Fiddyment Road and Pleasant Grove Blvd, which are currently fed from two gas regulator stations: One is located on Blue Oaks at Industrial, the other is on Baseline Road east of Fiddyment Road. It's possible that a third natural gas regulator station will be required to serve the Plan Area. Parcel OS-13 has been identified as a possible site (20' x 80' easement required) for a future natural gas regulator station due to its proximity to the proposed 30" natural gas transmission main planned for Baseline Road.

Eight inch, six inch and four inch plastic feeder mains will distribute natural gas through the Plan Area via the major roads. Distribution lines and services will extend off the mains and will be sized based upon the anticipated gas loads of the various parcels. Residential neighborhoods will likely be sized with two inch plastic distribution mains and half inch services.

TELECOMMUNICATIONS SERVICE

A telephone exchange boundary extends north-south through the Plan Area from the northernmost point at which Market Street enters the development. SureWest Telephone is the incumbent local exchange carrier (ILEC) east of this boundary, and will be the primary provider of telephone service in the eastern portion of the development. AT&T is the ILEC west of the boundary. The ILEC's will provide telephone service upon request and in accordance with the rules and tariffs of the CPUC.

SureWest is also extending facilities into the western portions of the Plan Area, where it will compete for service with AT&T as a competitive local exchange carrier (CLEC). Comcast Communications is the franchised cable television provider for this area and will serve the entire development. SureWest, AT&T and Comcast will each be installing fiber backbone systems, so the project is assured of an advanced technological infrastructure.

All three utilities will offer a "triple play" of services (dial tone, video and internet access), so residents of the development will enjoy the benefits of competition from the three telecommunications providers.

SACRAMENTO AREA VOLTAGE SUPPORT

Western Area Power Administration (WAPA) determined that the existing transmission lines in the greater Sacramento Area had reached their maximum power transfer limits for serving the area's energy needs. In order to correct the problem, it proposes to construct approximately 31 miles of new, double circuit, 230 kV transmission lines between its O'Banion Substation and the area just south of SMUD's Elverta Substation, and reconstruct SMUD's existing 230/115 kV transmission line between SMUD's Elverta and Natomas substations.

A number of alternative routes for the 230 kV line were studied and public hearings held. One of those alternative routes, Segment 2C2, crosses north-south through the western portion of the Sierra Vista Specific Plan. Based on the results of the investigations, Alternative B was selected as the environmentally preferred action alternative so the proposed new 230 kV transmission line will not cross Sierra Vista.

INCLUSION OF URBAN RESERVE AREAS IN UTILITY STUDIES

Potential residential and commercial development of the Urban Reserve (UR-1, UR-2 and UR-3) is not included in the Dry Utilities Master Plan Study for Sierra Vista. However, a request has been made to determine the impacts on the dry utilities should they be included.

<u>Electric</u>: The electric distribution system serving Sierra Vista will be interconnected with existing facilities north and east of the Plan Area. The new substation will remain at its present location and be built and sized to accommodate the future Urban Reserve (UR) areas regardless of whether or not they are developed concurrent with Sierra Vista.

Since the new RE "backbone fee" is based on the number of residential and commercial units (and not gross acreage) under a particular permit, the UR acreage should not impact backbone fees for the overall project.

Without the UR areas developing concurrently with Sierra Vista, it is anticipated that the annual absorption rate of residential and commercial units will likely be slower, which may impact the timing of the RE substation, or at least the timing of when the second substation bank will be needed.

With the additional residential, commercial, elementary school and public facilities in the UR added to the project, the peak electric demand at buildout is estimated at 68.4 MVA.

Table 3 -- Estimated Electric Demand at Buildout w/ Urban Reserve Included

LAND USE	Residential 9147 Units	Commercial Mixed Use 238.9 Acres	Business Professional 27.3 Acres	Schools 67.6 Acres	Public Facilities	TOTAL DEMAND (MVA)
Average Demand	21.3	7.4	0.7	0.4	2.0	31.7
Peak Demand	42.9	17.0	1.9	1.7	4.9	68.4

Inclusion of the UR areas in the project increases the peak electric demand for the development by 16.3 megawatts. A reasonable estimate is that at least 3 of the 14 - 12 kV mainline circuits from the new substation will need to be dedicated to serving the future UR areas.

Natural Gas: As noted above, the natural gas system will be extended into the Plan Area from Fiddyment Road and Pleasant Grove Boulevard. Distribution facilities (6" and 8" plastic) will be sized to accommodate the future UR areas whether or not they are developed concurrent with Sierra Vista. In addition to pipe size, this may also increase the required joint trench size/share.

With the additional residential, commercial, elementary school and public facilities included in the study, the peak gas demand at buildout is estimated at 629 MCFH.

Table 4 -- Estimated Gas Peak Demand at Buildout w/ Urban Reserve Included

LAND USE	Residential 9147 Units	Commercial Mixed Use 238.9 Acres	Business Professional 27.3 Acres	Schools 67.6 Acres	Public Facilities	TOTAL DEMAND (MCFH)
Peak Demand	457.4	136.9	15.6	12.5	6.8	629.0

Inclusion of the UR areas in the Plan Area increases the peak natural gas demand for the development by 157 MCFH.

<u>Telecommunications:</u> SureWest and Comcast facilities will serve the UR areas once they are developed. Conduit infrastructure of both providers will be sized to accommodate the future UR areas whether or not they are developed concurrent with Sierra Vista. This will very likely also increase trench size.